

EDULOG CONFERENCE MANUAL



edulog

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ABOUT THIS MANUAL

The edulog National Conference Manual is a reference manual for all edulog users, from new users to advanced users. This manual guides you through processes for working in edulog. Graphics and data contained in this manual, however, will not always appear identical to what you see on your computer screen.

This section describes terminology and conventions used throughout this manual. If you need more information on edulog terminology, refer to the glossary included at the end of this manual, edulog's online Help, or the edulog Tutorial.

EDULOG TERMINOLOGY

This section provides a few terms commonly used in edulog. Those terms are:

Stop - A stop is a distinct geographical location where buses stop during the day to pickup or drop-off students. A single bus stop can service multiple schools. A stop is identified by a Stop ID number.

Stop Service - A stop service refers to an individual use of a stop (such as when transporting students to school Monday through Friday). A stop has only one location, but can have many stop services associated with it. A stop, for example, could be used to pickup students in the morning and drop them off in the afternoon: one stop with two stop services. A stop service has an ID number that uses the primary stop's ID with a three-digit extension. A primary stop with the ID 200.002 may have stop services with IDs 200.002001 and 200.002002.

Run - A run is a sequence of stops that a bus makes when transporting students to or from school. A run is identified by a Run ID number.

Route - A route is the sum of the activity for an individual bus during a day. A route is defined by a set of runs that a bus services during the day.

For additional terminology, please see the glossary on page 807.

CONVENTIONS USED IN THIS MANUAL

This section describes the conventions used throughout this manual, including language and typeface conventions.

Language Conventions

Some words and phrases have specific meaning in this manual. Those words and phrases are:

Click Click means to press a mouse button once. You will usually press the left mouse button. You may occasionally be instructed to click the right mouse button, like identifying objects on the map.

If your mouse keys have been configured for left-handed use, exchange left for right and right for left when reading this manual.

Double-click	Double-click means to press the left mouse button twice in rapid succession.
Drag	Drag means to press the left mouse button and hold it down while moving the screen pointer with the mouse.
Right-click	Right-click means to press the right mouse button.
Select	Select means to highlight an item in a list or on the map by clicking on it. You can select items by pointing and clicking or by pressing the arrow keys on the keyboard.
Choose	Choose means to pick a specific command, tool, or button. If you want to choose a tool, like the Graphic Selection tool, place the pointer over the tool and click. If you want to choose a button, you can click it with the left mouse button or press TAB until you highlight the button (its border appears darkened) and press ENTER.
Point	Point means to move the mouse so the screen pointer is at the indicated location.

Typeface Conventions

This manual includes the following typeface conventions:

Body Text	Body text is Times New Roman, like you are reading now. Body text is the basic typeface, which introduces concepts and gives explanations.
User Inputs	User inputs appear in heavy typeface so that they stand out on the page, like user input. They instruct you to choose commands, enter information, and make choices. If the manual, for example, instructs you to, “enter 600 in the Riding Time Maximum field,” you need to type 600 in the indicated field. Another example is “Choose OK.” In this case, the current window contains a button labeled “OK.” Click that button to confirm the operation you are performing. User input that appears between angle brackets refers to data you must provide. If the manual, for example, instructs you to, “enter the <last name> in the Last Name field,” you should enter a last name in the Last Name field.
System Responses	System responses appear in an italicized version of the body text typeface, like, “ <i>The system displays the Student Data Entry Form, commonly known as the Students Tabular dialog box.</i> ” If the purpose of the instruction is not apparent, the system response provides a brief explanation.

Keyboard Input

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This manual may instruct you to use the keyboard to perform various tasks. You will need to type words, characters, or numbers in a field. You may also be instructed to press individual keys or a combination of keys on your keyboard to perform a function. The name of the keyboard key appears in small capital letters, like ENTER. This typeface convention indicates the “Enter” key on your keyboard. You need to look for a key with the word “Enter” printed on it. Depending on your keyboard, the key could say “Enter” or “Return,” and it may have the ↵ symbol.

VERSION INFORMATION

The information in this manual refers to edulog version 10.6.

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Beginner Track
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EDULOG OVERVIEW

This section provides you with an overview of edulog, including applications for the client and server as well as an overview of the edulog Workspace.

EDULOG CLIENT SOFTWARE

The edulog client software consists of the following applications:

Edulog (aka Eltransclient)	edulog allows you to create, modify, and delete school, student, stop, run, and route data. It also gives you access to reports and vehicle data.
Maris	Maris allows you to create, modify, and delete geographic data, which includes the geocode and boundary information. Maris is the edulog mapping tool.
EMU	edulog Maintenance Utilities allows you to perform maintenance as a means of updating transportation data after you have made changes to the geocode. EMU also provides you with the ability to modify data with an automated process (that is, a batch). For information on specific EMU utilities, see “Utilities in Emu” on page 759.
ElResetBell-TransClient	Resetbelltransclient allows you to change the bell times and windows for schools.
ElPlot	ElPlot allows you to create plots of student, transportation, or geographic data, which can be sent to a printer or a plotter.
GeBndPlan	GeBndPlan is used for student/boundary analysis. You can use this application for developing or analyzing possible boundary changes.
Reports	Reports allow you to run a variety of pre-defined reports or to create your own reports. You can also access reports through edulog.
Vehicle	Vehicle is a separate database that you can use to store vehicle and driver data. This application is used in conjunction with the edulog Special Education package.
Calendar	Calendar allows you to designate the days in a year that transportation is in operation. This feature relates to the Transact application.
Transact	Transact is an accounting package for the edulog Transportation System.
Buildtxt	Buildtxt allows you to create and modify various files used by some of the utilities in EMU.

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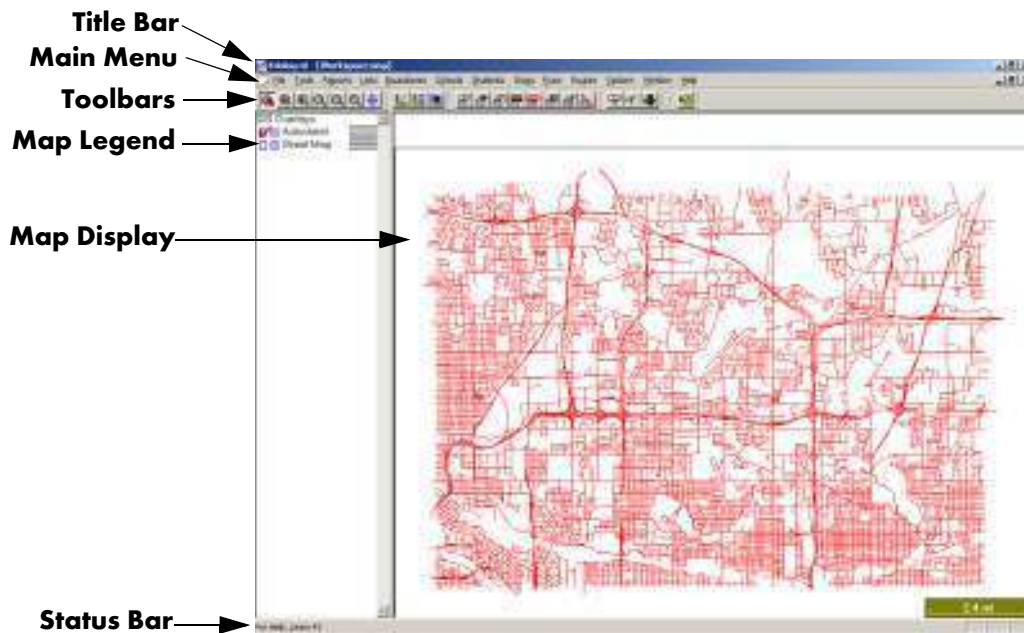
EDULOG SERVER SOFTWARE

The edulog server software consists of the following applications:

Eluise	Education Logistics Universal Information Service Executor (Eluise) acts as the name server and executor for all network-based edulog systems. Eluise is the communications manager between the client and server applications. Eluise must always be running on the edulog server machine for any access to the edulog programs. Eluise may be configured to run as a Windows service.
ElTrans-Service	ElTransService is an application on the server that allows edulog to connect with the database.
EMUSrv Service	EMUSrv is an application that executes the utilities you scheduled in EMU.
Resetbell-transclient-	Resetbelltransservice is an application on the server that allows Resetbelltransclient to connect with the database.
BPServer	BPServer is an application on the server that allows GeBndPlan to run on the workstations. You can define the fields you want to view while in Boundary Planning. You can run BPServer minimized on the server or set it up to run as a Windows service.
Autostreeter	Autostreeter layers are a picture taken at a point in time. After any geocode is added, moved, or deleted, you must update the Autostreeter layers to view the changes. This update is done through scheduled maintenance. Autostreeter layers have the ability to show street names as part of the layer.

THE EDULOG WORKSPACE

When you first open edulog, the system displays the edulog Workspace:

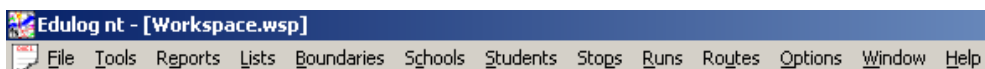


The edulog Workspace consists of the following areas:

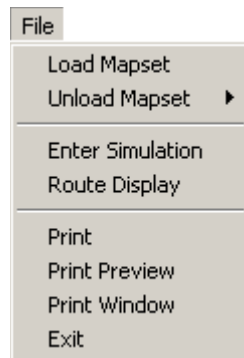
Program Control	This area consists of the title bar, main menu, and toolbars. It displays information about the application window and provides access to the commands you use in edulog.
Workspace	This area is the main portion of the window. It consists of the map legend and the map display. The map legend lists any available layers of data displayed on the map. The map display is the computer-generated geographic image of your district.
Status Bar	The status bar is at the bottom of the window and displays information about the task you are performing.

The edulog Main Menu

In edulog, as in many Microsoft Windows-based programs, the main menu allows quick and easy access to a variety of functions. When you open edulog, the main menu appears along the top of your computer monitor's screen, just below the title bar. The title bar displays the name of the program ("edulog"), and the main menu bar shows the names of the available menus.



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The File Menu

The File menu contains the following commands:

Load Mapset This command loads your district map.

Unload Mapset This command allows you to unload your district map. You have the option of unloading for the current session or for future sessions.

Enter Simulation This command allows you to enter simulation mode.

Route Display This command allows you to enter Route Display mode, which allows you to work graphically with routes.

Print This command opens a Windows-based Print dialog box.

Print Preview This command allows you to preview the edulog Workspace before printing it.

Print Window This command opens a Windows-based Print dialog box.

Exit This command closes the edulog program.

The Tools Menu

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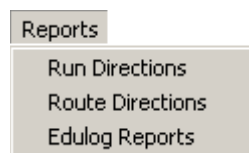
The Tools menu contains the following commands:

Load Landmarks	This command opens the Create a Landmark Layer dialog box, which allows you to select the landmark layers to view on the map display.
Load GIS Overlays	This command opens the Select Plot File to Retrieve dialog box, which allows you to select GIS layers to view on the map display.
Load Autostreet Layers	This command opens the Configuring AutoStreet Layers dialog box, which allows you to select Autostreet layers to view on the map display.
ID	This command displays a sub-menu of commands that allow you to choose a location to identify. You can, for example, identify a node, an address, a segment, a street name, an intersection, or a landmark. You can also identify a student, stop, run, or trip; you must, however, have the appropriate layer displayed on the map to identify a student, stop, run, or trip.
Locate	This command displays a sub-menu of commands that allow you to locate on the map different location types. You can, for example, locate a node, an address, a segment, a street name, an intersection, or a landmark. You can also identify a student, stop, run, or trip.
Measure	This command displays a sub-menu of commands that allow you to choose the method of measuring distances on the map display. You

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	have the option of measuring with a polyline, straight line, or polygon area.
Zoom	This command displays a sub-menu of commands that allow you to choose the method of zooming on the map display. The options include: Entire, Previous, Box, Zoom Center, Zoom In, Zoom Out, and Pan.
Display Options	This command displays a sub-menu of commands that allow you to configure the map display. The options include: Grid Display, Radius Display, and Scale Display.
Grid Display	This command displays the Grid Size dialog box, which allows you to enter the size, in feet, for the grid.
Radius Display	This command displays the Change Radius dialog box, which allows you to enter the size, in feet, of the radius.
Annotation Window	This command displays the Annotations dialog box, which allows you to enter text to include on printouts of the map display.
Saved Views	This command displays a sub-menu of commands that allow you to save views of the map as well as view a previously saved view.
Edit Mapseg	This command opens the Mapseg Arc Edit dialog box,
Display Hazard Zones	This command allows you displays hazard zones. It is only available if your site purchased Hazard Zones.
Edit Hazard Zones	This command allows you to edit hazard zones. It is only available if your site purchased Hazard Zones.

The Reports Menu



The Reports menu contains the following commands:

Run Directions	This command opens the Run Directions Reports dialog box, which allows you to generate run direction reports.
Route Directions	This command opens the Route Directions Reports dialog box, which allows you to generate route direction reports.

**EduLog
Reports**

This command opens the edulog Reports application. From this application, you can print a variety of reports, including standard reports and user-defined reports. (See “Beginning Reports” on page 147 for more information).

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The Lists MenuThe screenshot shows a single menu item labeled "Lists".

The Lists menu is a command that opens the List Management dialog box, which allows you to create worklists. (See “Worklists” on page 63 for more information).

The Boundaries MenuThe screenshot shows a menu titled "Boundaries" with three sub-items: "Load", "Set Protection", and "Post for Eligibility".

The Boundaries menu contains the following commands:

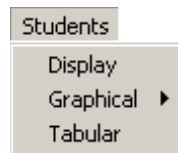
- Load** This command opens the Load Boundaries dialog box, which allows you to load boundaries for display on the map.
- Set Protection** This command opens the Protect/Unprotect Boundaries dialog box, which allows you to protect or unprotect boundaries.
- Post for Eligibility** This command opens the Post Boundaries dialog box, which allows you to post boundaries.

The Schools MenuThe screenshot shows a menu titled "Schools" with three sub-items: "Tabular", "Clusters", and "Attendance Boundary".

The Schools menu contains the following commands:

- Tabular** This command opens the School Edit Selection dialog box (also called the School Keyfinder), which allows you to search for schools. You can also add, edit, or delete a school in tabular mode.
- Clusters** This command opens the Cluster Edit Selection dialog box (also called the Cluster Keyfinder), which allows you to search for clusters. You can also add, edit, or delete a cluster in tabular mode.
- Attendance Boundary** This command opens the Attendance Boundary Graphics dialog box, which allows you to examine the schools for which a student is eligible.

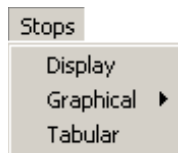
The Students Menu



The Students menu contains the following commands:

- Display** This command opens the Student Display Selection dialog box, which allows you to search for students and display them on the map.
- Graphical** This command displays a sub-menu of commands that allow you to work with students on the map. The options include: Assign, Deassign, Deassign By Service, Passenger List, and Digitize Students.
- Tabular** This command opens the Student Edit Selection dialog box (also called the Student Keyfinder), which allows you to search for students. You can also add, edit, or delete a student in tabular mode.

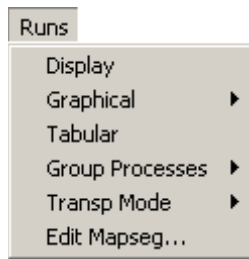
The Stops Menu



The Stops menu contains the following commands:

- Display** This command opens the Stop Display Selection dialog box, which allows you to search for stops and display them on the map.
- Graphical** This command displays a sub-menu of commands that allow you to work with stops on the map. The options include: Create, Delete, Relocate, Echo, Add Service, Remove Service, Student Operations, Insert Stop, Assign Stop, and Deassign Stop.
- Tabular** This command opens the Stop Edit Selection dialog box (also called the Stop Keyfinder), which allows you to search for stops. You can also add, edit, or delete a stop in tabular mode.

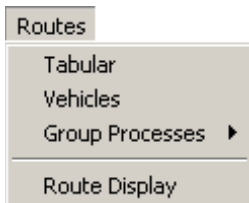
The Runs Menu



The Runs menu contains the following commands:

Display	This command opens the Run Display Selection dialog box, which allows you to search for runs and display them on the map.
Graphical	This command displays a sub-menu of commands that allow you to work with runs on the map. The options include: Create, Delete, Reorder Services, Rename, Resequence, Insert Stop, Assign Stop, Deassign Stop, Insert Checkpoint, Edit Time at Stop, Edit Head-count, Edit Loading Time, Open Run Summary, and Directions.
Tabular	This command opens the Run Edit Selection dialog box (also called the Run Keyfinder), which allows you to search for runs. You can also add, edit, or delete a run in tabular mode.
Group Processes	This command displays a sub-menu of commands that allow you to work with a worklist of runs. The commands on the sub-menu are: Copy, Reverse, Directions. The Copy command allows you to copy a run. The Reverse command allows you to reverse a run. The Directions command allows you to generate run directions.
Transp Mode	This command provides access to the Transportation Mode commands for sites that use Transportation Mode. This feature is used by our French clients.
Edit Mapset	This command opens the Mapseg Arc Edit dialog box.

The Routes Menu

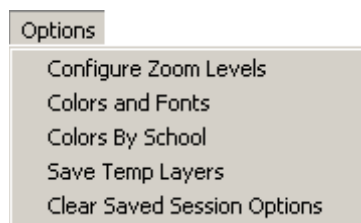


The Routes menu contains the following commands:

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Tabular	This command opens the Route Edit Selection dialog box (also called the Route Keyfinder), which allows you to search for routes. You can also add, edit, or delete a route in tabular mode.
Vehicle	This command opens the Vehicle application.
Group Processes	This command displays a sub-menu that allows you to work with a worklist of routes. The only command on the sub-menu is Directions. The Directions command allows you to generate run directions for the runs on the route.
Route Display	This command allows you to enter Route Display mode, which allows you to work graphically with routes.

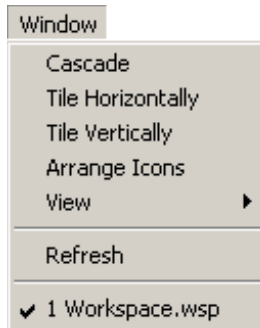
The Options Menu



The Options menu contains the following commands:

Configure Zoom Levels	This command opens the Zoom Size Configuration dialog box, which allows you to configure zoom levels.
Colors and Fonts	This command opens the System Color Dialog, which allows you to change the color of fonts, buttons, and background windows.
Colors By School	This command opens the Color By School dialog box.
Save Temp Layers	This command allows you to save temporary layers in the map display.
Clear Saved Session Options	This command clears any settings you selected for your work session and saved future sessions.

The Windows Menu



The Windows menu contains the following commands:

Cascade If you have more than one window open in edulog, this command arranges the open windows in a cascade, meaning that the windows will be displayed one on top of the other.

Tile Horizontally If you have more than one window open in edulog, this command tiles the open windows horizontally across your monitor.

Tile Vertically If you have more than one window open in edulog, this command tiles the open windows vertically across your monitor.

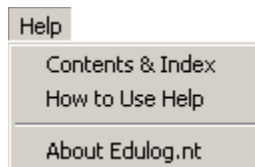
Arrange Icons If you have more than one window open in edulog, this command displays all of the edulog toolbars.

View This command displays a list of the edulog toolbars. A check mark to the left of the toolbar name means that the toolbar is currently displayed.

Refresh This command redraws the current map display.

This menu also displays the names of the open windows beneath the Refresh command.

The Help Menu



The Help menu contains the following commands:

Contents & Index This command opens edulog's online Help.

How to Use Help This command opens the Help Topics dialog box and displays instructions for using edulog's online Help.

NOTES

**About
Edulog**

This command displays the About edulog dialog box that displays version information for edulog.

Edulog Toolbars

edulog includes several toolbars that allow you to work with the map display. Some of the tools allow you to:

- Adjust the map display (zoom and pan to other areas).
- Measure various distances and areas.
- Identify objects on the map.
- Find the location of objects in your transportation and geographic data.
- Load Autostreet layers.

The Map Toolbar

The Map toolbar contains tools for adjusting the map display. The tools are:

TOOL	TOOL NAME	FUNCTION
	Zoom Box	Allows you to zoom in on an area on the map with a user-defined rectangle.
	Zoom Entire	Displays the entire map.
	Zoom Previous	Displays the previous zoom level that was displayed on the map.
	Zoom Center	Allows you to set the center point for zooming with the Zoom In and Zoom Out commands.
	Zoom In Level	Allows you to zoom in to the next closer zoom level. If you defined a center point with the Zoom Center command, you zoom in on that location. If not, you zoom in on the center of the map display.

TOOL	TOOL NAME	FUNCTION
	Zoom Out Level	Allows you to zoom out one level. If you defined a center point with the Zoom Center command, you zoom out on that location. If not, you zoom out on the center of the map display.
	Pan	Allows you to move to other areas of the map after you have zoomed in. The area you pan to appears on the same map scale as the current view.

The Measuring Instruments Toolbar



The Measuring Instruments toolbar contains tools that allow you to measure distances or areas on the map display. The tools are:

TOOL	TOOL NAME	FUNCTION
	Measure Line	Allows you to measure the distance along a straight line that you draw on the map.
	Measure Polyline	Allows you to measure the distance along a series of connected lines (such as a path along the street network) that you draw on the map.
	Measure Polygon	Allows you to measure the area within a perimeter that you draw on the map.

The Ident Toolbar



The Ident toolbar contains tools that allow you to identify geographic and transportation objects on the map display. The tools are:

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TOOL	TOOL NAME	FUNCTION
	ID Address	Allows you to identify the street address at the location you click on the map.
	ID Intersection	Allows you to identify the names of the intersecting streets at the corner you click on the map.
	ID Landmark	Allows you to identify the landmark nearest the location you click on the map.
	ID Run	Allows you to identify a run displayed on the map. After you click the run on the map, a dialog box appears with comprehensive information on the run, including its assigned stop services.
	ID Stop	Allows you to identify a stop displayed on the map. After you click the stop location, a dialog box appears with comprehensive information on the stop, including a list of all its services.
	ID Student	Allows you to identify a student displayed on the map. After you click the student location, a dialog box appears with comprehensive information on the student, including a list of her trips, assigned stops, and runs.
	ID Street	Allows you to identify the street at the location you click on the map.
	ID Segment	Allows you to identify the street segment (block) at the location you click on the map.

The Locate Toolbar



The Locate toolbar contains tools that allow you to find the location of geographic and transportation objects. The tools are:

TOOL	TOOL NAME	FUNCTION
	Locate Address	Allows you to find an address on the map display by entering the address number and all or part of the street name.
	Locate Street	Allows you to find a street on the map display by entering all or part of the street name.
	Locate Intersection	Allows you to find a corner (the intersection of two streets) on the map display by typing all or a portion of the street names.

The Enter Simulation Toolbar



The Enter Simulation toolbar only contains the Enter Simulation tool. The Enter Simulation tool takes you from active mode to simulation mode where you can experiment with proposed changes to your transportation system without modifying your actual data. If you decide you want to implement a simulation, you can confirm it to save it as your actual data.

Tooltips



ID Address

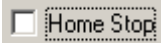
When you hover your mouse pointer over a tool on a toolbar, the system displays a tooltip. The tooltip displays the name of the tool. A tooltip remains on the screen for a few seconds then disappears.

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The Focus

In most word processing programs, the cursor is the vertical line that indicates where you can begin to type. In edulog, the system indicates where you can enter data and what commands you can execute. This point of insertion, often signalled by the cursor, is called the “focus.”

While many fields accept text in the same way a word processing program does—and in those fields, the regular cursor appears—many fields and buttons in edulog work differently. In these other fields and buttons, the cursor disappears from the screen but the focus does not. Instead of a cursor, the system indicates focus in different ways. Here are some examples:

Field	With Focus	Without Focus
Button		
Check Box		
Option Button		

INTRODUCTION TO THE GEOCODE AND MARIS

The geocode is the computerized map of your district's street network and Maris is the edulog mapping tool. Maris allows you to create, modify, and delete geographic data, which includes the geocode and boundary information. This section explains the geocode and Maris.

THE GEOCODE

The geocode contains the street network, address ranges, and traffic information for your district. It is the foundation of the transportation and boundary planning system. You locate students, schools, and bus stops on the geocode. In addition, it is also how the system determines the optimal path for the bus to travel.

Coding the district's street network and address information into the geocode is based on the concept of nodes and segments. Segments are lines that represent a street or a portion of a street between two nodes. Nodes are points in the geocode and can represent an intersection, a cul-de-sac, a major bend in the road, a school location, or a speed change.

Attributes of a Segment

A segment has the following attributes:

Address Ranges	Address ranges represent the possible addresses for the segment, not the actual addresses. The address ranges are Left-Low, Left-High, Right-Low, and Right-High.
Nodes	Each segment has a from-node and a to-node, which designate the low (from) and the high (to) end of the address ranges along the segment.
Street Names	A segment's street name is separated into Prefix, Street Name, Type, Suffix, and Mapzone (optional).
Street Speeds	Street speeds represent the average speed a bus can travel on a segment. A segment has a speed for both left- and right-side.
Direction of Travel	The direction of travel is designated as two-way, one-way, or no travel.
Nowalk	Nowalk designates whether the segment is safe for students to walk on. Nowalk has four types that correspond to the four hazard types.
Hazards	Hazards determine whether the street is safe for children to cross to get to a bus stop. This attribute is broken down into types that allow for different hazard designations for various age groups. A road

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designated as too hazardous for elementary students, for example, may be safe for high school students.

Identifying When to Change the Geocode

A few signs that you need to change your geocode are:

- Matching students to the map.

When manually matching students and you encounter an error message that says there are no matches or that the street does not exist in the geocode. The street may exist in the geocode with incorrect address ranges.

After running the ADSCAN utility in EMU (see “Match Student Addresses (ADSCAN)” on page 760 for more information), the error report indicates that the street was not found.

- Creating driver directions.

If you are unable to route a bus down a street, it may be because the speed may be set to zero, a direction of travel restriction was set, or the segment was not correctly attached to the surrounding geocode.

When the system-created driver directions are sending a bus down a street that does not exist or should not be traveled or you know of a better path for the bus to follow. These situations may be an indication of improper speeds or incorrect direction of travel. It may also be that the segment was not correctly connected to the geocode.

- Other Resources

Check with the drivers and school personnel to determine the new subdivisions under construction. New students enrolling often indicate new developments or other streets that should be added.

Check with the county or city planning departments, power companies, or community emergency services.

Effectively Using the Geocode

You can use the geocode to:

- Encode a new subdivision.
- Encode a new school access (which is represented as a “V” in the geocode).
- Change an existing school access.

Before changing the geocode, gather all the information you will need to make the changes.

Tips for Encoding a New Subdivision

When encoding a new subdivision, ask yourself the following questions:

- How does it attach to the existing network?
- Do I need to split a segment?

- How long should the segment be? Maris gives you the segment length as you select or create end nodes, helping you precisely enter the segment.
- What are the address ranges? Know where they increase from low to high and which side of the street is odd or even.
- What are the speeds and directions of travel for the streets?

Tips for Encoding a School Access

When encoding a new school access, you should:

- Know that a school access is represented by a “V” for the driveway.
- Know the speed and direction of travel for the access.
- Know the node number at the peak of the “V” to use in the Schools Tabular window for the school’s location.
- Name the street after the school, like Big Sky High Access.

Tips for Changing a School Access

When changing an existing school access, you should:

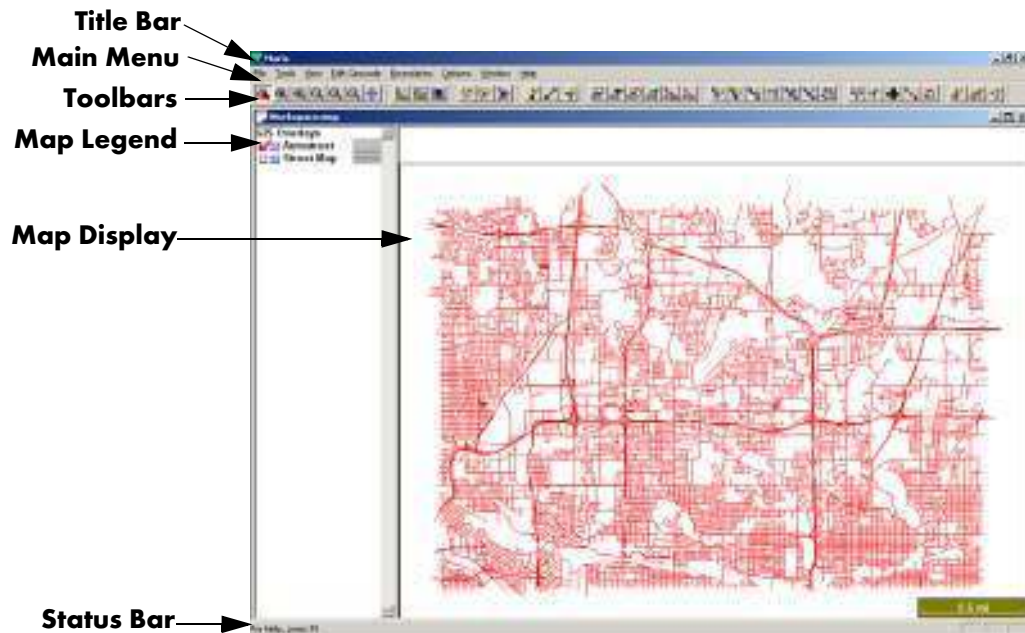
- Create the new access and identify the node number where the school should be located.
- Use the Relocate function in the Schools Tabular window to change the coordinates and distances of the school.
- Run appropriate EMU utilities.

Goals of the User

When geocoding, your goals should be:

- To provide all geographic data used in the system to locate students and to route and schedule school buses.
- To ensure all streets exist in the district geocode.
- To verify that all segments have the correct address ranges.
- To ensure all segments in the geocode have the correct speeds, direction of travel and hazard status designation.
- To verify all segments have the correct name.

NOTES

MARIS

The Maris workspace is very similar to the edulog workspace. It consists of the following areas:

Program Control	This area consists of the title bar, main menu, and toolbars. It displays information about the application window and provides access to the commands you use in Maris.
Workspace	This area is the main portion of the window. It consists of the map legend and the map display. The map legend lists any available overlays and the layers of data displayed on the map. The map display is the computer-generated geographic image of your district.
Status Bar	The status bar is at the bottom of the window and displays information about the task your are performing.

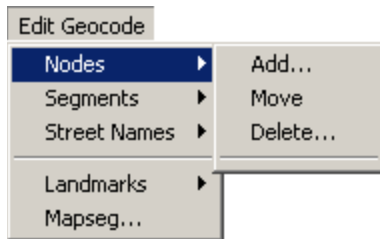
Maris, however, differs from edulog by its purpose, tools, and commands. Maris allows you to geocode. Geocoding is the process of encoding a street network into the edulog system. Through geocoding, you can add a missing street, a new neighborhood, or a new school access or remove streets that were never built. Its tools and commands allow you to create, edit, and delete segments and nodes.

The geocoding process has two levels:

- Node Menu Commands
- Segment Menu Commands

Nodes Menu Commands

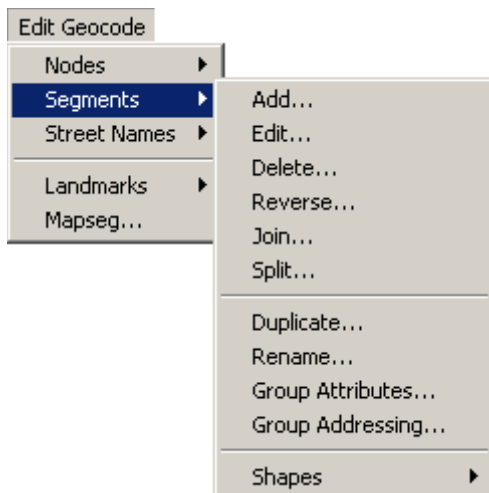
NOTES



To access the Nodes menu, choose the Nodes sub-menu from the Edit Geocode menu, which is on the main menu. You can also use the tools on the Nodes toolbar. The Nodes menu consists of the following commands:

Add	This command allows you to add a new node. The node will not be connected to any segments. In addition, the system will automatically assign the next available node number to the node. To avoid creating nodes that are not properly connected to segments, you should create all new nodes through the Add Segment dialog box.
Move	This command allows you to move a node. The node may be connected to a segment. If the node is connected, the system moves the segment(s) with the node.
Delete	This command allows you to delete existing nodes. The node cannot be attached to a segment. You must delete the segment before deleting the node(s).

Segments Menu Commands



To access the Segments menu, choose the Segments sub-menu from the Edit Geocode menu, which is on the main menu. You can also use the tools on the Segments toolbar. The Segments menu consists of the following commands:

NOTES

Add	This command allows you to add more segments and nodes to the geocode. Segments can be connected to existing nodes with the ID button function or new nodes can be created with the New button.
Edit	This command allows you to change address, speed, direction, hazard, nowalk or flow-through attributes of a particular segment.
Delete	This command allows you to delete existing segments. All attributes for the segment will be lost except for the street name.
Reverse	This command allows you to reverse the orientation or switch the to- and from-nodes of the segment. Segments should always be built in the order of the address ranges. The Reverse command should be used to fix segments that were not built in the order of the address ranges. You are given the option to reverse individual segments or to reverse all segments with a particular street name.
Join	This command allows you to join two segments into one with address ranges that cover both the original ranges. Any student or stop data associated with the original segments will have to be re-matched. Note: When joining two segments that are not in a straight line, the system replaces the node with a shape node that will maintain the original bend in the new segment.
Split	This command allows you to split a segment. Splitting a segment places a new node in between the old node pair at the chosen point. This function creates two new segments in place of the old segment. The address range from the old segment is distributed to the two new segments based on an estimation of the split point. Note: Whenever a segment is split, you must re-match all student and stop data located on the previous segment to its new node pair You have two options when splitting a segment: New Node or Old Node. Use New Node to create a new node, which will split the old segment into two new segments. Use Old Node to make an existing node part of an existing segment, splitting that segment into two new segments. The Old Node option is frequently used to repair an incorrect geocode that was not properly joined by a unique node.
Duplicate	This command allows you to assign more than one street name to a segment or group of segments. You can use this command for street segments with two or more common names or for situations where segments do not have conventional addressing (that is, a situation in which a street has addresses on both sides, where one side is odd and the other is even). A street in the geocode, for example, could

NOTES

have the street name of Brooks Ave and Hwy 93. Brooks Ave could be duplicated as Hwy 93 with the same address ranges so that a student entered into edulog with either street name will match the geocode.

Another reason to duplicate segments would be to handle unconventional addressing (that is, a situation, like a cul-de-sac, that has odd and even addresses on the same side of the street), giving the duplicate segments the same street name but giving the secondary segment different addresses. Smith Rd, for example, has an address range of 1-9 on the left and could have a duplicate that is also called Smith Rd with an address range of 2-8, giving it odd and even addresses on the same side of the street.

Once a segment is duplicated, the original segment becomes the primary name and the new segment becomes the secondary name. The primary and secondary status can be switched through the Edit command on the Segments sub-menu of the Edit Geocode menu. The system uses the primary and secondary status in Run Directions.

Rename

This command allows you to rename a segment or group of segments to a new or existing street name.

Note:

Changing the name of an existing group of segments does not delete the old name from the street name file.

Group Attributes

This command allows you to change a variety of attributes for one segment or a group of segments. You can change the following attributes from the Group Process dialog box: Speed Left, Speed Right, Direction, Nowalk, and Hazard.

Group Addressing

This command allows you to change the address ranges for one segment or a group of segments.

Shapes

This command displays a sub-menu of commands that allow you to add, move, or delete shape nodes.

Shape nodes are used to bend segments without adding true nodes to the geocode. They are not visible except for the bend that they place in a given segment. Multiple shape nodes can be used to bend segments so that they reflect actual streets.

The Shapes sub-menu contains the following commands:

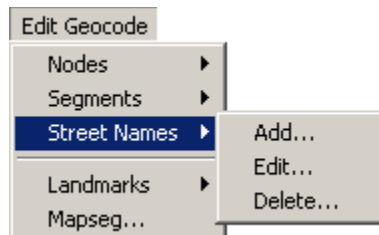
Add - This command allows you to add a shape node to an existing segment.

Move - This command allows you to move an existing shape node.

NOTES

Delete - This command allows you to delete shape nodes. Since shape nodes are not visible, they can cause confusion. If a problem shape node is suspected, the Delete command will straighten the segment in question.

Street Names Menu Commands



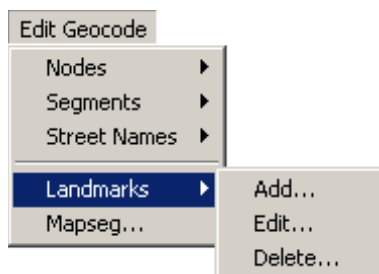
To access the Street Names menu, choose the Street Names sub-menu from the Edit Geocode menu, which is on the main menu. The Street Names menu consists of the following commands:

Add This command allows you to create a unique street name in edulog. The system will not allow you to create a street name that already exists. The Add Street dialog box forces you to parse the street name into the correct fields.

Edit This command allows you to edit existing entries in the street name file. This command also allows you to modify any existing segments that have that particular street name. The current name can be selected one of two ways: (1) by typing a partial match of the street name and choosing the ID button or (2) by graphically choosing the street with the mouse. The Edit Street Name Properties dialog box forces you to parse the street name into the correct fields.

Delete This command allows you to delete entries in the street name file. You can only delete street names that are not associated with any segments or landmarks. Segments or landmarks associated with a street name must be deleted before the street name can be deleted.

Landmarks Menu Commands



Landmarks can be used in a variety of ways in edulog. You can display landmarks on the map so that you can quickly identify schools and other geographical

locations. School landmarks can automatically be created through an EMU utility called CreateSchoolLandmarks.exe.

To access the Landmarks menu, choose the Landmarks sub-menu from the Edit Geocode menu, which is on the main menu. The Landmarks menu consists of the following commands:

Add This command allows you to add a new landmark to the system. You must give the landmark a name and digitize its location.

Note:

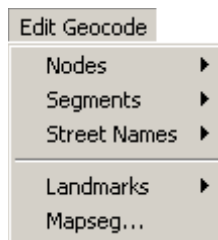
Digitize means to select a location on the map by pointing and clicking with the mouse.

You can also choose a landmark type that classifies the landmark for display on the map. You can, for example, display only schools.

Edit This command allows you to edit the landmark type or to add alias names for the landmark.

Delete This command allows you to delete an existing landmark.

The Mapseg Command



The Mapseg could be considered a copy of the geocode for use with driver directions. It only contains time information and segments on which a bus can travel. Editing the Mapseg allows you to modify the choices a bus has to travel on at each node without actually changing the geocode. You can edit the Mapseg directly from within edulog (see “Mapseg Editing” on page 247 for more information). This process is almost identical in Maris and edulog.

Editing the Mapseg

Mapseg editing is an advanced feature that allows you to fine-tune the run directions you create in edulog. When you create run directions in edulog, the system uses the Mapseg files to determine the best path to travel. If you need to edit the run directions, edulog gives you several options for each segment. In Mapseg, you can edit the next available segment (“arc”) that is available in run directions editing.

An arc is a side of a segment that may be travelled. A segment with non-zero speeds and no travel restrictions has two arcs: one arc that allows travel from the from-node to the to-node and the other arc that allows travel from the to-node to the from-node.

NOTES

Mapseg Arc Edit Dialog Box

You can modify the Mapseg in the Mapseg Arc Edit dialog box. You can also edit the Mapseg in edulog. To open the Mapseg Arc Edit dialog box, choose Mapseg from the Edit Geocode menu in Maris.

Mapseg Arc Edit

Street Name:

From Node: To Node: Retrieve

Arc ID: From: To:

Angle: Speeds:

Next Adjacencies:

From Nd	To Nd	Street Name	Time1(100hrs)

Possible Next Adjacencies

From Nd	To Nd	Street Name	Time1(100hrs)

The system displays an empty Mapseg Arc Edit dialog box and the cursor changes to cross-hairs with a question mark, indicating that you need to select the arc you want to edit.

Select the **arc** you want to edit on the map or enter the **node numbers** for the from-node in the From Node field and the to-node in the To Node field and choose **Retrieve**.

Mapseg Arc Edit

Street Name: STANBRIDGE AVE

From Node: 2272 To Node: 2268 Retrieve

Arc ID: 20370 From: 1700 To: 1768

Angle: 90 Speeds: 35 0 0 0

Next Adjacencies:

From Nd	To Nd	Street Name	Time1(100hrs)
2268	2293	ALDINE ST	27
2268	2268	ALDINE ST	53
2268	2296	STANBRIDGE AVE	30

Possible Next Adjacencies

From Nd	To Nd	Street Name	Time1(100hrs)
2268	2272	STANBRIDGE AVE	40

The system displays the arc data in the Mapseg Arc Edit dialog box and highlights the arc on the map display.

To distinguish adjacencies from each other, highlight the **adjacency** in the Next Adjacencies list box. The system highlights the adjacency on the map display.

The Mapseg Arc Edit dialog box contains the following fields:

Street Name This field displays the street name of the selected arc.

From Node This field displays the from-node for the selected arc.

To Node This field displays the to-node for the selected arc.

Arc ID This field displays the internal reference number used by edulog for mapping purposes.

From This field displays the low end of the address range for the selected arc.

To This field displays the high end of the address range for the selected arc.

Angle This field is used to change the arc's angle of orientation. An angle between two arcs greater than 20 degrees triggers the run directions to indicate a turn. If a street on a bus path contains a considerable bend, the run directions indicate that a turn is to be made as follows:

Proceed on MAIN.

Turn left on MAIN.

Turn right on MAIN.

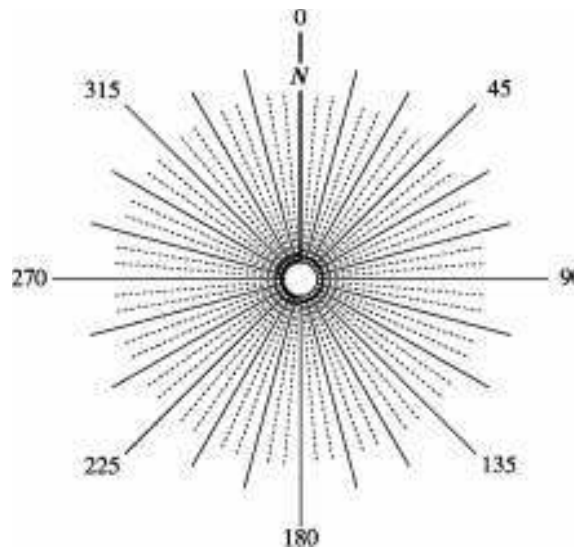
A change in angle greater than 170 degrees triggers the run directions to indicate a turnaround.

Note:

Changes to orientation in Mapseg do not affect the true angle of orientation that is stored in the geocode.

Mapseg indicates due north as zero degrees. To understand other angles, think of a clock-hand pointing to 12:00, which represents zero degrees (that is, due north). As the hand moves clockwise, the angle increases. At 3:00, the angle is 90 degrees. At 6:00, the angle is 180 degrees. At 9:00, the angle is 270 degrees. When the hand returns to 12:00, the angle is 360 degrees, which is the same as zero degrees.

NOTES

**Speeds**

This field indicates the speed of travel on the selected arc. Travel speed is the average rate of travel, not the posted speed limit for the arc.

**Next
Adjacencies**

This box displays the arcs adjacent to the selected arc. Adjacencies are only possible on arcs that allow travel in a direction that corresponds to the selected arc; that is, if you approach a street that is closed to travel, the closed street arc would not appear as an adjacency to the selected arc. The system does not display one-way streets, restricted left-turns, or dead-ends in this box.

**Possible
Next
Adjacencies**

This box displays the arcs that could be used for editing run directions for the selected arc. This box includes the same columns as the Next Adjacencies box.

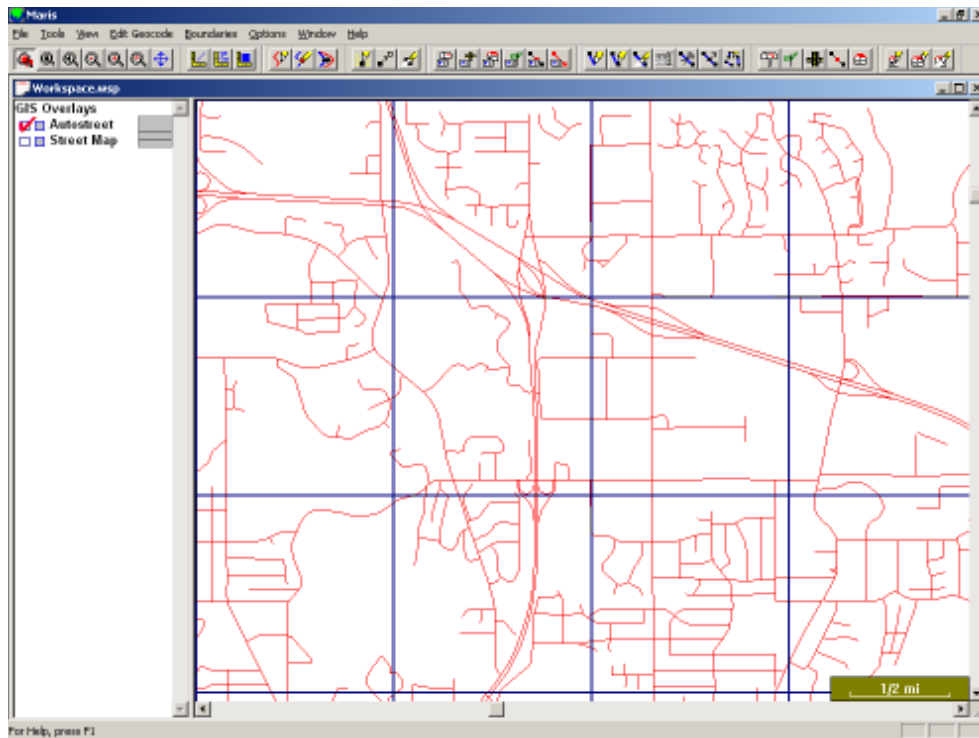
To add these adjacencies to the Next Adjacencies box, which would make them available in run directions editing in edulog, highlight the **arc** you want and choose **Add Selected Adjacency**.

Once you have edited the adjacencies in the Mapseg Arc Edit dialog box, you can use the changes to edit the run directions you create in edulog. The system also uses the changes when it automatically generates run directions.

The Grid

NOTES

Maris has other tools for geocoding, like the grid. You can use the grid as a reference while geocoding. The scale is very important when calculating time and distance. An identical grid can be drawn on a paper map source for assistance in geocoding to the correct scale. The grid size is entered in feet or meters depending on your system settings. The following image shows an example of a map with a one-mile grid.



NOTES



BOUNDARIES

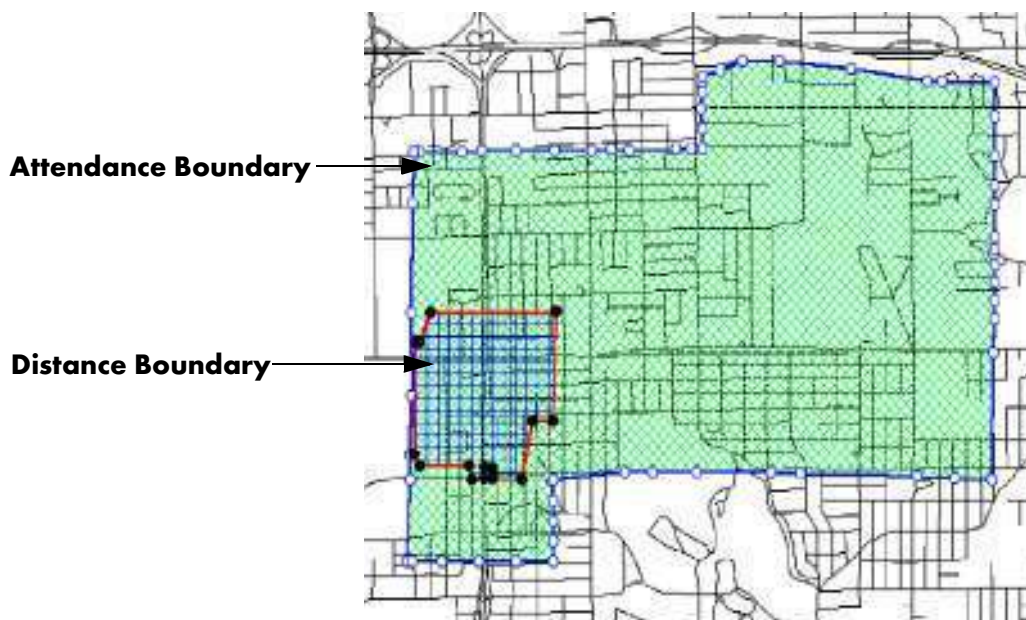
NOTES

edulog uses boundaries to determine transportation eligibility for students. The system uses three types of boundaries to determine transportation eligibility. The three boundaries types in edulog are:

Attendance An attendance boundary is a boundary that defines part of the geocode and is used to determine if students in the proper grades are eligible for transportation to the school based on their physical address.

Distance A distance boundary is a boundary that defines the walking distance surrounding a school. Students with physical addresses inside of the distance boundary are ineligible for transportation.

The following image shows an attendance boundary and a distance boundary:



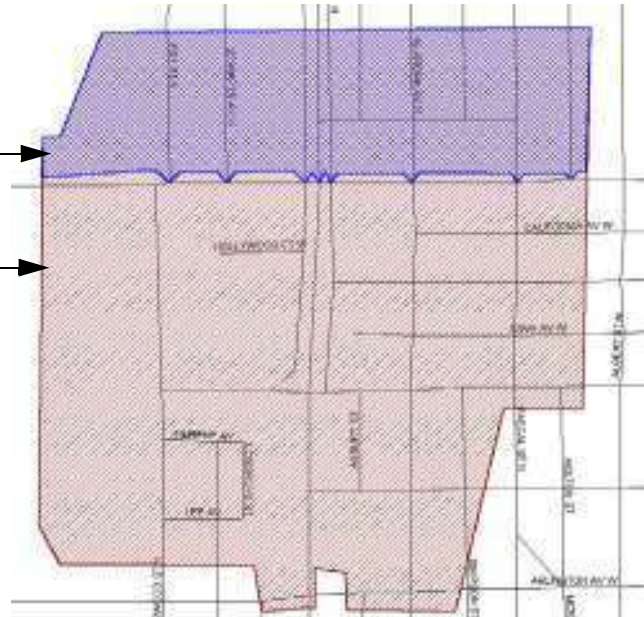
Hazard A hazard boundary is a boundary that defines a portion of the distance boundary that is unsafe for students because of a hazardous condition. A hazard boundary allows you to report on students who are transported because of an exception.

The following image shows a distance boundary and a hazard boundary:

NOTES

Hazard Boundary →

Distance Boundary →



CREATING BOUNDARIES IN MARIS

You can create boundaries in Maris as well as GEBndPlan. To create boundaries in Maris, you have two options: manual or auto.

Manual This option allows you to create attendance, distance, and hazard boundaries.

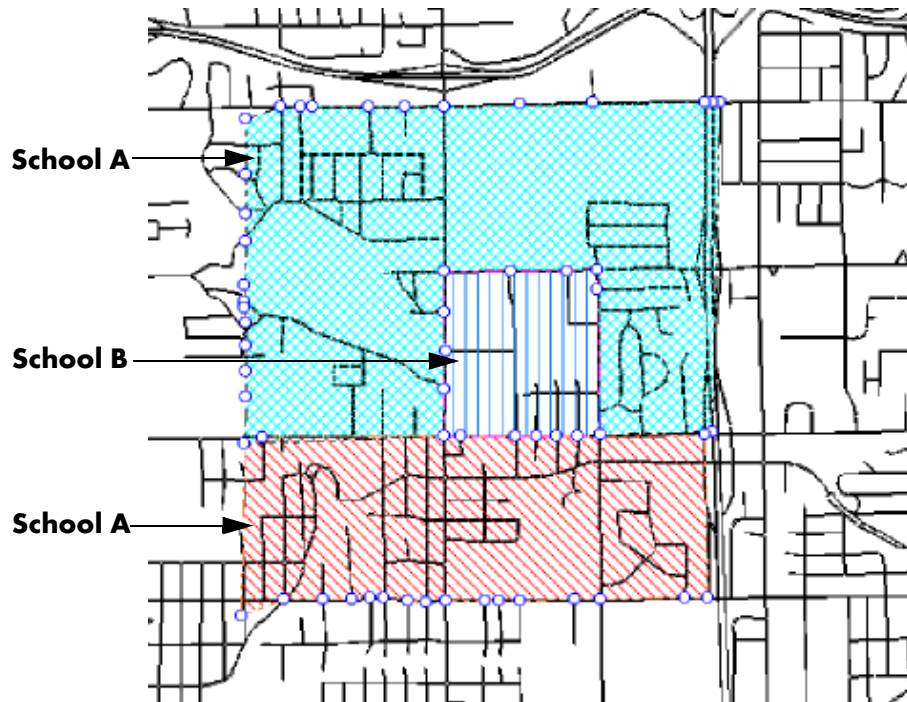
Auto This option has the system create distance boundaries.

LAWS OF BOUNDARY CREATION

When creating boundaries, you must following the following laws:

- 1** Create the boundary in a counter-clockwise direction.
- 2** A boundary cannot be a doughnut, meaning that it cannot have a hole in it.

To represent a hole in a boundary, you must create multiple boundaries. The following image shows the correct method for creating these boundaries (that is, creating multiple boundaries):



The light blue boundary and red boundaries would belong to one school (School A in this image) and the dark blue boundary would belong to another school (School B in this image).

- 3 When you have finished creating a boundary, the boundary should not cross over itself.

Boundary Points

When creating boundaries, you place a series of boundary points that are connected by straight lines. Do not confuse boundary points with nodes because they are not the same thing. You can place boundary points on top of nodes. You can also place them anywhere within the extent of the map.

Types of Boundary Points

When manually creating boundaries, you can create two types of boundary points: free points or snap points.

Free Points Free points are created at the exact location of the mouse pointer. They can be placed on top of a node, which is difficult to do manually.

Snap Points Snap points are created on the nearest node in location to the mouse pointer at the time of creation. They are always created on top of a node and theoretically located in the middle of the street.

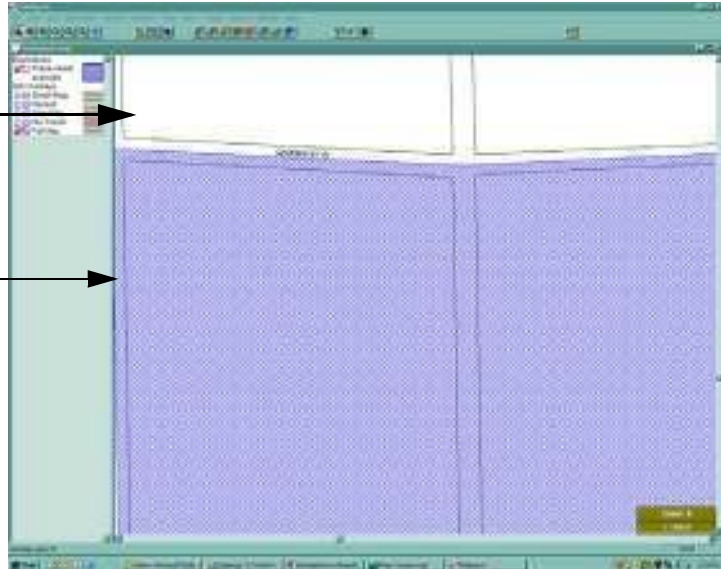
Depending on the circumstances of the boundary you are creating, a combination of free and snap points will be used.

NOTES

You need to understand the implications of snap points compared to free points. Snap points are placed directly on top of nodes, which are geographically located in the middle of the street. A boundary that has been snapped or traced to every node along a segment only includes students on one side of the street. The following image shows a boundary line in relation to its placement to both sides of a street.

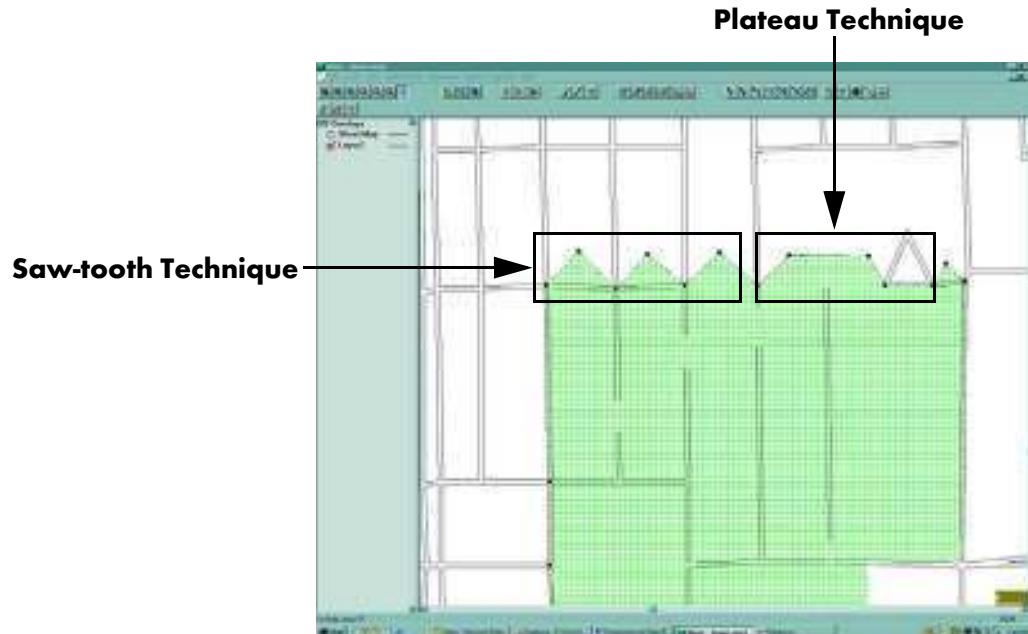
**Students Outside
of the Boundary**

**Students Inside
the Boundary**



In this image, assume that the odd addresses are on the north side of Garden Ave W. and the even addresses are on the south side. Students with odd street addresses would be considered outside of the boundary, while students with even street addresses would be considered inside the boundary.

Different situations might warrant the use of the saw-tooth or plateau techniques to create boundaries that include street addresses on both sides of a street. In the following image, you will see how you can include all of Garden Ave W. without including any of the addresses from the streets that intersect with it from the north. Always try to cut all angles in half when placing free points for saw-tooth boundaries. The left half is the saw-tooth technique and the right half is the plateau technique.



Add Mode

You create a boundary in Maris by beginning an Add Mode session. To begin an Add Mode session, choose the Manual or Auto command on the Add sub-menu on the Boundaries menu. Auto mode has the system create boundaries for you based on distances.

Add Mode Commands

You use a combination of mouse and keyboard commands when creating boundaries. The commands for Add Mode are:

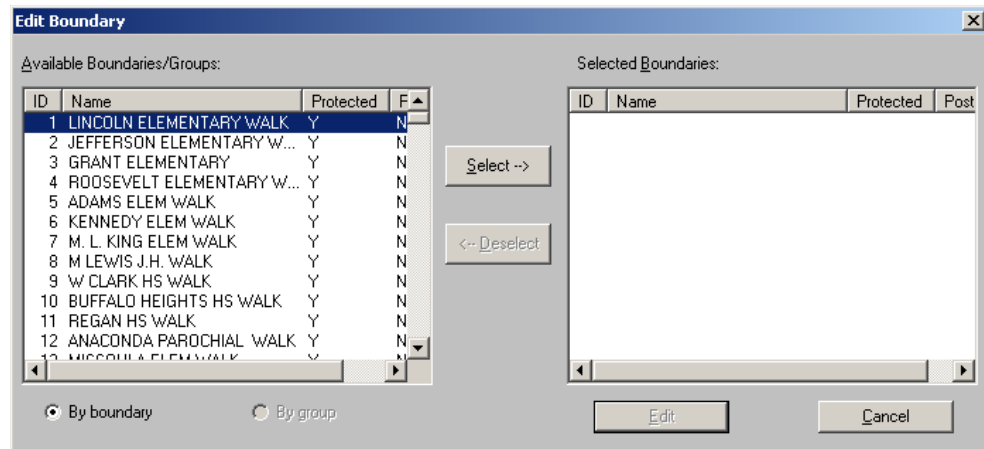
Mouse/Keyboard Command	Result
Left Click	This command creates a free point.
SHIFT + Left Click	This command creates a snap point.
CTRL + Left Click	This command allows you to trace a street.
ESC	This command allows you to undo the previous action.
Right Click	This command displays the Options menu.

NOTES

Edit Mode

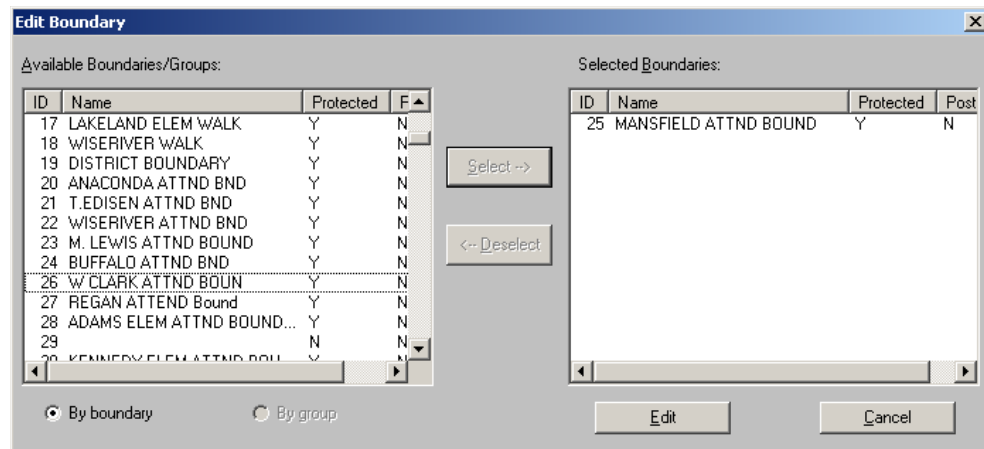
You edit a boundary in Maris by beginning an Edit Mode session. To begin an Edit Mode session:

- 1 Load a boundary on the map display by choosing the **Load** command from the Boundaries menu.



The system displays the Edit Boundary dialog box.

- 2 Select the **boundary** you want to edit from the Available Boundaries/Groups scrolled list box and choose **Select**.



The system moves the selected boundary from the Available Boundaries/Groups scrolled list box to the Selected Boundaries scrolled list box.

- 3 Choose **Edit**.



This system displays a message box.

- 4** Choose **OK** on the message box.

The system loads the selected boundary onto the map display and the Edit command on the Boundaries menu becomes available.

- 5** Choose **Edit** on the Boundaries menu.

The system begins the Edit Mode session.

Edit Mode Commands

The commands for Edit Mode are:

Mouse/Keyboard Command	Result
Left Click with the mouse pointer on the boundary point	This command selects the boundary point.
Left Click and drag the boundary point to the new location	This command moves a boundary point.
Left Click and drag the boundary point and press SHIFT	This command allows you to move a boundary point and make it a snap point.
Left Click with the mouse pointer on the boundary point and press DEL	This command allows you to delete the selected boundary point.
Right Click	This command displays the Options menu.

The Options menu in Edit Mode contains the following commands:

Add Points This command allows you to add new boundary points between two existing boundary points. Remember to add the boundary points in a counter-clockwise direction.

Zoom Center This command centers the map on the origin of the mouse pointer at the time you right-clicked to display the menu.

Zoom In This command allows you to zoom in to the next closer zoom level.

NOTES

Zoom Out	This command allows you to zoom out one zoom level.
Properties	This command allows you to change the display attributes, like color and style.
Save	This command allows you give the boundary a name and save it.
End	This command ends your Edit Mode session.

When you are in Edit or Add Mode, you must use the zoom commands on the Options menu. If you move the mouse pointer out of the workspace to access either the Zoom bottom or the Tools menu, the system ends the Edit or Add Mode session.

INTRODUCTION TO SCHOOLS AND BELL TIMES

Schools are the foundation of transportation in edulog. edulog uses bell times to specify the time of transportation service per grade/program/frequency. This section explains schools and bell times.

SCHOOLS

Schools are the foundation of transportation in edulog. You create a new school by (1) opening the Schools Keyfinder (that is, choosing Tabular on the Schools menu), (2) entering a **unique school code** in the School Code field, and (3) choosing the **New** button. The system displays the Schools Tabular window with the school code you entered on the keyfinder in the School Code field.

The main fields and buttons on the Schools Tabular window are:

School Code School codes are the key to transportation in edulog. When choosing school codes for use in edulog, consider the existing codes in your school district. School codes can be a maximum of seven alphanumeric characters because reports do not support 8 characters. You associate student, stop, and run data to these school codes. When creating a school, you must enter a **unique school code** into the Schools Keyfinder and choose **New**.

School Name This field stores the name of the school, like Lincoln Elementary. You can change the data in this field.

NOTES

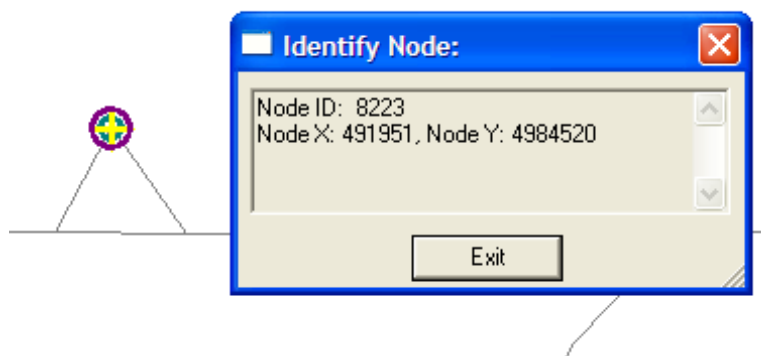
Location

This field stores the position where the school is located in the geocode (see “Introduction to the Geocode and Maris” on page 27 for more information).

edulog users frequently place schools on a node. To place a school on a node, enter the **number symbol (#)** and the **node number** in the Location field.

If you enter an address for the school’s location, you must match the address to the geocode. To match the address to the geocode, enter the **address** in the Location field and press **TAB**.

You can also build a school access as part of the geocode. A school access consists of a node for the school and two segments for access to the school. The following image shows a school located on a school access node.

**Grade List**

This field displays the list of grades for the school. You enter grades for a school on the Grade Selection dialog box (see “Adding Grades to a School” on page 52 for more information).

Program List

This field displays the list of programs for the school. You enter programs for a school on the Program Selection dialog box (see “Adding Programs to a School” on page 55 for more information).

Grade/Prog

This button opens the School Grade Program Property Table (see “The School Grade Program Property Table” on page 57 for more information).

Calendar

This button opens the Calendar Selection dialog box, which is a feature used with the Transact accounting program.

Rename

This button allows you to change the school code. To use this feature, you need exclusive access to edulog (that is, you are the only user logged in to edulog) because of the extensive changes made to

the data. This process changes the student, stop, and run data associated with the old code to the new school code.

Warning:

Before renaming a school, you should backup your data. At the very least, you should backup the Elt\Live\Server\Dyn directory.

Relocate

This button allows you to move a school to a different location. This process modifies all of the transportation data attached to the school. Because of these extensive changes, you need exclusive access to edulog.

Warning:

Before relocating a school, you should backup your data. At the very least, you should backup the Elt\Live\Server\Dyn directory.

Shift Times

This button allows you to change existing bell times. This process changes all grades/programs/frequencies that have the associated time attached to them. If you only need to change certain grades, call edulog Support. This process also requires exclusive access to edulog.

Warning:

Before shifting times, you should backup your data. At the very least, you should backup the Elt\Live\Server\Dyn directory.

You have three options to control how the system changes the existing bell times in transportation data. Those options are:

- **Change time at stop only for runs outside new windows.**
This option changes runs that are outside of the new windows. You may have, for example, the following old bell times:

Bell	Bus Early	Bus Late
7:30	6:55	7:20

If you change the times to the following:

Bell	Bus Early	Bus Late
8:00	7:25	7:50

If you leave all to-school runs at the default Bus Late time, all of the runs would be shifted from 7:20 to 7:50.

- **Do not change time at stop for runs.** This option does not change any times at stop. Using the information from the previous example, all of your runs would still arrive at 7:20, which would cause an informational error in an edulog data diagnos-

NOTES

tic report because the time at school on all runs will be outside of the bell windows.

- **Change time at stop for all runs based on new windows.**
This option changes all stop times regardless of the previous bell windows. Using the information from the example in the first option, all of your to-school runs would be changed to arrive at 7:50.

Grades and Programs

Whenever you create a new school, you must add grades and programs for it. You use the Grade/Prog button on the Schools Tabular window to access the dialog boxes for entering grades and programs.

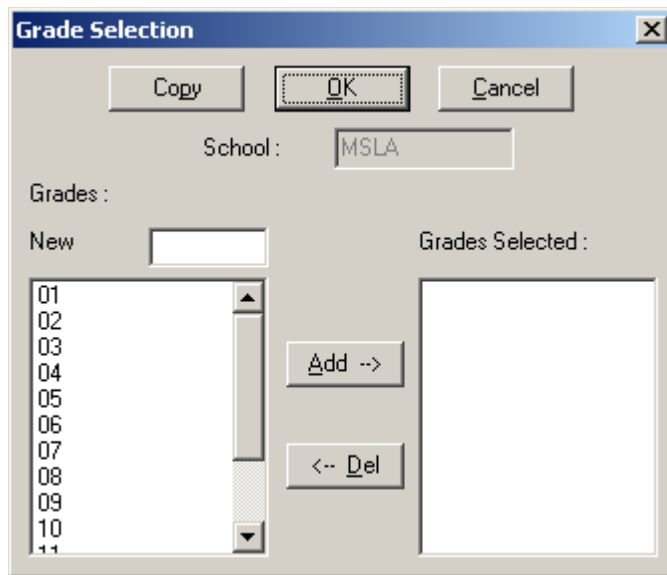
Adding Grades to a School

To add grades for a school already displayed in the Schools Tabular window:

- 1 Choose **Grade/Prog** on the Schools Tabular window.

The system displays the School Grade Program Property Table.

- 2 Choose **Grade** on the School Grade Program Property Table.

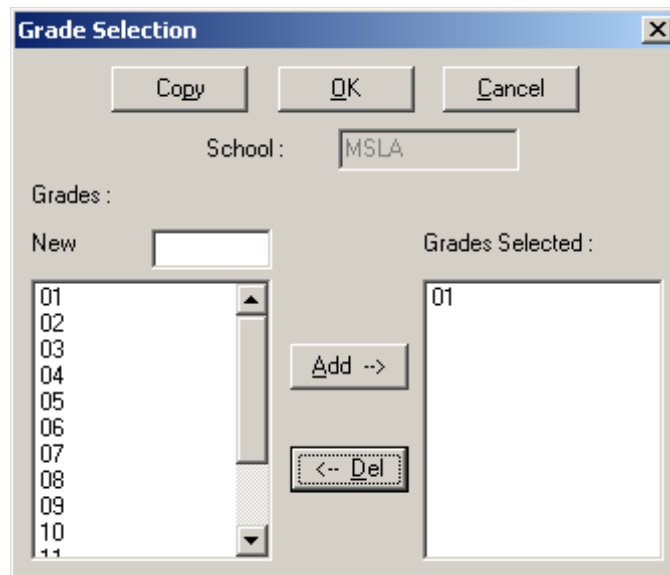


The system displays the Grade Selection dialog box.

- 3** Select the **grade** you want to add for the school in the **Grades:** scrolled list box and choose the **Add** button.

-OR-

Double-click the **grade** you want to add for the school.



The system displays the selected grade in the Grades Selected: scrolled list box.

- 4** Repeat Step 3 for each grade you want to add for the school.
- 5** After you have added all of the grades, choose **OK**.

NOTES

SCHOOL GRADE PROGRAM PROPERTY TABLE

GRADE PROGRAM SCHOOL COPY_COL COPY_ROW ◀ ▶ OK Cancel

SCHOOL : MSLA Validity Type 0

Properties

VALIDITY LIST ☒ ELIGIBILITY LIST ☐ HAZARD LIST ☐

Grade	Program	School
01	1	
02	1	
03	1	
04	1	
05	1	

The system closes the Grade Selection dialog box. You return to the School Grade Program Property Table, which displays the grades you selected in the Grade Selection dialog box.

- 6 Choose **OK** on the School Grade Program Property Table.

Workspace.msp: SCHOOLS EDIT FORM

Confirm Previous Next Grade/Prog Bell Times Calendar Rename

Relocate Shift Times Post Boundaries DELETE CANCEL

School Code: MSLA

School Name: MISSOULA ELEMENTARY SCHOOL

Location: #6184 Nd1: 6184 Nd2: 0

Grade List: 01, 02, 03, 04, 05

Program List: Max Ride Time (min): 180

District: County: Educ Type: School Level: School Type: Shuttle Flag: 0

The system closes the School Grade Program Property Table. You return to the Schools Tabular window, which displays the grades you added in the Grade List: field.

Adding Programs to a School

To add programs for a school already displayed in the Schools Tabular window:

- 1 Choose **Grade/Prog** on the Schools Tabular window.

The screenshot shows the 'SCHOOL GRADE PROGRAM PROPERTY TABLE' dialog box. At the top, there are tabs for 'GRADE', 'PROGRAM', 'SCHOOL', 'COPY_COL', and 'COPY_ROW', along with navigation arrows and 'OK' and 'Cancel' buttons. Below the tabs, the 'SCHOOL' field is set to 'MSLA' and the 'Validity Type' is set to '0'. Under the 'Properties' section, there are three radio buttons: 'VALIDITY LIST' (selected), 'ELIGIBILITY LIST', and 'HAZARD LIST'. At the bottom, there are three empty table columns, each with a 'Grade' header.

The system displays the School Grade Program Property Table.

- 2 Choose **Program** on the School Grade Program Property Table.

The screenshot shows the 'Program Selection' dialog box. It has 'Copy', 'OK', and 'Cancel' buttons at the top. The 'School' field is set to 'MSLA'. Below, there is a 'Programs:' section with a 'New' field and a list of programs: 'ATH', 'BAND', 'EAS', 'GIFT', 'PROG', and 'SPED'. To the right of this list is an 'Add -->' button. Below the list is a '<-- Del' button. On the far right, there is a 'Programs Selected:' section with an empty list box.

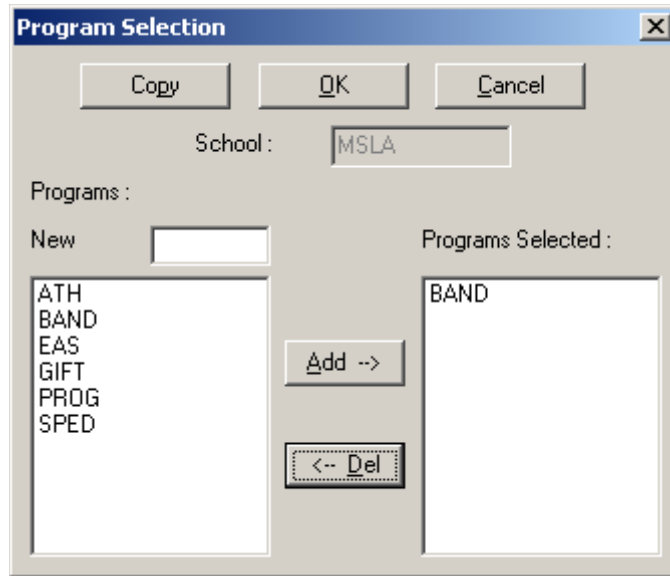
The system displays the Program Selection dialog box.

- 3 Select the **program** you want to add for the school in the **Programs:** scrolled list box and choose **Add**.

NOTES

-OR-

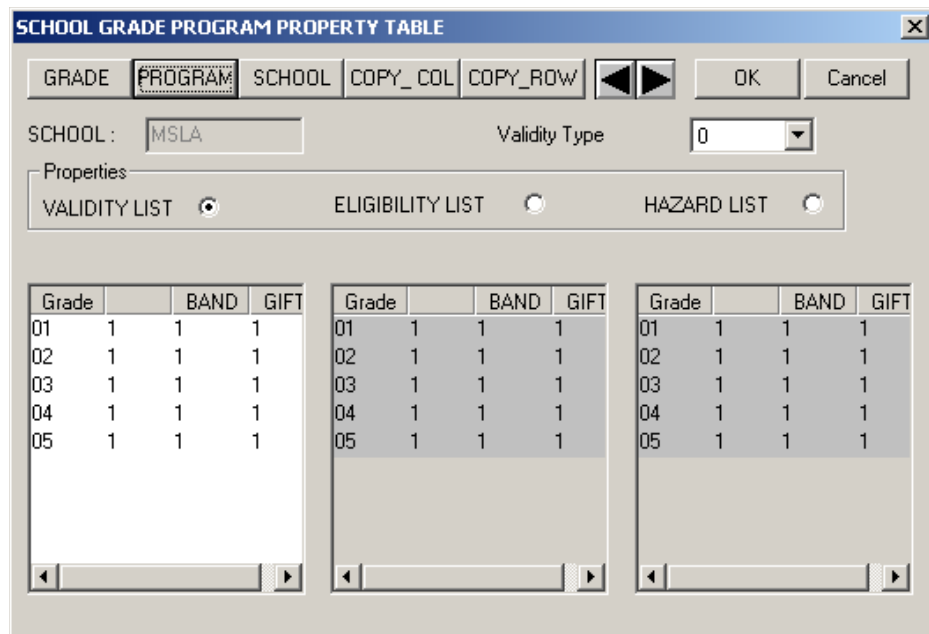
Double-click the **program** you want to add for the school.



The **Program Selection** dialog box shows the 'School' field set to 'MSLA'. Under 'Programs:', the 'New' list contains 'ATH', 'BAND', 'EAS', 'GIFT', 'PROG', and 'SPED'. The 'Programs Selected:' list contains 'BAND'. Between the lists are 'Add -->' and '<-- Del' buttons. At the top are 'Copy', 'OK', and 'Cancel' buttons.

The system displays the selected grade in the *Grades Selected:* scrolled list box.

- 4 Repeat Step 3 for each program you want to add for the school.
- 5 After you have added all of the programs, choose **OK**.



The **SCHOOL GRADE PROGRAM PROPERTY TABLE** window shows the 'PROGRAM' tab selected. The 'SCHOOL' field is 'MSLA' and 'Validity Type' is '0'. Under 'Properties', 'VALIDITY LIST' is selected. Below are three tables, each with columns 'Grade', 'BAND', and 'GIFT'.

Grade	BAND	GIFT
01	1	1
02	1	1
03	1	1
04	1	1
05	1	1

Grade	BAND	GIFT
01	1	1
02	1	1
03	1	1
04	1	1
05	1	1

Grade	BAND	GIFT
01	1	1
02	1	1
03	1	1
04	1	1
05	1	1

The system closes the *Program Selection* dialog box. You return to the *School Grade Program Property Table*, which displays the programs you selected in the *Program Selection* dialog box.

- 6 Choose **OK** on the *School Grade Program Property Table*.

NOTES

Workspace.aspx: SCHOOLS EDIT FORM

Confirm Previous Next Grade/Prog Bell Times Calendar Rename

Relocate Shift Times Post Boundaries DELETE CANCEL

School Code: MSLA

School Name: MISSOULA ELEMENTARY SCHOOL

Location: #6184 Ndt1: 6184 Ndt2: 0

Grade List: 01, 02, 03, 04, 05

Program List: BAND, GIFT Max Ride Time (min): 180

School Level: School Type: District: County: Educ Type:

Shuttle Flag: 0

The system closes the School Grade Program Property Table. You return to the Schools Tabular window, which displays the programs you added in the Program List: field.

The School Grade Program Property Table

SCHOOL GRADE PROGRAM PROPERTY TABLE

GRADE PROGRAM SCHOOL COPY_COL COPY_ROW ◀ ▶ OK Cancel

SCHOOL: MSLA Validity Type 0

Properties

VALIDITY LIST ☒ ELIGIBILITY LIST ☐ HAZARD LIST ☐

Grade		BAND	GIFT
01	1	1	1
02	1	1	1
03	1	1	1
04	1	1	1
05	1	1	1

Grade		BAND	GIFT
01	1	1	1
02	1	1	1
03	1	1	1
04	1	1	1
05	1	1	1

Grade		BAND	GIFT
01	1	1	1
02	1	1	1
03	1	1	1
04	1	1	1
05	1	1	1

NOTES

The School Grade Program Property Table displays the grades and programs available for a school. This window also allows you to access the Grade Selection and Program Selection dialog boxes to add, edit, or delete grades and programs for a school.

This window also contains the following lists:

Validity List This list tells the system which grades are valid for each program. The Validity Type drop-down box, located in the upper right hand corner beneath the buttons, allows you to change the validity type from one to zero or zero to one. Zero is used to mark a grade as invalid and one is used to mark a grade as valid.

Note:

You can only change a grade's validity type if students are not assigned and bell times do not exist.

Eligibility List This list allows you to assign eligibility types to different grades/programs. You must use eligibility types when different grades/programs need to use different boundaries to determine eligibility.

You can have up to eight eligibility types per school record. The following example is a situation that warrants the use of different eligibility types for different grades. Assume that School MSLA has grades 01 through 08. Grades 01 through 05 use a half-mile distance boundary to determine walkers. Grades 06 through 08 use a one-mile distance boundary to determine walkers. The different boundaries would be posted to the corresponding eligibility type. The following image illustrates how the Eligibility List would be set up for this school:

SCHOOL GRADE PROGRAM PROPERTY TABLE

GRADE PROGRAM SCHOOL COPY_COL COPY_ROW OK Cancel

SCHOOL: MSLA Eligibility Type: 2

Properties: VALIDITY LIST ☐ ELIGIBILITY LIST ☒ HAZARD LIST ☐

Grade	BAND	GIFT
01	1	1
02	1	1
03	1	1
04	1	1
05	1	1
06	1	1
07	1	1
08	1	1

Hazard List This list allows you to assign hazard types to different grades/programs. These hazard types correspond to the four hazard types that a segment can be assigned in the geocode.

NOTES

Assume that School MSLA has grades 01 through 08. If you wanted to associate four types of hazards, you could use the following groupings: grades 01 and 02 would be designated hazard type 1, grades 03 and 04 would be designated hazard type 2, grades 05 and 06 would be designated hazard type 3, and grades 07 and 08 would be designated hazard type 4. The following image illustrates how the Hazard List would be set up to follow this scheme:

Grade	BAND	GIFT
01	1	1
02	1	1
03	1	1
04	1	1
05	1	1
06	1	1
07	1	1
08	1	1

The four hazard types that you can associate to grades/programs correspond to the four check boxes that are highlighted in the following image of the Edit Segment dialog box from Maris:

Street Name: DALE ST N

ID Segment: [] Node IDs: From: 2241 To: 2206 Shapes: 0

Address Ranges: From: 2465 To: 2579 Right: 2466 To: 2578

Traffic Attributes: LSpeed: 40 RSpeed: 40 Direction: 0

Class: [] Hazards: ☒ 1 ☒ 2 ☐ 3 ☐ 4

☐ From node Flow-through ☐ To node Flow-through

Left No Walk: ☐ 1 ☐ 2 ☐ 3 ☐ 4 Right No Walk: ☐ 1 ☐ 2 ☐ 3 ☐ 4

Buttons: Confirm, Make Primary, Close

Hazard Type Check Boxes

NOTES

Checking the first check box would make this segment hazardous to grades 01 and 02. Checking all of the check boxes would make this segment hazardous to all of the grades.

Bell Times

Grade	Bell Times	Bus		
		Early	Late	Depart
01				
02				
03				
04				
05				

edulog uses bell times to specify the time of transportation service per grade/program/frequency.

You open the Bell Times dialog box from the Schools Tabular window. Bell times are grouped into four fields:

- Bell Times** This time is the time the bell rings to signify the start or end of a school day.
- Early Window** In the AM, this time designates the earliest time a bus could arrive at the school. In the PM, this time designates the earliest time a bus may leave the school to start an afternoon run. By default, the system sets all from-school runs to this time.
- Late Window** In the AM, this time designates the latest time a bus can arrive at school on a to-school run. In the PM, this time designates the latest time a bus can leave the school to start an afternoon run. By default, the system sets all to-school runs to this time.
- Depart** This time is used in Route Optimization (see “Route Optimization” on page 433 for more information). Because this value can be changed from Route Optimization, you do not need to enter a value

for this time. By definition, the Depart field forces all from-school runs to leave at the time in this field.

You can enter bell times for multiple grades at a time if each grade shares the same times.

If the school has multiple drop-off and pick-up times for the same grades, consider the latest time as the Late Window in the AM and the first dismissal time as the Early Window in the PM.

Bell times can be different for different days of the week. The Days button on the Bell Times dialog box allows you to enter different day patterns to be defined based on a one-week pattern.

Maintenance Associated with the Addition of Schools

The SCHDST utility calculates the distances from schools to individual node locations. SCHDST provides general distance information to various parts of the system.

You should run this utility:

- After changing the location of a school.
- After adding a new school.

For more information, see “Utilities in Emu” on page 759.

NOTES



WORKLISTS

Worklists allow you to create a list of records in one of seven categories: schools, trips, students, stops, stop services, runs, or routes. You can customize a worklist to load a precise group of records. You can also use worklists to load data on the map for display or modification or to produce reports.

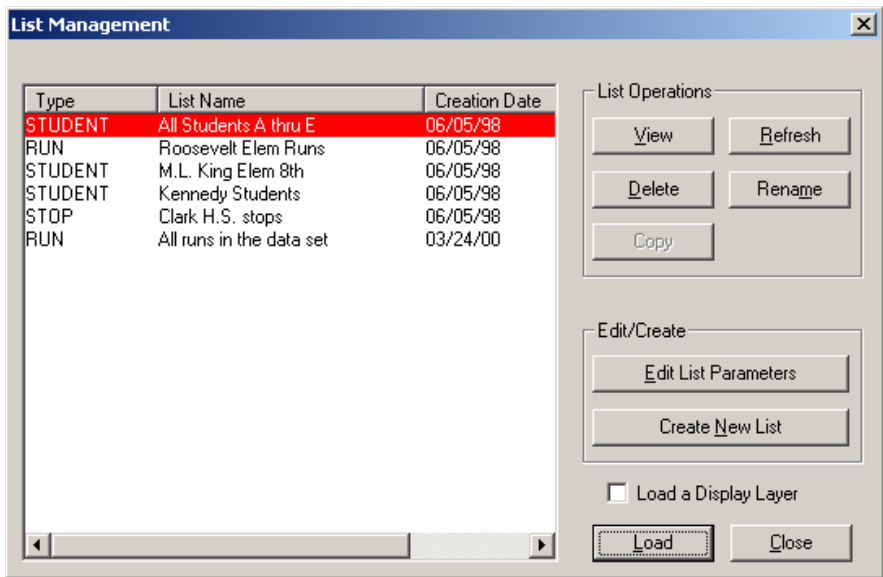
CREATING A WORKLIST

Creating a worklist consists of the following steps:

- Selecting the record type for the worklist.
- Selecting the fields by which you want to filter the records.
- Selecting the fields by which you want to sort the records.
- Saving and naming the worklist.

In the following example, you will create a sorted worklist of student records. To create a worklist:

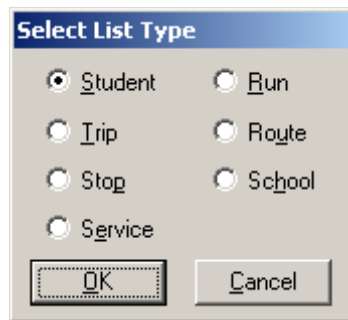
- 1 Choose **Lists** from the main menu.



The system displays the List Management dialog box.

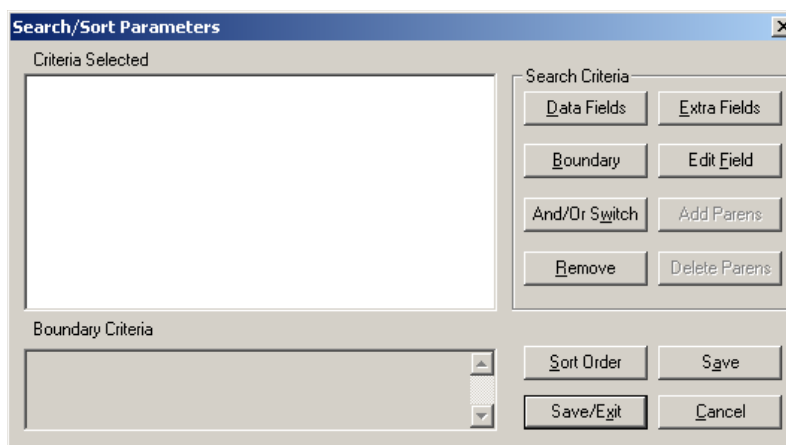
- 2 Choose **Create New List**, which is a button in the Edit/Create section of buttons in the lower right corner of the dialog box.

NOTES



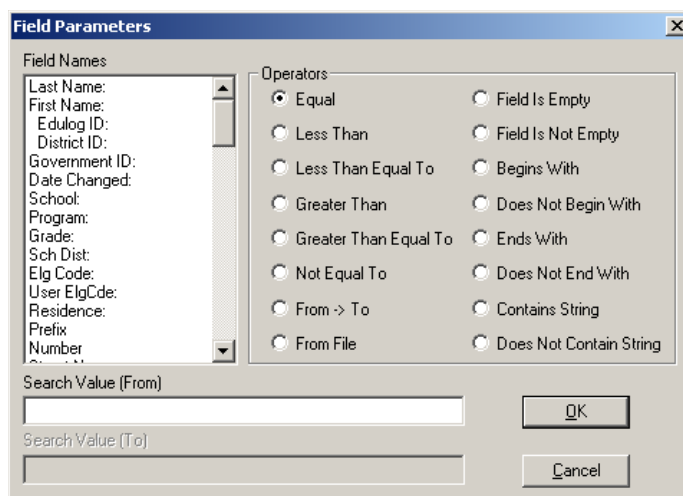
The system displays the Select List Type dialog box.

- 3 Choose the **Student** radio button.



The system displays the Search/Sort Parameters dialog box.

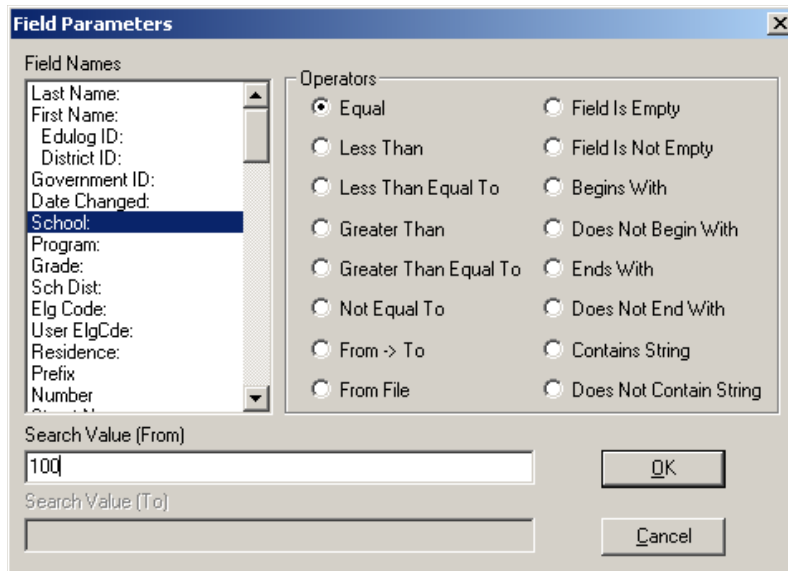
- 4 Choose **Data Fields**, which is a button in the Search Criteria section of buttons in the upper right portion of the dialog box.



The system displays the Field Parameters dialog box.

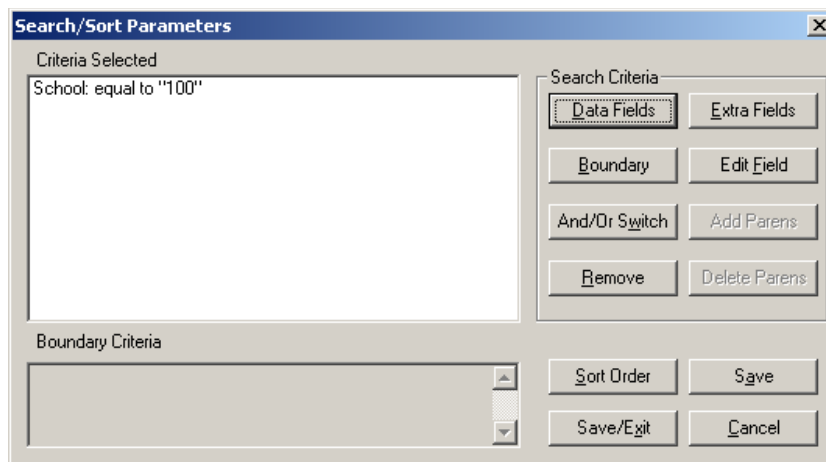
- 5 Select the **School** field in the Field Names: scrolled list box.
- 6 Select the **Equal** operator radio button.
- 7 Enter the **<school code>** in the Search Value (From) field.

NOTES



The **Field Parameters** dialog box is shown. On the left, under **Field Names**, a list of fields is displayed with **School** selected. On the right, under **Operators**, the **Equal** radio button is selected. At the bottom, the **Search Value (From)** text box contains the value **100**. The **Search Value (To)** text box is empty. **OK** and **Cancel** buttons are at the bottom right.

- 8 Choose **OK**.

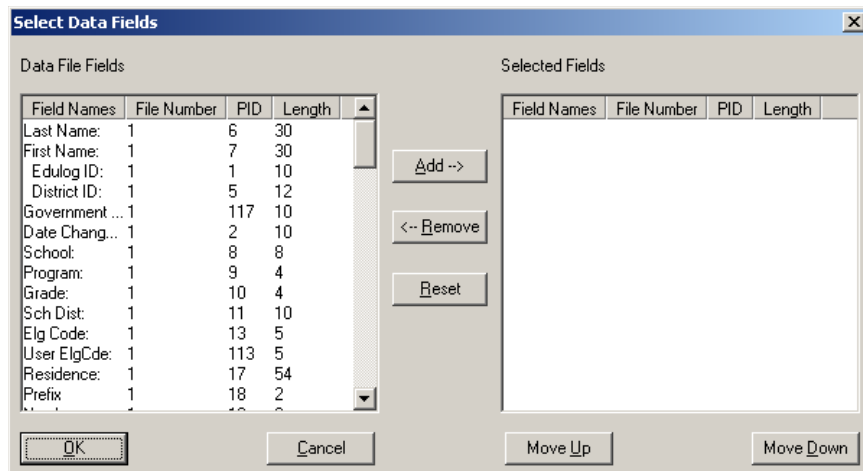


The **Search/Sort Parameters** dialog box is shown. The **Criteria Selected** list on the left contains the entry **School: equal to "100"**. On the right, the **Search Criteria** section has buttons for **Data Fields**, **Extra Fields**, **Boundary**, **Edit Field**, **And/Or Switch**, **Add Parens**, **Remove**, and **Delete Parens**. At the bottom, there is a **Boundary Criteria** list, and buttons for **Sort Order**, **Save**, **Save/Exit**, and **Cancel**.

The system closes the Field Parameters dialog box. You return to the Search/Sort Parameters dialog box, which displays the filter you created in the Field Parameters dialog box.

- 9 Choose **Sort Order**.

NOTES

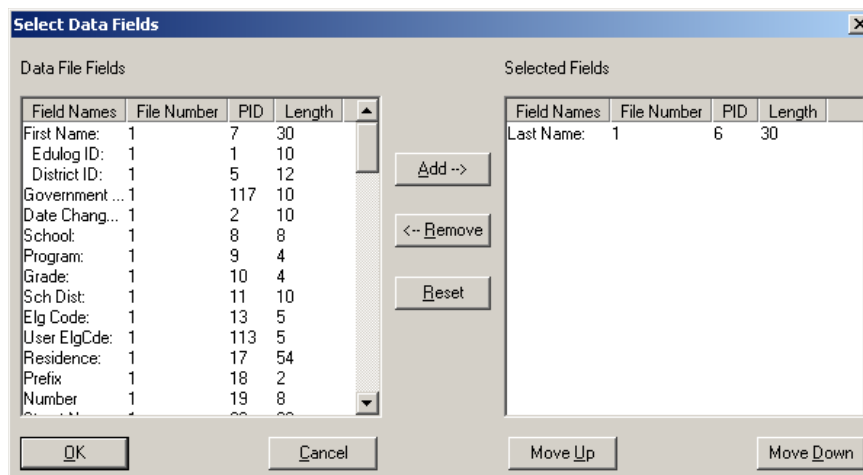


The system displays the Select Data Fields dialog box.

10 Select the **field** by which you want the worklist sorted and choose **Add**.

-OR-

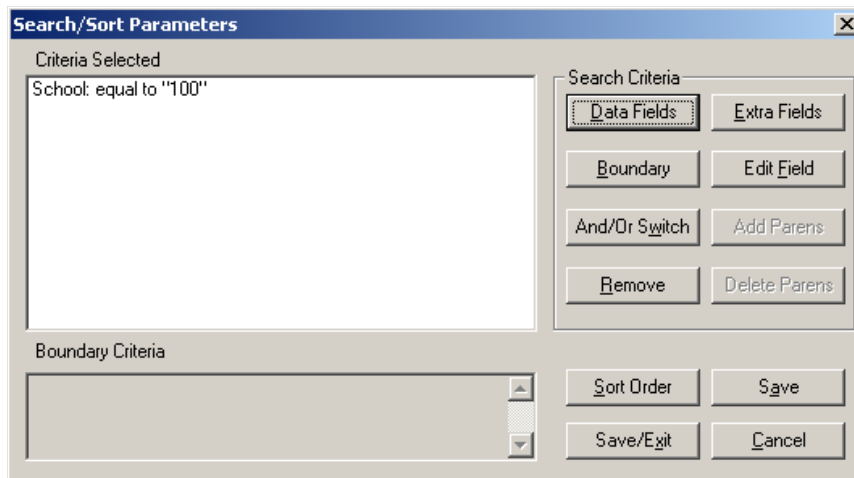
Double-click the **field** by which you want the worklist sorted.



The system moves the field from the Data File Fields scrolled list box to the Selected Fields scrolled list box.

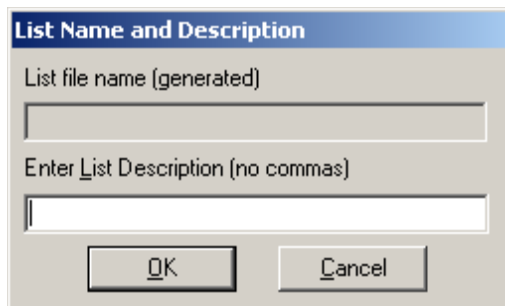
11 Choose **OK**.

NOTES



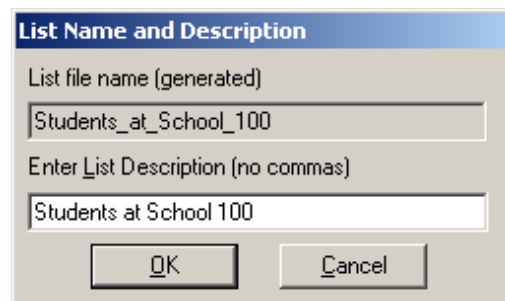
The system closes the Select Data Fields dialog box. You return to the Search/Sort Parameters dialog box.

- 12** Choose **Save/Exit**.



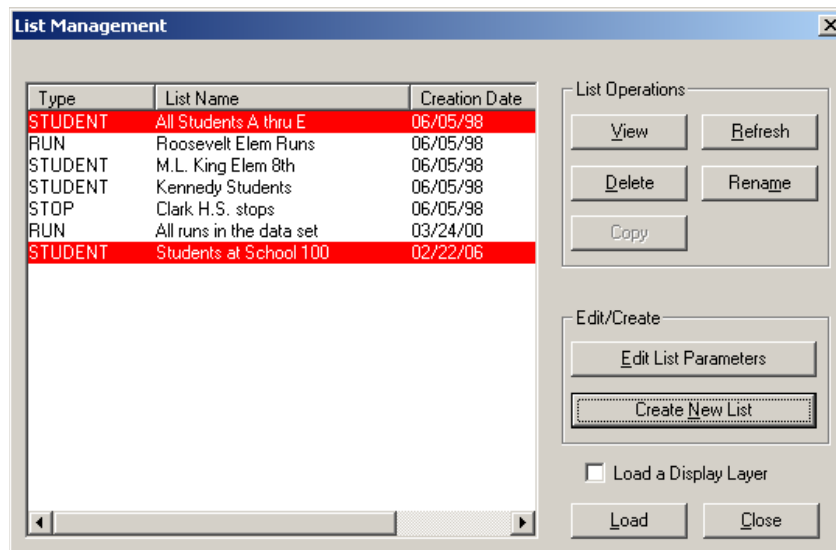
The system displays the List Name and Description dialog box.

- 13** Enter a **description** for the worklist in the Enter List Description field.



- 14** Choose **OK**.

NOTES



The system saves the worklist. You return to the List Management dialog box, which now displays the worklist you created.

USING WORKLISTS

You can use worklists created in edulog:

- To load data into a keyfinder;
- To load data on the map for display or modification;
- To limit certain utilities in EMU; and,
- To produce reports.

Loading a Worklist into a Keyfinder

Loading a worklist into a keyfinder consists of the following steps:

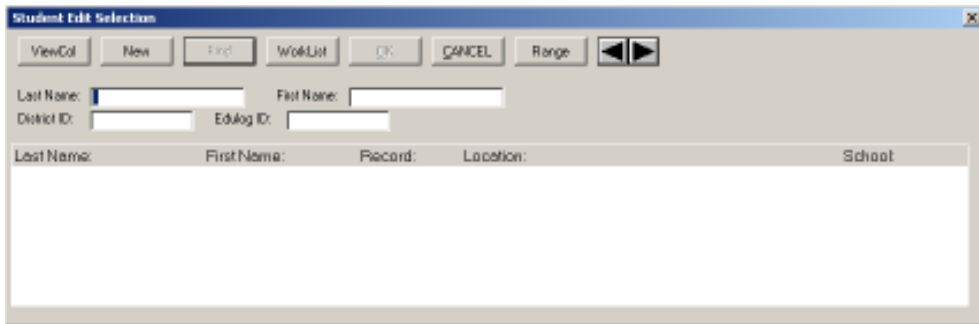
- Opening the keyfinder.
- Selecting the worklist.

In the following example, you will load the student worklist you previously created into the Student Keyfinder.

To load a worklist into a keyfinder:

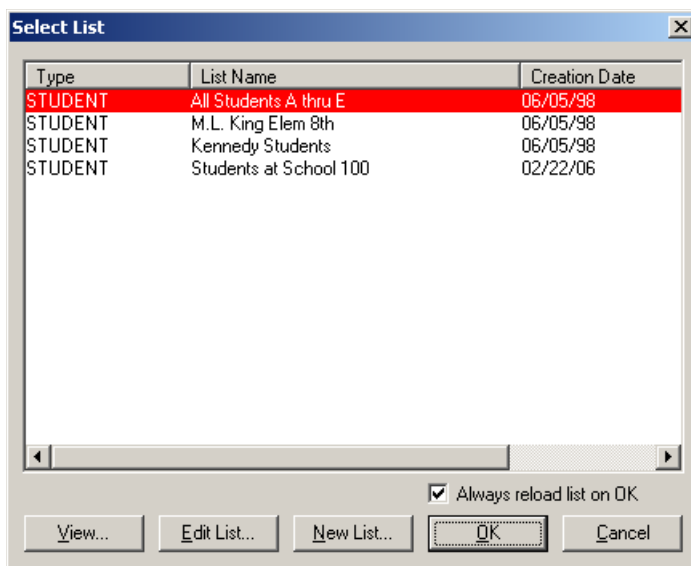
- 1 Choose **Tabular** from the Students menu.

NOTES



The system displays the Student Keyfinder.

2 Choose Worklist.



The system displays the Select List dialog box with a list of worklists that match the keyfinder you opened.

3 Select the <student worklist> to load into the keyfinder.

4 Choose OK.



The system displays a message box asking if you want to view the first record in the list.

5 To view the first record in the list, choose Yes.

NOTES

I...	P/U Location	Stop Description	Run C...	Time@Stop	Stop Dist(100ths)	Rte ID
1	=HOME					
2	=SCHOOL - 100					

The system displays the first record in the Students Tabular window.

-OR-

To view the records in the keyfinder, choose **No**.

Last Name:	First Name:	Record:	Location:	School:
ADAMS	JOHN HENRY	1952	1818 WALNUT ST	100
ADDISON	SHANKE	637	1719 MALVERN ST	100
ADOMAKO	AMA AGYEI	567	1719 MALVERN ST	100
ALBA	PAUL	76	2088 FRY ST	100
ALEXANDER	CANDACE	1073	1757 FRY ST	100
ALEXANDER	RAHSAAN	2389	2022 KNAPP AVE W	100
ALLEN	CARLTON	2037	1229 GIBBS AVE	100
ALLRED	KENNETH	77	1885 TATUM ST	100

The system displays the records from the worklist in the keyfinder.

Loading a Worklist on the Map

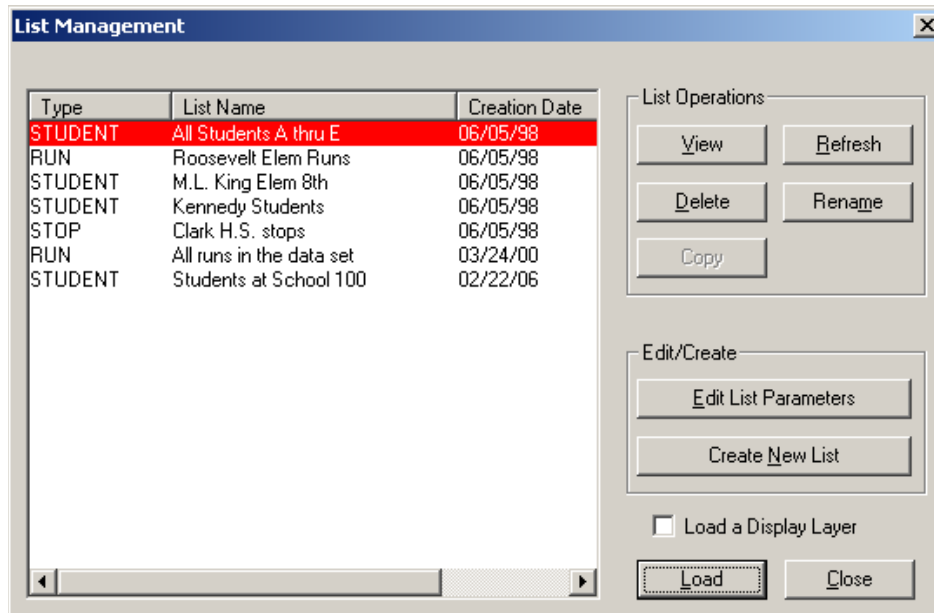
Loading a worklist as a display layer on the map consists of the following steps:

- Opening the List Management dialog box.
- Selecting the worklist.
- Loading the worklist as a display layer.

In the following example, you will load the student worklist you previously created as a display layer on the map.

To load a worklist as a display layer on the map:

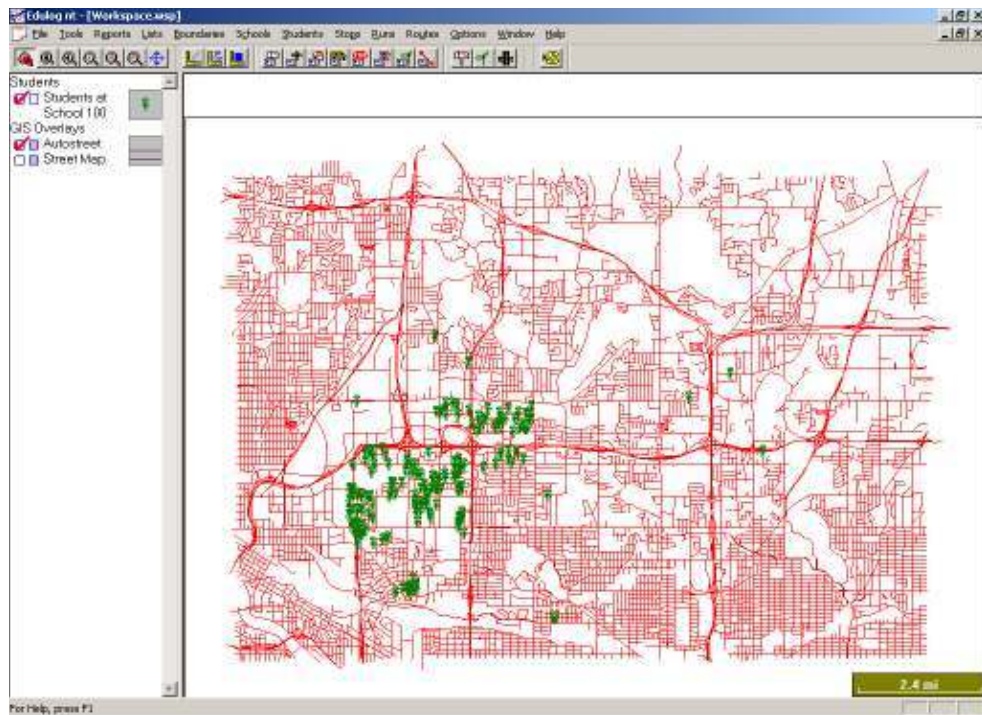
- 1 Choose **Lists** from the menu.



The system displays the List Management dialog box.

- 2 Select the **worklist** you want to load on the map.
- 3 Select the **Load a Display Layer** check box in the lower right portion of the window.
- 4 Choose **Load**.

NOTES



The system loads the worklist as a display layer on the map.

Using a Worklist with EMU

For detailed information on using a worklist with utilities in EMU, see “Utilities in Emu” on page 759.

Using a Worklist to Produce a Report

For detailed information on using a worklist to produce a report, see “Sample Report 1” on page 256.

STUDENTS AND TRIPS

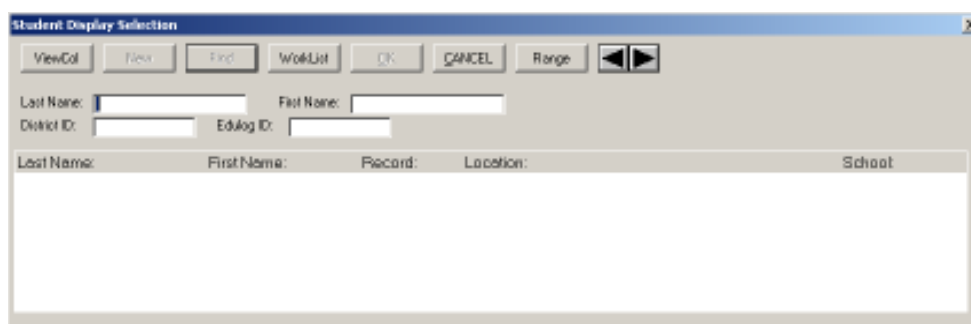
In edulog, you can work with student data in two ways: on the map or in tabular mode. When you work with student records on the map, you work with them in a graphical manner. When you work with student records in tabular mode, you work with them in a text-based manner.

VIEWING STUDENTS ON THE MAP

This section explains the Student Display Keyfinder, how to find student records, and how to load student records on the map.

Using the Student Display Keyfinder

Before viewing student records on the map, you must find those student records. You find student records through the Student Display Keyfinder. To open the Student Display Keyfinder, choose **Display** from the Students menu.



The system displays the Student Display Keyfinder (also called the Student Display Selection dialog box).

You can search for student records in different ways using the Student Display Keyfinder:

- By a partial or full match of data entered in the search fields.
- By using the Range button.
- By loading students listed in a student worklist.

Finding Students by a Partial or Full Match

To find student records based on a partial match, you enter partial information in the search fields. If you want, for example, to find all student records with a last name beginning with “A,” you would enter **A** in the Last Name field and choose **Find**.

To find student records based on a full match, you enter full information in the search fields. If you want, for example, to find a student with the name of Krista Bailey, you would enter **Bailey** in the Last Name field, **Krista** in the First Name field, and choose **Find**.

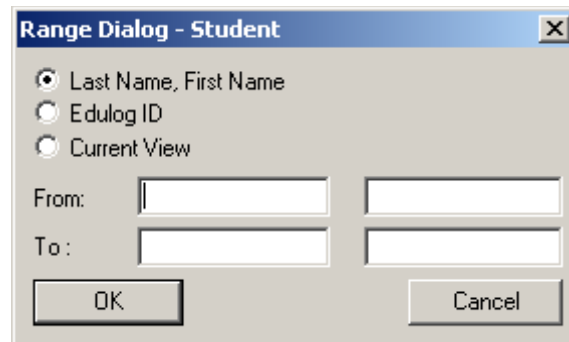
NOTES

Finding Students with the Range Button

The Range function on the Student Display Keyfinder allows you to search for a range of student records. You can search for a range of student records based on last name and first name or edulog ID.

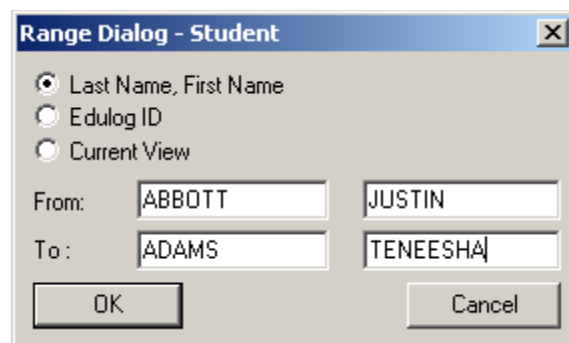
In the following example, you will find a range of student records based on last name and first name. To find a range of student records to load on the map:

- 1 Choose **Range** on the Student Display Keyfinder.

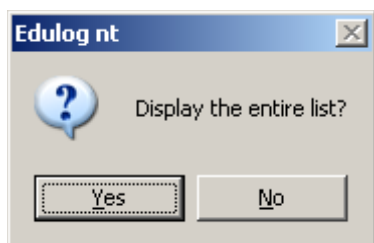
A screenshot of the 'Range Dialog - Student' window. It has a title bar with a close button. Inside, there are three radio buttons: 'Last Name, First Name' (selected), 'Edulog ID', and 'Current View'. Below these are two rows of text input fields. The first row is labeled 'From:' and the second row is labeled 'To:'. At the bottom are 'OK' and 'Cancel' buttons.

The system displays the Range Dialog - Student window.

- 2 Select the **Last Name, First Name** option button.
- 3 Enter the **<starting last name>** for the range in the first From: field.
- 4 Enter the **<starting first name>** for the range in the second From: field.
- 5 Enter the **<ending last name>** for the range in the first To: field.
- 6 Enter the **<ending first name>** for the range in the second To: field.

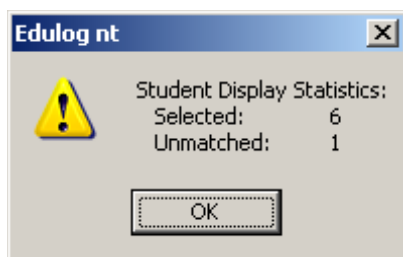
A screenshot of the 'Range Dialog - Student' window, similar to the previous one but with data entered. The 'Last Name, First Name' radio button is selected. The 'From:' row has 'ABBOTT' in the first field and 'JUSTIN' in the second. The 'To:' row has 'ADAMS' in the first field and 'TENEESHA' in the second. 'OK' and 'Cancel' buttons are at the bottom.

- 7 Choose **OK**.



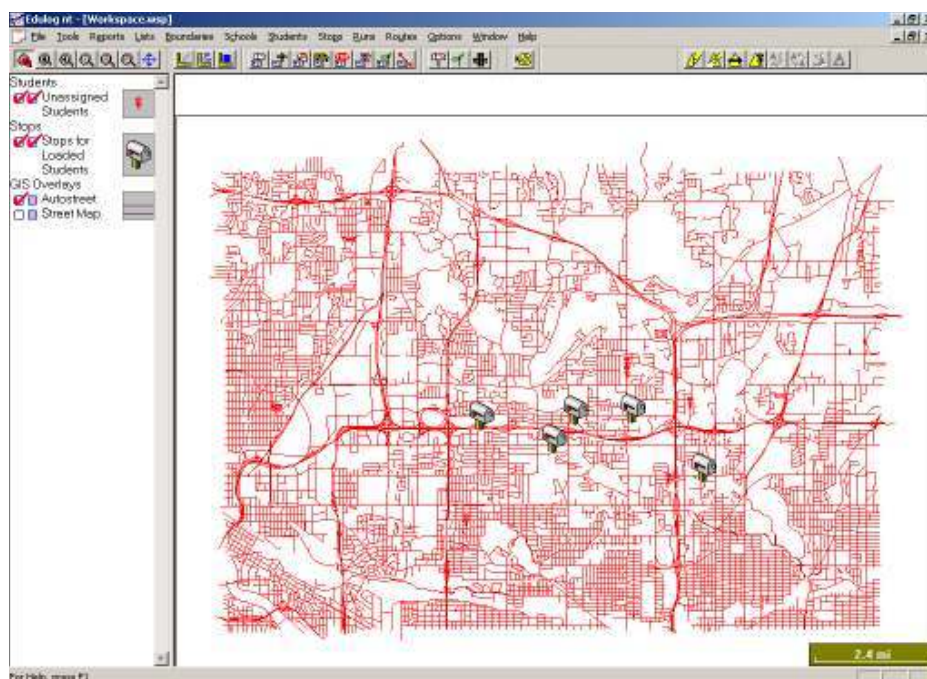
The system searches for student records in the range you entered. If it finds matches, the system prompts you to display the entire list.

- 8 Choose **Yes**.



The system closes the message box, loads the student records on the map, and displays a message box with statistical information about the student records you loaded.

- 9 Choose **OK**.



The system closes the message box. You return to the edulog Workspace, which displays the student records on the map.

NOTES

Loading Students Listed in a Student Worklist

For detailed information about creating student worklists, see “Creating a Worklist” on page 63. In addition, see “Loading a Worklist on the Map” on page 70 for detailed information about loading a worklist as a display layer on the map.

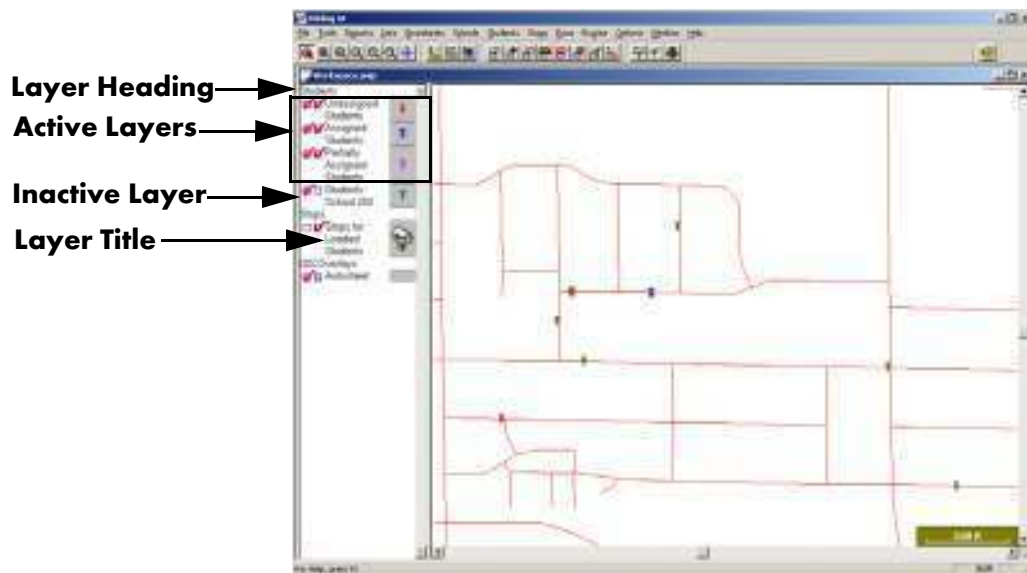
Viewing Students on the Map

When you display student records on the map, edulog displays those student records in an active layer. The system displays information on the map either as an active layer or an inactive layer.

Active Layer An active layer is a display layer that allows you to manipulate the data graphically. You know that a layer is active if it has two check boxes checked next to the layer name in the map legend. Any active layers will be deactivated when you open any of the tabular windows.

Inactive Layer An inactive layer is a display layer that does not allow you to modify the data graphically. An inactive layer is for viewing purposes only. Only the first check box is checked for an inactive layer in the legend. Clicking the second check box will reload the layer as an active layer.

The following image shows four student layers in the legend. The first three layers are active layers; the fourth layer is inactive.



The active layers are split into three categories: students who are assigned to stops, students who are unassigned to stops, and students who are partially assigned to stops (for either the morning or the afternoon, but not both). You could change the inactive Students layer to an active layer by clicking the empty check box next to the layer title.

Clicking on the title of the layer tells you the number of records in the layer. You can change the icons used to display the records by clicking the icon next to the layer in the legend.

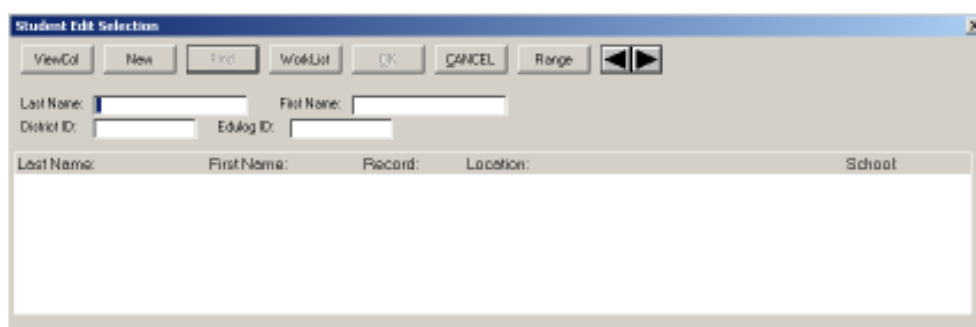
You can also delete a layer by clicking on its title and choosing Delete. Remember, deleting the layer will not delete the actual data. Deleting the layer only removes it from the workspace. If you click on the layer heading above a group of layers (such as Students in the illustration), you can remove all of the layers under that heading.

VIEWING STUDENTS IN TABULAR MODE

This section explains the Student Edit Keyfinder, how to find student records, and how to load student records in the Students Tabular window.

Using the Student Edit Keyfinder

Before viewing student records in the Students Tabular window, you must find those student records. You find student records through the Student Edit Keyfinder. To open the Student Edit Keyfinder, choose **Tabular** from the Students menu.



The system displays the Student Edit Keyfinder (also called the Student Edit Selection dialog box).

You can search for student records in different ways using the Student Edit Keyfinder:

- By a partial or full match of data entered in the search fields.
- By using the Range button.
- By loading students listed in a student worklist.

Finding Students by a Partial or Full Match

To find student records based on a partial match, you enter partial information in the search fields. If you want, for example, to find all student records with a last name beginning with “A,” you would enter **A** in the Last Name field and choose **Find**.

To find student records based on a full match, you enter full information in the search fields. If you want, for example, to find a student with the name of Krista Bailey, you would enter **Bailey** in the Last Name field, **Krista** in the First Name field, and choose **Find**.

NOTES

Finding Students with the Range Button

The Range function on the Student Display Keyfinder allows you to search for a range of student records. You can search for a range of student records based on last name and first name or edulog ID.

This feature works the same as the Range feature on the Students Display Keyfinder (see “Finding Students with the Range Button” on page 74 for more information) with one exception—you view student records individually in the Students Tabular window rather than as a group displayed on the map.

Loading Students Listed in a Student Worklist

For detailed information about creating students worklists, see “Creating a Worklist” on page 63. In addition, see “Loading a Worklist into a Keyfinder” on page 68 for detailed information about loading a worklist into a keyfinder.

CREATING A STUDENT

You can only create students in tabular mode. To create a student:

- 1 Choose **Tabular** from the Students menu.

Last Name	First Name	Record	Location	School

The system displays the Student Edit Keyfinder (also called the Student Edit Selection dialog box).

- 2 Enter the **<last name>** in the Last Name field.
- 3 Enter the **<first name>** in the First Name field.
- 4 Choose **New**.

NOTES

The system displays the Students Tabular window with the Last Name and First Name fields filled with the data you entered in the keyfinder. The system also assigned an edulog ID to the record. In addition, the focus is in the School drop-down box.

- 5 Select the **<school>** from the School drop-down box.

Once you select a school from the School drop-down box, the system enables the Grade and Program drop-down boxes.

- 6 Select the **<grade>** from the Grade drop-down box.
- 7 Enter the **<location>** in the Location field.
 - To enter a location, you can enter an **<address>** or a **<partial address>** in the Location field and press **TAB**.
The system tries to match the address data to the geocode. The system displays the Address Match dialog box to help you match this information.
 - Choose the **Digitize** button, **point** the mouse at the location on the map display, and **click**.

NOTES

- 8 Choose **Confirm**.



The system prompts you to confirm the changes.

- 9 Choose **OK**.

THE STUDENTS TABULAR WINDOW

When you find student records with the Student Edit Keyfinder, you view the student records in the Students Tabular window.

Alternate Location Fields

Trip Table

First 10 User-Defined Fields

The screenshot shows the 'Student data entry form' window. It contains several input fields for student information, a table of trips, and a section for user-defined fields.

I...	P/U Location	Stop Description	Run C...	Time/Stop	Stop Dis(100ft)	File ID
1	+Home	2762 GRIGGS S...	MTWU...	9:08 AM	43	
2	+SCHOOL - 103	2762 GRIGGS S...	MTWU...	3:40 PM	43	

Below the table, there are fields for 'Apt R', 'Ethnic', 'State', 'Phone', 'Mid Bound', 'Sex', 'City', 'Zip', 'Elem Bound', and 'Web Bound'. At the bottom, it shows 'Date modified: 03-08-2003' and 'Date created'.

The Students Tabular window contains the following fields, table, and buttons:

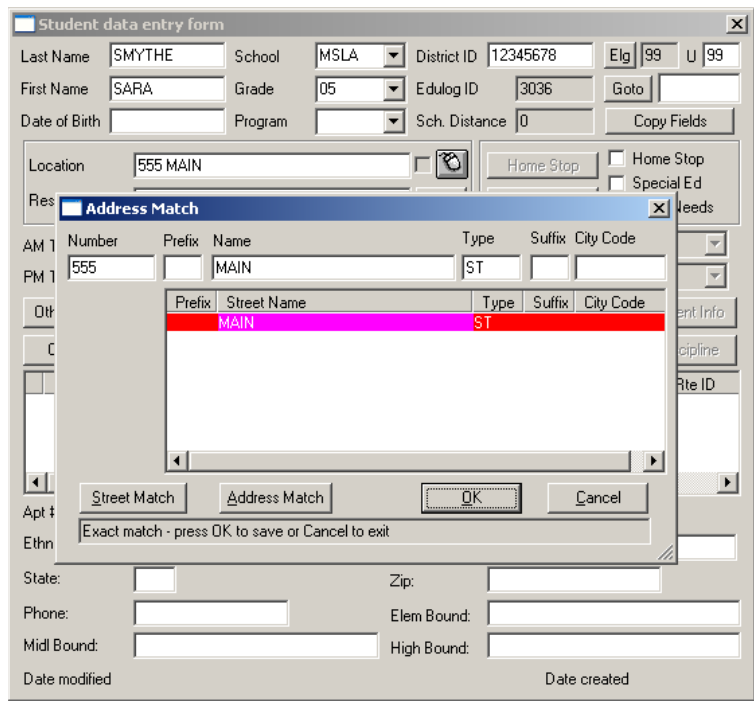
- Last Name** This field stores the student's last name. This field is a required field.
- First Name** This field stores the student's first name. This field is a required field.
- Date of Birth** This field stores the students date of birth in the format MM/DD/YY. Some districts use this field for eligibility.
- School** This field stores the student's school code. It only displays school codes for existing schools in edulog. This field is a required field.
- Grade** This field stores the student's grade. It only displays grades corresponding to the school code in the School field.

		NOTES
Program	Use this field only if the program is intended to replace default transportation.	
District ID	This field stores the district issued identification number for the student. If you want to download student information from another database, you need to enter this number. Students in your district may have their own unique District ID for successful student downloads. In addition, if you manually enter students, you need to give them a valid District ID to prevent the record from being duplicated during the next student download.	
EduLog ID	edulog creates a unique edulog ID for every student record.	
Sch. Distance	This field shows the distance to school following the street map. edulog calculates this value.	
Elg	This field stores the student's transportation eligibility code. edulog calculates the value in this field. In addition, edulog uses the data in this field to determine the student's transportation eligibility. The system assigns one of the following eligibility codes: 0 - Eligible for transportation. 1 - Eligible due to hazard. 12 - Ineligible due to outside of attendance area. 13 - Ineligible due to within designated walk distance. 90 - Unable to calculate eligibility. 91 - Student address is unmatched. 92 - Invalid School/Grade/Program 93 - No attendance boundary posted for school 99 - Default/No eligibility code yet.	
U	This field stores the user-defined eligibility code, which you can use rather than the system-defined eligibility code stored in the Elg field.	
Goto	This button allows you to enter the edulog ID of another student record and immediately go to that record.	
Copy Fields	This button allows you to enter another edulog ID and copy the data from that record to this record. This feature is frequently used for students with siblings.	
Location	This field stores the address that has been matched to the geocode. This field is vital to edulog because it is used for transportation. Proper matching and verification of an address in the geocode is essential for assigning students to stops. The check box next to the Location field indicates whether the system has matched the address to the geocode.	

NOTES

Students will not match the geocode if the street name does not exist in the geocode or the address number is invalid for a valid street name. As a result, edulog cannot assign transportation to unmatched students.

When you manually enter a location in this field, enter a partial address and TAB out of the field to use the Address Match dialog box, which allows you to match the address to the geocode. The following image shows the Address Match dialog box:



Res Addr

This field is a secondary address field that is not used for transportation. If you want to do student downloads, you do not need to modify this field because this field is used during the download process.

During a student download, the system checks if the data in this field matches the data in the Res Addr field in the newstu.dat file. If the data matches, the system determines that the student has not moved and does not update the Location or Res Addr fields in the student file; the system, however, updates the other fields based on the data in the newstu.dat file. If the data does not match, the system treats the student record as changed, which means that the system does the following:

- Overwrites the Res Addr data in the student file with the Res Addr data from newstu.dat.

- Parses the Res Addr field in the student file into the Location field in the student record, which unmatched the student from the map.
- Deassigns the student from the stop.

Home Stop This check box indicates whether edulog should create a stop at the student's location, meaning the address in the Location field. If this check box is checked, the system creates a stop at the student's location. The student will be assigned to the stop but the stop will not be assigned to a run.

The Home Stop button next to this check box allows you to toggle between two features:

Available - This feature makes the stop available only to students who were already assigned to it.

You can set the default for this feature in ElSettingsEditor.

Right Side - This feature forces the bus to approach the stop from the correct side of the street.

You can set the default for this feature in ElSettingsEditor.

Special Ed This check box indicates whether the student record is designated as Special Ed. This designation means that the student has special transportation needs.

When this check box is selected, the Special Needs button becomes available, which allows you to define special transportation needs for the student. If your district has the Special Ed package and you select one or more special needs for a student, the system automatically selects the Other Needs check box.

Note that you do not need to mark a student as special ed in order to access the special needs descriptions. In the Other fields window (see the next page), you can choose the Spcl Needs button, then select the special transportation requirement without marking the student as special ed.

In edulog version 10.5, you can download special transportation needs for students in the student download process.

Other Needs This check box indicates whether the student has special transportation needs. If this check box is selected, the student has special transportation needs.

**AM Trans-
portation** This field allows you to use a location other than the one in the Location field as an AM pickup location. If you use this field, the

NOTES

Location

system still uses the Location address to determine transportation eligibility.

PM Transportation Location

This field allows you to use a location other than the one in the Location field as an PM pickup location. If you use this field, the system still uses the Location address to determine transportation eligibility.

AM Shuttle

This field allows you to transport students attending different schools using one stop from different areas of your district to a central location. At the central location, students board a bus transporting them to their schools of attendance. This feature allows you to eliminate the use of transfers and echoed stops at all of the different locations where students are picked up.

PM Shuttle

This field allows you to transport students attending different schools using one stop from different areas of your district to a central location. At the central location, students depart a bus transporting them from their schools of attendance. This feature allows you to eliminate the use of transfers and echoed stops at all of the different locations where students are picked up.

Other Fields

This button opens the Other Fields window. The Other fields window contains all of the system fields as well as any user-defined fields that your district may have.

Note:

The Students Tabular window displays the first ten user-defined fields in the bottom portion of the window.

The following is an illustration of the Other Fields window.

The screenshot shows a software window titled "workspace.wpt: Student Display". It has a menu bar with "Confirm", "Cancel", "Previous", "Next", "Spcl Needs", "Eligibility", and "Parent Info". Below the menu bar is a "CANCEL" button. The main area contains several input fields for student information:

- Last Name: ABBOTT
- First Name: JUSTIN
- DOB: [empty]
- Phone: 545-9130
- Residence: 1821 ONACREST CT N
- City: ROSEVILLE
- Location: 1821 ONACREST CT N
- Special Ed: 1
- Elem Bound: [empty]
- Midi Bound: [empty]
- EduLog ID: 1842
- District ID: [empty]
- Sex: F
- Ethnic: R
- School: 400
- Grade: 10
- Program: [empty]
- Elg Code: 12
- User Elg Code: 12
- Apt #: [empty]
- State: MT
- Zip: 59808
- Nd1: 4528
- Nd2: 4537
- X: 492747
- D1: 155
- D2: 1
- Y: 4962526

Att Bndry

This button opens the Attendance Boundary dialog box that allows you to determine transportation eligibility for all schools based on a student's location and grade.

The following image shows the Attendance Boundary dialog box:

NOTES

Attendance Boundary

Grade: Program:

Location:

School Code	Name	Distance	Eligible
202	MISSOULA ELEMENTARY	4.72 mi	12
103	ROOSEVELT ELEMENTARY	5.00 mi	12
201	ANACONDA PAROCHIAL	6.63 mi	12
203	T. EDISON GRADE SCHOOL	7.34 mi	12
102	GRANT ELEMENTARY	7.47 mi	0

Buttons: Find School, Show Stops, Confirm, Cancel

Trip Time	Frequency	Stop Description	Stop Distance (100ths)	Time

If the student is eligible for more than one school, the window lists all of those schools. It also displays stop information. If you choose **Confirm**, the system modifies the student record with any changes you made to the location or grade.

Trips

This button opens the Trips window, which allows you to modify the student's transportation data. For more information, see "Trips" on page 91.

Picture

This button displays a picture of the student.

To use this feature, you must have a folder called **pic** with image files. This folder should be in the elt\live\server directory. Depending on the **Use District ID for Student Picture** setting in ElSettingsEditor, the file name must be the student's edulog ID or District ID. The system allows the following file formats: .bmp, .gif, or .jpg.

If the **Use District ID for Student Picture** check box is selected in `EISettingsEditor`, the name of the image file must be the student's District ID. For example, a student has District ID 111224564; her image file would be named 111224564.jpg. If the **Use District ID for Student Picture** check box is unselected, the name of the image file must be the student's edulog ID. For example, a student has edulog ID 564; his image file would be named 564.jpg.

Print

This button allows you to produce two standard reports or build a custom report based on the current student record.

The following image shows a custom transportation report you can create with this feature:

NOTES

STUDENT REPORT WITH TRANSPORTATION INFORMATION

Last Name:	ABER	School:	103
First Name:	BORISON	Grade:	04
Date of Birth:		Program:	
District ID:	000062336600	Eligibility Code:	13
Edulog ID:	227	User Eligibility Code:	13
Distance to School:	1.78	Homestop:	No
		Special Ed:	0
Location:	2811 GRIGGS ST N		
Residence:	2811 GRIGGS ST. N		

Stop ID	Time@Stop	Stop Dist	Rte ID	Bus #	Days	Time@Stop	Run ID
Stop Description			P/O Location			P/O Location	
103.088001	9:05 AM	0.43			MTWTF--	S	103.006
2762 GRIGGS ST N			Home			SCHOOL - 103	
103.088002	3:40 PM	0.43			MTWTF--	S	103.106
2762 GRIGGS ST N			SCHOOL - 103			Home	

School Path This button allows you to display the student's path to school along the street network.

Confirm This button saves the student record.

Cancel This button discards any changes you made to the student record.

Delete This button flags the student record for deletion. The system considers the record to be inactive. The system, however, does not remove the student from the database.

If you later decide you want to retrieve the record, you can open it by entering the edulog ID in the Student Edit Keyfinder dialog box, opening the record in the Students Tabular window, and confirming the record.

You can run the Purge Deleted Student Records (STUDENT-PURGE) utility in EMU to remove from the database student records that were flagged for deletion (see "Purge Deleted Student Records (STUDENTPURGE)" on page 797 for more information).

If you flag a student record for deletion, the system purges the student's trips.

Previous This button allows you to view the previous student record in the Student Edit Selection dialog box.

Next This button allows you to view the next student record in the Student Edit Selection dialog box.

Walk Path This button allows you to display the student's walk path on the street network. The path appears in the student's trip layer and shows the path used by edulog to determine the student-to-stop distance.

Quick Assign This button allows you to assign to-school and from-school trips to the closest available active stop. The next section discusses this feature in greater detail:

Trips This table displays the student's trips.

Quick Assign

To use Quick Assign, choose the **Quick Assign** button on the Trips window. Quick Assign allows you to assign to-school and from-school trips to the closest available active stop.

The following image shows the Quick Assign dialog box:

Trip Time	Frequency	Stop Description	Stop Distance (100ft)	Time@Stop	Stop ID	Run ID	BUS #
9:15 AM	MTWTF--	2762 GRIGGS S.	13	9:08 AM	103	08	103008
3:25 PM	MTWTF--	2762 GRIGGS S.	13	3:40 PM	103	08	103108

The **Assignment Options** button opens the Bus Stop Selection dialog box, which allows you to change the behavior of the Quick Assign feature using the following options:

- **Active stops only** - This option only lists stops that are on runs.
- **Active or inactive stops** - This option lists stops on runs and stops that are not on runs.
- **Create stop services as needed** - This option creates a stop service for a stop without services.
- **Leave existing assignments** - This option leaves assignments in place.
- **Replace existing assignments** - This option overwrites any affected student assignments

You can make your selections on the Bus Stop Selection dialog box the default options by choosing the Set Defaults button.

MAINTENANCE ASSOCIATED WITH STUDENT DATA

The following utilities are related to student data. For further information, see “Utilities in Emu” on page 759.

NOTES

- **ADDUPD** - Use this utility to correct street names in student Location fields. This utility does not affect the geocode. It only corrects information entered in the location field of student records.
- **ADSCAN** - Use this utility to match student locations to the geocode. In some cases, such as when a street name changes, students addresses may no longer correspond to any locations in the geocode. You can use this utility to match students, as well as to produce a listing of any students who are currently unmatched. Typically, you will want to run this program after downloading students from a master database.
- **BADSTU** - Use this utility to find students who were matched to the geocode at one time, but whose address-matching information is now incorrect due to changes made to the geocode or inaccurate information entered during a student download. This process also checks for students with invalid school/grade/program combinations.
- **BTHELG** - This utility calculates eligibility codes based on posted boundaries for schools and student locations in the geocode. Students need to be matched to the geocode for this utility to calculate their eligibility codes. You should run this utility after performing a student download.
- **FLAGSET** - Use this utility to set flags for student records. When you set or reset a flag for a student, it's like turning a switch on or off. For example, if you set the Deletion flag for certain students, the next time you purge deleted records, the system will remove those flagged student records.

Before you run this utility, you need to create a student worklist that contains the student records you want to flag.
- **STUDENTPURGE** - Use this utility to purge student records flagged for deletion from the transportation database. When you delete a student record in the system, it is only flagged for deletion and considered inactive. Purging those student records erases them from your dataset (similar to emptying the Recycle Bin in Microsoft Windows). You can also flag student records for deletion using the FLAGSET utility.
- **STUDST** - Use this utility to determine the distances from student locations to their assigned schools. This utility automatically updates the Distance to School fields in student records.
- **REBUILDWALKPATHFILES** - Use this utility after geocode changes to rebuild the files used to determine student walk paths to stops. This utility is part of the normal post-Maris maintenance batch. These files are used when assigning students to stops and when displaying the student walk path to stop.

ASSIGNING STUDENTS TO STOPS

edulog has three ways to assign students to stops. Those ways are:

- Students Tabular Window (Home Stop and Trips features).
- Students Graphical Mode (Manual or Group).
- BTHASGN Utility in EMU.

ASSIGNING STUDENTS TO STOPS IN STUDENTS TABULAR

The Students Tabular window has two ways to assign students to a stop. Those ways are:

- Home Stop.
- Trips.

Before you assign students to stops, make sure that you have run the appropriate maintenance utilities in EMU, including SCHDST, STUDST, BTHELG, and REBUILDWALKPATHFILES (See “Utilities in Emu” on page 759 for more information).

Home Stop

The Home Stop check box and button on the Students Tabular window is one way to assign students to stops. The Home Stop button becomes available when you select the Home Stop check box. This button opens the Home Stop Settings dialog box.

When you select the Home Stop check box, the system tells you, “this selection will change the home stop and trip information upon confirmation of the student, do you want to continue with this operation?” Also, when the Home Stop check box is checked, the Home Stop Settings dialog box becomes available. You then have the opportunity to check availability and right side pickup information. The following image shows the Home Stop Settings dialog box:

NOTES

The screenshot shows the 'Student data entry form' with various fields for student information. A 'Home Stop Settings' dialog box is open, displaying two checked options: 'Available' and 'Right Side'. The dialog box has 'OK' and 'Cancel' buttons. The main form includes fields for Last Name (SNELLING), First Name (TWILA), School (103), District ID (97654321), Grade (04), Edulog ID (3037), Date of Birth, Program, Sch. Distance (3.41 mi), Location (431 OWASSO BLVD S), and Pkcs Addr (431 OWASSO BLVD S). There are also checkboxes for 'Home Stop', 'Special Ed', and 'Other Needs'. At the bottom, there are fields for Apt R, Ethnic, State, Phone, Mid Bound, Sec, Dlx, Zip, Elem Bound, and High Bound, along with 'Date modified' and 'Date created' labels.

The Home Stop Settings dialog box contains two check boxes:

Available The Available check box indicates whether this home stop is only available for this student or if other students can be assigned to it.

You can set the default for this check box in ElSettingsEditor.

Right Side The Right Side check box indicates whether the student needs a right side pickup because the student cannot cross the street to get to the stop.

You can set the default for this check box in ElSettingsEditor.

When you select the Home Stop check box on the Students Tabular window, the system checks the Available and Right Side check boxes.

When you confirm the student record by choosing **Confirm** on the Students Tabular window, the system changes the student's transportation information.

NOTES

Trips

The Trips window, which you open by choosing **Trips** on the Students Tabular window, also allows you to assign students to stops. You can assign students through two features:

- Quick Assign.
- Schedule Trip.

Schedule Trip

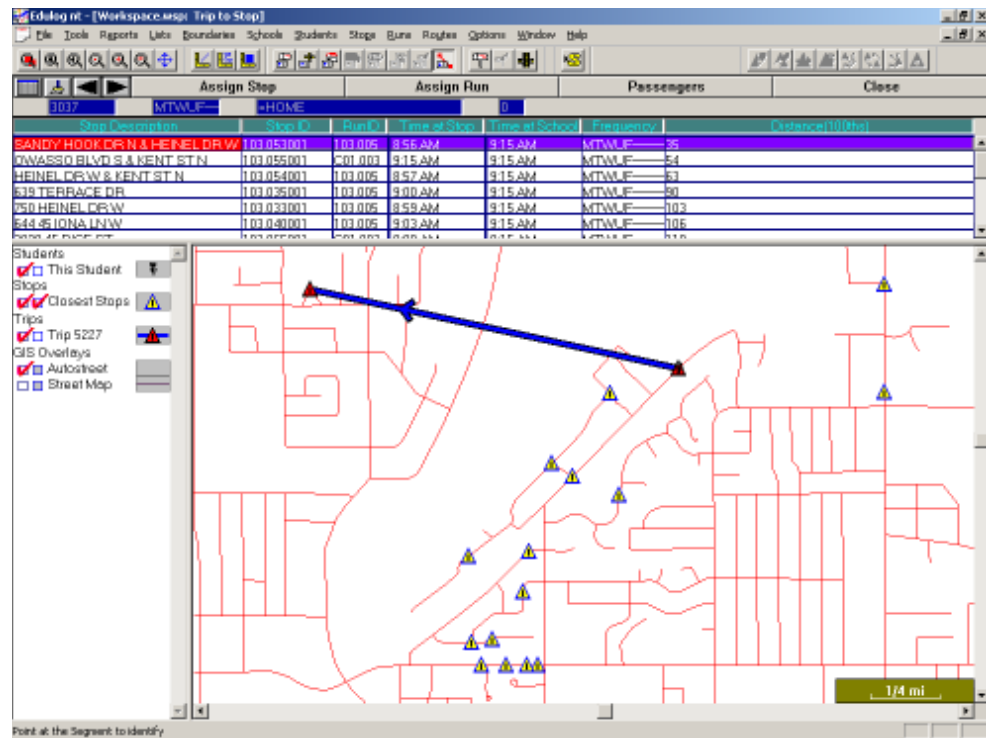
To use Schedule Trip, choose the **Schedule Trip** button on the Trips window. Schedule Trip allows you to schedule the to-school and from-school trips individually.

You can select the following options:

- **Active stops only** - This option only lists stops that are on runs.
- **Active or inactive stops** - This option lists stops on runs and stops that are not on runs.
- **Create stop services as needed** - This option creates a stop service for a stop without services.
- **Stop ID** - This field allows you to enter the Stop ID of the desired stop. The system does not perform any feasibility checking.

The following image shows the Schedule Trip window when you choose **Active stops only**.

NOTES



You can pick the stop to which you want to assign the student by clicking the list of stops, which will highlight the stop on the map. To assign the student to the selected stop, choose **Assign Stop**.

ASSIGNING STUDENTS TO STOPS IN GRAPHICAL MODE

You assign students to stops in two ways in graphical mode.:

- Group or Automatic.
- Individual or Manual.

Group or Automatic

Before you can assign students graphically, you must display the students and stops on the map. You can assign students to stops graphically by:

- Choosing **Assign** on the Graphical sub-menu on the Students menu.
- Choosing **Assign** on the Student Operations sub-menu on the Graphical sub-menu on the Stops menu.

These commands function the same way, no matter which menu you use.

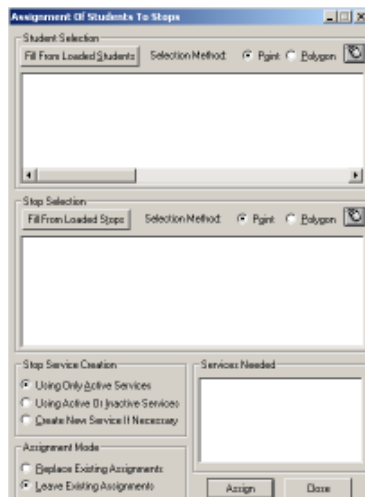
To graphically assign students to a stop:

- 1 Choose **Assign** on the Graphical sub-menu on the Students menu.

-OR-

Choose **Assign** on the Student Operations sub-menu on the Graphical sub-menu on the Stops menu.

NOTES

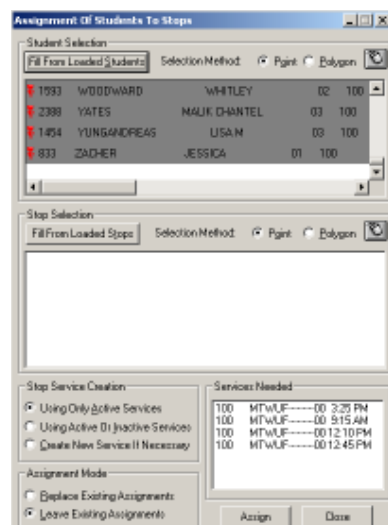


The system displays the Assignment of Students to Stops dialog box.

2 Select the **students** you want to assign.

In the Student Selection portion of the Assignment of Students to Stops dialog box, do one or more of the following:

- To select all loaded students, choose **Fill From Loaded Students**.
- To select individual students, select **Point**, click the **Graphic Selection tool**, then click the **students** on the map.
- To select students within a perimeter you draw, select **Polygon**, click the **Graphic Selection tool**, then **draw a perimeter** around the students on the map.



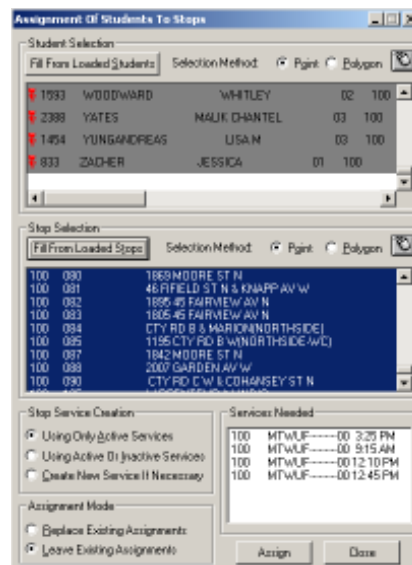
The system displays the selected students in the scrolled list box in the Student Selection portion of the dialog box.

NOTES

3 Select the **stops** to which you want to assign the students.

In the Stop Selection portion of the Assignment of Students to Stops dialog box, do one or more of the following:

- To select all loaded stops, choose **Fill From Loaded Stops**.
- To select individual stops, select **Point**, click the **Graphic Selection tool**, then point and click the **stops** on the map.
- To select stops within a perimeter you draw, select **Polygon**, click the **Graphic Selection tool**, then **draw a perimeter** around the stops on the map.



The system displays the selected stops in the scrolled list box in the Stop Selection portion of the dialog box.

4 Select a **stop service creation option**.

In the Stop Service Creation portion of the Assignment of Students to Stops dialog box, select one of the following:

- To assign students only to stop services that are assigned to runs, select **Using Only Active Services**.
- To assign students to any of the stop services, regardless of whether they are assigned to runs, select **Using Active or Inactive Services**.
- To create stop services if a compatible service (such as a morning service) does not exist, select **Create New Service If Necessary**.

5 Select an **assignment mode option**.

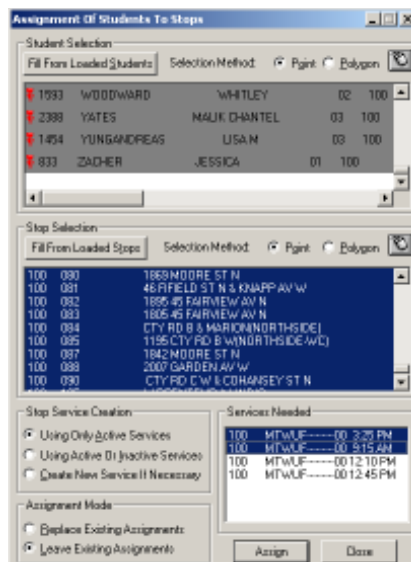
In the Assignment Mode portion of the Assignment of Students to Stops dialog box, select one of the following:

- Select **Replace Existing Assignments** to overwrite any affected student assignments.

- Select **Leave Existing Assignments** to leave such assignments in place.
- 6 In the Services Needed portion of the Assignment of Students to Stops dialog box, select the **services** for which you want to assign students.

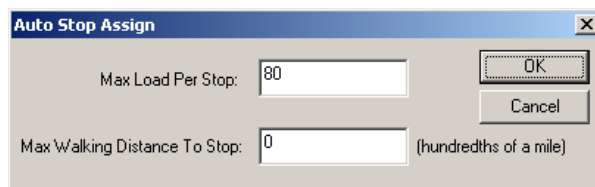
Note:

You can select as many of the displayed services as you want (hold down the CTRL key and click the desired services).



The system highlights the selected services in the scrolled list box in the Services Needed portion of the dialog box.

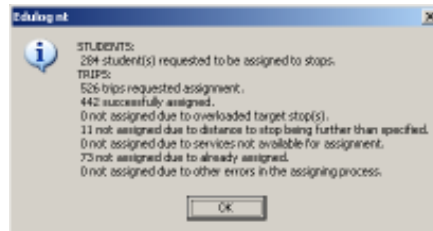
- 7 Choose **Assign**.



The system displays the Auto Stop Assign dialog box.

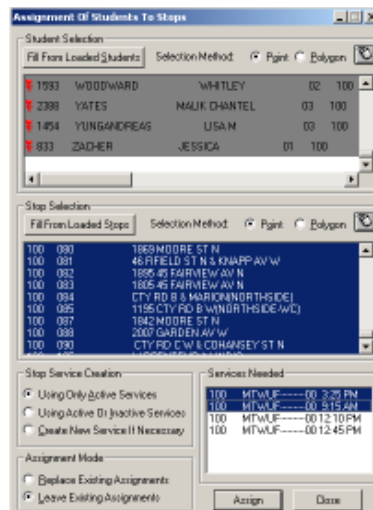
- 8 Enter the **maximum number of students** you want assigned to each stop in the **Max Load Per Stop** field.
- 9 Enter the **maximum distance** in hundredths of a mile (for example, enter 100 for one mile) that students can walk to get to their stops in the **Maximum Walking Distance to Stop** field.
- 10 Choose **OK**.

NOTES



The system processes the assignments. When finished, it displays a dialog box indicating the results of the student assignment process.

11 Choose **OK**.



The system closes the message box. You return to the Assignment Of Students To Stop dialog box.

12 Choose **Close**.



The system closes the Assignment Of Students To Stop dialog box. You return to the map display.

Individual or Manual

NOTES

Assigning students manually allows you to control which students are assigned to which stops. You can select a stop, then select which students you want to assign to that stop.

Before you can assign students graphically, you must display the students and stops on the map. You can assign students to stops graphically by:

- Choosing **Assign** on the Graphical sub-menu on the Students menu.
- Choosing **Assign** on the Student Operations sub-menu on the Graphical sub-menu on the Stops menu.

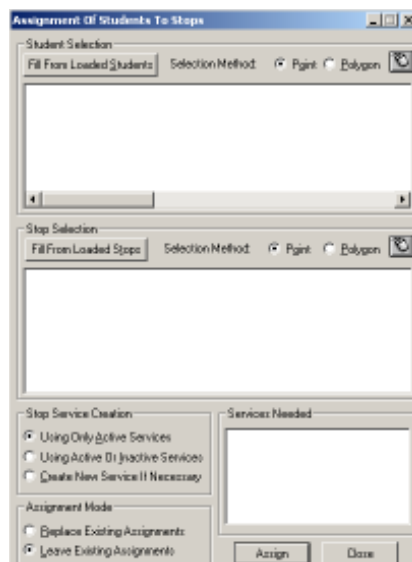
These commands function the same way, no matter which menu you use.

To graphically assign students to a stop:

- 1 Choose **Assign** on the Graphical sub-menu on the Students menu.

-OR-

Choose **Assign** on the Student Operations sub-menu on the Graphical sub-menu on the Stops menu.



The system displays the Assignment of Students to Stops dialog box.

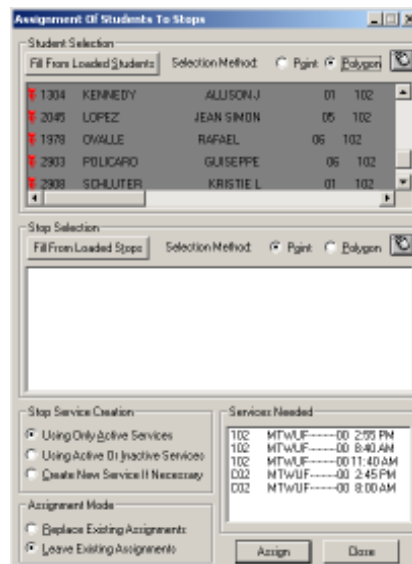
- 2 Select the **students** you want to assign.

In the Student Selection portion of the Assignment of Students to Stops dialog box, do one or more of the following:

- To select all loaded students, choose **Fill From Loaded Students**.
- To select individual students, select **Point**, click the **Graphic Selection tool**, then click the **students** on the map.

NOTES

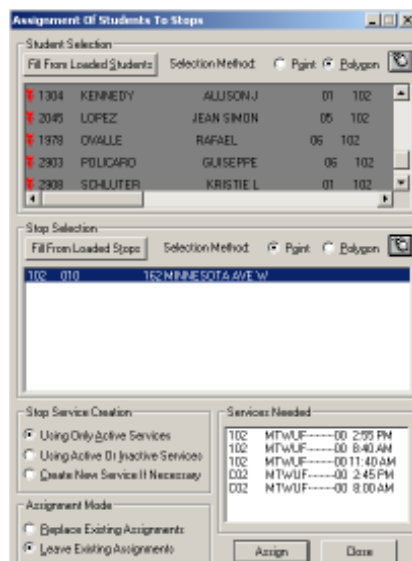
- To select students within a perimeter you draw, select **Polygon**, click the **Graphic Selection tool**, then **draw a perimeter** around the students on the map.



The system displays the selected students in the scrolled list box in the Student Selection portion of the dialog box.

3 Select the **stop** to which you want to assign the students.

In the Stop Selection portion of the Assignment of Students to Stops dialog box, select **Point**, click the **Graphic Selection tool**, then point and click the **stops** on the map.



The system displays the selected stop in the scrolled list box in the Stop Selection portion of the dialog box.

4 Select a **stop service creation option.**

In the Stop Service Creation portion of the Assignment of Students to Stops dialog box, select one of the following:

- To assign students only to stop services that are assigned to runs, select **Using Only Active Services**.
- To assign students to any of the stop services, regardless of whether they are assigned to runs, select **Using Active or Inactive Services**.
- To create stop services if a compatible service (such as a morning service) does not exist, select **Create New Service If Necessary**.

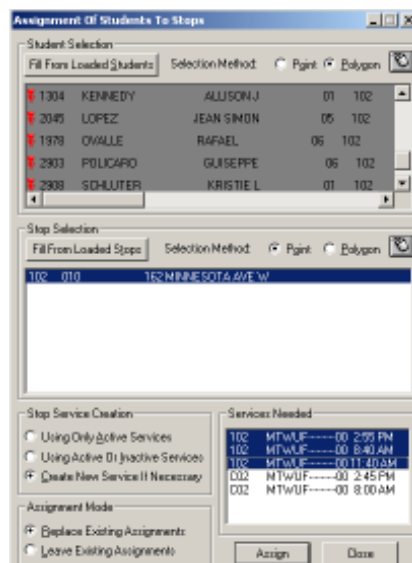
5 Select an **assignment mode option.**

In the Assignment Mode portion of the Assignment of Students to Stops dialog box, select one of the following:

- Select **Replace Existing Assignments** to overwrite any affected student assignments.
- Select **Leave Existing Assignments** to leave such assignments in place.

6 In the Services Needed portion of the Assignment of Students to Stops dialog box, select the **services for which you want to assign students.****Note:**

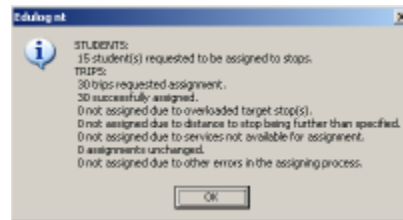
You can select as many of the displayed services as you want (hold down the CTRL key and click the desired services).



The system highlights the selected services in the scrolled list box in the Services Needed portion of the dialog box.

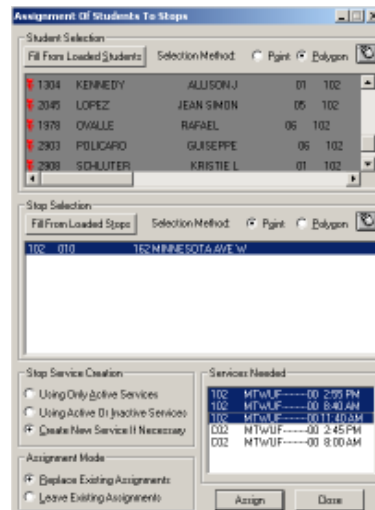
7 Choose **Assign.**

NOTES



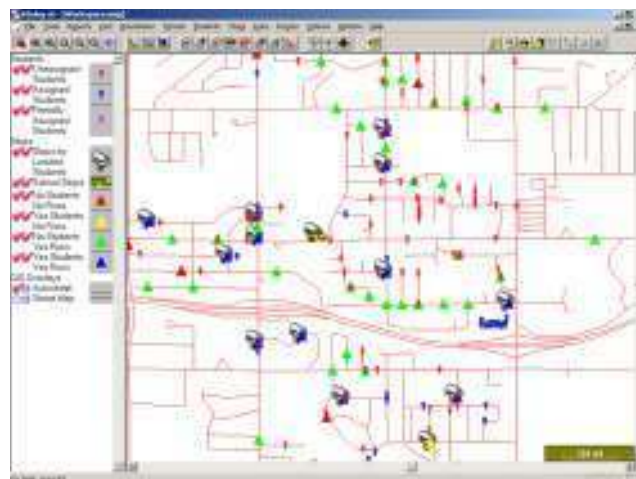
The system processes the assignments. When finished, it displays a dialog box indicating the results of the student assignment process.

8 Choose **OK**.



The system closes the message box. You return to the Assignment Of Students To Stop dialog box.

9 Choose **Close**.



The system closes the Assignment Of Students To Stop dialog box. You return to the map display.

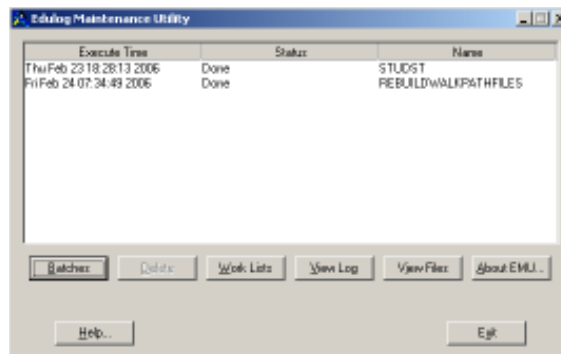
BTHASGN IN EMU

You can use the BTHASGN utility in edulog Maintenance Utilities (EMU) to assign a selected group of students to stops (specifically, a group of student trips to stop services) all at once. This batch assignment process can be especially useful after you perform a student download.

This utility considers hazardous streets and transportation eligibility codes when assigning students. EMU will not assign a student to a stop that requires her to cross a hazardous street. Using the Maris application, you can assign up to four hazard types to individual streets. For information on entering hazard types, see “Introduction to the Geocode and Maris” on page 27 or edulog’s online Help.

To assign student trips to stop services in batch mode:

- 1 Open the EMU application.



The system displays the edulog Maintenance Utility dialog box.

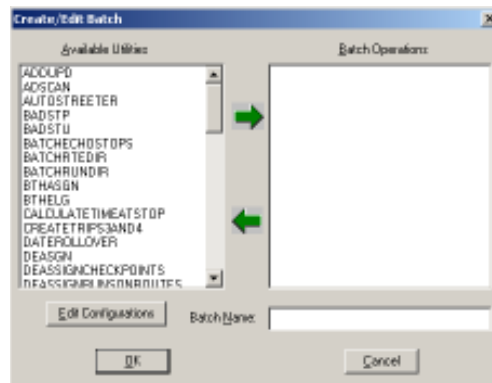
- 2 Choose **Batches**.



The system displays the Batch Work dialog box.

Choose **Create**.

NOTES

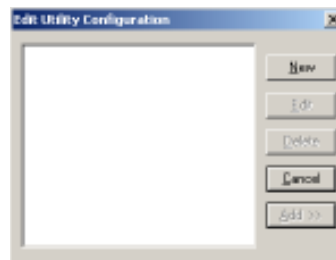


The system displays the Create/Edit Batch dialog box.

- 3 Double-click **BTHASGN** in the **Available Utilities** scrolled list box.

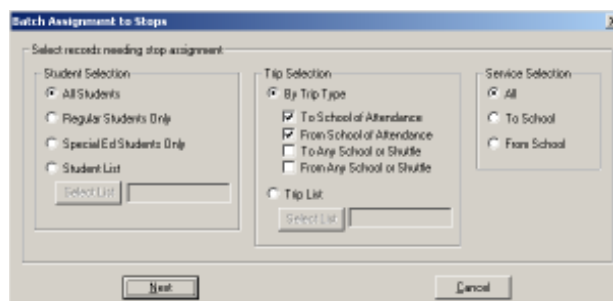
-OR-

Select **BTHASGN** in the **Available Utilities** scrolled list box and choose the **right arrow button**.



The system displays the Edit Utility Configuration dialog box.

- 4 Choose **New**.



The system displays the first of three BTHASGN dialog boxes.

- 5 Select a **student selection option**.

In the Student Selection portion of the dialog box, select one of the following options:

All Students: assigns all students.

Regular Students Only: assigns only students that do not have the Special Education flag set.

Special Education Students Only: assigns only students that do have the Special Education flag set.

Student List: allows you to select students included in a student worklist.

6 Select a **trip selection option.**

In the Trip Selection portion of the dialog box, select one of the following options:

By Trip Type: allows you to assign students by their trip type.

To School of Attendance: assigns all trips transporting students to the school they normally attend.

From School of Attendance: assigns all trips transporting students home from the school they normally attend.

To Any School: assigns all trips transporting students to a school other than the one they normally attend.

From Any School: assigns all trips transporting students from a school other than the one they normally attend.

By Trip List: allows you to select the trips contained in a worklist. Select this option, then choose **Select List** and select the **worklist** with the trips you want to include.

7 Select a **service selection option.**

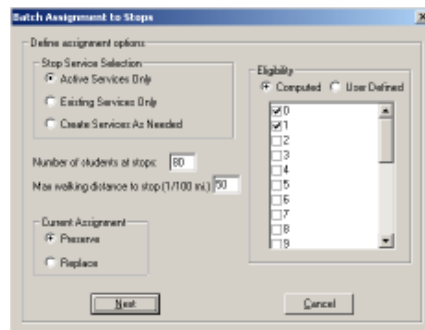
In the Service Selection portion of the dialog box, select one of the following options:

All: assigns all transportation services (both to-school and from-school),

To-school: assigns only the to-school service.

From-school: assigns only the from-school service.

8 Choose **Next.**



The system displays the second BTHASGN dialog box.

9 Select a **stop service option.**

NOTES

In the Stop Service Selection portion of the dialog box, select one of the following options:

Active Services Only: uses only stop services that are assigned to runs.

Existing Services Only: uses only stop services that have already been created for the stops, regardless of whether they are active or inactive.

Create Services as Needed: the system will create any stop services needed. For example, when assigning students to stops for the trip home after school, the system will create the afternoon service if one doesn't exist for that stop.

10 Select a **current assignment option**.

In the Current Assignment portion of the dialog box, select one of the following options:

Preserve: leaves any existing trip-to-stop assignments in place.

Replace: may change existing assignments to those selected by the system.

11 Enter the **maximum number of students** you want at any individual stop in the **Number of Students at Stops** field.

12 Enter the **maximum distance** that students can walk to a stop in hundredths of a mile (for example, enter 50 for one-half mile) in the **Maximum Walking Distance to Stop** field.

13 Select an **eligibility option**.

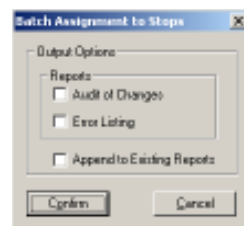
In the Eligibility portion of the window, select one of the following options:

Computed: tells the utility to assign students based on their eligibility for transportation according to the boundaries they are located in.

User Defined: manually overrides the calculated eligibility code with the codes entered in the student record.

14 In the list box, select the **check boxes** next to the **eligibility codes** you want to use.

15 Choose **Next**.



The system displays the third BTHASGN dialog box.

16 Select the **report options**.

In the Reports section, you can select any of the following.

Audit of Changes: lists all student records that are changed during the process (in Bthasgn.aud).

Error Listing: lists records that the system could not assign, with a brief explanation (in Bthasgn.err).

Append to Existing Reports: adds the new information to the existing reports. If you do not select this check box, the new information will replace the existing reports.

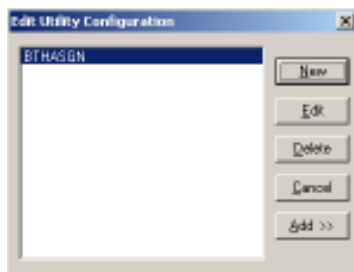
- 17 Choose **Confirm**.



The system displays the Save Utility Configuration As dialog box.

- 18 Enter a **<name for the BTHASGN utility configuration>** in the **Configuration Name** field.

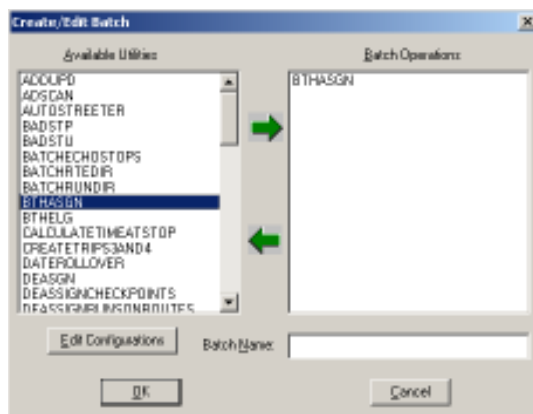
- 19 Choose **OK**.



The system closes the dialog boxes and saves the BTHASGN configuration with the name you entered. You return to the Edit Utility Configuration dialog box, which displays the BTHASGN configuration you created.

- 20 Select the **BTHASGN configuration**.

- 21 Choose **Add**.



NOTES

The system closes the Edit Utility Configuration dialog box. You return to the Create/Edit Batch dialog box, which displays the BTHASGN configuration you created in the Batch Operations scrolled list box.

22 Select the **BTHASGN** configuration.

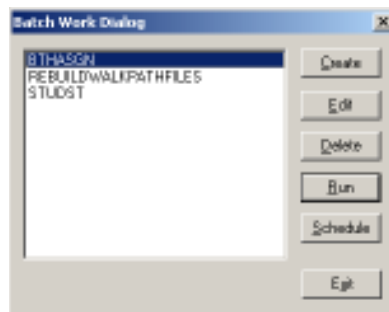
23 Enter a **<name for the batch>** in the Batch Name field.

24 Choose **OK**.



The system displays a message box saying the batch was created and saved successfully.

25 Choose **OK**.



The system closes the message box. You return to the Batch Work dialog box, which displays the batch you created.

You can select the batch to run now or schedule the batch to run later.

INTRODUCTION TO EDULOG TRANSPORTATION

This section provides the basic information you need to model an existing transportation scheme in edulog. Modeling an existing transportation system allows you to check edulog data against real world information to ensure that the software uses all of the variables involved in the transportation at your district.

In this section of the manual, you will learn about stops and runs.

STOPS

A stop is a location where a bus stops to load or unload students for a particular school or schools.

A Stop ID is an alphanumeric code used to track stop records in the system. An example of a Stop ID is 100.000. Each Stop ID contains two meaningful parts: the three numbers before the period (".") and the three numbers after the period.

The three numbers before the period represent the school, shuttle, or cluster code for which the stop was created. In this example, the stop was created for school 100.

The three numbers after the period are used to uniquely identify this stop from other stops created for school 100. In this example, the numbers are 000, which is reserved for the school stop. When you create a school, the system automatically creates the school stop. You can also have the system assign this number for all non-school stops.

A stop's location is the place the stop is located in the geocode. The system has three methods for locating a stop. Those methods are:

Address Stop An address stop is located at a specific address in the geocode, like 3000 Palmer Street. Depending on the address, the street will be on the left or right side of the street. A bus can approach the stop from either side, which may force the students to cross the street in front of the bus. To avoid having students cross the street in front of the bus, you can flag a stop for right side pickup.

Corner Stop A corner stop is located at an intersection in the geocode. You can enter a corner stop into edulog using a node or the names of the intersecting streets. To enter a stop at node 124, you would enter **#124** in the Location field on the Stops Tabular window. To enter a stop at Palmer St and N Reserve St, you would enter **Palmer St & N Reserve St** in the Location field on the Stops Tabular window.

A corner stop has eight possible locations for pickup. The corner used or pickup is determined by the previous stop on the run. If you want to force the stop to be on a specific corner, you must use an address stop.

NOTES

Landmark Stop A landmark stop is located at a landmark in the geocode.

Creating Stops

edulog has two methods for creating stops. Those methods are:

- Graphical Stop Creation.
- Tabular Stop Creation.

Graphical Stop Creation

Before creating a stop, you must define the school, cluster, or shuttle for which the stop is being created.

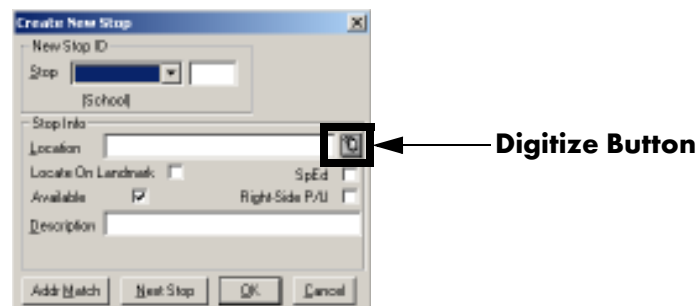
You can graphically create stops in two ways:

- Digitize the Stop Location.
- Manually Enter the Stop.

Digitizing the Stop Location

To digitize a stop location:

- 1 Choose **Create** on the Graphical sub-menu on the Stops menu.



The system displays the Create New Stop dialog box.

- 2 Choose the **Digitize** button.
- 3 **Point** the mouse at the location on the map display where you want the stop to be located and **click**.



The system displays a message box asking if this stop is a corner stop.

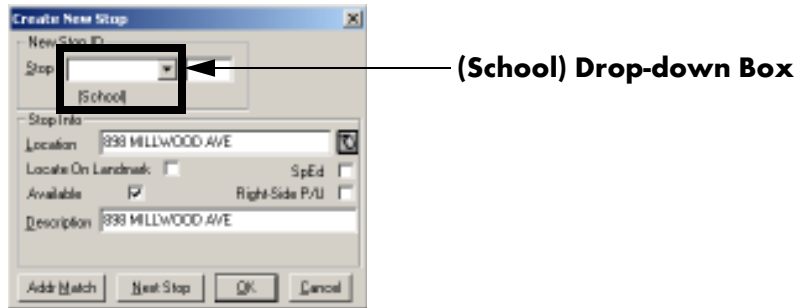
- 4 If this stop is a corner stop, choose **Yes**.

-OR-

Choose **No**.

Note:

If you choose Yes, the system locates the stop on the closest node to the digitized point. If you choose No, the system locates the stop on the closest address to where you clicked the mouse pointer, creating an address stop.



The system closes the message box and fills the Location and Description fields on the Create New Stop dialog box with the data from the location selected on the map.

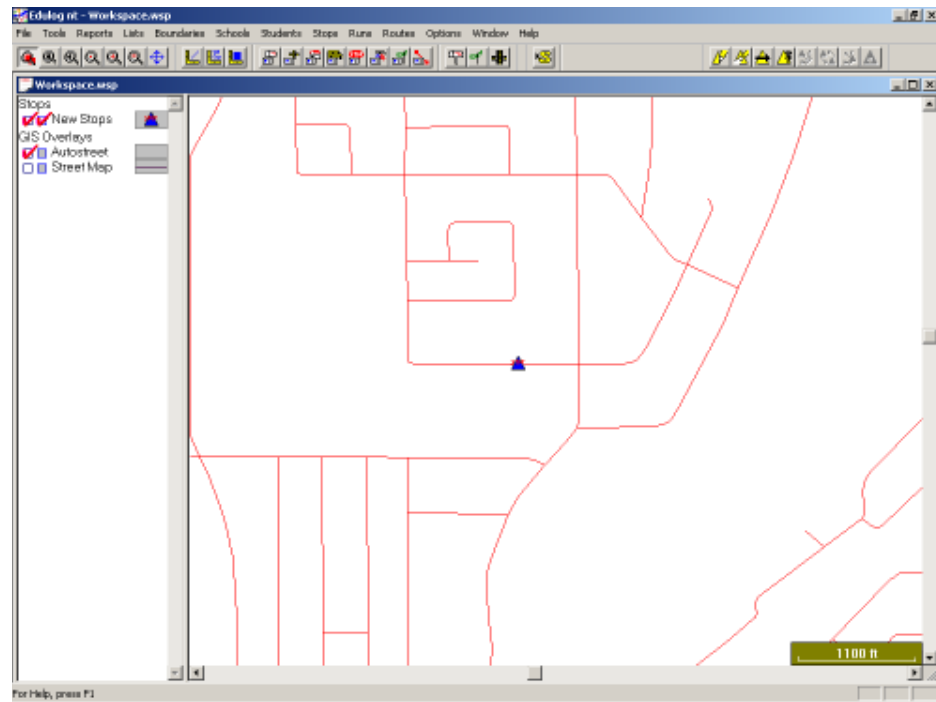
- 5 Select the **school code**, **shuttle code**, or **cluster code** for this stop in the **(School)** drop-down box, which is the first field in the New Stop ID portion of the window.
- 6 Choose **OK**.



The system displays a message box asking if you want to create the stop record.

- 7 Choose **Yes**.

NOTES



The system closes the message box and creates the stop record. You return to the map display, which shows the stop you created.

Manually Entering the Stop

You can also manually enter the address, intersection, node, or landmark as the stop.

To manually enter an address for a stop:

- 1 Choose **Create** on the Graphical sub-menu on the Stops menu.



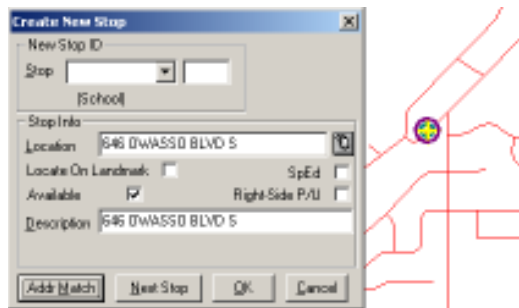
The system displays the Create New Stop dialog box.

- 2 Enter the **address** of the stop in the Location field.
- 3 Choose **Addr Match**.

Note:

You can also enter a partial address and choose Addr Match to use the Address Match dialog box to match the address to the geocode.

NOTES



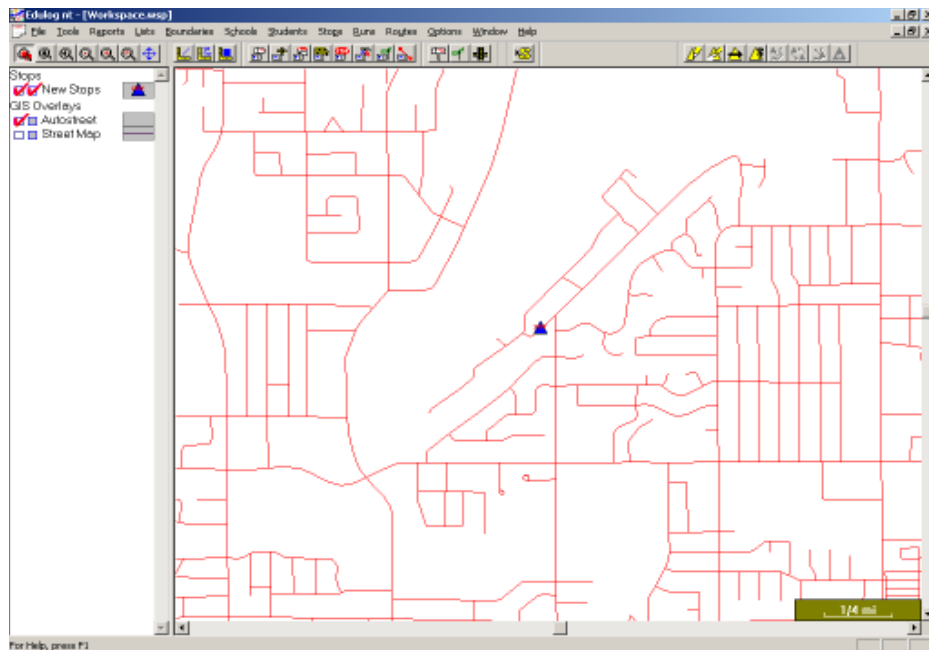
The system matches the address against the geocode, displays the location on the map, and fills the Description field with the address.

- 4 Select the **school code**, **shuttle code**, or **cluster code** for this stop from the **(School)** drop-down box, which is the first field in the New Stop ID portion of the window.
- 5 Choose **OK**.



The system displays a message box asking if you want to create the stop record.

- 6 Choose **Yes**.



The system closes the message box and creates the stop record. You return to the map display, which shows the stop you created.

NOTES

Tabular Stop Creation

Before creating a stop, you must define the school, cluster, or shuttle for which the stop is being created.

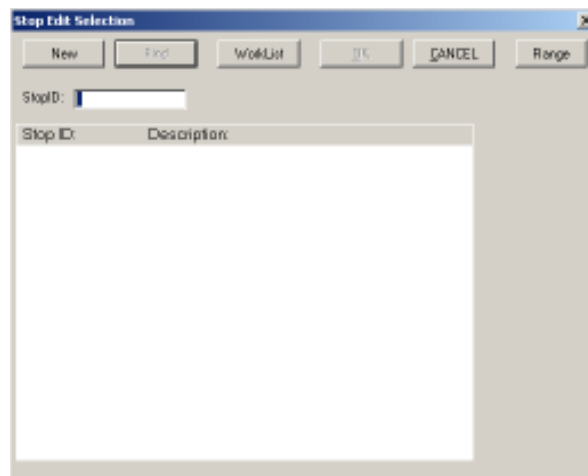
You can define stops in two ways in the Stops Tabular window:

- Digitize the Stop Location.
- Manually Enter the Stop.

Digitizing the Stop Location

To create a stop in the tabular window and digitize its location:

- 1 Choose **Tabular** on the Stops menu.



The system displays the Stop Keyfinder window.

- 2 Enter the **school code**, **shuttle code**, or **cluster code** in the Stop ID field.
- 3 Choose **New**.

NOTES

System-generated Stop ID

Digitize Button

The system assigns the remainder of the Stop ID and displays the Stops Tabular window.

- 4 Choose the **Digitize** button.
- 5 **Point** the mouse at the location on the map display where you want the stop to be located and **click**.



The system displays a message box asking if this stop is a corner stop.

- 6 If this stop is a corner stop, choose **Yes**.

-OR-

Choose **No**.

Note:

If you choose Yes, the system locates the stop on the closest node to the digitized point. If you choose No, the system locates the stop on the closest address to where you clicked the mouse pointer, creating an address stop.

NOTES

Workspace.aspx: Stop Transportation

Buttons: Confirm, Previous, Next, Rename, Delete, Cancel

Stop ID: 100 002 Location: 2102 ROSELAWN AVE W

Description: 2102 ROSELAWN AVE W

Buttons: Right Side, Available, Spd Stop, Home Stop

Nd1: 1896 Nd2: 4796

D1: 123 D2: 127

Create Date: End Date: Modified: User ID:

Buttons: Add, Edit, Delete, Passengers, Refresh

Buttons: Insert, Assign, Design, Head Count, Columns

ServiceID	BellTime	Dir	Sto	Frequency	Arr/Dep Freq	Stop Time	BusID	RouteID	Route Frequency

The system closes the message box and fills the Location and Description fields on the Stops Tabular window with the data from the location selected on the map.

- 7 Choose **Confirm**.

Confirm Dialog

Confirm changes to record ...

Buttons: OK, Cancel, OK + Next

The system prompts you to confirm the changes.

- 8 Choose **OK**.

Manually Entering the Stop

You can also manually enter the address, intersection, node, or landmark as the stop on the Stops Tabular window.

To create a stop in the tabular window and digitize its location:

- 1 Choose **Tabular** on the Stops menu.

Stop Edit Selection

Buttons: New, Find, WorkList, OK, CANCEL, Range

StopID:

Description:

The system displays the Stop Keyfinder window.

- 2 Enter the **school code**, **shuttle code**, or **cluster code** in the Stop ID field.
- 3 Choose **New**.

The system assigns the remainder of the Stop ID and displays the Stops Tabular window.

- 4 Enter the **address** of the stop in the Location field.

Note:

You can also enter a partial address, TAB out of the field, and use the Address Match dialog box to match the address to the geocode.

- 5 Press **TAB**.

The system matches the address against the geocode and fills the Description, Nd1, Nd2, D1, and D2 fields with the corresponding data.

- 6 Choose **Confirm**.

NOTES



The system prompts you to confirm the changes.

- 7 Choose **OK**.

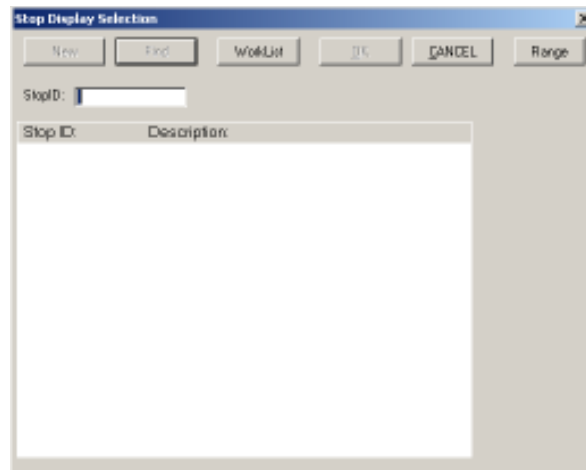
Viewing Stops

You can view stops two ways in edulog: graphically on the map or in the tabular window.

Graphically Viewing Stops

To view stops on the map:

- 1 Choose **Display** on the Stops menu.



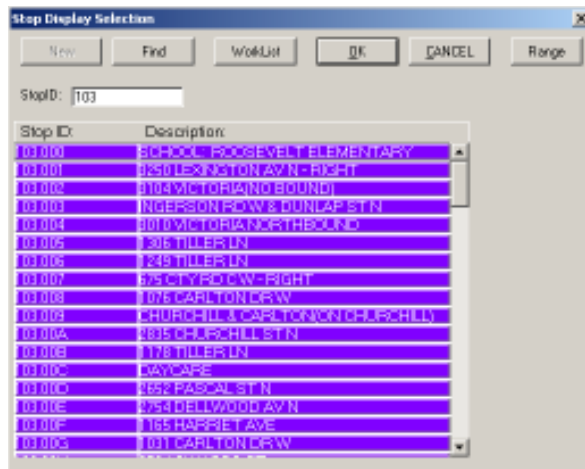
The system displays the Stop Display Keyfinder window.

- 2 Enter the **school code**, **shuttle code**, or **cluster code** in the Stop ID field.
- 3 Choose **Find**.



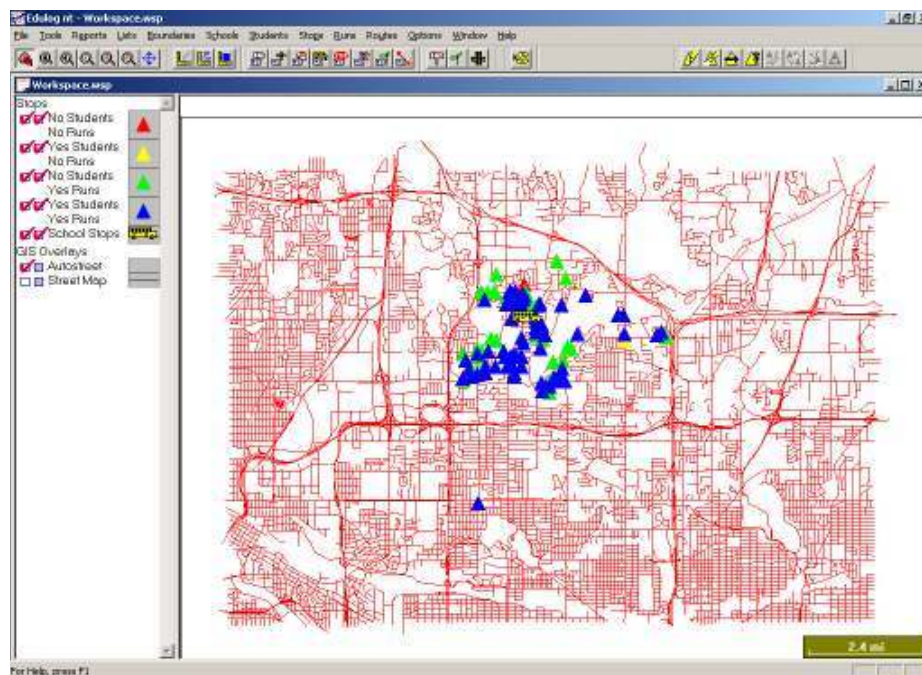
The system searches for matching stops. If it finds more than 100 stops, it displays a message box.

- 4 Choose **OK**.



The system searches for matching stops and displays them in the Stop Display Keyfinder window.

- 5 Select the **stops** you want to view.
- 6 Choose **OK**.



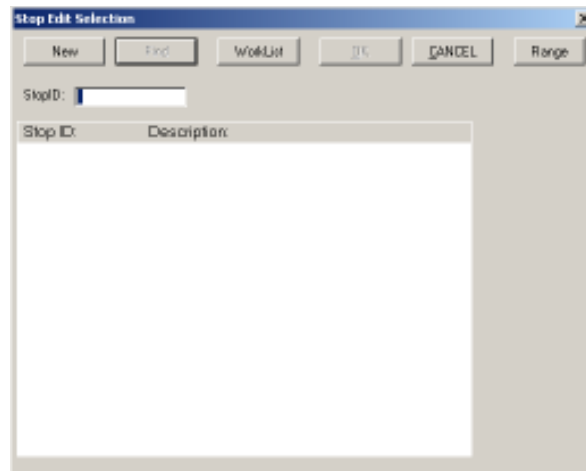
The system closes the Stop Display Keyfinder and displays the stops you selected on the map as an active layer.

Viewing Stops in the Tabular Window

To view stops in the tabular window:

- 1 Choose **Tabular** on the Stops menu.

NOTES



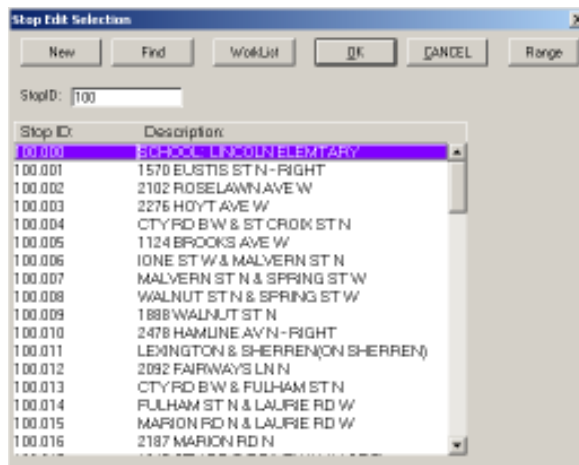
The system displays the Stop Display Keyfinder window.

- 2 Enter the **school code**, **shuttle code**, or **cluster code** in the Stop ID field.
- 3 Choose **Find**.



The system searches for matching stops. If it finds more than 100 stops, it displays a message box.

- 4 Choose **OK**.



The system searches for matching stops and displays them in the Stop Display Keyfinder window.

- 5 Select the **stop** you want to view.
- 6 Choose **OK**.

NOTES

Service ID	Bell Time	Dir	Sts	Frequency	Avt/Et Freq	Stop Time	RouteID	RouteID	Route Frequency
100.005001	9:15 AM	0	2	NTWUF-----0008-23-200106-02-2002	NTWUF-----	8:45 AM	100.007	109	NTWUF-----000
100.005002	3:25 PM	1	2	NTWUF-----0008-23-200106-02-2002	NTWUF-----	3:54 PM	100.103		

The system closes the Stop Edit Keyfinder and displays the stop you selected in the Stops Tabular window.

The Stops Tabular Window

When you find a stop record with the Stop Edit Keyfinder, you view it in the Stops Tabular window. The Stops Tabular window displays information about a stop, including its stop services. This window contains the following fields, buttons, and table:

Stop Fields and Buttons

- Stop ID** This field displays the Stop ID. A Stop ID is an alphanumeric code used by edulog to track stop records.
- Location** This field stores the stop's location, which is the place the stop is located in the geocode.
- Description** This field stores a description of the stop to provide information that is more useful to the driver. The system uses this field for stop, run, or driver direction reports. The system defaults this field to be the same as the Location field. You can, however, change the value in this field.

NOTES

For home stops, the system creates the description based on the setup information in the HomeStops.dat file.

Nd1 This field displays the first node of the stop's location. Corner stops have only one node because they are matched to a node. The system calculates this value.

Nd2 This field displays the second node of the stop's location. Nd1 and Nd2, for example, will contain the node numbers of the segment on which the address is located. The system calculates this value.

Right Side This check box indicates whether the driver directions must approach this stop so that the doors of the bus open on the right side. Use this option for a stop located on a street that is unsafe for children to cross to get to and from the bus.

This check box is unavailable for corner stops because the system cannot distinguish between the eight possible locations for the stop.

Inappropriate use of this check box causes incorrect driver directions and inaccurate stop times.

Available This check box indicates whether this stop is available for student assignment. By default, the system checks this box, which means that the stop is available for student assignment.

SpEd Stop This check box indicates whether this stop is a Special Ed stop. This check box is for use with edulog's Special Education package.

Home Stop This check box indicates whether this stop is a home stop. To create a home stop, you must check the Home Stop check box on the Students Tabular window (see "The Students Tabular Window" on page 80 for more information).

D1 This field displays the distance, in map units, that the stop location is from Nd1. The system calculates this value.

You can use this field and the D2 field to judge where an address is on a segment—closer to the beginning, middle, or end of the segment.

D2 This field displays the distance, in map units, that the stop location is from Nd2. The system calculates this value.

You can use this field and the D1 field to judge where an address is on a segment—closer to the beginning, middle, or end of the segment.

Create Date	This field displays the date the stop record was created. It is a system field.
Modified	This field displays the date the stop record was last modified.
Confirm	This button saves the changes you made to the stop fields. It does not confirm changes you make to the stop services in the bottom of the window. Any changes you make to a stop service are confirmed when you choose the OK button in the child window.
Previous	This button takes you to the previous stop record in the Stop Edit Selection dialog box.
Next	This button takes you to the next stop record in the Stop Edit Selection dialog box.
Rename	This button allows you to change the last three characters of the Stop ID.
Delete	This button purges the stop record.
Cancel	This button discards any changes you made to the stop record.

Stop Services Table and Buttons

Stop Services	This table displays the stop services for the stop.
Add	This button allows you to add a stop service to the stop.
Edit	This button allows you to edit a stop service for the stop.
Passengers	This button displays a list of passengers assigned to the stop service.
Insert	This button allows you to insert a stop service before or after an existing stop service.
Assign	This button allows you to assign a stop service for the stop.
Deassign	This button allows you to deassign a stop service for the stop.
Head Count	This button allows you to enter a head count for the stop service.

Stop Services

A stop service allows you to track the different times per day that different runs serve a stop. A Service ID adds three additional characters to a Stop ID. These additional characters are added to the end of the Stop ID, like 100.000001. The numerical value of the Service ID relates to the order in which the services were created. You can have the system create the Service ID when you insert a stop onto a

NOTES

run. If you build all to-school AM runs first, for example, those morning stop services would end in 001.

The following image shows a stop record with its stop services.

The screenshot shows the 'Workspace.aspx Stop Transportation' window. At the top, there are buttons: Confirm, Previous, Next, Rename, Delete, and Cancel. Below these, the Stop ID is 103-064 and the Location is 64 LITTLE CUP DR W. The Description is 64 LITTLE CUP DR W. There are fields for Nd1 (1842) and Nd2 (1844). Checkboxes for Right Side, Available, SpEd Stop, and Home Stop are present. D1 is 87 and D2 is 22. Create Date is 07-29-2003, End Date is blank, Modified is 09-09-2003, and User ID is ARTRBLD 2.

Below the form fields is a table with buttons: Add, Edit, Delete, Passengers, Refresh, Insert, Assign, Design, Head Count, and Columns. The table has columns: Service ID, Bell Time, Dir, Stop, Frequency, Av/W/Freq, Stop Time, Run ID, Route ID, and Route Frequency.

Service ID	Bell Time	Dir	Stop	Frequency	Av/W/Freq	Stop Time	Run ID	Route ID	Route Frequency
103.064001	9:15 AM	0	13	MTWUUF-----0008-23-200106-02-2002	MTWUUF-----	8:46 AM	103.002		
103.064002	3:25 PM	1	11	MTWUUF-----0008-23-200106-02-2002	MTWUUF-----	4:01 PM	103.102		
103.064003	12:15 PM	1	1	MTWUUF-----0008-23-200106-02-2002	MTWUUF-----				
103.064004	12:25 PM	0	1	MTWUUF-----0008-23-200106-02-2002	MTWUUF-----				

In this example, the 001 service corresponds to the 9:15 AM bell for this stop. Service 002 corresponds to the 3:25 PM bell. Service 003 corresponds to the 12:15 PM bell that dismisses the AM kindergartners. Service 004 corresponds to the 12:25 PM bell that dismisses the PM kindergartners.

These individual stop services allow you to use one stop record for a location, but service the stop at many different times throughout the day.

Adding a Stop Service

Before you can add a stop service, you must have the stop record open in the Stops Tabular window. To add a stop service:

- 1 Choose **Add**.

The screenshot shows the 'CREATE STOP SERVICES DATA ENTRY FORM' window. It has fields for Service ID (102.065001), Frequency (MTWUUF-----0008-23-200106-02-2002), and Bell Time (8:40 AM). There are buttons for Edit Freq, Confirm, and Cancel. A To/Fro button is also present.

The system displays the Create Stop Services Data Entry Form.

- 2 Select the **bell time** for the stop service in the Bell Time drop-down box.
- 3 Select the **To** option button for a to-school stop service.

The system defaults the time in the Bell Time drop-down box to the first AM bell time.

-OR-

Select the **From** option button for a from-school stop service.

The system defaults the time in the Bell Time drop-down box to the first PM bell time.

4 Choose **Confirm**.

Service ID	Bell Time	D1	D2	Frequency	Av/El Freq	Stop Time	RunID	RouteID	Route Freq
102 065001	8:40 AM	0	0	MTWTF--0000-23-200106-02-2002	MTWTF--0000-23-200106-02-2002				

The system saves the stop service and closes the Create Stop Services Data Entry Form. You return to the Stops Tabular window, which displays the stop service you added.

Maintenance Associated with Stops

The following utilities relate to stops:

- BADSTP
- LODTME
- KILSTP
- STPCHK
- STPSCN
- STPUPD

For detailed information about these utilities, see “Utilities in Emu” on page 759.

RUNS

A run is a sequence of stop services that a bus makes when transporting students to or from school.

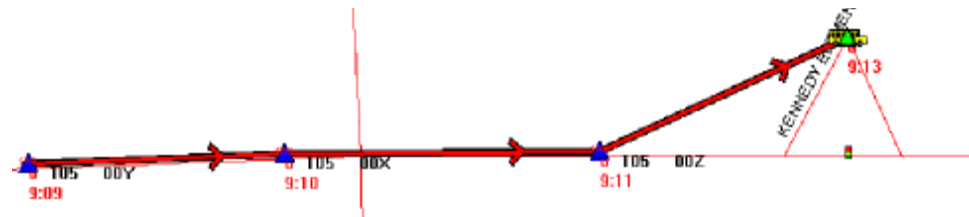
A run is identified by a Run ID number. The Run ID consists of the school code, shuttle code, or cluster code plus a unique three-digit number that identifies a run for a school. An example of a Run ID is 100.017, which represents run number 017 serving school 100.

NOTES

You can build three different types of runs in edulog. The run types are:

Basic Run A basic run is a run that services students and stops for one school. The school owns the run. All stops on this type of run have Stop ID's that begin with the school code.

The following image shows a basic run:



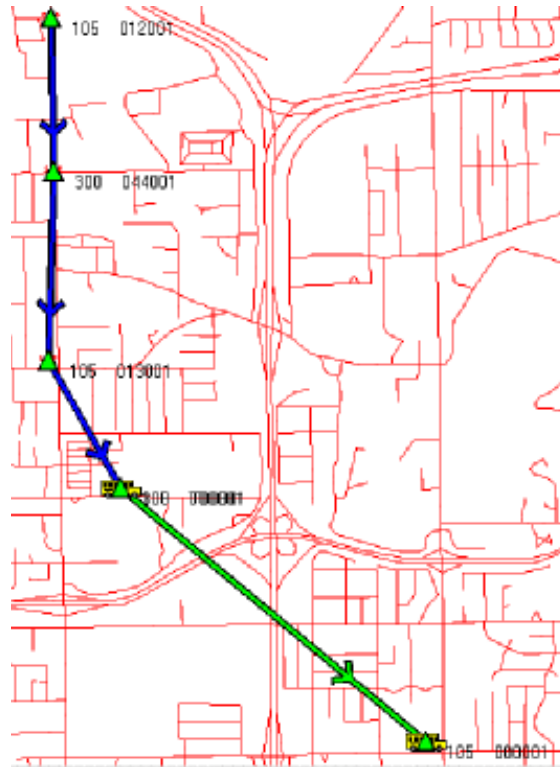
Multi-school Run A multi-school run is a run that services students and stops for two or more schools. The last school on the run owns the run. Multi-school runs must physically stop at each school for which they are picking-up or dropping-off students.

The following image shows a multi-school run:



Transfer Run A transfer run is a series of two or more runs that meet at a common location to transfer students from one bus to another. Transfer runs are similar to multi-school runs except that a transfer stop replaces the school stop for the school that is not on the run. One or more runs may transfer to the same transfer run.

The following image shows a transfer run:



Creating Runs

edulog has two methods for creating runs. Those methods are:

- Graphical Run Creation.
- Tabular Run Creation.

Graphical Run Creation

Before creating a run graphically, you must load the stops for the run as an active layer on the map (see “Graphically Viewing Stops” on page 116 for more information).

Creating a Basic Run

In the following example, you will graphically create a basic run for school 102. The stops for this run have been loaded as an active layer.

- 1 Choose **Create** from the Graphical sub-menu on the Runs menu.

NOTES

The system displays the Create Run Information dialog box.

- 2** Choose the **<school code>** for the run from the (School) drop-down box.
- 3** Enter **001** for a to-school run in the text field next to the Run ID drop-down box.

-OR-

Enter **100** for a from-school run in the text field next to the Run ID drop-down box.

The system generates the next available ID after the value you entered. The system holds the first character (0 or 1) and finds the next available number for the last two digits.

- 4** Enter a **description** for the run in the Description field.
- 5** Leave the **Frequency** set to MTWUF.
- 6** Enter a **max load** for the run in the Max Load field.

Note:

If you try to insert a stop service with students assigned that causes this maximum capacity to be exceeded, the system displays a feasibility error.

- 7** Enter a **max time**, in minutes, for the run in the Max Time field.

Note:

If this time is exceeded, the system displays a feasibility error.

- 8** Select a **destination time** for the run from the Dest Time field.

Note:

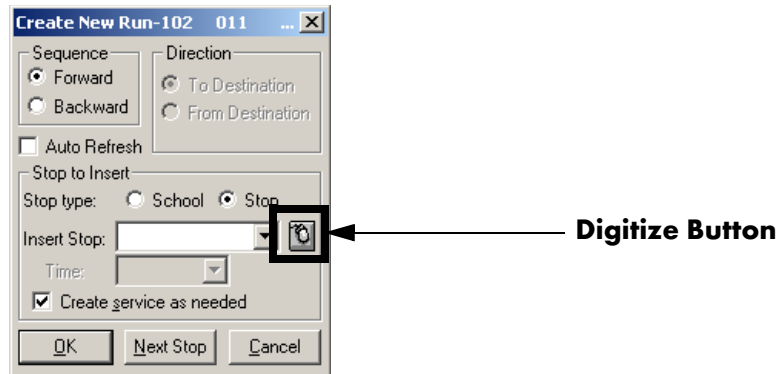
The run is based off of the bell windows and not the bell time.

- 9** Choose **OK**.



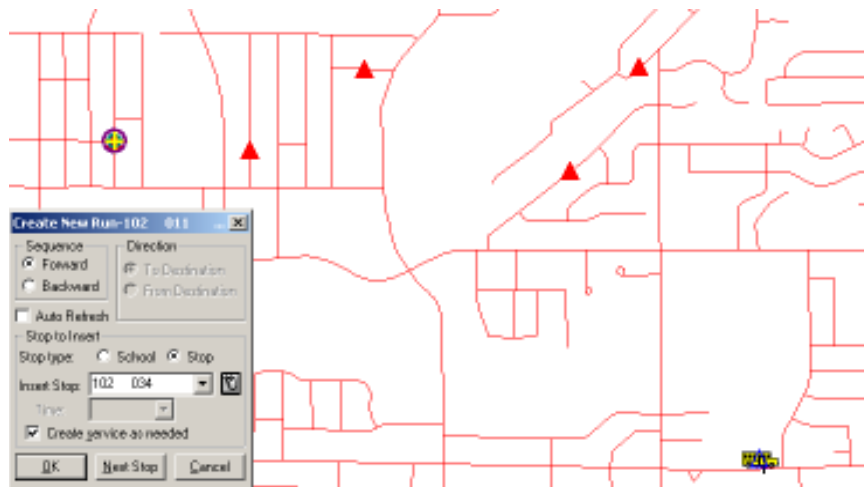
The system displays a message box asking if you want to create the run record.

- 10** Choose **Yes**.



The system closes the message box and displays the Create New Run dialog box that allows you to insert stops on the run.

- 11** Choose the **Digitize** button.
- 12** **Point** the mouse at the stop on the map display and **click**



The system fills the Insert Stop field with the data from the stop you selected on the map.

- 13** Select the **sequence** for the stops from the Sequence option buttons.
- **Forward** - This option forces you to select the first stop on a to-school run followed by each stop in the order they are picked up. The run always finishes at the school stop for a to-school run.

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- **Backward** - This option forces you to select the last stop before the school stop and add stops to the run in the opposite direction.

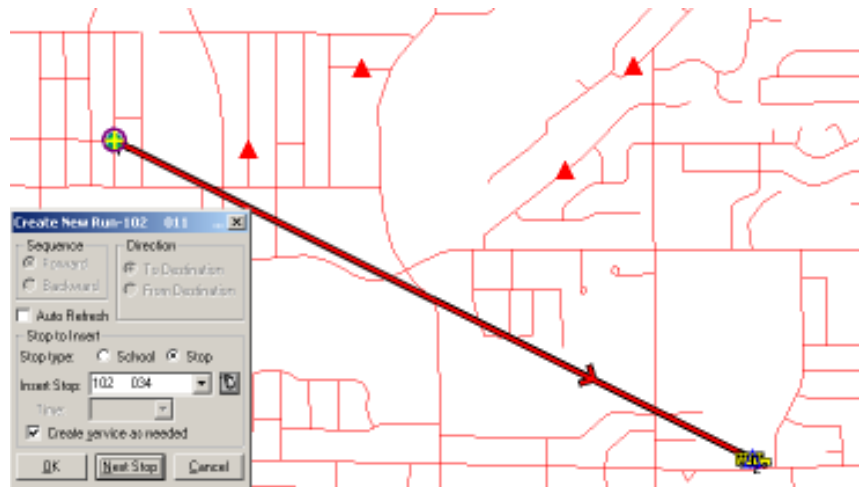
14 Select the **stop type** for the stop from the Stop Type option buttons.

- **School** - Use this option for school stops.
- **Stop** - Use this option for standard stops.

15 Select the **Create service as needed** check box.

This check box tells the system to create a stop service for the appropriate time if the stop record being inserted does not already have an appropriate service.

16 Choose **Next Stop**.

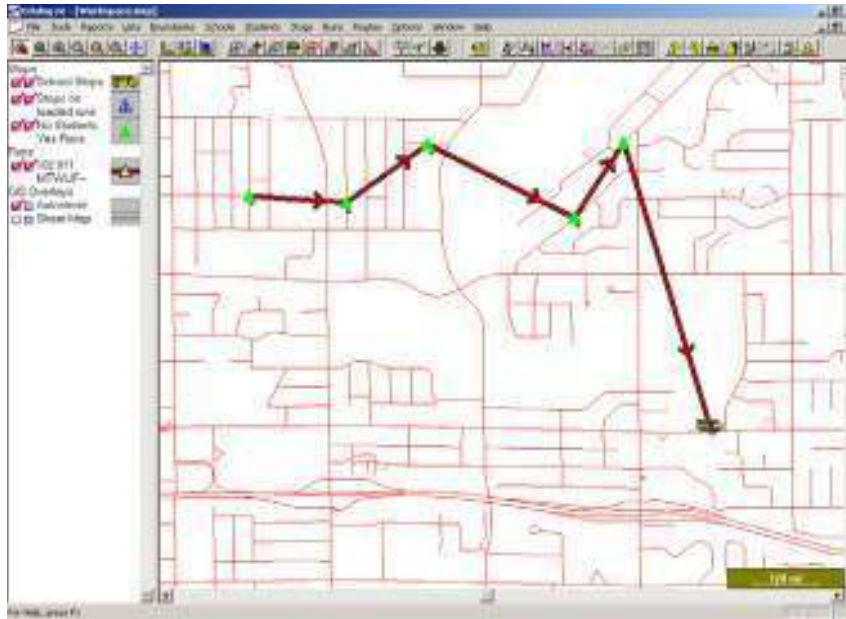


The system inserts the stop onto the run.

17 For each stop, repeat Steps 11 - 16.

Note:

For the last stop on the run, choose **OK** instead of **Next Stop**.



Creating a Multi-school Run

To create a multi-school run, graphically create a basic run and add one or more school services to the run. After you add another school service, you can add the non-school services to the run.

If multiple students exist at the same stop location, you must create a stop and insert it onto the run for each school code that is represented by the students.

The system prevents you from inserting stop services on the run if the run does not service the school code. This feature prevents you from inserting or assigning stops to a run that will not get the students to the proper school.

Here are some tips for creating multi-school runs:

- Build runs in edulog from empty bus to empty bus. If at any time the bus is empty, that is the end of the run. You must consider this fact when deciding to build a basic run or a multi-school run.
- The last school on the run owns the run. A school owns the run if the Run ID is built for the school. If a multi-school run goes to schools 200 and 203, ending at school 203, the Run ID would be 203.xxx.
- Each location that has students for multiple schools needs more than one stop. Use the Echo Stop feature to build multiple stops at the same location.

Echoing Stops

To echo a stop to another school code, you must begin the process of creating a new stop record (see “Creating Stops” on page 108 for more information). Once you have selected the new school code, type the following into the Location field: **+<Stop ID>**, where the plus sign (“+”) is the command that tells edulog to echo a location and the Stop ID is the existing stop location that edulog uses to copy to the new stop

NOTES

record. If you wanted, for example, to echo Stop 102.005, you would enter **+102.005** in the Location field.

In graphical mode, choose the **Add Match** button to echo the stop. In tabular mode, you must TAB out of the Location field to echo the stop.

Tabular Run Creation

Before creating a run, you must define the school, cluster, or shuttle for which the run is being created.

Creating a Basic Run

To create a run in the tabular window:

- 1 Choose **Tabular** on the Runs menu.

Run Edit Selection

New Find WorkList OK CANCEL Range

RunID: Dest: Time: RouteID:

RunID	Description

The system displays the Runs Keyfinder window.

- 2 Enter the **school code**, **shuttle code**, or **cluster code** in the Run ID field.
- 3 Select the **time** for the run from the Time drop-down box.
- 4 Choose **New**.

Workspace.edulog Run Transportation

Confirm Previous Next Manage Print Delete Cancel

RunID: 102 014 Route: Description BUS Stop Sect.

Description:

Frequency: MTWTF--0008-23-200106-02-2002

To/From: 1 Depart time: 8:00 AM Begin Time: 12:00 AM End Time: 12:00 AM

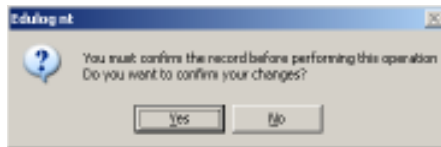
Max Load: 60 Cover: Run Length (min): 0 Loaded Miles: 0.00

Created: End Date: Modified: User ID:

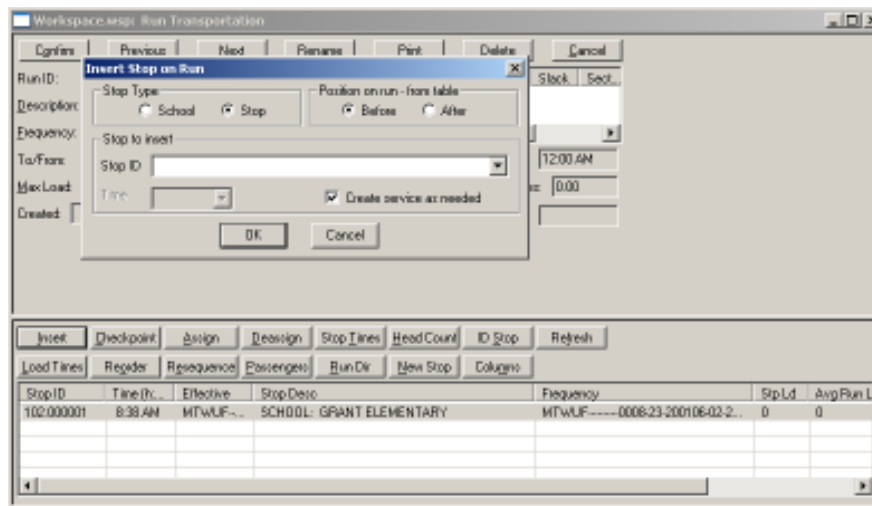
StopID	Time (h:m)	Effective	Stop Desc	Frequency	Stop Ld	Avg Run L

The system assigns the remainder of the Run ID and displays the Runs Tabular window.

- 5 Enter a **description** for the run in the Description field.

6 Choose **Insert**.

The system prompts you to confirm the changes to the record.

7 Choose **Yes**.

The system closes the message box. The system automatically adds the school stop, which is highlighted, to the run and displays the Insert Stop on Run dialog box.

8 Select the **stop type** for the stop from the Stop Type option buttons.

- **School** - Use this option for school stops.
- **Stop** - Use this option for standard stops.

9 Select the **position on the run** for the stop from the Position on run - from table option buttons.

- **Before** - Use this option to insert the stop before the stop selected in the Runs Tabular window.
- **After** - Use this option to insert the stop after the stop selected in the Runs Tabular window

10 Select the **Stop ID** from the Stop ID drop-down box.**11** Select the **Create service as needed** check box.

This check box tells the system to create a stop service for the appropriate time if the stop record being inserted does not already have an appropriate service.

12 Choose **OK**.

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Stop ID	Time (h:m)	Effective	Stop Desc	Frequency	Stop Ld	Avg Run L
102.015001	8:35 AM	MTWU-----	1008 CTY RD B2 W - RIGHT	MTWU-----0008-23-200106-02-2002	0	0
102.000001	8:38 AM	MTWU-----	SCHOOL: GRANT ELEMENTARY	MTWU-----0008-23-200106-02-2002	0	0

The system closes the Insert Stop on Run dialog box and adds the stop to the run. You return to the Runs Tabular window, which displays the stop you inserted.

13 For each stop you want on the run, repeat Steps 6 - 12.

Note that you can double-click stops in the table to view their tabular records. A window similar to the following appears.

Service ID	Bell Time	D1	D2	Stop	Frequency	Arr/Ent Freq	Stop Time	RunID	RouteID	Route Freq
102.027001	8:40 AM	0	0		MTWU-----0008-23-200106-02-2002	MTWU-----	8:28 AM	102-007		
102.027002	2:55 PM	1	0		MTWU-----0008-23-200106-02-2002	MTWU-----	3:04 PM	102-107		

This provides an easy way for you to edit the records of stops assigned to the run. Some of the fields and buttons in the window are disabled, since the window is primarily for reference purposes.

Creating a Multi-school Run

To create a multi-school run in tabular mode, insert the school services onto the run before non-school services. You can insert the non-school services after you have added the school services.

Transfer Runs

NOTES

When students ride two or more buses to get to or from their destination, you use transfer runs. Transfers take place when students physically move from one bus to another bus to complete their transportation. Transfer stops, the physical location at which the bus switch occurs, can be located at schools, parking lots, or any other geographical location that can be matched to the geocode. You should locate transfer stops at a school or some other location where the students will be supervised because of the safety issues involved.

Transfer stops have two services for each destination time; a service is needed for each of the two runs that comprise the transfer.

The ability to build transfer runs in edulog is an added feature that all clients may not have.

Creating Transfers

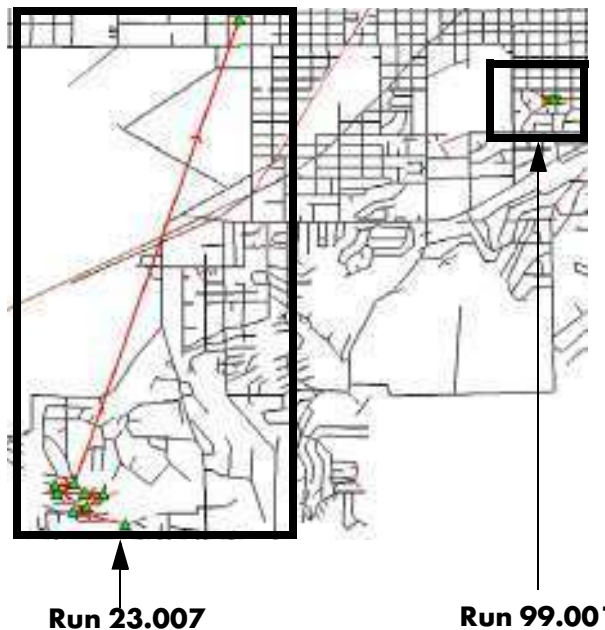
A typical transfer scenario is as follows: Students who attend a private school, school code 99, live throughout a district. The starting and ending time of school 99 is after and before the starting and ending time of school 23, a high school in the district. The plan is to transport all of school 99's students to school 23 with its existing transportation. Once the school 99 students are at school 23, they will transfer to another bus, which will complete their trip to school 99.

The following information describes how this transportation scheme would be created in edulog.

In the following example, you will use run 23.007 to transport school 23 and school 99 students to school 23. Next, you will use run 99.001 to transfer the school 99 students to school 99. Run 23.007 already exists and you need to create graphically run 99.001. When graphically creating run 99.001, you must cancel out of the Insert Stop dialog box that appears after you create the initial run record because the only non-school services that will be inserted onto the run will be the transfers and those services must be inserted on the Stops Tabular window.

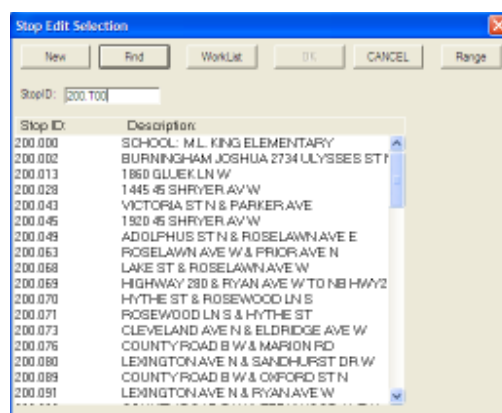
The following image shows both runs displayed on the map:

NOTES



At this point, Run 99.001 only consists of the school stop. You may now decide what type of transfer stop to create. The current problem is that you have a school 23 run on which you would like to transport school 99 students. The system will not allow you to insert school 99 stops onto a school 23 run unless the run physically goes to school 99. A transfer stop can take the place of physically traveling to the school. Instead of adding the school 99 stop to run 23.007, you will add a school 99 transfer stop.

Because transfer stops must be inserted through the Stops Tabular window, create the transfer stop records in Stops Tabular as well. The following image shows the data you need for a transfer stop record:

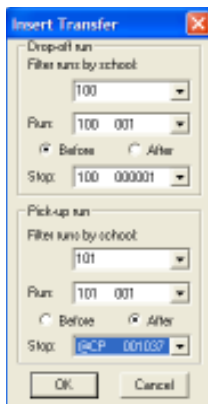


The Stop ID is very important when you create a transfer stop record. The Stop ID must contain a "T" after the delimiter (that is, the period). When creating a new transfer stop, use the **school code** followed by **T01**, which allows the system to assign the next available ID without moving the "T." If you enter **99.001** in the

Stops Keyfinder, the system may build the new Stop ID as 99.00t, which will not be recognized as a transfer stop.

Since the transfer stop in this example is located at school 23, you can echo the location of stop 23.000, the school stop, for the new transfer stop. Once the location has been echoed, you can modify the description to accurately depicts the transfer stop.

You must confirm the record so that you can create the stop services. A transfer stop has two service records for each service time. The two records are used to attach the transfer stop to the two runs that comprise the transfer. You can only insert transfer stops onto runs in the Stops Tabular window. You can select either **service** and choose **Insert**.



The system displays the Insert Transfer dialog box.

When inserting transfers, you must think about the definitions of drop-off and pickup runs as they pertain to the transfers—drop-off and pickup runs apply to the transfer and not to the students. In this example, the drop-off run is 23.007 because it is the run dropping off students at the transfer point; run 99.001 is the pickup run because it is picking up students at the transfer point.

Place the transfer stop before the school stops on each run.

The following image shows how the final transfer would look:

NOTES



You can now add school 99 stop services to run 23.007 at the locations where school 99 students need to be transported. All school 23 runs will probably transport several school 99 students. For each school 23 run that transports school 99 students, you must insert a unique transfer stop on the individual school 23 runs and the school 99 transfer.

Transfer Situations

School districts that have to transport students to various private or parochial schools often use transfers to accomplish the task. If the run servicing the transfer students picks up students for four different schools, then that run will have at least four different transfer stops on it so that the non-school services may be inserted. The following image shows a run which transfers students to four different transfer runs:

Workspace.wsp: Run Transportation

Run ID: 101 001 Route: 10 Description: TO JEFFERSON ELEM BUS: 0 Sack: AM
 Frequency: MTWU-----0008-23-200106-02-2002
 To/From: 1 Dest line: 8:40 AM Begin Time: 7:46 AM End Time: 8:44 AM
 Max Load: 60 Cover: -- Run Length (min): 98 Loaded Miles: 20.37

Stop ID	Time (h:m)	Effective	Stop Desc	Frequency
88CP 001037	7:46 AM	MTWU-----	BUSYARD	MTWU-----DC
101.100501	7:51 AM	MTWU-----	SCHOOL: LINCOLN ELEMENTARY	MTWU-----DC
101.119001	7:51 AM	MTWU-----	JACKSON ST N & SUMMER AVE	MTWU-----DC
101.041001	7:53 AM	MTWU-----	ADOLPHUS ST N & ROSELAWN AVE E	MTWU-----DC
101.123001	7:56 AM	MTWU-----	40 VIKING DR W	MTWU-----DC
101.040001	8:06 AM	MTWU-----	COUNTY ROAD B'W & RICE ST	MTWU-----DC
101.112001	8:07 AM	MTWU-----	COUNTY ROAD B'W & WESTERN AVE N	MTWU-----DC
101.111001	8:09 AM	MTWU-----	ELDRIDGE AVE W & WESTERN AVE N	MTWU-----DC
101.103001	8:09 AM	MTWU-----	COHANSEY BLVD & ELDRIDGE AVE W	MTWU-----DC
101.096001	8:10 AM	MTWU-----	COUNTY ROAD B'W & GROTTO ST N	MTWU-----DC
101.093001	8:12 AM	MTWU-----	881 45 PARKER AVE W	MTWU-----DC

Circular Runs

A circular run is typically used for morning and afternoon kindergarten. If the proper amount of time is designated before the AM ending time and the PM starting time, one run may drop-off and pickup students at the same time. When creating circular runs, build the entire run in one direction first. In the following example, the AM kindergarten run will already be created.

The screenshot shows the 'Workspace.wsp: Run Transportation' window. The 'Run ID' is 100 048, 'Description' is CIRCULAR, and 'Frequency' is MTWUF-----0008-23-200106-02-2002. The 'To/From' field is set to 1, 'Dest time' is 12:10 PM, 'Begin Time' is 12:35 PM, and 'End Time' is 12:40 PM. The 'Max Load' is 80, 'Run Length (min)' is 5, and 'Loaded Miles' is 0.00. The 'Insert' button is highlighted. Below the form is a table of stops:

Stop ID	Time (h:...	Effective	Stop Desc	Frequency
100.000004	12:35 PM	MTWUF----	SCHOOL: LINCOLN ELEMENTARY	MTWUF-----0008-
100.003003	12:40 PM	MTWUF----	MALVERN ST & ROSELAWN AVE W	MTWUF-----0008-
100.055004	12:40 PM	MTWUF----	DELAWARE ST SE & HARVARD ST SE	MTWUF-----0008-
100.000005	12:40 PM	MTWUF----	SCHOOL: LINCOLN ELEMENTARY	MTWUF-----0008-

To build the PM to-school portion of the run, you must open the run record in the Runs Tabular window and change the value in the To/From field to 0. After making this change, you can insert the PM school stop onto the end of the run. The previous image has the school stops on each end of the run:

The screenshot shows the 'Workspace.wsp: Run Transportation' window with the 'To/From' field changed to 2. The 'Dest time' is 12:10 PM, 'Begin Time' is 12:15 PM, and 'End Time' is 12:19 PM. The 'Run Length (min)' is 4, and 'Loaded Miles' is 0.00. The 'Assign' button is highlighted. Below the form is a table of stops:

Stop ID	Time (h:...	Effective	Stop Desc	Frequency
100.000004	12:15 PM	MTWUF----	SCHOOL: LINCOLN ELEMENTARY	MTWUF-----0008-
100.004003	12:19 PM	MTWUF----	CTY RD B W & ST CROIX ST N	MTWUF-----0008-
100.036003	12:19 PM	MTWUF----	1847 EUSTIS ST N	MTWUF-----0008-
100.011003	12:19 PM	MTWUF----	PRIOR AVE N & RYAN AVE W	MTWUF-----0008-

Now that the school service is on each end of the run with the correct corresponding times, you can re-insert each stop service with the correct to-school service. The final run would look like the following image if kindergartners were getting on and off at each stop location:

NOTES

Workspace.wsp: Run Transportation

Confirm Previous Next Rename Print Delete Cancel

Run ID: 100 048 Route... Description BUS... Slack Sect...

Description: CIRCULAR

Frequency: MTWUF-----0008-23-200106-02-2002

To/From: 1 Dest time: 12:10 PM Begin Time: 12:35 PM End Time: 12:40 PM

Max Load: 80 Cover: Run Length (min) 5 Loaded Miles: 0.00

Insert Checkpoint Assign Deassign Stop Times Head Count ID Stop Refresh

Load Times Regrder Resequence Passengers Run Dir New Stop Columns

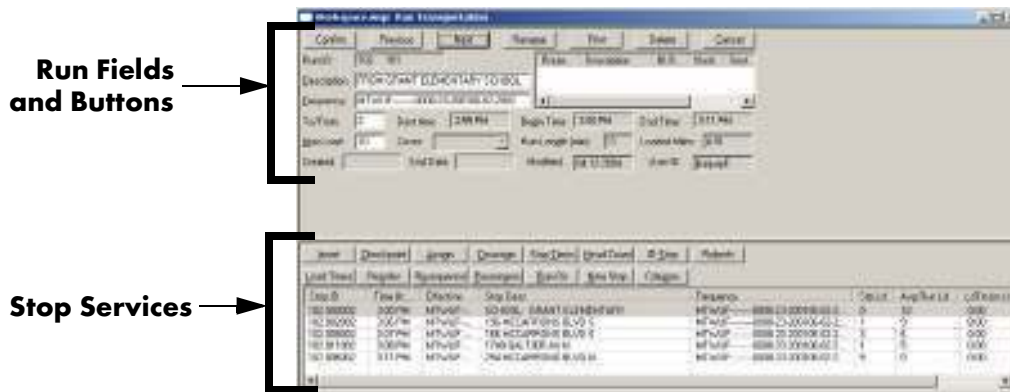
Stop ID	Time (h:m)	Effective	Stop Desc	Frequency
100.000004	12:35 PM	MTWUF----	SCHOOL: LINCOLN ELEMENTARY	MTWUF-----0008-
100.003003	12:40 PM	MTWUF----	MALVERN ST & ROSELAWN AVE W	MTWUF-----0008-
100.055004	12:40 PM	MTWUF----	DELAWARE ST SE & HARVARD ST SE	MTWUF-----0008-
100.049003	12:40 PM	MTWUF----	FULHAM ST N & SPRING ST W	MTWUF-----0008-
100.000005	12:40 PM	MTWUF----	SCHOOL: LINCOLN ELEMENTARY	MTWUF-----0008-

When viewed graphically, the circular run would look like this:



The Runs Tabular Window

NOTES



When you find or create a run record with the Run Edit Keyfinder, you view it in the Runs Tabular window. The Runs Tabular window displays information about a run, including its stop services. This window contains the following fields, buttons, and table:

Run Fields and Buttons

Run ID	This field displays the Run ID.
Route	This table displays the route, if any, to which the run record has been assigned.
Description	This field stores a description of the run.
Frequency	This field displays the frequency of the run. You can change this field.
To/From	Use this field to create circular runs. A value of 1 indicates a to-school run and a value of 2 indicates a from-school run.
Dest Time	This field displays the destination time for the run, which is populated from the bell time that was selected in the Run Keyfinder when the run was created. You cannot modify this field.
Begin Time	This field displays the beginning time for the run.
End Time	This field displays the ending time for the run.
Max Load	This field defines the total capacity for the run. You can manually adjust this field so that feasibility errors appear if the run is overloaded.
Cover	This field displays the cover for the run.
Run Length	This field displays the length, in minutes, of the run.

NOTES

Loaded Miles	This field displays the loaded miles for the run.
Created	This field displays the date the run record was created. It is a system field.
Modified	This field displays the date the run record was last modified.
Confirm	This button saves the changes you made to the run record. It does not confirm changes you make to the stop services in the Stop Services table. Any changes you make to a stop service are confirmed when you choose the OK button on the child window.
Previous	This button takes you to the previous run record in the Run Edit Selection dialog box.
Next	This button takes you to the next run record in the Run Edit Selection dialog box.
Rename	This button allows you the rename the Run ID. You can only change the school code portion of the Run ID to school codes that are represented by school stops on the run. For a basic run, you cannot change the school that owns the run. You can, however, change the last three digits of the Run ID. For multi-school runs, you can change the school code or the school that owns the run to any of the schools that the run services.
Delete	This button purges the run record.
Cancel	This button discards any changes you made to the run record.
Stop Services Table and Buttons	
When working with this portion of the window, you must select a record in the Stop Services table.	
Stop Services	This table displays the stop services assigned to the run.
Insert	This button allows you to insert a school or non-school service onto the run.
Checkpoint	You use checkpoints to force the run to a specific location without making that location a bus stop, which is available for students. You can only create one checkpoint record at a location.
Assign	This button allows you to assign a stop service to the run.
Deassign	This button allows you to deassign a stop service from the run.

Stop Time	This button allows you to manually override the system created time at stop.
Head Count	This button allows you to enter a head count for the stop service.
Load Times	This button allows you to add loading time for each stop service assigned to the run. The unit of measure is tenths of a minute, where 5 would equal 30 seconds, 10 would equal a minute, and 15 would equal a minute and a half. You can run the LODTIME utility to populate this field based on student loads for all stop services in the system. See “Update Loading Times for Stops on Runs (LODTME)” on page 782 for more information.
Reorder	This button allows you to manipulate the order of the stop services on the run.
Resequence	This button allows you to have edulog optimize the run, which may reorder the services on the run.
Passengers	This button displays a list of passengers assigned to the stop service.
Run Dirs	This button allows you to generate run directions for the run.

Maintenance Associated with Runs

The following utilities relate to runs:

- LODTIME
- DEASSIGNSTOPSONRUNS
- DELETERUNSNOSTOPS
- INSERTCHECKPOINTS

For detailed information about these utilities, see “Utilities in Emu” on page 759.

ROUTES

A route is the total of all the runs that a bus completes during the day. A route for kindergarten students, for example, may include a run taking students to school in the morning, a run taking them home for lunch, a run taking them back to school after lunch, and a run taking them home at the end of the school day.

Routes have a frequency (as do trips, stops, and runs) that indicates the days of the week the route is needed to transport students.

Like stop and run records, you can work with routes graphically or in tabular mode.

When working with routes, you can:

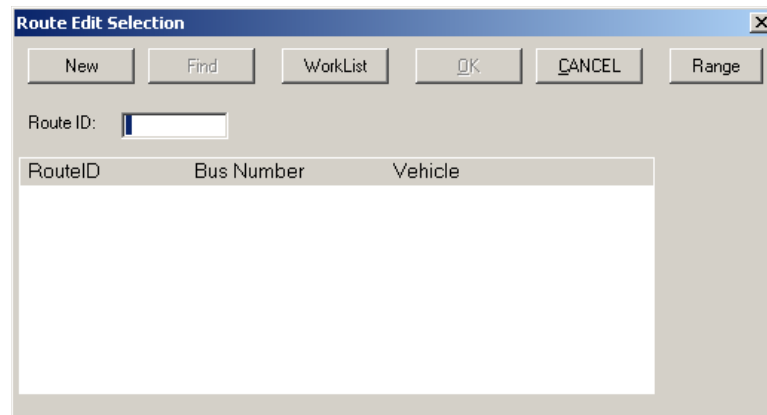
NOTES

- Create new routes.
- Modify and delete existing routes.
- Assign runs to routes as well as deassign them.
- Change run times on routes to make better use of your fleet.

Creating a Route

To create a route:

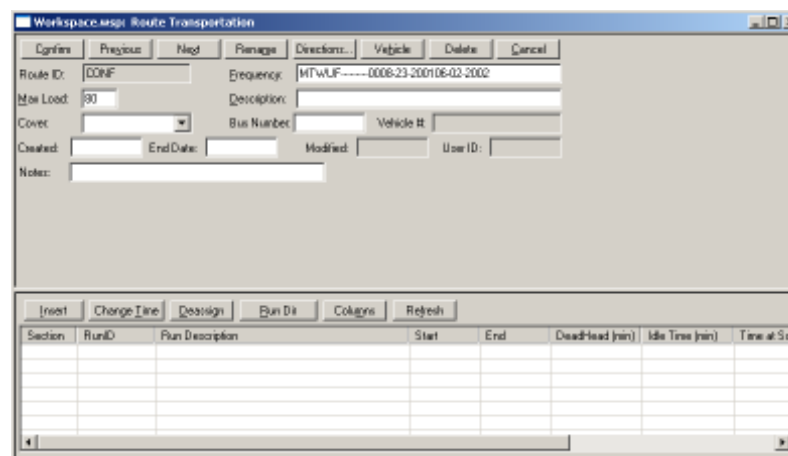
- 1 Choose **Tabular** from the Routes menu.



The 'Route Edit Selection' dialog box is shown. It has a title bar with a close button. Below the title bar are buttons: 'New', 'Find', 'WorkList', 'OK', 'CANCEL', and 'Range'. Below these buttons is a 'Route ID:' label followed by a text input field. Below the input field is a table with three columns: 'RouteID', 'Bus Number', and 'Vehicle'. The table is currently empty.

The system displays the Routes Keyfinder.

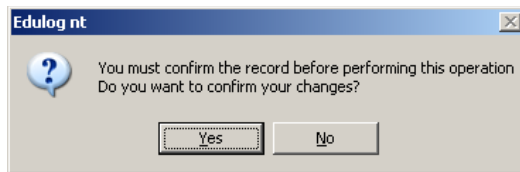
- 2 Enter the **<route ID>** in the Route ID field.
- 3 Choose **New**.



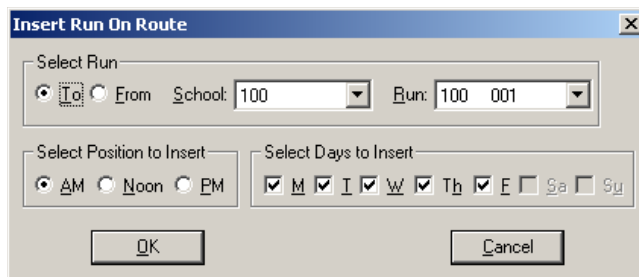
The 'Workspace: Routes Transportation' window is shown. It has a title bar with a close button. Below the title bar are buttons: 'Confirm', 'Previous', 'Next', 'Rename', 'Directions...', 'Vehicle', 'Delete', and 'Cancel'. Below these buttons are several input fields: 'Route ID:' (containing 'CONF'), 'Frequency:' (containing 'MTWTF--0008:23:200106-02:2002'), 'Max Load:' (containing '30'), 'Description:' (empty), 'Cover:' (empty), 'Bus Number:' (empty), 'Vehicle ID:' (empty), 'Created:' (empty), 'End Date:' (empty), 'Modified:' (empty), 'User ID:' (empty), and 'Notes:' (empty). Below the input fields are buttons: 'Insert', 'Change Time', 'Design', 'Run Dis', 'Columns', and 'Refresh'. Below the buttons is a table with columns: 'Section', 'RunID', 'Run Description', 'Start', 'End', 'Deadhead (min)', 'Idle Time (min)', and 'Time at Sc'. The table is currently empty.

The system closes the Routes Keyfinder assigns the Route ID you entered in the keyfinder to the route, and opens the Routes Tabular window, which displays the Route ID.

- 4 Enter a **<description>** for the route in the Description field.
- 5 Enter a **<bus number>** for the route in the Bus Number field.

6 Choose **Insert**.

The system prompts you to confirm the changes to the route record.

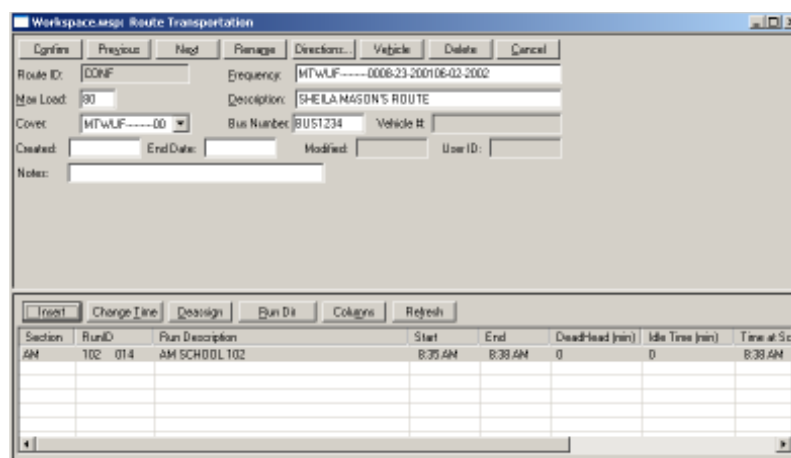
7 Choose **Yes**.

The system closes the message box and displays the Insert Run on Route dialog box.

8 Select the **To** option button to add a to-school run.

-OR-

Select the **From** option button to add a from-school run.

9 Select the **<school code>** for the run from the School drop-down box.**10** Select the **<run>** from the Run drop-down box.**11** Choose **OK**.

The system inserts the run onto the route and closes the Insert Run on Route dialog box. You return to the Routes Tabular window, which displays the run you inserted.

NOTES

12 For each run you want on the route, repeat Steps 6 - 11.

Note that you can double-click runs in the table to view their tabular records. A window similar to the following appears.

workspace.espt - Run Transportation

Config Previous Next Settings Print Details Cancel

RunID: 103 012

Description: RUN 012 FOR SP4000 103

Frequency: MTWTF--0008-23-200106-02-2002

To/From: 1 Dest time: 9:15 AM Begin Time: 9:05 AM End Time: 9:13 AM

Max Load: 80 Cover: Run Length (min): 9 Loaded Miles: 312

Route	Description	BUS	Slack	Seat
102			0	AM

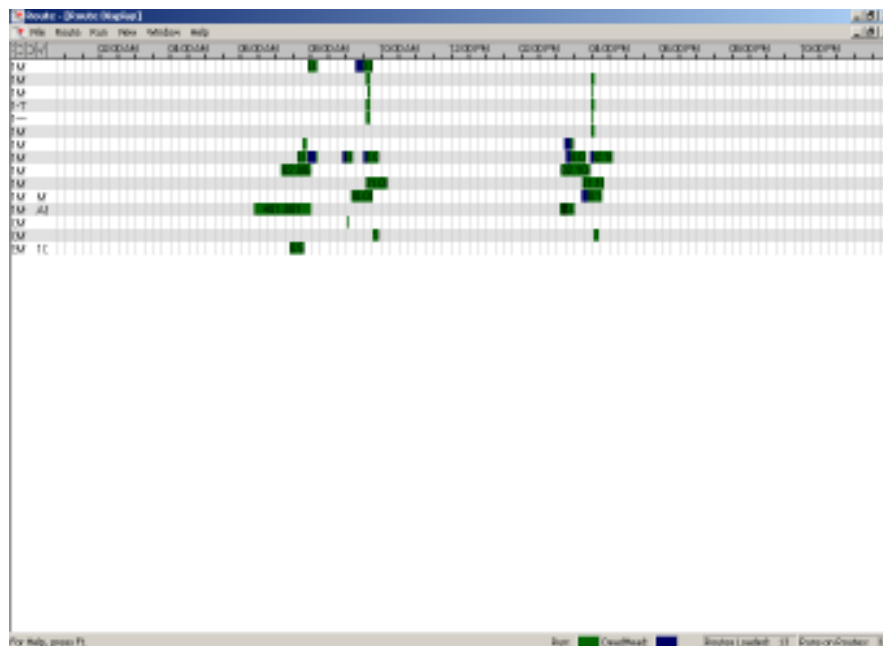
Insert Checkpoint Assign Reassign Stop Times Head Count ID Stop Refresh

Load Times Reorder Refrequency Passenger RunDir New Stop Columns

StopID	Time (h:m)	Effective	Stop Desc	Frequency	Stop Ld	Avg Run Ld
103.000001	9:05 AM	MTWTF--	2652 PASCAL ST N	MTWTF--0008-23-200106-02-2...	0	0
103.000001	9:07 AM	MTWTF--	2754 DELLWOOD AV N	MTWTF--0008-23-200106-02-2...	0	0
103.000001	9:09 AM	MTWTF--	2635 CHURCHILL ST N	MTWTF--0008-23-200106-02-2...	1	1
103.000001	9:13 AM	MTWTF--	SCHOOL: ROOSEVELT ELEMENTARY	MTWTF--0008-23-200106-02-2...	0	0

This provides an easy way for you to edit the records of runs assigned to the route. Some of the fields and buttons in the window are disabled, since the window is primarily for reference purposes.

Working with Routes in Display Mode



The Route Display window provides a visual display of routes as time lines. Each run appears as a darkened section indicating the run's duration on the time line.

You can leave the mouse pointer stationary on a run in the time line to view a banner listing the run's ID. This window also provides a variety of commands for working with routes.

If you want to work with existing routes, first load the routes you want to work with by choosing **Load** from the Route menu. If you want to view a detailed listing of runs on a route, choose **Route Info** from the Route menu, then select the desired **route** by clicking the **arrow** next to the Enter Route ID field.

If you want to create a new route, choose **Create** from the Route menu. Enter **route information** (as discussed in the previous section), then choose **Confirm**. Refer to the following section for information on placing runs on the route.

Changing Run Times in Routes

You can modify the time a run on a route is scheduled to arrive at a school (if it is a to-school run) or depart from a school (if it is a from-school run) in either the Tabular or Display mode. This function allows you to change the times associated with runs on routes, perhaps enabling you to insert additional runs on routes and thus make more efficient use of your bus fleet.

To change run times in the Tabular mode, choose **Change Time** above the table at the bottom of the Tabular route record window. To change times in the Display mode, choose **Edit Times** from the Route menu. Select the route by clicking the down-arrow next to the Enter Route ID field, then enter the **new arrival/departure time** in the New Time field.

NOTES



BEGINNING REPORTS

The report writer provides a flexible and powerful tool for creating queries and producing reports on the various types of information in your transportation system. The commands and options in this application use plain language and provide a full range of analysis options that allow you to create simple or complex reports.

To make your job easier, edulog has created pre-packaged (or standard) reports based on the types of information that district personnel commonly want to examine. These standard reports are completely predefined and formatted, so that you need only run a report to quickly examine the desired information. You can modify the standard reports but any changes you make to the standard reports will be lost when you exit reports.

To start the report writer application, choose **Edulog Reports** on the Reports menu.



The system displays the edulog Reports launch pad.

You can also open the reports module through the Windows Start menu. To open reports from the Start menu, choose **Start, Programs, and edulog.nt Client Software**.

The **Standard Reports** button on the edulog Reports launch pad provides access to edulog's collection of pre-packaged reports. You can also use the User Defined Reports button to create and save your own reports if needed. The buttons on the right provide access to a variety of special reports.

USING QUERIES

You use queries to produce reports. A query is a question you ask about your data. The data that makes up the answer is the report. For example, you might create a query that asks for all students in grade five that attend Lincoln Elementary. The final report would list those students.

NOTES

A filter is a set of conditions that allows you indicate which records you want to include in your query results. A condition consists of:

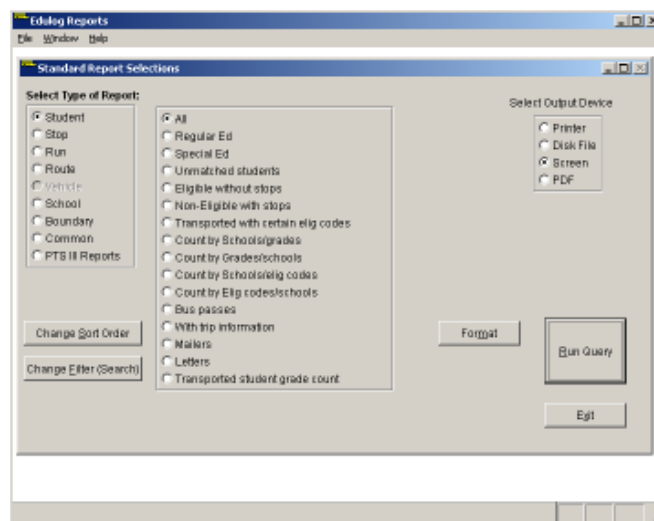
- A field name, like School.
- A relational operator, like, “Is equal to.”
- A comparison value, like 100.

After defining the filter conditions, you choose which fields you want to include in the report (such as student last name, first name, address, and District ID), how you want the information arranged (alphabetically by last name, for instance), and where you want to send the report (perhaps to a printer or to view it on the screen). Standard reports already have these query selections in place but you can create your own queries as desired.

The report writer has online Help available with specific, step-by-step instructions on each of the tasks you need to complete. To open online Help, choose the **Help** button on the launch pad for immediate access to the information you need.

PRODUCING STANDARD REPORTS

edulog has created a variety of standard reports based on the types of information that district personnel commonly want to examine. These reports are completely set up and ready to run. All of the query selections are in place, including the filter conditions, the fields of information to include in the report, the sort order, and the report’s output type. You can modify the report filter and sort order if you wish. Also, if you have created any user-defined reports, you can add them as common reports. You run the standard reports by choosing the Standard Reports button on the edulog Reports launch pad.



The system displays the Standard Report Selections dialog box.

- 1 To produce a standard report, select the **report type option button** you want.

Note:

If you want to run a user-defined report that you have included with the standard reports, choose the **Common** option button.

The system displays various options for the report type you selected.

- 2 Choose the **report options** you want.

Note:

You can modify the report's filter and sort order.

- 3 Select the **output device** for the report from the Select Output Device option buttons.

Note:

If you select Disk File, enter a path and file name with an extension, like C:\elt\live\reports\allstudents.txt, in the File Name field.

- 4 Choose **Run Query**.

The system produces the report to the selected output device.

Some of the standard reports require you to enter comparison values to run the query. For instance, if you want to create a Standard Grades/Programs for Certain Schools Report, you need to enter the schools you want to include in the report. If you sent the report to a Disk File, a dialog box appears asking if you want to view the file now. Choose **Yes** if so. Press ESCAPE when you have finished examining the file.

When you are finished working with standard reports, choose **Exit** to return to the edulog Reports launch pad. Any changes you make to the standard reports will be lost when you exit reports.

Standard reports also appear when you choose one of the user-defined report options, but keep in mind that you need to use the Standard Reports Selections dialog box to run these reports. You can, however, use the standard report options in the User-Defined Reports window to make copies of the standard reports. While you cannot modify a standard report, you can modify the copy.

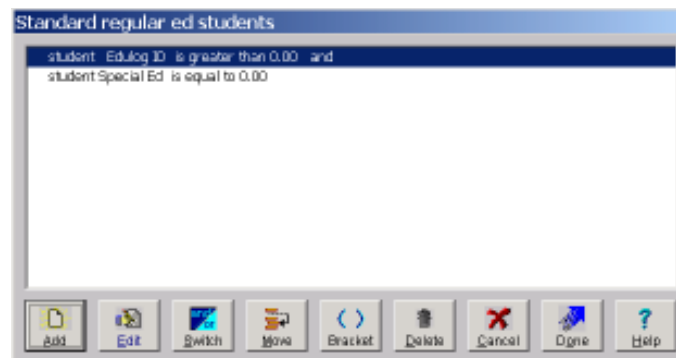
Changing the Standard Report Filter

The Standard Report function allows you to change some of the filter conditions (criteria) that determine which records each report includes. These changes are temporary and will not be saved by the system when you exit reports.

To change the filter for a standard report:

- Choose **Standard Reports** from the edulog Reports launch pad.
- Select the **standard report options**.
- Choose **Change Filter (Search)**.

NOTES



The system displays the Filter Form dialog.

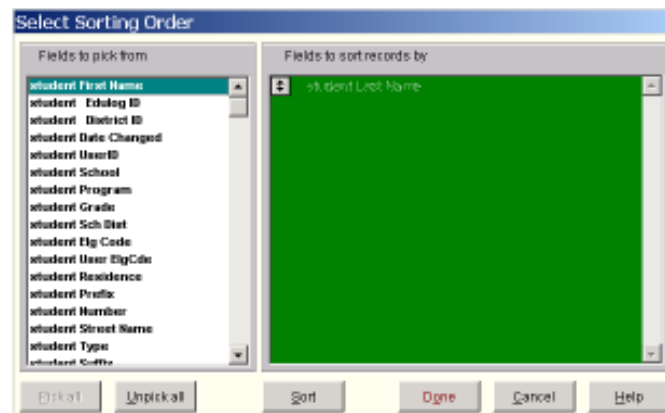
The Filter Form dialog allows you to add, edit, or delete filters.

Changing the Standard Report Sort Order

The Standard Report functions allow you to change the order in which some reports list their records. These changes are temporary and will not be saved by the system when you exit reports.

To change sort order for a standard report:

- Choose **Standard Reports** from the edulog Reports launch pad.
- Select the **standard report options**.
- Choose **Change Sort Order**.



The system displays the Select Sorting Order dialog.

The Select Sorting Order dialog allows you to change the sort order.

Editing Standard Reports

The report writer allows you to edit the standard reports to include the information you want to see in your reports. The first thing you must do is copy the standard report and then customize it.

- 1 Enter the **User Defined Reports** module.

- 2 Select a **standard report** to copy.
- 3 Choose **Copy** and enter a **<name>** for the report in the New Name field. The title cannot begin with the word “Standard.”
- 4 Select the **report** to copy from the list or reports.
- 5 Edit the **output fields**.
- 6 Select **fields** to add to the report.

Note:

Do not take fields away that were in the original report because the new report will not work correctly.

- 7 Choose **Run Query**.
- 8 Choose **Edit Form**.
- 9 Under View, choose **Table Designer**.
- 10 Write down exactly how the field name appears for each new field.
- 11 Exit Table Designer.
- 12 Under View, choose **Report Controls Toolbar**.
- 13 Choose the **tool** labeled “**AB**.”
- 14 Draw a **box** with the tool anywhere on the screen.
- 15 Where the cursor is in Expression field, enter **one of the new field names** in the format found in Step 10.
- 16 Choose the **button** with the Ellipses (...) to the right of the field name you entered in Step 15.
- 17 Choose **Verify**.
- 18 At the bottom left of the screen, watch to see if the sentence “Expression is valid” appears.
- 19 Choose **OK**.
- 20 Add a title by selecting **A** from the Report Controls Toolbar.

Note:

All boxes can be moved to achieve the desired format. Under “Format,” font changes can be made. To select more than one item, you can 1) create a box around the desired objects (the cursor should appear as a finger pointing hand) or 2) hold down SHIFT and click the desired objects. All selected items appear with dots defining the four corners.

NOTES

PRODUCING SPECIAL REPORTS

The buttons in the right column on the edulog Reports launch pad provide access to various special reports you can produce. Some of the reports you can create are:

- Student Counts listing the numbers of students at each of the schools in your system by grades and eligibility;
- Route Time Line displaying runs on routes in a time line format;
- Deleted Students listing any students that have been deleted (flagged for deletion) but not yet purged;
- Duplicate Students listing all students with duplicated information in the student database;
- Utility Audit/Error reports that provide access to reports produced by the various edulog maintenance utilities;
- State Reports that allow you to generate any special reports required from your district by various state agencies.
- RR Crossing that allows you to produce reports on hazards in your system. The hazards can be railroad crossings, narrow bridges, etc.
- School Distance that provides access to the School to School Distance report which shows the distances between each of the selected schools.
- Report Utilities that provide access to various utilities associated with the reports application (including Fix Report and Copy Reports). Only advanced users should run these utilities. When reports security is on, only administrative users have access to Report Utilities.

Producing a Deleted Students Report

The Deleted Students Report produces a list of all students who have been deleted in edulog (that is, flagged for deletion but not yet purged). To produce a deleted students report, choose Deleted Students from the launch pad. The report writer takes a moment to find deleted records.

If you have already created a deleted students query, you can run that query to examine deleted student records or you can modify the query as needed. If this is the first Deleted Students or Duplicate Students query, choose **OK** from the dialog box indicating so, then type a title for the new query and choose **OK**. Otherwise, choose **Add** from the Query List Manager dialog box.

Under the Pick a Field tab, select **student Last Name**, then choose **Next Step**. Under the Pick an Operator tab, select **Is Not Empty**, then choose **Done**. Choose **Yes** if you want to run the query now. When you run the query, the list will include all deleted students.

Producing a Duplicate Students Report

The Duplicate Students Report produces a list of all students with duplicated information in the student database. You can use this report to find students who have the same first name, last name, and address (an indication that a student has been inad-

vertently entered into the system more than once). You can also use this option to find students who have accidentally been given the same District ID number. You can check any field in the student records for duplication.

To create a Duplicate Students Report, choose **Duplicate Students** from the launch pad. In the Select Fields to Find Duplicates dialog box, select **one or more fields** (such as last name, first name, and location) to have the system find any student records with the same entries in those fields. Choose **Done**.

The report writer takes a moment to find duplicated records. If you have already created a duplicate students query, you can run that query now to examine any student records with duplicate entries in the field(s) you selected or you can modify the query as needed. If you have not yet created a query to select the duplicated student records, you will need to do so now. Type a **title** for the new query and choose **OK**. Otherwise, choose **Add** from the Query List Manager dialog box.

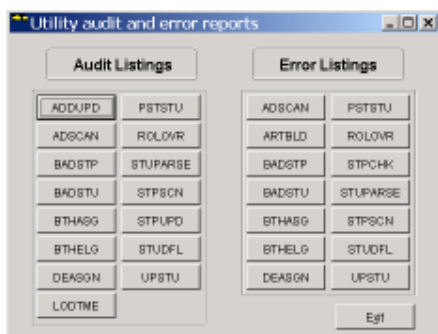
Under the Pick a Field tab, select **student Last Name**, then choose **Next Step**.

Under the Pick an Operator tab, select **Is Not Empty**. Choose **Done**. Choose **Yes** if you want to run the query now. When you run the query, the list will include all students with the same entries in the fields you selected.

Producing a Utility Audit/Error Report

The Utility Audit/Error reports provide access to the audit reports and error listings produced by the edulog maintenance utilities. Some of these utilities produce reports that provide you with information on their progress. Error listings indicate any problems that the utility encountered. Audit reports indicate the current status of the records as well as any changes made by the utility.

To view audit or error reports after running a utility, choose **Utility Audit/Error** from the edulog Reports launch pad.



Choose the **button** that corresponds to the utility from either the Audit Listings on the left or from the Error Listings on the right. Create a query to access the records included in the audit or error listing (unless one has already been created).

The ADSCAN, ADDUPD, BADSTU, BTHASG, BTHELG, and UPSTU reports all use student queries, while the BADSTP, STPSCN, and STPUPD reports use stop queries. The report writer uses two fields to access audit and error reports created by the utilities: the Link File Student (or Stop) ID and the Link File Description fields. (The student ID is the edulog ID number.) You use these fields when defining the query filter and when selecting information to include in the report.

NOTES

Filter Conditions

In general, you will want to include all records listed in the audit or error report. To do this, you use either the Link File Student (or Stop) ID or the Link File Description field in your query filter condition. For student utilities, you can define the query filter as “Link file Student ID is greater than 0” or “Link File Description is not empty.” For stop utilities, you can define the filter as “Link File Stop ID is not empty” or “Link File Description is not empty.”

Output Fields

When selecting information to include in the report, make sure to select Link File Description as an output field. This field will list any errors or changes made to records. You will also want to include Link File Student (or Stop) ID as one of the output fields. You can include any other information you may want to examine. These choices will usually depend on the type of utility you ran. Feel free to experiment with selecting different output fields and changing their order.

Producing a Route Time Line Report

The Route Time Line Report that displays a time line with runs on routes in your system. To generate a Route Time Line Report, choose the **Route Time Line** button on the launch pad.

Select the **Time of Day**, which is the portion of the route you want to examine (Morning, Noon, Afternoon, or All). Select **Load Type**, select the student load type you want to examine (Assigned lists the number of students assigned to runs in the system, while Headcount lists the number of students who actually ride the bus, often determined by driver head counts). Next, select **Unassigned Runs** to indicate whether you wish to include unassigned runs in the report.

Click the text box next to Enter Start Time For Report and type the time of day when you want the time line display to begin (in the format HH:MM AM/PM). Under Choose Length of Report and Increments, select the **Approx. Two Hours/One Minute (Land)** or **Approx. Four Hours/Two Minute (Land)** option to indicate how long you want the time line to extend after the start time you enter. The Two-

NOTES

hour report displays the time line in increments of one minute, while the four-hour report displays the time line in two-minute increments.

Choose **Update Time Line Info** to access route information. Under Choose Output Device, select the **destination** where you want to send the report (to the screen, a printer or a disk file). If you select the Disk File option, make sure to enter a name for the file (with a txt extension) and path (that is, C:\Elt\Live\Reports) for the file in the Enter File Name text box. Choose the **Run Time Line Report** button.

If no runs appear on the time line when you produce the report, try adjusting the Start Time or the report length. You do not need to repeat the time line update step if you change the length of the report. When finished, choose **Exit Form** to return to the edulog Reports launch pad.

Reading a Route Time Line Report

The following is an excerpt from a two-hour, one-minute increment time line report.



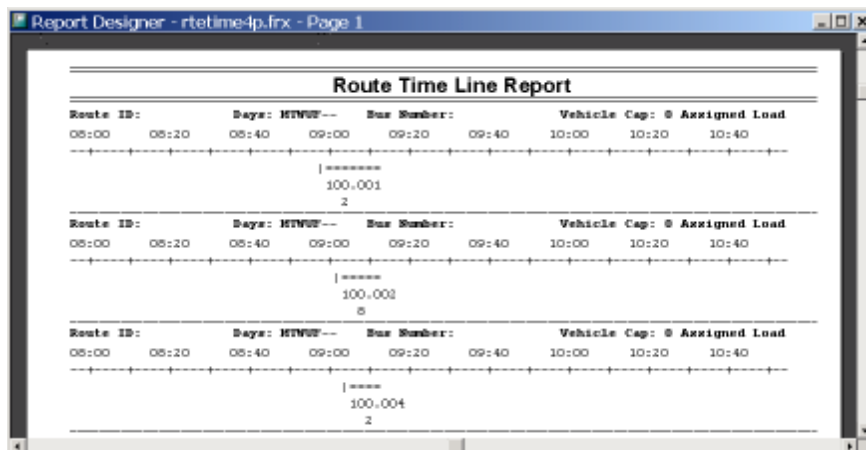
This portion of the report shows the route's activity between 8:00 and 10:00 AM. The time line is broken down into five-minute intervals (|-----|) with times listed every ten minutes. The report indicates that run 100.001 begins at 8:59 and ends at 9:13. (The 2 under the Run ID indicates the current number of students assigned to the run.)

Two-hour time line symbols are defined as follows:

- # 1 minute of deadhead or checkpoint time.
- = 1 minute of travel time.

The following is the same route in the four-hour, two-minute increment format.

NOTES



This portion of the report shows the route's activity between 8:00 and 12:00 PM. The time line is broken down into ten-minute intervals (|----|) with times listed every twenty minutes. Again, the report indicates that run 100.001 begins at 8:59 and ends at 9:13. (The 2 under the Run ID indicates the current number of students assigned to the run.)

Four-hour time line symbols are defined as follows:

- # 2 minutes of deadhead or checkpoint time.
- = 2 minutes of travel time.
- | 1 minute of time (either deadhead or travel).
- * Continued.

Producing a Student Counts Report

The Student Counts Report that lists the number of students in schools in your system. You can examine student counts broken down either by grades or by eligibility codes. To produce a Student Counts Report, choose **Student Counts** from the launch pad.

Select the **type of students** you want to include in the report (Special Ed, Regular Ed, or Both). Select whether you want to use **Computed Eligibility Codes** or **User Entered Codes** (eligibility codes entered by the user to override the computed eligibility code). Under Enter Eligibility Codes, select the specific **codes** you want to

include. Click the arrow next to a Code drop-down box, then select from the available **codes** (use the scroll bar to advance the list if necessary). The list includes descriptions of each of the codes. Only students with the specified eligibility codes will be counted in your report.

Choose **Update Report**. edulog accesses and stores the student counts for each of the schools according to your previous selections. Under Choose Output Device, select whether you want to send the report to the Screen, a Printer, or a File. If you want to send the report to a disk file, make sure to enter the name and path for the file (such as C:\Eligcount.txt) in the text box under Enter File Name. If you send the report to the screen you can use the Preview toolbar to work in the preview window.

Choose **Run Sch/Grd Report** if you want to produce a report listing student counts broken down by grade or choose **Run Sch/Elg Report** if you want to produce a report listing student counts broken down by eligibility code. Choose **Exit** when you are finished working with the Student Count reports.

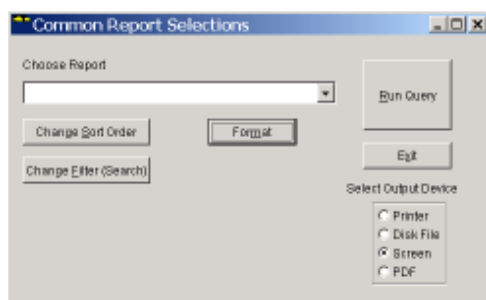
Once you choose **Update Report**, edulog saves that student count information even after you exit the form. You can return to the form and produce Student Count Reports on that information later without repeating the Update step. Also, you can produce both the Sch/Grd Report and the Sch/Elg Report using the same Update. You only need to repeat the Update step when you change your selections in the Student Counts dialog box.

ADDING COMMON REPORTS

The Common Reports function allows you to create a list of frequently used reports. The reports in this list can be standard reports and user-defined reports.

To add a report to your common reports:

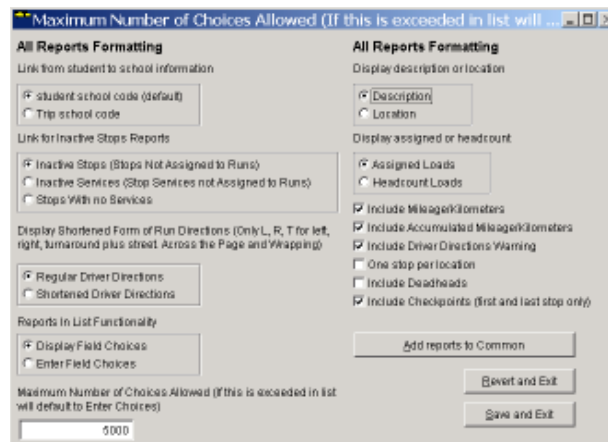
- Choose **Common Reports** on the edulog Reports launch pad.



This system displays the Common Reports dialog.

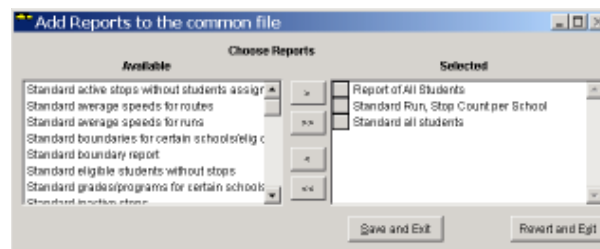
- Choose **Format**.

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The system displays the Reports Formatting dialog.

- Choose **Add reports to Common**.



The system displays the Add Reports to Common dialog.

- Select the **report** from the list of available reports on the left, then choose the arrow pointing to the right to add it to the list of selected reports.

You can select all of the available reports by clicking the double arrows pointing to the right. To remove a report, select it from the list on the right and click the arrow pointing to the left. If you want to remove all selected reports and start over, choose the double arrows pointing to the left.

- Choose **Save and Exit** to save your common report selections and return to the Reports Formatting dialog.
- Choose **Save and Exit** on the Reports Formatting dialog to return to the Common Report Selections dialog.

The Choose Report drop-down box on the Common Report Selections dialog displays the added reports.

You can also access your common reports from the Standard Reports Selection dialog through the Common option button. When you select the Common option button, the system displays the Choose Report drop-down box, allowing you to select a common report.

INTERMEDIATE REPORTS

A query is a question you ask about your data. The data that makes up the answer is the report.

- Filter** A filter is a set of conditions that allows you to indicate which records you want to include in your query results. A condition consists of:
- A field name (such as “School”)
 - A relational operator (such as “Is equal to”)
 - A comparison value (such as “100”).

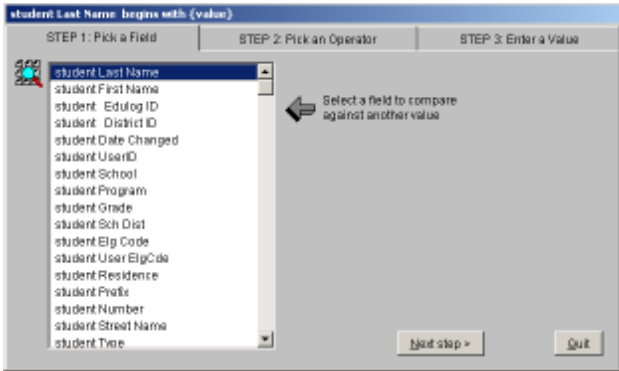
Output Fields After defining the report query, you indicate what information to include in the report. Once the report writer finds all of the records that match your filter conditions, it needs to know what information you want to see from those records.

Sort You can also choose the order in which individual records are listed. You may wish to arrange students alphabetically by last name, or numerically by District ID number.

Output Device you select the output device for the report. You may wish to view the report on the computer screen or send it directly to the printer to see a hard copy of the information. On the other hand, you may wish to send the report to a disk file to modify later or print at your convenience. You can send the report to a variety of types of files, including Excel or Lotus spreadsheets, data tables, or text files.

Step 1: Selecting a Field for the Filter

When you begin adding a filter condition, a window similar to the following appears.



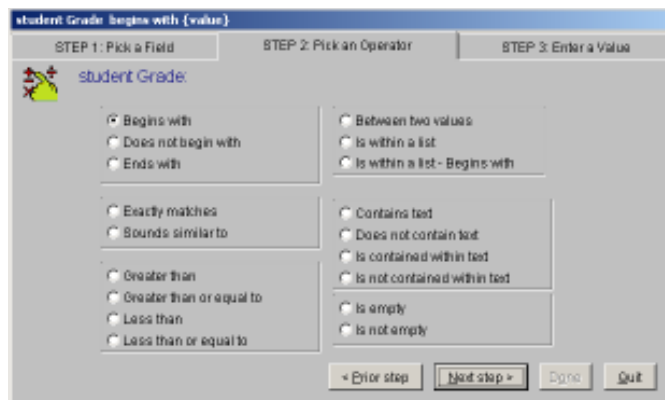
This window contains three tabs that correspond to the three steps in entering a filter condition. The first step is to select the field you want to use to narrow the query

NOTES

results (such as “Student Grade”). The list includes fields contained in the records in your data. You move to the next tab (“STEP 2: Pick an Operator”) either by double-clicking the name of a field in the list, or by single-clicking a field name and choosing Next Step.

Step 2: Selecting an Operator for the Filter

After you select a field, you proceed to the second tab in the window, similar to the following.



The second step is to select the relationship between the field you selected in the first step and the value you enter in the third step (such as “Student Grade Exactly Matches 06”). You have a variety of operators to choose from.

- You can select records between a range of values (such as stops IDs from 100.001 to 100.020) using the Between Two Values operator.
- You can use the Begins With operator to select students with last names beginning with certain letters, or Stop IDs that begin with a certain school code. You can use the Does Not Begin With operator to select all records except those beginning with the specified characters.
- You can use the mathematical operators Greater Than, Less Than, and so on, to select records with corresponding values (such as “Stop Load is greater than zero”).
- You can use the Is Within a List operator to select items from a list.
- You can use the Is Within a List - Begins With operator to enter a list of 23 items to find using the “Begins with” function. You can, for example, use this operator to find Run ID’s based on a list of school codes.
- You can select all records that have anything entered in the field (Is Not Empty) or all records that have nothing entered in the field (Is Empty).
- You can use one of the four text options to select records in which the field contains certain groups of characters (Contains Text).

Double-click an operator or single-click and choose Next Step to move to the third tab (STEP 3: Enter a Value). You can return to the previous tab using the Prior Step button if you want to change your selection.

Step 3: Entering Comparison Values for the Filter

After you select the operator you want to use, you proceed to the third tab in the window, similar to the following.

The screenshot shows a dialog box titled "student Grade is greater than {value}". It has three tabs: "STEP 1: Pick a Field", "STEP 2: Pick an Operator", and "STEP 3: Enter a Value". The "STEP 3: Enter a Value" tab is active. Inside the dialog, there is a text box with the placeholder text "student Grade is greater than:" and a small cursor icon. Below the text box is a small rectangular input field. At the bottom of the dialog, there are five buttons: "Ask later", "Compare to field", "< Prior step", "Done", and "Quit".

The third step involves entering a comparison value in the text box (for example, enter "06" for a report of all students in grade six). Just click on the text box and type a value. The value or values you enter in this step will depend on the operator you selected in step 2.

Many of the operators require you to enter only a single value or group of characters (for example, "begins with the letter K" or "school code exactly matches 100").

If you selected the Between Two Values operator, you need to enter the beginning and ending values of the range. After you type the From value, press enter to move to the next text box, then type the To value.

If you selected the Is Within a List operator, the system displays a dialog with a selection list of available values for the field selected in Step 1 or (depending on the options selected on the Reports Formatting dialog) a dialog allowing you to enter the values you want. You can select or enter one or more values. When you have finished selecting or entering values, choose the Save and Exit button.

If you selected one of the greater-than or less-than operators, make sure to enter the correct number of digits for the value. For example, if the grades in your system contain two digits, make sure to enter two digits in the comparison value text box (01, 02, 03, and so on). No value is required if you selected the Is Empty or Is Not Empty operator.

The Ask Later button can be very useful, allowing you to wait and enter values when you run the query. This way, you can set up general queries (on any of the schools, for example) instead of queries that look for the same values each time (such as only school codes between 100 and 200). Many of our standard reports use the Ask Later option for you to enter the desired values when you run the report. For example, the Standard grades/programs for certain schools report asks you to enter the codes of the schools whose grades and programs you want to examine.

If you are entering a date for comparison (such as 09/15/98) instead of numerical values, you need to enter those dates in the same format as in edulog. The default

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date format is MM/DD/YYYY. The edulog report writer only recognizes dates as a group of characters, so you can also use the Contains Text operator in such cases.

Choose Done when you are finished entering the filter condition.

Creating a Query from Scratch

- 1 Choose User Defined Reports on the launch pad.



The buttons function as follows:

Schools	Allows you to produce reports that contain information on the schools in your system. With these queries, you can examine bell times, grades and programs for schools, as well as school boundary and eligibility information.
All Students and Transportation	Allows you to produce reports on students with transportation assignments in your system. You can produce a standard list of students, or you can generate bus passes with these queries.
Students with Trips	Allows you to produce reports on students in your system. If you select only student fields for this report, you can obtain a listing of all the students in the database. If you select any trip fields, you will get only those students who have trips assigned. You can examine regular education students, special education students, and unmatched students (students whose addresses do not match the geocode) with these queries. You can also produce reports on the numbers of students at schools in your system.
Student Transportation	Allows you to produce reports with various combinations of student and transportation (stop, run, and route) information. You can produce passenger lists and student eligibility reports with these queries.
Stops/Runs/Routes	Allows you to produce reports with various combinations of information on stops, runs, and routes in your system. You can produce reports on run and route mileage and average speeds with these queries.

Inactive Stops Allows you to produce reports on stops that are not assigned to runs. You can also examine information on students assigned to such stops with these queries. This function depends on the settings made on the Reports Formatting dialog.

NOTES

Vehicles Allows you to produce reports on the vehicles in your district's transportation fleet.

- 2** Select the type of report you want to produce.
- 3** If this is the first query in the category you selected, choose OK from the dialog box indicating so. If not, choose Add. Type a title for the new query and choose OK.

You cannot enter a title that begins with the word "Standard." This word is reserved for edulog's set of standard reports. If you enter that word in the first part of the title, you will not be able to access or modify the report later.

- 4** Add one to thirteen filter conditions to indicate which records should appear in the query results, then choose Done.
- 5** Choose Yes if you want to run the query and examine the results.
- 6** Choose OK from the dialog box providing further information on the steps involved in producing the report.
- 7** Select the fields of information you want to appear in the query results, then choose Done.

The Query Overview dialog box appears with options for changing the filter conditions, output destination, sort order, and fields to be included in the report, as well as for running the query.

Creating a Query from a Worklist

The report writer allows you to create reports based on worklists created in edulog. Before you can use a worklist to create a query, the list must be the most recent loaded in edulog.

- 1** Choose User-Defined Reports on the launch pad, then choose the button corresponding to the type of report you want to create.
- 2** Select the appropriate Link to List option located at the bottom of the Pick a Field list (such as Student Link to List). (You can also select the field in Step 1 and the Is Within a Worklist operator in Step 2.)
- 3** For Students, choose the Greater Than operator.
- 4** Enter zero (0) as the value.

This selects all of the students in the worklist. You can add additional filter conditions if you want to further narrow the records that will appear in the query results.

- 5** Choose Done to return to the Query List Manager.
- 6** Choose Yes if you want to run the query and examine the results. Choose OK from the informational dialog box.

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- 7** Select the fields of information you want to appear in the query results, then choose Done when finished.

- 8** Choose Run Query.

The Update WorkLists dialog box appears.

- 9** Select the appropriate list and choose Update List Files.

The program produces the report based on the worklist you selected.

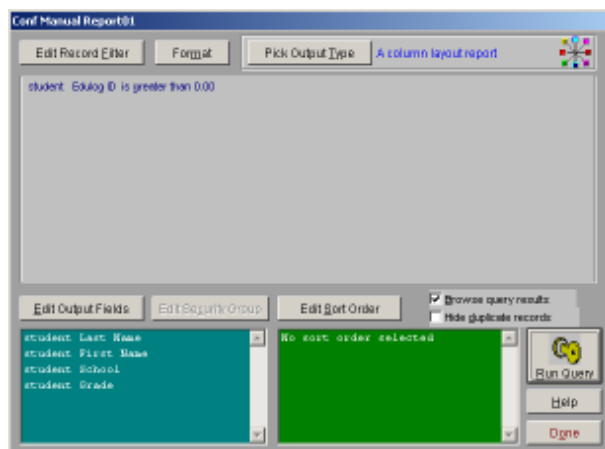
The Query Overview dialog box appears with options for changing the filter conditions, output destination, sort order, and fields to be included in the report, as well as for running the query.

Modifying a Query

At some point, you may find that you need to change queries in your system.

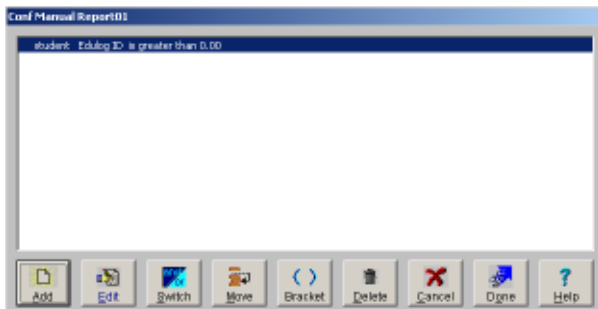
To modify a query in your system:

- 1** Choose User-Defined Reports on the launch pad, then choose the button corresponding to the type of report you want to modify.
- 2** Select the query you want to modify from the Query List Manager.
- 3** Choose Select.



The Query Overview dialog box appears with options for modifying the query.

- 4** To add, change, or delete any of the filter conditions, choose Edit Record Filter.



- To delete any of the filters, select the condition you wish to delete and choose Delete.
- To modify an existing filter condition, select the condition you wish to modify and choose Edit.
- To add a filter condition, choose Add from the Filter Building dialog box (you automatically bypass this step when entering the first condition of a query).

If any conditions have already been entered for the query, you need to select a connector indicating the relation to the other conditions. Connectors indicate how two filter conditions should work together. You have two options: And or Or. The connector is very important to the query results. If you choose And, every record in the report must meet both the previous condition and the new condition. If you choose Or, records included in the report can meet either or both conditions to be included. If you have many conditions with different connectors, you should use brackets to make the relationships clear.

Selecting Information to Show in the Report

The fields you use as filter conditions in a query may not be the same as the fields you select to include in the resulting report. When you design your query, you need to think about what you want to appear in the report.

- 1 Choose Edit Output Fields from the Query Overview dialog box (the system automatically bypasses this step if you are running the query for the first time and have not selected any fields to show in the report).
- 2 Select the fields of information you want to include from the left side of the Select Fields to Show In Query dialog box.

You can double-click a field or use the arrow keys on your keyboard to highlight the field and press enter. As you select fields, they appear in the list on the right side of the dialog box. If you want to remove any of these fields, double-click on a field name in that list (or use the arrow keys and press enter). Choose Done from the displayed dialog boxes when finished.

Note:

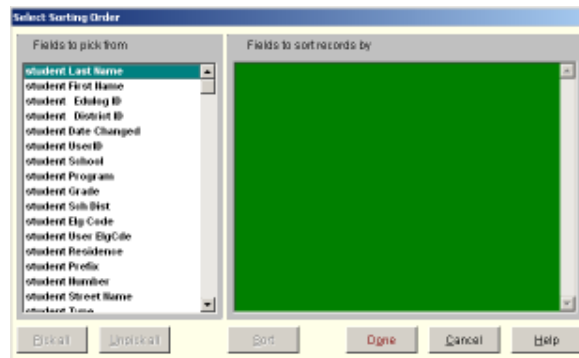
Do not remove any fields selected for a standard report. Removing these fields will force you to redo the form. Instead, delete the fields from the form in the Report Designer window.

Selecting the Sort Order

After you define a query's filter conditions and select fields to include in the report, you can select the fields that determine how your results will be sorted. You can select more than one field to sort on if you wish. For instance, you may want to sort students first by school, then by grade within each school, then by last name, then by first name. You can select up to nine different sort fields.

- 1 Choose Edit Sort Order on the Query Overview dialog box.

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- 2 In the list on the left side of the Select Sorting Order dialog box, select the field you want to use to sort the report.

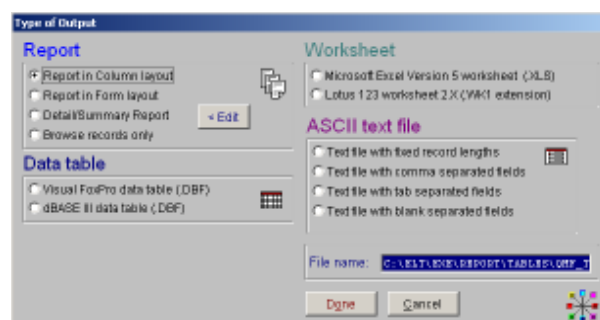
You can double-click on a field name or use the arrow keys on your keyboard to highlight the field and press enter. As you select fields, they appear in the list on the right side of the dialog box. If you want to remove any of these fields, double-click on a field name in that list (or use the arrow keys and press enter).

- 3 Choose Done from the displayed dialog boxes when finished.

Selecting the Report Destination

After you define a query, you have a variety of options for producing your report. You may only want to view the report on the computer screen. On the other hand, you may want to print the report or send it to a disk file. You can save a report as an Excel or Lotus spreadsheet, a simple text file, or a data table.

- 1 Choose Pick Output Type on the Query Overview dialog box.



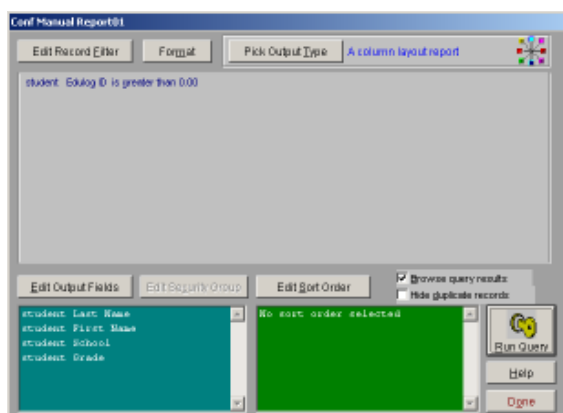
- 2 Select the desired destination from the available options.

If you choose one of the four Report options, you have the option of sending the report to a printer, the screen, or a disk file. If you want to send the report to a disk file, make sure to enter a name for the file (including the drive and directory) in the File Name text box.

- 3 Choose Done on the displayed dialog boxes when finished.

Running a Query

Once you have created queries, you can run them to produce reports. If you want to run one of the standard report queries, you need to use the Standard Reports button on the launch pad.



If you want to view the results of the query before producing a report:

- 1 Select the Browse Query Results check box above the Run Query button.
- 2 Select the Hide Duplicate Records check box to view only the first of any duplicate records.
- 3 Choose Run Query.

If you chose to browse the query results, a window appears with the records that meet your filter conditions (if any). Press escape or click the Close button in the upper-right corner of the window when you are finished examining the report.

Edit Form

If you choose Edit Form, the Report Designer opens allowing you to change the format of the report.

Output Direction

You have four options for report output. They are Printer, Diskfile, Screen, and PDF.

Printer Choose Printer on the dialog box. The Print dialog box appears. To select a different printer than the one listed, click the arrow next to the Name field and select the desired printer. You can indicate whether to print all or only a range of pages, as well as the number of copies you want, using the available text boxes. Choose OK when you are ready to print.

Diskfile Choose Diskfile on the dialog box. Another dialog box appears asking you to enter a path and name for the file. After choosing OK, the system will ask if you want to view the file now. Choose Yes if so. Press escape or click the Close button in the upper-right corner of the window when you are finished examining the report.

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- Screen** If you chose to send the report to the Screen, the report appears in the preview window. Another toolbar appears for working in the Preview window.
- PDF** Choose PDF on the dialog box. The system creates the report in Adobe Acrobat .pdf format. This allows you to keep the report formatted as desired. There are a few steps you'll need to complete before you can do so. These steps are discussed in the next section.

Print Preview Toolbar



You can leave the mouse pointer stationary on a tool to see a banner listing its function. These tools function as follows.

- First Page** Moves to the first page in the report.
- Previous Page** Moves to the previous page in the report.
- Go to Page** Moves to a specific page in the report preview. In the Go to Page dialog box, type the desired page number, then press enter.
- Next Page** Moves to the next page in the report.
- Last Page** Moves to the last page in the report.
- Zoom Level** Adjusts the zoom level of the preview window. Click the arrow next to this field, then select the desired size. You can also zoom in and out by clicking on the report window.
- Print Preview** Closes the report preview window.
- Print Report** Sends the report to a printer.

Setting Up PDF Output for Reports

First, you need to have Ghostscript installed on the computer (this is done automatically during the edulog installation). Second, you'll need to install a postscript printer driver on the machine. (That process is discussed later in this section.) Finally, you can add a setting for the post-script printer driver which will reduce the time it takes to create PDFs. We highly recommend you complete this step, since it will significantly increase the speed of creation of PDF files. This process is also discussed later in this section. Note that some of these steps may vary slightly for different versions of Windows.

Adding the Post-Script Capable Printer Driver

Note:

You may need to have the Windows installation disk available to complete this step.

- 1** Choose the Start button on the task bar, choose Settings, then choose Printers. The Printers window appears, showing any printers already installed on the computer.
- 2** Double-click the Add Printer icon to start the Add Printer Wizard.
- 3** Choose Next in the Add Printer Wizard. Make sure that Local Printer or My Computer is selected, then choose Next.
- 4** The wizard now asks you which port you want the printer to use. Scroll to the bottom of the list and select the check box next to FILE, then choose Next.
- 5** In the Manufacturers list, scroll down and select HP. In the Printers list, select HP Color LaserJet PS. (The PS stands for postscript.) Choose Next.
- 6** Make sure No is selected where it asks if you want other programs to use this as the default printer. Choose Next.
- 7** Select Not Shared or Do not share this printer, then choose Next.
- 8** Select No when asked if you want to print a test page.
- 9** Choose Finish.

Changing the Printer Driver Properties to Increase PDF Creation Speed

Note:

This option may not be available in all versions of Windows.

- 1** If you closed the Printers window, choose the Start button on the task bar, choose Settings, then choose Printers.
- 2** Right-click the HP Color LaserJet PS printer you just added, then choose Properties from the pop-up menu.
- 3** In the HP Color LaserJet PS Properties window, choose Printing Preferences.
- 4** The HP Color LaserJet PS Printing Preferences window appears.
- 5** Choose the Advanced button.
- 6** In the HP Color LaserJet PS Advanced Options window, click the plus sign (+) next to PostScript Options.
- 7** Under PostScript Options, select the PostScript Output Option. Select Archive Format from the drop-list.
- 8** Choose OK to close all of the properties/preferences dialog boxes, then close the Printers window.

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Producing a Detail/Summary Report

The Detail/Summary layout option allows you to produce a report in column format in which different types of records can be grouped and summarized. For example, the standard Route Report with Stop and Run Info provides route information grouped first by the runs assigned to the route, then by the stops assigned to each of the runs. The Detail/Summary layout option allows you to subdivide each group using other fields and add summary information (such as sums or counts) of records in each group. You can create a Detail/Summary report with up to three such divisions.

Begin the process of creating the report, selecting Detail/Summary as the report type. When selecting the fields of information to include in the report, you need to include both the field(s) you want to use to group records and the field you want to use to summarize the groups. To begin creating the Detail/Summary report, choose User-Defined Reports from the edulog Reports launch pad, then choose the button corresponding to the type of report you want to work with.

In the Query List Manager dialog box, either begin the process of creating a new query or select the query you want to work with and choose Select. Choose Pick Output Type from the Query Overview dialog box. In the Type of Output dialog box, select Detail/Summary Report as the report's destination. Choose the Edit button next to this option to begin defining data groupings.

Under the Pick Groups tab, click the arrow next to the "Group 1st by" text box and select the field you want to use to group records (such as School Code). Repeat the process for the "Group 2nd by" and "Group 3rd by" text boxes as desired. Choose Next Step.

Click the arrow next to Summarize the Field, and select the field you want to use for calculations within each group (such as Student Load). Select the type of calculation you want to perform in summarizing the groups (for example, select Count to list the number of records within each group, select Sum to list the total of the values in the selected field for each group, and so on). Choose Done from the displayed dialog boxes when finished.

You can include column headings for individual groups and perform other layout modifications to detail/summary reports using the Report Designer.

REPORTS SECURITY

NOTES

Reports have security features to protect them from users who should not modify or view them. This security prevents users without sufficient permissions from making changes to user-defined reports.

There are several different programs involved in reports security:

- Dumpusers is located in the \ELT\exe\EMU folder and is run from EMU.
- Reportaccess is in the \ELT\exe\Server folder and can only be run by an administrative user.
- Trnrpt (the edulog reports application) uses the security created by these two programs.

The Dumpusers utility copies all of your user names and passwords from edulog security to the reports security. If you have a user in reports who is not in edulog, Dumpusers removes that user from reports. It will also add users who are in edulog but not in reports. It will update only the password of a user who is already in the reports security. To run Dumpusers, you first need to add it to your Utils.inf file in the \ELT\exe\EMU folder if it is not already there, then create and run a batch for the process in EMU.

The Reportaccess program allows you to activate reports security and modify user permissions. You need to enter the path to the \ELT\Live\Server\DBTables folder in the command line or shortcut for this program. It can only be run by an administrative user. The default administrative edulog user will always work and is the user who will need to run the program for the first time.

If you activate reports security and start edulog reports from a shortcut or the command line, it will ask for a user name and password. If you start it from edulog, it will use the name and password used to log in to edulog. The edulog Reports launch pad provides access to anything for which you have read or write privileges. If you don't have at least read access to standard reports, most of the buttons will be disabled. If you don't have at least read access to user-defined reports, that button will be disabled.

Reportaccess allows you to enter names for the various groups of reports (such as Administrators, Contractors, and Secretaries). When you create a new report, you will be asked to put it in one of the ten groups. (When security is turned off and when you upgrade your software, all reports will go into group 1.) You can change user-defined reports only in those groups for which you have write permissions. You will not be able to access any report for which you do not have at least read privileges. Such reports will not appear in the report window. You will see the group names in the Common Reports window.

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HANDOUTS

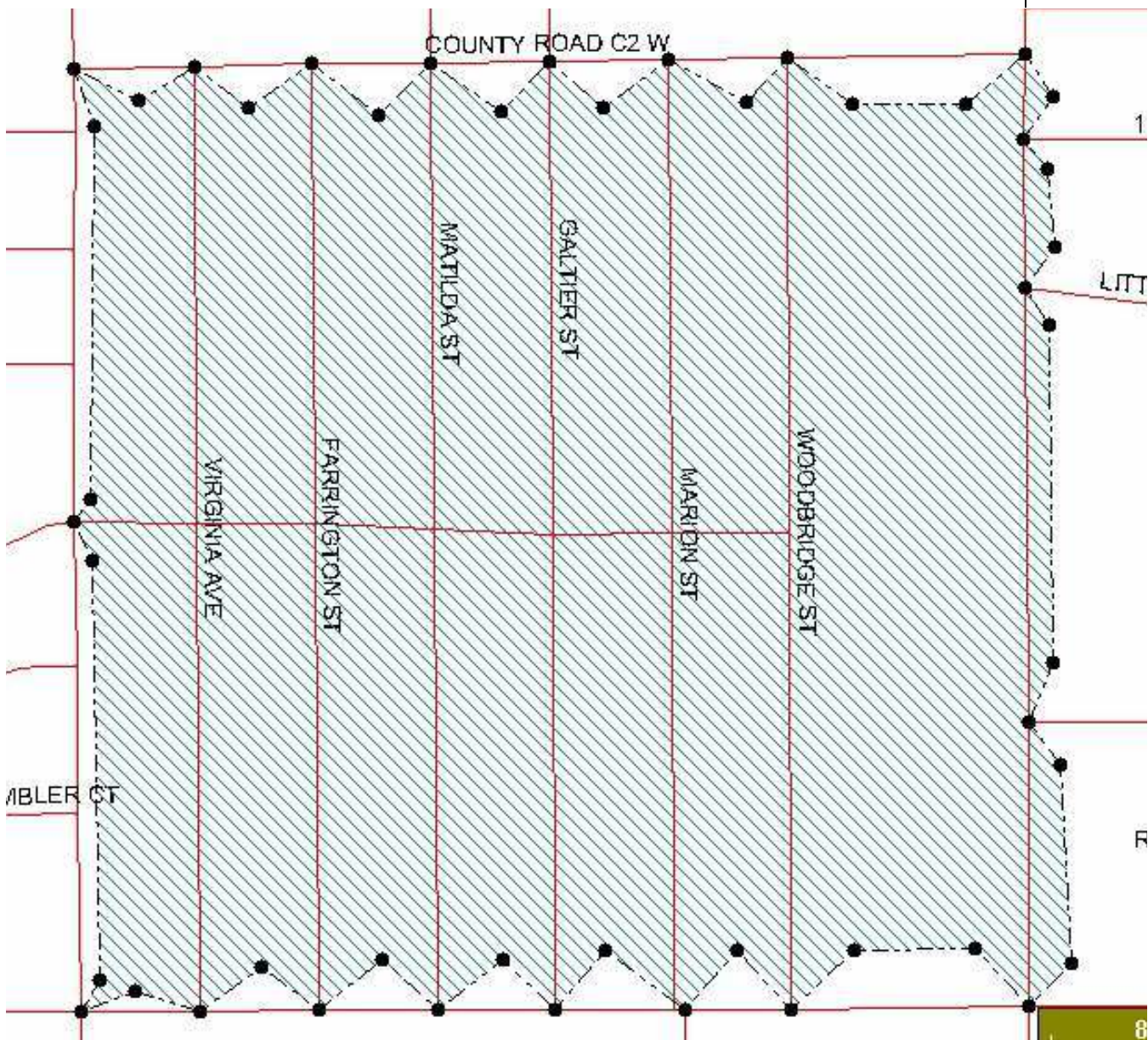
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BOUNDARY PRACTICE HANDOUT

Task: Create a manual boundary around the subdivision based on the information below. You will be practicing adding boundary points and using the saw-tooth and plateau methods.

- Remember to work counter clockwise and that using SHIFT + Left click will snap a boundary point to a node

TIP! Use the ESC key to undo the last point you created.



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GEOCODING PRACTICE HANDOUT

Task: Create a new subdivision based on the information below. It's ok if the measurements are not perfect, but try to get them as close as you can.

- All street names will need to be created. Assume all street speeds to be 15 mph and all direction of travel to be two-way traffic.

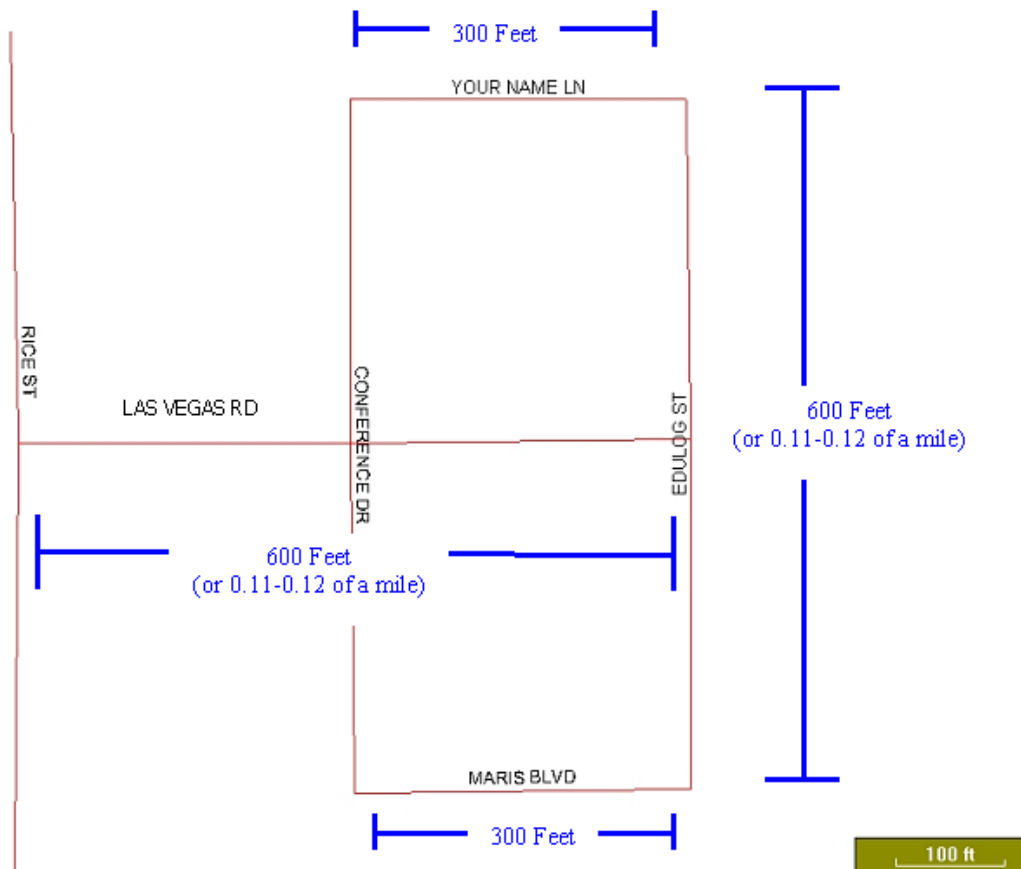
Las Vegas Rd – Left address 1-29, Right address 2-30

Conference Dr – Left address 1-19, Right address 2-20

Your Name Ln – Left address 1-5, Right address 2-6

Edulog St – Left address 1-49, Right address 2-50

Maris Blvd – Left Address 1-9, Right address 2-10



STUDENT/STOP ASSIGNMENT HANDOUT

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Task: Create students and stops using addresses from streets you created in the Geocoding Handout. Assign students to stops in tabular and graphical modes.

* All students and stops should be created for the school with your initials.

Tabular

- Create two intersection stops in tabular mode (write down their ID's).
 Maris Blvd & Conference Dr
 Edulog St & *Your Name* Ln
- Create two address stops in tabular mode (write down their ID's).
 7 Las Vegas Rd
 40 Edulog St
- Create 10 students in tabular mode (write down their names or ID's).
 Use addresses on streets
 Assign each student to their closest stop as you create them.
- When you have created and assigned all students, go back into each student and deassign them from transportation.

Graphical

- Create two intersection stops graphically
 Conference Dr & *Your Name* Ln
 Maris Blvd & Edulog St
- Create two address stops graphically
 3 Maris Blvd
 1 *Your Name* Ln
- Display the students you just created in tabular mode
 Display them individually or by zooming into that area and using "Range" and "Current View"
- Assign all students at once using "Fill from available" or by using a polygon

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EDULOG INTERMEDIATE TRACK

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Intermediate Track
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DOWNLOADING STUDENTS

NOTES

The student download procedure is intended for districts that maintain their student files on a separate database. An ASCII space delimited file (a text file in which data fields are separated by spaces) is exported from a student database. That file is then renamed to be newstu.dat and copied into the ELT\live\server\dyn directory. When Upstu is run the system reads from a file called Stuprm.dat, which must be in the ELT\live\server\sta directory. This file is a translation or parameter file that essentially governs where data is read from the Newstu.dat file and where is it written to in the actual student data files Studnt.dat, and Studnt.usr.

Note:

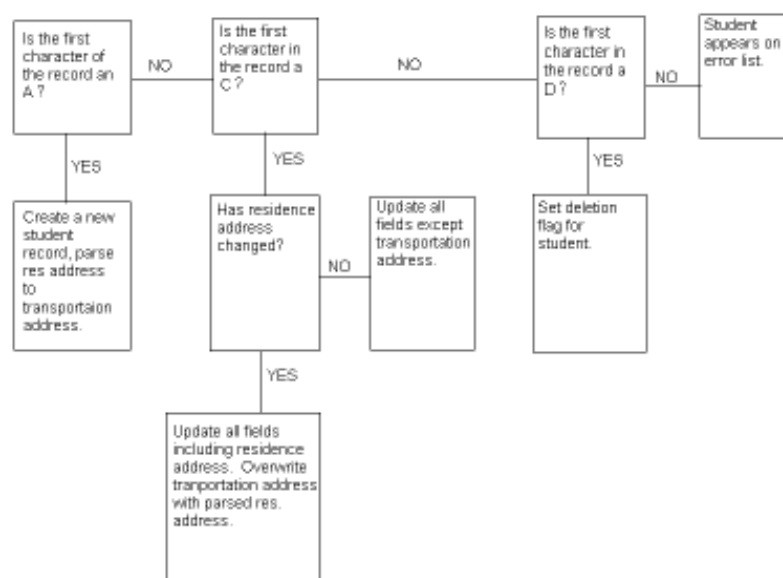
Backup your ELT\live\server\dyn folder before performing a student download.

UPMODE

Upmodes control the action the system takes upon reading records. See the flow charts below.

UPMODE 4 Requires that an A, C, or D be the first character in each student record in the Newstu.dat. This letter tells the system to Add a new record, change an existing record, or delete one.

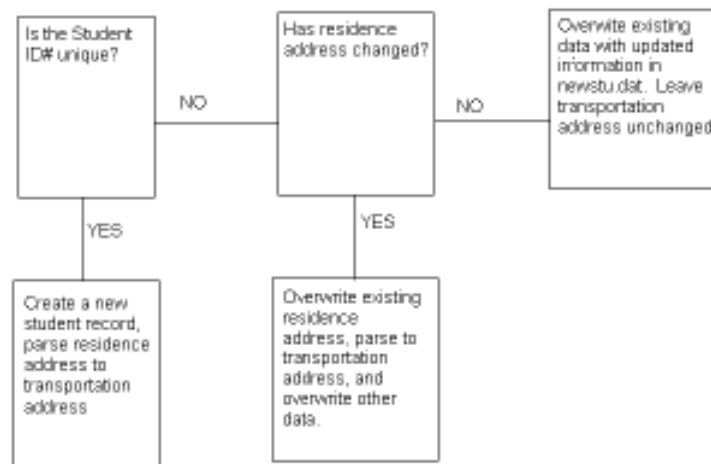
Upmode 4 Flowchart:



UPMODE 5 Each record is assumed to be either an add or a change and does not require an A, C, or D qualifier at the start of each record.

NOTES

Upmode 5 Flowchart:



Procedures

Here is an example of three batches that can be used to complete the student download. This process varies from district to district and should be setup by a member of edulog Implementation or Software Support.

Download Batch 1

- Prestu (district specific, optional)—This utility prepares the incoming student file to match the format needed for the download.
- Upstu—The download procedure to insert the new or changed student into the edulog student files.

Download Batch 2

- Flagset—Used to flag students for deletion of students no longer in the district student file. This should only be used in Upmode 5 and after a list is created containing students with the transaction date the same as the day of the upstu. Caution: the computer that was used to create the list must be used to run flagset or the correct students will not be flagged.
- Stuprg—Student purge utility to permanently delete students no longer in the district student file. This step is used for either Upmode 4 or 5 since the students are automatically flagged for deletion in the Upmode 4 process.

Download Batch 3

- Pststu (district specific, optional)—Adds city codes for districts who have more than one city containing the same addresses

- Addupd (district specific, optional)—Changes the address in the student record for commonly misspelled street names for a more automated way of address matching
- Adscan—Locates students on the geocode.
- Studst—Calculates distance of students to the school they attend.
- Bthelg—Determines eligibility for students based on boundaries posted to schools.
- Bthasgn—Assigns students to stop locations.

NOTES

NOTES

ASSIGNING STUDENTS TO STOPS

edulog has three ways to assign students to stops. Those ways are:

- Students Tabular Window (Home Stop and Trips features).
- Students Graphical Mode (Manual or Group).
- BTHASGN Utility in EMU.

ASSIGNING STUDENTS TO STOPS IN STUDENTS TABULAR

The Students Tabular window has two ways to assign students to a stop. Those ways are:

- Home Stop.
- Trips.

Before you assign students to stops, make sure that you have run the appropriate maintenance utilities in EMU, including SCHDST, STUDST, BTHELG, and REBUILDWALKPATHFILES (see “Utilities in Emu” on page 759 for more information).

Home Stop

The Home Stop check box and button on the Students Tabular window is one way to assign students to stops. The Home Stop button becomes available when you select the Home Stop check box. This button opens the Home Stop Settings dialog box.

When you select the Home Stop check box, the system tells you, “this selection will change the home stop and trip information upon confirmation of the student, do you want to continue with this operation?” Also, when the Home Stop check box is checked, the Home Stop Settings dialog box becomes available. You then have the opportunity to check availability and right side pickup information. The following image shows the Home Stop Settings dialog box:

NOTES

The screenshot shows the 'Student data entry form' with various fields for student information. A 'Home Stop Settings' dialog box is open, displaying two checked options: 'Available' and 'Right Side'. The dialog box has 'OK' and 'Cancel' buttons. The main form includes fields for Last Name (SNELLING), First Name (TWILA), School (103), District ID (97654321), Grade (04), Edulog ID (3037), Date of Birth, Program, Sch. Distance (3.41 mi), Location (431 OWASSO BLVD S), and Pkcs Addr (431 OWASSO BLVD S). There are also checkboxes for Home Stop, Special Ed, and Other Needs, and buttons for Home Stop, Special Ed, and Other Needs. The form also includes fields for AM Transport Location, PM Transport Location, AM Shuttle, PM Shuttle, School Path, Quick Assign, Walk Path, Discipline, Stop Dist (1.00 mi), and Pkcs ID. At the bottom, there are fields for Apt R, Ethnic, State, Phone, Mid Bound, Sec, Dlx, Zip, Elem Bound, and High Bound, along with Date modified and Date created.

The Home Stop Settings dialog box contains two check boxes:

Available The Available check box indicates whether this home stop is only available for this student or if other students can be assigned to it.

You can set the default for this check box in ElSettingsEditor.

Right Side The Right Side check box indicates whether the student needs a right side pickup because the student cannot cross the street to get to the stop.

You can set the default for this check box in ElSettingsEditor.

When you select the Home Stop check box on the Students Tabular window, the system checks the Available and Right Side check boxes.

When you confirm the student record by choosing **Confirm** on the Students Tabular window, the system changes the student's transportation information.

NOTES

Trips

The Trips window, which you open by choosing **Trips** on the Students Tabular window, also allows you to assign students to stops. You can assign students through two features:

- Quick Assign.
- Schedule Trip.

Quick Assign

To use Quick Assign, choose the **Quick Assign** button on the Trips window. Quick Assign allows you to assign to-school and from-school trips to the closest available active stop.

The following image shows the Quick Assign dialog box:

NOTES

The **Assignment Options** button opens the Bus Stop Selection dialog box, which allows you to change the behavior of the Quick Assign feature using the following options:

- **Active stops only** - This option only lists stops that are on runs.
- **Active or inactive stops** - This option lists stops on runs and stops that are not on runs.
- **Create stop services as needed** - This option creates a stop service for a stop without services.
- **Leave existing assignments** - This option leaves assignments in place.
- **Replace existing assignments** - This option overwrites any affected student assignments

You can make your selections on the Bus Stop Selection dialog box the default options by choosing the Set Defaults button.

Schedule Trip

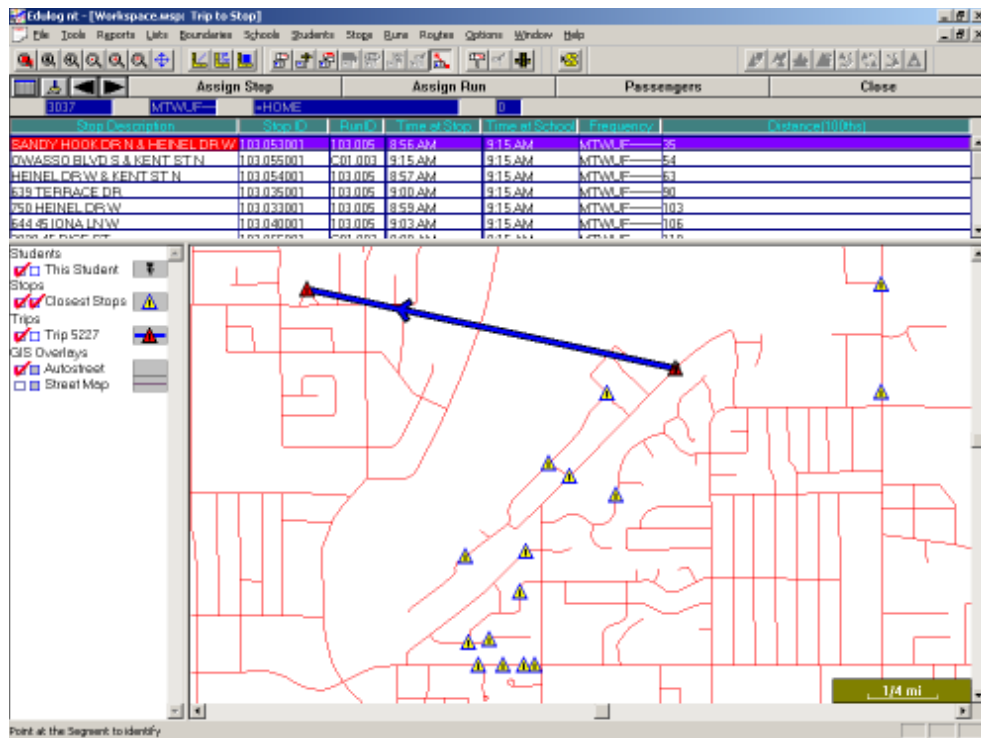
To use Schedule Trip, choose the **Schedule Trip** button on the Trips window. Schedule Trip allows you to schedule the to-school and from-school trips individually.

You can select the following options:

- **Active stops only** - This option only lists stops that are on runs.
- **Active or inactive stops** - This option lists stops on runs and stops that are not on runs.
- **Create stop services as needed** - This option creates a stop service for a stop without services.
- **Stop ID** - This field allows you to enter the Stop ID of the desired stop. The system does not perform any feasibility checking.

The following image shows the Schedule Trip window when you choose **Active stops only**.

NOTES



You can pick the stop to which you want to assign the student by clicking the list of stops, which will highlight the stop on the map. To assign the student to the selected stop, choose **Assign Stop**.

ASSIGNING STUDENTS TO STOPS IN GRAPHICAL MODE

You assign students to stops in two ways in graphical mode.:

- Group or Automatic.
- Individual or Manual.

Group or Automatic

Before you can assign students graphically, you must display the students and stops on the map. You can assign students to stops graphically by:

- Choosing **Assign** on the Graphical sub-menu on the Students menu.
- Choosing **Assign** on the Student Operations sub-menu on the Graphical sub-menu on the Stops menu.

These commands function the same way, no matter which menu you use.

To graphically assign students to a stop:

- 1 Choose **Assign** on the Graphical sub-menu on the Students menu.

-OR-

NOTES

Choose **Assign** on the Student Operations sub-menu on the Graphical sub-menu on the Stops menu.

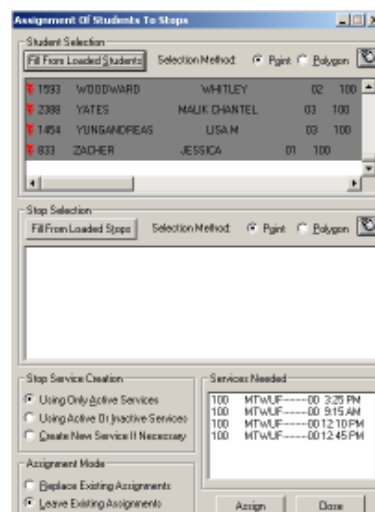


The system displays the Assignment of Students to Stops dialog box.

2 Select the **students** you want to assign.

In the Student Selection portion of the Assignment of Students to Stops dialog box, do one or more of the following:

- To select all loaded students, choose **Fill From Loaded Students**.
- To select individual students, select **Point**, click the **Graphic Selection tool**, then click the **students** on the map.
- To select students within a perimeter you draw, select **Polygon**, click the **Graphic Selection tool**, then **draw a perimeter** around the students on the map.

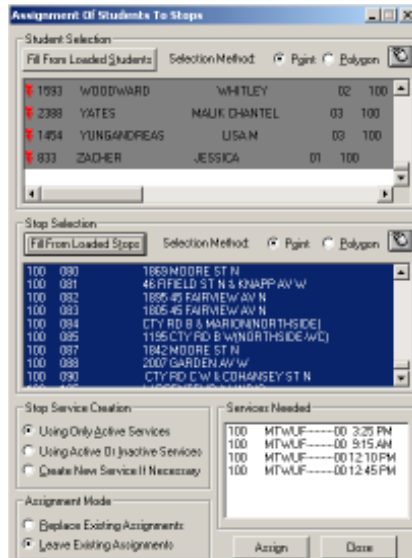


The system displays the selected students in the scrolled list box in the Student Selection portion of the dialog box.

3 Select the **stops** to which you want to assign the students.

In the Stop Selection portion of the Assignment of Students to Stops dialog box, do one or more of the following:

- To select all loaded stops, choose **Fill From Loaded Stops**.
- To select individual stops, select **Point**, click the **Graphic Selection tool**, then point and click the **stops** on the map.
- To select stops within a perimeter you draw, select **Polygon**, click the **Graphic Selection tool**, then **draw a perimeter** around the stops on the map.



The system displays the selected stops in the scrolled list box in the Stop Selection portion of the dialog box.

4 Select a **stop service creation option**.

In the Stop Service Creation portion of the Assignment of Students to Stops dialog box, select one of the following:

- To assign students only to stop services that are assigned to runs, select **Using Only Active Services**.
- To assign students to any of the stop services, regardless of whether they are assigned to runs, select **Using Active or Inactive Services**.
- To create stop services if a compatible service (such as a morning service) does not exist, select **Create New Service If Necessary**.

5 Select an **assignment mode option**.

In the Assignment Mode portion of the Assignment of Students to Stops dialog box, select one of the following:

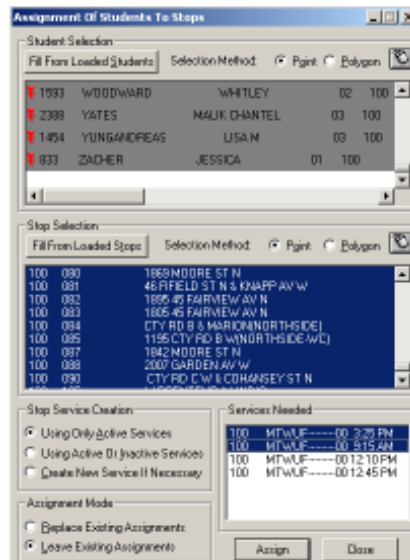
- Select **Replace Existing Assignments** to overwrite any affected student assignments.
- Select **Leave Existing Assignments** to leave such assignments in place.

NOTES

- 6 In the Services Needed portion of the Assignment of Students to Stops dialog box, select the **services** for which you want to assign students.

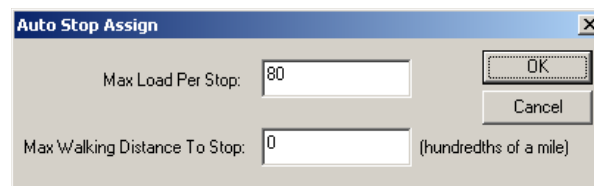
Note:

You can select as many of the displayed services as you want (hold down the CTRL key and click the desired services).



The system highlights the selected services in the scrolled list box in the Services Needed portion of the dialog box.

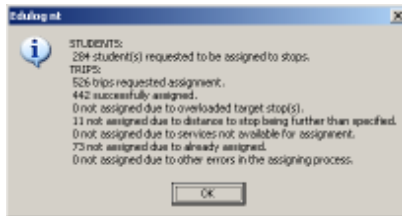
- 7 Choose **Assign**.



The system displays the Auto Stop Assign dialog box.

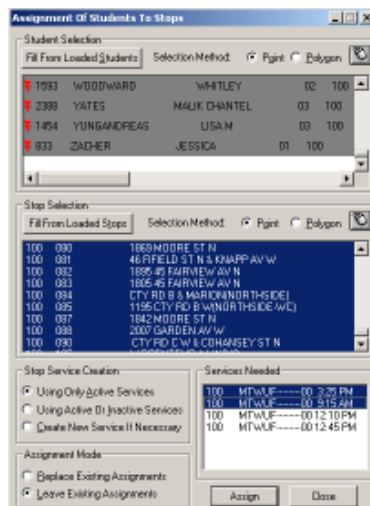
- 8 Enter the **maximum number of students** you want assigned to each stop in the **Max Load Per Stop** field.
- 9 Enter the **maximum distance** in hundredths of a mile (for example, enter 100 for one mile) that students can walk to get to their stops in the **Maximum Walking Distance to Stop** field.
- 10 Choose **OK**.

NOTES



The system processes the assignments. When finished, it displays a dialog box indicating the results of the student assignment process.

11 Choose **OK**.



The system closes the message box. You return to the Assignment Of Students To Stop dialog box.

12 Choose **Close**.



The system closes the Assignment Of Students To Stop dialog box. You return to the map display.

NOTES

Individual or Manual

Assigning students manually allows you to control which students are assigned to which stops. You can select a stop, then select which students you want to assign to that stop.

Before you can assign students graphically, you must display the students and stops on the map. You can assign students to stops graphically by:

- Choosing **Assign** on the Graphical sub-menu on the Students menu.
- Choosing **Assign** on the Student Operations sub-menu on the Graphical sub-menu on the Stops menu.

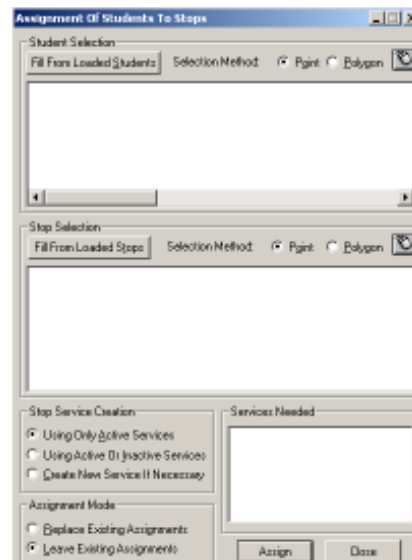
These commands function the same way, no matter which menu you use.

To graphically assign students to a stop:

- 1 Choose **Assign** on the Graphical sub-menu on the Students menu.

-OR-

Choose **Assign** on the Student Operations sub-menu on the Graphical sub-menu on the Stops menu.



The system displays the Assignment of Students to Stops dialog box.

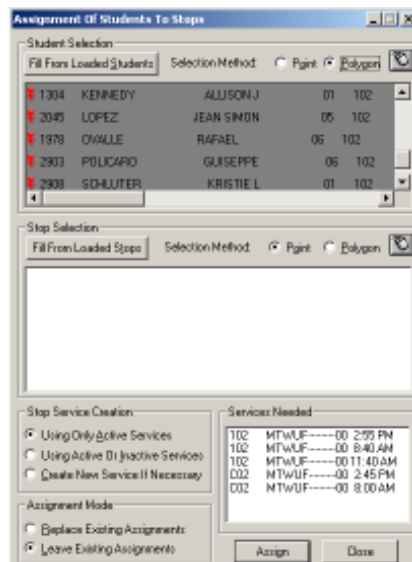
- 2 Select the **students** you want to assign.

In the Student Selection portion of the Assignment of Students to Stops dialog box, do one or more of the following:

- To select all loaded students, choose **Fill From Loaded Students**.
- To select individual students, select **Point**, click the **Graphic Selection tool**, then click the **students** on the map.

NOTES

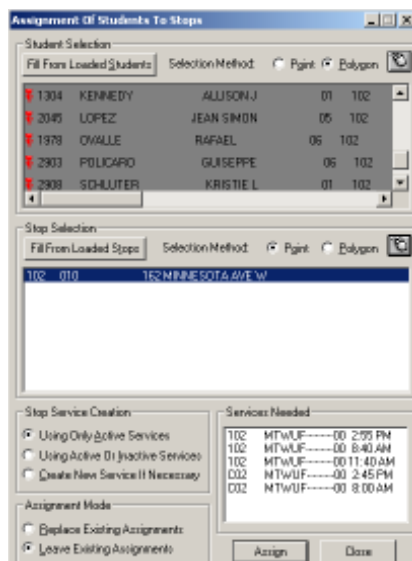
- To select students within a perimeter you draw, select **Polygon**, click the **Graphic Selection tool**, then **draw a perimeter** around the students on the map.



The system displays the selected students in the scrolled list box in the Student Selection portion of the dialog box.

- 3 Select the **stop** to which you want to assign the students.

In the Stop Selection portion of the Assignment of Students to Stops dialog box, select **Point**, click the **Graphic Selection tool**, then point and click the **stops** on the map.



The system displays the selected stop in the scrolled list box in the Stop Selection portion of the dialog box.

- 4 Select a **stop service creation option**.

NOTES

In the Stop Service Creation portion of the Assignment of Students to Stops dialog box, select one of the following:

- To assign students only to stop services that are assigned to runs, select **Using Only Active Services**.
- To assign students to any of the stop services, regardless of whether they are assigned to runs, select **Using Active or Inactive Services**.
- To create stop services if a compatible service (such as a morning service) does not exist, select **Create New Service If Necessary**.

5 Select an **assignment mode option**.

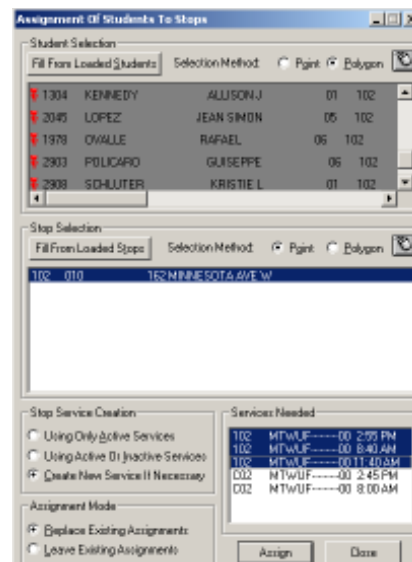
In the Assignment Mode portion of the Assignment of Students to Stops dialog box, select one of the following:

- Select **Replace Existing Assignments** to overwrite any affected student assignments.
- Select **Leave Existing Assignments** to leave such assignments in place.

6 In the Services Needed portion of the Assignment of Students to Stops dialog box, select the **services** for which you want to assign students.

Note:

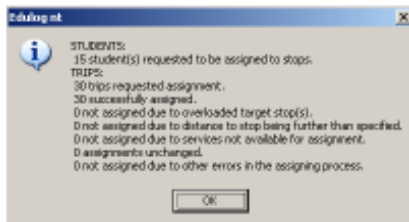
You can select as many of the displayed services as you want (hold down the CTRL key and click the desired services).



The system highlights the selected services in the scrolled list box in the Services Needed portion of the dialog box.

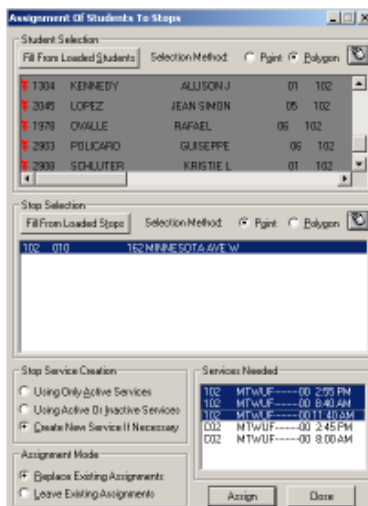
7 Choose **Assign**.

NOTES



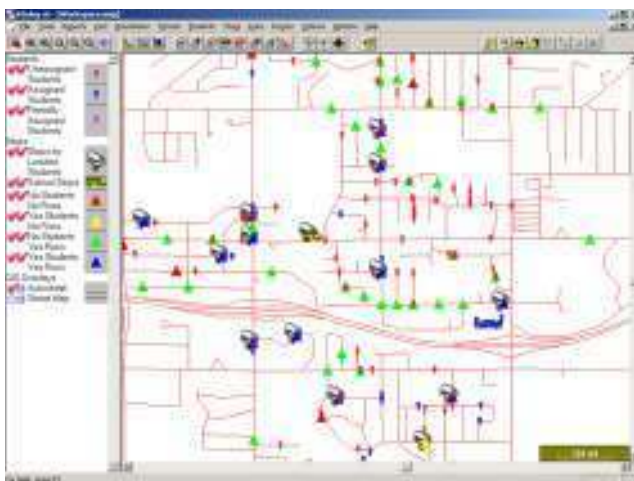
The system processes the assignments. When finished, it displays a dialog box indicating the results of the student assignment process.

8 Choose OK.



The system closes the message box. You return to the Assignment Of Students To Stop dialog box.

9 Choose Close.



The system closes the Assignment Of Students To Stop dialog box. You return to the map display.

NOTES

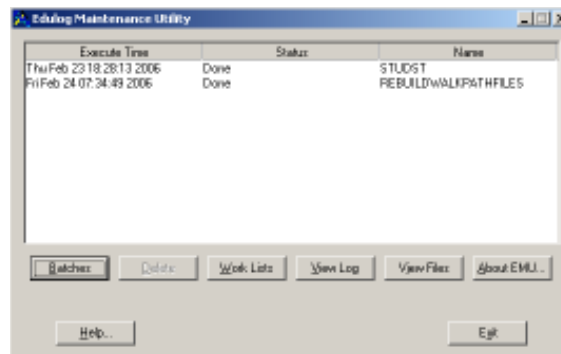
BTHASGN IN EMU

You can use the BTHASGN utility in edulog Maintenance Utilities (EMU) to assign a selected group of students to stops (specifically, a group of student trips to stop services) all at once. This batch assignment process can be especially useful after you perform a student download.

This utility considers hazardous streets and transportation eligibility codes when assigning students. EMU will not assign a student to a stop that requires him to cross a hazardous street. Using the Maris application, you can assign up to four hazard types to individual streets. For information on entering hazard types, see “Introduction to the Geocode and Maris” on page 27 or edulog’s online Help.

To assign student trips to stop services in batch mode:

- 1 Open the EMU application.



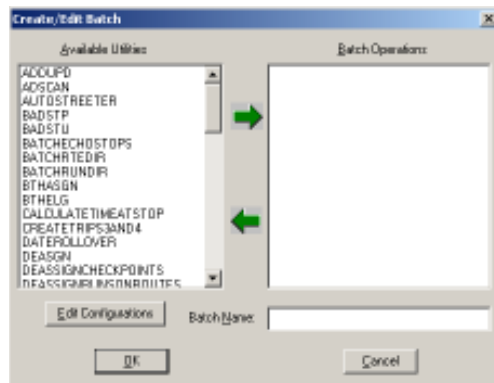
The system displays the edulog Maintenance Utility dialog box.

- 2 Choose **Batches**.



The system displays the Batch Work dialog box.

Choose **Create**.

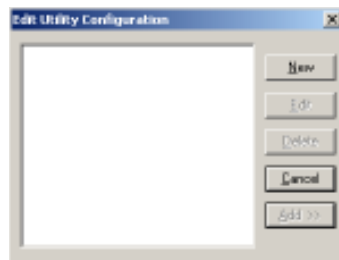


The system displays the Create/Edit Batch dialog box.

- 3 Double-click **BTHASGN** in the **Available Utilities** scrolled list box.

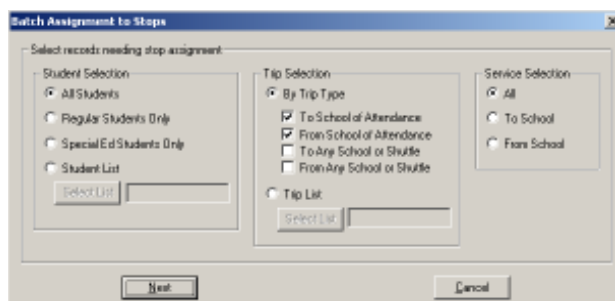
-OR-

Select **BTHASGN** in the **Available Utilities** scrolled list box and choose the **right arrow button**.



The system displays the Edit Utility Configuration dialog box.

- 4 Choose **New**.



The system displays the first of three BTHASGN dialog boxes.

- 5 Select a **student selection option**.

In the Student Selection portion of the dialog box, select one of the following options:

All Students: assigns all students.

NOTES

Regular Students Only: assigns only students that do not have the Special Education flag set.

Special Education Students Only: assigns only students that do have the Special Education flag set.

Student List: allows you to select students included in a student worklist.

6 Select a **trip selection option**.

In the Trip Selection portion of the dialog box, select one of the following options:

By Trip Type: allows you to assign students by their trip type.

To School of Attendance: assigns all trips transporting students to the school they normally attend.

From School of Attendance: assigns all trips transporting students home from the school they normally attend.

To Any School: assigns all trips transporting students to a school other than the one they normally attend.

From Any School: assigns all trips transporting students from a school other than the one they normally attend.

By Trip List: allows you to select the trips contained in a worklist. Select this option, then choose **Select List** and select the **worklist** with the trips you want to include.

7 Select a **service selection option**.

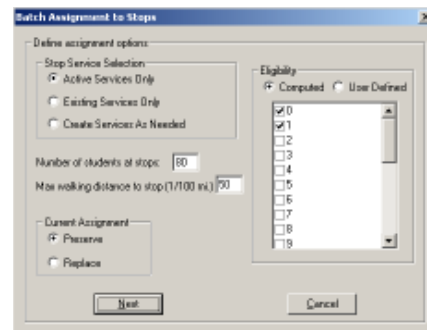
In the Service Selection portion of the dialog box, select one of the following options:

All: assigns all transportation services (both to-school and from-school),

To-school: assigns only the to-school service.

From-school: assigns only the from-school service.

8 Choose **Next**.



The system displays the second BTHASGN dialog box.

9 Select a **stop service option**.

In the Stop Service Selection portion of the dialog box, select one of the following options:

Active Services Only: uses only stop services that are assigned to runs.

Existing Services Only: uses only stop services that have already been created for the stops, regardless of whether they are active or inactive.

Create Services as Needed: the system will create any stop services needed. For example, when assigning students to stops for the trip home after school, the system will create the afternoon service if one doesn't exist for that stop.

10 Select a **current assignment option.**

In the Current Assignment portion of the dialog box, select one of the following options:

Preserve: leaves any existing trip-to-stop assignments in place.

Replace: may change existing assignments to those selected by the system.

11 Enter the **maximum number of students you want at any individual stop in the **Number of Students at Stops** field.**

12 Enter the **maximum distance that students can walk to a stop in hundredths of a mile (for example, enter 50 for one-half mile) in the **Maximum Walking Distance to Stop** field.**

13 Select an **eligibility option.**

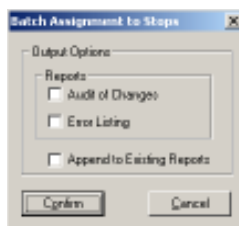
In the Eligibility portion of the window, select one of the following options:

Computed: tells the utility to assign students based on their eligibility for transportation according to the boundaries they are located in.

User Defined: manually overrides the calculated eligibility code with the codes entered in the student record.

14 In the list box, select the **check boxes next to the **eligibility codes** you want to use.**

15 Choose **Next.**



The system displays the third BTHASGN dialog box.

16 Select the **report options.**

In the Reports section, you can select any of the following.

Audit of Changes: lists all student records that are changed during the process (in Bthasgn.aud).

NOTES

Error Listing: lists records that the system could not assign, with a brief explanation (in Bthasgn.err).

Append to Existing Reports: adds the new information to the existing reports. If you do not select this check box, the new information will replace the existing reports.

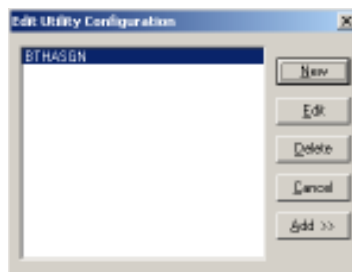
17 Choose **Confirm**.



The system displays the Save Utility Configuration As dialog box.

18 Enter a **<name for the BTHASGN utility configuration>** in the **Configuration Name** field.

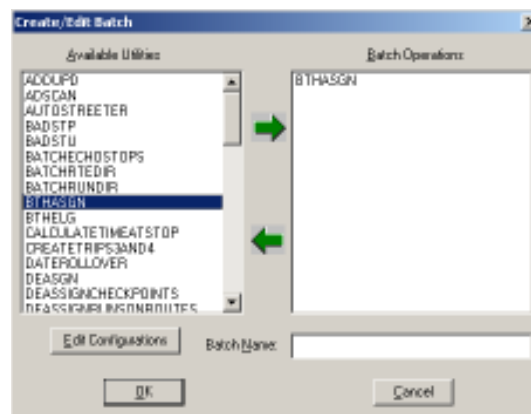
19 Choose **OK**.



The system closes the dialog boxes and saves the BTHASGN configuration with the name you entered. You return to the Edit Utility Configuration dialog box, which displays the BTHASGN configuration you created.

20 Select the **BTHASGN** configuration.

21 Choose **Add**.



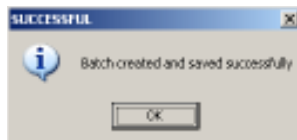
NOTES

The system closes the Edit Utility Configuration dialog box. You return to the Create/Edit Batch dialog box, which displays the BTHASGN configuration you created in the Batch Operations scrolled list box.

22 Select the **BTHASGN configuration**.

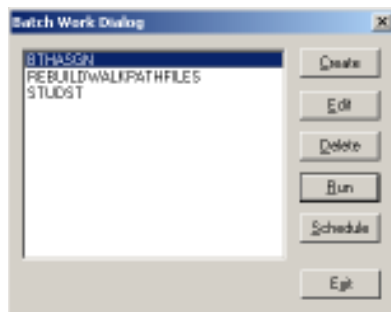
23 Enter a **<name for the batch>** in the Batch Name field.

24 Choose **OK**.



The system displays a message box saying the batch was created and saved successfully.

25 Choose **OK**.



The system closes the message box. You return to the Batch Work dialog box, which displays the batch you created.

You can select the batch to run now or schedule the batch to run later.

NOTES



INTERMEDIATE TRANSPORTATION

STOPS

A stop is a location where a bus stops to load or unload students for a particular school or schools.

A Stop ID is an alphanumeric code used to track stop records in the system. An example of a Stop ID is 100.000. Each Stop ID contains two meaningful parts: the three numbers before the period (“.”) and the three numbers after the period.

The three numbers before the period represent the school, shuttle, or cluster code for which the stop was created. In this example, the stop was created for school 100.

The three numbers after the period are used to uniquely identify this stop from other stops created for school 100. In this example, the numbers are 000, which is reserved for the school stop. When you create a school, the system automatically creates the school stop. You can also have the system assign this number for all non-school stops.

A stop’s location is the place the stop is located in the geocode. The system has three methods for locating a stop. Those methods are:

Address Stop An address stop is located at a specific address in the geocode, like 3000 Palmer Street. Depending on the address, the street will be on the left or right side of the street. A bus can approach the stop from either side, which may force the students to cross the street in front of the bus. To avoid having students cross the street in front of the bus, you can flag a stop for right side pickup.

Corner Stop A corner stop is located at an intersection in the geocode. You can enter a corner stop into edulog using a node or the names of the intersecting streets. To enter a stop at node 124, you would enter **#124** in the Location field on the Stops Tabular window. To enter a stop at Palmer St and N Reserve St, you would enter **Palmer St & N Reserve St** in the Location field on the Stops Tabular window.

A corner stop has eight possible locations for pickup. The corner used or pickup is determined by the previous stop on the run. If you want to force the stop to be on a specific corner, you must use an address stop.

Landmark Stop A landmark stop is located at a landmark in the geocode.

Creating Stops

edulog has two methods for creating stops. Those methods are:

- Graphical Stop Creation.
- Tabular Stop Creation.

NOTES

Graphical Stop Creation

Before creating a stop, you must define the school, cluster, or shuttle for which the stop is being created.

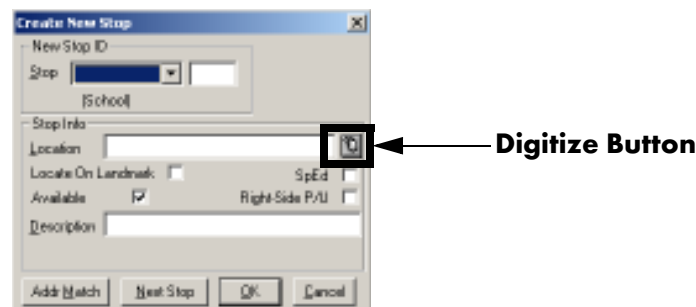
You can graphically create stops in two ways:

- Digitize the Stop Location.
- Manually Enter the Stop.

Digitizing the Stop Location

To digitize a stop location:

- 1 Choose **Create** on the Graphical sub-menu on the Stops menu.



The system displays the Create New Stop dialog box.

- 2 Choose the **Digitize** button.
- 3 **Point** the mouse at the location on the map display where you want the stop to be located and **click**.



The system displays a message box asking if this stop is a corner stop.

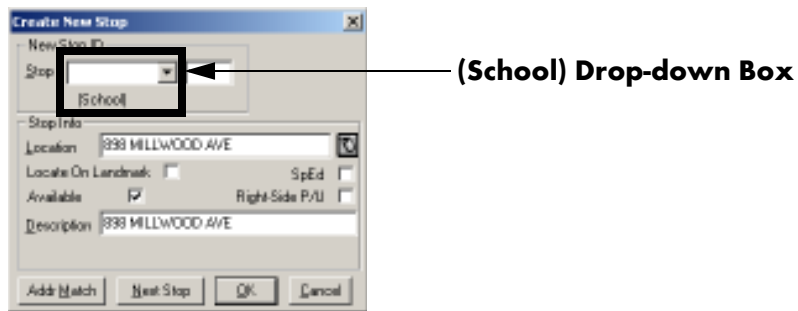
- 4 If this stop is a corner stop, choose **Yes**.

-OR-

Choose **No**.

Note:

If you choose Yes, the system locates the stop on the closest node to the digitized point. If you choose No, the system locates the stop on the closest address to where you clicked the mouse pointer, creating an address stop.



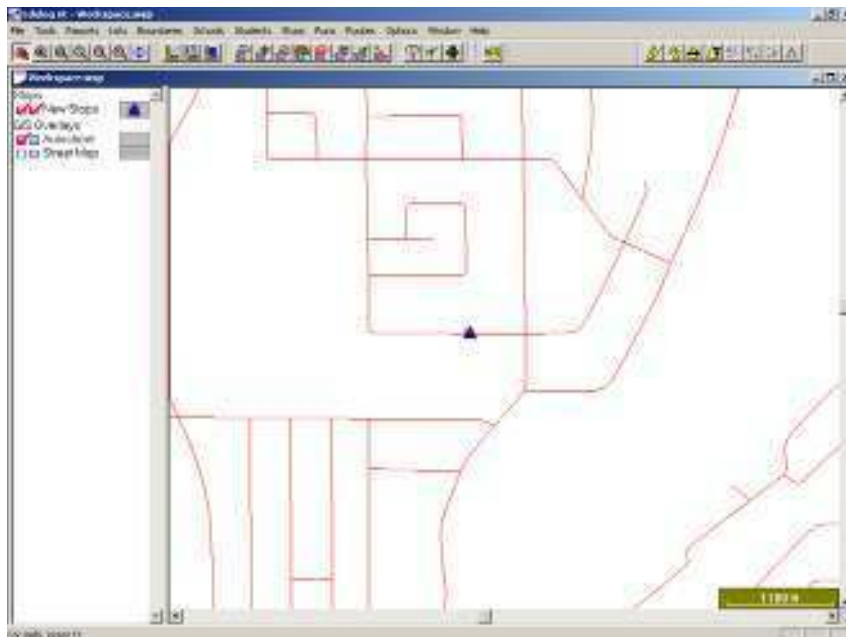
The system closes the message box and fills the Location and Description fields on the Create New Stop dialog box with the data from the location selected on the map.

- 5 Select the **school code**, **shuttle code**, or **cluster code** for this stop from the **(School)** drop-down box, which is the first field in the New Stop ID portion of the window.
- 6 Choose **OK**.



The system displays a message box asking if you want to create the stop record.

- 7 Choose **Yes**.



The system closes the message box and creates the stop record. You return to the map display, which shows the stop you created.

NOTES

Manually Entering the Stop

You can also manually enter the address, intersection, node, or landmark as the stop.

To manually enter an address for a stop:

- 1 Choose **Create** on the Graphical sub-menu on the Stops menu.

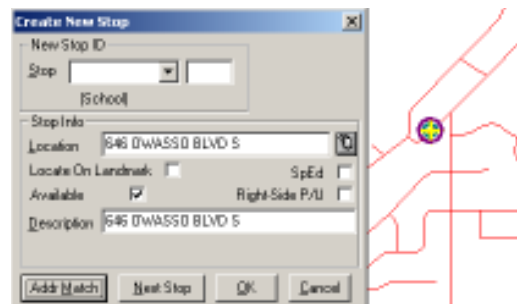


The system displays the Create New Stop dialog box.

- 2 Enter the **address** of the stop in the Location field.
- 3 Choose **Addr Match**.

Note:

You can also enter a partial address and choose Addr Match to use the Address Match dialog box to match the address to the geocode.



The system matches the address against the geocode, displays the location on the map, and fills the Description field with the address.

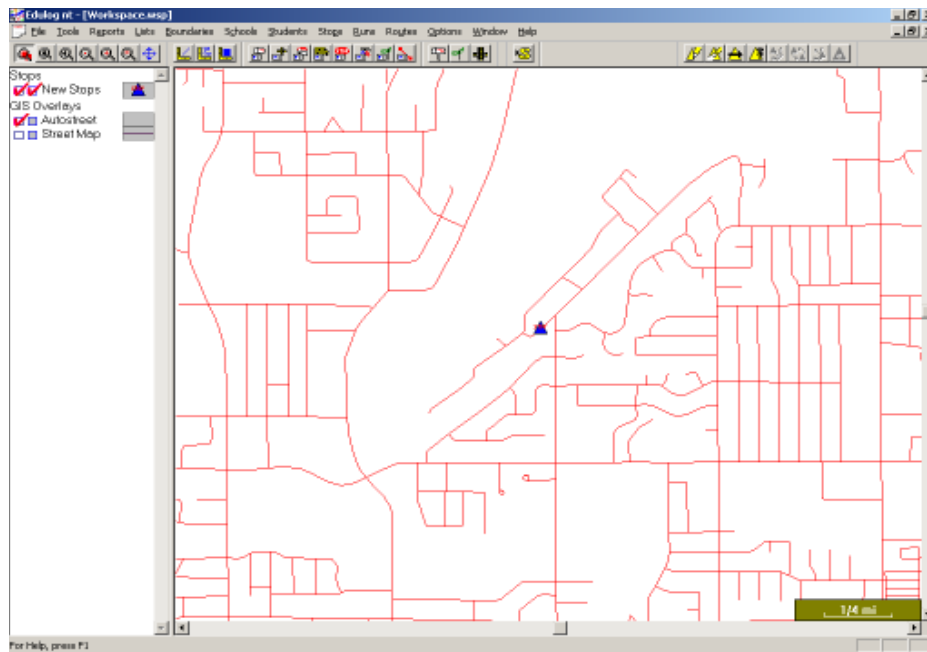
- 4 Select the **school code**, **shuttle code**, or **cluster code** for this stop in the **(School)** drop-down box, which is the first field in the New Stop ID portion of the window.
- 5 Choose **OK**.



The system displays a message box asking if you want to create the stop record.

6 Choose **Yes**.

NOTES



The system closes the message box and creates the stop record. You return to the map display, which shows the stop you created.

Tabular Stop Creation

Before creating a stop, you must define the school, cluster, or shuttle for which the stop is being created.

You can define stops in two ways in the Stops Tabular window:

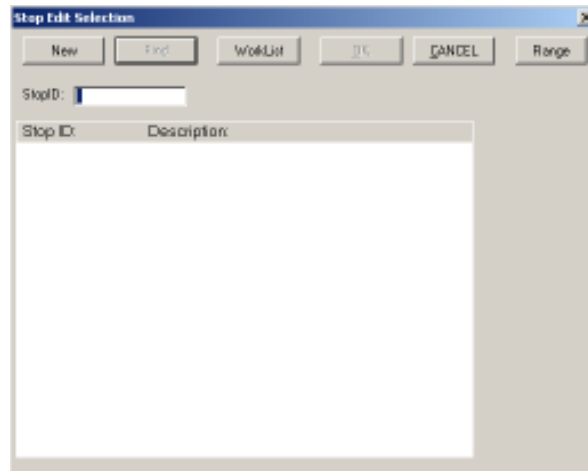
- Digitize the Stop Location.
- Manually Enter the Stop.

Digitizing the Stop Location

To create a stop in the tabular window and digitize its location:

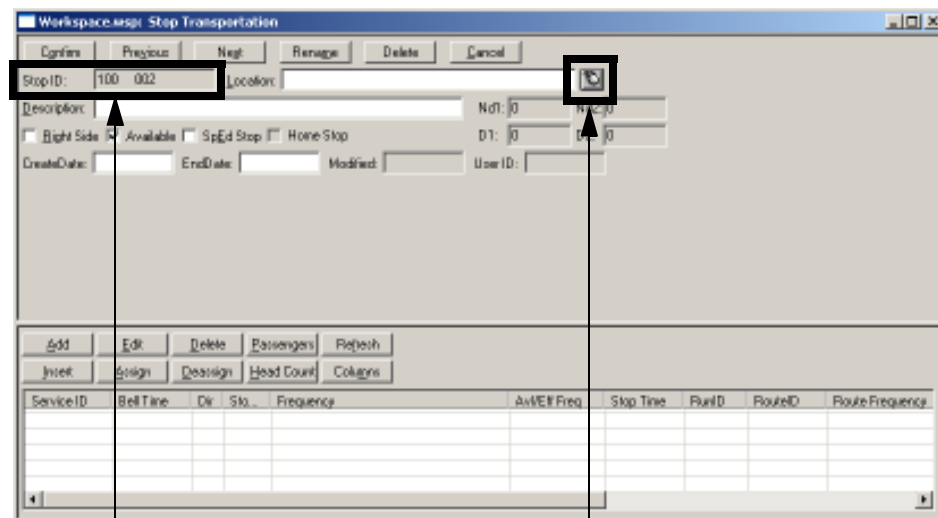
- 1 Choose **Tabular** on the Stops menu.

NOTES



The system displays the Stop Keyfinder window.

- 2 Enter the **school code**, **shuttle code**, or **cluster code** in the Stop ID field.
- 3 Choose **New**.



System-generated Stop ID

Digitize Button

The system assigns the remainder of the Stop ID and displays the Stops Tabular window.

- 4 Choose the **Digitize** button.
- 5 **Point** the mouse at the location on the map display where you want the stop to be located and **click**.



The system displays a message box asking if this stop is a corner stop.

- 6 If this stop is a corner stop, choose **Yes**.

-OR-

Choose **No**.

Note:

If you choose Yes, the system locates the stop on the closest node to the digitized point. If you choose No, the system locates the stop on the closest address to where you clicked the mouse pointer, creating an address stop.

ServiceID	BellTime	Dir	Stk	Frequency	Avt/Et Freq	Stop Time	RouteID	Route Frequency

The system closes the message box and fills the Location and Description fields on the Stops Tabular window with the data from the location selected on the map.

- 7 Choose **Confirm**.

The system prompts you to confirm the changes.

- 8 Choose **OK**.

Manually Entering the Stop

You can also manually enter the address, intersection, node, or landmark as the stop on the Stops Tabular window.

To create a stop in the tabular window and digitize its location:

- 1 Choose **Tabular** on the Stops menu.

NOTES

Stop Edit Selection

New Find WorkList OK CANCEL Range

Stop ID:

Stop ID: Description:

The system displays the Stop Keyfinder window.

- 2 Enter the **school code**, **shuttle code**, or **cluster code** in the Stop ID field.
- 3 Choose **New**.

Workspace: Stop Transportation

Configure Previous Next Rename Delete Cancel

Stop ID: 100 003 Location:

Description:

☐ Right Side ☒ Available ☐ SpEd Stop ☐ Home Stop

Create Date: End Date: Modified: User ID:

Buttons: Add Edit Delete Passengers Refresh

Buttons: Insert Assign Design Head Count Columns

Service ID	Bell Time	Dir	Stop	Frequency	Arr/Dep Freq	Stop Time	Bus ID	Route ID	Route Frequency

The system assigns the remainder of the Stop ID and displays the Stops Tabular window.

- 4 Enter the **address** of the stop in the Location field.

Note:

You can also enter a partial address, TAB out of the field, and use the Address Match dialog box to match the address to the geocode.

- 5 Press **TAB**.

NOTES

ServiceID	Bell Time	Dir	Stop	Frequency	Av/VEF Freq	Stop Time	PuntID	RouteID	Route Frequency

The system matches the address against the geocode and fills the Description, Nd1, Nd2, D1, and D2 fields with the corresponding data.

- 6** Choose **Confirm**.



The system prompts you to confirm the changes.

- 7** Choose **OK**.

Viewing Stops

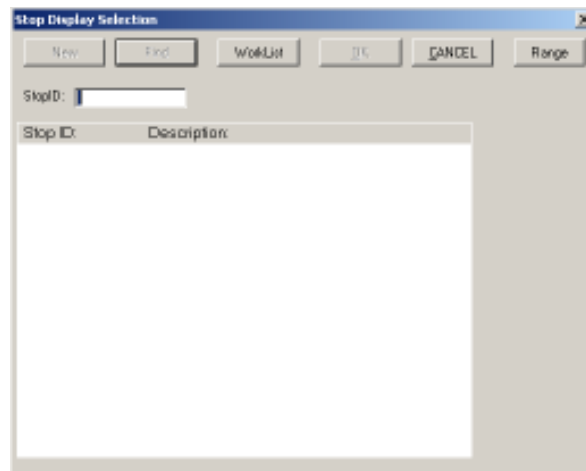
You can view stops two ways in edulog: graphically on the map or in the tabular window.

Graphically Viewing Stops

To view stops on the map:

- 1** Choose **Display** on the Stops menu.

NOTES



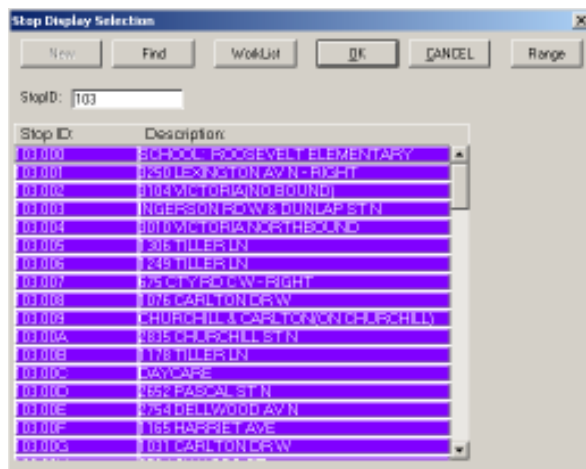
The system displays the Stop Display Keyfinder window.

- 2 Enter the **school code**, **shuttle code**, or **cluster code** in the Stop ID field.
- 3 Choose **Find**.



The system searches for matching stops. If it finds more than 100 stops, it displays a message box.

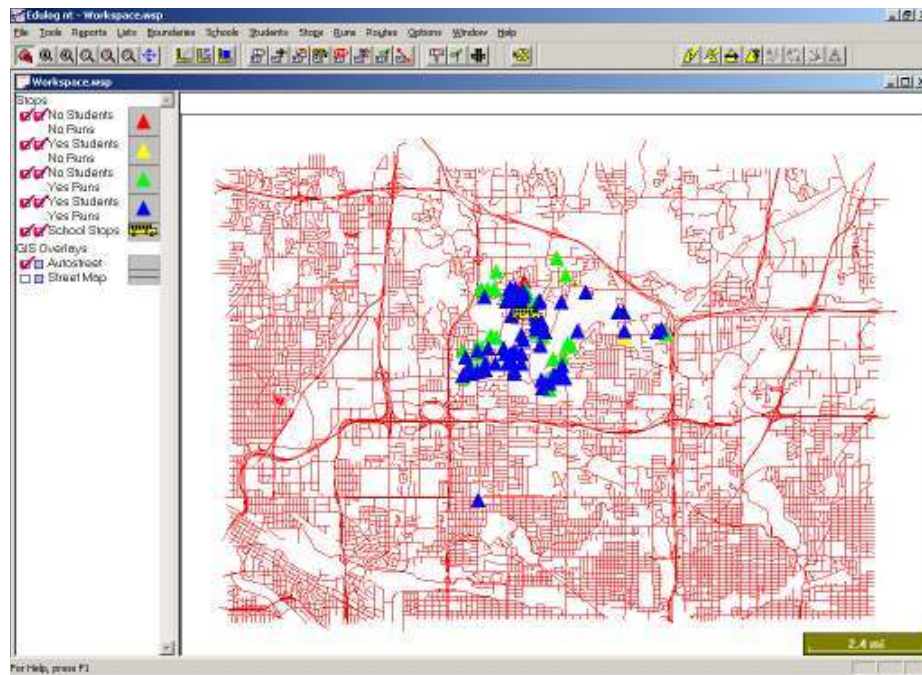
- 4 Choose **OK**.



The system searches for matching stops and displays them in the Stop Display Keyfinder window.

- 5 Select the **stops** you want to view.
- 6 Choose **OK**.

NOTES

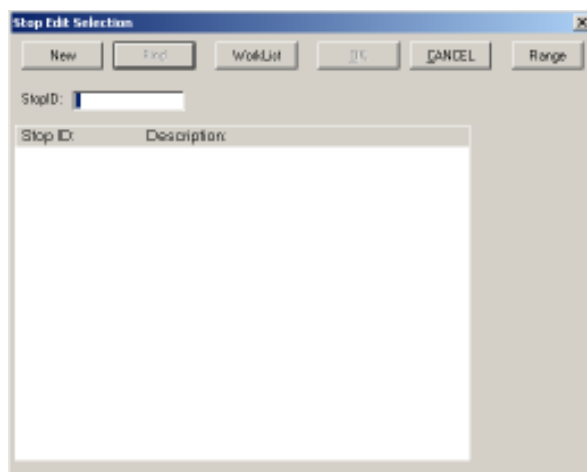


The system closes the Stop Display Keyfinder and displays the stops you selected on the map as an active layer.

Viewing Stops in the Tabular Window

To view stops in the tabular window:

- 1 Choose **Tabular** on the Stops menu.



The system displays the Stop Display Keyfinder window.

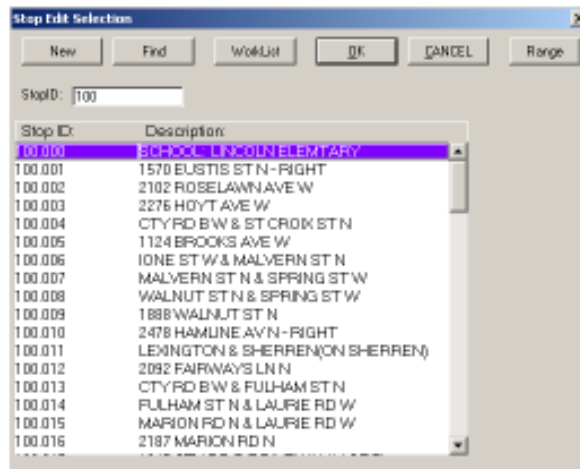
- 2 Enter the **school code**, **shuttle code**, or **cluster code** in the Stop ID field.
- 3 Choose **Find**.

NOTES



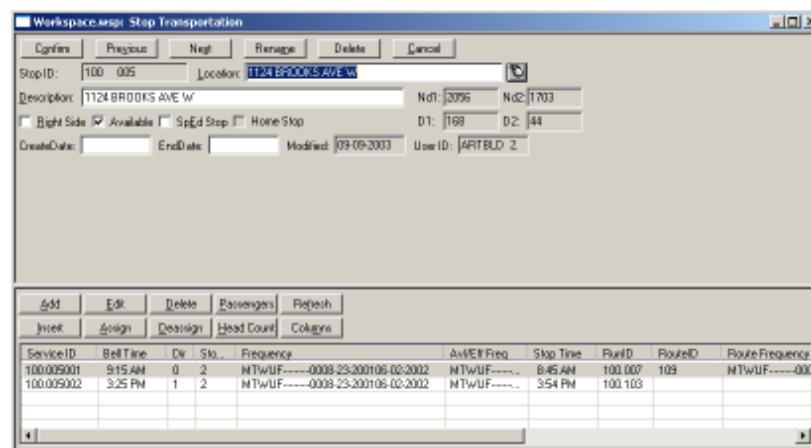
The system searches for matching stops. If it finds more than 100 stops, it displays a message box.

- 4 Choose **OK**.



The system searches for matching stops and displays them in the Stop Display Keyfinder window.

- 5 Select the **stop** you want to view.
- 6 Choose **OK**.



The system closes the Stop Edit Keyfinder and displays the stop you selected in the Stops Tabular window.

Stop Services

A stop service allows you to track the different times per day that different runs serve a stop. A Service ID adds three additional characters to a Stop ID. These additional characters are added to the end of the Stop ID, like 100.000001. The numerical value of the Service ID relates to the order in which the services were created. You can have the system create the Service ID when you insert a stop onto a run. If you build all to-school AM runs first, for example, those morning stop services would end in 001.

The following image shows a stop record with its stop services.

The screenshot shows a software window titled "Workspace.espt: Stop Transportation". It contains a form for editing a stop record and a table of its services.

Stop Record Form:

- Buttons: Confirm, Previous, Next, Rename, Delete, Cancel
- Stop ID: 103 064
- Location: 64 LITTLE CR DR W
- Description: 64 LITTLE CR DR W
- Nd1: 1942, Nd2: 1944
- D1: 97, D2: 22
- Buttons: Right Side, Available, SpEd Stop, Home Stop
- Create Date: 09-29-2003, End Date: , Modified: 09-09-2003, User ID: ARTBLD_2

Services Table:

Service ID	Bell Time	Dir	Sto	Frequency	AvM/Freq	Stop Time	RunID	RouteID	Route Frequency
103.064001	9:15 AM	0	13	MTWUW-----0008-23-200106-02-2002	MTWUW-----	8:46 AM	103.002		
103.064002	3:25 PM	1	11	MTWUW-----0008-23-200106-02-2002	MTWUW-----	4:01 PM	103.102		
103.064003	12:15 PM	1	1	MTWUW-----0008-23-200106-02-2002	MTWUW-----				
103.064004	12:25 PM	0	1	MTWUW-----0008-23-200106-02-2002	MTWUW-----				

In this example, the 001 service corresponds to the 9:15 AM bell for this stop. Service 002 corresponds to the 3:25 PM bell. Service 003 corresponds to the 12:15 PM bell that dismisses the AM kindergartners. Service 004 corresponds to the 12:25 PM bell that dismisses the PM kindergartners.

These individual stop services allow you to use one stop record for a location, but service the stop at many different times throughout the day.

Adding a Stop Service

Before you can add a stop service, you must have the stop record open in the Stops Tabular window. To add a stop service:

- 1 Choose **Add**.

The screenshot shows a dialog box titled "CREATE STOP SERVICES DATA ENTRY FORM". It contains the following fields and buttons:

- Service ID: 102.069001
- Frequency: MTWUW-----0008-23-200106-02-2002 (with an "Edit Freq" button)
- Bell Time: 8:40 AM (with a "To/From" button)
- Buttons: Confirm, Cancel

The system displays the Create Stop Services Data Entry Form.

NOTES

2 Select the **bell time** for the stop service in the Bell Time drop-down box.

3 Select the **To** option button for a to-school stop service.

The system defaults the time in the Bell Time drop-down box to the first AM bell time.

-OR-

Select the **From** option button for a from-school stop service.

The system defaults the time in the Bell Time drop-down box to the first PM bell time.

4 Choose **Confirm**.

Service ID	Bell Time	Da	Sto...	Frequency	Arr/Ent Freq	Stop Time	RunID	Routed ID	Route Freq
102 065001	8:40 AM	0	0	MTWU-----0008-23-200106-02-2002	MTWU-----				

The system saves the stop service and closes the Create Stop Services Data Entry Form. You return to the Stops Tabular window, which displays the stop service you added.

Maintenance Associated with Stops

The following utilities relate to stops:

- BADSTP
- LODTME
- KILSTP
- STPCHK
- STPSCN
- STPUPD

For detailed information about these utilities, see “Utilities in Emu” on page 759.

RUNS

NOTES

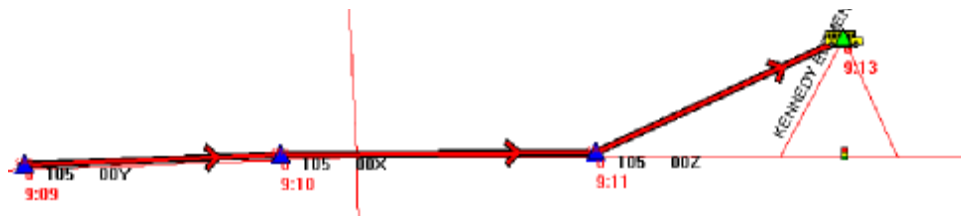
A run is a sequence of stop services that a bus makes when transporting students to or from school.

A run is identified by a Run ID number. The Run ID consists of the school code, shuttle code, or cluster code plus a unique three-digit number that identifies a run for a school. An example of a Run ID is 100.017, which represents run number 017 serving school 100.

You can build three different types of runs in edulog. The run types are:

Basic Run A basic run is a run that services students and stops for one school. The school owns the run. All stops on this type of run have Stop ID's that begin with the school code.

The following image shows a basic run:



Multi-school Run A multi-school run is a run that services students and stops for two or more schools. The last school on the run owns the run. Multi-school runs must physically stop at each school for which they are picking-up or dropping-off students.

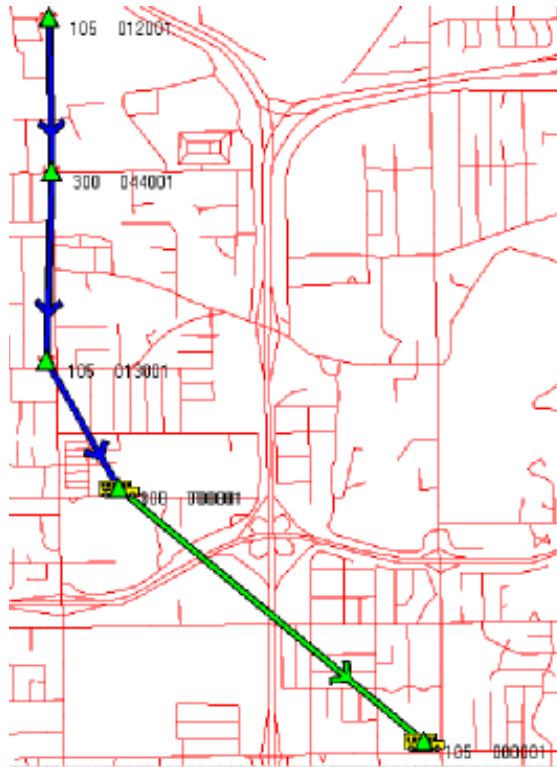
The following image shows a multi-school run:



Transfer Run A transfer run is a series of two or more runs that meet at a common location to transfer students from one bus to another. Transfer runs are similar to multi-school runs except that a transfer stop replaces the school stop for the school that is not on the run. One or more runs may transfer to the same transfer run.

The following image shows a transfer run:

NOTES



Creating Runs

edulog has two methods for creating runs. Those methods are:

- Graphical Run Creation.
- Tabular Run Creation.

Graphical Run Creation

Before creating a run graphically, you must load the stops for the run as an active layer on the map (see “Graphically Viewing Stops” on page 211 for more information).

Creating a Basic Run

In the following example, you will graphically create a basic run for school 102. The stops for this run have been loaded as an active layer.

- 1 Choose **Create** from the Graphical sub-menu on the Runs menu.

The system displays the Create Run Information dialog box.

- 2 Choose the **<school code>** for the run from the (School) drop-down box.
- 3 Enter **001** for a to-school run in the text field next to the Run ID drop-down box.

-OR-

Enter **100** for a from-school run in the text field next to the Run ID drop-down box.

The system generates the next available ID after the value you entered. The system holds the first character (0 or 1) and finds the next available number for the last two digits.

- 4 Enter a **description** for the run in the Description field.
- 5 Leave the **Frequency** set to MTWUF.
- 6 Enter a **max load** for the run in the Max Load field.

Note:

If you try to insert a stop service with students assigned that causes this maximum capacity to be exceeded, the system displays a feasibility error.

- 7 Enter a **max time**, in minutes, for the run in the Max Time field.

Note:

If this time is exceeded, the system displays a feasibility error.

- 8 Select a **destination time** for the run from the Dest Time field.

Note:

The run is based off of the bell windows and not the bell time.

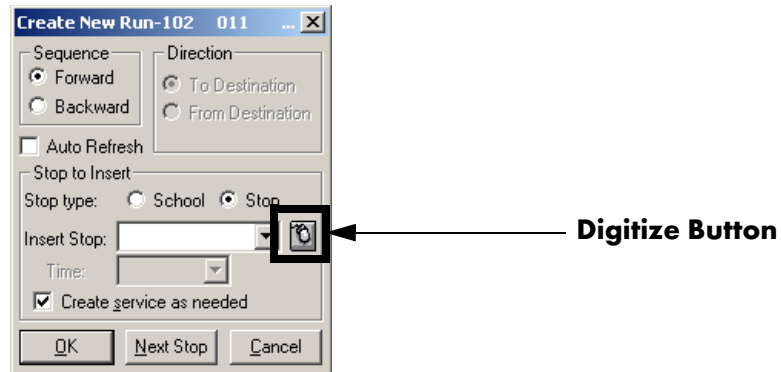
- 9 Choose **OK**.

NOTES



The system displays a message box asking if you want to create the run record.

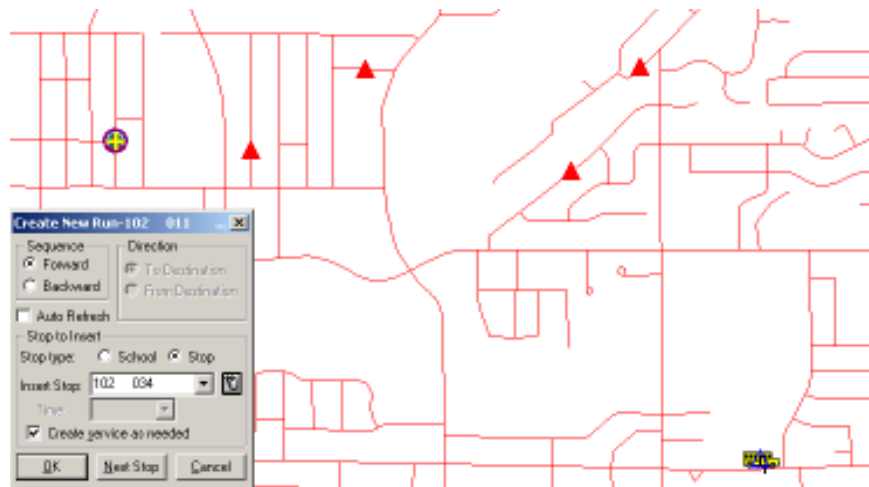
10 Choose **Yes**.



The system closes the message box and displays the Create New Run dialog box that allows you to insert stops on the run.

11 Choose the **Digitize** button.

12 **Point** the mouse at the stop on the map display and **click**



The system fills the Insert Stop field with the data from the stop you selected on the map.

13 Select the **sequence** for the stops from the Sequence option buttons.

- **Forward** - This option forces you to select the first stop on a to-school run followed by each stop in the order they are picked up. The run always finishes at the school stop for a to-school run.

- **Backward** - This option forces you to select the last stop before the school stop and add stops to the run in the opposite direction.

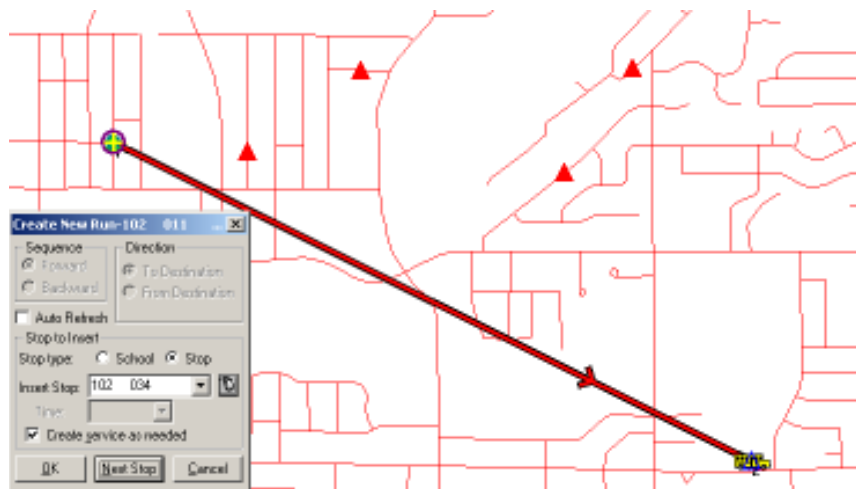
14 Select the **stop type** for the stop from the Stop Type option buttons.

- **School** - Use this option for school stops.
- **Stop** - Use this option for standard stops.

15 Select the **Create service as needed** check box.

This check box tells the system to create a stop service for the appropriate time if the stop record being inserted does not already have an appropriate service.

16 Choose **Next Stop**.



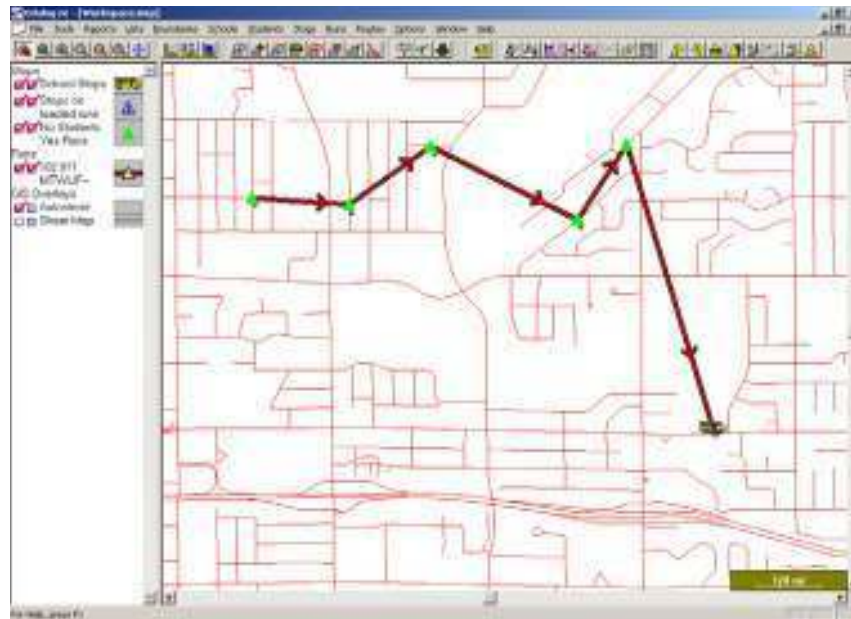
The system inserts the stop onto the run.

17 For each stop, repeat Steps 11 - 16.

Note:

For the last stop on the run, choose OK instead on Next Stop.

NOTES



Creating a Multi-school Run

To create a multi-school run, graphically create a basic run and add one or more school services to the run. After you add another school service, you can add the non-school services to the run.

If multiple students exist at the same stop location, you must create a stop and insert it onto the run for each school code that is represented by the students.

The system prevents you from inserting stop services on the run if the run does not service the school code. This feature prevents you from inserting or assigning stops to a run that will not get the students to the proper school.

Here are some tips for creating multi-school runs:

- Build runs in edulog from empty bus to empty bus. If at any time the bus is empty, that is the end of the run. You must consider this fact when deciding to build a basic run or a multi-school run.
- The last school on the run owns the run. A school owns the run if the Run ID is built for the school. If a multi-school run goes to schools 200 and 203, ending at school 203, the Run ID would be 203.xxx.
- Each location that has students for multiple schools needs more than one stop. Use the Echo Stop feature to build multiple stops at the same location.

Echoing Stops

To echo a stop to another school code, you must begin the process of creating a new stop record (see “Creating Stops” on page 203 for more information). Once you have selected the new school code, type the following into the Location field: **+<Stop ID>**, where the plus sign (“+”) is the command that tells edulog to echo a location and the Stop ID is the existing stop location that edulog uses to copy to the new stop

record. If you wanted, for example, to echo Stop 102.005, you would enter **+102.005** in the Location field.

In graphical mode, choose the **Addr Match** button to echo the stop. In tabular mode, you must TAB out of the Location field to echo the stop.

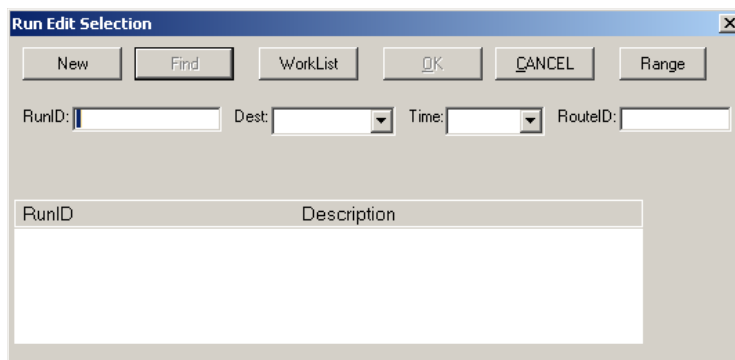
Tabular Run Creation

Before creating a run, you must define the school, cluster, or shuttle for which the run is being created.

Creating a Basic Run

To create a run in the tabular window:

- 1 Choose **Tabular** on the Runs menu.

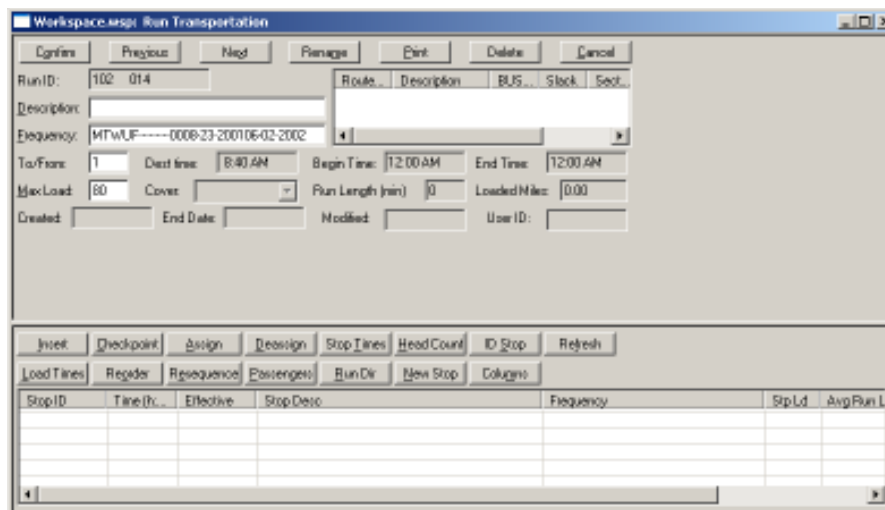


The 'Run Edit Selection' dialog box contains the following elements:

- Buttons: New, Find, WorkList, OK, CANCEL, Range.
- Fields: RunID: (text input), Dest: (dropdown), Time: (dropdown), RouteID: (text input).
- Table with columns: RunID, Description.

The system displays the Runs Keyfinder window.

- 2 Enter the **school code**, **shuttle code**, or **cluster code** in the Run ID field.
- 3 Select the **time** for the run from the Time drop-down box.
- 4 Choose **New**.



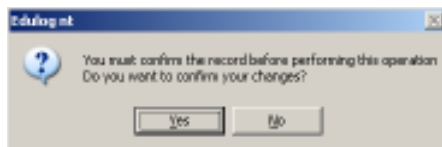
The 'Workspace.aspx: Run Transportation' window contains the following elements:

- Buttons: Confirm, Previous, Next, Rename, Print, Delete, Cancel.
- Fields: RunID: 102-014, Description: (text input), Frequency: MTWTF--0000-23-200106-02-2002, To/From: 1, Dest time: 8:40 AM, Begin Time: 12:00 AM, End Time: 12:00 AM, Max Load: 60, Cover: (dropdown), Run Length (min): 0, Loaded Miles: 0.00, Created: (text input), End Date: (text input), Modified: (text input), User ID: (text input).
- Buttons: Insert, Checkpoint, Assign, Reassign, Stop Times, Head Count, ID Stop, Refresh.
- Buttons: Load Times, Register, Resequence, Passengers, Run Dir, New Stop, Columns.
- Table with columns: StopID, Time (h:m), Effective, Stop Desc, Frequency, Stop Id, Avg Run L.

NOTES

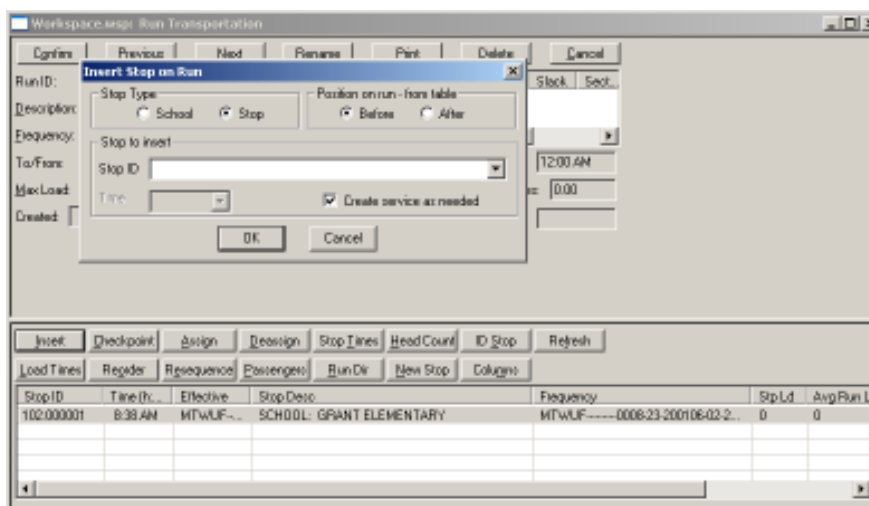
The system assigns the remainder of the Run ID and displays the Runs Tabular window.

- 5 Enter a **description** for the run in the Description field.
- 6 Choose **Insert**.



The system prompts you to confirm the changes to the record.

- 7 Choose **Yes**.



The system closes the message box. The system automatically adds the school stop, which is highlighted, to the run and displays the Insert Stop on Run dialog box.

- 8 Select the **stop type** for the stop from the Stop Type option buttons.
 - **School** - Use this option for school stops.
 - **Stop** - Use this option for standard stops.
- 9 Select the **position on the run** for the stop from the Position on run - from table option buttons.
 - **Before** - Use this option to insert the stop before the stop selected in the Runs Tabular window.
 - **After** - Use this option to insert the stop after the stop selected in the Runs Tabular window
- 10 Select the **Stop ID** from the Stop ID drop-down box.
- 11 Select the **Create service as needed** check box.

This check box tells the system to create a stop service for the appropriate time if the stop record being inserted does not already have an appropriate service.

12 Choose OK.

The system closes the Insert Stop on Run dialog box and adds the stop to the run. You return to the Runs Tabular window, which displays the stop you inserted.

13 For each stop you want on the run, repeat Steps 6 - 12.

Creating a Multi-school Run

To create a multi-school run in tabular mode, insert the school services onto the run before non-school services. You can insert the non-school services after you have added the school services.

Transfer Runs

When students ride two or more buses to get to or from their destination, you use transfer runs. Transfers take place when students physically move from one bus to another bus to complete their transportation. Transfer stops, the physical location at which the bus switch occurs, can be located at schools, parking lots, or any other geographical location that can be matched to the geocode. You should locate transfer stops at a school or some other location where the students will be supervised because of the safety issues involved.

Transfer stops have two services for each destination time; a service is needed for each of the two runs that comprise the transfer.

The ability to build transfer runs in edulog is an added feature that all clients may not have.

Creating Transfers

A typical transfer scenario is as follows: Students who attend a private school, school code 99, live throughout a district. The starting and ending time of school 99

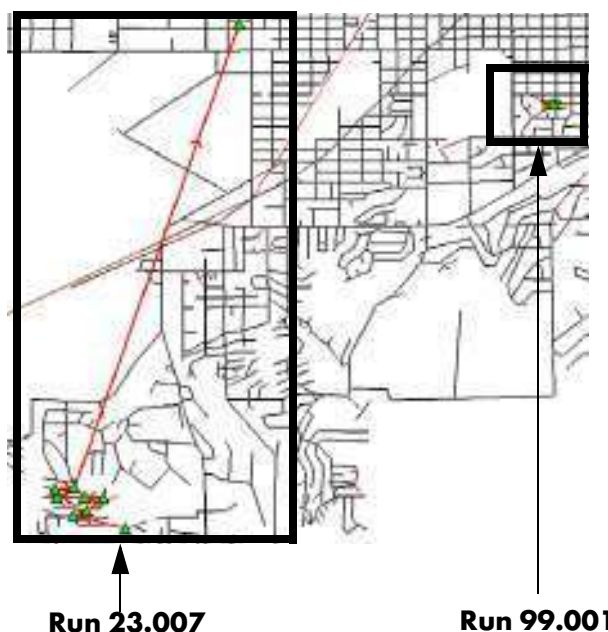
NOTES

is after and before the starting and ending time of school 23, a high school in the district. The plan is to transport all of school 99's students to school 23 with its existing transportation. Once the school 99 students are at school 23, they will transfer to another bus, which will complete their trip to school 99.

The following information describes how this transportation scheme would be created in edulog.

In the following example, you will use run 23.007 to transport school 23 and school 99 students to school 23. Next, you will use run 99.001 to transfer the school 99 students to school 99. Run 23.007 already exists and you need to create graphically run 99.001. When graphically creating run 99.001, you must cancel out of the Insert Stop dialog box that appears after you create the initial run record because the only non-school services that will be inserted onto the run will be the transfers and those services must be inserted on the Stops Tabular window.

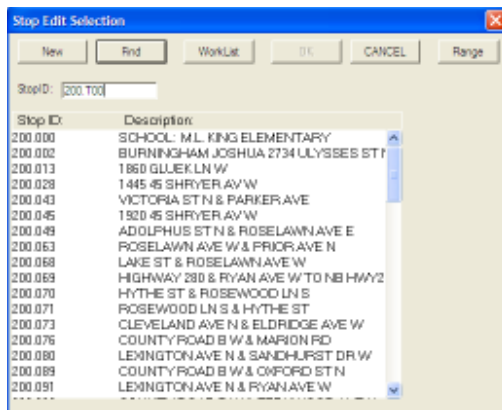
The following image shows both runs displayed on the map:



At this point, Run 99.001 only consists of the school stop. You may now decide what type of transfer stop to create. The current problem is that you have a school 23 run on which you would like to transport school 99 students. The system will not allow you to insert school 99 stops onto a school 23 run unless the run physically goes to school 99. A transfer stop can take the place of physically traveling to the school. Instead of adding the school 99 stop to run 23.007, you will add a school 99 transfer stop.

Because transfer stops must be inserted through the Stops Tabular window, create the transfer stop records in Stops Tabular as well. The following image shows the data you need for a transfer stop record:

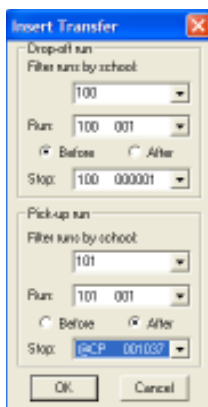
NOTES



The Stop ID is very important when you create a transfer stop record. The Stop ID must contain a “T” after the delimiter (that is, the period). When creating a new transfer stop, use the **school code** followed by **T01**, which allows the system to assign the next available ID without moving the “T.” If you enter **99.00t** in the Stops Keyfinder, the system may build the new Stop ID as 99.00t, which will not be recognized as a transfer stop.

Since the transfer stop in this example is located at school 23, you can echo the location of stop 23.000, the school stop, for the new transfer stop. Once the location has been echoed, you can modify the description to accurately depicts the transfer stop.

You must confirm the record so that you can create the stop services. A transfer stop has two service records for each service time. The two records are used to attach the transfer stop to the two runs that comprise the transfer. You can only insert transfer stops onto runs in the Stops Tabular window. You can select either **service** and choose **Insert**.



The system displays the Insert Transfer dialog box.

When inserting transfers, you must think about the definitions of drop-off and pickup runs as they pertain to the transfers—drop-off and pickup runs apply to the transfer and not to the students. In this example, the drop-off run is 23.007 because it is the run dropping off students at the transfer point; run 99.001 is the pickup run because it is picking up students at the transfer point.

Place the transfer stop before the school stops on each run.

NOTES

The following image shows how the final transfer would look:



You can now add school 99 stop services to run 23.007 at the locations where school 99 students need to be transported. All school 23 runs will probably transport several school 99 students. For each school 23 run that transports school 99 students, you must insert a unique transfer stop on the individual school 23 runs and the school 99 transfer.

Transfer Situations

School districts that have to transport students to various private or parochial schools often use transfers to accomplish the task. If the run servicing the transfer students picks up students for four different schools, then that run will have at least four different transfer stops on it so that the non-school services may be inserted. The following image shows a run which transfers students to four different transfer runs:

Workspace.wsp: Run Transportation

Configure Previous Next Remove Print Delete Cancel

Run ID: 101 001 Route: 10 Description: TO JEFFERSON ELEM BUS: 0 Slack: 0 AM

Description: TO JEFFERSON ELEM

Frequency: MTWU-----0008-23-200106-02-2002

To/From: 1 Dest line: 8-40 AM Begin Time: 7:46 AM End Time: 8:44 AM

Max Load: 60 Cover: Run Length (min): 98 Loaded Miles: 20.37

Insert Checkpoint Assign Design Stop Times Head Count ID Stop Refresh

Load Times Register Rptsequence Exchanges Run Dir New Stop Columns

Stop ID	Time (h:m)	Effective	Stop Desc	Frequency
88CP 001037	7:46 AM	MTWU-----	BUSYARD	MTWU-----00
101 T 00501	7:51 AM	MTWU-----	SCHOOL LINCOLN ELEMENTARY	MTWU-----00
101 115001	7:51 AM	MTWU-----	JACKSON ST N & SUMMER AVE	MTWU-----00
101 041001	7:53 AM	MTWU-----	ADOLPHUS ST N & ROSELAWN AVE E	MTWU-----00
101 123001	7:56 AM	MTWU-----	40 VIKING DR W	MTWU-----00
101 040001	8:06 AM	MTWU-----	COUNTY ROAD B'W & RICE ST	MTWU-----00
101 112001	8:07 AM	MTWU-----	COUNTY ROAD B'W & WESTERN AVE N	MTWU-----00
101 111001	8:08 AM	MTWU-----	ELDRIDGE AVE W & WESTERN AVE N	MTWU-----00
101 103001	8:09 AM	MTWU-----	COHANSEY BLVD & ELDRIDGE AVE W	MTWU-----00
101 096001	8:10 AM	MTWU-----	COUNTY ROAD B'W & GROT TO ST N	MTWU-----00
101 093001	8:12 AM	MTWU-----	881 45 PARKER AVE W	MTWU-----00

Circular Runs

A circular run is typically used for morning and afternoon kindergarten. If the proper amount of time is designated before the AM ending time and the PM starting time, one run may drop-off and pickup students at the same time. When creating circular runs, build the entire run in one direction first. In the following example, the AM kindergarten run will already be created.

The screenshot shows the 'Workspace.wsp: Run Transportation' window. The 'Run ID' is 100 048. The 'Description' is CIRCULAR. The 'Frequency' is MTWUF-----0008-23-200106-02-2002. The 'To/From' is 1. The 'Dest time' is 12:10 PM. The 'Begin Time' is 12:35 PM. The 'End Time' is 12:40 PM. The 'Max Load' is 80. The 'Cover' is set to a dropdown menu. The 'Run Length (min)' is 5. The 'Loaded Miles' is 0.00. The 'Insert' button is highlighted. Below the buttons is a table with columns: Stop ID, Time (h:m), Effective, Stop Desc, and Frequency.

Stop ID	Time (h:m)	Effective	Stop Desc	Frequency
100.000004	12:35 PM	MTWUF----	SCHOOL: LINCOLN ELEMENTARY	MTWUF-----0008-
100.003003	12:40 PM	MTWUF----	MALVERN ST & ROSELAWN AVE W	MTWUF-----0008-
100.055004	12:40 PM	MTWUF----	DELAWARE ST SE & HARVARD ST SE	MTWUF-----0008-
100.000005	12:40 PM	MTWUF----	SCHOOL: LINCOLN ELEMENTARY	MTWUF-----0008-

To build the PM to-school portion of the run, you must open the run record in the Runs Tabular window and change the value in the To/From field to 0. After making this change, you can insert the PM school stop onto the end of the run. The following image has the school stops on each end of the run:

The screenshot shows the 'Workspace.wsp: Run Transportation' window. The 'Run ID' is 100 048. The 'Description' is empty. The 'Frequency' is MTWUF-----0008-23-200106-02-2002. The 'To/From' is 2. The 'Dest time' is 12:10 PM. The 'Begin Time' is 12:15 PM. The 'End Time' is 12:19 PM. The 'Max Load' is 80. The 'Cover' is set to a dropdown menu. The 'Run Length (min)' is 4. The 'Loaded Miles' is 0.00. The 'Assign' button is highlighted. Below the buttons is a table with columns: Stop ID, Time (h:m), Effective, Stop Desc, and Frequency.

Stop ID	Time (h:m)	Effective	Stop Desc	Frequency
100.000004	12:15 PM	MTWUF----	SCHOOL: LINCOLN ELEMENTARY	MTWUF-----0008-
100.004003	12:19 PM	MTWUF----	CTY RD B W & ST CROIX ST N	MTWUF-----0008-
100.036003	12:19 PM	MTWUF----	1847 EUSTIS ST N	MTWUF-----0008-
100.011003	12:19 PM	MTWUF----	PRIOR AVE N & RYAN AVE W	MTWUF-----0008-

Now that the school service is on each end of the run with the correct corresponding times, you can re-insert each stop service with the correct to-school service. The final run would look like the following image if kindergartners were getting on and off at each stop location:

NOTES

Workspace.wsp: Run Transportation

Confirm Previous Next Rename Print Delete Cancel

Run ID: 100 048 Route... Description BUS... Slack Sect...

Description: CIRCULAR

Frequency: MTWUF-----0008-23-200106-02-2002

To/From: 1 Dest time: 12:10 PM Begin Time: 12:35 PM End Time: 12:40 PM

Max Load: 80 Cover: Run Length (min) 5 Loaded Miles: 0.00

Insert Checkpoint Assign Deassign Stop Times Head Count ID Stop Refresh

Load Times Regorder Resequence Passengers Run Dir New Stop Columns

Stop ID	Time (h:m)	Effective	Stop Desc	Frequency
100.000004	12:35 PM	MTWUF----	SCHOOL: LINCOLN ELEMENTARY	MTWUF-----0008-
100.003003	12:40 PM	MTWUF----	MALVERN ST & ROSELAWN AVE W	MTWUF-----0008-
100.055004	12:40 PM	MTWUF----	DELAWARE ST SE & HARVARD ST SE	MTWUF-----0008-
100.049003	12:40 PM	MTWUF----	FULHAM ST N & SPRING ST W	MTWUF-----0008-
100.000005	12:40 PM	MTWUF----	SCHOOL: LINCOLN ELEMENTARY	MTWUF-----0008-

When viewed graphically, the circular run would look like this:



Maintenance Associated with Runs

The following utilities relate to runs:

- LODTIME
- DEASSIGNSTOPSONRUNS
- DELETERUNSNOSTOPS
- INSERTCHECKPOINTS

For detailed information about these utilities, see “Utilities in Emu” on page 759.

ROUTES

NOTES

A route is the total of all the runs that a bus completes during the day. A route for kindergarten students, for example, may include a run taking students to school in the morning, a run taking them home for lunch, a run taking them back to school after lunch, and a run taking them home at the end of the school day.

Routes have a frequency (as do trips, stops, and runs) that indicates the days of the week the route is needed to transport students.

Like stop and run records, you can work with routes graphically or in tabular mode.

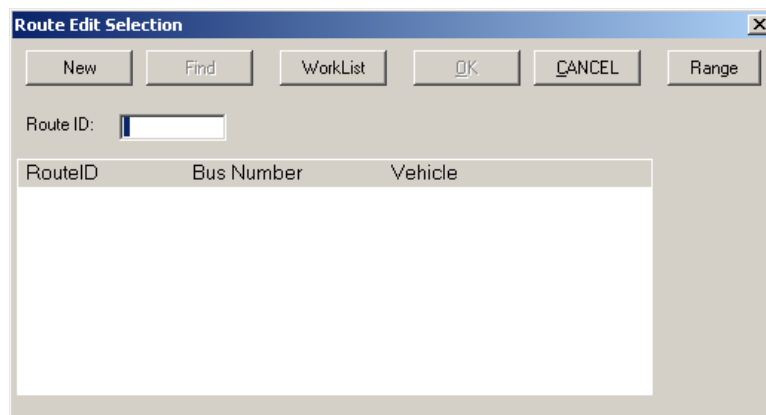
When working with routes, you can:

- Create new routes.
- Modify and delete existing routes.
- Assign runs to routes as well as deassign them.
- Change run times on routes to make better use of your fleet.

Creating a Route

To create a route:

- 1 Choose **Tabular** from the Routes menu.



The system displays the Routes Keyfinder.

- 2 Enter the **<route ID>** in the Route ID field.
- 3 Choose **New**.

NOTES

The system closes the Routes Keyfinder, assigns the Route ID you entered in the keyfinder to the route, and opens the Routes Tabular window, which displays the Route ID.

- 4 Enter a **<description>** for the route in the Description field.
- 5 Enter a **<bus number>** for the route in the Bus Number field.
- 6 Choose **Insert**.

The system prompts you to confirm the changes to the route record.

- 7 Choose **Yes**.

The system closes the message box and displays the Insert Run on Route dialog box.

- 8 Select the **To** option button to add a to-school run.

-OR-

Select the **From** option button to add a from-school run.

- 9 Select the **<school code>** for the run from the School drop-down box.

10 Select the **<run>** from the Run drop-down box.

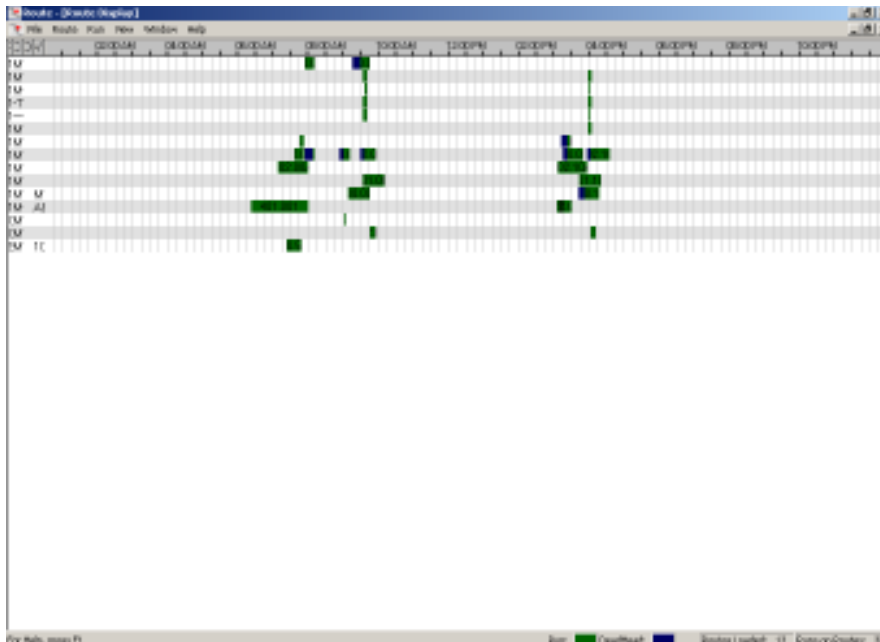
11 Choose **OK**.

NOTES

The system inserts the run onto the route and closes the Insert Run on Route dialog box. You return to the Routes Tabular window, which displays the run you inserted.

12 For each run you want on the route, repeat Steps 6 - 11.

Working with Routes in Display Mode



The Route Display window provides a visual display of routes as time lines. Each run appears as a darkened section indicating the run's duration on the time line. You can leave the mouse pointer stationary on a run in the time line to view a banner listing the run's ID. This window also provides a variety of commands for working with routes.

NOTES

If you want to work with existing routes, first load the routes you want to work with by choosing **Load** from the Route menu. If you want to view a detailed listing of runs on a route, choose **Route Info** from the Route menu, then select the desired **route** by clicking the **arrow** next to the Enter Route ID field.

If you want to create a new route, choose **Create** from the Route menu. Enter **route information** (as discussed in the previous section), then choose **Confirm**. Refer to the following section for information on placing runs on the route.

From this window, you can edit route information, insert runs on routes, remove runs, and modify run times on routes to optimize the use of your district fleet. You can also access the Route Simulation and Route Optimization features from the Route Display window (by choosing Route Simulation from the File menu) which enables you to experiment with proposed changes to determine their effects and optimize runs on routes to make the most efficient use of your bus fleet.

Changing Run Times in Routes

You can modify the time a run on a route is scheduled to arrive at a school (if it is a to-school run) or depart from a school (if it is a from-school run) in either the Tabular or Display mode. This function allows you to change the times associated with runs on routes, perhaps enabling you to insert additional runs on routes and thus make more efficient use of your bus fleet.

To change run times in the Tabular mode, choose **Change Time** above the table at the bottom of the Tabular route record window. To change times in the Display mode, choose **Edit Times** from the Route menu. Select the route by clicking the down-arrow next to the Enter Route ID field, then enter the **new arrival/departure time** in the New Time field.

RUN DIRECTION GUIDE

NOTES

This section explains how to generate Run Directions.

PROCESSING RUN DIRECTIONS

You can generate run directions to print out a listing of the lefts and rights for bus drivers to follow, as well as for verification of the geocode and street speeds. You can also find out whether the stops are located correctly and inserted on each run in the appropriate order.

There are four different ways to generate Run Directions:

- Individually
- Group Processing
- EMU Batch Processing by Run
- EMU Batch Processing by Route

Individually

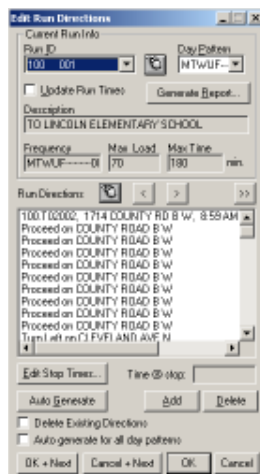
The main reason for creating run directions individually is to update the street path taken after inserting a new stop or altering one run. Any changes made to the geographic information for one run will affect the other runs as well.

Note:

Runs have frequency. If the runs have multiple frequency, be sure to create run directions for each frequency.

To individually create run directions:

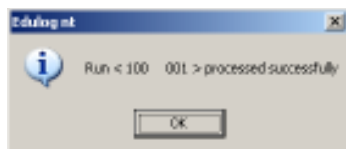
- 1 Display the **run** on the map (see “Runs” on page 217 for more information).
- 2 Choose **Directions** from the Graphical sub-menu on the Runs menu.



The system displays the Edit Run Directions dialog box.

NOTES

- 3 If the stop times have been altered manually and they should not be recalculated, make certain the **Update Run Times** check box is not checked.
Otherwise, you should check the **Update Run Times** check box.
- 4 If you have trouble generating run directions, check the **Delete Existing Run Directions** check box.
If you made manual changes, do not check the **Delete Existing Run Directions** check box.
- 5 Choose **Auto Generate**.



The system generates the run directions. If the run directions were processed successfully, the system displays a message box.

- 6 Choose **OK**.

Group Processing

You can use the group process approach to generate run directions for more than one run at a time.

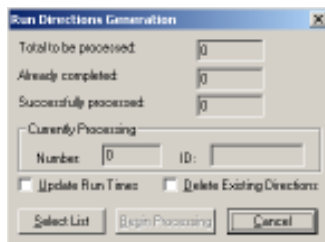
To generate run directions by group process:

- 1 Create a worklist of runs (see “Worklists” on page 63 for more information).

Note:

The worklist can be for one school (Run ID is between XXX.000 and XXX.999) or for all schools (Run ID is greater than 0).

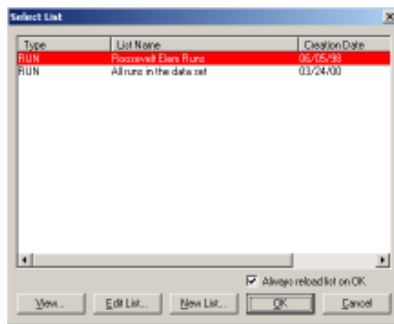
- 2 Choose **Directions** from the Group Processes sub-menu on the Runs menu.



The system displays the Run Directions Generation dialog box.

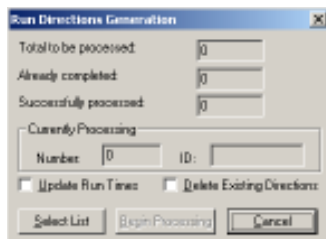
- 3 Choose **Select List**.

NOTES



The system displays the Select List dialog box.

- 4 Select the **worklist** of runs.
- 5 Choose **OK**.



The system closes the Select List dialog box. You return to the Run Directions Generation dialog box.

- 6 If the stop times have been altered manually and they should not be recalculated, make certain the **Update Run Times** check box is not checked.
Otherwise, you should check the **Update Run Times** check box.
- 7 If you have trouble generating run directions, check the **Delete Existing Run Directions** check box.
If you made manual changes, do not check the **Delete Existing Run Directions** check box.
- 8 Choose **Begin Processing**.



The system processes the run directions. If the run directions were processed successfully, the system displays a message box.

- 9 Choose **OK**.

When generating runs or routes in group processes, you can cancel the process while it is running.

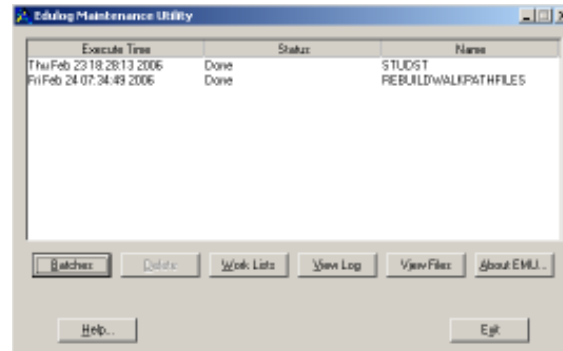
A listing appears for the runs which could not be completed with a message to help pinpoint the problem.

NOTES

EMU Batch Processing by Run

To process a batch of run directions for runs, you use the BATCHRUNDIR utility.

- 1 Open the EMU application.



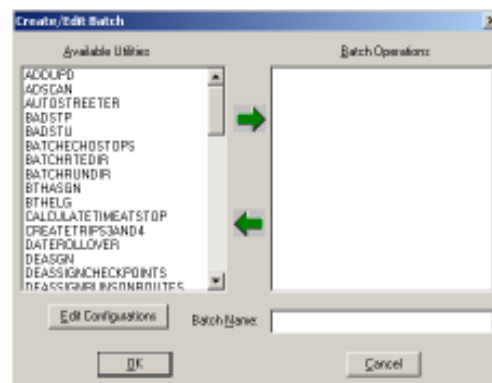
The system displays the edulog Maintenance Utility dialog box.

- 2 Choose **Batches**.



The system displays the Batch Work dialog box.

- 3 Choose **Create**.



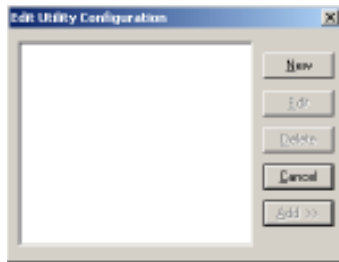
The system displays the Create/Edit Batch dialog box.

- 4 Double-click **BATCHRUNDIR** in the **Available Utilities** scrolled list box.

-OR-

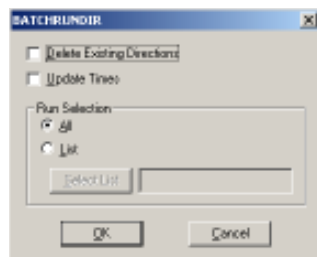
Select **BATCHRUNDIR** in the **Available Utilities** scrolled list box and choose the **right arrow button**.

NOTES



The system displays the Edit Utility Configuration dialog box.

- 5 Choose **New**.



The system displays the BATCHRUNDIR dialog box.

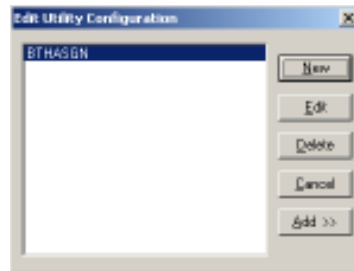
- 6 If you want to delete all directions for the runs included in the process before producing new directions, select the **Delete Existing Directions** check box.
- 7 If you want to update the times associated with the runs in the process according to the new street path directions, select the **Update Times** check box.
- 8 Select the **run selection option**.
- **All** - This option will generate run directions for all runs.
 - **List** - This option allows you to select a worklist of runs.
- 9 Choose **OK**.



The system displays the Save Utility Configuration As dialog box.

- 10 Enter a **<name for the BATCHRUNDIR utility configuration>** in the **Configuration Name** field.
- 11 Choose **OK**.

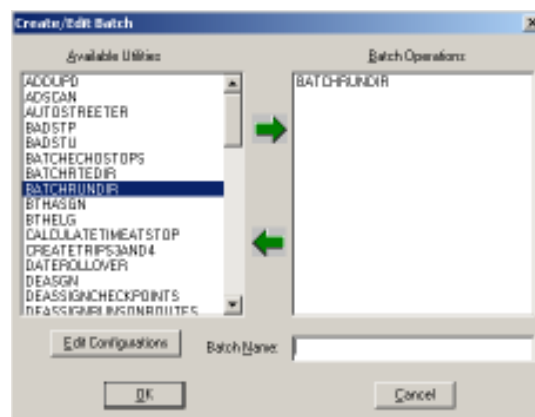
NOTES



The system closes the dialog boxes and saves the BATCHRUNDIR configuration with the name you entered. You return to the Edit Utility Configuration dialog box, which displays the BATCHRUNDIR configuration you created.

12 Select the **BATCHRUNDIR** configuration.

13 Choose **Add**.



The system closes the Edit Utility Configuration dialog box. You return to the Create/Edit Batch dialog box, which displays the BATCHRUNDIR configuration you created in the Batch Operations scrolled list box.

14 Select the **BATCHRUNDIR** configuration.

15 Enter a **<name for the batch>** in the Batch Name field.

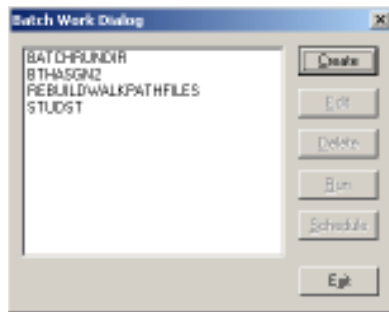
16 Choose **OK**.



The system displays a message box saying the batch was created and saved successfully.

17 Choose **OK**.

NOTES



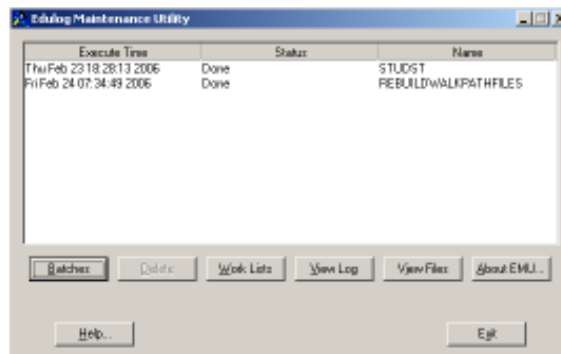
The system closes the message box. You return to the Batch Work dialog box, which displays the batch you created.

You can select the batch to run now or schedule the batch to run later.

EMU Batch Processing by Route

To process a batch of run directions for routes, you use the BATCHRTEDIR utility.

- 1 Open the EMU application.



The system displays the edulog Maintenance Utility dialog box.

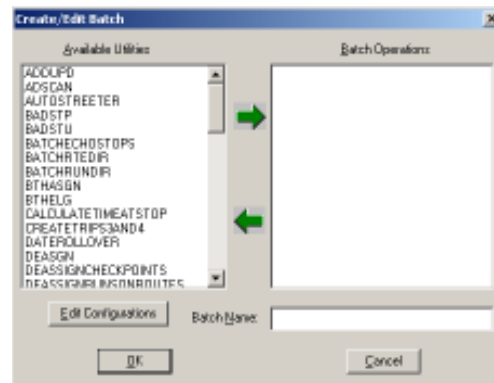
- 2 Choose **Batches**.



The system displays the Batch Work dialog box.

- 3 Choose **Create**.

NOTES

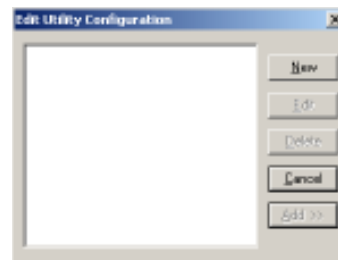


The system displays the Create/Edit Batch dialog box.

- 4 Double-click **BATCHRTEDIR** in the **Available Utilities** scrolled list box.

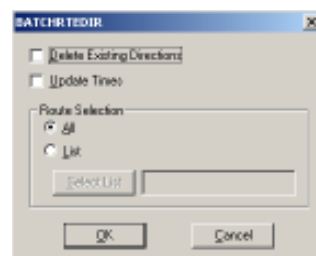
-OR-

Select **BATCHRTEDIR** in the **Available Utilities** scrolled list box and choose the **right arrow button**.



The system displays the Edit Utility Configuration dialog box.

- 5 Choose **New**.



The system displays the BATCHRTEDIR dialog box.

- 6 If you want to delete all directions for the routes included in the process before producing new directions, select the **Delete Existing Directions** check box.
- 7 If you want to update the times associated with the routes in the process according to the new street path directions, select the **Update Times** check box.
- 8 Select the **route selection option**.
- **All** - This option will generate run directions for all routes.

- **List** - This option allows you to select a worklist of routes.

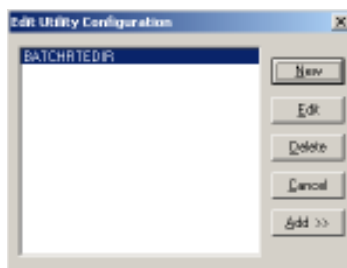
9 Choose **OK**.



The system displays the Save Utility Configuration As dialog box.

10 Enter a **<name for the BATCHRTEDIR utility configuration>** in the **Configuration Name** field.

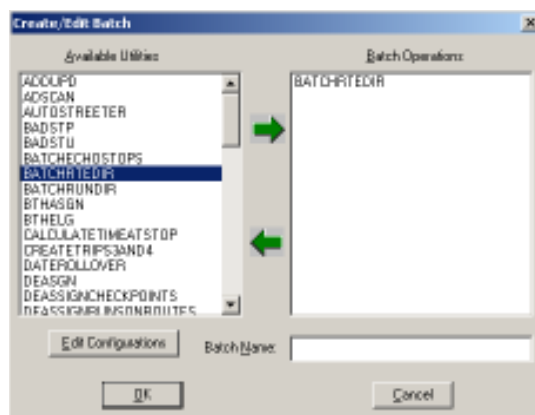
11 Choose **OK**.



The system closes the dialog boxes and saves the BATCHRTEDIR configuration with the name you entered. You return to the Edit Utility Configuration dialog box, which displays the BATCHRTEDIR configuration you created.

12 Select the **BATCHRTEDIR configuration**.

13 Choose **Add**.



The system closes the Edit Utility Configuration dialog box. You return to the Create/Edit Batch dialog box, which displays the BATCHRTEDIR configuration you created in the Batch Operations scrolled list box.

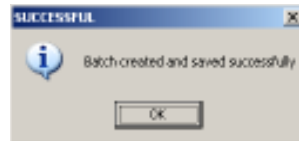
14 Select the **BATCHRTEDIR configuration**.

15 Enter a **<name for the batch>** in the Batch Name field.

NOTES

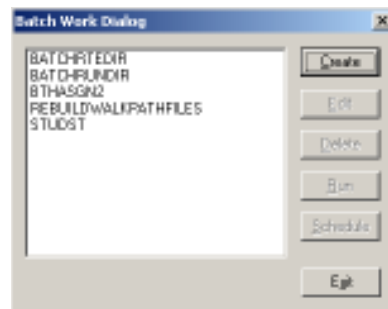
NOTES

16 Choose **OK**.



The system displays a message box saying the batch was created and saved successfully.

17 Choose **OK**.



The system closes the message box. You return to the Batch Work dialog box, which displays the batch you created.

You can select the batch to run now or schedule the batch to run later.

RUN TIME EDITING

You need to know how run times are determined and built in edulog so that you can edit run times.

AM runs are built from the Late Bell Time for the school in the run ID. The opposite is true for a PM run. PM runs are built from the Early Bell Time for the school where the run begins. Run times are then calculated using Transportation Shortest Path (TSP) in the edulog system. When generating run directions, run times are updated using the Mapseg file. That is the driver direction file that contains all left and right turns, turnarounds, left turn restrictions, and segment speeds. The Mapseg file will be discussed further later in this chapter.

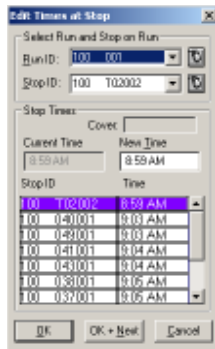
In edulog, you can edit the stop arrival time in several different ways:

- Graphical Mode
- Tabular Mode
- Run Directions

Editing Run Times in Graphical Mode

- 1** Display the **run** on the map.
- 2** Choose **Edit Time at Stop** on the Graphical sub-menu on the Runs menu.

NOTES



The system displays the *Edit Times at Stop* dialog box.

- 3 Select the **stop** you want to edit from the Stop ID drop-down box.

-OR-

Select the **stop** on the map that you want to edit with the Graphic Selection tool

- 4 Enter the **new time** in the New Time field.
- 5 Choose **OK**.

Editing Run Times in Tabular Mode

- 1 Display the **run** in the Runs Tabular window.
- 2 Select the **stop** you want to edit.
- 3 Choose **Stop Times**.

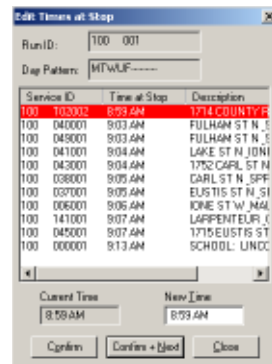


- 4 Enter the **new time** in the New Time field.
- 5 Choose **OK**.

Editing Run Times in Run Directions

- 1 Open the **Run Directions** (either in graphical mode or in tabular mode).
- 2 Choose **Edit Stop Times**.

NOTES



The system displays the Edit Times at Stop dialog box.

- 3 Select the **stop** you want to edit from the Stop ID drop-down box.
- 4 Enter the **new time** in the New Time field.
- 5 Choose **Confirm**.

TROUBLESHOOTING RUN DIRECTIONS

Some common problems are:

- One way streets are incorrectly designated. Edit the segment to indicate the proper direction of travel to correct this problem.
- No-travel segments are incorrectly designated. Edit the segment direction of travel to correct this problem.
- Segments have speed of 0. Streets with a speed of 0 cannot be traveled. Either give the segment the correct speed or relocate the stop to a segment which can be traveled.
- Hazard segments are incorrectly designated, forcing right-side pickups. Ensure which segments really are hazards and change those that aren't or relocate the stops to other segments.
- Segment is not drawn correctly. If a segment is not properly connected to the geocode, a bus may not be able to travel down it to reach a stop. The utility Pieces will generate a report of these segments.
- Bus stops were matched to the geocode until that segment was split and now the stops are "lost." Run STPSCN to relocate stops on segments. Run BADSTP to generate a listing of the stops that do not match the geocode. Always relocate corner stops manually.
- The run direction file has not been updated with the recent map changes. Run MAPSEGUP to correct this problem.
- Turn-arounds or prohibited turns have not been entered. Enter in Mapseg Editing (in edulog under Tools, in Maris under Edit Geocode Mapseg). Run MAPSEGUP after making changes.

MAPSEG EDITING

NOTES

The mapseg files are used to govern where a bus can and cannot travel within the geocode. It is the map the system reads when you generate run directions. The mapseg files are used for modifying travel times on segments, creating turn-arounds for buses, and forbidding buses from turning off one segment and onto another. Mapseg editing is included in Maris, with certain functions available in edulog.

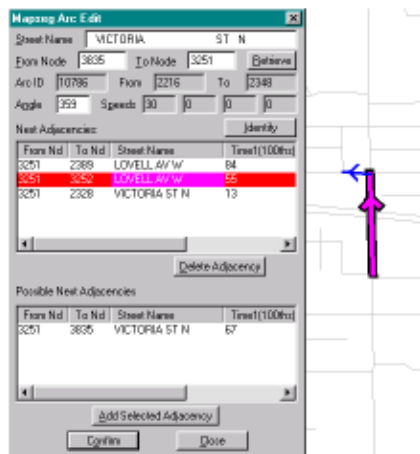
You can designate a segment or street as no-travel by changing the direction of travel to 3. (In Maris, choose Group Attributes on the Segments sub-menu on the Edit Geocode menu).

You can designate a segment or street as a one-way in either direction by editing the direction of travel associated with that segment. Make the direction a 1 for a one-way going from the from-node to the to-node or a 2 for a one-way going from the to-node to the from-node. (In Maris, choose Group Attributes on the Segments sub-menu on the Edit Geocode menu)

You can insert a turn-around by choosing Mapseg on the Edit Geocode menu. Identify the segment you want to turn around on, then choose the Possible Next Arc Adjacency with the reversed node pair for the segment you identified. This designates travel in the opposite direction. Add the selected adjacency.

Note:

The segment you identify represents the segment the bus would be on. The NEXT ARC ADJACENCIES are the choices where the bus may turn or proceed. Check the node numbers to make sure the direction is correct.



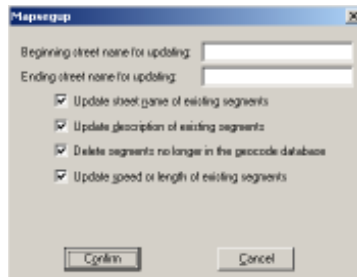
- A bus will not turn around in the middle of a segment. If you want the bus to turn around at a certain point, split the segment and add a node at the turnaround location.
- When generating run directions, the system may or may not see the need for a bus to turn around where you have added the ability to do so. In that case, you need to manually edit the run directions and insert the turn-around.

NOTES

- You may prevent a bus from turning from one segment and proceeding onto another by deleting the Next Arc Adjacency.

MAINTENANCE

Any time changes are made to the geocode or the mapseg files (such as adding or deleting segments, changing speeds on segments, or changing directions of travel) you need to run the Mapsegup and Updtadtm utilities in EMU. (Updtadtm is automatically included with the Mapsegup utility.)



INTERMEDIATE REPORTS

You can access edulog Reports two different ways:

- Choose **EduLog Reports** on the Reports menu in edulog.
- Use the **Report** shortcut in the Windows Start menu.



The system displays the edulog Reports launch pad.

STANDARD REPORTS

Standard Reports are reports that are already formatted and are a fast and easy way to retrieve a report. These reports are useful when you would like a report that contains all information. Standard reports allow flexibility in creating filters and sorting the report. Any changes, however, made are lost when you exit reports because the changes are temporary.

The Format Button

The Format button in the Standard Reports, Common Report Selections, and user-defined Query Overview windows allows you to select from various options for the reports you produce. For example, you have the option of including either stop descriptions or stop locations, assigned loads or head count loads, and you can indicate whether you want to include mileage in reports.

NOTES

Reports Formats

Link from student to school information

☒ Student school code (default)

☐ Trip school code

Link for inactive Stops Reports

☐ Inactive Stops (Stops Not Assigned to Runs)

☐ Inactive Services (Stop Services not Assigned to Runs)

☐ Stops With no Services

Display Shortened Form of Run Directions (Only L, R, T for left, right, turnaround plus street. Across the Page and Wrapping)

☒ Regular Driver Directions

☐ Shortened Driver Directions

Reports In List Functionality

☒ Display Field Choices

☐ Enter Field Choices

Maximum Number of Choices Allowed (If this is exceeded in list will default to Enter Choices)

Display description or location

☒ Description

☐ Location

Display assigned or headcount

☒ Assigned Loads

☐ Headcount Loads

☒ Include Mileage/Kilometers

☒ Include Accumulated Mileage/Kilometers

☒ Include Driver Directions Warning

☐ One stop per location

☐ Include Deadheads

☒ Include Checkpoints (first and last stop only)

Choose a Sort Order for Common Reports

☒ Input Order

☐ Alphabetical

Add reports to Common

Reset and Exit

Save and Exit

USER-DEFINED REPORTS

User-defined Reports are much more flexible than the standard report feature. Essentially, the user makes a copy of the standard report, and then makes modifications to filters, output fields, and sort order. These reports can be added to the list of Common Reports for easy retrieval.



Schools

Allows you to produce reports that contain information on the schools in your system. With these queries, you can examine bell times, grades and programs for schools, as well as school boundary and eligibility information.

All Students and Transportation

Allows you to produce reports on students with transportation assignments in your system. You can produce a standard list of students, or you can generate bus passes with these queries.

Students with Trips

Allows you to produce reports on students in your system. If you select only student fields for this report, you can obtain a listing of all the students in the database. If you select any trip fields, you will get only those students who have trips assigned. You can examine regular education students, special education students, and

NOTES

unmatched students (students whose addresses do not match the geocode) with these queries. You can also produce reports on the numbers of students at schools in your system.

Student Transportation

Allows you to produce reports with various combinations of student and transportation (stop, run, and route) information. You can produce passenger lists and student eligibility reports with these queries.

Stops/Runs/Routes

Allows you to produce reports with various combinations of information on stops, runs, and routes in your system. You can produce reports on run and route mileage and average speeds with these queries.

Inactive Stops

Allows you to produce reports on stops that are not assigned to runs. You can also examine information on students assigned to such stops with these queries. This function depends on the settings made on the Reports Formatting dialog.

Vehicles

Allows you to produce reports on the vehicles in your district's transportation fleet.

Buss Pass

Allows you to produce bus pass reports that list various types of transportation information for students. While you can create your own bus pass reports, you may find it easier to make a copy of one of the existing Bus Pass queries and modify the copy as desired.

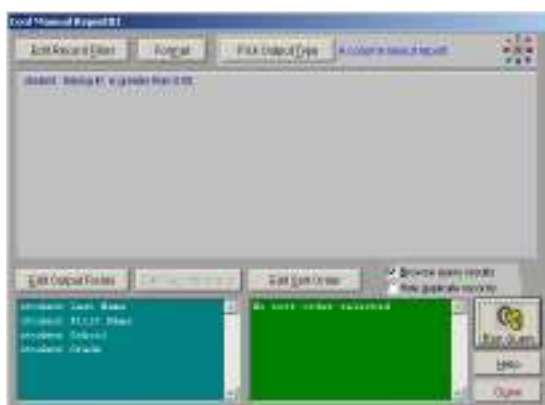
Names Information

Allows you to produce reports on the names stored in the Vehicle, Fleet, or Transact database. Connected to the stop by a Com ID field. This report is used primarily by Essex and France.

Hazard Zones

Allows you to produce reports on areas that may pose a hazard to students.

The Query Overview Dialog Box



NOTES

When you use user-defined reports, you can modify the query filter, output fields, sort order, and output type. You make these changes on the Query Overview dialog box.

Edit Record Filter This button opens the Filter Building dialog box that allows you to add, edit, or delete a query filter.

Edit Output Fields This button opens the Select Fields to Show in Query dialog box that allows you to add or remove fields in the report.

Edit Sort Order This button opens the Select Sorting Order dialog box that allows you to sort the data in the report.

Pick Output Type This button opens the Type of Output dialog box that allows you to pick an output for the report, like an Excel spreadsheet or an ASCII file.

If you select a file as the output type, you need to enter a path and filename where the system should save the report in the File name field.

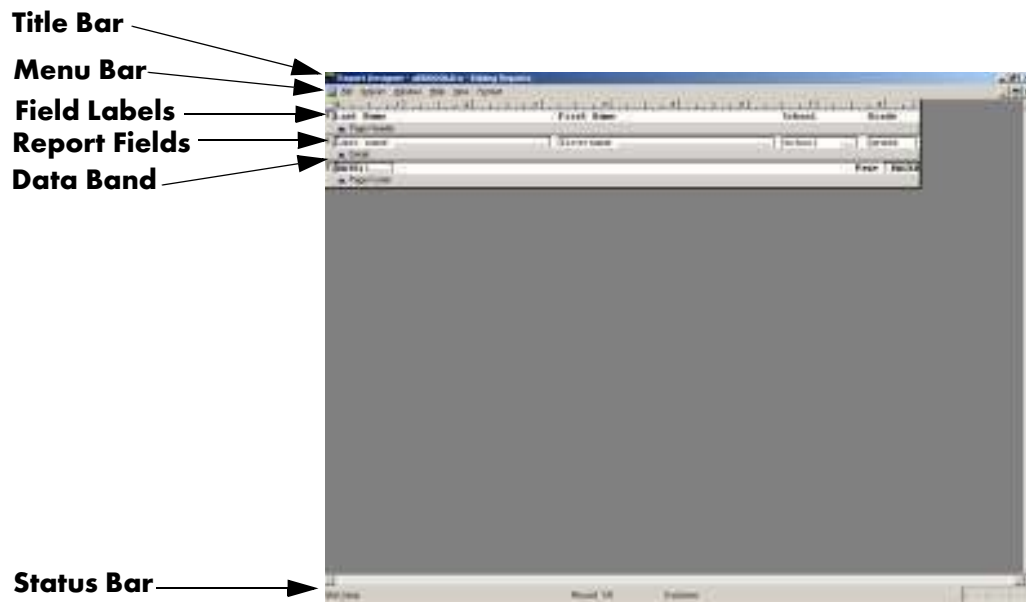
Browse Query Results This check allows you to review the report data before it goes to the report form. When this check box is checked, the system displays a result table with the data for the report.

Hide Duplicate Records This check box allows you to hide duplicate records in the report data, which can be very helpful with student information. When this check box is checked, the system will not display duplicate data.

The Report Designer Window

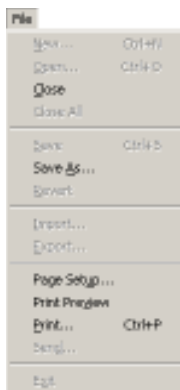
After you choose Run Query on the Query Overview dialog box, the system gathers the data for your report and displays the Setup Report dialog box that allows you to preview your report as well as edit the report form. To edit the report form, choose **Edit Form**.

NOTES



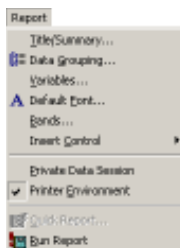
The system displays the report from in the Report Designer window.

The File Menu



Page Setup This command opens the Page Setup dialog box, which allows you to setup how the page looks. The Page Setup dialog box allows you to adjust the margins and the print area.

The Report Menu



NOTES

Data Grouping

This command opens the Data Grouping dialog box that allows you to group data.

When you group data, the system adds data bands to the report:

Group Header - The fields in this band will print at the beginning of each group.

Group Footer - The fields in this band will print at the end of each group.

If you group data in your report, you need to sort the data the same way that it was grouped.

The View Menu

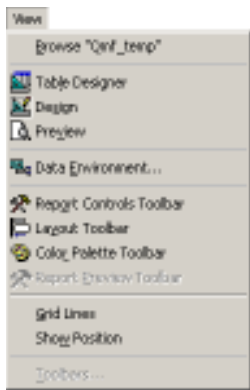


Table Designer

This command opens the Table Designer window that lists all of the output fields in the report. This window displays the field names of the output fields, which are 10 characters. When you add a new field to the report, the field will appear in this list.

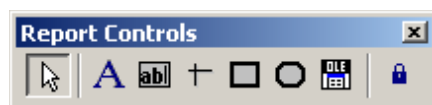


Preview

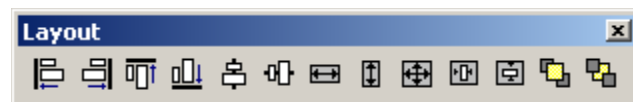
This command allows you to preview the report design. The system displays the report in a Print Preview window, which shows you how the report will look when it is printed.

Report Controls Toolbar

This command displays the Report Controls toolbar, which has tools for designing and modifying your report.

**Layout Toolbar**

This command displays the Layout toolbar, which has tools that are very useful for aligning the fields on the report.

**Color Palette Toolbar**

This command displays the Color Palette toolbar, which has tools for adding color to text boxes.

**Grid Lines**

This command displays grid lines on the Report Designer window, which help you align fields on the report.

Show Position

This command shows the position of the selected item in the bottom left corner.

The Format Menu**Align**

This command displays a sub-menu of commands for aligning the report fields and labels. These commands are also available on the Layout toolbar.

Horizontal Spacing

This command displays a sub-menu of command for help with the horizontal alignment of the report fields and labels.

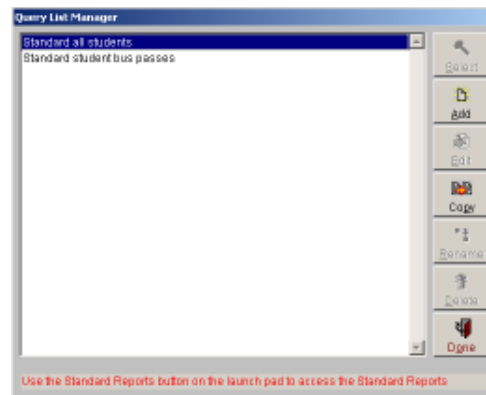
NOTES

Vertical Spacing	This command displays a sub-menu of commands for help with the vertical alignment of the report fields and labels.
Bring to Front	This command brings the selected item to the front so that it appears on top of the fields.
Send to Back	This command brings the selected item to the back so that it appears behind the fields.
Snap to Grid	This command aligns and snaps objects to the grid.
Set Grid Scale	This command allows you to design your own grid to help with spacing and alignment depending on the font used for the report.
Font	This command allows you to change the font as well as the appearance of the report text.
Text Alignment	This command displays a sub-menu of command for aligning text within a text box or field.

Sample Report 1

The following instructions describe how to create a report of eligible students without transportation using a worklist (see “Worklists” on page 63 for more information).

- 1 Choose the **All Student and Transportation** button on the User Defined Reports launch pad.



This system displays the Query Overview dialog box.

- 2 Choose **Add**.

NOTES



This system displays the Enter a Title for this New Query dialog box.

- 3 Enter a **title** in the New Title field.
- 4 Choose **OK**.

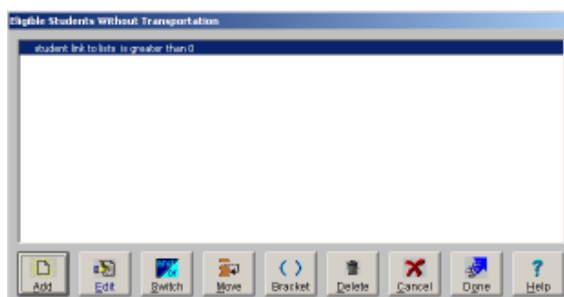


This system displays the Step 1: Pick a Field tab of the Query Builder dialog box.

- 5** Double-click the **student link to lists** option in the scrolled list box.

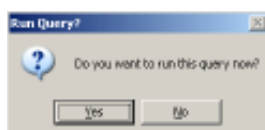
-OR-

Select the **student link to lists** option in the scrolled list box and chose **Next step**.



This system displays the Filter Building dialog box.

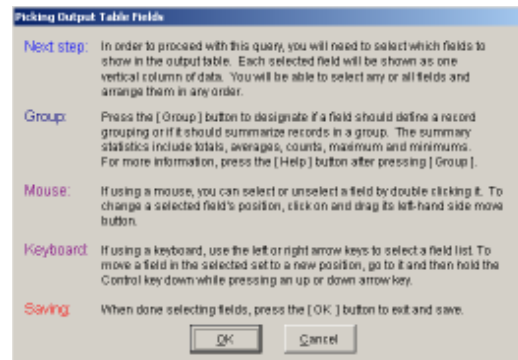
- 6** Choose **Done**.



This system closes the Filter Building dialog box and displays a message box prompting you to run this query now.

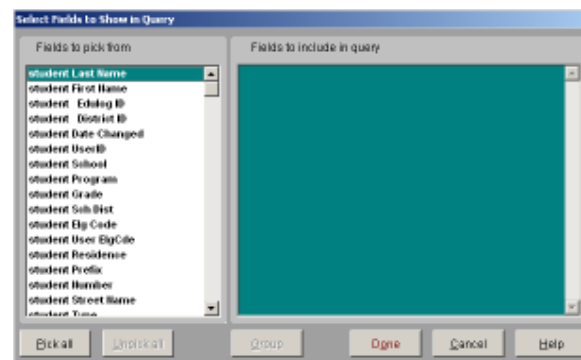
- 7** Choose **Yes**.

NOTES



This system closes the message box and displays the Picking Output Table Fields dialog box.

- 8** Choose **OK**.



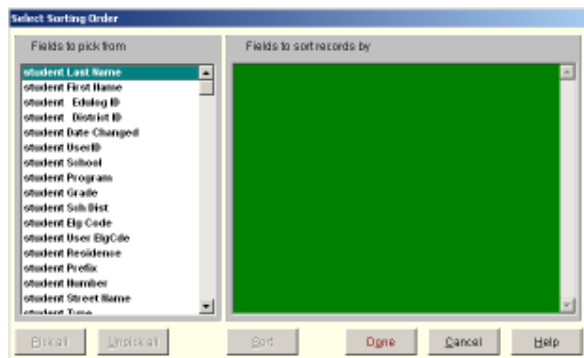
This system closes the Picking Output Table Fields dialog box and displays the Select Fields to Show in Query dialog box.

- 9** Double-click **student Last Name**.
- 10** Double-click **student First Name**.
- 11** Double-click **student School**.
- 12** Double-click **student Grade**.
- 13** Double-click **student Residence**.
- 14** Double-click **student Elg Code**.
- 15** Choose **Done**.

This system closes the Select Fields to Show in Query dialog box and displays the Query Overview dialog box.

- 16** Choose **Edit Sort Order**.

NOTES



This system displays the Select Sorting Order dialog box.

- 17** Double-click **student School**.
- 18** Double-click **student Grade**.
- 19** Double-click **student Last Name**.
- 20** Double-click **student First Name**.
- 21** Choose **Done**.

This system closes the Select Sorting Order dialog box and displays the Query Overview dialog box.

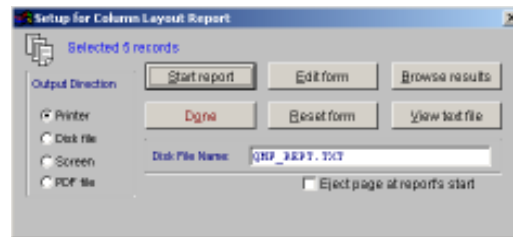
- 22** Select the **Hide duplicate records** check box.
- 23** Choose **Run Query**.



This system displays the Work Lists dialog box, which displays a list of student worklists.

- 24** Select the **<student worklist>** from the Student scrolled list box.
- 25** Choose **Update List Files**.

NOTES



This system runs the query. If it finds records, the system displays the Setup Report dialog box.

26 Choose **Edit Form**.



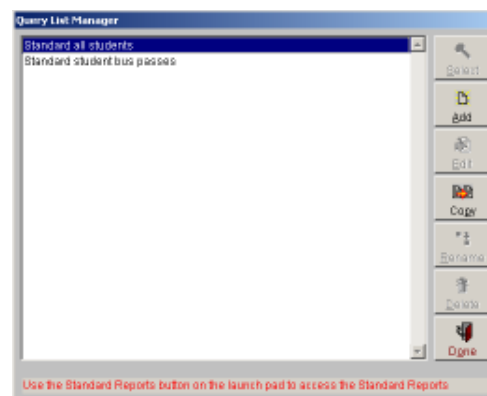
This system displays the report in the Report Designer window.

You can now arrange the report in the way you want.

Sample Report 2

The following instructions describe how to create a report for student address labels.

- 1 Choose the **All Student and Transportation** button on the User Defined Reports launch pad.



This system displays the Query Overview dialog box.

- 2 Choose **Add**.



This system displays the Enter a Title for this New Query dialog box.

- 3 Enter a **title** in the New Title field.
4 Choose **OK**.



This system displays the Step 1: Pick a Field tab of the Query Builder dialog box.

- 5 Double-click the **student Edulog ID** option in the scrolled list box.

-OR-

Select the **student Edulog ID** option in the scrolled list box and chose **Next step**.



This system displays the Step 2: Pick an Operator tab of the Query Builder dialog box.

- 6 Double-click the **Greater than** option.

-OR-

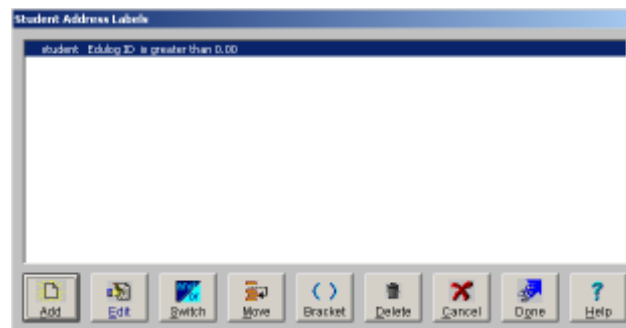
Select the **Greater than** option in the scrolled list box and chose **Next step**.

NOTES



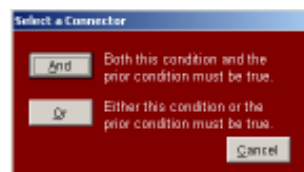
This system displays the Step 3: Enter a Value tab of the Query Builder dialog box.

- 7** Enter **0** in the text box.
- 8** Choose **Done**.



This system closes the Query Builder dialog box and displays the Filter Building dialog box with the filter you created.

- 9** Choose **Add**.



This system displays the Select a Connector dialog box.

- 10** Choose **And**.

NOTES



This system closes the Select a Connector dialog box and displays the Step 1: Pick a Field tab of the Query Builder dialog box.

- 11 Double-click the **student School** option in the scrolled list box.

-OR-

Select the **student School** option in the scrolled list box and chose **Next step**.

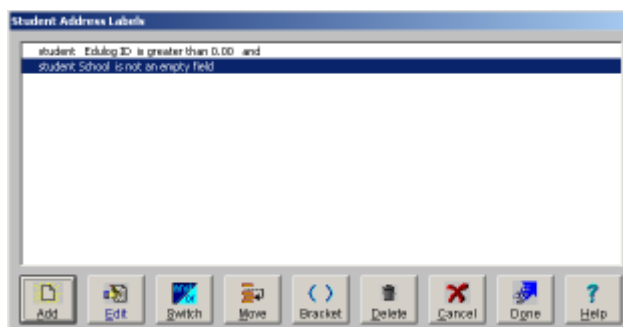


This system displays the Step 2: Pick an Operator tab of the Query Builder dialog box.

- 12 Double-click the **Is not empty** option.

-OR-

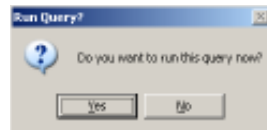
Select the **Is not empty** option in the scrolled list box and chose **Next step**.



This system closes the Query Builder dialog box and displays the Filter Building dialog box with the filter you created.

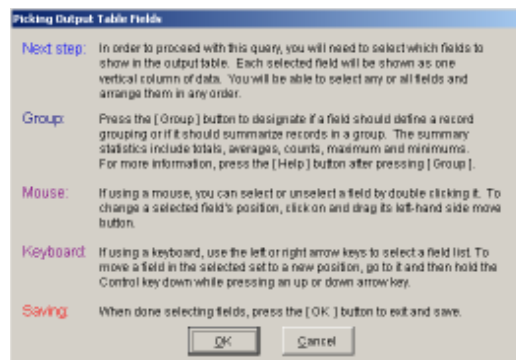
NOTES

13 Choose **Done**.



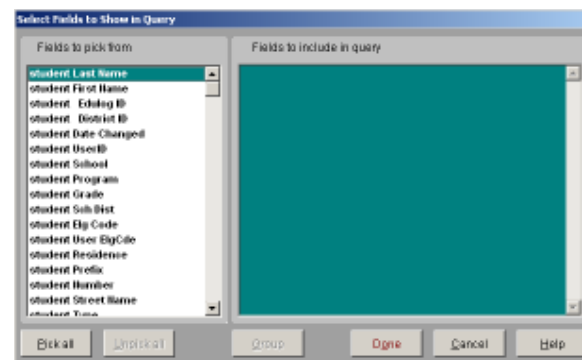
This system closes the Filter Building dialog box and displays a message box prompting you to run this query now.

14 Choose **Yes**.



This system closes the message box and displays the Picking Output Table Fields dialog box.

15 Choose **OK**.



This system closes the Picking Output Table Fields dialog box and displays the Select Fields to Show in Query dialog box.

16 Double-click **student Last Name**.

17 Double-click **student First Name**.

18 Double-click **student Residence**.

19 Double-click **student City**.

20 Double-click **student State**.

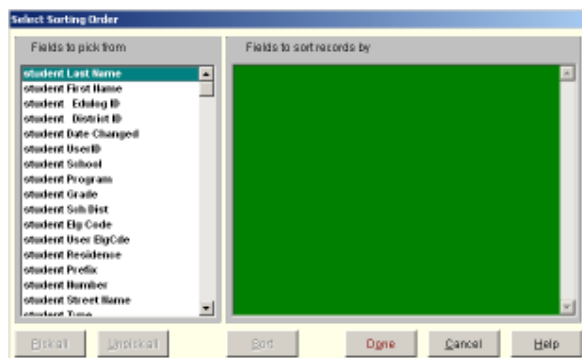
21 Double-click **student Zip**.

22 Double-click **student Edulog ID**.

23 Choose **Done**.

This system closes the Select Fields to Show in Query dialog box and displays the Query Overview dialog box.

24 Choose **Edit Sort Order**.



This system displays the Select Sorting Order dialog box.

25 Double-click **student Last Name**.

26 Double-click **student First Name**.

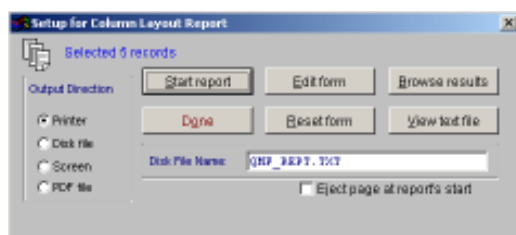
27 Double-click **student Edulog ID**.

28 Choose **Done**.

This system closes the Select Sorting Order dialog box and displays the Query Overview dialog box.

29 Select the **Hide duplicate records** check box.

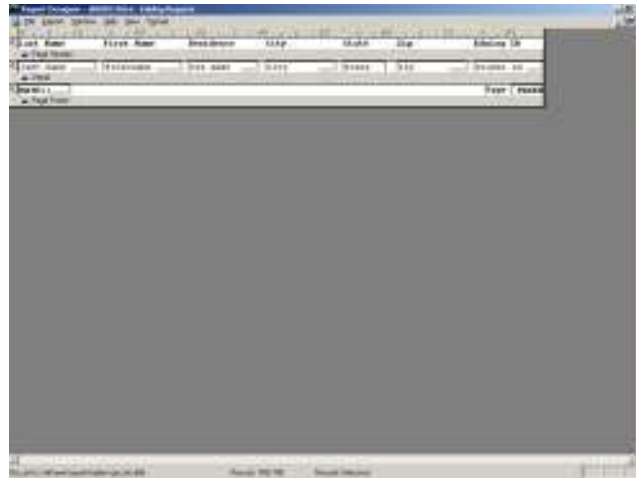
30 Choose **Run Query**.



This system runs the query. If it finds records, the system displays the Setup Report dialog box.

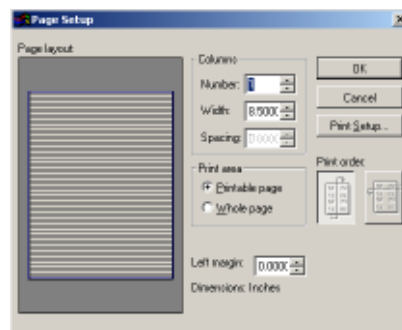
31 Choose **Edit Form**.

NOTES



This system displays the report in the Report Designer window.

32 Choose **Page Setup** from the File menu.



This system displays the Page Setup dialog box.

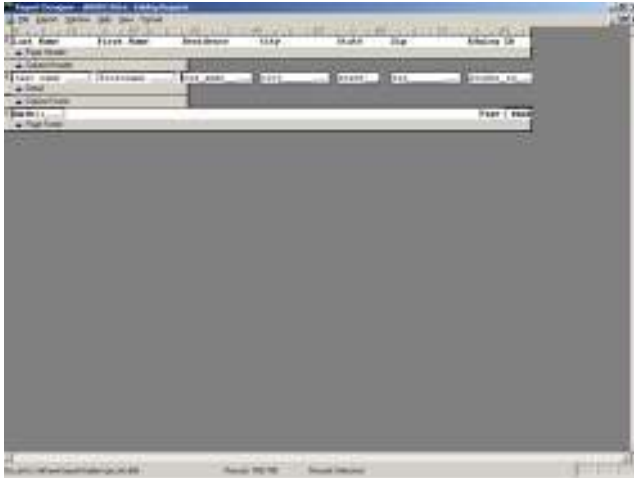
33 In the Columns section, enter **3** in the Number field.

34 In the Columns section, enter **0.1000** in the Spacing field.

35 Enter **0.1000** in the Left margin field.

36 Choose **OK**.

NOTES



This system closes the Page Setup dialog box. You return to the Report Designer window.

- 37** Choose **Data Grouping** from the Report menu.



This system displays the Data Grouping dialog box.

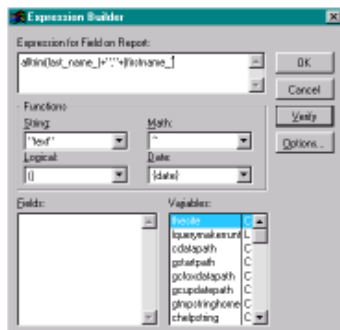
- 38** Enter **student_id_** in the Group Expressions field.
- 39** Choose **OK**.



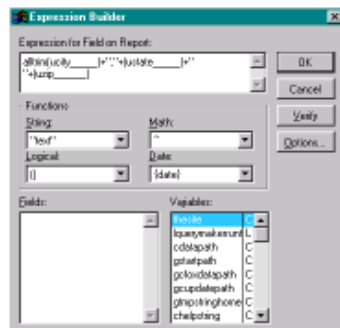
NOTES

This system closes the Data Grouping dialog box. You return to the Report Designer window.

- 40** Select **all of the field labels** in the Page Header section.
- 41** Choose **DELETE**.
- 42** Move the **Page Header band** up so that it does not show in the body of the report.
- 43** **Alltrim** the last name and first name as shown in the following image:



- 44** **Alltrim** the city, state, and zip as shown in the following image:



- 45** Using the Label tool in the Report Controls toolbar, add a **label** with **To the parents of.**

When you preview the report, it should like the following:

To the Parents of
ABBOTT, JUSTIN
1821 ORCHARD ST N
ROSEVILLE, MT 59808

To the Parents of
ABER, BRONSON
2611 ORCHARD ST N
MISSOULA, MT 59801

To the Parents of
ABERROMBE, DORLISA
673 SILVER LAKE RD NW
LOLO, MT 59802

To the Parents of
ABERNATHY, AMYON
323 BROOKS AVE W
,

To the Parents of
ADAMS, JOHN HENRY
188 WALNUT ST N
LOLO, MT 59802

To the Parents of
ADAMS, SARA
1459 WESTMINSTER ST
FRENCHTOWN, MT 59802

To the Parents of
ADAMS, SHEILA
1429 HOYT AVENUE W
ROSEVILLE, MT 59105

To the Parents of
ADAMS, TENESHA
2489 MCNEMMY STREET N
MISSOULA, MT 59105

To the Parents of
ALDINEY, SABRINE
343 COUNTY RD E W
ROSEVILLE, MT 59808

To the Parents of
ALTIMERY, AMJAD
966 CITY RD E
ROSEVILLE, MT 59105

To the Parents of
ALBA, PAUL
2088 FRY ST N
FRENCHTOWN, MT 59802

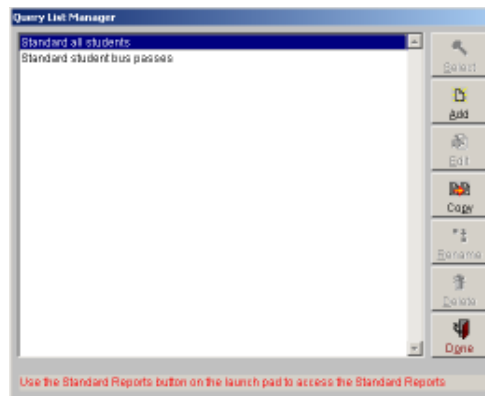
To the Parents of
ALEXANDER, CANDACE
1757 FRY ST N
ROSEVILLE, MT 59801

Sample Report 3

NOTES

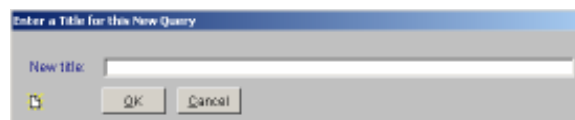
The following instructions describe how to create a report for runs that exceed a certain amount of time.

- 1 Choose the **Stops/Runs/Routes** button on the User Defined Reports launch pad.



This system displays the Query Overview dialog box.

- 2** Choose **Add**.



This system displays the Enter a Title for this New Query dialog box.

- 3** Enter a **title** in the New Title field.

- 4** Choose **OK**.



This system displays the Step 1: Pick a Field tab of the Query Builder dialog box.

- 5** Double-click the **run Run Length (min)** option in the scrolled list box.

-OR-

NOTES

Select the **run Run Length (min)** option in the scrolled list box and chose **Next step**.



This system displays the Step 2: Pick an Operator tab of the Query Builder dialog box.

- 6 Double-click the **Greater than** option.

-OR-

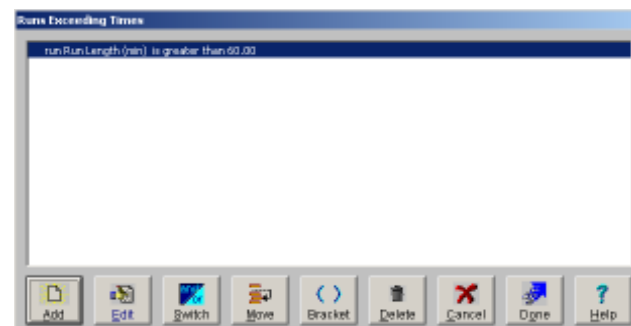
Select the **Greater than** option in the scrolled list box and chose **Next step**.



This system displays the Step 3: Enter a Value tab of the Query Builder dialog box.

- 7 Enter **60** in the text box.

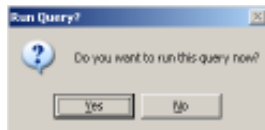
- 8 Choose **Done**.



This system closes the Query Builder dialog box and displays the Filter Building dialog box with the filter you created.

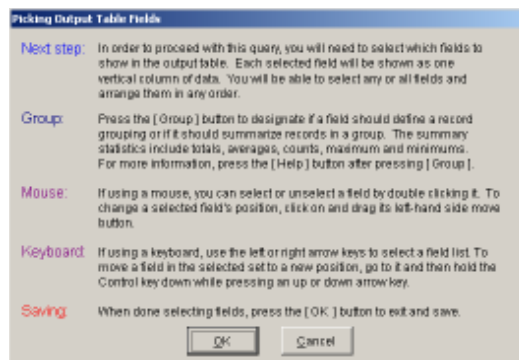
- 9 Choose **Done**.

NOTES



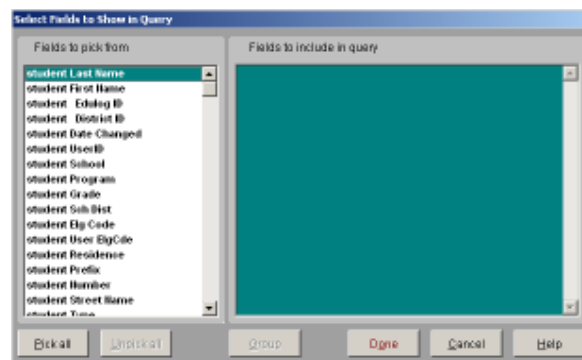
This system closes the Filter Building dialog box and displays a message box prompting you to run this query now.

- 10 Choose **Yes**.



This system closes the message box and displays the Picking Output Table Fields dialog box.

- 11 Choose **OK**.



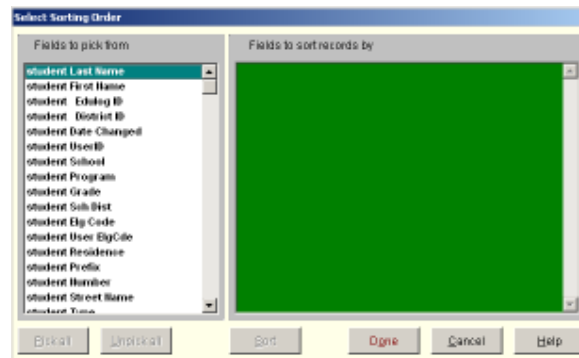
This system closes the Picking Output Table Fields dialog box and displays the Select Fields to Show in Query dialog box.

- 12 Double-click **run Run ID**.
- 13 Double-click **run Begin Time**.
- 14 Double-click **run End Time**.
- 15 Double-click **run Run Length (min)**.
- 16 Double-click **route Route ID**.
- 17 Choose **Done**.

NOTES

This system closes the Select Fields to Show in Query dialog box and displays the Query Overview dialog box.

18 Choose Edit Sort Order.



This system displays the Select Sorting Order dialog box.

19 Double-click run Route ID.

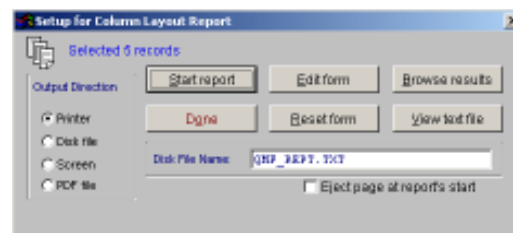
20 Double-click run Run ID.

21 Choose Done.

This system closes the Select Sorting Order dialog box and displays the Query Overview dialog box.

22 Select the Hide duplicate records check box.

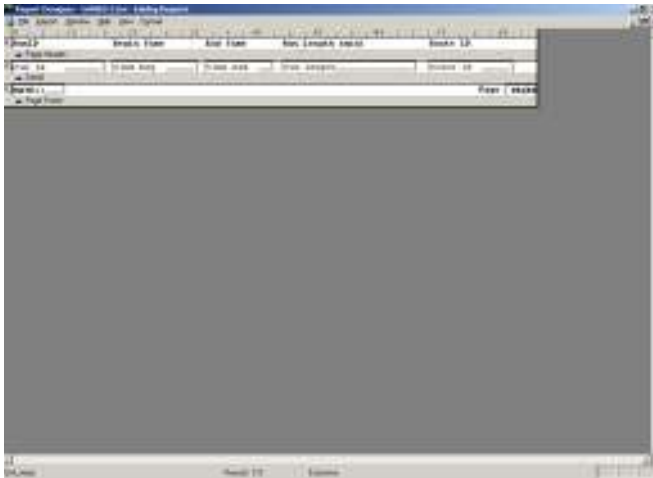
23 Choose Run Query.



This system runs the query. If it finds records, the system displays the Setup Report dialog box.

24 Choose Edit Form.

NOTES



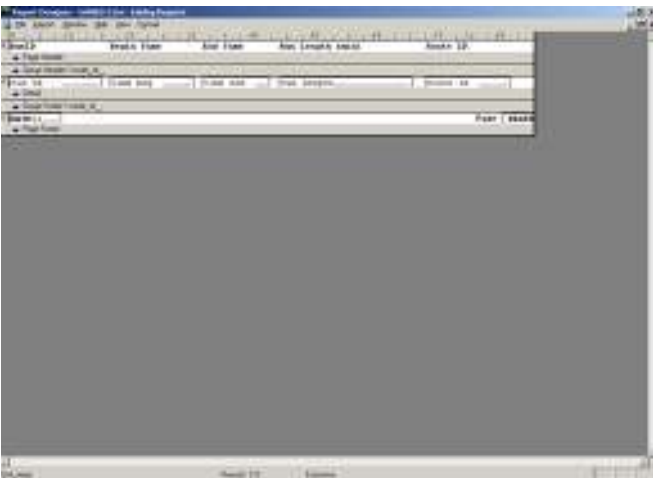
This system displays the report in the Report Designer window.

- 25** Choose **Data Grouping** from the Report menu.



This system displays the Data Grouping dialog box.

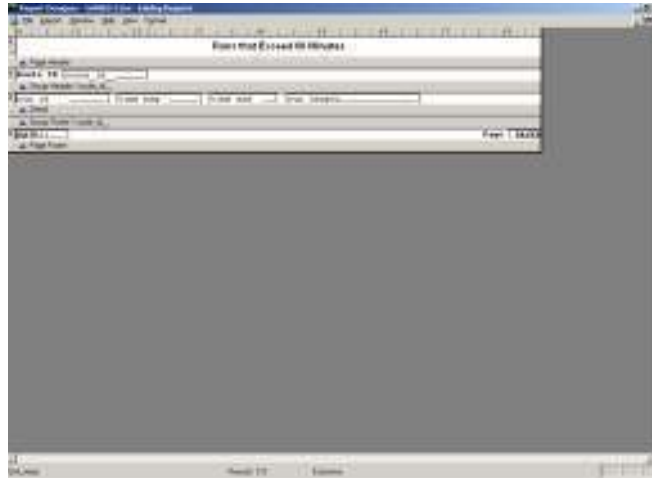
- 26** Enter **route_id__** in the Group Expressions field.
- 27** Choose **OK**.



NOTES

This system closes the Data Grouping dialog box. You return to the Report Designer window.

28 Arrange the **fields** and **labels** as shown in the following image:



When finished, the report will look like the following image:

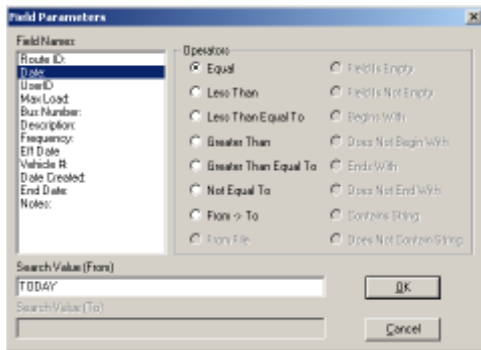
Runs that exceed 60 minutes			
Route # 39			
100.902	3:30 PM	5:12 PM	102
100.102	3:31 PM	4:34 PM	63
Route # 49			
200.001	7:04 AM	8:06 AM	62
200.101	2:15 PM	3:19 PM	64
Route # 15			
102.002	7:44 AM	8:48 AM	64
102.102	2:49 PM	3:55 PM	66
Route # 14			

Sample Report 4

The following instructions describe how to create a report for routes that were changed for a given day.

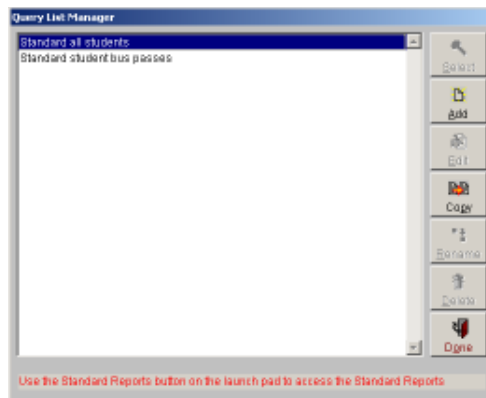
You can use a route worklist for this report. If you do, create the route worklist with the following parameters:

NOTES



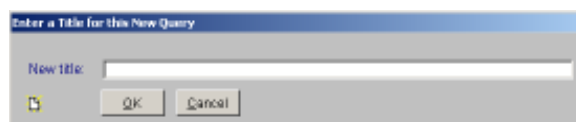
To create this report:

- 1 Choose the **Stops/Runs/Routes** button on the User Defined Reports launch pad.



This system displays the Query Overview dialog box.

- 2 Choose **Add**.



This system displays the Enter a Title for this New Query dialog box.

- 3 Enter a **title** in the New Title field.
- 4 Choose **OK**.

NOTES

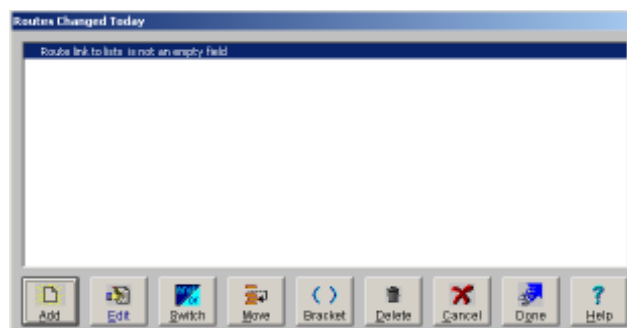


This system displays the Step 1: Pick a Field tab of the Query Builder dialog box.

- 5 Double-click the **Route link to lists** option in the scrolled list box.

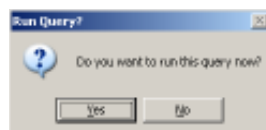
-OR-

Select the **Route link to lists** option in the scrolled list box and chose **Next step**.



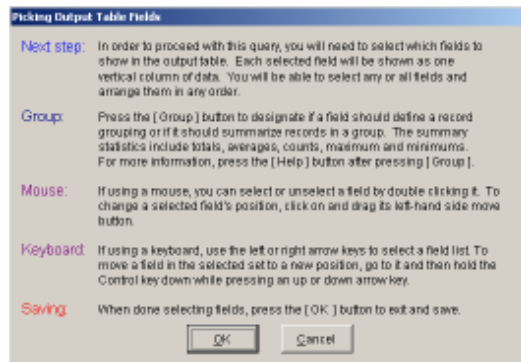
This system closes the Query Builder dialog box and displays the Filter Building dialog box with the filter you created.

- 6 Choose **Done**.



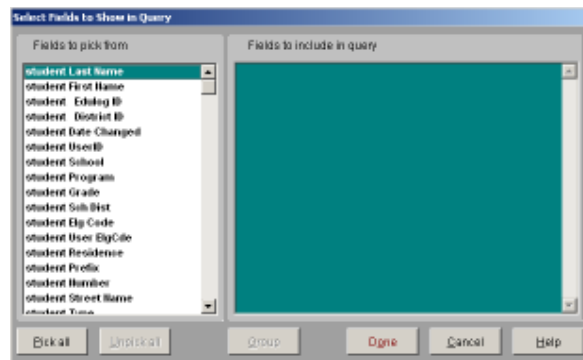
This system closes the Filter Building dialog box and displays a message box prompting you to run this query now.

- 7 Choose **Yes**.



This system closes the message box and displays the Picking Output Table Fields dialog box.

- 8 Choose **OK**.



This system closes the Picking Output Table Fields dialog box and displays the Select Fields to Show in Query dialog box.

- 9 Double-click **route Route ID**.
- 10 Double-click **route Date**.
- 11 Double-click **route UserID**.
- 12 Choose **Done**.

This system closes the Select Fields to Show in Query dialog box and displays the Query Overview dialog box.

- 13 Select the **Hide duplicate records** check box.
- 14 Choose **Run Query**.

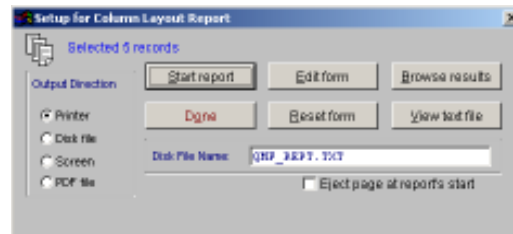
NOTES



This system displays the Work Lists dialog box, which displays a list of route worklists.

15 Select the **<route worklist>** from the Route scrolled list box.

16 Choose **Update List Files**.

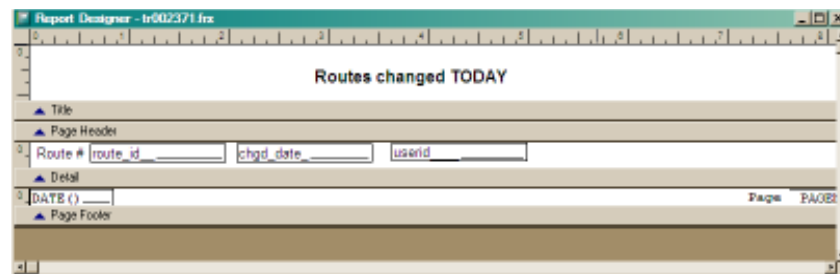


This system runs the query. If it finds records, the system displays the Setup Report dialog box.

17 Choose **Edit Form**.

This system displays the report in the Report Designer window.

18 Arrange the **fields** and **labels** as shown in the following image:



GEOGRAPHIC REPORTS

NOTES



Geographic reports allow you to report on the following:

Street Addressing	This report lists address ranges for left and right sides of the segment.
Node Listing	This report lists street names that intersect at any and all nodes.
Traffic Listing	This report lists high and low address ranges, street speeds, direction of travel and hazard levels.
Eligibility Listing	This report lists all addressed streets within the posted boundary for any school.
Boundary Listing	This report lists all boundaries with descriptions.
Overlapping Addresses	This report lists any streets with street names that have address numbers that overlap.
Street Name Listing	This report lists each unique street name in the geographic area.
Landmarks	This report lists the names of landmarks in the geographic area.
Overlapping Segments	This report lists any segments in the geographic area that overlap.
Street Validation Report	This report allows you to outputs geographic information for a street/segment in a specified output file. This geographic information includes: address range (left low, left high, right low, right high), prefix, street name, suffix, type, map zone, city, state,

NOTES

zip code, and boundary information for elementary, middle, and high schools.

Output devices for this report include the standard types (Screen, Printer, File, and PDF) as well as options for creating a formatted text file. The text file formats include fixed ASCII, comma-separated fields, tab-separated fields, and blank-separated fields.

After you output this information to a file, you can upload it into your student information system.

SPECIAL REPORTS

Student Counts	Produces reports listing the numbers of students at each of the schools in your system. You can produce student counts broken down by grade or by transportation eligibility code.
Route Time Line	Produces a time line report on routes in your system.
Deleted Students	Produces a list of all students that have been deleted (flagged for deletion, but not yet purged) in edulog.
Duplicate Students	Produces a listing of all students with duplicated information in the student database. You can use this report to find students that have the same first name, last name, and address (an indication that a student has been inadvertently entered into the system more than once) or to find students that have accidentally been given the same district ID number. You can check any field in student records for duplication.
Utility/ Audit Error	Provides access to reports produced by the various edulog Maintenance Utilities. When you examine these reports, you can change the information included in the report and the order in which it is arranged.
RR Crossing	Allows you to produce reports on hazards in your system. The hazards can be railroad crossings, narrow bridges, etc.
School Distance	Provides access to the School to School Distance report that shows the distances between each of the selected schools.

REPORT UTILITIES BUTTON

The Report Utilities button provides access to various utilities associated with the reports application (including Fix Report and Copy Reports). Only advanced users should run these utilities. When reports security is on, only administrative users have access to Report Utilities.

MULTI-DAY AND MULTI-DESTINATION ROUTING

edulog can accommodate a number of routing scenarios. You can transport students to or from school on different days of the week and to or from other locations. You need to understand programs, trips, and frequencies in use multi-day and multi-destination routing.

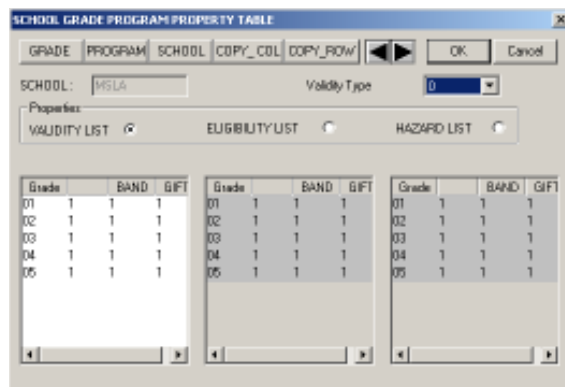
PROGRAMS

You can use programs when you need to separate the needs of one student from the needs of others. You can give a student at a particular school different bell times than other students at that school.

Creating a Program

To create programs for a school, you must have that school record open in the Schools Tabular window.

- 1 Choose **Grade/Prog.**



The system displays the School Grade Program Property Table.

- 2 Choose **Program.**



The system displays the Program Selection dialog box.

- 3 Enter the **<program name>** in the New field.
- 4 Choose **Add**.

NOTES



The system adds the program to the Programs list and the Programs Selected list.

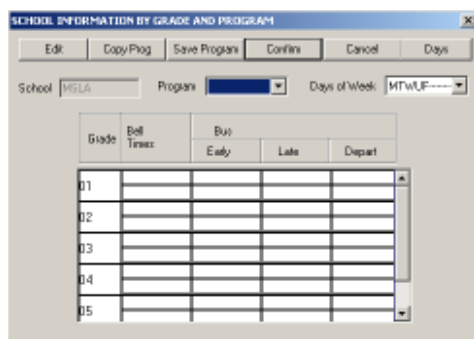
- 5** Choose **OK**.

The system closes the Program Selection dialog box. You return to the School Grade Property Table.

- 6** Choose **OK**.

The system closes the School Grade Property Table. You return to the Schools Tabular window.

- 7** Choose **Bell Times**.



The system displays the Bell Times dialog box.

- 8** Select the **<program>** for which you want to add bell times from the Program drop-down box.
- 9** Create the **bell times** for the program like you would for the school.

Note:

See "Bell Times" on page 60 for information on bell times.

- 10** Choose **Confirm**.

The system saves the bell times for the program and closes the Bell Times dialog box. You return to the Schools Tabular window.

TRIPS

NOTES

edulog allows you to customize pupil transportation according to the various schedules you encounter. Trips and requests are central to this flexibility. A trip indicates a portion of a student's daily transportation requirements for the day (from home to school in the morning, for example). Each trip consists of an origin and a destination.

When you create a student record, edulog automatically creates regular trips for the student according to the bell times for his or her school, grade, and program. Students usually require at least two trips: one trip taking them from home to school in the morning and another taking them back home at the end of the day. You can, however, create additional trips to meet the needs of students in your district. You can then assign the trips to stops, assign the stops to runs, and assign the runs to routes to meet the student's transportation requirements.

In addition to its origin and destination, the frequency and destination time also define a trip. The destination time coordinates the trip with its assigned stop and run. You need to assign trips to stops and runs with compatible destination times. A trip's frequency indicates which days of the week the trip needs to be serviced (typically Monday through Friday).

With edulog, you can customize trips to meet the precise transportation schedules of students in your district. Suppose you have a student who needs transportation home from school on Tuesday through Thursday, but to a relative's residence on Monday and Friday. With edulog, you can have two afternoon trips: one to the student's home on Tuesday through Thursday and one to the relative's house on Mondays and Fridays.

Some instances where you might edit a student's trips are as follows:

- The student needs to be transported from somewhere other than her home.
- The student needs to be transported on different days of the week.
- The student needs to be transported to somewhere other than her home school (requires a new trip).

Creating a Student Trip

To create a trip for a student, you must have that student record open in the Students Tabular window (see "Viewing Students in Tabular Mode" on page 77 for more information).

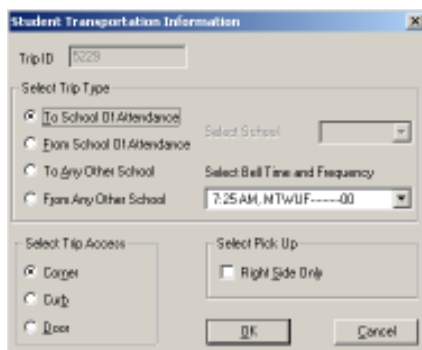
- 1** Choose **Trips**.

NOTES



The system displays the Student Display dialog box.

- 2 Choose **Create**.



The system displays the Student Transportation Information dialog box.

- 3 Select the **<trip type>** option.

In the Select Trip Type portion of the dialog box, choose one of the following options:

- **To School of Attendance** – Creates a trip to the student's regular school of attendance.
 - **From School of Attendance** – Creates a trip from the student's school of attendance.
 - **To Any Other School** – Creates a trip to a school other than the student's school of attendance.
 - **From Any Other School** – Creates a trip from a school other than the student's school of attendance.
- 4 If you selected **To Any Other School** or **From Any Other School** in Step 3, select the **<school>** from the Select School drop-down box.
 - 5 Select the **<bell time and frequency>** from the Select Bell Time and Frequency drop-down box.
 - 6 Select the **<trip access>** option from the Select Trip Access option buttons.
 - 7 Select the **Right Side Only** check box only if the bus needs to approach the pickup location so it is on the same side of the street as the student.

8 Choose **OK**.

The system closes the Student Transportation Information dialog box and displays the Create Trip Data Entry Form.

9 To change the frequency of the trip, **click** the Frequency field.

10 Choose the **trip location** in one of the following ways:

- Select one of the student's existing common destinations (using the **CmnDst** button).
- Create a common destination and select it.
- Enter a landmark in the Location field.
- Enter a street address in the Location field.

After you complete the Location field, edulog lists the two node numbers that define the street segment on which the student resides.

11 Enter any **special information** you want to include in the trip record in the Instructions field.

12 Choose **Confirm**.

The system prompts you to confirm the record.

13 Choose **OK**.

The system closes the message box. You return to the Student Display dialog box, which displays the trip you created.

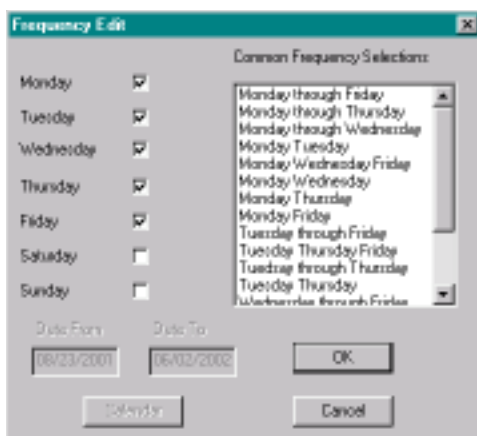
14 **Close** the Student Display dialog box.

NOTES

FREQUENCY - STUDENT LEVEL

Frequency refers to the capability of the system to customize transportation schedules according to the needs of students in your district. For example, if you have a student who requires transportation home from school at the end of the day on Mondays, Wednesdays and Fridays but from school to a grandparent's house on Tuesdays and Thursdays, you can request two trips: one taking the student home on Mondays, Wednesdays and Fridays and one to the grandparent's house on Tuesdays and Thursdays.

You can also customize the frequencies of stops, runs, and routes to meet the frequency of the trips they service. The frequency of a trip indicates which days of the week the student needs transportation from the origin to the destination, as well as the dates during which this frequency is in effect. When you click a Frequency field, the Frequency Edit dialog box appears. You can select from the days of the week by clicking the individual check boxes on the left or you can select one of the Common Frequency Selections from the list on the right.



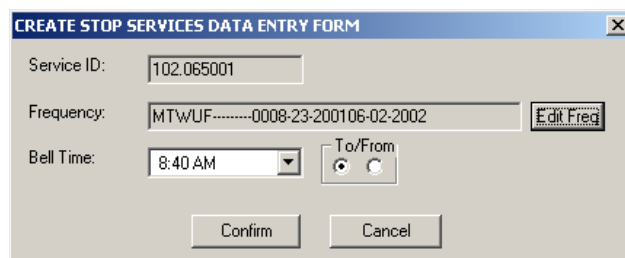
The Frequency Edit dialog box has a title bar "Frequency Edit". On the left, there are checkboxes for each day of the week: Monday (checked), Tuesday (checked), Wednesday (checked), Thursday (checked), Friday (checked), Saturday (unchecked), and Sunday (unchecked). On the right, under "Common Frequency Selections:", there is a list box containing several options: Monday through Friday, Monday through Thursday, Monday through Wednesday, Monday Tuesday, Monday/Wednesday/Friday, Monday/Wednesday, Monday/Thursday, Monday/Friday, Tuesday through Friday, Tuesday/Thursday/Friday, Tuesday through Thursday, Tuesday/Thursday, and Wednesday through Friday. At the bottom, there are fields for "Date From" (06/23/2001) and "Date To" (06/02/2002), along with "OK", "Cancel", and "Calendar" buttons.

Choose **OK** when you have finished editing the frequency.

STOP FREQUENCY

You edit the stop frequency in the Stops Tabular window. You must have a stop open in the Stops Tabular window.

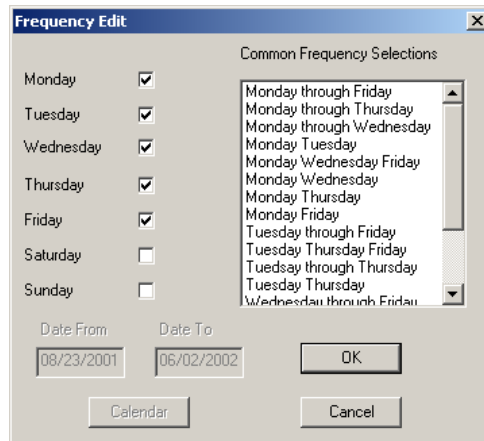
- 1 Select the **stop service** for which you want to edit the frequency.
- 2 Choose **Add** or **Edit**.



The CREATE STOP SERVICES DATA ENTRY FORM has a title bar "CREATE STOP SERVICES DATA ENTRY FORM". It contains the following fields: "Service ID:" with the value "102.065001"; "Frequency:" with the value "MTWU-----0008-23-200106-02-2002" and an "Edit Freq" button; and "Bell Time:" with a dropdown menu showing "8:40 AM". To the right of the Bell Time field is a "To/From" section with two radio buttons, the first of which is selected. At the bottom are "Confirm" and "Cancel" buttons.

The system displays the Create Stop Services Data Entry From.

- 3** Choose **Edit Freq** then into the Edit Frequency button.



The system displays the Create Stop Services Data Entry From.

edulog has a default frequency, which may be useful if your district does not need to modify the frequency of trips, stops, runs, or routes. You can use this feature to turn-on or turn-off the frequency feature throughout the transportation system. If you turn-off the frequency, the system automatically uses the default frequency (typically Monday through Friday), protects frequency from modification, and hides it in a number of places throughout the system. Frequency, however, still appears in a few places, such as the stop services lists, the school editing dialog boxes, and the Copy and Reverse Run windows. You control this feature with a setting in ElSettingsEditor. Please contact edulog's Software Support Department for further information.

ROUTE FREQUENCY

Edulog allows you to have runs with multiple day frequency on the same route. In earlier versions of the system, you could only have runs on routes with the same or greater frequency than the route. Now, you can have runs on routes with less frequency as well.

This feature changes how a route is viewed in the Routes Tabular window. The Routes Tabular window displays the route based on its day pattern of the individual runs on the route. The following image shows a route called, "TEST," with a frequency variation:

NOTES

Workspace.wsp: Route Transportation

Confirm Previous Next Penage Vehicle Delete Cancel

Route ID: TEST Frequency: MTWTF--0009-23-200106-02-2002 Tag:

Max Load: 80 Description: JOHN DOE Driver:

Cover: All Bus Number: 10-10 Vehicle #: Attendant:

Created: 02-24-2006 End Date: Modified: 02-24-2006 Bus Config:

Notes:

Schools:

Section	RunID	Run Description	Start	End	Desch...	Idle Time (min)	Time
AM	100 001	TO LINCOLN ELEMENTARY	8:58 AM	9:13 AM	0	0	9:13
AM	100 001	TO LINCOLN ELEMENTARY	8:58 AM	9:13 AM	0	0	9:13

This image shows two run records with the same Run ID. These two records with the same Run ID indicate that the run has two different day patterns. The following image shows the run for the route.

Workspace.wsp: Run Transportation

Confirm Previous Next Penage Print Delete Cancel

RunID: 100 001 Route: TEST Description: BUS: 0 Stock: AM

Description: TO LINCOLN ELEMENTARY TEST 0 AM

Frequency: MTWTF--0009-23-200106-02-2002

To/From: 1 Dest time: 9:15 AM Begin Time: 9:04 AM End Time: 9:13 AM

Max Load: 80 Cover: All Run Length (min): 9

End Date:

Load Times	Register	Resequence	Passenger	Run Dir	New Stop	Columns
S. Stop ID	Time	Stop Desc	Frequency	Stop Ld	Avg Run Ld	
1 100 000001	9:04 AM	1888 WALNUT ST	MTWTF--	0	0	
2 100 001001	9:05 AM	WALNUT ST & SPRING ST W	MTWTF--	0	0	
3 100 000001	9:09 AM	1842 MOORE ST	MTWTF--	0	0	
4 100 000001	9:13 AM	SCHOOL: LINCOLN ELEMENTARY	MTWTF--	0	0	

The Cover field indicates **ALL**. The following image shows the **M** (Monday) cover.

Workspace.wsp: Run Transportation

Confirm Previous Next Penage Print Delete Cancel

RunID: 100 001 Route: TEST Description: BUS: 0 Stock: AM

Description: TO LINCOLN ELEMENTARY TEST 0 AM

Frequency: MTWTF--0009-23-200106-02-2002

To/From: 1 Dest time: 9:15 AM

Max Load: 80 Cover: M Run Length (min): 9

End Date:

Load Times	Register	Resequence	Passenger	Run Dir	New Stop	Columns
S. Stop ID	Time	Stop Desc	Frequency	Stop Ld	Avg Run Ld	
1 100 000001	9:58 AM	1888 WALNUT ST	MTWTF--	0	0	
2 100 001001	9:00 AM	WALNUT ST & SPRING ST W	MTWTF--	0	0	
3 100 000001	9:07 AM	1842 MOORE ST	MTWTF--	0	0	
4 100 000001	9:13 AM	SCHOOL: LINCOLN ELEMENTARY	MTWTF--	0	0	

The following image shows the **TWUF** (Tuesday through Friday) cover.

NOTES

The screenshot shows the 'Workspace.wsp: Bus Transportation' window. It contains several tabs: 'Config', 'Previous', 'Next', 'Remove', 'Print', 'Delete', and 'Cancel'. The 'Config' tab is active, displaying the following information:

- Run ID: 100.001
- Description: TO LINCOLN ELEMENTARY
- Frequency: MTWUF-----0008-23-200106-02-2002
- To/From: 1
- Dest time: 9:15 AM
- Max Load: 80
- Cover: **TwuF** (highlighted)
- End Date: (empty)

Below the configuration fields is a table with columns: 'Route', 'Description', 'BUS', 'Stock', and 'Sect.'. It contains two rows of data:

Route	Description	BUS	Stock	Sect.
TEST		0	AM	
TEST		0	AM	

At the bottom of the window is a table with columns: 'S. Stop ID', 'Time', 'Stop Desc', 'Frequency', 'Sto Ld', and 'Avg Run Ld'. It contains three rows of data:

S. Stop ID	Time	Stop Desc	Frequency	Sto Ld	Avg Run Ld
1 100.080001	8:59 AM	1888 WALNUT ST	MTWUF---	0	0
2 100.081001	9:01 AM	WALNUT ST & SPRING ST W	MTWUF---	0	0
3 100.080001	9:13 AM	SCHOOL- LINCOLN ELEMENTARY	MTWUF---	0	0

Routes can also have a combination of different runs with multiple frequencies. For example, a route may have two runs in the morning, one run that does the same day pattern Monday through Friday, and a run that has a multiple day pattern. See the following image:

The screenshot shows the 'Workspace.wsp: Route Transportation' window. It contains several tabs: 'Config', 'Previous', 'Next', 'Remove', 'Vehicle', 'Delete', and 'Cancel'. The 'Config' tab is active, displaying the following information:

- Route ID: TEST
- Frequency: MTWUF-----0008-23-200106-02-2002
- Max Load: 80
- Description: (empty)
- Cover: 48
- Bus Number: (empty)
- Vehicle #: (empty)
- Created: 02-24-2005
- End Date: (empty)
- Modified: 02-29-2005
- Bus Config: (empty)
- Notes: (empty)
- Schools: (empty)

Below the configuration fields is a table with columns: 'Section', 'RunID', 'Run Description', 'Start', 'End', 'DeadH...', 'Idle Time (min)', and 'Time'. It contains four rows of data:

Section	RunID	Run Description	Start	End	DeadH...	Idle Time (min)	Time
AM	102.001	TO GRANT ELEM	8:01 AM	8:48 AM	0	0	8:38
AM	100.001	TO LINCOLN ELEMENTARY	8:59 AM	9:13 AM	9	1	9:13
AM	102.001	TO GRANT ELEM	9:01 AM	8:48 AM	0	0	8:38
AM	100.001	TO LINCOLN ELEMENTARY	9:09 AM	9:13 AM	9	2	9:13

Notice what the record for Run 102.001 looks like for the M – F run that had no covers.

NOTES

RunID: 102-001
 Description: TO GRANT ELEM
 Frequency: MTWUJ-----0008-23-200106-02-2002
 To/From: 1 Dest time: 8:40 AM
 MaxLoad: 60 Cover: -TWUJ-----
 End of: N-----
 -TWUJF-----

Route	Description	BUS	Stock	Seal
TEST		0	AM	
TEST		0	AM	

Stop ID	Time	Stop Desc	Frequency	Stp.Ld	Avg Run.Ld
1	8:01 AM	BUSYARD	MTWUJF...	0	0
2	8:18 AM	1291 45 1/2 AVE NE	MTWUJF...	1	1
3	8:19 AM	46TH AVE NE & JOHNSON ST NE	MTWUJF...	1	2
4	8:20 AM	44TH AVE NE & RESERVOIR BLVD NE	MTWUJF...	3	5
5	8:20 AM	42ND AVE NE & RESERVOIR BLVD NE	MTWUJF...	2	7
6	8:21 AM	41ST AVE NE & TYLER ST NE	MTWUJF...	5	12

It now breaks up the run into two different day patterns, even though it is the same order Monday through Friday. This happens because of route frequency. When a run with a frequency gets associated to a route, it will affect a run that doesn't have frequency as well. Remember that a route is what a bus does for an entire day. Now, with route frequency, the Routes Tabular window shows each day pattern of every run.

WORKING WITH STUDENTS AND TRIPS

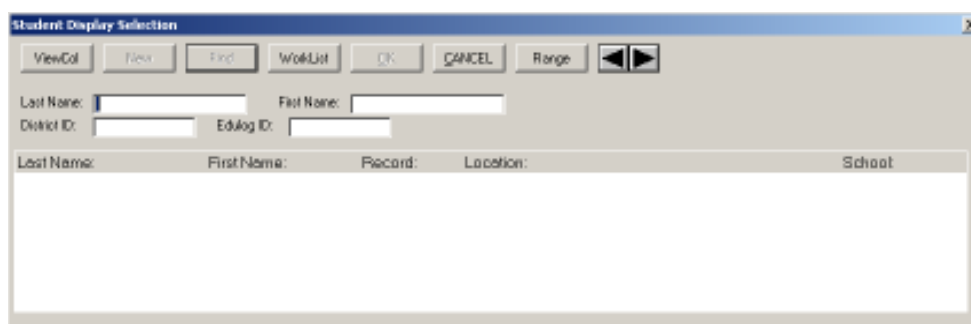
In edulog, you can work with student data in two ways: on the map or in tabular mode. When you work with student records on the map, you work with them in a graphical manner. When you work with student records in tabular mode, you work with them in a text-based manner.

VIEWING STUDENTS ON THE MAP

This section explains the Student Display Keyfinder, how to find student records, and how to load student records on the map.

Using the Student Display Keyfinder

Before viewing student records on the map, you must find those student records. You find student records through the Student Display Keyfinder. To open the Student Display Keyfinder, choose **Display** from the Students menu.



The system displays the Student Display Keyfinder (also called the Student Display Selection dialog box).

You can search for student records in different ways using the Student Display Keyfinder:

- By a partial or full match of data entered in the search fields.
- By using the Range button.
- By loading students listed in a student worklist.

Finding Students by a Partial or Full Match

To find student records based on a partial match, you enter partial information in the search fields. If you wanted, for example, to find all student records with a last name beginning with “A,” you would enter **A** in the Last Name field and choose **Find**.

To find student records based on a full match, you enter full information in the search fields. If you wanted, for example, to find student with the name of Krista Bailey, you would enter **Bailey** in the Last Name field, **Krista** in the First Name field, and choose **Find**.

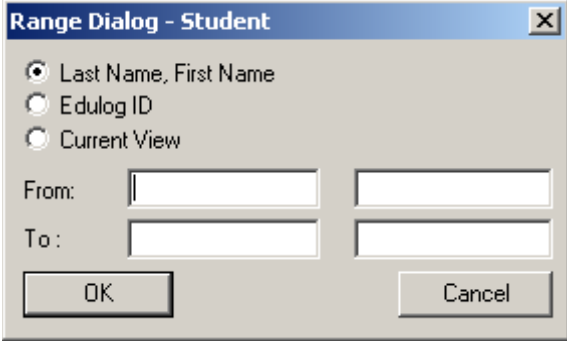
NOTES

Finding Students with the Range Button

The Range function on the Student Display Keyfinder allows you to search for a range of student records. You can search for a range of student records based on last name and first name or edulog ID.

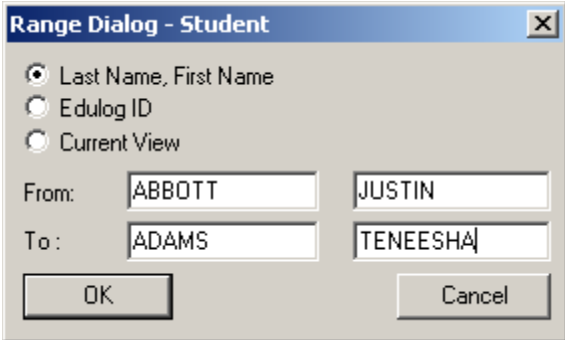
In the following example, you will find a range of student records based on last name and first name. To find a range of student records to load on the map:

- 1 Choose **Range** on the Student Display Keyfinder.

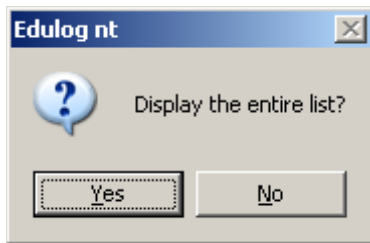
A screenshot of the 'Range Dialog - Student' window. It has a title bar with a close button. Inside, there are three radio buttons: 'Last Name, First Name' (selected), 'Edulog ID', and 'Current View'. Below these are two rows of text input fields. The first row is labeled 'From:' and the second row is labeled 'To:'. At the bottom are 'OK' and 'Cancel' buttons.

The system displays the Range Dialog - Student window.

- 2 Select the **Last Name, First Name** option button.
- 3 Enter the **<starting last name>** for the range in the first From: field.
- 4 Enter the **<starting first name>** for the range in the second From: field.
- 5 Enter the **<ending last name>** for the range in the first To: field.
- 6 Enter the **<ending first name>** for the range in the second To: field.

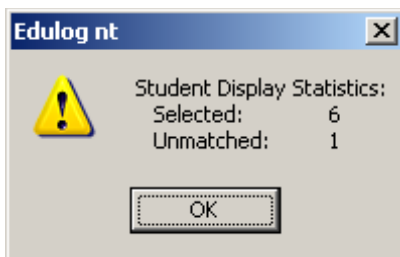
A screenshot of the 'Range Dialog - Student' window, similar to the previous one but with data entered. The 'Last Name, First Name' radio button is selected. The 'From:' row has 'ABBOTT' in the first field and 'JUSTIN' in the second. The 'To:' row has 'ADAMS' in the first field and 'TENEESHA' in the second. 'OK' and 'Cancel' buttons are at the bottom.

- 7 Choose **OK**.



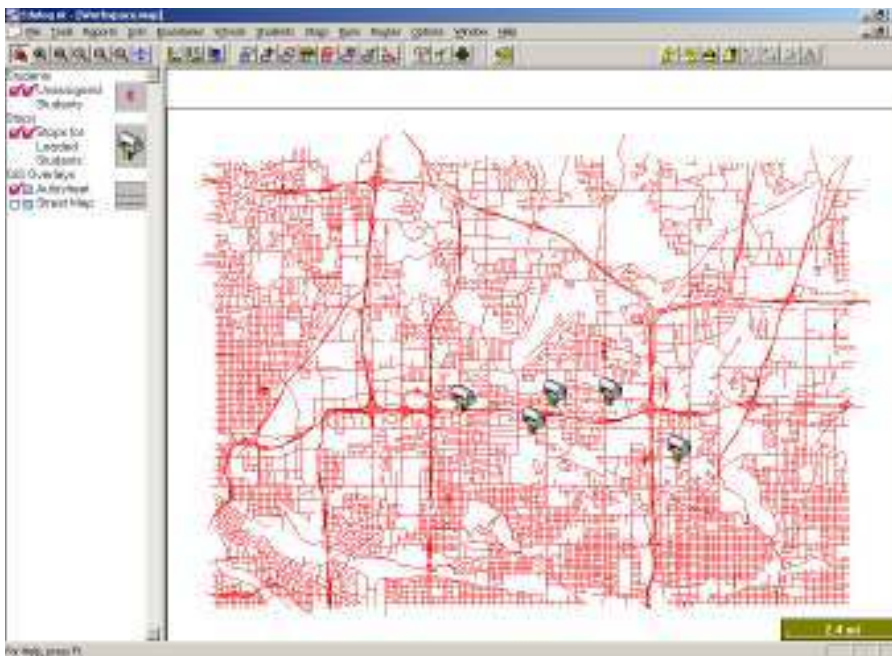
The system searches for student records in the range you entered. If it finds matches, the system prompts you to display the entire list.

- 8** Choose **Yes**.



The system closes the message box, loads the student records on the map, and displays a message box with statistical information about the student records you loaded.

- 9** Choose **OK**.



The system closes the message box. You return to the edulog Workspace, which displays the student records on the map.

NOTES

Loading Students Listed in a Student Worklist

For detailed information about creating student worklists, see “Creating a Worklist” on page 63. In addition, see “Loading a Worklist on the Map” on page 70 for detailed information about loading a worklist as a display layer on the map.

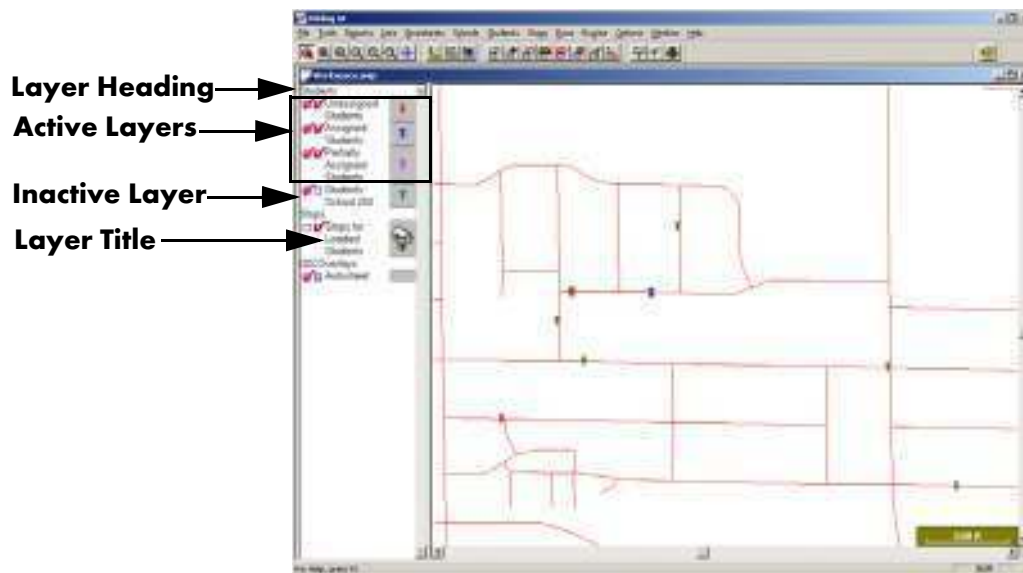
Viewing Students on the Map

When you display student records on the map, edulog displays those student records in an active layer. The system displays information on the map either as an active layer or an inactive layer.

Active Layer An active layer is a display layer that allows you to manipulate the data graphically. You know that a layer is active if it has two check boxes checked next to the layer name in the map legend. Any active layers will be deactivated when you open any of the tabular windows.

Inactive Layer An inactive layer is a display layer that does not allow you to modify the data graphically. An inactive layer is for viewing purposes only. Only the first check box is checked for an inactive layer in the legend. Clicking the second check box will reload the layer as an active layer.

The following image shows four student layers in the legend. The first three layers are active layers; the fourth layer is inactive.



The active layers are split into three categories: students who are assigned to stops, students who are unassigned to stops, and students who are partially assigned to stops (for either the morning or the afternoon, but not both). You could change the inactive Students layer to an active layer by clicking the empty check box next to the layer title.

Clicking on the title of the layer tells you the number of records in the layer. You can change the icons used to display the records by clicking the icon next to the layer in the legend.

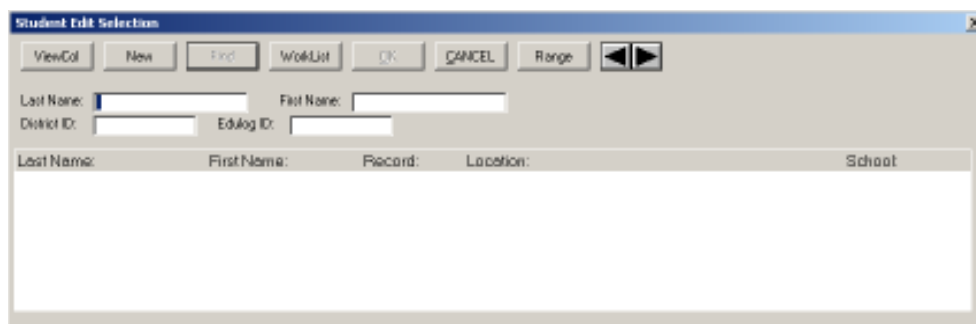
You can also delete a layer by clicking on its title and choosing Delete. Remember, deleting the layer will not delete the actual data. Deleting the layer only removes it from the workspace. If you click on the layer heading above a group of layers (such as Students in the illustration), you can remove all of the layers under that heading.

VIEWING STUDENTS IN TABULAR MODE

This section explains the Student Edit Keyfinder, how to find student records, and how to load student records in the Students Tabular window.

Using the Student Edit Keyfinder

Before viewing student records in the Students Tabular window, you must find those student records. You find student records through the Student Edit Keyfinder. To open the Student Edit Keyfinder, choose **Tabular** from the Students menu.



The system displays the Student Edit Keyfinder (also called the Student Edit Selection dialog box).

You can search for student records in different ways using the Student Edit Keyfinder:

- By a partial or full match of data entered in the search fields.
- By using the Range button.
- By loading students listed in a student worklist.

Finding Students by a Partial or Full Match

To find student records based on a partial match, you enter partial information in the search fields. If you wanted, for example, to find all student records with a last name beginning with “A,” you would enter **A** in the Last Name field and choose Find.

To find student records based on a full match, you enter full information in the search fields. If you wanted, for example, to find student with the name of Krista Bailey, you would enter **Bailey** in the Last Name field, **Krista** in the First Name field, and choose **Find**.

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Finding Students with the Range Button

The Range function on the Student Display Keyfinder allows you to search for a range of student records. You can search for a range of student records based on last name and first name or edulog ID.

This feature works the same as the Range feature on the Students Display Keyfinder (see “Finding Students with the Range Button” on page 292 for more information) with one exception—you view student records individually in the Students Tabular window rather than as a group displayed on the map.

Loading Students Listed in a Student Worklist

For detailed information about creating students worklists, see “Creating a Worklist” on page 63. In addition, see “Loading a Worklist into a Keyfinder” on page 68 for detailed information about loading a worklist into a keyfinder.

MAINTENANCE ASSOCIATED WITH STUDENT DATA

The following utilities are related to student data. For further information, see “Utilities in Emu” on page 759.

- **ADDUPD** - Use this utility to correct street names in student Location fields. This utility does not affect the geocode. It only corrects information entered in the location field of student records.
- **ADSCAN** - Use this utility to match student locations to the geocode. In some cases, such as when a street name changes, students addresses may no longer correspond to any locations in the geocode. You can use this utility to match students, as well as to produce a listing of any students who are currently unmatched. Typically, you will want to run this program after downloading students from a master database.
- **BADSTU** - Use this utility to find students who were matched to the geocode at one time, but whose address-matching information is now incorrect due to changes made to the geocode or inaccurate information entered during a student download. This process also checks for students with invalid school/grade/program combinations.
- **BTHELG** - This utility calculates eligibility codes based on posted boundaries for schools and student locations in the geocode. Students need to be matched to the geocode for this utility to calculate their eligibility codes. You should run this utility after performing a student download or if you see incorrect numbers in student Eligibility Code fields.
- **FLAGSET** - Use this utility to set flags for student records. When you set or reset a flag for a student, it's like turning a switch on or off. For example, if you set the Deletion flag for certain students, the next time you purge deleted records, the system will remove those flagged student records.

Before you run this utility, you need to create a student worklist that contains the student records you want to flag.

- **STUDENTPURGE** - Use this utility to purge deleted or flagged student records from the transportation database. When you delete a student record in the system, it is only flagged for deletion and considered inactive. Purging those student records erases them from your dataset (similar to emptying the Recycle Bin in Microsoft Windows). You can also flag student records for deletion using the FLAGSET utility.
- **STUDST** - Use this utility to determine the distances from student locations to their assigned schools. This utility automatically updates the Distance to School fields in student records.
- **REBUILDWALKPATHFILES** - Use this utility after geocode changes to rebuild the files used to determine student walk paths to stops. This utility is part of the normal post-Maris maintenance batch. These files are used when assigning students to stops and when displaying the student walk path to stop.

NOTES

NOTES



SHUTTLES

Shuttles allow students from different schools but in the same geographic area to be transported to a central location for subsequent transport to their school of attendance, without having to create multiple stops servicing different schools at the same location.

CREATING SHUTTLES

In edulog, you need to create a shuttle school through the Schools Tabular window. You create the shuttle school record the same way as a regular school record, except that you must set the Shuttle Flag field to **1**. To easily differentiate between a school code and a shuttle code, use a different naming convention for schools and shuttles. You could, for example, put an **S** at the beginning of a shuttle code. See the following image:

The image shows a screenshot of the 'Workspace.msp: SCHOOLS EDIT FORM' window. The window has a title bar and several tabs at the top: Confirm, Previous, Next, Grade/Prog, Bell Times, Calendar, Relocate, Shift Times, Post Boundaries, DELETE, and CANCEL. The main form area contains the following fields:

- School Code:** S101 (highlighted with a black box and labeled 'Shuttle Code Begins with S')
- School Name:** SHUTTLE - JEFFERSON ELEMENTARY
- Location:** #8185
- Grade List:** (empty)
- Program List:** (empty)
- Max Ride Time (min):** 180
- District:** (empty)
- County:** (empty)
- Educ Type:** (empty)
- School Level:** (empty)
- School Type:** (empty)
- Shuttle Flag:** 1 (highlighted with a black box and labeled 'Shuttle Flag = 1')

Once you have created the shuttle school, you need to add grades to it the same way as you would add grades to a school (see “Adding Grades to a School” on page 52 for more information).

You only need to add grades to the shuttle school for the grades that will be transported to the shuttle location. You may not, for example, want KA or KP students transported using a shuttle; therefore, you would not add these grades to the shuttle school.

A shuttle only has a default program. Shuttle schools, therefore, do not need programs because the system automatically creates the default program when you create the shuttle school.

After you have added grades to the shuttle school, you need to add bell times for all of the shuttle services (see “Bell Times” on page 60 for more information). This step is the primary difference between shuttles and schools because shuttles will only have one to-school and one from-school bell time. The to-school bell time for the shuttle should be earlier than the time the buses depart to deliver students on time to their schools of attendance. The from-school bell time needs to be after the time the buses leave the schools of attendance to transport students to the shuttle. If you need

NOTES

more than one to-school and from-school bell time, you need to create additional shuttle schools at the same location.

Once you have created the shuttle school and entered the bell times, you can assign students to the shuttle school. Each student has the option to have two different shuttle schools—one in the AM and one in the PM.

To assign a student to a shuttle:

- 1 Open the **<student record>** in the Students Tabular window.

Shuttle Fields

The screenshot shows the 'Student data entry form' with the following details:

- Student Information:** Last Name: ABER, First Name: BRONSON, School: 103, District ID: 000062336800, Grade: 04, Edlog ID: 227.
- Location:** 2611 GRIGGS ST N.
- Shuttle Fields:** AM Shuttle: S101, PM Shuttle: S102.
- Trips Table:**

Trips	From Location	Stop Description	Run Cover	Time/Stop	Stop Dist	File	Bus #
1	Home	2762 GRIGGS ST N	NTWUF..	9:02 AM	13		
2	SCHOOL - 103	2762 GRIGGS ST N	NTWUF..	3:38 PM	13		

- 2 Select the **<shuttle code>** from the AM Shuttle drop-down box.
- 3 Select the **<shuttle code>** from the PM Shuttle drop-down box.
- 4 Choose **Confirm**.

Once the student record is confirmed with the shuttles, the trips are updated with the shuttle locations. The system creates the shuttle trips as trip types 3 and 4. For example, if a student's transportation school is 103 and has an AM shuttle of S101 then the following trips will be created:

- Trip type 3 will be created from home to S101 shuttle.
- Trip type 1 will be created from S101 shuttle location to school 103.
- Trip type 2 will be created from school 103 to home.

The following image shows these trips:

NOTES

Student data entry form

Last Name: ABER School: 103 District ID: 000062336800 Ely: 13 U: 13
 First Name: BRONSON Grade: 04 Edilog ID: 227 Goto:
 Date of Birth: Program: Sch. Distance: 1.78 mi Copy Fields

Location: 2811 GRIGGS ST. N Home Stop:
 Bus Addr: 2811 GRIGGS ST. N Copy Special Needs:
 AM Transportation Location: AM Shuttle: S101
 PM Transportation Location: PM Shuttle:
 Other Fields: All Endy: Trips: Picture: Print: School Path: Parent Info:
 Confirm: Cancel: Delete: Previous: Next: Walk Path: Discipline:

P/U Location	D/T Location	Stop Description	Run Cover	Time/25 Stop	Stop Dist (108)
1 #8185	-> SCHOOL - 103				
2 -> SCHOOL - 103	-> Home				
3 -> HOME	#8185				

Apt R: Sec:
 Ethnic: R City: MISSOULA
 State: MT Zip: 59801
 Phone: 745-7448 Elem Bound:
 Mid Bound: High Bound:
 Date modified: 03-24-2005 Date created: 03-24-2005

You create shuttle stops and runs the same way as you create them for regular schools, see “Creating Stops” on page 108 and “Creating Runs” on page 125 for more information.

NOTES

HAZARD ZONES

Hazard Zones provide a method of tracking locations that may be hazardous to students. They also provide the ability to warn to the user when creating or relocating a stop near the hazard zone. Examples of a hazard zone are a drug house, a refinery, or a sexual predator's home. Hazard zones may be created, edited, or deleted from within edulog or uploaded into edulog using the UPSTOP utility.

Hazard Zones are a purchased module in edulog, which requires activation and setup by edulog Software Support.

CREATING A HAZARD ZONE

To create a hazard zone in edulog:

- 1 Select **Edit Hazard Zones** from the Tools menu.



The system displays the Hazard Zones dialog box.

- 2 Enter a location for the hazard zone.

You can enter a location two ways:

- By picking the location on the map display with the Graphic Selection tool.
- By entering an address and using the Address Match function.

Note:

You can only have one hazard zone record for a location. If more than one hazard exists at the same location, use the Description or Notes fields to elaborate on the hazards that exist.

- 3 Enter a **description** for the hazard zone in the Hazard Description field.
- 4 Enter the **hazard distance** in the Hazard Distance field.

NOTES

Note:

The system fills the Hazard Distance field with the value from ElSettingsEditor. The hazard distance value in ElSettingsEditor can be modified for your needs.

5 Enter any **notes** about the hazard zone in the Notes field.

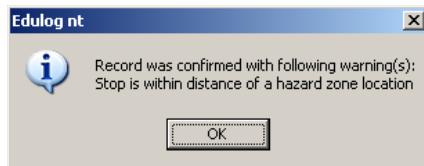
6 Choose **Create**.

The system creates the hazard zone and assigns the Hazard ID to the record.

7 Choose **Close**.

The system closes the Hazard Zones dialog box.

If you try to create or relocate a stop within the specified distance of the hazard you created, the system displays the following message box.:



You can disable this warning in ElSettingsEditor. If you disable this warning, the system allows you to create stops without warnings and generate a report of those stops that are within a hazard zone.

You can also use the HazardZoneReport.exe utility to generate a report of stops that already exist within hazard zone areas.

MULTIPLE SPEEDS AND MAP TYPES

Multiple Speeds and Map Types is a new feature in edulog. Multiple Speeds allow you to simulate rush hour travel scenarios, where travel speeds do not follow posted speed limits. Map Types allow you to designate segments on the geocode on which long buses should not travel.

This feature requires an additional purchase and must be configured to run in edulog. It is only available in edulog version 10.53x or later.

TERMINOLOGY

This feature introduces some new terminology. Those terms are:

Speed Set - A speed set is a data element that can be either a speed window or a map type; it cannot be both.

You can have six speed sets (one default set that is uneditable and five user-defined sets). The system uses the default speed set for all runs that involve scenarios outside of the user-defined speed sets (that is, outside of the user-defined speed windows and map types).

Speed Window - A speed window is a time-window that can be assigned to a segment on the geocode. A speed window affects all runs that have anchor schools with a school stop time falling within the speed window. If you have, for example, a speed window from 7 AM to 9 AM, runs with an anchor stop falling between 7 AM and 9 AM that travel on segments configured for this speed window will be affected by the speed designated for the segments during the time-window.

You can use speed windows, for example, to reflect rush hour travel speeds for certain segments on your geocode.

Map Type - A map type is an attribute that can be assigned to a segment as well as an edulog run. This attribute is assigned to each run in edulog through the system field called TYPE in the runs.par file. Each map type has a value assigned to it by the system. The map type value is the number for its corresponding speed set. Speed set 1, for example, has the map type value of 1; speed set 2 has the map type value of 2, and so on. You must provide the meaning for the map type values.

You can use map types, for example, to designate segments on the geocode on which long buses should not travel.

Some of the current edulog terms used in this document are:

Anchor School - For to-school runs, the anchor school is the last school on the run. For from-school runs, the anchor school is the first school on the run.

Anchor Stop - For to-school runs, the anchor stop is the last school stop on the run. For from-school runs, the anchor school is the first school stop on the run.

Run - A sequence of stops made by a bus while transporting students to or from school.

NOTES

CONSIDERATIONS

You need a thorough understanding of geocoding to use this feature.

Once you implement speed windows, you will have to maintain the different speeds on a segment for the speed windows you defined.

SETUP FOR MULTIPLE SPEEDS AND MAP TYPES

Because this feature requires an additional purchase, edulog personnel must setup this feature for you. This feature is only available in edulog version 10.53x or later.

Setting Up Speed Windows

The general steps for setting up speed windows are:

- 1** Define the speed windows you want to implement.
- 2** Create the speed windows as speed sets (see “Setting Up Speed Windows” on page 306).
- 3** Modify the geocode (see “MODIFYING THE GEOCODE” on page 312).
- 4** Run the REBUILDDRIVEPATHFILES utility in EMU.
- 5** Regenerate driver directions.

Setting Up Map Types

You do not need to setup map types because map types and their values are pre-set by the system. The map type value is the number for the corresponding speed set. Speed set 1, for example, has the map type value of 1; speed set 2 has the map type value of 2, and so on. You must provide the meaning for the map type values. You only need to modify segments in the geocode for the speed sets corresponding to the map types (see “MODIFYING THE GEOCODE” on page 312 for more information) and assign the map type value to runs in edulog (see “ASSIGNING MAP TYPES TO RUNS” on page 315 for more information).

Warning:

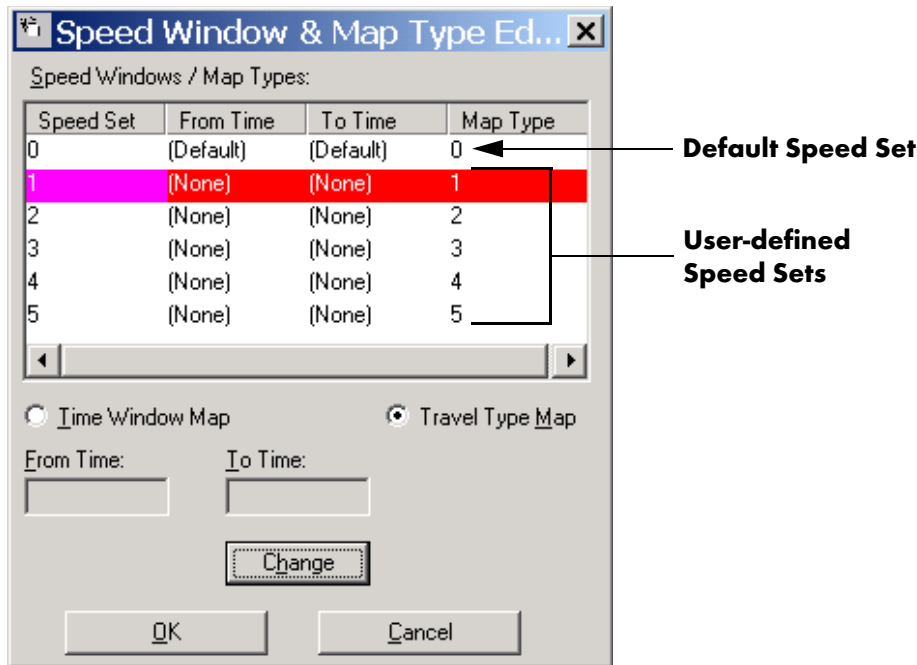
If you are using both speed windows and map types, you cannot use the map type value for the speed sets you use as speed windows. If you are using Speed Sets 1 and 2 as speed windows, for example, you can only use Speed Sets 3 through 5 as map types.

THE SPEED WINDOW & MAP TYPE EDITOR APPLICATION

Speed windows and map types are created as speed sets through the Speed Window & Map Type Editor application. This application also allows you to modify these speed sets. The Speed Window & Map Type Editor application is called SpeedWin-

dowsEdit.exe, which is located in the ELT\exe\emu directory. The information from this application is stored in binary form in a file called SPEEDWINDOWS.DAT.

The following image shows the dialog box for the Speed Window & Map Type Editor.



Speed Set 0 is the default speed set. You cannot modify Speed Set 0. You can only modify Speed Sets 1 through 5.

Creating a Speed Window

To create a Speed Window:

- 1 Open the Speed Window & Map Type Editor application.
- 2 Select **<the speed set>**.
- 3 If it is not already selected, select the **Time Window Map** option button.
- 4 Enter **<start time for the speed window>** in the From Time field.
- 5 Enter **<end time for the speed window>** in the To Time field.
- 6 Choose **Change**.
- 7 Choose **OK**.
- 8 Choose **Yes** on the message box that prompts you to confirm your changes.

After you create speed windows, you must modify segments in the geocode for the speed windows.

Example—Creating Speed Windows

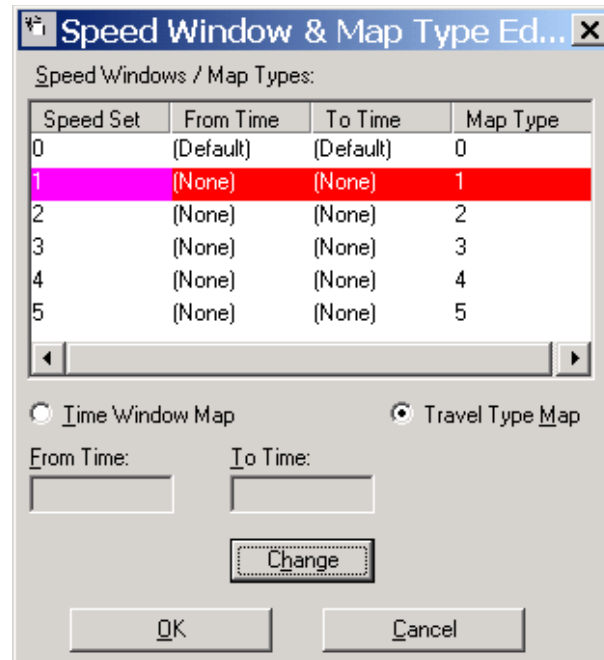
In this example, you will create two speed windows. The speed windows will be created as Speed Sets 1 and 2. Speed Set 1 covers the time-window of 7 AM to 9 AM,

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for a morning rush hour scenario. Speed Set 2 covers the time-window of 4 PM to 6 PM, for an evening rush hour scenario.

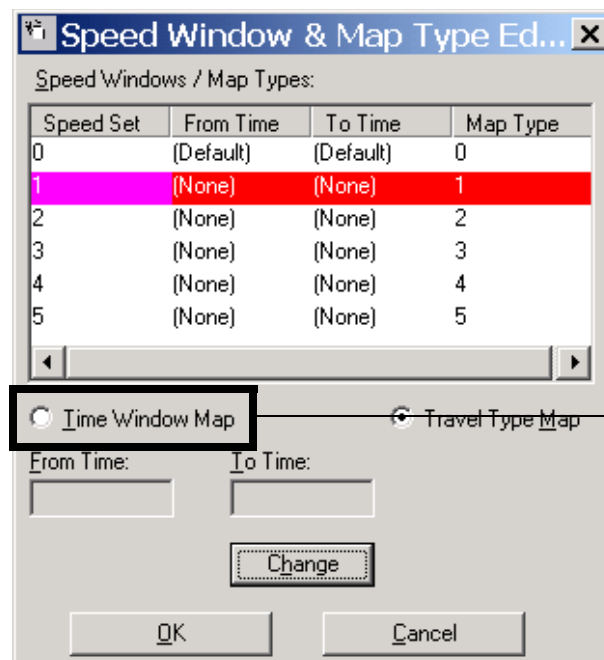
To create these speed sets:

- 1 Open the Speed Window & Map Type Editor application.



The system displays the Speed Window & Map Type Editor dialog box.

- 2 If it is not already selected, select **Speed Set 1**.



**Time Window Map
option button**

The system highlights Speed Set 1 in the list.

- 3 If it is not already selected, select the **Time Window Map** option button.

Speed Windows / Map Types:

Speed Set	From Time	To Time	Map Type
0	(Default)	(Default)	0
1	(None)	(None)	1
2	(None)	(None)	2
3	(None)	(None)	3
4	(None)	(None)	4
5	(None)	(None)	5

☒ Time Window Map ☐ Travel Type Map

From Time: To Time:

Change

OK Cancel

The system enables the From Time and To Time fields.

- 4 Enter **7:00 AM** in the From Time field.
- 5 Enter **9:00 AM** in the To Time field.
- 6 Choose **Change**.

Speed Windows / Map Types:

Speed Set	From Time	To Time	Map Type
0	(Default)	(Default)	0
1	7:00 AM	9:00 AM	1
2	(None)	(None)	2
3	(None)	(None)	3
4	(None)	(None)	4
5	(None)	(None)	5

☒ Time Window Map ☐ Travel Type Map

From Time: To Time:

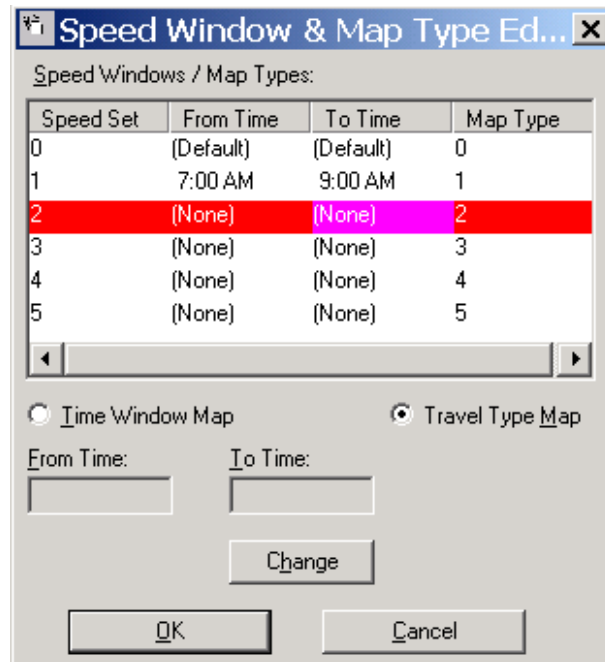
Change

OK Cancel

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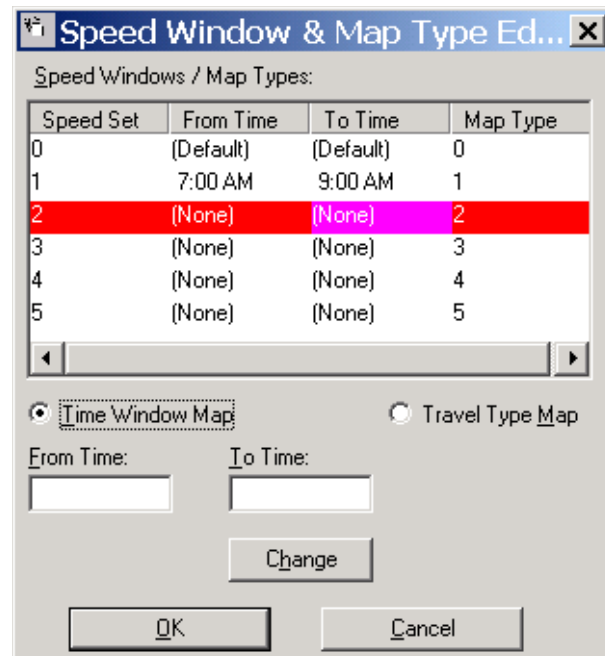
The system creates Speed Set 1 for the specified speed-window and displays the values you entered for this speed set.

7 Select **Speed Set 2**.



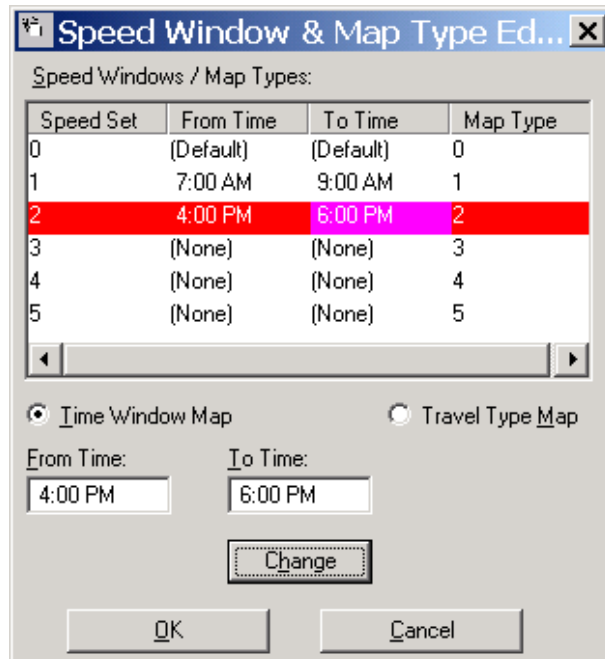
The system highlights Speed Set 2 in the list.

8 If it is not already selected, select the **Time Window Map** option button.



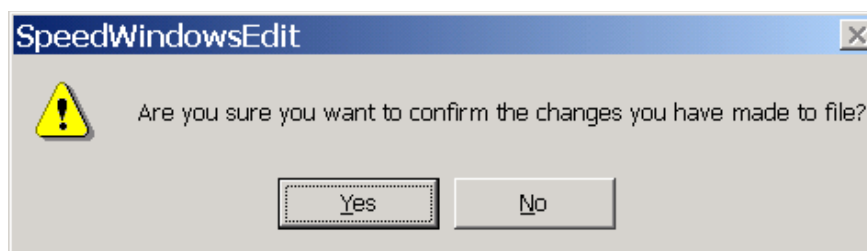
The system enables the From Time and To Time fields.

- 9 Enter **4:00 PM** in the From Time field.
- 10 Enter **6:00 PM** in the To Time field.
- 11 Choose **Change**.



The system creates Speed Set 2 for the specified speed-window and displays the values you entered for this speed set.

- 12 Choose **OK**.



The system displays a message box, prompting you to confirm the changes you made.

- 13 Choose **Yes**.

The system confirms your changes and closes the Speed Window & Map Type Editor application.

Note:

After you create speed windows, you must modify segments in the geocode for the speed sets corresponding to the speed windows.

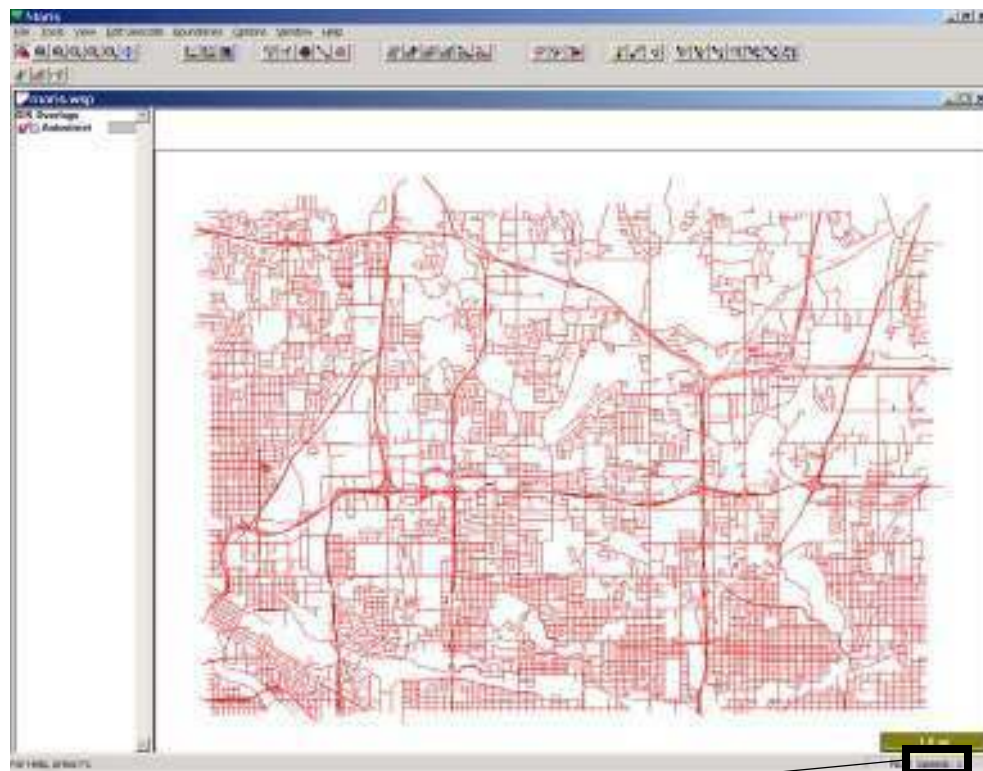
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MODIFYING THE GEOCODE

After you create your speed sets, you must modify segments in the geocode for these speed sets. Use the Maris application for this process.

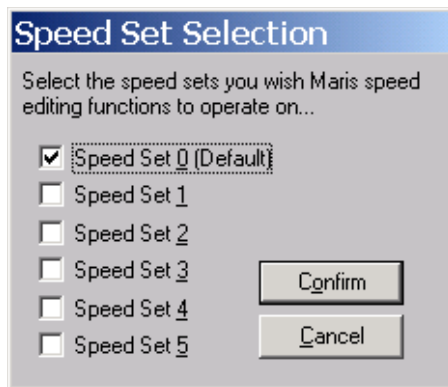
You can only modify the LSpeed and RSpeed segment attributes for speed sets on the Edit Segment dialog box. All other segment attributes are shared by all speed sets.

When you open Maris, the system displays the speed sets that are ready for modification in the lower right corner of the Status Bar.



To modify the geocode for speed sets:

- 1** Open the Maris application.
The system displays the Maris Workspace.
- 2** Choose the **Choose Speed Set** option from the Options menu.

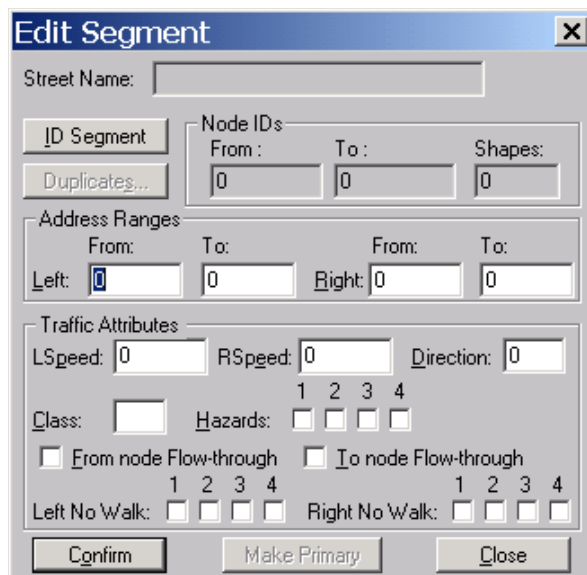


The system displays the Speed Set Selection dialog box.

- 3** Select the **<speed set check box(es)>** for the speed set(s) for which you want to modify segments in the geocode.
- 4** Choose **Confirm**.

The system displays the selected speed sets in the lower right corner of the status bar.

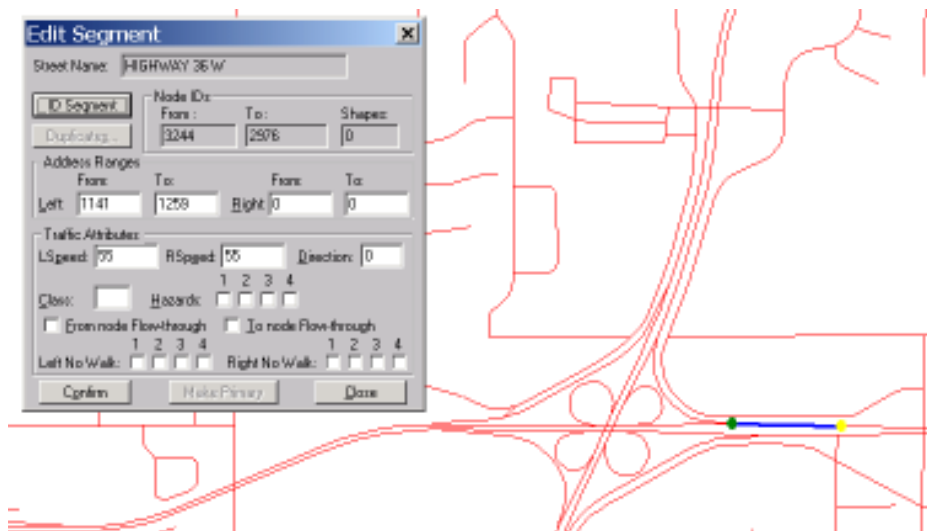
- 5** Choose **Edit** from the Segments sub-menu on the Edit Geocode menu.



The system displays the Edit Segment dialog box.

- 6** Choose the **ID Segment** button.
- 7** Select the **<segment you want to modify>** from the geocode.

NOTES



The system highlights the selected segment and fills the Edit Segment dialog box with the data for the selected segment.

- 8 Enter the **<left-side speed for the speed set(s)>** in the LSpeed field.

Note:

Run directions will use the speed from the default speed set (that is, Speed Set 0) for segments that have a speed of zero in any user-defined speed sets (that is, Speed Sets 1 through 5).

- 9 Enter the **<right-side speed for the speed set(s)>** in the RSpeed field.

Note:

Run directions will use the speed from the default speed set (that is, Speed Set 0) for segments that have a speed of zero in any user-defined speed sets (that is, Speed Sets 1 through 5).

- 10 Choose **Confirm**.



The system makes the changes and displays a message box asking, "Segment changes confirmed. Edit another segment?"

- 11 Choose **Yes** on the message box to modify another segment.

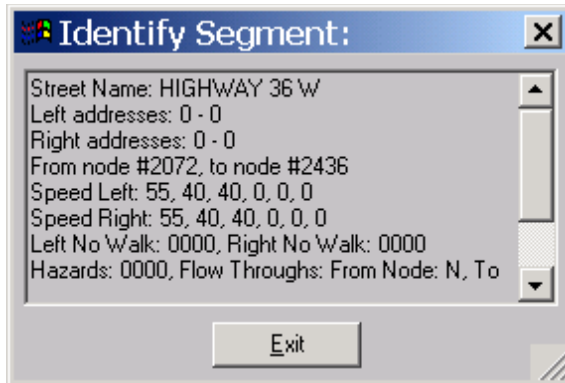
-OR-

Choose **No** when you have finished modifying segments.

- 12 When you have finished modifying segments, close the Maris application.

Viewing Speed Set Information

In Maris, you can view speed set information for segments with the Identify Segment dialog box.

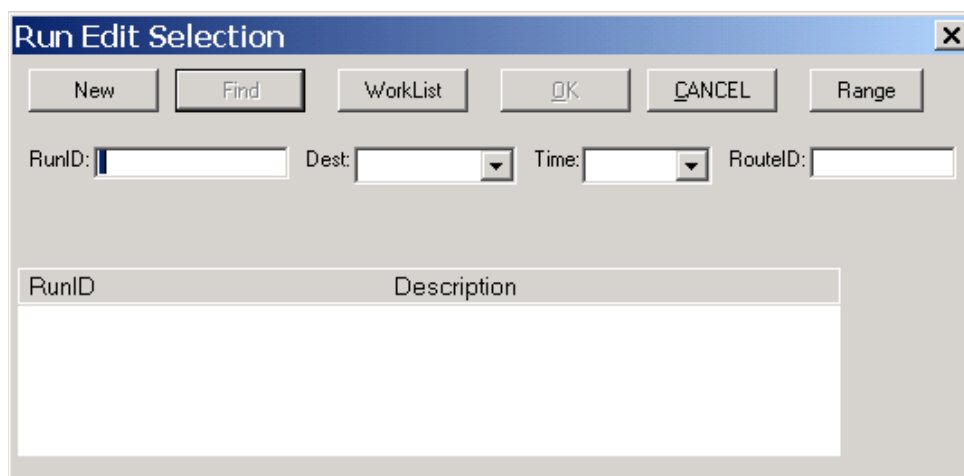


The Identify Segment dialog box displays speed set information in the Speed Left and Speed Right fields. The information is displayed in the order of the speed sets. In the above graphic, the speed set information for the Speed Left field is: 55, 40, 40, 0, 0, 0. The left-side speed for Speed Set 0 is 55. The left-side speed for Speed Sets 1 and 2 is 40.

ASSIGNING MAP TYPES TO RUNS

If you created map types, you need to assign the map type values to runs in edulog. To assign the map type values to runs.

- 1 Open the edulog application.
- 2 Choose **Tabular** from the Runs menu.



The system displays the Run Edit Selection dialog box.

- 3 Enter the **<Run ID>** or a **<partial Run ID>** of the run(s) to which you want to assign the map type.

NOTES

4 Choose **Find**.

Run Edit Selection

New Find WorkList OK CANCEL Range

RunID: 100 Dest: [] Time: [] RouteID: []

RunID	Description
100.001	9:15 AM TO LINCOLN ELEMENTARY SCHOOL
100.002	9:15 AM TO LINCOLN ELEMENTARY SCHOOL
100.003	9:15 AM TO LINCOLN ELEMENTARY SCHOOL
100.004	9:15 AM TO LINCOLN ELEMENTARY SCHOOL
100.005	8:45 AM TO LINCOLN ELEMENTARY

The system displays the matching runs in the Run Edit Selection dialog box. If the system only finds one matching run, it displays it in the Runs Tabular dialog box.

5 Select the **<run>** from the Run Edit Selection dialog box.6 Choose **OK**.

workspace.wsp: Run Transportation

Confirm Previous Next Remove Print Delete Cancel

RunID: 100.001 Route: RTE10... Description: BUS... Slack: 0... Sect.: AM

Description: TO LINCOLN ELEMENTARY SCHOOL

Frequency: MTWTF-- 0006-23-200106-02-2002

To/From: 1 Dest time: 9:15 AM Begin Time: 8:59 AM End Time: 9:13 AM Type: 0

Max Load: 70 Cover: [] Run Length (min): 14 Loaded Miles: []

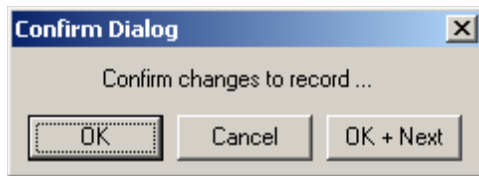
Created: [] End Date: [] Modified: 09-07-2006 User ID: kjerkE

Insert	Checkpoint	Assign	Reassign	Stop Times	Head Count	ID Stop	Refresh	
Load Times	Register	Reassignment	Passengers	Run Dir	New Stop	Columns		
StopID	Time (h:m)	Effective	Stop Desc	Frequency	Stop Ld	Avg Run Ld	LdFm (m:s)	OH ...
100.102002	8:59 AM	MTWTF--	1714 COUNTY RD B W	MTWTF-- 0006-23-200106-02-2002	0	0	0:00	4:30
100.040001	9:03 AM	MTWTF--	FULHAM ST N & SUMMER AV W	MTWTF-- 0006-23-200106-02-2002	2	2	0:00	0:12
100.040001	9:03 AM	MTWTF--	FULHAM ST N & SPRING ST W	MTWTF-- 0006-23-200106-02-2002	0	2	0:00	0:30
100.041001	9:04 AM	MTWTF--	LAKE ST N & IONE ST W	MTWTF-- 0006-23-200106-02-2002	1	3	0:00	0:18
100.043001	9:04 AM	MTWTF--	1752 CARL ST N	MTWTF-- 0006-23-200106-02-2002	0	3	0:00	0:18
100.039001	9:05 AM	MTWTF--	CARL ST N & SPRING ST W	MTWTF-- 0006-23-200106-02-2002	3	6	0:00	0:30
100.037001	9:05 AM	MTWTF--	EUSTIS ST N & SPRING ST W	MTWTF-- 0006-23-200106-02-2002	0	6	0:00	0:48
100.000001	9:06 AM	MTWTF--	IONE ST W & MALVERN ST N	MTWTF-- 0006-23-200106-02-2002	5	11	0:00	1:06
100.141001	9:07 AM	MTWTF--	LAFENETEUR & CARLINO SIDE	MTWTF-- 0006-23-200106-02-2002	14	35	0:00	0:30
100.040001	9:07 AM	MTWTF--	1715 EUSTIS ST N	MTWTF-- 0006-23-200106-02-2002	1	36	0:00	5:36
100.000001	9:13 AM	MTWTF--	SCHOOL: LINCOLN ELEMENTARY	MTWTF-- 0006-23-200106-02-2002	0	0	0:00	0:00

Type field

The system displays the selected run in the Runs Tabular window.

7 Enter the **<map type value>** for this run in the Type field.8 Choose **Confirm**.



The system displays a message box, prompting you to confirm the changes.

- 9 Choose **OK + Next** to confirm the changes for this run and to assign map types to additional runs.

-OR-

Choose **OK** to confirm the changes for this run.

The system confirms the changes you made to the record.

MAINTENANCE

This feature requires the use of a new EMU utility called REBUILDDRIVEPATH-FILES. After changing the speed attributes for segments in Maris, you need to run the REBUILDDRIVEPATHFILES utility and the MAPSEGUP utility.

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Edulog Reports
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BEGINNING REPORTS

The report writer provides a flexible and powerful tool for creating queries and producing reports on the various types of information in your transportation system. The commands and options in this application use plain language and provide a full range of analysis options that allow you to create simple or complex reports.

To make your job easier, edulog has created pre-packaged (or standard) reports based on the types of information that district personnel commonly want to examine. These standard reports are completely predefined and formatted, so that you need only run a report to quickly examine the desired information. You can modify the standard reports but any changes you make to the standard reports will be lost when you exit reports.

To start the report writer application, choose **Edulog Reports** on the Reports menu.



The system displays the edulog Reports launch pad.

You can also open the reports module through the Windows Start menu. To open reports from the Start menu, choose **Start, Programs, and edulog.nt Client Software**.

The **Standard Reports** button on the edulog Reports launch pad provides access to edulog's collection of pre-packaged reports. You can also use the User Defined Reports button to create and save your own reports if needed. The buttons on the right provide access to a variety of special reports.

USING QUERIES

You use queries to produce reports. A query is a question you ask about your data. The data that makes up the answer is the report. For example, you might create a query that asks for all students in grade five that attend Lincoln Elementary. The final report would list those students.

NOTES

A filter is a set of conditions that allows you indicate which records you want to include in your query results. A condition consists of:

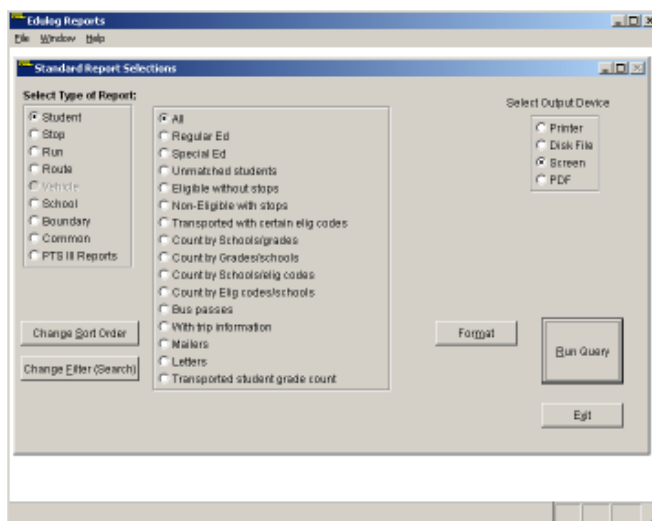
- A field name, like School.
- A relational operator, like, “Is equal to.”
- A comparison value, like 100.

After defining the filter conditions, you choose which fields you want to include in the report (such as student last name, first name, address, and District ID), how you want the information arranged (alphabetically by last name, for instance), and where you want to send the report (perhaps to a printer or to view it on the screen). Standard reports already have these query selections in place but you can create your own queries as desired.

The report writer has online Help available with specific, step-by-step instructions on each of the tasks you need to complete. To open online Help, choose the **Help** button on the launch pad for immediate access to the information you need.

PRODUCING STANDARD REPORTS

edulog has created a variety of standard reports based on the types of information that district personnel commonly want to examine. These reports are completely set up and ready to run. All of the query selections are in place, including the filter conditions, the fields of information to include in the report, the sort order, and the report’s output type. You can modify the report filter and sort order if you wish. Also, if you have created any user-defined reports, you can add them as common reports. You run the standard reports by choosing the Standard Reports button on the edulog Reports launch pad.



The system displays the Standard Report Selections dialog box.

- 1 To produce a standard report, select the **report type option button** you want.

Note:

If you want to run a user-defined report that you have included with the standard reports, choose the **Common** option button.

The system displays various options for the report type you selected.

- 2 Choose the **report options** you want.

Note:

You can modify the report's filter and sort order.

- 3 Select the **output device** for the report from the Select Output Device option buttons.

Note:

If you select Disk File, enter a path and file name with an extension, like C:\elt\live\reports\allstudents.txt, in the File Name field.

- 4 Choose **Run Query**.

The system produces the report to the selected output device.

Some of the standard reports require you to enter comparison values to run the query. For instance, if you want to create a Standard Grades/Programs for Certain Schools Report, you need to enter the schools you want to include in the report. If you sent the report to a Disk File, a dialog box appears asking if you want to view the file now. Choose **Yes** if so. Press ESCAPE when you have finished examining the file.

When you are finished working with standard reports, choose **Exit** to return to the edulog Reports launch pad. Any changes you make to the standard reports will be lost when you exit reports.

Standard reports also appear when you choose one of the user-defined report options, but keep in mind that you need to use the Standard Reports Selections dialog box to run these reports. You can, however, use the standard report options in the User-Defined Reports window to make copies of the standard reports. While you cannot modify a standard report, you can modify the copy.

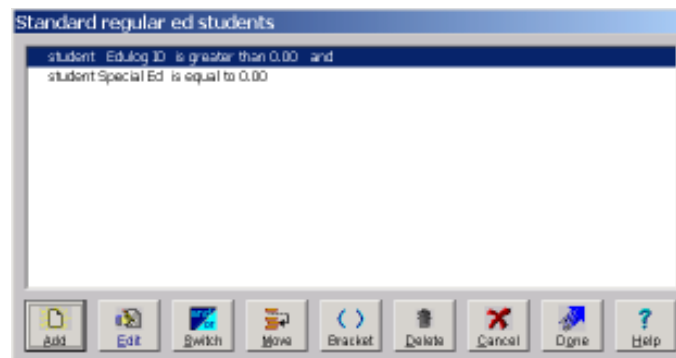
Changing the Standard Report Filter

The Standard Report function allows you to change some of the filter conditions (criteria) that determine which records each report includes. These changes are temporary and will not be saved by the system when you exit reports.

To change the filter for a standard report:

- Choose **Standard Reports** from the edulog Reports launch pad.
- Select the **standard report options**.
- Choose **Change Filter (Search)**.

NOTES



The system displays the Filter Form dialog.

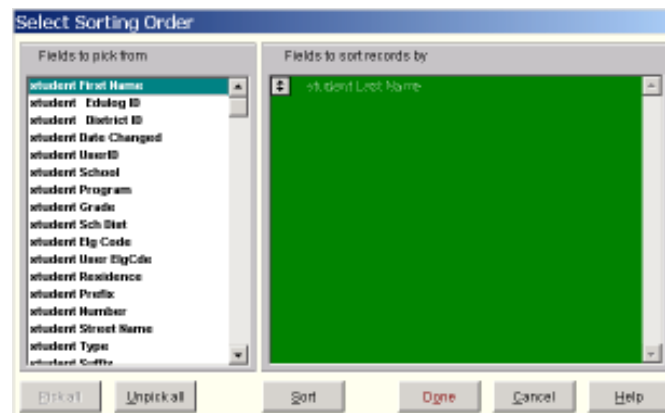
The Filter Form dialog allows you to add, edit, or delete filters.

Changing the Standard Report Sort Order

The Standard Report functions allow you to change the order in which some reports list their records. These changes are temporary and will not be saved by the system when you exit reports.

To change sort order for a standard report:

- Choose **Standard Reports** from the edulog Reports launch pad.
- Select the **standard report options**.
- Choose **Change Sort Order**.



The system displays the Select Sorting Order dialog.

The Select Sorting Order dialog allows you to change the sort order.

Editing Standard Reports

The report writer allows you to edit the standard reports to include the information you want to see in your reports. The first thing you must do is copy the standard report and then customize it.

- 1 Enter the **User Defined Reports** module.

- 2 Select a **standard report** to copy.
- 3 Choose **Copy** and enter a **<name>** for the report in the New Name field. The title cannot begin with the word “Standard.”
- 4 Select the **report** to copy from the list or reports.
- 5 Edit the **output fields**.
- 6 Select **fields** to add to the report.

Note:

Do not take fields away that were in the original report because the new report will not work correctly.

- 7 Choose **Run Query**.
- 8 Choose **Edit Form**.
- 9 Under View, choose **Table Designer**.
- 10 Write down exactly how the field name appears for each new field.
- 11 Exit Table Designer.
- 12 Under View, choose **Report Controls Toolbar**.
- 13 Choose the **tool** labeled “**AB**.”
- 14 Draw a **box** with the tool anywhere on the screen.
- 15 Where the cursor is in Expression field, enter **one of the new field names** in the format found in Step 10.
- 16 Choose the **button** with the Ellipses (...) to the right of the field name you entered in Step 15.
- 17 Choose **Verify**.
- 18 At the bottom left of the screen, watch to see if the sentence “Expression is valid” appears.
- 19 Choose **OK**.
- 20 Add a title by selecting **A** from the Report Controls Toolbar.

Note:

All boxes can be moved to achieve the desired format. Under “Format,” font changes can be made. To select more than one item, you can 1) create a box around the desired objects (the cursor should appear as a finger pointing hand) or 2) hold down SHIFT and click the desired objects. All selected items appear with dots defining the four corners.

NOTES

PRODUCING SPECIAL REPORTS

The buttons in the right column on the edulog Reports launch pad provide access to various special reports you can produce. Some of the reports you can create are:

- Student Counts listing the numbers of students at each of the schools in your system by grades and eligibility;
- Route Time Line displaying runs on routes in a time line format;
- Deleted Students listing any students that have been deleted (flagged for deletion) but not yet purged;
- Duplicate Students listing all students with duplicated information in the student database;
- Utility Audit/Error reports that provide access to reports produced by the various edulog maintenance utilities;
- State Reports that allow you to generate any special reports required from your district by various state agencies.
- RR Crossing that allows you to produce reports on hazards in your system. The hazards can be railroad crossings, narrow bridges, etc.
- School Distance that provides access to the School to School Distance report which shows the distances between each of the selected schools.
- Report Utilities that provide access to various utilities associated with the reports application (including Fix Report and Copy Reports). Only advanced users should run these utilities. When reports security is on, only administrative users have access to Report Utilities.

Producing a Deleted Students Report

The Deleted Students Report produces a list of all students who have been deleted in edulog (that is, flagged for deletion but not yet purged). To produce a deleted students report, choose Deleted Students from the launch pad. The report writer takes a moment to find deleted records.

If you have already created a deleted students query, you can run that query to examine deleted student records or you can modify the query as needed. If this is the first Deleted Students or Duplicate Students query, choose **OK** from the dialog box indicating so, then type a title for the new query and choose **OK**. Otherwise, choose **Add** from the Query List Manager dialog box.

Under the Pick a Field tab, select **student Last Name**, then choose **Next Step**. Under the Pick an Operator tab, select **Is Not Empty**, then choose **Done**. Choose **Yes** if you want to run the query now. When you run the query, the list will include all deleted students.

Producing a Duplicate Students Report

The Duplicate Students Report produces a list of all students with duplicated information in the student database. You can use this report to find students who have the same first name, last name, and address (an indication that a student has been inad-

vertently entered into the system more than once). You can also use this option to find students who have accidentally been given the same District ID number. You can check any field in the student records for duplication.

To create a Duplicate Students Report, choose **Duplicate Students** from the launch pad. In the Select Fields to Find Duplicates dialog box, select **one or more fields** (such as last name, first name, and location) to have the system find any student records with the same entries in those fields. Choose **Done**.

The report writer takes a moment to find duplicated records. If you have already created a duplicate students query, you can run that query now to examine any student records with duplicate entries in the field(s) you selected or you can modify the query as needed. If you have not yet created a query to select the duplicated student records, you will need to do so now. Type a **title** for the new query and choose **OK**. Otherwise, choose **Add** from the Query List Manager dialog box.

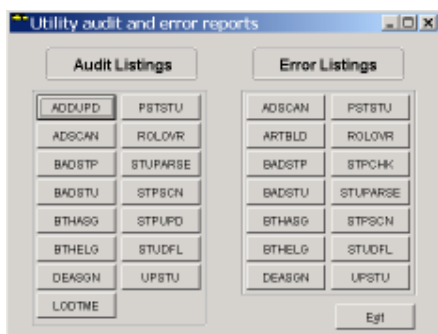
Under the Pick a Field tab, select **student Last Name**, then choose **Next Step**.

Under the Pick an Operator tab, select **Is Not Empty**. Choose **Done**. Choose **Yes** if you want to run the query now. When you run the query, the list will include all students with the same entries in the fields you selected.

Producing a Utility Audit/Error Report

The Utility Audit/Error reports provide access to the audit reports and error listings produced by the edulog maintenance utilities. Some of these utilities produce reports that provide you with information on their progress. Error listings indicate any problems that the utility encountered. Audit reports indicate the current status of the records as well as any changes made by the utility.

To view audit or error reports after running a utility, choose **Utility Audit/Error** from the edulog Reports launch pad.



Choose the **button** that corresponds to the utility from either the Audit Listings on the left or from the Error Listings on the right. Create a query to access the records included in the audit or error listing (unless one has already been created).

The ADSCAN, ADDUPD, BADSTU, BTHASG, BTHELG, and UPSTU reports all use student queries, while the BADSTP, STPSCN, and STPUPD reports use stop queries. The report writer uses two fields to access audit and error reports created by the utilities: the Link File Student (or Stop) ID and the Link File Description fields. (The student ID is the edulog ID number.) You use these fields when defining the query filter and when selecting information to include in the report.

NOTES

Filter Conditions

In general, you will want to include all records listed in the audit or error report. To do this, you use either the Link File Student (or Stop) ID or the Link File Description field in your query filter condition. For student utilities, you can define the query filter as “Link file Student ID is greater than 0” or “Link File Description is not empty.” For stop utilities, you can define the filter as “Link File Stop ID is not empty” or “Link File Description is not empty.”

Output Fields

When selecting information to include in the report, make sure to select Link File Description as an output field. This field will list any errors or changes made to records. You will also want to include Link File Student (or Stop) ID as one of the output fields. You can include any other information you may want to examine. These choices will usually depend on the type of utility you ran. Feel free to experiment with selecting different output fields and changing their order.

Producing a Route Time Line Report

The Route Time Line Report that displays a time line with runs on routes in your system. To generate a Route Time Line Report, choose the **Route Time Line** button on the launch pad.

Select the **Time of Day**, which is the portion of the route you want to examine (Morning, Noon, Afternoon, or All). Select **Load Type**, select the student load type you want to examine (Assigned lists the number of students assigned to runs in the system, while Headcount lists the number of students who actually ride the bus, often determined by driver head counts). Next, select **Unassigned Runs** to indicate whether you wish to include unassigned runs in the report.

Click the text box next to Enter Start Time For Report and type the time of day when you want the time line display to begin (in the format HH:MM AM/PM). Under Choose Length of Report and Increments, select the **Approx. Two Hours/One Minute (Land)** or **Approx. Four Hours/Two Minute (Land)** option to indicate how long you want the time line to extend after the start time you enter. The Two-

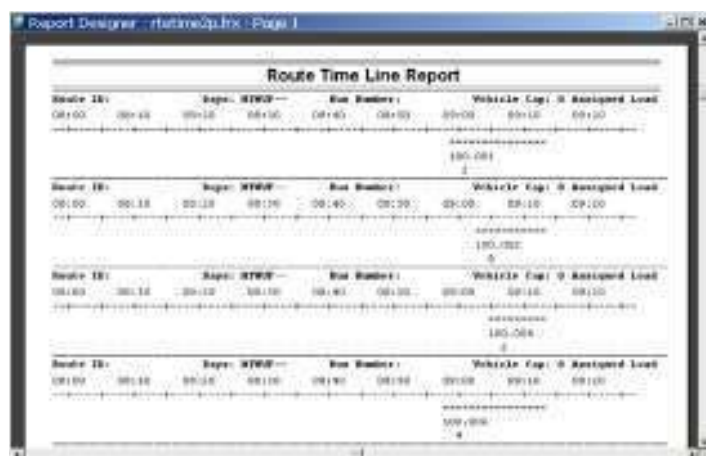
hour report displays the time line in increments of one minute, while the four-hour report displays the time line in two-minute increments.

Choose **Update Time Line Info** to access route information. Under Choose Output Device, select the **destination** where you want to send the report (to the screen, a printer or a disk file). If you select the Disk File option, make sure to enter a name for the file (with a txt extension) and path (that is, C:\Elt\Live\Reports) for the file in the Enter File Name text box. Choose the **Run Time Line Report** button.

If no runs appear on the time line when you produce the report, try adjusting the Start Time or the report length. You do not need to repeat the time line update step if you change the length of the report. When finished, choose **Exit Form** to return to the edulog Reports launch pad.

Reading a Route Time Line Report

The following is an excerpt from a two-hour, one-minute increment time line report.



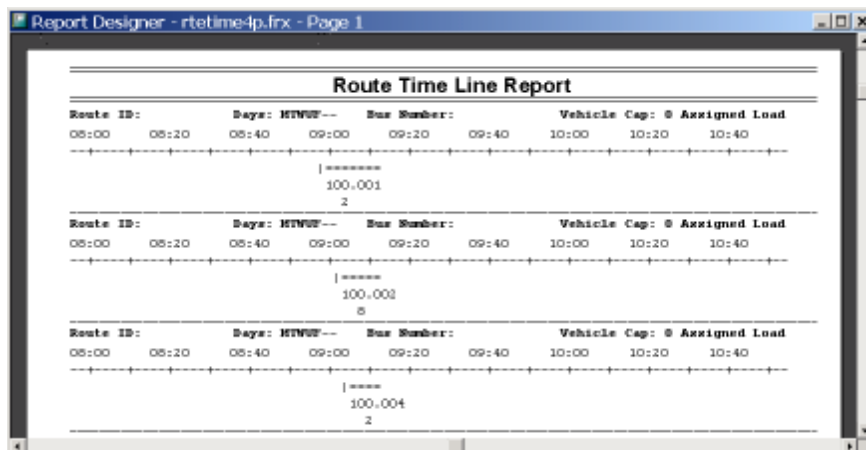
This portion of the report shows the route's activity between 8:00 and 10:00 AM. The time line is broken down into five-minute intervals (|-----|) with times listed every ten minutes. The report indicates that run 100.001 begins at 8:59 and ends at 9:13. (The 2 under the Run ID indicates the current number of students assigned to the run.)

Two-hour time line symbols are defined as follows:

- # 1 minute of deadhead or checkpoint time.
- = 1 minute of travel time.

The following is the same route in the four-hour, two-minute increment format.

NOTES



This portion of the report shows the route's activity between 8:00 and 12:00 PM. The time line is broken down into ten-minute intervals (|----|) with times listed every twenty minutes. Again, the report indicates that run 100.001 begins at 8:59 and ends at 9:13. (The 2 under the Run ID indicates the current number of students assigned to the run.)

Four-hour time line symbols are defined as follows:

- # 2 minutes of deadhead or checkpoint time.
- = 2 minutes of travel time.
- | 1 minute of time (either deadhead or travel).
- * Continued.

Producing a Student Counts Report

The Student Counts Report that lists the number of students in schools in your system. You can examine student counts broken down either by grades or by eligibility codes. To produce a Student Counts Report, choose **Student Counts** from the launch pad.

Select the **type of students** you want to include in the report (Special Ed, Regular Ed, or Both). Select whether you want to use **Computed Eligibility Codes** or **User Entered Codes** (eligibility codes entered by the user to override the computed eligibility code). Under Enter Eligibility Codes, select the specific **codes** you want to

include. Click the arrow next to a Code drop-down box, then select from the available **codes** (use the scroll bar to advance the list if necessary). The list includes descriptions of each of the codes. Only students with the specified eligibility codes will be counted in your report.

Choose **Update Report**. edulog accesses and stores the student counts for each of the schools according to your previous selections. Under Choose Output Device, select whether you want to send the report to the Screen, a Printer, or a File. If you want to send the report to a disk file, make sure to enter the name and path for the file (such as C:\Eligcount.txt) in the text box under Enter File Name. If you send the report to the screen you can use the Preview toolbar to work in the preview window.

Choose **Run Sch/Grd Report** if you want to produce a report listing student counts broken down by grade or choose **Run Sch/Elg Report** if you want to produce a report listing student counts broken down by eligibility code. Choose **Exit** when you are finished working with the Student Count reports.

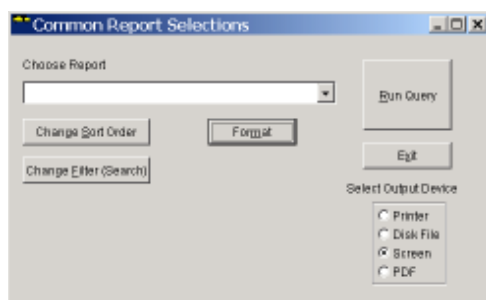
Once you choose **Update Report**, edulog saves that student count information even after you exit the form. You can return to the form and produce Student Count Reports on that information later without repeating the Update step. Also, you can produce both the Sch/Grd Report and the Sch/Elg Report using the same Update. You only need to repeat the Update step when you change your selections in the Student Counts dialog box.

ADDING COMMON REPORTS

The Common Reports function allows you to create a list of frequently used reports. The reports in this list can be standard reports and user-defined reports.

To add a report to your common reports:

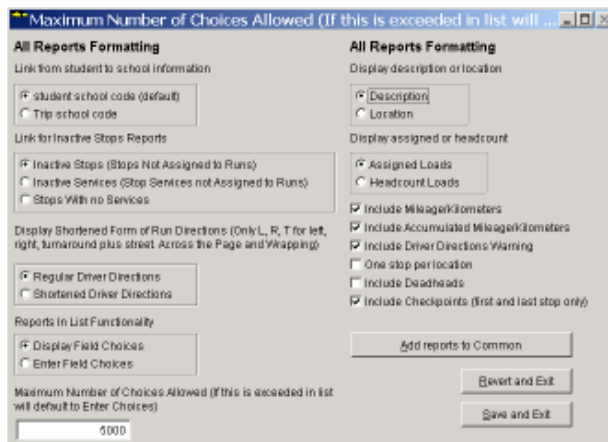
- Choose **Common Reports** on the edulog Reports launch pad.



This system displays the Common Reports dialog.

- Choose **Format**.

NOTES



The system displays the Reports Formatting dialog.

- Choose **Add reports to Common**.



The system displays the Add Reports to Common dialog.

- Select the **report** from the list of available reports on the left, then choose the arrow pointing to the right to add it to the list of selected reports.

You can select all of the available reports by clicking the double arrows pointing to the right. To remove a report, select it from the list on the right and click the arrow pointing to the left. If you want to remove all selected reports and start over, choose the double arrows pointing to the left.

- Choose **Save and Exit** to save your common report selections and return to the Reports Formatting dialog.
- Choose **Save and Exit** on the Reports Formatting dialog to return to the Common Report Selections dialog.

The Choose Report drop-down box on the Common Report Selections dialog displays the added reports.

You can also access your common reports from the Standard Reports Selection dialog through the Common option button. When you select the Common option button, the system displays the Choose Report drop-down box, allowing you to select a common report.

INTERMEDIATE REPORTS

A query is a question you ask about your data. The data that makes up the answer is the report.

- Filter**
- A filter is a set of conditions that allows you to indicate which records you want to include in your query results. A condition consists of:

 - A field name (such as “School”)
 - A relational operator (such as “Is equal to”)
 - A comparison value (such as “100”).

Output Fields

After defining the report query, you indicate what information to include in the report. Once the report writer finds all of the records that match your filter conditions, it needs to know what information you want to see from those records.

Sort

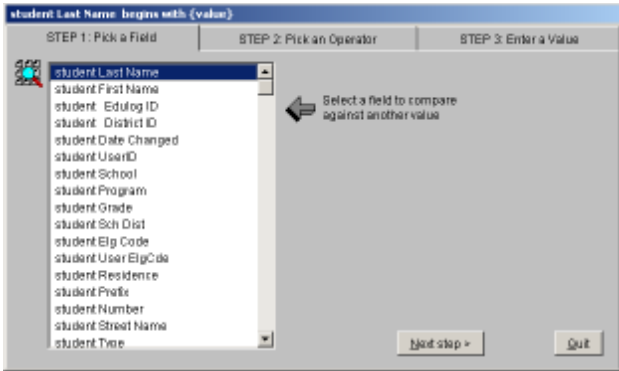
You can also choose the order in which individual records are listed. You may wish to arrange students alphabetically by last name, or numerically by District ID number.

Output Device

you select the output device for the report. You may wish to view the report on the computer screen or send it directly to the printer to see a hard copy of the information. On the other hand, you may wish to send the report to a disk file to modify later or print at your convenience. You can send the report to a variety of types of files, including Excel or Lotus spreadsheets, data tables, or text files.

Step 1: Selecting a Field for the Filter

When you begin adding a filter condition, a window similar to the following appears.



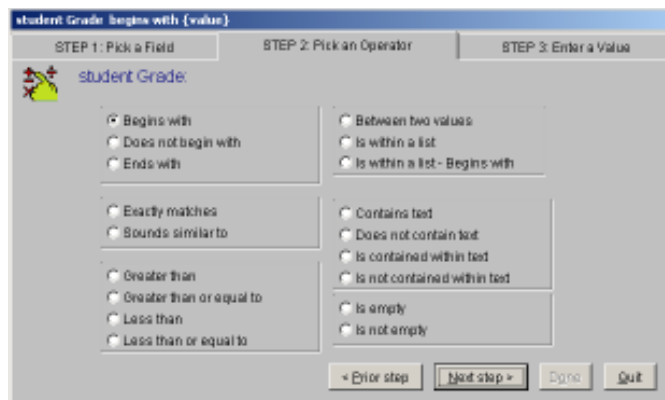
This window contains three tabs that correspond to the three steps in entering a filter condition. The first step is to select the field you want to use to narrow the query

NOTES

results (such as “Student Grade”). The list includes fields contained in the records in your data. You move to the next tab (“STEP 2: Pick an Operator”) either by double-clicking the name of a field in the list, or by single-clicking a field name and choosing Next Step.

Step 2: Selecting an Operator for the Filter

After you select a field, you proceed to the second tab in the window, similar to the following.



The second step is to select the relationship between the field you selected in the first step and the value you enter in the third step (such as “Student Grade Exactly Matches 06”). You have a variety of operators to choose from.

- You can select records between a range of values (such as stops IDs from 100.001 to 100.020) using the Between Two Values operator.
- You can use the Begins With operator to select students with last names beginning with certain letters, or Stop IDs that begin with a certain school code. You can use the Does Not Begin With operator to select all records except those beginning with the specified characters.
- You can use the mathematical operators Greater Than, Less Than, and so on, to select records with corresponding values (such as “Stop Load is greater than zero”).
- You can use the Is Within a List operator to select items from a list.
- You can use the Is Within a List - Begins With operator to enter a list of 23 items to find using the “Begins with” function. You can, for example, use this operator to find Run ID’s based on a list of school codes.
- You can select all records that have anything entered in the field (Is Not Empty) or all records that have nothing entered in the field (Is Empty).
- You can use one of the four text options to select records in which the field contains certain groups of characters (Contains Text).

Double-click an operator or single-click and choose Next Step to move to the third tab (STEP 3: Enter a Value). You can return to the previous tab using the Prior Step button if you want to change your selection.

Step 3: Entering Comparison Values for the Filter

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After you select the operator you want to use, you proceed to the third tab in the window, similar to the following.

The screenshot shows a dialog box titled "student Grade is greater than {value}". It has three tabs: "STEP 1: Pick a Field", "STEP 2: Pick an Operator", and "STEP 3: Enter a Value". The "STEP 3: Enter a Value" tab is active. Inside the dialog, there is a text box with the placeholder text "student Grade is greater than:" and a small cursor icon. Below the text box, there are five buttons: "Ask later", "Compare to field", "< Prior step", "Done", and "Quit".

The third step involves entering a comparison value in the text box (for example, enter "06" for a report of all students in grade six). Just click on the text box and type a value. The value or values you enter in this step will depend on the operator you selected in step 2.

Many of the operators require you to enter only a single value or group of characters (for example, "begins with the letter K" or "school code exactly matches 100").

If you selected the Between Two Values operator, you need to enter the beginning and ending values of the range. After you type the From value, press enter to move to the next text box, then type the To value.

If you selected the Is Within a List operator, the system displays a dialog with a selection list of available values for the field selected in Step 1 or (depending on the options selected on the Reports Formatting dialog) a dialog allowing you to enter the values you want. You can select or enter one or more values. When you have finished selecting or entering values, choose the Save and Exit button.

If you selected one of the greater-than or less-than operators, make sure to enter the correct number of digits for the value. For example, if the grades in your system contain two digits, make sure to enter two digits in the comparison value text box (01, 02, 03, and so on). No value is required if you selected the Is Empty or Is Not Empty operator.

The Ask Later button can be very useful, allowing you to wait and enter values when you run the query. This way, you can set up general queries (on any of the schools, for example) instead of queries that look for the same values each time (such as only school codes between 100 and 200). Many of our standard reports use the Ask Later option for you to enter the desired values when you run the report. For example, the Standard grades/programs for certain schools report asks you to enter the codes of the schools whose grades and programs you want to examine.

If you are entering a date for comparison (such as 09/15/98) instead of numerical values, you need to enter those dates in the same format as in edulog. The default

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date format is MM/DD/YYYY. The edulog report writer only recognizes dates as a group of characters, so you can also use the Contains Text operator in such cases.

Choose Done when you are finished entering the filter condition.

Creating a Query from Scratch

- 1 Choose User Defined Reports on the launch pad.



The buttons function as follows:

Schools	Allows you to produce reports that contain information on the schools in your system. With these queries, you can examine bell times, grades and programs for schools, as well as school boundary and eligibility information.
All Students and Transportation	Allows you to produce reports on students with transportation assignments in your system. You can produce a standard list of students, or you can generate bus passes with these queries.
Students with Trips	Allows you to produce reports on students in your system. If you select only student fields for this report, you can obtain a listing of all the students in the database. If you select any trip fields, you will get only those students who have trips assigned. You can examine regular education students, special education students, and unmatched students (students whose addresses do not match the geocode) with these queries. You can also produce reports on the numbers of students at schools in your system.
Student Transportation	Allows you to produce reports with various combinations of student and transportation (stop, run, and route) information. You can produce passenger lists and student eligibility reports with these queries.
Stops/Runs/Routes	Allows you to produce reports with various combinations of information on stops, runs, and routes in your system. You can produce reports on run and route mileage and average speeds with these queries.

Inactive Stops Allows you to produce reports on stops that are not assigned to runs. You can also examine information on students assigned to such stops with these queries. This function depends on the settings made on the Reports Formatting dialog.

Vehicles Allows you to produce reports on the vehicles in your district's transportation fleet.

- 2** Select the type of report you want to produce.
- 3** If this is the first query in the category you selected, choose OK from the dialog box indicating so. If not, choose Add. Type a title for the new query and choose OK.

You cannot enter a title that begins with the word "Standard." This word is reserved for edulog's set of standard reports. If you enter that word in the first part of the title, you will not be able to access or modify the report later.

- 4** Add one to thirteen filter conditions to indicate which records should appear in the query results, then choose Done.
- 5** Choose Yes if you want to run the query and examine the results.
- 6** Choose OK from the dialog box providing further information on the steps involved in producing the report.
- 7** Select the fields of information you want to appear in the query results, then choose Done.

The Query Overview dialog box appears with options for changing the filter conditions, output destination, sort order, and fields to be included in the report, as well as for running the query.

Creating a Query from a Worklist

The report writer allows you to create reports based on worklists created in edulog. Before you can use a worklist to create a query, the list must be the most recent loaded in edulog.

- 1** Choose User-Defined Reports on the launch pad, then choose the button corresponding to the type of report you want to create.
- 2** Select the appropriate Link to List option located at the bottom of the Pick a Field list (such as Student Link to List). (You can also select the field in Step 1 and the Is Within a Worklist operator in Step 2.)
- 3** For Students, choose the Greater Than operator.
- 4** Enter zero (0) as the value.

This selects all of the students in the worklist. You can add additional filter conditions if you want to further narrow the records that will appear in the query results.

- 5** Choose Done to return to the Query List Manager.
- 6** Choose Yes if you want to run the query and examine the results. Choose OK from the informational dialog box.

NOTES

- 7** Select the fields of information you want to appear in the query results, then choose Done when finished.

- 8** Choose Run Query.

The Update WorkLists dialog box appears.

- 9** Select the appropriate list and choose Update List Files.

The program produces the report based on the worklist you selected.

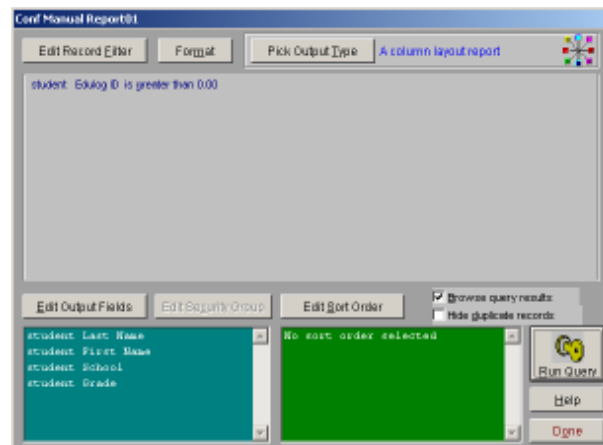
The Query Overview dialog box appears with options for changing the filter conditions, output destination, sort order, and fields to be included in the report, as well as for running the query.

Modifying a Query

At some point, you may find that you need to change queries in your system.

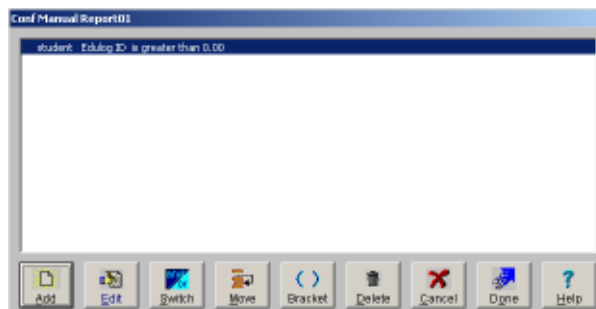
To modify a query in your system:

- 1** Choose User-Defined Reports on the launch pad, then choose the button corresponding to the type of report you want to modify.
- 2** Select the query you want to modify from the Query List Manager.
- 3** Choose Select.



The Query Overview dialog box appears with options for modifying the query.

- 4** To add, change, or delete any of the filter conditions, choose Edit Record Filter.



- To delete any of the filters, select the condition you wish to delete and choose Delete.
- To modify an existing filter condition, select the condition you wish to modify and choose Edit.
- To add a filter condition, choose Add from the Filter Building dialog box (you automatically bypass this step when entering the first condition of a query).

If any conditions have already been entered for the query, you need to select a connector indicating the relation to the other conditions. Connectors indicate how two filter conditions should work together. You have two options: And or Or. The connector is very important to the query results. If you choose And, every record in the report must meet both the previous condition and the new condition. If you choose Or, records included in the report can meet either or both conditions to be included. If you have many conditions with different connectors, you should use brackets to make the relationships clear.

Selecting Information to Show in the Report

The fields you use as filter conditions in a query may not be the same as the fields you select to include in the resulting report. When you design your query, you need to think about what you want to appear in the report.

- 1 Choose Edit Output Fields from the Query Overview dialog box (the system automatically bypasses this step if you are running the query for the first time and have not selected any fields to show in the report).
- 2 Select the fields of information you want to include from the left side of the Select Fields to Show In Query dialog box.

You can double-click a field or use the arrow keys on your keyboard to highlight the field and press enter. As you select fields, they appear in the list on the right side of the dialog box. If you want to remove any of these fields, double-click on a field name in that list (or use the arrow keys and press enter). Choose Done from the displayed dialog boxes when finished.

Note:

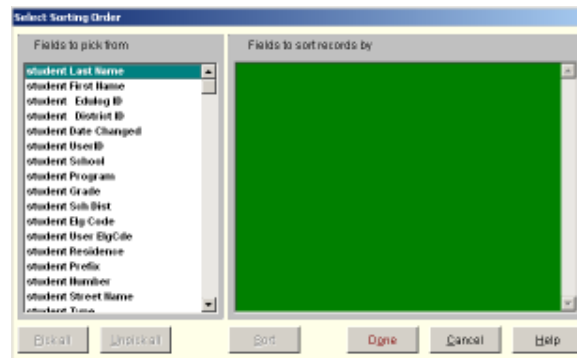
Do not remove any fields selected for a standard report. Removing these fields will force you to redo the form. Instead, delete the fields from the form in the Report Designer window.

Selecting the Sort Order

After you define a query's filter conditions and select fields to include in the report, you can select the fields that determine how your results will be sorted. You can select more than one field to sort on if you wish. For instance, you may want to sort students first by school, then by grade within each school, then by last name, then by first name. You can select up to nine different sort fields.

- 1 Choose Edit Sort Order on the Query Overview dialog box.

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- 2 In the list on the left side of the Select Sorting Order dialog box, select the field you want to use to sort the report.

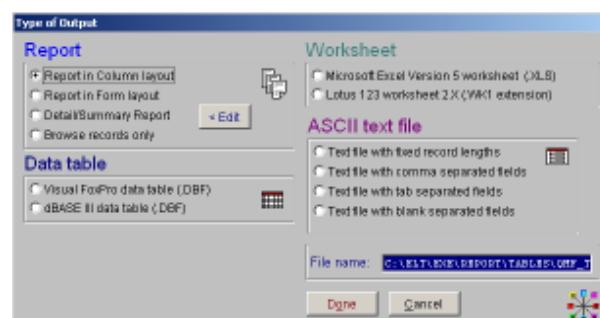
You can double-click on a field name or use the arrow keys on your keyboard to highlight the field and press enter. As you select fields, they appear in the list on the right side of the dialog box. If you want to remove any of these fields, double-click on a field name in that list (or use the arrow keys and press enter).

- 3 Choose Done from the displayed dialog boxes when finished.

Selecting the Report Destination

After you define a query, you have a variety of options for producing your report. You may only want to view the report on the computer screen. On the other hand, you may want to print the report or send it to a disk file. You can save a report as an Excel or Lotus spreadsheet, a simple text file, or a data table.

- 1 Choose Pick Output Type on the Query Overview dialog box.



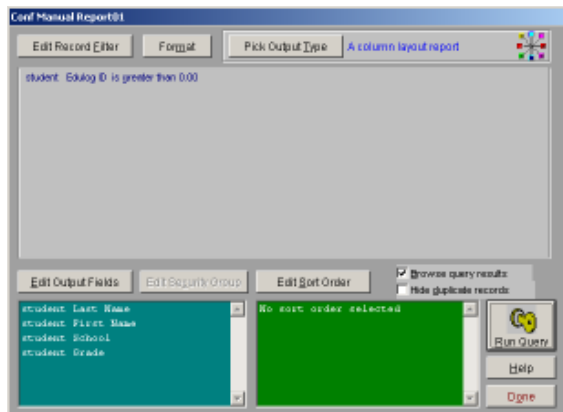
- 2 Select the desired destination from the available options.

If you choose one of the four Report options, you have the option of sending the report to a printer, the screen, or a disk file. If you want to send the report to a disk file, make sure to enter a name for the file (including the drive and directory) in the File Name text box.

- 3 Choose Done on the displayed dialog boxes when finished.

Running a Query

Once you have created queries, you can run them to produce reports. If you want to run one of the standard report queries, you need to use the Standard Reports button on the launch pad.



If you want to view the results of the query before producing a report:

- 1** Select the Browse Query Results check box above the Run Query button.
- 2** Select the Hide Duplicate Records check box to view only the first of any duplicate records.
- 3** Choose Run Query.

If you chose to browse the query results, a window appears with the records that meet your filter conditions (if any). Press escape or click the Close button in the upper-right corner of the window when you are finished examining the report.

Edit Form

If you choose Edit Form, the Report Designer opens allowing you to change the format of the report.

Output Direction

You have four options for report output. They are Printer, Diskfile, Screen, and PDF.

- Printer** Choose Printer on the dialog box. The Print dialog box appears. To select a different printer than the one listed, click the arrow next to the Name field and select the desired printer. You can indicate whether to print all or only a range of pages, as well as the number of copies you want, using the available text boxes. Choose OK when you are ready to print.
- Diskfile** Choose Diskfile on the dialog box. Another dialog box appears asking you to enter a path and name for the file. After choosing OK, the system will ask if you want to view the file now. Choose Yes if so. Press escape or click the Close button in the upper-right corner of the window when you are finished examining the report.

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- Screen** If you chose to send the report to the Screen, the report appears in the preview window. Another toolbar appears for working in the Preview window.
- PDF** Choose PDF on the dialog box. The system creates the report in Adobe Acrobat .pdf format. This allows you to keep the report formatted as desired. There are a few steps you'll need to complete before you can do so. These steps are discussed in the next section.

Print Preview Toolbar



You can leave the mouse pointer stationary on a tool to see a banner listing its function. These tools function as follows.

- First Page** Moves to the first page in the report.
- Previous Page** Moves to the previous page in the report.
- Go to Page** Moves to a specific page in the report preview. In the Go to Page dialog box, type the desired page number, then press enter.
- Next Page** Moves to the next page in the report.
- Last Page** Moves to the last page in the report.
- Zoom Level** Adjusts the zoom level of the preview window. Click the arrow next to this field, then select the desired size. You can also zoom in and out by clicking on the report window.
- Print Preview** Closes the report preview window.
- Print Report** Sends the report to a printer.

Setting Up PDF Output for Reports

First, you need to have Ghostscript installed on the computer (this is done automatically during the edulog installation). Second, you'll need to install a postscript printer driver on the machine. (That process is discussed later in this section.) Finally, you can add a setting for the post-script printer driver which will reduce the time it takes to create PDFs. We highly recommend you complete this step, since it will significantly increase the speed of creation of PDF files. This process is also discussed later in this section. Note that some of these steps may vary slightly for different versions of Windows.

Adding the Post-Script Capable Printer Driver

Note:

You may need to have the Windows installation disk available to complete this step.

- 1** Choose the Start button on the task bar, choose Settings, then choose Printers. The Printers window appears, showing any printers already installed on the computer.
- 2** Double-click the Add Printer icon to start the Add Printer Wizard.
- 3** Choose Next in the Add Printer Wizard. Make sure that Local Printer or My Computer is selected, then choose Next.
- 4** The wizard now asks you which port you want the printer to use. Scroll to the bottom of the list and select the check box next to FILE, then choose Next.
- 5** In the Manufacturers list, scroll down and select HP. In the Printers list, select HP Color LaserJet PS. (The PS stands for postscript.) Choose Next.
- 6** Make sure No is selected where it asks if you want other programs to use this as the default printer. Choose Next.
- 7** Select Not Shared or Do not share this printer, then choose Next.
- 8** Select No when asked if you want to print a test page.
- 9** Choose Finish.

Changing the Printer Driver Properties to Increase PDF Creation Speed

Note:

This option may not be available in all versions of Windows.

- 1** If you closed the Printers window, choose the Start button on the task bar, choose Settings, then choose Printers.
- 2** Right-click the HP Color LaserJet PS printer you just added, then choose Properties from the pop-up menu.
- 3** In the HP Color LaserJet PS Properties window, choose Printing Preferences.
- 4** The HP Color LaserJet PS Printing Preferences window appears.
- 5** Choose the Advanced button.
- 6** In the HP Color LaserJet PS Advanced Options window, click the plus sign (+) next to PostScript Options.
- 7** Under PostScript Options, select the PostScript Output Option. Select Archive Format from the drop-list.
- 8** Choose OK to close all of the properties/preferences dialog boxes, then close the Printers window.

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Producing a Detail/Summary Report

The Detail/Summary layout option allows you to produce a report in column format in which different types of records can be grouped and summarized. For example, the standard Route Report with Stop and Run Info provides route information grouped first by the runs assigned to the route, then by the stops assigned to each of the runs. The Detail/Summary layout option allows you to subdivide each group using other fields and add summary information (such as sums or counts) of records in each group. You can create a Detail/Summary report with up to three such divisions.

Begin the process of creating the report, selecting Detail/Summary as the report type. When selecting the fields of information to include in the report, you need to include both the field(s) you want to use to group records and the field you want to use to summarize the groups. To begin creating the Detail/Summary report, choose User-Defined Reports from the edulog Reports launch pad, then choose the button corresponding to the type of report you want to work with.

In the Query List Manager dialog box, either begin the process of creating a new query or select the query you want to work with and choose Select. Choose Pick Output Type from the Query Overview dialog box. In the Type of Output dialog box, select Detail/Summary Report as the report's destination. Choose the Edit button next to this option to begin defining data groupings.

Under the Pick Groups tab, click the arrow next to the "Group 1st by" text box and select the field you want to use to group records (such as School Code). Repeat the process for the "Group 2nd by" and "Group 3rd by" text boxes as desired. Choose Next Step.

Click the arrow next to Summarize the Field, and select the field you want to use for calculations within each group (such as Student Load). Select the type of calculation you want to perform in summarizing the groups (for example, select Count to list the number of records within each group, select Sum to list the total of the values in the selected field for each group, and so on). Choose Done from the displayed dialog boxes when finished.

You can include column headings for individual groups and perform other layout modifications to detail/summary reports using the Report Designer.

REPORTS SECURITY

NOTES

Reports have security features to protect them from users who should not modify or view them. This security prevents users without sufficient permissions from making changes to user-defined reports.

There are several different programs involved in reports security:

- Dumpusers is located in the \ELT\exe\EMU folder and is run from EMU.
- Reportaccess is in the \ELT\exe\Server folder and can only be run by an administrative user.
- Trnrpt (the edulog reports application) uses the security created by these two programs.

The Dumpusers utility copies all of your user names and passwords from edulog security to the reports security. If you have a user in reports who is not in edulog, Dumpusers removes that user from reports. It will also add users who are in edulog but not in reports. It will update only the password of a user who is already in the reports security. To run Dumpusers, you first need to add it to your Utils.inf file in the \ELT\exe\EMU folder if it is not already there, then create and run a batch for the process in EMU.

The Reportaccess program allows you to activate reports security and modify user permissions. You need to enter the path to the \ELT\Live\Server\DBTables folder in the command line or shortcut for this program. It can only be run by an administrative user. The default administrative edulog user will always work and is the user who will need to run the program for the first time.

If you activate reports security and start edulog reports from a shortcut or the command line, it will ask for a user name and password. If you start it from edulog, it will use the name and password used to log in to edulog. The edulog Reports launch pad provides access to anything for which you have read or write privileges. If you don't have at least read access to standard reports, most of the buttons will be disabled. If you don't have at least read access to user-defined reports, that button will be disabled.

Reportaccess allows you to enter names for the various groups of reports (such as Administrators, Contractors, and Secretaries). When you create a new report, you will be asked to put it in one of the ten groups. (When security is turned off and when you upgrade your software, all reports will go into group 1.) You can change user-defined reports only in those groups for which you have write permissions. You will not be able to access any report for which you do not have at least read privileges. Such reports will not appear in the report window. You will see the group names in the Common Reports window.

INTERMEDIATE REPORTS

You can access edulog Reports two different ways:

- Choose **Edulog Reports** on the Reports menu in edulog.
- Use the **Report** shortcut in the Windows Start menu.

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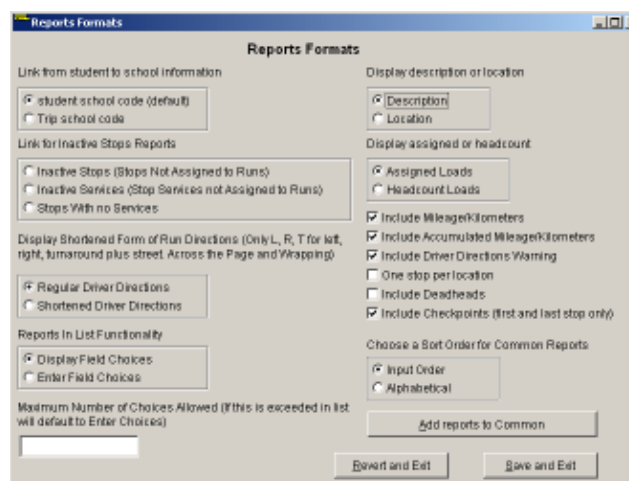
The system displays the edulog Reports launch pad.

STANDARD REPORTS

Standard Reports are reports that are already formatted and are a fast and easy way to retrieve a report. These reports are useful when you would like a report that contains all information. Standard reports allow flexibility in creating filters and sorting the report. Any changes, however, made are lost when you exit reports because the changes are temporary.

The Format Button

The Format button in the Standard Reports, Common Report Selections, and user-defined Query Overview windows allows you to select from various options for the reports you produce. For example, you have the option of including either stop descriptions or stop locations, assigned loads or head count loads, and you can indicate whether you want to include mileage in reports.



USER-DEFINED REPORTS

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User-defined Reports are much more flexible than the standard report feature. Essentially, the user makes a copy of the standard report, and then makes modifications to filters, output fields, and sort order. These reports can be added to the list of Common Reports for easy retrieval.

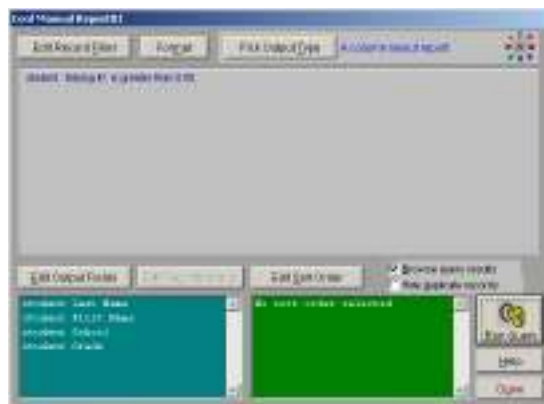


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Students with Trips	Allows you to produce reports on students in your system. If you select only student fields for this report, you can obtain a listing of all the students in the database. If you select any trip fields, you will get only those students who have trips assigned. You can examine regular education students, special education students, and unmatched students (students whose addresses do not match the geocode) with these queries. You can also produce reports on the numbers of students at schools in your system.
Student Transportation	Allows you to produce reports with various combinations of student and transportation (stop, run, and route) information. You can produce passenger lists and student eligibility reports with these queries.
Stops/Runs/Routes	Allows you to produce reports with various combinations of information on stops, runs, and routes in your system. You can produce reports on run and route mileage and average speeds with these queries.
Inactive	Allows you to produce reports on stops that are not assigned to runs.

NOTES

Stops	You can also examine information on students assigned to such stops with these queries. This function depends on the settings made on the Reports Formatting dialog.
Vehicles	Allows you to produce reports on the vehicles in your district's transportation fleet.
Buss Pass	Allows you to produce bus pass reports that list various types of transportation information for students. While you can create your own bus pass reports, you may find it easier to make a copy of one of the existing Bus Pass queries and modify the copy as desired.
Names Information	Allows you to produce reports on the names stored in the Vehicle, Fleet, or Transact database. Connected to the stop by a Com ID field. This report is used primarily by Essex and France.
Hazard Zones	Allows you to produce reports on areas that may pose a hazard to students.

The Query Overview Dialog Box



When you use user-defined reports, you can modify the query filter, output fields, sort order, and output type. You make these changes on the Query Overview dialog box.

Edit Record Filter	This button opens the Filter Building dialog box that allows you to add, edit, or delete a query filter.
Edit Output Fields	This button opens the Select Fields to Show in Query dialog box that allows you to add or remove fields in the report.
Edit Sort Order	This button opens the Select Sorting Order dialog box that allows you to sort the data in the report.
Pick Output Type	This button opens the Type of Output dialog box that allows you to pick an output for the report, like an Excel spreadsheet or an ASCII file.

NOTES

If you select a file as the output type, you need to enter a path and filename where the system should save the report in the File name field.

**Browse
Query
Results**

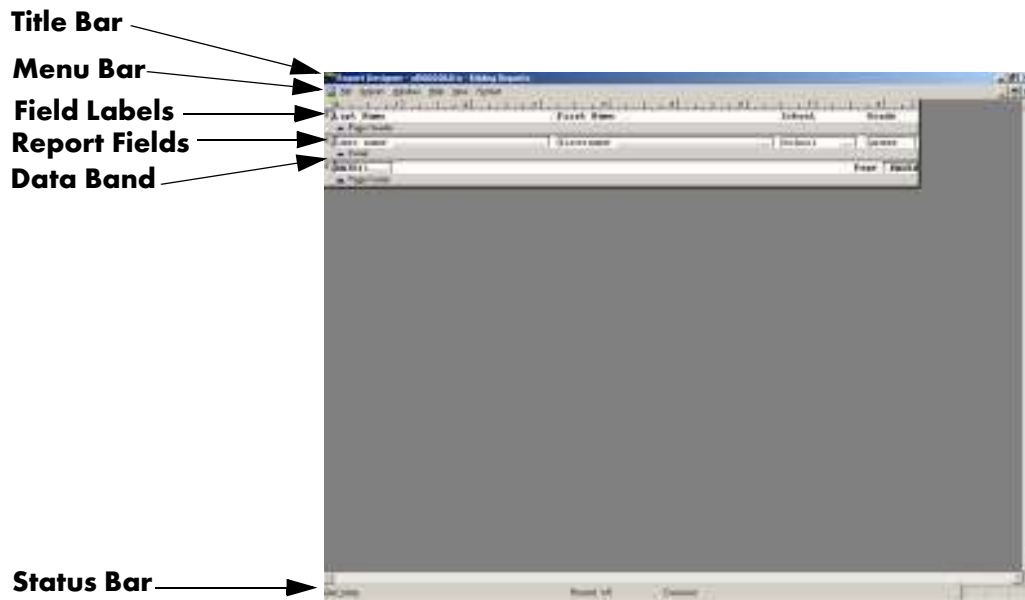
This check allows you to review the report data before it goes to the report form. When this check box is checked, the system displays a result table with the data for the report.

**Hide
Duplicate
Records**

This check box allows you to hide duplicate records in the report data, which can be very helpful with student information. When this check box is checked, the system will not display duplicate data.

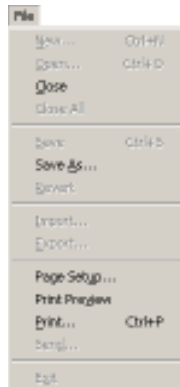
The Report Designer Window

After you choose Run Query on the Query Overview dialog box, the system gathers the data for your report and displays the Setup Report dialog box that allows you to preview your report as well as edit the report form. To edit the report form, choose **Edit Form**.

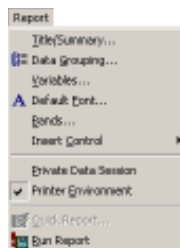


The system displays the report from in the Report Designer window.

NOTES

The File Menu

Page Setup This command opens the Page Setup dialog box, which allows you to setup how the page looks. The Page Setup dialog box allows you to adjust the margins and the print area.

The Report Menu

Data Grouping This command opens the Data Grouping dialog box that allows you to group data.

When you group data, the system adds data bands to the report:

Group Header - The fields in this band will print at the beginning of each group.

Group Footer - The fields in this band will print at the end of each group.

If you group data in your report, you need to sort the data the same way that it was grouped.

The View Menu

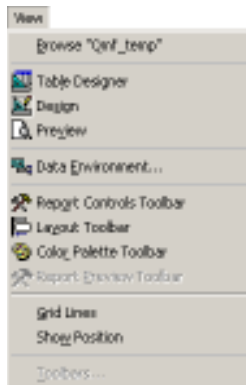


Table Designer

This command opens the Table Designer window that lists all of the output fields in the report. This window displays the field names of the output fields, which are 10 characters. When you add a new field to the report, the field will appear in this list.

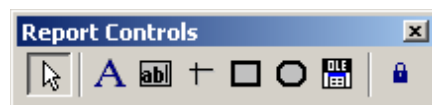


Preview

This command allows you to preview the report design. The system displays the report in a Print Preview window, which shows you how the report will look when it is printed.

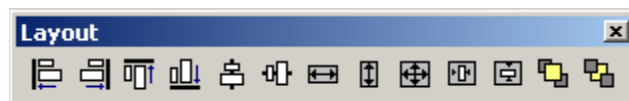
Report Controls Toolbar

This command displays the Report Controls toolbar, which has tools for designing and modifying your report.



Layout Toolbar

This command displays the Layout toolbar, which has tools that are very useful for aligning the fields on the report.



NOTES

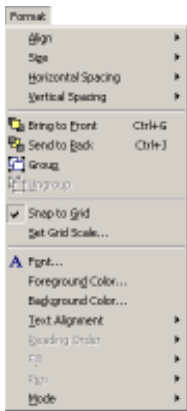
Color Palette Toolbar This command displays the Color Palette toolbar, which has tools for adding color to text boxes.



Grid Lines This command displays grid lines on the Report Designer window, which help you align fields on the report.

Show Position This command shows the position of the selected item in the bottom left corner.

The Format Menu



Align This command displays a sub-menu of commands for aligning the report fields and labels. These commands are also available on the Layout toolbar.

Horizontal Spacing This command displays a sub-menu of command for help with the horizontal alignment of the report fields and labels.

Vertical Spacing This command displays a sub-menu of commands for help with the vertical alignment of the report fields and labels.

Bring to Front This command brings the selected item to the front so that it appears on top of the fields.

Send to Back This command brings the selected item to the back so that it appears behind the fields.

Snap to Grid This command aligns and snaps objects to the grid.

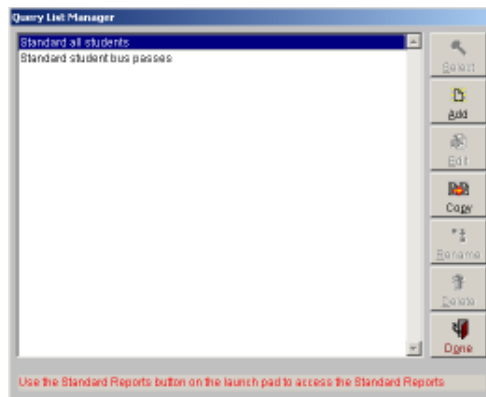
Set Grid This command allows you to design your own grid to help with

Scale	spacing and alignment depending on the font used for the report.
Font	This command allows you to change the font as well as the appearance of the report text.
Text Alignment	This command displays a sub-menu of command for aligning text within a text box or field.

Sample Report 1

The following instructions describe how to create a report of eligible students without transportation using a worklist (see “Worklists” on page 63 for more information).

- 1 Choose the **All Student and Transportation** button on the User Defined Reports launch pad.



This system displays the Query Overview dialog box.

- 2 Choose **Add**.



This system displays the Enter a Title for this New Query dialog box.

- 3 Enter a **title** in the New Title field.
- 4 Choose **OK**.

NOTES

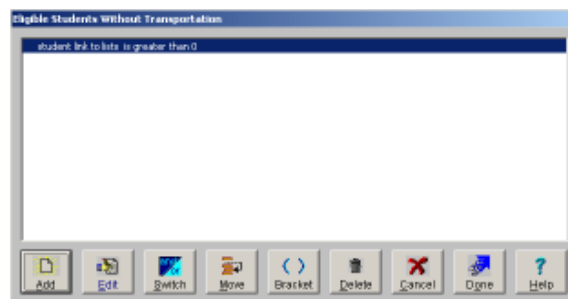


This system displays the Step 1: Pick a Field tab of the Query Builder dialog box.

- 5** Double-click the **student link to lists** option in the scrolled list box.

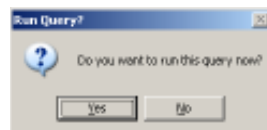
-OR-

Select the **student link to lists** option in the scrolled list box and chose **Next step**.



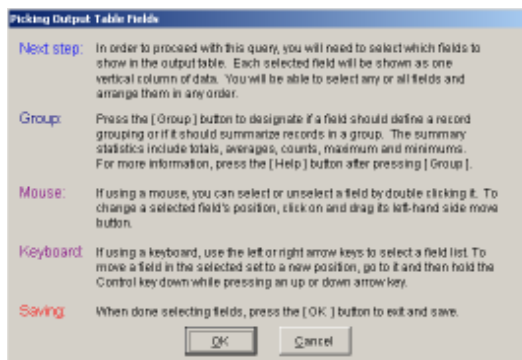
This system displays the Filter Building dialog box.

- 6** Choose **Done**.



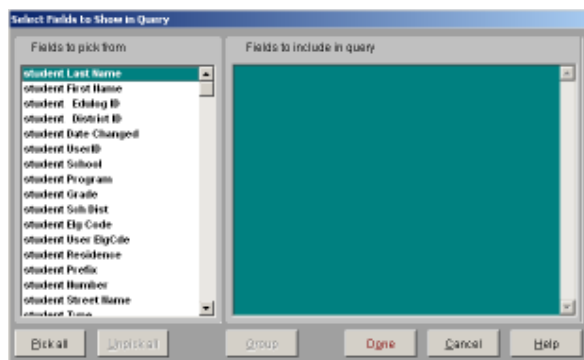
This system closes the Filter Building dialog box and displays a message box prompting you to run this query now.

- 7** Choose **Yes**.



This system closes the message box and displays the Picking Output Table Fields dialog box.

- 8** Choose **OK**.



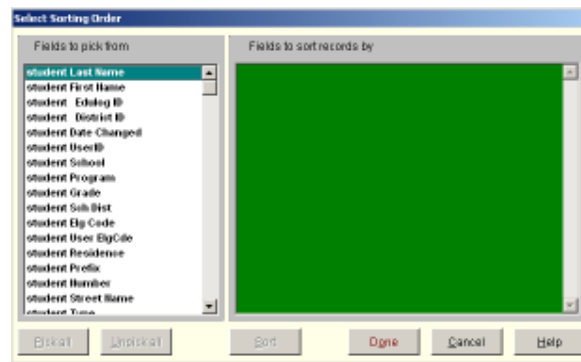
This system closes the Picking Output Table Fields dialog box and displays the Select Fields to Show in Query dialog box.

- 9** Double-click **student Last Name**.
- 10** Double-click **student First Name**.
- 11** Double-click **student School**.
- 12** Double-click **student Grade**.
- 13** Double-click **student Residence**.
- 14** Double-click **student Elg Code**.
- 15** Choose **Done**.

This system closes the Select Fields to Show in Query dialog box and displays the Query Overview dialog box.

- 16** Choose **Edit Sort Order**.

NOTES



This system displays the Select Sorting Order dialog box.

17 Double-click **student School**.

18 Double-click **student Grade**.

19 Double-click **student Last Name**.

20 Double-click **student First Name**.

21 Choose **Done**.

This system closes the Select Sorting Order dialog box and displays the Query Overview dialog box.

22 Select the **Hide duplicate records** check box.

23 Choose **Run Query**.



This system displays the Work Lists dialog box, which displays a list of student worklists.

24 Select the **<student worklist>** from the Student scrolled list box.

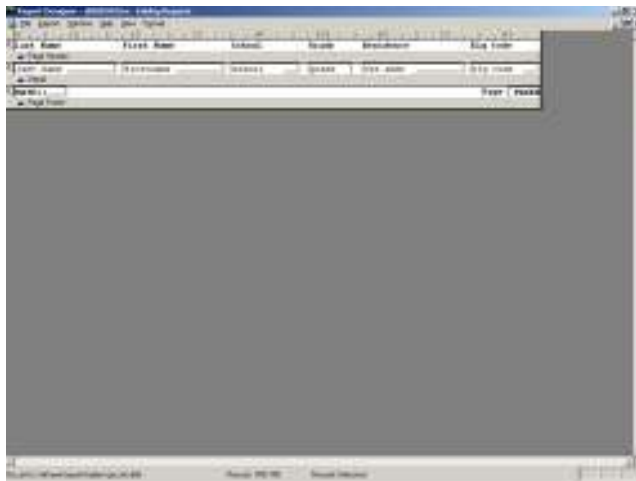
25 Choose **Update List Files**.

NOTES



This system runs the query. If it finds records, the system displays the Setup Report dialog box.

26 Choose **Edit Form**.



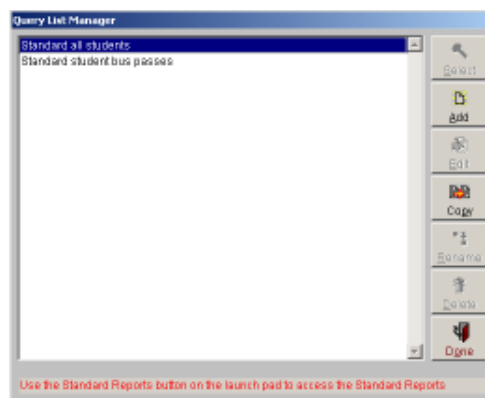
This system displays the report in the Report Designer window.

You can now arrange the report in the way you want.

Sample Report 2

The following instructions describe how to create a report for student address labels.

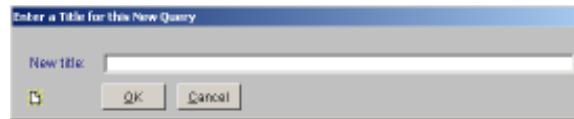
- 1 Choose the **All Student and Transportation** button on the User Defined Reports launch pad.



NOTES

This system displays the Query Overview dialog box.

- 2** Choose **Add**.



This system displays the Enter a Title for this New Query dialog box.

- 3** Enter a **title** in the New Title field.

- 4** Choose **OK**.



This system displays the Step 1: Pick a Field tab of the Query Builder dialog box.

- 5** Double-click the **student Edulog ID** option in the scrolled list box.

-OR-

Select the **student Edulog ID** option in the scrolled list box and chose **Next step**.



This system displays the Step 2: Pick an Operator tab of the Query Builder dialog box.

- 6** Double-click the **Greater than** option.

-OR-

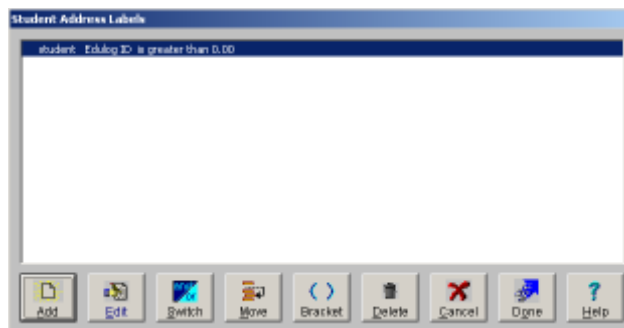
Select the **Greater than** option in the scrolled list box and chose **Next step**.

NOTES



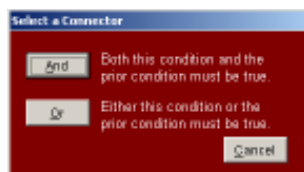
This system displays the Step 3: Enter a Value tab of the Query Builder dialog box.

- 7** Enter **0** in the text box.
- 8** Choose **Done**.



This system closes the Query Builder dialog box and displays the Filter Building dialog box with the filter you created.

- 9** Choose **Add**.



This system displays the Select a Connector dialog box.

- 10** Choose **And**.

NOTES



This system closes the Select a Connector dialog box and displays the Step 1: Pick a Field tab of the Query Builder dialog box.

- 11** Double-click the **student School** option in the scrolled list box.

-OR-

Select the **student School** option in the scrolled list box and chose **Next step**.

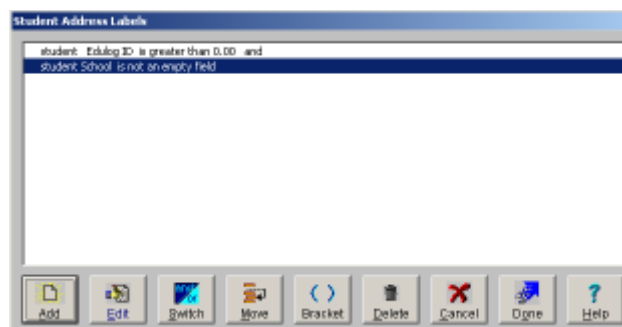


This system displays the Step 2: Pick an Operator tab of the Query Builder dialog box.

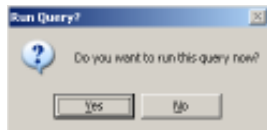
- 12** Double-click the **Is not empty** option.

-OR-

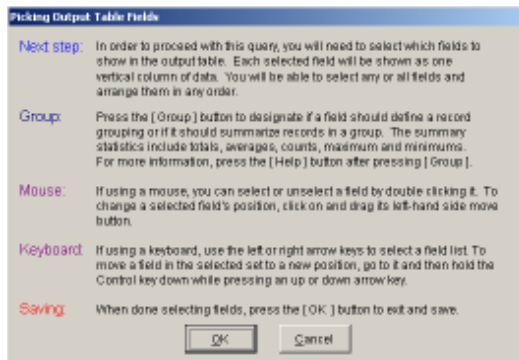
Select the **Is not empty** option in the scrolled list box and chose **Next step**.



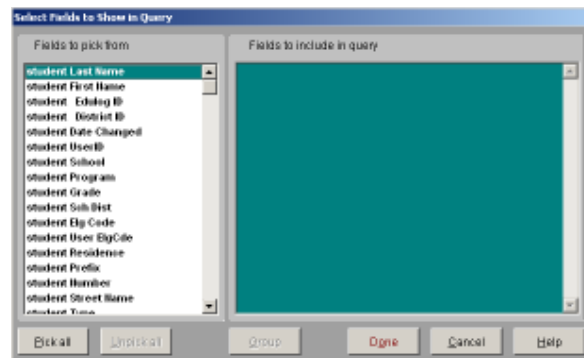
This system closes the Query Builder dialog box and displays the Filter Building dialog box with the filter you created.

13 Choose Done.

This system closes the Filter Building dialog box and displays a message box prompting you to run this query now.

14 Choose Yes.

This system closes the message box and displays the Picking Output Table Fields dialog box.

15 Choose OK.

This system closes the Picking Output Table Fields dialog box and displays the Select Fields to Show in Query dialog box.

16 Double-click student Last Name.**17 Double-click student First Name.****18 Double-click student Residence.****19 Double-click student City.****20 Double-click student State.****21 Double-click student Zip.**

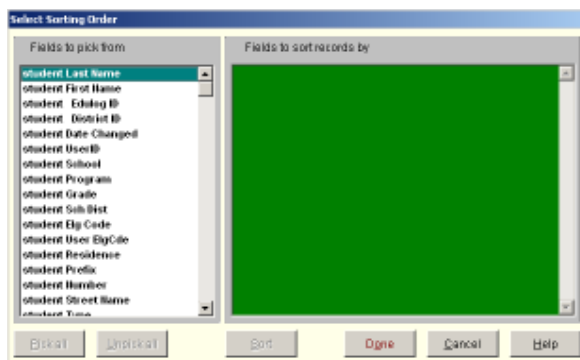
NOTES

22 Double-click **student Edulog ID**.

23 Choose **Done**.

This system closes the Select Fields to Show in Query dialog box and displays the Query Overview dialog box.

24 Choose **Edit Sort Order**.



This system displays the Select Sorting Order dialog box.

25 Double-click **student Last Name**.

26 Double-click **student First Name**.

27 Double-click **student Edulog ID**.

28 Choose **Done**.

This system closes the Select Sorting Order dialog box and displays the Query Overview dialog box.

29 Select the **Hide duplicate records** check box.

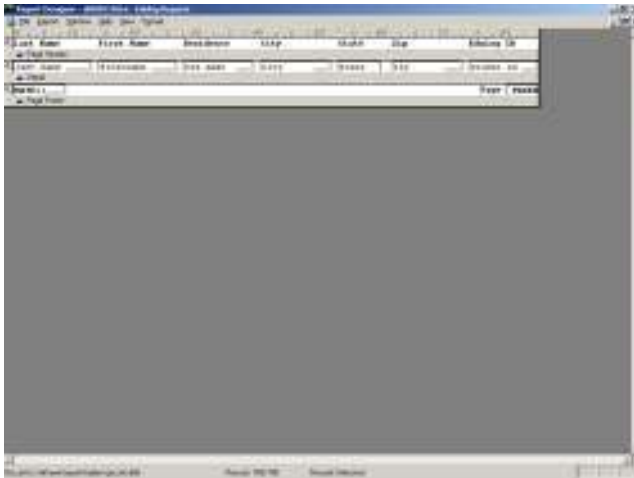
30 Choose **Run Query**.



This system runs the query. If it finds records, the system displays the Setup Report dialog box.

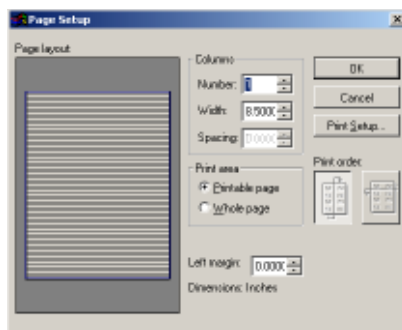
31 Choose **Edit Form**.

NOTES



This system displays the report in the Report Designer window.

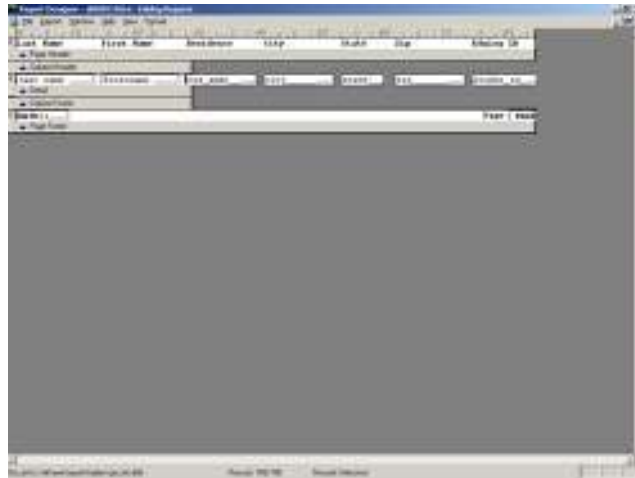
- 32** Choose **Page Setup** from the File menu.



This system displays the Page Setup dialog box.

- 33** In the Columns section, enter **3** in the Number field.
- 34** In the Columns section, enter **0.1000** in the Spacing field.
- 35** Enter **0.1000** in the Left margin field.
- 36** Choose **OK**.

NOTES



This system closes the Page Setup dialog box. You return to the Report Designer window.

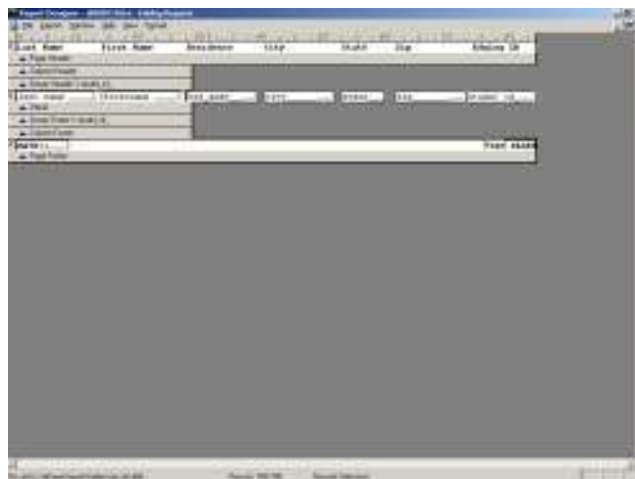
37 Choose **Data Grouping** from the Report menu.



This system displays the Data Grouping dialog box.

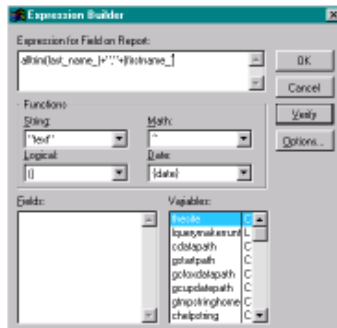
38 Enter **student_id_** in the Group Expressions field.

39 Choose **OK**.

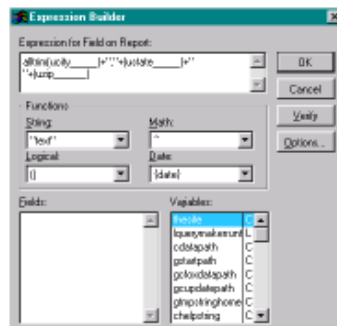


This system closes the Data Grouping dialog box. You return to the Report Designer window.

- 40** Select **all of the field labels** in the Page Header section.
- 41** Choose **DELETE**.
- 42** Move the **Page Header band** up so that it does not show in the body of the report.
- 43** **Alltrim** the last name and first name as shown in the following image:



- 44** **Alltrim** the city, state, and zip as shown in the following image:



- 45** Using the Label tool in the Report Controls toolbar, add a **label** with **To the parents of.**

When you preview the report, it should like the following:

To the Parents of
ABBOTT, JUSTIN
1821 ONACREST CT N
ROSEVILLE, MT 59003

To the Parents of
ABER, BRONSON
2811 GRIGGS ST. N
MISSOULA, MT 59801

To the Parents of
ABERCROMBIE, DORLISA
673 SILVER LAKE RD NW
LOLO, MT 59802

To the Parents of
ABERNATHY, ARYON
329 BROOKS AVE N
MISSOULA, MT 59801

To the Parents of
ADAMS, JOHN HENRY
1818 WALNUT ST N
LOLO, MT 59802

To the Parents of
ADAMS, SARFA
1499 WESTMINSTER ST
FRENCHTOWN, MT 59902

To the Parents of
ADAMS, SHEILA
1429 HOYT AVENUE W
ROSEVILLE, MT 59105

To the Parents of
ADAMS, TENESHA
2489 MCNEMMY STREET N
MISSOULA, MT 59805

To the Parents of
ALDINEY, SABRINE
343 COUNTY RD B W
ROSEVILLE, MT 59606

To the Parents of
ALTIMERY, AMJAD
966 CTY RD D E
ROSEVILLE, MT 59105

To the Parents of
ALBA, PAUL
2088 FRY ST N
FRENCHTOWN, MT 59802

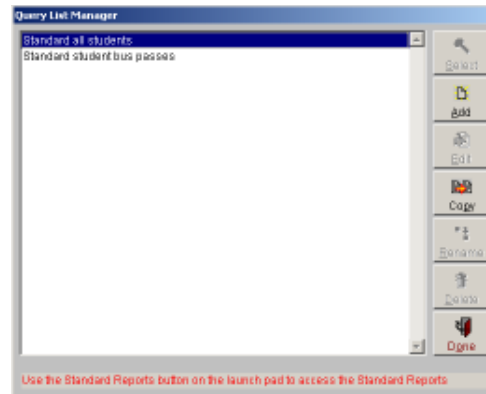
To the Parents of
ALEXANDER, CANDACE
1757 FRY ST. N
ROSEVILLE, MT 59601

NOTES

Sample Report 3

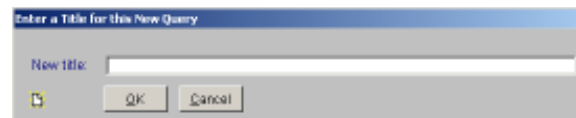
The following instructions describe how to create a report for runs that exceed a certain amount of time.

- 1 Choose the **Stops/Runs/Routes** button on the User Defined Reports launch pad.



This system displays the Query Overview dialog box.

- 2 Choose **Add**.



This system displays the Enter a Title for this New Query dialog box.

- 3 Enter a **title** in the New Title field.
- 4 Choose **OK**.



This system displays the Step 1: Pick a Field tab of the Query Builder dialog box.

- 5 Double-click the **run Run Length (min)** option in the scrolled list box.
- OR-**

Select the **run Run Length (min)** option in the scrolled list box and chose **Next step**.



This system displays the Step 2: Pick an Operator tab of the Query Builder dialog box.

- 6 Double-click the **Greater than** option.

-OR-

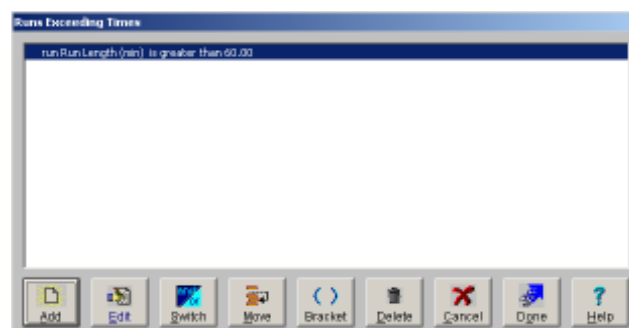
Select the **Greater than** option in the scrolled list box and chose **Next step**.



This system displays the Step 3: Enter a Value tab of the Query Builder dialog box.

- 7 Enter **60** in the text box.

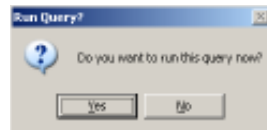
- 8 Choose **Done**.



This system closes the Query Builder dialog box and displays the Filter Building dialog box with the filter you created.

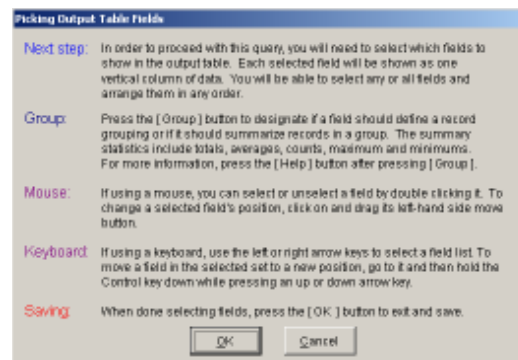
NOTES

- 9 Choose **Done**.



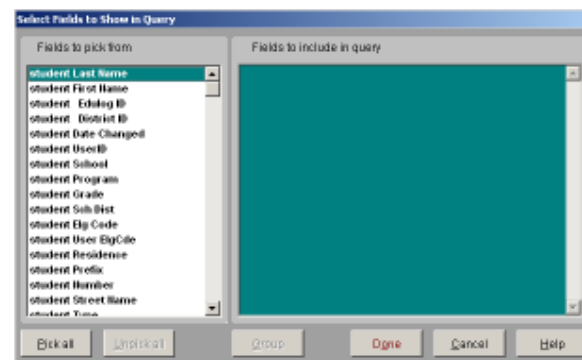
This system closes the Filter Building dialog box and displays a message box prompting you to run this query now.

- 10 Choose **Yes**.



This system closes the message box and displays the Picking Output Table Fields dialog box.

- 11 Choose **OK**.

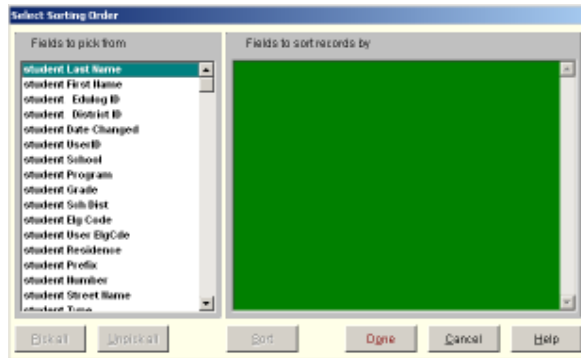


This system closes the Picking Output Table Fields dialog box and displays the Select Fields to Show in Query dialog box.

- 12 Double-click **run Run ID**.
- 13 Double-click **run Begin Time**.
- 14 Double-click **run End Time**.
- 15 Double-click **run Run Length (min)**.
- 16 Double-click **route Route ID**.
- 17 Choose **Done**.

This system closes the Select Fields to Show in Query dialog box and displays the Query Overview dialog box.

18 Choose Edit Sort Order.



This system displays the Select Sorting Order dialog box.

19 Double-click run Route ID.

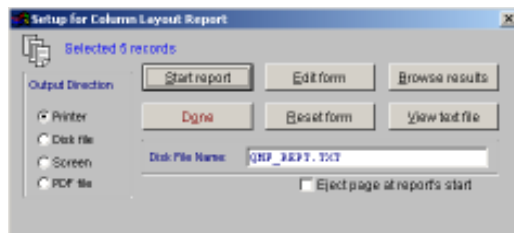
20 Double-click run Run ID.

21 Choose Done.

This system closes the Select Sorting Order dialog box and displays the Query Overview dialog box.

22 Select the Hide duplicate records check box.

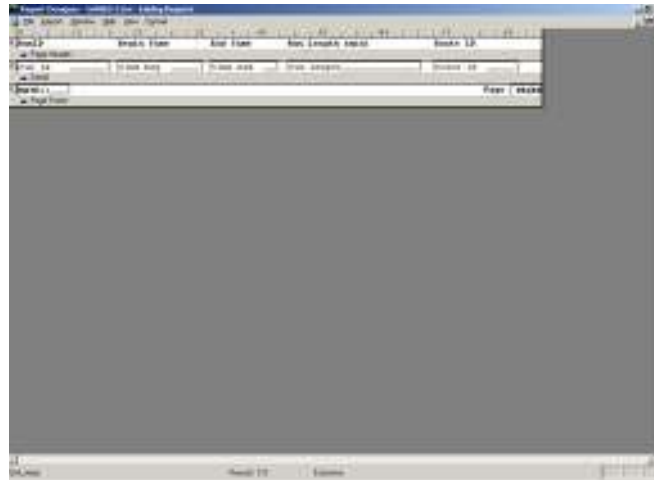
23 Choose Run Query.



This system runs the query. If it finds records, the system displays the Setup Report dialog box.

24 Choose Edit Form.

NOTES



This system displays the report in the Report Designer window.

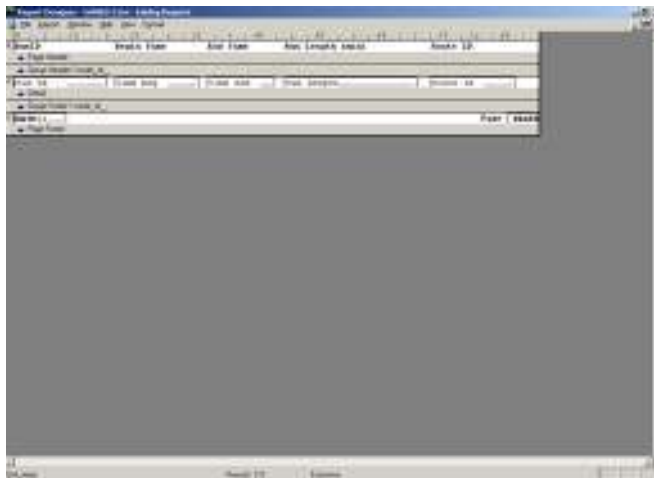
25 Choose **Data Grouping** from the Report menu.



This system displays the Data Grouping dialog box.

26 Enter **route_id__** in the Group Expressions field.

27 Choose **OK**.



This system closes the Data Grouping dialog box. You return to the Report Designer window.

28 Arrange the **fields** and **labels** as shown in the following image:



When finished, the report will look like the following image:

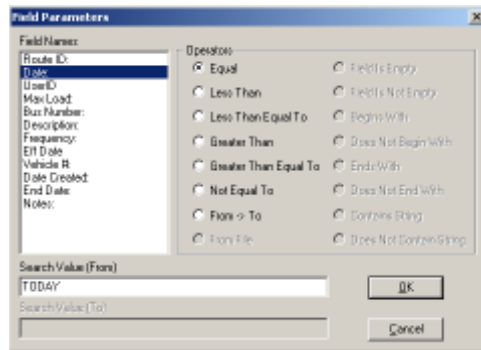
Runs that exceed 60 minutes			
Route # 39			
100.502	3:30 PM	5:12 PM	102
100.102	3:31 PM	4:34 PM	63
Route # 49			
200.001	7:04 AM	8:06 AM	62
200.101	2:15 PM	3:19 PM	64
Route # 15			
102.002	7:44 AM	8:48 AM	64
102.102	2:49 PM	3:55 PM	66
Route # 14			

Sample Report 4

The following instructions describe how to create a report for routes that were changed for a given day.

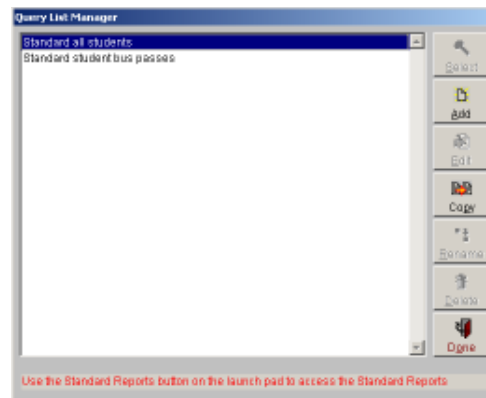
You can use a route worklist for this report. If you do, create the route worklist with the following parameters:

NOTES



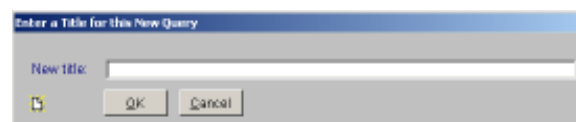
To create this report:

- 1 Choose the **Stops/Runs/Routes** button on the User Defined Reports launch pad.



This system displays the Query Overview dialog box.

- 2 Choose **Add**.



This system displays the Enter a Title for this New Query dialog box.

- 3 Enter a **title** in the New Title field.
- 4 Choose **OK**.

NOTES

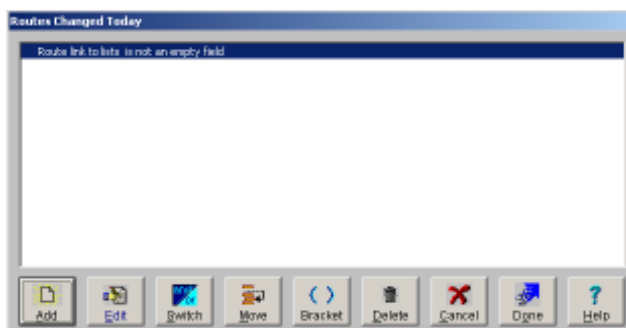


This system displays the Step 1: Pick a Field tab of the Query Builder dialog box.

- 5** Double-click the **Route link to lists** option in the scrolled list box.

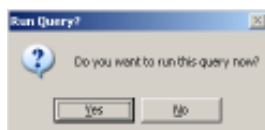
-OR-

Select the **Route link to lists** option in the scrolled list box and chose **Next step**.



This system closes the Query Builder dialog box and displays the Filter Building dialog box with the filter you created.

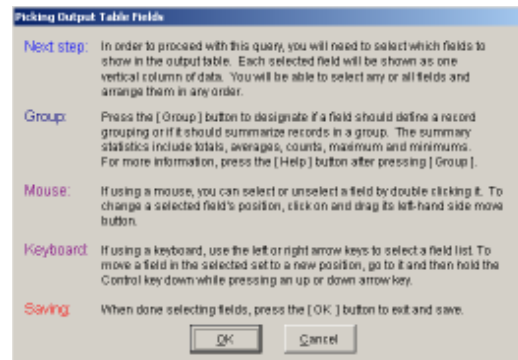
- 6** Choose **Done**.



This system closes the Filter Building dialog box and displays a message box prompting you to run this query now.

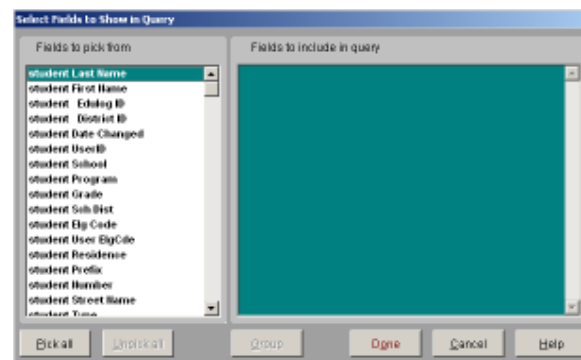
- 7** Choose **Yes**.

NOTES



This system closes the message box and displays the Picking Output Table Fields dialog box.

- 8** Choose **OK**.



This system closes the Picking Output Table Fields dialog box and displays the Select Fields to Show in Query dialog box.

- 9** Double-click **route Route ID**.
- 10** Double-click **route Date**.
- 11** Double-click **route UserID**.
- 12** Choose **Done**.

This system closes the Select Fields to Show in Query dialog box and displays the Query Overview dialog box.

- 13** Select the **Hide duplicate records** check box.
- 14** Choose **Run Query**.

NOTES



This system displays the Work Lists dialog box, which displays a list of route worklists.

15 Select the **<route worklist>** from the Route scrolled list box.

16 Choose **Update List Files**.

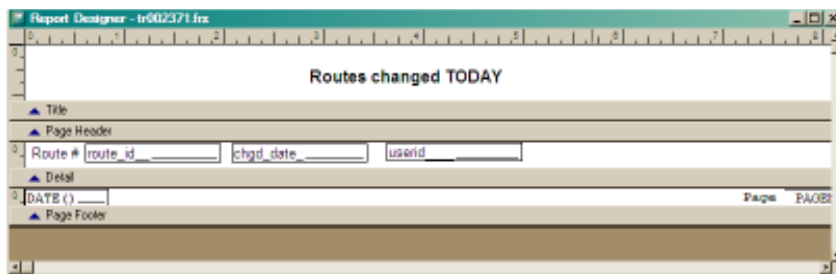


This system runs the query. If it finds records, the system displays the Setup Report dialog box.

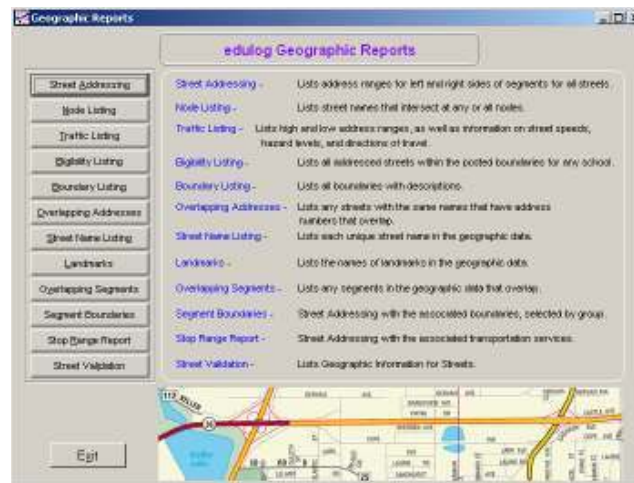
17 Choose **Edit Form**.

This system displays the report in the Report Designer window.

18 Arrange the **fields** and **labels** as shown in the following image:



NOTES

GEOGRAPHIC REPORTS

Geographic reports allow you to report on the following:

Street Addressing	This report lists address ranges for left and right sides of the segment.
Node Listing	This report lists street names that intersect at any and all nodes.
Traffic Listing	This report lists high and low address ranges, street speeds, direction of travel and hazard levels.
Eligibility Listing	This report lists all addressed streets within the posted boundary for any school.
Boundary Listing	This report lists all boundaries with descriptions.
Overlapping Addresses	This report lists any streets with street names that have address numbers that overlap.
Street Name Listing	This report lists each unique street name in the geographic area.
Landmarks	This report lists the names of landmarks in the geographic area.
Overlapping Segments	This report lists any segments in the geographic area that overlap.
Street Validation Report	This report allows you to outputs geographic information for a street/segment in a specified output file. This geographic information includes: address range (left low, left high, right low, right high), prefix, street name, suffix, type, map zone, city, state,

zip code, and boundary information for elementary, middle, and high schools.

Output devices for this report include the standard types (Screen, Printer, File, and PDF) as well as options for creating a formatted text file. The text file formats include fixed ASCII, comma-separated fields, tab-separated fields, and blank-separated fields.

After you output this information to a file, you can upload it into your student information system.

SPECIAL REPORTS

Student Counts	Produces reports listing the numbers of students at each of the schools in your system. You can produce student counts broken down by grade or by transportation eligibility code.
Route Time Line	Produces a time line report on routes in your system.
Deleted Students	Produces a list of all students that have been deleted (flagged for deletion, but not yet purged) in edulog.
Duplicate Students	Produces a listing of all students with duplicated information in the student database. You can use this report to find students that have the same first name, last name, and address (an indication that a student has been inadvertently entered into the system more than once) or to find students that have accidentally been given the same district ID number. You can check any field in student records for duplication.
Utility/ Audit Error	Provides access to reports produced by the various edulog Maintenance Utilities. When you examine these reports, you can change the information included in the report and the order in which it is arranged.
RR Crossing	Allows you to produce reports on hazards in your system. The hazards can be railroad crossings, narrow bridges, etc.
School Distance	Provides access to the School to School Distance report that shows the distances between each of the selected schools.

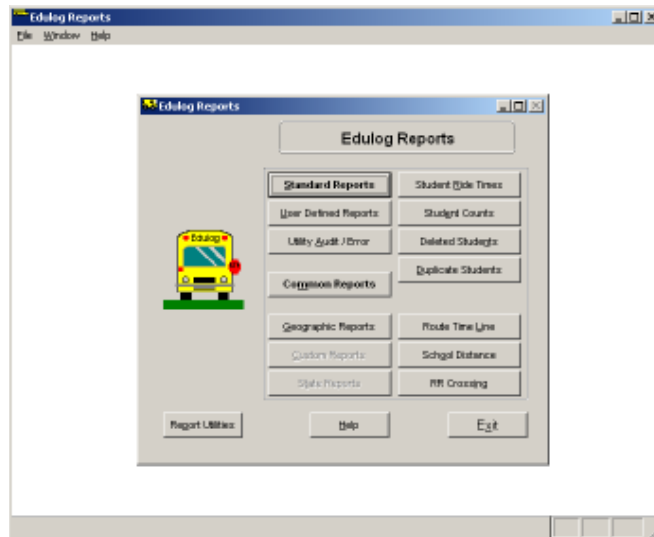
REPORT UTILITIES BUTTON

The Report Utilities button provides access to various utilities associated with the reports application (including Fix Report and Copy Reports). Only advanced users should run these utilities. When reports security is on, only administrative users have access to Report Utilities.

ADVANCED REPORTS

FEATURES IN QUERY MAKER (VISUAL FOX PRO 8)

Edulog Reports Launch Pad



Common Reports

- Quick and easy method of accessing all your commonly used reports.
- Can change filters or sort order but the changes will not be saved.

Report Utilities

- Fix report: fixes qm_rest errors and other potential problems with filters.
- Copy reports: used to copy reports between real and sim areas or any other reports. You can select reports needed to be copied.
- Update from install: updates report executables and paths not updated during the install. This changes Stop Location to stp_seq in reports.
- Need Cmndst: Checks to see if there are any common destinations records in your system and if they are being used in reports. If not, you should check to make sure that the Cmndst setting in ElSettingsEditor is turned off.
- Need Request: Checks to see if there are any request records in your system and if they are being used in reports. If not, you should check to make sure that the Cmndst setting in ElSettingsEditor is turned off.
- Schedule Reports: Allows you to have the system automatically produce and email any standard or user-defined reports that you have created. You can run the ReportScheduler utility in EMU to indicate when you want to generate the report.

School Distance Report

- Must first run DUMPSCHDST utility in EMU.
- Gives distances from one school to another.

Student Ride Times

- Provides a report of students who ride longer than a given value.

The Format Button

The Format button, which is available on each report, opens the Reports Format window.

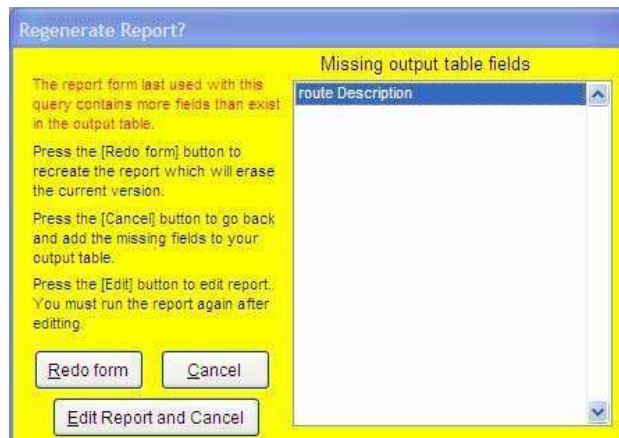
Some of the options on this window are:

- Link for inactive stops report: stops not assigned to runs, services not assigned to runs, and stops with no services.
- Shortened driver directions: directions can now be printed horizontally across the page using an S, L, R, and T. Significantly cuts down on paper.
- Report list functionality: allows you to choose whether you want to pick from a list of records or type in your own records.
- Maximum number of choices: in regard to report list functionality, if you pick display field choices, it will only display the maximum number you pick.
- One stop per location: if you have multi-school runs, it will only display one of the stops. The stops are noted with an asterisk (*).
- Include deadheads: deadheads are now part of the run; if you want them to display, you can click this box.
- Include checkpoints: prints the first and last checkpoints on your runs.

NOTES

- Add reports to common button: allows you to add the selected report to your Common button.
- Choose a sort order for common reports: Input Order/Alphabetical.

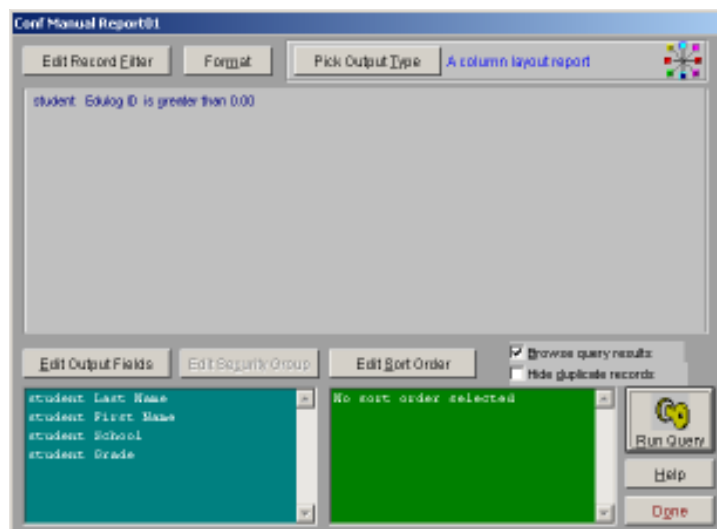
The Yellow Screen



If you have changed par files or done something else to bring up the “yellow screen of death” as it was known, you will be glad to know that you can click **Edit Report and Cancel** to edit your report without losing the whole thing. You can edit the report to put in the missing fields that are listed.

CREATING ADVANCED REPORTS

Query Overview Dialog Box



The Query Overview dialog box contains the following features:

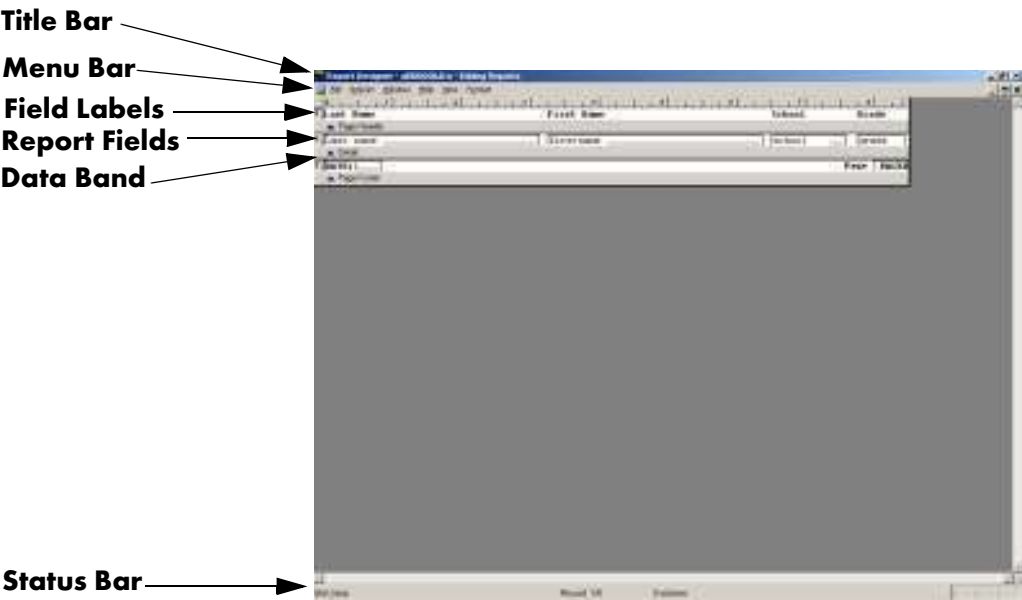
Edit Record This button opens the Filter Building dialog box that allows you to

Filter	add, edit, or delete a query filter.
Edit Output Fields	This button opens the Select Fields to Show in Query dialog box that allows you to add or remove fields in the report.
Edit Sort Order	This button opens the Select Sorting Order dialog box that allows you to sort the data in the report.
Pick Output Type	This button opens the Type of Output dialog box that allows you to pick an output for the report, like an Excel spreadsheet or an ASCII file. If you select a file as the output type, you need to enter a path and filename where the system should save the report in the File name field. A new feature on this dialog box is the ASCII file user-defined lengths report.
Browse Query Results	This check allows you to review the report data before it goes to the report form. When this check box is checked, the system displays a result table with the data for the report.
Hide Duplicate Records	This check box allows you to hide duplicate records in the report data, which can be very helpful with student information. When this check box is selected, the system will not display duplicate data.

The Report Designer Window

After you choose Run Query on the Query Overview dialog box, the system gathers the data for your report and displays the Setup Report dialog box that allows you to preview your report as well as edit the report form. To edit the report form, choose **Edit Form**.

NOTES



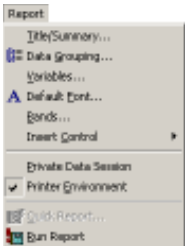
The system displays the report from in the Report Designer window.

The File Menu



Page Setup This command opens the Page Setup dialog box, which allows you to setup how the page looks. The Page Setup dialog box allows you to adjust the margins and the print area.

The Report Menu



Title/ This command opens the Title/Summary dialog box that allows you

Summary to add a title or summary to the report. The title only prints on the first page of the report. The summary only prints on the last page of the report.

Data Grouping This command opens the Data Grouping dialog box that allows you to group data.

When you group data, the system adds data bands to the report:

Group Header - The fields in this band will print at the beginning of each group.

Group Footer - The fields in this band will print at the end of each group.

Variables This command opens the Report Variables dialog box. This feature is a very advanced feature that allows you to create your own variables.

Variable names must begin with **m.** and they must be given a unique name. You will also need to include the **m.** in your expression as well.

If you group data in your report, you need to sort the data the same way that it was grouped.

The View Menu

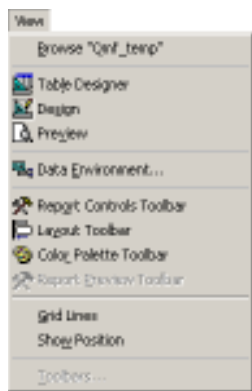


Table Designer This command opens the Table Designer window that lists all of the output fields in the report. This window displays the field names of the output fields, which are 10 characters. When you add a new field to the report, the field will appear in this list.

NOTES

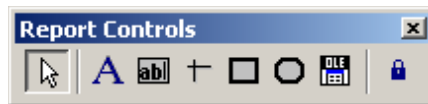


Preview

This command allows you to preview the report design. The system displays the report in a Print Preview window, which shows you how the report will look when it is printed.

Report Controls Toolbar

This command displays the Report Controls toolbar, which has tools for designing and modifying your report.

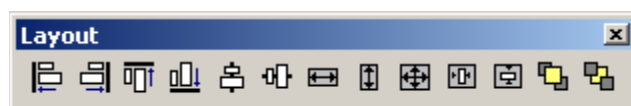


Tool	Tool Name	Description
	Select Objects tool	This tool allows you to select text boxes or fields on the report.
	Label tool	This tool allows you to add a label to the report.
	Field tool	This tool allows you to add a field to the report. Only use fields listed in the Table Designer window.
	Line tool	This tool allows you to add lines to the report.
	Rectangle tool	This tool allows you to add a rectangle to the report.
	Rounded Rectangle tool	This tool allows you to add a rounded rectangle to the report.

Tool	Tool Name	Description
	Picture tool	This tool allows you to add pictures to the report.
	Button Lock tool	This tool allows you to lock the buttons on the toolbar.

Layout Toolbar

This command displays the Layout toolbar, which has tools that are very useful for aligning the fields on the report.



Color Palette Toolbar

This command displays the Color Palette toolbar, which has tools for adding color to text boxes.



Grid Lines

This command displays grid lines on the Report Designer window, which help you align fields on the report.

Show Position

This command shows the position of the selected item in the bottom left corner.

The Format Menu



Align

This command displays a sub-menu of commands for aligning the report fields and labels. These commands are also available on the Layout toolbar.

Horizontal Spacing

This command displays a sub-menu of command for help with the horizontal alignment of the report fields and labels.

NOTES

Vertical Spacing	This command displays a sub-menu of commands for help with the vertical alignment of the report fields and labels.
Bring to Front	This command brings the selected item to the front so that it appears on top of the fields.
Send to Back	This command brings the selected item to the back so that it appears behind the fields.
Snap to Grid	This command aligns and snaps objects to the grid.
Set Grid Scale	This command allows you to design your own grid to help with spacing and alignment depending on the font used for the report.
Font	This command allows you to change the font as well as the appearance of the report text.
Text Alignment	This command displays a sub-menu of command for aligning text within a text box or field.

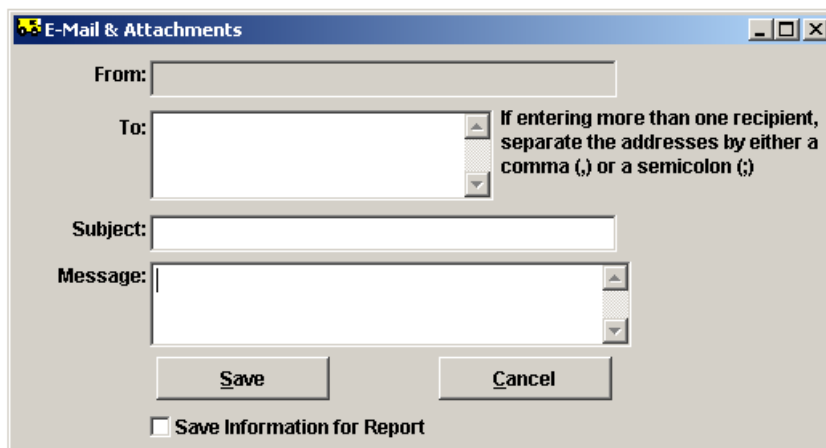
Helpful Hints for Creating Reports

- Where you put the fields is very important. Make sure you keep the corresponding fields with the correct bands.
- Sort order is equally important. Make sure your sort order is correct so the data is coming in correctly. You can always browse the query results to see exactly how the records are being sorted.
- When moving fields and text around, use your mouse to move large distances and your arrow keys to move minute distances.
- You can enlarge a field horizontally or vertically very minutely by holding down your shift key, then using your arrow keys. You can also select multiple text/fields and do this. This is very useful if you have a series of lines that you have to extend or shrink.
- Always copy a report to make a backup before you make extensive changes to it.
- When adding user-defined student information to a report, always check to make sure that the other fields in the report don't have Print When commands. Many times, the student information needs a Print When that is already included on the other fields. Copy and paste an existing field, then change the expression.
- The most important advice...try, try again. Reports take a lot of trial and error. If it doesn't work the first time, just try something else. Move information around in the bands, try creating variables...just don't lose your patience!

Emailing Reports

You can include reports saved as PDFs or text files as attachments in email messages. Before you can email a report, you need to run the ReportAccess.exe utility located in the Elt/Exe/Server folder to setup the SMTP connection and the sender's email address. Make sure to select the path to the Dbtables folder for the data area you want to report on.

To email a report, first select the Disk File or PDF output option. Select the Send as Email Attachment check box, then choose the Email button.



The screenshot shows a standard Windows-style dialog box titled "E-Mail & Attachments". It features four input fields: "From:", "To:", "Subject:", and "Message:". The "To:" field is accompanied by a scrollable list box and a text box. To the right of the "To:" field, there is a note: "If entering more than one recipient, separate the addresses by either a comma (,) or a semicolon (;)". At the bottom of the dialog, there are two buttons: "Save" and "Cancel". Below these buttons is a checkbox labeled "Save Information for Report".

This window allows you to enter the recipient's email address, a subject line for the message, and any text you want to include in the message.

Report Examples

Student Counts

- You can set up student counts within your report.
- Make sure you reset the counts on the appropriate field.
- Done by a combination of putting the field in the proper band, then doing a calculation on it.

NOTES

CONFERENCE TRANSPORTED STUDENT GRADE COUNT

Edit Record Filter Format Pick Output Type A column layout report

The AM Stop ID is not an empty field. or
The PM Stop ID is not an empty field.

Edit Output Fields Edit Report Group Edit Sort Order ☐ Hide query results
☒ Hide @-column-reports

student Last Name
student First Name
student School
student Grade
Tcn School Name

student School
student Grade

Run Query

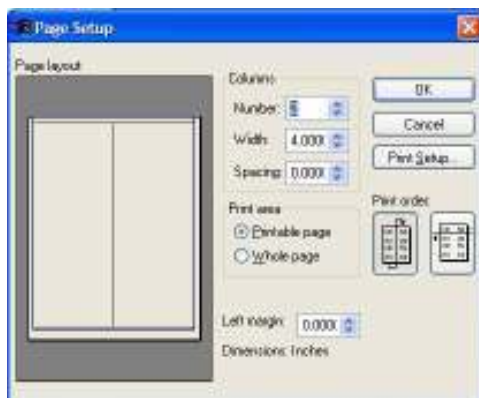
Help

Done

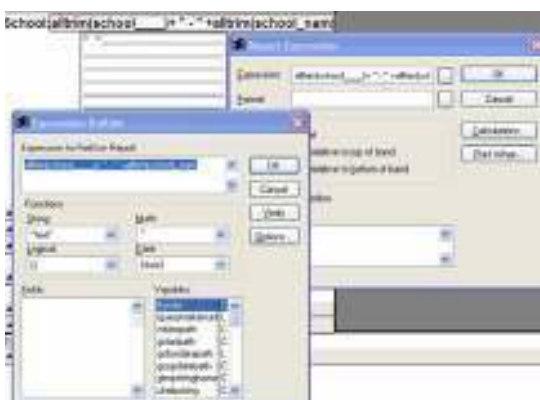
GRADE COUNTS FOR TRANSPORTED STUDENTS	
School:100 - LINCOLN ELEMENTARY Grade 01 = 5 Grade 02 = 6 Grade 03 = 4 Grade 04 = 7 Grade 05 = 4 Grade 06 = 3 Grade KA = 3 Grade KP = 1 School Total: 33	School:104 - ADAMS ELEMENTARY Grade 01 = 27 Grade 02 = 17 Grade 03 = 7 Grade 04 = 16 Grade 05 = 16 Grade 06 = 23 Grade KA = 11 Grade KP = 10 School Total: 127
School:101 - JEFFERSON ELEMENTARY Grade 01 = 11 Grade 02 = 8 Grade 03 = 5 Grade 04 = 7 Grade 05 = 4 Grade 06 = 9 Grade KP = 3 School Total: 47	School:105 - KENNEDY ELEMENTARY Grade 01 = 23 Grade 02 = 22 Grade 03 = 7 Grade 04 = 6 Grade 05 = 20 Grade 06 = 18 Grade KA = 4 Grade KP = 13 School Total: 113
School:102 - GRANT ELEMENTARY Grade 01 = 4 Grade 02 = 8 Grade 03 = 8 Grade 04 = 5 Grade 05 = 5 Grade 06 = 8 Grade KA = 1 Grade KP = 4 School Total: 39	School:200 - M. L. KING ELEMENTARY Grade 01 = 1 Grade 02 = 2 Grade 03 = 2 Grade 04 = 1 Grade 05 = 2 Grade 06 = 3 Grade 07 = 1 School Total: 12
School:402 - BUFFALO HEIGHTS SENIOR HIGH Grade 11 = 2 School Total: 2	
Grand Total: 533	

This is an example of a student count report by school and grade for only transported students. You can get counts of all your students in the Students with Trips button, but it won't give you a count of transported students. The filters here include any students that either have an AM stop, a PM stop, or both. In this case, the sort order is very important, because when doing counts you want the students to be grouped by their school then grade.

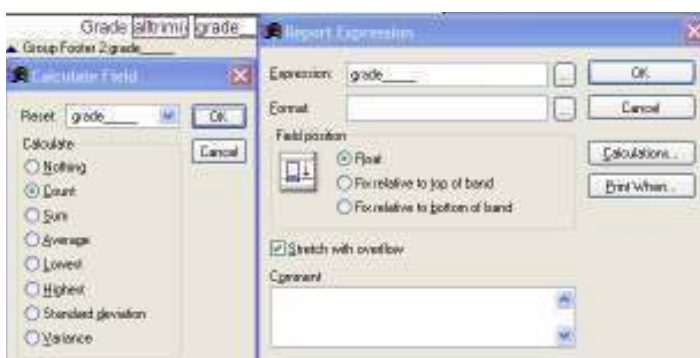
NOTES



The report is set up for two columns with the data flowing from the top to the bottom in the first column, then flowing onto the second column.



This expression uses the Alltrim command to connect two fields. The Alltrim command takes out all extra spaces when you are trying to connect the fields. There is also a dash here that is in quotes. Anytime you need to have text in an expression, you can add it by putting it in quotes, followed by a plus sign. Plus signs must connect all fields and text.

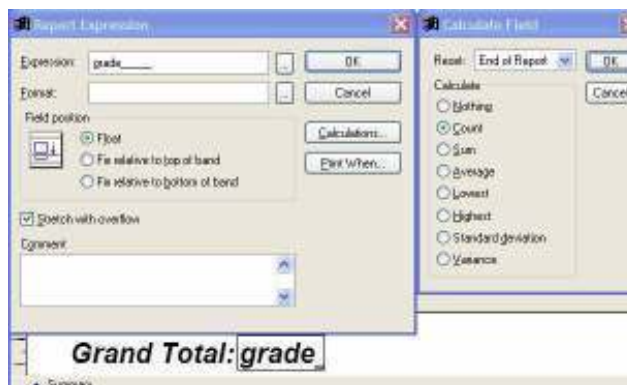


This is the grade count calculation. Remember when doing a calculation you always want to have it above the band that you are counting on. After clicking on the Count button, make sure you reset the field you are counting and pick Count under Calculate.

NOTES



With the school count, the same rules apply as to the grade count.



The grand total is in the summary band, which appears on the very last page of the report. Note that the count is being reset at the end of the report so every student will be counted.

Student Mailers/Letters

- Bus passes is the best place to do these, since you can separate out the AM and PM information.
- Make sure the body of your letter is within the detail band.
- Keep in mind when typing text that you can type a maximum of 250 characters per string. So you don't run out of room, it is best to type two lines then select the text tool again to start a new sentence.
- You can make passes that you can cut out, create an Excel file to perform a mail merge in Word, or create letters that you can send to parents.

Passes

NOTES

The screenshot shows the 'Missoula Public Schools Bus Pass 2004-2005' form. The form includes fields for School Name, AM Stop, AM Time, PM Stop, and PM Time. A 'Page Setup' dialog box is open, showing the 'Page Layout' tab. The dialog box has fields for Columns (Number: 2, Width: 4.073, Spacing: 0.000), Print area (Printable page, Whole page), and Left margin (0.000). The 'Print order' section shows two options: 'Print order' and 'Print order'.

The screenshot shows two examples of printed bus passes for Lincoln Elementary. The first pass is for a student named PAULY VANDEBARGE, with AM Stop: 2147 ROSEWOOD LHN, AM Time: 09:01 AM, PM Stop: 2147 ROSEWOOD LHN, and PM Time: 04:17 PM. The second pass is for a student named TABITHA HAMMER, with AM Stop: ROSELAWN & MIDLAND HILLS (NO SIDE), AM Time: 08:55 AM, PM Stop: ROSELAWN & MIDLAND HILLS (NO SIDE), and PM Time: 03:52 PM. Both passes include the school name, student name, and the address 2819 ROSELAWN AVE W.

The format of the passes is very basic. All you have to do is setup your columns, then enter the information you want to include. If you have perforated cards, you may need to print them out a few times to get the alignment correct.

NOTES

Letters

edulog 3000 PALMER STREET **edulog**
Education Logistics, Inc. MISSOULA, MT 59808 Education Logistics, Inc.

Page Header

To the Parents of:
ALLTRIM(firstname) + " " + ALLTRIM(l
rea addr

DATE: _____

Dear parent/guardian of ALLTRIM(firstname) + " " + ALLTRIM(last name) + " ":

Please note the following stop location and stop time information for your child. This information is what the transportation department has on record for student. Please note that the stop time is an estimate and subject to change.

If you feel there is an error in the provided information, please contact us immediately at 406-555-1212. If the information is accurate please sign and date the bottom portion of this letter. Tear at the dotted line and have your child present it to the bus driver when boarding the bus. Please have your student to the bus stop 10 minutes prior to the bus arriving.

Sincerely,
Bob Smith
Bob Smith
Transportation Director
Missoula Public Schools

PLEASE BE AT BUS STOP 10 MINUTES PRIOR TO ARRIVAL TIME

Student Name: ALLTRIM(firstname) + " " + ALLTR
School: school nam
Grade: grade

edulog 3000 PALMER STREET **edulog**
Education Logistics, Inc. MISSOULA, MT 59808 Education Logistics, Inc.

To the Parents of:
ANGELA ALFANERO
1474 SANDHURST DR W

06/09/2006

Dear parent/guardian of ANGELA ALFANERO:

Please note the following stop location and stop time information for your child. This information is what the transportation department has on record for student. Please note that the stop time is an estimate and subject to change.

If you feel there is an error in the provided information, please contact us immediately at 406-555-1212. If the information is accurate please sign and date the bottom portion of this letter. Tear at the dotted line and have your child present it to the bus driver when boarding the bus. Please have your student to the bus stop 10 minutes prior to the bus arriving.

Sincerely,
Bob Smith
Bob Smith
Transportation Director
Missoula Public Schools

PLEASE BE AT BUS STOP 10 MINUTES PRIOR TO ARRIVAL TIME

Student Name: ANGELA ALFANERO
School: LINCOLN ELEMENTARY
Grade: 04

AM Stop: MERRILL ST W & SANDHURST DR W
08:59 AM
PM Stop: MERRILL ST W & SANDHURST DR W
03:47 PM

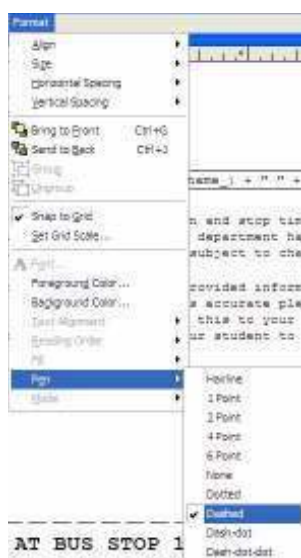
Parent Signature: _____ Date: _____

The setup of this report is fairly simple, despite its fancy appearance. The picture of the format is compacted so you can view all aspects. The final output has the body of the letter moved down so the address can appear in a windowed envelope if the letter was tri-folded. There are a few formatting options to note on this report.

NOTES



The Picture tool was used to insert a picture. Just point to your .bmp or .jpg image and choose how you want the picture framed. Clip picture retains original shape of your picture, scale/retain shape allows you to enlarge the picture but you can't stretch it, scale/fill frame will allow you to stretch the picture either horizontally or vertically.



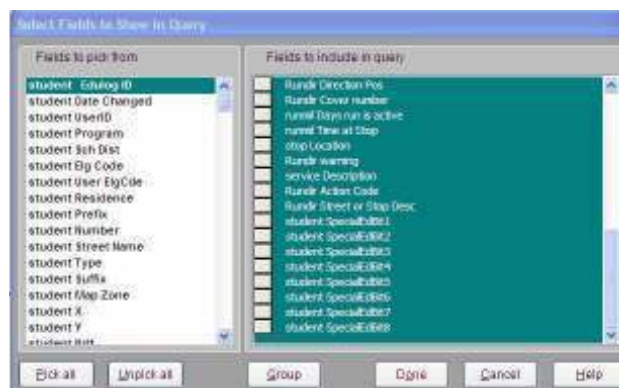
This is a minor note, but it is very useful to put dashed lines in a report. Choose the Line tool, go to Format/Pen, then choose Dashed to put a dashed line in your report.

NOTES

Special Ed Reports**Basic Version**

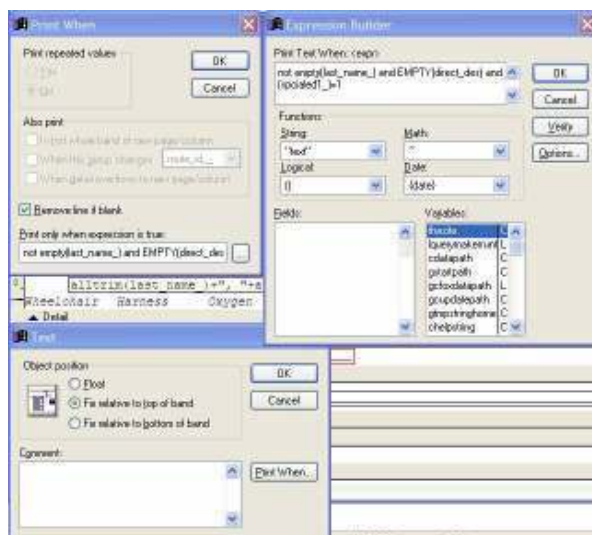
SPED ROUTE REPORT						
Route ID: 501		Bus Number:				
Route Description: THELMA JOHANNA'S ROUTE						
Run Time: 0600000						
RouteID	501	Run Frequency	ADAY			
RouteDescription: N. LEXER DRIVE BUS						
7:21 DISTRICT BUS CANARD						
(R) BELWOOD AT N (L) ARBERRY AT (L) LINDENBOM AVE N (R) CORREY ROAD N W (L) DALLAS RD AVE						
7:34 DALLAS RD AVE N W & BLINDRIDGE AVE W						
Last Name, First Name		BRUNCEID	Student ID	0000000000	000	00
VALERIE, HEERY				0000000000	000	00
Board/Alar - Student	Driver	Car Seat-1	Approved	Car Seat-2	Bus Alarm	Approved Alarm
(R) BELWOOD AVE (L) ARBERRY AVE N						
7:35 7000000 AVE W & 45 ARBERRY AVE N						
Last Name, First Name		BRUNCEID	Student ID	0000000000	000	00
SPENCER, DENISE M				0000000000	000	00
Board/Alar - Student	Driver	Car Seat-1	Approved	Car Seat-2	Bus Alarm	Approved Alarm
ATIN, CHIE				0000000000	000	00
Board/Alar - Student	Driver	Car Seat-1	Approved	Car Seat-2	Bus Alarm	Approved Alarm
(L) CORNWALL AVE N (R) BURE AVE W						
7:36 1234 BURE AVE W						
Last Name, First Name		BRUNCEID	Student ID	0000000000	000	00
DELEON, RICHARD S				0000000000	000	00
Board/Alar - Student	Driver	Car Seat-1	Approved	Car Seat-2	Bus Alarm	Approved Alarm

This is a standard route report that we copied, then added the Special Ed information. It will print out the corresponding special ed bit for each student.



You first need to add the special ed bits to your output. Keep in mind that special ed bit 0 is the “reserved for future expansion” bit.

NOTES



Next, add the text for each bit, then do a Print When on the text with the following criteria. The important part is the end where it says, “spcialied1_ = 1”. This is telling it to only print when the bit is checked (0 is unchecked, 1 is checked).

Advanced Version

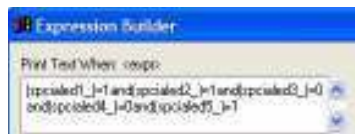
Last Name, First Name	DistrictID	School	Grade
BROWN, DENISE M	000061923900	300	08
Wheelchair -Harness	Car Seat-1	Car Seat-2	
AVERY, JAMIE	000068649100	300	07
Wheelchair -Oxygen	Car Seat-1		
(L) FERWOOD AVE N (S) FERWOOD AVE N (S) FERWOOD AVE N (S) FERWOOD AVE N (R) BURGESS AVE W			
7:35 1206 BURKE AVE W			
Last Name, First Name	DistrictID	School	Grade
NOLSON, MICHELE S	000061712600	300	08
Wheelchair -Car Seat-1			
(S) BURGESS AVE W (R) LINDY AVE (L) ELDRIDGE AVE M (L) LEXINGTON AVE N			
7:37 LEXINGTON & BURKE			
Last Name, First Name	DistrictID	School	Grade
TURCLOS CANPOS, JULIA	000061327700	300	08
Oxygen			
(S) LEXINGTON AVE N (S) LEXINGTON AVE N (S) LEXINGTON AVE N (S) LEXINGTON AVE N (S)			
LEXINGTON AVE N (R) SHERREN ST			
7:41 SHERREN AV W & OXFORD ST N			
Last Name, First Name	DistrictID	School	Grade
GALES, MALIK NICOLA	000061873400	300	08
Wheelchair -Car Seat-1	Car Seat-2		
SACHER, MARK	000061847100	300	08
Wheelchair -Oxygen	Car Seat-1		
THOMPSON, BRADLEY	000061811100	300	07

You can align the different special ed bits to the left, but it is very difficult because you have to think of every combination that can possibly be picked for the bits.

NOTES

[illegible]

There are only six of them listed here, and you can see how large the report is getting already.



Here is how you would set up the first attendant in the third column, this has to happen with every combination and it gets very complicated.

Group Header Select_dex					
alltrim(last_name) + ", " + alltrim(first_name)	dist_id	school	grade		
Raymond B	Raymond B	Raymond B	Raymond B	Raymond B	Raymond B
Detail					

Once you have finished putting all the combinations in, you must overlap them.

Route Manifest

NOTES

Transportation Manifest for Morning Route

Route 101 / THELMA JOHANN'S ROUTE
Rte 300/014 (M LEWIS JUNIOR HIGH)
Morning Bell: 7:45 AM

Stop Time	Description	Days: MTWTF
7:31 AM	DISTRICT BUS GARAGE	
7:34 AM	DELLWOOD AV N & ELDREDGE	
Student: VALENTIN, NERDY	NTWUF	
7:35 AM	FERNWOOD AV N & 45 SHRYER	
Student: AVERY, JAMIE	NTWUF	
Student: BROWN, DERRICK M	NTWUF	
7:35 AM	1205 BURKE AVE W	
Student: ARSENAULT, MICHELLE S	NTWUF	
7:37 AM	LEXINGTON & BURKE	
Student: LUNDQVIST, JULIA	NTWUF	
7:41 AM	SHERREN AV W & OXFORD ST N	
Student: ASCHENOLD, JUAN M	NTWUF	
Student: DALES, MALKI NOKA	NTWUF	
Student: FACKER, MARK	NTWUF	
Student: THOMPSON, BRADLEY	NTWUF	
7:42 AM	SANDHURST DR W & GROTTO ST	
Student: SCOTT, ELIJAH	NTWUF	
Student: STOWER, JESSE	NTWUF	
Student: VEGA, MADOLINE	NTWUF	
7:43 AM	SCHOOL: M. LEWIS JUNIOR	

Page: PAJ Las Vegas 2005
Transportation Manifest for Morning Route DATE TIME()

▲ Title

▲ Page Header

▲ Route: "alltrim(route_id)" / "alltrim(route_desc)"

▲ Group Header 1: route_id

Run: "alltrim(run_id)" / "alltrim(run_desc)"

Morning Bell: "alltrim(dest_time)"

Stop Time Description

▲ Group Header 2: run_id

▲ Group Header 3: run_seq

Days: eff_freq

▲ Group Header 4: run_cove

dir_time IF(SUBSTR(fstop_id, 1, 1) = "@")

▲ Group Header 5: stop_seq

Student: "alltrim(last_name)" + "alltrim(runfreq)" + "DOB: "alltrim(birth_d)" + "alltrim(school)" + "alltrim(runfreq)"

▲ Detail

▲ Group Footer 5: stop_seq

▲ Group Footer 4: run_cove

▲ Group Footer 3: run_seq

Afternoon Bell: "alltrim(dest_time)"

▲ Group Footer 2: run_id

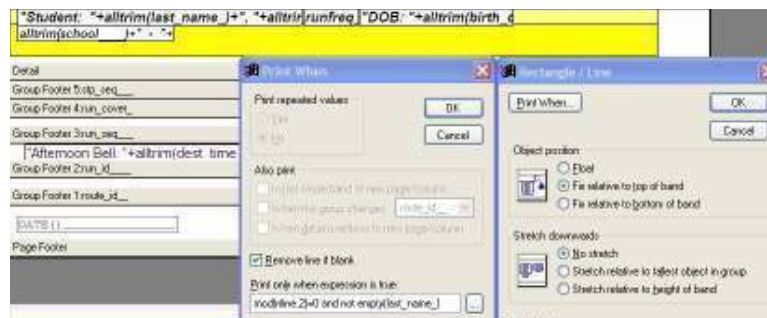
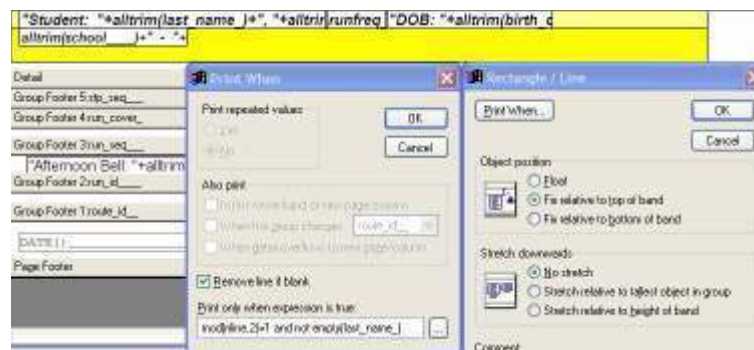
▲ Group Footer 1: route_id

DATE() Page PAGE()

▲ Page Footer

This is an elaborate version of a route report with run, stop, and student information. There are a few parts to this report that should be noted.

NOTES



These pictures depict how to set up the alternating background colors on the students. First you must set up a variable that is called Nline. As mentioned earlier in this document, variables must begin with “m.” This particular variable just counts the number of records (students in this case). Two differently colored shaded boxes are added around the student information with the Print When commands. The Mod command takes the first expression divided by the second and returns the remainder, 0 or 1.

NOTES



The IIF command is used in this instance. The IIF command looks at an expression, then if it is true it returns the first field, but if it is false it returns the second field.

Trip Ticket (Route Checklist)

Route Description: *+alltrim(route_d)

BUS: *+alltrim(bus)

Bus Trip Ticket
 Las Vegas 2008
 Start on Date:

After Starting Engine

During Initial Movement of Vehicle

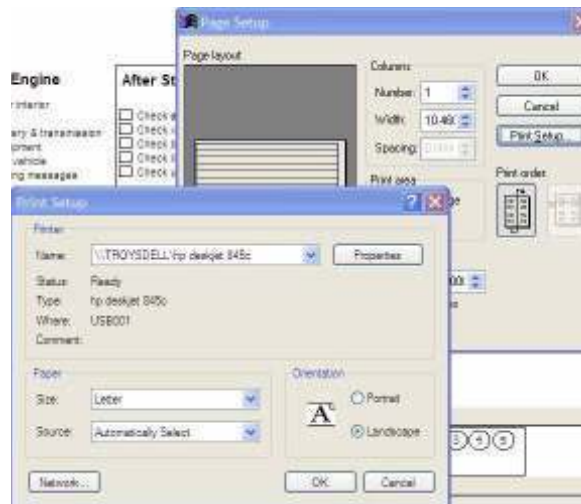
ETC. Stop reasons

Group/Order Location

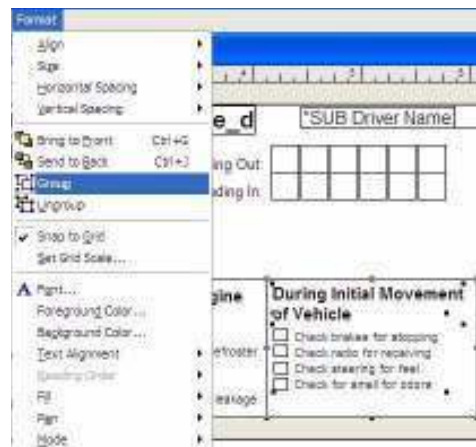
[illegible]

This report can be used by regular or sub drivers. The drivers can check off all the safety issues, as well as write the times that they arrive/depart from each stop. There are a few elements to look at with this report.

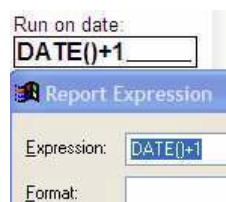
NOTES



This is setup as a landscape format so you can fit more information across the report.



Many of the individual text boxes, circles, and squares have been grouped together so it is easier to move them around all at once. You can either hold down shift and click on each one or drag your cursor across all of the text/fields to select them, then choose the Format/Group/Ungroup options.



The run on date simply has the date + 1, so you can print the reports out the night before on the route is driven.

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Special Needs Routing
Table of Contents

SPECIAL NEEDS ROUTING IN EDULOG

NOTES

Special needs routing is a labor-intensive, student-specific school bus routing process. This is true whether you use pushpins and string, Excel or edulog to perform the tasks. However, wise use of edulog can increase your ability to process changes, supplement your knowledge of where students are at any given point and enhance your ability to inform others of the same. The focus of this session will be on setting up edulog, without feasibility checking, to work with special needs students.

Even more than a regular student-based implementation of edulog, Special needs routing requires a clean database. These techniques were developed by working with many special needs transportation departments. All of the things discussed below are designed to ensure the students are properly routed. We have found that the more meticulous you are to detail the better off you will be. We have found these procedures to be a good starting point for special needs routing.

QUESTIONS

- Is your system integrated? Do special needs students ride on general education buses or do general education students ride on special needs buses?

If the answer is yes to either question, then there is no question that your edulog special needs system needs to be integrated into the edulog general education system.

- Is your system non-integrated? (Two separate systems)

Advantages: 1) separate maps allow for different routing conditions (a special needs bus will travel all streets. General education buses will have “no travel” segments), and 2) a special needs bus speed will average faster than a general education bus.

Disadvantages: 1) two maps to maintain, and 2) retrofitting traffic attributes.

- What type of system are you currently using for your special needs routing? Excel? Color coded wall map? Something else?

DISCUSSION TOPICS

Some things to decide before data setup:

- What is the amount of time the transportation department has to route a Special Needs student?
- Route Changes to Drivers

Example districts: Tacoma, WA - 1 week and Mesa, AZ - 2 weeks

SAMPLE ROUTING TIMETABLE

Start	Changes Received	Printed	To Drivers
Monday AM	Wednesday - Thursday	Thursday PM	Friday AM
Thursday AM	Friday - Monday - Tuesday	Tuesday PM	Wednesday AM

Start dates minimize the confusion of making changes to routes everyday. It is also a way to manage expectations.

DISCUSSION TOPICS

- Manual approach to SPED routing in edulog:
 - Routing one student at a time
 - Batch processes in edulog are limited
 - Labor intensive, makes it necessary to track changes
 - Daily Operations - map out district approach

TRACKING SPED CHANGES

1) Route Modified Report - A list of all special needs routes that have been modified on a given day (Reports; Stops/Runs/Routes; filter = all rtes/run modified matches given date 00-00-0000). Run at the end of the day.



2) Students by Start Date - A report of students whose start date (a user defined field in students tabular) matches a given date. The Start Date field can also be printed on route sheets for drivers to highlight the new information. In addition, the Start Date field can be used to generate letters to the parents, or to create Start Date Alphabetical Listings for schools of new placements.

Notice Sped Start Date field:

NOTES

DATA SETUP

The preparation and maintenance of the data is the most important aspect of the Special Needs system.

1) Unless otherwise noted, all SPED stops will be set up as home stops. In version 10 we can run a report that will list all routes that have runs with stops that have been assigned or de-assigned on a given date. You can now run this report instead of using the circle sheet method and running the EMU utility, DeAssignStopsOnRuns. This may be an end of the day process. The ElSettingsEditor option should be set for deleting home stops when a child moves or transfers to a different school.

ElSettingsEditor

Delete Home Stop Flag check box:

Unchecked = Change the home stop to a non-home stop and don't delete it.

Checked = Deassign the stop's services from runs and delete the home stop.

2) The home stop description is definable through the STA file HOMESTOP.DAT.

HOMESTOP.DAT.

Default HOMESTOP.DAT:

FLE PID LENGTH DESCRIPTION

1	6	5	Last Name
1	7	5	First Name
1	8	3	School
1	10	2	Grade
1	9	2	Program
1	999	62	Location

The information above is the default listing. When a home stop is created, the stop description will follow the above format. Last name will be first and only use 5 char-

NOTES

acters. First name is second and again 5 characters. Matthew Burlingame will show as BURLI, MATTH. I would always lengthen these to 15 characters. The rest is up to discussion. Many edulog users just wish to see the location in the stop description. Others wish to see all of the above information. The key is in the run reports. Some prefer to provide a report that does not include student information as a separate line from the stop location.

The following HOMESTOP.DAT example gives the student name and address with the apartment number. We have added APT #. This critical field for special needs is not really important for regular ed. There are many times when the aide must go get the student and the apartment number is critical for this. If it is not in the system – add it.

FLE PID LENGTH DESCRIPTION

1	6	5	Last Name
1	7	5	First Name
1	999	62	Location
11	5	5	APT Number

Remember: This does not retrofit to previously created homestops.

3) We use the NEEDS.DAT to track children's special transportation needs and even some non-transportation needs. A district need not purchase Feasibility Checking to use this file and it can be customized to a district's needs.

Because the file is positional, a few minutes of careful thought is necessary. If Wheelchair is put in as line two, it must remain line two. If you replace wheelchair, all students previously marked Wheelchair will now require whatever becomes line two. It is best to brainstorm all conceivable needs (up to sixteen of them), alphabetize them, and then edit the NEEDS.DAT. Any additions should be put at the bottom of the list.

Reporting on these needs can be a little tricky, mainly because the first line of NEEDS.DAT is actually special ed need 0. Be aware that the STUDNT.PAR must also be updated and a DUMPALL run in order for the new fields to show up in reports.

NEEDS.DAT

A/C

Wheelchair

Harness

Oxygen

Car Seat - 1

Attendant

Car Seat - 2

Bee Allergies

Seasonal Allergies

NOTES

User defined special need 9

User defined special need 10

User defined special need 11

User defined special need 12

User defined special need 13

User defined special need 14

User defined special need 15

Same section from STUDNT.PAR

```
SFPCIALED0 1 1 960 1 1 10 0 0 11 0 1 1 11 0 10 3 A/C
SFPCIALED1 1 1 961 1 1 10 0 0 12 0 1 1 11 0 10 5 Wheelchair
SFPCIALED2 1 1 962 1 1 10 0 0 11 0 1 1 11 0 10 7 Harness
SFPCIALED3 1 1 963 1 1 10 0 0 12 0 1 1 11 0 10 9 Oxygen
SFPCIALED4 1 1 964 1 1 10 0 0 11 0 1 1 11 0 10 11 Car Seat - 1
SFPCIALED5 1 1 965 1 1 10 0 0 11 0 1 1 11 0 10 13 Attendant
SFPCIALED6 1 1 966 1 1 10 0 0 11 0 1 1 11 0 10 15 Car Seat - 2
SFPCIALED7 1 1 967 1 1 10 0 0 12 0 1 1 11 0 10 17 Bee Allergies
SFPCIALED8 1 1 968 1 1 10 0 0 11 0 1 1 11 0 10 19 Seasonal
Allergies
SFPCIALED9 1 1 969 1 1 10 0 0 11 0 1 1 11 0 10 21 SpecialEdit9
SFPCIALED10 1 1 970 1 1 10 0 0 11 0 1 1 11 0 10 23 SpecialEdit10
SFPCIALED11 1 1 971 1 1 10 0 0 11 0 1 1 11 0 10 25 SpecialEdit11
SFPCIALED12 1 1 972 1 1 10 0 0 11 0 1 1 11 0 10 27 SpecialEdit12
SFPCIALED13 1 1 973 1 1 10 0 0 11 0 1 1 11 0 10 29 SpecialEdit13
SFPCIALED14 1 1 974 1 1 10 0 0 11 0 1 1 11 0 10 31 SpecialEdit14
SFPCIALED15 1 1 975 1 1 10 0 0 11 0 1 1 11 0 10 33 SpecialEdit15
```

These fields are binary: on or off, 1 or 0. To print the phrase “Wheelchair”, one simply adds the “Wheelchair” text to the report, right click for properties, and type ‘spcialled1_=”1”’. This also allows for more elaborate texts to be printed. For examples, all students in harnesses require seatbelts. Rather than flag both harness and seatbelt, one could print “Harness with Seatbelt” on the report for the drivers.

Needs.dat is much easier to deal with in the long term than 15 little fields cluttering up the student screen for specific needs.

“Print When” commands in reports for needs.dat



Notice that the Other Needs box is checked. This means that at least one need is selected. The box will remain blank otherwise.

NOTES

[illegible]

In addition to reporting on the NEEDS.DAT, you can also create work lists of the different needs. For example, use the search criteria of Wheelchair equals 1 and all the students marked as such will be found. Prior to creating the work list, you need to edit the STUDNT.PAR. The CTP field needs to be changed to 12 to allow the Special ED bits to be queried on in a work list.

Field Parameters

Field Name:

- Time Changed
- Withdrawal
- Deletion Flag
- Howstop Flag
- Rt. Side Pld Flag
- Acct. End. Flag
- Ack Address
- Mail Address
- Age R
- City
- State
- Zip
- Sex
- E-mail
- Phone

Operation:

- ☒ Equal
- ☐ Less Than
- ☐ Less Than Equal To
- ☐ Greater Than
- ☐ Greater Than Equal To
- ☐ Not Equal To
- ☐ Equal To
- ☐ Field Is Empty
- ☐ Field Is Not Empty
- ☐ Begin With
- ☐ Does Not Begin With
- ☐ Ends With
- ☐ Does Not End With
- ☐ Contains String
- ☐ Does Not Contain String

Search Value (Text):

Search Value (Int):

OK **Cancel**

4) Notice UserID and Time Changed are enabled in student tabular. Knowing who made the last change and when is critical.

Workday display

Earliest	EndDate	Previous	Next	Spent Weeks	Eligibility
Parent Info	CAM/OT				
Work Day					
Extra Session					
Gen Session					
Med Session					
High Session					
Spent Week					
Gen/OT	1/1/2010 0				
Time Changed	1/1/2010 15:15:00.0				

One drawback to using the UserID is that when a utility in EMU is run, it will fill in the utility name and replace the UserID that once populated the area.

5) While all Special Needs students require individual routing attention, extra attention needs to be awarded those students confined to a wheelchair. A driver certainly needs to be aware of how many students requiring seeing eye dogs will be riding his/

her bus. However, the vehicle is not limited, per se, by how many dogs, but wheelchairs provide a definite capacity issue. To ease this dilemma, I advocate the use of the .W stop. Thus, without knowing the students' transportation addresses or names, one can easily identify how many wheelchair students are on a run.

Stop ID	Name	Description	Frequency	Start Date	End Date	Length	Loaded	User ID	Password
400-001	CLARK HS WHEELCHAIR RUN	CLARK HS WHEELCHAIR RUN	MTWTF--	0000-01-01	0000-01-01	1	1	joshua@clark.k12.mo.us	joshua@clark.k12.mo.us
400-002	CLARK HS WHEELCHAIR RUN	CLARK HS WHEELCHAIR RUN	MTWTF--	0000-01-01	0000-01-01	1	1	joshua@clark.k12.mo.us	joshua@clark.k12.mo.us
400-003	CLARK HS WHEELCHAIR RUN	CLARK HS WHEELCHAIR RUN	MTWTF--	0000-01-01	0000-01-01	1	1	joshua@clark.k12.mo.us	joshua@clark.k12.mo.us

STEPS FOR CREATING A WHEELCHAIR STOP (.W STOP)

First, create a home stop for a child by checking the home stop box in students tabular. Select the **Trips** button and **Confirm**.

- 1 Go to Stops Tabular and enter the stop ID of the home stop.
- 2 After calling up the home stop, select the rename button.
- 3 Rename the home stop with a W and the last two characters of the stop ID.
- 4 You may get a message indicating the stop ID is invalid. This means the stop ID is currently in use. Pick a different stop ID. You can make a worklist of all W stops for one school to determine the next available ID.
- 5 If the old stop ID is still displayed in student tabular, select the trips button. The display will be refreshed and you will see the new ID.

To ensure that all wheelchair children have wheelchair stops, and no ambulatory children have been inadvertently assigned, create a list to identify these students. I usually call it "WC Students without WC Stops." The basic parameters are:

- Stop ID does not contain .W
- Wheel Chair =1

A second list to make sure that a non-wheelchair student is not assigned to a .W stop, is as follows:

- Stop ID contains .W
- Wheel Chair =0

6) As discussed previously, a user defined Sped Start date field is an important field to have in students tabular. When entering the Sped Start date, keep it consistent. For example, if you enter a Sped Start date as, 01-01-2005, all others should follow this format. This is important for querying the Sped Start dates in reports.

NOTES

New Record

Last Name: [44444] First Name: [00000] Middle Name: [000] Date of Birth: [4/4/44] Gender: [M] Sex: [M] Ethnicity: [0000] Race: [0000] Height: [0000] Weight: [0000] Blood Type: [0000] Social Security Number: [0000000000]

☐ Active ☐ Inactive

Save

edulog has system fields for AM Transportation Location and PM Transportation Location. Prior to version 10, we created user defined fields for Alternate pick-ups and drop-offs. Alternate pick-up and drop-off fields are very important for Special Needs transportation. If entered, the student should be transported there rather than from or to home.

In the example below, Alexis is picked up at her grandmother's house in the AM (426 Bear Ave S). Notice the AM trip p/u location matches the AM Transportation Location. If you use AM Transportation Location and/or PM Transportation Location with home stops, you will need to edit the stop description to match the AM and/or PM Transportation Location address.

Bus Name: SCHOOL BUS
 Year: 2000
 Make: Ford
 Model: E350
 Color: Blue
 Engine: 4.6L
 Transmission: Automatic
 Drive: 4WD
 Fuel: Gasoline
 Mileage: 10000
 Status: In Service
 Owner: SCHOOL BUS
 Date: 01/01/2000
 Time: 08:00
 Location: SCHOOL BUS
 Remarks: SCHOOL BUS
 Comments: SCHOOL BUS

7) Recommended changes in the Stop file. User ID and Modified are enabled.

Windows XP: Stop TransportOrder

Order ID: 100-04301 Location: 2314 34TH AVE NE

Location2: JONES CANYON 2314 34TH AVE NE Mile: 300 Mile2: 300

Order Date: 12/15/2004 Order Mile: 174.00

Order	Date	Order	Location	Status
100-04301	12/15/2004	1	0	MTWTF--
100-04302	12/15/2004	1	0	MTWTF--

8) Recommended changes in the Run file. User ID and Modified are enabled. Also, be aware that there is a numbering convention that edulog recommends when the General Education and Special Needs systems are together.

NOTES

Run ID	Description	Run Length	Modified Date	User ID
000-000	EDUCLARK	000-000	000-000	000-000
000-000	EDUCLARK	000-000	000-000	000-000
000-000	EDUCLARK	000-000	000-000	000-000
000-000	EDUCLARK	000-000	000-000	000-000
000-000	EDUCLARK	000-000	000-000	000-000

Run ID Types

- 001-099 General Education to School
- 101-199 General Education from School
- 401-499 Mid-day General Education to School
- 501-599 Mid-day General Education from School
- 601-699 Special Needs to School
- 701-799 Special Needs from School
- 801-899 Special Needs Wheel Chair to School
- 901-999 Special Needs Wheel Chair from School

9) Recommended changes in the Route file. The route file has the most changes. The addition of the attendant and driver provides information not necessarily stored before. Again, we have User ID and Modified.

Route ID	Description	Route Length	Modified Date	User ID
000-000	EDUCLARK	000-000	000-000	000-000
000-000	EDUCLARK	000-000	000-000	000-000
000-000	EDUCLARK	000-000	000-000	000-000
000-000	EDUCLARK	000-000	000-000	000-000
000-000	EDUCLARK	000-000	000-000	000-000

10) Max Ride Time. This field is also active even if the Special Needs Module is not purchased. When attempting to assign a stop to a run, if the max time is exceeded, the system will show that this is the case. When attempting to assign a run within the student module, only the applicable runs will be displayed.

NOTES

Remember to differentiate between total run time and the max ride time of one student. If a student has a max ride time of 20 minutes, he/she may still be able to ride on a 39 minute run. It all depends upon the order that the student is picked up or dropped off.



11) Add the school address and any other information to the school stop. This will be applicable to all runs, so be careful. Call up the .000 stop and add the address.

This is important if you have substitute drivers who need additional information to transport to the school, work sites, special centers, etc.

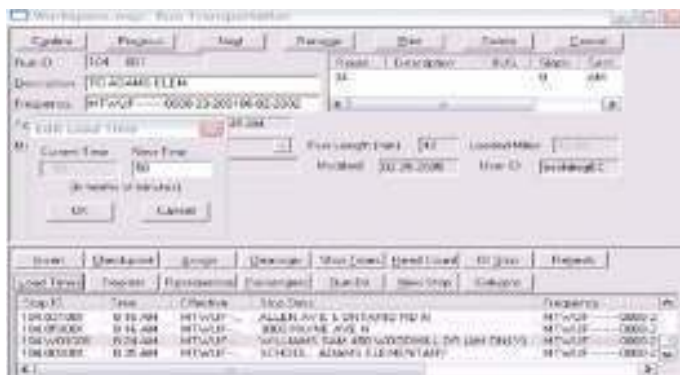
Change the description in the stop record (XYZ.000) rather than the text in the school record.

12) Load Time is important for adding time at wheelchair stops and other stops that require additional time for the student to get on the bus.

Before Load Time:



After Load Time: (Notice how times are backed up at stops prior to the load time stop)



ROUTING

NOTES

After the data setup, the actual routing of the students then becomes quite easy.

Students with Alternate Addresses

Special Needs students rarely have simple home-school transportation needs. They may come from a daycare Monday, Wednesday, and Friday, but from home on Tuesday and Thursday. Therefore, we now have system fields for Alternate AM and Alternate PM addresses. They are called AM Transportation Location and PM Transportation Location.

In larger operations where one person is not routing the child from start to finish, a report of all students with alternate addresses becomes important. You can look up students on this report to ensure they are routed correctly. I query for students whose Alt AM or Alt PM Address is not empty, and include both of those fields.

Runs not on Routes

Admittedly, all who use routes to track what a bus does over the course of the day should run this report. But with Special Needs transportation, it becomes even more important to run because so often, runs will be created for just one child at an unusual time to take him/her to therapy. The query parameters are simply run ID is not empty and route ID is empty. This report also works well as a worklist.

Old Start Dates

Start date will remain in a student record (and, thus, in every report that contains that field and that student) until it is deleted. On a daily or weekly basis, make a worklist based on a start date in the past (I usually use the previous two weeks), and delete the old information. If a print schedule is used as described above, then a query on that date should show those students that have a start date that can be deleted.

DAILY OPERATIONS

1) Process all new placements, whether received electronically or by paper. Review the students for alternative addresses. If the student has moved, new stops and new routing will be required.

- Include a start date in the same format (02-28-2005, for example) in all records to begin on a certain date. Again, if a schedule has been established, then part of the print day is to reset the dates of the students who had their routes printed.
- Create additional trips for the new address/school/frequency, etc., when necessary.

2) Run as many of the data integrity checks as you feel appropriate. Try to run them every day. Frequent review of the data keeps corrections to a minimum and ensures proper placement of every student.

- WC Students without WC Stops

NOTES

- Non WC Students with WC Stops
- Students with Apartments
- Students with Alternative Addresses
- Runs not on Routes
- Duplicate Students. There are many ways to run this report. Some of them are: first name and last name; first name and residence; first name, school and grade. Depending on district policy, students may have to be added to edulog before an official record is created and they have a district ID. If this is the case, the next download will generate a duplicate student.
- Old Start Dates

3) Run the Route Modified Report to find the new and old routes of the students who have moved or changed schools.

4) Update All Run Directions.

5) In Routes/Display, display the Special Needs routes. Quickly check that the days routing has not generated impossible run pairings. This is a very important step. The addition of stops to runs may make connections impossible.

6) In EMU, Rebuild All Keys and run a Dumpall.

7) Print the reports necessary for notification of all involved. For example:

- New Placement Letters (based on Start Date)
- Start Date Alpha for Schools
- Route Sheets (with new start date in bold)

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MAP CALIBRATION

Map calibration is the process of manipulating the street speeds within edulog to get the system to calculate the correct time for a given run. It should be understood that an accurate calibration will only yield correct times for a given time of day. I always recommend that the time of day best suited for calibration is the first runs in the morning. These are typically the set of runs contained on the first or second tier. Because edulog allows load times to be added by worklist, those runs later in the afternoon can be lengthened by load time to approximate the actual run length. This will not change the path, which traffic patterns may suggest, but will allow more accurate run times.

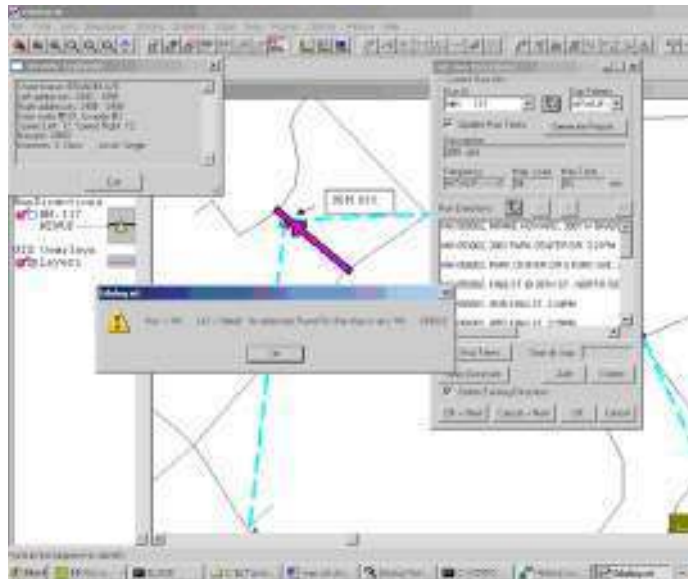
One of the first steps in a map calibration is to determine where the correct times for your runs are stored. If you have manually corrected times, then the system actually has the correct times. In this case, a run summary report should be generated and a map calibration data area should be setup. This is important information because the second step is to generate run directions for all runs, updating times. If this is done in the live data area, you may lose all your manual adjustments. Typically, not all the run directions will generate. There are a variety of reasons that directions will not generate. The easiest to clear up are the stops that are on segments that no longer exist, most often resulting from splitting segments. Badstp.exe will produce a list of stops that are on non-existent segments and will also list other problems. I typically do not use Badstp. Rather, I use Stpscn.exe to have the system correctly locate my stops.

The most common reasons for run directions to fail are:

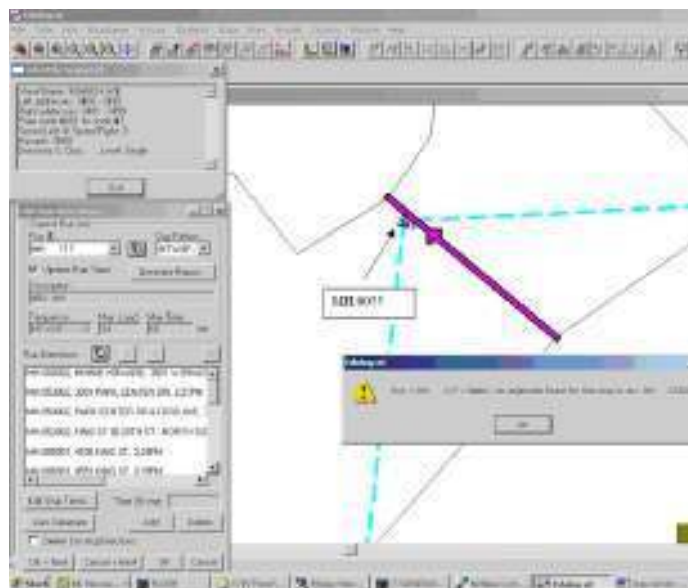
- No-travel segments.
- Zero-Speed Segments.
- Unmatched stops (which should be corrected by Stpscn).
- Wrong side of a one-way.
- Missing adjacencies (this may be the most difficult to find).
- Unconnected segments.

Data Issues

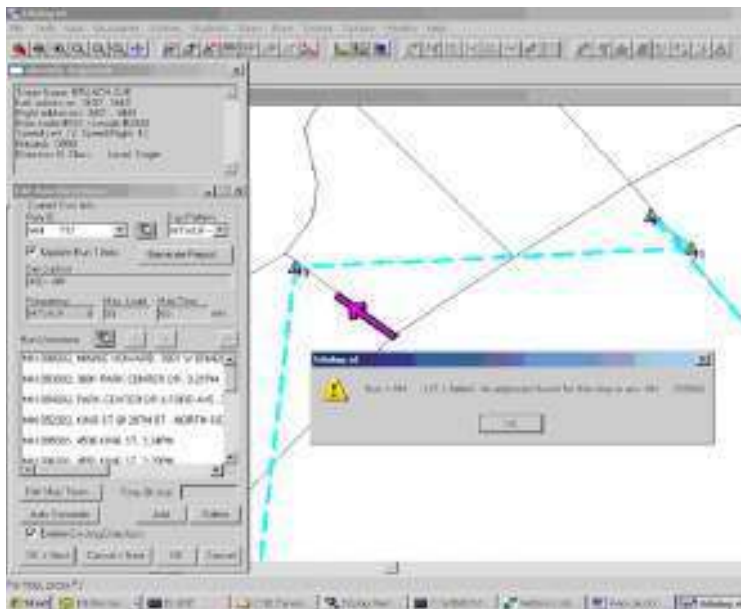
- No Travel segments can cause run directions to fail. These need to be corrected as part of map calibration.



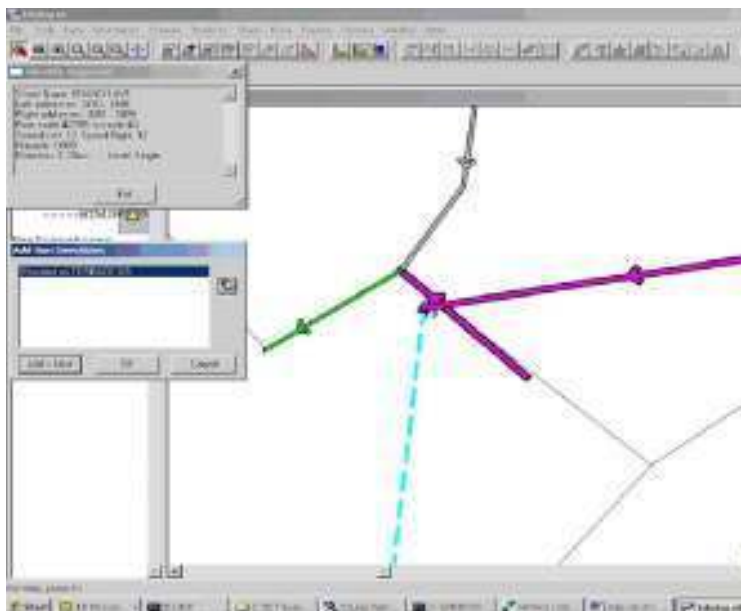
- Zero-speed segments are very similar to no-travel errors (direction 3). In fact some districts use zero-speed for no-travel instead of direction 3.



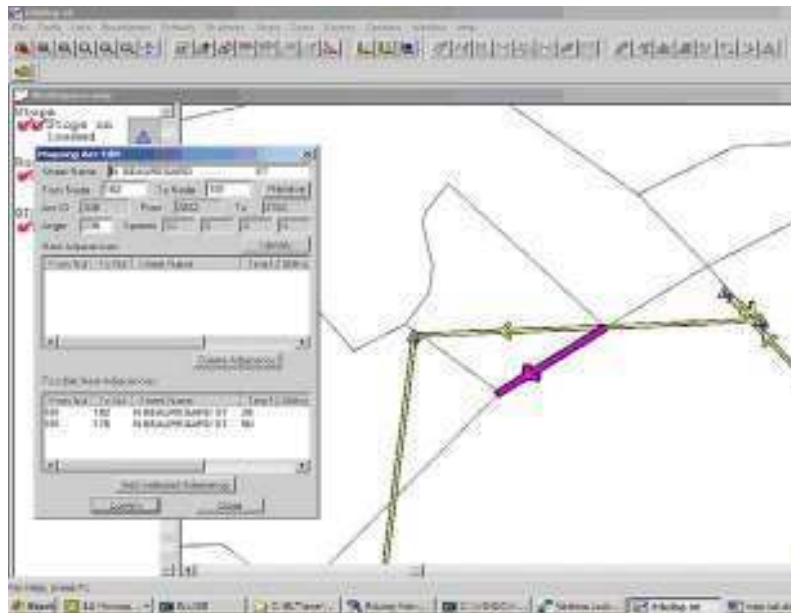
- Again, this should be taken care of with Stpscn. Notice that the segment has been split. The stop simply needs to be relocated to get the run to generate.



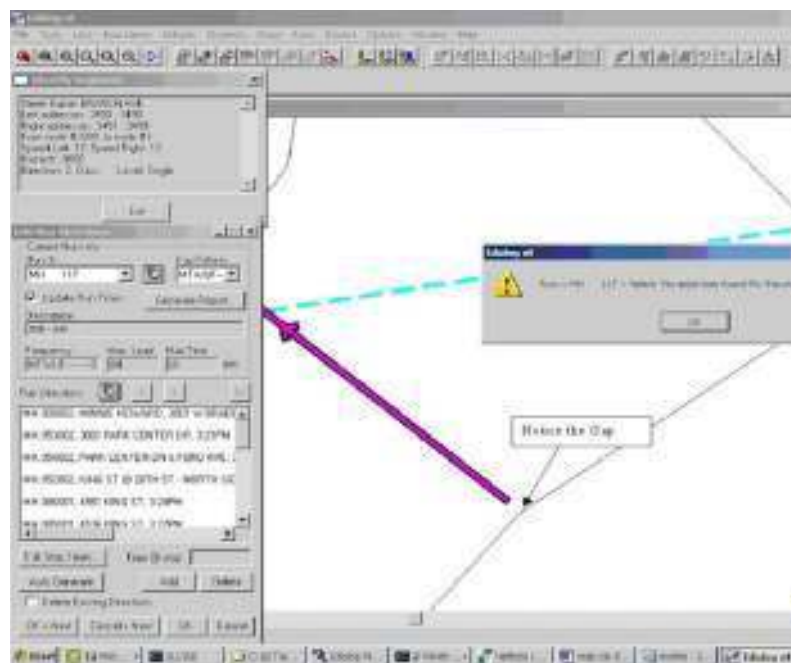
- Notice that the stop is on the south side of the street but the directions will not turn onto the street in the direction the door needs to open. This is only a factor when the stop is flagged as a right-side pickup.



- Notice in this case that the top “Next Adjacencies” is empty. We are not sure why this happens but it is something to be aware of. It is corrected by adding the adjacency back in.



- Notice the unconnected segments. Many times, they are less noticeable and usually result of a simple oversight when geocoding.



The next step in the calibration process is to review the MAPSEG settings in ElSettingsEditor. These settings are relatively new but very important.

Penalties (in 100ths of minutes)

Right Turn Penalty. This setting allows you to change the value of the right turn penalty used when the system calculates the mapseg file's next and prior times. This value is in 100ths of a minute.

Turnaround Penalty. This setting allows you to change the value of the turnaround penalty used when the system calculates the mapseg file's next and prior times. This value is in 100ths of a minute.

Left Turn Penalty. This setting allows you to change the value of the left turn penalty used when the system calculates the mapseg file's next and prior times. This value is in 100ths of a minute.

Straight Penalty. This setting allows you to change the value of the penalty for traveling straight, which is used when the system calculates the mapseg file's next and prior times. This value is in 100ths of a minute.

Use Acceleration. This check box allows you to specify whether you want to calculate the mapseg file's next and prior times based on acceleration or based on velocity only.

Acceleration Constant. This setting allows you to change the acceleration constant used in calculating the mapseg file's next and prior times. This value is in 100ths of a minute. The default setting is 200.

The most important of these is the decision to use acceleration. The acceleration constant is the penalty to be used for slowing down and speeding up the bus at each stop. It is not actually a constant number because it is based upon the length of the segment (the penalty is applied to something like 10% of the segment. If there are multiple stops on that segment, it can actually add quite a bit of time.). Thus, in rural areas it can be a significant penalty. I would recommend that it be turned off. If turned off, this makes the acceleration constant moot. The left turn penalty is used to make a right turn and a proceed more attractive to the system. I would also add some penalty to a right hand turn so the system will proceed rather than turn. Remember that all of these are penalties on top of the actual speeds within the system. Finally, there is a turn around penalty. I would set this somewhat high to discourage the system from using it. Here are the settings as I would use them.

Penalties (in 100ths of minutes)

Right Turn Penalty = 10

Turnaround Penalty = 150

Left Turn Penalty = 25

Straight Penalty = 0

Use Acceleration = unchecked

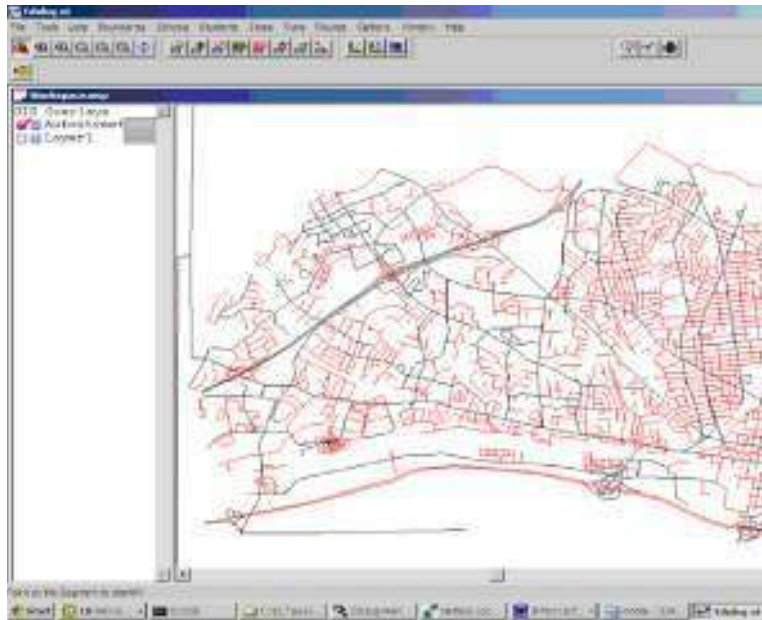
Acceleration Constant = 200

Once these are modified, MAPSEGUP and UPDTADTM need to be run in order for these changes to be added to the calculations. Refer to EMU's online Help for further information.

Next is the gross calibration. This starts with setting a default speed, which really applies to subdivisions and neighborhoods. If you think about it, in a subdivision that has a speed limit of 25 MPH, a bus will most likely only average 12 or 13 MPH. This speed is also somewhat independent of traffic volumes. The majority of traffic usually exists on major thoroughfares. Typically, these speeds are set 17-20 MPH, which I believe is too fast. Next, you need to identify the major and minor arterials.

NOTES

The following map shows a district that has subdivisions in red and arterials in black. Use the PRO executable Defspd to set generic speeds like all 17 to 12.



There are also some other factors that will cause problems with run directions that need to be examined when actually doing the calibration. These issues may not show up right away but you need to be aware of them if there are aberrations in the run times. By aberrations, I mean that 9 of 10 run times look good and one is very different. The different one could be one of the following issues.

Address issues are most common. The stop order looks correct on the run sheet but not on the map. This is the correct order for the driver, but it is not correct when viewing the map. Since we spread out the addressing equally along a segment, we can have instances where houses will not be at the appropriate locations. This can add time to the run that calibration will not be able to take into account. The map order must be changed without changing the written order. The best fix is to change order but leave the description.

Run: MH.117 Description: 400 – AM
 ROUTES: 21
 BUS:
 DAYS: MTWUF-----00

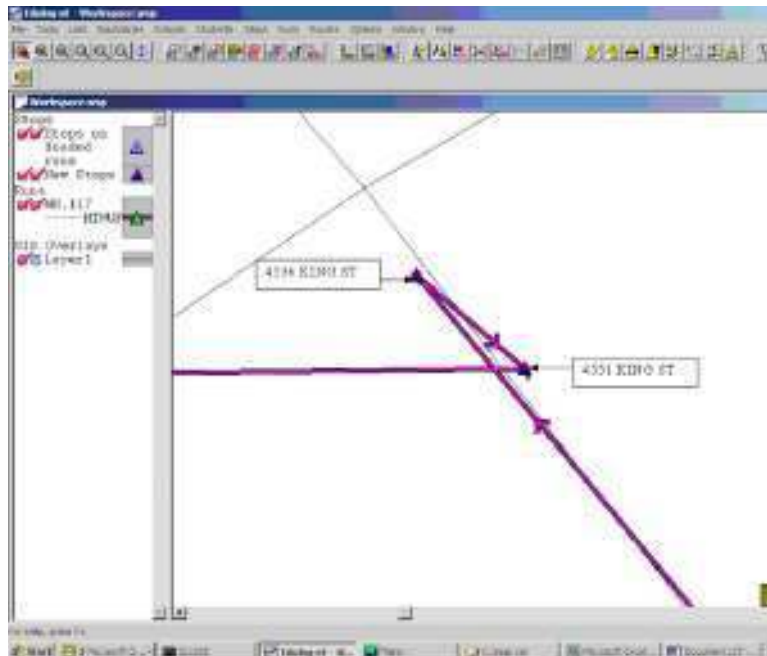
Description	Time	Stpld	RunId	Stop Id	Miles
Minnie Howard, 3801 W Braddock Rd	3:15 PM	0	30	MH.000002	0
3001 Park Center Dr	3:21 PM	4	26	MH.053002	1.5878
Park Center Dr & Ford Ave	3:22 PM	4	22	MH.054002	0.0909
King St @ 28th St - North Side	3:23 PM	0	22	MH.052002	0.374
4536 King St	3:26 PM	0	22	MH.085001	0.5971
4551 King St	3:30 PM	0	22	MH.086001	0.8171
Larchmont Village Apts, Terrace Dr & Branch A	3:32 PM	8	14	MH.055002	0.22
W Braddock Road @ Newport Village Apts, Sotuh	3:36 PM	0	14	MH.056002	0.8657
Sherwood Building, Southern Towers	3:40 PM	0	14	MH.050002	1.0269
Fillmore Ave & Domain Pl	3:42 PM	6	8	MH.062002	0.6198
N Rosser St & Colfax Ave	3:45 PM	2	6	MH.049002	0.5579

Grigsby Ave & Chestnut St	3:47 PM	3	3	MH.048002	0.563
Fillmore Ave & Gary Ave	3:49 PM	0	3	MH.047002	0.186
Fillmore Ave & N Stevens St	3:50 PM	1	2	MH.046002	0.1519
Fillmore Ave & N Rosser St	3:50 PM	1	1	MH.039002	0.094
Seminary Rd @ Echols Ave - N Side	3:51 PM	1	0	MH.037002	0.2882
W Braddock Road @ Newport Village Apts, North	3:54 PM	0	0	MH.036002	0.7169

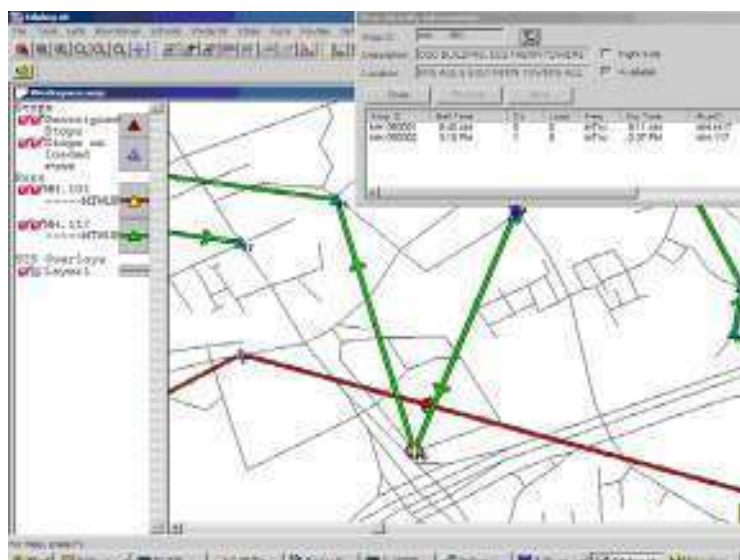
NOTES

Length of run:

8.7572



The second possible problem to look for is instances where a stop is clearly located incorrectly. In this example it is clear that the stop has been assigned to the wrong run. In fact, the driver of run MH.101 actually picks up the Southern Towers stop and both drivers have reported their times based upon that fact. Calibration cannot correct this fact. If these two runs come up as aberrations, then this may be the cause.



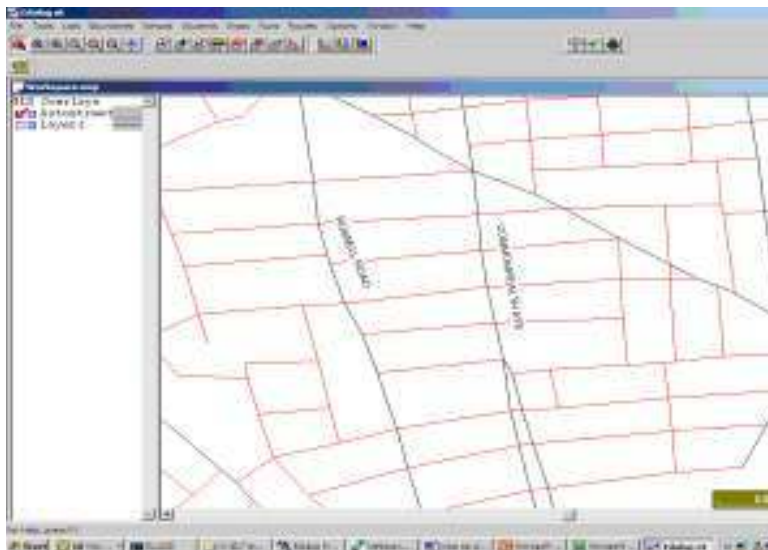
NOTES

In a large district, the previous two errors are not easily identified up front. With changes to the settings in EISettingsEditor and the gross calibration process, you should be able to locate a number of errors. Once these steps are complete, then the use of the following spreadsheet should be beneficial. The following spreadsheet assumes that you have access to the driver reported run times. These are compared to the system generated times.

Run ID	Loaded Miles	System Run Time	Average System Speed (MPH)	Driver Run Time	Average Driver Speed (MPH)	Difference in Minutes	% Difference	Notes for routes over/under 10% or 2 minutes.
352.101	11.5	39	17.69	39	17.69	0.00	0.0%	
352.102	8.26	31	15.99	29	17.09	-2.00	-6.5%	
352.103	6.39	26	14.75	22	17.43	-4.00	-15.4%	Marginal.
352.104	7.95	29	16.45	0	0.00	-29.00	-100.0%	
352.105	14.09	40	21.14	37	22.85	-3.00	-7.5%	
352.106	10.42	37	16.90	38	16.45	1.00	2.7%	
352.107	8.69	30	17.38	25	20.86	-5.00	-16.7%	Driver time seems fast.
352.108	7.2	29	14.90	0	0.00	-29.00	-100.0%	
352.109	4.83	18	16.10	20	14.49	2.00	11.1%	
352.110	6.4	27	14.22	0	0.00	-27.00	-100.0%	
352.111	4.56	18	15.20	20	13.68	2.00	11.1%	
352.112	5.01	22	13.66	21	14.31	-1.00	-4.5%	
352.113	5.25	22	14.32	0	0.00	-22.00	-100.0%	
352.114	8.6	36	14.33	0	0.00	-36.00	-100.0%	
352.115	11.82	38	18.66	31	22.88	-7.00	-18.4%	Driver time seems too fast.
352.116	4.7	20	14.10	19	14.84	-1.00	-5.0%	
352.117	5.35	24	13.38	22	14.59	-2.00	-8.3%	
352.118	3.21	13	14.82	14	13.76	1.00	7.7%	
352.119	3.64	15	14.56	15	14.56	0.00	0.0%	
352.120	6.79	26	15.67	30	13.58	4.00	15.4%	Driver time seems slow.
352.121	7.36	25	17.66	24	18.40	-1.00	-4.0%	
352.122	3.96	17	13.98	18	13.20	1.00	5.9%	
System Avg.			15.72	Driver Avg.	16.51			

Notice that five drivers did not provide usable route sheets (those in red). We prefer to have 2 comparisons. First, a total difference in minutes. Notice that run 352.105's system generated time is 3 minutes longer than the driver-reported time. That may be significant in a 10 minute run, but not in a 40 minute run. That is why I use the second comparison, percentage difference. If the percentage difference is 10% high or low, then I will accept it. Once the differences are substantially over the standard deviation, then those runs need to be examined. This case is the final result of many iterations to this chart. Most of the runs fall within tolerable levels. The four in blue do not. My recommendation would be to review these four for the aberrations described above. If these are identified as such, then either they need to be fixed or the results ignored. In this case, the aberrations were ignored. It is possible that the drivers were reporting inaccurate results. This was after reviewing all runs to see which streets they held in common and making adjustments. This spreadsheet can be made available to you by a member of the edulog consulting staff.

Also, understand that we are not really comparing apples to apples. We are not using the driver's actual path, so the averages are based upon our path. Thus, unless a driver or the user can tell us that we travel a specific road over another road, our calibration will be based upon possibly incorrect information.



For example, the system has us traveling Commonwealth Ave because it is set to 22 MPH. In reality, all drivers actually travel Russell Road even though it is set to 17 Map in the system. They turn in their time based upon Russell Road while we do all of our calculations and comparisons based upon Commonwealth Ave. Things will be somewhat skewed, but will be close enough. Now, if the district personnel tell us that while the speed limit on Commonwealth Ave is in fact higher than Russell Road, it is actually better to us Russell Road because there are no stop lights to slow you down. We need to adjust calibration on Commonwealth Ave to a much lower speed and possibly increase Russell Road to make it more attractive to the system. The goal of calibration is to get both the correct timing on the runs and the correct streets. This will not always be possible immediately, but you need to understand the concept.

This first comparison is to show the difference in run times from the data as it first arrived to gross calibration. When it arrived, the subdivisions speeds were set to 17 (speed limit of 25), minor arterials to 23 (30), and major arterial to 28 (35). Acceleration was on. Acceleration was turned off and the speeds were reset to 12, 17, and 22. The impact is substantial.

Run ID	Loaded Miles	System Run Time	At 17 MPH		Avg. Driver Speed (MPH)	Difference in Minutes	Percentage Difference
			Avg. System Speed (MPH)	Driver Run Time			
MH.101	4.32	13	19.94	15	17.28	2.00	15.4%
MH.102	4.48	14	19.20	17	15.81	3.00	21.4%
MH.103	12.17	41	17.81	52	14.04	11.00	26.8%
MH.104	9.29	34	16.39	42	13.27	8.00	23.5%
MH.105	3.55	11	19.36	15	14.20	4.00	36.4%
MH.106	10.1	32	18.94	41	14.78	9.00	28.1%
MH.107	8.09	29	16.74	36	13.48	7.00	24.1%

NOTES

MH.108	4.76	16	17.85	20	14.28	4.00	25.0%
MH.109	5.02	15	20.08	21	14.34	6.00	40.0%
MH.110	8.53	29	17.65	38	13.47	9.00	31.0%
MH.111	6.98	24	17.45	30	13.96	6.00	25.0%
MH.112	3.15	12	15.75	14	13.50	2.00	16.7%
MH.113	5.05	17	17.82	22	13.77	5.00	29.4%
MH.114	3.29	9	21.93	11	17.95	2.00	22.2%
MH.115	6.21	21	17.74	27	13.80	6.00	28.6%
MH.117	8.42	25	20.21	31	16.30	6.00	24.0%

System Average	18.43	Driver Average	14.64	26.1%

When compared to the actual times, the gross calibration times come close to driver times. Run MH.104 seems to be an aberration. The average speed of 10.93 seems too slow and is most likely a driver issue. Even though MH.112 and MH.114 are off greater than 10%, notice that the difference is 2 minutes. I would argue that any run could vary 2 minutes on any given day. MH.113 again seems to be a driver issue. MH.117 is the stop order issue from our examples above. Whenever a system run times is substantially above the driver reported time, check the data.

Run ID	Loaded Miles	At 12 MPH		Driver Run Time	Avg. Driver Speed (MPH)	Difference in Minutes	% Difference	Notes
		System Run Time	Avg. System Speed (MPH)					
MH.101	4.32	15	17.28	15	17.28	0.00	0.0%	
MH.102	4.48	17	15.81	19	14.15	2.00	11.8%	
MH.103	12.17	52	14.04	50	14.60	-2.00	-3.8%	
MH.104	9.29	42	13.27	51	10.93	9.00	21.4%	Driver Time Slow
MH.105	3.55	15	14.20	15	14.20	0.00	0.0%	
MH.106	10.1	41	14.78	39	15.54	-2.00	-4.9%	
MH.107	8.09	36	13.48	38	12.77	2.00	5.6%	
MH.108	4.76	20	14.28	20	14.28	0.00	0.0%	
MH.109	5.02	21	14.34	20	15.06	-1.00	-4.8%	
MH.110	8.53	38	13.47	40	12.80	2.00	5.3%	
MH.111	6.98	30	13.96	27	15.51	-3.00	-10.0%	
MH.112	3.15	14	13.50	16	11.81	2.00	14.3%	Marginal
MH.113	5.05	22	13.77	25	12.12	3.00	13.6%	Driver Time Slow
MH.114	3.29	11	17.95	13	15.18	2.00	18.2%	Marginal
MH.115	6.21	27	13.80	29	12.85	2.00	7.4%	
MH.117	8.42	31	16.30	35	14.43	4.00	12.9%	Stop Order
		System Average	14.64	Driver Average	13.97			

ROUTE OPTIMIZATION

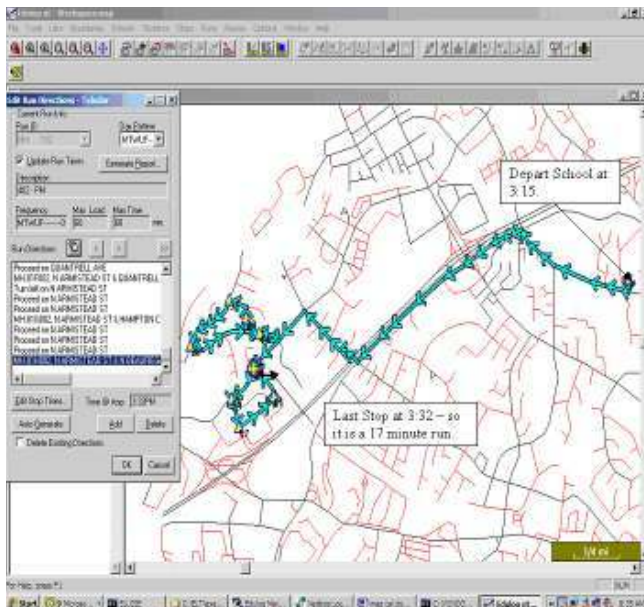
NOTES

Conceptual Approach

In the past we have concentrated on the actual software when viewing route optimization. This year, we will approach the problem from almost a completely conceptual standpoint. We will use the software to achieve results, but the focus will be on the approach, not the result.

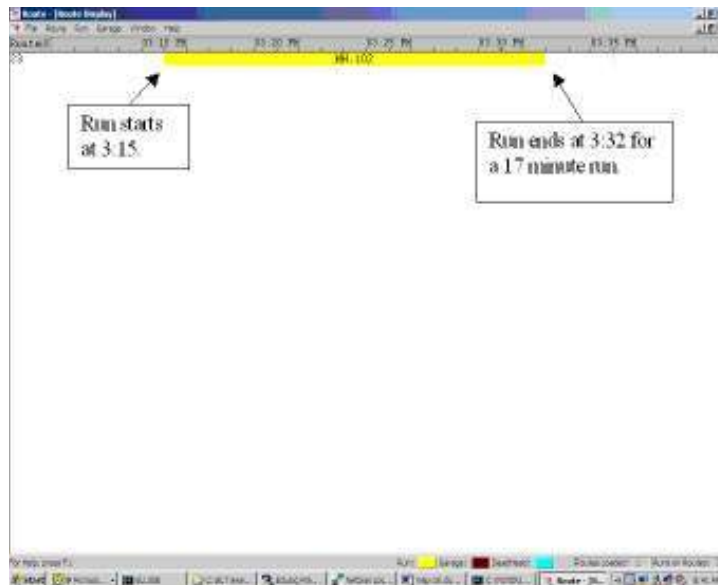
The first step in route optimization is to understand what information the route display presents. The route display is the most important tool in determining how to approach route optimization.

The first step is to understand the conversion of the actual run to the abstract block display. Consider the following run.

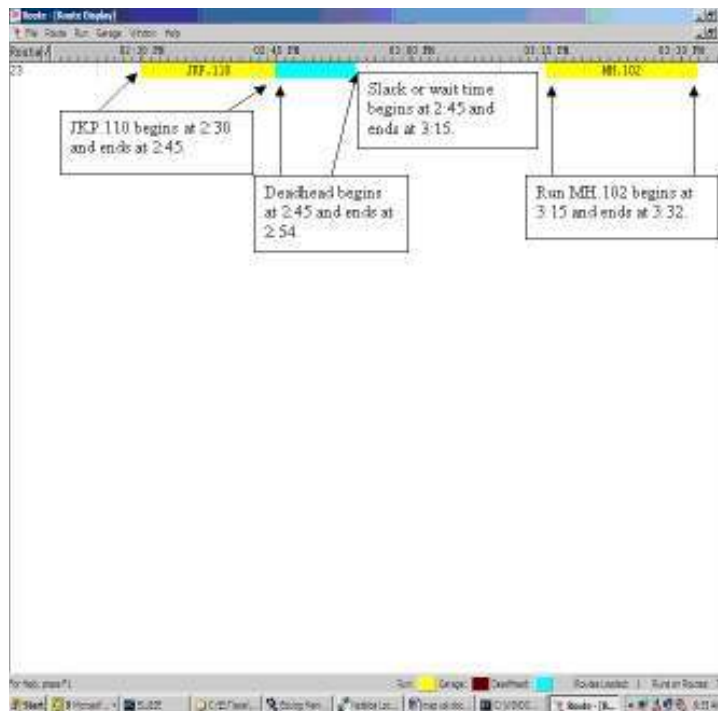


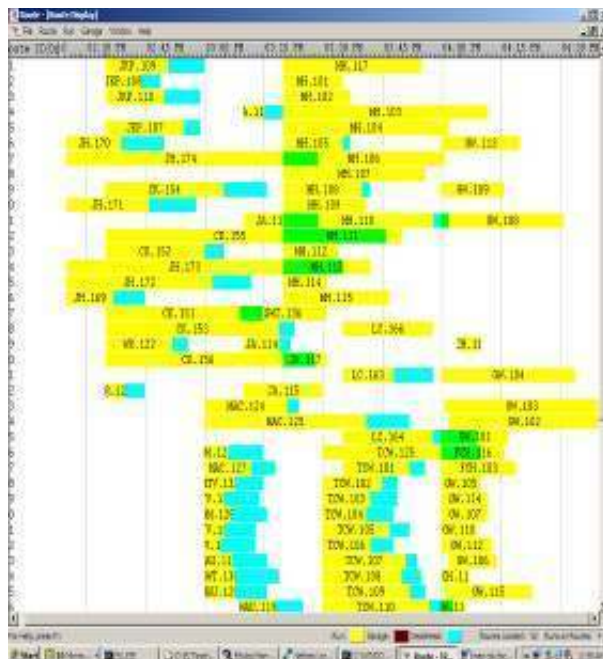
This is converted into the following. The same information is displayed, but in an abstract format.

NOTES



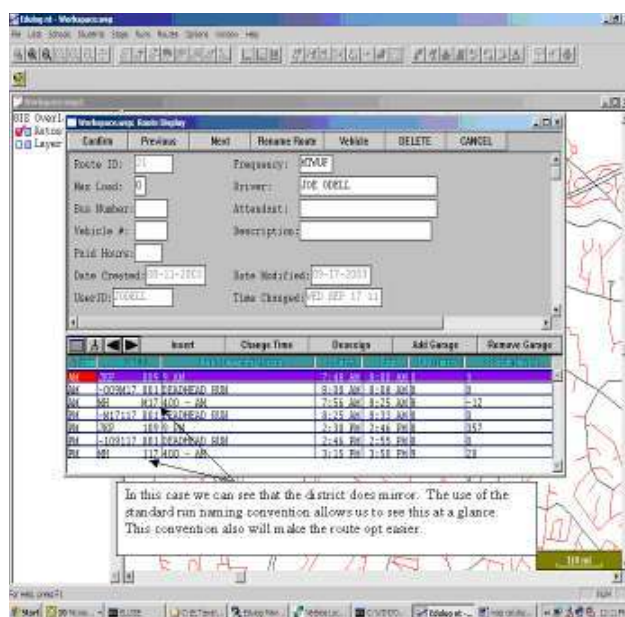
The full route can also be displayed. Consider the following.



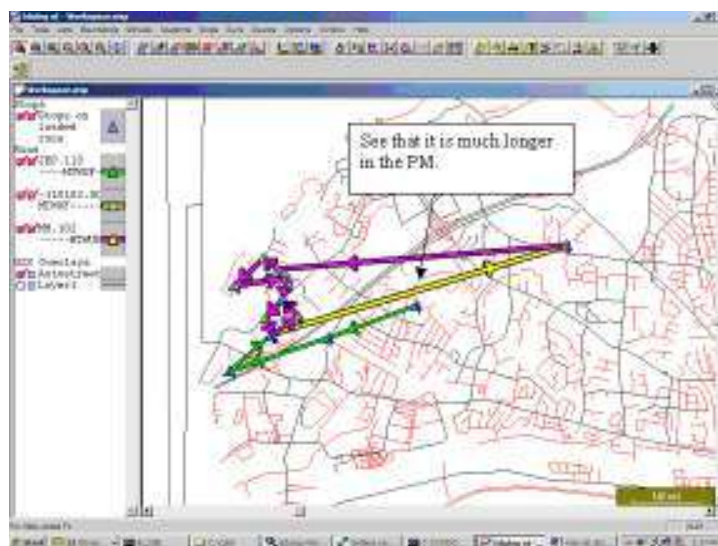
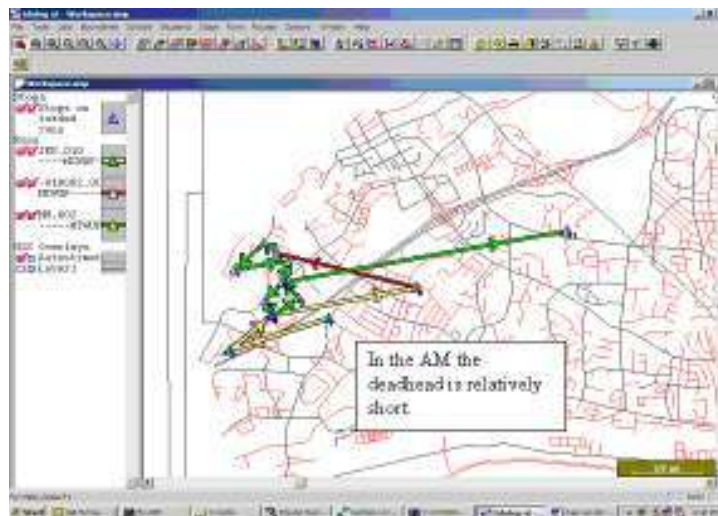


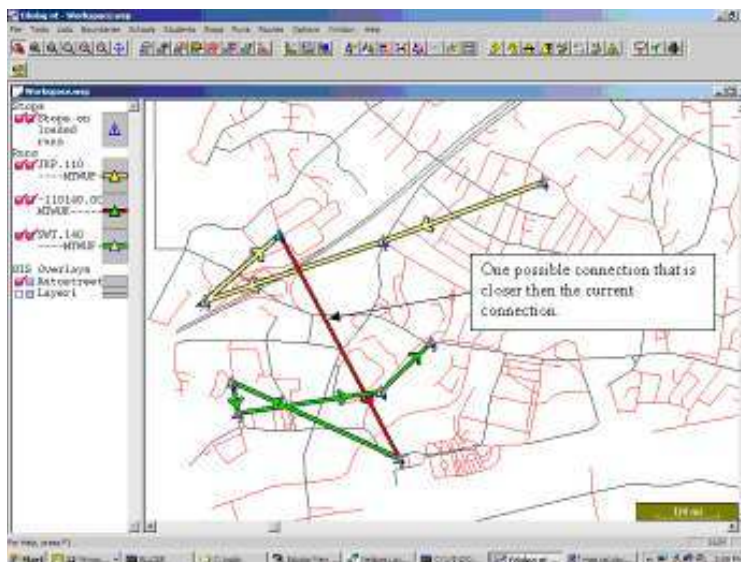
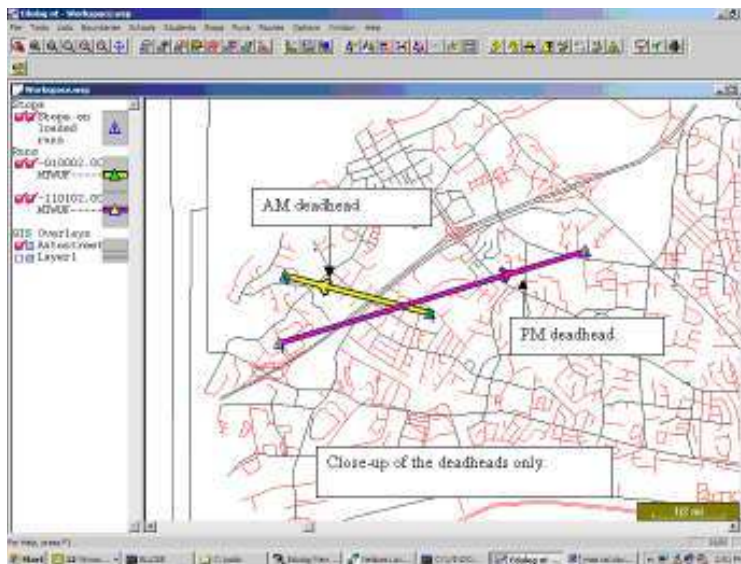
The first thing that I would observe about this data set is the negative slack (in green). One of the first things I try to analyze is the presence of negative slack. The system will never be able to make the connections where there is negative slack. Thus, it is possible for our route optimization to come up with more routes than the district actually runs. Moreover, if you have not calibrated the map (which we have in this case), your connections may or may not work. More on this later.

The next thing to determine is whether mirrors are being used or not.



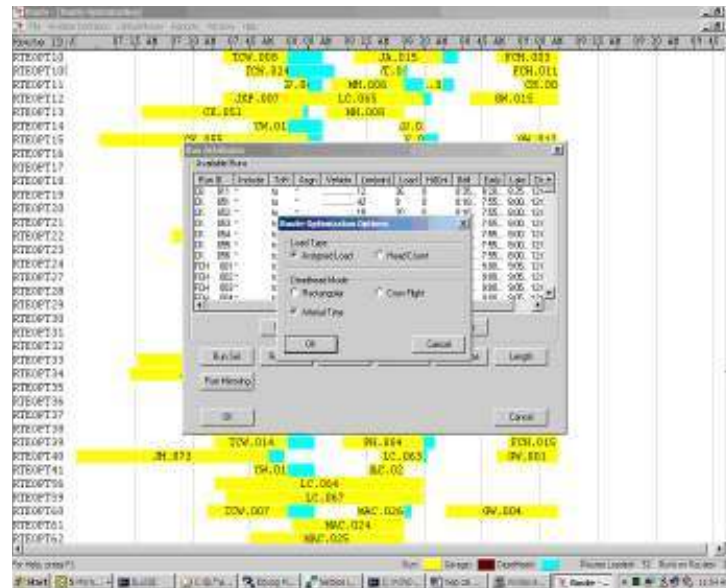
NOTES





Next, we will setup a series of route opt solutions. You determine what timing method to use in the calibration, but not what is used in the display. I would always suggest using Arterial Time, because that is what is used in the display. Using another method may make a infeasible link and display negative slack.

NOTES

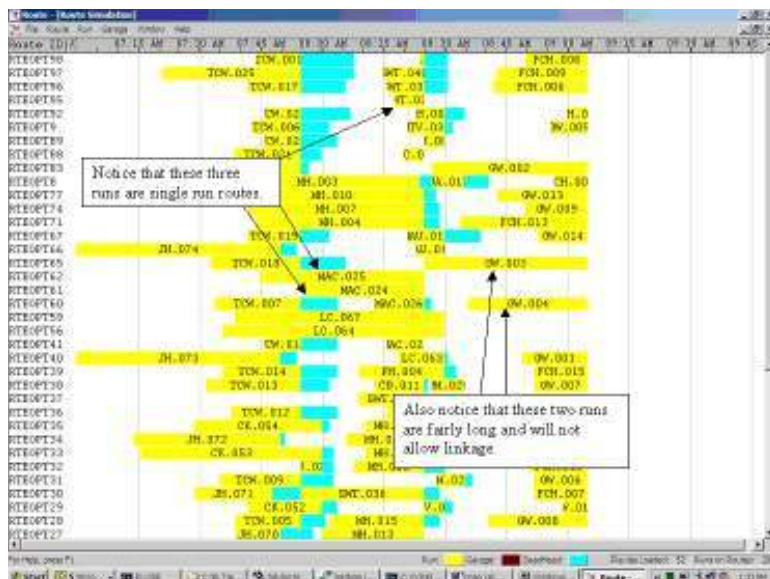


Current routes, 52 regular ed routes, some with negative slack.

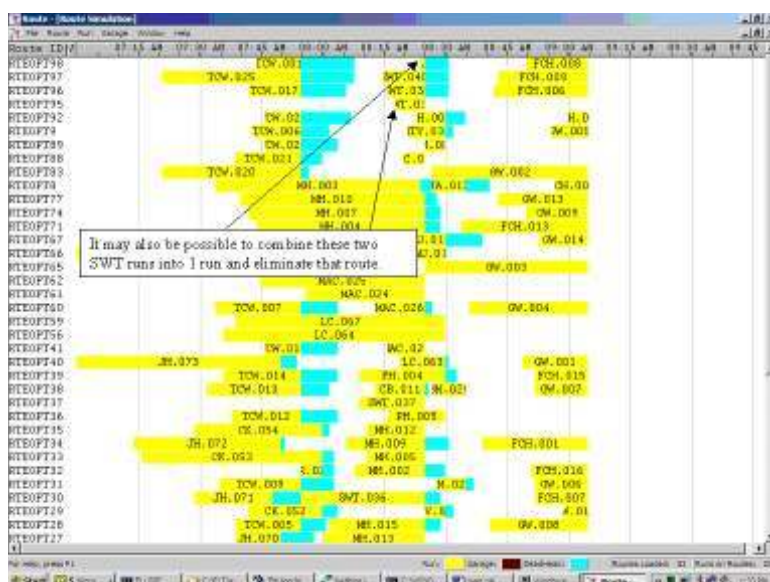
- 1** AM only – 53.
- 2** PM only – 47.
- 3** AM and PM simultaneously – 53 and 47.
- 4** Full mirror - 61.
- 5** Partial mirror – elementary only 57 and 60.
- 6** Add time 54 and 48 with 3 minutes.
- 7** Off sets. –5 AM – 51.

Review for additional efficiency.

Now notice that the AM 8:30 time period is full (show in system). Go and setup a simple AM route solution, save back and generate directions.



By cutting the two GW runs into 4 shorter runs, it may be possible to get the short SWT run to link up. This is the type of information that you need to look for when doing route optimization.



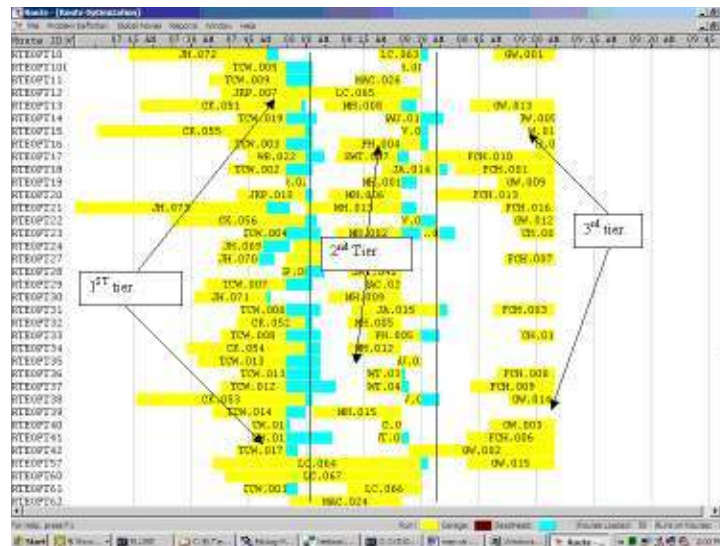
We will start by combining SWT.038 and SWT.041 into SWT.041, which will free up a route. Then we will split GW.003 and rerun the rteopt. Notice that I make use of the resequence feature prior to deciding which stops to make into the new run. This gives me a feel for which to move. Make sure that the PM's are created from the AM's.

And in fact we have gone from 53 to 52 routes. The combining of the SWT runs and the breaking up of GW run has reduced the overall solution. But it is interesting to note that it has not decreased by 2, so the only effect our changes had was to the

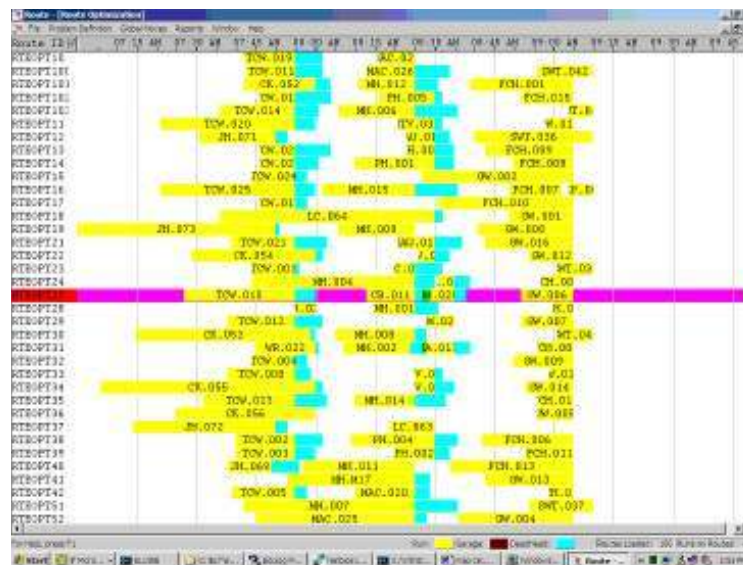
NOTES

SWT route. So 52 routes with no negative slack is the best solution based upon current bell times. I come to this conclusion because of the constraints in the problem.

Notice that the 8:15-8:30 time period is full or nearly so. We call this the problem constraint. When looking at a problem, the first thing we need to determine is what constrains the problem from reducing further. In this case we have 3 tiers or time periods. The first tier is also fairly full but is mostly 1 school TCW. The second tier is entirely full. This will limit the potential saving without looking at bell times.



If JKP moved from the first tier to the third and SWT from the second tier to the third tier, additional savings would be realized. I always shift rather than change the bell time in the route opt system.



Additional changes may be possible, but we are near the maximum point. All tiers are nearly full. Bell time changes will make no difference.

A word to the wise: always begin with the time of day that has the greatest number of routes. In this case, it was the AM. This is normally not the time of day to work with. Also, mirroring has a major impact on the solution, as you could see. In this case, it added 9 vehicles more than they were running. I would argue that our mirror still has some issues to be dealt with.

RUN OPTIMIZATION

edulog's Run Optimization feature allows you to develop the most efficient bus runs within the guidelines of your district's transportation policies. Run Optimization is a simulation package which uses your geographic and transportation data to help you accomplish this task more efficiently and easily. The system performs previously routine and repetitive tasks automatically, reducing the amount of time required to prepare for a new school year or respond to changes in transportation requirements.

The ultimate goal in Run Optimization is to take a selected group of bus stops and create a new set of runs that meet the changing needs of your district. In general, this involves picking up the most students with the fewest number of buses in the least amount of time. This usually requires balancing three factors: the capacity of the buses available, the district-defined maximum run time, and the total distance traveled to pick up all of the students. You may want to have the fewest runs possible, reduce the travel time, or reduce the distance traveled. You can prioritize these criteria and enter any limits you have concerning passenger loads and riding times.

In general, you use a "funnel" approach to optimize your runs. You start on a broad level by loading all the stops for one or more schools, then you become more specific by selecting only those stops you want to include in the optimization problem. You then have the system create a set of optimal runs for this group of stops. After reviewing the results, you can modify the runs, first in small groups, then finally by individual runs or stops.

You can rapidly create a variety of different run solutions and evaluate the effects of proposed changes. You can create and examine these simulations while you use edulog for your daily transportation work. If you decide you want to use an optimization solution to modify your existing transportation data, you can confirm it to save it as your actual data.

Keep in mind as you proceed through this manual that Run Optimization is simulation software. The data used in the optimization process is derived from your existing transportation data, but it is a totally distinct data set. Think of optimization as a simulation which is based on your current transportation data but which you can modify safely without affecting your actual transportation data. What you do in Run Optimization does not affect your transportation system unless you choose to confirm the run solution (incorporate it into your actual data).

It is often productive to try several different approaches to the same problem, determine the best features of each, then use them in the final runs. You can discard Run Optimization solutions at any time if you decide you want to start over with a new approach.

There are five basic steps in the run optimization process:

- 1** Load the data and define the optimization problem.

- 2** Use the automatic optimization functions to create a set of optimized runs.
- 3** Evaluate the results.
- 4** Make manual modifications as necessary.
- 5** Confirm the runs (be aware that this step will alter your actual transportation data).

We encourage you to experiment with the Run Optimization data. You can save the optimization solution in its current state before making changes. If you do not like a result, simply restore the scenario you saved or discard the problem entirely and start over. Try the same problem several times, making different changes each time to see how well each approach works. You can then combine the best features of each approach to create a solution which you can use to modify your transportation data. This approach will enable you to develop specific strategies in optimizing your data. You can also use the automated optimization functions which often reveal improvements you may not have noticed.

You access the Run Optimization functions from within Simulation mode. After you perform a run optimization, you have the option of:

- Saving the optimization solution for future work
- Saving the solution to the Simulation mode
- Confirming the solution as your actual data.

Run Optimization is an optional feature in edulog. If your district has not purchased Run Optimization, these functions will not be available in your system. Keep in mind that we are continuously updating and improving our software, so changes may be made to the program after the printing date of this manual. As a result, you may encounter parts of the system that vary somewhat from the steps and illustrations in this manual. Such differences should be minor, however, and the primary concepts that it discusses still apply.

Terminology

The following are definitions of various terms as we use them throughout this manual.

Stop – a location (including a school) where a bus stops to pick up or drop off students. You can use a single stop both to pick up students in the morning and to drop them off at the end of the day. We refer to these individual uses of a stop as stop services. An active stop is one that is assigned to a run, while an inactive stop is not assigned to a run. Each stop has a unique ID which is a combination of numbers and/or letters that identify the stop. The first part of the stop ID is the code of the school serviced by the stop. For example, in the stop ID 100.001, the code of the school serviced by the stop is 100. The three characters following the school code identify the stop for that school. A period separates the school code and unique number.

Run – a sequence of bus stops that a bus services for part of the day's transportation requirements. For example, a bus might go to seven bus stops when transporting students to school in the morning. We refer to this sequence of stops as a bus run. Each run has a unique ID which is a combination of numbers and/or letters that identify the run. Like the stop ID, the first part of the run ID is the code of the school serviced

by the run. The three digits following the school code is a unique number identifying the run for that school. A period separates the school code and unique number.

Route – a group of bus runs that a single bus services throughout the day. For example, a bus may complete a run transporting students to one school in the morning, then another run transporting students home from a different school in the afternoon. Routes are identified by a unique ID, but the route ID is usually not associated with a school code since routes may service more than one school.

Capacity – indicates the maximum number of students that a bus can transport at a given time.

Confirming – the process of using the solution generated during the optimization process to modify your actual transportation data.

Deadhead – indicates the amount of time required to travel between any two given stops.

Destination Time – indicates the time that a student or run needs to be at its destination. Destination times are typically determined by school bell times. For example, if the morning bell time is 8:30 AM, the destination time might be an offset of ten minutes (8:20 AM) to give students time to get to class.

Duplicate Stops – several stops with the exact same geographic location that have been joined in Run Optimization. You can join such stops to temporarily merge them and have the system consider them to be a single stop during the Run Optimization process (see “Joining and Parting Stops” on page 469). This allows you to make sure those stops always end up on the same run in the solution and to reduce the total number of stops in the problem. Of course, such stops are not considered to be joined outside of the optimization problem.

Frequency – indicates the days of the week that a trip, stop, run, or route needs to be serviced.

Geocode – your district’s street network in computerized (digitized) form. This Geographic Information System (GIS) serves as the foundation of your transportation system. You use the geocode to record the locations of students, stops, and schools, as well as any street-path directions you produce for runs. The geocode also records street attributes, such as address ranges and average speeds. edulog uses this information to calculate approximate travel times and distances between locations.

Multiple Stops – several stops with the exact same geographic location, that have not been joined in Run Optimization. Run Optimization treats each of these as individual stops in its calculation of the maximum number of stops allowed in the problem and may assign such stops to different runs in the solution. (See also the definition of Duplicate Stops.)

Run Problem – refers to the entire Run Optimization process, including the data you loaded and selected for optimization and the runs produced in the solution. We sometimes refer to optimization problems as scenarios.

Run Solution – refers to the product of the Run Optimization process, including the new runs that the system creates and any manual modifications you make. You can confirm the solution if you want to use it to modify your actual transportation data.

Time – indicates the amount of time required to complete a run or a part of a run.

For definitions of terms and other information pertaining to edulog, refer to the edulog Overview or online Help.

About This Manual

This manual uses a combination of tutorial and reference manual approaches. The section following this introduction is a system demonstration in a tutorial format which you can complete using your own data. The system demonstration tells you exactly what actions to take (for example, “Enter **60** in the Capacity field.”). It also introduces you to a few of the data manipulation techniques. The rest of the manual takes a reference manual approach, providing you with the necessary information to determine the necessary course of action. It tells you how to control the process and discusses the implications of various approaches.

To supplement this information, this manual includes a quick reference guide to the optimization sequence (see “Quick Reference Guide” on page 498). The guide includes the numbers of the pages in this manual where you will find additional information on those topics.

The Run Optimization manual is independent of any specific data set. Because this is simulation software, you can use your own data in the optimization demonstration without affecting your regular transportation data. As a result, some of the illustrations in this manual will not match your data, but they will provide you with a general frame of reference. Again, we encourage you to experiment with the various optimization features, to play with different scenarios, and compare the results. Changes you make in optimization will not affect your regular data (unless you decide to confirm the run solution). You can easily abandon results you do not like.

This manual is written for experienced users of edulog. Basic tasks, like zooming and panning, are not covered here. Refer to the online Help, the edulog Overview, or the edulog Tutorial if you need more information on such tasks.

Language Conventions

Some words or phrases have specific meanings in this manual.

Click - means to press a mouse button once. You usually press the left button. In some cases, such as when identifying objects on the map (see page 484), we may instruct you to click the right mouse button. If your mouse keys have been customized for left-handed use, just exchange left for right and vice-versa when reading this manual. For purposes of consistency, this manual refers to the left mouse button as the primary button.

Double-click - means to press the primary mouse button two times in rapid succession.

Drag - means to press the mouse button and hold it down while moving the screen pointer with the mouse.

Select - means to highlight an item in a list or on the map. You can select items either by pointing and clicking or by pressing the arrow keys on the keyboard.

Choose - means to pick a specific command, tool, or button. If you want to choose a tool (such as the Graphic Selection tool), just point and click. If you want to choose a button, you can either click it with the mouse or press TAB until you highlight the button (its border appears darkened) then press ENTER.

Point - means to move the mouse so the screen pointer is at the indicated location.

Typeface Conventions

This manual uses different typefaces to indicate user inputs and system responses.

This is the basic typeface, which introduces concepts and gives explanations.

User inputs appear in the heaviest typeface so that they stand out on the page. They instruct you to choose commands, enter information, and make choices. For example, if the manual instructs you to “enter **600** in the Riding Time Maximum field,” you need to type 600 in the indicated field. Another example is “Choose **OK**.” In this case, the current window contains a button labeled OK. Click that button to confirm the operation you are currently performing.

System responses appear in an italicized version of the basic text (for example, “*The list box displays matching stops.*”). If the purpose of the instructions is not readily apparent, the system response provides a brief explanation.

Keyboard Input

At times, this manual instructs you to use the keyboard to perform various tasks. Most often, you type words and phrases in fields. At other times the manual instructs you to press individual keys or a combination of keys to perform various functions. The words or letters on the keys appear in small caps, as in the following.

ENTER

This indicates the Enter key. You need to look for a key with the word “Enter” printed on it. Depending on your keyboard, it will either say “Enter” or “Return” and may have the ↵ symbol.

System Demonstration

Goals

- To enter the Simulation mode and load stops from a school in your system.
- To enter Run Optimization and define the optimization scenario (the optimization priorities, the stops to include in the problem, the number of available buses, and so on).
- To have edulog produce an initial set of runs from the stops in the problem, then improve the solution to find an optimal arrangement.
- To make manual modifications to runs in the solution.
- To produce a report on the run solution.
- To exit and save the solution to Simulation mode.

Concepts

This demonstration introduces you to edulog's Run Optimization feature and gives you a sense of the overall process. It also provides a frame of reference when each step is examined in detail later in the manual.

Run Optimization enables districts to save money by maximizing the number of passengers on buses and reducing the amount of travel time on runs. edulog allows you to prioritize these criteria in the run optimization process.

You have two basic options when selecting data for a run optimization. You can load a set of stops and have the system develop an optimal set of runs from those stops or you can load existing runs and have the system improve the efficiency of those runs. This demonstration takes the first approach.

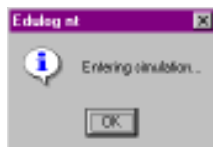
Since you will use your own transportation data to perform the system demonstration (no data disks are provided with this manual), some of the illustrations in this manual will not match your data. They will provide you with a general frame of reference, however. Since Run Optimization is simulation software, changes you make with the optimization functions will not affect your actual transportation data unless you save the new runs as your actual data. You can easily discard results you do not like. We encourage you to experiment with the available functions and compare the results.

Specifics

First you will enter Simulation mode and load stops for a school in your system. You will then enter Run Optimization and define the run optimization problem. You will have edulog generate runs for the stops according to the priorities you select, then have edulog improve this solution to find an optimal arrangement. You will make some manual modifications to the runs in the solution and generate a report on the results of the optimization. You will then leave Run Optimization and save the solution to the Simulation mode, though you will not save the runs as your actual data.

Getting Started

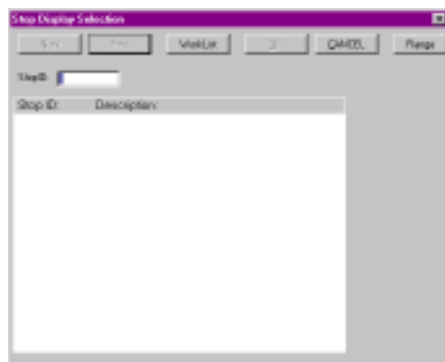
- 1 Click the **Enter Simulation** tool in the tool bar or choose **Enter Simulation** from the File menu.



- 2 Choose **OK**.

Loading Stops

- 3 Choose Stops from the menu bar.
- 4 Choose Load from the Stops menu.



- 5 In the Stop ID field, type the **<code of a school>** which is currently used in your transportation system.

You will use the stops for this school in the optimization process.

- 6 Choose **Find**.

Note:

You can only match up to 100 records in the list box. If the school you selected for this demonstration has more than 100 stops, a dialog box appears indicating that only the first 100 records will be listed. If you want to load all of the stops for the school, you can load them from a work list. Refer to edulog's online Help for further information on loading work lists.

The list box displays matching stops and selects them all automatically. If you wish, you can select a subset of the stops in the list box. You can select stops listed consecutively by clicking the first stop in the range, holding down the SHIFT key, then clicking the last stop in the range. You can select stops that are not listed consecutively by holding down the CTRL key while clicking the desired stops. Make sure to include the school stop in the problem.

- 7 Choose **OK** to load the selected stops.

- 8 Zoom in on the stops.

Entering Run Optimization

- 9 Choose **File** from the menu bar, choose **Enter Optimization**, then choose **Run**.



- 10 Choose **OK**.

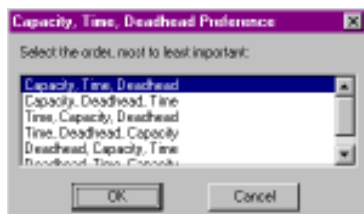
Notice that many of the stops have a blue circle around them, indicating that you are in run optimization mode. The school stop is represented by a bus icon and does not have a circle. Also, since transfer stops require individual decisions, the Run Optimization functions will not evaluate those stops. Transfer stops and stops with frequency errors will not have circles. You can assign

transfer stops to runs created in Run Optimization after you save the new runs as your actual data.

Defining the Run Optimization Problem

- 11** Choose **Problem Definition** from the menu bar, then choose **General Options**.

The Capacity, Time, Deadhead Preferences dialog box appears, listing the possible weights you can give to the three criteria, from greatest to least importance.



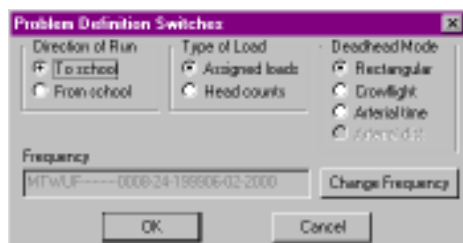
- 12** Make sure **Capacity, Time, Deadhead** is selected.

This selection indicates that edulog will first rearrange stops on runs so that the buses carry as many students as possible (that is, it will seek to reduce the number of buses required to transport the students). Next, it will try to reduce the amount of time required to transport students. Finally, it will try to reduce the time it takes to travel between the stops on the run.

- 13** Choose **OK** to close the dialog box.

You will now select the stops you want to include in the optimization problem and define the types of runs, types of loads, the deadhead mode, and the frequencies of the runs in the problem.

- 14** Choose **Problem Definition** from the menu bar, then choose **School/Stop Selection**.



The Problem Definition Switches dialog box appears, listing the available direction, load, and deadhead options.

- 15** Make sure **To school** is selected under Direction of Run.

This indicates that edulog will create to-school runs during the optimization process.

- 16** Make sure **Assigned loads** is selected under Type of Load.

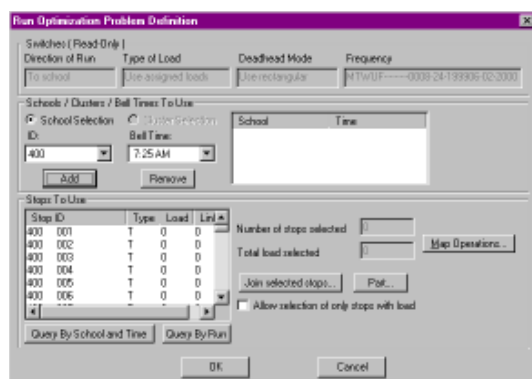
This indicates that the problem will use the numbers of students assigned to stops in edulog (assigned loads) as opposed to head count loads which indicate the numbers of students that actually ride the bus (typically determined by driver surveys).

- 17** Make sure **Rectangular** is selected under Deadhead Mode.

This tells edulog to determine travel times using a rectangle at a ninety-degree angle with the north-south and east-west axes. This provides a quick method for measuring travel times. (See “Rectangular Time” on page 502 for further information.)

- 18** Make sure the Frequency field lists the **correct frequency** for the runs. If it does not, choose the Change Frequency button and make the appropriate selections.

- 19** Choose **OK** to close the Problem Definitions Switches dialog box.



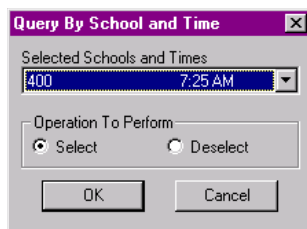
The fields toward the top of the Run Optimization Problem Definition dialog box reflect the selections you just made in the Problem Definition Switches dialog box.

- 20** Make sure the school you selected for the optimization problem appears in the School ID text box under Schools/ Clusters/Bell Times To Use. If it does not, click the arrow next to this field and select the correct school.
- 21** Make sure the morning bell time for that school appears in the Bell Time text box (next to the School ID text box). If it does not, click the arrow next to this field and select the morning bell time.
- 22** Choose the **Add** button under those fields.

edulog enters the school and bell time in the list box. Any runs generated during the optimization process will service this school and bell time.

Notice the list of stops in the lower-left corner of the dialog box. This list contains the stops you loaded for optimization. You will now have edulog select the stops to include according to the morning bell time and whether they have students assigned.

- 23** Choose the **Query By School and Time** button beneath the list of stops.



- 24** Make sure the school and bell time you selected appears under Selected Schools and Times.
- 25** Make sure **Select** is selected under Operation to Perform.
- 26** Choose **OK**.

The system examines the available stops and determines which to include in the problem. The number of selected stops appears in a message box.

- 27** Choose **OK** to close the dialog box.
- 28** Select the **Allow selection of only stops with load** check box next to the Stops to Use list box.

The system removes any stops without assigned students from the problem and displays the number of deselected stops in a message box.

- 29** Choose **OK** to close this message box.

You can also join any of the selected stops that are at the same location. If you have two or more stops at a location, it may be more efficient to have the system consider those two stops to be a single stop when optimizing runs. Of course, such stops are not considered to be joined outside of the optimization problem.

- 30** Choose the **Join Selected Stops** button next to the list of Stops to Use.



- 31** Enter the **maximum passenger load** that a combined stop can have (such as 20) in the text box.
- 32** Choose **OK**.
- 33** Choose **OK** from the message box indicating the number of stops that were joined.

You can separate any of the joined stops by choosing the Part button, selecting the stops you want to part from the dialog box, and choosing Confirm.

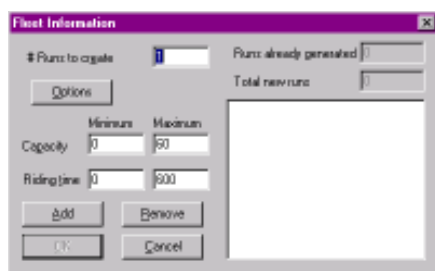
- 34** Choose **OK** to close the Run Optimization Problem Definition dialog box.

The stops on the map change appearance to indicate whether they are included in the optimization problem. The circles are removed from selected stops, while those that are not selected still have circles.

There is a limit on the number of stops you can load in a run optimization problem (at the printing date of this manual, the limit is 958, though this may change). If you get an error message indicating that you have selected too many stops, select a smaller number of stops from the Stops to Use list (hold down the CTRL key while clicking the stops you want to remove). If you later decide you want to add or remove stops to or from the problem, you can return to step 14 to open the Problem Definition dialog box and include the desired stops. A dialog box will appear informing you that you will lose any changes or selections you have made. You can discard them if you want to start over or you can save your current scenario first. You can then use the functions available for selecting stops, including the Map Operations which allow you to select or deselect stops on the map using the mouse (see “Map Operations” on page 468).

Generating a Solution

- 35** Choose **Global Moves** from the menu bar, then choose **Run Generation**.



This dialog box allows you to enter information on the buses available for the runs you are creating, including the maximum and minimum number of passengers that these buses can carry and the maximum and minimum amounts of time that these runs can take. To simplify this demonstration, we will assume that all of the buses have the same maximum and minimum capacities and riding times.

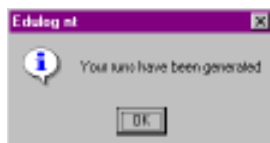
- 36** In the # Runs to Create text box, enter the **number of buses** available for the runs in the problem. You can create up to 64 runs.
- 37** Make sure **0** appears in the Capacity Minimum field.
- In general, you should start with zero as the minimum value. Then, if you improve the solution to the point where some of the initial busses are no longer needed, the system can take them down to a zero load and you can purge them from the problem to minimize the number of buses used.
- 38** Enter the **maximum capacities** (such as 60) for these buses in the Capacity Maximum field.
- 39** Make sure **0** appears in the Riding Time Minimum field.
- 40** In the Riding Time Maximum field, enter the maximum amount of time that the runs can take in tenths of a minute (for example, 600 represents a sixty-minute maximum).
- 41** Choose the **Add** button.

The system adds the repetition information to the adjacent list box.

If you had other buses with different capacities or riding times, you could repeat the six previous steps for those buses. For this demonstration, we will just use the single entry.

42 Choose **OK**.

This command generates an initial set of runs for the stops based on the selected criteria of Capacity, Time, and Deadhead.



43 Choose **OK** to close the message box.

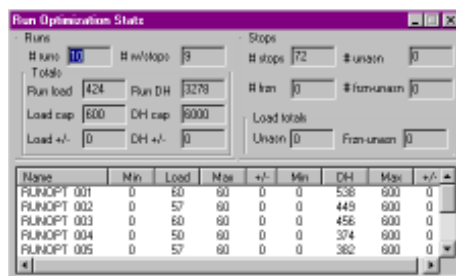
The system displays the runs on the map and opens a dialog box containing run optimization statistics and minimizes it to a bar at the bottom of the screen. You will examine this dialog box in the next section. edulog also lists the display layers representing the runs in the map legend.

edulog generated an initial solution of the optimization problem by arranging stops on runs. This may not necessarily be the best solution, however. You will later use the Auto Improve function to have edulog further analyze the problem and find an optimal solution. First, you will examine the run statistics and make sure all of the stops in the problem are assigned to runs.

Viewing Run Optimization Statistics

44 Locate the title bar representing the minimized Run Optimization Stats dialog box at the bottom of the screen (not at the bottom of the edulog window).

45 Double-click this bar or click the Restore tool in the title bar to view the dialog box. If it obstructs any of the runs, drag the title bar of the dialog box to move it out of the way.



The following are definitions of the fields and columns in this dialog box.

Runs:

runs – indicates the number of runs in the optimization problem. You determined this number when you entered the number of vehicles available for the runs.

w/stops – indicates how many of the runs in the solution have stops.

Totals:

Run load – the total passenger load for the runs in the problem.

Run DH – the total riding time in tenths of a minute for all of the runs in the solution.

Load cap – the total passenger capacity for the buses in the solution.

DH cap – the total maximum riding time in tenths of a minute for the runs in the solution.

Load +/- – the total number of passengers over the maximum or under the minimum for each of the runs in the problem that exceed those limits.

DH +/- – the total riding time over the maximum or under the minimum for any runs in the problem that exceed those limits.

Stops:

stops – indicates how many stops are included in the problem.

unasn – indicates how many of the selected stops are not yet assigned to runs.

frzn – indicates how many of the stops have been frozen (meaning that their current run assignment status cannot be changed until the stop is unfrozen). See “Freezing and Unfreezing Stops and Runs” on page 485 for further information.

frzn-unasn – indicates how many of the frozen stops are not assigned to runs.

Load Totals:

Unasn – the number of students assigned to stops that are not assigned to runs.

Frzn-unasn – the number of students assigned to frozen stops that are not assigned to runs.

Table Column Headings:

Name – the current ID of each run in the optimization problem.

Min – the current minimum passenger load for the run.

Load – the current number of passengers transported by the run.

Max – the current maximum passenger load for the run.

+/- – the number of passengers over the maximum or under the minimum assigned to the run.

Min – the minimum riding time for the run.

DH – the amount of riding time for the run.

Max – the maximum riding time for the run.

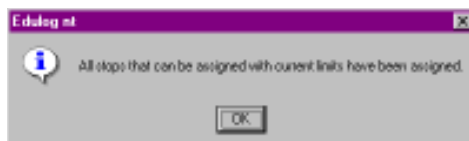
+/- – the riding time over the maximum or under the minimum for the run.

As you proceed through the optimization process, keep an eye on the figures in the Stats dialog box. Notice in particular the Run DH text box which reflects changes in deadhead, or travel time.

Assigning Stops to Runs

Since the Run Generation function cannot normally exceed any of the limits you entered, some stops may remain unassigned in the initial solution. You can look at the value in the # Unasn field under Stops in the Run Optimization Stats window to see if any stops are still unassigned. If not, skip the next two steps.

- 46** Choose **Global Moves** from the menu bar, then choose **Assign All Stops**.



- 47** Choose **OK**.

You will now hide some of the stop layers to get an unobstructed view of the runs generated during the optimization process.

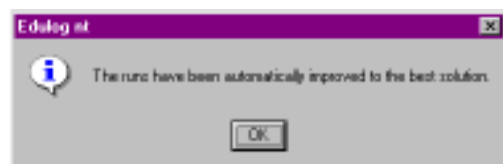
Hiding Layers

- 48** Select the first check boxes next to all of the Stops layers except for the RunOpt Unassigned Stops and RunOpt Schools layers to clear the boxes and hide those stops. The RunOpt Unselected Sim Stops are the stops with no loads that you deselected during the problem definition phase.

Improving the Solution

The Auto Improve command examines the solution generated by edulog and tries to determine if it can make any changes to further optimize the runs according to the specified criteria. Note that you can also use the Improve Runs command if you want to run separate iterations of optimization improvement process, such as when you make manual changes to the runs in the solution. The Auto Improve command automatically makes improvements to the solution until it can find no more. You can see the effects of the command by examining the runs on the map and the values in the Run Optimization Stats dialog box.

- 49** Choose **Global Moves** from the menu bar, then choose **Auto Improve**.



- 50** Choose **OK**.

Purging Empty Runs

At this point, you may want to remove any runs that do not have stops. (If you do not perform this step now, the system will remove empty runs automatically when you exit Run Optimization. See "Saving the Solution to the Simulation Mode" on page 457.

- 51** Choose **Runs** from the menu bar, then choose **Purge**.

The system removes any empty runs from the optimization scenario.

You will now save the current solution in Run Optimization so that you can make manual changes to the runs and still be able restore them as they are now if you do not like the results.

Saving the Run Optimization Problem

- 52** Choose **File** from the menu bar, then choose **Save RunOpt Saveset**.



- 53** Click the **Saveset Name** field and type the **name** under which you want to save the solution.

- 54** Choose **OK**.



- 55** Choose **OK**.

You can now make changes to the runs and still be able restore them (by choosing **Restore Run Opt Saveset** from the **File** menu) if you do not like the results. You can also exit the system if you want to return later and continue working with the runs starting where you left off.

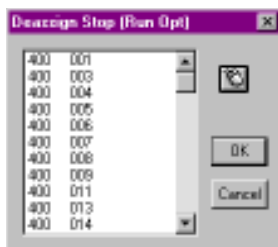
Making Manual Modifications

At this point, you should evaluate the runs and make any manual changes you feel are necessary based on your preferences or knowledge of district conditions and policies. The following steps provide examples of the types of changes you can make.

Again, as you make changes to the runs, keep an eye on the values in the **Run Optimization Stats** dialog box to get an indication of the effects on the overall solution. (See “Viewing Run Optimization Statistics” on page 452 for definitions of the fields and columns in the dialog box.)

Deassigning Stops in the Solution

- 56** Choose **Stops** from the menu bar, then choose **Deassign**.



57 Select any **stops** in the solution that you want to assign to different runs. You can select stops from the list box or choose the Graphic Selection tool and click the stops on the map. You can select as many of the stops as you want.

58 Choose **OK** to deassign the selected stops.

Inserting Stops on Runs in the Solution

59 Choose **Stops** from the menu bar, then choose **Insert on Run**.



60 In the Insert Stop field, select a **stop** to insert (only unassigned stops are available for insertion). You can select a stop by clicking the field and selecting the stop from the list or by choosing the Graphic Selection tool next to the field and clicking the stop on the map display.

61 Select the **run** to which you want to assign this stop in the same manner (if you accidentally select the wrong run, just repeat this step).

62 Under At Position, select a **stop** that will be next to the new stop on the run.

63 Select **Before** if the new stop will precede this stop on the run or select **After** if the new stop will follow this stop.

64 If you deassigned more than one stop in the previous section, choose **Next Stop** and repeat the previous four steps for all but the last of those stops. Choose **OK** (instead of Next Stop) after the last stop to close the Insert Stop dialog box. (If you accidentally select Next Stop instead of OK for the last stop, just choose Cancel to close the dialog box.)

If you prefer the solution you saved before making manual changes, you can restore it now by choosing Restore Run Opt Saveset from the File menu, clicking the Saveset Name field, selecting the name of the saveset, then choosing OK.

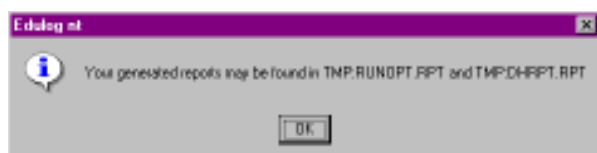
Generating Optimization Reports

NOTES

edulog provides a report option that allows you to examine the effects of the run optimization.

- 65** Choose **Reports** from the menu bar, then choose **Generate Solution Report** from the Reports menu.

The system displays a message box with the location of the file.



- 66** Choose **OK** to close the dialog box.

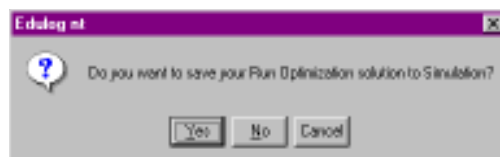
You can find these reports in the TMP subdirectory under your user name in the Users directory (such as C:\Users\<your login name>\TMP). You can view or print these reports using a text editor or word processor. The following is a sample Run Optimization report.

The Run Optimization reports use the school bell times, not the early/late windows.

You will now exit Run Optimization and save the solution to the Simulation mode. If you wish, you can make additional changes to the runs in Simulation or save the simulation for later work. As in Run Optimization, any work you do in Simulation mode will not affect your actual data unless you decide to confirm it as your actual data (discussed in the next section).

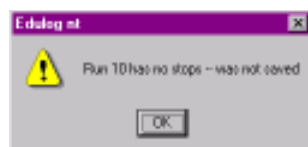
Saving the Solution to the Simulation Mode

- 67** Choose **File** from the menu bar, then choose **Exit Run Optimization**.



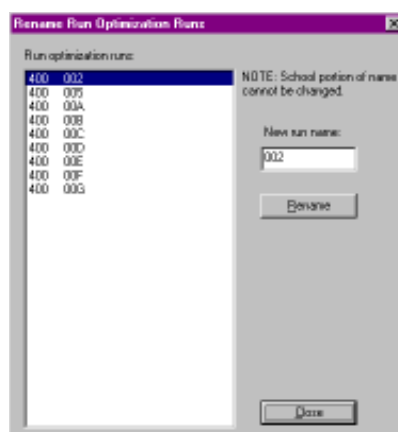
- 68** Choose **Yes**. Keep in mind that this only saves the runs in the solution to the Simulation mode. It does not affect any of your regular transportation data.

If you have any runs with no stops in the solution, a message similar to the following appears.



- 69** Choose **OK**.

You can also remove such runs from the solution by choosing Purge from the Runs menu (see “Purging Empty Runs” on page 454).



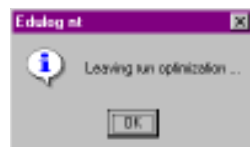
You can use this dialog box to enter new IDs for any of the runs in the solution. While you cannot modify the school code in an ID, you can change the unique number that identifies the run for the school.

- 70** Select the **run** you want to rename from the list.
- 71** Enter the **new ID** in the New Run Name text box.
- 72** Choose **Rename**.
- 73** Repeat the previous three steps for each of the runs you want to rename.
- 74** Choose **Close**.

The system saves the data to Simulation and displays the following message box when finished.



- 75** Choose **OK**.



- 76** Choose **OK**.

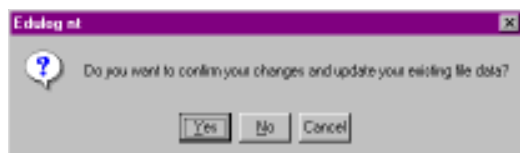
Now that you are in simulation mode, you can make further changes using the available functions.

Warning:

Make sure that you do not confirm a simulation unless you are absolutely certain that you want to replace your district's actual data with the data in the simulation.

Exiting the Simulation

- 77** Choose **File** from the menu bar, then choose **Exit Simulation** from the File menu. Do not press ENTER at this point, as this would choose the Yes button and overwrite your actual data with the data in the simulation.



- 78** Choose **No**.

You return to the regular mode of operations.

- 79** Click the **Zoom Entire** tool (the second tool in the toolbar) to view the entire map.

Removing Data from the Map Display

- 80** In the map legend, click the **Stops** heading above the stop layers.
- 81** Choose **Yes** from the message box asking if you want to delete all stop layers.
- 82** Click the **Runs** heading above the run layers.
- 83** Choose **Yes** from the message box asking if you want to delete all run layers.

Step 1—Defining the Run Optimization Problem

Concepts

Loading the data is the first phase of the run optimization process. This includes four steps:

- Enter Simulation mode.
- Load any schools, stops, and runs you want to include in the scenario.
- Enter Run Optimization.
- Select the stops you want to include in the problem.

When working with multiple-school runs, remember the following:

- Stops are uniquely related to a single school. A location where a bus stops for students for more than one school (that is not part of a cluster) requires a separate stop. This enables the system to track which students go to which schools. You need to load the school stop for each school on the runs.
- Stops at the same geographic location are initially loaded as multiple stops, which means that each stop is counted towards the maximum number of stops you can include in the problem. The program handles each stop separately and the stops may end up on different runs in the solution. You can use the Join command to combine such stops so that they count as a single stop (their loads are also combined). The optimization process treats the joined stops like a single stop and always puts them on the same run in the solution, though you can move them to different runs later if you wish.
- The order in which you select schools during the stop selection phase determines the order in which each bus arrives at the individual schools on the resulting runs (that is, the first school selected is the first school on the runs, and so on). Make sure place to the schools in the ascending order of their bell times (such as 7:45, 8:15, then 8:30).

Since transfer stops require individual decisions, the Run Optimization functions will not evaluate those stops. However, you can add transfer stops to runs created in Run Optimization after you save the new runs as your actual data.

Advance Preparations

Before you perform a run optimization, you should run the Update Routing Data (UPDTADTM) utility in EMU. Refer to EMU's online Help for further information. You should also make a backup of your transportation data as a safety precaution.

Defining the Run Problem

The first task is to decide exactly what you want to accomplish in the Run Optimization scenario. Your goal determines what specific data to load. You should consider the following items.

- Will these be multiple-school runs or single-school runs?
- Are you trying to minimize the overall number of runs or reduce travel time for the students? (These are not always mutually exclusive.)

- Are you trying to create entirely new runs or just improve existing runs?
- Are you mirroring AM runs to create PM runs?
- Are you making existing runs more complete by adding currently unassigned stops?

With your goal in mind, you can determine the data that the run problem will require.

Loading Data

You load the data for the optimization scenario in Simulation mode before entering Run Optimization.

- 1 Start **Edulog**.
- 2 Click the **Enter Simulation** tool in the tool bar or choose **Enter Simulation** from the File menu.



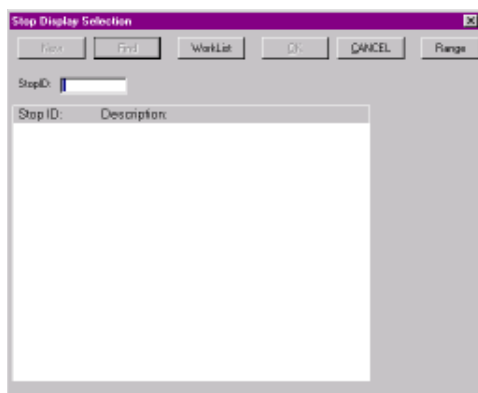
- 3 Choose **OK**.

You have several options when loading data for a run optimization problem. You can load a set of stops and have the system develop an optimal set of runs from those stops, you can load existing runs and have the system improve the efficiency of those runs, or you can load both stops and runs.

Be aware: for a multiple-school optimization problem, the order in which you load the schools affects every run created. Each new run will travel to every school you enter, in the same order in which you load it.

Loading Stops and Schools

- 4 Choose **Stops** from the menu bar, then choose **Load** from the Stops menu.



- 5 In the Stop ID field, type the **code of the first school** whose stops you want to load.
- 6 Choose **Find**.

The list box displays matching stops and selects them all automatically.

Note:

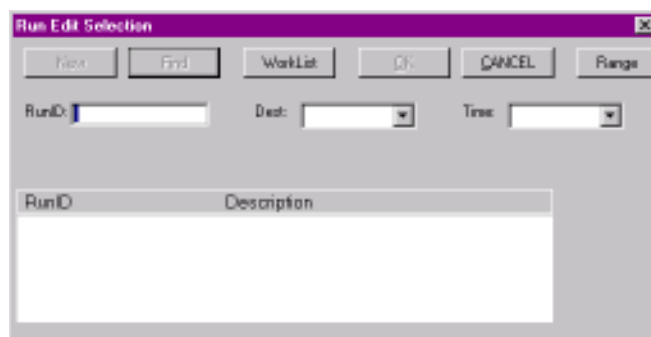
You can only match up to 100 records in the list box. If the school you selected for this demonstration has more than 100 stops, a dialog box appears indicating that only the first 100 records will be listed. If you want to load all of the stops for the school, you can load them from a worklist. Refer to edulog's online Help for further information on worklists or see "Worklists" on page 63.

The list box displays matching stops and selects them all automatically. If you wish, you can select a subset of the stops in the list. You can select stops listed consecutively by clicking the first stop in the range, holding down the SHIFT key, then clicking the last stop in the range. You can select stops that are not listed consecutively by holding down the CTRL key while clicking the desired stops. Make sure to include the school stop (such as 400.000).

- 7 Choose **OK** to load the selected stops.
- 8 Repeat the process for any other schools or stops you want to include.

Loading Runs

- 1 Choose **Runs** from the menu bar, then choose **Load**.



You select runs in the same basic manner you used to select stops.

- 2 In the Run ID field, type the **code of the school** whose runs you want to load.
- 3 Choose **Find**.

The list box displays matching runs and selects them all automatically.

As with stops, you can select a subset of the runs in the list box. You can select runs listed consecutively by clicking the first run in the range, holding down the SHIFT key, then clicking the last run in the range. You can select runs that are not listed consecutively by holding down the CTRL key while clicking the desired runs.

- 4 Choose **OK** to load the selected runs.
- 5 Repeat the process for the runs for any other schools you want to include in the problem.

Entering Run Optimization

- 1 Choose **File** from the menu bar, choose **Enter Optimization**, then choose **Run**.



- 2 Choose OK.

Notice that many of the stops have a blue circle around them, indicating that you are in run optimization mode. The school stop is represented by a bus icon and does not have a circle. Also, since transfer stops require individual decisions, the Run Optimization functions will not evaluate those stops. Transfer stops and stops with frequency errors will not have circles. You can assign transfer stops to runs created in Run Optimization after you save the new runs as your actual data.

Defining the Run Optimization Problem

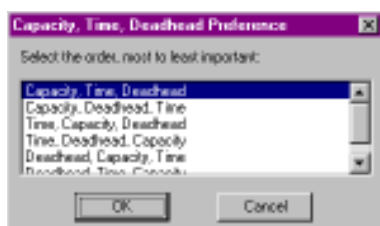
When using the optimization functions, you define the priorities given to the three factors which determine run creation and modification. The three factors are Capacity, Time, and Deadhead.

Capacity - considers it most important to fill the buses to the maximum capacity allowed.

Time - considers it most important to minimize the total travel time of the runs.

Deadhead - considers it most important to reduce the time it takes to get from stop to stop on the run.

- 1 Choose **Problem Definition** from the menu bar, then choose **General Options**.



The Capacity, Time, Deadhead Preferences dialog box lists the six possible combinations of the three criteria from greatest to least importance. For example, the Capacity, Time, Deadhead selection tells the system to first rearrange stops on runs so that the buses carry as many students as possible (that is, it should try to reduce the number of buses required to transport the students). Next, it will try to reduce the amount of time required to transport students. Finally, it will try to reduce the time it takes to travel between the stops on the run.

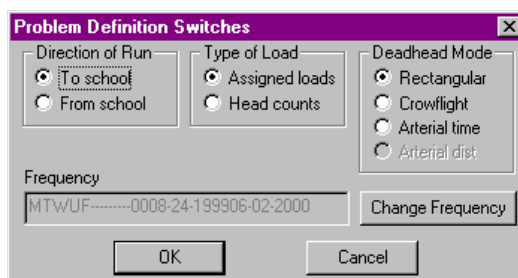
- 2 Select the desired **criteria priority**.

- 3 Choose **OK** to close the dialog box.

Next, you need to define the types of runs, types of loads, the deadhead mode, and the frequencies of the runs in the problem.

- 4 Choose **Problem Definition** from the menu bar, then choose **School/Stop Selection**.

The Problem Definition Switches dialog box appears, listing the available direction, load, and deadhead options.



- 5 Under Direction of Run, select **To school** if you want to create runs transporting students to school. Select **From school** if you want to create runs transporting students home from school.
- 6 Under Type of Load, select **Assigned loads** if you want to determine student loads according to the numbers of students assigned to stops in edulog. Select **Head counts** if you want to use the numbers of students that actually ride the bus. Head counts are typically determined by driver surveys and are entered manually.

Deadhead Mode

The deadhead mode refers to the method that the system uses to calculate travel times between stops during the optimization process. The choices are as follows.

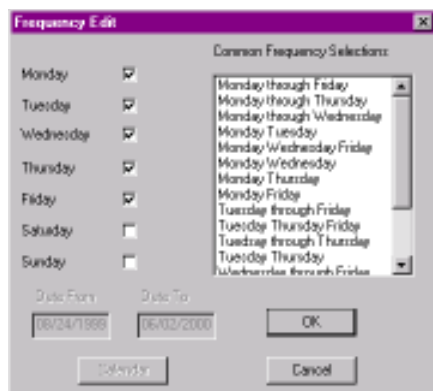
Rectangular - calculates the travel time between two stops as the rectangular distance using the fast and slow speeds (see “Changing Default Speeds” on page 470).

Crow Flight - calculates travel time between two stops as the straight-line distance between the two stops, using the average speed of travel.

Arterial - calculates travel time based on the shortest time between the two stops according to the geocoded street network.

Because of the unique nature of each district, you should try each of these methods at some point to determine which works best by trying them on the same run problem. The three methods are discussed in detail in “Time and Distance” on page 501.

- 7 Under Deadhead Mode, select **Rectangular**, **Crowflight**, or **Arterial Time**.
- 8 Make sure the Frequency field lists the correct **frequency** for the runs. If it does not, choose the Change Frequency button.

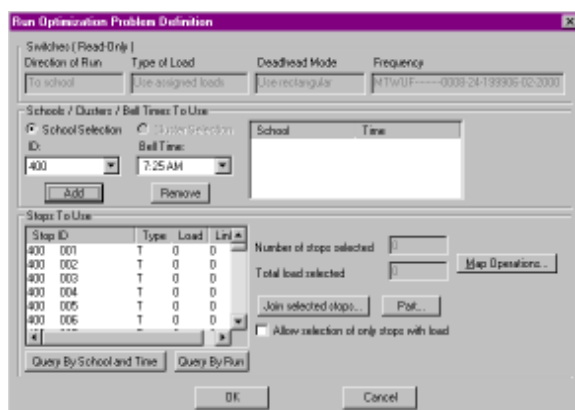


You can select the check boxes next to the days that the runs need to be serviced or select from the common frequency selections on the right. Choose OK when finished.

- 9 Choose **OK** to close the Problem Definitions Switches dialog box.

Selecting Stops

Now you need to select the stops you want to include in the optimization problem.



The fields toward the top of the Run Optimization Problem Definition dialog box reflect the selections you just made in the Problem Definition Switches dialog box.

- 1 Under Schools/Clusters/Bell times to use, click the **ID** field and select the **first school** you want to include in the optimization problem.
- 2 Click the Bell Time field (next to the School ID field) and select the **bell time** for the school that you want to include in the problem.
- 3 Choose the **Add** button under those fields.
The system enters the school and bell time in the adjacent list box.
- 4 Repeat the previous three steps for any other school/bell time combinations you want to include in the problem.

Any runs generated during the optimization process will service the schools and bell times in the list. If you decide you do not want to include a school and bell time combination, select it from the list and choose Remove.

Notice the Stops to Use list in the lower-left corner of the dialog box. This list contains the stops you loaded for optimization. You now need to select the stops you want to include in the problem from that list.

5 You have several options for selecting stops.

- You can select stops from the Stops to Use list by clicking them with the mouse (SHIFT+clicking and CTRL+clicking to select multiple stops).
- You can have the system automatically select stops for particular schools and bell times (see “Query by School and Time” on page 466).
- If you loaded runs during the data selection phase, you can have the system automatically select stops assigned to particular runs (see “Query by Run” on page 467).
- You can use the Map Operations to select from the stops displayed on the map using the mouse (see “Map Operations” on page 468).

You can also use a combination of these methods. Once you’ve selected stops, you can hold down the CTRL key and click stops in the Stops to Use list to toggle their current selection status (CTRL+clicking a selected stop deselects it and CTRL+clicking an unselected stop selects it). If you do not hold down the CTRL key, the stop you click will replace the current selection.

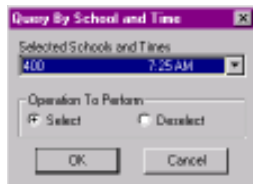
The Stops to Use grid lists stops by their IDs. The Type column in the list indicates the stop type. A “T” indicates a regular transportation stop. A “D” indicates a duplicated stop (a stop that has been joined to one or more stops at the same location—see “Joining and Parting Stops” on page 469). An “R” indicates that the stop was loaded by run (see “Query by Run” on page 467). The Link column shows the number of other stops to which the stop is joined.

The number of selected stops and the total passenger loads appear in the fields next to the Stops to Use list.

Query by School and Time

You can use this method to have edulog select the stops to include according to school codes and bell times.

1 Choose **Query By School and Time** beneath the list of Stops to Use.



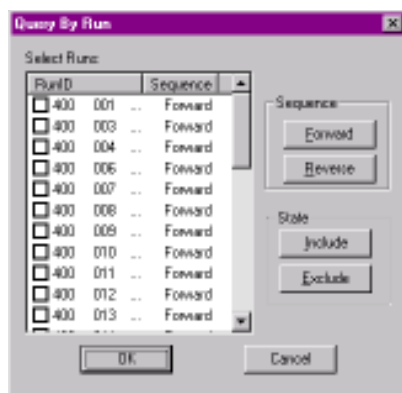
2 Click the **Selected Schools and Times** field and select the **school/bell time** combination whose stops you want to select.

Under Operation to Perform, select Select if you want to select stops for that school and bell time. Select Deselect if you want to deselect such stops. Choose OK. A message box appears, indicating the number of stops that were selected or deselected. Choose OK to close the message box.

Query by Run

You can use this method to have edulog select the stops to include according to the runs to which they are assigned. When you select stops by run, the system selects the stops assigned to those runs and loads the information pertaining to those runs. As a result, the optimization scenario will include the selected runs when you begin the optimization process. If you also select stops that are not assigned to runs, the system will use those stops to create new runs or will assign them to the existing runs.

- 1 Choose **Query By Run**.



- 2 Select the **runs** whose stops you want to include in the problem.

You have several options for selecting runs. If you only need to select a few runs, you can click the check boxes next to those runs. If you need to select very many runs, you may find it easier to use the Include button. First select the runs by clicking the run IDs in the list (instead of the check boxes). You can select multiple runs by SHIFT+clicking or CTRL+clicking the run ID's, then choosing the Include button. This automatically selects the check boxes next to those runs. If you want to exclude stops from any of the runs, select the runs in the same manner and choose Exclude. The check boxes next to those runs are cleared.

If any of the stops on the runs have zero passenger loads, they will not be included in the problem if you selected the **Allow selection of only stops with loads** check box.

- 3 You can also change the sequence of any of the runs by clicking their IDs (as discussed in the previous step), then choosing **Forward** or **Reverse**.

The Forward and Reverse buttons allow you to control the sequence of the stops on the loaded runs. Choose Forward if you want to load the stops in their current sequence. "Forward" appears in the Sequence column next to the selected runs in the list box. Choose Reverse if you want to load the stops in the exact oppo-

site sequence from the current runs. “Reverse” appears in the Sequence column next to the selected runs in the list box. We refer such runs as mirrored runs.

Mirroring Runs

The Sequence buttons (Forward and Reverse) allow you to create runs which visit the exact same stops as those that you loaded, but which proceed to their stops in the opposite directions. For example, you may have afternoon from-school runs that go to the same stops as the morning to-school runs, but in the exact opposite order. If you have already created the morning runs, you could reverse them to create the afternoon runs quickly and easily. If you confirm mirrored runs as your actual data, the original runs will be left intact and the new runs will exist in the reverse order.

- 4 Choose **OK** when finished.

The stops in the Stops to Use list are selected according to your run selections.

Map Operations

You can use this method to select from the stops displayed on the map.

- 1 Choose **Map Operations**.



- 2 Under Mode of Selecting, click the Via field and select Point if you want to select stops by clicking them on the map display. Select Polygon if you want to select stops by drawing a polygon around them. Click the Operation field and select **Add To** if you want to add the stops to your selection, select **Remove From** if you want to deselect the stops, or select **Toggle** to add unselected stops and remove selected stops.

If you selected Point, click the desired stops on the map. If you selected Polygon, draw a perimeter around the desired stops. Click the first point of the perimeter, then move the mouse to the end of the first line of the polygon and click the mouse again. Continue drawing perimeter lines in this fashion. When finished, double-click the mouse to close the perimeter. A message box appears indicating the number of stops that were added, removed, or toggled. Choose **OK** to close the message box. When you are finished, choose Return to close the Stops to Use dialog box.

Deselecting Stops without Passengers

- 1 If you want to deselect any stops with zero loads, select the Allow selection of only stops with load check box next to the Stops to Use list box.

edulog removes any stops without assigned students from the problem and displays the number of deselected stops in a message box.

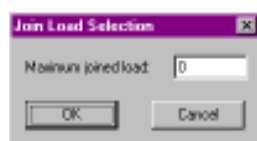
- 2 Choose **OK** to close this message box.

Joining and Parting Stops

You can join any of the selected stops that are at the same location. If you have two stops at the same location, it may be more efficient to have the system consider those two stops to be a single stop when optimizing runs. Of course, such stops are not considered to be joined outside of the optimization problem.

Joined stops will always get assigned to the same run and will only count as one stop toward the maximum number of stops permitted in the optimization problem.

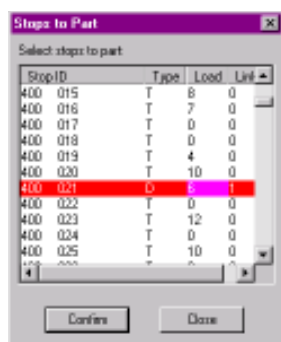
- 1 Choose **Join Selected Stops** next to the list of Stops to Use.



- 2 Enter the **maximum passenger load** that a combined stop can have (such as 20) in the text box.
- 3 Choose **OK**.
- 4 Choose **OK** from the message box indicating the number of stops that were joined.

The Link column in the Stops to Use list indicates the number of stops to which each stop is joined. After you close the Problem Definition dialog box, you can examine the joined status by choosing Stop Join Status from the Problem Definition menu.

- 5 If you want to separate any of the combined stops, choose **Part**.



Select the stop or stops you want to separate (to select multiple stops, hold down the CTRL key while clicking them with the mouse), then choose **Confirm**.

- 6 Choose **OK** to close the Run Optimization Problem Definition dialog box.

There is a limit on the number of stops you can load in a run optimization problem (at the printing date of this manual, the limit is 958, though this may change). If you get an error message indicating that you have selected too many stops, select a smaller number of stops from the Stops to Use list (hold down the CTRL key while clicking the stops you want to remove). If you later decide you want to add or remove stops to or from the problem, you can open the Problem Definition dialog box and include the desired stops. A message box will appear informing you that you will lose any changes or selections you have made. You can discard them if you want to start over or you can save your current scenario first. You can then use the functions available for selecting stops, including the Map Operations which allow you to select or deselect stops on the map using the mouse (see “Map Operations” on page 468).

The stops on the map change appearance to indicate whether they are included in the optimization problem. The circles are removed from selected stops, while those that are not selected still have circles.

Changing Default Speeds

The system calculates travel times between stops using a fast speed and a slow speed (unless you are using the Arterial method of determining travel times). It assumes that the vehicle will travel 80% of the distance at the fast speed and 20% at the slow speed (10% at each end as the vehicle speeds up and slows down).

- 1 Choose **Change Default Speeds** from the Problem Definition menu.



The dialog box lists the default fast and slow speeds.

- 2 Enter the desired **fast speed** in the Speed 1 field.
- 3 Enter the desired **slow speed** in the Speed 2 field.
- 4 Choose **OK**.

Note that once you create a solution, a change in the default speeds will only register if you redo the Problem Definition step. Just deleting runs, changing speeds, and regenerating a solution won't suffice.

Step 2—Creating the Initial Runs

Concepts

The second step in the process is to use the automatic optimization functions to create initial runs according to the parameters you define. There are three functions in the Global Moves menu which you can use for this purpose.

Run Generation - automatically creates the initial runs with the stops you selected in the previous step. You need to enter the number of buses to use, as well as the capacities and travel time limits.

Assign All Stops - assigns runs to any stops that were not assigned during the Run Generation process, while making the smallest overall impact on the total solution.

Improve Runs - evaluates all of the current runs and determines whether there is any way to improve the overall solution. You can use this command (instead of Auto Improve) if you want to run separate iterations of optimization improvements, such as when you make manual changes to the runs in the solution and you want to view the individual changes.

Auto Improve - evaluates all of the runs and determines whether there is any way to improve the overall solution. This command automatically continues to make improvements to the solution until it can find no more. You do not need to repeat the command unless you make changes to the solution.

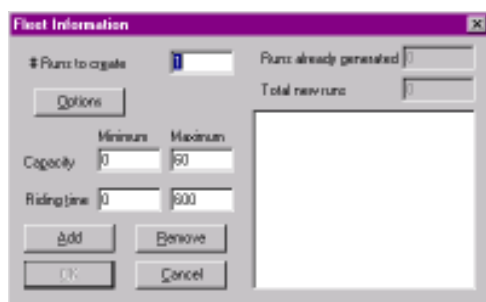
When you generate runs, a Run Optimization Stats window appears with information on the current status of the stops and runs in the optimization scenario. You can refer to these statistics to determine the impact of various changes to the overall solution.

Creating the Initial Runs

In this phase, you use the automatic optimization functions to create initial bus runs from the stops you have loaded, then refine the solution to find an optimal arrangement. You can use these functions until you are satisfied with the solution or wish to make manual adjustments.

If you have loaded stops based solely on existing bus runs, you can skip this step (proceed to “Viewing Run Optimization Statistics” on page 473).

- 1 Choose **Global Moves** from the menu bar, then choose **Run Generation**.



This dialog box allows you to enter information on the vehicles available for the runs you are creating, including the maximum and minimum number of passengers that these vehicles can carry and the maximum and minimum amounts of time that these runs can take. You can also choose from various options which determine how the system will build the runs (see “Advanced Run Generation Options” on page 479).

Entering Vehicle Information

You can enter more than one combination of vehicle criteria. For example, suppose you have a total of 30 vehicles available for the runs in this optimization scenario: 15 buses that can transport 70 passengers each, 12 buses that can transport 55 passengers each, and three vans that can transport 10 passengers each. First, you enter the criteria for one of the vehicle groups, then choose Add. The criteria for that group appears in the list box. You then enter the criteria for the next group and choose Add. When you are finished, the list box will contain all of the criteria for the vehicles available for the runs you are creating.

The total number of vehicles you enter is also the total number of runs that the system will create initially, though some of these runs may not have stops if you enter more vehicles than are needed. You can purge such runs at any time during the process (see “Purging Empty Runs” on page 476). You can create up to 64 runs, including any runs already generated in the scenario.

- 2 In the # Runs to Create text box, enter the **number of vehicles** in the first group.

If you have already performed the Run Generation command at least once since defining the problem, enter only the number of additional vehicles, not the total number. The Runs Already Generated field lists the number of vehicles already included in the problem. You can use the Delete or Purge command in the Runs menu to remove runs from the problem if you have too many. If you delete runs that you used to select stops for inclusion in the scenario, those stops will not be removed from the problem.

- 3 Enter the **minimum capacity** for the vehicles in the first group in the Capacity Minimum text box.

Start with zero as the minimum value. Then, if you improve the solution to the point where you no longer need some of the vehicles, the system can take them down to a zero load and you can purge them from the problem to minimize the number of vehicles used.

- 4 Enter the **maximum capacities** for the vehicles in the Capacity Maximum text box.

The maximum value is based on your judgement, depending on the type of runs you are creating. If you are using assigned load counts, the system will count all the students assigned to a stop, even if they do not actually ride the bus. If not all of the students ride (a common occurrence, particularly for high school runs), you may want to overload buses based on your knowledge of the actual ridership percentage. If you use head count loads, you do not need to make that adjustment.

- 5 In the Riding time Minimum text box, enter the **minimum amount of time** that the runs can take in tenths of a minute (for example, enter 200 for a twenty-minute minimum). Again, we recommend that you use zero as the minimum riding time, at least initially.
- 6 In the Riding time Maximum text box, enter the **maximum amount of time** that the runs can take in tenths of a minute (for example, enter 600 for a sixty-minute maximum). District policy commonly determines the maximum time.

7 Choose **Add**.

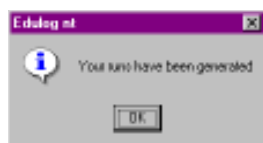
The system adds the repetition information to the list box. The two fields above the list box indicate the number of runs already generated and the number of new runs that will be created for the vehicles you are entering now.

8 Repeat steps 2 through 7 for any other groups of vehicles available for the runs in the scenario.

9 If you decide you want to remove a group, select it from the list and choose **Remove**.

10 Choose **OK** when finished.

This command generates an initial set of runs for the stops based on the selected criteria of Capacity, Time, and Deadhead.



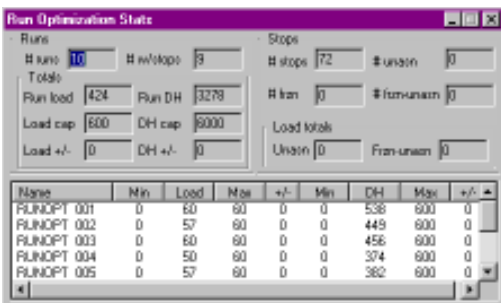
11 Choose **OK** to close the dialog box.

The system displays the runs on the map and opens a dialog box containing run optimization statistics and minimizes it to a bar at the bottom of the screen. You will examine this dialog box later when you begin optimizing runs. edulog also lists the display layers representing those runs in the map legend.

edulog generated an initial solution of the optimization problem by arranging stops on runs. This may not necessarily be the best solution, however. You will later use the Auto Improve function to have edulog further analyze the problem and find an optimal solution. First, you will examine the run statistics and make sure all of the stops in the problem are assigned to runs.

Viewing Run Optimization Statistics

- 1 Locate the title bar representing the minimized Run Optimization Stats dialog box at the bottom of the screen (not at the bottom of the edulog window).
- 2 Double-click this bar or click the Restore tool in the title bar to view the dialog box. If it obstructs any of the runs, drag the title bar of the dialog box to move it out of the way.



The following are definitions of the fields and columns in this dialog box.

Runs:

runs – indicates how many runs have been created so far in the optimization process. You determined this number when you entered the number of vehicles available for the runs.

w/stops – indicates how many of the runs in the solution have stops.

Totals:

Run load – the total passenger load for the runs in the problem.

Run DH – the total riding time in tenths of a minute for all of the runs in the solution.

Load cap – the total passenger capacity for the buses in the solution.

DH cap – the total maximum riding time in tenths of a minute for the runs in the solution.

Load +/- – the total number of passengers over the maximum or under the minimum for each of the runs in the problem that exceed those limits.

DH +/- – the total riding time over the maximum or under the minimum for any runs in the problem that exceed those limits.

Stops:

stops – indicates how many stops are included in the problem.

unasn – indicates how many of the selected stops are not yet assigned to runs.

frzn – indicates how many of the stops have been frozen (meaning that their current run assignment status cannot be changed until the stop is unfrozen). See “Freezing and Unfreezing Stops and Runs” on page 485 for further information.

frzn-unasn – indicates how many of the frozen stops are not assigned to runs.

Load Totals:

Unasn – the number of students assigned to stops that are not assigned to runs.

Frzn-unasn – the number of students assigned to frozen stops that are not assigned to runs.

Table Column Headings:

Name – the current ID of each run in the optimization problem.

Min – the current minimum passenger load for the run.

Load – the current number of passengers transported by the run.

Max – the current maximum passenger load for the run.

+/- – the number of passengers over the maximum or under the minimum assigned to the run.

Min – the minimum riding time for the run.

DH – the amount of riding time for the run.

Max – the maximum riding time for the run.

+/- – the riding time over the maximum or under the minimum for the run.

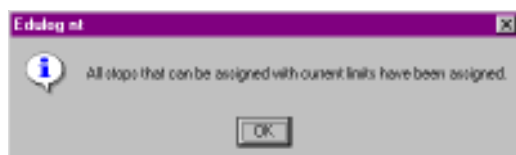
As you proceed through the optimization process, keep an eye on the figures in the Stats dialog box. Notice in particular the Run DH text box which reflects changes in deadhead, or travel time.

Assigning Unassigned Stops

Since the Run Generation function cannot normally exceed any of the limits you entered, some stops may remain unassigned in the initial solution. You can look at the value in the # Unasn field under Stops in the Run Optimization Stats window to see if any stops are still unassigned. If not, skip to the next section on “Hiding Layers.”

The Assign All Stops command places unassigned stops on runs in a manner that preserves the efficiency of the solution as much as possible, though it may exceed some of the limits you entered. It will search for the option offering the least impact on the overall solution. (Note that you can use the commands discussed later in this manual to improve the solution and make manual changes if you wish.)

- 1 Choose **Global Moves** from the menu bar, then choose **Assign All Stops**.



- 2 Choose **OK**.

You may need to perform these two steps more than once to assign all of the stops to runs. If you select this function more than once and the number of unassigned stops remains the same, you have two options. You can exit and restart the problem with new parameters or you can choose the Run Generation command again and add more vehicles.

Hiding Layers

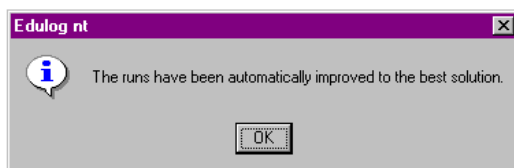
At this point, you may find it useful to hide some of the stop and run layers to get an unobstructed view of the runs generated by the optimization process.

- 3 Select the first check boxes next to all of the **Stops** layers except for the RunOpt Unassigned Stops and RunOpt Schools layers to clear the boxes and hide those stops. The RunOpt Unselected Sim Stops represent any stops with no loads that you deselected during the problem definition phase. If you loaded runs for the optimization problem, an additional layer appears in the legend (“Stops on Loaded Runs”). You may want to hide that layer, as well as the original runs you loaded (but not the Runopt runs).

Improving the Solution

The Auto Improve command is the most sophisticated of the run generation functions. It takes all of the stops already assigned to runs and evaluates them individually to see if there is a position (possibly on a different run) which improves the efficiency of the overall solution according to the criteria you specified. The Auto Improve command continues to make improvements to the solution until it can find no more (as if you continued to choose the Improve Runs command until it made no further improvements).

- 1 Choose **Global Moves** from the menu bar, then choose **Auto Improve**.



- 2 Choose **OK**.

You can also use the Improve Runs command if you want to run separate iterations of optimization improvements, such as when you make manual changes to the runs in the solution and want to view the individual changes. You can repeat the Improve Runs command as many times as you wish. Initial changes in stop positions may open up better positions for other stops. You can repeat the command until edulog makes no further improvements or continues to make a repeated switch of equivalent positions (for example, it keeps exchanging a stop back and forth from one run to another). The Auto Improve command automatically repeats the process until it can find no more improvements.

You can see the effects of the improvements by examining the runs on the map and the values in the Run Optimization Stats window.

- 1 Choose **Global Moves** from the menu bar, then choose **Improve Runs**.



The message box indicates the number of changes made to the runs.

- 2 Choose **OK**.
- 3 Repeat the two previous steps until the system makes no more moves (or until it keeps making the same move back and forth).

Purging Empty Runs

At this point, you can remove any runs that do not have any stops.

- 1 Choose **Runs** from the menu bar, then choose **Purge**.

The system removes any empty runs from the optimization scenario

In the next step (See “Step 3—Evaluating the Runs” on page 483), you will evaluate the runs and determine if you need to make further changes. You may want to save the current solution so that you can make changes to the runs and still be able restore them as they are now if you do not like the results.

Saving an Optimization Scenario

At any point, you can save the optimization problem in its current state with all of the selections you have made and any runs you have generated. This can be useful when you want to exit the system and return later to pick up where you left off or when you want to experiment with different arrangements, but still be able to restore the data back to its current state.

- 1 Choose **Save Run Opt Saveset** from the File menu. If this is the first time you have saved the current scenario, the following dialog box appears.



- 2 Enter a **name** in the Saveset Name field. Try to make the name as descriptive as possible in the space allotted. When you restore the dataset later, this name will be the only means of identifying its contents.

- 3 Choose **OK**.

A message box appears indicating whether the save was successful.

- 4 Choose **OK**.

The next time you choose the Save Run Opt Saveset command when working with this saveset, the system will automatically save the dataset under the same name.

If you want to save the scenario under a different name, choose Save Run Opt Saveset As from the file menu. The Saveset Save As dialog box appears for you to enter the desired name.

Restoring an Optimization Scenario

Run Optimization allows you to load a previously saved arrangement after you have exited the system or if you do not like the results of changes.

- 1 Choose **Restore Run Opt Saveset** from the File menu.



- 2 Click the Saveset Name field and select the desired **saveset**.

- 3 Choose **OK**.

A message box appears indicating whether the restoration was successful.

- 4 Choose **OK**.

Deleting a Saveset

You can delete optimization savesets whenever they are no longer needed.

- 1 Choose **Delete Run Opt Saveset** from the File menu.

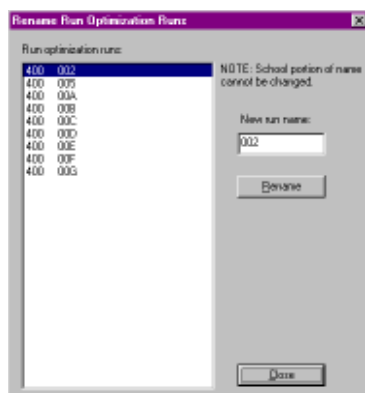


- 2 Click the Saveset Name field and select the **saveset** you want to delete.
- 3 Choose **OK**.
A message box appears indicating whether the deletion was successful.
- 4 Choose **OK**.

Saving a Scenario to Simulation Mode

You can also save the scenario to Simulation mode if you want to continue working on the data there. Saving a solution to Simulation mode will not affect your actual data unless you choose to confirm it when you exit the Simulation mode or choose Confirm Simulation from the File menu. DO NOT do either of those unless you are certain you want to overwrite your existing data.

- 1 Choose **Save to Simulation** from the file menu.



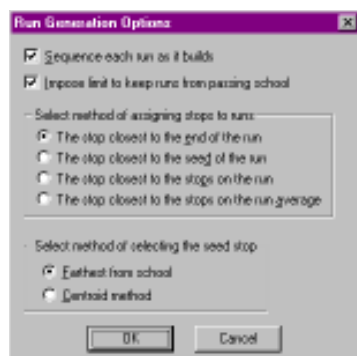
You can use this dialog box to enter new IDs for any of the runs in the solution. While you cannot modify the school code in an ID, you can change the unique number that identifies the run for the school.

- 2 Select the **run** you want to rename from the list.
- 3 Enter the new **ID** in the New Run Name text box.
- 4 Choose **Rename**.
- 5 Repeat the previous three steps for any other runs you want to rename.

You also have the option of saving an optimization scenario to Simulation when you exit Run Optimization (see “Exiting Run Optimization and Saving to Simulation” on page 495).

Advanced Run Generation Options

When you choose the Options button on the Fleet Information dialog box (see “Creating the Initial Runs” on page 471), the following dialog box appears with various options that determine how the system builds runs.



The selections in this illustration show the default settings (the automatic settings for the Run Generations command). These default settings may suffice for creating your runs, but as you become more familiar with the optimization features, you may find that different approaches work better for building your runs. You can experiment with the different options to see if they will work for you. The options are defined in the following sections.

Sequence Each Run as it Builds

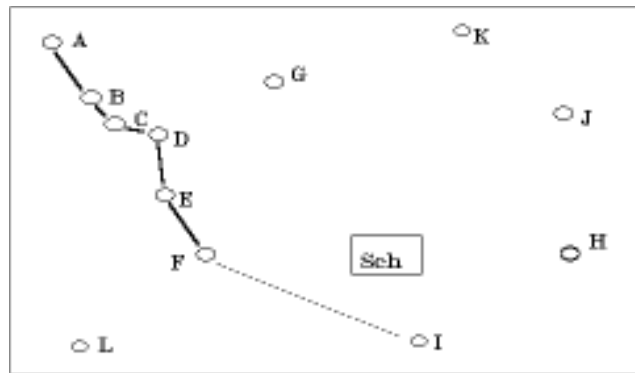
Select this check box to have the system automatically resequence every run as it adds each stop during the initial run creation. This may have a significant impact on what is considered the next stop, since the new “last” stop on the run may not be the last one added.

Deselect this check box to have the system generate each run with the stops remaining in the order they were initially added to the run. The last stop on the run (when calculating the next stop to add) is always the last stop added. The system resequences the runs after it builds them.

Impose Limit to Keep Runs from Passing School

Select this check box if you want the system to check the proximity of the school as it adds each stop to the run. If the school is closer than the next nearest stop, the run proceeds to the school where it ends.

Deselect this check box if you want the system to ignore the school until it reaches the limits you entered (as in the following illustration).

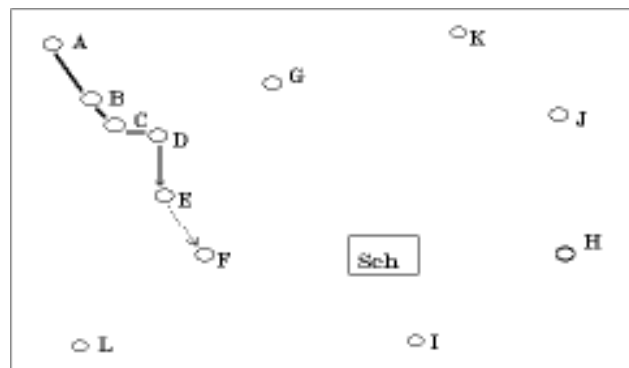


Selecting the Method of Assigning Stops to Runs

Note that your choice here depends largely on your selection in the first check box (about whether to sequence runs).

The Stop Closest to the End of the Run

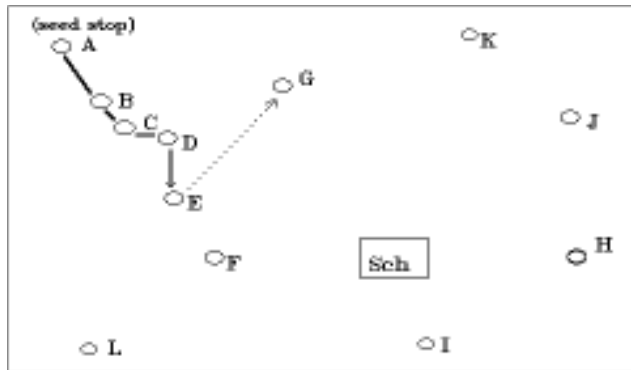
The stop closest to the last stop added to the run is the next stop chosen. This is the default setting for the Run Generation command.



This method tends to produce runs that essentially go straight towards the school (like spokes on a wheel).

The Stop Closest to the Seed of the Run

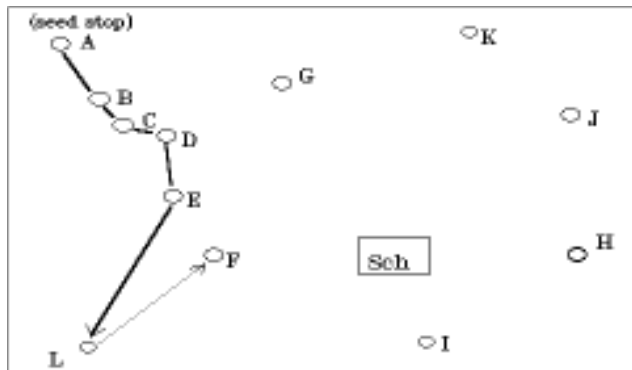
The stop closest to the seed stop (the initial stop that the system uses to create the run) is the next stop chosen. See “Selecting the Method of Selecting Seed Stops” on page 482 for information on selecting the seed stop.



This tends to produce neighborhood runs. The system assigns all the stops in a particular area before moving on to a new area.

The Stop Closest to the Stops on the Run

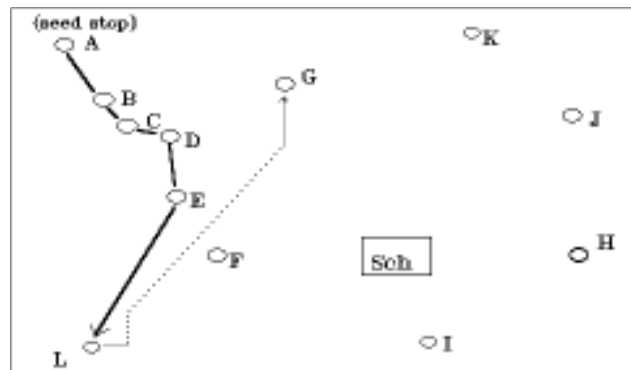
The stop closest to the stops on the run is the next stop chosen. The system examines the potential next stops and chooses the one which has the shortest distance from any stop already on the run.



This method tends to produce runs that zig-zag in the general direction of the school. This frequently incorporates a wider path towards the school than runs using the first method (adding the stop closest to the end of the run).

The Stop Closest to the Stops on the Run on Average

The stop closest to all the stops already on the run (on average) is the next stop chosen. This contrasts from the third method (adding the stop closest to the stops on the run) in that the system examines all potential next stops and determines their average distance from all of the stops already on the run. The system chooses the stop with the smallest average distance.



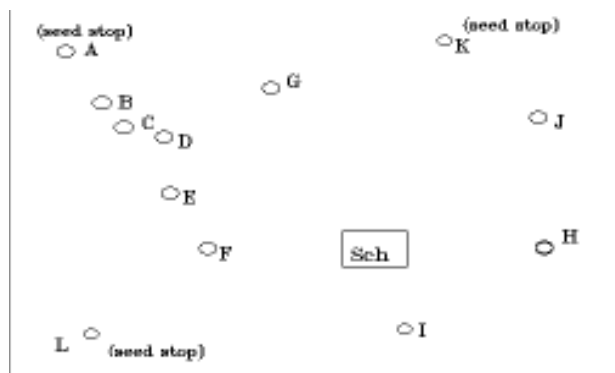
This tends to produce runs that are somewhere between the second and third method. Runs still tend to be neighborhood runs, but with a stronger tendency to move towards the school in the process.

Selecting the Method of Selecting Seed Stops

Finally, you choose a method of selecting the seed stop for each run. The seed stop is the initial stop chosen for a run. The system uses that stop to begin constructing that run. The system builds the first run from that stop to the school, then selects the next best unassigned stop as the seed stop for the next run. The system repeats this process until it creates all the runs.

Farthest from School

edulog chooses the unassigned stop which is farthest from the school as the next seed stop. This is the default setting. In the following example (assuming you specified three runs) the system might choose stop A first, then stop L, and finally stop K, each time creating a run from the seed stop to the school before selecting the next seed stop.

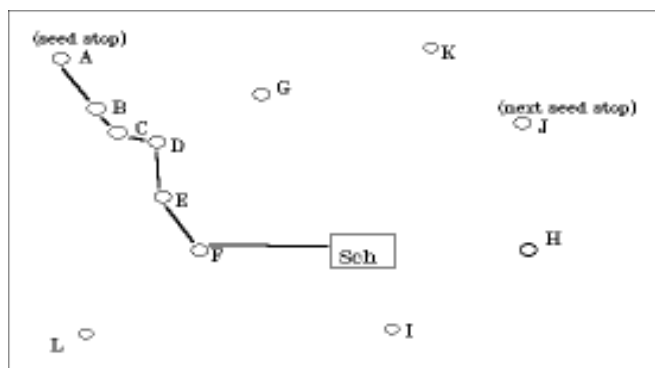


Centroid Method

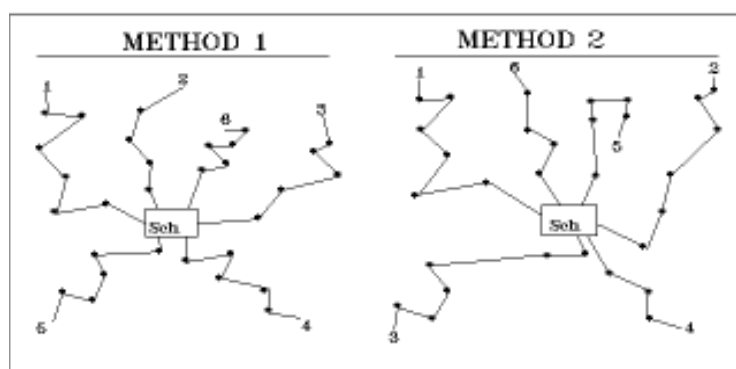
This method uses a centroid determination for selecting the seed stop. The centroid method refers to an average of two values:

- the distance from each stop to the school
- the distance from each stop to all of the runs that have been created.

After the system calculates the average of these values, the system selects the stop with the highest result as the next seed stop.



When generating runs with this method, the first few runs will start from the stops farthest from the school. As the system creates runs, it tends to select seed stops closer to the center of the overall area under consideration, regardless of where the school is located. The following example illustrates runs generated using methods 1 (Farthest from school) and 2 (Centroid method). Each run is numbered in the order it was created.



Note the differences between these examples, particularly how the last two runs in Method 2 differ substantially from the last two runs in Method 1. Run 5 in Method 2 is a good example of how the first few runs tend to “push” the next seed stop closer to the school (rather than being the furthest unassigned stop from the school as in Method 1).

Step 3—Evaluating the Runs

Concepts

At this point, you should evaluate the initial runs to see if they meet your needs based on your preferences or knowledge of district conditions and policies. You can examine the runs displayed on the map and generate a report on the optimization scenario to perform this evaluation.

You may want to display an overlay of the street map to help you in evaluating the runs. Note that you may need to change the color of the overlay if it is the same as

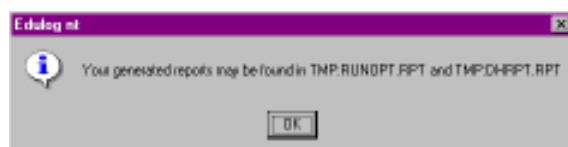
any of the runs in the scenario. To do so, just click the symbol next to the layer representing the overlay in the map legend, then choose Line Color from the displayed dialog box.

Generating Optimization Reports

edulog provides a report option which allows you to examine the results of the run optimization process.

- 1** Choose **Reports** from the menu bar, then choose **Generate Solution Report**.

The system displays a message box with the location of the files.



- 2** Choose **OK**.

You will find these reports in the TMP subdirectory under your user name in the Users directory (such as C:\Users\\TMP). You can view or print these reports using a text editor or word processor. The following is a sample Runopt report.

[illegible]

Note that the Run Optimization reports use the school bell times, not the early/late windows.

Identifying Objects on the Map

You can use the ID functions to examine information on the stops and runs displayed on the map. A simple way to access those functions is to point to any place on the map and click the right mouse key. A pop-up menu appears (called a context-sensitive menu) over the map display. Choose ID from the displayed menu, select the

desired ID command, then click the object on the map. Information on that object appears in a dialog box. You can also access the Locate, Measure, and Zoom commands from the context-sensitive menu.

Step 4—Making Manual Modifications

Concepts

At this point, after evaluating the runs generated by the system, you may want to modify the runs based on your personal knowledge of the district and its policy requirements. The following sections provide instructions on making manual changes in Run Optimization. The Simulation mode provides additional functions for modifying the runs (most of the functions available in the regular mode, in fact, except for the Copy and Reverse Run functions). At any point, you can save the current solution to Simulation and continue to work with the runs there without modifying your district's actual data (see "Saving a Scenario to Simulation Mode" on page 478 for further information).

We suggest that you approach your run modifications first in a general way. Begin by clustering the stops. Move stops between runs until you have them on the desired runs. You can then refine the sequence of runs if necessary (see "Sequencing Runs" on page 491). This approach will help you avoid having commands undo your modifications. Also, it is a good idea to work with only a few runs at a time. Remember that you can zoom in or out to get a better view of the data in question (see to *edulo*'s online Help for information on adjusting the display).

Keep in mind that you can preserve any part of the solution in its current state. The Freeze commands allow you to protect any stops or runs you want to preserve while you are using the available functions to refine the rest of the solution. See "Freezing and Unfreezing Stops and Runs" on page 485 for further information on freezing stops and runs.

You may want to save the current optimization solution before making manual changes in case you do not like the results (see "Saving an Optimization Scenario" on page 477). As you proceed through the optimization process, keep an eye on the figures in the Stats dialog box to get an indication of the effects on the overall solution. Notice in particular the Run DH text box which reflects changes in deadhead, or travel time. (See "Viewing Run Optimization Statistics" on page 473 for definitions of the fields and columns in the dialog box.)

Freezing and Unfreezing Stops and Runs

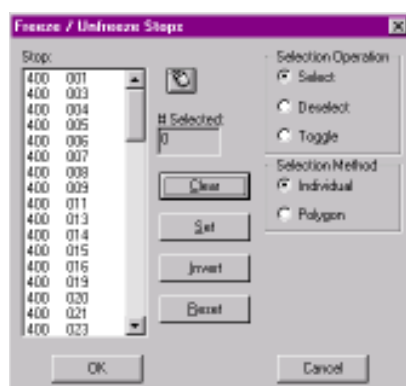
At some point, you may decide that you want to keep certain stops or runs in their current state while you use the optimization functions to refine the rest of the solution. You can freeze selected objects to place them in a special protected status and prevent them from being affected by any of the manual or automatic functions.

Note that if you freeze a run, you cannot add or remove stops from the run and you cannot change the sequence of the stops. If you freeze a stop, you cannot change its current run assignment, though you can modify the stop's position on the run. If the stop is not assigned to a run, you cannot assign it. Most functions (including Exchange) will not work when stops are frozen.

If you later decide you want to modify any of the frozen objects, you can unfreeze them to remove the protected status. You can then use the manual and automatic functions to make changes to those objects.

Freezing and Unfreezing Stops

- 1 Choose **Problem Definition** from the menu bar, choose **Freeze/Unfreeze**, then choose **Stops**.



- 2 Select the **stops** you want to freeze. You can select as many of the stops as you want from the list. If you repeatedly click stops in the list, their status toggles back and forth from selected (frozen) to unselected (unfrozen).

As you select stops to freeze, the total number appears in the # Selected field next to the list. You have several other options for selecting or deselecting stops:

- If you want to select all of the stops, choose the Set button.
- If you want to deselect all of the stops, choose Clear.
- If you want to return the stops to their frozen status when you opened the Freeze/Unfreeze Stops dialog box, choose Reset.
- If you want to deselect all of the currently selected stops and select all of the currently unselected stops, choose Invert.
- You can also select stops from the map display:

Under Select Operation, select the operation you want to perform: Select to select the stops you choose, Deselect to deselect the stops you choose, or Toggle to change selected stops to unselected and vice versa.

Under Selection Method, select the method you want to use to select the stops on the map: Individual to select stops by pointing and clicking them on the map or Polygon to select stops by drawing a perimeter around them. (Note that the Selection Operation and Selection Method only apply when you are selecting stops on the map.)

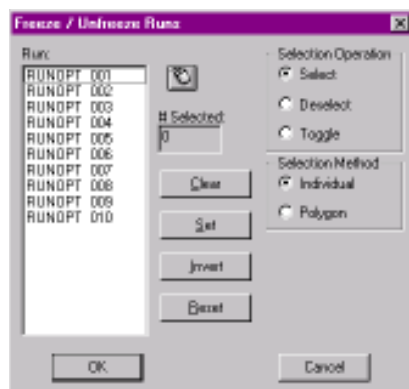
Finally, choose the Graphic Selection tool, then select the stops on the map. If you chose the Individual method, just click the desired stops. If you chose the Polygon method, draw a boundary around the desired stops. Point and click the starting point for the boundary, move the pointer to the end of the first segment of the perimeter, then click the mouse again. Continue drawing the perimeter in

this fashion until you get to one line segment before the boundary's starting point. Double-click the mouse to close the boundary.

- 3** When you have selected the desired stops, choose **OK**.

Freezing and Unfreezing Runs

- 1** Choose **Problem Definition** from the menu bar, choose **Freeze/Unfreeze**, then choose **Runs**.



- 2** Select the **run** or **runs** you want to freeze. You can select as many of the runs as you want from the list. If you repeatedly click runs in the list, their status toggles back and forth from selected (frozen) to unselected (unfrozen).

As you select runs to freeze, the total number appears in the # Selected field next to the list. You have several other options for selecting or deselecting runs:

- If you want to select all of the runs, choose the Set button.
- If you want to deselect all of the runs, choose Clear.
- If you want to return the runs to their frozen status when you opened the Freeze/Unfreeze Runs dialog box, choose Reset.
- If you want to deselect all of the currently selected runs and select all of the currently unselected runs, choose Invert.
- You can also select runs from the map display:

Under Select Operation, select the operation you want to perform: Select to select the runs you choose, Deselect to deselect the runs you choose, or Toggle to change selected runs to unselected and vice versa.

Under Selection Method, select the method you want to use to select the runs on the map: Individual to select runs by pointing and clicking them on the map or Polygon to select runs by drawing a perimeter around them. (Note that the Selection Operation and Selection Method only apply when you are selecting runs on the map.)

Finally, choose the Graphic Selection tool, then select the runs on the map. If you chose the Individual method, just click the desired runs. If you chose the Polygon method, draw a boundary around the desired runs. Point and click the starting point for the boundary, move the pointer to the end of the first segment

of the perimeter, then click the mouse again. Continue drawing the perimeter in this fashion until you get to one line segment before the boundary's starting point. Double-click the mouse to close the boundary.

- 3 When you have selected the desired runs, choose **OK**.

Assigning Stops to Runs

When you assign a stop to a run, the system select the stop's position on the run. If you want to select the position, see the next section, "Inserting Stops on Runs." Note that only stops that are unassigned in the optimization scenario are available for assignment.

- 1 Choose **Stops** from the menu bar, then choose **Assign**.



- 2 Select any **stops** that you want to assign to a run. You can select as many stops as you want from the list by pointing and clicking. You can also select from the stops displayed on the map by choosing the Graphic Selection tool, then clicking the stops on the map.
- 3 Under To Assign to Run, select the **run** to which you want to assign those stops. You can click the field and select from a list of available runs or choose the Graphic Selection tool next to this field and click the run on the map.
- 4 Choose **OK**.
- 5 Repeat the process for stops you want to assign to any of the other runs.

Inserting Stops on Runs

When you insert a stop on a run, you get to select the stop's position on the run. If you want to have the system select the position automatically, see the previous section, "Assigning Stops to Runs." Note that only stops that are unassigned in the optimization scenario are available for insertion.

- 1 Choose **Stops** from the menu bar, then choose **Insert on Run**.



- 2 In the Insert Stop field, select a **stop** to insert. You can select a stop by clicking the field and selecting the stop from the list or by choosing the Graphic Selection tool next to the field and clicking the stop on the map display.
- 3 In the On Run field, select the **run** to which you want to assign the stop in the same manner.
- 4 Under At Position, select a **stop** that will be next to the new stop's position on the run.
- 5 Select **Before** if the new stop will precede this stop on the run or select **After** if the new stop will follow this stop.
- 6 If you want to insert more stops, choose **Next Stop**. The system inserts the stop on the run in the position you indicated and the Insert Stop dialog box remains open for you to continue inserting stops. If you do not want to insert additional stops, choose **OK** to insert the stop and close the dialog box.

Exchanging Stop Positions

This function allows you to exchange the positions of two stops on the same run or on two different runs. The first stop you select will occupy the position previously occupied by the second stop you select and vice versa.

- 1 Choose **Stops** from the menu bar, then choose **Exchange**.

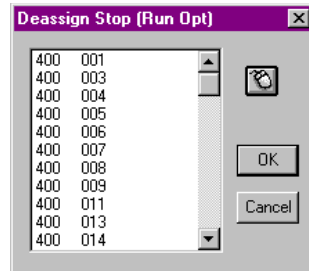


- 2 In the Stop 1 field, select the **first of the two stops** you want to exchange. You can select a stop by clicking the field and selecting the stop from the displayed list or by choosing the Graphic Selection tool next to the field and clicking the stop on the map display.
- 3 In the Stop 2 field, select the **second of the two stops** you want to exchange in the same manner.
- 4 Choose **OK**.

The system trades the stop positions on the run(s).

Deassigning Stops from Runs

- 1 Choose **Stops** from the menu bar, then choose **Deassign**.

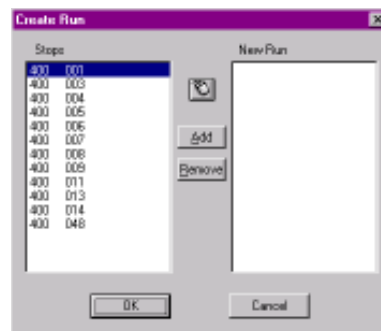


- 2 Select any **stops** that you want to deassign. You can select as many stops as you want from the list by pointing and clicking. You can also select from the stops displayed on the map by choosing the Graphic Selection tool, then clicking the stops on the map.
- 3 Choose **OK** to deassign the selected stops.

Creating Runs

This function allows you to create runs from any stops that are still unassigned in the scenario.

- 1 Choose **Runs** from the menu bar, then choose **Create**.



- 2 Under Stops, select the **stops** you want to use to create the new run. You can select multiple stops from the list by SHIFT+clicking or CTRL+clicking. Choose Add to include those stops in the New Run list. Those are the stops that the system will use to create the run. Note that the order in which the stops are listed under New Run determines the stop sequence on the run.

If you decide you do not want to include any of the stops selected for the new run, you can select them from the New Run list and choose Remove.

You can also add or remove stops by choosing the Graphic Selection tool and clicking stops displayed on the map. This toggles their selection statuses.

- 3 When you've selected the desired **stops** for the new run, choose **OK** to have the system build the new run.

Cutting Runs

The Cut function allows you to exchange the last sections of two runs.

- 1 Choose **Runs** from the menu bar, then choose **Cut**.



- 2 In the first field under Run 1, select the **first run** you want to cut. You can click the field and select from the current runs or choose the Graphic Selection tool and click the run on the map.
- 3 In the second field under Run 1, select the **stop** after which you want to cut the run. The stop you select and all the previous stops will remain on their current run, but the rest of the run will move to the other run.
- 4 In the first field under Run 2, select the **second run** you want to cut.
- 5 In the second field under Run 2, select the **stop** after which you want to cut the run. Again, this and all previous stops will remain on their current run, but the rest of the run will move to the other run.
- 6 Choose **OK** to exchange the run portions.

Sequencing Runs

The Sequence command allows you to resequence the runs in the scenario to find the best arrangement. This function does not change which stops are on any of the runs. It only changes the order in which each run visits the stops if it can find a better arrangement. This may be useful when you have made manual changes to the runs and want to resequence the runs without changing their stop assignments.

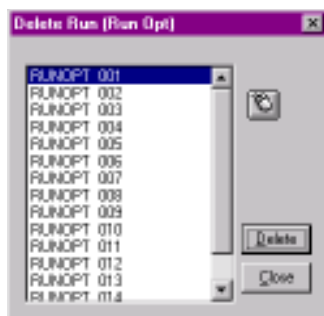
- 1 Choose **Runs** from the menu bar, then choose **Sequence**.

The system resequences the stops on the runs in the scenario.

Deleting Runs

The Delete function in the Runs menu allows you to remove runs from the scenario. You can delete all of the runs if you want to start over and regenerate runs with the selected stops.

- 1 Choose **Runs** from the menu bar, then choose **Delete**.

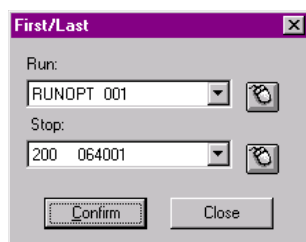


- 2 Select the **runs** you want to delete. You can select multiple runs by SHIFT+clicking and CTRL+clicking.
- 3 Choose **Delete**.
- 4 When you are finished deleting runs, choose **Close**.

Changing the First or Last Stops on Runs

This function allows you to change which stop is the first stop on the run (if it is a to-school run) or the last stop on the run (if it is a from-school run).

- 1 Choose **Runs** from the menu bar, then choose **First/Last Stop**.



- 2 Under Run, select the **run** you want to modify. You can click the field and select from the current runs or choose the Graphic Selection tool and click the run on the map.
- 3 Under Stop, select the **stop** you want to be first or last on the run.
- 4 Choose **Confirm**.
The selected stop becomes the new first or last stop on the run.
- 5 Choose **Close** when you are finished changing the first or last stops.

Modifying Run Capacity and Time Limits

The Cap Time function allows you to modify the maximum and minimum load capacities and riding times for any or all of the runs in the scenario.

- 1 Choose **Runs** from the menu bar, then choose **Cap Time**.

RunID	MinCap	MaxCap	MinTime	MaxTime
RUNOPT 001 ..	0	125	0	60
RUNOPT 002 ..	0	125	0	60
RUNOPT 003 ..	0	125	0	60
RUNOPT 004 ..	0	60	0	60
RUNOPT 005 ..	0	60	0	60
RUNOPT 006 ..	0	60	0	60
RUNOPT 007 ..	0	60	0	60
RUNOPT 008 ..	0	60	0	60
RUNOPT 009 ..	0	60	0	60

- 2 Select the **run** or **runs** whose you want to modify. You can select multiple runs by SHIFT+clicking or CTRL+clicking. Keep in mind that all of the runs you select will have the same maximum and minimum values you enter in the next steps. If you want to enter different values for any of the runs, you can modify them separately.

- 3 Choose **Edit**.

If you selected more than one run for modification, a message box appears asking if you are sure you want to modify multiple runs at the same time. Choose Yes if so.

MinCap	MaxCap	MinTime	MaxTime
0	60	0	600

- 4 In the MinCap field, enter the desired **minimum load** for the runs.
- 5 In the MaxCap field, enter the desired **maximum load**.
- 6 In the MinTime field, enter the desired **minimum riding time** in tenths of a minute (for example, enter 600 for 60 minutes).
- 7 In the MaxTime field, enter the desired **maximum riding time** in tenths of a minute.
- 8 Choose **OK**.

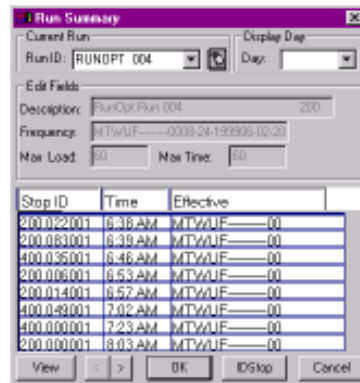
The new values appear in the CapTime table.

- 9 Choose **Confirm** to save your changes.

Viewing a Run Summary

The Run Summary window allows you to view information on any of the runs in the scenario. This information includes a list of the stops assigned to the run.

- 1 Choose **Runs** from the menu bar, then choose **Open Run Summary**.



- 2 Under Current Run, select the **run** you want to examine. You can click the field and select from the list of current runs or choose the Graphic Selection tool and click the run on the map.

Information on the run appears in the Edit Fields, including the run description, frequency, maximum passenger capacity, and maximum riding time. A list of the stop services assigned to the run appears in the table.

- 3 You can click the left and right arrow buttons beneath the table to view additional columns of information on the stop services. (You can choose the View button if you want to modify the columns that appear in the table.)
- 4 If stops on the run vary from day to day, you can click the arrow next to the Day field to select different day patterns for the run.

As an example, suppose the run goes to a certain stop service on Fridays, but not on the other days of the week. The run will go to a different sequence of stops on that day. The table of stop services will change to reflect the day pattern you select.

- 5 You can select stop services in the table to have them highlighted on the map display. Similarly, you can choose ID Stop and click stops on the map to have them highlighted in the table.
- 6 Choose **OK** to return to the map display.

In the next section, you will exit Run Optimization. You can save the solution to the Simulation mode where you can make additional changes to the runs if you wish. As in Run Optimization, any work you do in Simulation mode will not affect your actual data. You can save the simulation scenario for later work or confirm it to save the runs as your actual data. Be aware that confirming a Simulation will overwrite your existing data. Do not do so unless you are absolutely certain you want to implement the solution.

Step 5—Confirming the Solution

Concepts

Up to this point, the data used in the optimization process has been separate from your regular transportation data. Confirming is the step in which you use a run solution to modify your actual transportation data. Once confirmed, these changes over-

write the previous transportation data corresponding to the stops and runs in the solution, so it is important to be sure you are satisfied with the run solution before confirming it.

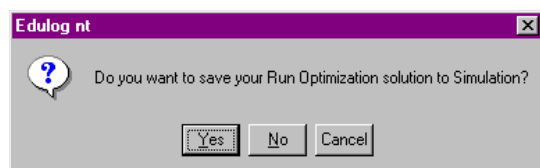
In this section, you will exit Run Optimization. You have the option of saving the current optimization solution for future work (see “Saving an Optimization Scenario” on page 477) or saving the solution to the Simulation mode where you can make additional changes to the runs. As in Run Optimization, any work you do in Simulation mode will not affect your actual data. You can save the simulation scenario for later work or confirm it to save the runs as your actual data.

After you confirm a run solution, you may want to assign the new runs to routes, either manually in edulog or using Route Optimization if your district has purchased that feature. If you wish, you may also want to rebuild run directions, both for the new runs and for the routes affected by the changes made in Run Optimization. Refer to edulog’s online Help for further information on those processes.

Exiting Run Optimization and Saving to Simulation

The Simulation mode provides additional functions for modifying the runs (most of the functions available in the regular mode, in fact, except for the Copy and Reverse Run functions). At any point, you can save the solution to Simulation and continue to work with the runs there without modifying your district’s actual data. (“Saving a Scenario to Simulation Mode” on page 287 for further information.) You also have the option of saving to Simulation when you exit Run Optimization.

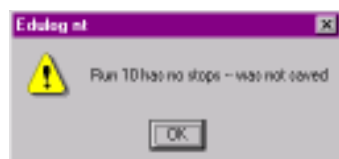
- 1 Choose **File** from the edulog menu bar, then choose **Exit Run Optimization** from the File menu.



You can choose Cancel to remain in Run Optimization if you choose the Exit command accidentally.

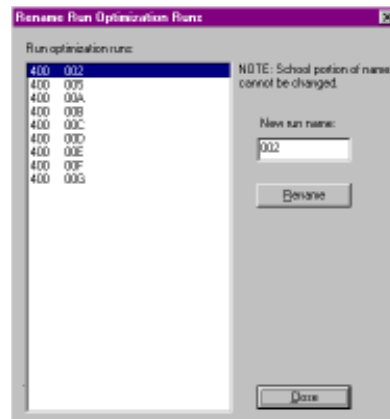
- 2 If you want to save the solution to Simulation mode, choose **Yes**. Keep in mind that this only saves the runs in the solution to the Simulation mode. It does not overwrite any of your existing data. If you choose No from this message box, the solution will be discarded unless you saved the optimization scenario (see “Saving an Optimization Scenario” on page 477).

If you have any runs with no stops in the solution, a message similar to the following appears.



3 Choose **OK**.

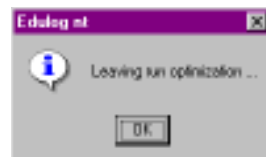
Note that you can also remove such runs from the solution by choosing Purge from the Runs menu (see “Purging Empty Runs” on page 476).



You can use this dialog box to enter new IDs for any of the runs in the solution. While you cannot modify the school code in an ID, you can change the unique number that identifies the run for the school.

- 4** Select a **run** you want to rename from the list.
- 5** Enter the new **ID** in the New Run Name text box.
- 6** Choose **Rename**.
- 7** Repeat the previous three steps for each of the runs you want to rename.
- 8** Choose **Close**.

The system saves the data to Simulation and displays the following message.

**9** Choose **OK**.**10** Choose **OK**.

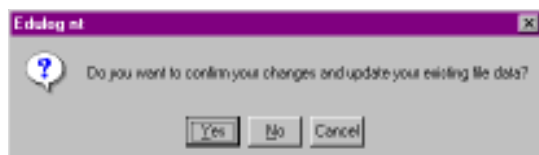
Now that you are in simulation mode, you can make further changes using the available functions.

Warning:

Make sure that you do not confirm a simulation unless you are absolutely certain that you want to replace your district's actual data with the data in the simulation.

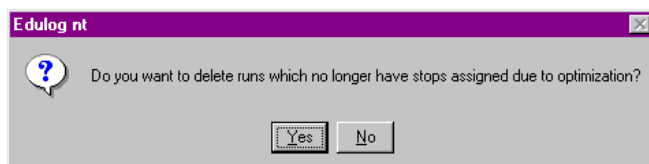
Exiting Simulation and Confirming the Solution

- 1 Choose **File** from the menu bar, then choose **Exit Simulation** from the File menu. Do not press enter at this point.



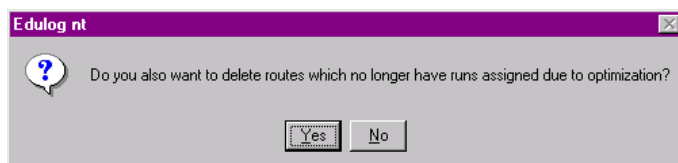
- 2 Choose **No** unless you are absolutely certain you want to overwrite your existing data with that in the Simulation. If you do want to implement the solution, choose **Yes**.

If confirming the scenario will result in removing all of the stops from any existing runs, the following message box appears.



- 3 Choose **Yes** if you want to remove such runs from your data.

If confirming the solution will result in removing all of the runs from any of the routes in your data, the following message box appears.



- 4 Choose **Yes** if you want to remove such routes from your data.

edulog first removes the stops in the solution from the runs to which they are currently assigned, then it saves the runs in the solution. If you selected Yes from the message box after step 2 in this section, the system deletes all the existing runs which now have no stops assigned, even if they are assigned to routes. If you selected Yes from the message box after step 3, the system deletes all the routes which no longer have any assigned runs. You return to the regular mode of operations.

Removing Data from the Map Display

You may want to remove the data currently displayed on the map and listed in the map legend.

- 1 In the map legend, click the **Stops** heading above the stop layers.
- 2 Choose **Yes** from the message box asking if you want to delete all stop layers.
- 3 Click the **Runs** heading above the run layers.
- 4 Choose **Yes** from the message box asking if you want to delete all run layers.

After you confirm a run solution, you may want to assign the new runs to routes, either manually in edulog or using Route Optimization if your district has purchased that feature. If you wish, you may also want to rebuild run directions, both for the new runs and for the routes affected by the changes made in Run Optimization. Refer to edulog's online Help for further information on those processes.

Quick Reference Guide

Advance Preparations

Before you perform a run optimization, you should run the Update Routing Data (UPDTADTM) utility in EMU. Refer to EMU's online Help for further information on these utilities. You should also make a backup of your transportation data as a safety precaution.

Step 1 – Defining the Run Optimization Problem

- 1 Enter Simulation mode and load the necessary data. See page 461.
- 2 Enter Run Optimization and define the run problem. See page 463.
- 3 Use the General Options command in the Problem Definition menu to indicate the priorities you want to give to the three factors which determine run creation and modification during optimization.

Capacity - considers it most important to fill the buses to the maximum capacity allowed.

Time - considers it most important to minimize the total travel time of the runs.

Deadhead - considers it most important to reduce the time it takes to get from stop to stop on the run.

- 4 Use the School/Stop Selection command in the Problem Definition menu to select the direction, load, and deadhead options.

Will the resulting runs be to-school or from-school?

What method do you want to use to list the number of students at each stop (head counts or assigned loads)?

Which deadhead mode do you want to use to calculate travel times between stops? See page 464.

- 5** In the Run Optimization Problem Definition window, indicate which school(s) and bell time(s) you want to include in the problem and the order in which the runs will visit each of the schools. See page 464.
- 6** Select the stops you want to include in the problem. Use the available functions to select the desired stops. See page 465.
 Query by School and Time—see page 466.
 Query by Run—see page 467.
 Use the Map Operations—see page 468.
 Deselect Stops without Passengers—see page 469.
- 7** Join any stops at the same location if you want the system to consider them to be a single stop during optimization (such duplicate stops count as a single stop towards the maximum limit and will always get assigned to the same run during optimization) or Part previously joined stops. See page 469.
 Once you have selected the stops you want to include in the run problem, proceed to step 2, creating the initial runs. If you have exceeded the maximum limit of stops (958 as of the printing date of this manual), a message box appears informing you that you need to deselect some of the stops.

Step 2 – Creating the Initial Runs

- 8** Use the Run Generation command in the Global Moves menu to create the initial runs. See page 471. (Note that if you selected stops using only the Query by Run option, you already have runs loaded, so you can skip to step 11.)
- 9** Enter the criteria for the various groups of vehicles available for the runs in the problem. See page 472. For each group of vehicles, enter the following information:
 - the number of vehicles in the group
 - the minimum and maximum capacity (recommended minimum: 0)
 - the minimum and maximum travel time (recommended minimum: 0).
- 10** If you are an experienced user of Run Optimization, you may want to select from various methods of generating the initial runs. This gives you control of the various calculations used by the system. See page 479.
- 11** Examine the values in the Run Optimization Stats dialog box (see page 473). If necessary, use the Assign All Stops command in the Global Moves menu to assign any stops that are not currently assigned to runs (see page 475).
- 12** Use the Auto Improve (or Improve Runs) command in the Global Moves menu to improve the initial runs. This command automatically exchanges stops between runs in order to improve the solution as much as the computer is able on its own. See page 476.
- 13** At any point during the optimization process, you may want to save the solution in case you are not satisfied with the results and wish to restore the scenario to it's current state. See "Saving an Optimization Scenario" on page 477 and "Restoring an Optimization Scenario" on page 477.

Step 3 – Evaluating the Runs

- 14** After using the optimization features to create the best possible solution, you should review the runs to determine whether you need to make additional modifications to meet district needs.

You can generate reports on the current solution (see page 483) and examine the runs on the map, perhaps using the ID functions to obtain information on displayed objects (see page 484).

Step 4 – Making Manual Modifications

- 15** After evaluating the runs generated by the system, you may want to make manual changes to those runs (see page 485). Run Optimization includes a variety of commands that you can use. You can also save the solution to Simulation mode and make additional changes there without fear of modifying your actual data (see page 478).
- 16** You can use the Freeze/Unfreeze command in the Problem Definition menu to freeze stops or runs in their current state so that they cannot be modified with any of the automatic or manual functions. You can later unfreeze those objects if you decide you want to modify them. See page 485.

There are several functions available in the Stops and Runs menus that allow you to manually modify the runs in the solution.

Stops

Assign – allows you to assign any unassigned stops to runs—see page 488. When you assign a stop to a run, the system select the stop's position on the run. Use the Insert command if you want to select the position.

Insert – allows you to insert unassigned stops on runs—see page 488. When you insert a stop on a run, you select the stop's position on the run. To have the system select the position automatically, use the Assign command.

Exchange – allows you to exchange the positions of two stops on the same or different runs—see page 489. The first stop you select will occupy the position previously occupied by the second stop you select and vice versa.

Deassign – allows you to remove any assigned stops from their runs—see page 490.

Runs

Create – allows you to create runs with any of the currently unassigned stops—see page 490.

Cut – allows you to exchange the last sections of two runs—see page 491.

Sequence – allows you to resequence the runs in the scenario to find the best arrangement—see page 491. This function does not change which stops are on any of the runs, it only changes the order in which each run visits the stops if it can find a better arrangement.

Delete – allows you to delete any of the runs in the scenario—see page 491. You can delete all of the runs if you want to start over and regenerate runs with the selected stops.

Purge – allows you to delete any of the runs in the scenario that do not have stops assigned—see page 476.

First/Last Stop – allows you to change which stop is the first stop on the run (if it is a to-school run) or the last stop on the run (if it is a from-school run)—see page 492.

Cap Time – allows you to modify the maximum and minimum load capacities and riding times for any or all of the runs in the scenario—see page 492.

Open Run Summary – allows you to view information on any of the runs in the scenario, including a list of its assigned stops—see page 493.

- 17 When you are finished making manual changes and are satisfied with the run solution, you can proceed to the next step (“Confirming the Solution”). You can also save the problem for future work if you wish (see page 477).

Step 5 – Confirming the Solution

- 18 In the Confirmation phase, the system uses the run solution to modify the stops, runs, and routes in your transportation data. See page 501.
- 19 You have the option of entering the new unique ID numbers for any of the runs in the solution (though you cannot modify the school code in the ID). If you choose not to do this, each run will get the first unused ID for the first school code entered on a from-school run or the last school entered on a to-school run.
- 20 You have the option of deleting runs which no longer have any stops assigned after the optimization.
- 21 You also have the option of deleting routes which no longer have any runs assigned after the optimization.
- 22 The system removes stops in the run solution from their old runs and puts them on the runs you created in Run Optimization.

Post-Optimization Tasks

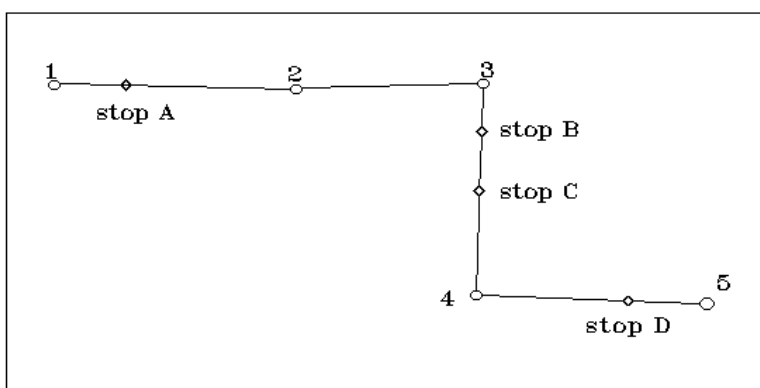
- 23 At this point, you may want to assign the new runs to routes, either manually in edulog or using Route Optimization if your district has purchased that feature.
- 24 You may also want to rebuild run directions, both for the new runs and for the routes affected by the changes made in Run Optimization. Refer to edulog’s online Help for further information on those processes.

Time and Distance

The Run Optimization component builds a deadhead time table containing the time it takes to travel between each stop or school selected and every other stop or school selected. The system uses this table to generate runs during optimization. It calculates the deadhead time using one of the three following methods.

Arterial Time

The Arterial file is a data file that is derived from the geocode with information on the travel time between all stop locations. Be aware that, while Arterial timing can provide a reliable means of measuring deadhead travel time, it does not always “know” the exact geographic sequence of stops on a single segment. In the following example, the system generated a run up to stop A. The logical sequence for the next few stops would be stops A to B to C to D. In choosing the next stop, it correctly chooses stop B as the next nearest stop. From there, it goes to stop D because in the Arterial file, the system considers stop C as coming “before” stop B, so it does not consider C. From stop D, the system returns to stop C as the next nearest unassigned stop, then continues to the next stop. To correct this sequence, you would exchange the position of stops C and D on the run.

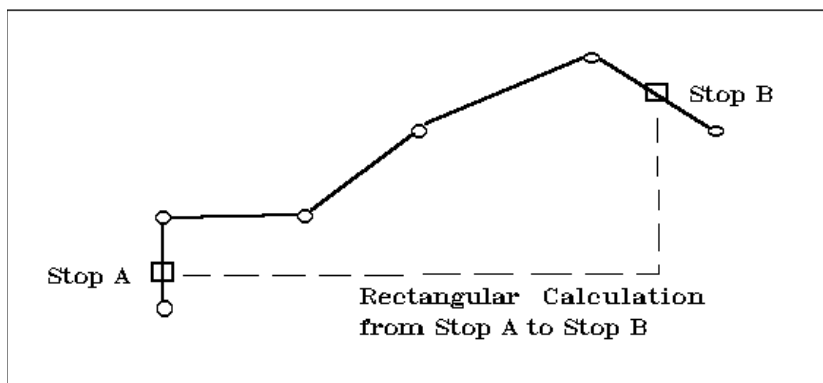


Normally, however, Arterial timing is effective in representing the travel times between school and stop locations when optimizing runs.

Rectangular Time

Rectangular Time is the system’s default method of calculating travel time between stop locations (if no Arterial time is stored in the Art file, the optimization functions automatically revert to Rectangular time).

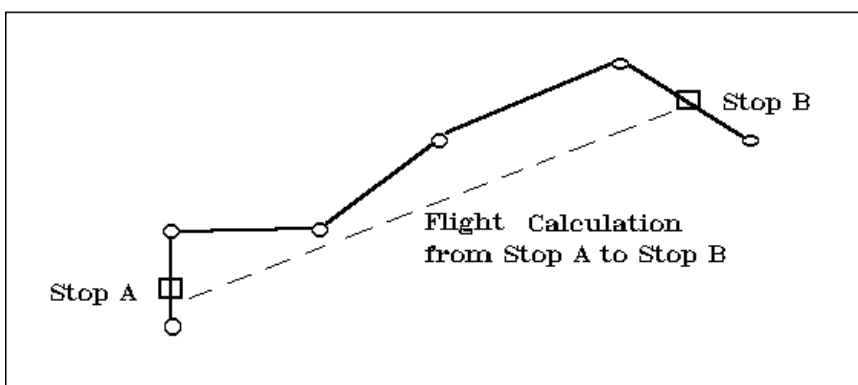
This method ignores the street network entirely. Instead, it determines the coordinates of the two stops, then calculates the right-angle distance in map units to determine the total distance. The system determines the initial “slow” and “fast” speeds based on the geocode map scale.



In Run Optimization, when you select the Rectangular time method, you have the opportunity to enter your own Slow and Fast speeds (see “Changing Default Speeds” on page 470). In a district where the street layout is mostly square, the rectangular calculation may be quite accurate once you have determined the best slow and fast speeds. Rural roads may justify somewhat higher speeds.

Crow Flight Time

Flight Time operates much like the Rectangular time, except that the total distance traveled is the straight line distance between the two stops. The first and last 1/10th of a mile is based on the slow speed and the remaining distance is based on the fast speed (derived from the generic values or user-defined values). This is commonly the least accurate and the least used of the three methods.



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INTRODUCTION

Gismo (Geographic Information System Mapping Object) is the mapping and display application that you can use to perform a variety of tasks, such as producing plots and analyzing your geographic and transportation data. Gismo Boundary Planning is an extension of Gismo that allows you to perform planning and enrollment projection tasks using Gismo's standardized, easy-to-use mapping window. You can also create, modify, and optimize the boundaries in your system.

The term geosource refers to applications like Gismo Boundary Planning. A geosource (geographic data source) provides Gismo with the geographic information you want to examine or modify, such as school and student locations and attendance boundaries. The geosource also provides field information on data you have selected (such as student names, grades, schools, and so on).

CHANGING THE DISPLAY

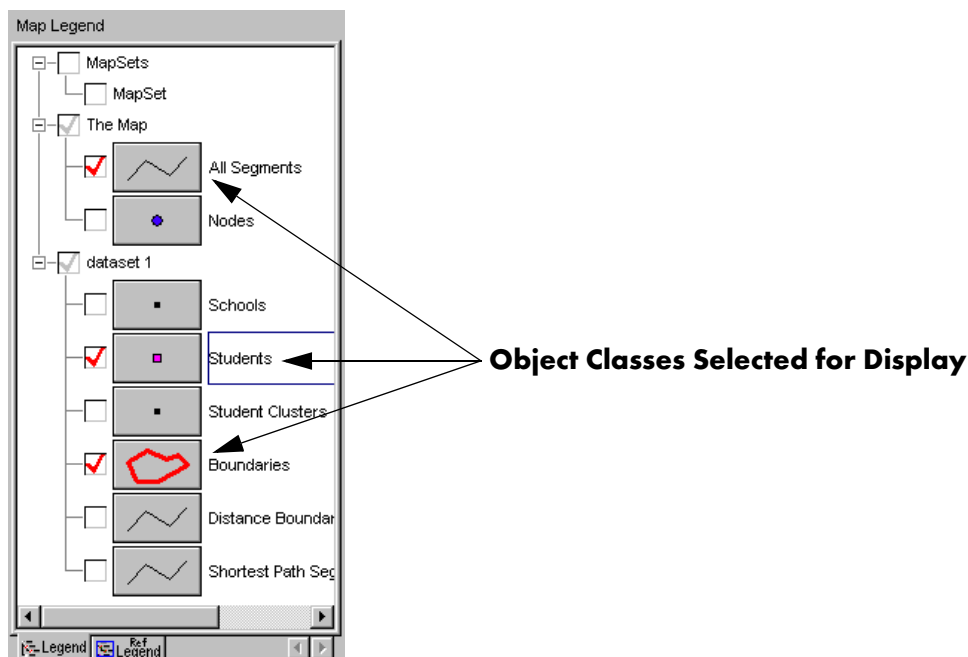
Once you are in Gismo, you have a wide variety of options for displaying objects and adjusting the display. You can zoom in to get a closer look at an area, pan to other parts of the map, then zoom back out when you are finished. You can also save zooms so that you can quickly return to that view later. You can display students, schools, boundaries, and a street map on both the regular and reference maps, as well as change the appearance of those objects.

You can change the background color for the Gismo window by choosing Display from the menu bar, then choosing Background Color from the Display menu. Select the desired color and choose **OK**.

Displaying Objects on the Map

You use the map legend (the list on the left side of the Gismo Boundary Planning window) to select the types of objects you want to display on the map.

To display objects on the regular map, first click the Legend tab at the bottom of the legend pane if the regular map legend does not appear in the pane.



Any object class with a check in its check box is selected for display. Select the check boxes next to the names of any other object classes you want to display. If you change your mind about displaying the object class you selected (such as the street network) and do not want to wait until it finishes displaying, you can press the ESC key on your keyboard to pause the display, then click the check box again to clear it and cancel the display.

In this example, we have selected All Segments under The Map as well as students and boundaries under the Dataset 1 heading. Since not all of the objects under that heading are selected for display, a grey check appears in the box next to the heading. If all of the object classes under that heading were selected, the check would be solid red. You can display all of the objects under a heading by clicking the grey check to clear it, then clicking the box again to select it.

You follow similar steps to display objects on the reference map (in the lower-left corner of the Gismo window). The reference map provides a small display of the map at a slightly larger scale. You can display objects on the reference map just as you do on the regular map display. First click the Ref Legend tab, then select the desired objects in that legend.

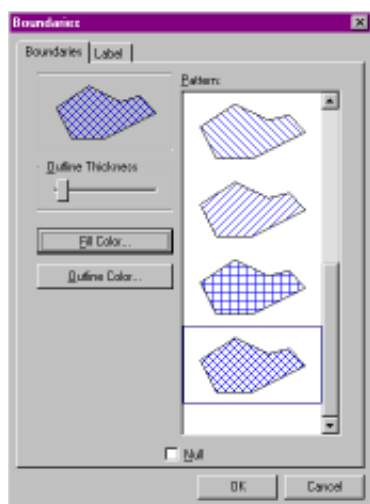
Changing the Appearance of Objects

You use the buttons in the legend between the check boxes and the object class names to change the appearance of the objects on the map. The image on the button shows the current appearance.

To change the appearance of a class of objects, first choose the **Map Legend tab** (to change the appearance of objects on the regular map) or the **Reference Map Legend tab** (to change the appearance of objects on the reference map).

Choose the **button** next to the name of the object class you want to change. You use these buttons to change the symbols and lines used to display the objects.

Notice the button next to the Boundaries layer. If you click this button, a dialog box appears with various options for changing the appearance of the object, similar to the following.



The illustration in the upper-left corner of the dialog box indicates the current appearance of the object class. The options for changing the appearance of objects vary according to whether the objects are points (such as students and stops), lines (such as streets, runs, and run directions), or polygons (such as boundaries).

In this case you can modify the outline and fill pattern of the displayed boundaries. You can change the thickness of the outlines using the Outline Thickness scroll bar. You can also select from the available fill patterns and change the color of boundary outlines and fill patterns using the two Color buttons. If you want to hide the objects, you can select the Null check box (you'll typically use this for analyzing data).

Notice that the dialog box also includes a Label tab. Options under that tab allow you to display labels next to objects on the map (see "Labeling Objects" on page 509 for further information).

When the illustration in the corner of the dialog box reflects how you want the objects to appear, choose **OK**.

You can further distinguish between displayed objects by applying themes. Themes allow you to change the appearance of objects to differentiate them according to the information stored on those objects. For example, you can display students in grade six differently from those in all other grades, you can display streets with speeds greater than 45 MPH differently, and so on. See "Displaying Objects According to Themes" on page 531 for further information.

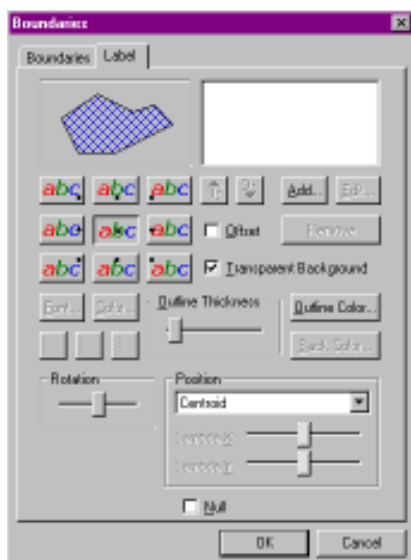
Labeling Objects

The dialog box for changing the appearance of objects includes a feature for displaying labels next to those objects on the map. This allows you to display street names next to streets or student names next to students. You can label objects on the regular

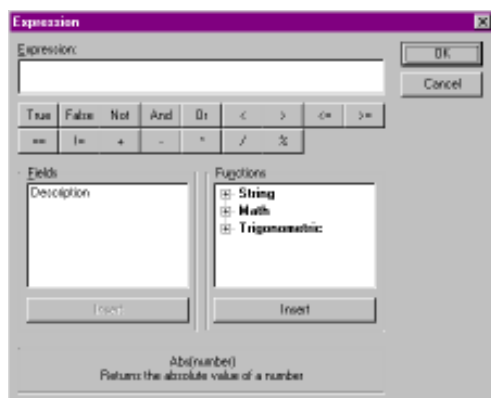
NOTES

map and on the reference map. You can also have the system place a label next to objects you select on the map, similar to an ID function.

To include a label next to objects on the map, choose the **Legend tab** (if you want to label objects on the regular map) or the **Ref Legend tab** (to label objects on the reference map). Choose the **button** in the legend next to the object class you want to label. Choose the **Label tab** at the top of the dialog box for changing the appearance of the objects.



Choose the **Add** button.



In the Fields list, double-click the **name of the field** with the information you want to appear in the label (or select the field name and choose the Insert button beneath this list). For example, if you want to display boundary descriptions next to boundaries on the map, double-click **Description** in the Fields list. Gismo adds the field to the Expression text box, indicating that it will appear in the label. You can include more than one field if you want. Repeat the process for each field you want to include.

To include additional text in the label, click the **place** in the Expression text box where you want the text to appear, then type the desired **text surrounded by**

quotation marks. For example, if you wanted to include the word Description and a colon before the boundary name in the label, you would first enter “Description:” in the Expression text box, then double-click Description in the Fields list. Make sure to include inside the quotes the number of spaces you want to appear between the text and the field in the label.

You have a variety of functions available for entering expressions to define the label. When you have finished entering the label, choose **OK** from the Expression dialog box to return to the Labels tab.

The label expression you entered appears in the Lines list box. If you want to add other lines to the label, choose **Add** and repeat the process. If you decide you want to delete a line, select it from the list and choose **Remove**. If you want to modify a line, select it from the list and choose **Edit**.

To indicate the placement of the label in relation to the object on the map, you can select any of the **buttons** labeled with an “ABC.” The black dot on the buttons indicates the object’s position relative to the label. The illustration above these buttons indicates the current placement of the label. Select the desired label location. You can also drag the Rotation bar or use the Position fields to locate the label.

You can choose the **Font** or **Color** button to change the appearance of the label’s text. Make the desired selections and choose **OK**. To left-justify, center, or right-justify the text, use the tools beneath the Font and Color buttons. You can also modify the thickness and color of the label outline.

When you are finished entering the label, choose **OK** from the dialog box. The label appears next to those objects on the map. Also, the button for the object class in the map legend now includes a letter symbol to indicate that those objects have labels. You can click this button again if you want to remove or change the label. Choose the **Label tab** in the displayed dialog box, then you can either delete the **items** in the Lines list box, or select the **Null** check box to remove the label.

Again, you can use the label functions to identify selected objects on the map, similar to an ID function.

Zooming and Panning

Gismo provides a wide variety of options for changing the map display. You can zoom in or out on the map and pan to other parts of the map to get a better view of the area where you want to work.

You can use the tools in the Display and Idle toolbars (or choose the corresponding commands from the Display menu) to perform these functions.



This is a combination of two toolbars: the Idle toolbar (containing the first two tools in the illustration) and the Display toolbar. If either of these toolbars does not appear in the window, you can display them by choosing the Show/Hide Toolbars tool at the bottom of the window or by choosing **View** from the menu bar, then choosing **Toolbars**. Select the **check box** next to the name of the toolbars you want to display,

then choose **OK**. You can move the toolbars in by clicking inside the border of the toolbar (but not on one of the tools), then dragging it to the desired location.

The tools function as follows.

- Choose the Idle tool after you have finished zooming, panning, or selecting objects on the map and want to deselect all of the tools. When you are modifying boundaries, you need to select this tool in order to continue working with boundary points after you have performed a task which requires you to choose another tool, such as when zooming or panning.
- The Hold Refresh tool is a toggle switch which you can use to alternately refresh the screen and delay the refreshing of the screen, perhaps until after you have finished zooming or selecting all of the desired objects for display. This tool allows you to delay drawing the objects until you're ready without having to press ESC after each selection to pause the display. You can double click this tool if you want to refresh the display. Since Gismo automatically refreshes every time you change the display, the only time you would need to do this would be after you have pressed ESC to pause the display.
- Use the Pan tool to move the view to other areas of the map after you have zoomed in. After choosing this tool, click and drag the map to display the desired location. You can also drag the rectangle in the reference map to move the regular map display. Panning does not change the scale of the zoom.
- Use the Pan Center tool to center your map around a point. Choose this tool, then click the location you want to be in the center. You can click any location on either the regular map or on the reference map to select your center point. Again, panning does not change the scale of the zoom.
- Use the Zoom Rectangle tool to zoom in on an area inside a rectangle you draw. After selecting this tool, point to one corner of the area, hold down the mouse button, then drag the pointer to the opposite corner and release the mouse button. You can also zoom in by drawing a rectangle on the reference map. Depending on the shape of your rectangle, you may see a slightly larger area than you draw. Gismo automatically scales the display to fill the regular map pane.
- Use the Zoom In tool to zoom in by fixed increments on the currently displayed area. You can hold this button down to zoom in progressively farther. The rectangle in the reference map automatically adjusts to reflect the new viewing area.
- Use the Zoom Out tool to zoom out by fixed increments on the currently displayed area. You can hold this button down to zoom out progressively farther. The rectangle in the reference map automatically adjusts to reflect the new viewing area.
- Use the Zoom Extents tool to display the entire map after you have zoomed in.
- Use the Undo Zoom/Pan tool to return to the previous zoom or pan view. You can continue to choose this tool to move back through previous zooms and pans.

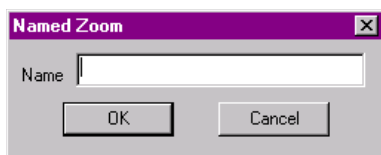
You can use the zooming and panning tools either on the reference map or on the regular map. When you zoom or pan on the reference map, Gismo automatically adjusts the view in the regular map pane.

To pan using the horizontal and vertical scroll bars next to the regular map display, click the arrows at either end of the scroll bar, drag the slider (the box inside the scroll bar), or click inside the scroll bar on either side of the slider. The slider shows where you are on the map and gives you an indication of the size of your viewing area relative to the entire map.

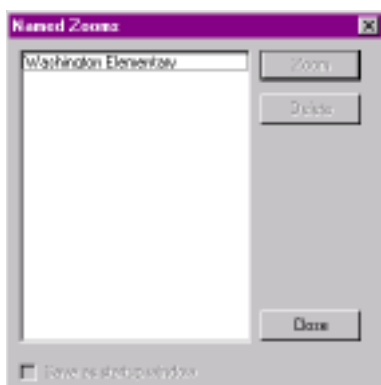
You can also zoom in or out using the Scale toolbar. Notice the text box listing a unit of measurement (such as Miles) at the top of the window. This indicates how Gismo is currently measuring distances. Click the arrow next to this text box to select from other units of measurement (such as Kilometers). The adjacent text box indicates the width of the current map view in those units. You can enter a different width in this text box to change the map scale, which adjusts the map display just as if you zoomed in or out. The display will zoom to the new scale, maintaining the center of your map.

Saving Map Views

You may find you want to save the current map view after you have zoomed in on an area to quickly return to it later. To do so, choose the **Save Named Zoom** tool or choose **Display** from the menu bar, then choose **Save Named Zoom**.



Type a **name** for the view and choose **OK**. You can retrieve the view by choosing the Named Zoom tool or by choosing Named Zoom from the Display menu.



Select the desired **view** from the list box and choose **Zoom**. If you want to have Gismo automatically show a view when you start the program, select that **view**, then select the **Save as Startup Window** check box. To delete a saved view, select the **view** and choose **Delete**.

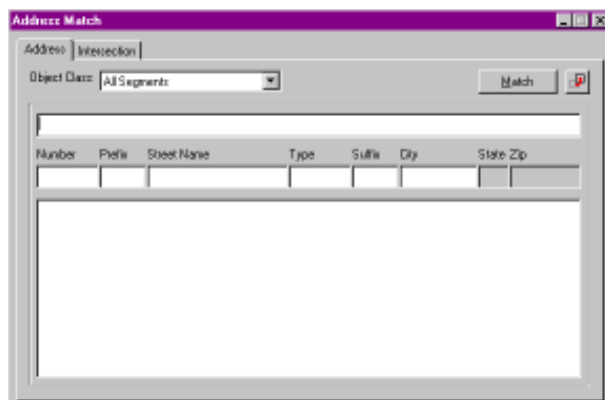
Identifying Addresses

Boundary Planning allows you to quickly identify the address associated with a location on the map. You need to have the street network displayed on the map before you can identify addresses.

To find out the address associated with a location, choose the ID Address tool or choose Display from the menu bar and choose Identify Address. Click the location on the map whose address you want to display. Boundary Planning labels the address on the map. You can click other locations to find out their addresses. If you want to hide the labels, choose the Hide Address tool or choose Display from the menu bar and choose Hide Address.

Searching for Addresses

Boundary Planning allows you to quickly find the address you're looking for. You need to have the street network displayed on the map before you can locate addresses. To find the location of a particular address, first display the All Segments object class. Choose the **Address Match** tool or choose **Display** from the menu bar and choose **Address Match**.



The Address Match dialog box allows you to enter the address you want to find. Type **all or a portion of the address** and choose **Match**. Boundary Planning automatically parses your entry into the standard address fields (you can modify those entries and choose Match again to change your search). If there is only one address that matches your entry, Boundary Planning labels it on the map display. (You may need to move the Address Match dialog box to see it. To do so, simply drag its title bar.) If more than one address matches your entry, the matches appear in the list box at the bottom of the dialog box. Select the desired address or address range to label its location on the map.

When you are finished, click the **Close** tool (labeled with an X) in the upper-right corner of the dialog box. The address remains labeled on the map until you choose the Hide Address tool or choose Display from the menu bar and choose Hide Address.

Identifying Intersections

Boundary Planning allows you to quickly identify the intersecting streets associated with a corner on the map. You need to have the all segments layer and the street network displayed on the map before you can identify intersections.

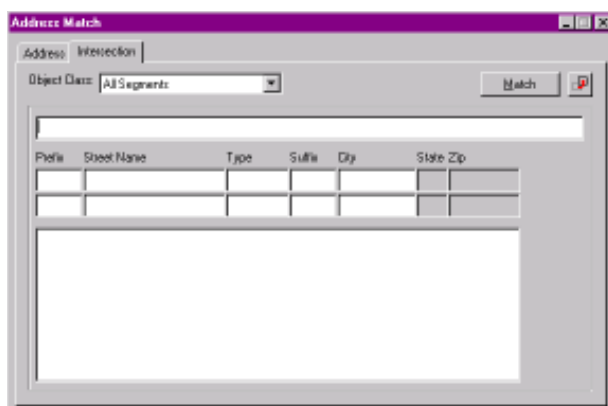
To find out the intersecting streets associated with a corner, choose the ID Intersection tool or choose Display from the menu bar and choose Identify Intersection.

Click the corner on the map. Boundary Planning displays a label listing the streets associated with intersection. You can click other corners to find out their streets.

Boundary Planning hides the previous label and displays the new one. If you want to hide the last label, choose the Hide Address tool or choose Display from the menu bar and choose Hide Address.

Searching for Intersections

Boundary Planning allows you to quickly find a street intersection on the map. You need to have the street network displayed on the map before you can locate intersections. To find the location of a particular intersection, choose the Address Match tool or choose Display from the menu bar and choose Address Match. The Address Match dialog box appears. Choose the **Intersection tab** at the top of the dialog box.



Type **all or a portion of the two street names**, separated by an ampersand (&), and choose **Match**. Boundary Planning automatically parses your entry into the standard street name fields (you can modify those entries and choose Match again if you want to change your search). If there is only one intersection that matches your entry, Boundary Planning labels it on the map display. (You may need to move the Address Match dialog box to see it. To do so, simply drag its title bar.) If more than one intersection matches your entry, the matches appear in the list box at the bottom of the dialog box. Select the desired intersection to label its location on the map.

When you are finished, click the **Close** tool (labeled with an X) in the upper-right corner of the dialog box. The intersection remains labeled on the map until you choose the Hide Address tool (or choose Display from the menu bar and choose Hide Address).

Measuring Distances and Areas

Gismo allows you to measure distances and areas on the map, perhaps to find out the crow-flight distance from a student's home to the school or the same distance traveling along the street network. You can also determine the area within a polygon (boundary), rectangle, or circle you draw. Note that the Measure tool is a toggle switch. You can measure distances and areas as long as that tool is selected (the button appears pressed down). If you click it again to deselect it, you leave the measure mode. The distances are measured in the units selected in the Units field in the Scale toolbar at the top of the window.

To measure a line, make sure **Line** appears in the Measure Method field next to the Measure tool at the bottom of the window (if it doesn't, click that field and choose Line). Choose the **Measure** tool (if it isn't already selected), then *click* one end of the line on the map. **Move** the mouse to the other end and click the mouse again. The length of the line (and the number of points you clicked) appears in the status bar at the bottom of the window. You can continue to click points on the map to define a polyline (a series of connected lines, such as a path along the street network). To stop measuring lines, right-click.

To measure the area inside a rectangle, click the **Measure Method** field and choose **Rectangle**. Choose the **Measure** tool, then **point** to one corner of the rectangle on the map. Hold down the mouse button, then **drag** the mouse to the other corner of the rectangle. The area inside the rectangle (as well as its width, height and the length of the perimeter line) appears in the status bar at the bottom of the window. **Release** the mouse button when finished.

To measure the area inside a polygon, click the **Measure Method** field and choose **Polygon**. Choose the **Measure** tool (if it isn't already selected), then **click** the starting point of the polygon on the map. **Move** the mouse to the end of the first line of the polygon's perimeter and click the mouse again. Continue **clicking** points in this manner to draw the polygon. After you define at least three polygon points, the status bar at the bottom of the window lists the area inside the polygon (as well as the length of the perimeter line). Right-click when finished.

To measure the area inside a circle, click the *Measure Method* field and choose **Circle**. Choose the **Measure** tool (if it isn't already selected), then **point** to the center of the circle on the map. **Hold** down the mouse button and **drag** the mouse until the circle is the desired size. The status bar at the bottom of the window lists the area inside the circle (as well as its radius and circumference). Release the mouse button when finished.

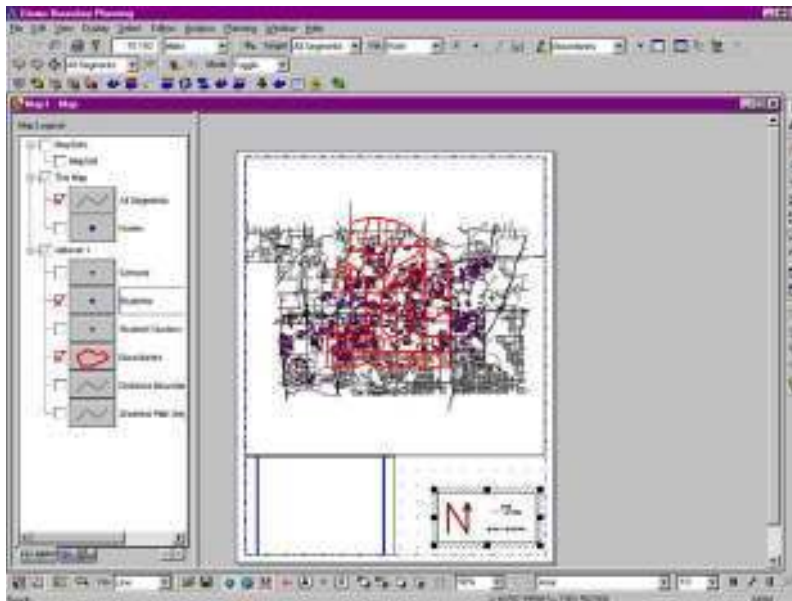
VIEWING AND PRINTING A PLOT LAYOUT

Gismo allows you to create plots of the objects on the map display which you can send to printers or plotters connected to your computer or network. Perhaps you want a plot of the street network superimposed over the map image, or maybe a plot displaying all stops and students for a particular school. You can use Gismo to create color plots of anything you display on the map.

To view a plot layout, choose the **Plot Layout Tool** at the bottom of the window (or choose **View** from the menu bar, then choose **Plot Layout**). The Gismo Boundary

Planning window changes to indicate how the plot would look if you sent it to your computer's printer or plotter.

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The reference map now appears at the bottom of the plot, along with a north arrow and map scale banner. The tools in the Plot toolbar at the bottom of the window are now available for modifying the plot.



If the Plot tool bar is not displayed, choose the **Show/Hide Toolbars** tool at the bottom of the window or choose **View** from the menu bar, then choose **Toolbars**. Select the **check box** next to Plot. The tools in the Plot toolbar function as follows.

- The Open Layout tool allows you to return to a previously saved plot layout (see the next tool definition). Saved layouts include such things as whether and where the regular map, reference map, annotation banner, and north arrow are displayed. They do not save the contents of the various parts, though, so you can use the same plot layout for different plots and areas.
- The Save Layout tool allows you to save the current plot layout. Again, saved layouts include such things as whether and where the regular map, reference map, annotation banner, and north arrow are displayed, but does not save the contents of the various parts.
- The Regular Map tool is a toggle switch that alternately displays and hides the main map on the plot layout.
- The Reference Map tool is a toggle switch that alternately displays and hides the reference map on the plot layout.
- The North Arrow/Scale tool is a toggle switch that alternately displays and hides the banner with the north arrow and the map scale.

- The Arrow tool allows you to draw an arrow on the plot in any of eight different compass directions. You might use an arrow in combination with an annotation window to indicate a point of interest on the plot (such as the location of a problem intersection). To draw an arrow, click this tool, then point to the location on the plot where you want the arrow to begin. Hold down the mouse button and drag the pointer to the other end. You can use the Properties tool (discussed later in this section) to change the direction and appearance of the arrow.
- The Annotation tool allows you to add text, such as a title or date, to the plot layout. After you select this tool, draw a banner for the text on the plot by pointing to one corner of the text's location, holding down the mouse button, dragging the pointer to the other corner, and releasing the button. Click the banner, then type your text. You can use the Font toolbar (located next to the Plot toolbar) to format the text. These tools allow you to bold, italicize and underline text, as well as to change the font, size, and color. You can also left-justify, right-justify, or center the banner's text as desired.
- The Properties tool allows you to change certain aspects of the various parts of the plot layout. To change an object's properties, first click the object on the plot, then choose this tool. Modify the properties as desired, then press enter.
- The Remove tool removes an active item from the plot layout. An active item is simply an item that you click with the mouse. After you click an item (such as the north arrow banner) to make it active, it appears with a cross-hatched border (which you can drag to move the item) and black squares (which you can drag to resize the object). Click the item using the mouse, then choose the Remove tool to delete it from the layout.
- The Bring to Front tool allows you to bring an active item to the front of all other displayed items. For example, if the map covers a portion of the north arrow banner, you can click the banner with the mouse, then choose this tool to have it appear superimposed over the map display.
- The Send to Back tool allows you to send an active item to the back of all other displayed items. For example, if the map covers other displayed items, you can click the map with the mouse, then choose this tool to have it appear underneath all other items.
- The Send Forward tool allows you to bring active items forward by one level. For example, if the north arrow banner covers part of the map, you can select the map, then choose this tool to display it over the banner.
- The Send Backward tool allows you to send an active item backward by one level. For example, if the north arrow banner covers a portion of the map, you can click the banner, then choose this tool to display it underneath the map.
- The Layout Grid tool allows you to align the various items on your plot. After you choose this tool, the Layout Grid dialog box appears with options for setting the height and width of the grid sections. It also includes a check box for snapping objects to the grid. If you select that check box, Gismo will automatically snap objects to the grid when you move them.

You can move individual objects in the plot layout (such as the reference map or the north arrow banner) by clicking that object to activate it, then dragging its border to

the desired location. You can change its size by dragging the black squares on that border.

The plot layout is fully interactive. You can do anything in the plot layout that you do in the normal layout, including zooming, panning, displaying objects, and hiding objects. Refer to the appropriate sections for further information.

To adjust the size of the plot layout relative to the window, use the text box in the Plot toolbar. Click the arrow next to the text box, then select the desired scale. This allows you to fine tune the plot as desired. You can get a close look (at 200%, for example) to check item placement, then reduce the view (perhaps to 40%) to check the overall layout of the plot. The appearance of the plot at 100% shows you what the plot will look like when printed. It is possible that smaller objects (such as streets) will show up in the 100% view, but will disappear at 40%. You can think of the plot layout as a print preview, except that you can modify all aspects of the plot just as when in the normal layout.

To send the image to a plotter or printer, just click the Print tool at the top of the window, or choose File from the menu bar, then choose Print. A dialog box appears for you to select the plotter or printer.

Under Printer, click the arrow next to Name, then select the desired plotter or printer. Under Copies, enter the number of copies of the plot you want to print. Choose OK when you are ready to print. You can select the High Quality Printing check box at the bottom of the dialog box if you want to see smoother lines in the printout.

When you are finished, choose the Normal View tool at the bottom of the window (or choose View from the menu bar, then choose Normal) to return to the normal layout.

USING DATASETS

We refer to the regular edulog data as the master data. In Boundary Planning, you work with snapshots of that master data called datasets. A dataset simply indicates which schools, boundaries, and students you are currently working with. You can set up a variety of datasets for your different boundary planning goals. Datasets allow you to freeze the data in its current state for planning purposes. Any changes made to the master data during this planning will not impact your work (and vice versa).

Datasets also allow you to work with only part of the master data at a time (such as only high school students or only elementary students) so that you can narrow your focus and improve performance. You can also limit the number of student fields included in your dataset, using only those fields needed for your planning task, further limiting the scope and reducing the size of the planning scenario to suit your needs.

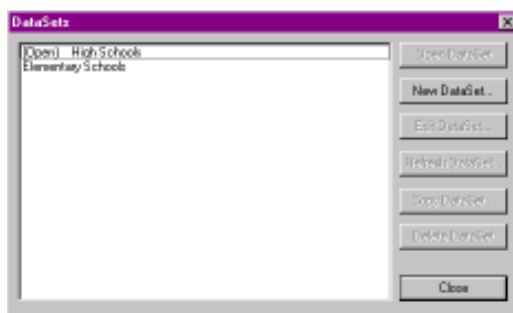
You can set up multiple datasets to perform a variety of tasks. You can view student tallies, analyze school enrollments, create plots, generate reports, and even update your master data if you wish. You might use one dataset to create high school attendance boundaries and another for middle schools. You may want to set up multiple scenarios for high school attendance boundaries. The possibilities are endless.

The datasets you create are available to others who use your transportation system, though only one person can use a particular dataset at a time. The DataSets dialog box shows any datasets currently in use as “(Open).” You cannot open such datasets, but you can make copies of them and use the copies as desired.

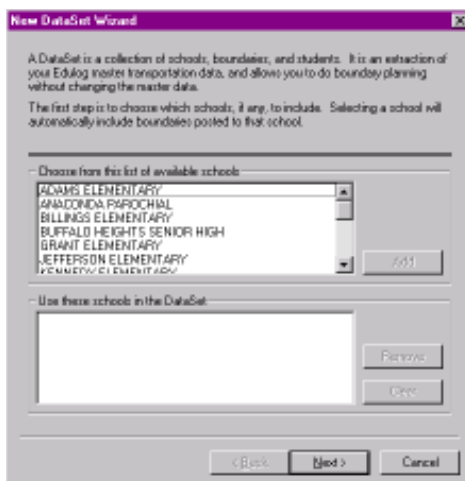
When you are satisfied with your boundaries, you can save them as your actual (master) data. Up to that point, all your work is limited to the Boundary Planning dataset. When you update your master data (see “Updating Your Master Data” on page 546), you can use those boundaries to determine student transportation eligibility.

Creating Datasets

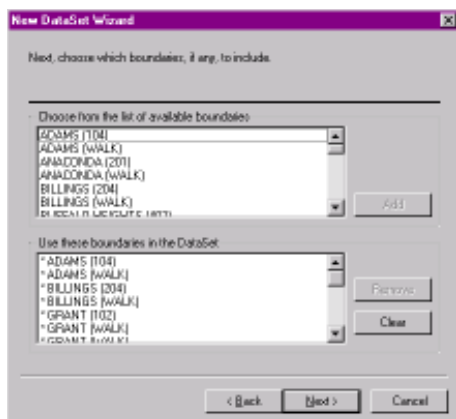
The dataset “wizard” helps you through the process of creating a dataset. Start the dataset wizard by choosing the **DataSets** tool or by choosing **Planning** from the menu bar and choose **DataSets**.



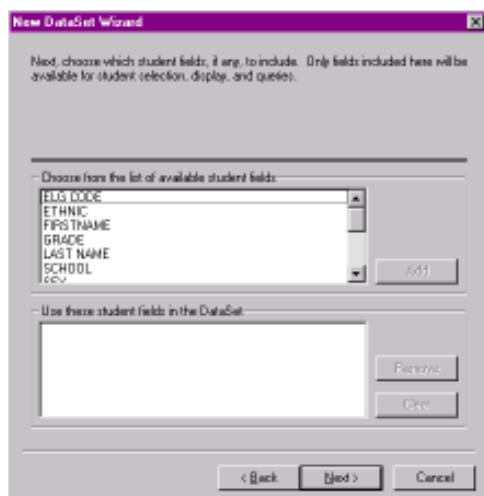
The DataSets dialog box lists any existing datasets. Choose **New DataSet**.



In the first page of the New DataSet Wizard, select the **schools** you want to include and choose **Add**. You can double-click schools in the top list to add them or select them and choose Add. (You can also select multiple schools by CTRL + clicking and SHIFT + clicking.) If you decide you want to remove a school, select it from the second list and choose **Remove**. Choose **Next** to proceed to the next page.



Select the **boundaries** you want to include in the dataset. The wizard automatically selects all the boundaries posted to the schools you selected, but you can add or remove boundaries as needed (using the same process as when adding or removing schools). Choose **Next**.



Select the **student fields** you want to include in the dataset (using the same process as when adding or removing schools and boundaries). Keep in mind that only the fields you select will be available for tallies, labels, themes, and reports. If you want to perform an enrollment analysis, make sure to include the Grade field. Other fields you may want to include are Last Name, First Name, School, Ethnic, Elg Code, and Sex. Choose **Next**.

Next, choose which students to include by entering limiting criteria. Students not meeting these criteria will be excluded. If you enter no limiting criteria (i.e. you enter nothing), you'll include no students (i.e. you'll include all students).

Between fields is an implied AND, while *within a field* is an implied OR. For example, entering GRADE: 01,04-05 and SCHOOL: 101,123 means "1st, 4th, 5th, or 6th graders at school 101 or school 123".

Define the criteria for matching students and enter a value. Value examples:

Field: **EUG CODE** List: 1,3,5
Range: 1 - 5, Adam - Sam, <10, >=0 - <G
List/Range: 1,2,4-8

Criteria to use:

< Back Next > Cancel

Select the **students** you want to include in the dataset. The wizard provides many options for entering field criteria to select students. (If you don't enter any criteria, all the students will be included.) To define field criteria, click the field at the top and select the desired student field. In the next field, enter the values for the students you want to include. For example, if you selected School as the field, you might enter 101, 102, and 103 in the value field. You can enter values as lists (such as 1, 2, 3), ranges (1 - 5 or Adam - Sam), or any combination of the two. You can also include operators (such as < for less than and > for greater than) in the values. Choose **Next**.

Next, choose any field for which you would like to be able to see a list of all values (i.e. a unique value list). This makes selecting students to display easier by allowing you to choose from a list of values instead of typing in limiting criteria.

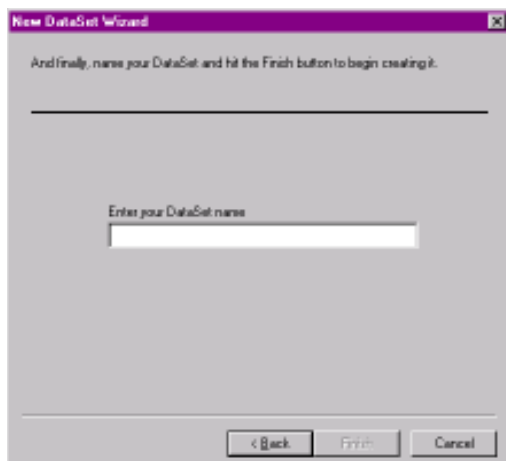
The list of student fields selected for this DataSet:

Field: **EUG CODE** List: 1,3,5
Range: 1 - 5, Adam - Sam, <10, >=0 - <G
List/Range: 1,2,4-8

Build unique value lists on these fields:

< Back Next > Cancel

Select any **fields** you want to use to build unique value lists of students. Such lists provide categories into which you can group students. For example, if you included students in schools 101-103, you could create unique value lists for School to get three separate lists (for students in school 101, 102, and 103). This can greatly speed the process of analyzing the desired students during boundary planning. The Grade, Ethnic, and Sex fields are also useful for creating unique value lists. You would not want to create lists for Last Name or First Name, though, since each student with a different name would be placed in a separate list. Choose **Next**.

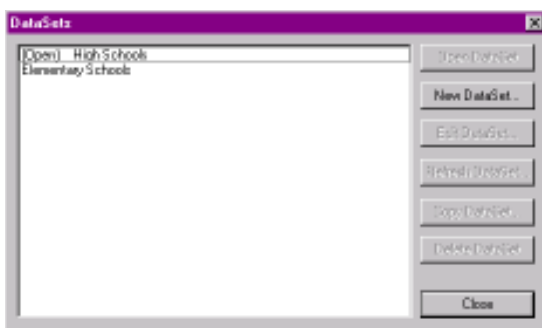


Type a **name** for your new dataset and choose **Finish**. You can include dots in the name if you wish.

Boundary Planning automatically opens your new dataset, but only displays the schools on the map. See “Displaying Dataset Students” on page 527 and “Displaying Dataset Boundaries” on page 526 for information on displaying the desired students and boundaries.

Opening Datasets

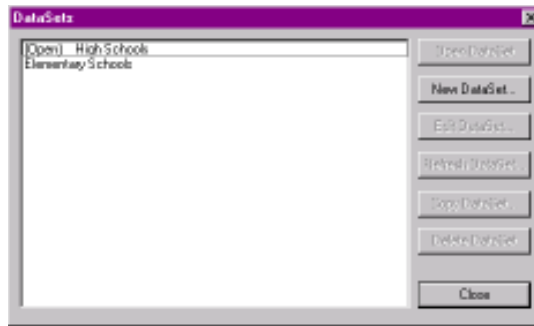
When you want to open an existing dataset, choose the **DataSets** tool or choose **Planning** from the menu bar and choose **DataSets**.



The DataSets dialog box lists any existing datasets. Select the desired **dataset** from the list and choose **Open DataSet**. Choose **Close**. Boundary Planning opens your new dataset, but only displays the schools on the map. See “Displaying Dataset Students” on page 527 and “Displaying Dataset Boundaries” on page 526 for information on displaying the desired students and boundaries.

Modifying Datasets

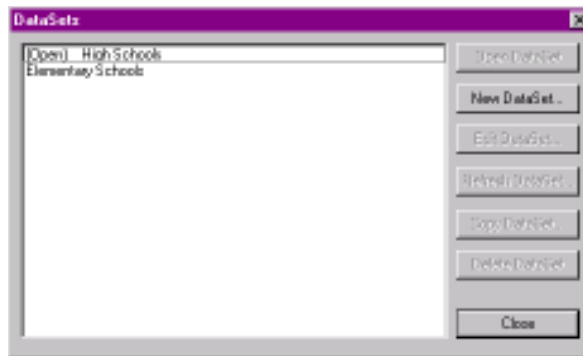
Before you can to modify a dataset, you first need to open that dataset (see the previous section for further information). Choose the **DataSets** tool or choose **Planning** from the menu bar and choose **DataSets**.



Select the **dataset** you opened from the list and choose **Edit DataSet**. The first page of the dataset wizard appears. See “Creating Datasets” on page 520 for information on defining the dataset.

Copying Datasets

To copy a dataset, choose the **DataSets** tool or choose **Planning** from the menu bar and choose **DataSets**.

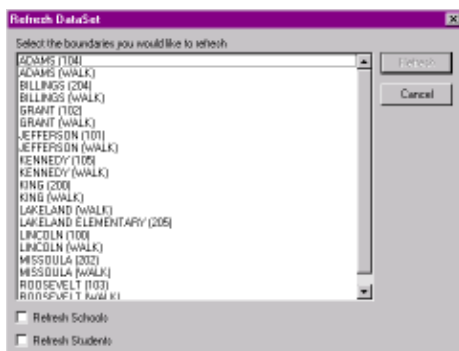


Select the **dataset** you want to copy from the list and choose **Copy DataSet**. Enter a **name** for the new dataset and choose **OK**. Notice that the list of datasets now includes the copy. Choose **Close** when finished.

Refreshing Datasets

If you make changes to a boundary in your master data, you can refresh your dataset to get those changes from the master data and include them in your dataset. You can also refresh school and student data.

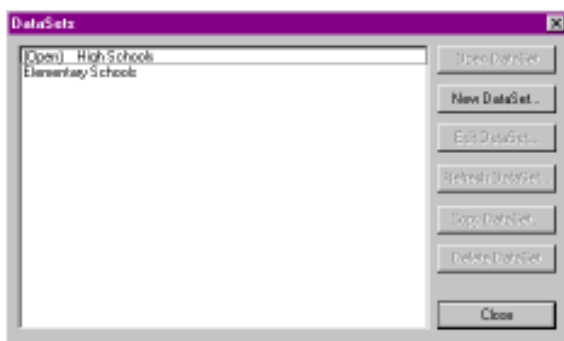
To refresh a dataset, choose the **DataSets** tool or choose **Planning** from the menu bar and choose **DataSets**. Select the **dataset** you want to refresh from the list of datasets and choose **Refresh DataSet**. The Refresh DataSet dialog box appears, listing the available boundaries.



Select the **boundary** or **boundaries** you want to refresh. (You can select multiple boundaries by CTRL + clicking and SHIFT + clicking.) If you want to refresh school data, select the **Refresh Schools** check box. If you want to refresh student data, select the **Refresh Students** check box. Choose **Refresh**. Choose **Close** when finished.

Closing Datasets

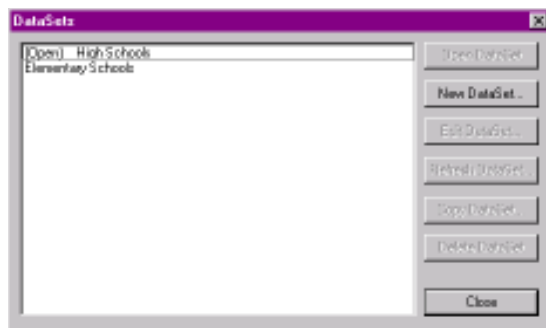
To close a dataset, choose the **DataSets** tool or choose **Planning** from the menu bar and choose **DataSets**.



Select the **dataset** you want to close from the list and choose **Close DataSet**. Choose **Close** when finished.

Deleting Datasets

To delete a dataset, choose the **DataSets** tool or choose **Planning** from the menu bar and choose **DataSets**.



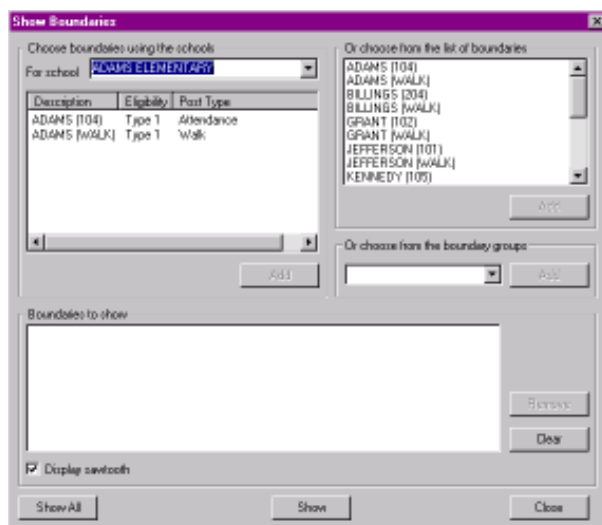
Select the **dataset** you want to delete from the list and choose **Delete DataSet**. Choose **Yes** from the message box asking for confirmation. Choose **Close** when finished.

DISPLAYING DATASET BOUNDARIES

After you open a dataset (see “Opening Datasets” on page 523), Boundary Planning allows you to select the specific boundaries you want to display for your work session. Boundary groups can be useful for selecting boundaries to display. See “Creating Boundary Groups” on page 547 for further information.

Only displayed boundaries can be modified or used to produce tallies. (Boundaries you create are automatically added to the group of displayed boundaries.)

To display dataset boundaries, choose the **Show Boundaries** tool or choose **Planning** from the menu bar and choose **Show Boundaries**.



You have several options for selecting boundaries to display.

- If you want to display all the boundaries in the dataset, choose the Show All button.
- If you want to select boundaries from the list of dataset boundaries in the upper-right corner of the dialog box, you can double-click boundaries in the list or sin-

gle-click them and choose the Add button under that list (you can CTRL + click and SHIFT + click to select multiple boundaries).

- If you want to display only boundaries posted to a certain school, click the For School field and select the desired school. Select the boundaries you want to display from the list under that field. You can double-click boundaries in the list or single-click them and choose the Add button under that list.

The boundaries you selected appear in the Boundaries to Show list. You can add other boundaries if you wish. If you decide you want to remove a boundary, select it from the list and choose Remove. If you decide you want to remove all of the boundaries, choose Clear.

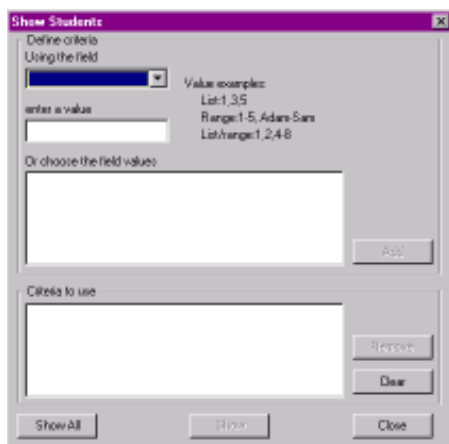
When you have selected the desired boundaries, choose **Show**. In the map legend, select the check box next to Boundaries (if it is not already selected). The boundaries you selected appear on the map.

DISPLAYING DATASET STUDENTS

After you open a dataset (see “Opening Datasets” on page 523), Boundary Planning allows you to select the specific group of students you want to display so that you can limit the focus to only those students you want to work with. For example, if you are working with high school boundaries, you may want to display only high school students (such as all students in 400 schools or in grades 10 - 12). You might want to further limit the students to those with special transportation needs or those that are in a particular program to get a tally of only those students.

Only displayed students will be included in tallies. You do not need to display any students if you only want to create boundaries.

To display dataset students, choose the **Show Students** tool or choose **Planning** from the menu bar and choose **Show Students**.



If you want to display all students, choose the Show All button. If you want to display only students that match certain field criteria, click the field under “Using the field” and select the field you want to use. You can select field values for the students from the list in the center of the dialog box or enter values in the field under “Enter a Value.” For example, if you selected School as the field, you might enter

101, 102, and 103 as the values. You can enter values as lists (such as 1, 2, 3), ranges (1 - 5 or Adam - Sam), or any combination of the two.

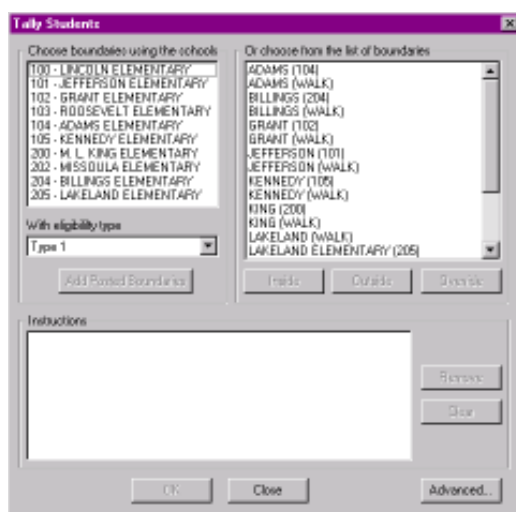
Choose **Add** and the values you selected appear in the Criteria to Use list. Add any other criteria you want to use to select students. If you decide you want to remove any of the criteria, select it from the bottom list and choose Remove. If you decide you want to remove all of the criteria, choose Clear.

Choose **Show** when you've entered the desired criteria. In the map legend, select the check box next to Students (if it is not already selected). The students that match your criteria appear on the map.

TALLYING STUDENTS

Boundary Planning includes a feature for tallying students. You set up a list of tally instructions (such as inside Adams attendance boundary, outside Adams walk boundary, and override Adams hazard north of railroad tracks). You can include a variety of instructions using the boundaries posted to schools.

To tally students, first display the students you want to tally and the boundaries you want to use (see the previous two sections for further information). Choose the **Tally Students** tool or choose **Planning** from the menu bar and choose **Tally Students**. The Tally Students dialog box appears for you to begin entering your tally instructions.



To add tally instructions for the boundaries posted to a particular school, select the **school** from the list box in the upper-left corner of the dialog box. You can double-click schools or single-click them and choose Add Posted Boundaries. You can select multiple schools by CTRL + clicking and SHIFT + clicking. (Note: if your district uses different boundaries to determine transportation eligibility for particular grades at a school, you need to select the eligibility type before selecting boundaries. Click the With Eligibility Type field and select the eligibility type corresponding to the boundaries you want to use. Most districts use only Type 1).

Instructions for the school's boundaries appear in the list box at the bottom of the dialog box. To add tally instructions for any of the displayed boundaries, select the

boundary from the list box in the upper-right corner of the dialog box. Choose Inside if you want to tally students inside the selected boundary, Outside if you want students outside the boundary, or Override if you want to override with a hazard boundary. (Students in an override boundary will be included in the tally regardless of the other criteria).

The system adds the tally instruction to the list at the bottom of the dialog box. If you decide you want to remove an instruction, select it from the list and choose Remove. If you want to remove all instructions and start over, choose Clear.

When you have entered all the necessary instructions and are ready to view the tally, choose **OK**. The Tally window appears for you to select the fields you want to include in the tally.

The screenshot shows a window titled "Here's your tally" with a table of student data and two list boxes for field selection.

	01	02	03	04	05	06
100	0	0	0	0	0	1
102	0	0	0	0	0	1
104	28	17	8	19	18	24
105	1	1	0	0	0	0
300	3	2	0	2	2	2
300	0	0	0	0	0	0
400	0	0	0	0	0	0
Total	32	20	8	21	20	28

Below the table is a large empty area for additional instructions. At the bottom are buttons for "Print", "Export", and "Close".

On the right side, there are two list boxes:

- Down the side:** ELG CODE, ETHNIC, FIRSTNAME, GRADE, LAST NAME, PROGRAM, SCHOOL, SEX. (SEX is selected)
- Along the top:** ELG CODE, ETHNIC, FIRSTNAME, GRADE, LAST NAME, PROGRAM, SCHOOL, SEX. (GRADE is selected)

Below the list boxes are buttons for "Switch side and top", "Show %s", and "Show Totals".

The system automatically selects the students in the tally. You can view them in the analysis window if you wish.

In the list box under Down the Side, select the student field you want to appear down the left side of the tally. In the list box under Along the Top, select the student field you want to appear along the top of the tally. You can choose the Switch Side and Top button if you want to exchange the position these two fields (this may be useful if your tally has just a few rows and many columns).

The traditional tally is School down the side and Grade along the top. You can choose multiple fields to appear down the side or along the top as needed. This provides a nice extension of the alternate tally field feature. Perhaps you want to include School and Sex down the side and Grade and Ethnic along the top to see School-Grade, School-Ethnic, Sex-Grade, and Sex-Ethnic tallies at once.

If you want to include percentages in the tally, select the Show %'s check box. The percentages appear for each row. The non-total percentages are "% of the row total," as are the column total percentages (whose row total is the grand total). Only the row total percentages are column-oriented. They are "% of the column total" (again, the grand total).

If you want to include totals in the tally, make sure the Show Totals check box is selected.

You can choose Print if you would like to send the tally to the printer or choose Export if you want to send the tally to a file data source. Choose Close to return to the Tally Students dialog box. You can further modify the tally there and choose OK again to see the new version.

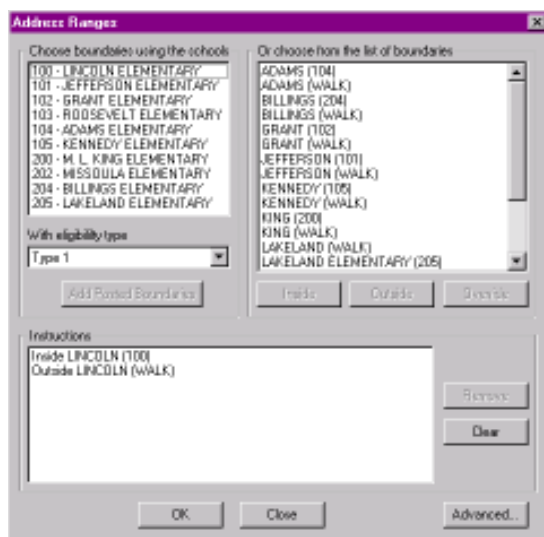
When you are finished, choose **Close** from the Tally Students dialog box.

VIEWING ADDRESS RANGES

Boundary Planning allows you to quickly view the addresses ranges of street segments according to the boundaries in which they're located. You can print these lists or save them as files on your computer.



Choose the **Address Ranges** tool or choose **Planning** from the menu bar, then choose **Address Ranges**.



To use the boundaries associated with one or more schools, select the **schools** in the list in the upper-left corner. (You can SHIFT + click and CTRL + click to select multiple boundaries.) If your district uses different boundaries to determine transportation eligibility for particular grades at a school, click the With Eligibility Type field and select the eligibility type corresponding to the boundaries you want to use. (Most districts use only Type 1). Choose Add Posted Boundaries to include the selected boundaries. The boundary criteria appear in the Instructions list.

You can also select the **boundaries** from the list of dataset boundaries in the upper-right corner of the dialog box. Choose Inside if you want to tally students inside the selected boundary, Outside if you want students outside the boundary, or Override if you want to override with a hazard boundary. (Address ranges in an override boundary will appear regardless of the other criteria). The boundary criteria appear in the Instructions list.

You can add other boundary criteria using either of these approaches. If you decide you want to remove a boundary, select it from the Instructions list and choose Remove. If you decide you want to remove all of the boundaries, choose Clear.

If you are more experienced with this feature and would like to use additional operators and edit the expression directly, choose Advanced. Choose Close when finished.

When you have entered all the necessary instructions and are ready to view the ranges, choose **OK**. The list of address ranges for the boundary criteria you entered appears. You can choose Print to send the list to a printer or choose Export to send the report to one of a variety of database files (such as a text file, an Excel spreadsheet, or a FoxPro table). Choose **Close** when finished.

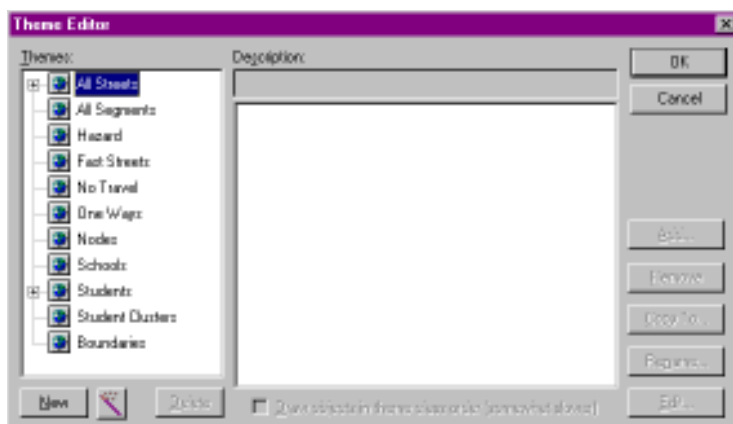
DISPLAYING OBJECTS ACCORDING TO THEMES

Boundary Planning provides access to various types of non-geographic information on displayed objects. For example, you may have access to student grade levels, street speeds, boundary IDs, and so on. You can use this information to discriminate between various subsets of objects and display them differently on the map. As an example, if you have a group of elementary students, you might want to define a theme to display first grade students in blue, second grade students in red, and so on.

Themes do not store any actual data. They contain a set of criteria and record the appearance of objects matching those criteria.

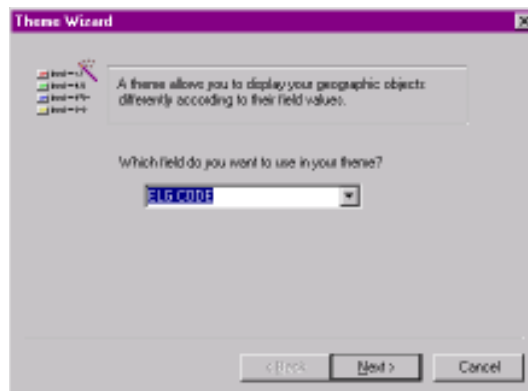
Creating a Theme Using the Wizard

You can create themes manually or use the Theme Wizard to guide you through the process. To create a new theme using the wizard, choose **Editors** from the menu bar, then choose **Theme**.

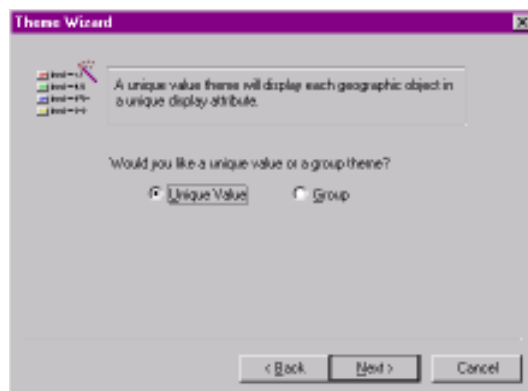


The Theme Editor dialog box lists the object classes available for creating a theme. A plus sign next to an object class indicates that one or more themes exist for that group (see All Streets and Students in the illustration).

Select the **object class** for which you want to create a theme, then choose the **Wizard** tool. The Theme Wizard window appears.

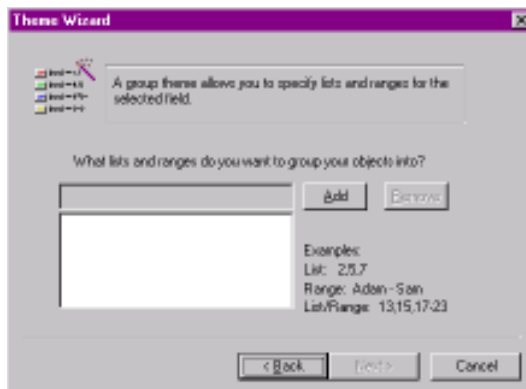


Click the **arrow** next to the field and select the **field** you want to use to define the theme (such as Grade). Choose **Next**.

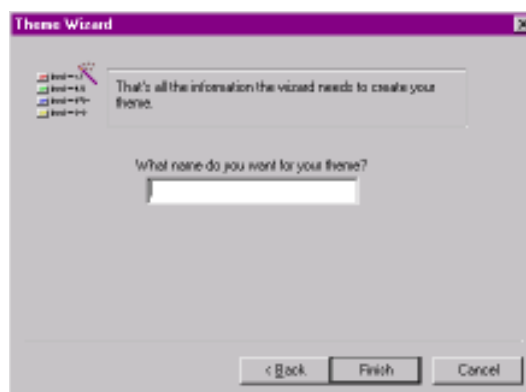


If you want each object with a different value in the field you selected to appear differently (for example all students in grade 1 to appear one way, all students in grade 2 to appear in a different way, and so on), select Unique Value.

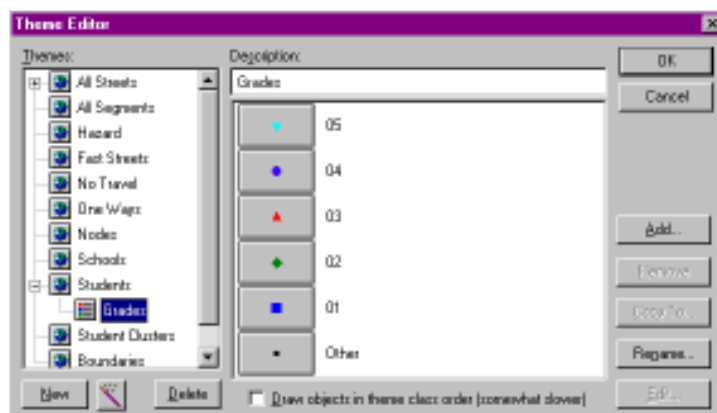
If you want to define groups of values you want to appear a certain way, select Group. For example, you may want all schools with codes ranging from 100 - 199 to appear one way, all schools with codes from 200 - 299 to appear another way, and so on. Choose **Next**. If you are creating a unique value theme, skip the next illustration and paragraph. If you are creating a Group theme, the window provides functions for defining the groups.



Choose the **Add** button, then enter the first group definition (such as 100-199). You can define groups as lists (such as 102, 202, 330), ranges (such as Adam - Sam), or a combination of the two (such as 1, 2, 5-7). Choose Add again if you want to define another group. Repeat the process for each group you want to include in the theme. Choose **Next** when finished.



Type a **name** for the new theme and choose **Finish**. You return to the Theme Editor window which displays your new theme.



The buttons next to each of the theme's criteria (theme classes) allow you to change the appearance of matching objects. These buttons function like the buttons next to

objects in the map legend. See “Changing the Appearance of Objects” on page 508 for further information. The dialog boxes for changing the appearance of objects always include a “Null” check box. You can select that check box if you want to hide objects corresponding to any of the theme’s classes.

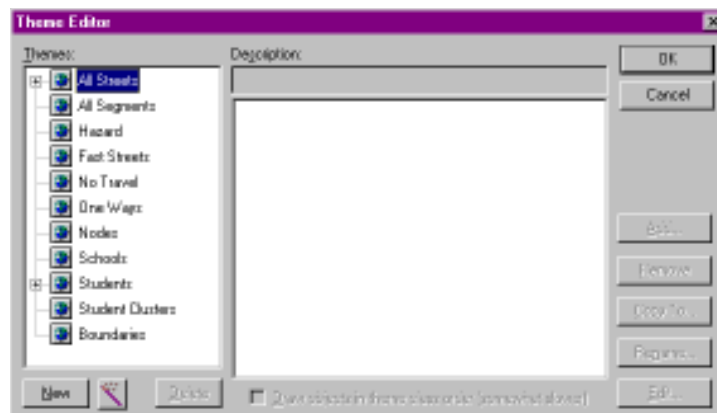
Objects matching each of the theme classes will appear as indicated on the corresponding buttons when the theme is applied. All others will appear as indicated on the button next to “Other.” A theme always includes an “Other” theme class at the end of the list to provide a means of displaying objects that do not match any of the theme’s criteria.

You can remove a theme class by selecting it from the list box and choosing Remove. You can rename a theme class by selecting it from the list box and choosing Rename. This may be useful when using a theme to create a plot. The name appears in the theme legend instead of the expression.

When you are finished working with themes, choose **OK** to close the Theme Editor dialog box.

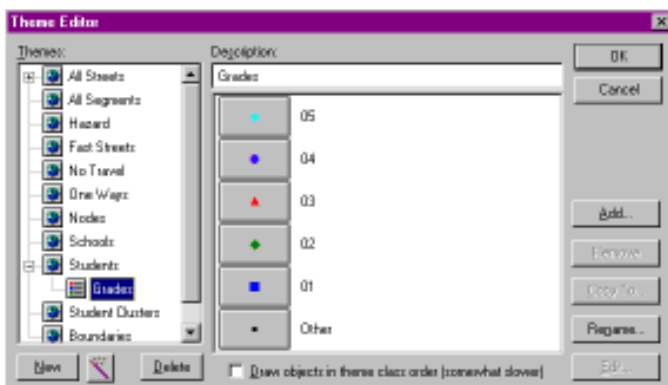
Modifying a Theme

After you have created a theme, you can use the Theme Editor to modify it if you wish. To modify a theme, choose **Editors** from the menu bar, then choose **Theme**.



The Theme Editor dialog box lists the available object classes. A plus sign next to an object class indicates that one or more themes exist for that group.

Double-click the **object class** name with the theme you want to modify, then select the desired **theme**.



The Theme Editor displays the theme's description, which you can modify if you wish, and a list of the theme classes that define the theme. The button next to each theme class allows you to change the appearance of objects matching that criteria. These buttons function like the buttons in the map legend. See "Changing the Appearance of Objects" on page 508 for further information.

When you apply the theme, objects matching each of the theme classes will appear as indicated on the corresponding button. All others will appear as indicated on the button next to "Other." A theme always includes an "Other" theme class at the end of the list to provide a means of displaying objects that do not match any of the theme's criteria.

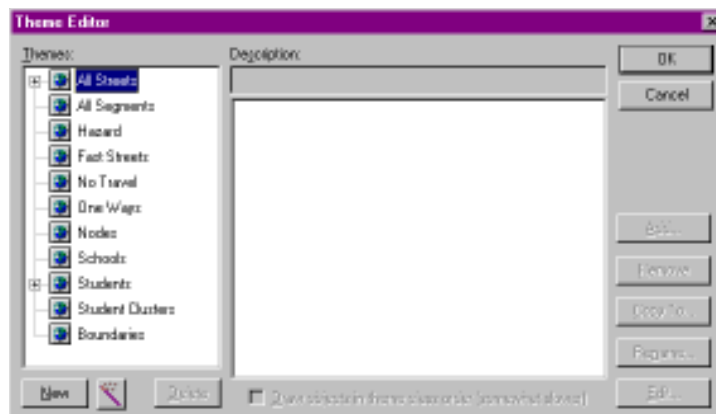
The dialog boxes for changing the appearance of objects always include a "Null" check box. You can click the button for a theme class and select the Null check box if you want to hide objects corresponding to any of the theme's classes.

To add a theme class, choose the Add button. To modify a theme class, select it from the list box (make sure to click the text and not the button next to the theme class), then choose the Edit button. To remove a theme class, select it from the list box and choose Remove. You can rename a theme class by selecting it from the list box and choosing Rename. This can be helpful when using a theme to create a plot. The name appears in the theme legend instead of the expression.

When you are finished, choose **OK** from the Theme Editor dialog box to save your changes. You can also modify a theme after you apply it to objects on the map (see "Applying a Theme to Objects on the Map" on page 536). The button for the object class in the map legend changes to indicate that it has a theme applied. You can click this button to open the Theme Editor dialog box and modify the theme.

Deleting a Theme

To delete a theme, choose **Editors** from the menu bar, then choose **Theme**.



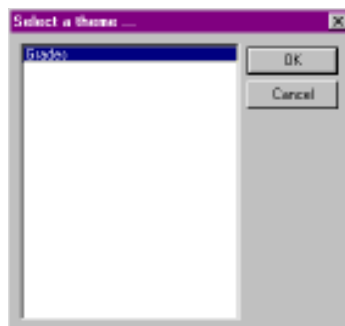
In the Theme Editor dialog box, a plus sign next to an object class indicates that it has one or more themes. Click the plus sign next to the **object class** with the theme you want to delete (or double-click the object class name), then select the desired theme. Choose **Delete**.

Choose **OK** when finished to close the Theme Editor dialog box.

Applying a Theme to Objects on the Map

To apply a theme to objects on the regular map or the reference map, click the **Map Legend** or **Reference Map Legend** tab (depending on where you want to apply the theme) under the legend pane.

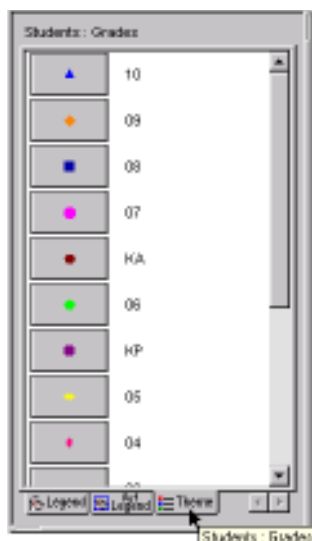
Point to the button representing the **object class** (such as Students) to which you want to apply the theme and **right-click**. Select **Apply Theme** from the pop-up menu.



Select the **theme** you want to apply and choose **OK**. Objects matching each of the theme's classes appear as indicated on the buttons in the Theme Editor when you created or last modified the theme.

Notice that the object class button in the map legend has changed its appearance to indicate that it has a theme applied. You can click this button to open the Theme Editor dialog box and modify the theme (see "Modifying a Theme" on page 534).

Also, a new Theme tab appears under the legend pane. If you click this tab, the theme legend appears.



You can use the buttons in this legend to change the appearance of objects matching each theme class. If you want to hide objects matching any of the theme classes, you can select the Null check box in the dialog box. See “Changing the Appearance of Objects” on page 508 for further information.

You can also apply themes by choosing Apply Themes from the Display menu. Select the desired theme and choose Apply. Choose Close when finished. Keep in mind that themes do not store any actual data. They contain a set of criteria and record the appearance of objects matching those criteria.

Removing a Theme from Objects on the Map

To remove a theme from displayed objects, point to the **button** in the map legend that corresponds to the object class with the theme applied and **right-click**. Choose **Remove Theme** from the pop-up menu. Gismo removes the theme from the object class.

You can also remove themes by choosing Apply Themes from the Display menu. Select the applied theme and choose Remove. Choose **Close** when finished.

CREATING AND MODIFYING BOUNDARIES

Gismo allows you to create and modify boundaries in your system, perhaps to achieve better student distributions resulting from your student analysis (boundary planning). You have a variety of tools available for working with boundaries. You can define points “free form” simply by pointing and clicking, or you can have Gismo “snap” boundary points to the nearest street or boundary.

You can also trace objects to define all or part of a boundary. For example, you may want to trace an adjacent boundary to make sure there are no gaps between the two boundaries and that no overlaps exist. If you have a situation in which students on one side of a street attend one school and students on the other side attend a different school, you can trace the street to define the boundary so that the appropriate students fall in the correct attendance areas.

Creating Boundaries

Gismo allows you to create boundaries in your system as needed. After you create the initial boundary (with at least three boundary points), you can switch to boundary edit mode to take advantage of the functions available for modifying boundaries (such as tracing and snapping to objects).

To create a new boundary, first make sure **Boundaries** appears in the Object Class field in the Edit toolbar. If it does not, click the **field** and select **Boundaries** from the list. Choose the **Create Objects** tool.

Begin defining the boundary perimeter by **pointing** and **clicking** on the map display. After you define the last point of the boundary, **right-click** to close the boundary.

A boundary needs to have at least three points. If you do not define three points before closing the boundary, Gismo will automatically delete any remaining points. This also happens if you delete all but two points of a boundary.

If you want to trace or snap to objects to define any part of the polygon or take advantage of any of the other boundary modification functions, switch to edit mode by clicking the Create Objects tool again to deselect it (only the Edit Objects tool should be selected now as in the illustration to the left). See “Modifying Boundaries” on page 538, “Tracing Objects on the Map” on page 540, or “Snapping Points to Objects on the Map” on page 539 for further information.

Remember that if you are not satisfied with the boundary, you can cancel it by pressing CTRL + Z on your keyboard. Remember also that if you perform an action that requires you to select another tool (such as zooming, panning, or selecting objects with the mouse), make sure to select the Idle tool when you want to continue working with boundaries.

To save your new boundary, either click the **Save** tool in the Edit toolbar or choose **Save Changes** from the Edit menu.

Modifying Boundaries

Gismo provides a variety of functions that allow you to define precise boundary perimeters. You can add, move, and delete boundary points, as well as trace and snap to other objects.

Keep in mind that if you are ever unsatisfied with a change you make to a boundary, you can undo the change by pressing CTRL + Z on your keyboard. You can continue to press this key combination to undo previous changes. Also, if you perform an action that requires you to select a tool (such as zooming, panning, or selecting objects with the mouse), make sure to select the Idle tool when you want to continue working with boundary perimeters.

To modify a boundary in your system, first **display** and **select the boundary** (or boundaries) you want to modify.

Make sure **Boundaries** appears in the Object Class field in the Edit toolbar. If it does not, click the **field** and select **Boundaries** from the list. Choose the **Edit Objects** tool (or choose **Edit Selected Objects** from the Edit menu) to switch to the Edit mode.

Gismo highlights the selected boundary or boundaries. You can change the appearance of the boundaries you are creating or modifying using the Edit Configuration dialog box (see “Changing the Appearance of Edit Boundaries” on page 545). Gismo also displays an Edit Info dialog box which will provide information on the objects you edit.

To move a boundary point, simply **click** and **drag** it to the desired location. When you click a point, it is highlighted to indicate that it is active. If multiple objects share the same point, those points will all be modified in unison. You can also activate multiple boundary points for simultaneous modification by holding down the SHIFT key while clicking them with the mouse.

To add a boundary point, **place** the mouse pointer on the boundary perimeter near the location where you want the new **point** and **right-click**. Gismo inserts a new boundary point, which you can move to the desired location.

To remove a boundary point, *click* the point you want to delete and press **DELETE** on your keyboard or click the **Delete Objects** tool in the Edit toolbar.

You can also trace objects to define portions of the boundary (see “Tracing Objects on the Map” on page 540) and snap boundary points to objects (see “Snapping Points to Objects on the Map” on page 539) as you modify the perimeter.

As you modify a boundary, you may notice the highlighted area inside the boundary appears as it did when you first selected the boundary. The area inside the boundary will match the new perimeter when you save your changes. To save your changes, choose the Save tool in the Edit toolbar or choose Save Changes from the Edit menu.

Snapping Points to Objects on the Map

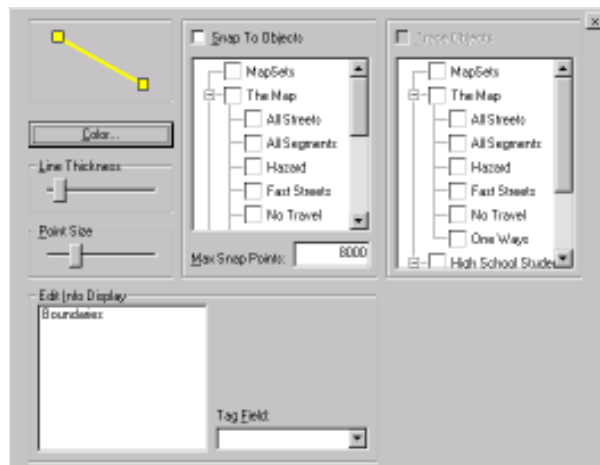
As you are creating or modifying a boundary, you may find it useful to snap boundary points to objects on the map, such as streets or adjacent boundaries. When you elect to snap to certain objects, the boundary points you define will automatically go to the object of the selected type nearest the mouse pointer. For example, if you are tracing a street, the point will snap to the node or shape node nearest the pointer. This limits the places where you can move or create points.

While you can snap to certain objects (such as streets) even if they are not displayed on the map, you will probably want to display them so that you will have a visual reference as you define boundary points.

To snap boundary points to objects on the map, first **display** and **select the boundary** (or boundaries) you want to modify.

Make sure **Boundaries** appears in the Object Class field (in the Edit toolbar). If it does not, click the **field** and select **Boundaries** from the list. Choose the **Edit Objects** tool (or choose Edit Selected Objects from the Edit menu) to change to the Edit mode.

Click the **Edit Configuration arrow** in the Edit toolbar (or choose **Edit** from the menu bar and choose **Edit Configuration**).



Select the **Snap to Objects** check box to indicate that you want to snap boundary points to objects on the map. In the list under Snap to Objects, select the **check box** next to the objects you want to snap to (such as streets or other boundaries).

Click the **Close** tool (labeled with an X) in the upper-right corner of the dialog box. Now, when you add or move boundary points, the points will automatically snap to the selected types of objects nearest the mouse pointer. You can hold down the CTRL key to temporarily leave the snap mode while working with boundaries. To stop snapping to objects entirely, choose the Edit Configuration command once again, clear all of the check boxes, then click the Close tool.

To save your changes, choose the **Save** tool in the Edit toolbar or choose **Save Changes** from the Edit menu.

Tracing Objects on the Map

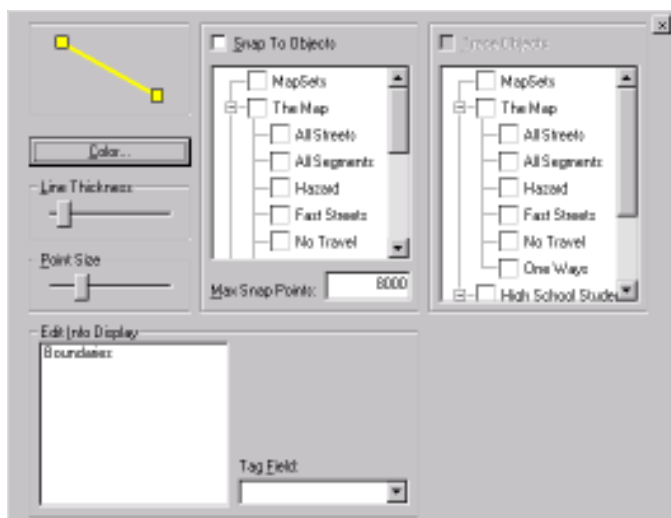
As you are creating or modifying boundaries, you may find it useful to trace objects on the map, such as streets or adjacent boundaries, to define portions of your boundary.

While you can trace certain objects (such as streets) even if they are not displayed on the map, you will probably want to display them so that you will have a visual reference as you define boundary points.

To trace objects on the map, first **display** and **select the boundary** (or boundaries) you want to modify.

Make sure **Boundaries** appears in the Object Class field (in the Edit toolbar). If it does not, click the **field** and select **Boundaries** from the list. Choose the **Edit Objects** tool (or choose **Edit Selected Objects** from the Edit menu) to switch to the Edit mode.

Click the **Edit Configuration arrow** in the Edit toolbar (or choose **Edit** from the menu bar and choose **Edit Configuration**).



In order to trace objects, you need to select those objects as “snap to” objects. Select the Snap to Objects check box. In the list under Snap to Objects, select the check box next to the objects you want to trace (such as streets or other boundaries).

Select the **Trace Objects** check box, then select the objects you want to trace from the list under Trace Objects. Click the **Close** tool (labeled with an X) in the upper-right corner of the dialog box.

Now when you add or move boundary points, the affected parts of the boundary will automatically trace the object of the selected type nearest the mouse pointer. The trace begins whenever a point is placed. If you’re extending a line, it attempts to trace from the last point to the new point. If you’re editing a line or polygon, it attempts to trace to the two neighboring points. Keep in mind that if a trace does not turn out the way you expected, you can press CTRL + Z to cancel one or more changes and try again.

If you want to temporarily stop tracing or snapping to objects when defining boundary points, you can hold down the CTRL key to leave the snap/trace mode. To stop tracing entirely, choose the Edit Configuration tool once again, clear the appropriate check boxes, then click the Close tool.

To save your changes, choose the **Save** tool in the Edit toolbar or choose **Save Changes** from the Edit menu.

Creating a Bounding Boundary

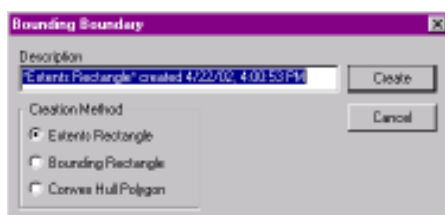
Boundary Planning allows you to create a boundary that encloses the whole map. You typically use the Bounding Boundary function to create a starting point boundary for a partition of planning zones. (A partition is a set of planning zones that covers the entire district area without overlaps.). You can also create the boundary freehand.

You have the option of creating the boundary in one of three ways:

- From a rectangle encompassing the entire extent of the map.
- From a bounding rectangle (calculated to barely enclose all the segments).

- From a convex hull polygon (also calculated to barely enclose all the segments).

To create a bounding boundary, choose the **Bounding Boundary** tool or choose **Planning** from the menu bar and choose **Bounding Boundary**.



Under Creation Method, select the **type of boundary** you want to create (Extent Rectangle, Bounding Rectangle, or Convex Hull Polygon).

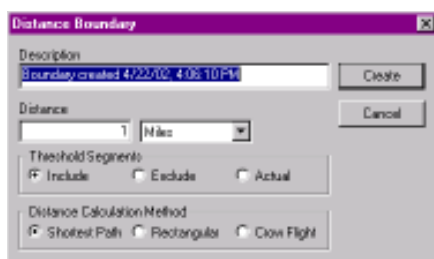
The Description field lists the default name for the boundary. You can change this name if you wish. Choose **Create** when you are ready to create the bounding boundary.

Creating Distance Boundaries

In many cases, schools have a maximum walking distance. Students within that vicinity can walk to school, while those outside require transportation. Boundary Planning includes features for automatically building boundaries that extend a certain distance from a school.

To create a distance boundary, first select the **node** or **nodes** you want to use as the origin of the distance, such as the node representing the school or the nodes representing the corners of the school yard.

Choose the **Distance Boundary** tool or choose **Planning** from the menu bar and choose **Distance Boundary**.



The Distance Boundary dialog box automatically enters a default boundary name in the Description field. You can enter a different description if desired.

Click the **second text box** under Distance and select the units of measure you want to use, such as miles or kilometers. In the first text box under Distance, enter the number of those units you want the boundary to extend from the node(s) of origin.

Under Threshold Segments, **indicate** how you want to handle each of the segments at the outer extents of the distance boundary:

- Include – includes the whole segment

- Exclude – excludes the whole segment
- Actual – calculates the actual threshold point on the segment

Under Distance Calculation method, **indicate** how you want to build the boundary:

- Shortest Path – extends the prescribed walking distance along the street network
- Rectangular – creates a boundary in the shape of a diamond (or union of diamonds if you used multiple origin nodes)
- Crow Flight – builds a circular boundary (or the union of circles if you used multiple origin nodes).

Choose **Create**. The system automatically builds the boundary according to your specifications. The distance boundary includes distance boundary segments. You can display those segments by selecting the check box next to Distance Boundary Segments in the map legend. You may want to examine the boundary and make changes if necessary. See “Modifying Boundaries” on page 538 for further information.

When using the crow-flight and rectangular methods, the distance boundary segments are the segments (and partial segments) that are within the distance from the origin nodes. Suppose you have those segments displayed in green and the street map in blue. If you used actual threshold points, every segment (and partial segment) inside the boundary is green and everything outside the boundary is blue. If you included entire threshold segments, the boundary extends out to the other end of the partial segments. If you excluded the threshold segments, the boundary is shrunk back to the near end of the partial segments. To get a better idea of how the system handles threshold segments, it may be useful to build three distance boundaries each alike except for the actual/include/exclude setting and see how they differ. It may also be helpful to build three alike except for the crow-flight/rectangular/shortest-path setting.

When you use the shortest path method, the distance boundary segments appear slightly differently. The path emanates away from the origin(s) until it extends the prescribed distance. Any “reached” point is reached by exactly one path (the shortest path) indicated by the distance boundary segments. You can pick any green point and follow the green segments back to the origin. There will be only one path to get there. As a result, there will be blue segments in the boundary that are reachable but are not included in the shortest path from the origin.

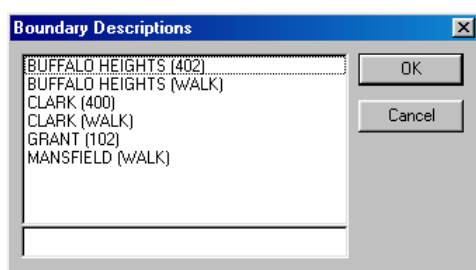
There is another difference between the shortest path and the other two methods. With shortest-path, the threshold segments are determined first, then the boundary is built around those segments. With the crow flight and rectangular methods, the boundary is built first (the circle or diamond), then it is used to find the threshold segments. Finally, the boundary is extended or shrunk back to include the appropriate threshold segments. This difference is subtle but it does show up in cases where you run off the map, such as when your origin is about 3/4 mile from the edge of the map and you build a 1 mile boundary. With the crow-flight and rectangular methods, the circle/diamond will extend out 1/4 mile, while the shortest-path will not (since there are no threshold points out there from which to build the boundary).

Copying Boundaries

To make a copy of an existing boundary, first select the **boundary** or **boundaries** you want to copy. Choose the **Copy Boundaries** tool or choose **Planning** from the menu bar and choose **Copy Boundaries**. Gismo Boundary Planning makes a copy of each selected boundary, giving them the name “Copy of [name of original boundary].” You can use the Boundary Descriptions command to change the names (see the next section).

Renaming Boundaries

To rename an existing boundary, choose the **Boundary Descriptions** tool or choose **Planning** from the menu bar and choose **Boundary Descriptions**.



Select the **boundary** you want to rename. The boundary name appears in the text box at the bottom of the dialog box. Modify the name as desired and choose **OK**.

Splitting Boundaries

Boundary Planning allows you to split boundaries into smaller boundaries if you wish. The Split function automatically creates new names for the resulting boundaries. If you split a boundary into four pieces, you will get four boundaries with names like Split Boundary 0, 5/6/02, 12:50pm, Split Boundary 1, 5/6/02, 12:50pm, and so on.

To split a boundary, first display the **boundary** and the **street segments**. Select the **streets** or **segments** where you want to split the boundary.

Choose the **Split** tool or choose **Planning** from the menu bar and choose **Split**. Boundary Planning divides the boundary along the streets or segments you selected.

Joining Boundaries

Boundary Planning allows you to join boundaries into a single boundary if you wish. To join boundaries, first **display** and **select the boundaries** you want to join.

Choose the **Join** tool or choose **Planning** from the menu bar and choose **Join**. Boundary Planning combines the boundaries you selected.

Deleting Boundaries

Boundary Planning allows you to delete boundaries you no longer need. To delete boundaries, first **display** and **select the boundaries** you want to delete.

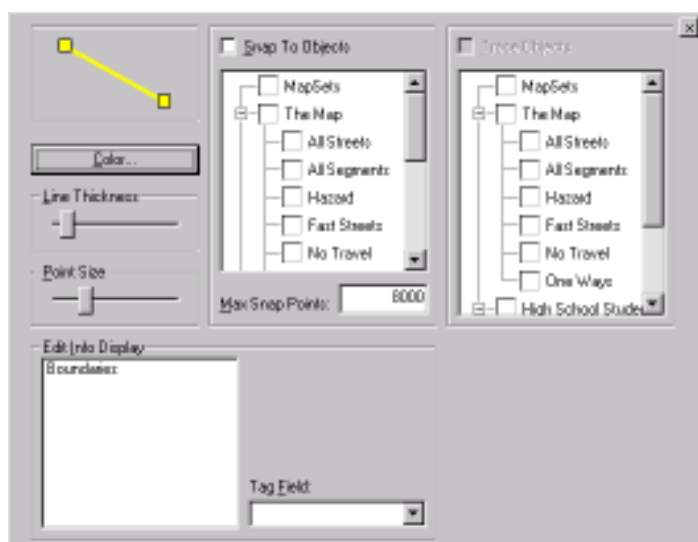
Choose the **Delete Boundaries** tool or choose **Planning** from the menu bar and choose **Delete Boundaries**. Choose **Yes** from the message box asking for confirmation. Boundary Planning deletes the selected boundaries.

Changing the Appearance of Edit Boundaries

You can use the Edit Configuration dialog box to change the appearance of the boundaries you are creating or modifying. First, **display** and **select the boundary** (or boundaries) you want to modify.

Make sure **Boundaries** appears in the Object Class field in the Edit toolbar. If it does not, click the **field** and select **Boundaries** from the list. Choose the **Edit Objects** tool (or choose **Edit Selected Objects** from the Edit menu) to change to the Edit mode.

Click the **Edit Configuration arrow** in the Edit toolbar (or choose **Edit** from the menu bar and choose **Edit Configuration**).



The current appearance of the lines and points used to display the boundary appears in the illustration in the upper-left corner of the Edit Configuration dialog box.

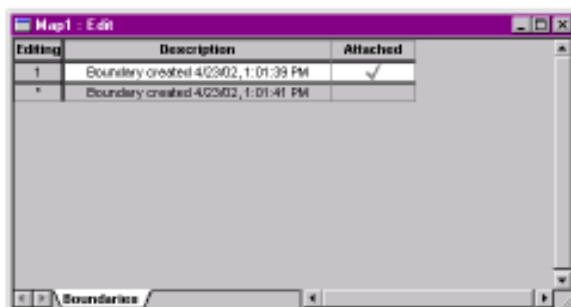
To change the color of the boundary, choose the **Color** button, then select the desired **color** and choose **OK**. To change the thickness of the boundary lines, **drag** the Line Thickness bar until the lines in the illustration are at the desired thickness. To change the size of boundary points, **drag** the Point Size bar.

Click the **Close** tool (labeled with an X) in the upper-right corner of the dialog box when the illustration in the dialog box reflects how you want the boundaries to appear.

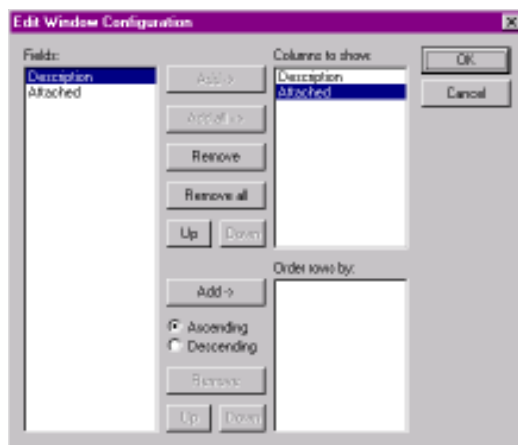
Viewing an Edit Window

As you are editing or creating geographic objects, you can use the Edit window to examine the fields of information associated with those objects. To view an edit win-

down, choose the **Edit Window** tool in the Edit toolbar or choose **Window** from the Edit menu.



The Edit Window lists information on the objects you are editing or creating in a layout similar to an analysis window with a regular query. If you want to modify the layout of the edit window, choose the Configure Edit Window tool in the Edit toolbar or choose Window Configuration from the Edit menu.



The Edit Window Configuration dialog box functions like the Query Editor.

After you have opened the Edit window, you can switch back and forth between the map display and the Edit window either by pressing CTRL + TAB on your keyboard, or by choosing Window from the menu bar, then choosing either the Map or the Edit window from the Window menu. If you tile windows in the application, you can click anywhere on either window to make it active.

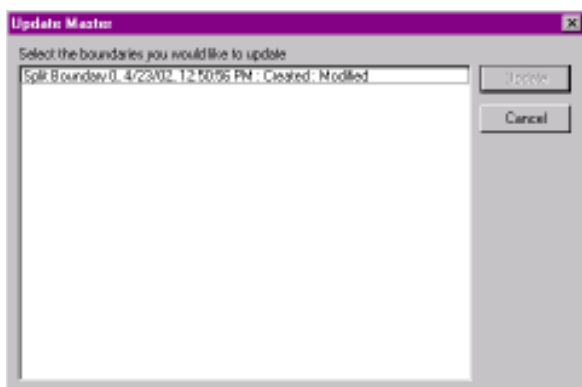
When you want to close the Edit window, click the **Close** tool (labeled with an “X”) in the upper-right corner of the window.

Updating Your Master Data

We refer to the regular edulog data as the master data. In Boundary Planning, you work with snapshots of that master data called datasets. A dataset simply indicates which schools, boundaries, and students you are currently working with. You can set up a variety of datasets for your different boundary planning goals. Datasets allow you to freeze the data in its current state for planning purposes. Any changes made to the master data during this planning will not impact your work (and vice versa).

When you are satisfied with your boundaries, you can save them as your actual (master) data. Up to that point, all your work is limited to the Boundary Planning dataset. When you update your master data, you can use those boundaries to determine student transportation eligibility.

To update your master data, choose the **Update Master** tool or choose **Planning** from the menu bar and choose **Update Master**.



The Update Master dialog box lists any boundaries you created or modified. Select the boundaries you want to update from the list (you can CTRL + click and SHIFT + click to select multiple boundaries). Choose **Update**.

Your boundaries are saved in your master data, replacing the boundaries you modified with those in the dataset and adding any boundaries you created. It does not affect the boundaries that were not included in the dataset.

CREATING AND MODIFYING BOUNDARY GROUPS

Boundary Planning allows you to define groups of boundaries for quick access. For example, you may want to display scenario 1 attendance boundaries then scenario 2 attendance boundaries or you may want to display them both at once to compare the two versions. You may want to display attendance boundaries and walk boundaries together to perform eligibility tallies. You may also want to display attendance boundaries when drawing planning zones to avoid splitting zones between two boundaries. The possibilities are endless.

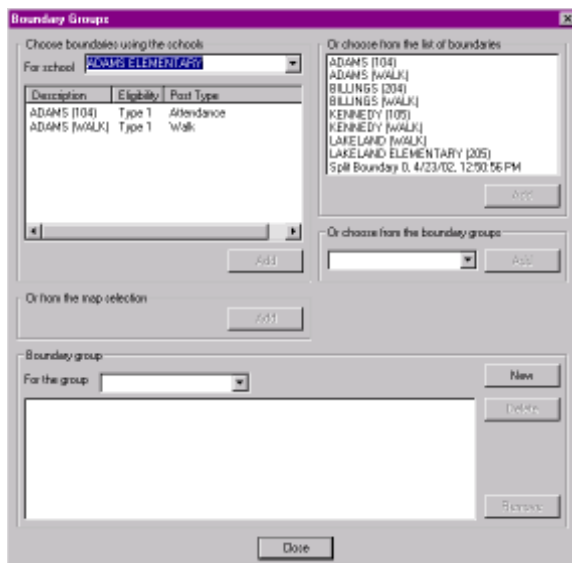
Boundary groups are not global. That is, they are not part of your regular data. They are only part of the dataset and each dataset can have its own boundary groups. For example, if you include schools 100-105 in a dataset, you might create boundary groups for all boundaries, attendance boundaries, walk boundaries, attendance boundaries for scenario 1, and attendance boundaries for scenario 2 in that dataset. You can use boundary groups to display dataset boundaries (see “Displaying Dataset Boundaries” on page 526).

Creating Boundary Groups

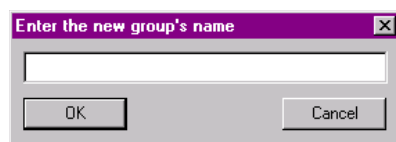
You have several ways of choosing which boundaries to include in a group. You can add boundaries:

- From the entire list of boundaries.
- From the boundaries posted to a particular school.
- From boundaries selected on the map (you will first need to display and select the desired boundaries).
- From other boundary groups.

To create a boundary group, choose the **Boundary Groups** tool or choose **Planning** from the menu bar, then choose **Boundary Groups**.



Choose the **New** button.



Type a name for the new group and choose **OK**. If you want to add the boundaries for a particular school, click the arrow next to the From School field in the Boundary Groups window and select the desired school. The boundaries for that school appear in the list box beneath the field. Select the desired boundaries from the list. You can select multiple boundaries by CTRL + clicking or SHIFT + clicking. Choose the Add button beneath the list. As you add boundaries, they appear in the list at the bottom of the dialog box.

If you want to add boundaries from the list of all the boundaries in the dataset, select the desired boundaries from the list in the upper-right corner of the dialog box. Again, you can select multiple boundaries by CTRL + clicking or SHIFT + clicking. Choose the Add button under this list.

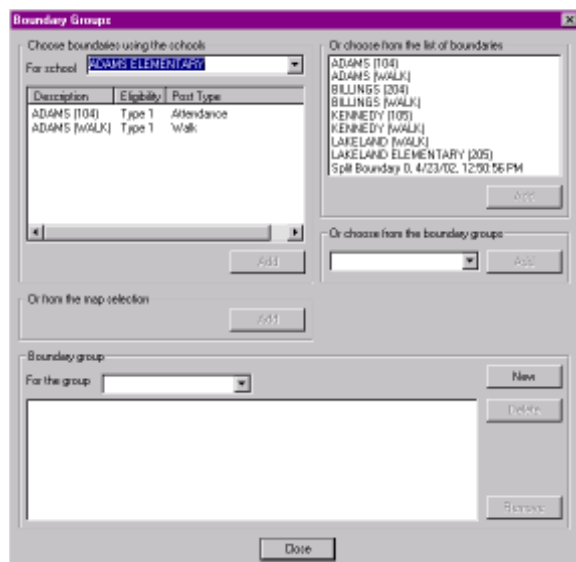
If you want to add boundaries from other boundary groups, click the field under “Or choose from the boundary groups” and select the desired boundary group. Choose

the Add button next to this field. If you want to add boundaries from those selected on the map, choose the Add button under “Or from those selected on the map.”

If you decide you want to remove a boundary from the group, select it from list at the bottom of the window and choose Remove. Choose **Close** when you are finished.

Modifying Boundary Groups

To modify a boundary group, choose the **Boundary Groups** tool or choose **Planning** from the menu bar, then choose **Boundary Groups**.



Click the **For the Group** field toward the bottom of the dialog box and select the desired **boundary group**.

If you want to add boundaries for a particular school, click the arrow next to the From School field and select the desired school. The boundaries for that school appear in the list box beneath the field. Select the desired boundaries from the list. You can select multiple boundaries by CTRL + clicking or SHIFT + clicking. Choose the Add button beneath the list. As you add boundaries, they appear in the list at the bottom of the dialog box.

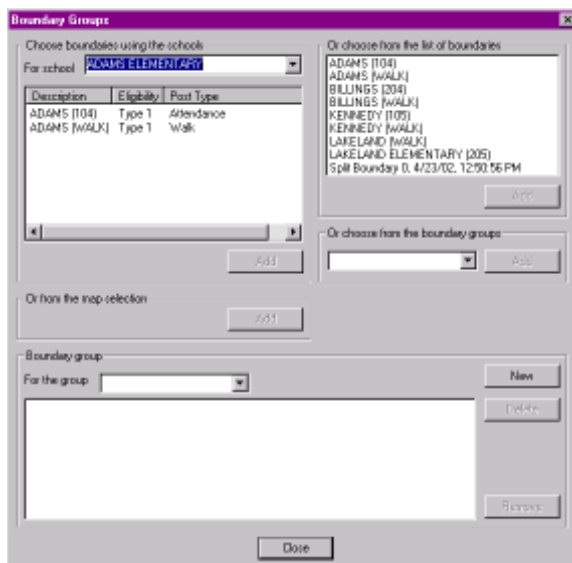
If you want to add boundaries from the list of all the boundaries in the dataset, select the desired boundaries from the list in the upper-right corner of the dialog box. Again, you can select multiple boundaries by CTRL + clicking or SHIFT + clicking. Choose the Add button under this list.

If you want to add boundaries from other boundary groups, click the field under “Or choose from the boundary groups” and select the desired boundary group. Choose the Add button next to this field. If you want to add boundaries from those selected on the map, choose the Add button under “Or from those selected on the map.”

If you want to remove a boundary from the group, select it from list at the bottom of the dialog box and choose Remove. Choose **Close** when you are finished.

Deleting Boundary Groups

To delete a boundary group, choose the **Boundary Groups** tool or choose **Planning** from the menu bar, then choose **Boundary Groups**.



Click the **For the Group** field toward the bottom of the dialog box and select the **boundary group** you want to delete. Choose the **Delete** button. Choose **Yes** from the message box asking for confirmation. Choose **Close** when you are finished.

LEAVING GISMO BOUNDARY PLANNING

When you want to exit the Boundary Planning program, choose **File** from the menu bar, then choose **Exit**. If you changed any objects or created new ones, a message box appears asking if you want to save them. Choose Yes if so.

Switch to the BPServer window. Wait for a moment for BPServer to close any datasets you had open. Make sure all datasets are closed (the list box appears empty) before you exit BPServer. Click the Close tool (labeled with an X) in the upper-right corner of the dialog box to close the BPServer window.

The potential and diversity of Gismo is evident. You can perform a variety of tasks, ranging from mapping students thematically by school, grade, and grade-point average to selecting students by school and grade to obtain tally information. You can use boundaries to select stops and students or to produce reports and plots. You can produce a plot displaying runs that take longer than 30 minutes, then print a report listing those runs. The possibilities are endless. Feel free to experiment with the available functions and consider how you can use them to make your job easier.

ENROLLMENT PROJECTION

ENROLLMENT PROJECTION 553

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Enrollment Projection
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ENROLLMENT PROJECTION

NOTES



Enrollment Projection allows you to compare historical student data to a set of planning zones and generate counts for those zones over a period of time (several years). That provides a data sample (or several samples) for each zone, from which you can predict future enrollment. You can then take that projected enrollment and break it down to get the projected count for a large area and distribute it across the smaller zones that make up the large area.

We've divided this process into four main steps.

1. Tallying from student archives
2. Projecting enrollment
3. Distributing to zones
4. Creating summation fields

Enrollment Projection is included with the Boundary Optimization feature. To start that program, first load the dataset with the data you want to use for your projection. (You can refer to the online Help for Gismo Boundary Planning or the Gismo Boundary Planning manual for further information on creating and loading datasets.)

Before you begin an enrollment projection, you first need to build the zones that the system will use to make projections. Zones are individual areas (neighborhoods) containing students who attend the same school—students you want to keep together as a unit.

You can create zones in the dataset (see “Creating and Modifying Boundaries” in the Gismo Boundary Planning manual) without modifying your district’s actual data. Make sure you do not make the zones too large or too small. In general, each zone should contain approximately 25 students.

GETTING STARTED

Open the dataset you want to use, then display the students and zones you want to include in the optimization problem (see “Displaying Dataset Students” and “Displaying Dataset Boundaries” in the Gismo Boundary Planning manual for further information).

Choose the Boundary Optimization tool toward the top of the Gismo Boundary Planning window (or choose Planning from the menu bar, then choose Boundary Optimization). The following window appears.

NOTES



The Boundary Optimization window is divided into two sections divided by a splitter which you can drag to adjust their relative sizes. These sections will list the planning zones and groups of zones (boundaries) you develop. As you proceed through the projection, this window will display grids with information on the zones and derived plans you develop.

The menu bar will have one to three menus available, depending on whether you have a plan open and what kind of plan it is. With no plan open, you get only the Configuration menu (as in the previous illustration). With a base plan open, you also get the Zones menu. With a derived plan open, you also get a Boundaries menu. (The next section discusses plans in greater detail.) The commands in the menus will also vary, depending on whether you've purchased the Boundary Optimization feature as well.

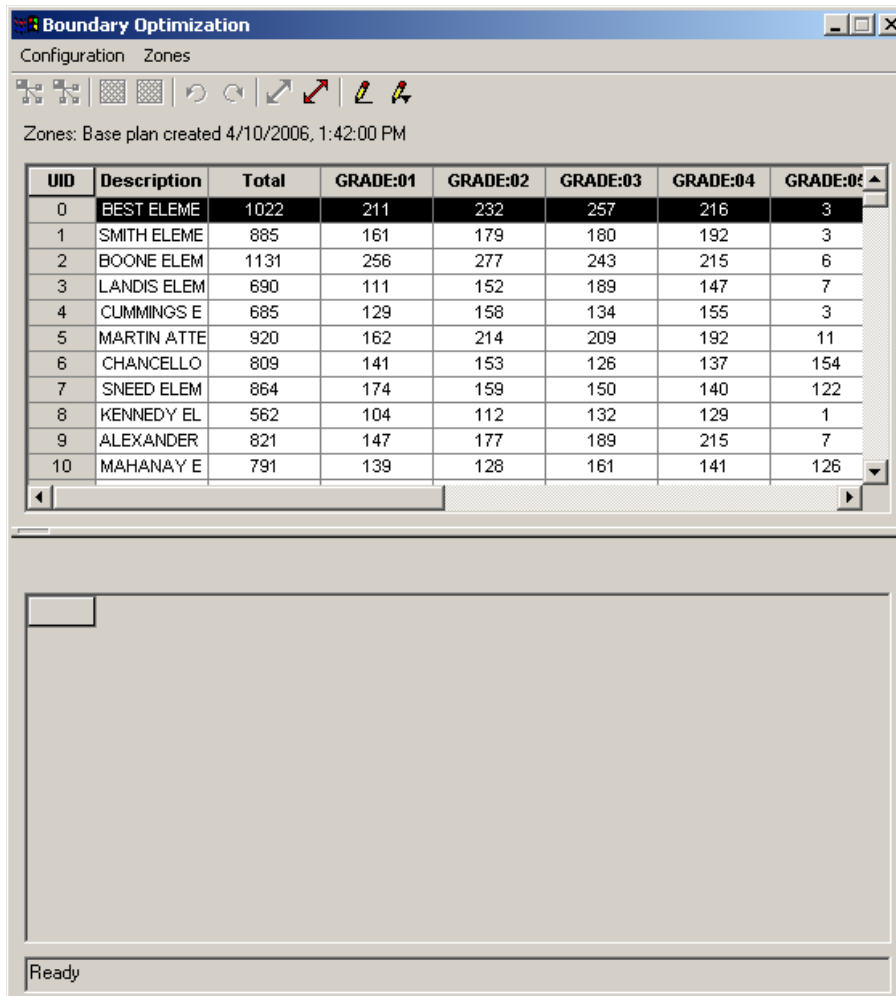
CREATING AND MODIFYING PLANS

The first step in the process is to open or create a *plan*. The concept of a plan is similar to that of a dataset in Gismo Boundary Planning. It includes the zones and

NOTES

boundaries you are currently working with. As you create and modify plans, they are stored within the dataset.

There are two basic types of plans: base plans and derived plans. A base plan is the initial set of planning zones you want to use to create boundaries. The following illustration shows the Boundary Optimization window with a base plan opened.



The name of the plan appears above the grid listing the planning zones. You can use the base plan to create a derived plan. The derived plan will contain the boundaries developed by combining planning zones. The following illustration shows the window with a derived plan opened.

NOTES

Boundary Optimization

Configuration Boundaries Zones

Boundaries: Derived plan created 4/11/2006, 7:24:25 AM

UID	Description	Count	Total	Total Low	Total High	+/- Total
0	Unassigned	0	0	0	0	0
1	114 - ALEXANDER	1	0	200	500	-200
2	118 - BEST	8	1022	300	500	522
3	102 - BOONE	5	1768	300	500	1268
4	104 - CHAMBERS	10	809	300	500	309
5	108 - CHANCELLOR	1	0	300	500	-300
6	112 - CUMMINGS	2	685	300	500	185
7	115 - HEARNE	32	621	300	500	121
8	111 - HEFLIN	1	0	300	500	-300
9	107 - KENNEDY	2	562	300	500	62
10	116 - LANDIS	6	690	300	500	190
11	109 - LIESTMAN	18	821	300	500	321

Zones: Base plan created 4/10/2006, 1:42:00 PM

UID	Description	Total	GRADE:01	GRADE:02	GRADE:03	GRADE:04
102	CHAMBERS WALK	0	0	0	0	0
81	#79 PLANNING ZONE	0	0	0	0	0
83	#77 PLANNING ZONE	0	0	0	0	0
123	#101 PLANNING ZONE	0	0	0	0	0
124	#100 PLANNING ZONE	0	0	0	0	0
125	#99 PLANNING ZONE	0	0	0	0	0
122	#102 PLANNING ZONE	0	0	0	0	0
139	#117 PLANNING ZONE	0	0	0	0	0
150	CHAMBERS OWN/BILI ATT	0	0	0	0	0
6	CHANCELLOR ELEMENTA	809	141	153	126	137

Ready

The boundaries in the derived plan appear in the upper grid. If you select a boundary from that grid, the zones assigned to the boundary appear in the lower grid. The first row in the derived plan grid includes any unassigned zones. (There are no unassigned zones in this case). Again, the names of the plans appear above the respective grids.

You can examine information on the fields (columns) displayed for a plan by choosing Fields from the Configuration menu (see “Examining Field Information” on page 562 for further information).

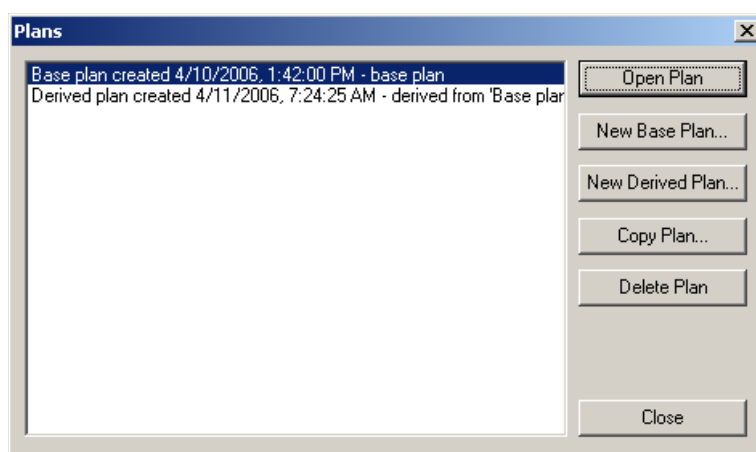
The colors of the row headers in derived plan grid correspond to the colors of the boundaries on the Gismo map display. (You can resize, minimize, or move the Boundary Optimization window to see the map.) A new object class called Plans also appears in the map legend with the various objects in the optimization problem. That object class has a button indicating that it has a theme applied. You can click this button to change the appearance of the boundaries in a district (see “Changing the Appearance of Objects” on page 13 of the Gismo Boundary Planning manual for further information). Those color changes also appear in the Boundary Optimization grid.

Creating a Base Plan

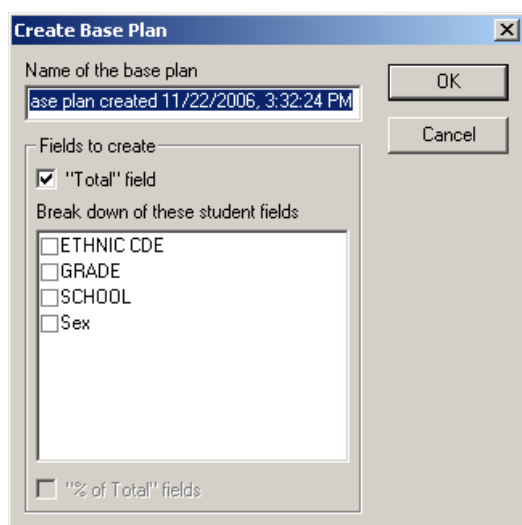
Once you've created your planning zones, you can use them to create a base plan. You can then use that plan to create a derived plan. (See the next section for further information on derived plans.)

Again, the commands in the Zones menu will vary depending on whether you have a base plan or derived plan open. With a base plan, the Zones menu includes a variety of commands for creating and modifying zones (as well as the four Enrollment Projection commands if your district has purchased that feature). With a derived plan, the Zones menu includes only the Allow Move and Disallow Move command.

Choose Configuration from the Boundary Optimization menu bar, then choose Plans.



The Plans window lists any existing plans. To create a base plan, choose New Base Plan.



NOTES

Type the name for the new plan or you can leave the default name provided by the system if you wish. If you want to include student counts in zones, make sure the “Total” Field check box is selected. We recommend that you include this field, since it is needed for counts and other steps in the projection.

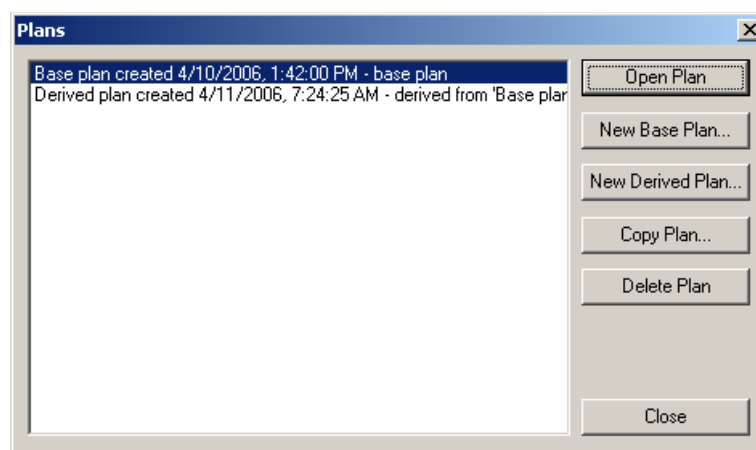
In the list box, select the check boxes next to the tally fields you want to create for use in optimizing boundaries. Typical field selections might include Ethnic, Grade, and Sex. For each unique value of those students fields, a break-down field will be created to hold the count of students in the zone having that student field value. For example, if you break down by Grade and your shown students have students from grades K through 6, you'll get fields with names like “GRADE:KA”, “GRADE:KP”, “GRADE:01”, and so on. If there are 15 first grade students in a zone, that zone's “GRADE:01” field will show 15.

If you, select the % of Total Fields check box, you will see the percentages of the totals for each of the fields you selected. You may want to view the percentages of students of a certain ethnicity or gender in each zone. This will create fields parallel to the break-down fields, showing the percent of the raw total. These are calculated using the two pertinent fields, so the check-box is only enabled if you create the “Total” field and have at least one break-down field. If you create percent fields for the Grade break-down, you'll get fields like “% GRADE:KA”, “% GRADE:KP”, “% GRADE:01”, and so on. The expressions will be something like $100.0 * [GRADE:01] / [Total]$. If the zone with 15 first grade students had a total of 100 students, the “% GRADE:01” field would hold the 15.0.

Choose OK when finished. A message box may appear asking if you want to build adjacencies. Choose Yes if so. You can now create a derived plan from the base plan.

Creating a Derived Plan

Choose Configuration from the Boundary Optimization menu bar, then choose Plans.



Choose New Derived Plan.

NOTES

Type the name for the new plan or you can leave the default name provided by the system if you wish.

Click the arrow next to the Name of the Base Plan field and select the base plan you want to use to create the derived plan.

If you want to control the number of districts (boundaries) created during the process, enter that number in the Districts to Create field.

If you want to create attendance boundaries by seeding them with any or all of the schools in the dataset, make sure the Seed Them with These Schools check box is selected under Districts to Create. Select the check boxes next to the schools you want to use. Seeding with a school makes the zone in which the school is located become the starting point for the boundary. This also forces the school to be inside its own boundary. As an example, if you seed districts with six elementary schools, the system will create at least seven districts (one per school plus the Unassigned one). Each school's zone will be in a different district and that zone will be automatically frozen. The other zones are included in the Unassigned row. If you entered a limit in the Districts to Create field that is lower than the number of seed schools, that number will be increase to the number of seed schools plus one. If you enter a limit greater than that number, you'll get some empty districts at the end of the list. If you do not us seed school, you can set the limit to anything greater than zero. All the zones will be Unassigned.

With derived plans, you can also create three kinds of fields: a Count field, Summation fields, and Percent of Total fields. If you want to track the number of zones assigned to each boundary, make sure the check box next to "Count" Field is selected under Fields to Create.

NOTES

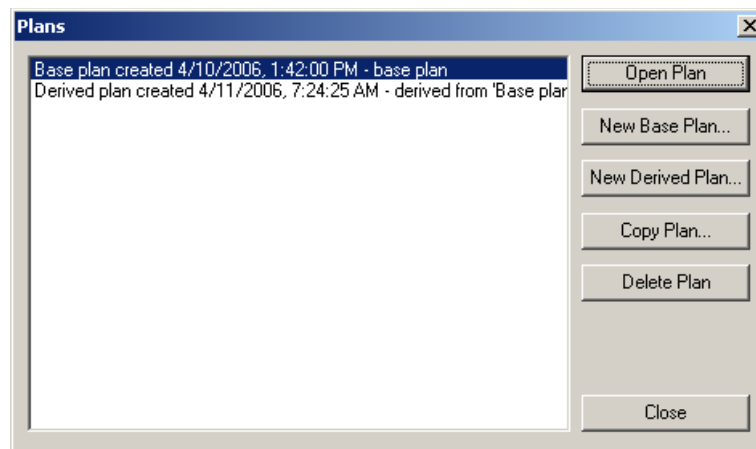
The summation fields available from the base plan appear in the list box at the bottom of the window. Examples of these include the Total field, any break-down fields, and any other numeric fields you may have created by hand. (The percent fields won't be available for summation.) Select the check boxes next to the fields you want to include in the derived plan. Summation fields will have the same name as their summed field in the base plan.

If you want to include percentages of the total for each of those fields, select the check box at the bottom of the dialog box. This is only available when you have a Total field in your base plan and you've chosen to create at least one summation field in the derived plan. The naming scheme is similar to the percent-of-total fields in the base plan.

Choose OK when finished. If you haven't build boundary adjacencies recently, a message box may appear asking if you want to do so now. Choose Yes if so.

Opening an Existing Plan

Choose Configuration from the Boundary Optimization menu bar, then choose Plans.

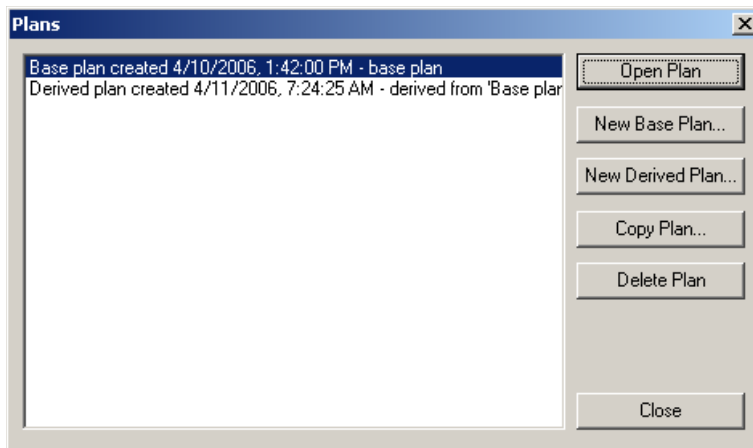


Select the plan you want to open from the list and choose Open Plan. If you open a derived plan, the system will automatically open the base plan from which it was derived. If you want to build adjacencies, choose Yes from the message box.

Copying a Plan

To make a copy of an existing plan, choose Configuration from the Boundary Optimization menu bar, then choose Plans.

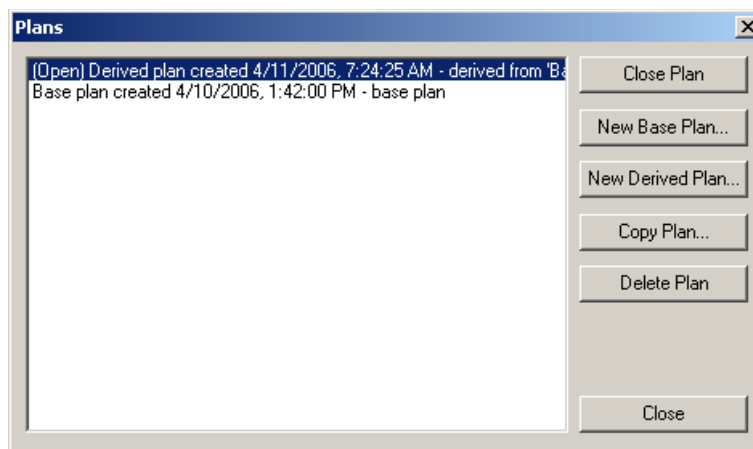
NOTES



Select the plan you want to copy and choose Copy Plan. Type a name for the new plan and choose OK. The new plan appears in the list box. Choose Close when finished.

Closing a Plan

To close a plan you have opened, choose Configuration from the Boundary Optimization menu bar, then choose Plans.

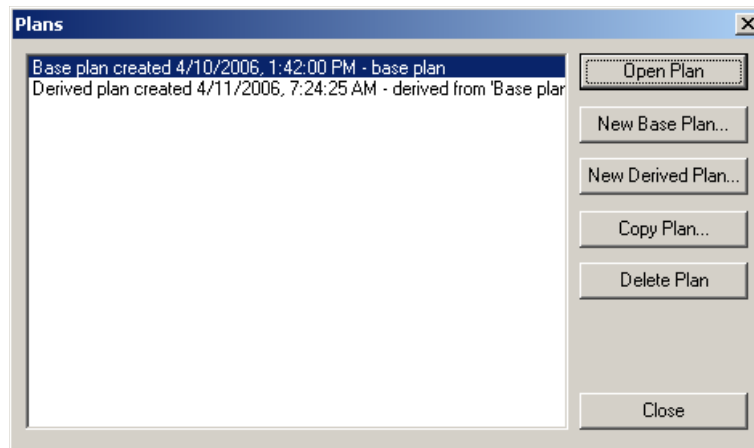


Select the plan you want to close and choose Close Plan. Choose Close when finished.

Deleting a Plan

To delete an existing plan, choose Configuration from the Boundary Optimization menu bar, then choose Plans.

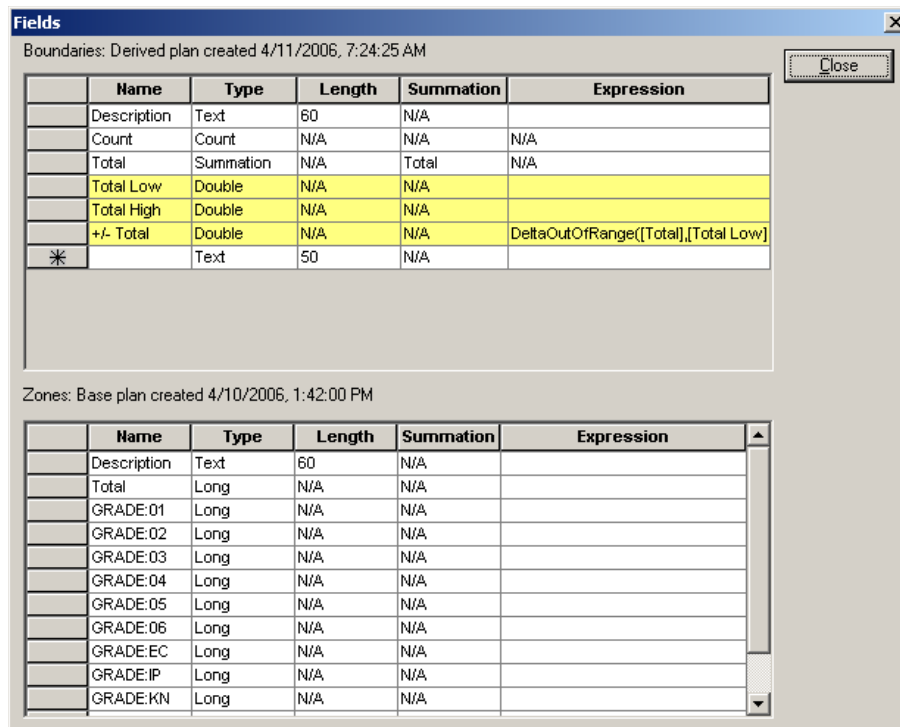
NOTES



Select the plan you want to delete and choose Delete Plan. Choose Yes from the message box asking if you are sure you want to delete the plan. The plan is removed from the list box. Choose Close when finished.

EXAMINING FIELD INFORMATION

Choose Configuration from the Boundary Optimization menu bar, then choose Fields.



NOTES

Each grid shows the fields that appear in the Boundary Optimization window (one row per field). If you are working with a base plan, only one grid will appear. Each grid has a label indicating whether it shows the fields for a derived plan or a base plan. Grids include field names, types, and lengths (for text fields). Fields can contain standard data, counts, summations, or expressions. Notice the field in the illustration that has an expression in the Expression column. Such fields are computed by the system, dependent on other fields in the record. Expressions use the same language as in the other Gismo applications. You cannot modify the contents of expression fields directly. The system automatically calculates those field whenever one of the dependent fields is modified. As an example, if a record had a Total Pop field of 50 and a Caucasian field of 30, the % Caucasian field would be 60.0. If you were to modify the Caucasian field to be 35, the % Caucasian field would be recomputed to 70.0.

The fields types that you cannot modify appear in yellow in the grid. You can change the fields displayed in white, however. To change the field type, click the cell under the Type column, then click the down-arrow and select the desired type from the drop list. If you can modify the length for the selected field type, click the Length cell and enter the desired length. For summation fields, you can click the Summation cell, then click the down-arrow and select the field you want to sum up from the drop list. For expression fields, you can click the Expression cell, then click the down-arrow and define the expression in the window that appears. (You can refer to the section on “Expressions” in the Gismo Boundary Planning manual for further information.) If you decide you don’t want to save any of your changes, you can discard them when you close the Fields window.

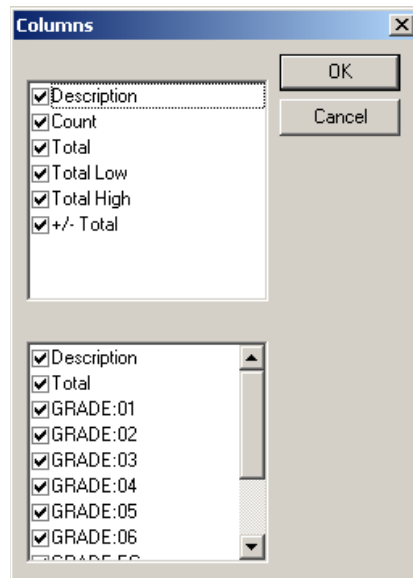
Rows labeled with an asterisk in the grid allow you to create new fields. You can create any type of field, including expressions. As an example of a case when you might want to create a field, suppose you are working with student counts by grade in your planning zone data. You have numbers of K students, 01 students, and so on. Perhaps you want to examine only K - 6 students. You can create a field that adds students in those grades. To create a field, first click the cell under the Name column in the row with an asterisk. Type a name for the new field. Complete the field Type, Length, Summation, and Expression cells as described in the previous paragraph.

Choose Close when finished. If you made any changes, a message box appears asking if you want to save those changes. Choose Yes if so.

NOTES

CHANGING COLUMN PROPERTIES

Choose Configuration from the Boundary Optimization menu bar, then choose Column Properties.



The dialog box shows the columns that appear in the grids in the Boundary Optimization window. The list box on the top shows the columns that appear in the upper grid, while the list box on the bottom shows the columns that appear in the lower grid. Select the check boxes next to the columns you want to appear in the grid. Clear the check boxes next to the columns you want to hide. Choose OK when finished.

You can also change the order of the columns in either grid. To do so first click the heading of the column you want to move to select the column. Next, click and drag the column heading to the desired position in the grid. A red line appears to indicate where the column will be inserted when you release the mouse button.

You can also change the width of columns and rows in the grids. To do so, simply drag the dividing line between two column or row headers.

PERFORMING AN ENROLLMENT PROJECTION

The Boundary Optimization window provides the following four menu commands for performing enrollment projections.

- Tally From Archive
- Project Enrollment
- Create Distribution Fields
- Create Summation Fields

The first two functions are available for base plans (the zones) and derived plans (the boundaries). The second two are only available for derived plans.

Tallying From Student Archives

NOTES

For this process, we assume you have several student files from previous years. We refer to this as your historical student archive. You need to include these files in the folder listed in the ArchiveDir line in the Bpserver.ini file, as in the following example.

[Data]

ArchiveDir=d:\elt\live\map\archive (for version 10.5) or

ArchiveDir=d:\elt\map\archive (for version 10.1 and lower)

Each “file” in this archive is actually four physical files having the same file name base with .dat, .key, .usr, and .par extensions. For example, the following four files would make up one “studnt05” archive entry.

Studnt05.dat

Studnt05.key

Studnt05.usr

Studnt05.par

Note that the archive does not use the regular Studnt.par file. If your archive files do use the regular Studnt.par file, you need to copy it to the ArchiveDir folder.

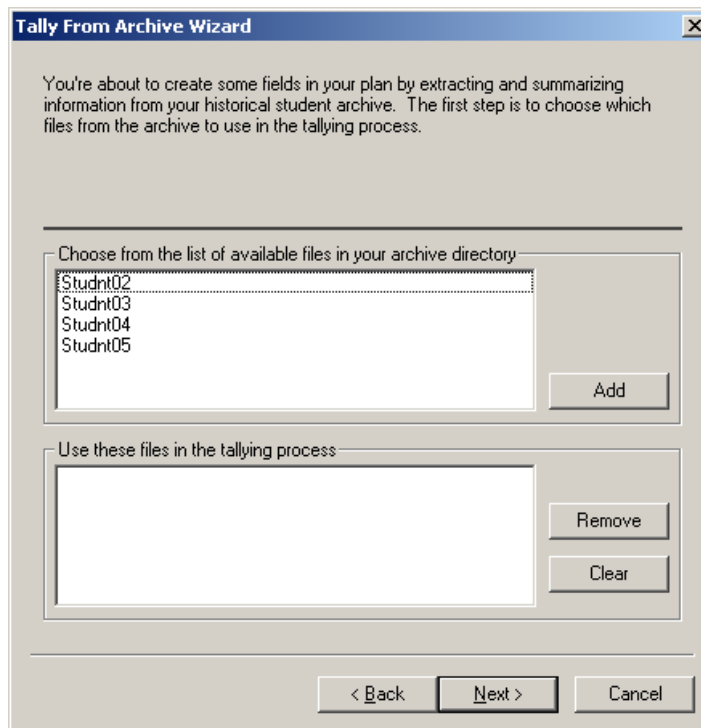
The Tally-From-Archive process is a wizard with four pages that guide you through the following four steps.

- (a) Select which files from the archive to use.
- (b) Define year tags for those files.
- (c) Select the tally method.
- (d) Define which fields to create.

NOTES

Selecting Archive Files

Choose Zones or Boundaries from the menu bar, then choose Tally From Archive.



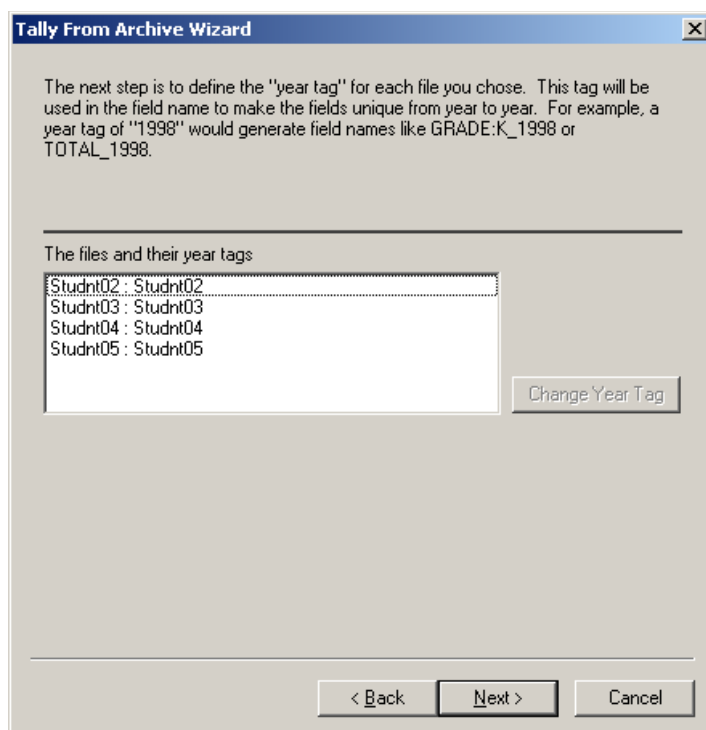
The first list box shows the available files in your ArchiveDir. From the four Studnt05.* files in the previous example, you'd see one item in the list: Studnt05.

Select the archive files you want to use from the first list box. You can CTRL + CLICK and SHIFT + CLICK to select multiple items. Choose Add to include those files in the tallying process. Those files appear in the second list box. You can select items in that list and choose Remove if you decide you don't want to include them or choose Clear if you want to start over.

Choose Next when finished selecting files.

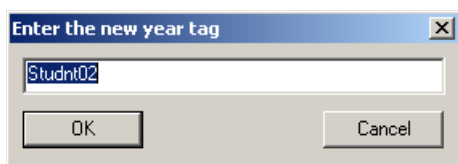
Defining Year Tags

NOTES



The year tags are the characters that become part of the field names created during the process. For Studnt05, the default year tag is also Studnt05. Left alone, you'd get fields created with names like Total_Studnt05, Grade:01_Studnt05, and so on. If you change that year tag to 05, you'll get Total_05, Grade:01_05, and so on.

To change any of the year tags, select an item from the list box and choose Change Year Tag.



Type the new year tag and choose OK. The new name appears in the list box. Repeat this process for any other tags you want to change. Choose Next when finished.

Selecting the Tally Method

The next step is to choose the tally method. You can match students either geographically (test their xy's against the polygons), or match them by comparing field values (such as by matching school codes).

Choose the tally method

☒ Geographically

☐ Field value comparison

Match this student field ...

ACDEMICNEED
Apartment
Apt Number
Bi-L
BIRTH DATE
Birthdate

Against this zone/boundary field ...

Description
GRADE:01
GRADE:02
GRADE:03
GRADE:04
GRADE:05

< Back Next > Cancel

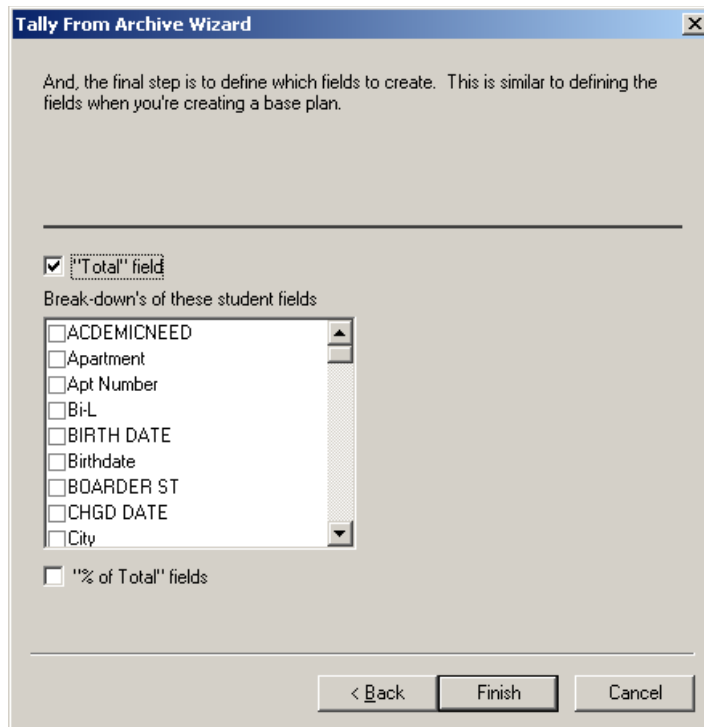
There are two possible tallying methods: geographically or via field value comparison. Geographically, the program tests the student locations against the polygons. The field value comparison uses a field value instead of the location. You need to indicate which student field to use and which zone/boundary field to compare it with. For example, you might match the School student field against a School_code boundary field. We assume that the zone/boundary field used is unique across the zones/boundaries.

To use the geographic comparison, select Geographically and choose Next.

To use the field comparison, select Field Value Comparison. Select the student data field you want to use from the list on the left, then select the zone/boundary field you want to compare it to from the list on the right. Choose Next when finished.

Defining the Fields to Create

NOTES



In this step, you're doing the same thing you do when you create base plans. If you want to include totals in the plan, make sure the “Total” Field check box is selected. In the list box, select the check boxes next to the fields you want to create. Typical field selections might include Ethnic Code, Grade, and Sex. The BreakdownLimit setting in the Gismo.ini file determines the maximum number of breakdown fields before an “Other” field is created.

If you, select the % of Total Fields check box, you will see the percentages of the totals for each of the fields you selected. You may want to view the percentages of students of a certain ethnicity or gender in each zone.

Note that the number of fields created here can get very large very quickly. Suppose you select five files from your archive, create a total, and do a breakdown on Grade. If you have KA, KP, and 01-12 grades, you'll create $5 * (14 + 1) = 75$ fields in that one Tally-From-Archive operation.

Choose Finish. The program tallies the archive according to your selections, then displays a message box indicating that the process is complete. Choose OK to close the message box. The window displays the field breakdowns, similar to the following illustration.

NOTES

UID	Total_02	GRADE:01_0	GRADE:02_0	GRADE:03_0	GRADE:04_0	GRADE:KN_0	Total_03
0	885	161	169	192	188	175	864
1	539	113	100	123	107	96	605
2	903	174	196	220	171	142	956
3	721	156	141	147	139	138	701
4	590	116	121	129	124	100	570
5	636	136	107	136	132	125	695
6	858	174	160	173	208	143	811
7	667	130	156	129	126	126	693
8	718	127	146	156	157	132	751

Projecting Enrollment

You can begin the projection process after you tally archived students and create series fields with which to project. For example, suppose you created the 75 fields discussed in the previous section using studnt01, 02, 03, 04, and 05 archives. You have series of fields similar to the following to use to do projections.

Total_01, Total_02, Total_03, Total_04, Total_05

Grade:01_01, Grade:01_02, and so on

Grade:02_01, Grade:02_02, and so on.

The Project Enrollment process also uses a wizard approach, with eight to ten steps (depending on whether you use a cohort projection method).

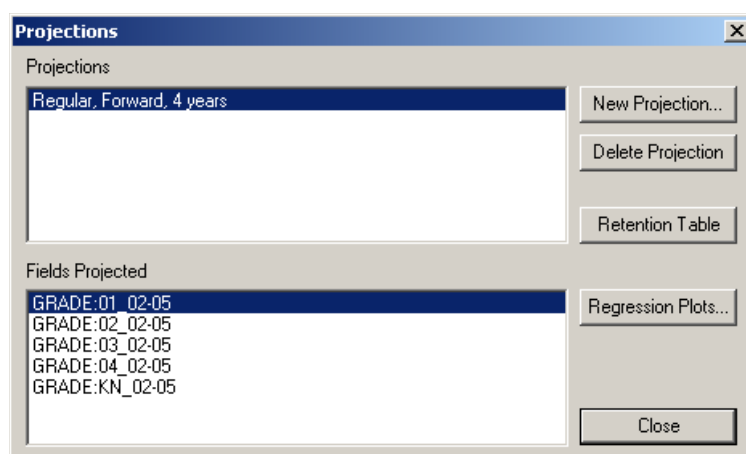
1. Select the projection method.
2. Make the regression iterative
3. Define the field series via the year tags.

NOTES

- 4 Select which field series to project.
- 5 Define the grade promotion order (when using one of the two cohort methods).
- 6 Limit the projection growth
- 7 Limit the projection decline
- 8 Specify the direction and how far to project.
- 9 Define the birth rate (when using the birth rate cohort method)
- 10 Enter projection bumps and jumps

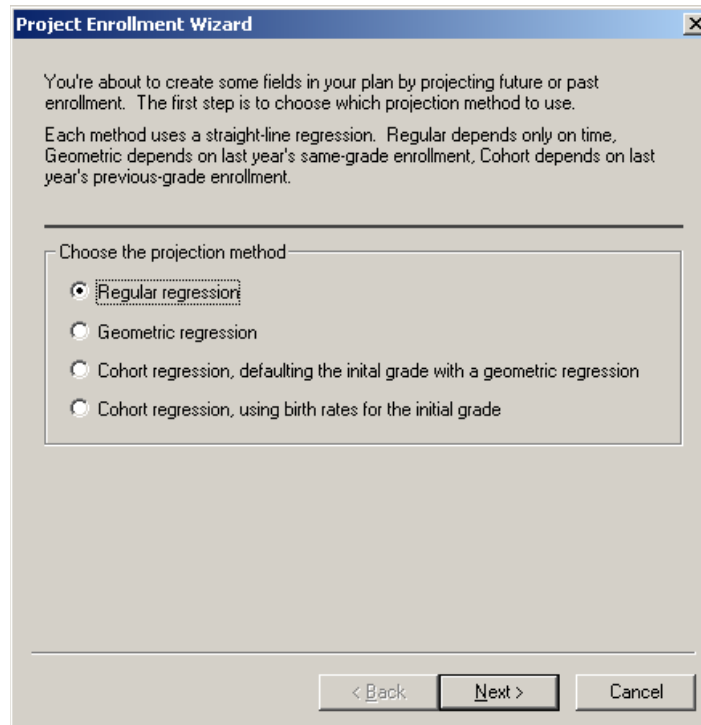
The following sections discuss these tasks in detail.

Choose Project Enrollment from the Zones/Boundaries menu.



The window lists any existing projections. You can delete a projection by selecting it from the Projections list box and choosing Delete Projection. To create a new plan, choose New Projection.

Selecting the Projection Method



You have four options for the projection method:

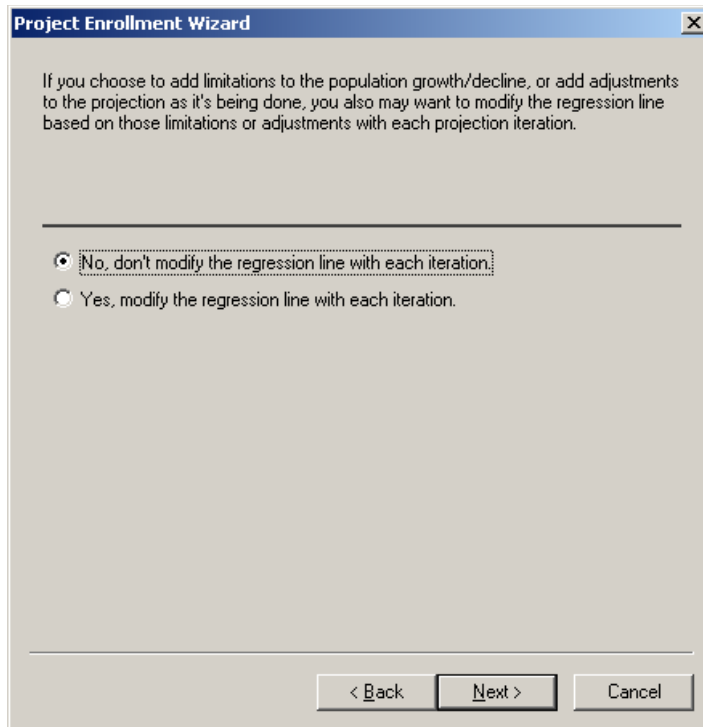
- Regular regression – assumes a linear relationship between time (the year) and the field values.
- Geometric regression – assumes a linear relationship between last year's value and this year's value (for example, last year's 10th grade enrollment is used to predict this year's 10th grade enrollment)
- Cohort regression, defaulting the initial grade with a geometric regression – assumes a linear relationship between last year's previous grade value and this year's value (for example, last year's 9th grade enrollment is used to predict this year's 10th grade enrollment).
- Cohort regression, using birth rates for the initial grade – same as the previous option, except that birth rates determine the enrollment for the initial grade in the projection. To use this method, you'll need to store the birth rates in other zone/boundary fields.

When the new field names are created during the projection, the program inserts a letter to indicate which projection method is used (R for regular, G for geometric, C for cohort, and B for cohort-with-births).

Select the desired option and choose Next.

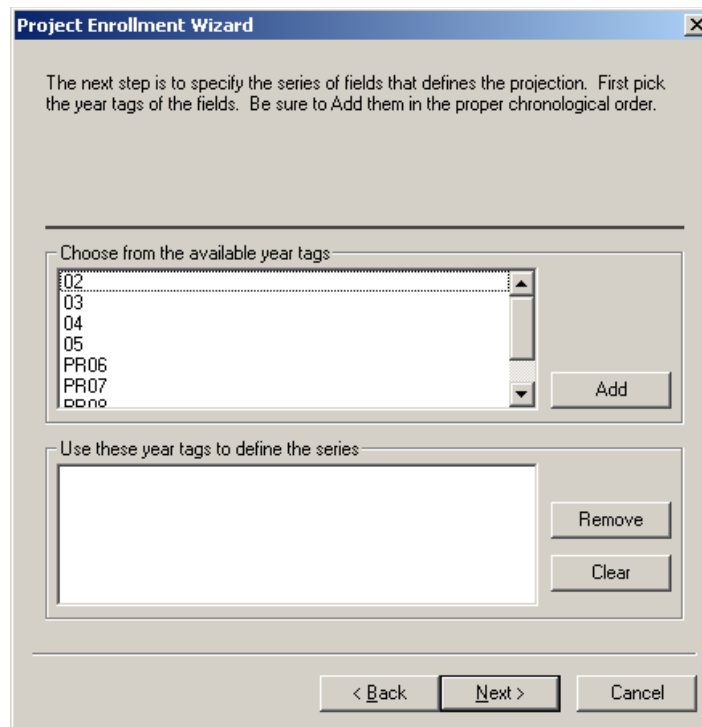
Making the Regression Iterative

NOTES



When you limit the projection's growth/decline, or make adjustments, the projection will “fall off” the regression line. Making the regression iterative will recalculate the regression line with each newly projected value, adapting it to use the new values as they become available.

Select the desired option indicating whether you want to modify the regression line with each iteration. Choose Next when finished.

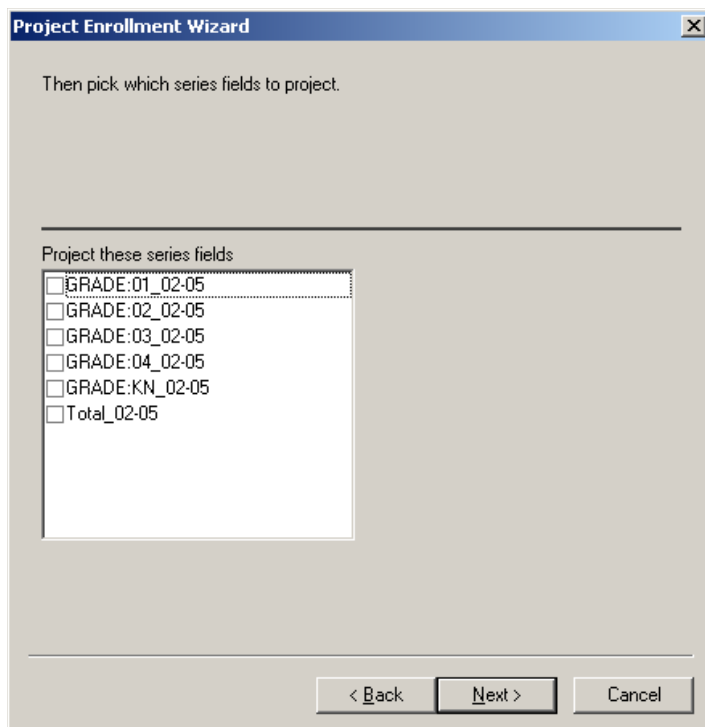
Defining the Field Series Via the Year Tags

In this step, you choose and order the year tags you want to use. For example, to use all five items in your series, you'd add the year tags 01, 02, 03, 04, and 05 in that order.

Select the year tags to use from the first list box. You can CTRL + CLICK and SHIFT + CLICK to select multiple items. Choose Add to include those files in the tallying process. Those files appear in the second list box. You can select items in that list and choose Remove if you decide you don't want to include them or choose Clear if you want to start over. Choose Next when finished.

Selecting which Field Series to Project

NOTES



The screenshot shows a Windows-style dialog box titled "Project Enrollment Wizard". Inside the dialog, there is a text prompt "Then pick which series fields to project." followed by a horizontal line. Below the line, the text "Project these series fields" is displayed above a list box. The list box contains six items, each with an unchecked checkbox to its left: "GRADE:01_02-05", "GRADE:02_02-05", "GRADE:03_02-05", "GRADE:04_02-05", "GRADE:KN_02-05", and "Total_02-05". At the bottom of the dialog, there are three buttons: "< Back", "Next >", and "Cancel".

The next step is to choose which field series to project. The items in the list will look like Total_/01/02/03/04/05, Grade:01_/01/02/03/04/05, and so on. You're selecting a series of fields when you select one item.

Select the check boxes next to the desired items and choose Next.

NOTES

Defining the Grade Promotion Order

(This page only appears when you are using a cohort method. Skip to the next section if you are not using one of those methods.)

The image shows a Windows-style dialog box titled "Project Enrollment Wizard". Inside the dialog, there is a text box at the top with the following text: "With cohort regression, the grade promotion order must be established to define the 'previous grade' field for each field being projected." Below this text is a horizontal line. Under the line, the text "Order the fields into promotion order" is displayed. Below this text is a list box containing the following items: "GRADE:01", "GRADE:02", "GRADE:03", "GRADE:04", "GRADE:KN", and "Total_". To the right of the list box are two buttons: "Up" and "Down". At the bottom of the dialog box are three buttons: "< Back", "Next >", and "Cancel".

In this step, you define the grade promotion order for a cohort projection. You need to define which grade is “last year’s”. To change the order, select a grade from the list and choose Up or Down until it is in the correct position. Repeat the process until all the grades are in the correct order.

Choose Next when finished.

Limiting the Projection Growth

NOTES

Project Enrollment Wizard

Optionally, you can limit the yearly growth and/or decline of the projection. They can be specified in four ways: a fixed value, a fixed percentage, a value read from another field, or a percentage read from another field.

Choose first how to limit the yearly GROWTH of the projection. Percentages should be specified literally (e.g. specify 5.25% using 5.25, not 0.0525).

☒ Don't limit the yearly GROWTH

☐ A fixed value The fixed value or percentage

☐ A fixed percentage The fixed value or percentage

☐ A value read from another field The other field from which to read

☐ A percentage read from another field

GRADE:01
GRADE:01_02
GRADE:01_03
GRADE:01_04
GRADE:01_05
GRADE:01_PRO6
GRADE:01_PRO7

< Back Next > Cancel

This page allows you to limit the growth of the projection (the next page will allow you to limit the decline of the projection). You can limit this value by a fixed value or percentage you enter or a value or percentage read from a field you select.

If you do not wish to limit growth, select the first option.

To limit growth by a fixed value (limiting it to a change of 50 per year, for example), select the second option, then enter that value in the field to the right.

To limit growth by a fixed percentage (limiting it to a 10% change per year, for example), select the third option, then enter that percentage in the field on the right. Make sure to enter the actual percentage (such as 5.25 %), not the corresponding decimal value (.0525).

To limit growth by a value retrieved from another field, select the fourth option, then select the field from the list on the right. This allows you to vary the limit value by zone or boundary, as an example.

To limit growth by a percentage retrieved from another field, select the fifth option, then select the field from the list on the right. This allows you to vary the limit percentage by zone or boundary. Choose Next when finished.

Limiting the Projection Decline

Project Enrollment Wizard

Then choose how to limit the yearly DECLINE of the projection. Percentages should be specified literally (e.g. specify 5.25% using 5.25, not 0.0525).

☒ Don't limit the yearly DECLINE

☐ A fixed value The fixed value or percentage

☐ A fixed percentage

☐ A value read from another field The other field from which to read

☐ A percentage read from another field

GRADE:01
GRADE:01_02
GRADE:01_03
GRADE:01_04
GRADE:01_05
GRADE:01_PR06
GRADE:01_PR07
GRADE:01_PR08

< Back Next > Cancel

This page allows you to limit the decline of the projection. As when limiting the growth, you can limit this value by a fixed value or percentage you enter or a value or percentage read from a field you select.

If you do not wish to limit decline, select the first option.

To limit decline by a fixed value (limiting it to a change of 50 per year, for example), select the second option, then enter that value in the field on the right.

To limit decline by a fixed percentage (limiting it to a 10% change per year, for example), select the third option, then enter that percentage in the field on the right. Make sure to enter the actual percentage (such as 5.25 %), not the corresponding decimal value (.0525).

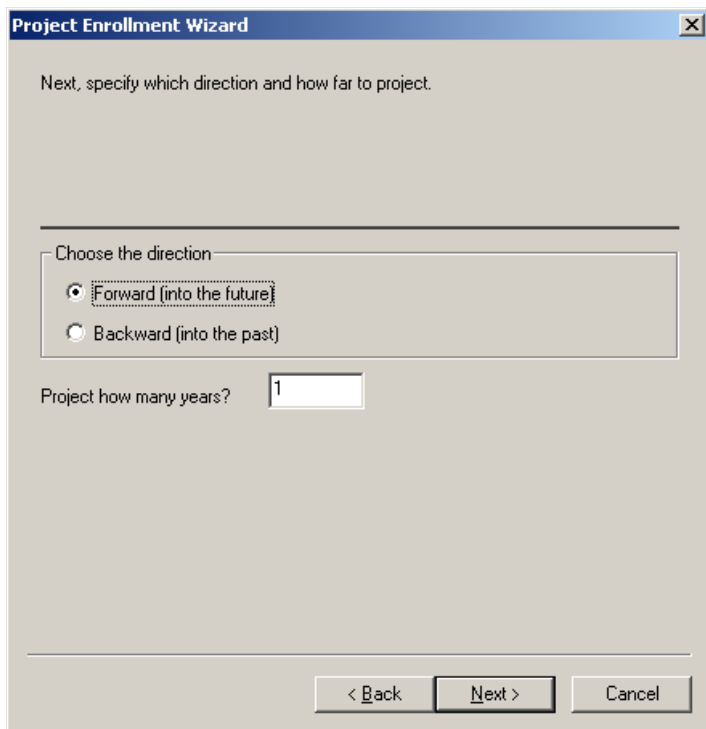
To limit decline by a value retrieved from another field, select the fourth option, then select the field from the list on the right. This allows you to vary the limit value by zone or boundary, as an example.

To limit decline by a percentage retrieved from another field, select the fifth option, then select the field from the list on the right. This allows you to vary the limit percentage by zone or boundary.

Choose Next when finished.

Specifying the Direction and How Far to Project

NOTES



The screenshot shows a Windows-style dialog box titled "Project Enrollment Wizard". Inside the dialog, the text "Next, specify which direction and how far to project." is displayed. Below this, there is a section titled "Choose the direction" containing two radio button options: "Forward (into the future)" which is selected, and "Backward (into the past)". Underneath these options is a text input field labeled "Project how many years?" which contains the number "1". At the bottom of the dialog, there are three buttons: "< Back", "Next >", and "Cancel".

In this step, you indicate how many years to project and which direction to go. For example, if you go forward three years, you'll get fields like Total_03, Total_04, and Total_05. As mentioned previously, the program also inserts a letter to indicate which projection method is used (R for regular, G for geometric, C for cohort, and B for cohort-with-births). A P indicates it's a projected field. The projected field names will look like Total_PG03, Total_PG04, and Total_PG05.

Select the option indicating whether you want to project into the future or into the past, then enter the number of years to project in the field beneath these options.

Choose Next when finished.

NOTES

Defining the Birth Rate

(This page only appears when you are using the birth rate cohort method. Skip to the next section if you are not using that method.)

Project Enrollment Wizard

When using birth rates with a cohort regression, you need to pair up the fields holding the birth rates with the years of the projection. If you don't define a birth rate field for a projected year, you'll just get a 0 for that year.

Choose the year and its birth rate field

year 1 ('06')

GRADE:01
GRADE:01_02
GRADE:01_03
GRADE:01_04
GRADE:01_05
GRADE:01_PRO

Update

Use these year - birth rate field pairings:

year 1 ('06') -- < empty >

< Back Next > Cancel

To use this method, you need to have the birth rates stored in other zone/boundary fields. You need to pair those rates with the years of the projection for which they should be used. For example, if you project three years into the future, you need three birth rate fields to store the birth rates for the previous five years. For GRADE:K_04's birth rate field, you would probably use a BIRTHS_99 field; for GRADE:K_05, you would use a BIRTHS_00 field, and so on.

Choose Next when finished.

Entering Projection Bumps and Jumps

NOTES

Project Enrollment Wizard

Optionally, you can make adjustments to the projection based on events that you expect to influence the population size (e.g. births, housing starts, factory closures).
A "Jump" is an adjustment that gets incorporated into the projection calculations for subsequent years. A "Bump" is one that does not get incorporated -- just a one-time population adjustment. Jumps and Bumps can be positive or negative.

Choose the series fields & year, and the field that holds the adjustment values

GRADE:01_02-05	year 1 ('06')	GRADE:01	Add a Jump Add a Bump
GRADE:02_02-05		GRADE:01_02	
GRADE:03_02-05		GRADE:01_03	
GRADE:04_02-05		GRADE:01_04	
GRADE:KN_02-05		GRADE:01_05	
Total_02-05		GRADE:01_PRO	

Use these Jumps/Bumps to adjust the projection

Remove
Clear

< Back Finish Cancel

This page allows you to enter factors that will affect projection values for one year or all the years in the projection. A Jump is an adjustment that gets incorporated into the projection calculations for subsequent years (such as a factory closure). A Bump is a one time (one year) adjustment that will not affect projections for subsequent years. You need to store the jump and bump values in other zone or boundary fields.

To define a jump or bump, select the series field to be modified from the first column. Select the years whose projections you want to modify from the second column (if you indicate this is a jump, the other years in the projection will also be modified). Select the field storing the adjustment values in the third column. Choose Add a Jump if you want to modify all the years in the projection or choose Add a Bump to modify the one year selected.

The jump or bump appears in the second list box (such as "bump the TOTAL field in year 3 of the projection using the values in the BUMP_06 field"). You can delete an item by selecting it from the list and choosing Remove or choose Clear to start over.

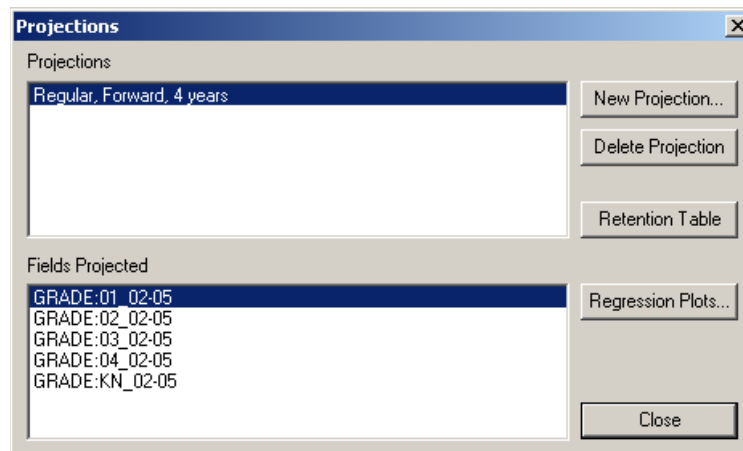
Repeat the process for any other jumps or bumps you want to include. Choose Finish to project enrollment according to the criteria you entered. Choose Close when finished working with Projections.

Producing Regression Plots

The Regression Plots function works with the map in Gismo Boundary Planning. After you select a projection and a field, you select zones on the map to view regression plots.

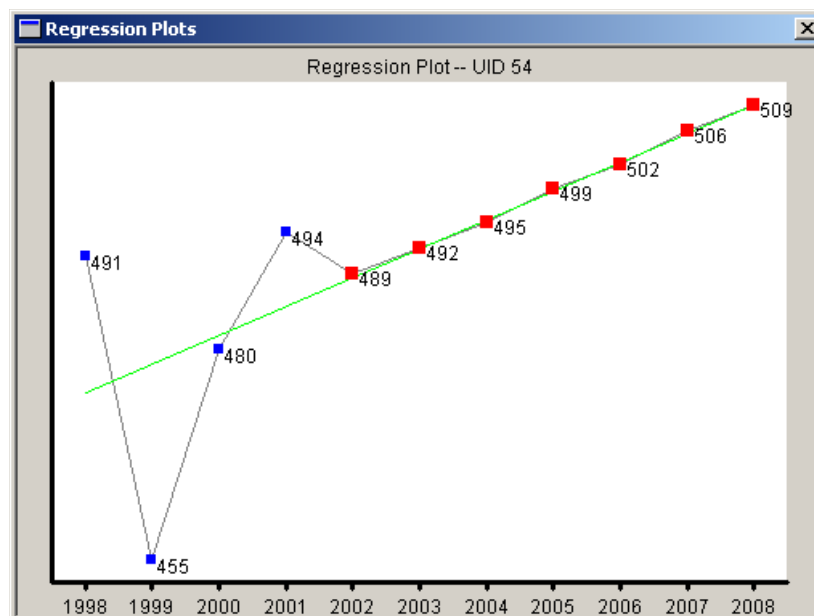
NOTES

Choose Project Enrollment from the Zones/Boundaries menu (unless the Projections window is already displayed).



Select the desired projection from the Projections list, then select the desired field within that projection (such as the grade 03 series of fields) from the Fields Projected list and choose Regression Plots.

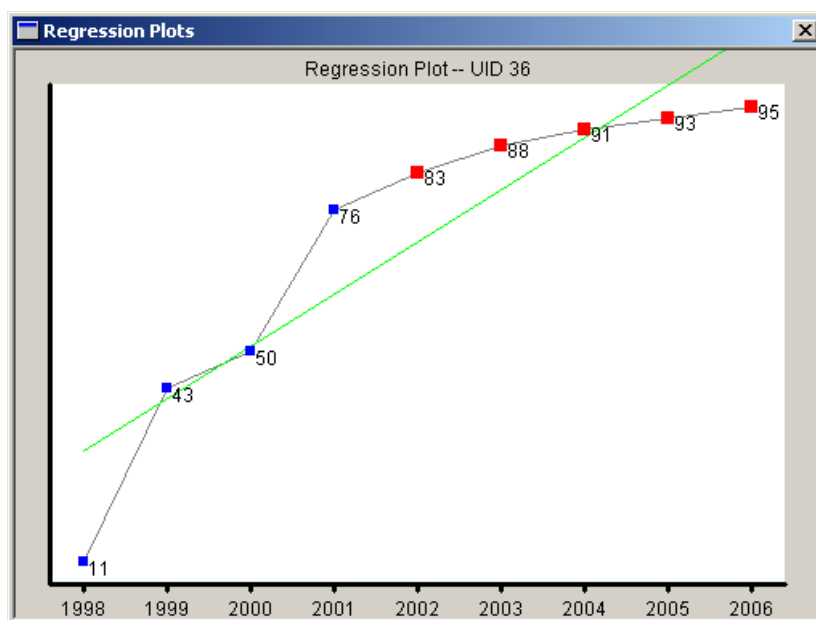
An empty Regression Plots window appears. Next, select a zone on the Gismo Boundary Planning map to view the regression plot for that zone.



If you select more than one zone, the Regression Plot will only display the first one. We suggest setting the select mode to Replace to select only one zone at a time. You can refer to the Gismo Boundary Planning manual for further information on selecting objects on the map.

NOTES

In the previous illustration, the historical points that went into the projection are in blue, the projected points are in red, and the green line shows a least-squares regression line for that group of blue and red points. Note that with a Regular regression projection, the green line is the regression line from the projection, but with the other types of projections (geometric or cohort), the green line is not the actual regression line from the projection. In all cases, you see years as the independent (X) variable and the projected values as the dependent (Y) variable on your plot. Remember the geometric and cohort projections don't use years as the independent variable. The previous illustration shows a Regular regression. The red projected points are on the green line (or within a round up/down of being on it). The following illustration shows a Geometric regression.



The green line still appears in this regression plot, giving you an indication of the overall trend.

When finished, click the Close tool (labeled with an X) in the upper-right corner of the Regression Plots window, then choose Close from the Projections window.

Viewing Retention Tables

The Retention Table feature allows you to examine the retention rates for the all schools in the plan. To view the table, choose Retention Table from the Projections window.

NOTES

Here's your retention table ...

Yr by Grd	Grd:KN-01	Grd:01-02	Grd:02-03	Grd:03-04
Yr:02-03	0.864	0.930	0.973	0.960
Yr:03-04	0.837	0.955	0.962	0.959
Yr:04-05	0.936	1.000	0.984	1.019
Yr:05-06	0.421	0.764	0.919	2.778
Yr:06-07	0.818	0.929	1.019	4.218
Yr:07-08	0.772	0.919	1.028	8.050
Yr:08-09	0.727	0.912	1.037	21.043

Table Configuration

Promotion Order

KN
01
02
03
04

Up Down

Switch side and top

☐ Show Averages

☐ Show Weighted Averages

☐ Show Medians

Colors...

Print Export Close

In this example, for the year 2002 through 2003 there was a retention rate of .930 (or %93) going from grade 01 to 02 for all the schools. Rates less than one indicate that fewer students moved on to the subsequent grade. Rates greater than one indicate that more students moved on to the subsequent grade.

You can change the order of grade progression by selecting a grade from the Promotion Order table and choosing the Up or Down button. If you prefer to have grades listed by row rather than by column, choose the Switch Side and Top button. The grades appear as row labels and the years appear as column headings. You can choose the button again to change back to the original layout.

If you would like to view rate averages, select the Show Averages check box. An additional row and column appear listing the averages for all the grades and all the years, respectively.

If you would like to view weighted averages, select the Show Weighted Averages check box. An additional row and column appear listing the weighted averages for all the grades and all the years. A weighted average is different from a regular average in that the calculation is affected by the numbers of students involved. For example, if the number of students included a grade promotion rate was 200 to 186 (for a rate of 0.93), it counts more than one with fewer students, such as 100 to 101 (for a rate of 1.01).

To view the median rate, select the Show Medians check box. The median is the value that has the same number of values below and above it. For example, in the list .930, .973, and .960, .960 is the median.

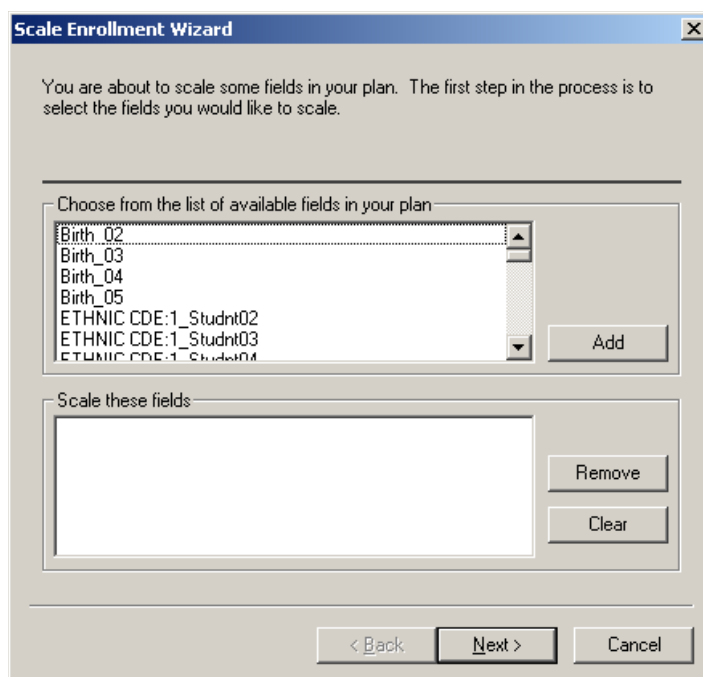
Choose Close when you are finished examining the table.

Scaling Enrollment

We've included a 'Scale Enrollment' feature which allows you to scale projected fields by a certain amount, perhaps to account for new housing starts as an example. The wizard lets you define the following.

- Which field(s) you want to scale
- Whether to scale 'in-place', or create new fields to hold the scaled values and leave the unscaled fields alone
- Which scale factor to use, from the following three options:
 1. Using a fixed scale factor (e.g. scale everything up by 10%)
 2. Retrieving the scale factor from another field in the same plan. This option allows you to vary the scale factor by zone/boundary.
 3. Retrieving the scale factor from a field in the derived plan. This option allows you to scale all the zones in a boundary by a field in the boundary record.

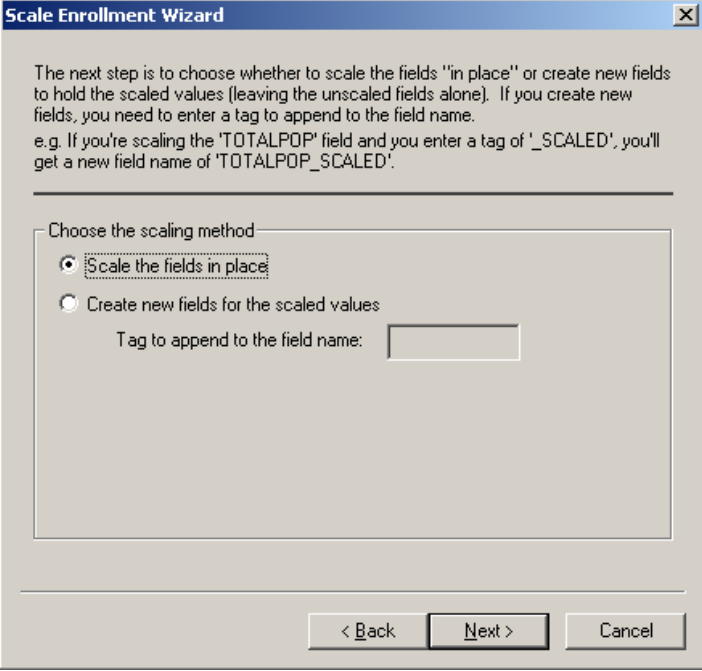
Choose Scale Enrollment from the Zones/Boundaries menu.



Select the fields you want to scale. You can CTRL + CLICK and SHIFT + CLICK to select multiple items. Choose Add to include the selected fields. Those fields appear in the second list box. You can select items in that list and choose Remove if you decide you don't want to include them or choose Clear if you want to start over.

Choose Next when finished.

NOTES



The next step is to choose whether to scale the fields "in place" or create new fields to hold the scaled values (leaving the unscaled fields alone). If you create new fields, you need to enter a tag to append to the field name.
e.g. If you're scaling the 'TOTALPOP' field and you enter a tag of '_SCALED', you'll get a new field name of 'TOTALPOP_SCALED'.

Choose the scaling method

☒ Scale the fields in place

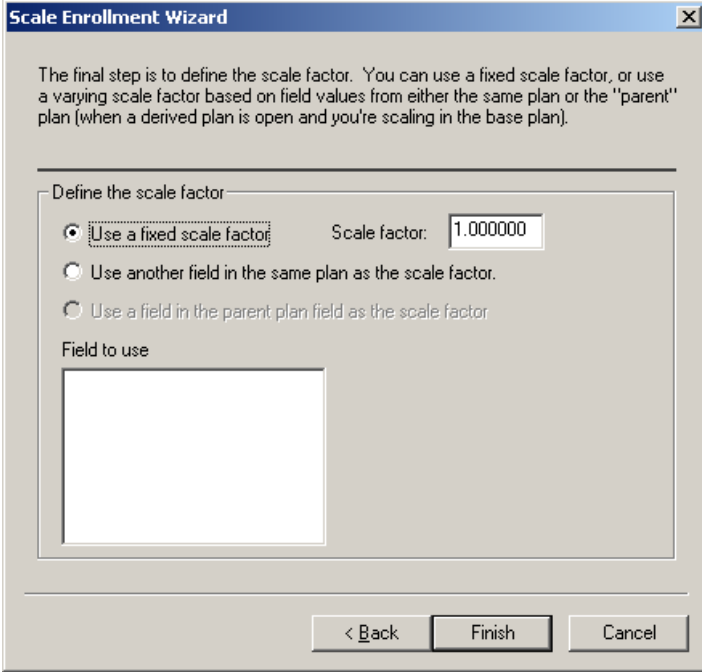
☐ Create new fields for the scaled values

Tag to append to the field name:

< Back Next > Cancel

Select the option indicating whether you want to place the scaled values in the same fields you selected in the previous step or to create new fields to hold the scaled values. If you select the second option, enter the text to add to the field names for the new fields. For example, if you're scaling the TotalPop field and enter a Scaled tag, you'll get a TotalPopScaled field with the scaled values.

Choose Next when finished.



The final step is to define the scale factor. You can use a fixed scale factor, or use a varying scale factor based on field values from either the same plan or the "parent" plan (when a derived plan is open and you're scaling in the base plan).

Define the scale factor

☒ Use a fixed scale factor Scale factor:

☐ Use another field in the same plan as the scale factor.

☐ Use a field in the parent plan field as the scale factor

Field to use

< Back Finish Cancel

If you want to use a fixed scale factor (to scale everything up by 10%, for example), select the first option and enter that factor in the field provided.

If you want to retrieve the scale factor from another field in the same plan, select the second option, then select the desired field from the list box beneath the options.

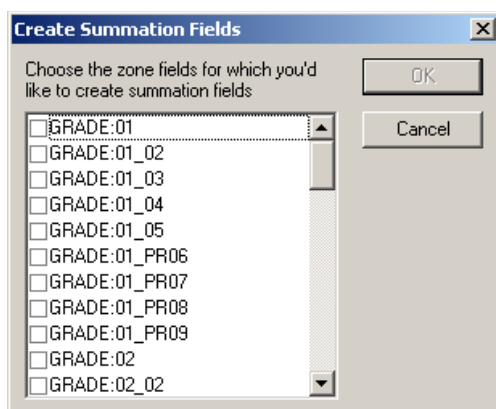
If you want to retrieve the scale factor from a field in the derived plan, select the third option, then select the desired field from the list box beneath the options. (This option is only available if you are working with a derived plan.)

Choose Finish. Choose OK from the message box that appears when the process is complete.

Creating Summation Fields

This option is simply a mass create function. As an example, suppose you've projected a series of fields in your zones and want to see how they sum up in your boundaries. You can perform this function on any numeric base plan field, as well as those created through projections.

Choose Create Summation Fields from the Zones/Boundaries menu.



Select the check boxes next to the fields for which you want to create summation fields and choose OK.

Distributing To Zones

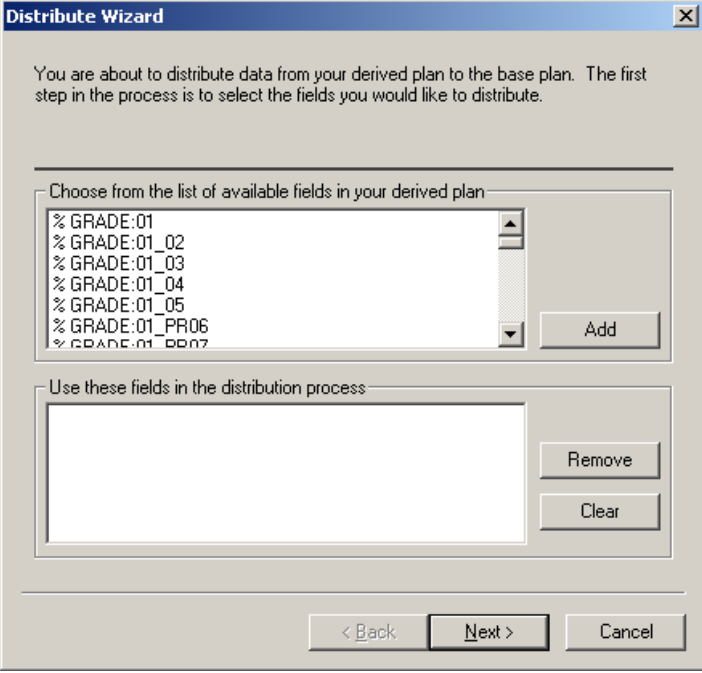
Where summation fields let you sum up data from the zones to the boundaries, distribution fields allow you go the other way: from the boundaries back down to the zones. This process uses a wizard with two steps.

- a) Select which fields you want to distribute.
- b) Select the distribution method to use.

Selecting the Fields to Distribute

Choose Create Distribution Fields from the Zones menu. (This option is only available when you are working with derived plans.)

NOTES

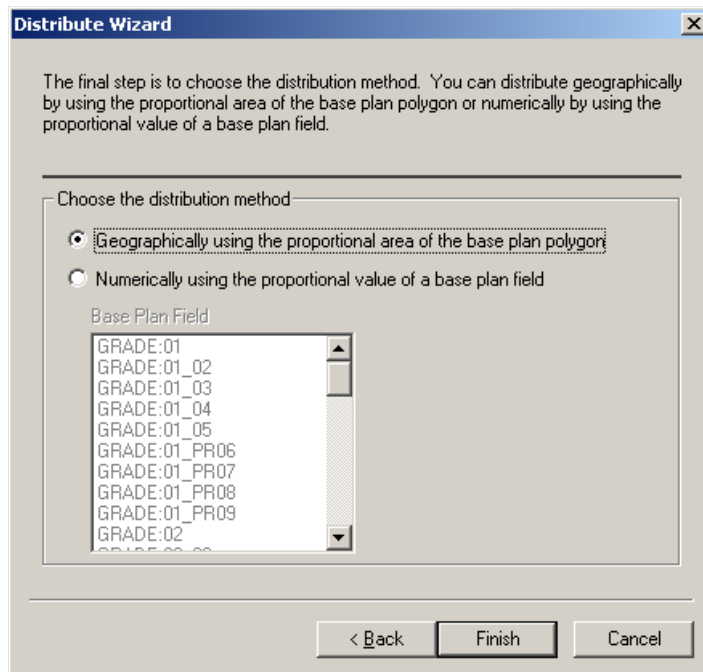


The image shows a 'Distribute Wizard' dialog box. At the top, a blue title bar contains the text 'Distribute Wizard' and a close button. Below the title bar, a message states: 'You are about to distribute data from your derived plan to the base plan. The first step in the process is to select the fields you would like to distribute.' The main area of the dialog is divided into two sections. The first section, titled 'Choose from the list of available fields in your derived plan', contains a list box with the following items: '% GRADE:01', '% GRADE:01_02', '% GRADE:01_03', '% GRADE:01_04', '% GRADE:01_05', '% GRADE:01_PR06', and '% GRADE:01_PR07'. To the right of the list box is an 'Add' button. The second section, titled 'Use these fields in the distribution process', contains an empty list box. To the right of this list box are 'Remove' and 'Clear' buttons. At the bottom of the dialog are three buttons: '< Back', 'Next >', and 'Cancel'.

You can select any numeric fields: regular fields, summation fields, the Count field, projected fields, and so on for the distribution process. Select the fields you want to include from the first list box. You can CTRL + CLICK and SHIFT + CLICK to select multiple items. Choose Add to include those files in the process. Those files appear in the second list box. You can select items in that list and choose Remove if you decide you don't want to include them or choose Clear if you want to start over. Choose Next when finished.

Selecting the Distribution Method

NOTES



You have two distribution options.

Geographically – the area of the polygons determines the distribution proportion. As an example, if a boundary is made of three zones called A, B, and C, A being 1 acre, B being 2 acres, and C being 3 acres, A would get 1/6, B would get 2/6, and C would get 3/6).

Numerically Via Field Values – the distribution proportion is based on a numeric base plan field. For example, you may want to project enrollments at the boundary level, then want to distribute the projected numbers back down to the zone level using the current enrollment field.

Select the desired option. If you select the second option, select the desired field from the Base Plan Field list box. Choose Finish to complete the process.

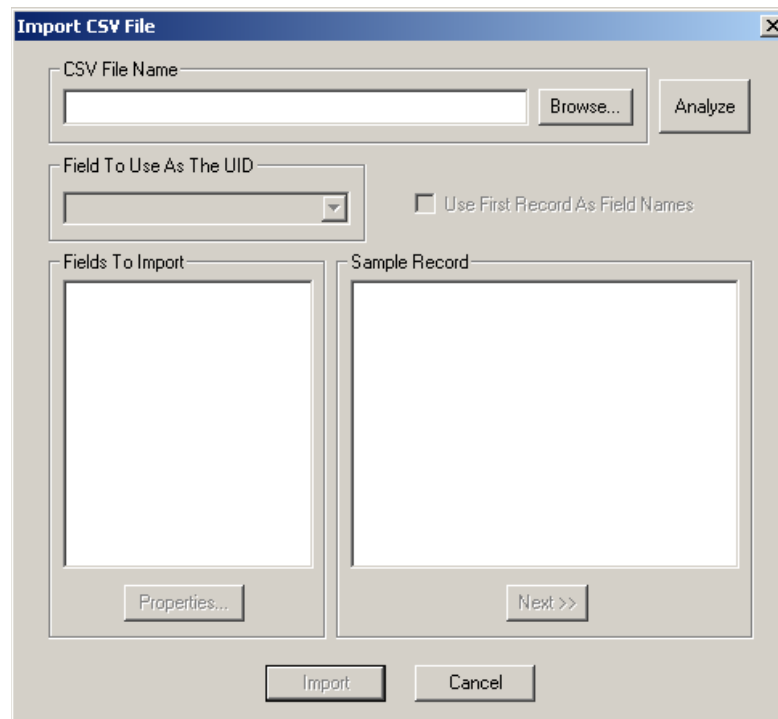
IMPORTING AND EXPORTING FILES

The system allows you to import data fields from external CSV files or export data to such files.

Importing Files

To import a CSV file, choose Zones (if you are working with a base plan) or Boundaries (if you are working with a derived plan) from the menu bar, then choose Import.

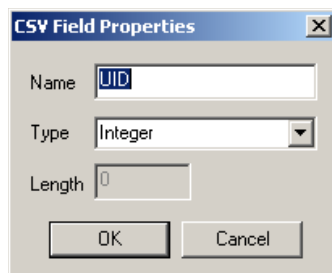
NOTES



Enter the path and name of the file to import (you can choose Browse to search for the file on your computer). Choose the Analyze button to have the system examine the file and determine the types and lengths of the available fields. Those fields appear in the Fields to Import list box on the left. The Sample Record list on the right shows a sample record. The incoming field names default to A, B, C, and so on. Typically, the first line in the file contains the field name. If that's the case, you can choose the Use First Record As Field Names check box to have the system replace the A, B, C names with the names in your file. You can choose the Next button under the Sample Record list to move through records in the file.

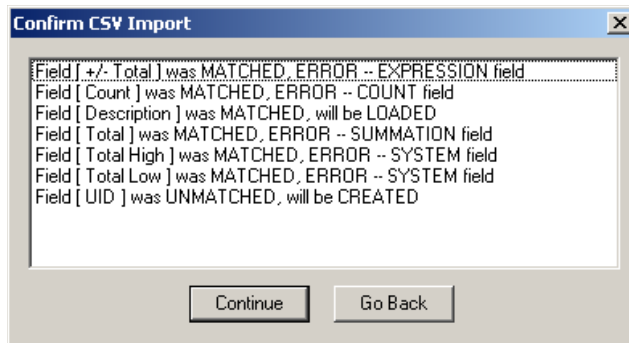
Click arrow next to the Field to Use as the UID field and select the field in the file to use as the UID. The system uses this field to match the imported records to the record in your plan.

The Fields To Import list serves two purposes. It lets you check which fields to import and it lets you modify how to import them. Select a field from the list and choose the Properties button.



You can change the name, type, and length (for string fields) of the field. Choose OK when finished. Keep in mind that if you want an incoming field to overwrite an existing field in your plan, the field name has to be exactly the same. Otherwise, the system will create a new field when you complete the process.

Select the check boxes next to the fields you want to import in the Fields to Import list. Choose the Import button. A dialog box appears listing the fields you selected and how the system will import them.



The following three cases may occur.

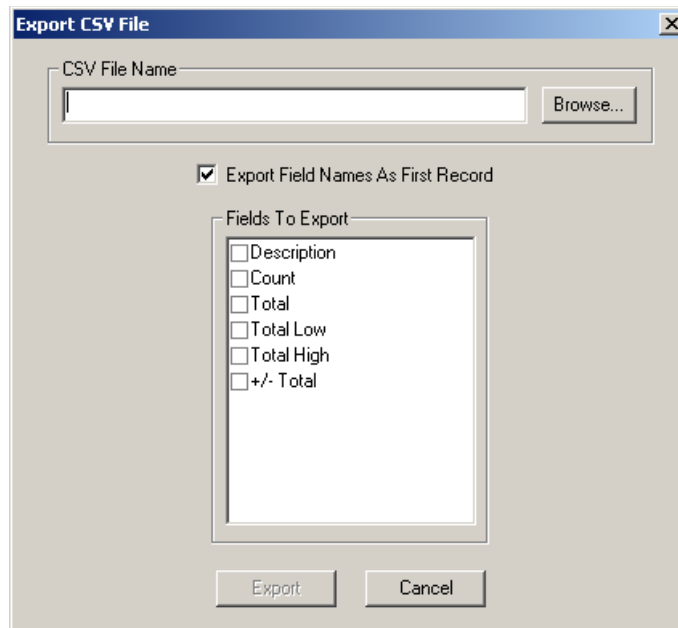
1. The incoming field name does not match an existing field, so the system will create a new field, as in the following example.
Field [UID] was UNMATCHED, will be CREATED
2. The incoming field name matches an existing field, so the system will overwrite that field.
Field [Description] was MATCHED, will be LOADED
3. The name matches, but an overwrite can't occur for some reason.
Field [Count] was MATCHED, ERROR -- COUNT field
Field [Total] was MATCHED, ERROR -- SUMMATION field
Field [+/- Total] was MATCHED, ERROR -- EXPRESSION field
Field [Total High] was MATCHED, ERROR -- SYSTEM field

You can choose Continue to confirm the process or choose Go Back if you want to make changes. When you confirm the import, the system will complete the process and display a summary message box listing the result (the number of UID's that matched and the number that did not, if any). Choose OK to close the message box.

Exporting Files

To export to a CSV file, choose Zones (if you are working with a base plan) or Boundaries (if you are working with a derived plan) from the menu bar, then choose Export.

NOTES



Enter the path and name of the file you want to export to (you can choose Browse to search for the folder location on your computer). Select the check box above the list if you want to export the field names as the first record in the file. Select the check boxes next to the fields you want to export in the list box. The system will always export the UID as the first field in the export file. This will make it easier to do an import later on if necessary. Choose Export when finished. Choose OK from the message box that appears when the process is complete

You can open this file with a spreadsheet or database program to create pie charts or other types of reports. You can also modify the file with other programs (such as a text editor, a spreadsheet program, or even a file merge from a database program), then import it back into Enrollment Projection.

LEAVING ENROLLMENT PROJECTION

When you are finished, you can exit Boundary Optimization by clicking the Close tool (labeled with an X) in the upper-right corner of the Boundary Optimization window. You can also exit by choosing Planning from the menu bar, then choosing Boundary Optimization. This removes the check from the menu item and closes the Boundary Optimization window.

EDULOG ADMINISTRATOR

EDULOG ADMINISTRATOR 595

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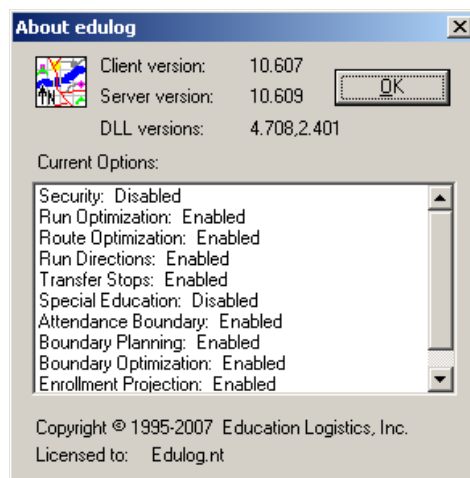
EDULOG ADMINISTRATOR

NOTES

The edulog system is configured as a series of modules, allowing districts to purchase only the components desired. To determine what system modules your district has purchased, follow these simple steps.

- 1 Start edulog.
- 2 Go to Help>About edulog

The following dialog appears



Security – This module comes standard with the edulog system. It allows restricted user access to the various parts of the software. Restrictions include No Access, Read Only, and Full System.

Run Optimization – An efficiency planning tool that builds bus runs according to a defined set of parameters. The system can build runs from existing stops or improve runs that are currently in the data.

Route Optimization – The module builds routes from runs that are currently in the system. Route Optimization tries to minimize slack time between bus runs in an attempt to service all runs with the fewest number of vehicles.

Run Directions – This feature calculates the shortest street path between stops. It comes standard as part of the edulog system.

Transfer Stops – Allows for tracking of students who ride two or more busses to or from school.

Special Education – This feature uses a supply and demand concept to allocate vehicles based on configuration. Allowing input for limited space issues, such as wheel chairs and oxygen equipment, helps manage an ever changing aspect of your daily needs.

Attendance Boundary – A module which allows users to search school and stop information based on student address and grade information. This feature is accessed in the Schools menu.

NOTES

Boundary Planning – A separate software application used for boundary realignment studies as they relate to student demography.

Boundary Optimization – A second component to the Boundary Planning software. Boundaries are generated from student count and geographic parameters.

Enrollment Projection – Calculates future student populations based on historical data.

SYSTEM OVERVIEW

The goal of this session is to give supervisors an overview of the administrative rolls that need to be filled in conjunction with the edulog program. It is very important that the transportation office select a, “system administrator” that can perform the “techie” operational functions of the system. This person can be the main user of the system or a member of the district’s Information Technology group. However, it is imperative that this person be VERY comfortable with the following;

1. Basic windows functions
2. Windows file management programs
3. File formatting and file path information
4. Ancillary software knowledge including FTP, zip, and text editing.

Access to the edulog server is a necessity for the administrator. Ideally this person has Administrative rights on the sever and edulog workstations. This allows for more efficient troubleshooting and quicker upgrades.

The following is a breakdown of the applications that make up the edulog system. This list is to be used as a needs identification guide. Please make sure that someone in your office both understands the items listed and is responsible for them.

edulog Server Software

Eluise – This program serves as the gatekeeper for the rest of the system. Eluise conducts a computer and user verification every time someone logs onto the edulog system. Thus, Eluise must be running at all times on the server in order for anyone to gain access to the system. Eluise can also be used to identify problems that may occur with a particular workstation. A system administrator should understand these functions and be able to utilize the information they provide.

BPServer – BPServer is an application on the server that allows GeBndPlan to run on the workstations. You can define the fields you want to view while in Boundary Planning. You can run BPServer minimized on the server or set it up to run as a Windows service.

Lock Manager – A third party application that acts as both a tracking mechanism, and a safety valve. Lock Manger logs which users are accessing what data and when they have done so. It also prevents data corruption by establishing “lock files”. It is imperative that the system administrator understands which files are created by Lock Manager, and how they affect system functions.

Autostreeter – This program creates static overlays of the map. These overlays can be generated using any number of attributes in the map. The staff member responsible for maintaining the geocode should also be familiar with the Autostreeter function.

edulog Client Software

edulog – This application houses all school, student, stop, run, and route data. Most of the day-to-day operation takes place here. If a system administrator is NOT the main user, they need not spend too much time in the application itself.

Maris – This is the geographic editor of the system. Base level map and boundary manipulation is done here. It is very important that someone in the transportation department “take ownership” of the map. Since the map is the foundation of the entire system, map accuracy is very important. Having too many hands in the cookie jar can lead to poor results.

EMU – The application from which all data utilities are run. The system administrator should understand how to configure utilities, put them into batches, and run those batches. This user also needs to understand what each utility does and how applying a utility will effect the data. **This is one of the most important roles that needs to be filled with regard to system administration.**

Reports – Microsoft Visual Fox Pro/Query Maker is the report writer for the system. Administrative personnel need to understand file path information for the report writer in order to dictate access to reports.

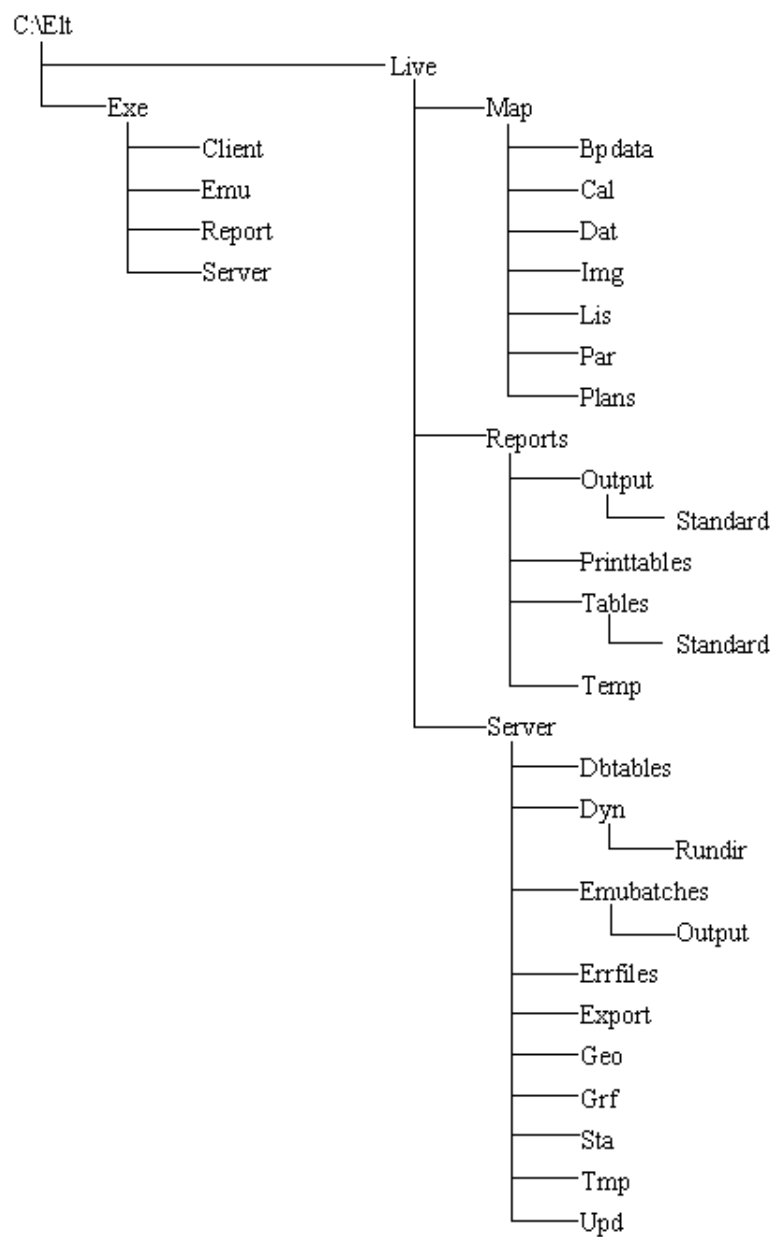
Boundary Planning – Boundary planning is achieved through an interface known as Gismo. Understanding how data is pulled from edulog into the Gismo program and how manipulated data is stored would be the role of the system administrator.

The duties and roles outlined above need not be filled by a single person. In fact, it is a good idea to have a primary administrator and a back up. This is especially true for the non-daily functions. After completing the evaluation in your office, the consulting group at edulog can help you to fill in any blanks you may have discovered.

The following sections illustrate the directory structure of the system for Server/ Standalone and Workstation installations.

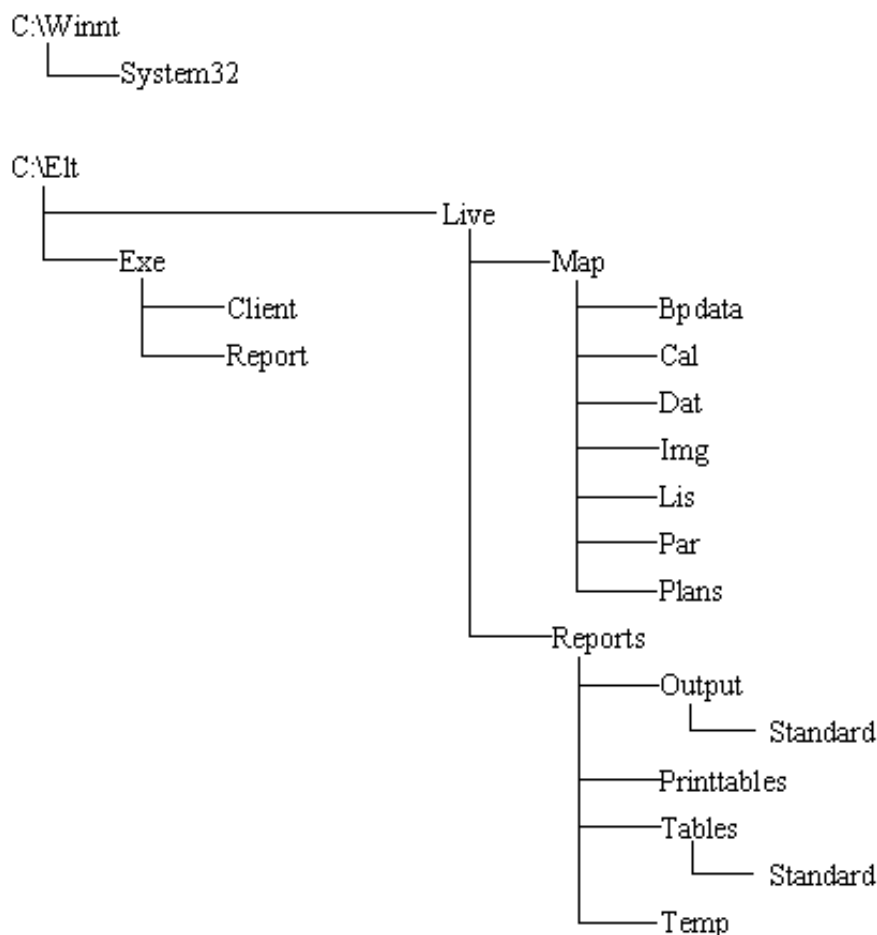
NOTES

Server/Standalone Directory Structure



Workstation Directory Structure

NOTES



MULTIPLE DATASETS

Transportation departments often encounter situations that require separate datasets, including planning for new school years, routing for summer school, and routing for special needs students. edulog allows you to replicate data so you can perform these tasks using separate student, transportation, and geographic data without fear of altering your current (“Live”) data. You can also examine how proposed changes in the district will affect routing. The following sections describe these possible uses in greater detail. Please feel free to contact edulog consulting or support personnel if you have any further questions.

NOTES

School Startup Planning (Sim)

The goal here is to give transportation departments a head start on fall routing. In some cases, Student Data Management departments do not graduate their students until late in the summer, which can cause a delay in preparing for the next school year. To avoid this delay, you can create a secondary dataset for startup planning before school ends in the spring. You can do all of the following without affecting your Live data.

- Enter Kindergartners into the system after roundup.
- Graduate your students to the next grade.
- Place students into feeder schools by boundary.
- Run eligibility reports by school and evaluate changes.
- Assign students to stops in batch mode.
- Evaluate run loads and new assignment requirements.

Summer School Routing (Summer)

Summer school routing is unique because it requires completely new routing schemes. A secondary dataset allows you to develop a system using the same stops and school locations year after year. You can modify boundaries in this data as needed to allow for district-wide transportation and determine accurate student counts and run mileages.

Special Needs Routing (Sped)

Routing students with special needs can be challenging for transportation departments. Districts often use smaller buses for special needs routing, since those students often require “door” stops. As a result, you may need a different set of travel restrictions on the streets in the district. You may find that very few streets cannot be traveled by those smaller buses. By setting up a separate dataset, you can accomplish the following.

- Modify travel restrictions and speeds to account for a separate fleet.
- Work with only those students with special transportation needs.
- Add accesses and drop-offs for schools and other locations to aid drivers.

Evaluating Proposed Transportation Changes (Planning)

Transportation departments are constantly put in a “just make it work” situation when dealing with proposed changes in the district. To plan for such changes, you can create a separate dataset and evaluate the following changes.

- Restructure the tier system in the district.
- Change start and end times for a particular school or set of schools.
- Modify boundaries and address other redistricting needs.
- Modify the geocode to account for road construction changes.

Installing Multiple Datasets

edulog provides a simulation installation program that creates a copy of your Live data on the server. This installation essentially takes a snapshot of your data at that point in time. This secondary dataset is only as accurate as the original data and will look the same until modified. You can run the install to create as many extra datasets as you need (or as many as your server can handle).

After you install the simulation dataset, the Elt folder on the server will include a new subfolder with the copy of that data (in addition to the existing Exe subfolder with the edulog programs and the Live folder with the regular data). You can update the secondary data as needed by copying files from the Live subfolders to the corresponding folders in the simulation directory. To avoid accidentally overwriting data, make sure only experienced users perform this operation.

The installation process also create new shortcuts in the Start menu which allow you to work with the simulation datasets you install. They appear in the edulog Client Software Sim Area <Sim name> and edulog Server Software Sim Area <Sim name> folders in the Start>Programs menu (where <Sim name> refers to the name you enter for the dataset at the time of installation).

Before running the installation program, make sure you log in with an administrative account.

Server/Standalone Installation

1. To install a separate dataset on a server or standalone computer, first choose Start from the taskbar, then choose Run.
2. Choose Browse.
3. Open the folder with the installation program (Edulognt_Sim_Install_v105.exe), then double-click that file.
4. Choose OK to start the installation.
5. Choose Next.
6. Make sure Server is selected as the installation type.
7. Choose OK.
The default name and location of the folder (such as C:\Elt\Sim) that will contain the simulation dataset appears under Destination Folder.
8. If you want to change the folder name, choose Browse, then replace the folder name (Sim continuing with the previous example) with the new name (such as Summer). Choose OK.
9. Choose Next.
10. If the folder containing the user directories (such as C:\Users) does not appear under Users Folder, choose Browse, then search for the correct folder and choose OK. (Make sure you don't select one of the individual user names in that folder.)
11. Choose Next.

NOTES

- 12 Enter a name for the simulation dataset (such as Summer). This name will appear in Start menu folders and commands, as well as window and workspace titles .
- 13 Choose OK.
The installation program copies the data to the new folder and sets up the configuration files and Start menu commands.
- 14 Choose Finish.
- 15 Start the Eluise program for the simulation dataset. (Choose edulog Server Software Sim Area <Sim name> from the Start > Programs menu, then choose Eluise SIM Eluise-<Sim name>.)
- 16 Start the EMU program for the simulation dataset. (Choose edulog Client Software Sim Area <Sim name> from the Start > Programs menu then choose SIM EMU-<Sim name>.)
- 17 Run the Dumpall utility in EMU. (You can refer to the online Help provided with the program for further information on this process.)

Workstation Installation

- 1 To install a separate dataset on a workstation, first choose Start from the taskbar, then choose Run.
- 2 Choose Browse.
- 3 Open the folder with the installation program (Edulognt_Sim_Install_v105.exe), then double-click that file.
- 4 Choose OK to start the installation.
- 5 Choose Next.
- 6 Select Workstation as the installation type.
- 7 Choose OK.
The default name and location of the folder (such as C:\Elt\Sim) that will contain files for the simulation dataset appears under Destination Folder.
- 8 If you want to change the folder name, choose Browse, then replace the folder name (Sim continuing with the previous example) with the new name (such as Summer). Choose OK.
- 9 Choose Next.
- 10 Choose Browse, then search for the folder containing the corresponding simulation dataset on the server. Choose OK.
- 11 Choose Next.
- 12 Choose Browse, then search for the folder containing the user directories on the server. (Make sure you don't select one of the individual user names in that folder.) Choose OK.
- 13 Choose Next.

- 14 Enter a name for the simulation dataset (such as Summer). This name will appear in Start menu folders and commands, as well as window and workspace titles.
- 15 Choose OK.
The installation program copies the data to the new folder and sets up the configuration files and Start menu commands.
- 16 Choose Finish.
- 17 Start the Eluise program for the simulation dataset. (Choose edulog Server Software Sim Area <Sim name> from the Start > Programs menu, then choose Eluise SIM Eluise-<Sim name>.)
- 18 Start the EMU program for the simulation dataset. (Choose edulog Client Software Sim Area <Sim name> from the Start > Programs menu then choose SIM EMU-<Sim name>.)
- 19 Run the Dumpall utility in EMU. (You can refer to the online Help provided with the program for further information on this process.)

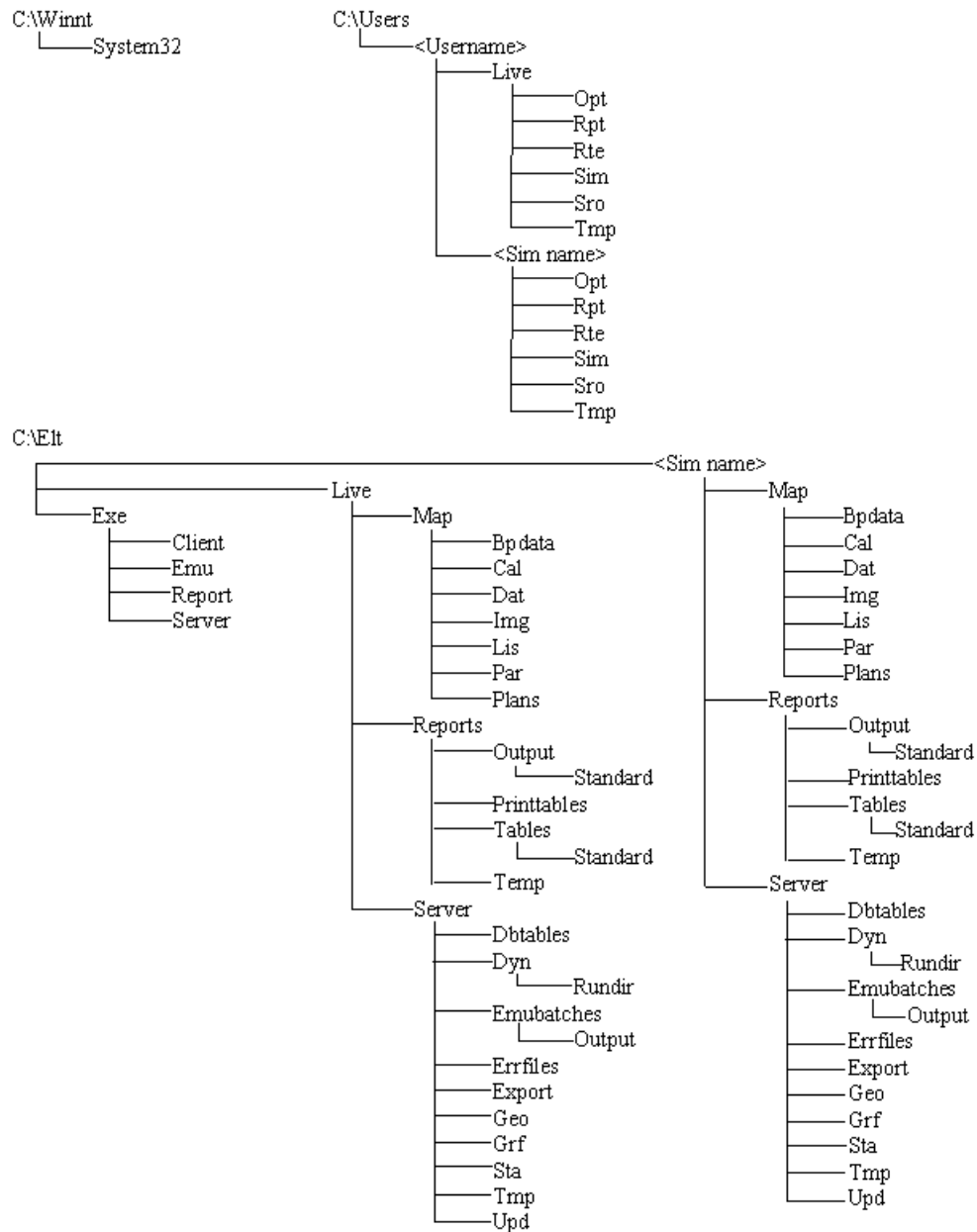
Multiple Dataset Configuration and Troubleshooting

Directory Structure

Again, when you install a separate dataset, Live data is copied to a separate folder in the Elt directory. The following sections illustrate the directory structures for servers, standalone computers, and workstations with one extra dataset installed.

NOTES

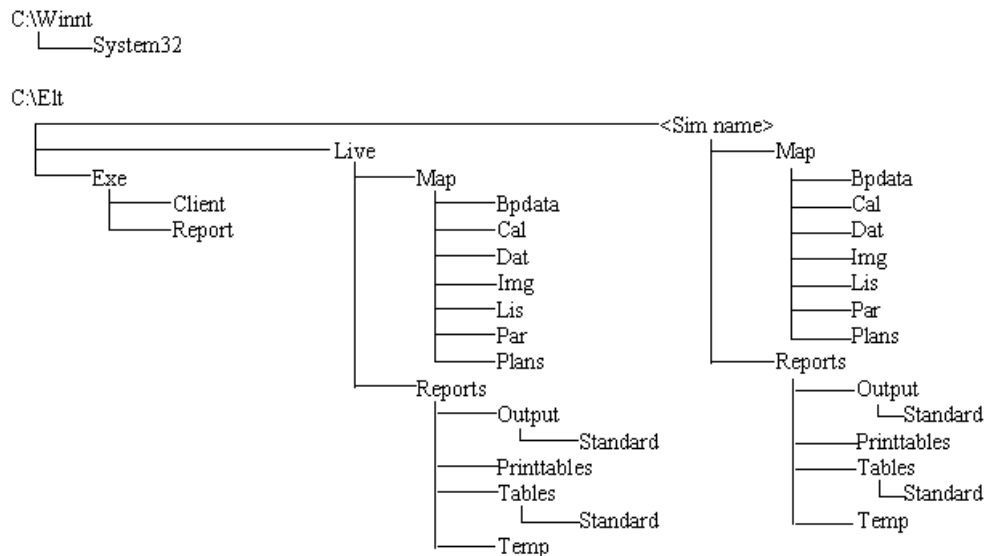
Server/Standalone



In addition to the extra data folder in Elt, the installation also creates a separate folder for each user in the Users folder. This prevents users from simultaneously accessing the same files on the server and ensures that any temporary files, reports, simulation save-sets, and such are placed in the correct user's folder.

Workstation

NOTES



Configuration and Initialization Files

The simulation installation program also creates separate initialization and configuration files to make sure they do not get mixed up with those for other datasets. The following is a list of those files and their folder locations.

In Elt\<Sim name>:

SimArea_Info.txt

In Elt\Exe\Client:

EdulogntSIM1.ini
 EltransclientSIM1.ini
 MarisSIM1.ini
 GismoSIM1.ini
 ElplotSIM1.ini
 BpserverSIM1.ini

These initialization files get copied to the Windows root folder for use in starting the various programs. These files are numbered (SIM1 in these examples) to correspond to each simulation installation. You can tell which files correspond to which simulation areas by matching the number with the SimNumRun entry in the SimArea_Info.txt file (see the next section).

In \Elt\<Sim name>\Server:

Edulognt.cfg
 Eluise.cfg
 Elusers.dat

In \Elt\<Sim name>\Reports:

Config.fpw

NOTES

The following sections provide samples of these files.

SimArea_Info.txt

SimArea_Info.txt provides information that may be useful in troubleshooting a dataset installation. Workstations use this file to match endpoints with the correct server Sim installation. (Later sections discuss endpoints in greater detail.)

```
[SIMINFO]
SimAreaName= Summer
UsersDirName= C:\USERS\\Summer
EluiseEndpoint= 59812
StartingEndpoint= 1940
SimNumRun= 1
bpEndpoint= 28015
ServerName= <Computer name>
[VALUES]
extents= 479593, 4977754, 20306, 14672
```

EduLogntSIM1.ini

```
[Initialization]
ReportPath=C:\ELT\Summer\reports\
ListPath=C:\ELT\Summer\map\lis\
OutputPath=C:\ELT\Summer\server\emubatches\output\
VehiclePath=C:\ELT\Summer\reports\
ParTblPath=C:\ELT\Summer\map\par\
PrintPath=C:\ELT\Summer\reports\printtables\
ReportExePath=C:\ELT\exe\report\
[Network Settings]
Host#1=<Computer name>
[Server User RootDir]
RootDir=C:\USERS\
```

Most of the paths in this file point to the local machine. By default, the ReportPath will point to the mapped server to accommodate clients who use a single centralized set of reports. If your reports are specific to each workstation, you can modify the ReportPath to point to the workstation. If you use a centralized set of work lists, you can modify the ListPath to point to the server instead of the workstation.

EltransclientSIM1.ini

This example includes only parts of the file with sections containing path references.

```
[Initialization]
Licensee=EduLog.nt
Extents=479593, 4977754, 20306, 14672

DataPath=C:\ELT\Summer\map\dat\
ImagePath=C:\ELT\Summer\map\img\
GISUserMode=Shared
GISUserName=SUser1E
```

```
[Calendar]
CalRootDir=C:\ELT\Summer\map\cal\
CalMRUFile=default.cln
CalMRUCal=100

[AUTOSTREETS]
DatabaseLocation=C:\ELT\Summer\map\dat
UpdateData=Ask

[Recent File List]
File1=C:\ELT\Summer\map\Summer_EDULOG.wsp
```

If you use FreeTablesDSN connections for the vehicle module, you need to create ODBC links unique to each dataset's \ELTServer\Summer\server\dbtables folder (i.e., EL_FREETABLES and SIM_FREETABLES) and assign them accordingly. Otherwise, both datasets will use the same set's tables as their own, thus co-mingling and ruining report information.

MarisSIM1.ini

Variable path and assignments in this file are similar to those in ELTransClient.ini. (See the previous section.)

GismoSIM1.ini

Only the two Directory lines include folder locations in this file.

ElplotSIM1.ini

```
[Initialization]
GISUserMode=Shared
GISUserName=SIM<User name>1ELP
[MAPSET]
BITMAPDIR="C:\ELT\Summer\map\img\"
[Autostreets]
UpdateData=Ask
DatabaseLocation=C:\ELT\Summer\map\dat
[Network Settings]
Host#1=<Computer name>
```

BpserverSIM1.ini

```
[Settings]
Title=BP Server - Summer
[Network]
Protocol=ncacn_ip_tcp
NetworkAddress=<COMPUTER NAME>
Endpoint=28015
[Data]
DataSetDir=C:\ELT\Summer\map\bpdata
ParTblPath=C:\ELT\Summer\map\par
DYN=C:\ELT\Summer\server\dyn
STA=C:\ELT\Summer\server\sta
AutoStreetsDir=C:\ELT\Summer\server\grf
```

NOTES

EduLognt.cfg

```
[ASSIGN]
DYN= C:\ELT\Summer\SERVER\DYN
EMUBAT= C:\ELT\Summer\SERVER\EMUBATCHES
EXPORT= C:\ELT\Summer\SERVER\EXPORT
GEO= C:\ELT\Summer\SERVER\GEO
GRF= C:\ELT\Summer\SERVER\GRF
OPT= C:\ELT\Summer\SERVER\EMUBATCHES\OUTPUT
RPT= C:\ELT\Summer\SERVER\EMUBATCHES\OUTPUT
RTE= C:\ELT\Summer\SERVER\EMUBATCHES\OUTPUT
SIM= C:\ELT\Summer\SERVER\EMUBATCHES\OUTPUT
SRO= C:\ELT\Summer\SERVER\EMUBATCHES\OUTPUT
STA= C:\ELT\Summer\SERVER\STA
TBL= C:\ELT\Summer\SERVER\DBTABLES
TMP= C:\ELT\Summer\SERVER\EMUBATCHES\OUTPUT
UPD= C:\ELT\Summer\SERVER\UPD
[EXECUTABLES]
EMU= C:\ELT\EXE\EMU
REPORTPATH= C:\ELT\Summer\REPORTS
REPORTEXEPATH= C:\ELT\EXE\REPORT
[EPA]
PATH= C:\ELT\EXE\SERVER
```

Eluise.cfg

```
[Settings]
LogDirectory= C:\ELT\Summer\server
ConfigDirectory= C:\ELT\Summer\server
DatasetConfigName= C:\EL\Summer\server\edulognt.cfg
[RPC]
StartingEP= 1940
EPDirectory= C:\ELT\Summer\server
[Transportation]
ServiceDirectory= C:\ELT\exe\server
[Geoserve]
ServiceDirectory= C:\ELT\exe\server
[Emusrv]
ServiceDirectory= C:\ELT\exe\emu
[ELPlotSrv]
ServiceDirectory= C:\ELT\exe\server
[ResetBellTransServer.exe]
ServiceDirectory= C:\ELT\exe\server
```

The StartingEP value for the \Elt\<Sim name> (see line six in this example) folder needs to be greater than the starting endpoint for the Live dataset. This prevents accidental endpoint sharing, which will cause client-server application problems. We recommend at least 40 points difference, perhaps more if the district has over 30 users.

Elusers.dat

<ClientComputer#1Name> <User#1Name> C:\Users\<User#1Name>\<Sim name>

Like the .ini and .cfg files, each copy of Elusers.dat is unique to each dataset. The path for each user's folder must point to the correct dataset. The Eluise batch file (accessed by the shortcut added to the Start menu) determines which Elusers.dat will be used (the one for the Live data or the one for the extra dataset).

Config.fpw

```
[ASSIGN]
GEO= C:\ELT\Summer\server\geo\
DYN= C:\ELT\Summer\server\dyn\
STA= C:\ELT\Summer\server\sta\
TMP= C:\ELT\Summer\server\tmp\
TBL= C:\ELT\Summer\server\dbtables\
GRF= C:\ELT\Summer\server\grf\
UPD= C:\ELT\Summer\server\upd\
[FX]
EDITWORK= C:\ELT\Summer\reports\temp\
PROGWORK= C:\ELT\Summer\reports\temp\
SORTWORK= C:\ELT\Summer\reports\temp\
TMPFILES= C:\ELT\Summer\reports\temp\
OPTIMIZE= ON
TITLE= Edulog
DOHISTORY= OFF
ESCAPE= OFF
TALK= OFF
OFFICE= 97
[NT]
PARFILES= C:\ELT\Summer\map\par\
LISTFILES= C:\ELT\Summer\map\lis\
FLEETTABLES= C:\ELT\Summer\server\dbtables\
VEHICLETABLES= C:\ELT\Summer\server\dbtables\
[QM]
EXPORT= C:\ELT\Summer\server\export\
QMTABLES= C:\ELT\Summer\reports\tables\
QMOUTPUT= C:\ELT\Summer\reports\output\
PRINTTABLES= C:\ELT\Summer\reports\printtables\
GHOSTPATH= C:\gs\gs7.05\
```

Batch Files

In addition to separate configuration files, the installation also creates separate batch files to access the other dataset. The following is a list of those batch files (all located in the Elt\<Sim name> folder). The shortcuts added to the Start menu point to these batch files for use in starting the various edulog programs.

```
Eluise-<Sim name>.bat
Eltransclient-<Sim name>.bat
Emugui-<Sim name>.bat
```

NOTES

Maris-<Sim name>.bat
 Trnreport-<Sim name>.bat
 Vehicle-<Sim name>.bat
 Elterminator-<Sim name>.bat
 Elplot-<Sim name>.bat
 Autostreeter-<Sim name>.bat
 Gebndplan-<Sim name>.bat
 Bpserver-<Sim name>.bat

These are similar to the batch files used to access the regular data. Those files have Live in place of <Sim name> in the file names.

Eluise-<Sim name>.bat

```

@echo off
start /min "Lock Manager" C:\ELT\Exe\Server\lmw.exe -mc
start /min "ELUISE Summer" C:\ELT\Exe\Server\eluise.exe -f C:\ELT\Summer\server\eluise.cfg -e 59812
  
```

Each dataset requires a separate Eluise.bat which specifies a unique endpoint for all communications between it, client/server sessions, and the dataset to which it is tied. The default endpoint for the Live Eluise is 59802 (indicated in the Eluise console after startup). The Eluise batch file for your extra dataset must include a different endpoint (59812 in the example) for applications to maintain communication with the correct Eluise and server applications.

Even though the server may have several Eluise sessions running at the same time, each workstation can only access one dataset at a time.

Eltransclient-<Sim name>.bat

```

@echo off
start C:\ELT\exe\client\eltransclient.exe -e 59812 -i EltransclientSIM1.ini -j EdulogntSIM1.ini
  
```

Emugui-<Sim name>.bat

```

@echo off
start C:\ELT\exe\client\emugui.exe -e 59812 -t Summer -j EdulogntSIM1.ini
  
```

Maris-<Sim name>.bat

```

@echo off
start C:\ELT\exe\client\maris.exe -e 59812 -i MarisSIM1.ini
  
```

Trnreport-<Sim name>.bat

```

@echo off
start C:\ELT\exe\report\trnrpt.exe "C:\ELT\Summer\reports" "<User name>" -
cC:\ELT\Summer\reports\config.fpw
  
```

Vehicle-<Sim name>.bat

```
@echo off
start C:\ELT\exe\report\vehicle.exe "C:\ELT\Summer\reports" "<User name>" -
cC:\ELT\Summer\reports\config.fpw
```

ELterminator-<Sim name>.bat

```
@echo off
start "ELTerminator-Summer" C:\ELT\exe\server\ELTerminator.exe -n <Computer
name>
```

ELplot-<Sim name>.bat

```
@echo off
start C:\ELT\exe\client\elplot.exe -e 59812 -i ELPlotSIM1.ini -j EdulogntSIM1.ini
```

Autostreeter-<Sim name>.bat

```
@echo off
start C:\ELT\exe\emu\autostreeter.exe C:\ELT\Summer\server\edulognt.cfg
USEGUI
```

Bpserver-<Sim name>.bat

```
@echo off
start C:\ELT\exe\server\bpserver.exe -i bpserverSIM1.ini
```

Gebndplan-<Sim name>.bat

```
@echo off
start C:\ELT\exe\client\gismo.exe -i gismoSIM1.ini -e GeBndPlan.BndPlan.1 -i
gismoSIM1.ini
```

SETUP OF NEW USERS

The ELUserEdit utility allows you to create, modify, and delete user accounts and user directories. You can also use this utility to give specific security privileges to users and prevent unauthorized personnel from making changes. You can indicate which users have read-only privileges, which have full access, and which have access only to certain parts of the system. You also have the option of turning all the security features on or off on a system-wide basis.

To simplify the process of assigning security privileges, we created a security group feature. Security groups allow you to combine users into groups and modify their permissions simultaneously. For example, you may have a certain department that only needs access to student data. You can create a new group of users in that department and assign those privileges at the same time.

In order to limit who has the ability to modify these security settings, ELUserEdit requires a system administrator's user name and password which we will provide you. Once you've enabled the Security features and set up user privileges, edulog will ask users to enter a password when they start the system. Only users who enter a

NOTES

valid name and password will have access to the system (as defined in ELUserEdit). We included a Password dialog box for users to change their passwords.

Before starting the ELUserEdit program, please note the following setup requirements.

- The and Elt Users directories on the Server need to be shared and all users need to have read/write permissions.
- The ELUserEdit.exe file should generally be located in the \Elt\Exe\Server\ directory on the computer from which you will be running the utility.

The following sections discuss the processes for adding, modifying and removing user accounts.

Adding a User Account

Use this feature to add new users to the system.

1. To add a new user, start Windows Explorer.
2. Browse for the ELUserEdit.exe file in the \Elt\Exe\Server\ folder and double-click on it.
3. Choose OK to close the displayed message box.
4. Browse for the root folder of the data set you are working with (such as \Elt\Live) on your server computer and choose OK.
5. Enter the Administrator user name and password, then choose OK.

The edulog System User Administration window appears. The Authorized edulog Users and Workstations list box shows the currently valid computer/user/path combinations which exist in your ELUsers.dat file.

6. Choose Add User.
7. Enter a username that is identical to the user's logon name.
8. Choose Next.
9. Enter the name of this user's workstation in the New Authorized Machine field.
10. Choose Add to include the username/computer combination in the list box.

If this user will have access to more than one computer, repeat steps 8 and 9 to enter the other computer names.

The system will automatically create a Users folder with the name listed in the field at the bottom of the dialog box. You can enter a different name if you wish.

11. Choose Confirm when you are finished adding computers for that user.
12. Choose Yes when the system asks if you want to overwrite any existing files.
13. Choose OK from the displayed message box.
14. Browse for the Users directory on the server machine and choose OK.

The system creates the new user directory.

15. Choose OK from the message box indicating that the changes were confirmed.

- 16 Choose Close when finished working with user accounts.

NOTES

Modifying a User Account

Use this feature to modify the account of a selected edulog user.

1. To modify a user account in edulog, start Windows Explorer.
2. Browse for the ELUserEdit.exe file in the \Elt\Exe\Server\ folder and double-click on it.
3. Choose OK to close the displayed message box.
4. Browse for the root folder of the data set you are working with (such as \Elt\Live) on your server computer and choose OK.
5. Enter the Administrator user name and password, then choose OK.

The edulog System User Administration window appears. The Authorized edulog Users and Workstations list box shows the currently valid computer/user/path combinations which exist in your ELUsers.dat file.

6. Select the user you want to modify from the list box.
7. Choose Edit User.
8. Do one of the following:

To add new user/computer combination, enter the computer name in the New Authorized Machine field and choose Add.

To remove a user/computer combination, select the user/computer combination you want to remove and choose Delete.

To change the name of the Users directory, enter the new name in the field at the bottom of the dialog box.

9. Choose Confirm.
10. Choose Close when finished working with user accounts.

Deleting a User Account

Use this feature to completely remove a selected user from edulog. This operation will eliminate all entries of this username, but will not delete the folders in the Users directory. You will need to do that manually.

1. To delete a user account in edulog, start Windows Explorer.
2. Browse for the ELUserEdit.exe file in the \Elt\Exe\Server\ folder and double-click on it.
3. Choose OK to close the displayed message box.
4. Browse for the root folder of the data set you are working with (such as \Elt\Live) on your server computer and choose OK.
5. Enter the Administrator user name and password, then choose OK.

NOTES

The edulog System User Administration window appears. The Authorized edu-log Users and Workstations list box shows the currently valid computer/user/path combinations which exist in your ELUsers.dat file.

- 6 Select the user you want to remove from the list box.
 - 7 Choose Delete User.
 - 8 Choose Yes from the message box asking if you are sure you want to delete this user.
 - 9 Choose OK from the displayed message box.
 - 10 Browse for the Users directory on the server machine and choose OK.
 - 11 Choose OK from the message box confirming the change.
- The system removes the user from the ELUsers.dat file.
- 12 Choose Close when finished working with user accounts.

NOTE

Don't forget to remove the user's folder from the Users directory on the server computer. Contact your system administrator for assistance if necessary.

SECURITY FOR EDULOG

The following sections describe the process for modifying security settings.

Enabling Security

Use this process to turn on the Security features in your system. Once you've enabled Security and set up user privileges, edu-log will ask users to enter a password when they start the system. Only users who enter a valid name and password will have access to the system (as defined in ELUserEdit). We included a Password dialog box for users to change their passwords.

- 1 To enable security, start Windows Explorer.
- 2 Browse for the ELUserEdit.exe file in the \Elt\Exe\Server\ folder and double-click on it.
- 3 Choose OK to close the displayed message box.
- 4 Browse for the root folder of the data set you are working with (such as \Elt\Live) on your server computer and choose OK.
- 5 Enter the Administrator user name and password, then choose OK.
- 6 Choose Security.
- 7 If security is currently disabled, a message box appears asking if you want to enable the security feature. Choose Yes.

- 8 A message box may appear for one or more users indicating that the system entered the user's name as the password and that they need to change it the next time they log on. Choose OK to close each message box.

The Security Users and Groups window appears listing each authorized user in the top half and the authorized groups (if any) in the lower half.

- 9 Choose Close when finished.

Disabling Security

Use this process to turn off the security feature if you no longer want to require users to enter passwords or limit their access to the system.

- 1 To disable security, start Windows Explorer.
- 2 Browse for the ELUserEdit.exe file in the \Elt\Exe\Server\ folder and double-click on it.
- 3 Choose OK to close the displayed message box.
- 4 Browse for the root folder of the data set you are working with (such as \Elt\Live) on your server computer and choose OK.
- 5 Enter the Administrator user name and password, then choose OK.
- 6 Choose Security.

If security is currently enabled, the Security Users and Groups window appears listing each authorized user in the top half and the authorized groups (if any) in the lower half.

- 7 Choose Disable to turn off the Security features.
- 8 Choose Yes.
- 9 Choose Close when finished.

Creating Security Groups

Security groups allow you to combine users into groups and modify their permissions simultaneously. For example, you may have a certain department that only needs access to student data. You can create a new group of users in that department and assign those privileges at the same time.

- 1 To create a security group, start Windows Explorer.
- 2 Browse for the ELUserEdit.exe file in the \Elt\Exe\Server\ folder and double-click on it.
- 3 Choose OK to close the displayed message box.
- 4 Browse for the root folder of the data set you are working with (such as \Elt\Live) on your server computer and choose OK.
- 5 Enter the Administrator user name and password, then choose OK.
- 6 Choose Security.

NOTES

If security is currently enabled, the Security Users and Groups window appears listing each authorized user in the top half and the authorized groups (if any) in the lower half.

- 7 To create a security group, choose Add Group.
- 8 Type a name for the new group and choose OK.
The new group appears in the Authorized Groups and Permissions list. You can now add users to the group and modify their permissions as desired.
- 9 To add users to the group, select it from the list and choose Edit Group.
- 10 In the Edit Security Group dialog box, choose Users.
- 11 All the current users appear in the list on the left side of the Group Membership Selection window. You can add users to the group by double-clicking them in that list or by single-clicking and choosing the Add button between the lists. Those users appear in the Members of Group list. You can remove users from that list by double-clicking them or by single-clicking and choosing Remove. You can choose Reset to remove all users and start over.
- 12 Choose OK.
- 13 To modify the user privileges for the group, choose Permissions.
The Edit Security Information dialog box appears listing the permissions available in five parts of the edulog system:
 - Student information
 - Stop, run, and route information
 - School information
 - Geocode editing
 - Boundary editing
- 14 Select the desired setting to indicate what access the group should have to each component

No Access	The user will not be able to examine data or make any changes in that component.
Read-Only	The user will be able to examine data but will not be able make any changes in that component.
Full Access	The user will be able to examine data and make changes in that component.
- 15 Choose OK.
- 16 Choose OK to return to the Security Users and Groups window.
- 17 Choose Close to return to the main window.
- 18 Choose Close when finished working with user accounts.

SECURITY FOR REPORTS

The purpose of reports security is to protect reports from users who should not modify or view them. This will prevent users without sufficient information from making changes to user-defined reports.

There are several different programs involved in report security.

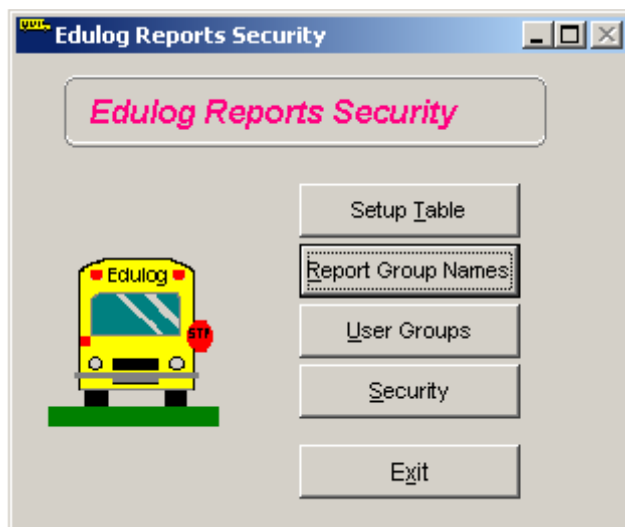
- Dumpusers is located in the \Elt\Exe\Emu folder and is run from EMU.
- Reportaccess is located in the \Elt\Exe\Server folder and can only be run by an administrative user.
- Trnrpt (the edulog Reports application) uses the security created by these two programs.

Dumpusers

This utility copies all of your user names and passwords from edulog security to the reports security. If you have a user in reports that is not in edulog, it will remove that user. It will also add users that are in edulog but not in reports. It will change only the password of a user that is already in the reports security. To run Dumpusers, you first need to add it to your Utils.inf in the \Elt\Exe\Emu folder if it is not already there, then create and run a batch for the process in EMU.

Reportaccess

This program allows you to activate report security and modify user permissions. You can enter the path to the \Elt\Live\Server\Dbtables folder in the command line or shortcut or browse for the folder when you run the program. It can only be run by an administrative user. The default administrative edulog user will always work and is the user who will need to run the program for the first time.



1. Choose Setup Table to activate the report security. You turn security on by checking the Reports Security check box. There are also options for setting up

NOTES

security for Fleet, Transact and the SQL server reports database. Choose Save to save your changes and close the window.

- 2 Choose Report Group Names to enter names for the ten groups to which you can assign reports. Common names might be Administrators, Contractors, Secretaries, and so on. Choose the Exit Form tool when finished.
- 3 Choose User Groups to assign report permissions to groups of users at the same time. Choose Create New Group to enter a new group. Enter the group name and password, then choose OK.

To select the users to include in the group, you can double-click them in the Available list or single-click and choose the right-arrow button.

Choose Set Group Permissions to enter report access privileges for the users in the group. Choose the Edit/Revert Record tool.

You can enter No Access or Full Access to the Standard, User-Defined, Common, and Geographic Reports, as well as each of the special reports (Student Counts, Route Time Line, Deleted Students, Duplicate Students, Utility Audit/Error, Railroad Crossing, and School Distance reports). Note that Full Access users can modify the sorting and filter options for standard and common reports, but those changes are temporary and will not be saved for future sessions. You can also enter No Access, Read-Only, or Full Access permissions for each of the ten user-defined report groups whose names you entered in the previous step.

To save time, you can use the two buttons in the lower-right corner of the window to assign Full Access or No Access to all of the report options, then click the arrow next to the report types or groups you want to modify and select the desired access option. Choose the Add/Save Record tool to save your changes. Choose the Exit Form tool when finished. Choose Exit from the User Groups Input dialog box.

- 4 Choose Security to enter permissions for individual users. You can access one user at a time and modify his or her permissions as desired. You can also add, change, and delete users here, but keep in mind that when you run Dumpusers, user accounts will be deleted if the names do not match those in edulog. Dumpusers will not change any permissions entered here for users already in the system.

Choose the Edit/Revert Record tool. To save time, you can use the two buttons in the lower-right corner of the window to assign Full Access or No Access to all of the report options, then click the arrow next to the report types or groups you want to modify and select the desired access option. Choose the Add/Save Record tool to save your changes. Choose the Exit Form tool when finished.

edulog Reports

If you activate report security and start edulog Reports from a shortcut or the command line, it will ask for a user name and password. If you start it from edulog, it will use the name and password used to log in to edulog. The edulog Reports launch pad will allow you access to anything for which you have read or write privileges. If you do not have at least read access to standard reports, most of the buttons will be

disabled. If you do not have at least read access to user-defined reports, that button will be disabled.

When you create a new report, you will be asked to put it in one of the ten groups. (When security is turned off and when you upgrade your software, all reports go into group 1.) You can change the user-defined reports only in those groups for which you have write permissions. You will not be able to access any report for which you do not have at least read privileges. They will not appear in the report window. You will see the group names in the Common Reports window.

COMMON PARAMETER FILE EDITING

This section will take a look at parameter files for downloads and the edulog Student and Transportation screens.

Student Parameter Data File (Stuprm.dat)

Student Upload Mode (UPMODE):

Upmode 1	Initial file creation. Normally used only in-house.
Upmode 2	Upload students in newstu & set deletion flag for any students not in newstu.dat. (New in upstu v2.9)
Upmode 4	Partial update with action code as first character—occasionally.
Upmode 5	Update. Most common version.

Studnt.dat Side:

Seq	Strictly to aid readability. Not used by system.
Pid	Position in STUDNT.DAT or STUDNT.USR file. The importance of the field can not be overstated. Fixed for all system defined fields. For user-defined fields, equal to the number of characters in the previous field plus the previous field's starting position. For example, if a field has a PID of 12 and runs for 5 characters, the next user-defined field would have a PID of 17.
Len	NT UPSTU does not use the LEN field. Can be set to 1 to aid column alignment and readability of the STUPRM.
Bth	Like LEN this is not used. Can be set to 1, to aid column alignment and readability of the STUPRM.
Chr	Indicates the number of characters in the field that will be stored in STUDNT.USR. Only necessary for USER defined fields.

NOTES

Nxt	Always set to 1 unless field is being split or concatenated. Splitting: NXT indicates the number of fields being "built" from the incoming NEWSTU.DAT field. Concatenating: NXT is used to indicate whether a space character is to be added to the end of the incoming field. A value of one will add a space, if left blank a space will not be added. The space/no space action only applies when concatenating fields.
Sep	Indicates the character to be used for splitting a NEWSTU field. Typically # for apartments, or a comma to split comma delineated fields.

Newstu.dat Side:

Pos	Indicates the starting position of the field in NEWSTU.DAT.
Chr	Indicates the number of characters in the field.
Nxt	Indicates the number of NEWSTU fields being concatenated.
Usr	Indicates if it is a system field (0) which is stored in STUDNT.DAT or a User defined field (1) which is stored in STUDNT.USR. All user-defined fields MUST have a value of 1.

Translations – Positions 47-60 (immediately following the USR field) are reserved to indicate whether the incoming field needs to be translated. See Translation section later in this document.

Field Name – The last column section is used to indicate name of the field being brought in from the NEWSTU file.

Sample showing Translation field

STUDNT.DAT							NEWSTU.DAT				FIELD NAME
SEQ	PID	LEN	BTH	CHR	NXT	SEP	POS	CHR	NXT	USR	
3	8	1	1	1	1	1	27	3	1	0	School
4	10	1	1	1	1	1	30	2	1	0	Grade
5	13	1	1	1	1	1					Elig Code
6	11	1	1	1	1	1					SchDst

SPLITTING & CONCATENATING Newstu fields

Frequently the fields supplied in the NEWSTU will need further manipulation to work correctly in the edulog system. To accommodate these situations, the NT STU-PRM can be set up to split and/or concatenate individual NEWSTU fields.

SPLITTING – Divides a single NEWSTU field into its component parts.

A common use of the splitting function is to break out the apartment number from the residence address field. As long as the apt. number has been entered with a separator character, such as 123 Main St. #1A, it is easy to put apartment number into a

user defined field. This should also improve address match rate, since the apartment number can interfere with the parsing of the transportation address.

It is not uncommon to receive a NEWSTU in which the last and first names are separated by a comma, rather than existing in separate fields. Again, it is easy to split the "whole" name into the correct last and first name parts.

Studnt Side

- In the first line of the STUDNT section, the NXT value indicates the number of fields that will be built from the single NEWSTU field. The SEP field indicates which character will be used to split the fields.
- The remaining lines indicate the actual fields that will be built. The PID's should be set normally--system fields have predefined PID values, while user fields will have a calculated PID values. Note in the address example, a single NEWSTU field is split into a system field (Residence Address) and a user defined field (Apartment Number).

Newstu Side

- In the first line, the POS and CHR fields indicate the starting position and character length of the NEWSTU field being split. NXT should be set to 1.
- The remaining lines, need to have USR set to indicate the whether the field will belong in STUDNT.DAT or STUDNT.USR.

Sample field splitting:

STUDNT.DAT							NEWSTU.DAT				FIELD NAME
SEQ	PID	LEN	BTH	CHR	NXT	SEP	POS	CHR	NXT	USR	
13					2	###	70	30	1	0	Address
14	17	1	1	1	1					0	Res Address
15	107	1	1	6	1					1	Apartment #

STUDNT.DAT							NEWSTU.DAT				FIELD NAME
SEQ	PID	LEN	BTH	CHR	NXT	SEP	POS	CHR	NXT	USR	
0					2	, , ,	23	26	1	0	Whole Name
1	6	1	1	1	1					0	Last Name
2	7	1	1	1	1					0	First Name

Concatenating – Combines multiple NEWSTU fields into one STUDNT field.

Because dates can be represented in so many different ways, the birthdate field is perhaps the most commonly concatenated field. However, concatenation may also be useful when faced with the occasional strange field format in NEWSTU.DAT.

Studnt Side

- The first line of the STUDNT.DAT section represents the single field being built from the NEWSTU data, therefore should be set up accordingly.
- If spaces are desired between incoming fields, the NXT value for lines below the main line should be set to 1. If the NXT value is left blank, no spaces will be added between the incoming NEWSTU fields.

NOTES

Newstu Side

- The NXT value in the first line indicates the number of fields that will be concatenated. Since the NXT value indicates the field will be built from the following lines, the POS and CHR fields in the first line are ignored. USR should be set as normal to indicated a system or user field.
- In the remaining lines, POS and CHR indicate the actual starting position and number of characters to be read from the NEWSTU. In these lines, NXT should be set to 1 and USR should be set to the same value as the USR value in the first line.

Example #1: In this example, the STUPRM has been set up to pass an 8 character field to the system. A space is not needed after the year field thus the NXT column is left blank on the last line. Note, the date format (MM DD YY or DD MM YY) is specified in SYSDEF.INF.

```

POS      53  57
|      |
-----
113085    "11 30 85"
31086     "03 10 86"
102285    "10 22 85"

          STUDNT.DAT          NEWSTU.DAT
=====
SEQ PID LEN BTH CHR NXT SEP  POS CHR NXT USR  FIELD NAME
23 107  1  1  1  1      3  0  Birthdate
                        1  53  2  1  0  MM
                        1  55  2  1  0  DD
                        57  2  1  0  YY

```

Example #2: In this example, STUPRM does not need to add spaces between the concatenated fields. Adding the descriptive month, day, and year fields under the birthdate field name aids readability.

```

POS      70  75 78
|      | |
-----
1986 10 18    "10 18 86"
1985 04 22    "04 22 85"
1985 11 27    "11 27 85"

          STUDNT.DAT          NEWSTU.DAT
=====
SEQ PID LEN BTH CHR NXT SEP  POS CHR NXT USR  FIELD NAME
23 107  1  1  1  1      2  0  Birthdate
                        75  6  1  0  MM DD
                        72  2  1  0  YY

```

Translations:

As mentioned earlier, the position immediately following the USR field is used to indicate the need for field translation. This is accomplished by listing a translation file such as STA:TRNSLT.GRD. The first three characters point to the system logical directory in which the translation file is stored. In almost all cases this should be the STA directory. Since it is possible to have more than one translation file at a

time, the 3 character extension should indicate the type of translation, such as GRD or SKL.

NOTES

Tranlation file format

The first line of the file contains three values separated by spaces:

- the number of translations being performed (number of lines minus the header line)
- the width of the incoming field from NEWSTU.DAT
- the width of the outgoing (translation) field

The actual translations maintain the specified widths, and are separated by a space.

STUBTH.DAT							NEWSTU.DAT				
=====							=====				
SEQ	PID	LEN	BTH	CHR	NXT	SEP	POS	CHR	NXT	USR	FIELD NAME
4	10	1	1	1	1		40	2	1	OSTA:TRNSLT.GRD	Grade

Sample translation file layout:

```
4 2 3
10 100
20 200
30 300
40 400
```

UPMODE..... 5							NEWSTU.DAT				
STUDNT.DAT							=====				
SEQ	PID	LEN	BTH	CHR	NXT	SEP	POS	CHR	NXT	USR	FIELD NAME
1	1	1									Rec Id
2	6	1	1	1	1		34	15	1	0	Last Name
3	7	1	1	1	1		19	15	1	0	First Name
4	8	1	1	1	1		110	3	1	0	School
5	10	1	1	1	1		122	3	1	0	Grade
6	13	1	1	1	1						Elig Code
7	11	1	1	1	1						SchDst
8	5	1	1	1	1		1	5	1	0	Student Id
9	18	1	1	1	1						Numbr
10	19	1	1	1	1						Pr
11	20	1	1	1	1						Street
12	21	1	1	1	1						Type
13	22	1	1	1	1						Sf
14	23	1	1	1	1				1	0	Mapzone
15	0	1	1	1	2	###	49	36	1	0	Address
16	17	1	1	1	1				1	0	Res Address
17	1	1	1	6	1				1	1	Apt #
23	11	1	1	8	1		125	8	1	1	Phone
24	31	1	1	15	1		86	15	1	1	City
25	46	1	1	2	1		101	2	1	1	ST
26	48	1	1	5	1		104	5	1	1	Zip
28	56	1	1	40	1		134	40	1	1	GUARDIAN
30	126	1	1	30	1		209	30	1	1	EMER
32	156	1	1	40	1				1	1	Medical
33	196	1	1	40	1				1	1	Misc1
34	236	1	1	10	1				1	1	Misc2

NOTES

Student Parameter Files (*.PAR)

This section describes the format of parameter files used to create flexible data entry forms and tables. There are two types of data files, one for the flex forms with the extension .PAR and the other for the flex tables with the extension .TBL. These files are plain ASCII text files containing data required to create the forms or tables. The format of each file type is given in detail in the following sections. You need only be concerned with the PAR files. PAR files exist for studnt, stutrn, runs, runtrn, stops, stptrn, route, rtetrn, schols, sturpt, cluster, vehicle, rundir, schlcal, schldest, and cmndst data entry programs. TBL files exist for stptrn, studnt, stutrn, clustrn, cmndst, rtetrn, runs, runtrn, schols, and stops data entry programs.

Flex Form Parameter File Description: *.par

The flex form parameter file contains description for both the "KEY FINDER" and the "FLEX FORM" data entry forms. You need only be concerned with the Flex Form. The description of each field column and valid values are explained below. Each row would contain information associated with the field like the size, placement, visibility and functionality.

Each of the columns are separated by a blank space or by a vertical line (|) in which case no blank space is used to separate the columns. The vertical line indicates the beginning of a new section.

<u>Field Name</u>	<u>Description</u>
FIELD NAME	This field is 10 columns wide and contains the name for the field in the data record. The name needs to be unique. Buttons must begin with a B and user fields could begin with U.
KEY	This field is 3 columns wide and contains information regarding the presence of this field in the keyfinder or flexform or both. A value of 1 specifies the field to be only in flex form, a value of 0 specifies the field to be only in key finder.
FLE	This field is 3 columns wide and contains information regarding the data file to be associated with the field.

1 = STUDNT2 = STUTRN3 = STOP

4 = RUN5 = STPTRN6 = RUNTRN

7 = ROUTE8 = CMNDST9 = SCHOLS

10 = SCHTRN11 = U_STUDNT12 = U_STUTRN

13 = U_STOPS14 = U_RUN17 = U_ROUTE

19 = U_SCHOLS21 = MAPSEG22 = RUNDIR

23 = RTETRN25 = VEHICLE26 = U_VEHICLE

27 = REQUST28 = CLUSTER29 = CLUSTRN

PID	This field is 3 columns wide and contains the unique numeric

	identifier of the data field.	NOTES
BTH	This field is 3 columns wide and contains the batch type information for the data field. Not used for user defined fields.	
CHR	This field is 3 columns wide and specifies the number of characters wide the data field is in the record.	
SEC	This field is 3 columns wide and specifies the visibility of the field in the form. By default a value of 10 will not display the field and a value of 0 will display the field.	
This next field is one column wide and contains a vertical line () to separate two sections.		
SEL	This field is 3 columns wide and specifies the tab order sequence for fields in the flex form (The Selection). These need to be unique for each value and there can be no gaps between.	
SPC	This field is 3 columns wide and specifies special functions associated with the field, like data verification and validation. Please ignore.	
CTP	This field is 3 columns wide and specifies the control type for example, button, edit control, static text control, list box, or a combination box. The two common ones are 0 = for BUTTON 1 = for EDIT TYPE CONTROL	
STL	This field is 3 columns wide and specifies the style associated with the field. This field associates specific functionality to the field. The most common is 0 = Standard edit box or Standard push button	
NCO	This field is 3 columns wide and specifies the width parameter for the field in terms of number of columns.	
NLI	This field is 3 columns wide and specifies the number of lines for the field.	
PRR	This field is 3 columns wide and specifies the Row at which the prompt caption for the field should be printed.	
PRC	This field is 3 columns wide and specifies the Column at which the prompt caption for the field should be printed.	

NOTES

DTR

This field is 3 columns wide and specifies the Row in which the field Data box will appear.

DTC	This field is 3 columns wide and specifies the Column in which the field Data box will appear.
FIELD	This field is 20 columns wide and contains the prompt caption text to be displayed.

NOTES

METHODS TO PREPARE FOR SCHEDULED MAINTENANCE

Several of our clients have indicated that they have issues with their users leaving edulog open at the end of the day. This can have adverse effects on backups and scheduled maintenance routines that run through EMU after hours.

The following process involves altering .ini files and running different scripts consecutively (with a short pause between each one) in the specified order. Please note that this procedure applies to edulog versions 10.5x and newer. Implementing this on versions 10.1x or earlier will require changes in the path structure of some of the scripts. There are three steps involved in the process.

1. The first thing to do is to alter the Eltransclient.ini and Maris.ini files of all users by adding an Autoshtutdown section as outlined below. This alone will take care of most of the problems that arise and set up an orderly shutdown of edulog processes.

Autoshtutdown

```
[Autoshtutdown]
On=1
Time=11:00PM
```

On=1

The 'On' setting specifies whether this function will be activate (0 = do not activate, 1 = activate). The default setting is 'Off' and it can only be activated by adding this section to the .ini file and changing the setting to 1.

Time=11:00PM

The time setting indicates the time of day that the client/server session on the local machine should be terminated. Users should select a time before scheduled utilities are slated to run to eliminate batch queuing.

This optional section allows users to force client/server sessions to terminate automatically at a set time every day. This shuts down all edulog client sessions and the server sessions attached to them. For that reason, it is the preferred method to control the problem of users not logging out.

Killall.bat

2. The second thing to do is set up a batch to shut down all edulog-related server processes that are recognized as running by Eluise.

NOTES

```
@echo off
start "ELTerminator" E:\ELT\exe\server\ELTerminator.exe -n EDULOGSVR -k all
start "ELTerminator" E:\ELT\exe\server\ELTerminator.exe -n EDULOGSVR -e 59860 -k all
start "ELTerminator" E:\ELT\exe\server\ELTerminator.exe -n EDULOGSVR -e 59890 -k all
```

Note that each Start line includes “-e xxxxx” at the end, except the first one which uses the default endpoint of 59802. You need to know the endpoint of each of the SIM areas on your server. If you are not sure of the endpoints you need to use, please contact edulog Support or Hardware Consulting

Delete_.LCK_and_TAF.bat

3. The third thing to do is set up a batch file to delete all the .lck and .taf files that may prevent execution of certain processes that we want to run.

```
@echo off
del e:\elt\live\server\dyn\*.lck
del e:\elt\live\server\geo\*.taf
del e:\elt\sim\server\dyn\*.lck
del e:\elt\sim\server\geo\*.taf
del e:\elt\summer\server\dyn\*.lck
del e:\elt\summer\server\geo\*.taf
```

You need to include two lines for each data area on your server. This is the last step in the process. At this point, you have done your best to assure that nothing will stand in the way of our maintenance or backup processes.

Scheduling Example

Once you have the scripts set up, you need to schedule them to run at the appropriate time and in the correct order.

Name	Schedule	Next Run Time
Add Scheduled Task		
Delete_LCK_and_TAF	Multiple schedule times	8:59:00 PM 7/11/2006
del_all_sessions	Multiple schedule times	8:58:00 PM 7/11/2006
StopEdulogProcesses	Multiple schedule times	8:57:00 PM 7/11/2006
killall	Multiple schedule times	8:56:00 PM 7/11/2006

Please note that these scripts need to be customized for each district’s implementation of edulog. If you have any questions or concerns please contact edulog Support at support@edulog.com or edulog Hardware Consulting at hardware@edulog.com.

Addendum – Keeping Users Out

Once you have completed the previous steps to assure that all edulog users are out of the system, you may also need to take measures to make sure they stay out. There is one way to do this involving the Eluise service. (Eluise must be set up as a service to do this.)

Eluise functions primarily as a mediator to connect client and server sessions. Once a client – server connection is made, Eluise has little to do. We can take advantage of this fact, and the scheduling capability of EMU. As long as Emusrv is running, we

can run a batch file to stop Eluise at the beginning of a scheduled job in EMU, then another batch file at the end to re-start Eluise.

1. Create the following two batch files and put them into the appropriate Elt\Exe\Emu folder. Make sure Eluise is exactly the same case as it appears in the Services Applet.

STARTELUISE.BAT

Net start Eluise

STOPELUISE.BAT

Net stop Eluise

2. Open UTILS.INF and add the following lines:

[STARTELUISE.BAT]

FILE = STARTELUISE.BAT

[STOPELUISE.BAT]

FILE = STOPELUISE.BAT

3. Open EMUGUI and create a new batch. Choose Stopeluise.bat as the first program to run, and Starteluise.bat as the last. Schedule the batch to run at a time when users will not normally be in the system (9:00 pm, to continue with the previous scheduling example). You need to be sure that Emusrv is running. If you watch this occur, you will see that EMU starts the batch at the appointed time. Eluise will stop immediately. The programs specified in the EMU batch will run to completion. When everything is finished, Eluise will start again and users can log on to edulog or any of the client programs as usual.

TOP 10 QUESTIONS (2006)

This and the following two sections list the issues most frequently addressed by our Support department over the past three years.

1 Autostreet layers won't come up on a workstation.

Look at the \Windows or \Winnt\Eltransclient.ini and Maris.ini "extents" to make sure they match those of the server. If they do, then look at the paths for the [Autostreets] section in the .ini files and make sure they are correct and do contain autostreet files.

2 "Error loading GIS data; workspace will not be created" error when entering edulog.

This usually indicates mismatched IP addresses in \Elt\Server\Dyn\Sysdef.inf and Windows or Winnt*.ini files. It could also be bad GIS user names in the Windows or Winnt*.ini file. If it is an XP SP2 machine, it may require a registry modification. Call edulog Support for assistance with this.

3 No day pattern found (when going into Runs > Graphical > Directions).

This is usually an error with the sequence of stops on the run. You will need to run the Fixrunseq.exe and Fixseq.exe batch processes in \Elt\Exe\Emu.

4 Error loading runtrn table.

You will need to run the Fixrunseq.exe batch process in \Elt\Exe\Emu.

NOTES

5 edulog Error when you go into a tabular screen.

This is the result of bad par files on the workstation. Either copy the \Elt\Map folder from the server or a working workstation.

6 EMU Maintenance is queued but not running.

If every user is out of edulog, use an Elterminator batch file to delete any extra edulog services with the exception of Emusrv. Next, search for and delete any *.lck files in the \Elt folder and sub-folders. Finally, check the task manager on the server to see if there are any Eltranservice.exe or Geoserve.exe processes running. If so, end those processes.

7 Dumpall or other EMU batch errored out.

If every user is out of edulog, look at the file called \Elt\Exe\Emutrk_s.txt for the exact utility that errored out and, in the case of the Dumpall utility, what the error was. You may need to contact edulog Support for assistance with finding the solution.

8 Invalid vehicle path in Foxdata.inf error when going into reports on a workstation.

This indicates either missing mapped drives to the server \Elt and \Users folder or bad paths in the file \Elt\Exe\Report\Foxdata.inf.

9 SQL error in a user defined report.

Usually, running the utility \Elt\Exe\Setdict.exe and Fixreport in Report Utilities fixes these errors. Also, the report's filter may need to be modified. Call edulog Support for assistance with this.

10 Get data failed error running Geographic reports on a workstation.

Check for correct paths in the Georeport.cfg in the \Elt\Exe\Report folder on the workstation. Also, you may need to change the \Elt\Server\Dyn\Sysdef.inf to point to the server's IP address instead of the Microsoft default of 127.0.0.1. Next, shut down Eluise and the lock manager, then restart both.

TOP 10 QUESTIONS (2007)**1 "Run failed, not enough allocated memory" error when auto-generating driver directions in Runs > Graphical.**

This indicates bad mapseg files in the \Elt\Live\Server\Dyn folder. Call edulog Support for assistance in rebuilding these files or restoring them from a backup and running geographic maintenance.

2 "No records found" error after running most edulog reports.

Run the Dumpall utility in EMU to update the report tables.

3 "Unable to establish connection to the server" error when performing a new workstation installation on an XP machine

If anyone has installed service pack 2 for Windows XP, you may need a registry edit fix for this workstation. Call edulog Support for help with installing this fix.

4 "Cannot locate Microsoft visual FoxPro library" error when trying to start edulog Reports.

You will need to rerun the Visual FoxPro 8 runtime installation.

5 In which folder does the student download file need to be located for the 10.5 upgrade?

You need to place that file in the Elt\Live\Server\Dyn folder (or replace "Live" with whichever data area you are working with).

6 "Synchronization" error when trying to start edulog.

This error is due to mismatched files in the \Elt\Server\Dyn folder. This typically occurs after restoring the incorrect version of a file from a backup. To correct this problem, you first need to get the Updatetimestamps.exe and Updatealltimestamps.exe files. Place them in the \Elt\Exe\Emu folder, then create and run a batch process for the Updatealltimestamps utility. You may need to add an entry for this utility to the Utils.inf file in that same folder. You may also need to run Diagnose and correct any problems found after running this utility.

7 "Cannot locate the following folders: OPT, RPT, RTE, SRO, SIM, TMP" error when logging on to edulog.

Double-check to make sure that the folders exist and that their locations are listed correctly in the Eltransservice.cfg file (or Edulognt.cfg in Elt\Live\Server for version 10.5).

8 "Microsoft Jet Database cannot open Autostreets.mdb" error.

This message indicates that the Autostreets.mdb file is already opened exclusively by another user or that you need specific permissions to open it. This is usually a permissions issue with the mapped Elt or Users folder on the server. Your tech may need to take a look at this.

9 "Unable to confirm, file is full" error when trying to create a stop, run or route and confirming it

This indicates that the indicated file is full. You will need to run a batch file called Extendfile.bat in the Elt\Exe\Emu folder. Call edulog Support for assistance with this.

10 "Error loading gis, workspace will not be created" when logging on to edulog.

This could indicate one of several things:

If this is only on a workstation, it could be a bad gisusername or computer name or a missing workspace file. Please call edulog Support for assistance with this.

If this is also occurring on the server, you will need to run the ElSettingsEditor program (you may need to create a batch file for this) to make sure the IP address is that of the server or the Microsoft default, 127.0.0.1.

TOP 10 QUESTIONS (2008)

- 1 "EduLog will shutdown -- Contact EduLog Support" error when trying to start edulog.**

This indicates a problem with your mapseg files. To fix this problem, you need to replace those files from a backup or a simulation area, then run Geographic maintenance run .

- 2 "Synchronization" error when trying to start edulog.**

This error is due to mismatched files in the \Elt\Live\Server\Dyn folder. You may have replaced a file from a backup or ended maintenance prematurely. To fix this problem, make sure the Updatetimestamps.exe and Updatealltimes-tamps.exe programs are located in the \Elt\Exe\Emu folder, then add the Updatealltimestamps utility to the Utils.inf file if necessary. Run a batch process in EMU with that utility. You may also need to run Diagnose and clean up the data as needed.

- 3 "The server can not access the Reporting DLL, contact EduLog Support" error when you start edulog (edulog does start, though).**

In most cases, you can log out of edulog and log back in to fix this problem. This error occurs when the software cannot access the UpdateFoxFiles.dll to update reports properly. If you ignore the error, any changes you make will not be reflected in reports. If this happens to all users, you may need to reboot the server and/or run the Dumpall utility in EMU to fix this problem.

- 4 edulog crashes with no error, when you choose the Trips button in the Tabular Students window after an upgrade.**

This error indicates an incorrect version of Stutrn.tbl. You will need to get the correct version from our FTP site and copy it to the \Elt\Live\Map\Par folder. Another symptom of this problem is when Route IDs do not appear in the Tabular Students window.

- 5 edulog crashes with the error "R_GET_AUTO_TRIP_INFO call has failed." when you choose the Trips, Quick Assign, or Schedule Trips buttons in Tabular Students.**

This indicates that you have stops on a recently modified part of the geocode. You need to run the Rebuildwalkpathfiles utility in EMU to fix this problem.

- 6 "Error loading stop on run" when you try to call up a run. You also get the following error when you try to generate directions for the run in Group Processes: "stop XXX.XXX does not exist."**

This indicates that the run includes a stop service from a deleted stop. The easiest way to fix this problem is to recreate the stop with the same ID, then deassign it from the run and delete all the stop's services, then delete the stop itself.

- 7 "Stop does not exist for this service" error when auto-generating run directions.**

This indicates that a stop ID was changed while still assigned to a run. To fix this problem, run the Fixbadrundir utility in EMU. Please make sure to remove stops from runs before renaming them.

8 "Shortest path problem error" when auto-generating run directions, even after running geographic maintenance and rebuilding the run.

This is usually the result of a bad geocode, possibly because segments are not connected properly. To fix this problem, first inspect the geocode for inconsistencies. You can also run the Pieces utility to determine areas of your geocode that are not connected. Fix any problems you find, then run geographic maintenance and regenerate the run directions.

9 Geographic Maintenance (specifically, the Updtadtm utility in that batch) errors out in EMU.

This indicates a TAF file error. To fix this problem, search for any *.taf files in the \ELT folder and delete them.

10 "Error Occurred, do you want to view the error file now?" when trying to open reports in edulog version 10.5 and up. If you answer yes, a Fox-data.err window appears with the message "Invalid Reports Path in config.fpw."

This is a result of lost mapped drives to the Server \Elt folder or bad paths in the \Elt\Live\Reports\Config.fpw file. Check to make sure you have the required mapped drives to the server and that the paths in Config.fpw point to the correct folders.

NOTES

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Intermediate EMU
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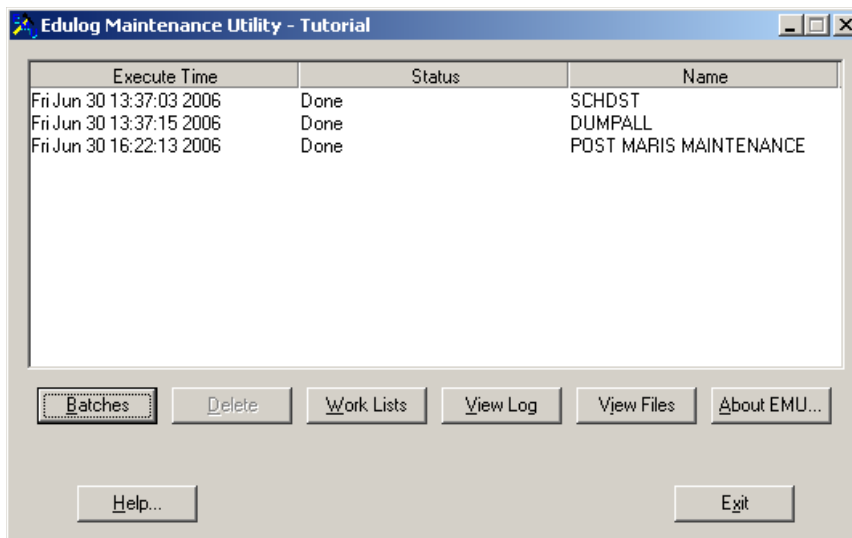
OVERVIEW OF EDULOG'S MAINTENANCE UTILITIES

NOTES

edulog provides utilities that you can use for a variety of purposes, ranging from downloading students from a master database to assigning students to stops in batch mode. You use EMU (edulog Maintenance Utilities) to perform these functions.

EMU allows you to select and set up individual utilities to run according to your needs. You have the option of scheduling a process in advance (if you want to run them over night, for instance), or you can run the process immediately.

Start EMU and a window similar to the following appears.



This is the EMU launch pad. The window lists any batch or maintenance processes that you have scheduled and includes buttons for working with these processes. This window also lists the status of any completed processes (labeled as “Done”) and any processes that are currently running or waiting to run (“Queued”). EMU automatically refreshes the list every fifteen seconds and whenever the status of a process changes.

You use the Batches button to set up and run batch processes. The View Log and View Files buttons allow you to examine reports on completed utilities. The Work Lists button opens the List Management window where you can create and modify work lists in your system. This allows you to make the necessary changes to work lists used by EMU processes without exiting EMU.

Some utilities create audit and error files that record the progress of the utility and any errors it encounters. EMU typically places these files in the `\Elt\Live\Server\Emubatches\Output` folder. You can use a text editor or word processor to view these files. You can also use the edulog report writer to examine audit and error reports. To start the report writer in edulog, choose Reports from the menu bar, then choose edulog Reports. Refer to the online Help accompanying the report writer for further information on examining audit and error reports.

NOTES

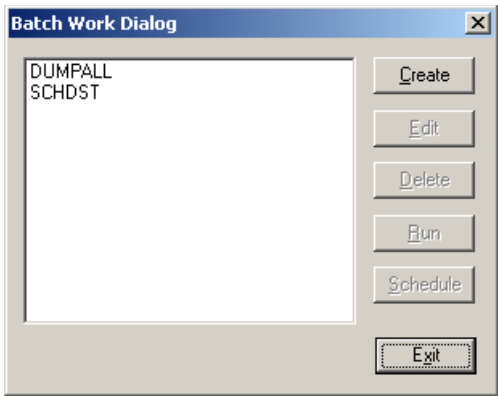
WARNING

Make sure to back up your data before running batch processes in case they do not function as expected.

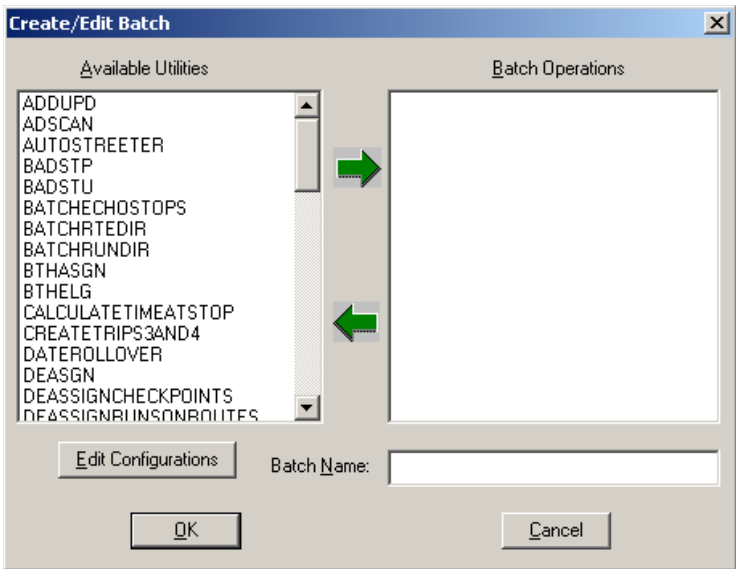
CREATING AND MODIFYING BATCH OPERATIONS

EMU allows you to set up batch processes that include one or more utilities. You can create new batch processes and modify or delete existing ones. You can also run a process or schedule it to run another time (overnight, for example).

Choose Batches from the EMU launch pad and a dialog box similar to the following appears.

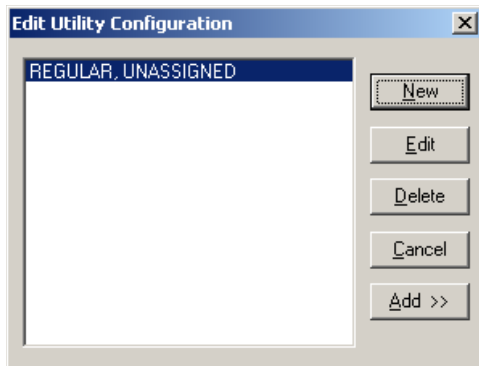


Using this dialog box, you can begin creating a new batch or work with an existing one. To modify an existing process, select it from the list and choose Edit. To create a new process, choose Create.



NOTES

This dialog box allows you to select the utilities you want to include in the batch process. If you are modifying an existing process, the utilities it currently includes appear in the Batch Operations list on the right. You can remove a utility from the process by selecting it from that list, then clicking the arrow pointing to the left. To add a utility to the batch process, select from the Available Utilities on the left, then click the arrow pointing to the right. If the utility has any options to select from, a dialog similar to the following appears listing any configurations already defined for the utility. (No dialog box will appear if you selected a batch without such options.)



If the desired configuration does not appear in the list box, create a new one for the utility (see the following section for further information). Select the desired configuration from the list, then choose Add. The utility appears in the list of Batch Operations. You can add other utilities (or other configurations of the same utility) to the Batch Operations list if you want to have them run consecutively. Any utilities you include in the batch process will run under the batch name you enter next.

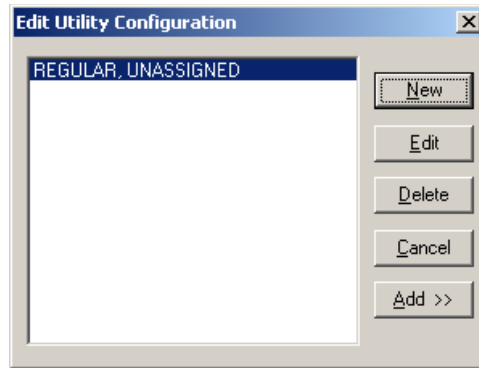
If this is a new batch, click the Batch Name field and type a unique name for the batch process. (Skip this step if you are modifying an existing batch and do not want to change its name.) Choose OK to save the batch.

Configuring Utilities

Before you run a utility, you first need to set it up by selecting various options unique to each utility, such as which students to include in a batch stop assignment.

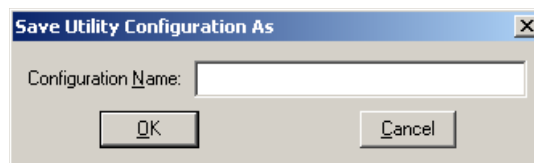
To configure a utility, select it from the list of available utilities in the left column of the Create/Edit Batch dialog box (see the previous section), then choose Edit Configurations or click the arrow pointing to the right (to add it to the list of Batch Operations). A dialog box similar to the following appears.

NOTES



If you have already created a configuration for the process, it appears in the list box. You can modify or delete an existing configuration by selecting it from the list and choosing the Edit or Delete button. If you want to create a new configuration, choose New.

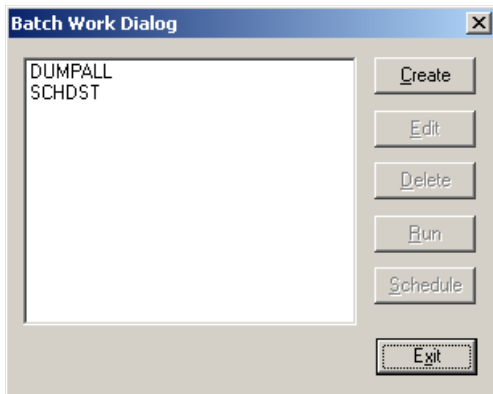
If the utility has any configuration options, a dialog box appears with the options available for the utility. For specific instructions on configuring utilities, refer to the online Help in EMU. When you save the configuration, the following dialog appears.



Type a unique name for the configuration. Try to enter as descriptive a name as possible. This will help you differentiate this configuration from any others you may create. Choose OK.

RUNNING BATCH PROCESSES

EMU allows you to run a process immediately or you can schedule it to run at another time. To run a process immediately, choose Batches from the EMU launch pad.



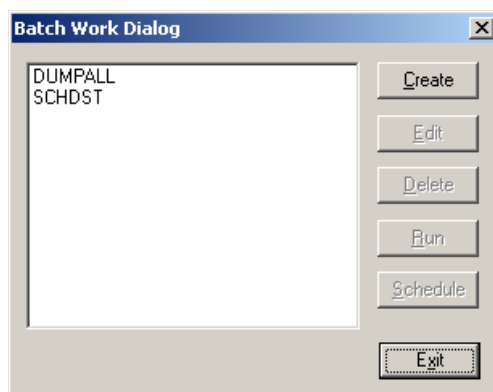
Select the desired process and choose Run. Choose Yes to confirm that you want to run the process. Choose Exit when finished to return to the launch pad.

NOTE

If the list box on the launch pad indicates that the batch's status is "Queued" instead of "Running" or "Done," first make sure that you don't have any client/server sessions running on the network. Shut them down if so. Next, check the time of the server's clock. If that clock is set behind your workstation's clock, reset the server's clock to one minute ahead of your workstation clock.

SCHEDULING BATCH PROCESSES

EMU allows you to schedule a process to run at a certain time, perhaps at night when no one else is using the system. EMU must be running at the scheduled time for the process to work. Choose Batches from the EMU launch pad.



Select the desired process from the list and choose Schedule. The following dialog box appears.

NOTES

This dialog box allows you to schedule a process to run once or periodically, and offers a variety of options for processes that you want to run periodically.

- **Only once** – select the first check box under Repeat, then complete the fields under Start Date and Time.
- **Hourly or daily** (e.g., every one or two hours or every one or two days) – select the second check box under Repeat, then use the arrows to complete the fields next to this check box.
- **Weekly** – select the third check box under Repeat, then select from the available days under Day of Week. You can select as many days as you wish.
- **Periodically throughout the month** – select the fourth check box under Repeat, then select from the options under Week of Month. Again, you can select as many of the check boxes as you want.

You always need to enter the Start Date and Time, no matter which option you select (make sure to enter all four digits of the year in the Date field). If you are scheduling a process to run weekly or monthly, make sure to enter the starting date on the day of the week you want to run the process. Otherwise, EMU will accept the default starting date (today's date).

Choose OK when finished, then choose Exit from the Batch Work dialog box to return to the launch pad. The status of the scheduled process appears as “Queued” in the list box. You can cancel a scheduled batch process by selecting it from this list and choosing Delete.

RUNNING *.BAT FILES IN EMU

NOTES

You can complete the following steps to run *.bat files through EMU.

- 1** Create the .bat file. This can be a standalone utility or any other working .bat file.
- 2** Modify the Elt\Exe\Emu\Utils.inf file to include the batch in the following manner;
[batchname.bat]
FILE= batchname.bat.rsp
Example:
[diagnose.bat]
FILE= diagnose.bat.rsp
- 3** Start EMU and create a new EMU batch. You should see the name of the .bat file in the list of available programs. Select and add it as a regular edulog utility. Name and save your EMU batch.
- 4** You can now run the batch manually or schedule it as a normal EMU batch process.

This is a very powerful tool. Some possible uses include Auto shutdown batches, web product service shutdown batches, and standalone utility batches that do not require user input.

NOTES



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TERMINAL SERVICES SERVER

The following pre-conditions apply:

The server must have a Windows 2003 Server family version as the operating system. This document will focus solely on Windows 2003.

The boot partition must be large enough to accommodate the expected number of users, usually at least 10 GB and up to 20 GB for a large district if the default terminal services profile is to be used. It is recommended that a user-defined terminal services profile be used to increase performance. More detail on this issue will be discussed later in this document.

The server must be set in Terminal Services Application Server mode.

If you have any questions about the above, please contact edulog Hardware Consulting.

The information in this document applies to edulog version 10.5 and greater. It does not apply to any earlier versions. For versions before 10.5, please contact edulog Hardware Consulting.

Pre-installation Server Settings

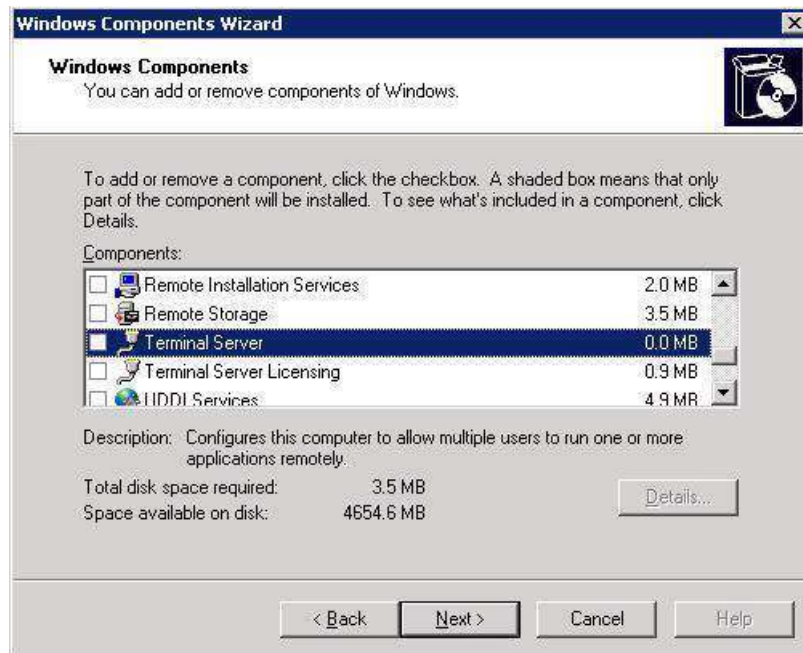
It is highly recommended that your Windows 2003 Server have all the most recent patches from Microsoft installed.

Please consult with edulog Hardware Consulting for Hardware requirements for running edulog on a Terminal Server. Many variables affect the performance of edulog running Terminal Services including but not limited to: geographic size of map, student population, number of stops, runs and routes, total number of concurrent users, and the number of individual edulog datasets that will be used.

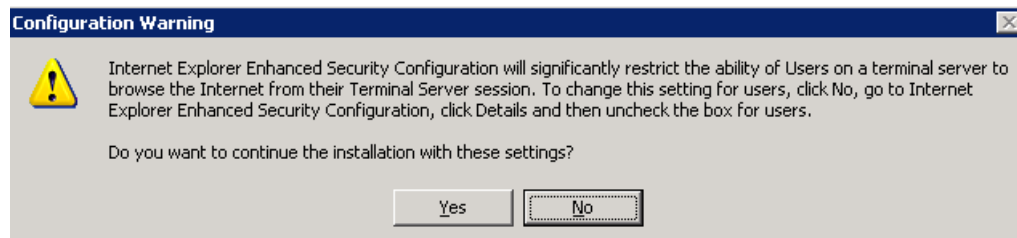
Please be aware that installing an anti-virus program that is not made to work with Windows 2003 Server and Terminal Services will cause problems with your terminal server and edulog functionality. Please contact your anti-virus vendor for a proper version of anti-virus software for a terminal server. We have found that Norton Anti-virus Corporate Edition, and Computer Associates E-Trust are fully compatible with edulog.

Installing Terminal Services

To install Terminal Services onto your Windows 2003 Server go to the Add/Remove Programs dialog located in your control panel. Choose the Add/Remove Windows Components button and the following dialog will be displayed:

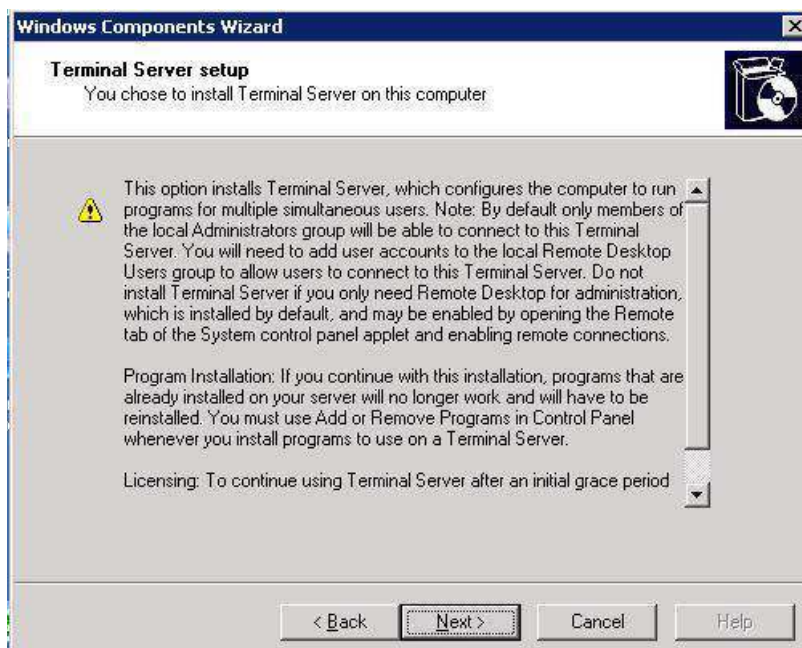


After Selecting “Terminal Services” the following dialog will appear:



Choose Yes to continue installing Terminal Services. The main effect of the enhanced security configuration in Internet Explore is to make it more difficult for users to surf the web in a Terminal Services Session. That’s all good in my books.

There is still another warning that Windows wants to give you.



This is simply a reminder that all Terminal Services users need to be added to the “Remote Desktop Users” group, which we will discuss later in this document.



In this last dialog, we recommend the use of Relaxed Security as it is most consistent with edulog.

If you are familiar with setting up Terminal Services on a Windows 2000 server, you may notice that there is no choice available for a “Remote Administration Mode”. That is because, like Windows XP, Windows Server 2003 installs Remote Desktop

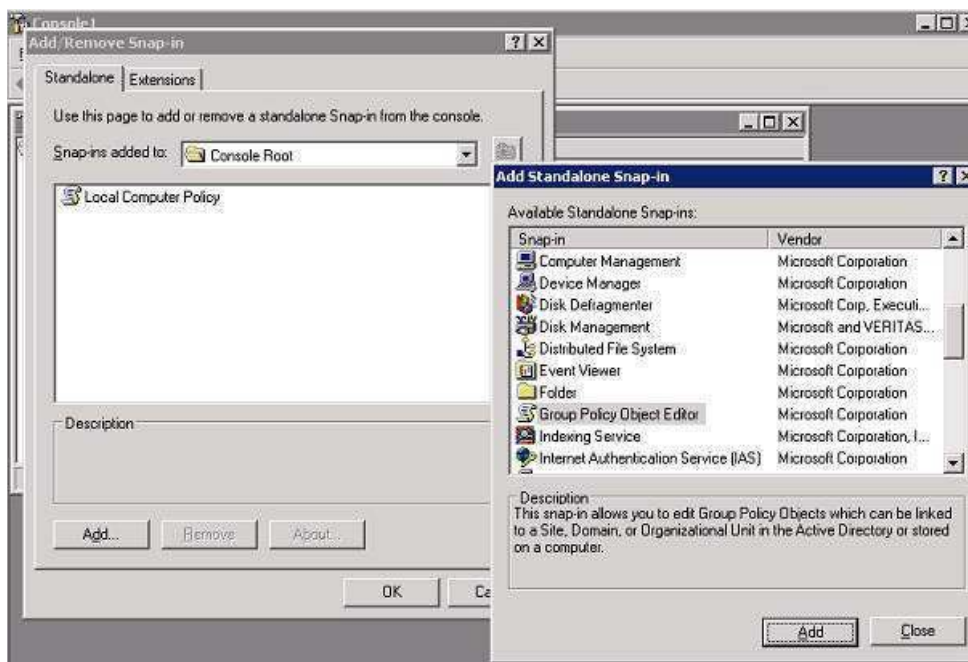
Protocol automatically, so that administrators can log in remotely. As in Windows 2000, there is a limit of two concurrent administrative logins unless Terminal Services is installed.

Terminal Server User Accounts

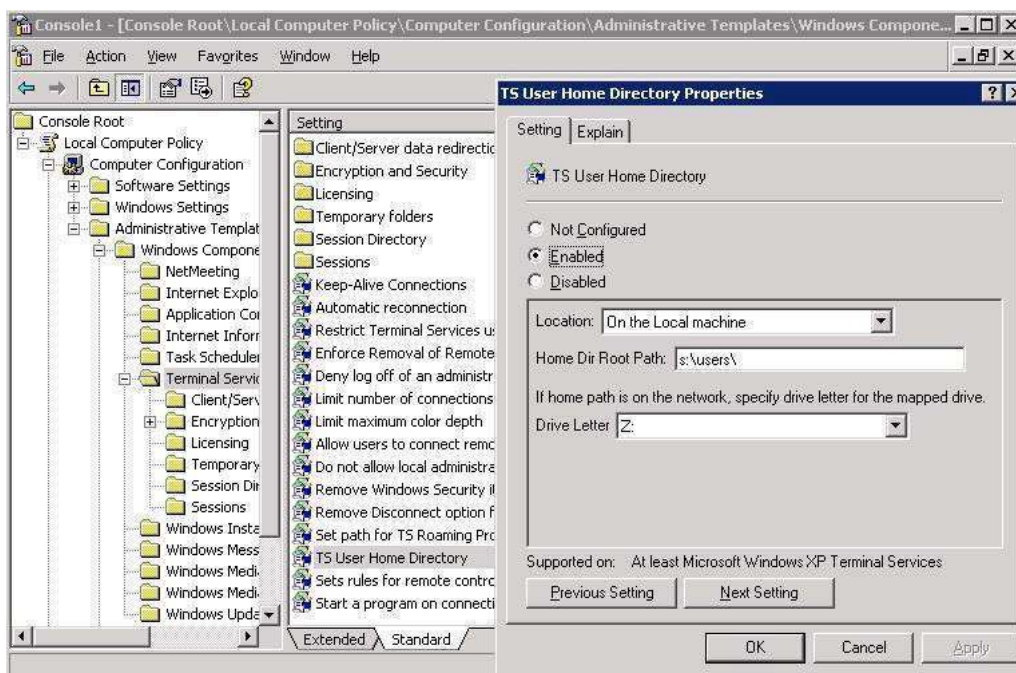
Each user of edulog will need their own user account on the terminal server. The preferred method is for these accounts to be created as local accounts on the terminal server.

Domain accounts may be used but will cause several limitations that should be discussed. With a domain account the terminal services profile may only be changed if the change is wanted for all terminal servers within the domain or future terminal servers that may be added to the domain. By default, Windows will create all user profiles in the Documents and Settings folder that is on the same drive as %system-root%. Usually this is the C: drive, your boot partition.

New to 2003 is a local computer Group Policy Object (GPO) that allows an administrator to specify the location of all users' home directory on the Terminal Server. To see this GPO, Start>Run>MMC. In the console choose File>Add/Remove Snap-in. Choose Add>Group Policy Object Editor. This should bring you to the point illustrated below:



When you choose the Group Policy Object Editor, it will ask you if you want the Local Server or a domain. Close the dialogs until you get back to the Console. Then drill down to Computer Configuration>Administrative Templates>Windows Components>Terminal Services. There you will find a setting for the TS User Home Directory. In our case we are enabling this and setting it to S:\users. This means that any user who logs into the server will have a home directory of S:\Users\%user-name%.



The explanation for this setting is provided below.

Specifies whether Terminal Services uses the specified network share or local directory path as the root of the user's home directory for a Terminal Services session.

To use this setting, select the location for the home directory (network or local) from the Location drop-down list. If you choose to place the directory on a network share, type the Home Dir Root Path in the form \\Computername\Sharename, and then select the drive letter to which you want the network share to be mapped.

If you choose to keep the home directory on the local computer, type the Home Dir Root Path in the form "Drive:\Path" (without quotes), without environment variables or ellipses. Do not specify a placeholder for user alias, because Terminal Services automatically appends this at logon.

Note: The Drive Letter field is ignored if you choose to specify a local path. If you choose to specify a local path but then type the name of a network share in Home Dir Root Path, Terminal Services places user home directories in the network location.

If the status is set to Enabled, Terminal Services creates the user's home directory in the specified location on the local computer or the network. The home directory path for each user is the specified Home Dir Root Path and the user's alias.

If the status is set to Disabled or Not Configured, the user's home directory is as specified at the server.

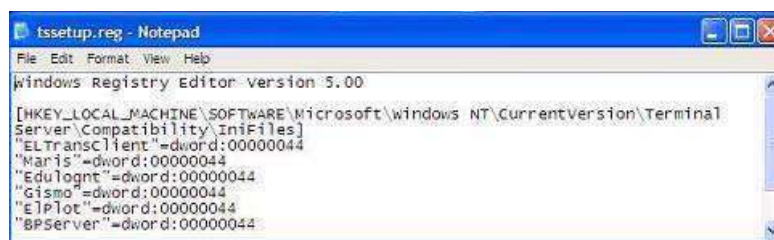
When setting up a terminal server a template account should be set up and the software should be installed under that account. This account will be set up manually and all other accounts will be created based on how this account was set up. The user name for this account should be support and the password should be edulog. A district may choose to use a different user name and password for the template account

but please be aware that edulog is not responsible for keeping track of or maintaining user names and passwords. If the defaults are not used please be sure that any person calling edulog Support or Hardware Consulting has this information readily available. This support account should also have Local Administrative privileges and full access to all user directories.

This setting only takes effect if the user is currently logged into Terminal Services, not logged into the console. It is important to log on to the Terminal Services Server using the RDP Client. Logging into the Server via Terminal Services will create the support user its own Windows directory in the path specified. It is important that this happens before proceeding beyond this point.

Terminal Server Registry Settings for Proper INI File Handling

As a feature of Terminal Services, Windows monitors all INI files in the system directory for changes so that those changes may also be made to each individual users INI files. Because many of edulog's INI files contain user specific paths and entries several registry modifications must be made to keep these user specific paths and settings from being overwritten. The tssetup.reg file is available from the Hardware Consulting Department to make these registry changes. Below is an example of the tssetup.reg file and what changes it makes to your registry. It is extremely important that this step is completed before continuing further.



For an understanding of how terminal services handles INI files here is an example. Each time a user starts an application that uses an INI file, Windows will compare the date/time stamp of the INI file in the users Windows directory against the date/time stamp of the INI file in the system Windows directory. If the date/time stamp of the INI file in the system Windows directory is newer than that of the INI file in the users directory, the users INI file will be renamed to .CTX and the system INI file will be copied into the users Windows directory. This default action overwrites the unique user settings and paths and will stop edulog from working properly. The tssetup.reg file adds an entry into the registry for each INI file that edulog uses with a hexadecimal value of 44. This tells Windows to merge any new INI entries into the existing users INI file so that the INI file itself is upgraded with any new lines but the user specific information is retained.

Terminal Services Install and Execute Modes

A Terminal Server running in Application Server Mode can be placed in either execute mode or install mode. When in execute mode the server will always look to the individual user logged on Windows directory instead of the system Windows direc-

tory. Whenever applications are installed the server should be placed in install mode, which directs the install programs towards the system Windows directory instead of the individual users Windows directory. A terminal server may be placed in Install mode by entering the add/remove programs dialog. When a user tries to install a program that is titled setup.exe the terminal server will remind the user that it must be installed through the add/remove programs dialog. The current edulog installs do not use setup.exe so no reminder will be given. A terminal server may also be placed into Install mode by typing the following at a command prompt:

```
change user /install
```

To place the server back into execute mode the following command may be used:

```
change user /execute
```

If you are unsure what mode the server is currently in you may type the following command:

```
change user /query
```

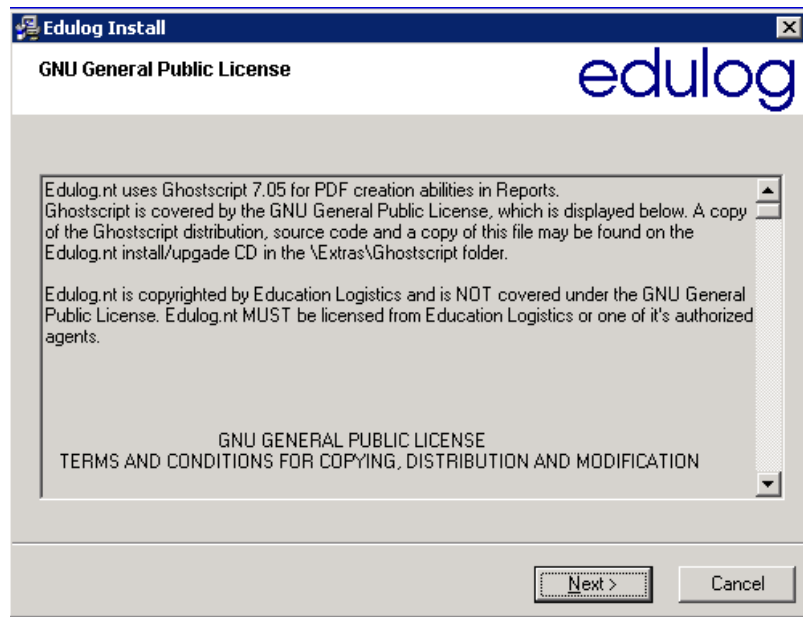
Our preferred method of working is to use Add or Remove Programs.

Installation of Edulog Version 10.5

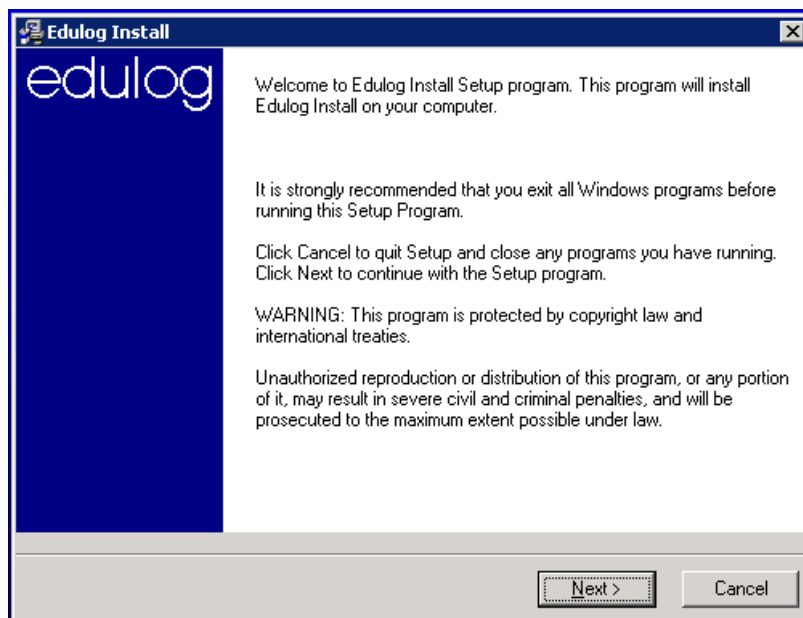
Before installing edulog please place the server into install mode or use add/remove programs. When installing edulog it is recommended to place the ELT directory and the USERS directory on a separate partition from the operating system. In the following examples the ELT directory and the USERS directory will both be placed off of the root of the D drive.

In version 10, edulog for the first time is installing Microsoft DAO (Data Access Objects), a component needed for our new reports configuration. If your server has not had DAO installed, it will install and reboot your computer. Please note that you will need to cancel the installation after the server restarts. At the reboot, the installation places a shortcut to itself in either the c:\documents and settings\support\start menu\programs\start up folder or in c:\documents and settings\all users\start menu\programs\start up folder. Delete this shortcut. Then either use the change user /install or add/remove programs to restart the installation.

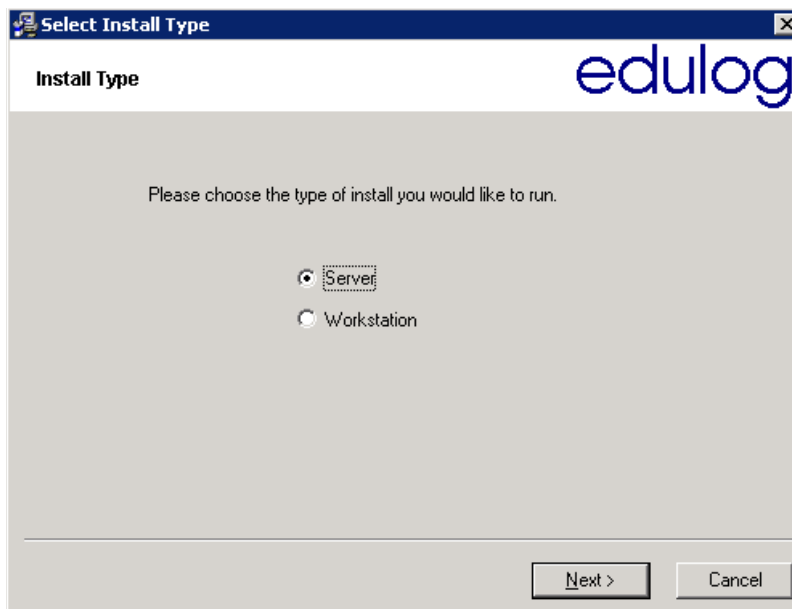
The first thing that we do is install Ghostscript.



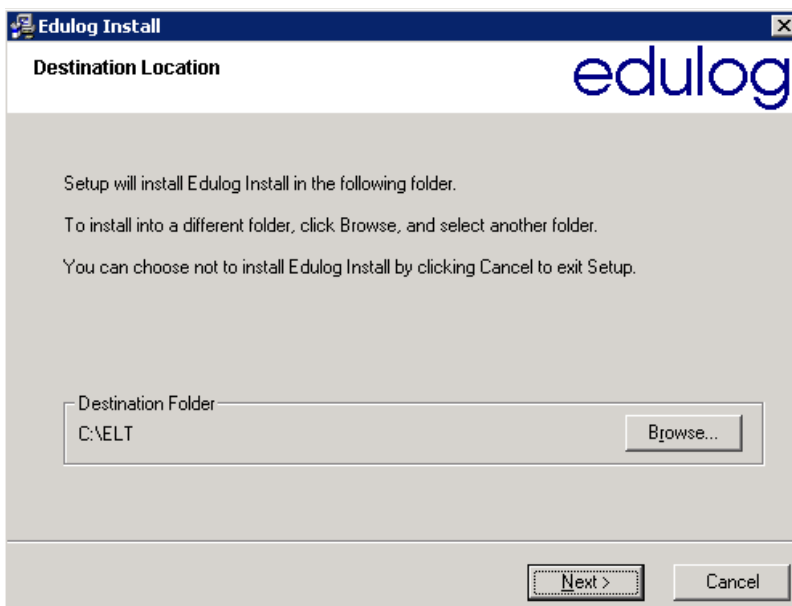
Next we have the warning about exiting all other Windows programs.



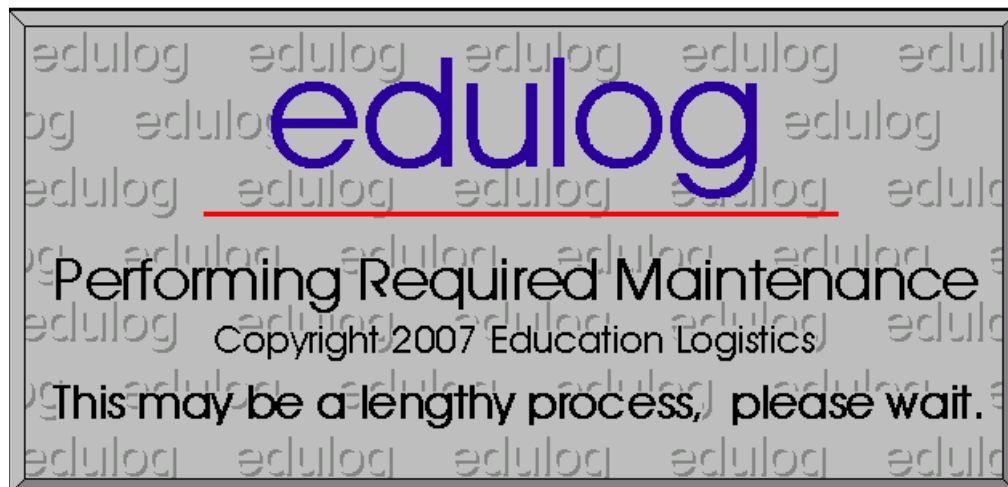
Now we have to choose whether this will be a server or workstation installation. Of course we choose the server option.



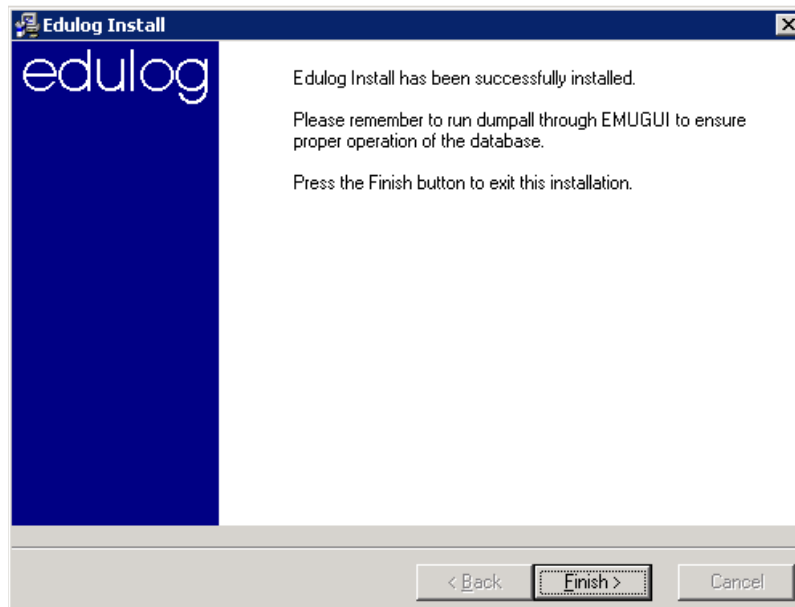
Next, it asks for the location that you want to create the ELT in. By default, it gives you the option of C:\ELT. I would recommend that you use the D:\ELT or a drive other than the boot drive.



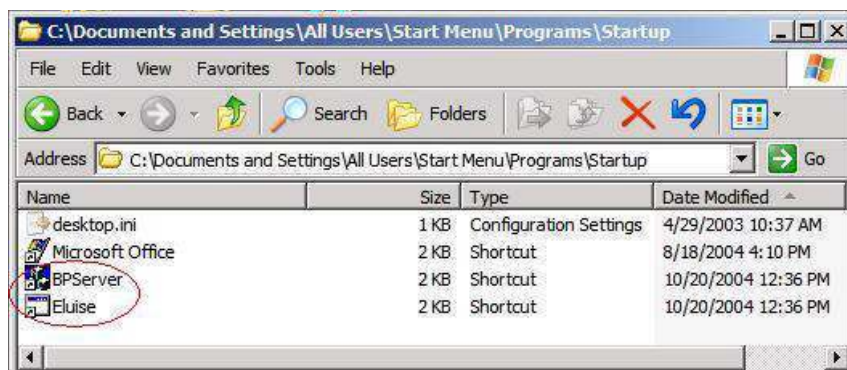
Similarly, the default for the users folder is C:\USERS. Again browse to D:\USERS.



Now that everything is prepared, the install will run, putting the data, program files, dlls, and other components into their proper places. The reward for our work is shown below.



The edulog installation will put shortcuts in the All Users start-up folder for Eluise and BpServer. These shortcuts should be deleted to prevent each individual user session from trying to start these server side executables. Later in this document the process for changing these items into Windows services will be explained in full detail.



Remember to place the server back into execute mode if Add/Remove programs had not been used to install edulog.

MAKING EDULOG MULTI-USER FOR TERMINAL SERVICES

edulog was designed to be run as a traditional Client/Server application. Running a client/server application on a terminal server requires some modification to the standard setup for everything to work correctly in a multi-user environment. In the typical client/server setup a number of files are located on the workstation; for terminal services these files must be placed in a new directory structure within each users terminal services path.

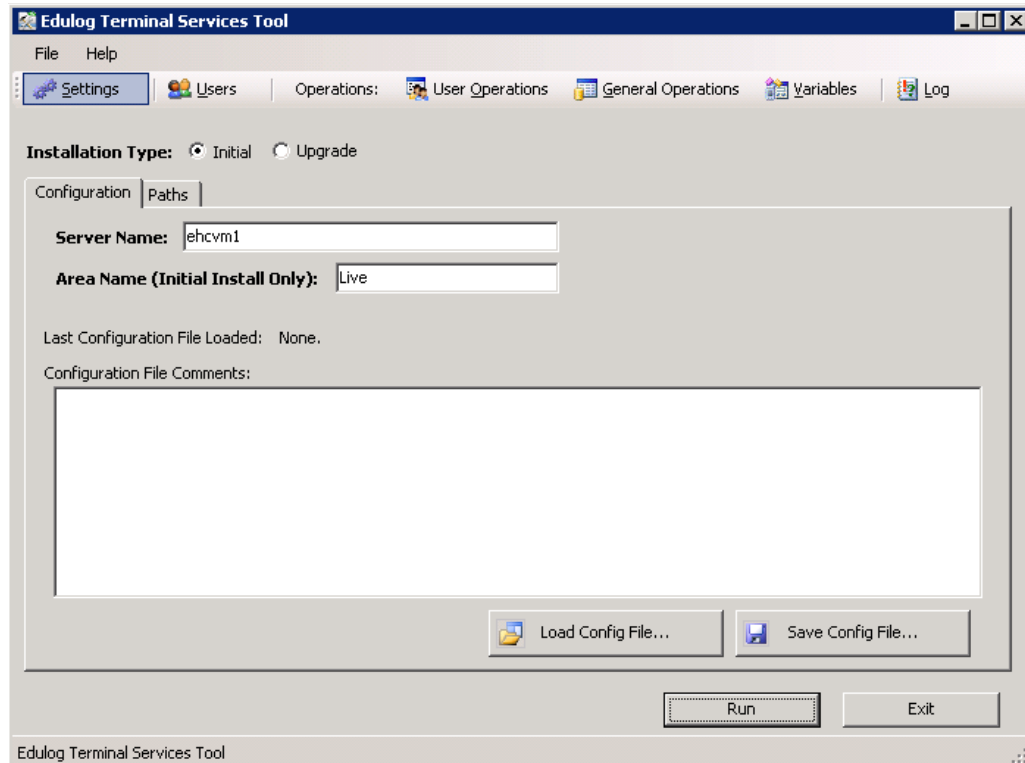
We set up a template account and use it as the basis from which all other accounts are created. We have developed a new tool to set things up. We call it "Edulog_TS_Tool". It requires the .NET Framework version 2.0, available from Microsoft at <http://www.microsoft.com/downloads/details.aspx?familyid=0856eacb-4362-4b0d-8edd-aab15c5e04f5&displaylang=en> in order to run.

We have developed sets of procedures to take care of most aspects of setting up the template user and other users. It is critical that you get the correct versions of these procedure files to for the version of the installation that you are using. As always, please contact us if you have any questions, concerns or hesitations.

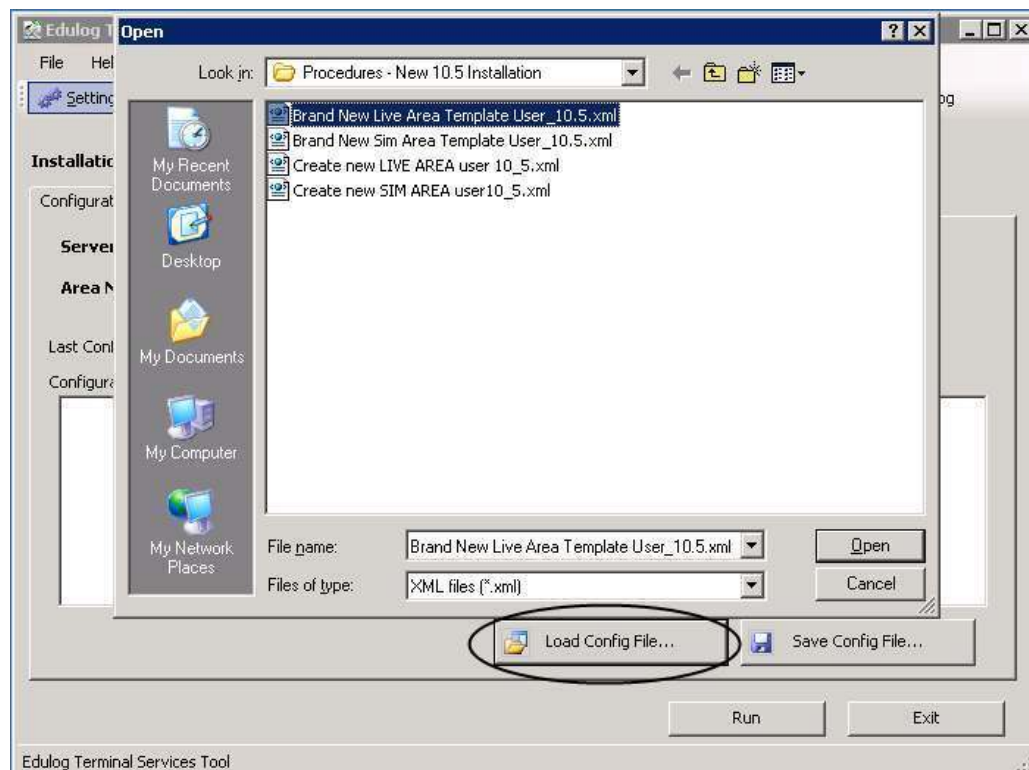
Using the Edulog_TS_Tool

The Edulog_TS_Tool is a program that was designed specifically to address the needs of setting up edulog on a Terminal Server.

NOTES

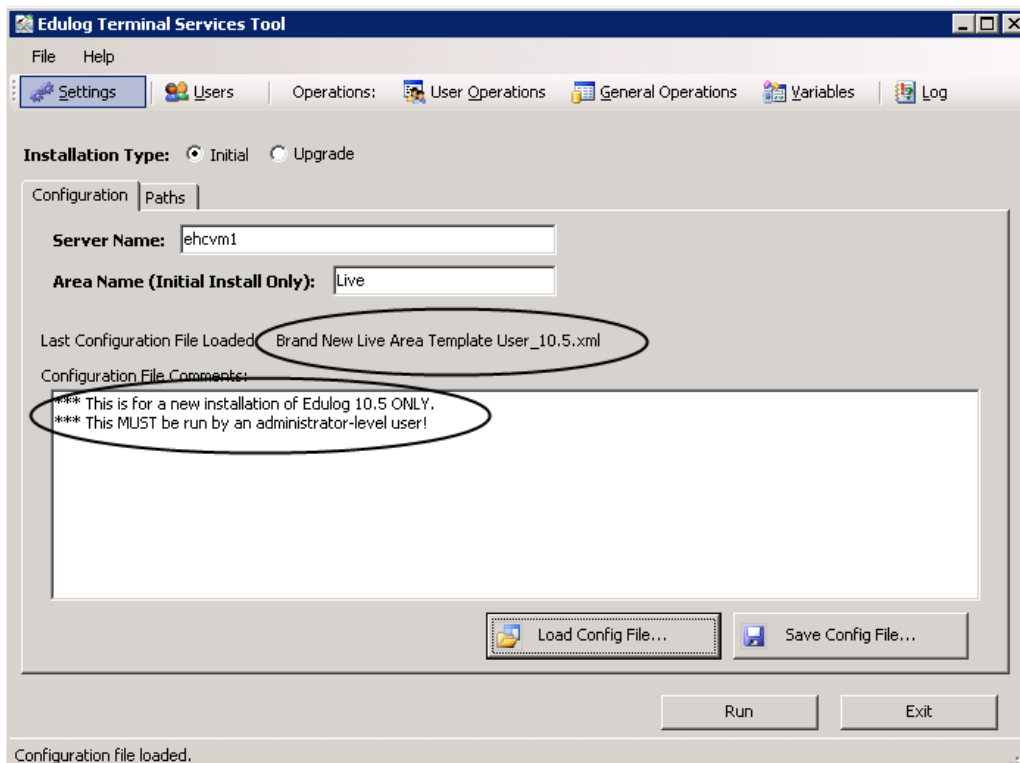


To start using the tool, you need to load a config file. Click on the Load Config File button, circled in the illustration below.



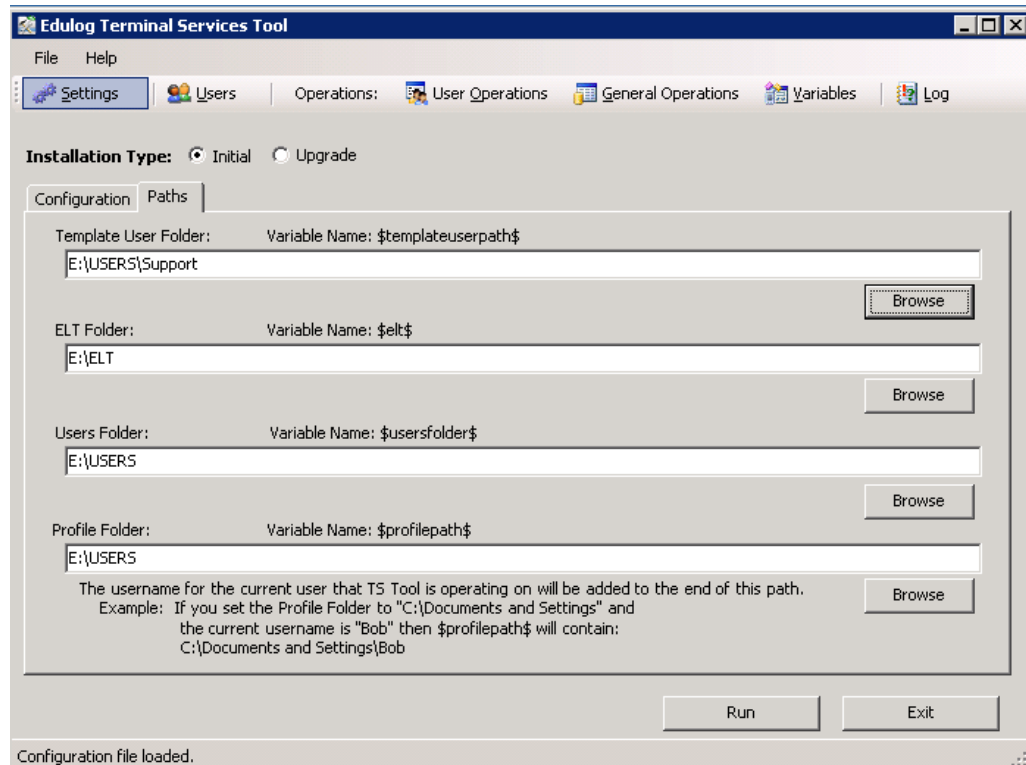
We will set up the template user account for the default Live area. Correct configuration of the template account is critical. All the rest of the accounts are based on it. So any errors get multiplied.

Note that when you load a template, it shows up on the Edulog_TS_Tool as shown in the upper ellipse below. Note that there are comments in the Configuration File Comments area. You need to pay attention to these as they contain important warnings and other things to consider. The first screen contains the server name and defaults to the Live area.

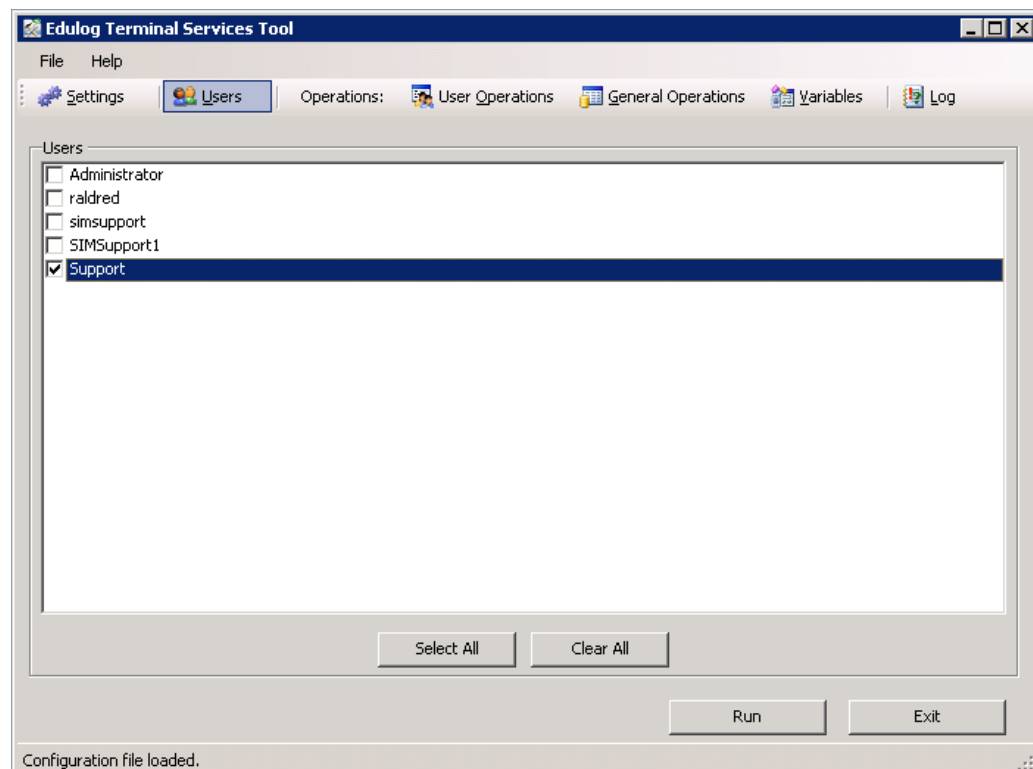


The first thing that we need to do is to set the paths for the installation. The Template User Folder is the folder where the Template user TS hompath resides. This must be in the defined users folder. We like to have a separate account that will normally be used. That way the template has less chance of being corrupted. The ELT folder is the ELT folder into which you installed edulog. Note that it is not the ELT\Live, just the ELT. The Users Folder and the Profile Folder must be the same. These are illustrated below.

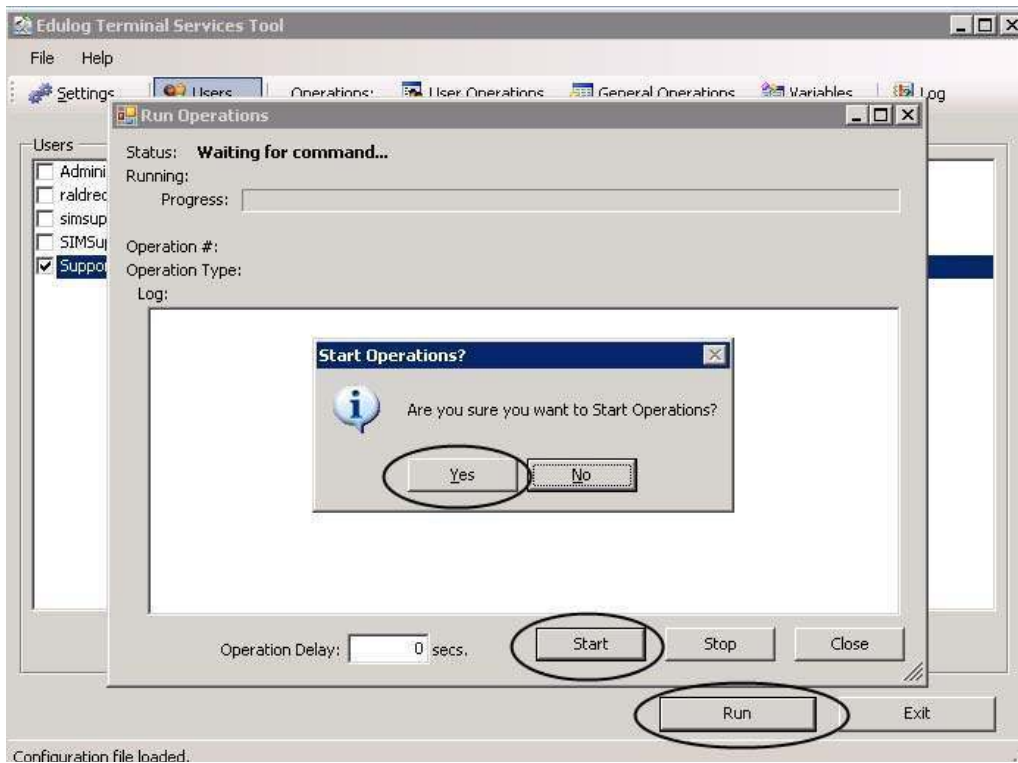
NOTES



Once you have the server settings complete and accurate, you can move on to the Users tab. Here you would check only the Template User Account - in this case the user Support.



With all the settings completed, and the user chosen, we are ready to move on to actually running the tool. When you click on run, it offers you the option to back out if you wish. If you wish to proceed, you can choose Start. You must confirm your intention once again.

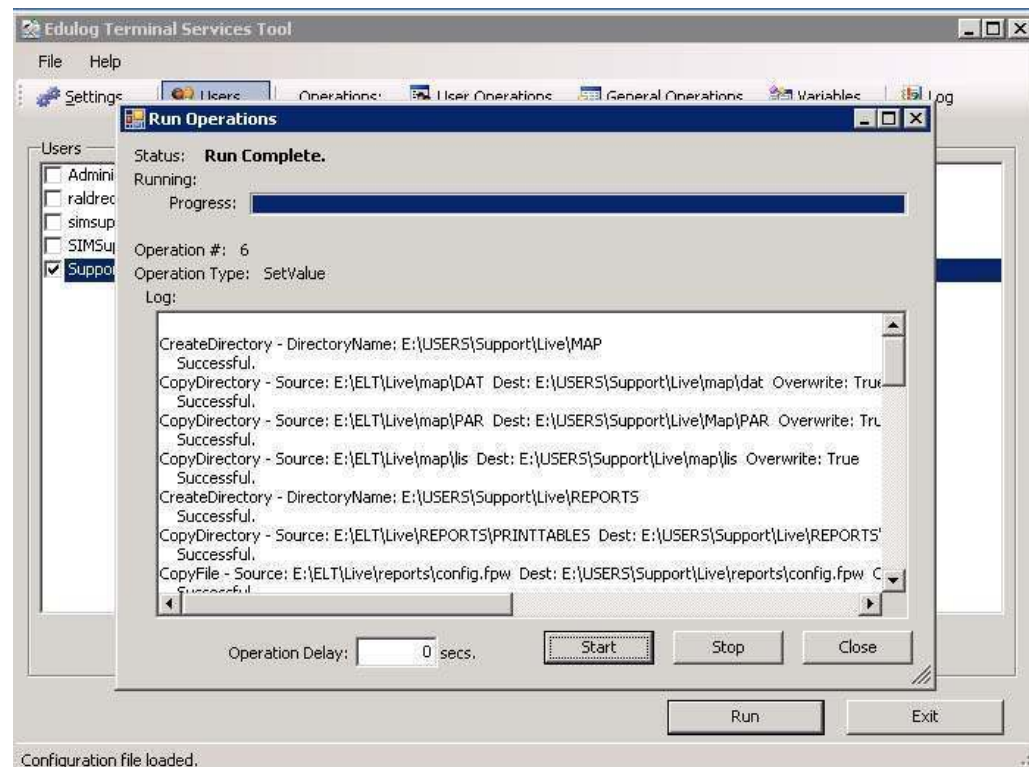


If the TS Tool encounters an error, it throws a very obvious error screen, as shown below. If you encounter an error, please contact edulog Hardware Consulting, so we can help you troubleshoot it.

NOTES



It should run through cleanly, and display the following screen: Run Complete with all operations having a status of Successful. If you do not see this screen when you finish this operation - please contact edulog Hardware Consulting.



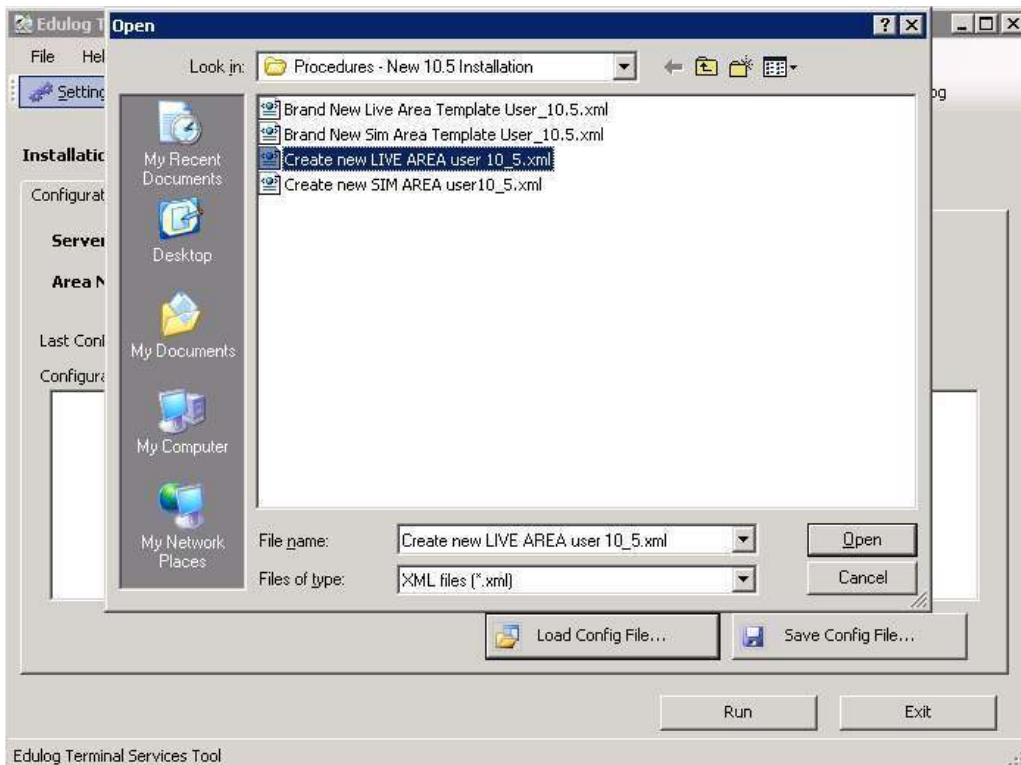
Once the template user is set up successfully, you are ready to proceed with the setup of the other users.

NOTES

Creating a new Live Area User

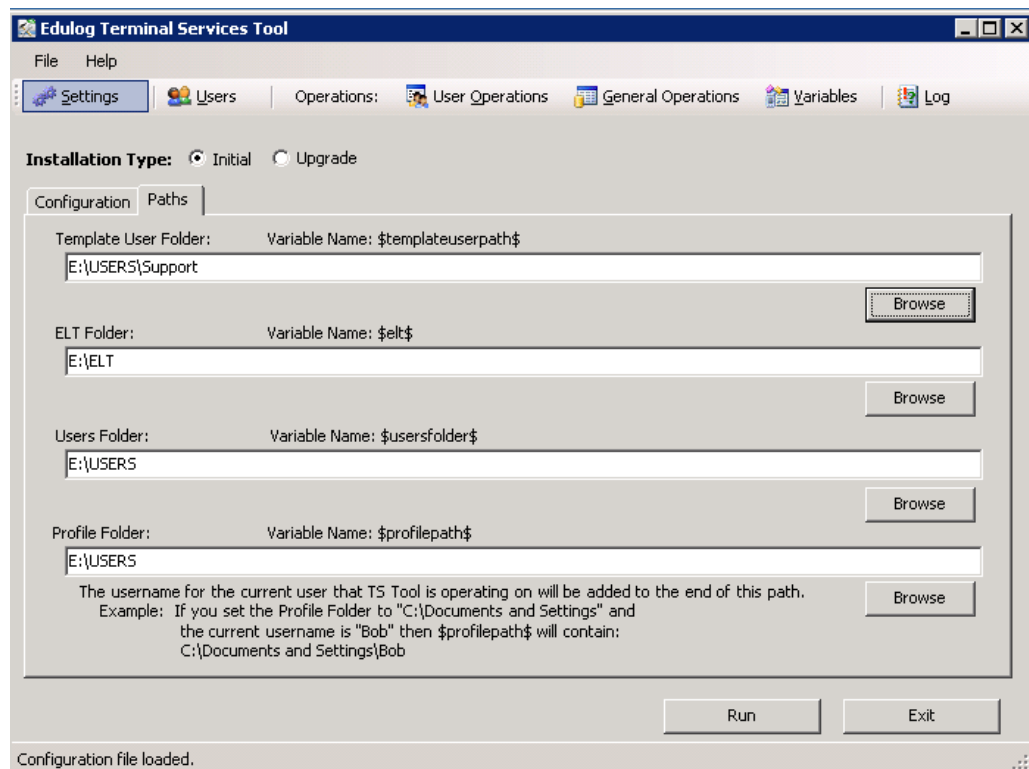
You cannot create a new Live Area user until you have created and properly configured the template user as outlined above.

To create the a new live area user, we will use the Edulog_TS_Tool. Initialize the program, and choose Load Config File. From the folder New 10.5 Installation, choose Create new LIVE AREA User10_5.xml, as illustrated below. Click on Open.



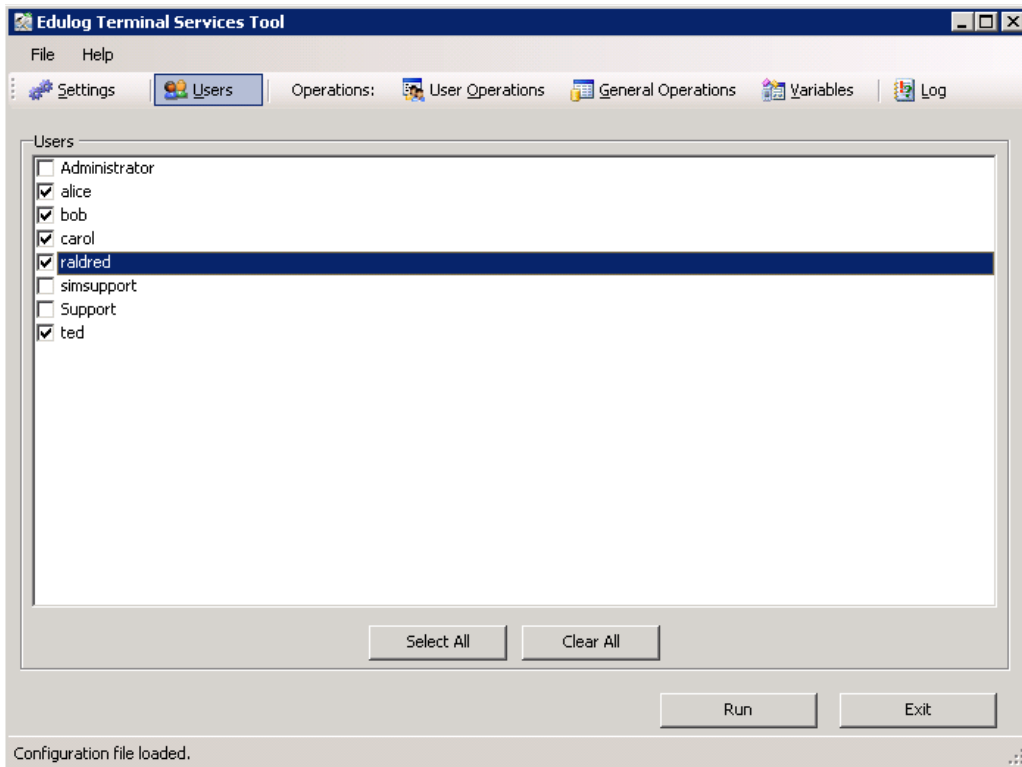
Next we will set up the paths for your computer, just as we did above. The Template User Folder is the folder where the Template user TS hompath resides. This must be in the defined users folder. We like to have a separate account that will normally be used. That way the template has less chance of being corrupted. The ELT folder is the ELT folder into which you installed edulog. Note that it is not the ELT\Live, just the ELT. The Users Folder and the Profile Folder must be the same. These are illustrated below.

NOTES

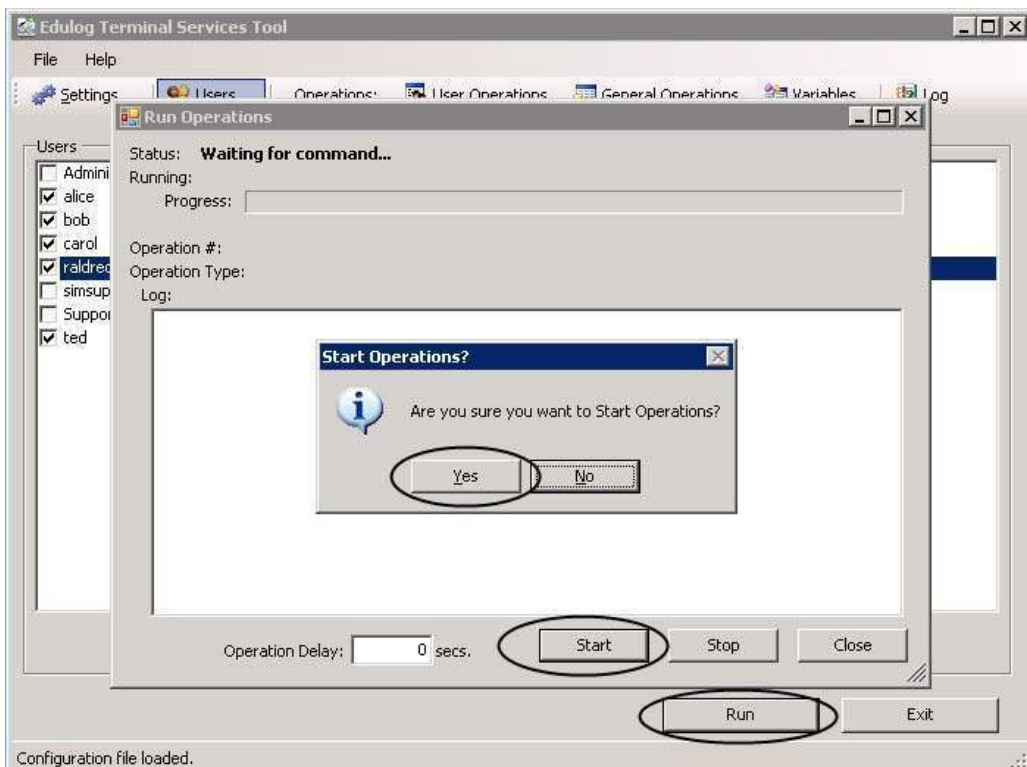


After this step, it is not a bad idea to save a copy of this configuration file so you do not need to reset the paths every time you need to set up a new user.

The next step is to choose the users you want to set up. In our case we will set up bob and carol and ted and alice and raldred. You just put a check mark beside the users you want, as illustrated below.



When you are ready to proceed, click on the Run button. You will need to click Start, then reconfirm your intention.



It should finish with the standard success screen, shown below. If for some reason you get an error screen please contact edulog Hardware Consulting.

Setting up Eluise, LockManager, and BpServer as Windows Services

By default Eluise, LockManager and BpServer all run as console applications on your edulog server. The process of setting them up as services requires two files from the Windows 2003 Resource Kit. They can be found in the \i386\Config directory on the Resource Kit CD. The two files, INSTSRV.EXE and SRVANY.EXE, should be copied into a directory on your machine. The location of these files must remain constant because each time a service starts, it calls the SRVANY.EXE file. I recommend placing them in or off of the \WINNT directory as this will not be frequently changed and is never deleted. *These notes will assume placing the files in the \WINNT directory.

This process requires editing the registry. WARNING: Using Registry Editor incorrectly can cause serious problems that may require you to reinstall your operating system. Microsoft cannot guarantee that problems resulting from the incorrect use of Registry Editor can be solved. Use Registry Editor at your own risk.

Eluise

Install Eluise as a Windows 2003 service by typing the following command at a MS-DOS prompt from the \WINNT directory [or which ever directory you copied the above mentioned files, INSTSRV.EXE and SRVANY.EXE, to]:

```
instsrv Eluise c:\winnt\srwany.exe
```

You should see a message telling you that the service was added successfully. Now go to the Services Applet in the Control Panel and configure the newly added Eluise Service. The Services Applet in Windows 2003 is accessed by going through Start/Programs/Administrative Tools then Services. There are also other ways of getting to the Services Applet.

Startup Type: should be set to automatic.

Log On As: This Account, using an account with administrative rights on this machine.

Password: Enter the password of the account chosen above.

Note on the above username/password selected for these services. I suggest not using an account which will be changing the password frequently. I would recommend creating an account specifically for running these services and then leave the password constant. If the password is changed, it must also be changed in the properties of each service. If not the services will fail on startup, and edulog will not run on your server.

Start the Registry Editor by clicking on Start, then Run, then type in regedit. Under HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services, highlight Eluise, click on Edit, and New Key. Type in 'Parameters' for the Key Name.

Highlight the new Parameters Key, click on Edit, and Add String Value. Type in 'Application' for the New Value #1 and click OK. Right-click and choose Modify

specifying the full path to the Eluise executable. For example: 'd:\elt\exe\server\eluise.exe'. This assumes the edulog software is loaded under d:\elt directory structure. If you have loaded on a different drive, e:\elt, for example, this must be substituted here.

Highlight the new Parameters Key, click on Edit, and Add String Value. Type in 'AppParameters' for the New Value #1 and click OK. Right-click and choose Modify, then specify the full path to the Eluise configuration file, for example: '-f d:\elt\live\server\eluise.cfg'. This assumes the edulog software is loaded under d:\elt directory structure. If you have loaded on a different drive, e:\elt, for example, this must be substituted here.

To make the Eluise Service dependent on the LockManager Service, highlight Eluise, click on Edit, and New Multi-String Value. Type in the value of 'DependOn-Service'. Right-click and choose Modify then type in 'LockManager' and click on OK.

Lock Manager

Install Lock Manager as a Windows NT service by typing the following command at a MS-DOS prompt from the \WINNT directory [or which ever directory you copied the above mentioned files, INSTSRV.EXE and SRVANY.EXE, to:

```
instsrv LockManager c:\winnt\srwany.exe
```

You should see a message telling you that the service was added successfully. Now go to the Services Applet in the Control Panel and configure the newly added Lock-Manager Service. The Services Applet in Windows 2003 is accessed by going through Start/Programs/Administrative Tools then Services. There are also other ways of getting to the Services Applet.

Startup Type should be set to automatic.

Log On As: This Account, using an account with administrative rights on this machine.

Password: Enter the password of the account chosen above.

Note on the above username/password selected for these services. I suggest not using an account that will be changing the password frequently. I would recommend creating an account specific for running these services and then leave the password constant. If the password is changed, it must also be changed in the properties of each service.

Start the Registry Editor by clicking on Start, then Run, then type in regedit. Under HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services, highlight LockManager, click on Edit, and New Key. Type in 'Parameters' for the Key Name, Click on OK.

Highlight the new Parameters Key, click on Edit, and New String Value. Type in 'Application' for the Value Name and click OK. Right-click and choose Modify, then specify the full path to the Lock Manager executable. For example: d:\elt\exe\server\lmw.exe, then click OK. This assumes the edulog software is loaded under d:\elt directory structure. If you have loaded on a different drive, d:\elt, for example, this must be substituted here. If you are setting up a TCP Lock man-

ager, you must create an AppParameters key as mentioned before and enter -mc. If you have over 20 simultaneous users you will also need to add a -u 100 where the 100 signifies the number of potential concurrent connections.

BPSERVER

Install BPServer as a Windows NT service by typing the following command at a MS-DOS prompt from the \WINNT directory [or which ever directory you copied the above mentioned files, INSTSRV.EXE and SRVANY.EXE, to:

```
instsrv BPServer c:\winnt\srwany.exe
```

You should see a message telling you that the service was added successfully. Now go to the Services Applet in the Control Panel and configure the newly added BPServer Service. The Services Applet in Windows 2003 is accessed by going through Start/Programs/Administrative Tools then Services. There are also other ways of getting to the Services Applet in Windows 2003.

Startup Type should be set to automatic.

Log On As: This Account, using an account with administrative rights on this machine.

Password: Enter the password of the account chosen above.

Note on the above username/password selected for these services. I suggest not using an account that will be changing the password frequently. I would recommend creating an account specific for running these services and then leave the password constant. If the password is changed, it must also be changed in the properties of each service.

Start the Registry Editor by clicking on Start, then Run, then type in regedit. Under HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services, highlight BPServer, click on Edit, and New Key. Type in 'Parameters' for the Key Name. Click on OK.

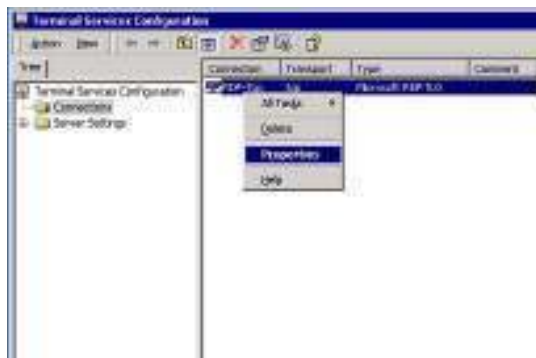
Highlight the new Parameters Key, click on Edit, and New String Value. Type in 'Application' for the Value Name and click OK. Right-click and choose Modify then specify the full path to the BPServer executable. For example: d:\elt\exe\server\BPServer.exe. This assumes the edulog software is loaded under d:\elt directory structure. If you have loaded on a different drive, d:\elt, for example, this must be substituted here.

Terminal Server Configuration

Terminal Services allows for a variety of settings that will increase the dependability of edulog running in a terminal services environment. The Terminal Services configuration dialog may be reached from the Start->Programs->Administrative Tools menu.

Once inside the Terminal Services dialog right click on RDP-Tcp and choose properties.

The following dialog will appear:



General Tab



Encryption Level-

Lists the available levels of encryption used to protect data sent between the client and the server. All levels use the standard RSA RC4 encryption.

The Client Compatible level encrypts data sent between the client and the server at the maximum key strength supported by the client. Use this level when the terminal server is running in an environment containing mixed or legacy clients.

The High level encrypts data sent from client to server and from server to client by using strong 128-bit encryption. Clients that do not support this level of encryption will not be able to connect.

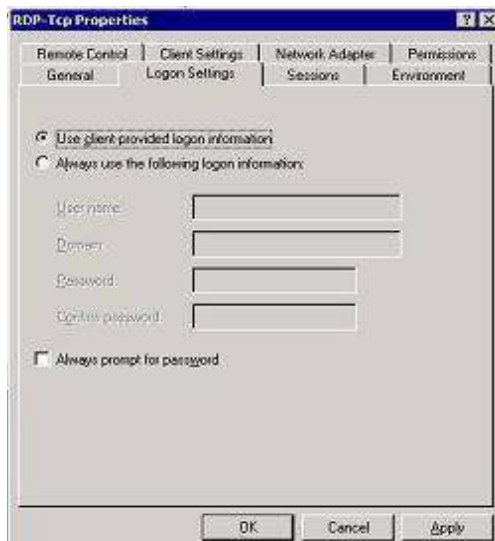
Note: The above information applies to Terminal Server (RDP) connections only. For information on setting encryption levels in ICA connections, see the Citrix MetaFrame product documentation.

Use standard Windows authentication -

Specifies whether the connection defaults to the standard Windows authentication when another authentication package has been installed on the server.

Logon Settings Tab

Because of the user derived path information used in edulog each user must logon with client provided logon information, as each user must have a unique logon.



Always prompt for password- Checking this option will require the user to logon to Windows regardless of what logon information is sent from the client. Unchecking the option provides a more seamless entrance to edulog but is less secure as any user may start edulog from the shortcut. Edulog may also be configured for authentication.

Sessions Tab



End a disconnected session-

Provides a space for you to type or select the maximum amount of time that a disconnected session remains on the server. When the time limit is reached, the disconnected session ends. When a session ends, it is permanently deleted from the server. Select Never to allow disconnected sessions to remain on the server indefinitely.

You can either select the length of time or type the number of minutes, hours, or days in the box. Specify the units of time using m for minutes, h for hours, and d for days. The maximum length of time you can specify is 49 days, 17 hours.

If a user disconnects from a terminal services session the server end or Eltransservice will continue to run. End the session will properly shut down edulog and its server side eltransservice. Allowing ten minutes before the session is ended will give users time to reconnect if network problems caused the original disconnection. After ten minutes their session will be ended and all edulog programs will be properly closed.

Active session limit-

Provides a space for you to type or select the maximum amount of time that a user's session can remain active on the server. When the time limit is reached, either the user is disconnected from the session or the session ends. When a session ends, it is permanently deleted from the server. Select Never to allow the session to continue indefinitely.

You can either select the length of time or type the number of minutes, hours, or days in the box. Specify the units of time using m for minutes, h for hours, and d for days. The maximum length of time you can specify is 49 days, 17 hours.

Typically, we set this to never as we do not want an active session to be disconnected or ended.

Idle session limit-

Provides a space for you to type or select the maximum amount of time that an idle session (session without client activity) remains on the server. When the time limit is reached, either the user is disconnected from the session or the session ends. When a session ends, it is permanently deleted from the server. Select Never to allow idle sessions to remain on the server indefinitely.

You can either select the length of time or type the number of minutes, hours, or days in the box. Specify the units of time using m for minutes, h for hours, and d for days. The maximum length of time you can specify is 49 days, 17 hours.

Typically, we set this to 2 hours so that a user may leave their session open while on break or at lunch. This setting may be adjusted to your district needs. Idle sessions will stop nightly maintenance from running correctly.

When session limit is reached or connection is broken-

Disconnect from session-

Specifies that a user is disconnected from a session when the session limit is reached or the connection is broken.

End session-

Specifies that a session is ended when the session limit is reached or the connection is broken. When a session ends, it is permanently deleted from the server.

It is preferred to have broken connections to end rather than disconnect so as not to leave any server sessions running.

Environment Tab



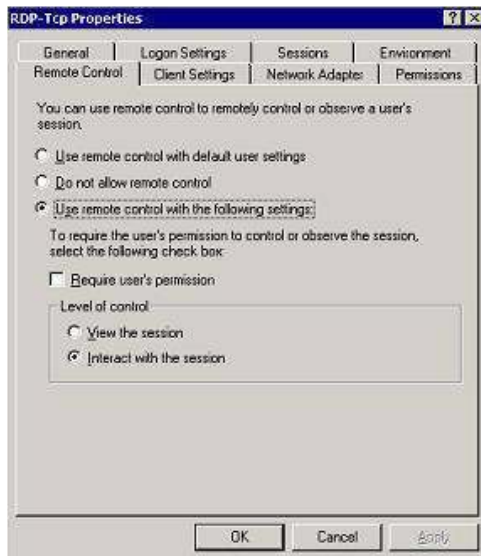
Initial program -

Specifies whether to override initial program settings configured for the default user profile in the Terminal Services Extension to Local Users and Groups and Active Directory Users and Computers and for the client settings in Client Connection Manager. When selected, you can configure initial program settings for the connection.

Because edulog is made up of several applications the initial program setting will not be used.

Remote Control Tab

NOTES



Use remote control with default user settings-

Specifies that remote control settings are retrieved from the default user settings in the Terminal Services Extension to Local Users and Groups and Active Directory Users and Computers.

Do not allow remote control-

Specifies that remote control is not allowed on this connection.

Use remote control with the following settings-

Specifies that remote control is allowed on the connection and allows you to configure remote control settings. Configuring remote control on a per-connection basis affects all sessions that use the connection.

Client Settings Tab



Limit Maximum Color Depth

Specifies whether to limit the maximum color depth for Terminal Services clients using this connection. By default, this feature is disabled.

Disable the following-

Drive Mapping

Specifies whether to disable client drive mapping. By default, this feature is unchecked (enabled).

Windows printer mapping-

Specifies whether to disable client Windows printer mapping. By default, this feature is unchecked (enabled).

When enabled (unchecked), clients are able to map Windows printers and all client printer queues are automatically reconnected at logon. However, when both LPT and COM port mappings are disabled (checked), you will be unable to manually create printers.

When disabled (checked), clients are unable to map Windows printers and client printer queues are not reconnected at logon. However, you will be able to manually reconnect printers if LPT port mapping or COM port mapping is enabled (unchecked).

LPT port mapping-

Specifies whether to disable client LPT port mapping. By default, this feature is unchecked (enabled).

When enabled (unchecked), client LPT ports are automatically mapped for printing and are available in the port list of the Add Printer wizard. You will need to manually create the printer to the LPT port using the Add Printer wizard.

When disabled (checked), client LPT ports are not automatically mapped. You will be unable to manually create printers using LPT ports.

COM port mapping-

Specifies whether to disable client COM port mapping. By default, this feature is unchecked (enabled).

When enabled (unchecked), client COM ports are automatically mapped for printing and are available in the port list of the Add Printer wizard. You will need to manually create the printer to the COM port using the Add Printer wizard.

When disabled (checked), client COM ports are not automatically mapped. You will be unable to manually create printers to COM ports.

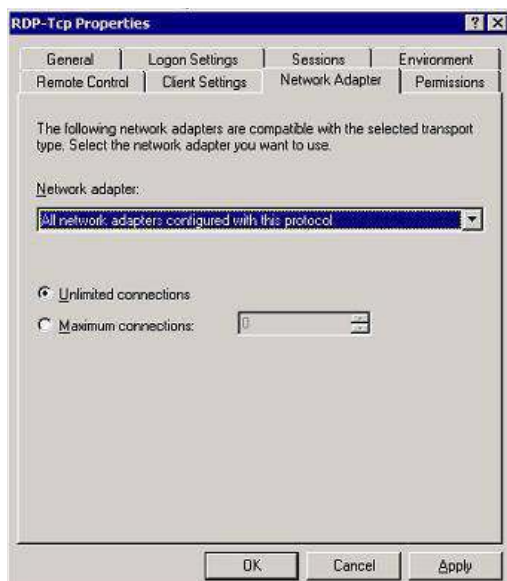
Clipboard mapping-

Specifies whether to disable client clipboard mapping. By default, this feature is unchecked (enabled).

Audio Mapping

Specifies whether to disable client audio mapping. By default, this feature is checked (disabled).

Network Adapter Tab



Maximum connections-

Specifies that a maximum number of sessions can connect to the server using the connection. Restricting the number of sessions improves performance since fewer sessions are demanding system resources. In the space provided, adjust the maximum number of sessions.

Permissions Tab



User permissions may be set or modified for all users using a terminal services connection.

Useful Scheduled Tasks for an Edulog Terminal Server

Several batch files may be created and scheduled to run nightly to aid in the running of nightly maintenance. Any hanging server sessions or .lck files will stop nightly batches from running as scheduled. All eltransclient and maris ini files should have the autoshutdown section enabled and set to the same time. At the time specified any open edulog or Maris sessions will be closed. The following batch files should also be scheduled to clear any remaining users or their files.

Elterminatorall.bat – used to run elterminator and have it kill any open sessions.
Example of the batch file:

```
@echo off
start "ELTerminator" D:\ELT\exe\server\ELTerminator.exe -n EIMP50 -k all
```

KillLcksandTafs.bat- used to delete any rogue .lck files or .taf files. Example of the batch file:

```
@echo off
cd \elt\live\server\dyn
del ETS*.lck
```



```
del GEO*.lck
cd \elt\live\server\geo
del *.taf
cls
```

KillTSSessions.bat – used to end any Terminal Services sessions. Example of batch file:

```
query session >session.txt
for /f "skip=1 tokens=3,%%i in (session.txt) DO logoff%%i
del session.txt
```

CREATING NEW TERMINAL SERVER CONNECTIONS

The following pre-conditions apply:

- The information in this document requires that your Windows 2000 or Windows 2003 Terminal Server be set up in the usual edulog way as detailed in the relevant setup documents for Version 10.
- This is a living document. Please contact Edulog Hardware Consulting (hardware@edulog.com) to be sure that you have the most recent version.
- If you have questions or concerns at any point as you are creating new user connections, please contact Edulog Hardware Consulting (hardware@edulog.com).

Each user of edulog will need their own user account on the terminal server. Once the user accounts have been completely set up, the last step on the server is to create the Remote Desktop Protocol (RDP) connections that the users will use to connect to the server. For reasons of security, we prefer not to give the users a desktop on the Terminal Server. Thus this document will walk you through creating RDP files that will log the user in to a particular edulog program. That program will act as the user's shell on the server. Once they terminate the program, the user connection with the server is terminated as well. The user never sees a desktop on the server. You as an administrator can rest easier.

We are using the new RDP client from Microsoft. It comes native with Windows XP, or is available as a download (MSRDPCLI.EXE) for any version of Windows from <http://www.microsoft.com/downloads/details.aspx?FamilyID=80111F21-D48D-426E-96C2-08AA2BD23A49&displaylang=en>. This client offers advanced features over previous versions.

Using the Edulog Launch Pad

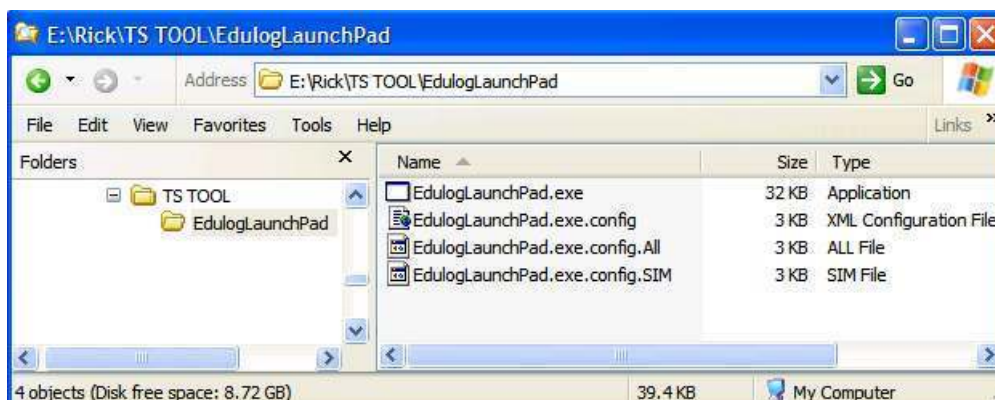
The Launch Pad is the program that we are using to control users logging into a Terminal Server. The Launch Pad functions as the users' shell on the server. They see only the Launch Pad and the programs it allows them to see. When they exit the Launch Pad, they exit the server. It requires some server-side setup. But because every user gets a similar user experience, and requires only one workstation icon, the overall administrative workload is lowered.

The Launch Pad requires the Microsoft .net framework runtime version 2 which is available on the web at <http://www.microsoft.com/downloads/details.aspx?familyid=0856eacb-4362-4b0d-8edd-aab15c5e04f5&displaylang=en>. You need to

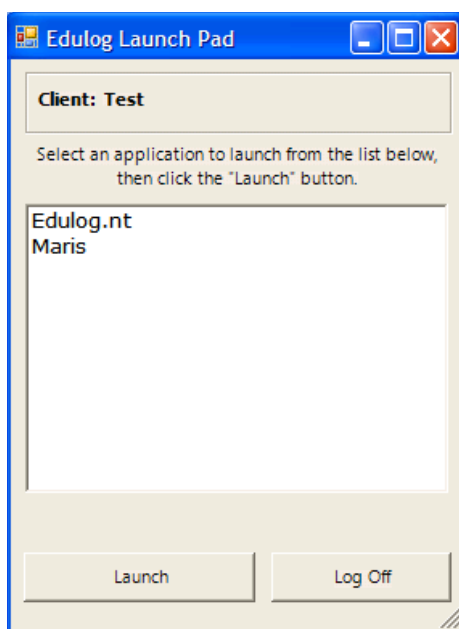
NOTES

acquire the Launch Pad from the edulog ftp server. There is a copy on ftp://ftp.edulog.com/pub/Hardware_Consulting/Edulog_Launchpad/EdulogLaunchPad.zip.

Unzipping the archive above yields the following files:



The way that the Launch Pad works is quite simple. It uses an XML file named `Edu-logLaunchPad.exe.config` to store the values that it displays as a menu or the user. Here is what the Launch Pad looks like with the default configuration file supplied in the archive. The program reads only the `EdulogLaunchPad.exe.config` file that exists in the same folder as it does.



The text contents of the file `EdulogLaunchPad.exe.config` is listed below.

```
<?xml version="1.0" encoding="utf-8" ?>
```

```
<!-- DOCUMENTATION
```

```
=====
```

EduLogLaunchPad configuration file

To add an application to the launch pad:

Two <add> tags must be added for each application.

The first tag is <add key="AppXName" value="APPNAME" />

The second tag is <add key="AppXPath" value="APPPATH" />

Where: X = Application number on launch pad.

APPNAME = Application name to display in
launch pad.

APPPATH = Command line to run when the
application is launched from the
launch pad.

Each <add> tag belongs in the <appSettings> section.

```
-----
```

```
-->
```

```
<!-- CONFIGURATION
```

```
===== -->
```

```
<configuration>
```

```
<appSettings>
```

```
<!-- ClientName setting:
```

Client name to display on the Launch Pad. -->

```
<add key="ClientName" value="Test" />
```

```
<!-- Width and Height settings:
```

Set the width and height of the Launch Pad at start-up.

Width can not be less than 288 (default is 288)

Height can not be less than 250 (default is 313)

Sizes smaller than these will automatically be replaced
by the sizes mentioned above. -->

```
<add key="Width" value="288" />
```

```
<add key="Height" value="305" />
```

```
<!-- ListFont and ListSize settings:
```

Sets the font and size to use for the list of
applications. -->

```
<add key="ListFont" value="Verdana" />
```

```
<add key="ListSize" value="10" />
```

```
<!-- ExitMode setting:
```

If set to "exit", LaunchPad will simply exit

when the Exit button is clicked. If set to

"logoff", the Exit button becomes a Log Off button

and the user will be logged off the system when clicked. -->

```
<add key="ExitMode" value="logoff" />
```

```
<add key="App1Name" value="EduLog.nt" />
```

```
<add key="App1Path" value="c:\elt\LIVE\eltransclientLIVE.bat" />
```

```
<add key="App2Name" value="Maris" />
```

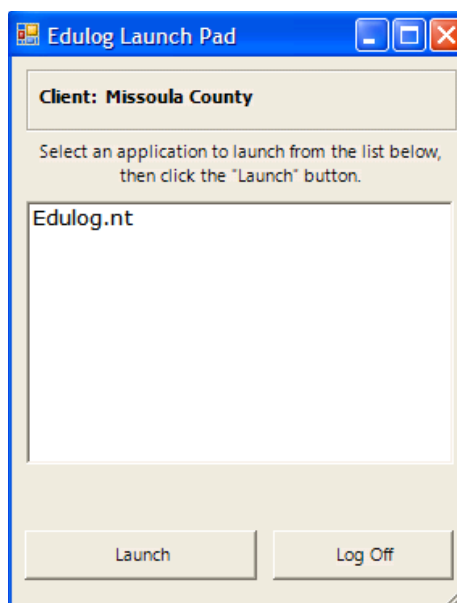
```

        <add key="App2Path" value="c:\etl\LIVE\marisLIVE.bat" />
    </appSettings>
</configuration>

```

The file is self-documenting. The main changes that need to be made start at line 24, with the line `<add key="ClientName" value="Test" />`. In our example, you can see that the client displayed is named "Test". You will probably want to change that to reflect your school district's name. To change this to read "Missoula County", we need to substitute that for the value "Test" in the referenced line.

The other main thing to change is the specific programs that this specific user will access. Often, there are a number of users who will only access only one or two Edu-log programs. In the example above, the user is set to access Edulog.nt and Maris in the Live area. If we wanted to have the user access both programs, we could leave the programs as they are. Let's change it so that this user accesses only Edulog.nt. We need to delete the two lines containing the string "App2". We would also need to change the path to the batch file to read "e:" instead of "c:". The visible changes are the Client Name and the missing entry for Maris.



This change is very simple. I have cut the few lines below that show the changes needed to create the Launch Pad above.

```

        <add key="ClientName" value="Missoula County" />

        <add key="ExitMode" value="logoff" />

        <add key="App1Name" value="Edulog.nt" />
        <add key="App1Path" value="E:\etl\LIVE\etltransclientLIVE.bat" />
    </appSettings>

```

There is another class of user that will want access to all the Edulog programs. For that user I have included a pair of files - EdulogLaunchPad.exe.config.All and Edu-

logLaunchPad.exe.config.SIM. The relevant portion of EdulogLaunchPad.exe.config.All is shown below.

NOTES

```
<add key="ExitMode" value="logoff" />

<add key="App1Name" value="Edulog.nt" />
<add key="App1Path" value="c:\elt\LIVE\eltransclientLIVE.bat" />
<add key="App2Name" value="Maris" />
<add key="App2Path" value="c:\elt\LIVE\marisLIVE.bat" />
<add key="App3Name" value="EMU" />
<add key="App3Path" value="c:\elt\LIVE\emuguiLIVE.bat" />
<add key="App4Name" value="EITerminator" />
<add key="App4Path" value="c:\elt\LIVE\EITerminatorLIVE.bat" />

</appSettings>
</configuration>

<!-- Additional Stuff
      Just copy and paste into the schema above.

      <add key="App5Name" value="EIPlot" />
      <add key="App5Path" value="c:\elt\LIVE\EIPlotLIVE.bat" />
      <add key="App6Name" value="GeBndPlan" />
      <add key="App6Path" value="c:\elt\LIVE\GeBndPlanLIVE.bat" />
      <add key="App7Name" value="SIM Area" />
      <add key="App7Path" value="c:\elt\SIM\Server\EdulogLaunchPad\EdulogLaunchPad.exe" />
      <add key="App8Name" value="Planning Area" />
      <add key="App8Path" value="c:\elt\PLAN\Server\EdulogLaunchPad\EdulogLaunchPad.exe" />
-->
```

The first section – App1Name through App4 path show some of the most common program choices that people make. The lines in the HTML commented area Additional Stuff can be cut and pasted above the </appSettings> tag. Of course you may need to change the drive letters and paths, and add only those programs that you need.

This user will probably need access to the SIM areas as well. App7 and 8 above point to different instances of the Launch Pad located in the SIM and PLAN areas respectively.

The idea with this is that one Launch Pad links to another, so that the user can navigate easily between them to access whatever they need. The relevant parts of EdulogLaunchPad.exe.config.SIM are shown below.

```
<add key="ClientName" value="Test SIM AREA" />

<add key="App1Name" value="SIM Edulog.nt" />
<add key="App1Path" value="c:\elt\SIM\eltransclient-SIM.bat" />
<add key="App2Name" value="SIM Maris" />
<add key="App2Path" value="c:\elt\SIM\maris-SIM.bat" />
<add key="App3Name" value="SIM EMU" />
<add key="App3Path" value="c:\elt\SIM\emugui-SIM.bat" />
```

```

<add key="App4Name" value="SIM EITerminator" />
<add key="App4Path" value="c:\elt\SIM\EITerminator-SIM.bat" />
<add key="App5Name" value="SIM IPlot" />
<add key="App5Path" value="c:\elt\SIM\EIPlot-SIM.bat" />
<add key="App6Name" value="SIM GeBndPlan" />
<add key="App6Path" value="c:\elt\SIM\GeBndPlan-SIM.bat" />

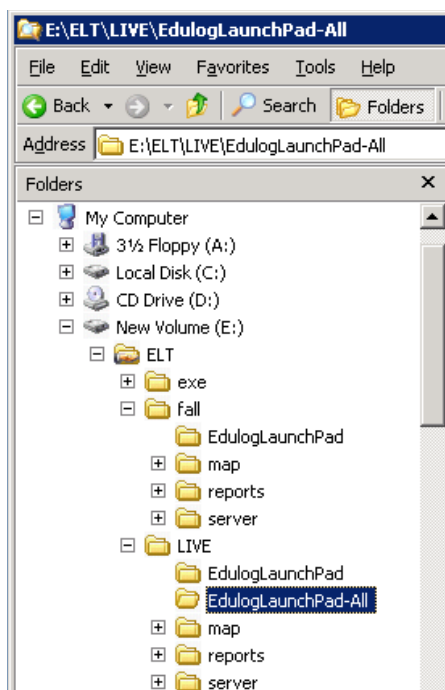
```

Again you may need to alter the drive letter or remove programs listed to meet the needs of your particular situation.

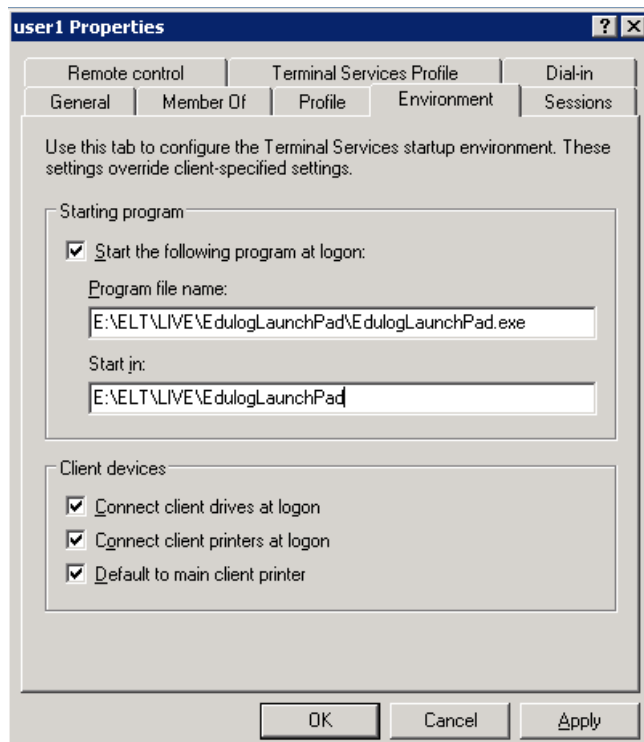
Setting Up Users with the Edulog Launch Pad

The main goal of using the Launch Pad is to give users a consistent user interface, and to limit their access to the Terminal Server.

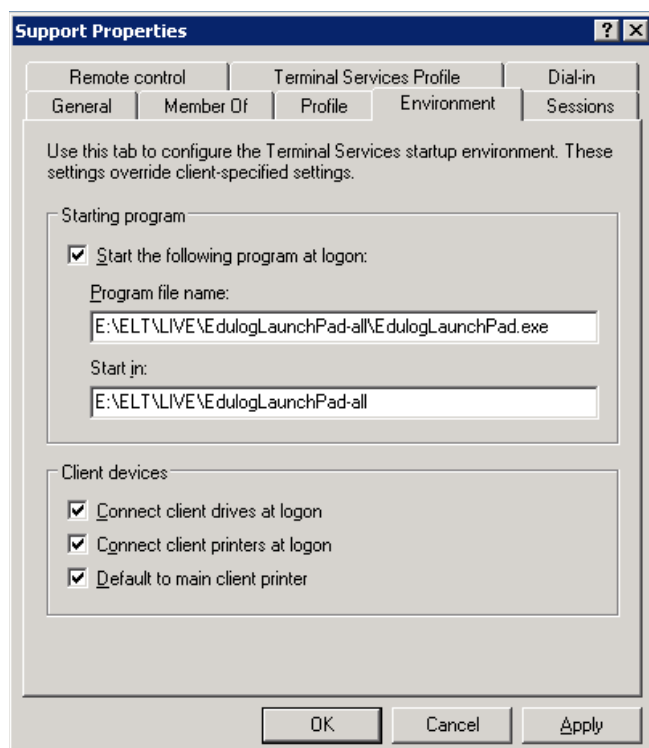
Typically, we put the EdulogLaunchPad folder into the ELT\LIVE folder. We also create an EdulogLaunchPad-All folder and use a modified EdulogLaunchPad.exe.config-all renamed to EdulogLaunchPad.exe.config. Then we put the EdulogLaunchPad folder into the ELT\SIM or whatever folder with a modified EdulogLaunchPad.exe.config-sim renamed to EdulogLaunchPad.exe.config. It looks like the diagram below.



If you have local users on your TS Server, you can then set up individual users to automatically connect to the Launch Pad when they connect by using the Environment Tab as illustrated below.



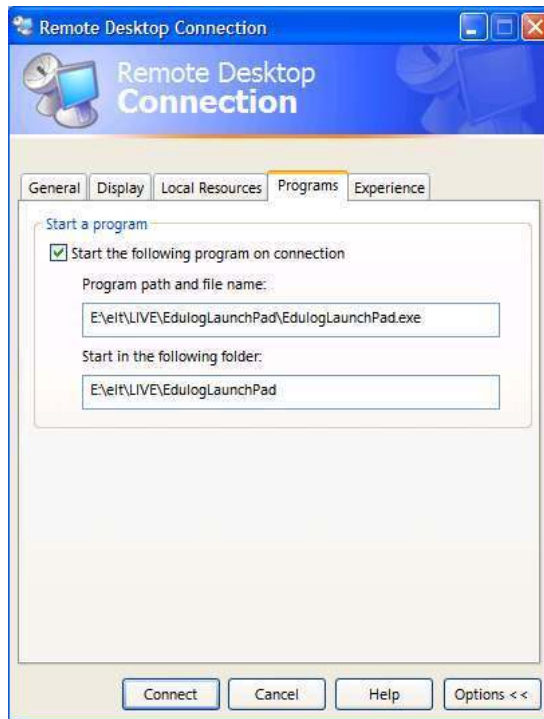
Alternatively, if you want a user to connect to a different Launch Pad, like the LaunchPad-all that we set up above, you can set them up to connect to it, as shown below.



Of course, similar options are available in AD Group Policy.

NOTES

The other alternative is to set up a desktop RPD connection that connects to the launch Pad as well. The guts of it is on the Program Tab, as illustrated below.



The other aspects of the RDC setup take place on the General Tab. This is where you specify the server, user name, password and domain for the user login. You can see an example below. To get here, simply right-click on an RDP connection, and choose Edit.



SETTING UP A SIM AREA (VERSION 10.5)

NOTES

The following pre-conditions apply:

- a. The server must have a Windows 2000 Server or Windows 2003 Server family member as the operating system.
- b. The boot partition must be large enough to accommodate the expected number of USERS, usually at least 8 GB and up to 20 GB for a large district.
- c. The server must be set in Terminal Services Application Server mode.
- d. There must be a regular data area set up and working, with the user support set up as the template user for this area. This area must be set up in the standard way, as outlined earlier in this document.
- e. If you have any questions about the above, please contact Hardware Consulting. As I am sure you realize, it is so much easier to give advice than to fix a problem.
- f. This document specifically outlines the procedures to be used for working with edulog version 10.5x. If you are using an earlier version of edulog, please contact edulog Hardware Consulting to upgrade to the latest version.
- g. This is a living document. Please contact Hardware Consulting to be sure that you have the latest version available.

Getting Started

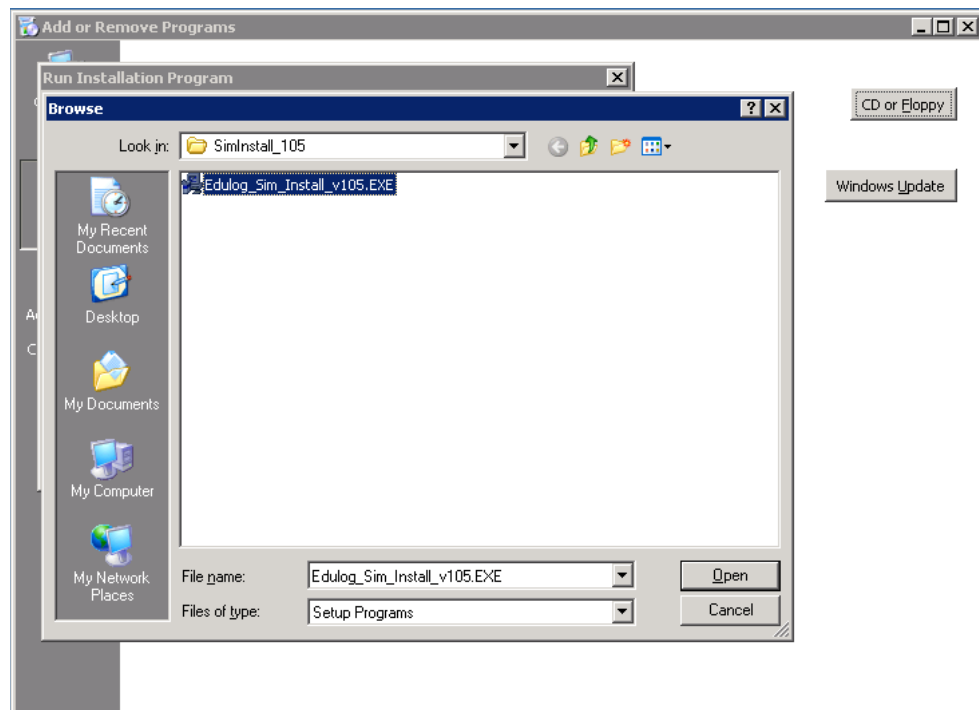
First, make sure that all users are out of all edulog programs. Turn off any edulog services that you have set up. Check the Task Manager to be sure that no instances of ELtransclient.exe, Eltransservice.exe, Emugui.exe, Emusrv.exe, geoserve.exe, Maris.exe, ElPlot.exe, BPServer.exe, Eluise.exe, LMW.exe, or ElPlotserve.exe or ElPlot.exe are running. That way you will be assured of getting complete copies of all files, with no files being held open.

Running Edulog_Sim_Install_10_v105.exe

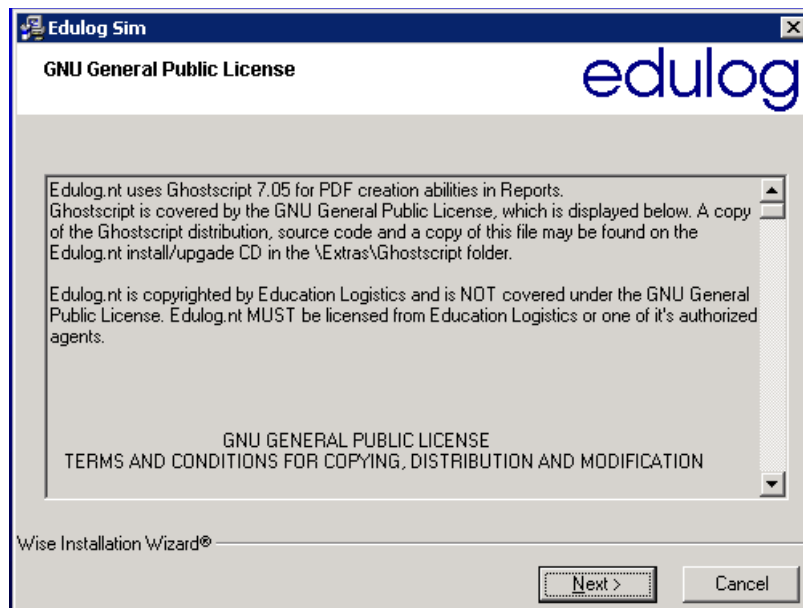
This is the program that will create the new sim area for us. In this instance we are going to create a new area for planning that we will call PLAN. It is good to use three or four letter names for the areas because it helps to keep paths short.

We will use Add or Remove Programs to install the program. So go to Start > Settings > Control Panel > Add or Remove Programs > CD or Floppy > Browse and then navigate to the relevant folder. Then highlight and Open Edulog_Sim_Install_10_v105.exe.

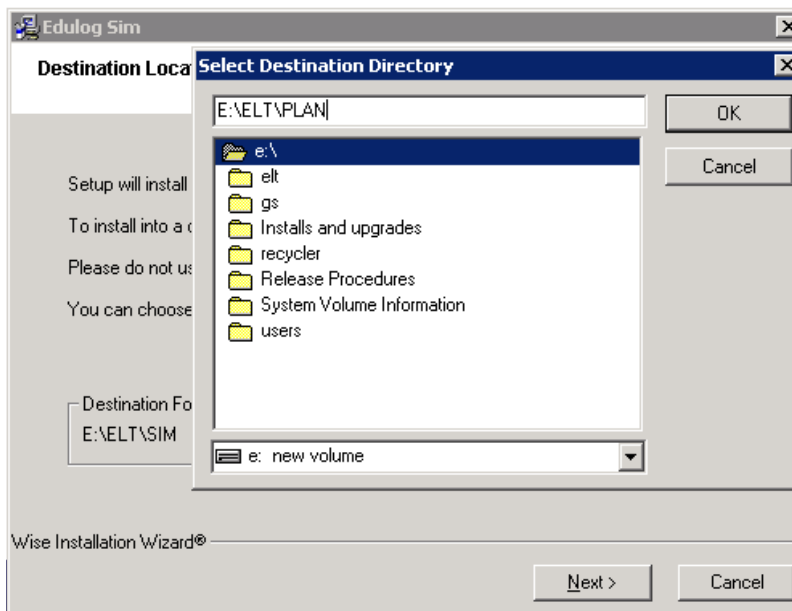
NOTES



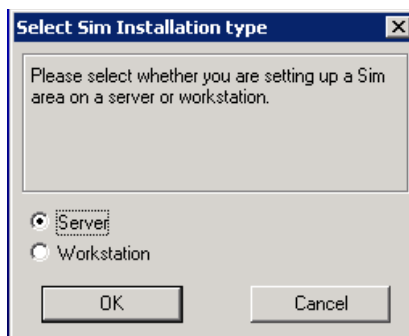
The first thing that the install does is to install GhostScript, which uses a GNU GPL.



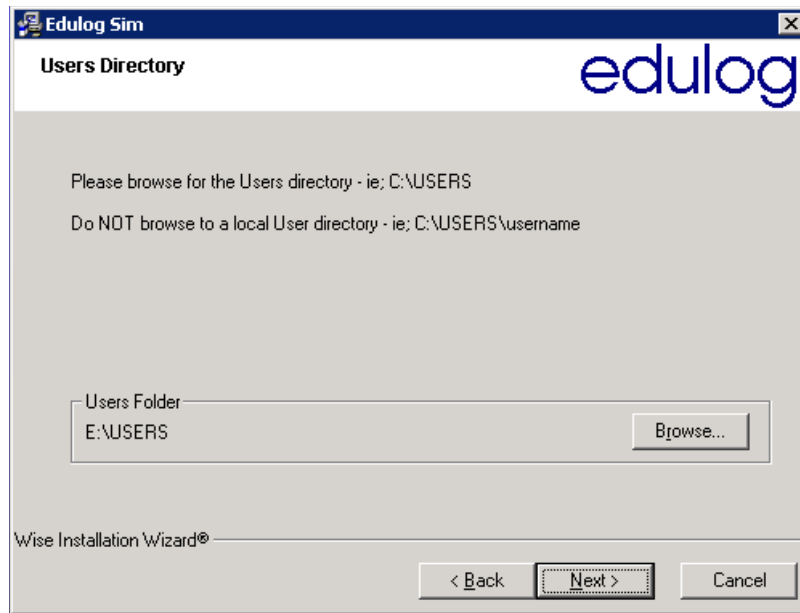
Next we will choose the location and name for the new area. By design we want to have all the Simulation data areas under the same ELT structure. By default the program will want to call the new area sim. However, if we choose browse, we can name it whatever we wish. As shown below, we will name this area PLAN and give it the path E:\ELT\PLAN.



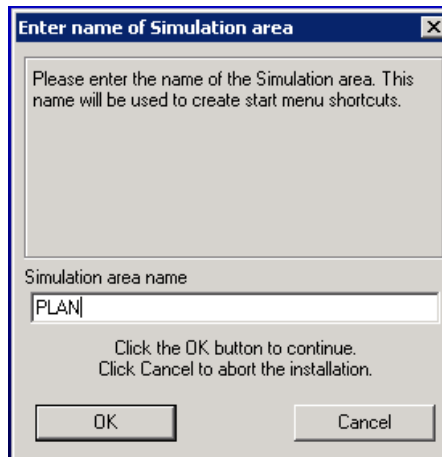
Next we get to choose the type of installation that we want to do. For a Terminal Services installation, we of course choose the Server Installation.



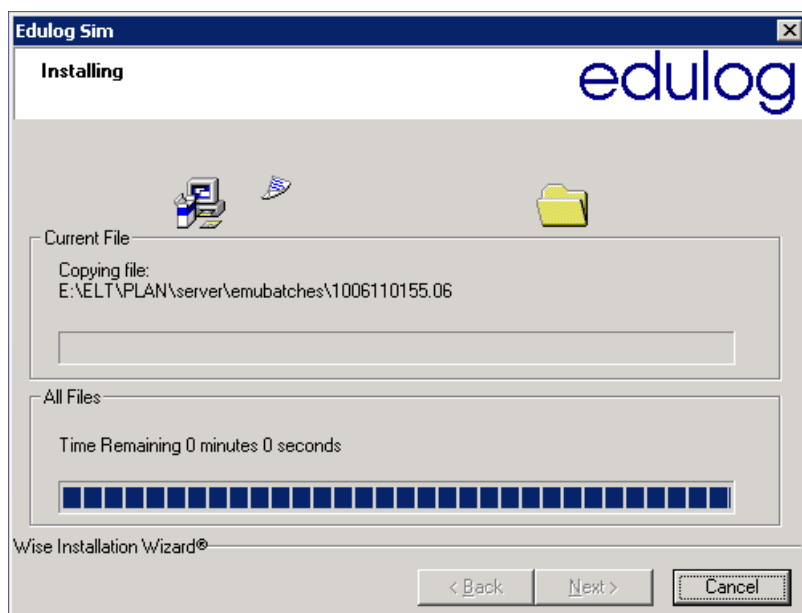
Next we need to indicate the location of the Users folder. The program will read files in the ELT folder to get the Users folder location that has been used previously.



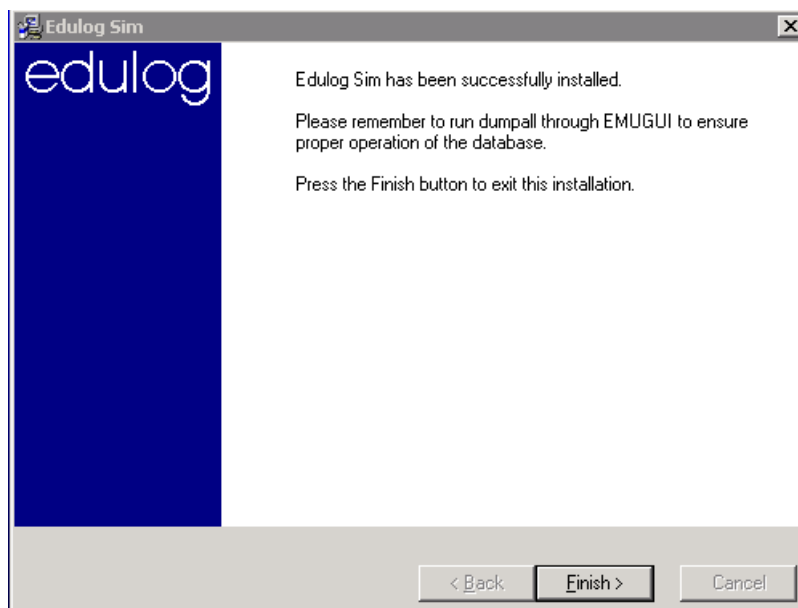
Next, the program asks what name we want to give the data area. We strongly recommend that you use the same name as you did for the area earlier.



Once we enter the name, and press OK, the program will start copying and installing data.



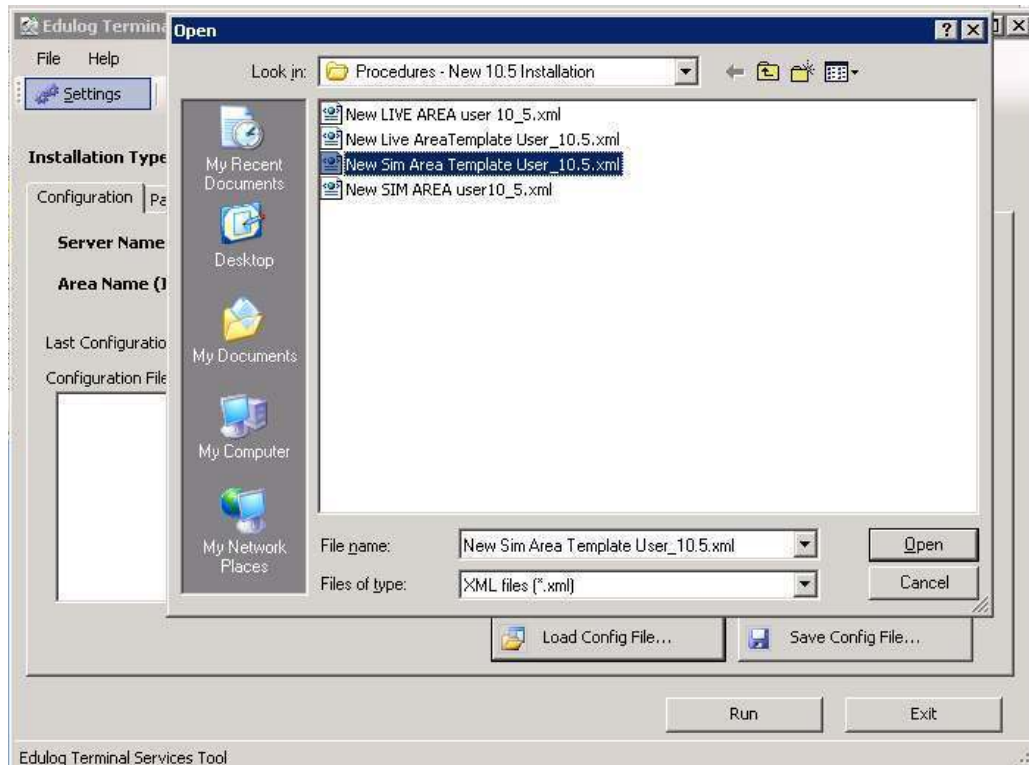
When the installation is finished, it shows the following screen to indicate that it was successful.



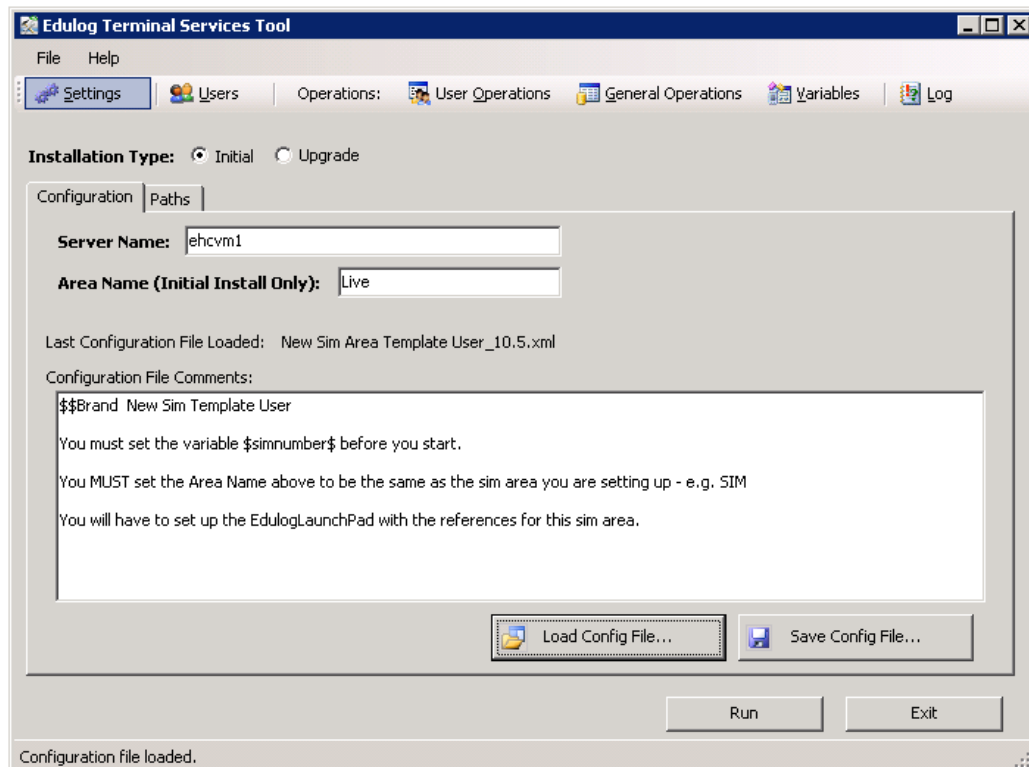
Setting up the Default User

Once the data area is installed, the next task is to set up the default user. We use the default user as the basis on which to create other users. Last year, I outlined how this whole process had to be done manually. This year, we have scripts that do all the changes. We just need to set things up correctly. Fire up Edulog_TS_Tool.exe and choose the "New Sim Area Template User 10_5.xml" configuration file.

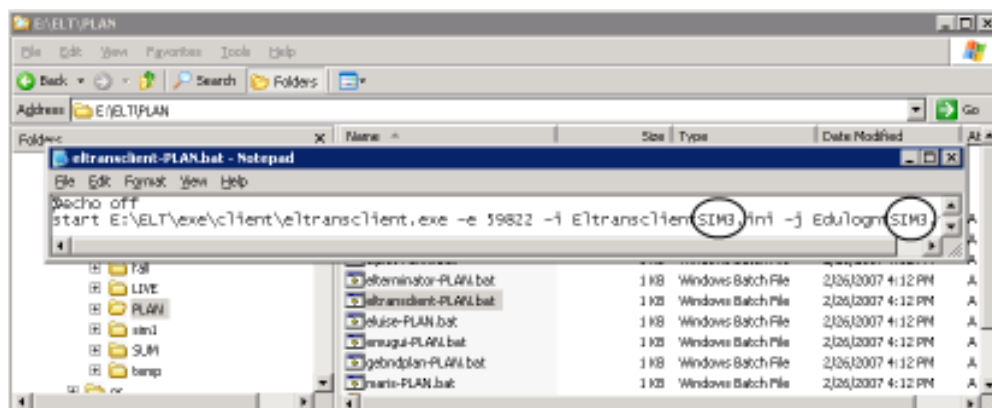
NOTES



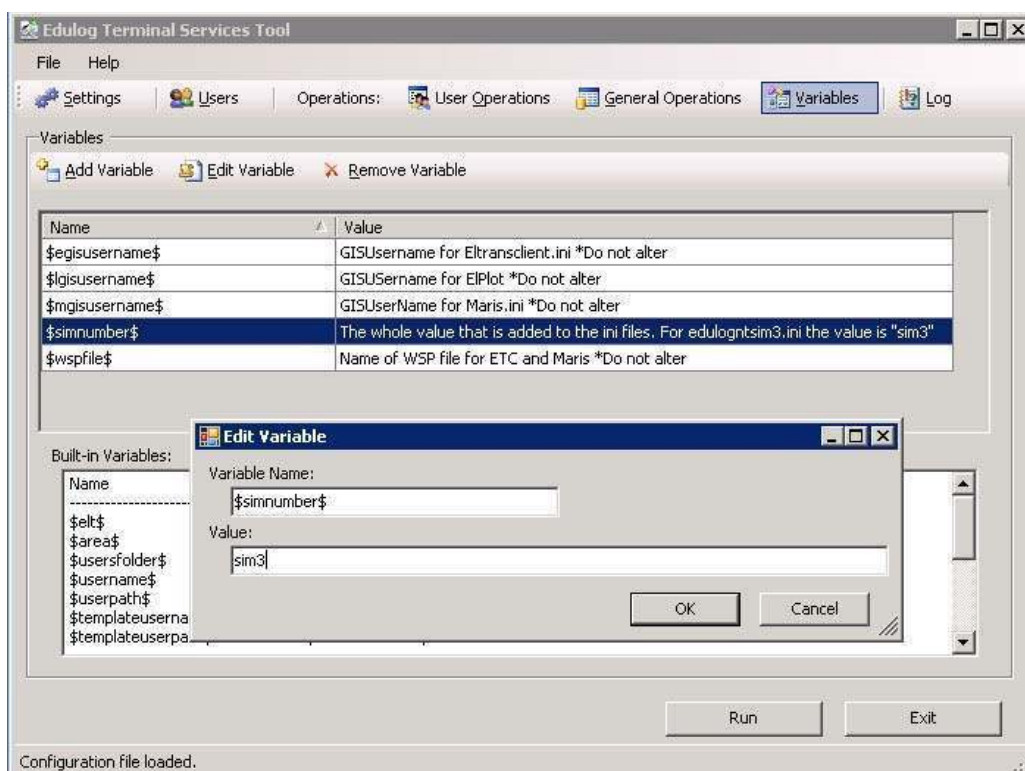
This configuration file requires that the user be careful to follow the directions given in the Configuration File Comments box. Because of the way that the default installation handles the ini files, we will need to investigate to determine the value of one variable. Also we will need to set the Area name on the Configuration tab.



The first task is to determine the value that was added to the end of the ini files to differentiate the data areas. The easiest way to see this is to navigate to the ELT\PLAN folder and edit eltransclient-PLAN.bat. As illustrated below the string we are looking for is “sim3”.

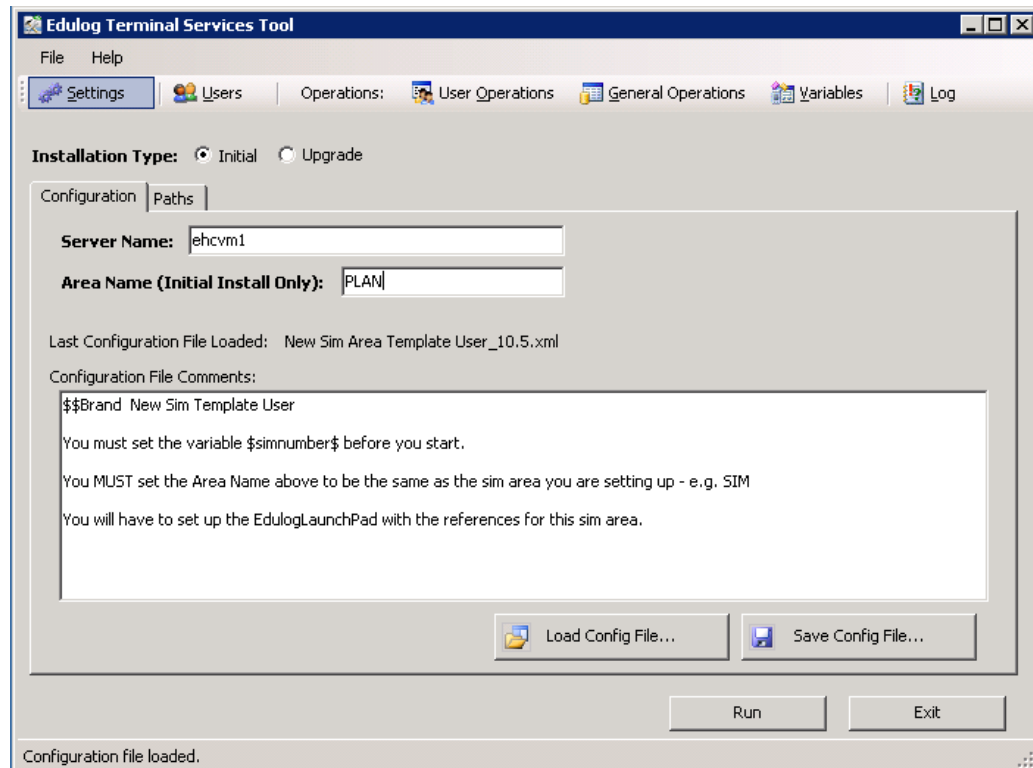


To edit the variable \$simnumber\$, click on the Variables button, highlight \$simnumber\$ and then click on Edit Variable. The Edit Variable dialog will come up and allow you to input the desired value. In our case, we are substituting the string “sim3”.

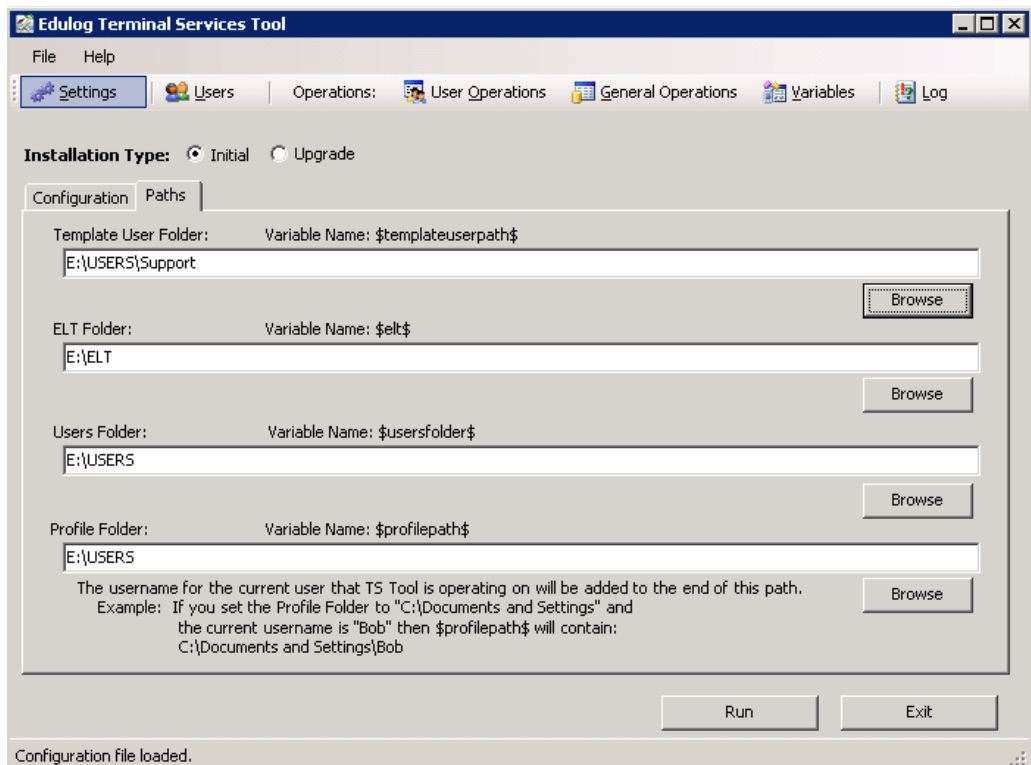


NOTES

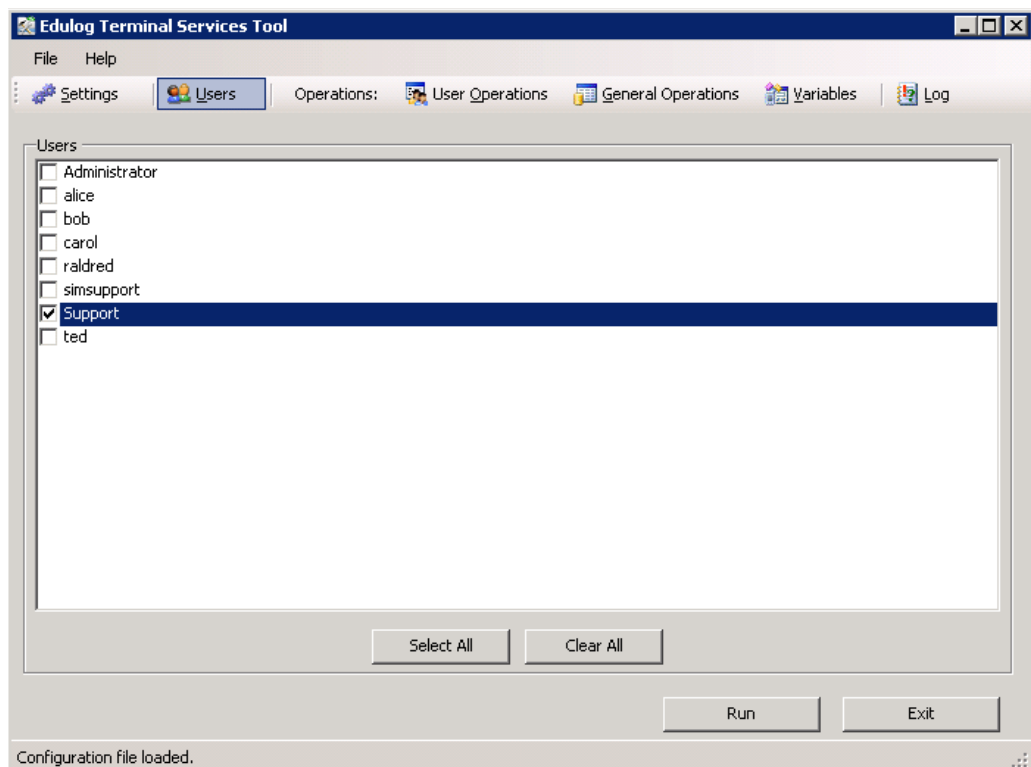
The next task we need to do is to set the Area Name on the Configuration tab, as illustrated below. The Area Name always defaults to Live. We need to set it to PLAN.



We are now ready to set the Paths. Please note that these are specific to the server on which I was working. Your values may be different.

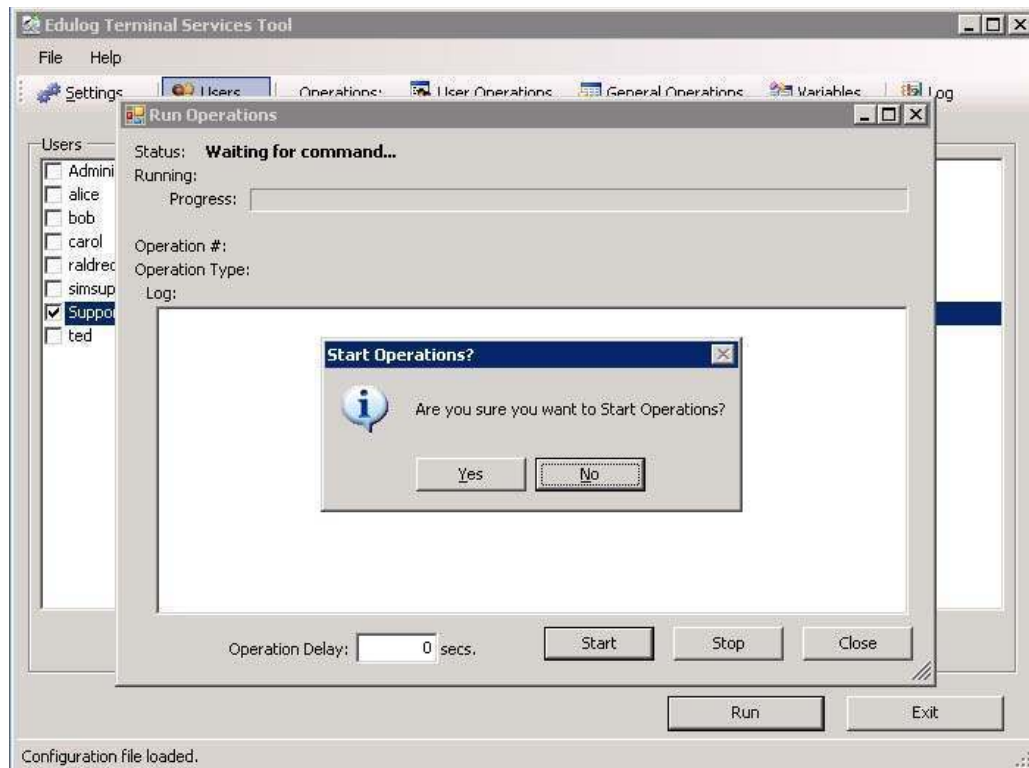


With the paths set, we are ready to choose the Users to set up. In this case it is but the one user – the template user. In our case we are using the support account for that purpose.



NOTES

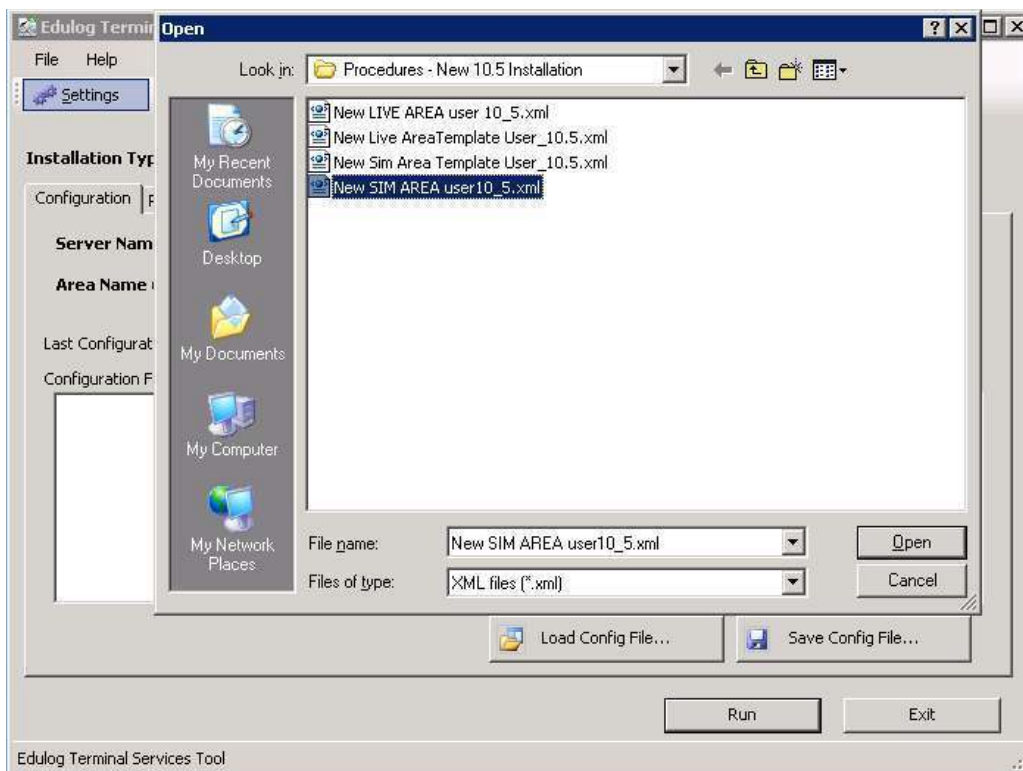
The final step is to run the program. Select Run, Start and then confirm your intention.



This will set up the template user for the new data area PLAN. Now we are ready to set up the other users for the PLAN area.

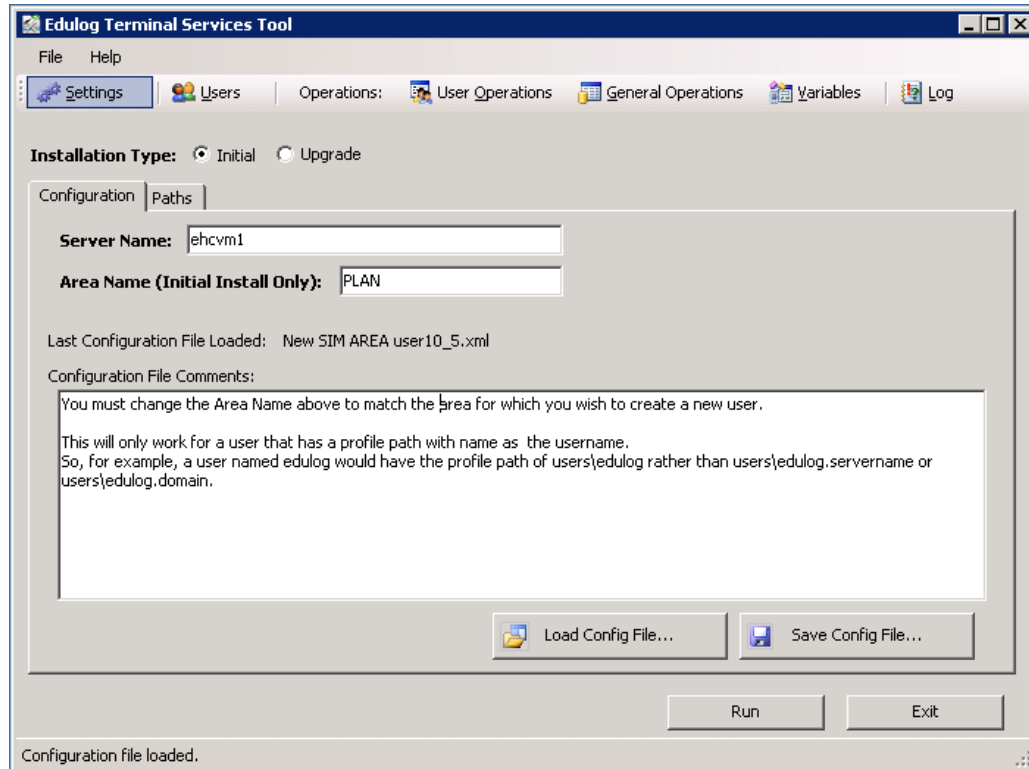
Setting up Users for the PLAN Area

We will use the Edulog_TS_Tool to configure the users that we want to use the PLAN area that we set up above. Fire up the Edulog_TS_Tool.exe and choose Load Config File. Navigate to the folder where you have the file “New SIM AREA user 10_5.exe”. Open that file.

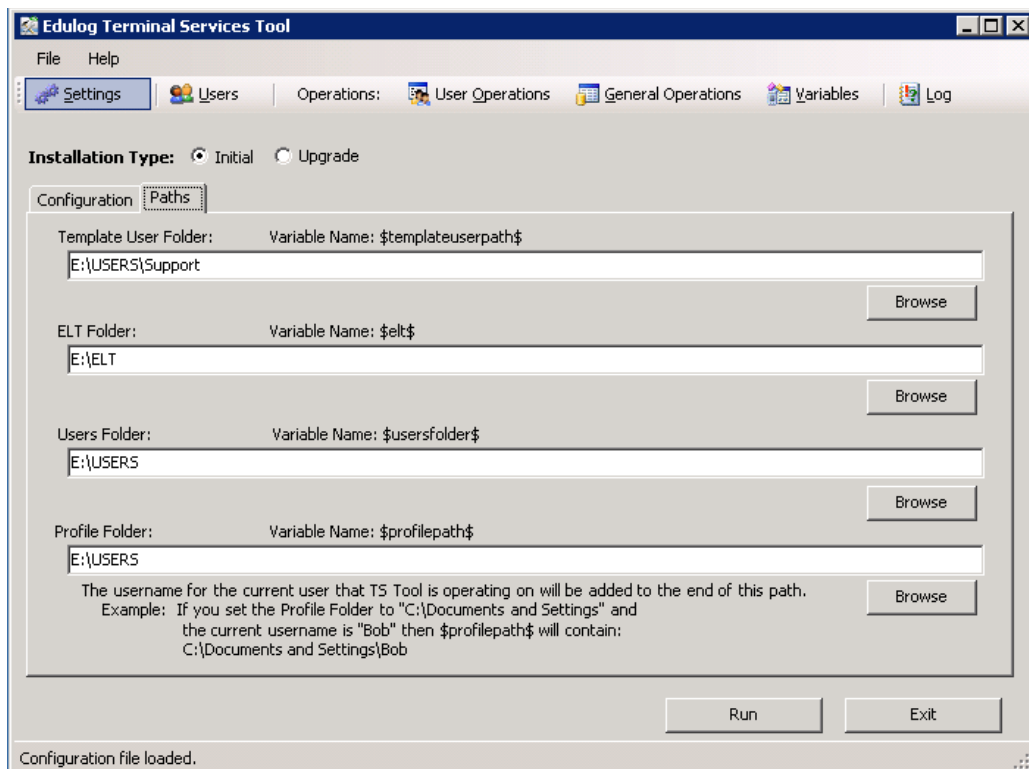


The main thing that we need to know here is that this will only work on user accounts that are set up in the standard manner for edulog. That is the users must have local home path set to the edulog Users folder. In our case the edulog Users folder is E:\Users. Also we need to set the Area Name to our desired sim area – in our case PLAN.

NOTES

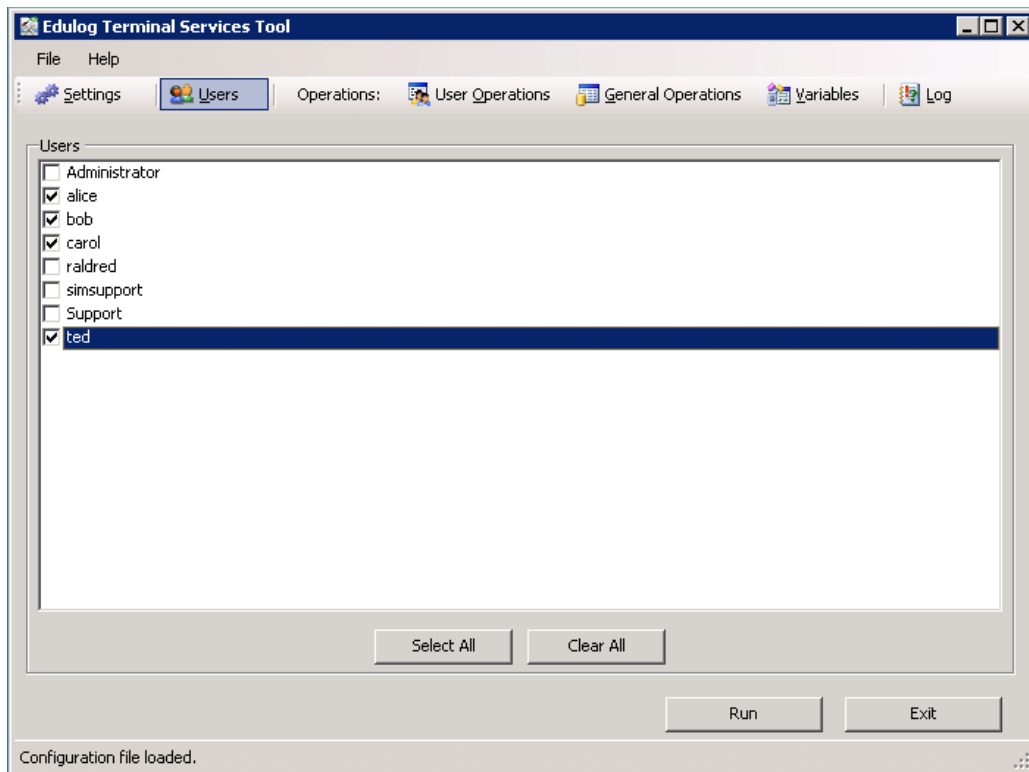


Next we need to set up the paths.



Next we need to choose the users that we will set up. In our case we will set up Bob and Carol and Ted and Alice.

NOTES



The last thing that we need to do is to run, start and then confirm the intention.



The users should now be set up. This task is now finished,

Setting Up Eluisesim and Bpserversim

This process requires editing the registry. WARNING: Using Registry Editor incorrectly can cause serious problems that may require you to reinstall your operating system. Microsoft cannot guarantee that problems resulting from the incorrect use of Registry Editor can be solved. Use Registry Editor at your own risk.

EluiseSIM

Install EluiseSIM as a Windows NT service by typing the following command at a MS-DOS prompt from the \WINNT directory [or which ever directory you copied INSTSRV.EXE and SRVANY.EXE, to]:

```
instsrv EluiseSIM c:\winnt\srvany.exe
```

You should see a message telling you that the service was added successfully. Now go to the Services Applet in the Control Panel and configure the newly added EluiseSIM Service. The Services Applet in Windows 2000 or 2003 is accessed by going through Start>Programs>Administrative Tools>Services. There are also other ways of getting to the Services Applet.

Startup Type: should be set to automatic.

Log On As: This Account, using an account with administrative rights on this machine, preferably simsupport.

Password: Enter the password of the account chosen above.

Note on the above username/password selected for these services. I suggest not using an account that will be changing the password frequently. I would recommend creating an account specific for running these services and then leave the password constant. If the password is changed, it must also be changed in the properties of each service.

Start the Registry Editor by clicking on Start, then Run, then type in regedt32.

Under HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services, highlight

EluiseSIM, click on Edit, and Add Key. Type in 'Parameters' for the Key Name, and leave Class blank. Click on OK.

Highlight the new Parameters Key, click on Edit, and Add Value. Type in 'Application' for the Value Name, leave Data Type at REG_SZ, and click OK. Under String specify the full path to the Eluise executable. For example:

d:\eltsim\exe\server\eluise.exe. This assumes the edulog software is loaded under d:\eltsim directory structure. If you have loaded on a different drive, e:\eltsim, for example, this must be substituted here.

Highlight the new Parameters Key, click on Edit, and New String Value. Type in 'AppParameters' for the Value Name, leave Data Type at REG_SZ, and click OK. Under String specify the full path to the Eluise configuration file, for example: -f d:\elt\sim\server\eluise.cfg. ** This assumes the edulog software is loaded under d:\elt directory structure. If you have loaded on a different drive, d:\elt, for example, this must be substituted here.

To make the Eluise Service dependent on the LockManager Service, highlight Eluise, click on Edit, and Add Value. Type in the value of DependOnService. Change Data Type to REG_MULTI_SZ, and then click on OK. Under Data: type in LockManager.

BPServerSIM

Install BPServerSIM as a Windows NT service by typing the following command at a MS-DOS prompt from the \WINNT directory [or which ever directory you copied INSTSRV.EXE and SRVANY.EXE, to]:

```
instsrv BPServerSIM c:\winnt\srwany.exe
```

You should see a message telling you that the service was added successfully. Now go to the Services Applet in the Control Panel and configure the newly added BPServerSIM Service. The Services Applet in Windows 2000 is accessed by going through Start/Programs/Administrative Tools then Services. There are also other ways of getting to the Services Applet.

Startup Type: should be set to automatic.

Log On As: This Account, using an account with administrative rights on this machine.

Password: Enter the password of the account chosen above.

Note on the above username/password selected for these services. I suggest not using an account that will be changing the password frequently. I would recommend creating an account specific for running these services and then leave the password

constant. If the password is changed, it must also be changed in the properties of each service.

Start the Registry Editor by clicking on Start, then Run, then type in regedit.

Under HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services, highlight BPServerSIM, click on Edit, and Add Key. Type in 'Parameters' for the Key Name, and leave Class blank. Click on OK.

Highlight the new Parameters Key, click on Edit, and New String Value. Type in 'Application' for the Value Name, leave Data Type at REG_SZ, and click OK.

Under String specify the full path to the BpServer executable. For example: d:\eltsim\exe\gebndplan\bpserver.exe. ** This assumes the edulog software is loaded under d:\eltsim directory structure. If you have loaded on a different drive, e:\eltsim, for example, this must be substituted here.

Highlight the new Parameters Key, click on Edit, and New String Value. Type in 'AppParameters' for the Value Name #1. Right-click and choose Modify, specifying '-i BPServerSIM1.ini'. This will force this instance of BPServer to start at the end point specified in the designated ini file.

SCRIPTING FOR THE EDULOG SERVER

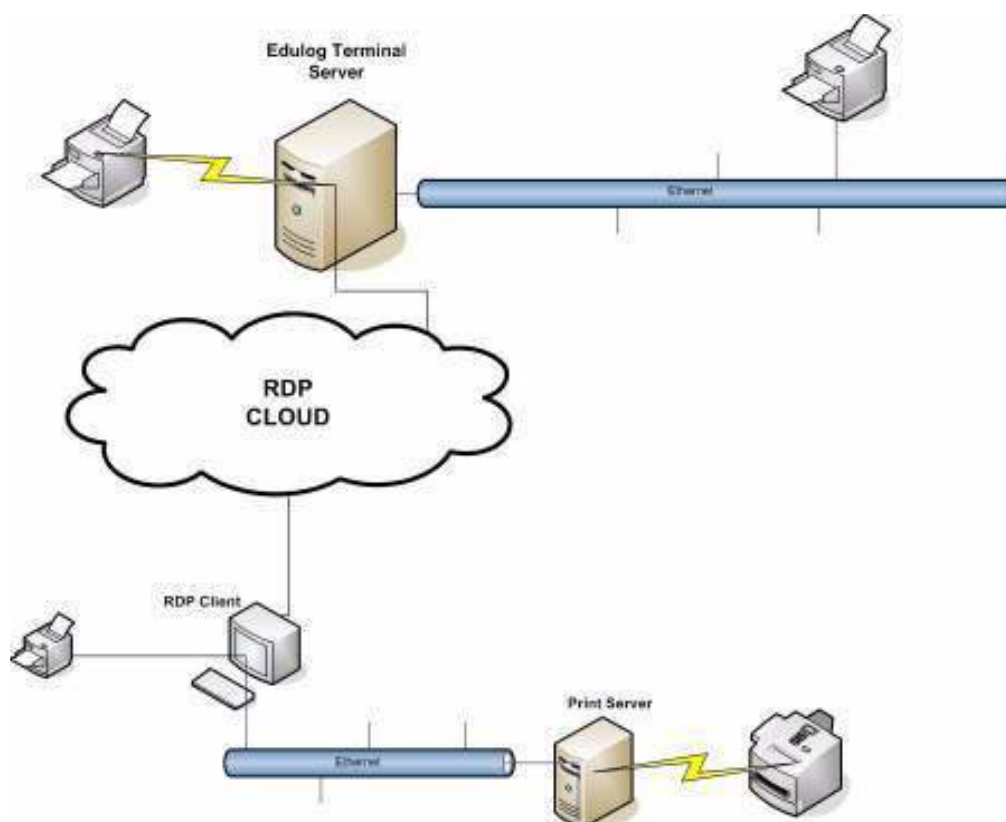
Terminal Services Printing

One of the most problematic aspects of Terminal Services is printing. This is well demonstrated by the existence of a number of third party products to solve this issue—Screwdrivers, Net2Printer RDP, UniPrint Terminal Server Edition, Thinprint and .print to name just a few. We have found that, in most situations, there are enough known work-arounds and tools to solve Terminal Server printing problems.

How Printing works in Terminal Services

There are some really good documents on the Web that go into great detail to describe the process of Terminal Services printing. Among the best is “The Ultimate Guide to Terminal Server Printing - Design and Configuration” by Brian Madden available at <http://www.brianmadden.com/content/content.asp?ID=62>. For a really detailed overview of how printing redirection actually works, I recommend it highly. For our purposes here, we will take a more simplistic approach.

As illustrated in the diagram below, there are basically two ways that a user can print from a terminal server. Either they print to a printer attached directly or indirectly to the server or through the RDP cloud to a printer attached directly or indirectly to the client. Within each of those basic ways, there are many different connection methods available – Parallel, USB, IP, Print Server etc, as the diagram below illustrates.



Any printer attached to the server shows up as an available printer for every RDP user. So, for example, if you had all your users in a FDDI WAN, you could quite easily load all the printers that the users would need on to the Terminal Server itself. That would be a very elegant and easy to maintain printing solution. The only thing that is problematic in that scenario is user permissions on a network printer. You would need to make sure that all appropriate RDP users had the necessary permissions. The main issue that arises in this particular scenario is when the RDP user logs into the server without domain credentials that is as a local user on the server, and tries to print to a printer on the domain. Because the print job originates from a user without domain credentials, it is seen by the printer as coming from a user without permission to print and is rejected. The obvious solution here is to give that user the correct permissions on the printer.

The main issues that arise in Terminal Services printing come from printing through the RDP cloud. The short story is that the server and the client need to reference the exact same printer driver in order for the client to print successfully. This gets tricky because there are so many places that problems can occur. From this point on, all references to printing refer to printing through the RDP cloud.

RDP Client Configuration

Microsoft has made available the new RDP client that comes with Windows XP for download on its website at <http://www.microsoft.com/windowsxp/downloads/tools/rdclientdl.msp>. If you are using the old Windows 2000 style RDP client, your very first priority needs to be installing the new client. By itself, this will clear up a lot of printing issues.

NOTES

This sounds axiomatic, but in order for the client to print, the client must map their printer. In the RDP client configuration there is a check box that needs to be checked so that printers are mapped. To get there, right click on the RDP icon, choose edit, then go to the Local Resources tab, and make sure that there is a check in the box beside Printers in the Local devices area, as illustrated below.



Common Error Messages

NOTES

Windows 2000 Terminal Services supports the automatic redirection of printers that are configured to use local ports (such as LPT1, LPT2, or LPT3) on computers that have open client sessions through the Remote Desktop Protocol (RDP) 5 client. This printer redirection occurs at logon, and occurs by default.

However, if you are using third-party drivers or some Microsoft Windows 95/ Microsoft Windows 98 drivers on the client, printer redirection does not work. When this occurs, the following error messages are logged in the System event log on the server:

Type: Error

Event ID: 1111

Description: Driver *drivername* required for printer *printertype* is unknown. Contact the administrator to install the driver before you log in again.

Type: Error

Event ID: 1105

Description: Printer security information for the *printrname/clientcomputer-name/Session number* could not be set.

Type: Error

Event ID: 1106

Description: The printer could not be installed.

Once you have determined that the user does indeed have local printers mapped through the RPD client, the next thing to look at is the system event logs.

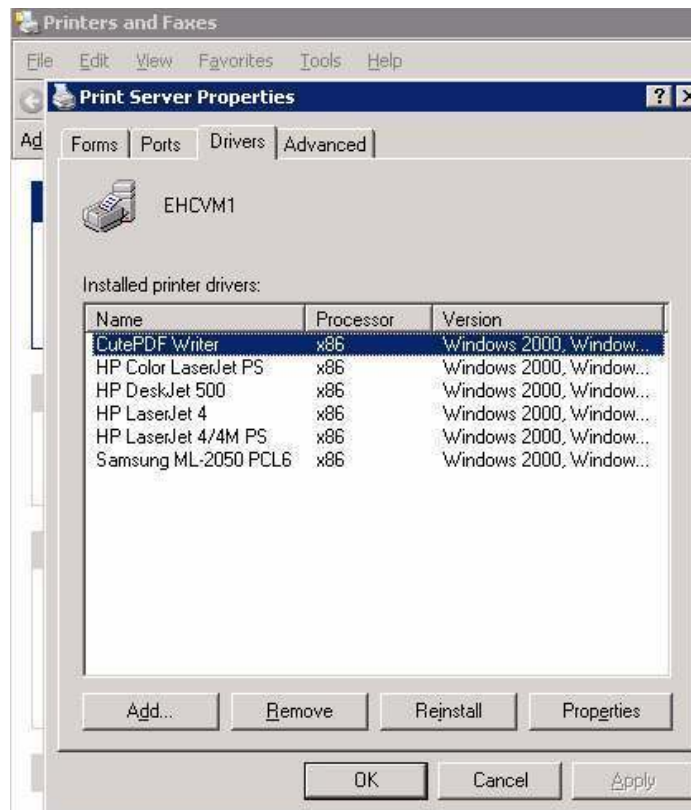
These three errors are very common. The first and most obvious cause of these errors is that the printer driver that the user needs is not available on the server. Obviously, the way to fix that is to load the desired printer driver on the server. Notice that we are loading the printer driver and not creating the printer.

To load a printer driver, first go to the printers and faxes applet and click on File/Server Properties as illustrated below.



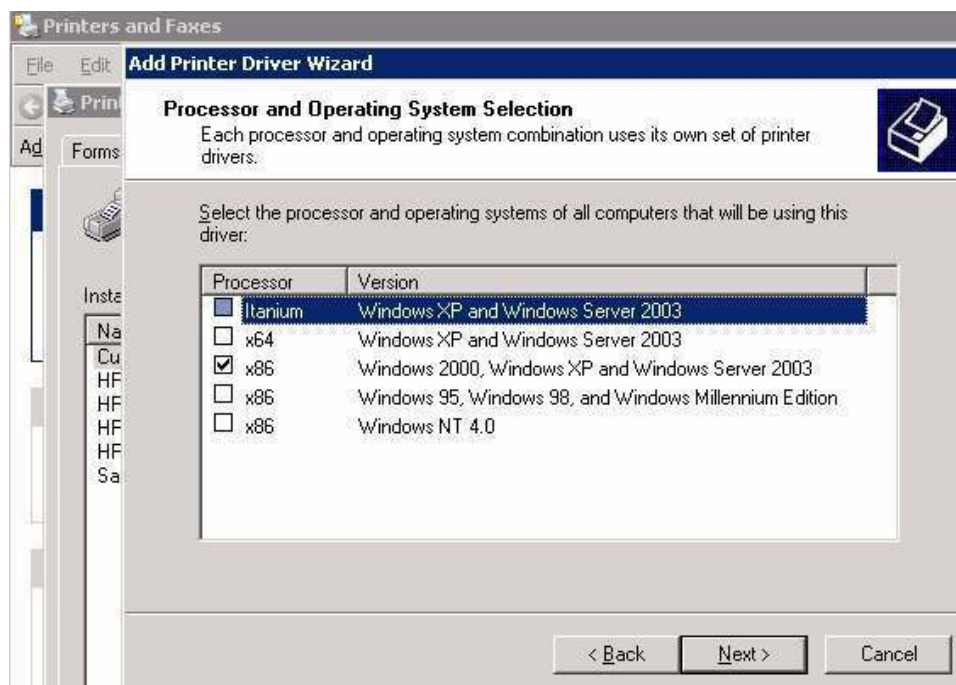
NOTES

The Print Server properties will be displayed as indicated below. This shows all the printer drivers that are installed on the server.



When you click on Add to add the new printer driver, it will bring up the Add Printer Driver Wizard that will guide you through adding the new driver.

An important dialog in the wizard is shown below. Since you want to add the printer for the server, it is important to choose the correct processor and Operating System. In our case, we have Windows 2003 on an x86 platform.



Other than that the Wizard is fairly straight forward.

There are other reasons why these errors come up. They may arise from a difference in the driver name that the client uses versus what the server has. For example, the client drive may be for a “RICOH Aficio BP20N” and the server may have a “Ricoh Aficio BP20N”. The difference between “RICOH” and “Ricoh” is sufficient to cause this difficulty. Alternatively an older client may ask for an “HP 920 CXI PCL 6” driver and the server have a “Hewlett Packard 920 CXI PCL 6” driver. The Microsoft Knowledge Base article quoted in the text box above details two ways to deal with this issue. One is the edit two registry settings and add a supplemental ntprintsubs.inf to the %windir%\system32 on the server. The second is to use the Terminal Server Printer Driver Redirection Wizard available as a download at the bottom of that article.

Creating the ntprintsubs.inf by hand is a process that requires some care, but if you follow the directions carefully, it will work well. We have used this method extensively to solve this issue.

Using the Terminal Server Printer Driver Redirection Wizard can be difficult if you have not looked through the errors beforehand and loaded the appropriate drivers. The Wizard will scan for all instances of errors 1111 and ask you to choose the substitute printer for each printer referenced. You could do worse that utilize the HP Universal Printer Drivers as outlined below.

HP Universal Printer Drivers

Hewlett Packard has published Universal Printer drivers in three different versions PCL5, PCL6 and PostScript. Follow the download link from <http://h20338.www2.hp.com/Hpsub/cache/342988-0-0-225-121.html>. We have found these Universal Drivers to be useful for other printers than HP. If you have no other

driver available, this one is worth a shot, since most printers use one of these languages.

Fall Back Printer Drivers in Windows 2003 SP1 and later

With the release of Service Pack 1 for Windows 2003, Microsoft tackled this problem in a wonderful way. They added fallback printer driver capability. It is a setting in the Group Policy Editor. To get there Start/Run/GPedit.msc. Navigate to Computer Configuration/Administrative Templates/Windows Components/Terminal Services/Client/Server data redirection/Terminal Server Fallback Printer Driver Behavior.



The official explanation of the options is shown in the textbox below. I typically like to choose “Show both PCL and PS if one is not found”

Specifies the Terminal Server fallback printer driver behavior.

By default, Terminal Server fallback printer driver is disabled. If the Terminal Server does not have a printer driver that matches the client's printer, no printer will be available for the terminal server session.

This article <http://www.brianmadden.com/content/content.asp?ID=438> details how you can specify the printer drivers that are used for the fallback printers. In combination with the HP Universal Printer Drivers mentioned earlier, this capability is powerful indeed.

The Client's Printers do not show up

Sometimes the client's printers do not show up in their session at all. This is a more unusual case. The fix in this case involves hacking the registry on the client's workstation to add a registry key that forces all ports on the computer to be filtered for redirection. To do this add a DWORD value name FilterQueueType to HKEY_CURRENT_USER\Software\Microsoft\Terminal Server Client\Default\AddIns\RDPPDR and set its value data to FFFFFFFF. You will have to reboot the workstation, and may also need to reboot the server, because it caches client settings. See MS KB article 302361.

Setting a client's default printer

A client had an issue where they wanted to be able to set a user's default printer. Usually that will default to the default printer on the client workstation. In this case the client wanted to default to a different printer. It took some searching and trial and error, but Randy Bauld came up with a great solution. I pointed him to a website, <http://www.dabcc.com/downloadfile.aspx?id=230>, where they had a free utility, "setdefaultprinter.exe" that sets the default printer for a client session. After a few trials, Randy came up with this solution. He created a batch file called setdefault-printerr.bat and put it in the user's windows folder. Then he created a shortcut to the batch file and put that in the documents and settings\%username%\start menu\programs\startup folder. It has worked for several months now.

Miscellaneous Issues

Installing Programs on a Terminal Server

Whenever you install a program on a Terminal Server, it is imperative that you do it through Add/Remove Programs. By default, each user on a Terminal Server has his own individual Windows folder. If you just double click on an installation program, all the ini files, dlls and other things that properly belong in the %windir% get put into the Windows folder of the user who installs it. That causes problems in that other users may not be able to use the application. To avoid these problems, always install Edulog applications and updates through Add/Remove Programs.

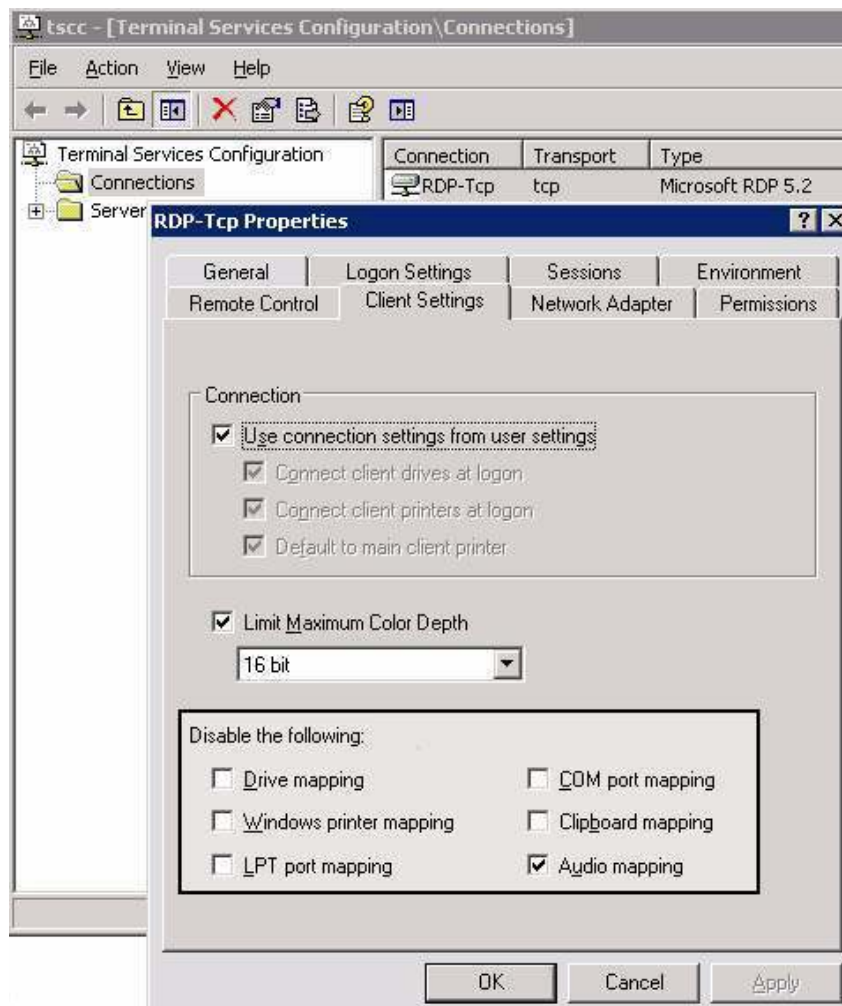
Mapping User Drives in Windows 2003

Windows 2003 Terminal Services has many more capabilities than Windows 2000 did. One is the capability to map user drives. This can be very useful in a situation where a user wants to create a report and then manipulate it in Excel or Word for example. However, it is a double-edged sword. It can also facilitate the spread of viruses and worms from the client to the server. It is your call whether the usefulness outweighs the risk.

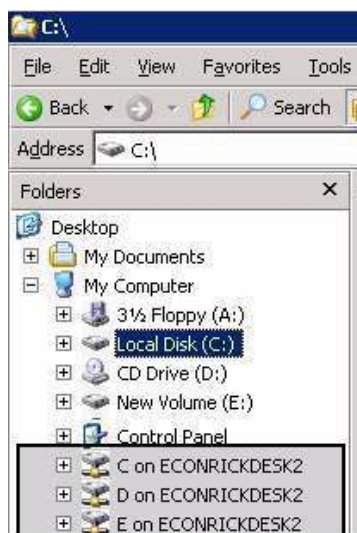
You need to do some set up on the client and some on the server to make this happen. In the RDP client, you need to be sure that Disk Drives are a shared resource, as illustrated in the diagram below.



On the server, by default local drive mapping is allowed. Drive mapping is controlled in the Terminal Services Configuration/Connection management console. One way to get there is to Start > Run > tscc.msc. Right click on the RDP-tcp line in the right hand pane, choose properties, and the following dialog will come up. Make sure that there is no check mark beside Disk drives. If there is, this capability would be disabled.



Once you have set up the client and checked that the server is set to see mapped drives, log in and you will see that the mapped drives are there, as shown below.



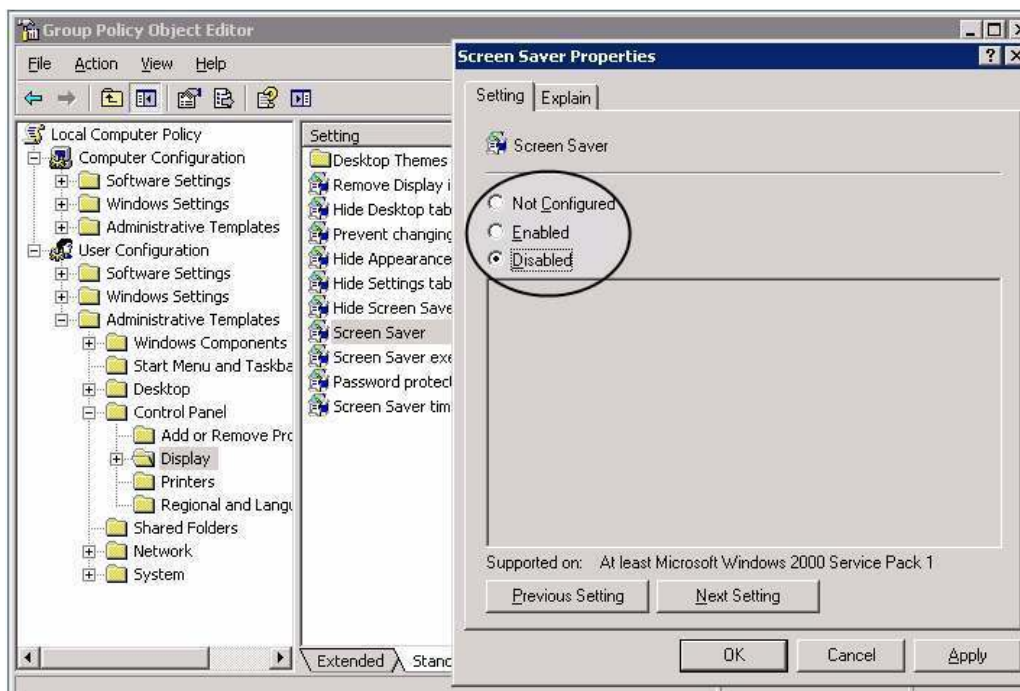
Now all we have to do is to map the drive. Note that it maps drives only, not shared folders. One way to do that is create a batch file with the following contents in a folder and place a shortcut to it in the C:\Documents and Settings\%user-name%\Start Menu\Programs\Startup folder. It will automatically start each time the user logs in. The persistent:no switch limits the mapping to that particular session. I recommend that you do it this way rather than having a persistent mapping, because it will check for the connection every time.

REM This batch file will map the C:
drive on a TS user

Now when a client wants to save a report, they can create it as a text file, Excel spreadsheet or whatever and send it to a folder on their C: drive for later manipulation.

Disable Session Screensavers

From time to time we run across a situation where, when users minimize their Edu-log TS sessions, they cannot get back into them. This phenomenon usually starts after the session is minimized for ten minutes. I am not sure why, but on some servers, the users all have a screen saver set up so that after 10 minutes, you are required to enter credentials. This seems to be a problem mostly in Windows 2003. It seems that the culprit here is the screensaver itself. Microsoft has a KB article <http://technet2.microsoft.com/WindowsServer/en/library/158fc95f-4205-4894-9907-2644182125121033.msp?mfr=true> that indicates, while you can use screensavers in Terminal Services, it is not a good idea to do so. Using a graphics-intensive screensaver can raise the bandwidth requirements significantly. Therefore we recommend that you not use screensavers in a Terminal Services environment. There is a Group Policy Object that can be applied at the server level that prohibits screensavers. In Windows 2003, go to Start > Run > gpedit.msc. Navigate to User Configuration/Administrative Templates/Control Panel/Display. In Windows 2000 SP4, go to Start > Run > gpedit.msc. Navigate to User Configuration/Administrative Templates/Control Panel/Display. The screen shot below is from a 2003 server. In Windows 2000, the same control is labeled "Activate Screen Saver".



Here is Microsoft's explanation.

If you disable this setting, screen savers do not run. Also, this setting disables the Screen Saver section of the Screen Saver tab in Display in Control Panel. As a result, users cannot change the screen saver options.

If you do not configure it, this setting has no effect on the system.

If you enable it, a screen saver runs, provided the following two conditions hold: First, a valid screensaver on the client is specified through the "Screensaver executable name" setting or through Control Panel on the client computer. Second, the screensaver timeout is set to a nonzero value through the setting or Control Panel.

We recommend turning off screensavers

Keep Alive Setup

A useful tip to keep connections solid concerns the use of Keep Alives. Users have the tendency to log in to a TS server, do some work, and then leave their desk for extended periods of time. On WAN links with high latency, TCP/IP will see these inactive connections as dead and eventually terminate the socket. During these idle times, you can configure TCP Keep Alives to prevent the connection from staying idle for too long by sending a "heartbeat" packet to the server every so often.

To enable TCP Keep Alives, open the Registry on your TS server and navigate to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Terminal Server. Then create a new key called KeepAliveEnable with a DWORD value of 1.

Although the default settings are usually sufficient, you can also set the Keep Alive Time and Keep Alive Interval values. The Keep Alive Interval determines the time between "heartbeat" packets, while the Keep Alive Time determines how long the server will respond to "heartbeat" packets from an idle connection before severing the connection.

To modify these parameters, navigate to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters and look for the KeepAliveInterval and KeepAliveTime keys. Configured in milliseconds, the default for KeepAliveInterval is set to 1,000, or one second, while the default for KeepAliveTime is set to 7,200,000, or two hours.

Use RDP to Connect to the Server Console

Sometimes it is useful to see what is happening at the server console. This is quite easy to do. Simply Start > Run "mstsc /v:HOSTNAME /console /f" where HOSTNAME is the name of your Terminal Server. At the login, you need to login as the user logged in at the console, or the new session you initiate will replace the running session. To exit, it is best to just close your session using the "X" at the top of the screen, so you allow the processes currently running to continue.

Free Windows 2003 Resource Kit tools

At <http://www.microsoft.com/downloads/details.aspx?FamilyID=9d467a69-57ff-4ae7-96ee-b18c4790cffd&DisplayLang=en> Microsoft has a wonderful suite of tools for Server 2003. They are available as a free download. Also at this page <http://www.microsoft.com/windowsserver2003/techinfo/reskit/tools/default.mspx>, there are updates for several of the programs in the resource kit.

Two notable programs in the 2003 resource kit are instsrv.exe and srvany.exe, the programs that we use to create the Eluise, BPSServer, and LockManager services. As you might expect, most of the rest of these utilities are aimed at AD setups.

Ideas and Scripts to Facilitate Backups

Several clients have indicated that they have issues with users leaving Edulog.nt open at quitting time. This can have adverse effects on backups and scheduled maintenance routines that run through EMU after hours. This is particularly true in the case of Terminal Services implementations.

The following schema is one that we implemented with great success at one of our larger clients at their request. It involves altering ini files and having four different scripts run consecutively with some time between each one in the specific order indicated. Please note that the procedure outlined will be effective for Edulog.nt version 10.5x only. If you have an earlier version of Edulog.nt, please contact Edulog Hardware Consulting.

The scripts and batch files listed will require some customization for your particular installation. All can be cut and pasted from an electronic copy of this document, or you can use the versions that are part of the zip file in which this document came.

There are four different scripts involved. I will lay out the contents of each, explain what it does, then show a screen shot of the tasks in one particular implementation. The scripts are available in a zipped package along with this documentation from

Edulog Hardware Consulting (hardware@edulog.com). Please be sure that you have the most recent version of these scripts and documentation, as there will undoubtedly be changes as we discover new and better things.

The very first thing to do is to alter the Eltransclient.ini, ElPlot.ini and Maris.ini files by adding the Autoshutdown section as outlined in the next section. This by itself will take care of most problems that arise, and set up a graceful shutdown of Edulog processes.

Autoshutdown

```
[Autoshutdown]
```

```
On=1
```

```
Time=11:00PM
```

On=1

The 'On' setting specifies whether this function will be activated. 0 = do not activate, 1 = activate. The system default for autoshutdown is 'Off', and can only be activated if this section is added to the .ini file.

Time=11:00PM

The time setting is for what time of day the client/server session on the local machine is to be terminated.

Users should pick a time before scheduled utilities are slated to run, so as to eliminate queuing of batches.

This optional section allows users to force client/server sessions to terminate automatically at a set time every day. This will gracefully shut down all Edulog client sessions and the server sessions attached to them. For that reason, this is the preferred method to control the problem of users not logging out.

Killall.bat

```
@echo off
start "ELTerminator"
E:\ELT\exe\server\ELTerminator.exe -n
9230-EDULOG -k all
start "ELTerminator"
E:\ELT\exe\server\ELTerminator.exe -n
9230-EDULOG -e 59860 -k all
start "ELTerminator"
E:\ELT\exe\server\ELTerminator.exe -n
9230-EDULOG -e 59890 -k all
```

This batch file will shut down gracefully all Edulog-related server processes that are recognized as running by Eluise. Note that each line has a "-e xxxxx", except the first one, which uses the default endpoint of 59802. You will need to know the endpoint of each of the SIM areas on your server. If you are not sure of the endpoints that you need to use, please contact Hardware Consulting.

StopEdulogProcesses.vbs

```
strComputer = "."
Set objWMIPProcess = GetObject("winmgmts:" _
    & "\\\" & strComputer & "\root\cimv2")
Set colProcesses1 = objWMIPProcess.ExecQuery("Select * From Win32_Process Where" _
    & " Name='trnrpt.exe' Or Name='Geoserve.exe' Or Name='maris.exe' Or Name='ElTransClient.exe' "
    & "Or Name='ElTransService.exe' Or Name='printrpt.exe' Or Name='gismo.exe' Or Name='elplot.exe' "
    & "Or Name='elplotsrv.exe'")
For Each objProcess in colProcesses1
    objProcess.Terminate()
```

This script looks for all Edulog client and server processes that could be holding files open. It terminates these processes. It happens from time to time that there are Edulog processes that go 'rogue', that is become detached from the Edulog programs that keep track of them. This script is intended to take care of this eventuality.

Del_all_sessions.bat

```
query session >session.txt
for /f "skip=1 tokens=3," %%i in (session.txt) DO logoff %%i
del session.txt
```

This batch file uses the query session command to generate a list of current user sessions on the Terminal Server and forcibly logs off any that remain. Our goal here is to clear out all user sessions so that no one is logged in and has the possibility of opening an Edulog.nt or other session that would compromise what we want to do.

Delete_LCK_and_TAF.bat

```
@echo off
del e:\elt\live\server\dyn\*.lck
del e:\elt\live\server\geo\*.taf
del e:\elt\sim\server\dyn\*.lck
del e:\elt\sim\server\geo\*.taf
del e:\elt\summer\server\dyn\*.lck
del e:\elt\summer\server\geo\*.taf
```

This last batch file will rid us of the LCK and TAF files that may prevent execution of certain processes that we want to run. Note that there will have to be two lines for each data area on your server.

This is the last step in our schema. At this point we have done our best to assure that nothing will stand in the way of our backup or maintenance processes.

Once you have the scripts set up, you will need to schedule them to run at the appropriate time.

Scheduling Example

In the following example, the processes are scheduled in the correct order. Note that each has multiple scheduled times. This district does a different series of events on weekends.

Name	Schedule	Next Run Time
Add Scheduled Task		
Delete_LCK_and_TAF	Multiple schedule times	8:59:00 PM 7/11/2006
del_all_sessions	Multiple schedule times	8:58:00 PM 7/11/2006
StopEdulogProcesses	Multiple schedule times	8:57:00 PM 7/11/2006
killall	Multiple schedule times	8:56:00 PM 7/11/2006

Please note that these scripts will need to be customized for each individual district's implementation of Edulog.nt. If you are certain that you know exactly what you are doing, please go ahead and make the necessary changes. If you have any doubts or concerns, please contact Edulog Hardware Consulting for assistance. As you are no doubt aware it is so much easier to give advice than to fix problems.

These are powerful tools. If a user who does not now what they are doing accidentally gets access to them, severe problems can result. Thus I urge you to put them in a separate directory and set strict user privileges on them. I would recommend that you deny access to everyone except the designated administrator account that will run the processes.

Keeping Users Out

Once you have done the above to assure that all Edulog users are out of the system so you can run EMU scripts, you may also need to take measures to assure that users remain out of the system so that there is no interference with the jobs. There is at least one way to do this.

The method that I will outline requires strict adherence to the setup laid out. I have tested this on Edulog version 10.104/1.110 but the programmers assure me that this should work on other versions as well. Eluise functions primarily as a mediator to connect client and server sessions. Once a client – server connection is made Eluise has little to do. We can take advantage of this fact, and the scheduling capability of EMU. As long as EMUSERV is running, we can run a batch file to stop Eluise at the beginning of an EMU scheduled job, then another batch file at the end of the job to start Eluise.

1. Create the two following batch files and put them into the appropriate ELT\EXE\EMU folder. Make sure that Eluise is exactly the same case as it shows in the Services Applet.

STARTELUISE.BAT

Net start Eluise

STOPELUISE.BAT

Net stop Eluise

2. Open UTILS.INF and add the following lines:

```
[STARTELUISE.BAT]
FILE = STARTELUISE.BAT
[STOPELUISE.BAT]
FILE = STOPELUISE.BAT
```

3. Open EMUGUI and create a new batch. Choose STOPELUISE.BAT as the first program to run, and STARTELUISE.BAT as the last. Schedule the batch to run at a time when users will not normally be in the system. To continue with the scheduling example we have started above, 9:00 pm. You must be sure that EMUSERV is running. If you watch this occur, you will see that EMU kicks off the batch at the appointed time. Immediately, Eluise will stop. The programs specified in the EMU batch will run. When everything is finished, Eluise will start again. After this a user can log in to Edulog.nt or any other Edulog client program.

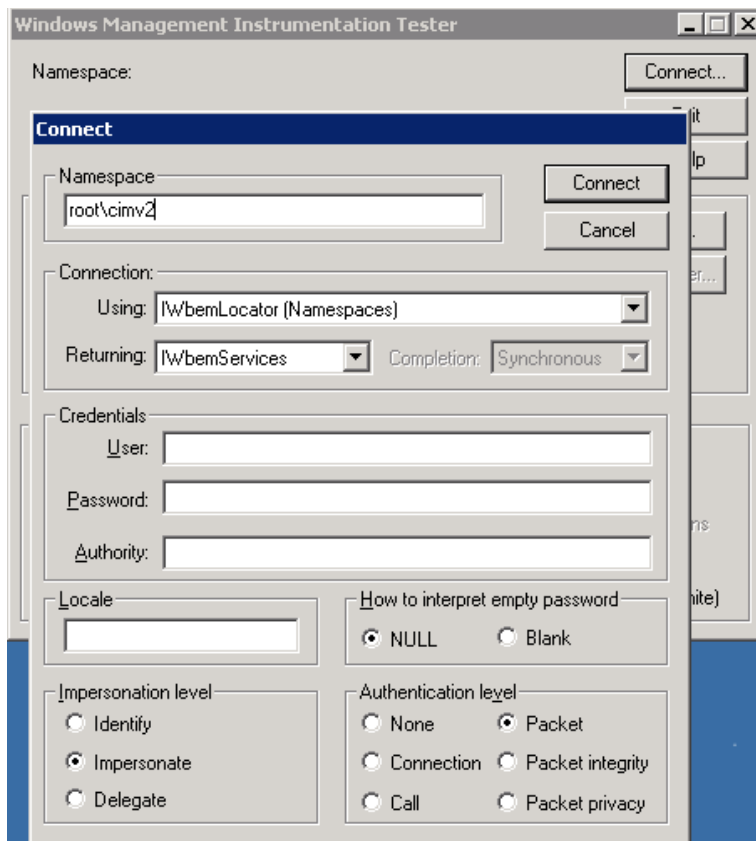
Some general notes on Scripting

Above are several examples of scripting for the Edulog Server. Note that these solutions use a variety of tools – from DOS batch files to VBScript, to the Task Scheduler. That seems to be a general theme that is commonly seen in the area of scripting. Use whatever tool you know or have available to accomplish the task that you need to do. There are so many tools available – Python, JavaScript, Perl, PowerShell, and KixStart to mention a few.

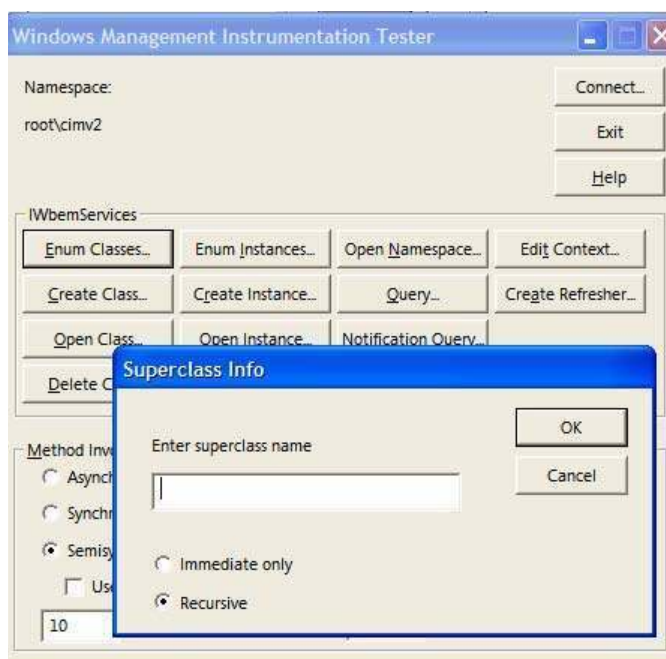
From my perspective, there are a few tools that are universally available on Windows servers, and tend to be more powerful than others. These are VBScript and PowerShell.

VBScript

VBScript has been available on all Microsoft machines for a long time. When combined with WMI (Windows Management Instrumentation), VBScript gives one access to a truly amazing array of functions. One of the keys to successful scripting is to know the range of things that you can and cannot do. Microsoft provides a command line tool to lay out the WMI objects that are available, WBEMTEST. To run it, go to Start/Run and enter “wbemtest”. Press the “Connect” button as illustrated below. Note that we connected to the namespace “CIMV2”, rather than “default”. This is version 2 of the Common Information Model. Whereas there are many namespaces available, this is the most interesting and useful.

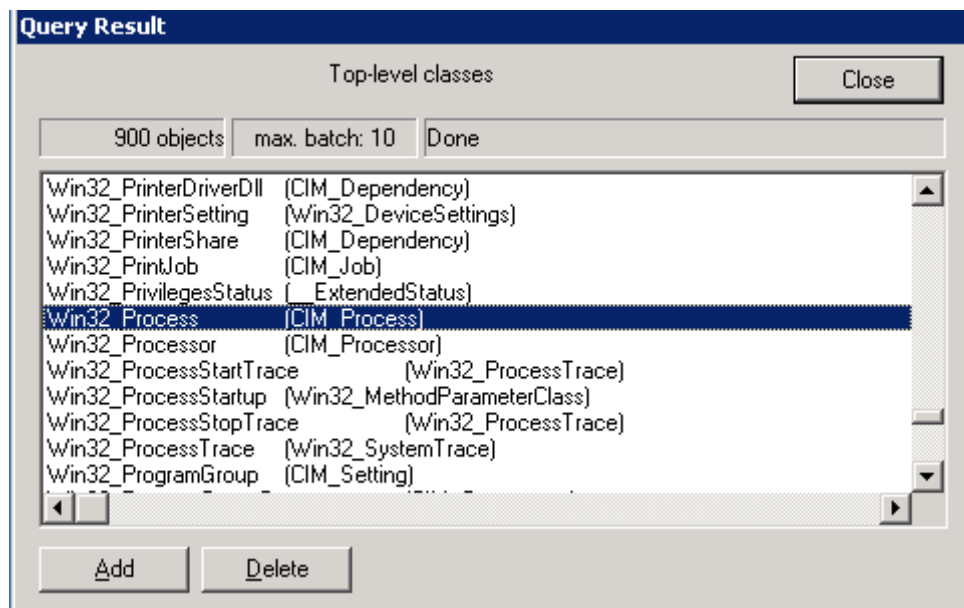


The next step is to view the objects available and their associated methods and properties. To do that connect to the cimv2 namespace, choose “Enum classes...” then recursive in the superclass info button that pops up, and press OK, as shown below.

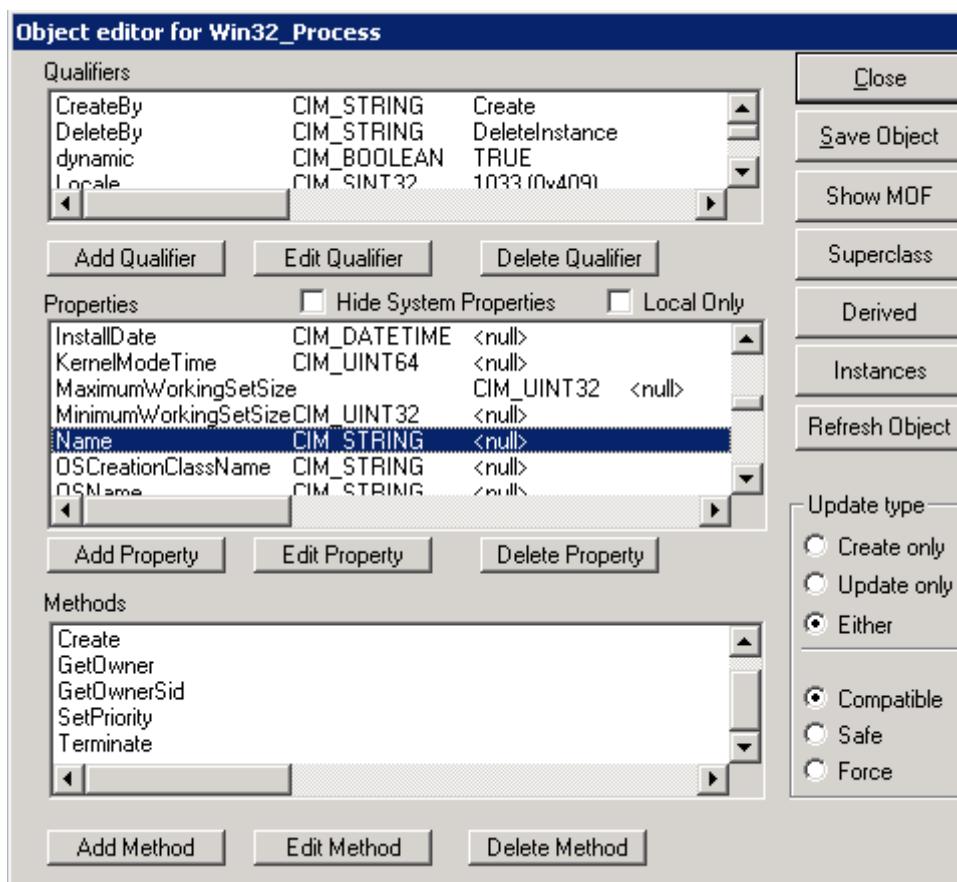


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This will bring up the real goal of the exercise – the listing of the 900 or so top-level classes that are available, as illustrated below.



If you scroll down, way down, you will come to the Win32_Process class. Double click on it and the qualifiers, properties and methods for this object will be shown.



Note that the Name Property and the Terminate method are listed here. In the Stop_Edulog_Processes listed above, we use these characteristics of the Win32_Process object.

So, why make this excursus into the deep arcana of Windows? I wanted to illustrate to you a canonical way to check the accuracy of the scripting answers that you get off the Internet. Unfortunately, the objects available for use with scripting vary from operating system to operating system. This can play havoc with the scripts that you get from the Internet. Using WBEMTEST can alert you to the differences and also make you aware of the available methods.

For generating scripts, I always advise people to do a detailed search on the Internet. Outline in as precise terms as possible what exactly you want to do, then see what is available as a starting point.

There are some exceptionally good resources available on the Internet. Among the best in my opinion is “Hey Scripting Guy” (<http://www.microsoft.com/technet/scriptcenter/resources/qanda/feb08/hey0220.msp>) has a large cache of scripts and scripting tutorials. They give answers in various languages – VBScript, JavaScript and PowerShell. There are good links to a large array of other Microsoft scripting resources also.

There are a plethora of really cool tools specifically for Terminal Services at http://www.ctrl-alt-del.com.au/CAD_Utills.htm . In particular, tslogoff.exe and named-ate.exe have made my life easier.

PowerShell

PowerShell is the new command-line shell for administering Windows. It is both an interactive shell and a scripting environment, built on the .Net framework 2.0. It is part of the Common Engineering Criteria (CEC) for future versions of Windows. Microsoft is using it extensively in new products, like Exchange 2007, Systems Center Operations Manager 2007 and Server 2008. XP, Vista and Server 2003 require a separate download and installation to run it. In Server 2008, it is built in and used to run the command line based core installation. It is Microsoft's tool of choice for the future. It appears that the GUI is dead – Long live the command line!

PowerShell is becoming the most powerful way to manage any product where it is part of the CEC. For example, in Exchange Server 2007 there are many functions that you can do in PowerShell that are not available in the Management Console interface.

There are a lot of amazing aspects of PowerShell. It is very Unix-like in its interface. It has multi-layered help. It is an extremely powerful environment. To a large degree it is self-documenting.

Here are some introductory ideas of what it PowerShell will do.

```

C:\WINDOWS\system32\WindowsPowerShell\v1.0\powershell.exe
PS C:\> ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : logistics.int
    IP Address. . . . .               : 172.16.163.20
    Subnet Mask . . . . .             : 255.255.224.0
    Default Gateway . . . . .         : 172.16.160.1

Ethernet adapter SonicWALL Virtual Adapter:

    Connection-specific DNS Suffix  . : 
    IP Address. . . . .               : 223.1.1.128
    Subnet Mask . . . . .             : 255.255.255.0
    Default Gateway . . . . .         : 
PS C:\>

```

As you can see above – regular command line utilities like ipconfig yield the exact same results. PowerShell comes with quite a few built-in cmdlets. These are the meat of PowerShell. One of the most useful cmdlets is get-command. This will list all the various cmdlets that are built in to PowerShell.

Some of the best cmdlets to begin with are: “get-help” and “get-command”. These two in particular tap into the self-documenting nature of PowerShell. Get-command lists all the cmdlets that are available to be used, and gives a synopsis of the proper-

ties of each. If you use “get-help get-command” it will tell you about the get-command cmdlet. It is best to dive in and explore for yourself.

There are a lot of very good resources on the Web about PowerShell. Among the best are:

<http://www.scripzinganswers.com> - A site run by PowerShell guru Don Jones.

<http://www.powershellcommunity.org> - A community based site with lots of links

<http://www.windowsdevcenter.com> - O'Reilly's site with a lot of good PowerShell articles.

<http://blogs.msdn.com/powershell> - The Microsoft blog about PowerShell

<http://channel9.msdn.com/wiki/default.aspx/Channel9.WindowsPowerShellWiki> - A good entry point for MSDN's exhaustive resources on PowerShell.

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TERMINAL SERVICES TIPS AND TRICKS

Licensing

CAVEAT

Terminal Services licensing is a complex topic. What is contained below has been gleaned from several sources, and is not to be considered definitive by any means. In all cases Microsoft is the final arbiter in all questions involving licensing. If you have questions, I urge you to contact your district's Microsoft licensing person, or Microsoft themselves.

Microsoft has several different types of licenses that are applicable to their server Operating Systems. We will focus on only two – the regular server Client Access License (CAL) and the Terminal Services Client Access License (TSCAL). Please be aware that the terms of Microsoft's licensing agreements can change. The following is an attempt to explain the situation as I understand it now – in January 2007. With a new version of Windows Server – Longhorn - on the horizon, and the release of the new client OS – Vista – imminent, there are a number of questions to which answers do not exist at this moment. No doubt there will be changes by the time you read this.

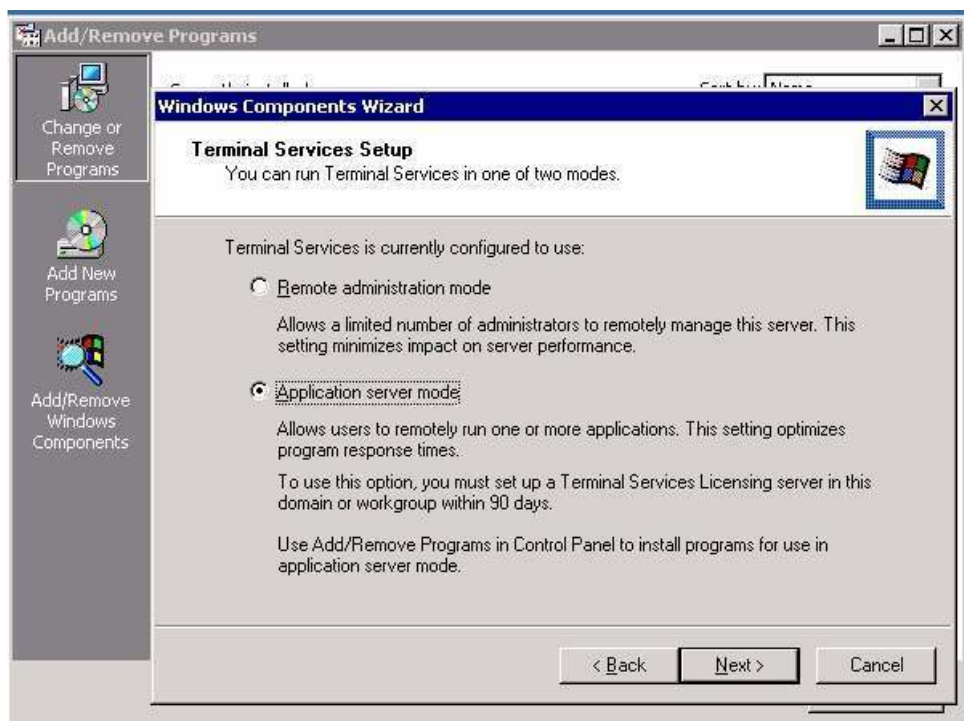
Server Client Access License (CAL)

For each client computer connecting to a server, whether Windows 2000 or Windows 2003, you must have a regular server CAL. This requirement exists for almost all operating systems, the exception being the free (as in free beer) Linux and UNIX operating systems.

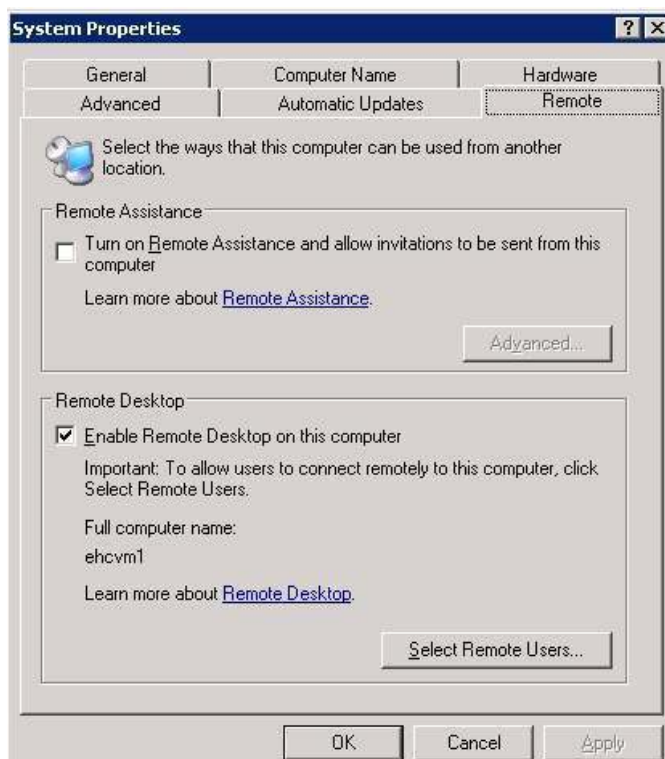
Terminal Services Remote Administration Mode

There are two different modes in which Terminal Services can be set up. The first we will consider is called Remote Administration Mode in Windows 2000. In Windows 2003 it is called Remote Desktop. The use of this mode has some severe limitations, but it is very useful. As the name implies it is designed to allow administrators to administer a server remotely. It is limited to administrators in the local server. Only two simultaneous connections are allowed in this mode. So, only two simultaneous administrator connections are allowed. This mode does not require any additional licensing.

The screen shots below show you how to install Terminal Services remote administration mode on a Windows 2000 server. First you have to install Terminal Services, and then choose the Remote Administration Mode. Note that this mode does not require that Terminal Services Licensing be installed.



In Windows 2003, you need only turn on Remote Desktop. To get there right-click on My Computer > Properties > Remote. Just make sure that there is a button in the radio control as shown below.



This mode is less than useful for deployment of edulog, even to only two users. edulog uses ini files to differentiate users. In a standard edulog Terminal Services setup, we are very careful to isolate each user from the others. Thus each user has different paths in their ini files. Each user has a separate setup for edulog reports; each has a separate set of Autostreeter layers; each has a separate set of PAR files. In a Remote Administration mode Terminals Services setup, there is only one set of ini files available – those that are in the Windows or Winnt folder. If you had two users in edulog in this mode, the probability of them overwriting each other's data would be very high. This would lead to data corruption, data loss and ultimately very dissatisfied users. Not a happy devolution.

Terminal Services (Application Server) Mode

This is the standard Terminal Services mode that edulog runs in. It is in this mode that the Terminal Services Licensing issue kicks in. The technology that Microsoft uses in its Terminal Services was purchased from Citrix. Some people therefore regard Microsoft's implementation of this technology as inferior. Certainly, it has far fewer features than Citrix, especially once you start comparing the current version of each technology. However, Microsoft's Terminal Services does have a lot of power, and can be made to work a lot better than it does out of the box.

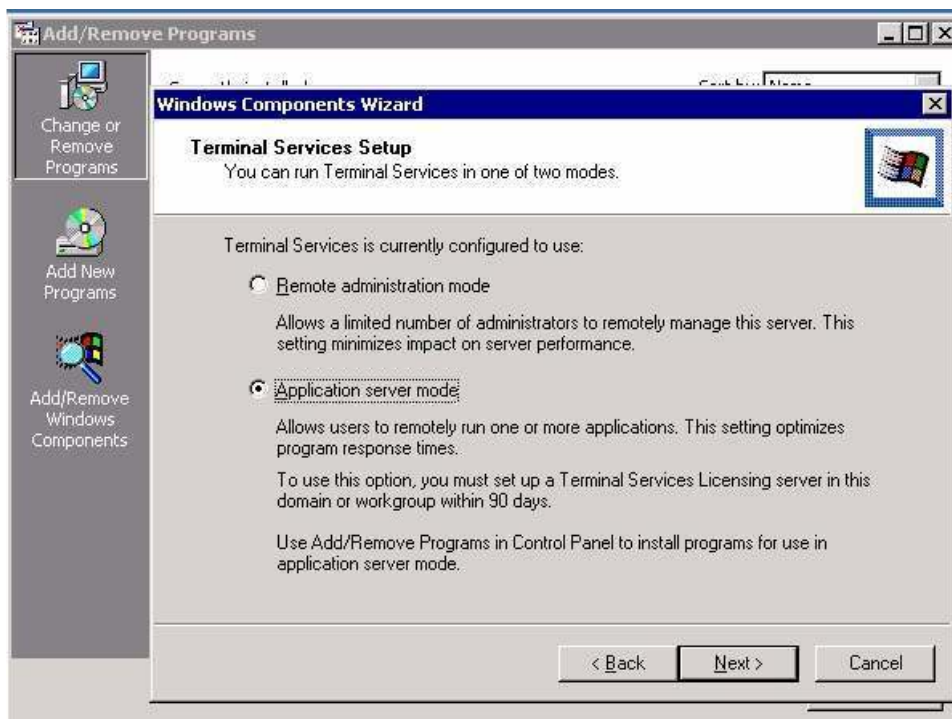
Windows 2000 and 2003 have very different licensing requirements. Especially if you are migrating from 2000, you need to be aware of this. Hence we will deal in depth with each Operating System separately.

Windows 2000 Terminal Services Licensing

Installation of Windows 2000 Terminal Services in Application Server Mode is very similar to installation in Remote Administration mode, as can be seen in the screen shots below.



Every installation of Windows 2000 Terminal Services in Application Server Mode requires an activated Terminal Services Licensing server. In this particular instance, the server is not part of a domain. Hence it can be its own licensing server.

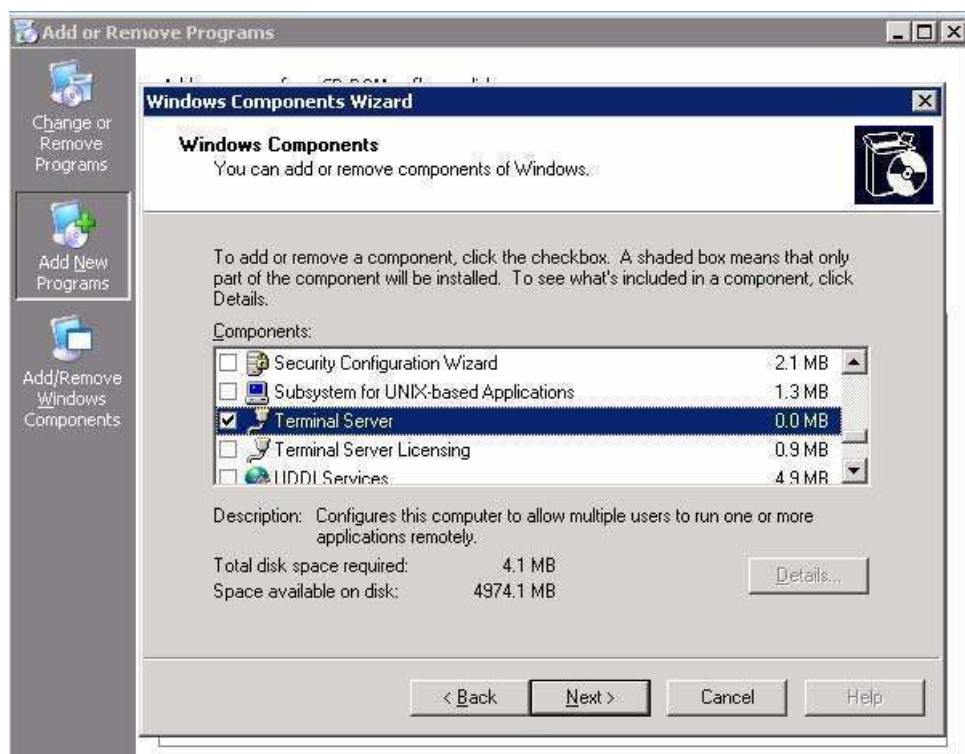


In this case, we choose Application server mode when given the choice. When we finish this, several things change on the server. One is that each user now has a separate Windows folder in their Terminal Services Home directory. Now when each user logs in to the server they do so in a relatively isolated user session. This is the only mode we recommend for installing edulog in a Terminal Services implementation.

Please remember the caveat earlier – what I am about to outline reflects my understanding as of January 2007. While every Windows 2000 Terminal Services installation requires an activated licensing server, it is not the case that you need to purchase a TSCAL for each user. For client workstations that use Windows 2000 Professional, Windows XP Professional, or presumably a business version of Windows Vista, Windows 2000 has a “built in” TSCAL. At the time of writing, the situation with Vista is not clear. My guess is as that of a Microsoft MVP on the Technet forums. This means that you only need to purchase TSCALs for user of Windows NT, 9x and non-Microsoft Operating Systems. For confirmation of this, please contact your Microsoft Licensing person.

Windows 2003 Terminal Services Licensing

Installation of Terminal Services in Windows 2003 is pretty straightforward. Again, go into Add/Remove Programs and choose Add Windows Components. Then scroll down until you find Terminal Server. Check it and install, as illustrated below.



Since this server is part of a domain, this is not the TS Licensing Server. As I indicated before, the requirements for Terminal Services Licensing are different on Windows 2003 than they are on Windows 2000. Under Windows 2003, you must purchase a valid TSCAL for each client, regardless of the client Operating System. The rationale from Microsoft is that Terminal Services under 2003 is much more robust than under Windows 2000. Be that as it may, this is a big change from the Windows 2000 licensing model. Various districts have indicated to me that the cost for educational TSCALs is much lower than the standard industrial rate.

There are two kinds of TSCALs available for Windows 2003, per user and per device. You can only have one kind per server, but can have both kinds on the same licensing server. There are many FAQ docs on the Microsoft site that talk about the different kinds of licensing. One answer they give about which type of license to choose is "If you have more devices than users (for example with roaming users), choose Per User. If you have more users than devices, choose Per Device."

Grace Period

"The grace period begins the first time the terminal server accepts a client connection. It ends after you deploy a license server and that license server issues its first permanent client access license (CAL), or after 120 days, whichever comes first... To maximize evaluation, do not deploy a license server until the grace period is about to expire. For Windows Server 2003, you receive a maximum of 210 days for evaluation (a grace period of 120 days plus a temporary token of 90 days). For Microsoft Windows 2000, you receive maximum of 180 days for evaluation (a grace period of 90 days plus a temporary token of 90 days)." – Microsoft.com

Terminal Services Licensing Server

The requirements for a licensing server vary between Windows 2000 and 2003. In the situation where the edulog server is part of a workgroup, and not a domain, it or another server in the workgroup can serve as the licensing server. This will severely restrict the availability of the licenses, and require that all edulog users be local users on the server typically. However that restriction is not always bad.

If a Windows 2000 Terminal Server is a member server in a domain (no one recommends that a Terminal Server have a role on an Active Directory Domain), the licensing server must be a Domain Controller (DC).

If a Windows 2003 Terminal Server is a member server in a domain, there is more latitude. In Windows Server 2003, the licensing service can be installed on a workgroup-based server, a member server, or a domain controller. The whitepaper at the following location <http://www.microsoft.com/windowsserver2003/techinfo/overview/termservlic.mspx> contains a wealth of information concerning terminal services licensing servers.

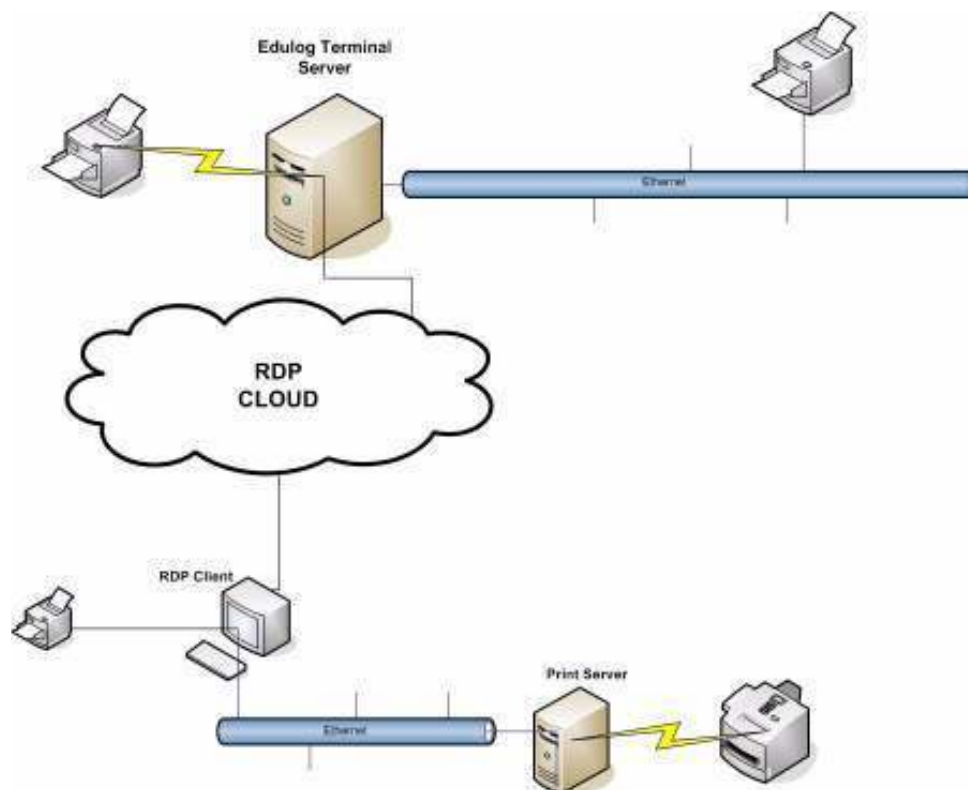
Terminal Services Printing

One of the most problematic aspects of Terminal Services is printing. This is well demonstrated by the existence of a number of third party products to solve this issue – Screwdrivers, Net2Printer RDP, UniPrint Terminal Server Edition, Thinprint and .print to name just a few. We have found that, in most situations, there are enough known work-arounds and tools to solve Terminal Server printing problems.

How Printing works in Terminal Services

There are some really good documents on the Web that go into great detail to describe the process of Terminal Services printing. Among the best is “The Ultimate Guide to Terminal Server Printing - Design and Configuration” by Brian Madden available at <http://www.brianmadden.com/content/content.asp?ID=62>. For a really detailed overview of how printing redirection actually works, I recommend it highly. For our purposes here, we will take a more simplistic approach.

As illustrated in the diagram below, there are basically two ways that a user can print from a terminal server. Either they print to a printer attached directly or indirectly to the server or through the RDP cloud to a printer attached directly or indirectly to the client. Within each of those basic ways, there are many different connection methods available – Parallel, USB, IP, Print Server, etc., as the diagram below illustrates.



Any printer attached to the server shows up as an available printer for every RDP user. So, for example, if you had all your users in a FDDI WAN, you could quite easily load all the printers that the users would need on to the Terminal Server itself. That would be a very elegant and easy to maintain printing solution. The only thing that is problematic in that scenario is user permissions on a network printer. You would need to make sure that all appropriate RDP users had the necessary permissions. The main issue that arises in this particular scenario is when the RDP user logs into the server without domain credentials that is as a local user on the server, and tries to print to a printer on the domain. Because the print job originates from a user without domain credentials, it is seen by the printer as coming from a user without permission to print and is rejected. The obvious solution here is to give that user the correct permissions on the printer.

The main issues that arise in Terminal Services printing come from printing through the RDP cloud. The short story is that the server and the client need to reference the exact same printer driver in order for the client to print successfully. This gets tricky because there are so many places that problems can occur. From this point on, all references to printing refer to printing through the RDP cloud.

RDP Client Configuration

Microsoft has made available the new RDP client that comes with Windows XP for download on its website at <http://www.microsoft.com/windowsxp/downloads/tools/rdclientdl.mspx>. If you are using the old Windows 2000 style RDP client, your very first priority needs to be installing the new client. By itself, this will clear up a lot of printing issues.

This sounds axiomatic, but in order for the client to print, the client must map their printer. In the RDP client configuration there is a check box that needs to be checked so that printers are mapped. To get there, right click on the RDP icon, choose edit, then go to the Local Resources tab, and make sure that there is a check in the box beside Printers in the Local devices area, as illustrated below.



Common Error Messages

Once you have determined that the user does indeed have local printers mapped through the RPD client, the next thing to look at is the system event logs.

Windows 2000 Terminal Services supports the automatic redirection of printers that are configured to use local ports (such as LPT1, LPT2, or LPT3) on computers that have open client sessions through the Remote Desktop Protocol (RDP) 5 client. This printer redirection occurs at logon, and occurs by default.

However, if you are using third-party drivers or some Microsoft Windows 95/Microsoft Windows 98 drivers on the client, printer redirection does not work. When this occurs, the following error messages are logged in the System event log on the server:

Type: Error
Event ID: 1111
Description: Driver *drivername* required for printer *printertype* is unknown. Contact the administrator to install the driver before you log in again.

Type: Error
Event ID: 1105
Description: Printer security information for the *printername/clientcomputername/Session number* could not be set.

Type: Error
Event ID: 1106
Description: The printer could not be installed.

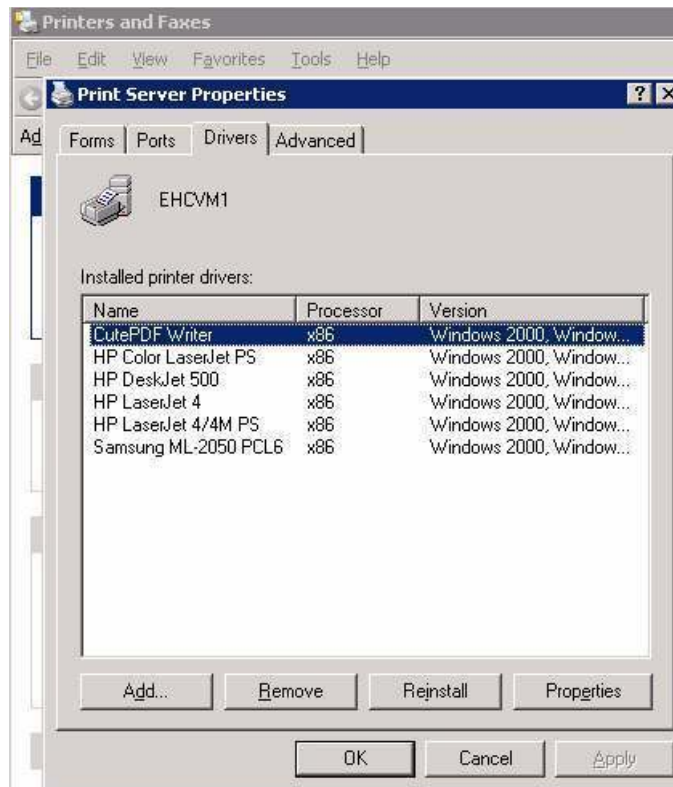
These three errors are very common. The first and most obvious cause of these errors is that the printer driver that the user needs is not available on the server. Obviously, the way to fix that is to load the desired printer driver on the server. Notice that we are loading the printer driver and not creating the printer.

To load a printer driver, first go to the printers and faxes applet and click on File/Server Properties as illustrated below.



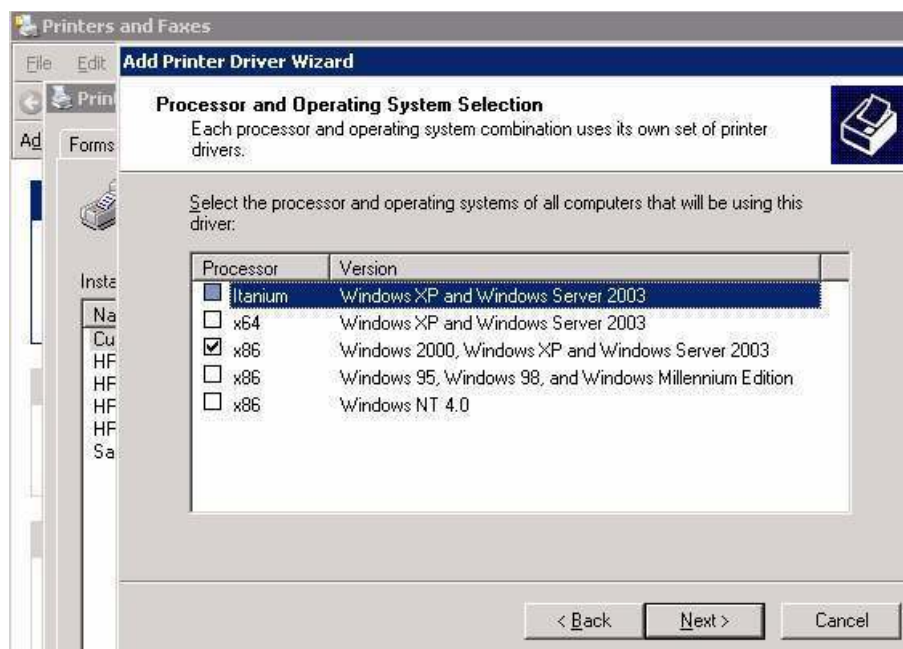
The Print Server properties will be displays as indicated below. This shows all he printer drivers that area installed on the server.

NOTES



When you click on Add to add the new printer driver, it will bring up the Add Printer Driver Wizard that will guide you through adding the new driver.

An important dialog in the wizard is shown below. Since you want to add the printer for the server, it is important to choose the correct processor and Operating System. In our case, we have Windows 2003 on an x86 platform.



Other than that the Wizard is fairly straight forward.

There are other reasons why these errors come up. They may arise from a difference in the driver name that the client uses versus what the server has. For example, the client drive may be for a “RICOH Aficio BP20N” and the server may have a “Ricoh Aficio BP20N”. The difference between “RICOH” and “Ricoh” is sufficient to cause this difficulty. Alternatively an older client may ask for an “HP 920 CXI PCL 6” driver and the server have a “Hewlett Packard 920 CXI PCL 6” driver. The Microsoft Knowledge Base article quoted in the text box above details two ways to deal with this issue. One is the edit two registry settings and add a supplemental ntprintsubs.inf to the %windir%\system32 on the server. The second is to use the Terminal Server Printer Driver Redirection Wizard available as a download at the bottom of that article.

Creating the ntprintsubs.inf by hand is a process that requires some care, but if you follow the directions carefully, it will work well. We have used this method extensively to solve this issue.

Using the Terminal Server Printer Driver Redirection Wizard can be difficult if you have not looked through the errors beforehand and loaded the appropriate drivers. The Wizard will scan for all instances of errors 1111 and ask you to choose the substitute printer for each printer referenced. You could do worse that utilize the HP Universal Printer Drivers as outlined below.

HP Universal Printer Drivers

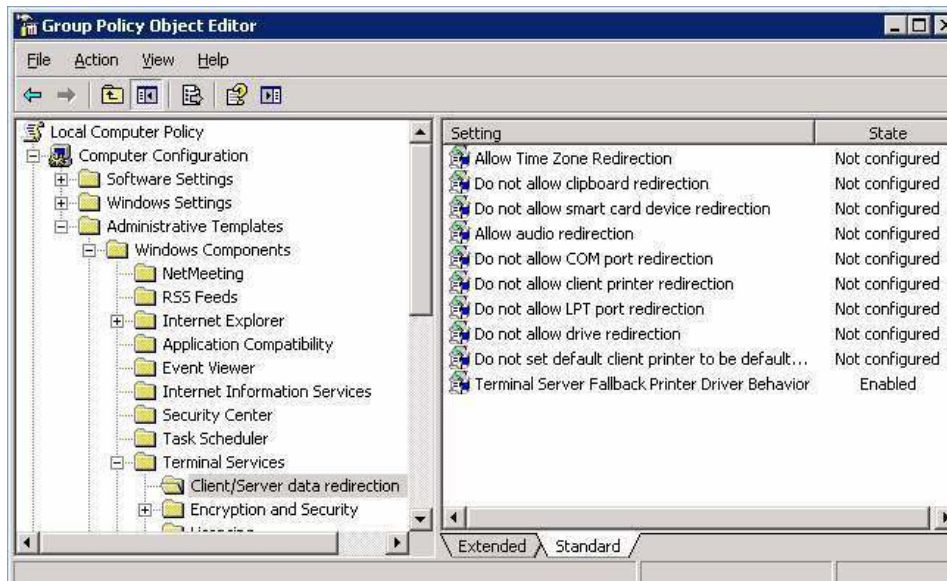
Hewlett Packard has published Universal Printer drivers in three different versions PCL5, PCL6 and PostScript. Follow the download link from <http://h20338.www2.hp.com/Hpsub/cache/342988-0-0-225-121.html>. We have found these Universal Drivers to be useful for other printers than HP. If you have no other

driver available, this one is worth a shot, since most printers use one of these languages.

NOTES

Fall Back Printer Drivers in Windows 2003 SP1 and later

With the release of Service Pack 1 for Windows 2003, Microsoft tackled this problem in a wonderful way. They added fallback printer driver capability. It is a setting in the Group Policy Editor. To get there Start/Run/GPedit.msc. Navigate to Computer Configuration/Administrative Templates/Windows Components/Terminal Services/Client/Server data redirection/Terminal Server Fallback Printer Driver Behavior.



The official explanation of the options is shown in the textbox below. I typically like to choose “Show both PCL and PS if one is not found”

Specifies the Terminal Server fallback printer driver behavior.

By default, Terminal Server fallback printer driver is disabled. If the Terminal Server does not have a printer driver that matches the client's printer, no printer will be available for the terminal server session.

This article <http://www.brianmadden.com/content/content.asp?ID=438> details how you can specify the printer drivers that are used for the fallback printers. In combina-

tion with the HP Universal Printer Drivers mentioned earlier, this capability is powerful indeed.

The Client's Printers do not show up

Sometimes the client's printers do not show up in their session at all. This is a more unusual case. The fix in this case involves hacking the registry on the client's workstation to add a registry key that forces all ports on the computer to be filtered for redirection. To do this add a DWORD value name FilterQueueType to HKEY_CURRENT_USER\Software\Microsoft\Terminal Server Client\Default\AddIns\RDPDR and set its value data to FFFFFFFF. You will have to reboot the workstation, and may also need to reboot the server, because it caches client settings. See MS KB article 302361.

Setting a client's default printer

A client had an issue where they wanted to be able to set a user's default printer. Usually that will default to the default printer on the client workstation. In this case the client wanted to default to a different printer. It took some searching and trial and error, but Randy Bauld came up with a great solution. I pointed him to a website, <http://www.dabcc.com/downloadfile.aspx?id=230>, where they had a free utility, "setdefaultprinter.exe" that sets the default printer for a client session. After a few trials, Randy came up with this solution. He created a batch file called setdefault-printerr.bat and put it in the user's windows folder. Then he created a shortcut to the batch file and put that in the documents and settings\%username%\start menu\programs\startup folder. It has worked for several months now.

Miscellaneous Issues

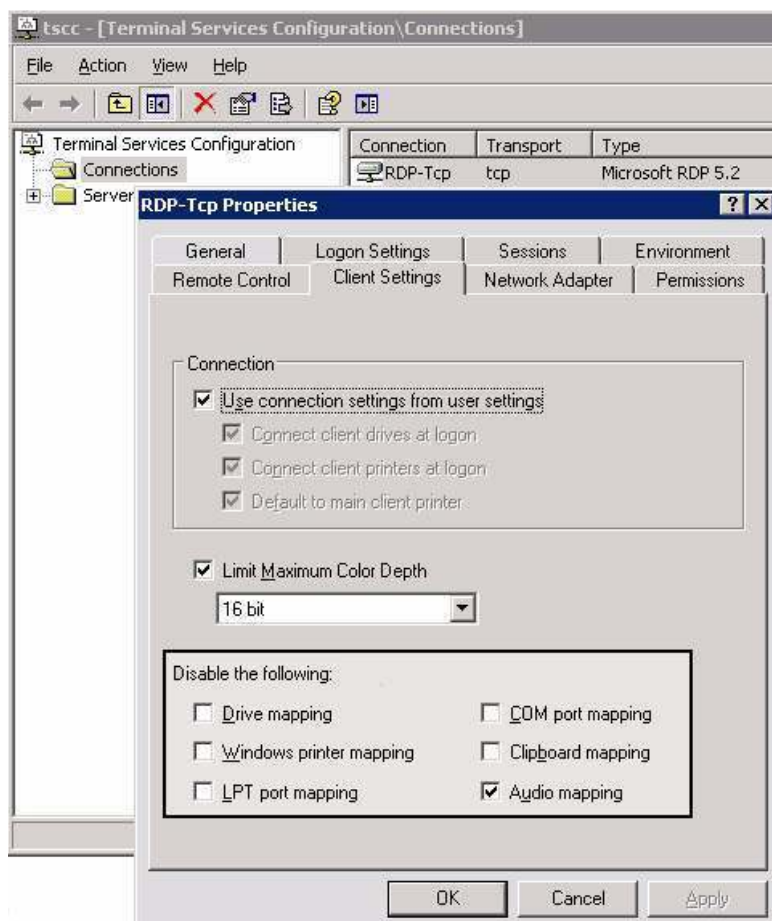
Installing Programs on a Terminal Server

Whenever you install a program on a Terminal Server, it is imperative that you do it through Add/Remove Programs. By default, each user on a Terminal Server has his own individual Windows folder. If you just double click on an installation program, all the ini files, dlls and other things that properly belong in the %windir% get put into the Windows folder of the user who installs it. That causes problems in that other users may not be able to use the application. To avoid these problems, always install edulog applications and updates through Add/Remove Programs.

Mapping User Drives in Windows 2003

Windows 2003 Terminal Services has many more capabilities than Windows 2000 did. One is the capability to map user drives. This can be very useful in a situation where a user wants to create a report and then manipulate it in Excel or Word for example. However, it is a double-edged sword. It can also facilitate the spread of viruses and worms from the client to the server. It is your call whether the usefulness outweighs the risk.

You need to do some set up on the client and some on the server to make this happen. In the RDP client, you need to be sure that Disk Drives are a shared resource, as illustrated in the diagram below.



On the server, by default local drive mapping is allowed. Drive mapping is controlled in the Terminal Services Configuration/Connection management console. One way to get there is to Start > Run > tscc.msc. Right click on the RDP-tcp line in the right hand pane, choose properties, and the following dialog will come up. Make sure that there is no check mark beside Disk drives. If there is, this capability would be disabled.

Once you have set up the client and checked that the server is set to see mapped drives, log in and you will see that the mapped drives are there, as shown below.



Now all we have to do is to map the drive. Note that it maps drives only, not shared folders. One way to do that is create a batch file with the following contents in a folder and place a shortcut to it in the C:\Documents and Settings\%user-name%\Start Menu\Programs\Startup folder. It will automatically start each time the user logs in. The persistent :no switch limits the mapping to that particular session. I recommend that you do it this way rather than having a persistent mapping, because it will check for the connection every time.

REM This batch file will map the C: drive on a TS user

Now when a client wants to save a report, they can create it as a text file, Excel spreadsheet or whatever and send it to a folder on their C: drive for later manipulation.

Disable Session Screensavers

From time to time we run across a situation where, when users minimize their edu-log TS sessions, they cannot get back into them. This phenomenon usually starts after the session is minimized for ten minutes. I am not sure why, but on some servers, the users all have a screen saver set up so that after 10 minutes, you are required to enter credentials. This seems to be a problem mostly in Windows 2003. It seems that the culprit here is the screensaver itself. Microsoft has a KB article <http://technet2.microsoft.com/WindowsServer/en/library/158fc95f-4205-4894-9907-2644182125121033.msp?mfr=true> that indicates, while you can use screensavers in Terminal Services, it is not a good idea to do so. Using a graphics-intensive screensaver can raise the bandwidth requirements significantly. Therefore we recommend that you not use screensavers in a Terminal Services environment. There is a Group Policy Object that can be applied at the server level that prohibits screensavers. In Windows 2003, go to Start > Run > gpedit.msc. Navigate to User Configuration/Administrative Templates/Control Panel/Display. In Windows 2000 SP4, go to Start > Run > gpedit.msc. Navigate to User Configuration/Administrative Templates/Control Panel/Display. The screen shot below is from a 2003 server. In Windows 2000, the same control is labeled "Activate Screen Saver".

Here is Microsoft's explanation.

If you disable this setting, screen savers do not run. Also, this setting disables the Screen Saver section of the Screen Saver tab in Display in Control Panel. As a result, users cannot change the screen saver options.

If you do not configure it, this setting has no effect on the system.

If you enable it, a screen saver runs, provided the following two conditions hold: First, a valid screensaver on the client is specified through the "Screensaver executable name" setting or through Control Panel on the client computer. Second, the screensaver timeout is set to a nonzero value through the setting or Control Panel.

We recommend turning off screensavers

Keep Alive Setup

A useful tip to keep connections solid concerns the use of Keep Alives. Users have the tendency to log in to a TS server, do some work, and then leave their desk for extended periods of time. On WAN links with high latency, TCP/IP will see these inactive connections as dead and eventually terminate the socket. During these idle times, you can configure TCP Keep Alives to prevent the connection from staying idle for too long by sending a "heartbeat" packet to the server every so often.

To enable TCP Keep Alives, open the Registry on your TS server and navigate to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Terminal Server. Then create a new key called KeepAliveEnable with a DWORD value of 1.

Although the default settings are usually sufficient, you can also set the Keep Alive Time and Keep Alive Interval values. The Keep Alive Interval determines the time between "heartbeat" packets, while the Keep Alive Time determines how long the server will respond to "heartbeat" packets from an idle connection before severing the connection.

To modify these parameters, navigate to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters and look for the KeepAliveInterval and KeepAliveTime keys. Configured in milliseconds, the default for KeepAliveInterval is set to 1,000, or one second, while the default for KeepAliveTime is set to 7,200,000, or two hours.

Use RDP to Connect to the Server Console

Sometimes it is useful to see what is happening at the server console. This is quite easy to do. Simply Start > Run "mstsc /v:HOSTNAME /console /f" where HOSTNAME is the name of your Terminal Server. At the login, you need to login as the user logged in at the console, or the new session you initiate will replace the running

session. To exit, it is best to just close your session using the “X” at the top of the screen, so you allow the processes currently running to continue.

Free Windows 2003 Resource Kit tools

At <http://www.microsoft.com/downloads/details.aspx?FamilyID=9d467a69-57ff-4ae7-96ee-b18c4790cffd&DisplayLang=en> Microsoft has a wonderful suite of tools for Server 2003. They are available as a free download. Also at this page <http://www.microsoft.com/windowsserver2003/techinfo/reskit/tools/default.mspx>, there are updates for several of the programs in the resource kit.

Two notable programs in the 2003 resource kit are instsrv.exe and srvany.exe, the programs that we use to create the Eluise, BPSServer, and LockManager services. As you might expect, most of the rest of these utilities are aimed at AD setups.

Ideas and Scripts to Facilitate Backups

Several clients have indicated that they have issues with users leaving edulog open at quitting time. This can have adverse effects on backups and scheduled maintenance routines that run through EMU after hours. This is particularly true in the case of Terminal Services implementations.

The following schema is one that we implemented with great success at one of our larger clients at their request. It involves altering ini files and having four different scripts run consecutively with some time between each one in the specific order indicated. Please note that the procedure outlined will be effective for edulog version 10.5x only. If you have an earlier version of edulog, please contact edulog Hardware Consulting.

The scripts and batch files listed will require some customization for your particular installation. All can be cut and pasted from an electronic copy of this document, or you can use the versions that are part of the zip file in which this document came.

There are four different scripts involved. I will lay out the contents of each, explain what it does, then show a screen shot of the tasks in one particular implementation. The scripts are available in a zipped package along with this documentation from edulog Hardware Consulting (hardware@edulog.com). Please be sure that you have the most recent version of these scripts and documentation, as there will undoubtedly be changes as we discover new and better things.

The very first thing to do is to alter the Eltransclient.ini, ElPlot.ini and Maris.ini files by adding the Autoshutdown section as outlined in the next section. This by itself will take care of most problems that arise, and set up a graceful shutdown of edulog processes.

Autoshutdown

```
Autoshutdown]
On=1
Time=11:00PM
```

On=1

The 'On' setting specifies whether this function will be activated. 0 = do not activate, 1 = activate. The system default for autoshutdown is 'Off', and can only be activated if this section is added to the .ini file.

Time=11:00PM

The time setting is for what time of day the client/server session on the local machine is to be terminated.

Users should pick a time before scheduled utilities are slated to run, so as to eliminate queuing of batches.

This optional section allows users to force client/server sessions to terminate automatically at a set time every day. This will gracefully shut down all edulog client sessions and the server sessions attached to them. For that reason, this is the preferred method to control the problem of users not logging out.

Killall.bat

```
@echo off
```

```
start "ELTerminator" E:\ELT\exe\server\ELTerminator.exe -n 9230-EDULOG -k all
start "ELTerminator" E:\ELT\exe\server\ELTerminator.exe -n 9230-EDULOG -e
59860 -k all
start "ELTerminator" E:\ELT\exe\server\ELTerminator.exe -n 9230-EDULOG -e
59890 -k all
```

This batch file will shut down gracefully all edulog-related server processes that are recognized as running by Eluise. Note that each line has a "-e xxxxx", except the first one, which uses the default endpoint of 59802. You will need to know the endpoint of each of the SIM areas on your server. If you are not sure of the endpoints that you need to use, please contact Hardware Consulting.

StopEdulogProcesses.vbs

```
strComputer = "."
Set objWMIPProcess = GetObject("winmgmts:" _
    & "\\\" & strComputer & "\root\cimv2")
Set colProcesses1 = objWMIPProcess.ExecQuery("Select * From Win32_Process
Where" _
    & " Name='trnrpt.exe' Or Name='Geoserve.exe' Or Name='maris.exe' Or
Name='ElTransClient.exe' " _
    & "Or Name='ElTransService.exe' Or Name='printrpt.exe' Or Name='gismo.exe'
Or Name='elplot.exe' " _
    & "Or Name='elplotsrv.exe'")
For Each objProcess in colProcesses1
    objProcess.Terminate()
Next
```

This script looks for all edulog client and server processes that could be holding files open. It terminates these processes. It happens from time to time that there are edulog processes that go 'rogue', that is become detached from the edulog programs that keep track of them. This script is intended to take care of this eventuality.

Del_all_sessions.bat

```

query session >session.txt
for /f "skip=1 tokens=3," %%i in (session.txt) DO logoff %%i
del session.txt

```

This batch file uses the query session command to generate a list of current user sessions on the Terminal Server and forcibly logs off any that remain. Our goal here is to clear out all user sessions so that no one is logged in and has the possibility of opening an edulog or other session that would compromise what we want to do.

Delete_LCK_and_TAF.bat

```

@echo off
del e:\elt\live\server\dyn\*.lck
del e:\elt\live\server\geo\*.taf
del e:\elt\sim\server\dyn\*.lck
del e:\elt\sim\server\geo\*.taf
del e:\elt\summer\server\dyn\*.lck
del e:\elt\summer\server\geo\*.taf

```

This last batch file will rid us of the LCK and TAF files that may prevent execution of certain processes that we want to run. Note that there will have to be two lines for each data area on your server.

This is the last step in our schema. At this point we have done our best to assure that nothing will stand in the way of our backup or maintenance processes.

Once you have the scripts set up, you will need to schedule them to run at the appropriate time.

Scheduling Example

In the following example, the processes are scheduled in the correct order. Note that each has multiple scheduled times. This district does a different series of events on weekends.

Name	Schedule	Next Run Time
Add Scheduled Task		
Delete_LCK_and_TAF	Multiple schedule times	8:59:00 PM 7/11/2006
del_all_sessions	Multiple schedule times	8:58:00 PM 7/11/2006
StopEduLogProcesses	Multiple schedule times	8:57:00 PM 7/11/2006
killall	Multiple schedule times	8:56:00 PM 7/11/2006

Please note that these scripts will need to be customized for each individual district's implementation of edulog. If you are certain that you know exactly what you are doing, please go ahead and make the necessary changes. If you have any doubts or concerns, please contact edulog Hardware Consulting for assistance. As you are no doubt aware it is so much easier to give advice than to fix problems.

These are powerful tools. If a user who does not now what they are doing accidentally gets access to them, severe problems can result. Thus I urge you to put them in a separate directory and set strict user privileges on them. I would recommend that you deny access to everyone except the designated administrator account that will run the processes.

Keeping Users Out

Once you have done the above to assure that all edulog users are out of the system so you can run EMU scripts, you may also need to take measures to assure that users remain out of the system so that there is no interference with the jobs. There is at least one way to do this.

The method that I will outline requires strict adherence to the setup laid out. I have tested this on edulog version 10.104/1.110 but the programmers assure me that this should work on other versions as well. Eluise functions primarily as a mediator to connect client and server sessions. Once a client – server connection is made Eluise has little to do. We can take advantage of this fact, and the scheduling capability of EMU. As long as EMUSERV is running, we can run a batch file to stop Eluise at the beginning of an EMU scheduled job, then another batch file at the end of the job to start Eluise.

1. Create the two following batch files and put them into the appropriate ELT\EXE\EMU folder. Make sure that Eluise is exactly the same case as it shows in the Services Applet.

STARTELUISE.BAT

Net start Eluise

STOPELUISE.BAT

Net stop Eluise

2. Open UTILS.INF and add the following lines:

[STARTELUISE.BAT]

FILE = STARTELUISE.BAT

[STOPELUISE.BAT]

FILE = STOPELUISE.BAT

3. Open EMUGUI and create a new batch. Choose STOPELUISE.BAT as the first program to run, and STARTELUISE.BAT as the last. Schedule the batch to run at a time when users will not normally be in the system. To continue with the scheduling example we have started above, 9:00 pm. You must be sure that EMUSERV is running. If you watch this occur, you will see that EMU kicks off the batch at the appointed time. Immediately, Eluise will stop. The programs specified in the EMU batch will run. When everything is finished, Eluise will start again. After this a user can log in to edulog or any other edulog client program.

Backups

Backups are a perennial issue. We all know the importance of doing regular and frequent backups for the protection of data and disaster recovery. I want to address two topics here – a simple but effective backup technique and then discuss its application to Edulog specifically.

Child/Parent/Grandparent Rotation Scheme

Typically, a good backup scheme can go like this Child/Parent/Grandparent rotation scheme. This scheme uses daily (Child), weekly (Parent), and monthly (Grandfather) backup sets.

Monday – incremental backup to tape 1
Tuesday – incremental backup to tape 2
Wednesday – incremental backup to tape 3
Thursday – incremental backup to tape 4
Friday – full backup to tape 5. This is called Week 1 Backup.

So, if disaster struck on a Wednesday, you would do a full restore from the previous Friday's weekly backup tape and then restore the updates from Monday's and Tuesday's tapes.

The next Monday you would re-use tape 1 for an incremental backup.

Next Tuesday, use re-use tape 2.

Same for Wednesday and Thursday – use tapes 3 and 4 again.

Next Friday, do another full backup to Week 2 backup (tape #6).

This way, if you discovered corrupt data a week after it happened, you could still recover data way back from week 1.

Week 3 is the same as week 2, using Week 3 backup (tape #7) on Friday.

At the end of the fourth week, do a full backup to Month 1 backup tape (tape #8).

At the end of the fifth week, Week 1 tape is re-used.

Can you see the pattern? The daily tapes are recycled weekly. The weekly tapes are recycled monthly. Monthly tapes are recycled annually. Of course each year a full annual backup is kept safely stored and never re-used.

Naturally, you can see the daily tapes (tapes 1-4) are used much more often than the weeklies and monthlies. This will mean they will suffer more wear and tear and may fail more readily because they are getting old. What happens is that the tapes that are used most get “promoted” after a time. A tape (e.g. tape 1) will be used as a Weekly tape after, say, a month of daily use. After a year of weekly use it can be error-checked (in case it's getting unreliable) and “promoted” to become a Monthly tape. After 12 months it could be “retired” and spend the rest of its days relaxing on a shelf as a permanent Annual backup tape, complaining about the disgraceful behavior of young backup tapes nowadays.

Annual backup tapes should be duplicated, just in case the original fails, since this is the only surviving copy of this data.

This scheme is sometimes known as the Child/Parent/Grandparent scheme because a brand new young tape starts being active and vigorous, in middle age it slows down its hectic life to only work once a week, and in old age it takes a final recording, puts on its slippers and sits on the porch enjoying itself.

Of course a backup is only as good as its ability to be restored. I have run into the case where someone has a backup that they never tried restoring, and it failed on them. I cannot overstate the importance of testing the restorability of backups on a frequent basis. This is one of those things that you pray you never need, but when you do need it, it HAS to work.

Edulog-Specific Backup Tips

There are a few refinements that we can make to this scheme. First we should start with a complete image backup of the server. Depending on the tools you have avail-

able, you can do this in a variety of ways. The idea behind it is that you have a way to rebuild from bare metal, if need be. This backup should be the grandfather of all backups and stored off site in a safe location. It would be good to redo this on a regular basis as things change – for example after an upgrade to a new version of Edulog.

The second thing to discuss is the scope of the daily backups. With Edulog 10.5, all the data for the main area is conveniently stored in the ELT\LIVE folder. For simulation areas, it is stored in the relevant folder under ELT – perhaps SIM or PLAN. If you back up those folders completely, you will have all the Edulog data you need.

SERVER VIRTUALIZATION

One of the hottest IT topics for 2006 and 2007 is Server Virtualization. In this session we will look at Virtualization in the following manner:

- 1 What is server virtualization?
- 2 How does server virtualization work? What are the major companies whose products work in the various ways.
- 3 Why is virtualization such a hot topic right now? What are the advantages of virtualization?
- 4 What possible points of pain are there to virtualization?
- 5 edulog on a virtual server
- 6 Summary

What is server virtualization?

From Wikipedia: the partitioning a physical server into smaller virtual servers.

In computing, virtualization means to create a virtual version of a device or resource, such as a server, storage device, network or even an operating system where the framework divides the resource into one or more execution environments. Even something as simple as partitioning a hard drive may be considered virtualization because you take one physical drive and partition it to create two separate logical hard drives. Devices, applications and human users are able to interact with the virtual resource as if it were a real single logical resource. The term virtualization has become somewhat of a buzzword, and as a result the term is now associated with a number of computing technologies including the following:

- Storage virtualization: the amalgamation of multiple network storage devices into what appears to be a single storage unit.
- Server virtualization: the partitioning of a physical server into smaller virtual servers.
- Network virtualization (VLAN): using network resources through a logical segmentation of a single physical network.
- Application virtualization

The above definition does little to tell us about how server virtualization works on a conceptual basis. The diagram below indicates how things look conceptually. Depending on the particular Virtual Machine (VM) technology chosen, the Console OS may or may not be familiar to you.

<<insert server_virtu_vis.gif>>

The main idea here is that the Hypervisor or Virtualization Layer totally isolates the hosted virtual Machines from the Hardware. Intel with its Virtualization Technology (VT) and AMD with Pacifica are working hard to develop hardware that enables an ever thinner layer hypervisor.

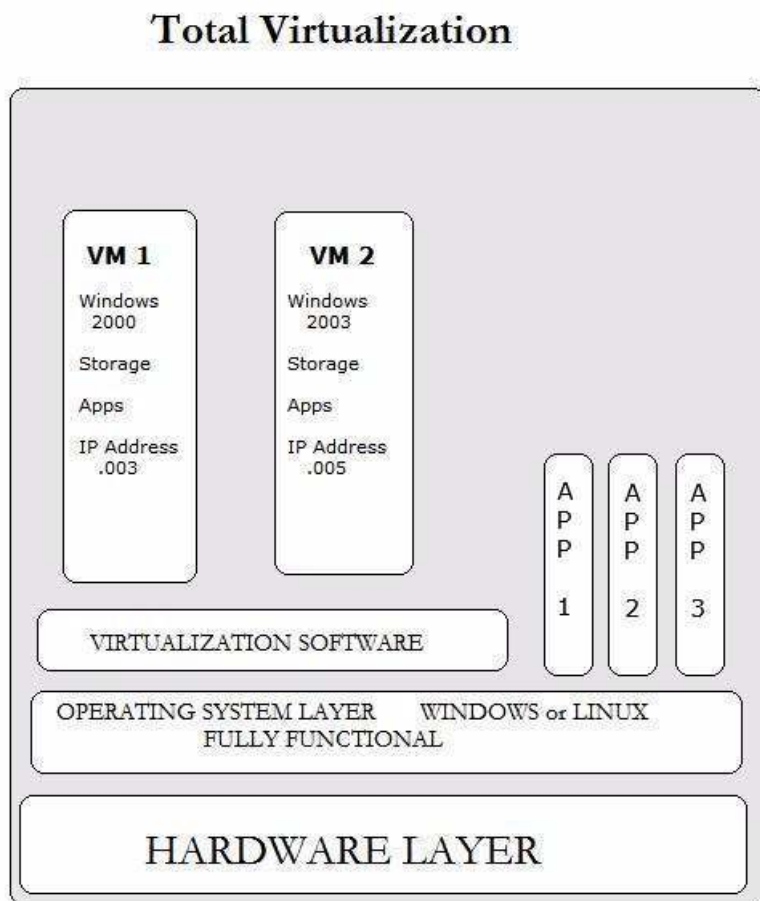
It is important to realize that this is not a new idea – it was originally used by IBM on its mainframes in the age of Big Iron – VMS allowed multiple Virtual Machines to run on one server. In fact, most often, each application on a VMS server ran in its own virtual machine that was isolated from all the other applications running in their own virtual machines on the VMS server. That way if one application crashed, it would do not affect other applications running on the server. It is important to realize that this OS was hardware-specific. It only ran only on IBM mainframes of a certain class. At present, IBM servers offer dynamic logical partitioning (LPAR) which supports specific Linux distributions, and Windows instances. Again IBM's solutions, while very robust, depend on specific hardware configurations.

Starting in the late 90's, VMWare and other companies started offering virtualization solutions that would run on commodity x86 processors. As with all new products, the initial offerings were not robust. However, in the last few years, virtualization technologies have become very powerful indeed.

How Virtualization Works

As I see it, there are three major ways that virtualization works. Each has its proponents. I will try to highlight the major companies and products doing virtualization in the different ways. I think you will see the importance of understanding these methods as we go along.

It is important to note the universal characteristics of Virtual Machines. All VMs appear to be fully functioning servers in their own right. Each has its own FQDN, IP address or addresses, RAM, and storage. To a casual user connecting to the server, it is impossible to tell whether it is a virtual or a physical machine. It is just another Windows 2003 box for example.



In what I am calling total virtualization, there is a fully functional operating system installed first. Then the virtualization software is installed on top of the O/S, and the Virtual Machines, each with its own operating system and storage devices run on top of that. There are two very thick layers between the Virtual Machine (VM) and the hardware layer. This is a simplification of the way things work. This approach has been used in a lot of products, some more successful than others. With time, this model has grown more sophisticated in the way that system calls from the VMs are handled. Such products as Microsoft's Virtual PC and Virtual Server, VMWare's VM Player, Virtual Workstation, Virtual Server, and GSX Server, and a whole list of other products work in this basic way.

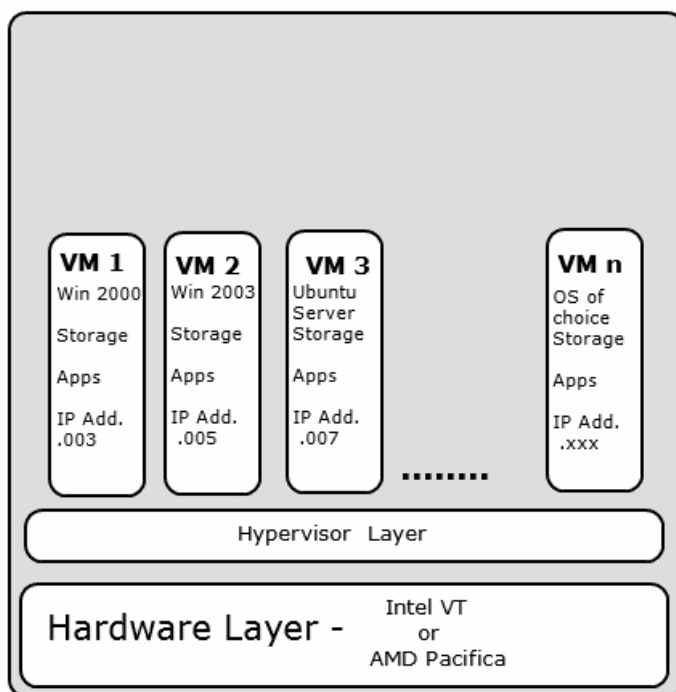
It is worth noting that several of the products mentioned above are distributed as freeware by their makers. VMWare's VM Player and Virtual Server, as well as Virtual Server 2005 R2 Enterprise Edition and Microsoft Virtual PC 2004 from Microsoft are now available free.

The licensing for Windows 2003 R2 changed as of October 1, 2006. According to this page <http://www.microsoft.com/windowsserver2003/howtobuy/licensingr2/overview.mspx>,

Enterprise Edition Users may run up to four instances of Server 2003 on a server licensed for 2003 R2 Enterprise Edition. Datacenter Edition supports an unlimited number of virtual instances on a physical server licensed for Datacenter. Actually the situation is a bit more complex than that, but that's the gist of it.

A caveat is in order here. "Free" as in "free beer" is very attractive, but has drawbacks. The main one is that once you have started down this road, it can be very hard to back out. Cost justifying a better-supported, much more powerful but pricier solution can be very difficult indeed. The free products are fully functional, but do not offer the sort of features that the more powerful and more useful solutions do. This model is, by definition, totally server-oriented. It does not offer a lot of flexibility for the user. It is probably best relegated to testing scenarios.

Paravirtualization

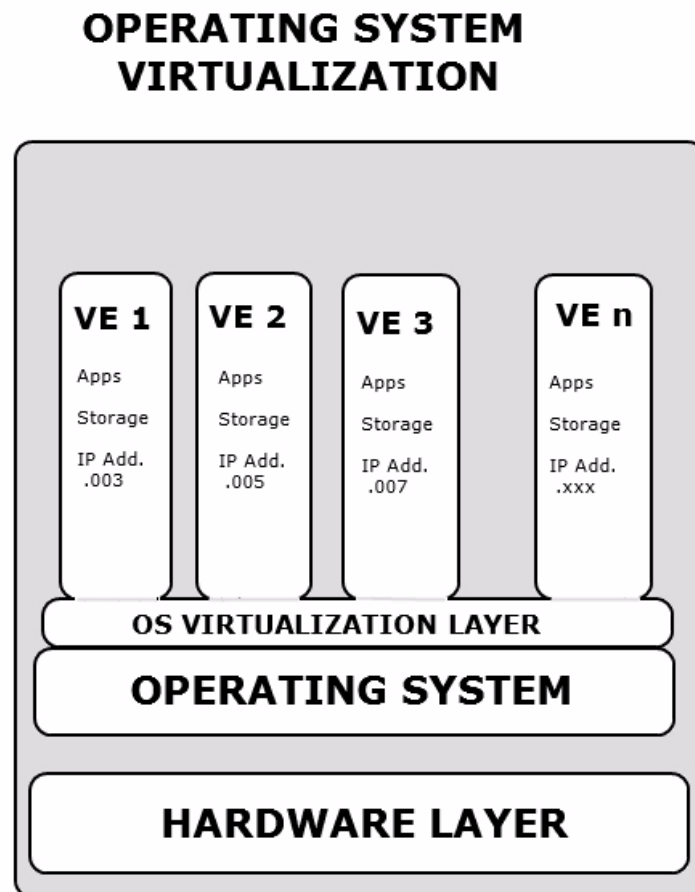


Paravirtualization is a much different approach. Here we have specified hardware that must be used – Intel processors that include VT technology or AMD processors that include Pacifica. These additions by the chipmakers were designed in conjunction with the manufacturers of virtualization software to facilitate the growth of increasingly thinner and more efficient hypervisor layers. The Hypervisor layer is very like an operating system, except it does not support any applications except virtual machines. It provides the management functions for the VMs. Unlike total virtualization above, these bare metal solutions do not require a base operating system.

Products in this space include VMWare ESX server, VMWare's Infrastructure 3, Virtual Iron, and Xen – a Linux based product by Novell and XenSource. All the solutions mentioned provide management capabilities aimed at the enterprise. At this point VMWare's Infrastructure 3 (I3) seems to be the market leader. I3 allows

you to set up virtual machine farms and using Virtual Motion, allows you to move a running Virtual machine from one server to another. According to them, they did this when gamers were using the server, and the gamers did not even notice the move. Of course, these top-end solutions are not inexpensive.

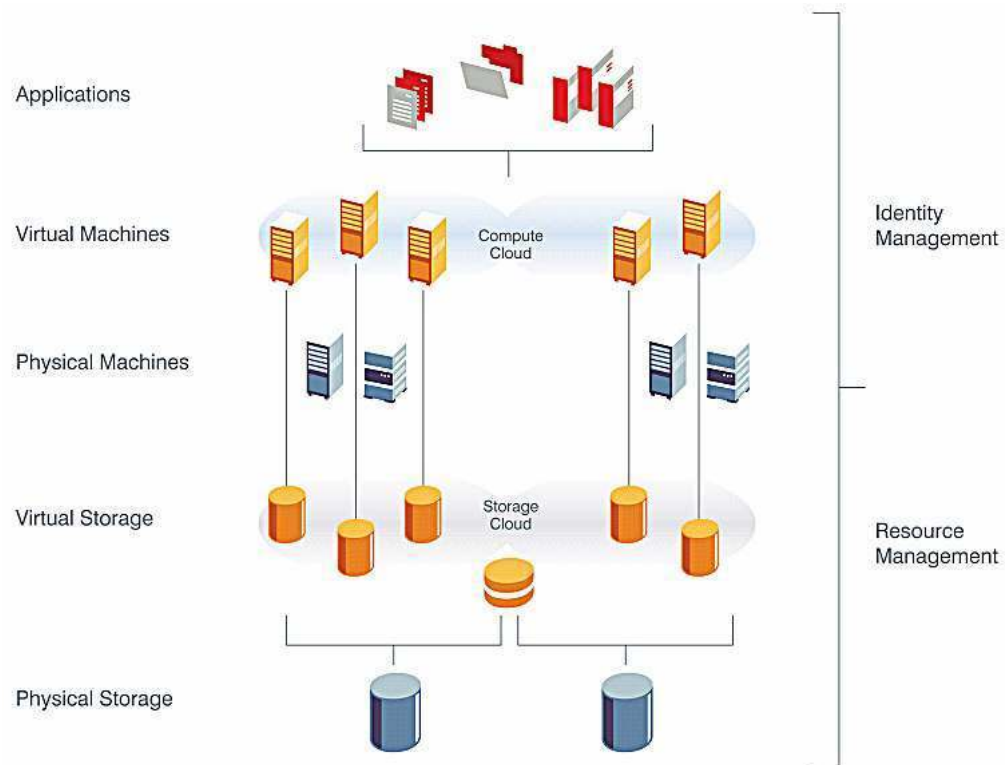
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Operating system virtualization takes yet a different tack. In this approach, the Hypervisor is an operating system virtualization layer. There is only one instance of the operating system, but it allows several isolated virtual environments (VE) to run on top of it. Unlike the two other approaches above, each VE must run the same operating system. Each VE is a separate discrete instance of the OS with its own RAM, storage, security, IP address etc. Each VE is isolated from all the others, so that if one crashes, the others are protected.

Examples of products that use this approach are IBM's Logical Partitions (LPAR), Virtuozzo, the Linux Kernel Virtual Machine (KVM) and perhaps the long-awaited Windows Longhorn server. Logically, this is very close to the original VM servers that IBM had in the 1960s.

The Articulated Goal of Virtualization



The goal articulated by all the documents that I have read is illustrated above. Novell /Xen Enterprise, and VMWare Infrastructure 3 with Virtual Motion both claim to have largely achieved this goal. There is a radical decoupling of the physical and logical resources required to provide an IT infrastructure. In the compute cloud, VMs can be moved easily from one physical server to another, and continue to deliver extremely high availability (five or six 9's). There is no single point of failure because any of the logical resources can be housed on any of the available physical servers. Upgrading a physical server is simply a matter of transferring the VMs hosted on that server to different servers in the cloud then removing that server from the cloud, and patching or upgrading it.

In the storage cloud, each VM and its storage can be decoupled from the host server and put onto a redundant NAS or SAN configuration. This should make for relatively easy backup procedures.

The Benefits of Virtualization

So, why is virtualization such a hot topic right now? The main reason is the promise of cost savings. Some companies advertise that you can save 40% and more on costs using their particular solution. Typical is this customer quite on the Virtuozzo site (as of Jan 22, 2007 at 3:20 pm MST) "We use Virtuozzo to efficiently operate and expand our new server infrastructure with a dramatic 85% reduction in total costs..." Another report from a VMWare brochure indicates that "the IT service department of a leading North American utility company started a server consolidation project

using VMware software. More than 1,000 servers were migrated to 50, 8-socket capable IBM x440 servers.... There was also a 10:1 consolidation of network ports. The customer experienced dramatic cost savings in their facilities and hardware infrastructure.”

ROI

There are several areas in which cost savings or return on investment (ROI) are typically highlighted:

- Cost of space (leased or owned) for physical servers
- Electrical energy to power physical servers
- Air conditioning for the server room
- Hardware cost of physical servers
- Hardware cost of networking devices (including expensive gears like switches and fiber channel host bus adapters)
- Software cost for operating system licenses
- Annual support contracts costs for purchased hardware and software
- Hardware parts for expected failures
- Downtime cost for expected hardware failures
- Service hours for physical devices
- Speed of provisioning new servers
- High Availability

Disaster Recovery

One area where virtualization really shines is in the area of disaster recovery. With the high-end products like XEN Enterprise and VMWare Infrastructure 3, you can set things up so that if a physical server shows signs of failure, the virtual machines that it hosts can be moved to a new server in a matter of seconds. Totals machine state backups are easy to create. You can restore a whole machine to a known good state by simply clicking a button. All sorts of capabilities in this area are developing rapidly.

Rapid Provisioning of New Servers

Instead of having to go through the several week long cycle of requisition, purchase, delivery and setup that provisioning traditionally requires, in a Virtualized environment, you can deploy a new server in a matter of minutes or hours. Such responsiveness to user requirements can be a big selling point.

Possible Points of Pain

Of course, all these benefits are not without cost. Several sources have pointed out that moving to a virtual infrastructure requires a great deal of forethought, planning and preparation. It is not a panacea, solving all the problems inherent to IT. In an excellent series of articles at <http://searchservervirtualization.techtarget.com>, Alessandro Perilli points out that implementation of a virtual infrastructure is a complex

process. He and others have identified the following as major issues that need to be addressed.

- A rack of servers hosting VMs and running at 80% of capacity requires more power than one of servers running at 15% capacity. This may mean significant rewiring in the data center.
- Physical to Virtual translation is not a trivial task. If you are doing things on a large scale, it pays to purchase one of the tools designed to facilitate the task, or use the available consulting services.
- Training requirements. The leading products, like Xen Enterprise and VMWare Infrastructure 3 require skill sets that the vast majority of IT professionals do not possess.
- Server management, security, backup, patching and monitoring all need to be reassessed to account for both the physical and the virtual layers.
- IP issues may arise because of the greater density of servers on a single cable. Things like MAC addresses, IP addresses, subnet and VLAN structure may be affected in unforeseen ways. A failed port on a switch will have much greater consequences.
- Need to plan resource needs and allocation carefully, so that virtual server sprawl does not replace physical server sprawl.
- Political considerations. Departments that are used to seeing “their” physical server may not understand having a Virtual server instead. Especially if another department’s Virtual server is hosted on “their” physical server.
- Operating system licensing needs to be managed carefully. Microsoft, for example, recently changed its view on virtual machines - but the language on the page detailing it is really convoluted.
- Performance on virtual servers is degraded from physical servers. The question is how much, and how that affects the users’ experience. Most solutions claim that their VMs work at about 90% or better performance compared to a similarly-configured dedicated physical server.

Edulog on a Virtual Server

So the ultimate question about server virtualization for this conference. Will edulog support their products on virtual servers? Happily, the answer is we will support our products on whatever server we find them on. Whether it is a “real” server or a virtual server, it matters not to us at all. In either case, the server must meet our basic specs. We will not support the virtualization solution that you choose. That part is totally your responsibility. We have several clients who have been running edulog successfully on virtual servers for over a year at this point.

For further details on this question, feel free to contact the edulog Hardware Consulting Group.

Conclusion

In this presentation, I have tried to give you an overview of what I consider a very exciting and important topic for IT – server virtualization. It holds much promise for delivering high availability, lower cost computing power. Please do not construe any of this as an endorsement of any product or company. As we move into the future, I am certain that virtualization will become increasingly more important.

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INTRODUCTION

This chapter contains specific information on utilities included in EMU. (If you need general instructions on setting up and running utilities in batch processes, you can refer to EMU's online Help.)

The utilities are listed by program name in alphabetical order (ADDUPD to UPSTU). Each section includes information on any audit and error reports produced by the utility (audit reports list any changes made to records, while error reports list any problems encountered). Those reports are typically placed in the Elt\Live\Server\EmuBatches\Output folder.

Batch Change of Student Addresses (ADDUPD)

Use this utility to correct street names in student Location fields. This utility does not affect the geocode. It only corrects information entered in the location field of student records.

You should run this utility when:

- The name of a street changes and you need to change the addresses of students living on that street.
- The same street name error has been entered in multiple student records (for example, the street entered in student Location fields was accidentally entered as Hiltop instead of Hilltop).
- You are performing a student download and have previously used the Batch Change of Student Addresses utility.

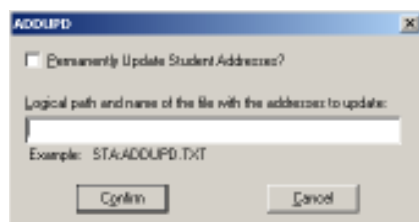
This utility tracks its progress in two files—Addupd.aud and Addupd.chk—located in the Elt\Live\Server\EmuBatches\Output folder.

Note:

To run this utility, you need to create an ASCII text file containing the street names to be changed, along with the corrected names. You need to pay close attention to the formatting requirements for this file (see "File Formats" on page 805). You can also use Buildtxt.exe located in the Elt\Exe\Report folder to build and edit the Addupd file. Place this text file in the Elt\Live\Server\Sta directory.

To change student addresses in batch mode:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Enter the name and location of the text file in the Logical Path text box as **STA:<filename.ext>**. Make sure to include a colon after STA.
- 3 If you want to permanently modify student addresses with the corrected information, select the **Permanently Update Student Addresses** check box.
- 4 Choose **Confirm** when finished.

After running this program, you need to run the following utilities.

- Run the Match Student Addresses (ADSCAN) utility to match the newly corrected student addresses to the geocode. See page 760.
- Run the Batch Calculation of Eligibility (BTHELG) utility to calculate student eligibility codes based on their locations in the geocode. See page 768.
- Run the Batch Assignment of Student Trips to Stop Services (BTHASGN) utility to update the assignments of newly matched students to stops. See page 766.

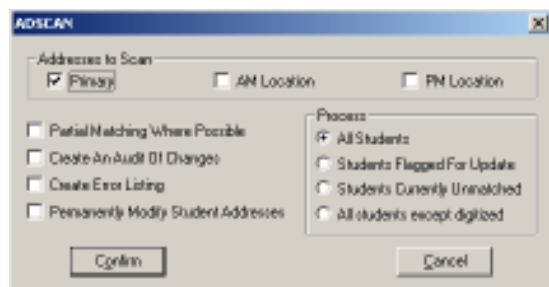
Match Student Addresses (ADSCAN)

Use this utility to match student locations to the geocode. In some cases, such as when a street name changes, students addresses may no longer correspond to any locations in the geocode. You can use this utility to match students, as well as to produce a listing of any students that are currently unmatched. Typically, you will want to run this program after downloading students from a master database.

This utility tracks its progress and lists any errors it encounters in the following files: Adscan.aud, Adscan.chk, Adscan.err, and Adscan.er2. These files are located in the Elt\Live\Server\EmuBatches\Output folder.

To match student addresses:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 You can select any or all of the following **check boxes**.
 - Primary: indicates that you want to match the student's primary location.

- AM Location: indicates that you want to match the student's morning shuttle location.
- PM Location: indicates that you want to match the student's afternoon shuttle location.

3 You can select any or all of the following **check boxes**.

- Partial Matching Where Possible: EMU will make very minor assumptions to match a student whose location does not perfectly correspond to the geocode (although the student will still not be matched to the geocode).
- Create an Audit of Changes: produces a report (Adscan.aud) of changes made to each record.
- Create Error Listing: produces a report (Adscan.err) of students who could not be matched to the geocode, with a brief explanation as to the reason.
- Permanently Modify Student Addresses: changes student data. If you do not select this check box, EMU produces the reports you select, describing the results as if you had run the utility in permanent mode.

4 Under Process, select **one** of the following:

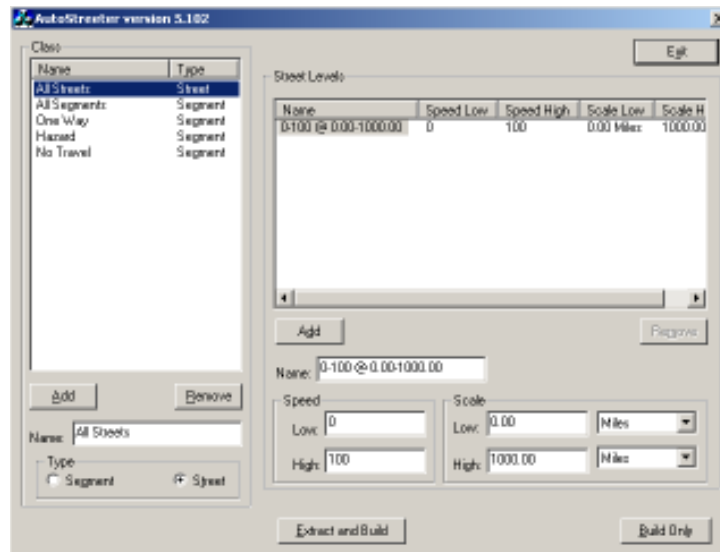
- All Students: EMU attempts to match each student in your system, regardless of whether they are currently matched or not.
- Students Flagged for Update: EMU only attempts to match students who have had their ADSCAN flag set.
- Students Currently Unmatched: EMU only attempts to match students not currently matched to the geocode.
- All Students Except Digitized: Emu attempts to match all students except those whose locations were defined by clicking the map.

5 Choose **Confirm**.

Create or Update the Autostreets Database (AUTOSTREETER)

Use this utility to extract pertinent geographic information from the geocode and create a local Autostreets database for use by the Gismo programs. This provides quicker and more efficient data access. Note that if you want to create Autostreet layers (for use in edulog), you need to use the standalone version of Autostreeter included with the Gismo programs.

When you run AUTOSTREETER from EMU, there is no dialog box for this utility since you have no options from which to select. However, you can run AUTOSTREETER as a stand-alone program from the Windows Start menu, which allows you to modify the settings. To run AUTOSTREETER as a stand-alone program, choose Start, Programs, and edulog.nt Server Software. Next choose Autostreeter from the edulog Server Software menu. The system displays the Autostreeter dialog.



The Autostreeter graphical user interface allows you to configure what types of layers you want to build. Each layer or “class” represents an image of your map. This may be the entire map or a subset of the map, such as but not limited to, streets of a specific speed or direction of travel. When building a class, you have the choice between two types:

- Segment - a segment class draws slower than a street class but includes the segment attributes associated with each individual segment in the geocode. A segment class is needed with all Gismo applications if you want to be able to identify attributes such as addresses. A segment class allows you to group attributes by All Segments, Speed, Arterial, Feature Class, Hazard, or Direction.
- Street - a street class draws faster than a segment class, but lacks several of the segment attributes. Street classes include street name and the speeds associated with that street. Classes can be built for different speeds and zoom levels so that the map draws faster at full view. When choosing this way of building your classes all streets will not be visible at the full view. The third of the following illustrations shows a street class that has multiple levels at different scales.

List Stops on Non-Existent Segments (BADSTP)

Use this utility to verify the locations of stops in the system. The system stores stop locations as a distance between a Node 1 and Node 2 in the geocode. This utility determines whether the Node 1 and Node 2 listed for the stop are actually connected by a single street segment and whether the distance from the Node 1 and Node 2 is correct.

The utility corrects distance errors and produces a report listing any location errors. The utility only checks to see if the node pair is valid. It does not detect errors created by address range changes that cause the stop to be located on a different segment.

You should run this utility:

- After making geocode changes, particularly if they may affect existing stop locations and as a corrective measure
- If stops cannot be “reached” when creating driver directions
- When stops appear in the lower left corner or off the map display
- After running the Batch Change of Stop Addresses (STPUPD) utility to make sure that the new stop locations are valid.

This utility tracks its progress and lists any errors it encounters in several files: Badstp.aud, Badstp.chk, and Badstp.err. These files are located in the Elt\Live\Server\EmuBatches\Output folder.

There is no dialog box for this utility since you have no options to select from.

List Students on Non-Existent Segments (BADSTU)

Use this utility to find students who were matched to the geocode at one time, but whose address-matching information is now incorrect due to changes made to the geocode or to inaccurate information entered during a student download. This process also checks for students with invalid school/grade/program combinations.

The system stores each student location as an X,Y coordinate and a distance between a Node 1 and Node 2 in the geocode. This utility examines the Node 1 and Node 2 in the student record and determines whether these nodes are directly connected by a segment. If not, it includes the student in an error report. The program calculates the new distance from Node 1 and Node 2, and enters it in the student file. Such students are not listed on the error report.

You should run this utility:

- As part of your regular preventive maintenance after making geocode changes (particularly after splitting street segments)
- When students appear at the wrong location on the map display, particularly if they appear off the map in the lower left corner, or do not appear at all when working with the student record in Tabular mode.

This utility tracks its progress and lists any errors it encounters in several files: Badstu.aud, Badstu.chk, and Badstu.err. These files are located in the Elt\Live\Server\EmuBatches\Output folder.

There is no dialog box for this utility since you have no options to select from.

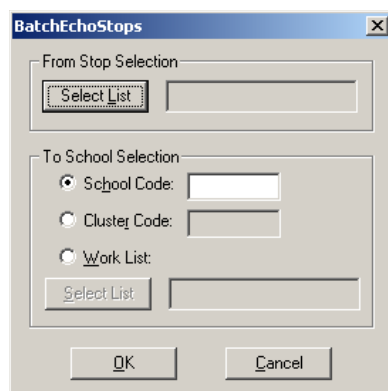
Batch Copy Stops to a School or Cluster (BATCHECHOSTOPS)

Use this utility to copy stops from a worklist to a selected school or cluster.

This utility tracks its progress and lists any errors it encounters in the BatchEchoStops.aud and BatchEchoStops.err files. These files are located in the Elt\Live\Server\EmuBatches\Output folder.

To copy stops to a school or cluster in batch mode:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Under Stop Selection, choose the **Select List** button, then select the **worklist** containing the stops you want to copy and choose OK.
- 3 Under To School Selection, do **one** of the following:
 - Select School Code and enter the code of the school to which you want to copy the stops.
 - Select Cluster Code and enter the code of the cluster to which you want to copy the stops.
 - Select Worklist, then choose the Select List button, select the worklist containing the schools or clusters to which you want to copy the stops, and choose OK.
- 4 Choose **OK** when finished.

Batch Generate Directions for Routes (BATCHRTEDIR)

Use this utility to have the system automatically generate run directions for routes in your system. You have the option of producing directions for all routes or only for those in a worklist. This utility produces an audit file called Bthrtedir.aud in the Elt\Live\Server\EmuBatches\Output folder.

To generate run directions for routes in batch mode:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select the **Delete Existing Directions** check box if you want to delete all directions for the routes included in the process before producing new directions. Do not select this check box if you just want to fill in the gaps.

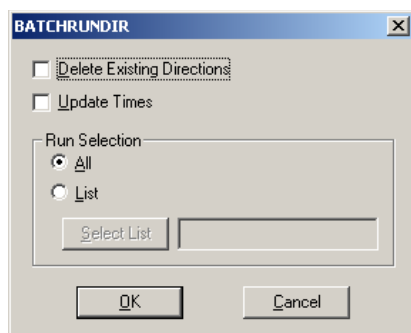
- 3 Select the **Update Times** check box if you would like to update the times associated with the routes in the process according to the new street path directions. Any previous changes you have made to those times will be discarded.
- 4 Under Route Selection, select **All** if you want to generate directions for all routes
- OR-
- Select **List** to include only routes in a worklist. Choose the Select List button, then select the desired list and choose OK.
- 5 Choose **OK** when finished.

Batch Generate Directions for Runs (BATCHRUNDIR)

Use this utility to have the system automatically generate directions for runs in your system. You have the option of producing directions for all runs or only for those in a worklist. This utility produces an audit file called Bthrundir.aud in the Elt\Live\Server\EmuBatches\Output folder.

To generate directions for runs in batch mode:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select the **Delete Existing Directions** check box if you want to delete all directions for the runs included in the process before producing new directions. Do not select this check box if you just want to fill in the gaps.
- 3 Select the **Update Times** check box if you would like to update the times associated with the runs in the process according to the new street path directions. Any previous changes you have made to those run times will be discarded.
- 4 Under Run Selection, select **All** if you want to generate directions for all runs
- OR-
- Select **List** to include only runs in a worklist. Choose the Select List button, then select the desired list and choose OK.
- 5 Choose **OK** when finished.

Batch Assignment of Student Trips to Stop Services (BTHASGN)

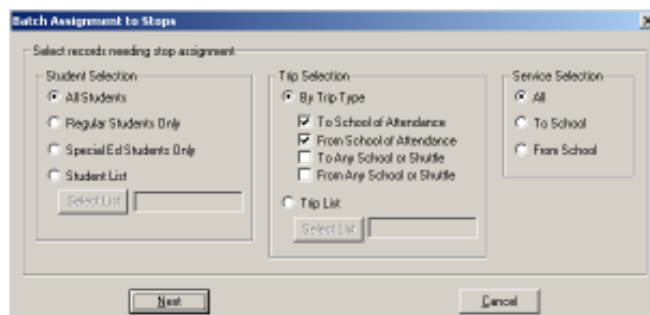
Use this utility to assign a selected group of students to stops (specifically, a group of student trips to stop services) all at once. This can be especially useful after you perform a student download.

This utility considers hazardous streets and transportation eligibility codes when assigning students. EMU will not assign a student to a stop that requires them to cross such a street or that is outside of their school's posted boundary. Using the Maris application, you can assign up to four hazard levels to individual streets. Refer to the edulog Overview and the online Help provided with Maris for further information on entering hazard levels and assigning them to individual grades.

This utility tracks its progress and lists any errors it encounters in several files: Bthasg.chk, Bthasg.aud, and Bthasg.err. These files are located in the Elt\Live\Server\EmuBatches\Output folder.

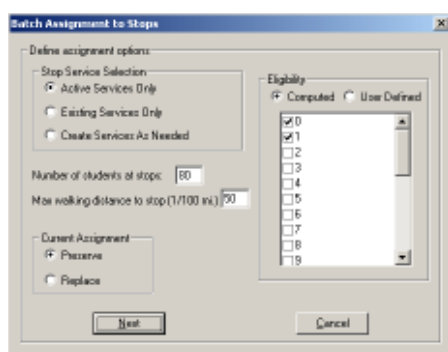
To assign student trip to stop services in batch mode:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Under Student Selection, select **one** of the following options:
 - All Students: assigns all students.
 - Regular Students Only: assigns students that do not have the Special Education flag set.
 - Special Education Students Only: assigns students that have the Special Education flag set.
 - Student List: enables you to select students included in a student worklist.
- 3 Under Trip Selection, select **one** of the following options:
 - By Trip Type
 - To School of Attendance: assigns all trips transporting students to their school of attendance.
 - From School of Attendance: assigns all trips transporting students home from the school they normally attend.
 - To Any School: assigns all trips transporting students to a school other than the one they normally attend.

- From Any School: assigns all trips transporting students from a school other than the one they normally attend.
 - By Trip List: allows you to select the trips contained in a worklist. Select this option, then choose Select List and select the worklist with the trips you want to include.
- 4** Under Service Selection, select **one** of the following options:
- All: assigns all transportation services (both to-school and from-school),
 - To-school: assigns only the to-school service.
 - From-school: assigns only the from-school service.
- 5** Choose **Next** to proceed to the following dialog box.

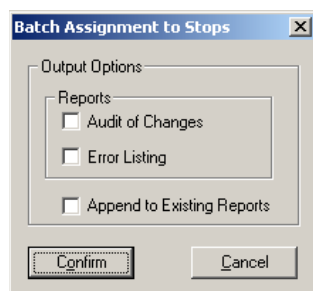


- 6** Under Stop Service Selection, select **one** of the following options:
- Active Services Only: uses stop services that are assigned to runs.
 - Existing Services Only: uses stop services that have already been created for the stops, regardless of whether they are active or inactive.
 - Create Services as Needed: the system will create any stop services needed. For example, when assigning students to stops for the trip home after school, the system will create the afternoon service if one doesn't exist for that stop.
- 7** Under Current Assignment, select **one** of the following options:
- Preserve: leaves any existing trip-to-stop assignments in place.
 - Replace: may change existing assignments to those selected by the system.
- 8** In the Number of Students at Stops field, enter the **maximum number of students** you want at any individual stop.
- 9** In the Maximum Walking Distance to Stop, enter the **maximum distance** that students can walk to a stop in hundredths of a mile (for example, enter 50 for one-half mile).
- 10** Under Eligibility, select **one** of the following options:
- Computed: tells the utility to assign students based on their eligibility for transportation according to the boundaries they are located in.

- User Defined: manually overrides the calculated eligibility code with the codes entered in the student record.

In the list box, select the **check boxes** next to the eligibility codes you want to use.

11 Choose **Next** to move to the following dialog box.



12 Under reports, you can select **any** of the following options.

- Audit of Changes: lists all student records that are changed during the process (in Bthasgn.aud).
- Error Listing: lists records that the system could not assign, with a brief explanation (in Bthasgn.err).
- Append to Existing Reports: adds the new information to the existing reports. If you do not select this check box, the new information will replace the existing reports.

13 Choose **Confirm** when finished.

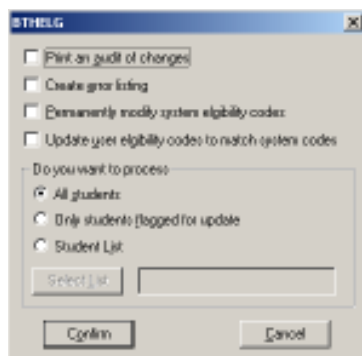
Batch Calculation of Eligibility (BTHELG)

This utility calculates eligibility codes based on posted boundaries for schools and student locations in the geocode. Students need to be matched to the geocode in order for this utility to calculate their eligibility codes. You should run this utility after performing a student download or if you see incorrect numbers in student Eligibility Code fields.

This utility tracks its progress and lists any errors it encounters in several files: Bthelg.aud, Bthelg.chk, and Bthelg.err. These files are located in the Elt\Live\Server\EmuBatches\Output folder.

To calculate eligibility codes:

1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



2 You can select **any** of the following options:

- **Print an Audit of Changes:** creates a report of all changes made by the system (stored in the file Bthelg.aud).
- **Create Error Listing:** produces a report (Bthelg.err) listing records for which EMU could not calculate an eligibility code, and provides a brief explanation as to the reason (for example, the student is not matched or has no school code, etc.).
- **Permanently Modify Student Eligibility Codes:** modifies the eligibility codes in the student records. You may want to run the utility first without selecting this option to examine the reports indicating what would happen if you ran the utility in permanent mode.
- **Update User Eligibility Codes to Match System Codes:** changes any user-defined eligibility codes to the codes calculated by the system.

3 Select **one** of the following.

- **All Students:** resets and recalculates the eligibility codes for all students in the system.
- **Only Students Flagged for Update:** resets and recalculates eligibility codes for only those students flagged to have their eligibility changed.
- **Student List:** enables you to select students included in a student worklist. After you select this option, choose the Select List button to select the desired worklist.

4 Choose **Confirm** when finished.

Calculate Bus Times at Stops (CALCULATETIMEATSTOP)

Use this utility to have the system determine the time when buses should arrive at stops on their runs.

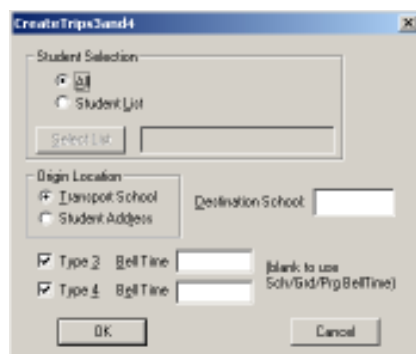
There is no dialog box for this utility since you have no options to select from.

Create Type 3 and 4 Trips for Students (CREATETRIPS3AND4)

Use this utility to create trips of type 3 and 4 (transporting the student to or from a school other than the one he or she normally attends) for selected students who do not already have trips of those types.

To create trips of type 3 and 4 for students:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Under Student Selection, do **one** of the following.
 - Select All if you want to create type 3 and 4 trips for all students.
 - Select Student List if you want to create type 3 and 4 trips for students within a worklist. Choose Select List, select the desired worklist, then choose OK.
- 3 Under Origin Location, select **one** of the following.
 - Transportation School: indicates that the origin of the new trips will be the school that the student normally attends.
 - Student Address: indicates that the origin of the new trips will be the students' home addresses.
- 4 In the Destination School field, enter the **school code** that will be the destination of the new trips.
- 5 Select **one** or **both** of the following:
 - Type 3: to create type 3 trips (taking each student from the origin to the destination school).
 - Type 4: to create type 3 trips (taking each student from the destination school back to the origin).
- 6 For each trip type, you can enter the **bell time** for the trips or **leave them blank** to have the system automatically select the time according to the student's school, grade, and program.
- 7 Choose **OK** when finished.

Roll Frequency Dates to the Next Year (DATEROLLOVER)

NOTES

Use this utility to modify the effective dates for the frequencies of student trips, stops, and runs to reflect the dates of the new school year. This process also sets the default frequency dates for schools. Normally, you run this utility during the summer months to change frequency dates.

This utility lists any errors it encounters in the Daterollover.err file.

To roll the effective dates of frequencies to the upcoming school year:

- 1 Make a **backup** copy of your Elt\Live\Server\Dyn directory (make a copy of the DYN directory and name it something other than DYN, such as DYNOLD).
- 2 Run the **Rebuild Key Files** (REBLDKEY) utility, selecting all of the available options. See page 785 for further information.

Keep in mind that you can set up a batch process to run this utility for all of the possible configuration options at one time.

- 3 Run the **Rollover Frequency Dates** (DATEROLLOVER) utility.

After you choose **Edit** or **New** from the Edit Utility Configuration dialog box, the following dialog box appears.



The dates you are changing (from the Sysdef.dat file) appear under Old System Dates.

- 4 Under New System Dates, click the Start field and select the **starting date** for the new school year.

You can select dates on the calendar by clicking them with the mouse. You can move the calendar to different months by clicking the arrow buttons in the top corners.

- 5 Click the End field and select the **ending date** for the new school year.
- 6 Choose **OK**.
- 7 Run the **Rebuild Key Files** (REBLDKEY) utility once again for all of the options.
- 8 Exit EMU, then start edulog.
- 9 Examine some student, stop, and run records to make sure the new frequency dates are correct.

Batch Deassignment of Student Trips from Stop Services (DEASGN)

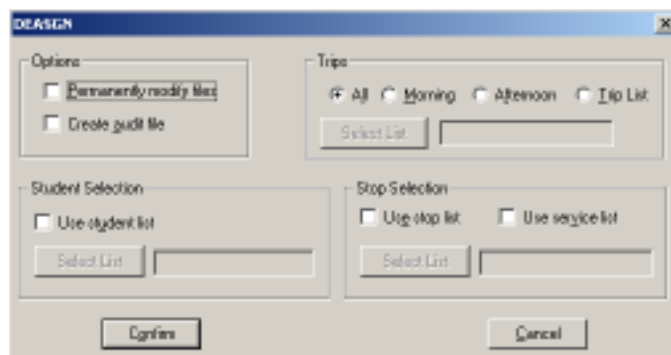
Use this utility to deassign a selected group of students from stops (specifically, a group of student trips from stop services) all at once. This can be useful before you assign students to stops in batch mode.

This utility allows you to deassign trips either by selecting the group of students you want to deassign, or by selecting the stops you want to deassign students from. Before performing a batch deassignment, you need to create a worklist with the students or stops you want to include in the deassignment process. Refer to the online Help for edulog for further information on worklists.

This utility tracks its progress in the Deasgn.aud and Deasgn.chk files located in the Elt\Live\Server\Export folder.

To deassign student trips from stop services in batch mode:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Under Options, select **either** or **both** of the following.
 - Permanently Modify Files: permanently deassigns student trips from stop services. You may want to run the program first in non-permanent mode to make sure you get the desired results.
 - Create Audit File: produces a report listing the changes made to student records (if run in permanent mode) or that would be made (if run in non-permanent mode). The utility records such changes in the Deasgn.aud file.
- 3 Under Trips, select **one** of the following.
 - All: to deassign all of the trips (morning and afternoon) for the selected students or stops.
 - Morning: to deassign only the morning trips for the selected students or stops.
 - Afternoon: to deassign only afternoon trips for the selected students or stops.
 - Trip List: to deassign only trips included in a worklist. After you select this option, choose the Select List button, select the desired list, then choose OK.

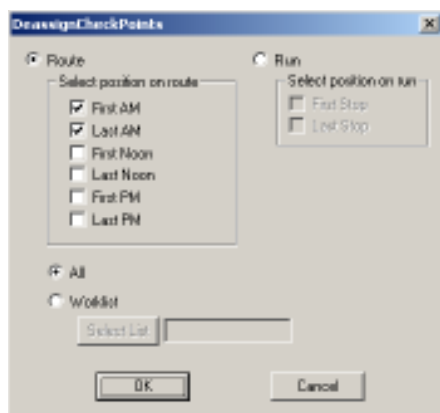
- 4 If you want to deassign students in a worklist, select the **Use Student List** check box under Student Selection, then choose the Select Student List button. Select the desired list and choose OK.
- 5 Under Stop Selection, do **one** of the following:
 - To deassign by selecting stops in a worklist, select the Use Stop List check box, then choose the Select List button. Select the desired list and choose OK.
 - To deassign by selecting stop services in a worklist, select the Use Service List check box, then choose the Select List button. Select the desired list and choose OK.
- 6 Choose **Confirm**.

Deassign Checkpoints from Runs (DEASSIGNCHECKPOINTS)

Use this utility to deassign all checkpoints from runs, regardless of whether those runs are assigned to routes. You can use run worklists for this utility.

To deassign checkpoints from runs in batch mode:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 If you want to remove checkpoints from runs on routes, select **Route**, then select the check boxes next to the positions on the route for which you want to remove checkpoints.

-OR-

Select **All** if you want to deassign checkpoints from all runs or routes. Select List if you want to deassign checkpoints only from runs or routes in a worklist. Choose the Select List button, then select the desired list and choose OK.

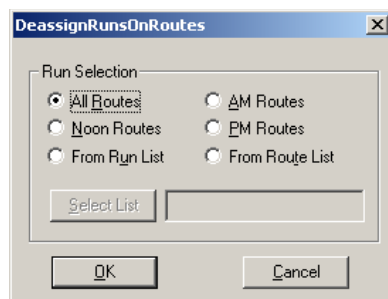
- 3 Choose **OK** when finished.

Batch Deassignment of Runs on Routes (DEASSIGNRUNSONROUTES)

Use this utility to deassign all runs from routes at the same time.

To deassign runs in batch mode:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Under Run Selection, select **one** of the following.
 - All Routes: to deassign runs from all of the routes in your data.
 - Noon Routes: to deassign runs from the noon routes in your data.
 - From Run List: to deassign only runs included in a worklist: After you select this option, choose the Select List button, select the desired option, then choose OK.
 - AM Routes: to deassign runs from the morning routes in your data.
 - PM Routes: to deassign runs from the afternoon routes in your data.
 - From Route List to deassign runs from the routes included in a worklist: After you select this option, choose the Select List button, select the desired option, then choose OK.
- 3 Choose **OK**.

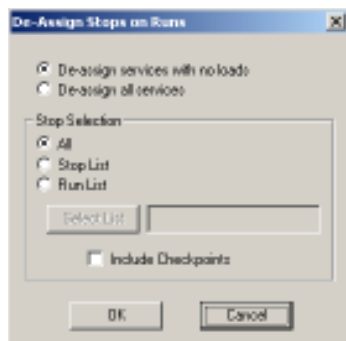
Batch Deassignment of Stops on Runs (DEASSIGNSTOPSONRUNS)

Use this utility to deassign multiple stop services (non-school and non-transfer services) from runs at the same time. You have the option of deassigning all stops, stops with no assigned students, or stops included in a stop or run worklist. You can also deassign checkpoints from runs if you wish.

This utility tracks its progress in the Deassignstopsonruns.aud file.

To deassign stop services in batch mode:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select **one** of the following.
 - Deassign services with no loads: to deassign only the stop services you select in the next step that have no assigned students.
 - Deassign all services: to deassign all of the stop services you select in the next step.
- 3 Under Stop Selection, select **one** of the following.
 - All: to deassign all the stop services currently assigned to runs in your system.
 - Stop List: to deassign all of the stops included in a stop worklist. Refer to the online Help provided with edulog for further information on worklists.
 - Run List: to deassign all of the stops from runs included in a run worklist. Again, you can refer to the online Help provided with edulog for further information on worklists.
- 4 If you selected one of the List options under Stop Selection, choose **Select List** to select the worklist with the desired records. In the Select List dialog box, select the desired list and choose OK.
- 5 If you also want to remove checkpoints from runs, select the **Include Checkpoints** check box.
- 6 Choose **OK**.

Delete Routes without Runs (DELETEROUTES)

Use this utility to delete any routes without runs in your system.

There is no dialog box for this utility since you have no options to select from.

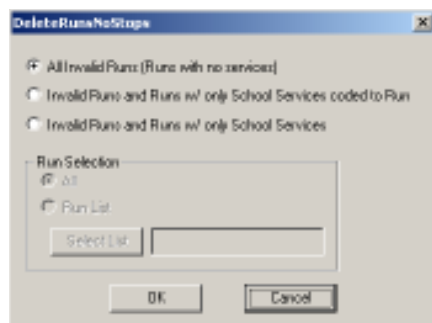
Deleting Runs with No Stops (DELETERUNSNOSTOPS)

Use this utility to delete runs that do not have any stop services assigned to them. You have the option of deleting all runs with no stops assigned or runs with only schools assigned. If any of the runs to be purged are on a route, the system will automatically deassign the runs from their routes before deleting the runs. The utility also adjusts the frequency of any checkpoints on the deleted runs to indicate that they have been removed from those runs.

This utility tracks its progress in the Deleterunsnostops.aud file.

To delete runs with no stops in batch mode:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select **one** of the following.
 - All invalid runs: to delete all of the runs in your system that have no stops assigned.
 - Invalid runs and Runs w\ only school services coded to run: to delete each run you select in the next step that has only the school in its ID assigned.
 - Invalid runs and Runs w\ only school services: to delete each run you select in the next step that has only schools assigned.
- 3 If you selected one of the last two options in the previous step, select **one** of the following under Run Selection.
 - All: to delete all of the runs that meet the criteria you selected in step 2.
 - Run List: to delete all of the runs that meet the criteria you selected in step 2 that are included in a run worklist. You can refer to the online Help provided with edulog for further information on worklists.
- 4 If you selected the Run List option under Run Selection, choose **Select List** to select the worklist with the desired records. In the Select List dialog box, select the desired list and choose OK.
- 5 Choose **OK**.

Delete Invalid School Services (DELINVALIDSCHSRV)

Use this utility to delete any school services that do not match a bell time and are not assigned to any runs or trips. Make sure to run this utility whenever you delete a school from the system or remove one or more bell times from any school.

There is no dialog box for this utility since you have no options to select from.

Dump All Files (DUMPALL)

You use the Dump All Files utility to update the files used by the edulog report writer from the actual transportation files. It is a good idea to dump files periodically

as part of a preventive maintenance schedule. (Be aware that the Dump All Files utility may take a long time, depending on the size of your data set.)

This utility creates “flag” files (such as RunSettrn.Flq and RunReqst.Flq) which indicate whether the utility encounters any problems. It places these files in the Elt\Live\Server\Export folder. If a flag file is empty, no error was encountered.

There is no dialog box for this utility since you have no options to select from.

Dump School Distances (DUMPSCHDST)

Use this utility to calculate the distances between schools and save that information in a format compatible with the FoxPro applications, such as the edulog Reports program. The School-to-School Distance report lists these distances.

There is no dialog box for this utility since you have no options to select from.

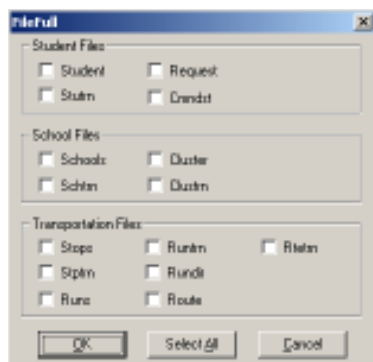
Produce Reports on Transportation Files (FILEFUL)

Use this utility allows you to produce reports on the total number of records used, the last record used, the number of empty records, and the number of deleted records for any transportation file you choose.

This utility tracks its progress in the Filefull.aud and Dstudnt.aud files. These files are located in the Elt\Live\Server\EmuBatches\Output folder.

To produce reports on transportation files:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select **any** of the following options.

Note:

If you want to select all or most of these options, you can choose the Select All button, then click any of the options you do not want to include.

Student Files

- Student: reports on student files.
- Stutrn: reports on student transportation files.
- Request: reports on request files.

- CmnDst: reports on common destination files.

School Files

- Schools: reports on school files.
- Schtrn: reports on school transportation files.
- Cluster: reports on school cluster files.
- Clustrn: reports on school cluster transportation files.

Transportation Files

- Stops: reports on stop files.
- Stptrn: reports on stop transportation files.
- Runs: reports on run files.
- Runtrn: reports on run transportation files.
- Route: reports on route files.
- Rtetrn: reports on route transportation files.

- 3 Choose **OK** when finished.

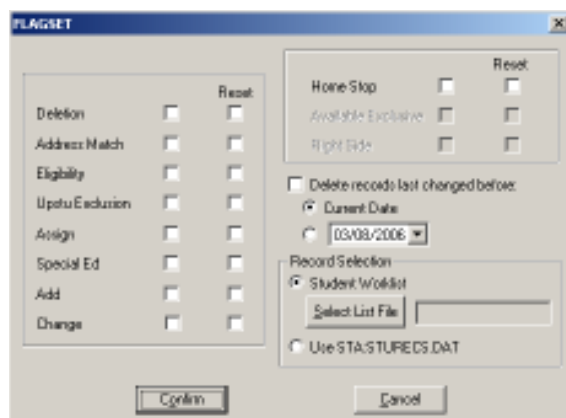
Set or Reset Student Flags (FLAGSET)

Use this utility to set flags for student records. When you set or reset a flag for a student, it's like turning a switch on or off. For example, if you set the Deletion flag for certain students, the next time you purge deleted records, the system will remove those flagged student records.

Before you run this utility, you need to create a student worklist that contains the student records you want to flag. Refer to the online Help provided with edulog for further information on worklists.

To set or reset student flags:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select the **first check box** next to an option to set (turn on) the flag. Select the **second check box** to reset (turn off) the flag.

- 3** Select **one** of the check boxes next to any or all of the following options.
- Deletion: flags students for deletion. If you flag a group of students, then perform a purge, the system permanently removes those students from your data. If you would like to flag students according to the dates their records were last modified, see step 3.
 - Address Match: flags students for address matching. If you flag a group of students, then select Students Flagged for Update when running the Address Matching utility, only flagged students will be matched.
 - Eligibility: flags students for calculation of eligibility for transportation. If you flag a group of students, then select Only Students Flagged for Update when running the Batch Calculation of Eligibility utility, only flagged students will be updated.
 - Upstu Exclusion: flags students for exclusion from a student download from a master database. If you flag a group of students, then perform a student download, flagged students will not be updated with the information in the master database. Note that you can override this exclusion flag when performing the student download.
 - Assign: flags students to indicate that they need transportation assignments. Assignment flags are set automatically during the update process, specifically so that they will be recognized by the BTHASGN utility.
 - Special Ed: flags student records to indicate that they are to be considered special education students for purposes of transportation.
 - Add: flags students to indicate that this is a new student record.
 - Change: flags students to indicate that the student record has been changed.
 - Home Stop: flags student records for the creation of home stops. After selecting the Set check box, the Availability and Right Side check boxes become available if you want to select either of those options.
 - Available Exclusive: checks the Available Exclusive boxes for student home stops. As a result, the stops aren't available to other students.
 - Right Side: makes the home stop a right-side pickup, indicating that the student cannot cross the street to get to the stop.
- 4** If you would like to flag students according to the last date their record was modified, select the **Delete Records Last Changed Before** check box. Current Date is selected by default, but you can select the other option and enter a different date if you wish.
- 5** Under Record Selection, select **one** of the following options to indicate which students you want to include in the process.
- Student Worklist: enables you to select students included in a student worklist. After you select this option, choose the Select List File button to select the desired worklist.
 - Use STA:STURECS.DAT: to select the students included in a file containing student edulog IDs. The first line of the file contains the total number of lines in the file; each subsequent line in the file is a student ID number. For

example, if the first line is the number ten, the file has ten total lines, nine of which are student ID numbers.

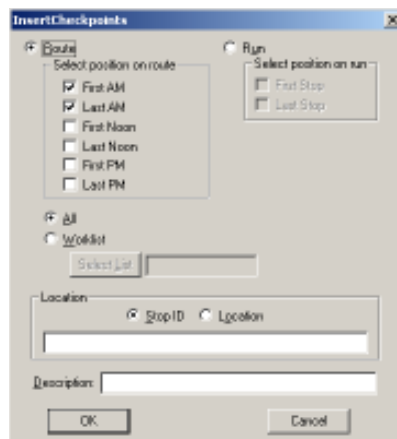
- 6 Choose **Confirm** when finished.

Insert Checkpoints on Runs or Routes (INSERTCHECKPOINTS)

Use this utility to insert checkpoints onto a batch of runs. You have the option of inserting checkpoints by run or by route. You can insert them on all runs/routes in your system or just those included in a route or run worklist. (If you want to use a worklist, you need to create the list with the records you want to include before running this utility.) The location of the checkpoint must be at a current stop location (though not necessarily at a stop already on the run). If a checkpoint already exists at that location, this utility removes the current checkpoint and inserts the new one. If you are inserting checkpoints by route, you can create the bus barn as a checkpoint for all runs and routes.

To insert checkpoints on runs or routes:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select **Routes** if you want to insert a checkpoint on routes or select runs if you want to insert one on runs.
- 3 If you selected Route, you can select **any** of the following options.
 - First AM: Insert first position on a run or insert first AM on a route.
 - Last AM: Insert last position on a run or insert last AM on a route.
 - First Noon: Insert first NN on a route.
 - Last Noon: Insert last NN on a route.
 - First PM: Insert first PM on a route.
 - Last PM: Insert last PM on a route.

If you selected Run, you can select either or both of the following options.

- First Stop: Insert first position on a run.

- Last Stop: Insert last position on a run.
- 4** Select **All** if you want to insert a checkpoint on all runs/routes or select **Worklist** if you want to insert a checkpoint on only those records included in a worklist (choose **Select List**, then select the desired worklist and choose **OK**).
 - 5** Under **Location**, select **Stop ID** if you want to locate the checkpoint at a stop, then enter the ID of the stop (such as 100.001) in the text box. Select **Location** if you want to locate it at an address or a node in the geocode, then enter that location in the text box. If you enter a node number, make sure to include a # symbol before the number (e.g., #45654).
 - 6** In the **Description** field, enter the **<description>** that you want to use for the checkpoint.
 - 7** Choose **OK**.

Delete Inactive Stop Services with No Loads (KILSTP)

This utility permanently deletes all stop services that are not on runs and that have no assigned students. You have the option of deleting all stops, all services, or only those included in a stop worklist.

Be aware that if you select the **All** option, this program will delete all stop services. If you have services in your system that you are not using but that you want to save for future use, do not select the that option. Generally, this utility is used in the final stages of preparing for the new year's transportation scheme or after making significant boundary changes that have left numerous unnecessary stops. The utility creates an audit report (Kilstp.aud) that lists any deleted stop services. This file is located in the Elt\Live\Server\EmuBatches\Output folder.

Before running this utility, we recommend you run the **Rebuild Key Files (REBLD-KEY)** utilities.

To delete stop services without students or run assignments:

- 1** Choose **Edit** or **New** from the **Edit Utility Configuration** dialog box.



- 2** Under **Stop Selection**, select **one** of the following:
 - Select **All** if you want to delete all of the services that are not assigned to runs and that have no students assigned.
 - Select **Delete Services Only** if you want to purge only unused stop services.

- Select Stop List if you want to delete only such services that are included in a stop worklist. After you select this option, choose the Select List button, select the desired list, then choose OK.
- 3 If you want to run in permanent mode, select the **Permanent Mode** check box. Clear the check box if you want to run the utility to see which stops would be deleted without actually deleting them.
 - 4 Choose **OK** when finished.

Update Loading Times for Stops on Runs (LODTME)

Use this utility to update the loading time for stop services on runs based on the criteria you enter. You can enter certain loading times for stops with different numbers of students.

This utility tracks its progress in the Lodtme.aud and Lodtme.chk files.

To update loading times:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select **one** or **both** of the following options. If neither check box is selected, no processing will take place.
 - Special Ed Students: updates loading times only for stops servicing students enrolled in a special education program.
 - Regular Ed Students: updates loading times only for stops servicing students enrolled in a regular education program.
- 3 Select **one** of the following load options.
 - Assigned: uses assigned loads (the number of students assigned to stops in edulog) when calculating loading time.
 - Head Count: uses head count loads (the number of students that actually ride buses, typically determined by driver head counts) when calculating loading time.
- 4 In the Low field, enter the **low number of students** in the range you want to update.

The utility will enter the loading time you specify in step 6 for stops that have a number of assigned students that falls within this range. For example, you may want to enter loading times of five minutes for stops with five to ten passengers, ten minutes for stops with ten to fifteen passengers, and so on.

5 In the High field, enter the **high number of students** in the range.

6 In the Time field, enter the new **loading time** in tenths of minutes (such as 60 for 6 minutes) for the stop services with passenger loads that fall within the range.

7 Choose **Add**.

EMU adds the values to the list box. Repeat Steps 4 through 7 if you want to enter different loading times for different load ranges. The system will not allow you to enter overlapping passenger ranges. If you decide you do not want to use one of the sets of values, select it from the list box and choose Delete.

8 Under Record Selection, select **one** of the following:

- Select All if you want to update the loading times for all stops assigned to runs in the system.
- Select Stop List if you want to update the loading times for stops included in a stop worklist. Choose the Select List button and select the desired list, then choose OK.
- Select Run List if you want to update the loading times for stops on runs included in a run worklist. Choose the Select List button and select the desired list, then choose OK.
- Select Route List if you want to update the loading times for stops assigned to runs on routes included in a route worklist. Choose the Select List button and select the desired list, then choose OK.

9 Choose **OK** when finished.

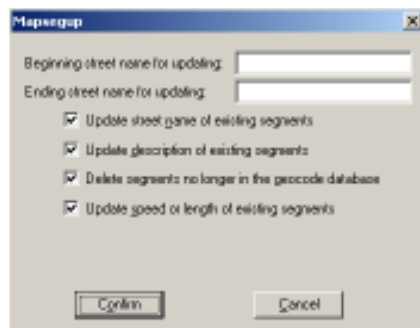
Update Run Directions from Geographic Files (MAPSEGUP)

Use this utility to make any changes to the geocode (such as speed and direction updates) available to the run direction files. This utility does not make any changes to the geocode or run directions. You should run this utility after you have added or deleted nodes or segments in your geocode, or after you have changed street speeds, directions, or no-travel designations.

This utility lists any errors it encounters in the Mapsegup.err file. It also tracks its progress in several files. Delstp.aud lists stops that are no longer accessible. Del-run.aud lists runs that have run direction segments that have been deleted. Del-seg.aud lists mapseg records that have been deleted.

To update run directions from geographic files:

1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 If you want to update all of the streets in the geocode, leave the Beginning and Ending street name fields blank. Otherwise, enter the **<beginning street name>** (alphabetically, such as ACORN) that you want to update, then enter the **<ending street name>**.
- 3 Select **any** of the following options.
 - Update Street Name of Existing Segments: makes any street name changes in the geocode available to the run directions files.
 - Update Description of Existing Segments: makes any segment description changes available to the run directions files.

Warning:

Do not select the following check box if you have entered beginning and ending street names in step 2. If you do, the utility will delete all street segments not included in the range of street names.

- Delete Segments no Longer in the Geocode Database: removes any street segments no longer in the geocode from the run directions files.
 - Update Speed or Length of Existing Segments: makes any speed or length changes in the geocode available to the run directions files.
- 4 Choose **Confirm** when finished.

Rebuild the Adjacency File (NTADJANG)

Use this utility to update information on street segment adjacencies in the geographic files after you have added or deleted street segments, moved segment end nodes, or changed the shape of segments. You do not need to rebuild this file after changing address ranges or segment attributes.

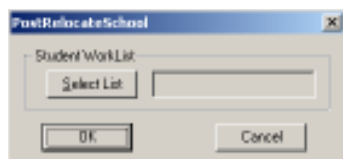
There is no dialog box for this utility since you have no options to select from.

Post Relocate School Utilities (POSTRELOCATESCHOOL)

Use this utility to automatically run all of the utilities necessary after relocating a school in your transportation system. These utilities include Flagset, Bthelg, Schdst, Studst, and Stustopdist. You can refer to the sections on those utilities for information on the audit and error reports they produce.

To run all the utilities necessary after a school relocation:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Under Student WorkList, choose **Select List**. Select the student worklist with the students in the school and choose OK.
- 3 Choose **OK**.

Purge FoxPro Files (PURGEFOX)

Use this utility to purge the FoxPro files.

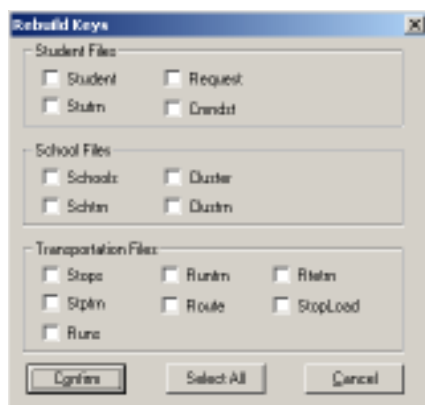
There is no dialog box for this utility since you have no options to select from.

Rebuild Key Files (REBLDKEY)

Use this utility to rebuild key files in the transportation database. Run this utility regularly as part of your preventive maintenance. Run this utility after performing a data purge, as well as after downloading students and assigning or deassigning students in batch mode.

To rebuild key files:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select **any** of the following options for the rebuild.

Note:

To select all or most of these options, choose the Select All button, then click any of the options you do not want to include.

Student Files

- Student: rebuilds student files.

- Stutrnr: rebuilds student transportation files.
- Request: rebuilds request files.
- Cmndst: rebuilds common destination files.

School Files

- Schools: rebuilds school files.
- Schtrn: rebuilds school transportation files.
- Cluster: rebuilds school cluster files.
- Clustrn: rebuilds school cluster transportation files.

Transportation Files

- Stops: rebuilds stop files.
- Stptrn: rebuilds stop transportation files.
- Runs: rebuilds run files.
- Runtrn: rebuilds run transportation files.
- Route: rebuilds route files.
- Rtetrn: rebuilds route transportation files.
- StopLoad: rebuilds stop load files.

- 3 Choose **Confirm** when finished.

Rebuild Student Walk Path Files (REBUILDWALKPATHFILES)

Use this utility after geocode changes to rebuild the files used to determine student walk paths to stops. Part of the normal post-Maris maintenance batch. These files are used when assigning students to stops and when displaying the student walk path to stop.

There is no dialog box for this utility since you have no options to select from.

Roll Students to the Next Grade (ROLOVR)

Use this utility to remove graduating seniors from the system and advance the remaining students to the next grade at the end of the school year. You have the option of running the rollover in non-permanent mode if you want to examine the resulting audit reports without permanently modifying student records.

You complete the rollover process in two steps. You first need to create the rollover data file that tells the system how each grade should be rolled over (see “Creating and Modifying the Rollover File” on page 788 for further information on that process). Next, run the Roll Students to the Next Grade utility in EMU to make those changes to student records.

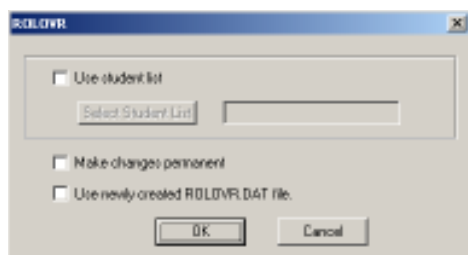
This utility tracks its progress and lists any errors it encounters in the Rolovr.aud, Rolovr.chk, and Rolovr.err files.

Note:

We recommend that you first run this utility in the non-permanent mode, then examine the Rolovr.aud file to make sure that the system makes the desired changes. If the file contains errors, you can run Build Text and choose the Roll Over option from the Edit Files section of Build Text to check the roll over files.

To roll students to the next grade:

- 1 Create the **rollover data file** (see “Creating and Modifying the Rollover File” on page 788 for further information).
- 2 In EMU, choose the **Batches** button.
- 3 In the Batch Work dialog box, choose **Create**.
- 4 In the Create/Edit Batch dialog box, select **ROLOVR** from the list on the left.
- 5 Choose the **Edit** button.
- 6 In the Edit Utility Configuration dialog box, choose **New**.



- 7 Select the **Use Newly Created ROLOVR.DAT File** check box.
- 8 Choose **OK**.
- 9 Type **ROLOVRTEST** as the batch name, then choose **OK**.
- 10 Choose **Exit**.
- 11 Make sure **ROLOVR** is still selected in the Create/Edit Batch dialog box, then click the **green arrow** pointing to the right.
- 12 Select the **ROLOVRTEST** batch you created then choose **OK**.
- 13 In the Batch Name text box, type **ROLOVRTEST**, then choose **OK**.
- 14 Choose **OK** from the dialog box indicating that the batch was saved successfully.
- 15 Select **ROLOVRTEST** from the Batch Worklist box, then choose **Run**.
- 16 Choose **Yes** to confirm that you want to run the process now.
- 17 Choose **Exit** from Batch Work dialog box.

Note:

If the list box in the launch pad indicates that batch's status is "Queued" (instead of "Done" or Running"), do not try to delete the process. First check to see if any *.lck files exist in the

Elt\Live\Server\Dyn directory on the Server computer (delete them if so), then check to make sure that the time on the server computer's clock matches the time on the workstation computer. If it is set behind the workstation's clock, reset the server's clock to one minute ahead of all workstations.

- 18** When the EMU list box displays Done in the status column for the ROLOVRT-EST batch, you can use a text editor (such as Notepad or WordPad) to examine the Rolovr.aud, Rollovr.chk, and Rolovr.err files located in the Elt\Live\Server\EmuBatches\Output directory on the computer used to run the utility. You may also want to examine the Rolovr.dat file in Elt\Live\Server\Sta to see the old and new school/grade combinations.
- 19** When you have examined the audit file and determined that the system is making the desired changes, then perform the following steps.
- 20** Backup your Elt\Live\Server\Dyn directory (make a copy of the Dyn directory and name it something other than Dyn, such as DynOld).
- 21** Repeat Steps 1–10 to create another batch in EMU for Rolovr, this time naming the batch **ROLOVRPERM**. In Step 7, select the **Make Changes Permanent** check box, but do not select **Use Newly Created Rolovr.dat File**.
- 22** Run the ROLOVRPERM batch, as discussed in Steps 11 through 18.
- 23** When the process is complete, exit EMU.
- 24** Start edulog, and check your student records to verify that the utility made the desired changes.

Note:

After you perform a student rollover, you should run the BADSTU utility in EMU to find invalid school/grade/program combinations.

Creating and Modifying the Rollover File

You use the edulog student rollover utility to remove graduating seniors from the system and advance the remaining students to the next grade level at the end of the school year. Before you run this utility, you first need to create the rollover file that tells the system how each grade should be rolled over.

Note:

The rollover file you create here is based on information contained in the Elt\Live\Server\DBTables\ directory. To make sure that the information in those files is up-to-date, we recommend that you run the Dump All Files utility. See "Dump All Files (DUMPALL)" on page 776 for further information.

To create the rollover data file:

- 1** Open a Windows command prompt.
- 2** Using the **cd** command, change the directory to **Elt\Exe\Report**.
- 3** At the prompt, type the following:

buildtxt.exe "c:\elt\live\reports" -cC:\elt\live\reports\config.fpw

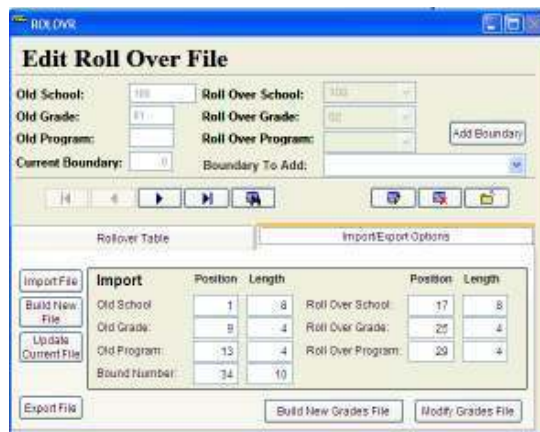
NOTES



- 4 Choose **Roll Over** from the Clear Files section of buttons to produce the grade comparison file for the rollover. This function erases any changes you have made to the rollover file. Use this button when you are beginning to set up the rollover files.

Do this step if you have never done a rollover. If you have previously done a rollover, do Step 3.

- 5 Choose the **Roll Over** button from the Edit Files section of buttons to open the Edit Roll Over File dialog box.



- 6 Select the **Import/Export Options** tab to make it visible and active.
- 7 Depending on what you need to do you have three choices from the three buttons on the left side of the tab.

You can choose **Import File** to see the current rollover file.

-OR-

You can choose **Build New File** to build the new rollover file.

-OR-

You can choose **Update Current File** to edit the current rollover file.

- 8 Select the **Rollover Table** tab to make it visible and active.

The lower left side of the Rollover Table tab contains the old school data and the lower right side contains the new Rollover data.

- 9 Choose the  **Edit/Revert Record** button from the row of buttons in the middle of the dialog.
- 10 Select a **grade** from the Old Grade list.
- 11 Use the fields in the upper portion of the window to modify the data. For example, click the arrow next to Roll Over Grade drop-down box to display the list of grades, then select the grade you want to rollover to (for example, current grade 01 rolls to grade 02).

A special case exists for grade twelve students. You need to assign them a roll-over grade of -9 to indicate that they should be flagged for deletion.
- 12 To make multiple edits, repeat Steps 10 and 11.
- 13 When you have indicated all of the grade rollovers, choose  **Add/Save Record** to save your changes.
- 14 Choose the  **Exit Form** button at the bottom of the dialog box.
- 15 Once you have created and modified the grade file, choose **Build Rollover File**.
- 16 This function uses the grade file you created, examines the existing combinations of schools, grades, and programs, and creates the initial Rolovr.dat file (overwriting any existing Rollover.dat file). This file records every existing combination of school/grade/program in your data for use in the final rollover process.
- 17 Choose the **Roll Over** button from the Edit Files section of buttons to modify your district's school/grade/program combinations.

If you have any boundary-related rollovers, you now need to add the **boundaries** for your target school/grade/program rollover.
- 18 To add a boundary, select a **grade** you want to modify from the Old Grade column.
- 19 Click the **arrow** next to the Boundary to Add box and select the **boundary** that the students live in.
- 20 Choose **Add Boundary** to add the boundary-based roll entry to the list. Repeat this process for each grade as necessary.
- 21 For example, if you are rolling eighth-graders into two high schools, you will have two lines for the middle school, one to each of the high schools with the appropriate high school attendance areas designated in the boundary.
- 22 After you have finished adding the boundary rollover information to the file, choose  **Edit/Revert Record**.
- 23 Click the **arrow** next to the Roll Over School box and select the **school** the students will be attending. Repeat this process for each school.

24 When you are finished modifying the rollover data file, choose  **Add/Save Record** to confirm your changes.

25 Choose the  **Exit Forms** button at the bottom of the dialog box.

26 Choose **Write Rollover File** to create the final version of your Rolovr.dat file (placed in Elt\Live\Server\Export\).

27 The Write Rollover File button will replace any current files with the rollover information you have entered.

28 When the process is complete, choose **Exit** to close the program.

You have finished creating the files that tell the system exactly how to modify each student record with new school/grade/program combinations. You now need to run the Roll Students to Next Grade (ROLOVR) utility in EMU to make those changes to student records. See “Roll Students to the Next Grade (ROLOVR)” on page 786 for further information.

Rebuild the School Distance File (SCHDST)

Use this utility to determine the distances from schools to all node locations. This utility provides general distance information to various parts of the system. If you would like more precise student distance measurements, run the Rebuild the Student Distance-to-School File (STUDST) utility.

The utility produces error and audit reports (Schdst.aud and Schdst.err) with information on the results.

You should run this utility:

- After a student rollover at the end of the year.
- After changing the location of a school.
- After adding a new school and reassigning students to that school.

This utility tracks its progress and lists any errors it encounters in the Schdst.aud and Schdst.err files.

There is no dialog box for this utility since you have no options to select from.

After you run this utility, you should run the Rebuild the Student Distance-to-School File (STUDST) utility to determine the distances from student locations to their assigned schools.

Check School Boundaries (SCHOOLBND)

Use this utility to check all of the posted boundaries for the schools in your system and unpost any invalid boundaries. Incorrectly posted boundaries may include:

- Boundaries that were changed prior to the availability of boundary protection in edulog
- Boundaries that were changed in such a way as to make them no longer valid for their selected schools

- Boundaries that have fewer than three points.

This utility tracks its progress in the Schoolbnd.aud file.

There is no dialog box for this utility.

Update Loading Times for School Stops (SCHOOLLOADTIME)

Use this utility to enter student loading times for school stops on runs. You can also have it recalculate the arrival/departure times at those stops if you wish.

To update loading times at school stops on runs:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Under School Selection, select **one** of the following.
 - All Schools: updates the loading times for all the school stops on the selected runs.
 - First or Last School Only: updates the loading times for the first school stop on to-school runs and for the last school stop on from-school runs.
- 3 Select the **Update Time at Stop** check box if you want to have the system recalculate the arrival/departure times for those school stops.
- 4 Under Run Selection, select **one** of the following.
 - All: updates the school stop loading times for all of the runs in the system.
 - Run List: updates the school stop loading times for runs in a worklist. After you select this option, choose the Select List button, then select the desired list and choose OK
- 5 Choose **OK** when finished.

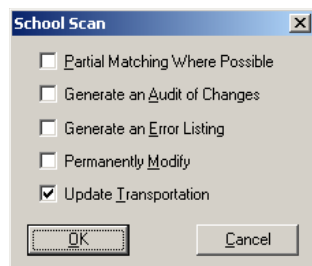
Match School Locations (SCHOOLSCAN)

Use this utility to match school locations to the geocode. In some cases, such as when a street name changes, school locations may no longer correspond to any locations in the geocode. Use this utility to match schools, as well as to produce a listing of any schools that are currently unmatched.

This utility tracks its progress and lists any errors it encounters in the Schoolscan.aud and Schoolscan.err files.

To match school locations:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 You can select **any** of the following options.
 - Partial Matching Where Possible: EMU will make very minor assumptions to match a school whose location does not perfectly correspond to the geocode (although the school will still not be matched to the geocode).
 - Generate an Audit of Changes: produces a report (Schoolscan.aud) of changes made to each record.
 - Generate Error Listing: produces a report (Schoolscan.err) of schools that could not be matched to the geocode, with a brief explanation as to the reason.
 - Permanently Modify: changes school data. If you do not select this check box, EMU produces the reports you select, describing the results as if you ran the utility in permanent mode.
 - Update Transportation: updates the transportation data for schools according to the new location information.
- 3 Choose **OK**.

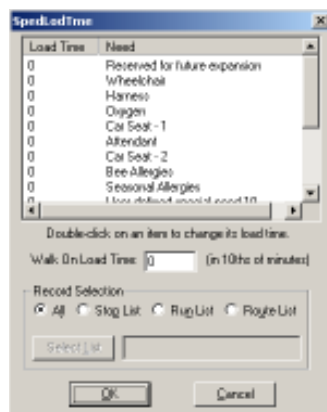
Update Loading Times for Special Education Stops (SPEDLODTME)

Use this utility to enter specific loading times for special education students based on their needs (such as five minutes for wheel chair access, two minutes for harness requirements, and so on). You enter the amount of time it takes to load one student with a certain transportation requirement. The system automatically calculates loading times by multiplying that value by the number of students at the stop who have that need. Enter time in tenths of a minute. For example, 20 = 2 minutes and 60 = 6 minutes.

This utility tracks its progress in the Spedlodtme.aud and Spedlodtme.chk files.

To update loading times at school stops on runs:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 In the list box, double-click the **need classification** whose loading time you want to modify, then type the new **loading time**. Repeat this step for any of the other classifications you want to change.
- 3 In the Walk on Load Time text box, enter the **amount of time** (in tenths of minutes, such as 60 for six minutes) required to load walk-on students at each stop who do not have any special transportation requirements.
- 4 Under Record Selection, do **one** of the following:
 - Select All if you want to update the loading times for all Sped stops assigned to runs in the system.
 - Select Stop List if you want to update the loading times for Sped stops included in a stop worklist. Choose the Select List button and select the desired list, then choose OK.
 - Select Run List if you want to update the loading times for Sped stops on runs included in a run worklist. Choose the Select List button and select the desired list, then choose OK.
 - Select Route List if you want to update the loading times for Sped stops assigned to runs on routes included in a route worklist. Choose the Select List button and select the desired list, then choose OK.
- 5 Choose **OK** when finished.

Find Stops on No-travel or Non-existent Segments (STPCHK)

Use this utility to check for stops that are located on nonexistent segments or on segments that cannot be traveled. It also checks for stops located on hazard segments.

This utility tracks its progress and lists any errors it encounters in the Stpchk.chk and Stpchk.err files. These files are located in the Elt\Live\Server\EmuBatches\Output folder.

There is no dialog box for this utility since you have no options to select from. The utility creates a report listing stops located on hazard segments, or whose segments cannot be identified, perhaps due to changes to the geocode. Relocate such stops to the addresses or corners where they belong.

You should run this utility if you have modified your geocode significantly or if the stop is not recognized in run directions. This utility should also be part of your regular preventive maintenance.

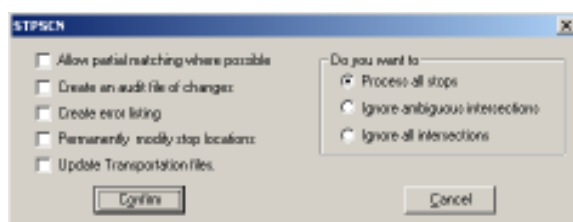
Match Stop Locations (STPSCN)

Use this utility to determine whether the location of stops matches the geocode. This is similar to the Student Address Matching utility, except that it examines stops instead of students. This utility produces a report listing any stops that are currently unmatched, or that the system cannot match. You may want to run the utility once to produce the reports without modifying stop locations to see what changes would be made.

This utility tracks its progress and lists any errors it encounters in the Stpscn.aud, Stpscn.chk, and Stpscn.err files. These files are located in the Elt\Live\Server\Emu-Batches\Output folder.

To match stop locations:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select **any** of the following options.

- Allow Partial Matching Where Possible: EMU will make very minor assumptions to match a stop location that does not perfectly match the geocode.
- Create an Audit File of Changes: produces a report (in the file Stpscn.aud) of location changes made to each record.
- Create an Error Listing: produces a report (Stpscn.err) listing stops that it cannot match to the geocode, with a brief explanation as to the reason.
- Permanently Modify Stop Locations: changes the stop data. If you do not select this check box, EMU will produce a report describing what would happen if you were to select it.
- Update Transportation files: modifies the transportation files with the new information. You will typically want to leave this option selected, since it is necessary to update the transportation files after performing a normal stop scan. (This option is not needed when you use the utility to fix stop locations after conversion from PTSIII, since you only need to update the distances and x,y coordinates.)

- 3 Select **one** of the following.

- Process All Stops: include all stops in the matching process.

- **Ignore Ambiguous Intersections:** disregard all stops located at ambiguous intersections during the matching process. An example of an ambiguous intersection would be one where the two streets never actually intersect, such as at an overpass.
- **Ignore All Intersections:** disregard all stops located at intersections during the matching process.

4 Choose **Confirm** when finished.

Batch Change of Stop Addresses (STPUPD)

Use this utility to correct street names in stop Location fields. This utility does not affect the geocode. It only corrects information entered in the stop records.

You should run this utility when:

- The name of a street changes and you need to change the locations of stops on that street
- The same street name error has been entered in multiple stop records (for example, the street entered in the stop Location fields was accidentally entered as Hilltop instead of Hilltop).

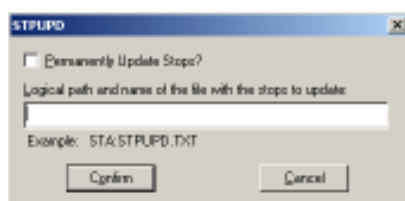
Note:

To run this utility, you need to create an ASCII text file containing the street names to be changed, along with the corrected names. You need to pay close attention to the formatting requirements for this file (see "File Formats" on page 805). This file can also be created using the Buildtxt.exe program in the Elt\Exe\Report folder. Place this text file in the Elt\Live\Server\Sta directory.

This utility tracks its progress and lists any errors it encounters in the Stpupd.aud and Stpupd.chk files.

To change stop locations in batch mode:

1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2** Enter the name and location of the text file in the Logical Path text box as **STA:<filename.ext>**. Make sure to include a colon after STA.
- 3** If you want to permanently modify stop locations with the corrected information, select the **Permanently Update Stops** check box at the top of dialog box.
- 4** Choose **Confirm** when finished.
- 5** After running this program, you need to run the following utilities.

- Run the Match Stop Locations (STPSCN) utility to match stops previously unmatched because their locations were entered incorrectly. See page 795 for further information.
- Run the Batch Assignment of Student Trips to Stop Services (BTHASGN) utility to update the assignments of students to stops. See page 766 for further information.

Student Boundary Utility (STUBN2)

This utility updates each student record with the appropriate boundary descriptions in which individual students live. A file is set up to establish which boundaries are to be evaluated, as well as the descriptions to be entered in the student file. This file, called Stubn2.dat, is generated and edited in the Buildtxt.exe program found in Elt\Exe\Report.

This utility tracks its progress and lists any errors it encounters in the Stubn2.err file.

To update student records with boundary descriptions:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select **All** if you want to update all student records or select **List** to update only those students included in a worklist. Choose the Select List button, then select the desired list and choose OK.
- 3 Choose **OK** when finished.

Purge Deleted Student Records (STUDENTPURGE)

Use this utility to purge deleted or flagged student records from the transportation database. When you delete a student in the system, it is actually only “flagged” for deletion and is considered inactive. Purging those students actually erases them from your dataset (similar to emptying the Recycle Bin in Microsoft Windows). Note that you can also flag student records for deletion using the Set or Reset Flags utility.

To produce a report listing students flagged for deletion, start the edulog report writer (choose edulog Reports from the Reports menu and then choose Deleted Students from the edulog Reports launch Pad). Refer to the online Help accompanying the report writer for further information on producing a Deleted Students report.

You should purge students as part of your regular preventive maintenance, or as necessary depending on the number of records you have deleted manually.

There is no dialog box for this utility since you have no options to select from.

Note:

After you purge students, you should rebuild student files.

Rebuild the Student Distance-to-School File (STUDST)

Use this utility to determine the distances from student locations to their assigned schools. This utility automatically updates the Distance to School fields in student records.

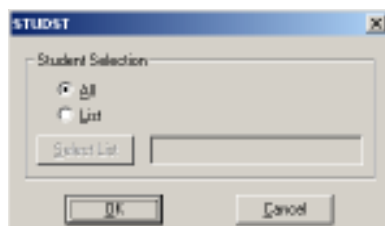
You should run this utility:

- After a student rollover at the end of the year
- After downloading students from a master database
- After changing the location of a school
- After adding a new school and reassigning students to that school.

This utility tracks its progress and lists any errors it encounters in the Studst.aud Studst.err files.

To update student distances to school:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select **All** if you want to update all student records or select **List** to update only those students included in a worklist. Choose the Select List button, then select the desired list and choose OK.
- 3 Choose **OK** when finished.

Update Student Distances to Stops (STUSTOPDIST)

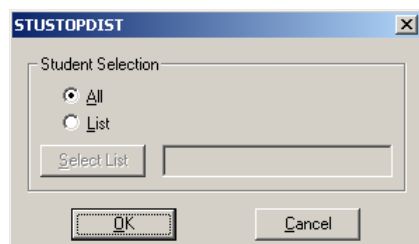
Use this utility to determine the distances from student locations to their assigned stops (for pickup and drop-off services). This utility automatically updates the Distance to Stop fields in student records.

You should run this utility:

- After a student rollover at the end of the year.
- After downloading students from a master database.
- After changing the location of a stop.
- After adding a new stop and assigning students to that stop.

To update student distances to stops:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select **All** if you want to update all student records or select **List** to update only those students included in a worklist. Choose the Select List button, then select the desired list and choose OK.
- 3 Choose **OK** when finished.

Update Grades and Programs (UPDATEGRADEPROGRAM)

Use this utility to update your data files with the current programs and grades that are used in the system. This utility has a limit of 40 programs and grades.

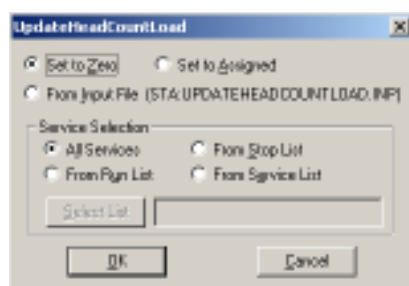
There is no dialog box for this utility since you have no options to select from.

Update Head Count Loads (UPDATEHEADCOUNTLOAD)

Use this utility to change student head count loads for selected stop services.

To update head count loads:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select **one** of the following:
 - Set to Zero: if you want to enter 0 for the selected stop services.
 - Set to Assigned: if you want to enter the number of students assigned to the service as the head count load.
 - From Input File: if you want to enter the value contained in the designated file.
- 3 Under Service selection, select **one** of the following:
 - All Services: to update all service records with the value selected in the previous step.

- From Run List: to update only services assigned to runs in a worklist.
 - From Stop List: to update only services for stops in a worklist.
 - From Service List: to update only services in a worklist.
- 4 If you selected one of the list options in the previous step, choose the **Select List** button, select the desired list, then choose OK.
 - 5 Choose **OK**.

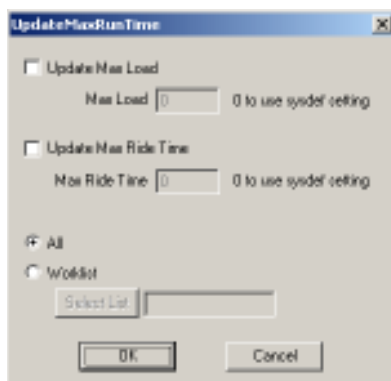
Update Maximum Loads and Maximum Run Times (UPDATERMAXRUNTIME)

Use this utility to examine all of the runs in your system (except deadhead runs) or just those included in a worklist and update the max run times and/or maximum passenger loads. You can enter the new values yourself or enter zeros if you would like to use the values in the “MAXRIDETIME” line of the Sysdef.dat file (located in the Elt\Live\Server\Dyn directory).

This utility tracks its progress in the Maxruntime.aud file.

To update Maxruntime:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select the **Update Max Load** check box if you would like to update maximum passenger loads for runs. Enter the maximum number of passengers that the runs can transport at one time in the Max Load field. (Enter zero if you would like to use the value in the Sysdef.dat file.)
- 3 Select the **Update Max Ride Time** check box if you would like to update maximum riding times for runs. Enter the maximum amount of time that runs can take. (Enter zero if you would like to use the value in the Sysdef.dat file.)
- 4 If you would like to update the maximum loads and/or times for all the runs, select **All**.

-OR-

If you would like to update only runs in a worklist, select **Worklist**, then choose Select Worklist. Select the desired list and choose OK.

Update Stop Times (UPDATETIME1AND2)

Use this utility to process each stop record and update the time 1 and time 2 fields if they have changed.

Time 1 – The time to travel from node 1 of the street segment on which the stop is located to the stop.

Time 2 – The time to travel from node 2 of that segment to the stop.

There is no dialog box for this utility since you have no options to select from.

Update Routing Data (UPDTADTM)

This utility takes the information provided by the Update Run Directions from Geographic Files utility and updates the files relating to run directions. If you have made changes using the Mapseg functions in Maris (such as prohibiting a left turn or creating a turnaround), you should run this utility so that those changes can be recognized by the run direction files. Refer to the edulog Overview for further information on the Mapseg functions.

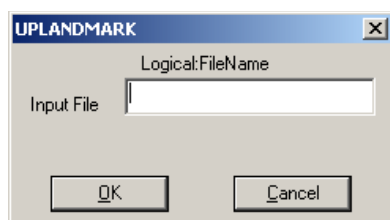
There is no dialog box for this utility since you have no options to select from. Also, if you include the Update Run Directions From Geographic Files (MAPSEGUP) utility in a batch process, EMU will automatically run the Update Routing Data utility afterwards.

Upload Landmarks (UPLANDMARK)

Use this utility to add new landmarks to the geocode from an input file (such as STA:UpLandmark.dat) which you can create and modify from with the Buildtxt.exe program located in the Elt\Exe\Report folder.

To update landmarks:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 In the Input File field, enter the **<name and location>** of the input file (such as STA:UpLandmark.dat).

You can enter any file names you want, but STA: must precede each filename for the utility to find the correct file.

- 3 Choose **OK**.

Convert File to Uppercase Letters (UPPERCASE)

Use this utility to convert the contents of a file to uppercase letters (saved in a separate file). The default input file location is `Elt\Live\Server\Dyn\Newstu.dat` and the default output file location is `Elt\Live\Server\Dyn\Newstu.new`, although you can enter different input and output file names if you wish. You typically use this utility when downloading students from a master database and need to have the `Newstu.dat` file changed to uppercase letters.

To convert a file to uppercase letters:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 In the Input File field, enter the **<name and location>** of the input file (such as `DYN:NEWSTU.DAT`).

You can enter any file names you want, but `DYN:` must precede each filename for the utility to find the files.

- 3 In the Output File field, enter the **<name and location>** of the output file (such as `DYN:NEWSTU.UPR` or `DYN:NEWSTU.NEW`).
- 4 Choose **OK**.

Update Student File from Master Database (UPSTU)

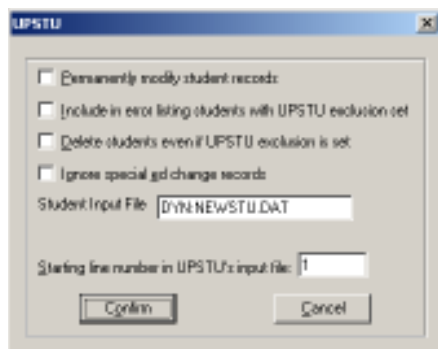
Use this utility to automatically update the student information in `edulog` from a master database (such as from a Data Processing Department's student files). This way, you are not required to maintain separate student databases.

This utility requires two text files to complete the download process: `Newstu.dat` and `Stuprm.dat`. See "File Formats" on page 805 for more specific information on these files.

This utility tracks its progress and lists any errors it encounters in the `Upstu.aud`, `Upstu.chk`, `Upstu.err` files.

To update student file from master database:

- 1 Choose **Edit** or **New** from the Edit Utility Configuration dialog box.



- 2 Select **any** of the following options.
 - Permanently Modify Student Records: makes actual changes to your student data from the master database. You may want to run the utility once without selecting this option to do a trial run and examine reports indicating what will happen if you decide to permanently modify the student records.
 - Include in Error Listing Students With Upstu Exclusion Set: produces a report listing students selected for exclusion from the student update. You can override this exclusion flag if you wish using the next option.
 - Delete Students Even if UPSTU Exclusion is Set: overrides the exclusion flag set for selected students. These students will be deleted in spite of the fact that they have been selected for exclusion from the student update.
 - Ignore Special Ed Change Records: ignores changes to records with the Special Education flag set. Those records will still retain their Special Ed status.
- 3 In the Student Input File, enter the **<name and location>** of the file containing the student information you want to use to update the student information in edulog.
- 4 In the Starting Record Number text box, enter the **number of the student record** you want to begin with. When running this utility, you should begin by entering 1 in this field. If the utility is interrupted at any time, note the number of records which were processed up to that point. When you restart the utility, enter a record number 10 smaller than the last record previously processed.

Note:

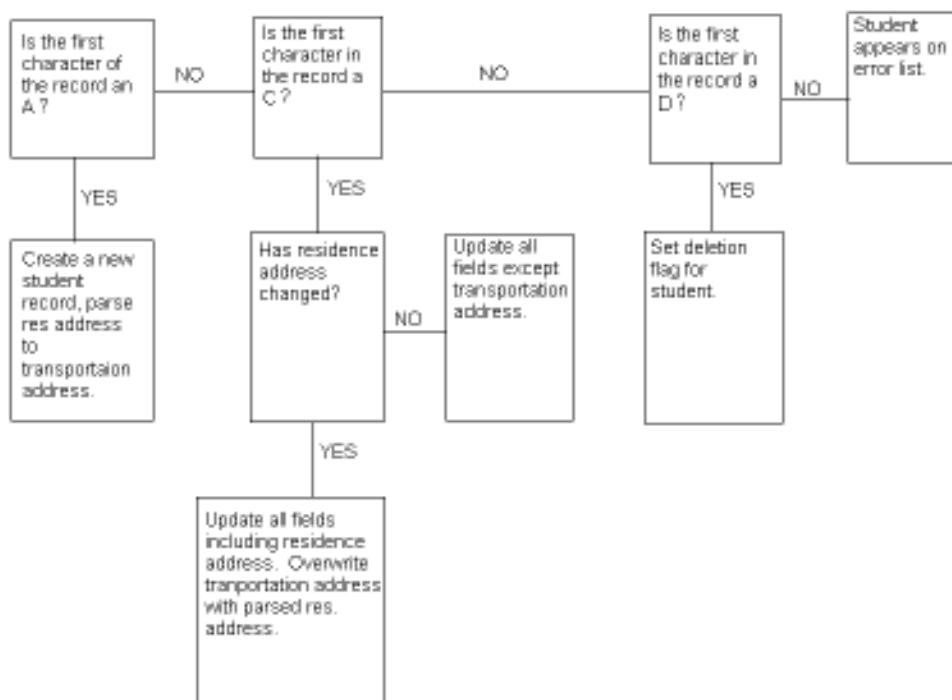
You can set up student downloads to run in two possible ways, referred to as Upmode 4 and Upmode 5. This setup determines the actions the system takes when reading records. If a data record is marked as a change by either Upmode process, any existing data in fields not defined in the Studnt.dat section of the Stuprm.dat file will be erased. To retain data in fields not included in the Newstu.dat, define them in the Studnt.dat section, not in the Newstu.dat section of the file. The following two sections discuss both of these modes in greater detail. Contact our Software Support Center if you need assistance.

5 After you update student records using the Upstu utility, you should run the following utilities.

- Rebuild Key Files (REBLDKEY)—see page 785.
- Match Student Addresses (ADSCAN)—see page 760.
- Batch Assignment of Student Trips to Stop Services (BTHASGN)—see page 766.
- Purge Deleted Records (STUDENTPURGE)—see page 797.

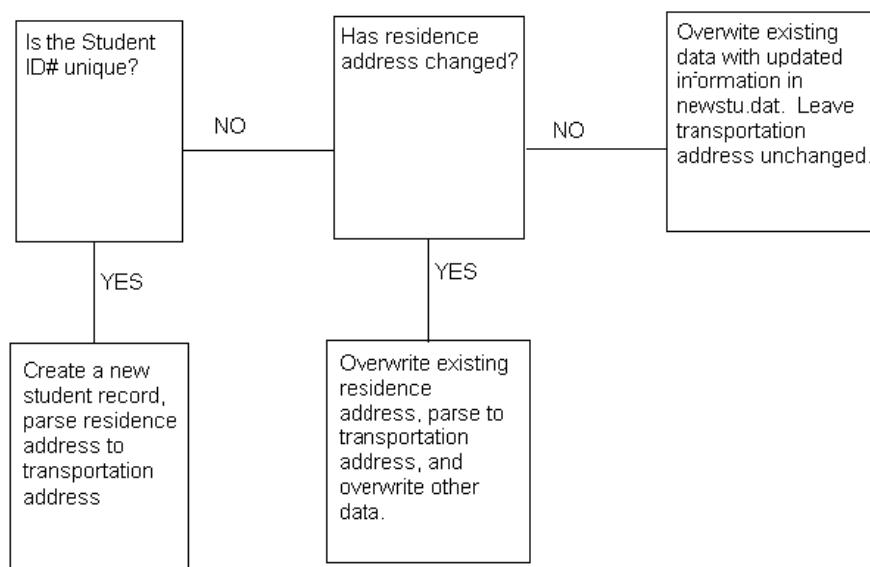
Upmode 4

Upmode 4 requires that an A (add), C (change), or D (delete) be the first character in each student record in the Newstu.dat file (see “File Formats” on page 805). This tells the system to Add a new record, Change an existing record, or Delete an existing record. You can examine the Newstu.dat file using a text editor or word processor to determine which mode your district uses. If the file has an A, C, or D at the beginning of each line, your district uses Upmode 4.



Upmode 5

When using Upmode 5, each record is assumed to be either an add or a change and does not require an A, C, or D at the beginning of each record.



FILE FORMATS

Some utilities in EMU require certain files to complete the tasks that they perform. The following topics contain the formatting requirements for those files. See “Batch Change of Address (ADDUPD or STPUPD) Files” on page 805 and “Update Student File from Master Database (UPSTU) Files” on page 806 for further information

Batch Change of Address (ADDUPD or STPUPD) Files

The format of the text file (e.g., addupd.txt or update1.txt) used by these utilities is as follows.

Old Prefix: 2 characters in length

1 space

Old Street Name:32 characters in length

1 space

Old Type:4 characters in length

1 space

Old Suffix: 2 characters in length

1 space

Old Zone: 10 characters in length

1 space

New Prefix: 2 characters in length

1 space

New Street Name:32 characters in length

1 space

New Type:4 characters in length

1 space

New Suffix: 2 characters in length

1 space

New Zone: 10 characters in length

Place the entire Old-New sequence on a single line for each pair, with all spaces placed accordingly. Use a fixed font such as Fixedsys, Courier, or Arial. Make sure not to skip any part of the street name (such as the street Type) if a name doesn't include that part. Leaving the indicated number of spaces will enable the system to read the file correctly, and provide the desired results. If this format is not followed precisely, the utility will not work for this file. Don't include a carriage return at the end of the file. Stop and save the file when you reach the end of the last line.

Update Student File from Master Database (UPSTU) Files

This utility uses two text files (Stuprm.dat and Newstu.dat) to complete the process of downloading students. The student database exports a text file in which student data fields are separated by spaces. You rename the file to Newstu.dat and copy it into the ELT\live\server\dyn directory. When you run the Upstu utility, the system uses a file called Stuprm.dat in the ELT\live\server\sta directory. This file governs where data in the Newstu.dat file is placed the student data files (Studnt.dat and Studnt.usr).

Newstu.dat

Newstu.dat is the name required for the file containing students to be downloaded into the edulog system. The file should be an ASCII text file, with all data entered in capital letters, separated by spaces. Each student record should be contained on one line, and each record should be separated with a hard return. Records that are "wrapped" to the next line will not be read correctly. The file must be placed in the same location as indicated in the Dyn logical in the Emu.inf file (this is typically the Elt\Live\Server\Dyn directory).

In edulog version 10.5, you can download special needs for students.

Stuprm.dat

Stuprm.dat is the file that controls how many characters a data field contains, where it is located in Newstu.dat, and where it is to be placed in the student data files. Note that you should never have to modify this file. If you experience problems, please contact our Software Support Center.

A

Active Stop - A stop that has been assigned to a run. Stops may be active for some or all of their frequencies.

Active Window - The window in which you are currently working or that is currently selected. If a window is active, its title bar changes color to differentiate it from other open windows. Only one window can be active at a time.

Address - Contains a street number and street name that corresponds to a unique location in the geocode. An address specifies a location in the same way that a geographic coordinate does. Using an address location is the most common way of locating a student, stop, school or landmark. Addresses may be identified on the map display by the mailbox icon. Geocoding is the mechanism that allows you to use addresses to identify locations on a map. (See “Standard Address Format” on page 552.)

Anchor School - For to-school runs, the anchor school is the last school on the run. For from-school runs, the anchor school is the first school on the run.

Anchor Stop - For to-school runs, the anchor stop is the last school stop on the run. For from-school runs, the anchor school is the first school stop on the run.

Assign - The Assign feature tells the system to determine the best position rather than you selecting a position, like you would with the Insert feature (See “Insert” on page 811). In edulog, you can assign:

- A student trip to a stop service.
- A stop service to a run.
- A run on a route.

Assigned Load - For a stop service, the assigned load is the number of students assigned in edulog to that service. For runs, the assigned load is the total number of students assigned to all services on the run.

Attendance Boundary - Allows you to select a different school for the student according to his or her location. The Attendance Boundary dialog box lists any schools with boundaries covering that location.

Availability Flag - Determines whether additional students can be assigned to a stop. When a stop’s availability flag is set to **Yes**, additional students can be assigned to the stop; when set to **No**, the user must manually override the flag before assigning additional students to the stop. This designation is often used to restrict access to home stops and stops for students with special needs.

B

Bell Time - Edulog uses bell times to specify the time of transportation service per grade/program/frequency. You open the Bell Times dialog box from the Schools Tabular window (see “Bell Times” on page 60).

Bell times are grouped into four fields:

Bell Times - This time is the time the bell rings to signify the start or end of a school day.

Early Window - In the AM, this time designates the earliest time a bus could arrive at the school. In the PM, this time designates the earliest time a bus may leave the school to start an afternoon run. By default, the system sets all from-school runs to this time.

Late Window - In the AM, this time designates the latest time a bus can arrive at school on a to-school run. In the PM, this time designates the latest time a bus can leave the school to start an afternoon run. By default, the system sets all to-school runs to this time.

Depart - This time is used in Route Optimization (see “Route Optimization” on page 329 for more information). Because this value can be changed from Route Optimization, you do not need to enter a value for this time. By definition, the Depart field forces all from-school runs to leave at the time in this field.

Block - A segment of a street between two intersections. Within the transportation system, a block roughly corresponds to a segment. Each block is usually identified by a number. For example, the 500 block of Oak Street contains buildings numbered 500 to 599.

Boundary - A geographic region that defines a portion of the district, such as a school attendance area, walk zone, or hazard pocket. You can also use boundaries to define other areas, such as subdivisions, neighborhoods or planning zones. Boundaries are either active (Posted) or inactive (Un-Posted).

C

Cancel - Discards any changes you make to the record.

Cluster - A group of schools with similar transportation requirements. Schools in a cluster share stops and runs in edulog. Clusters have IDs just like schools do. If a stop has the code of a cluster as the first part of its ID, any of the schools in the cluster can use those stops and runs.

Confirm - Saves any changes you make to the record. Confirm, however, does not save changes you make to any tables in the dialog box.

Counterclockwise - In a direction opposite to the rotating hands of a clock.

Crow Flight - The linear distance between two points, or the shortest distance between those points. This method for measuring distance ignores the street network.

D

NOTES

D1 - Indicates the distance of the student's location from node 1.

D2 - Indicates the distance of the student's location from node 2.

Delete - Deletes the record. For student records, however, this button flags the student record for deletion. The system considers the record to be inactive. The system does not remove the student record from the database.

Destination - The location where a passenger or vehicle is going. For trips, this indicates the location where the student is dropped off. Each trip is defined by an origin and destination.

Destination Time - The time of day that a trip or run is scheduled to arrive at its destination. Trips are assigned to stop services and runs with compatible destination times.

District ID - A unique identification number used by a district to identify students.

Double-click - To quickly press and release a mouse button twice without moving the mouse. Double-clicking completes an action or identifies the last point when using the Measure tools.

Drag - To hold down the mouse button while moving the mouse. This action is used to move an item on the screen. When you select an area of the window, (using zoom commands, for example), you drag the mouse to draw a frame around the area you want to work with.

Driver Directions - The actual street path a bus takes from stop to stop on a run or route.

E

Edulog ID - The number used to identify the student in edulog. The system automatically enters this number when you create a student record. This field cannot be modified.

Elig Code - Indicates whether a student is entitled to transportation. Each student is assigned an eligibility code determined by their location and on the transportation policies of the district. For example, one student may be close enough to walk to school, while another may require transportation due to a hazardous street in the area. Eligibility codes are defined as follows.

- 0 - Eligible for transportation
- 1 - Eligible because of a hazard condition
- 12 - Outside of attendance area
- 13 - Within walking distance from school
- 90 - Unable to calculate eligibility
- 91 - Student address is not matched to the geocode
- 92 - Invalid school/grade/program combination for the student
- 99 - Default value; no eligibility code has been calculated yet

For an additional fee, you can have these codes customized.

Eligibility Type - Eligibility types help define transportation requirements according to boundaries within a school district. The eligibility type is a numerical code assigned to each grade/program at a school to indicate the school's transportation policies. Most schools require only a single eligibility type, though a school may require multiple eligibility types if various grades at a school have different walk zones or attendance areas. See also Elig Code.

F

Frequency - The days of the week a school, trip, stop, run, or route needs to be serviced.

Frequency Stop - Usually called a stop service. See "Stop Service" on page 815.

G

Grade - The grade-level of a student (such as 07 for seventh graders).

Graphical - The visual representation of your district's geographic, transportation, and student data as dynamic layers on the map display. You can load and display various types of data visually on the map display. In this graphical format, groups of loaded data appear as layers in the map legend. You can manipulate this data using the available menu commands and toolbar icons. See also "Tabular" on page 816.

Grid Display - A command on the Tools menu that displays grid lines horizontally and vertically on the map (see "The Grid" on page 39). This can help you to visualize distances or distributions of stops and students.

H

Hazard - Indicates whether a street segment is considered too hazardous for students to cross in order to reach a bus stop or a school. You can assign up to four possible hazard types to each grade/program at a school to distinguish between varying degrees of hazard. For example, you may have some streets that are hazardous to kindergarten students but not to high school students, but you may have other streets that are hazardous to all students.

Hazard Pocket - An area within a school walk zone where students are transported by exception due to the presence of a hazardous condition which precludes their walking to school.

Headcount Load - The number of students at an individual stop who actually ride the bus, typically determined by driver head counts. Head counts provide a more accurate number of passengers on a bus. While students may be assigned to a stop service, some of them may not actually ride the bus (such as seniors who drive to school). Head counts for runs indicate the ridership for all stops on the run.

Highlight - Indicates that an object or text is selected or identified and will be affected by your next action.

Home Stop - Allows you to create a home stop at the student's location. First select the **Home Stop** check box, then choose the **Home Stop** button. The system automatically assign the student's trips to that stop.

I

Inactive Stop Services - Stop services that have not been assigned to runs.

Insert - The Insert feature allows you to select the position rather than the system selecting the position as with the Assign feature (see “Assign” page 807). In edulog, you can insert:

- A student trip to a stop service.
- A stop service to a run.
- A run on a route.

Intersection - The location where two streets meet. Also called a corner. A node is usually created at the point of intersection.

L

Landmark - Any geographical location you choose to include in the geocode. Landmarks are prominent identifying features of a landscape, and may include churches, daycare facilities, bodies of water, city buildings such as the court house, or historical points of interest. You can use landmarks as shortcuts for entering student, stop, and school locations instead of entering addresses which you may not immediately remember.

Layers - Individual groups or elements of data that can be displayed on your computer screen for visual reference. Layers organize sets of data by subject types, such as students, stops, runs and routes. You can load and display layers on the map display allowing you to see relationships among the data types. For example, you may wish to examine students attending School 100 in relation to the stop services available for that school. Dynamic layers instantly reflect any changes you make to the corresponding data. You change the appearance of a layer on the map by clicking the symbol next to the layer name in the map legend.

Load Count - The number of students assigned to a stop service.

Location - The place in the geocode where students, trip destinations, stops and schools are located. You can enter locations at street addresses, street intersections, landmarks, and nodes.

M

Map Display - The computer-generated geographic image of your district, which may include a raster image of a map or the street network (see “The Edulog Workspace” on page 13). The features on a map of your school district are converted into a digital format and can be loaded as overlays in a workspace. The map appears in the workspace, with the map legend displayed on the left. The map display contains

various Geographic Information System functions which allow you to perform such tasks as identifying students, stops, and runs displayed on the map.

Map Legend - Part of the edulog workspace, the map legend works as a complement to the map display (see “The Edulog Workspace” on page 13). The legend appears to the left of the map display and lists the items loaded on the map display. The legend indicates the data type (such as “Runs”), group names, or IDs (such as “100.001”), and the symbol used to represent it on the map display. You can see at a glance what items are loaded.

Map Type - A map type is an attribute that can be assigned to a segment as well as an edulog run. This attribute is assigned to each run in edulog through the system field called TYPE in the runs.par file. Each map type has a value assigned to it by the system. The map type value is the number for its corresponding speed set. Speed set 1, for example, has the map type value of 1; speed set 2 has the map type value of 2, and so on. You must provide the meaning for the map type values.

Map Zone - Map zone is used to distinguish between overlapping addresses. Many districts use the zip code for the map zone.

N

Nd1 - Indicates the number of the first node used to match the student’s location in the geocode.

Nd2 - Indicates the number of the second node used to match the student’s location in the geocode.

Next - Goes to the next record. If you are at the last record in a list, you return to the edit selection dialog box.

Node - A point in the geocode that defines a significant location, such as a school or an end point of a street segment where an intersection or bend in the road is located. Nodes are the basic building blocks of the geocode, and each is identified by a unique Node number. The geocode is composed of nodes and segments that represent the streets and intersections on the computerized street map.

Node Number - An arbitrarily assigned number identifying a node in the geocode. Each node has a unique ID number.

O

Origin - The starting point for a trip (that is, home in a home-to-school trip). Each trip is defined by an origin and destination.

P

Panning - To move the display to a different portion of the map after you have zoomed in. This feature allows you to move the display without zooming back out.

Passenger List - The list of students assigned to an individual service or run.

Point and Click - A Windows term that refers to the action of selecting items, such as commands, by pointing with the mouse and clicking a mouse button. When you move the mouse it generally appears on the screen as an arrow, but changes shape during different tasks. You move the mouse pointer until it rests on the item you want to select and then press and release a mouse button (usually the left one) quickly to start an action.

Polygon - An irregularly-shaped, enclosed area with many sides, such as a boundary. You can use the Measure Polygon tool to determine the area inside a polygon.

Polyline - A collection of connected line segments or curves (such as a path along the street network) that is treated as a single entity. You can use the Measure Polyline tool to determine the lengths of such poly lines.

Posted Boundary - An active boundary designated as an attendance boundary, walking-distance boundary, or a hazard boundary to determine transportation eligibility for a particular school. Boundaries have no effect on transportation data until they are posted.

Previous - Goes to the previous record. If you are at the first record in that list, you return to the edit selection dialog box.

Program - A subset of a student grade (such as Breakfast, Gifted, or French) used to distinguish between different transportation schedules. A student's programs, along with her grade and school, are central in determining her transportation schedule of that student.

Q

Query - A question you ask about your edulog data. You can use the information to create a list or to produce a report. To create a query, choose a field (such as "grade"), then an operator (such as "equal to"), then a value (such as "07"). When you run the query, the program determines which records match your criteria. See "Using Queries" on page 147.

R

Radius Display - A command that displays concentric circles on the map. This can help you to visualize distances or distributions of stops and students.

Resequenece - This feature tells edulog to optimize the run, which may reorder the services on the run.

Res Addr - The student's home address as it appears on mailing labels (including apartment numbers and post office box).

During a student download, the system checks if the data in this field matches the data in the Res Addr field in the newstu.dat file. If the data matches, the system determines that the student has not moved and does not update the Location or Res Addr fields in the student file; the system, however, updates the other fields based on the data in the newstu.dat file. If the data does not match, the system treats the student record as changed, which means that the system does the following:

- Overwrites the Res Addr data in the student file with the Res Addr data from newstu.dat.
- Parses the Res Addr field in the student file into the Location field in the student record, which unmatched the student from the map.
- Deassigns the student from the stop.

Route - A route is the sum of the activity for an individual bus during a day. A route is defined by a set of runs that a bus services during the day.

Run - A run is a sequence of stops that a bus makes when transporting students to or from school. A run is identified by a Run ID number.

Run Directions - The actual street path a bus takes from stop to stop on a run. You can create run directions for a group of runs or one run at a time (see “Driver Directions” on page 809).

Run ID - The school code plus a unique three-digit number that identifies a run for a school. For example, run ID 100.017 represents run number 017 serving school 100. JEF 146 represents run number 146 serving school JEF.

S

Scale - An indication of the relative distances displayed on the map (that is, one inch equals two miles). The map scale appears in the lower-right corner of the map. You change the map scale as you zoom in and out.

Segment - The line (portion of the street) between two nodes. Streets in the geocode are composed of individual segments that start and end with a node.

Sequence - The order in which the bus picks up or drops off students.

Skip - Skips the record and goes to the next record.

Special Education - A designation for students who are included in a special education program. Such students may require special transportation considerations. The system allows you to enter specific classifications that indicate such special needs (that is, wheelchair access required).

Special Needs - A set of classifications that you can assigned to students, stops, runs, routes and vehicles as needed to provide for special transportation considerations (such as wheelchair access, etc.).

Speed Set - A speed set is a data element that can be either a speed window or a map type; it cannot be both. You can have six speed sets (one default set that is uneditable and five user-defined sets). The system uses the default speed set for all runs that involve scenarios outside of the user-defined speed sets (that is, outside of the user-defined speed windows and map types).

Speed Window - A speed window is a time-window that can be assigned to a segment on the geocode. A speed window affects all runs that have anchor schools with a school stop time falling within the speed window. If you have, for example, a speed window from 7 AM to 9 AM, runs with an anchor stop falling between 7 AM and 9 AM that travel on segments configured for this speed window will be affected by the speed designated for the segments during the time-window.

Standard Address Format - A format used by edulog in which street addresses are divided into five separate fields: number, prefix, street-name, type and suffix format.

Number - The house number, such as 441 Oak street. This field must be included.

Prefix - The part of the street name which usually indicates a direction and is used before the name of the street. A one or two-character alphabetical field, such as N, S, NE or SW. This prefix is optional and not used for every address.

Street-Name - The actual name of the street and the basic element of identification for address-matching. The street name is required for standard address format and may be the only entry other than the address number. Punctuation marks are not used in the street name, but are represented by a space when used.

Type - The street's classification, such as street, avenue, or place. The street type is indicated by an abbreviation of up to four characters. For example, RD, DR, PL, BLVD. See the edulog Tutorial for a complete list of street types.

Suffix - The part of the street name which usually indicates a direction and is used after the name of the street. This is similar to the prefix field, and is used when the direction follows the street name, such as Reserve St N.

Map Zone - Map zone is used to distinguish between overlapping addresses. Many districts use the zip code for the map zone.

Status Bar - A line of information usually located at the bottom of a window. In edulog, the status bar shows messages that pertain to the task you are performing. It may give instructions or indicate the status of the current task. When a command is highlighted, a brief explanation of its purpose appears in the status bar.

Stop - A stop is a distinct geographical location where buses stop during the day to pickup or drop-off students. A single bus stop can service multiple schools. A stop is identified by a Stop ID number.

Stop Description - A phrase describing an individual stop, which may help in identifying that stop (such as, "Across from Joe's Fish Market"). If no description is entered, the stop is identified by the street address.

Stop ID - A combination of numbers and/or letters that identify an individual stop. The first portion of the ID is the code of the school serviced by the stop. Following that is a unique number identifying the stop for the school.

Stop Service - A stop service refers to an individual use of a stop (such as when transporting students to school Monday through Friday). A stop has only one location, but can have many stop services associated with it. A stop, for example, could be used to pickup students in the morning and drop them off in the afternoon: one stop with two stop services. A stop service has an ID number that uses the primary stop's ID with a three-digit extension. A primary stop with the ID 200.002 may have stop services with IDs 200.002001 and 200.002002.

Street Name - Basic field of identification for a street in the geocode (see "Standard Address Format" on page 815). You can use hyphens, apostrophes, periods and other punctuation marks in a street name.

T

Tabular - The textual representation of student, stop, run, and school records. You can examine individual records in a form-type display. In this non-graphical format, you can make changes by completing fields in the records. See also “Graphical” on page 810.

Transportation Window - A time frame indicating early and late transportation times. This provides the system with the flexibility to optimize the distribution of students on stops, stops on runs and runs on routes.

Trip - A need for transportation between two locations (such as from home to school in the morning). Each trip has a frequency that determines which days it needs to be serviced. A trip also has a destination time, usually determined by the school bell time. You assign trips to stops (specifically, to stop services), assign stops to runs, then assign runs to routes to meet the transportation needs of a student.

The system creates the default trips for a student.

Trip Table - Lists information on the student's current trips, including any assigned stops, runs, and routes (see “The Students Tabular Window” on page 80). You can use the scroll bar to see any columns outside of the current view.

U

User Elg Code - A one-digit code indicating the student's eligibility for transportation as determined by the user. You can use this field to manually override the computed eligibility code. Eligibility codes are defined as follows:

- 0 - Eligible for transportation
- 1 - Eligible because of a hazard condition
- 12 - Outside of attendance area
- 13 - Within walking distance from school
- 90 - Unable to calculate eligibility
- 91 - Student address is not matched to the geocode
- 92 - Invalid school/grade/program combination for the student
- 93 - No attendance boundary posted
- 99 - Default value; no eligibility code has been calculated yet

V

Validity Codes - Indicates whether individual grade/program combinations are active and will affect transportation requirements for the school. If the validity code is 1, the grade/program is active; if it is 0, the grade or program is inactive.

W

Walk Zone - An area in a district boundary where students are close enough to walk to school and are not eligible to be transported.

Worklist - Worklists allow you to query your student and transportation records, then store those records in a file. You can use worklists to load data for display or modification in edulog or to produce reports. You can create several types of worklists, such as student, stutrn, trip, stop, run, route, and school. See “Worklists” on page 63.

Workspace - The window in which you load data (such as students, stops, and, runs) for examination or modification (see “The Edulog Workspace” on page 13). You can think of the workspace as a container that holds all the geographic, student and transportation data you load on the map display. This data appears as dynamic layers on the map for visual reference and is listed by name in the map legend. When you save your workspace, you also include all of the objects displayed in the workspace.

X

X - Indicates the X coordinate of the location on the map.

Y

Y - Indicates the Y coordinate of the location on the map.

Z

Zoom level - Any of the various map scale zooms which enable you to get a better view of an area. You can adjust the view to zoom in or zoom out from levels 1 through 10. The area appears larger as the zoom level increases.

Zooming - Makes the view larger or smaller (depending on whether you zoom out or zoom in). Zooming in on portions of the map display allows you to get a better view of an area and more easily perform a task.

NOTES
