TransPath System Configuration Tool Guide

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TransPath System Configuration Tool Guide

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1. Introduction to the Configuration Tool

1.1 Purpose

This guide provides you with information about the Configuration Tool and describes how to use it. It is divided into the following 16 chapters:

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- Chapter 2: Installation
- Chapter 3: Operation and Maintenance
- Chapter 4: Using the Configuration Tool
- Chapter 5: Configuration Tool Functional Hierarchy
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- Chapter 8: Mux Ports
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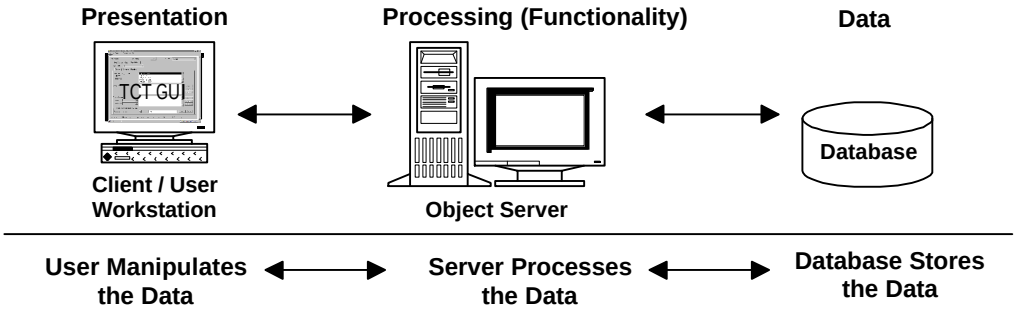
The Configuration Tool is a service management tool that has a graphical user interface (GUI) to make it easier to use. The Configuration Tool provides a way to update the TransPath system database without using a UNIX editor. The GUI allows you to navigate easily around the Configuration Tool to manage sites and lines and to create mux and TransPath components; it gives you easy control of and access to all pertinent information.

1.2 System Architecture

The Configuration Tool uses a three-tiered architecture. (See Figure 1-1.)

Figure 1-1. Three-Tiered Architecture



The components of the Configuration Tool architecture are as follows:

- Configuration Tool GUI for easier input
- Object server application to perform processing
- Relational database to store configuration data

The following technologies are used to provide this architecture:

- CORBA~~C~~ommon Object Request Broker Architecture (CORBA) is an architecture and interface that allows an application to make requests of server objects transparently, regardless of platform, operating system, or locale. The Configuration Tool uses the Iona OrbixWeb implementation of CORBA.
- Java~~C~~omputer programming language developed at Sun Microsystems.
- Microsoft Access~~D~~atabase application developed by Microsoft Corporation.
- JDBC/ODBC~~Ja~~va Database Connectivity (JDBC) is a set of classes written in Java to allow other Java programs to send SQL statements to a relational database management system. Open Database Connectivity (ODBC) is a database access method developed by Microsoft Corporation to make it possible to access any data from Windows 95 and Windows NT applications.

The Configuration Tool consists of a front-end Java applet communicating via CORBA. The back-end Java applications manage the business objects, store them in a relational database, and generate flat files to be used by the application.

Applets are Java classes identified via HTML tags embedded in Web documents. Java applets are loaded from Web servers on the Internet or in your corporate intranet or extranet. Java applications are like other

applications in that they are executed from a command line and need to be installed on or migrated to each host machine.

The external interfaces for this system are a GUI presented in the applet, a Java application programming interface (API) for accessing the business objects, and a Java API for generating the flat files.

1.3 System Requirements

The system hardware and software requirements for installing and using Configuration Tool are described in the following Chapters. If you have installed a previous version of the Configuration Tool, you must uninstall that version before you install this new version. See Section 2.3, "Uninstall the TransPath software."

1.3.1 Hardware Requirements

- Server~~Int~~el Pentium operating at least at 166 MHz with 128 MB of RAM and a minimum of 2.2 GB of hard disk space.
- Workstations~~Int~~el Pentiums operating at least at 166 MHz with 16 MB of RAM and color monitors set for 1024 by 768 resolution.

1.3.2 Software Requirements

- Windows NT 4.0 Server
- Microsoft Internet Server 2.0 or higher
- Microsoft Access 97, including ODBC drivers for Access
- Netscape 4.02 or higher browser

1.3.3 Platforms

The user interface is accessed through browser technology. The browser acts as a client to the NT server. At present, the Configuration Tool supports Netscape 4.02 on the Windows 95 or Windows NT 4.0 platform on an Intel-based machine.

Screen resolution should be set at 1024 by 768 to ensure you can see the full Configuration Tool screen.

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2. Installation

2.1 Installation Checklist

Before you install the Configuration Tool, use this checklist to ensure you have everything you need for a smooth installation.

Windows NT 4.0 workstation or server

- ð Microsoft Internet Server 2.0 or higher
- ð Microsoft Access 97, including ODBC drivers for Access
- ð Netscape 4.02 (or higher) browser
- ð Configuration Tool CD-ROM
- ð Configuration Tool - Utilities CD-ROM

> **Note**: If you have a previous version of the Configuration Tool installed, you must uninstall it before you install this new version. (See Section 2.3, "Uninstall the Configuration Tool.")

2.2 Installation Steps

Step 1. Close the Orbix Web server by closing the DOS windows: "C:\Lightspeed\OrbixWeb\bin\orbixd.exe," "C:\Lightspeed\OrbixNames\bin\ns.exe," and the window used to run "server.bat." Close the OrbixWeb server first:

a. Press **Ctrl C**.

b. Answer "Yes" to the server screen prompts. The other windows will also close.

Step 2. Insert the Configuration Tool CD-ROM. From the Start menu select **Run**. Type *cd drive*:**Setup**; this invokes the InstallShield setup. (InstallShield is an installation toolkit developed by InstallShield Software Corporation.)

Step 3. Follow the instructions on your screen.

Step 4. Insert the Configuration Tool - Utilities CD-ROM. From the Start menu select **Run**. Type *cd drive*:**Setup**; this invokes the InstallShield setup.

Step 5. Follow the instructions on your screen.

2.3 Uninstall the Configuration Tool

Before you uninstall the Configuration Tool, make a backup of the database lpt.mdb in C:\Lightspeed\TransPathCM\database and rename it.

To remove a Configuration Tool installation, perform the following steps:

Step 1. Close the DOS prompts and the Orbix Web server by pressing **Ctrl C** and answering "Yes" to all screen prompts.

Step 2. Remove the Configuration Tool.

a. In settings, select **Control Panel**.

b. Double click **Add/Remove Programs**.

c. Browse through list of programs and select **TransPath Configuration Tool**.

d. Click **Add/Remove**.

e. Click **OK**.

Step 3. Remove the Configuration Tool Utilities.

a. In settings, select **Control Panel**.

b. Double-click **Add/Remove Programs**.

c. Browse through the list of programs and select **TransPath Configuration Tool - Utilities**.

d. Click **Add/Remove**.

e. Click **OK**.

2.4 Migrate Database

If this is the first time you are installing the Configuration Tool, copy the file **default.mdb** and name the copy **lpt.mdb**. This provides a basis for the configuration you will set up for your system with the Configuration Tool.

If you are installing an upgrade, after you uninstall the Configuration Tool, you want to be able to upgrade the data stored in your database.

Step 1. Copy the database to **oldlpt.mdb** or some other distinctive alphanumeric name.

Step 2. Follow the instructions in C:\Lightspeed\TransPathCM\database\upgrade.

If you are performing system maintenance, it is also a good idea to copy your existing database, as described, before making changes.

2.5 Set Up Servers

If this is the first time you have installed the Configuration Tool, you now need to set up your Web server (C:\Eng\TransPath) and FTP server (C:\Turnover\install). If you are performing an upgrade or a crash recovery, you only need to complete steps 3 and 4 because your ODBC Data Source, WWW server, and FTP server are already configured.

Step 1. Configure the ODBC Data Source:

a. From **Start**, select **Settings**, then **Control Panel**, then **ODBC**.

b. Select **Add**.

c. Double-click **Microsoft Access Driver**.

d. Press **Add Database** and select **Browse**.

e. Browse to "C:\LighSpeed\TransPathcm\database\lpt.mdb."

f. Enter the DataSource name: "TP2000."

g. Click **Options** and set the buffer size to **4096** to optimize system performance.

Step 2. Configure Microsoft Internet Server:

a. Configure your WWW server:

i. Double-click **WWW Server** in the Microsoft Server Manager

ii. Select the **Directories** tab.

iii. Press **Add** and select **Browse**.

iv. Browse to "C:\LightSpeed\TransPathcm\applet."

v. Enter **LSIconfig** as the Alias.

vi. The file will be saved as **default.html**.

b. Configure your FTP server:

i. Double-click on **FTP Server**.

ii. Select the **Directories** tab.

iii. Press **Add** and select **Browse**.

iv. Browse to "C:\LightSpeed\TransPathcm\install."

v. Enter **install** as the alias.

Step 3. Edit the HTML Web page:

a. Go to "C:\LightSpeed\TransPathCM\applet\default.html."

b. Use a file editor such as Word Pad to modify **PARAM NAME** = <**host name of the NT server**>, **VALUE** = <**domain name of the NT server**>.

For example, PARAM NAME = host, VALUE = dirac.phys.com.

Step 4. Edit the "server.bat" file:

a. Go to "C:\LightSpeed\server.bat.

b. Use a file editor such as Word Pad to modify **IT_LOCAL_HOST = <host NT workstation name**>.

c. Modify **IT_LOCAL_DOMAIN** = <**NT workstation server name**>.

d. Make a windows shortcut to **server.bat** and put it on the NT desktop.

2.6 Modify Files

To modify files **server.bat** and **default.html** on the servers, follow steps 3 and 4 in Section 2.5, "Set Up

3. Operation and Maintenance

This chapter describes operational and maintenance considerations related to the Configuration Tool.

3.1 Start and Stop the Configuration Tool

3.1.1 Start Configuration Tool

After you have installed the Configuration Tool, to start the application go to the DOS prompt, change to c:\lightspeed\server.bat, and press **Return**.

3.1.2 Stop Configuration Tool

Close the Orbix Web server "server.bat" and the DOS windows "C:\Lightspeed\OrbixNames\bin\ns.exe" and "C:\Lightspeed\OrbixWeb\bin\orbixd.exe." Close the OrbixWeb server first:

Step 1. Press **Ctrl C**.

Step 2. Answer "Yes" to the server screen prompts. The other windows will also close.

3.2 Backup

We recommend that you perform a backup of your flat files before you perform any system maintenance or updates. Copy your "C:\LightSpeed\TranspathCM\database\lpt.mdb" file and give it a new, distinctive file name, such as yymmdd.mdb where yymmdd is the current date.

3.3 Restore

To restore the Configuration Tool, copy your backup **.mdb** file (refer to Section 3.2, "Backup") and name it "C:\LightSpeed\TranspathCM\database\lpt.mdb." This will overwrite the crashed file, including any changes you had made to it. These changes will have to be reentered.

3.4 Operational Considerations

3.4.1 Timeouts

A Configuration Tool client/browser session may experience intermittent problems after it has been inactive for a period of time. It may time out or have other difficulties such as an inability to view existing data. In addition, the Configuration Tool client may intermittently crash when you are editing a TransPath system instance. Also the Orbix name server may experience cases of 99% CPU utilization. In addition, this behavior may also occur if the browser window is re-sized or if the Netscape client hard disk cache is less than 8MB. Contact Cisco TAC if this occurs.

To avoid a timeout, save and close your session if you expect the Configuration Tool will be idle for more than 5 minutes. If a session has timed out, exit the affected Configuration Tool session and initiate a new session.

If the Orbix Web server fails or experiences a case of higher than normal CPU usage, stop and restart the system. The Orbix Web server component may experience confusion resulting in a *10191 Orbix not running* error message.

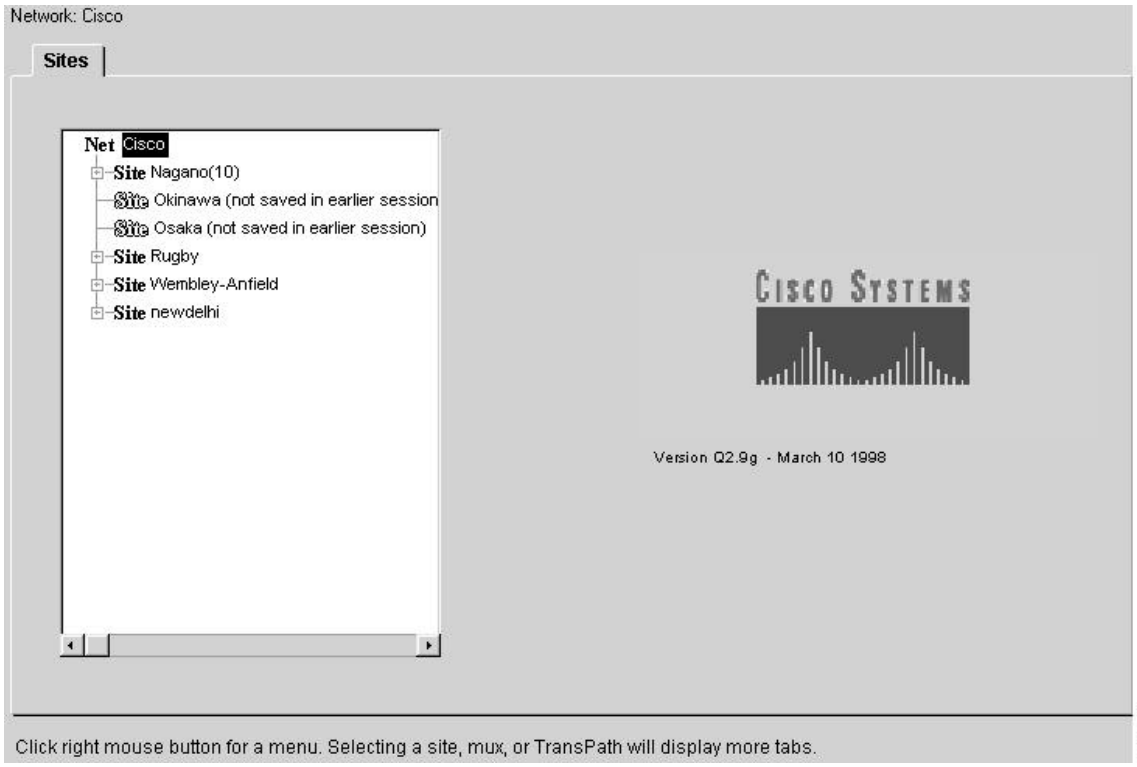
3.4.2 Line Scroll Bar Loses Its Position

Due to an unresolved situation with the underlying third-party technology, this problem may occur intermittently when you refresh a list box. This situation is being addressed with the vendor providing the technology.

4. Using the Configuration Tool

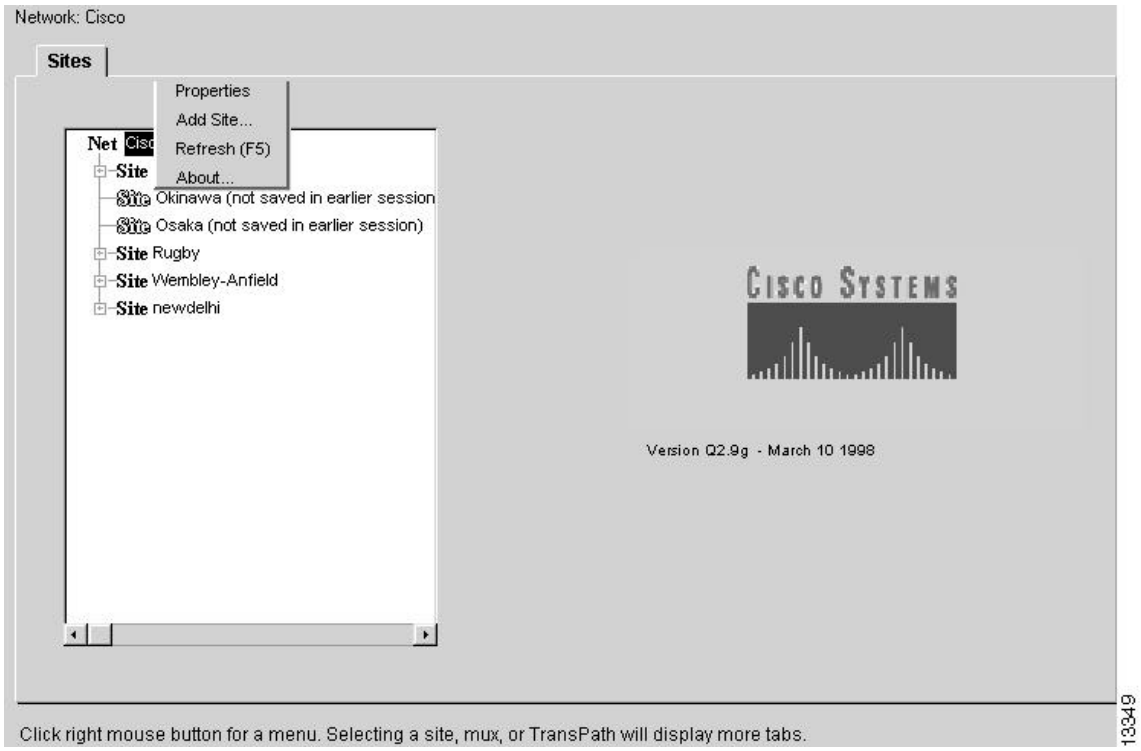
To begin using the Configuration Tool, open your Netscape browser and type in the URL for the Configuration Tool on your system. The URL will contain your server name (and possibly other addressing information) followed by "LSIconfig" (for example, **http://<servername>//LSIconfig**). You can bookmark the address so that in future you do not have to retype the address. After startup you will see the opening panel, which contains the Sites tab. The default is "Net net" before a site has been added. (See Figure 4-1.)

Figure 4-1. Sites Tab



Select a site you want to work with or click on the right mouse button to get a popup menu of choices. (See Figure 4-2.)

Figure 4-2. Network Popup Menu

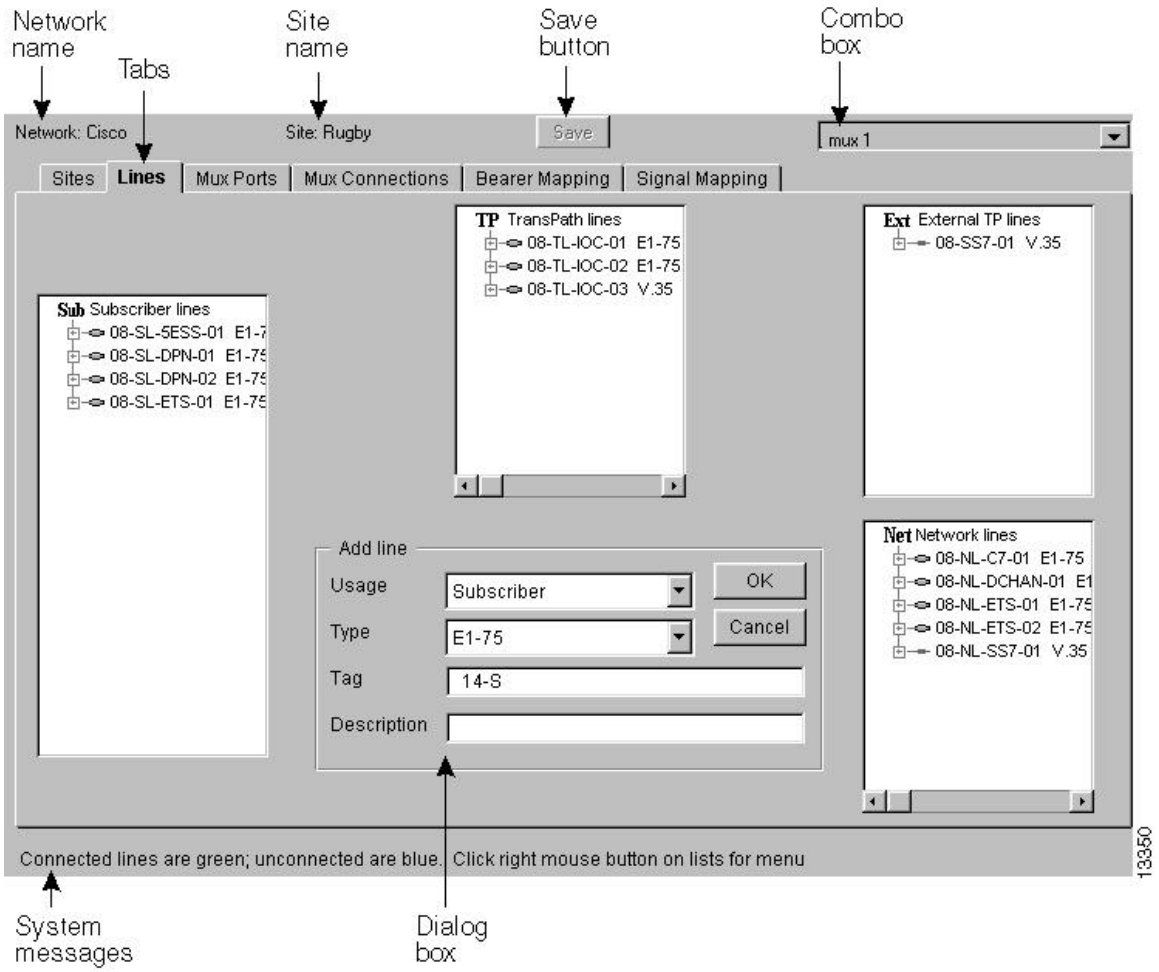


The popup menus appear on your screen where your pointer is. To avoid covering something you need to see with a menu, highlight the required selection, then move the pointer to an empty or less important area before you right-click.

4.1 Navigate the Configuration Tool

The Configuration Tool provides a series of tabs and popups to help you move around and work in the application. The tabs appear at the top of the screen along with the Save button and information about where you are in the Configuration Tool. (See Figure 4-3.)

Figure 4-3. Screen Elements



Popups (data entry dialog boxes or menus) appear when you click the right mouse button (from here on, referred to as a *right-click*).

4.1.1 Tabs

The Sites tab displays a tree of the sites available on your network. If you highlight a site from the Sites tab, the Lines tab appears. If you expand a site (click + or double-click on the site name) a list of TransPath and mux components for that site appears. Highlighting a TransPath component or mux component causes the TransPath tabs or the mux tabs to appear.

There are nine tabs in the Configuration Tool: (See Figure 4-4.)

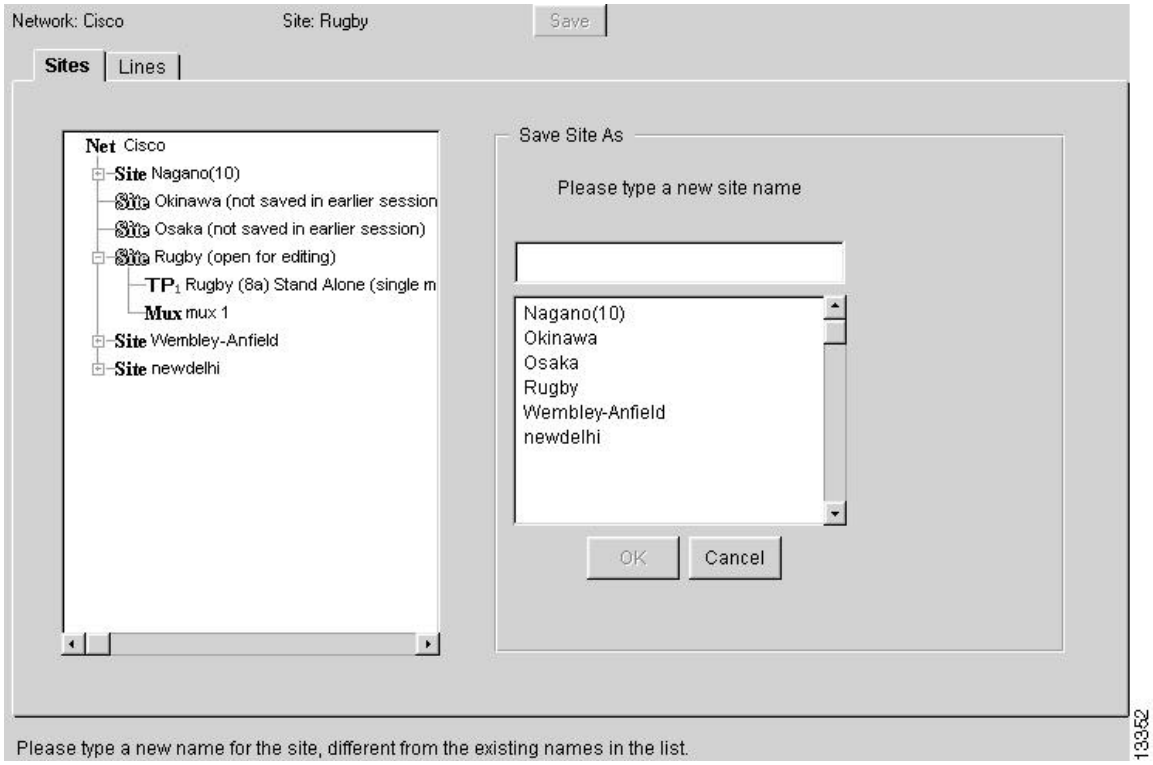
- Sites
- Lines
- Mux Ports
- Mux Connections
- Bearer Mapping
- Signal Mapping
- Cards
- Traffic Paths
- Signal Paths

Figure 4-4. Tabs

4.1.2 Popups

If you right-click on an area or a highlighted item, either a popup menu of options or a dialog box with data entry fields will appear. (See Figure 4-2 for an example of a popup menu. Figure 4-5 is an example of a dialog box.)

Figure 4-5. Save Dialog Box



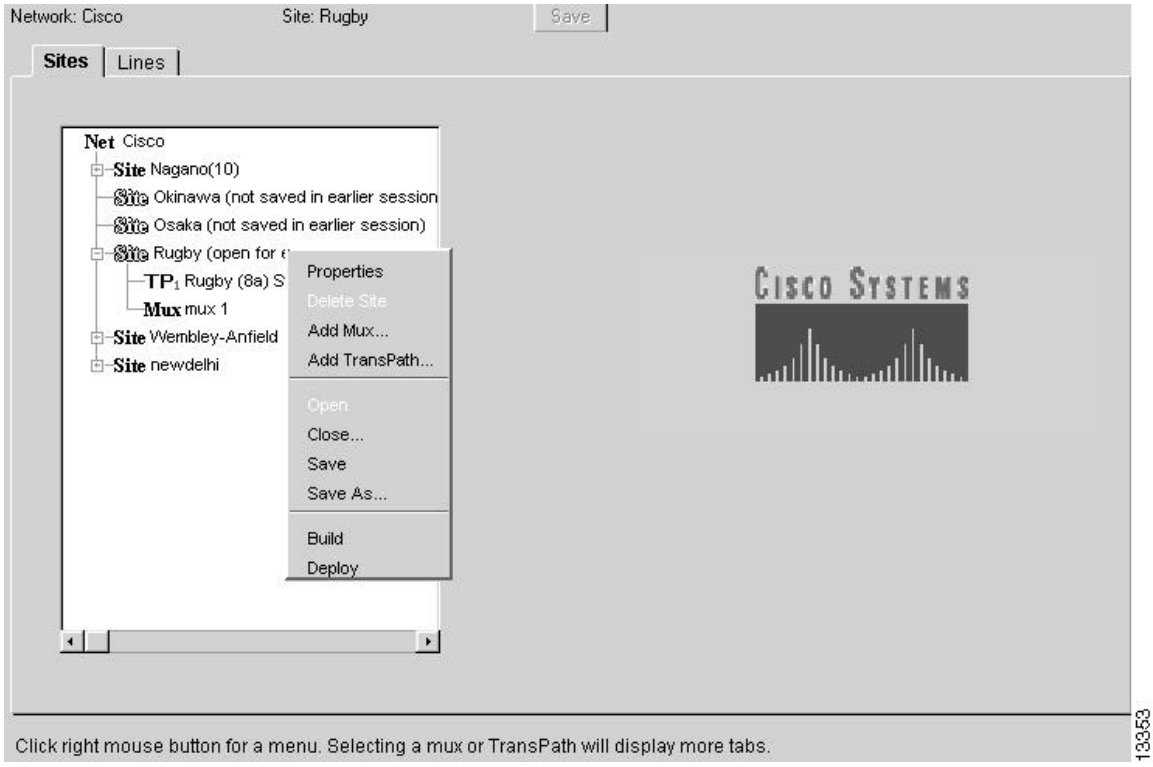
4.2 Save Your Work

When you edit the configuration of a site or its contents, you are actually working on a temporary copy of the site configuration. The changes are not made permanent or stored in the database until you save them.

You can save your work at any point while editing a site or its contents (except when you are in a dialog box, which requires input first). Just click **Save** at the top center of the screen.

You can also save a site by selecting it in the tree on the Sites tab, right-clicking it, and choosing a save option from the popup menu. (See Figure 4-6.)

Figure 4-6. Sites Popup Menu



Saving a configuration copies the temporary business objects in the server memory to a permanent place in the database.

> **Note:** This is not the same as building and deploying the flat files for use by the TransPath system. These functions are described in Section 3.4, Build and Deploy in the Configuration

4.3 Close the Configuration Tool

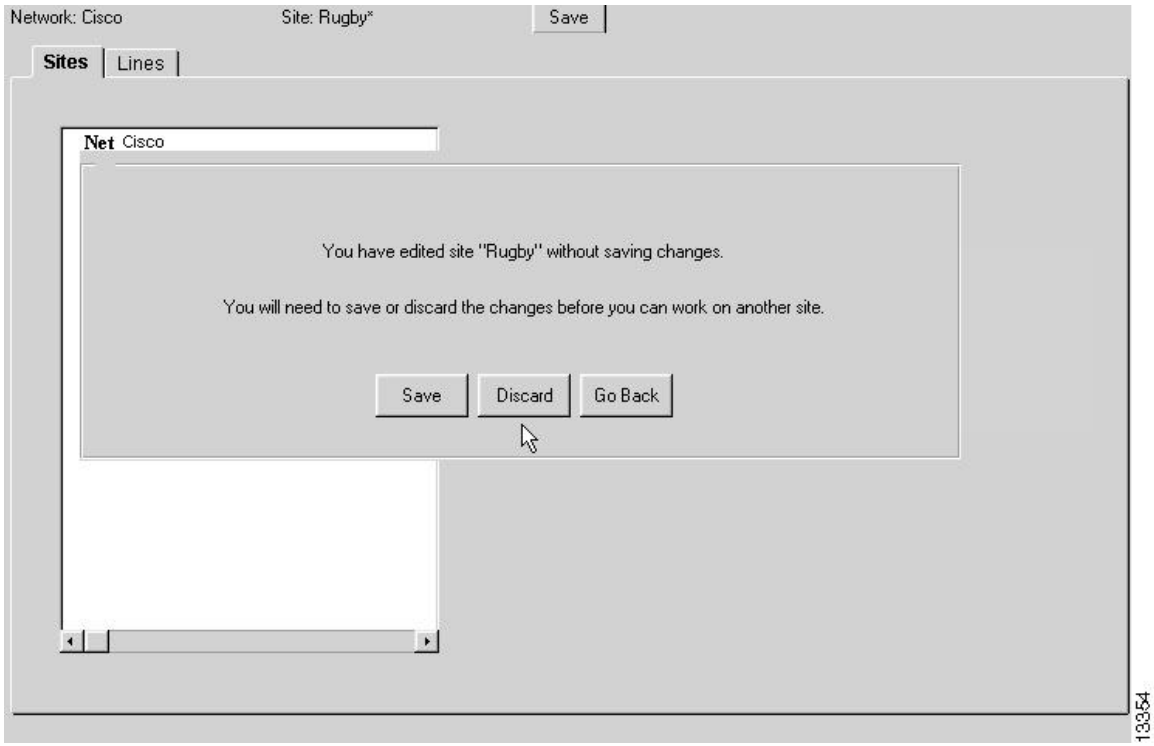
There is no explicit Exit function in the Configuration Tool because it runs as an applet.

You can close a site you have opened by choosing **Close** from the popup menu (highlight the site and right-click on it to get the menu). When you close a site in which you have made changes, the Configuration Tool prompts you to either discard or save your changes.

If you terminate your browser, abandon the applet, or otherwise end your connection with the server while you have a site with unsaved changes, after approximately 30 minutes the site is no longer locked to other users. When the next user tries to access this site, the icon is yellow and a message appears stating that there are unsaved changes from a previous session.

The choices are to either discard the changes or keep them. If you right-click on the site, the popup menu choices available now begin with **Reattach to Previous Edits** and **Discard Previous Edits**. (See Figure 4-7.)

Figure 4-7. Unsaved Sites Popup Menu

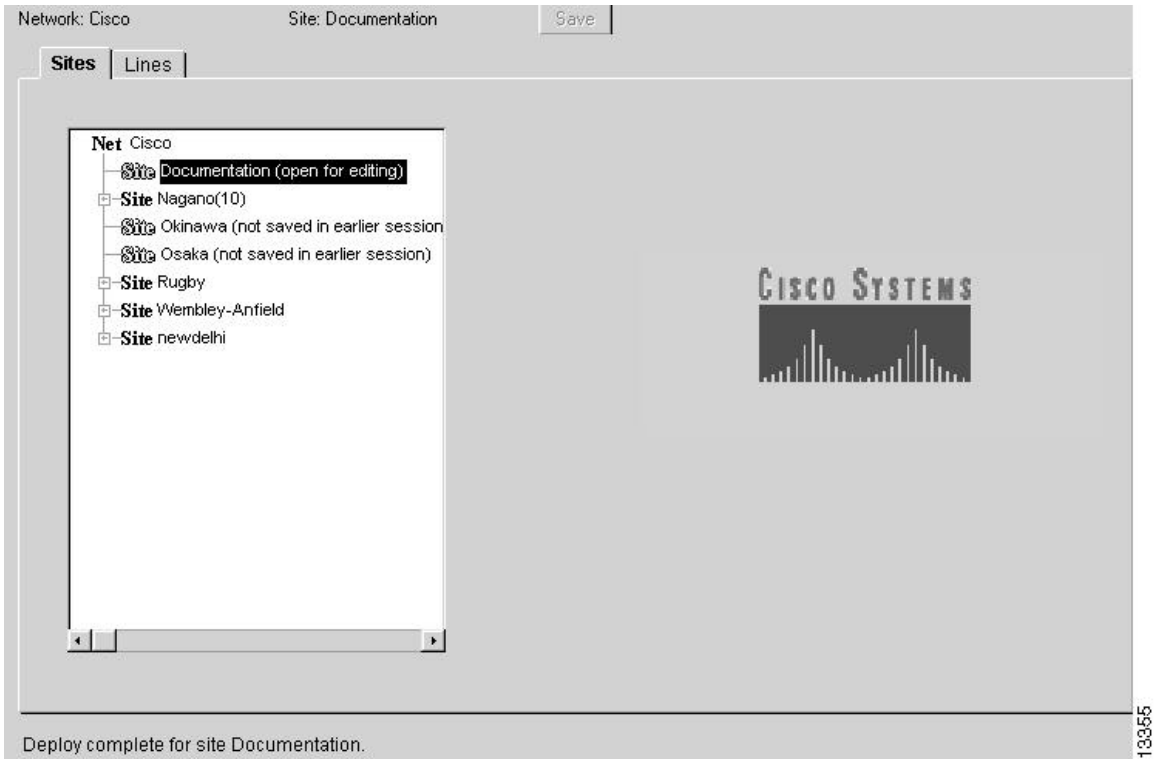


4.4 Build and Deploy in the Configuration Tool

The Sites popup menu (see Figure 4-6) includes options for Build and Deploy. These operations write a configuration from the database to a set of flat files (Build) and copy those flat files to specific locations for use by a TransPath system (Deploy). This activity is normally transparent to you.

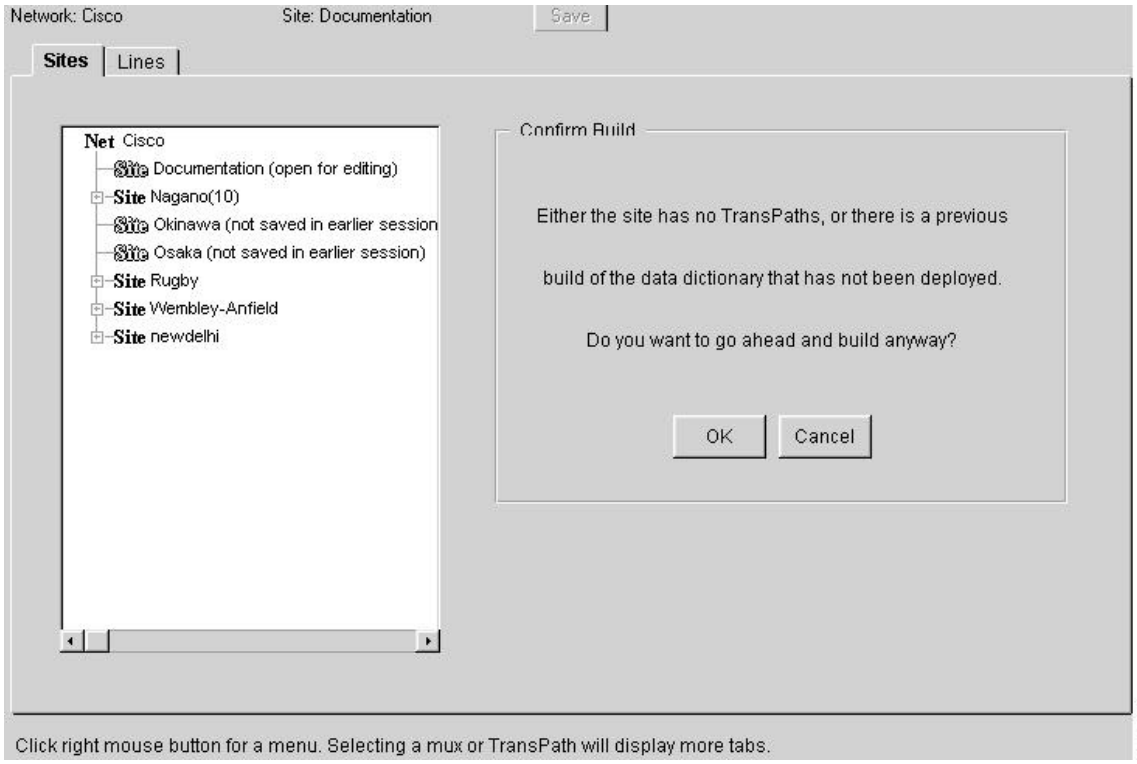
You can only build and deploy a single site. When you select **Build** or **Deploy** from the menu, you will quickly see a message below the tab on the lower left side that says either **Build complete for *sitename*** or **Deploy complete for *sitename***. (See Figure 4-8.)

Figure 4-8. Deploy Complete Message



If there is something missing or incomplete for this site when you build or deploy it, a confirmation dialog box appears with a description of the possible problems as well as buttons for **OK** and **Cancel**. (See Figure 4-9.)

Figure 4-9. Build/Deploy Confirmation Dialog Box



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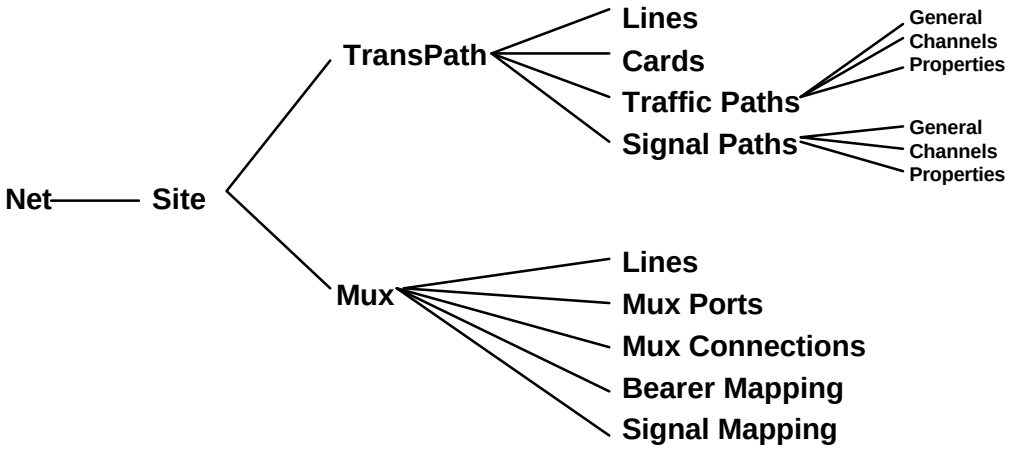
5. Configuration Tool Functional Hierarchy

The Configuration Tool facilitates processing of information about the sites and TransPath and mux components in a network. A dialog box presents these objects in a hierarchical fashion (a network tree) on the Sites tab, the main tab of the Configuration Tool. You create, modify, and delete objects using this dialog box and its submenus. You can also select a site, mux component, or TransPath component in this dialog box, then view or edit its details (for example, lines, ports, mappings, or cards) on other tabs.

The basic structure of the Configuration Tool is shown in Figure 5-1.

Figure 5-1. Functional Structure



The functional areas of the Configuration Tool are described briefly in the following sections.

5.1 Sites Tab

The Sites tab displays information about your network and sites and allows you to add sites, mux components, and TransPath components. (See Figure 4-5.)

5.1.1 Maintain Network

The current network name is displayed at the top of the dialog box. When you first enter the Configuration Tool, only the Sites tab is available.

To see the components of the network, expand the listed sites by clicking on the + box or double-clicking on the name of each site. The TransPath and mux components will appear beneath each site for which you clicked on the + box.

When you select a site, the Lines tab also appears. (See Section 5.2, "Lines Tab," for functionality.)

5.1.2 Maintain Sites

Even if you do not expand the sites list, if you highlight a site, the Lines tab will appear. You can work with lines or you can right-click on a highlighted site to see the popup menu (see Figure 4-6) with the following choices:

- **Properties**
- **Delete site**
- **Add Mux**
- **Add TransPath**
- **Open**
- **Close**
- **Save**
- **Save As**
- **Build**
- **Deploy**

5.1.3 Maintain Muxes

If you highlight a mux from the Sites tab, the mux tabs appear to the right of the Sites and Lines tabs. (See Figure 4-2.) The four mux tabs are as follows:

- **Mux Ports**
- **Mux Connections**
- **Bearer Mapping**
- **Signal Mapping**

If you highlight a mux and right-click on it, the following choices appear in a popup menu:

- **Properties**
- **Delete Mux**

Select **Properties** to see a dialog box with the mux tag, description, total number of ports, and how many ports are subscriber, TransPath, network, or unassigned.

5.1.4 Maintain TransPath Components

If you click on a TransPath component from the Sites tab, the TransPath tabs appear to the right of the Sites and Lines tabs. (See Figure 4-4.) The three TransPath tabs are as follows:

- **Cards**
- **Traffic Paths**
- **Signal Paths**

If you click on a site's TransPath component and then right-click on it, the following choices appear in a popup menu:

- **Properties**
- **Delete TransPath**

Select **Properties** to see a dialog box with ID, name, description, auxiliary signaling network (ASN) type, physical TransPath, service port, X25 address, and IP address.

5.2 Lines Tab

The Lines tab displays a dialog box with the line types in four separate lists as follows:

- **Subscriber**
- **TransPath**
- **External**
- **Network**

5.3 Mux Ports Tab

After you have selected a site's mux component on the Sites tab, when you choose the Mux Ports tab, you see a dialog box with the port types in separate lists, as follows:

- **Subscriber**
- **TransPath**
- **Network**
- **Unassigned**

5.4 Mux Connections Tab

When you choose the Mux Connections tab, you see a dialog box with the three connection types in separate lists:

- Subscriber
- TransPath
- Network

5.5 Bearer Mapping Tab

After you have connected the lines to their mux ports, you can set up the mapping of channels in the mux.

When you choose the Bearer Mapping tab, the dialog box contains only two lists with the two bearer channel types:

- Subscriber
- Network

5.6 Signal Mapping Tab

When you choose the Signal Mapping tab, the dialog box contains three lists with the signal channel lines listed for each:

- Subscriber
- TransPath
- Network

5.7 Cards Tab

When you choose the Cards tab, the dialog box contains two lists for the selected TransPath component:

- **Cages**
- **Lines**

5.8 Traffic Paths Tab

The following subtabs appear in the Traffic Paths tab:

- **General**
- **Channels**
- **Properties**

5.8.1 General Subtab

Here you select one of the traffic paths listed or *Add Traffic Path* from the drop-down menu in the combo box above the subtabs.

If you choose to add a traffic path, a dialog box appears and you must select a protocol family and variant and whether it is a subscriber or network path. Then you name the path and describe it.

5.8.2 Channels Subtab

Here you see the subscriber channels displayed in a list.

- Channels associated with the traffic path you are in are green.
- Channels associated with another traffic path are blue.
- Channels associated with no traffic path are yellow.
- Channels for a different usage are black.

5.8.3 Properties Subtab

This tab displays two lists: Defaults for protocol family *xx*, variant *xx* (what was chosen when this traffic path was created) and Overrides for Traffic Path *y* (if any). You can choose to override a default value or modify or delete any existing overrides.

If you have the Dial Plan Provisioning (DPP) application for number manipulation, under the property overrides section you must override the default protocol settings for the subscriber side link set to integrate the DPP with the current Configuration Tool configuration. See Section 13., Properties Subtab."

If you choose to override a default, a popup dialog box appears where you enter the override value you want to use instead of the default. You will see the current property, which you can change in the ComboBox; the type, and the default value.

5.9 Signal Paths Tab

The following subtabs appear in the Signal Paths tab:

- General
- Channels
- Properties

5.9.1 General Subtab

Here you select a signal path or **Add Signal Path** from the drop-down menu in the combo box above the subtabs. For each signal path you create you must select a protocol family and variant, indicate its usage (subscriber or network), and enter a SigPath tag number. You can also enter a description and traffic path and add or delete a destination. You must select at least one traffic path to be a destination.

5.9.2 Channels Subtab

Here you see the subscriber and TransPath lines in separate lists.

5.9.3 Properties Subtab

Here you see the signal path's protocol family and signal path overrides (if any). You also have the option to add, change, or delete overrides.

If you have the DPP application, under the property overrides section you must override the default protocol settings for the subscriber side link set to integrate the DPP with the current Configuration Tool configuration. See Section 14.2.1, "Non-C7/SS7 Subscriber Signal Path."

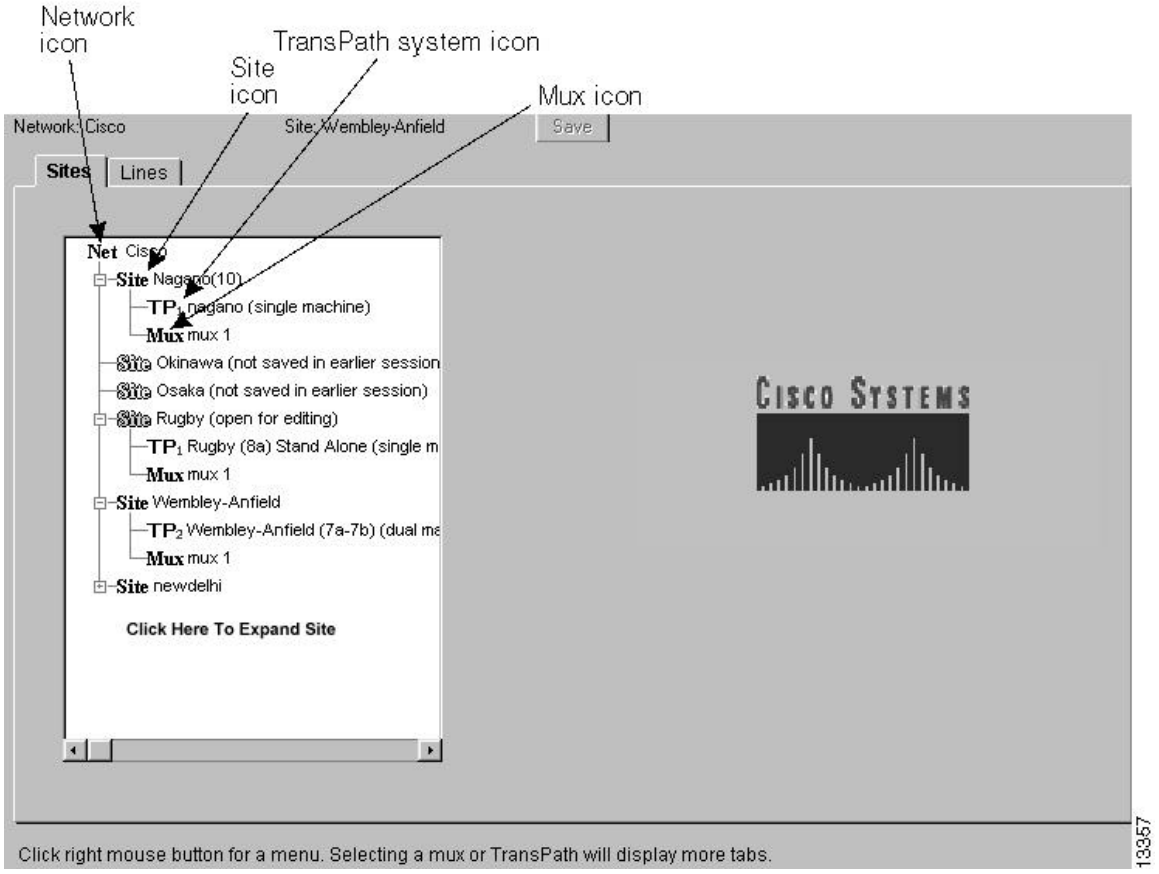
6. Sites Tab

To update the TransPath system database, open the Configuration Tool to select the site that you want to work with, as described in Section 3.1, "Start the Configuration Tool." The opening screen displays the Sites tab and a tree that lists the sites on your network. (See Figure 4-1.) This tree has different icons for each option.

The network tree in the Sites tab is your starting point for viewing, adding, deleting, and changing information about the network, sites, TransPath components, and mux components in an installation.

Both the mux and TransPath components for each site are listed in the expanded tree and appear at the same level in the tree; however, they have different icons. (See Figure 6-1.)

Figure 6-1. Network Tree Icons



6.1 Network Options

You can perform the following actions when you highlight your network:

- Collapse and expand the network tree (list of sites).
- Change the network name and see its number.
- Add sites to the network tree.
- Refresh your data.
- View the Configuration Tool version, date, and copyright information.

6.1.1 Network Tree

You collapse and expand the network tree by double-clicking on your network. If the tree is expanded, doing this collapses it; if the tree is collapsed, doing this expands it.

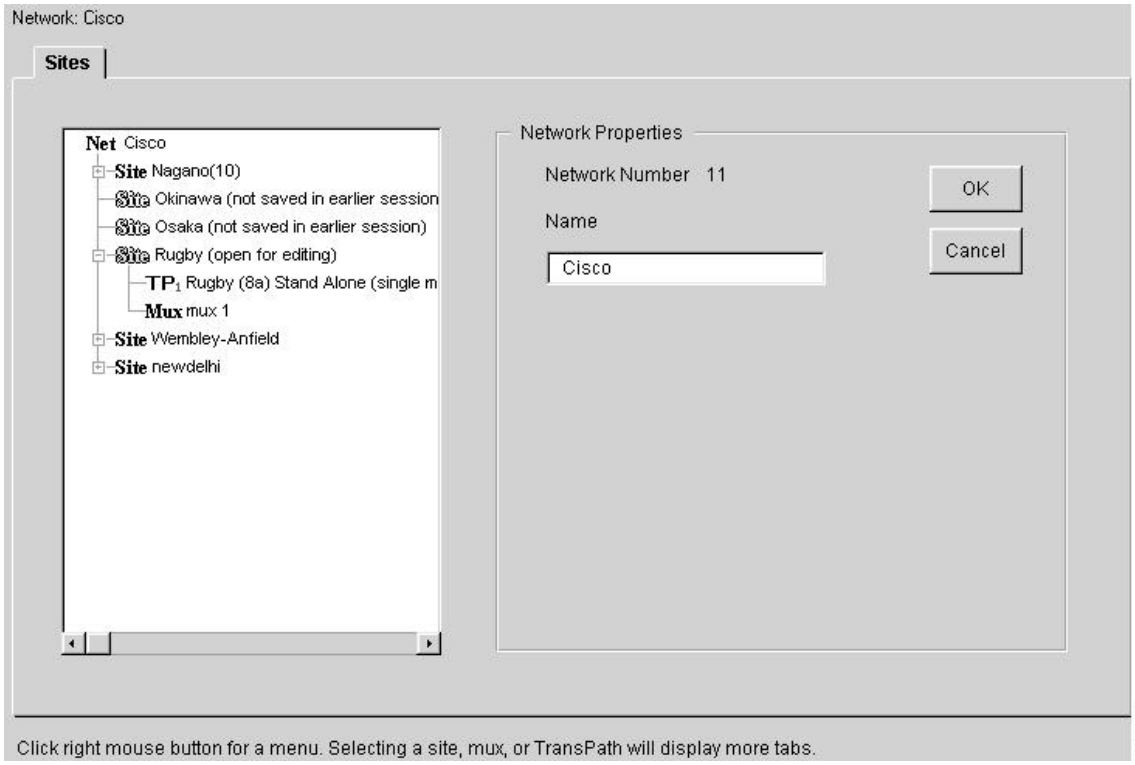
You perform all other network actions from the Network popup menu. As noted in Chapter 3, "Using the Configuration Tool," if you highlight the Net line and right-click on it, a popup menu (see Figure 4-2) appears showing the following choices:

- Properties
- Add Site
- Refresh
- About

6.1.2 Network Properties

When you select **Net** in the site tree, right-click on it, and choose **Properties** from the popup menu, a dialog box appears. (See Figure 6-2.)

Figure 6-2. Network Properties Dialog Box

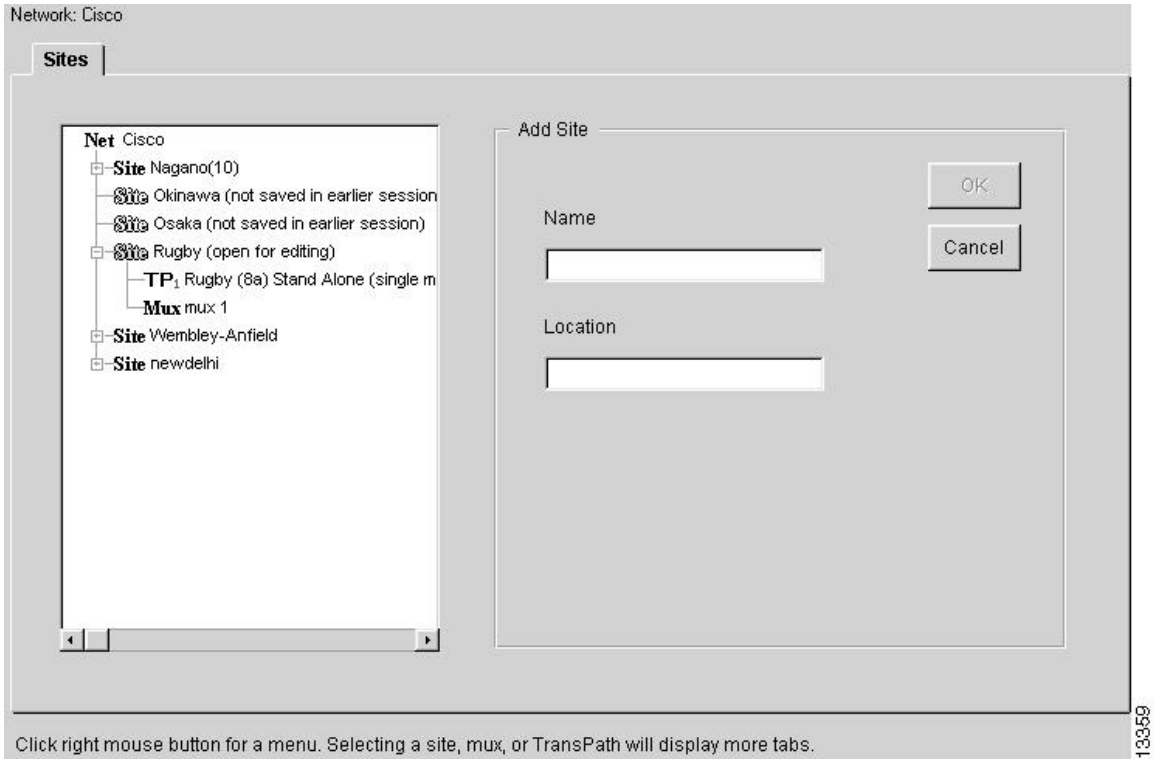


Here you can modify the network name and see the number assigned to this network. Click **OK** to save your changes.

6.1.3 Add Site

When you choose **Add Site** from the Network popup menu, a dialog box appears. (See Figure 6-3.)

Figure 6-3. Add Site Dialog Box



Here you can enter a site name and location. After you enter this information and click **OK**, the Configuration Tool verifies that the site name is unique within the network and creates the site. If the name is not unique, the Configuration Tool reports an error and you can try again. Although the site is added, it is not yet open for editing. The Lines tab appears to the right of the Sites tab when you add a site.

6.1.4 Refresh Data

Data stored in the TransPath system database may change frequently. The Configuration Tool provides the option to refresh your data at any time to be sure you are working with current data. To refresh your data, go to the Sites tab, right-click in the tab or with the network highlighted to call up the Network popup menu, and select **Refresh**.

A shortcut to refreshing your data is to press the **F5** key.

6.1.5 About

You may want to verify the date and version of your installed Configuration Tool, particularly when you change versions. To check which version you have installed, go to the Sites tab, call up the Network popup menu and select **About**. (For details on displaying the Network popup menu, see Section 5.1.4, "Refresh Data,") The Configuration Tool version and date and the copyright notice appear under the Cisco Systems logo.

6.2 Sites Options

Several different designations are given for a site, depending on its status:

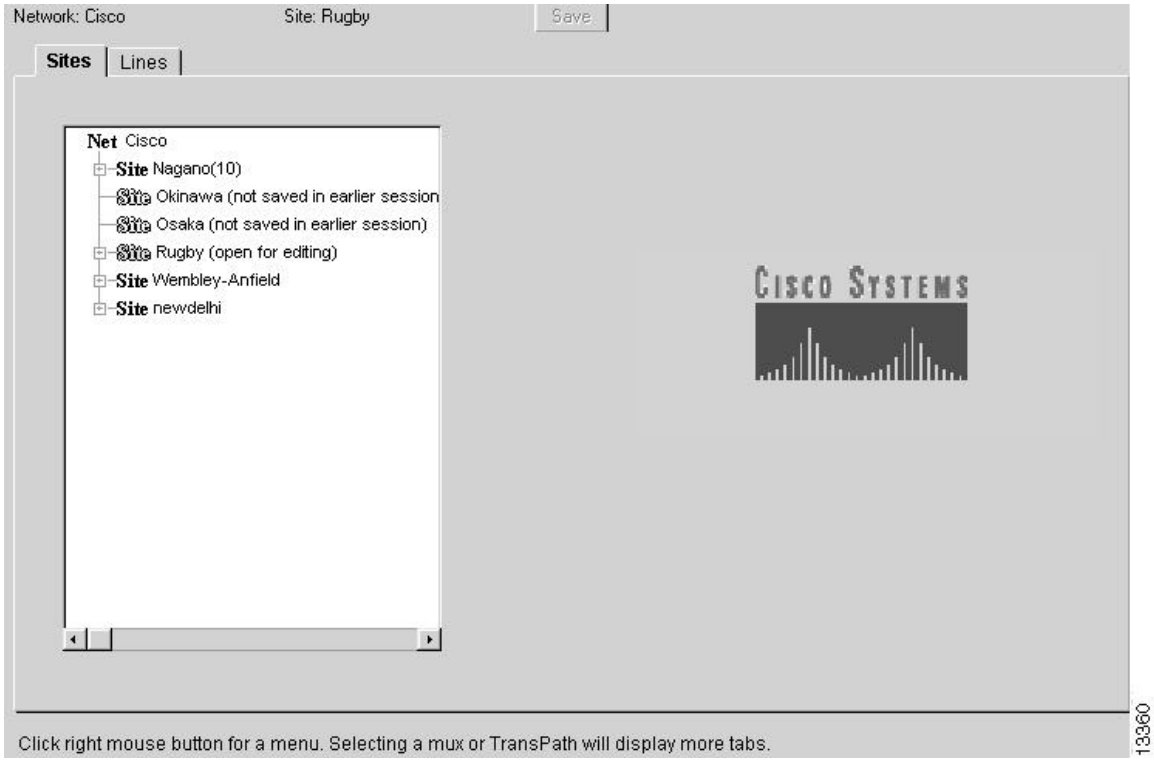
- Open for editing
- Locked for editing by another user
- Modified
- Not saved in earlier session

Whenever you or another user opens and makes changes in a site, that site is locked to other users. This prevents someone else from changing your data while you are working in a site. It also allows multiple users to work on specific sites at the same time. Each user can open only one site at a time. Locked sites are marked with a notice that they are in use. Your site, although open to you, will appear locked to other users.

> **Note**: If you happen to have exited an earlier session without saving your work (for example, if your system locked up) you will see two additional choices at the top of the Sites popup menu. (Refer to Section 4.2, "Save Your Work.")
>
> - Reattach to Previous Edits
> - Discard Previous Edits
>
> You will need to select one of these before you can resume working in the Configuration Tool.

When you first open a site (refer to Section 6.2.5, "Open"), the icon turns green and the site name is followed by the note "open for editing." When you have modified a site or its properties but have not yet saved changes, the entry tab is marked "modified." When another user is editing a site, the icon you see is grey and the site is marked "locked for editing by another user." (See Figure 6-4.)

Figure 6-4. Site Status



A site you were working on but left with abandoned edits or edits unsaved or discarded is marked "not saved in earlier session." Refer to Section 4.2, "Save Your Work."

When you select a site in the network tree and right-click on it, a popup menu appears showing the following options, as seen in Figure 6-5:

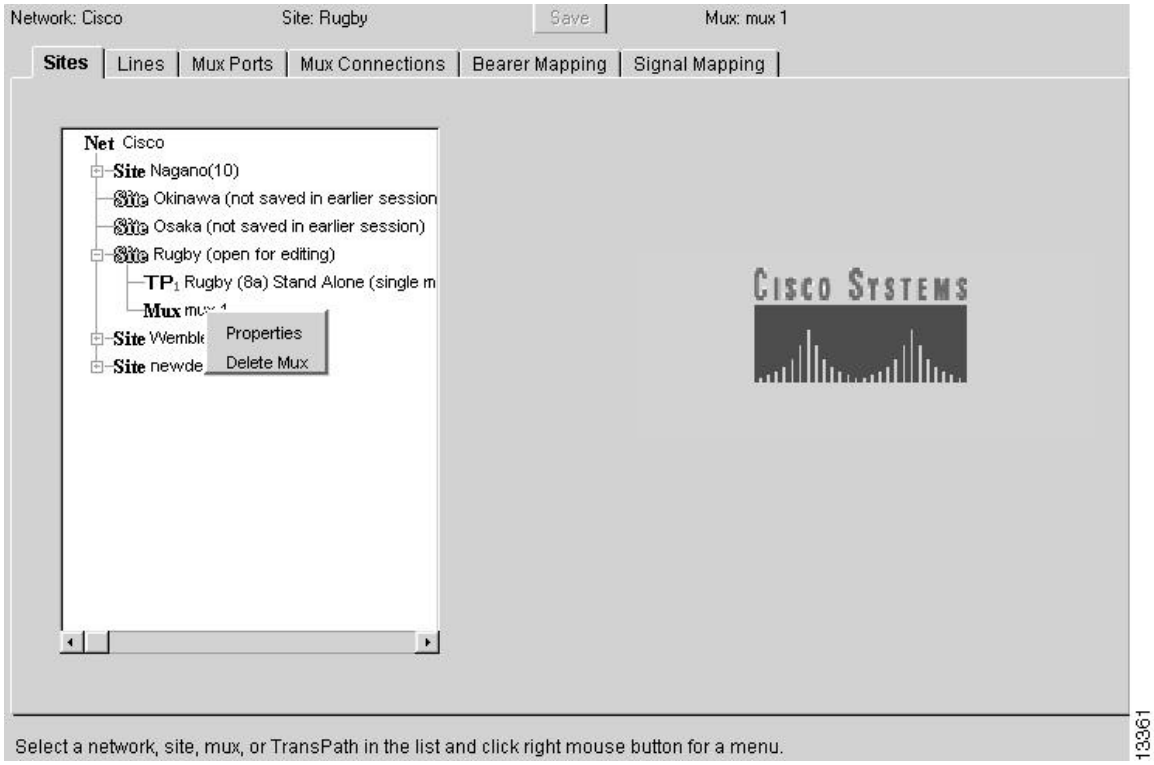
- Properties
- Delete site
- Add Mux
- Add TransPath
- Open
- Close
- Save
- Save as
- Build
- Deploy

By default, the network tree expands so that all sites are visible. The site entries do not expand by default, but any unlocked site appears with a + box in the tab. Click + to expand that site to see its mux and

TransPath components. (See Figure 6-1.) Click + again to collapse that part of the Network tree. Expanding a site does not open it for editing.

When you click on a mux component and right-click on it, the following popup menu appears. (See Figure 6-5.)

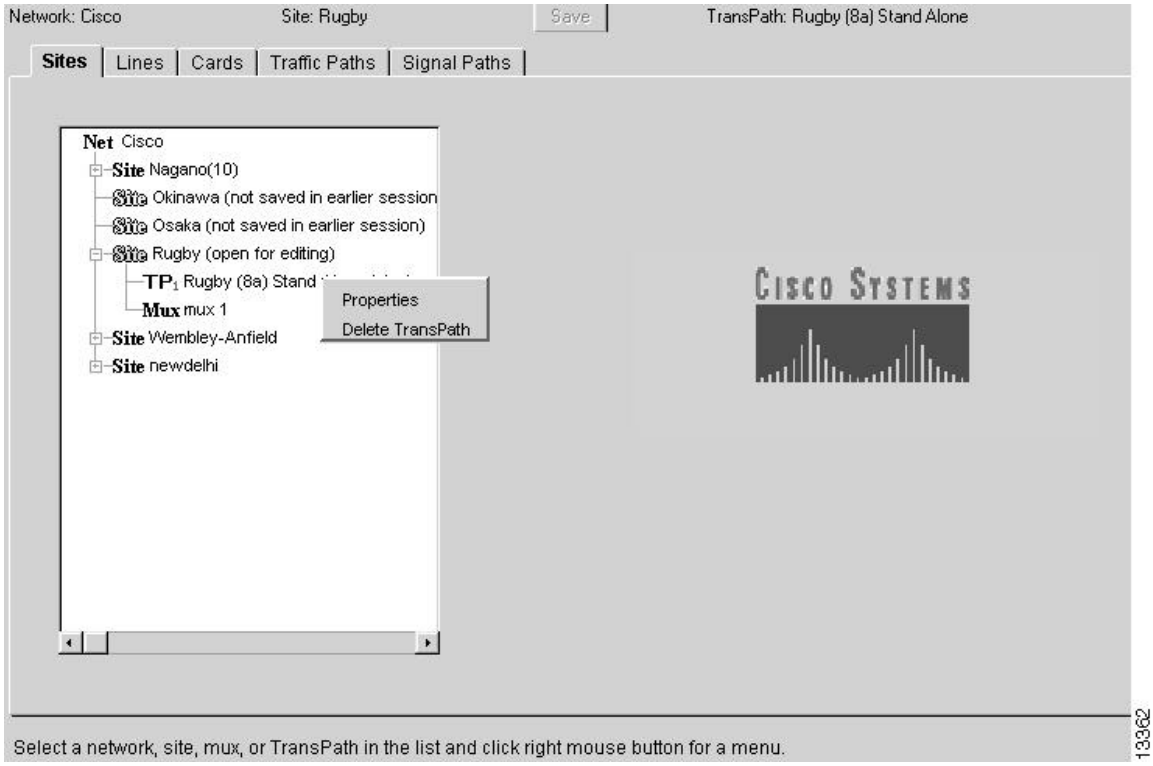
Figure 6-5. Mux Popup Menu



Here you can view or modify the mux properties or delete the highlighted mux component. These options are explained in sections 6.2.11, "Mux Properties," and 6.2.12, "Delete Mux."

When you select a TransPath component and right-click on it, the following popup menu appears. (See Figure 6-6.)

Figure 6-6. TransPath Popup Menu

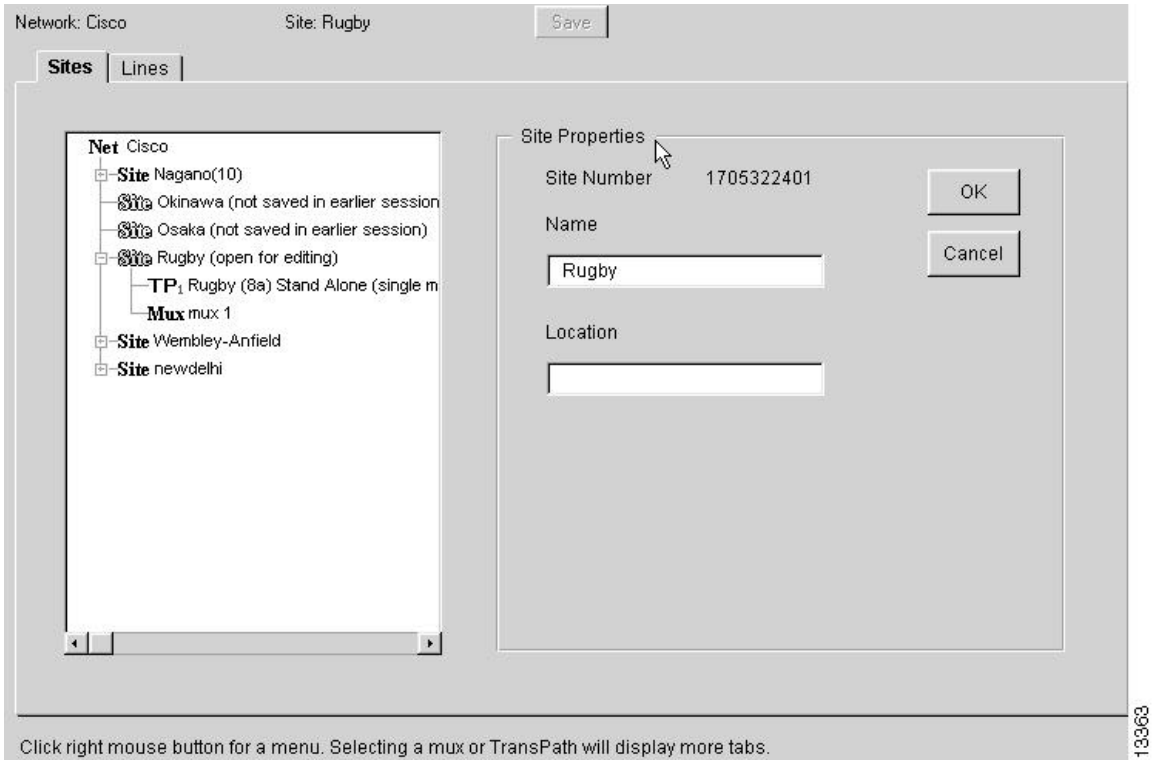


Here you can view or modify the TransPath properties or delete the highlighted TransPath component. These options are explained in sections 6.2.13, "TransPath Properties," and 6.2.14, "Delete TransPath."

6.2.1 Site Properties

When you select *Properties* from the Sites popup menu, a dialog box appears with the site number, name, and location. (See Figure 6-7.)

Figure 6-7. Site Properties Dialog Box

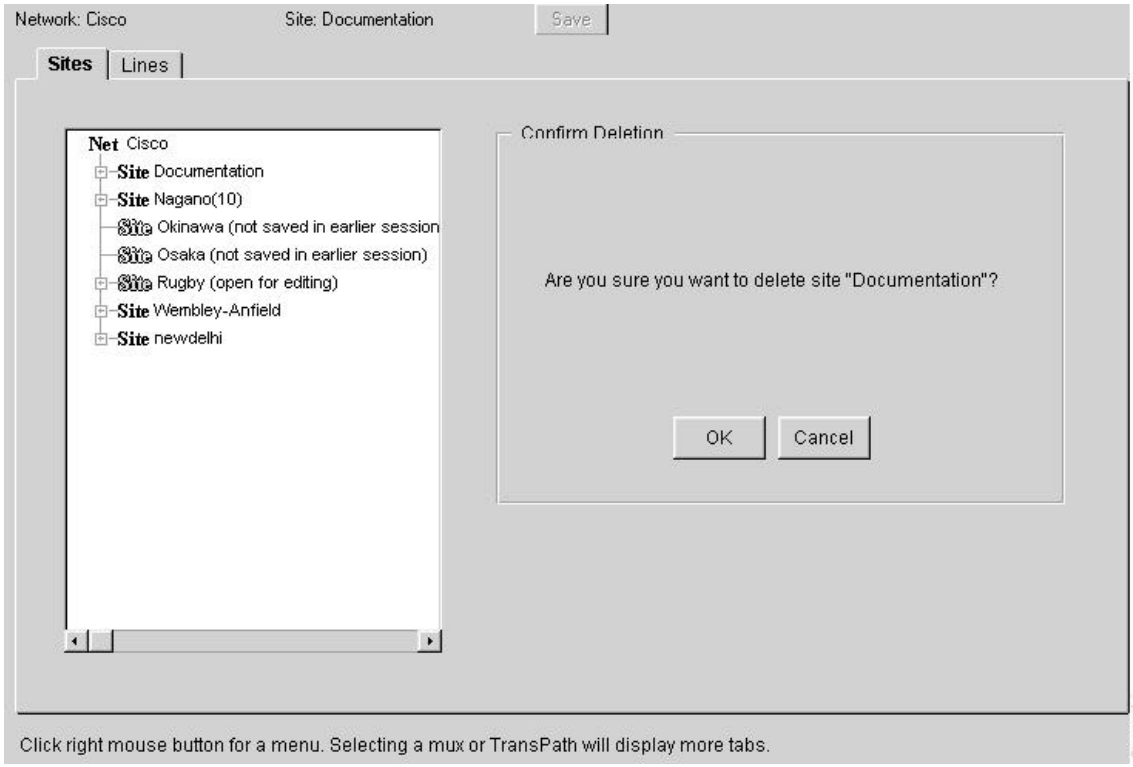


Here you can modify both the site name and the location string. When you click **OK**, the Configuration Tool verifies that the name is unique within the network and modifies the site. If the name is not unique, the Configuration Tool reports an error and you can try again.

6.2.2 Delete Site

This feature is enabled only if the selected site is not locked and has no mux component or TransPath component. When you click on **Delete Site** from the sites popup menu, a dialog box appears asking you to confirm that you want to delete this particular site. If you click **OK**, the Configuration Tool deletes it. If you decide you do not want to delete this site, click **Cancel** to stop the operation. (See Figure 6-8.)

Figure 6-8. Delete Site Dialog Box

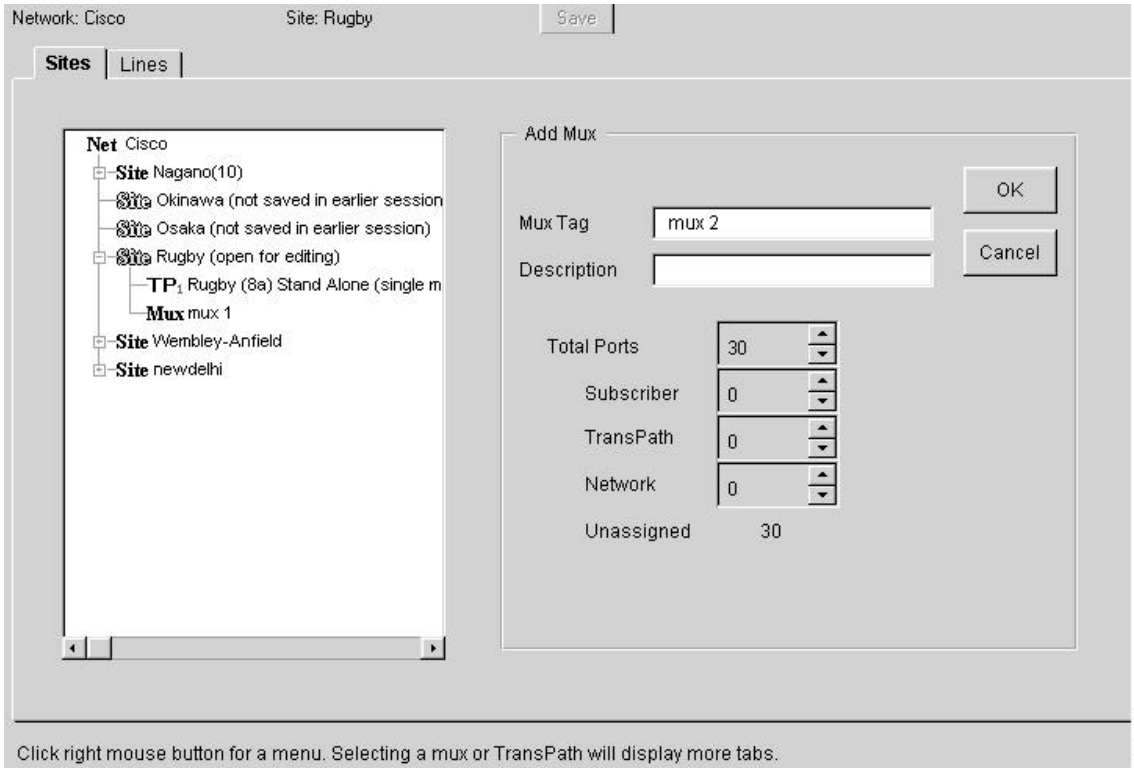


If you try to delete a site that has mux and TransPath components, you will see an error message that says you cannot delete a site that has mux or TransPath components.

6.2.3 Add Mux Component

This feature is enabled only if site is not locked or abandoned. When you select a site and choose **Add Mux** from the menu, a dialog box appears where you enter mux details. (See Figure 6-9.)

Figure 6-9. Add Mux Dialog Box



The mux number is a sequence number, the lowest number (greater than zero) not already used by a mux component in this site.

When you click **OK**, the Configuration Tool verifies that the mux tag is unique within the site. If the tag is not unique, the Configuration Tool reports an error and you can try again. If the tag is valid, it is added to the muxes for the particular site on the Network tree.

New mux ports are initialized based on the specified counts. A port sequence number and tag initialize each port. The port sequence number is a unique number within the mux. The tag is a string unique within the site. This tag is formed from the mux number, the port usage (**S**, **N**, **T**, or **U**), and a second sequence number within that usage. For example, in Mux 4 the first network port might have a sequence number 31 and tag
4-1-N. The port description and physical address are initially empty strings. The ports have the default line type and impedance specified in the database for the installation (for example, E1 and 75 ohms).

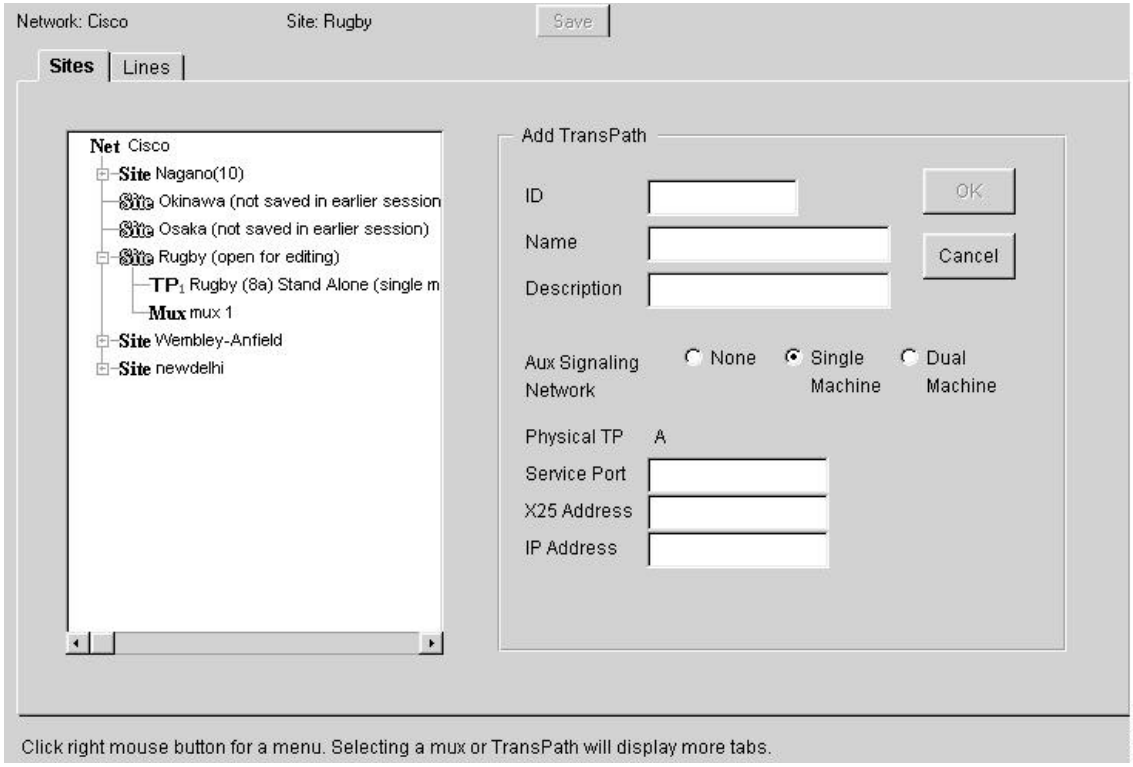
6.2.4 Add TransPath Component

This feature is enabled only if the site is not locked or abandoned. When you select a site and click on **Add TransPath** from the Sites popup menu, a dialog box appears where you can enter TransPath details. You can now select a site ID, a name, a maximum number of slots, and a description. You also click on the appropriate radio button to select whether you have an ASN.

- None¥ou will see no configuration choices to enter.
- Single¥ou will enter a service port, X25 address, and IP address.
- Dual¥ou will enter two service ports, X25 addresses, and IP addresses.

Figure 6-10 shows the data entry boxes for a single configuration.

Figure 6-10. Add TransPath Dialog Box



For each physical TransPath component, one for a single configuration and two for dual, you can specify a service port, an X.25 address, and an IP address. When you click **OK**, the Configuration Tool verifies that the name is unique within the site and modifies the TransPath component. If the name is not unique, the Configuration Tool reports an error and you can try again.

To configure the ASN manually (that is, without using the Configuration Tool), refer to Section 6.4, "Configuring the Auxiliary Signaling Network (ASN)" in *the TransPath System Software Operations/Maintenance Guide*.

Caution Any changes made manually (without the Configuration Tool) will be overwritten by subsequent changes made using the Configuration Tool.

It is recommended that you use the Configuration Tool to configure the ASN.

6.2.5 Open

When you modify the properties of a site by adding, modifying, or deleting a TransPath component or mux component, the site is opened to you for editing and locked to other users. The site is marked "modified." You can also open a site by highlighting it, right-clicking on it, and selecting **Open** or **Properties** from the popup menu. Clicking on a site without further action does not open it. The icon in the network tree changes to show that the site is open; the site is marked "open for editing." (See Figure 6-4.)

Expanding a site to show its TransPath and mux components without making any changes does not open the site. However, if you select a site, TransPath component or mux component in the tree and click on a different tab of the Configuration Tool, the site is opened.

6.2.6 Close

This feature is enabled only if a site is open. When you click **Close** from the site popup menu, the site icon is no longer highlighted and the notation "open for editing" disappears. You are prompted to save or discard your changes or go back to the Sites tab. If you choose to save or discard your changes, you then exit the Configuration Tool.

The correct way to exit the Configuration Tool is by closing your open site from the **Close** option. Closing the Configuration Tool properly unlocks the site you have been working on so that others can work on it as needed. If you fail to exit the Configuration Tool using **Close**, the site remains locked and you will have to either save or discard your latest changes when you open it again.

> **Note**: Whenever you will be away from your work for more than 5 minutes, we recommend you save your work and close your site.

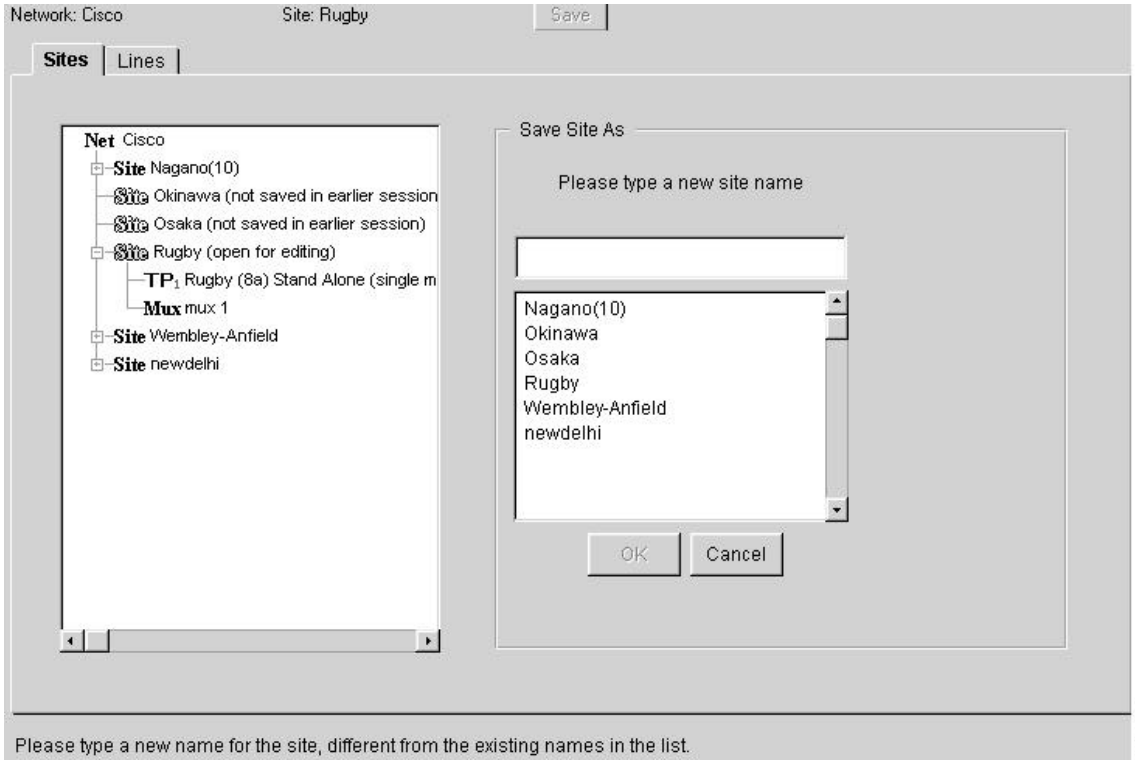
6.2.7 Save

This feature is enabled only if site is open. When you make changes to a site or its properties, you must save them to make them permanent. Do this by selecting **Save** from the site popup menu or by clicking on the **Save** button above the tabs. When the save action ends, the site notation changes from "modified" to "open for editing" for the site entry in the tree. Figure 6-7 shows site entries that have not yet been saved with their notations.

6.2.8 Save As

This feature is enabled only if a site is open. When you choose **Save As** from the site popup menu, a dialog box appears where you enter the filename and location. (See Figure 6-11.)

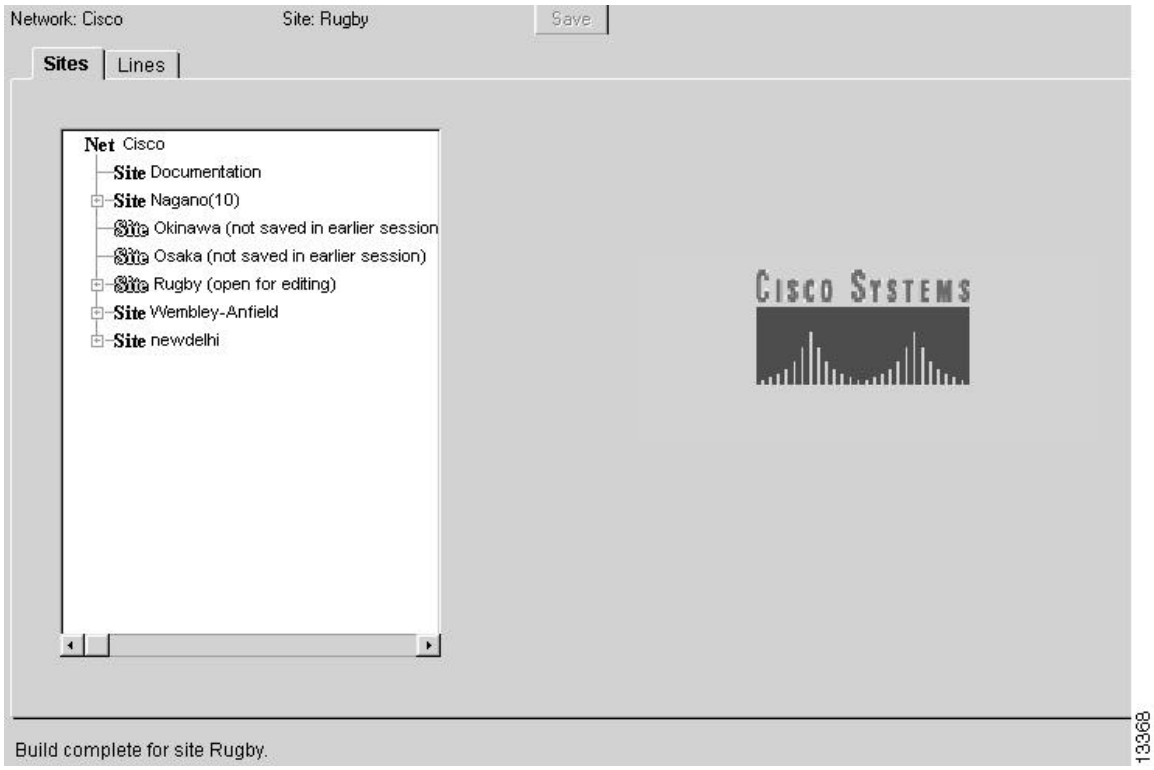
Figure 6-11. Save As Dialog Box



6.2.9 Build

To build a site, highlight it, right-click on it, and select **Build** from the popup menu. You do not have to open a site to build it. This operation is usually invisible to you. When the build is complete, a message appears at the bottom left part of your screen display. (See Figure 6-12.)

Figure 6-12. Build Complete Message



If data is incomplete or the Configuration Tool recognizes some other problem with the current database information for the site you are building, you will see a message with a description of the possible problems. (See Figure 4-9.) You then have the option to cancel the operation or execute the build as is. If the site was closed when you selected **Build**, it will be open for editing when the build is complete.

The build function creates flat files from the data you have input for your sites. This is the format the TransPath system uses. When you have finished making changes to your sites, you are ready to save those changes and build the flat files.

6.2.10 Deploy

To deploy a site, highlight it, right-click on it, and select **Deploy** from the popup menu. You do not have to open a site to deploy it. This operation is usually invisible to you. When the deployment is complete, a message appears at the bottom left part of your screen display. (See Figure 4-8.)

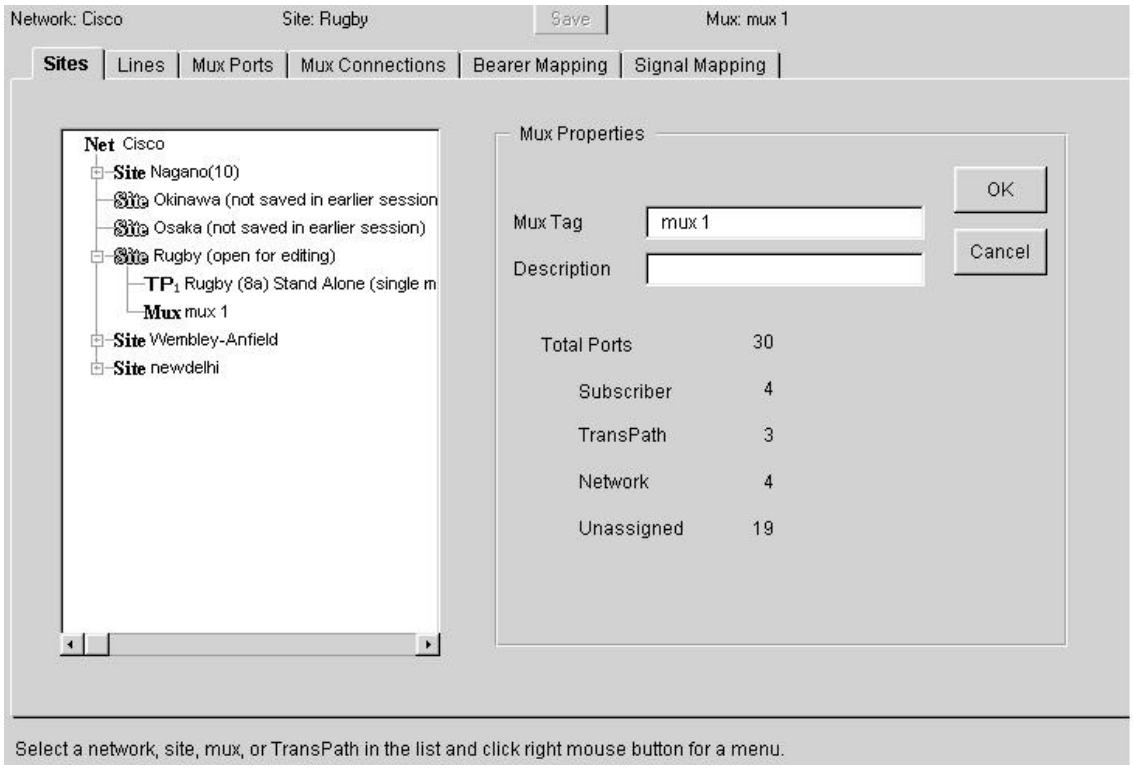
If data is incomplete or the Configuration Tool recognizes some other problem with the current database information for the site you are deploying, you will see a message with a description of the possible problems. (See Figure 4-9.) You then have the option to cancel the operation or execute the deployment as is. If the site was closed when you selected **Deploy**, it will be open for editing when the deployment is complete.

The deploy function sends the flat files you have created to the TransPath system data repository. The current files remain in the repository in case a problem occurs with the new data. In that case, the TransPath system can continue to run while you make necessary corrections in the Configuration Tool.

6.2.11 Mux Properties

When you select a mux in the network tree and choose **Properties** from the popup menu, a dialog box appears. (See Figure 6-13.)

Figure 6-13. Mux Properties Dialog Box



In this box you can modify the tag and the description (you do not have to enter a description); the port counts appear as fixed text. After you make entries and click on **OK**, the Configuration Tool verifies that the tag is still unique within the site and modifies the mux. If the tag is not unique, the Configuration Tool reports an error and you can try again. The port counts are not editable when you are viewing an existing mux. To modify ports in an existing mux, you must use the Ports tab, described in Chapter 7, "Mux Ports."

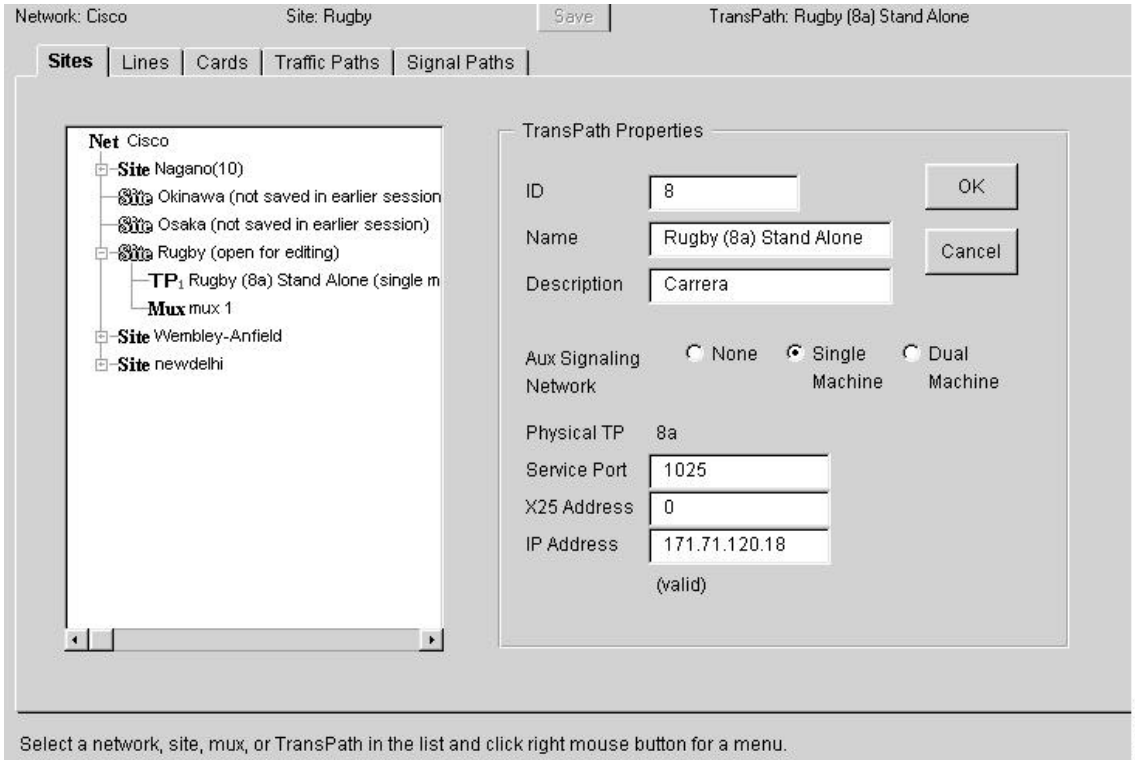
6.2.12 Delete Mux

This feature is enabled only if the mux has no connected ports. When you highlight an unconnected mux in the network tree and right-click on it, you can choose either **Properties** or **Delete Mux** from the popup menu. If you choose **Delete Mux**, a dialog box appears asking you to confirm that you want to delete this mux. Click **OK** if you want to delete it or click **Cancel** to stop the operation.

6.2.13 TransPath Properties

When you select a TransPath component in the network tree, right-click on it, and click **Properties** from the popup menu, a dialog box appears. (See Figure 6-14.)

Figure 6-14. TransPath Properties Dialog Box



In this box you can view or modify the ID, name, ASN, service port, X25 address, IP address, and description; the Physical TP appears as fixed text. After you make entries and click **OK**, the Configuration Tool verifies that the ID and Name are still unique within the site and modifies the

TransPath component. If they are not unique, the Configuration Tool reports an error and you can try again.

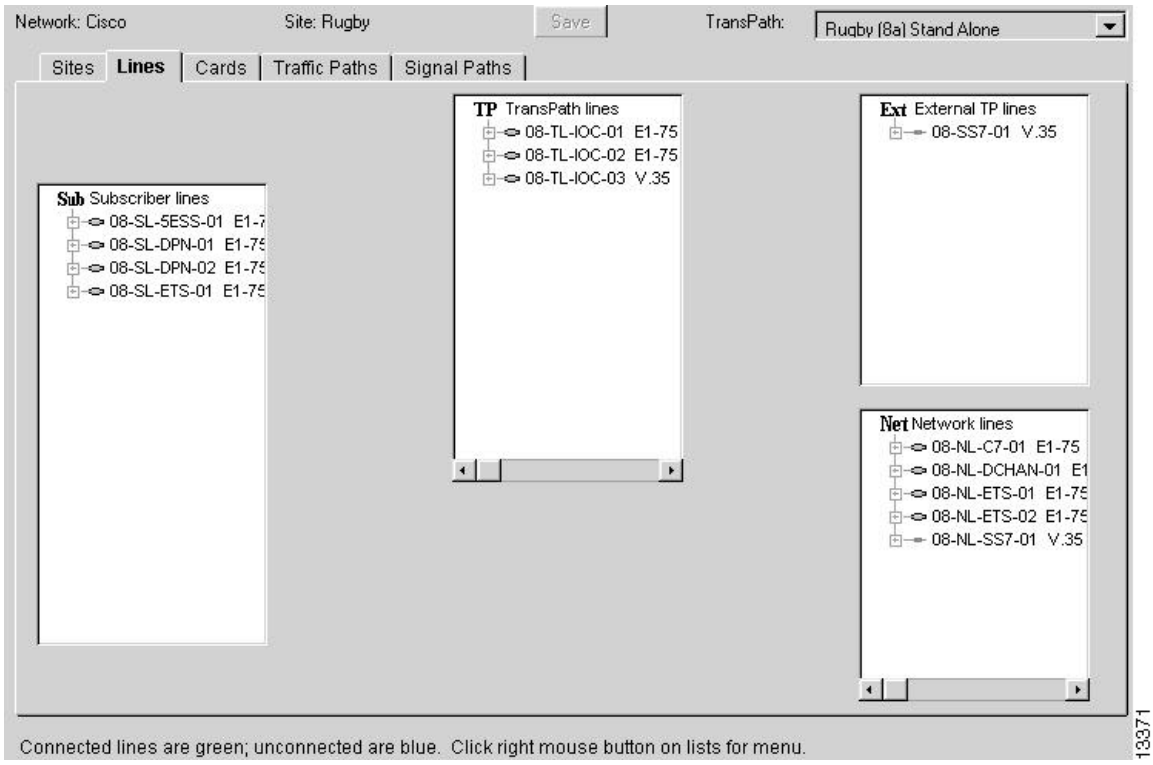
6.2.14 Delete TransPath

This feature is enabled only if the TransPath component has no connected lines. When you click on a TransPath component from the network tree and right-click on it, a popup menu appears. Choose **Delete TransPath** from the menu. A dialog box will appear asking you to confirm that you want to delete this TransPath component. Click **OK** if you want to delete it or click **Cancel** to stop the operation.

7. Lines

After you have selected a site to work with, the Lines tab appears to the right of the Sites tab. The Lines tab is available whether you have created a site, a mux component, or a TransPath component on the Sites tab. The Lines tab shows the lines for the selected site, grouped into separate lists for subscriber, network, TransPath**,** and external (non-mux) lines. (See Figure 7-1.)

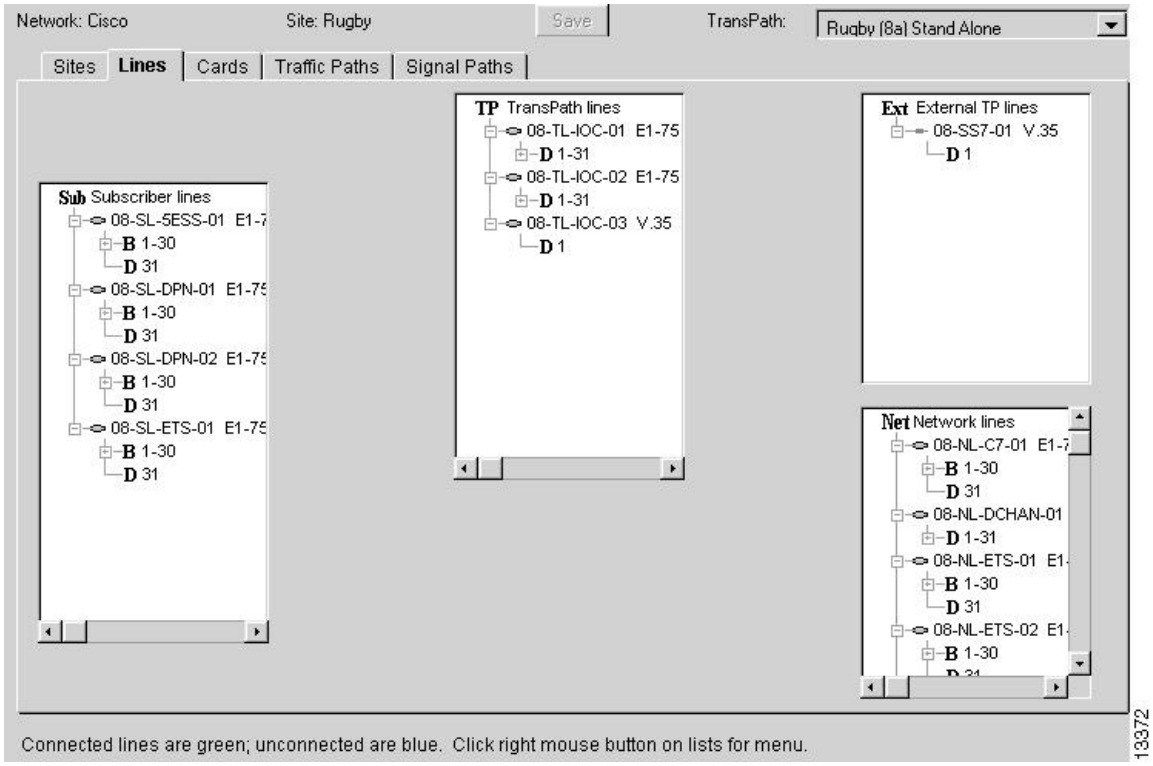
Figure 7-1. Lines Tab



The subscriber, TransPath, and network lists refer to lines that connect to the mux. External lines are signaling lines that go from the network directly to the TransPath component without passing through the mux component.

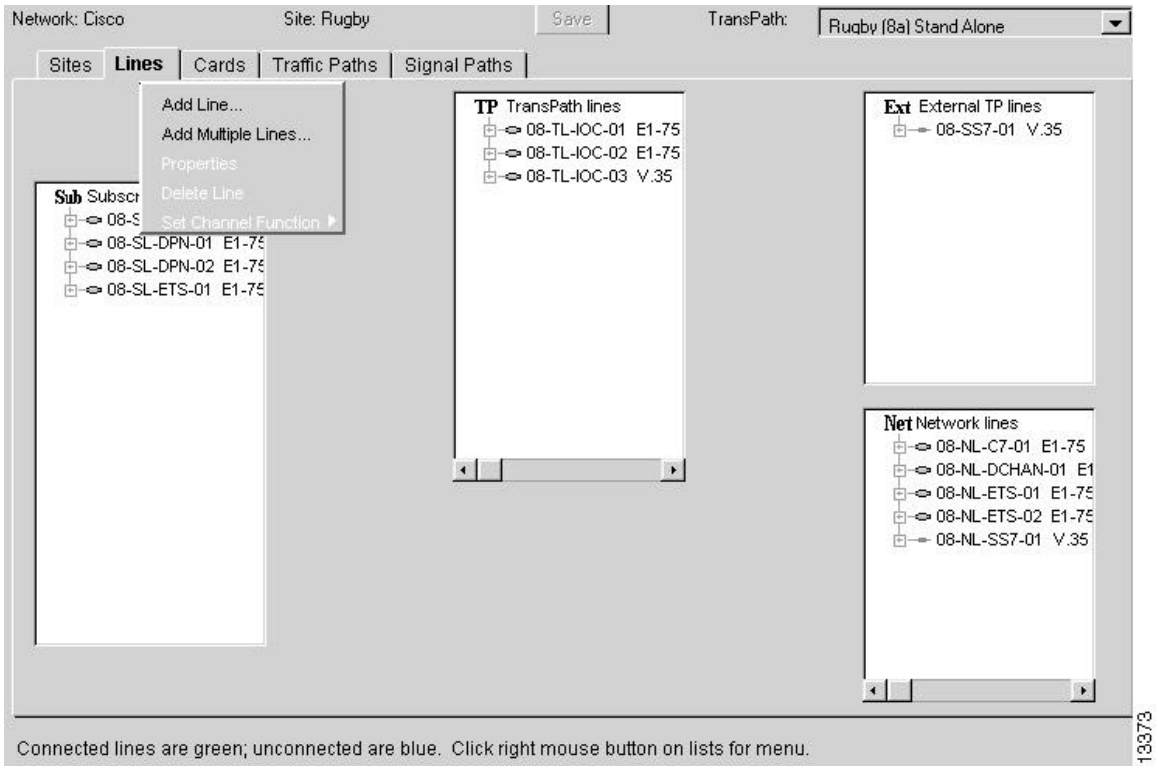
Each node in a list shows a line icon, a line tag, and line type. When you click on a line, the channels appear. To make the data easier to manage, it is displayed in groups of channels by usage. You can expand this node and see all channels individually. (See Figure 7-2.)

Figure 7-2. Expanded Lines List



When you right-click in this tab, even if you have not highlighted a line, a popup menu appears with the following options. (See Figure 7-3.)

Figure 7-3. Lines Tab Popup Menu



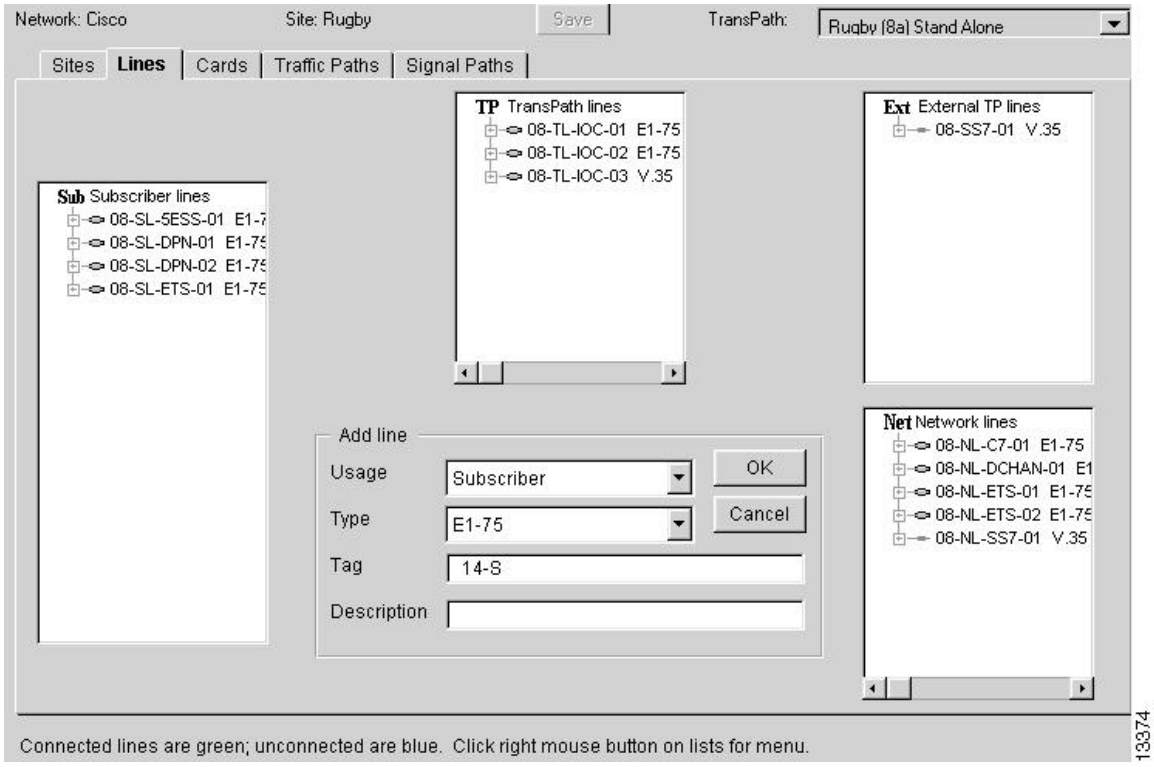
When you select a channel, this menu allows you to set its type to B, D, X, or A (for bearer, signaling, blocked, or administrative). You can do this for a single channel, for one or more groups of channels, or for all the channels on one or more lines. (Refer to Section 7.5, "Set Channel Function.")

The tree supports multiple selections of non-adjacent nodes and you can select different levels at the same time (mixing lines, groups, and channels). When you change the functions of one or more channels, the tree adjusts its group display so that it still shows groups for adjacent channels of a given function.

7.1 Add Line

When you choose **Add Line** from the popup menu, the line dialog box appears showing the tag; you can specify the type and impedance (as drop-down selections), and the description (optional). (See Figure 7-4.)

Figure 7-4. Add Line Dialog Box



The sequence number of the tag is just the first available line sequence number within the site, not within that line type. You can change the tag to a word, number, or combination, but the default is to assign the next number in sequence, a hyphen, and the initial letter for the type of line (S for subscriber, N for network, and so on.) The default usage and type depend on where the menu was opened.

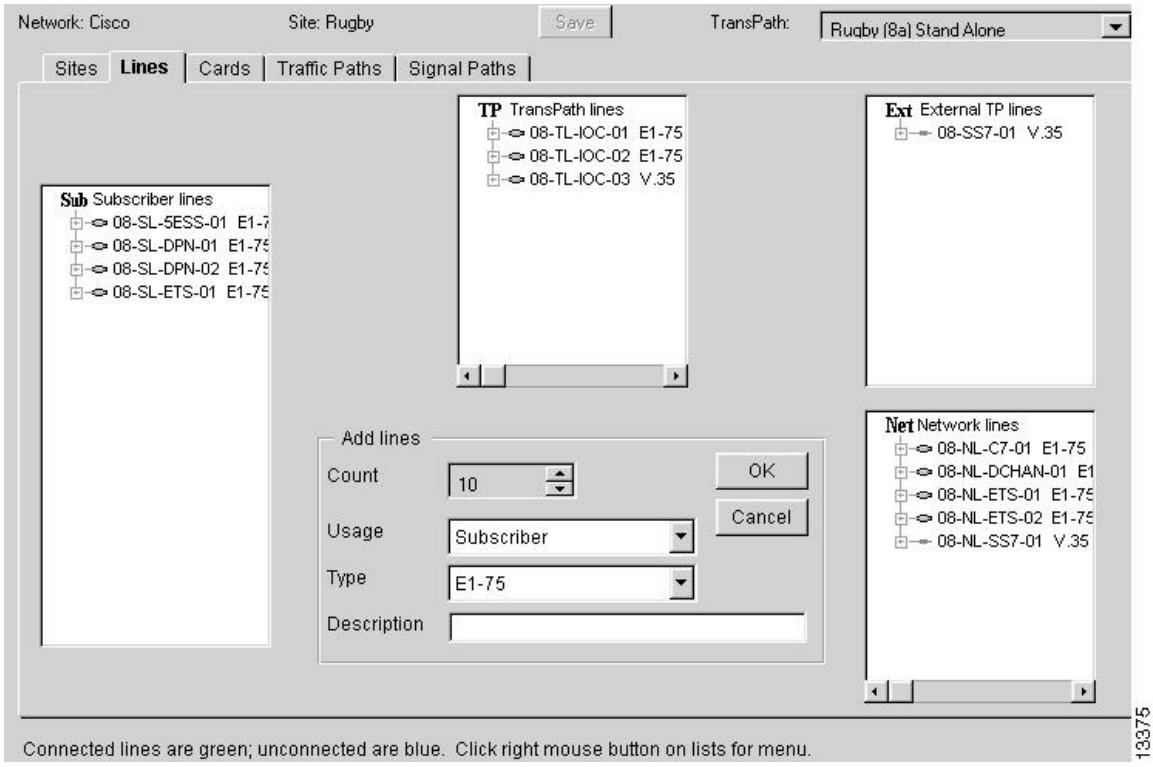
During an **Add Line** operation, the Line Detail dialog box has buttons for **OK** and **Cancel**. When you click **OK**, the Configuration Tool verifies that the new line has a unique tag, then adds the new line to the list. If the tag is not unique, you see an error message and you can try again.

When you are a adding a line and have not yet selected **OK** or **Cancel**, the Configuration Tool does not let you change your selection or view a different tab until you click on one of the two buttons.

7.2 Add Multiple Lines

When you choose **Add Multiple Lines** from the menu, you will see a variation on the Line dialog box. (See Figure 7-5.)

Figure 7-5. Add Multiple Lines Dialog Box



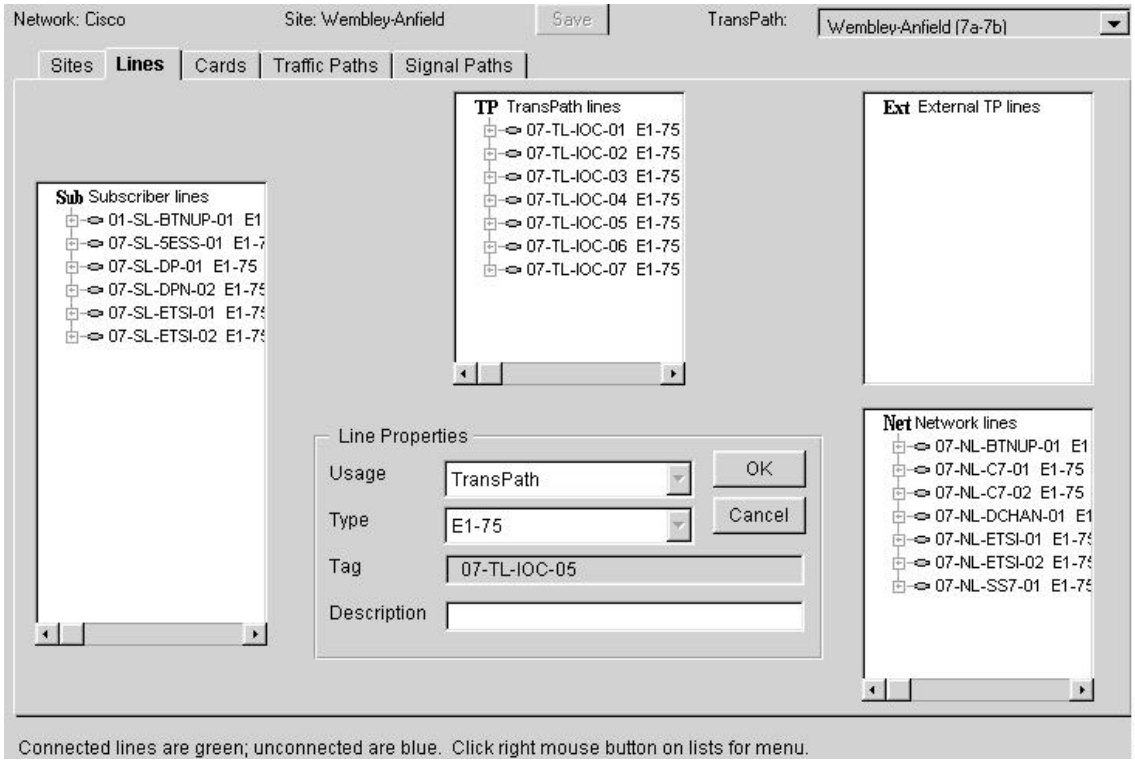
Here you can specify the number of lines to be added, their usage, their type and impedance, and a common description (optional) to be used for all the newly created lines.

When you click **OK**, the new lines are created as specified. A range of sequence numbers is assigned and tags are generated based on the usage and a per-usage sequence number. See Section 7.3, "Line Properties," for information about how you can change these tags.

7.3 Line Properties

When you select a line in one of the lists and choose **Properties**, the Line Properties dialog box shows details on the selected line. These details include usage, type, tag, and description (optional). You cannot change the usage (apart from deleting the line and adding a new one), but you can choose a different type and modify the tag and description. If the line is connected, you can modify its description but not its type or tag. (See Figure 7-6.)

Figure 7-6. Line Properties Dialog Box



When you click **OK**, the Configuration Tool verifies that the line still has a unique tag. If it does, the appropriate list is updated. If it does not, it shows an error message and you can modify the tag and try again.

When you have made changes and have not yet selected **OK** or **Cancel**, the Configuration Tool does not let you change your selection or view a different tab. You must first choose **OK** or **Cancel** to finish the current operation.

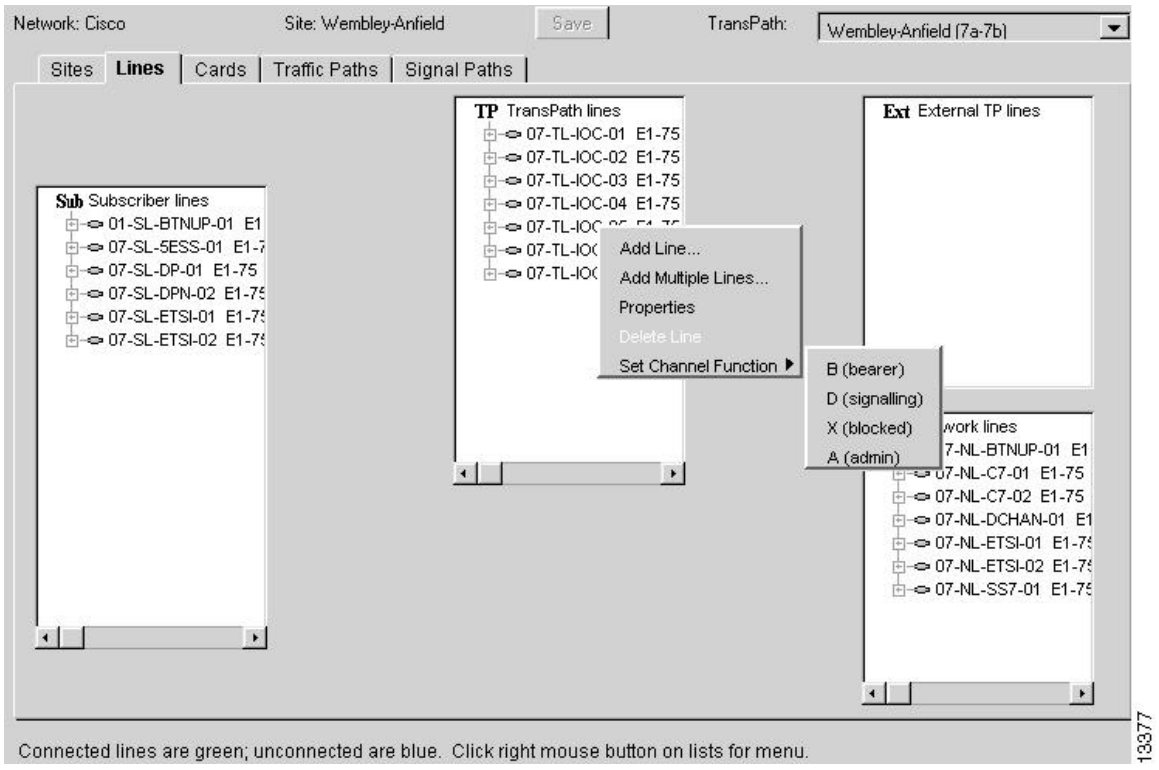
7.4 Delete Line

If you select one or more unconnected lines in one of the lists and choose **Delete Line** from the menu, the selected lines are deleted. A line cannot be deleted if it is connected to a port or to a line interface (LIF). If you select a connected line, the **Delete Line** option is disabled.

7.5 Set Channel Function

When you expand a line in one of the lists, you see its channels. Each channel or group of channels is identified with a channel number and a function letter **B** (bearer), **D** (signaling), **X** (blocked), or **A** (administrative). Each channel is also marked as *mapped* or *not mapped*. When you create a line, it is given an initial set of channel numbers based on the line type. The channels are initially all bearer channels. You can modify the functions of unmapped (but not of mapped) channels by selecting them, right-clicking on the channel, group of channels, or line, and choosing **Set Channel Function** from the popup menu that appears. (See Figure 7-7.)

Figure 7-7. Line Channels Popup Menu



To highlight non-sequential channels for which you want to set channel functions, hold down the **Ctrl** key and click on the channels to select them. Then select **Set Channel Function** and select **B**, **D**, **X**, or **A**. To set or reset all the channels in a particular line at one time, highlight the line, right-click on it, and select **Set Channel Function**. You can have different channel functions within a single line type.

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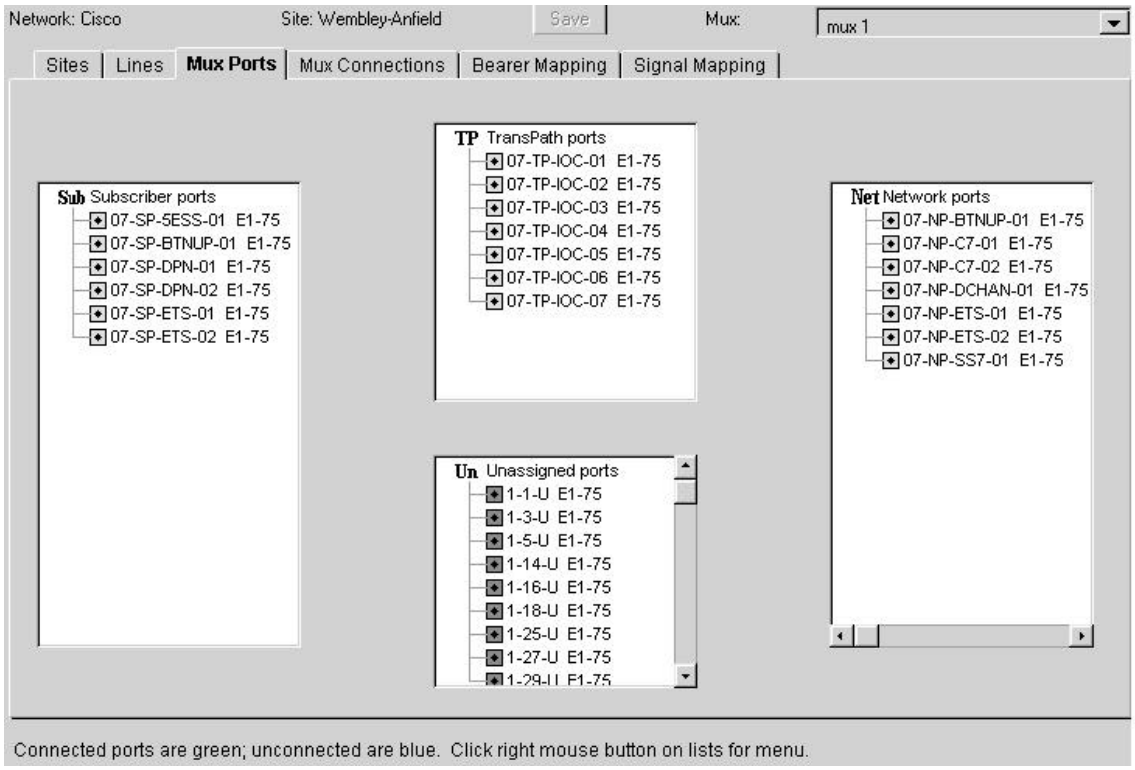
8. Mux Ports

The Mux Ports tab appears when you select a mux in the Sites tab. In this tab, you work with information about mux ports. The ports for the selected mux are displayed in four lists: subscriber ports, network ports, TransPath ports, and unassigned ports. (See Figure 8-1.)

Figure 8-1. Mux Ports Tab



You can make multiple selections in a mux port list. You cannot make selections in multiple lists, so when you select in one list, selections in any other list are canceled.

Each entry shows a single port's tag, type (for example, E1 or V35), and impedance (for example, 75 ohms). Its icon is color-coded to show whether the port is connected: green if this port is connected to a line and blue if this port is not connected to a line.

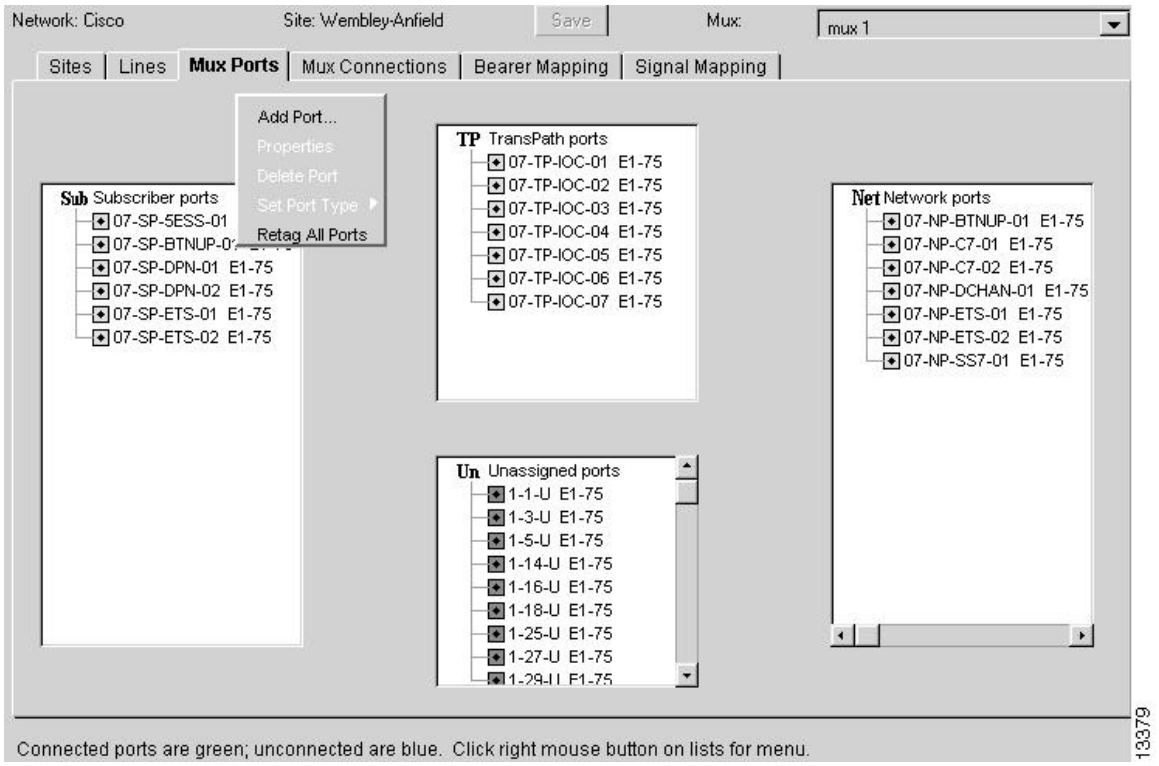
The Configuration Tool displays blue here for unconnected ports here rather than yellow because if a port is unconnected at this point it does not mean that this operation is incomplete. In general, the Configuration Tool reserves yellow for items that are incomplete or need attention in the current operation. A reminder about the color coding appears below the tab.

When you first create a set of ports, they are all unconnected; you will see only connected ports here if you switch back to this tab after you have connected them.

If you want to work with a different mux, you do not have to return to the Sites tab to select it. Instead, you can click on the mux name in the box at the upper right above the tabs (or click on the arrowhead in the box) to see the mux list. Highlight the mux you want to work with and it appears in the box. The ports for this mux are now displayed in the lists in the Mux Ports tab.

When you right-click in this tab, a popup menu appears. (See Figure 8-2.)

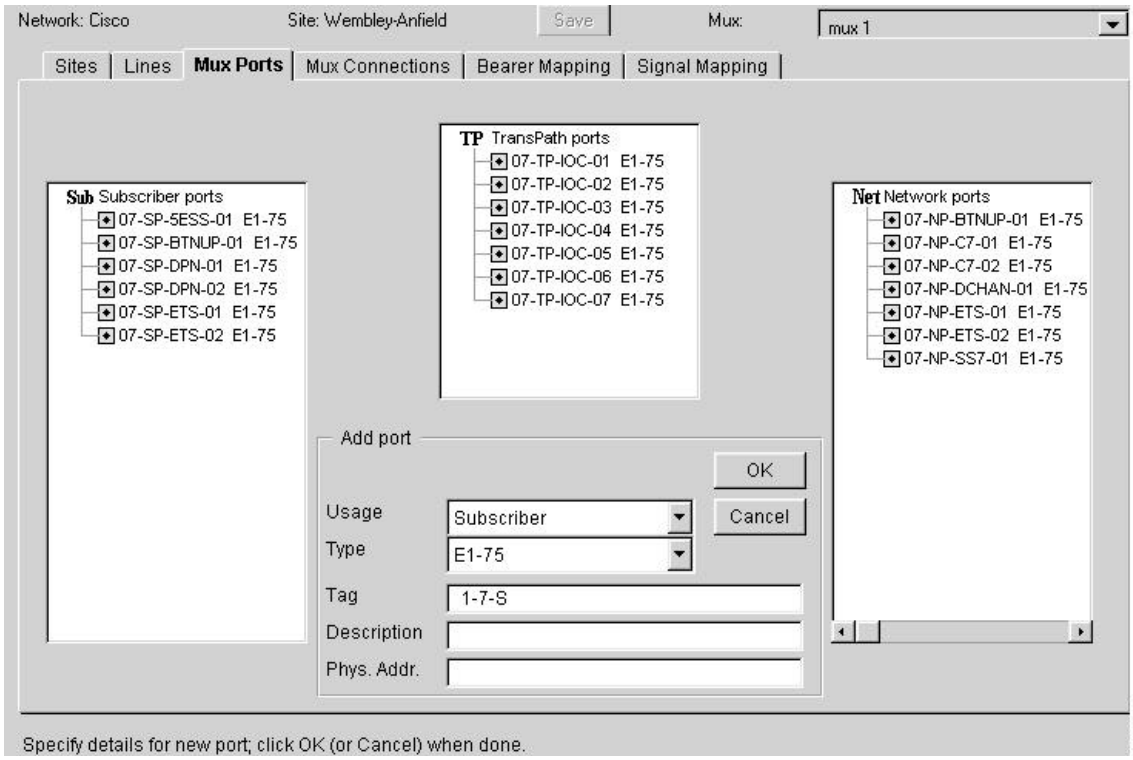
Figure 8-2. Mux Ports Popup Menu



8.1 Add Port

When you choose **Add Port** from the popup menu, you can specify details about the new port in the dialog box that appears. The initial usage for the new port depends on which list you selected on the menu. The tag string is based on the mux number, sequence, and choice of usage. The port sequence number is just the first available port sequence number in the mux. The description and the physical address (which are both optional) are blank. (See Figure 8-3.)

Figure 8-3. Add Port Dialog Box



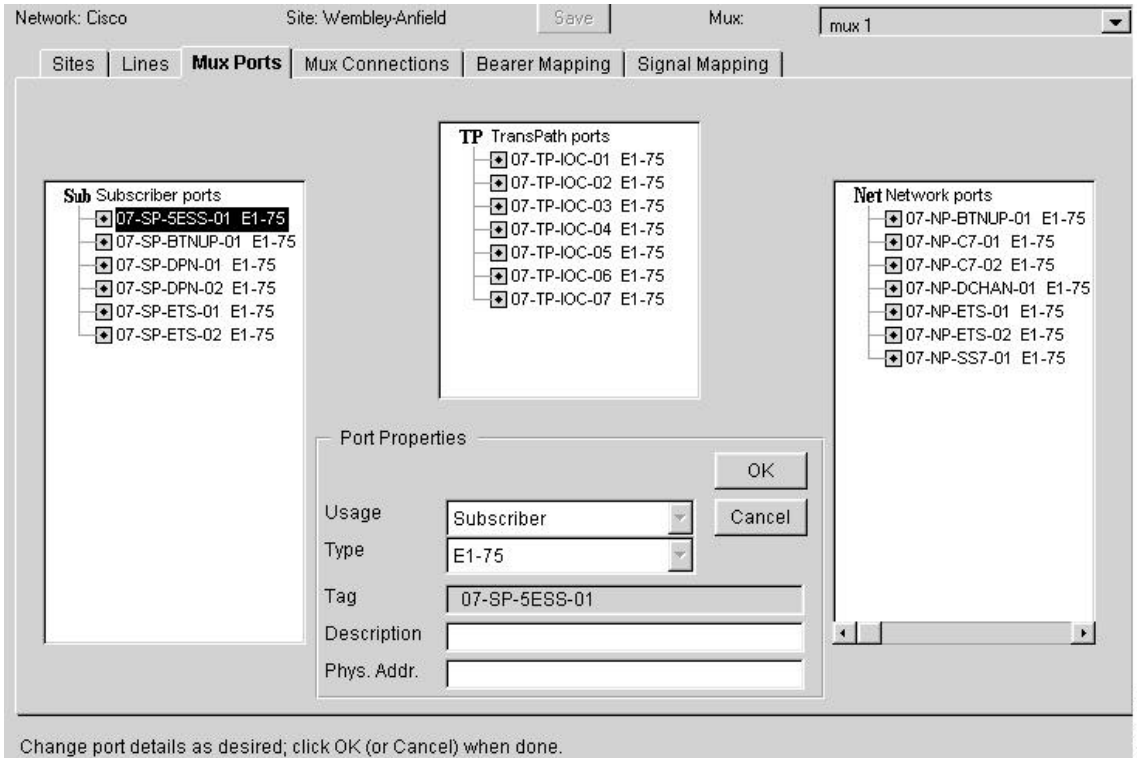
When you click **OK**, the Configuration Tool verifies that the new port has a unique tag. The new port is then added to the end of the list for the usage designated for the port. If the tag is not unique, an error message appears and you can modify the tag and try again.

When you are adding a port and have not yet selected **OK** or **Cancel**, the Configuration Tool does not let you change your selection or view a different tab or mux. To finish the current operation, you must click on one of the two buttons.

8.2 Mux Ports Properties

When you select a port in one of the lists, right-click on it, and choose **Properties** from the popup menu, a dialog box appears showing details about the selected port. (See Figure 8-4.)

Figure 8-4. Mux Ports Properties Dialog Box



This dialog box normally appears in the bottom center of the Ports tab, covering the Unassigned Ports list. However, when you view details for an unassigned port, the dialog box appears in the top center (covering the TransPath Ports list).

The line types shown are based on a list of possible line types obtained from the database.

If you change the usage for an unconnected port, the Configuration Tool generates a new tag based on the mux number, the new usage, and the highest sequence number already assigned for this usage. You cannot change the usage of a connected port.

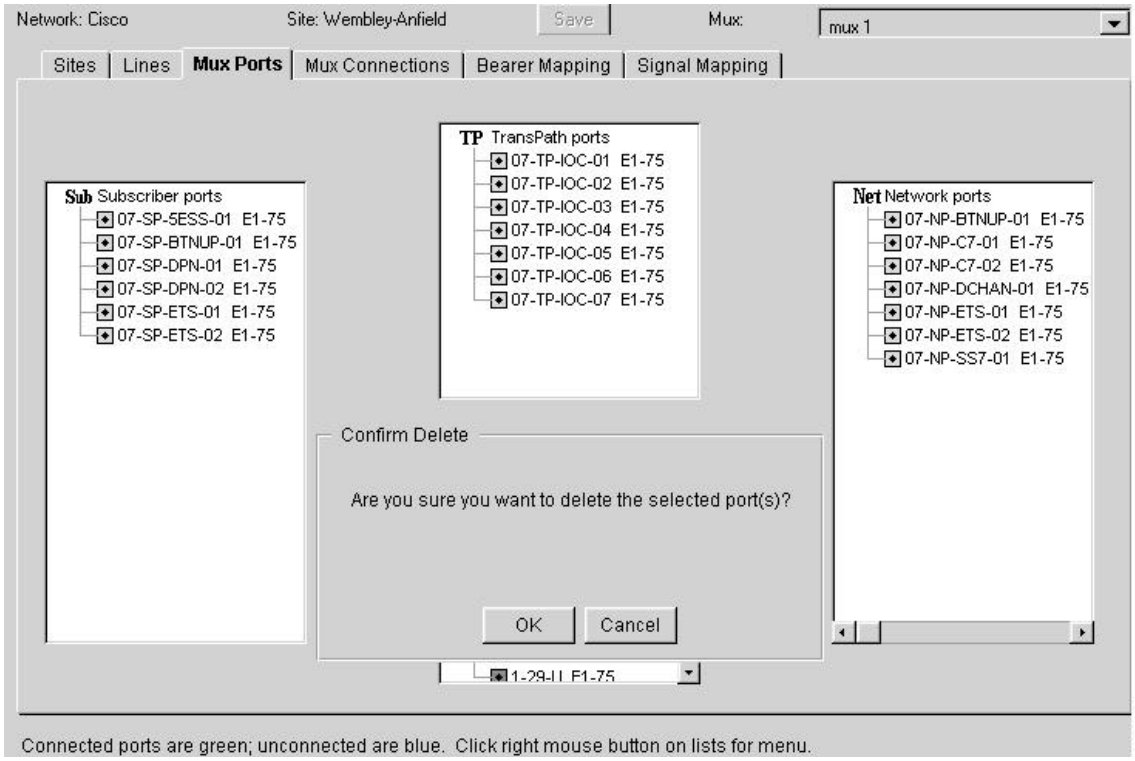
When you click **OK**, the Configuration Tool verifies that the port has a unique tag. If it does, the appropriate list is updated. If you have changed the usage, the port is removed from its current list and added to the list for its new usage. If the port tag is not unique, the Configuration Tool shows an error message and you can modify the tag and try again.

When you make changes and have not yet selected **OK** or **Cancel**, the Configuration Tool does not let you change your selection or view a different tab. You must first click on one of the two buttons to finish the current operation.

8.3 Delete Port

When you select one or more unconnected ports, right-click on the selection, and choose **Delete Port** from the popup menu, you will see a dialog box that asks you to confirm that you want to delete the selected port(s). If you click **OK**, the selected ports are deleted from the list. Click **Cancel** to stop this operation. (See Figure 8-5.)

Figure 8-5. Confirm Delete Dialog Box



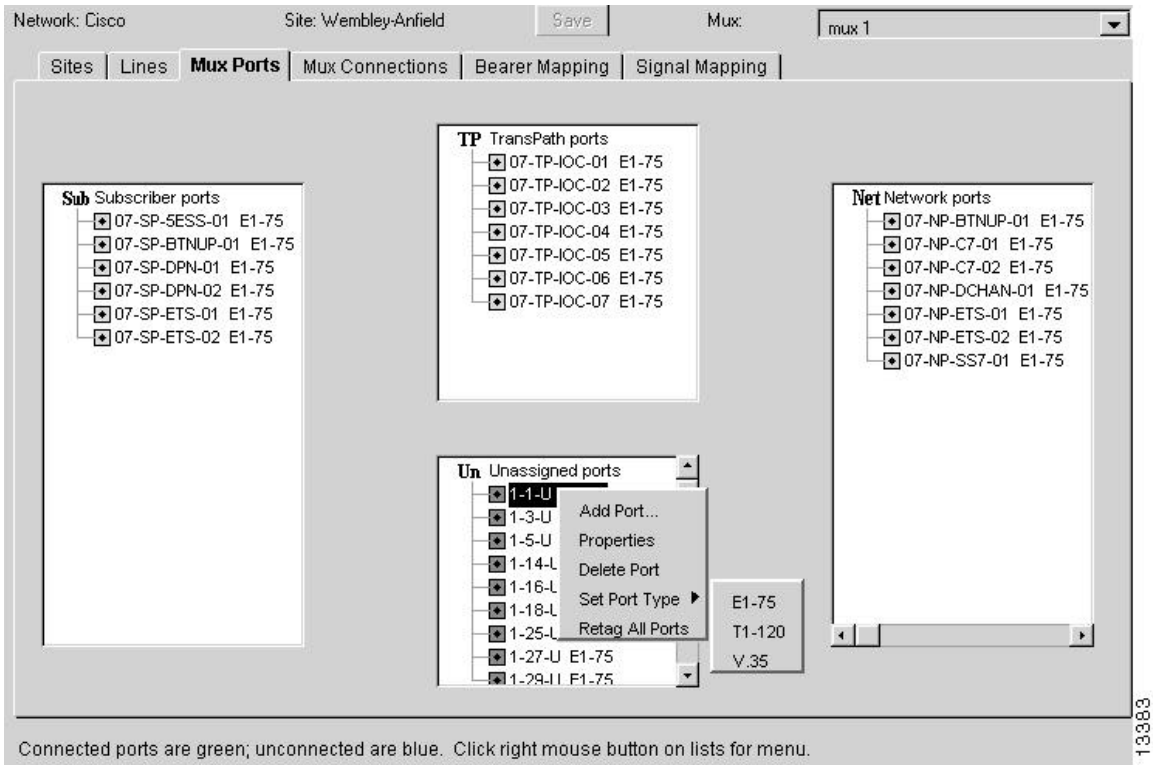
Because the tags for any following ports are not automatically modified, there may now be a gap in the sequence numbering. You can fix the sequence from the popup menu (see Figure 8-4) one port at a time using **Properties** (see Section 8.2, "Mux Ports Properties") or fix the whole list at once using **Retag Ports** (see Section 8.5, "Retag Ports").

A port cannot be deleted if it is connected to a line. If you select a connected port, the **Delete Port** selection is disabled.

8.4 Set Port Type

You can change the type for a single port by following the procedures in 8.2, Mux Ports Alternatively, you can change the type for one or more ports at one time by selecting them, right-clicking, and choosing **Set Port Type** from the popup menu. The dialog box shows a list of port types based on the database. When you choose a type from the list, the ports are changed. (See Figure 8-6.)

Figure 8-6. Set Port Type Popup Menu

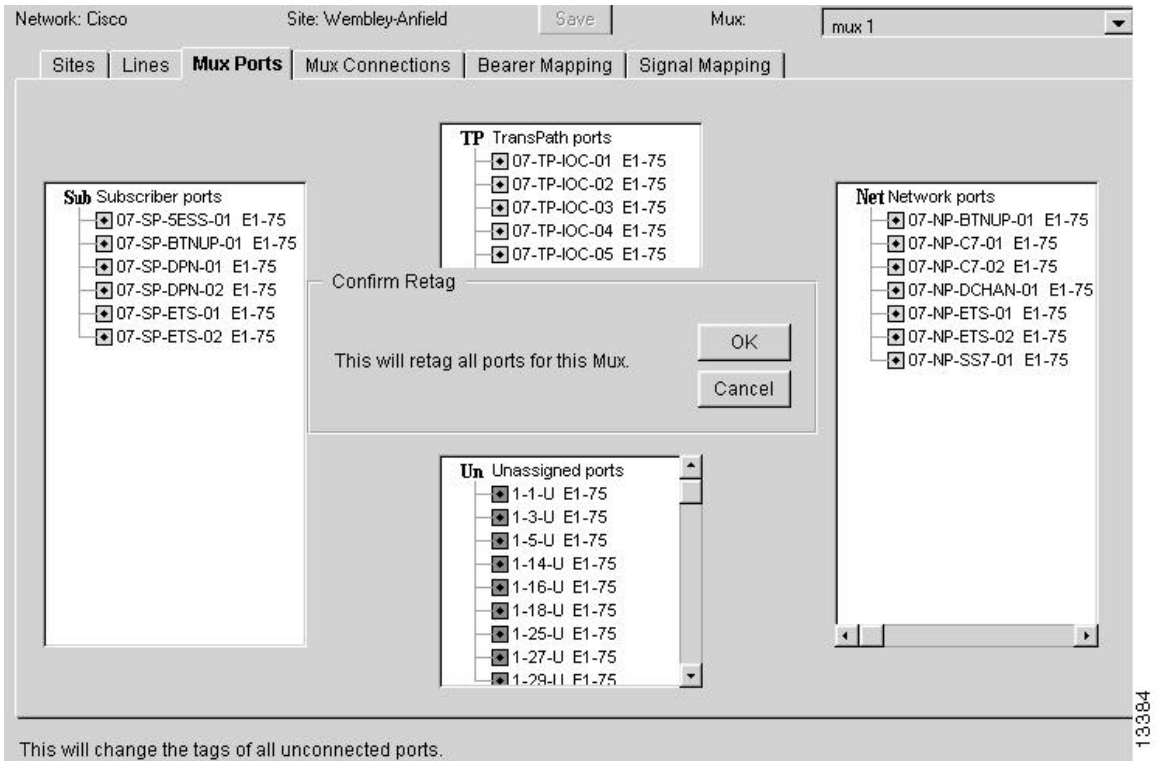


8.5 Retag Ports

Modifying ports can leave gaps in the tag number sequences. To reset all the port tags to sequential values, choose **Retag All Ports** from the popup menu. This operation affects only unconnected ports.

A confirmation dialog notes that this will change all the port tags for the mux. If you click **OK**, the unconnected ports are all retagged using the default tagging scheme described in Section 6.2.3, "Add Mux." (See Figure 8-7.)

Figure 8-7. Confirm Retag Dialog Box



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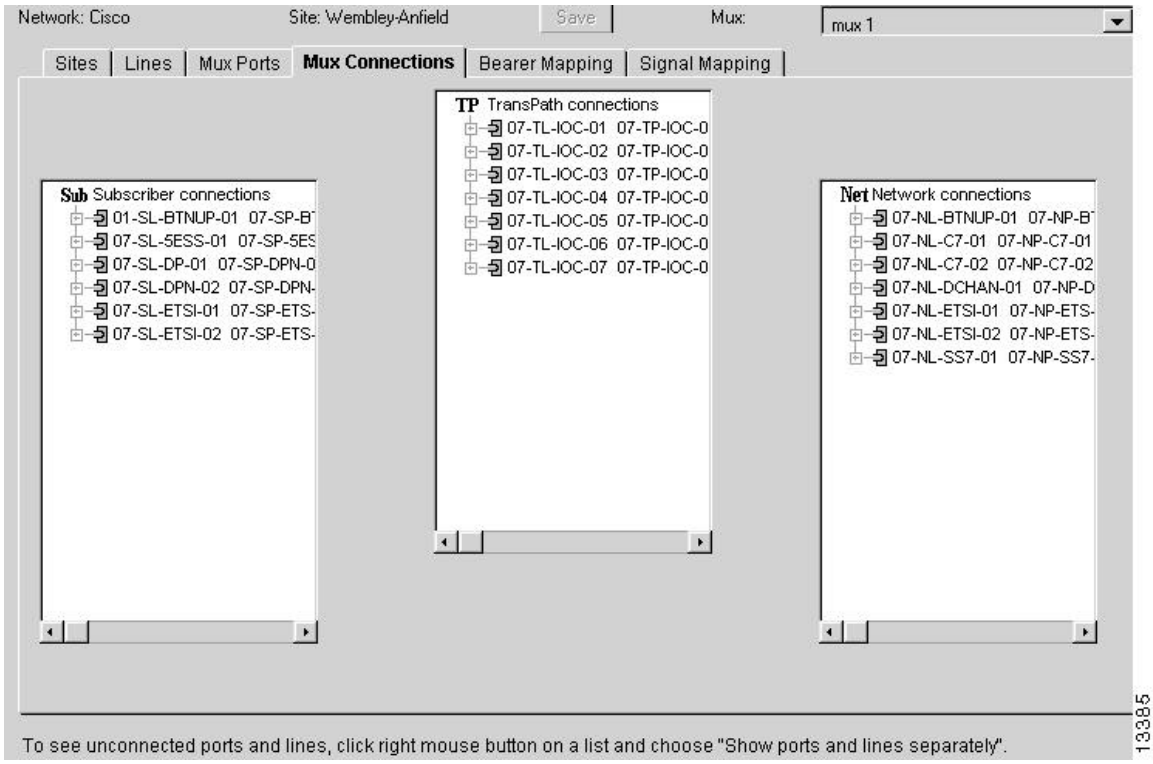
9. Mux Connections

After you define the lines at a site and the ports on the mux, the next step is to connect the lines to the mux ports. You do this by working with lists of lines and ports provided in the Mux Connections tab. This tab is available after selecting a mux in the Sites tab. There are three such lists: one for subscriber lines and ports, one for TransPath lines and ports, and one for network lines and ports. (See Figure 9-1.)

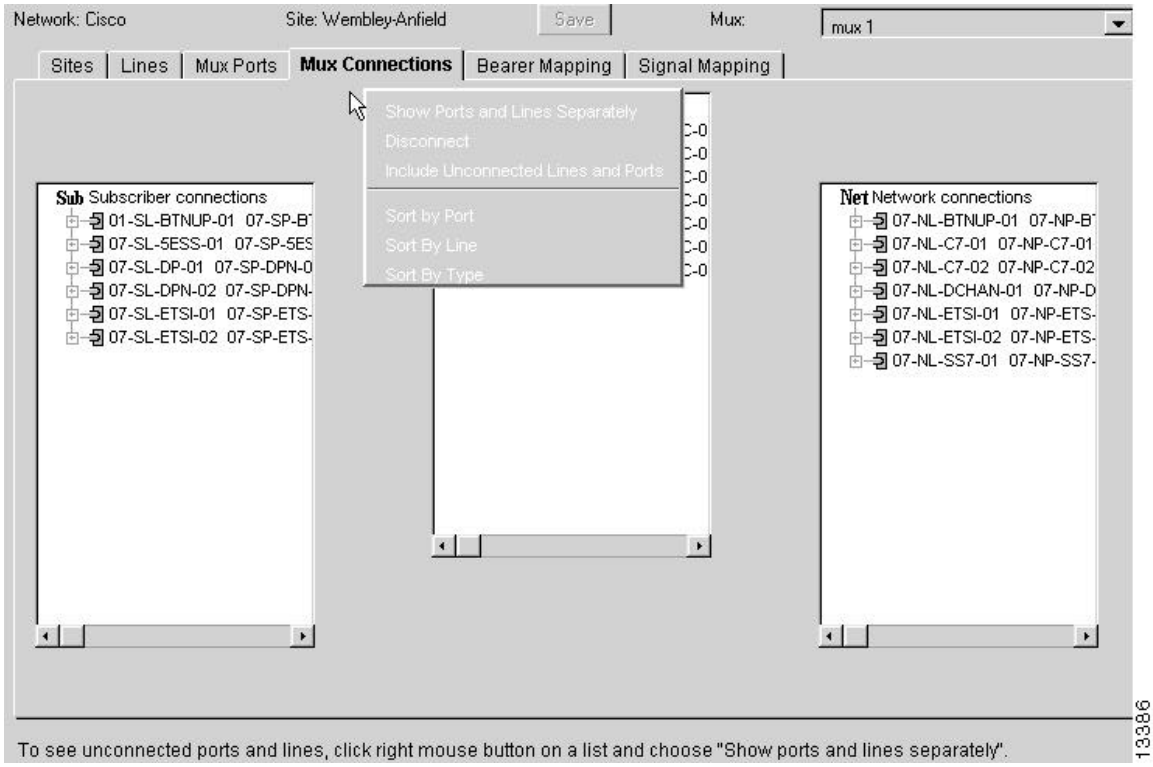
Figure 9-1. Mux Connections Tab



Connected lines and ports are shown in green; unconnected ones (if shown) are yellow. For an unconnected line, the line tag is shown as expected, but the port tag shown is "—For an unconnected port, the line tag is shown as ":"—

To work with mux connections, highlight a connection and right-click on it to see a popup menu of options; your current choices, if any, are checked. (See Figure 9-2.)

Figure 9-2. Mux Connections Popup Menu



The options available on the menu change depending on your current settings. The menu choices are described in the following subsections.

9.1 List Options

You can view connection information in two different ways, depending on whether you want to view existing connections or make new ones. The default display is a single list for each type of connection (subscriber, TransPath, and network). When you highlight one list or an entry in a single list, the popup menu option displays **Show Ports and Lines Separately**. When you highlight a split list or an entry in a split list, the popup menu option displays **Show Ports and Lines in One List**.

When you view existing connections for a set of lines, you see a single list with four pieces of information about each connection: the line type, impedance, line tag, and port tag. A connected line and port are shown in the same row of the list. Normally this list shows only connected lines and ports, but you can choose to show unconnected ones as well from the popup menu. The option when connected lines and ports are showing is **Include Unconnected Lines and Ports**. The option when unconnected lines and ports are showing is **Include Connected Lines and Ports**.

9.2 Sort Options

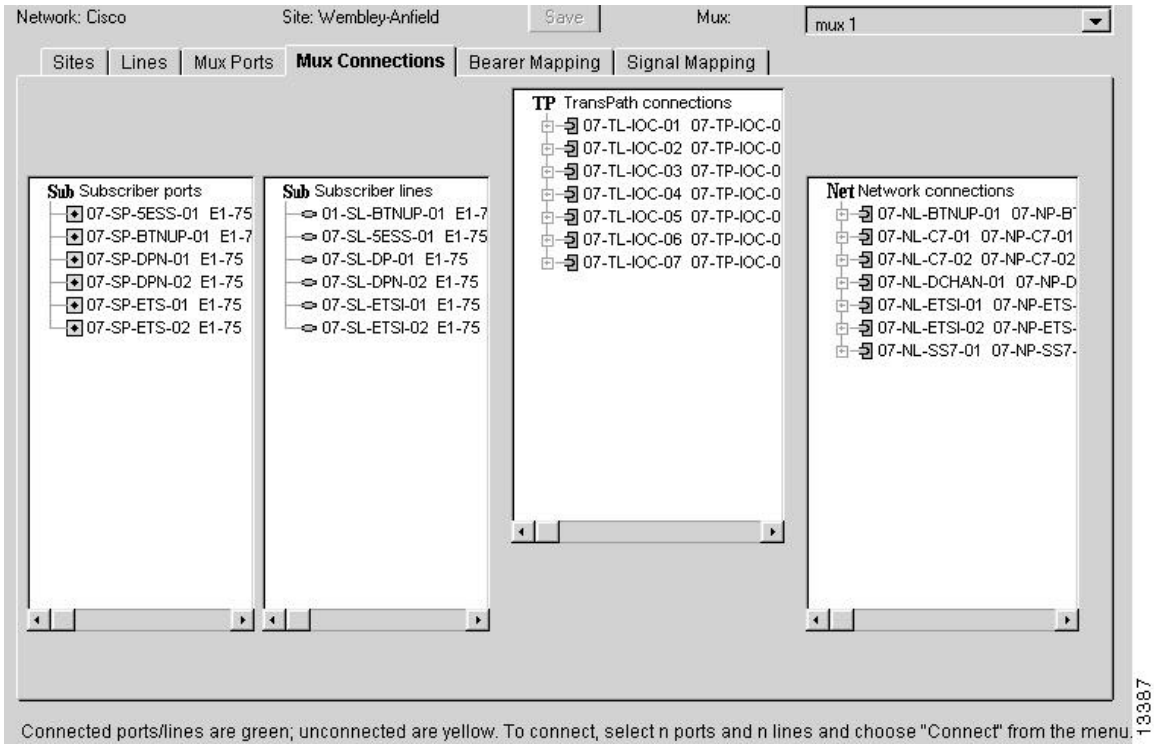
You can sort the mux connections by port, line, or type from the popup menu shown in Figure 9-2. Your current choice is checked. If you change your sort selection, the connections in each list are rearranged according to the new sort order.

Each list can be sorted on a different option. However, you might find it less confusing to sort all your lists the same way.

9.3 Connect Lines

To make new connections for the network, TransPath, or subscriber lines, change the appropriate list to a split format. (See Figure 9-3.)

Figure 9-3. Mux Connections Split List



Here the lines and ports are listed separately in two independently sorted and scrollable lists. You can only split one list at a time.

To connect lines, do the following:

Step 1. Highlight the appropriate list

Step 2. Right-click on the list to bring up the popup menu (See Figure 9-3.)

Step 3. Select **Show Ports and Lines Separately**.

Step 4. Click on lines from one list and a corresponding number of ports from the other.

Step 5. Right-click on the lines.

Step 6. Click **Connect** from the popup menu.

You can make multiple selections, including selection with gaps between selected entries. (To select non-adjacent items, hold down the **Ctrl** key as you click on your choices.) You can have active selections in both lists (line and port) at the same time; you must select a line and a port before the **Connect** option will be active.

When you split the list, the line list shows the line type, impedance, and line tag; the port list shows line type, impedance, and port tag. The entries are color-coded to show whether they are connected: green for connected lines and ports and yellow for unconnected ones.

If you have chosen to see only unconnected lines and ports (the default), the newly connected lines and ports disappear from the list. If you are viewing both connected and unconnected lines and ports, your selections turn green to show that they are now connected.

You can connect only a line and a port if they have the same type and impedance. An error message will appear if you try to connect a line of one type or impedance with a port of another.

9.4 Disconnect Line from Mux Port

To disconnect connected lines and ports, do the following:

Step 1. Click on one or more rows in the list.

Step 2. Right click on the row.

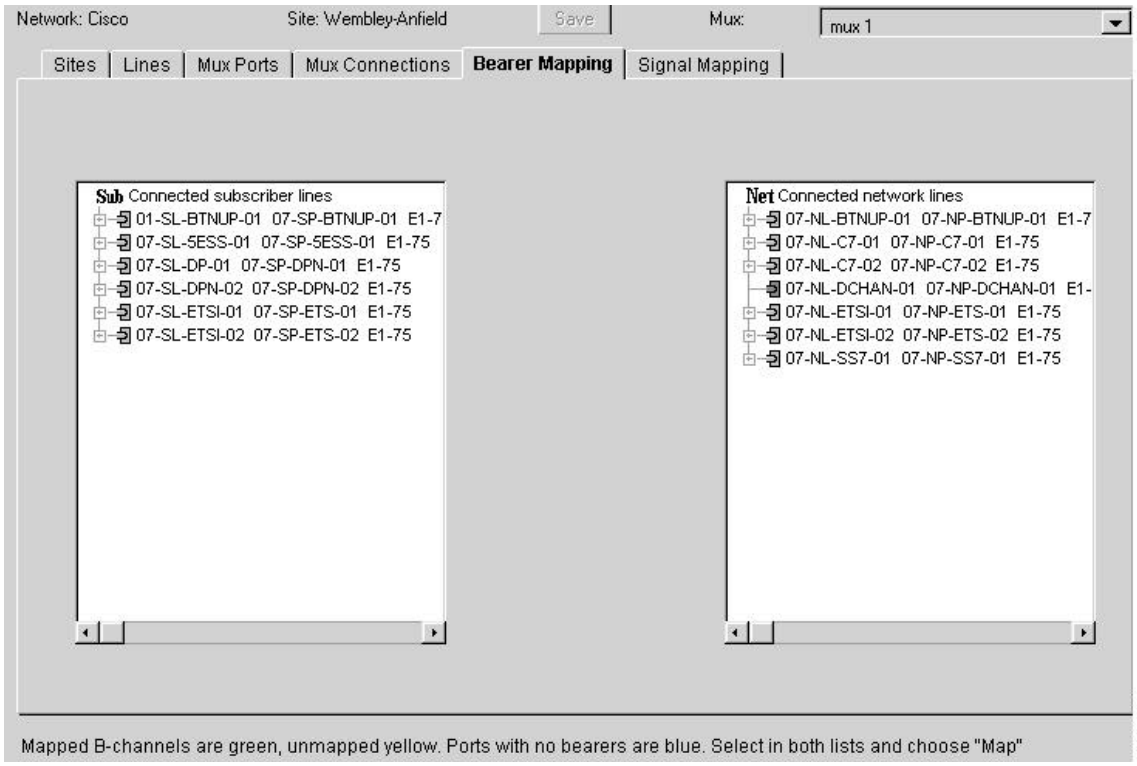
Step 3. Select **Disconnect** from the popup menu.

This disconnects the selected lines and ports. The single green connection row in the list is replaced by separate yellow rows (one for the line with no port, and one for the port with no line). If you have chosen to see only connected lines and ports, the selected lines and ports disappear from the list because they are no longer connected.

10. Bearer Mapping

The Bearer Mapping tab shows subscriber lines/ports on the left and network lines and ports on the right. (See Figure 10-1.)

Figure 10-1. Bearer Mapping Tab

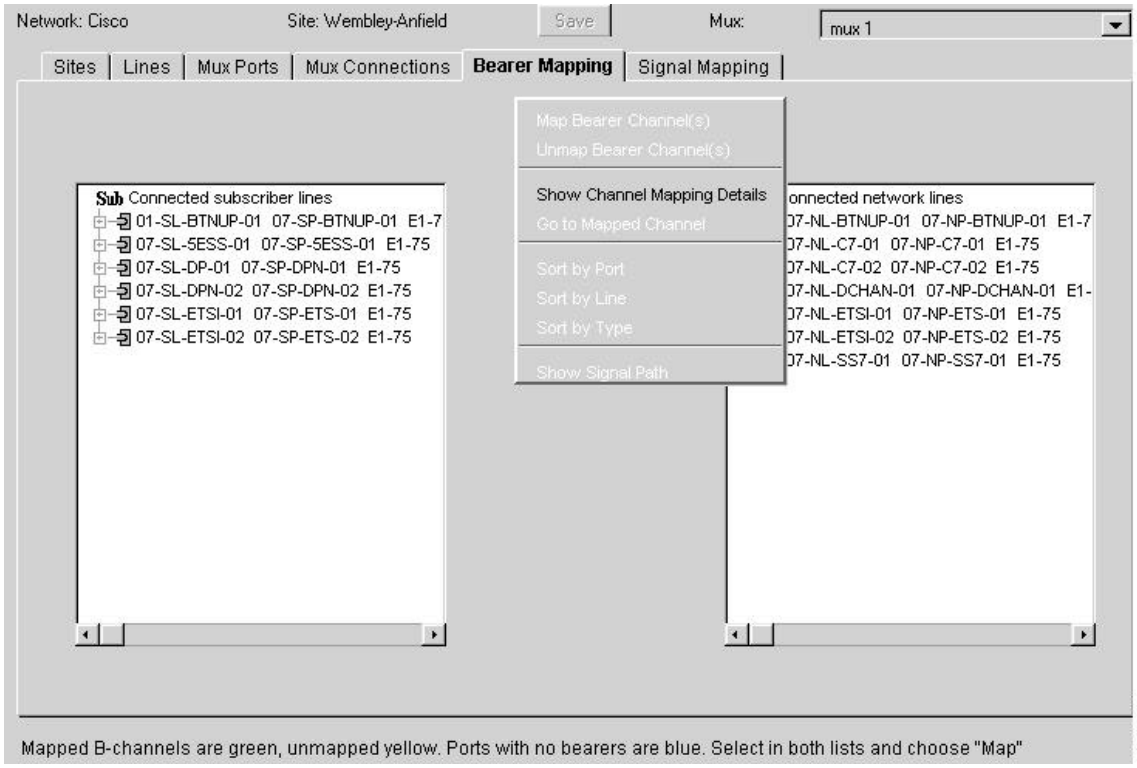


Here you connect subscriber lines and ports to network lines and ports. The TransPath ports and channels are not mapped here and so are not shown. By default, only lines/ports are displayed, but you can expand a line/port to show its channels. As in the Lines tab, a line/port expands first into groups of lines and then into individual lines.

Each entry in the tree is described by its line tag, port tag, and type. If you expand a port to show its channels, each channel node shows its own function and channel number and some mapping information (mapped or not mapped).

To see more details for a channel, highlight it, and right-click on it. A popup menu appears. (See Figure 10-2.)

Figure 10-2. Bearer Mapping Popup Menu



10.1 List Options

When you highlight a line and right-click on it, a popup menu appears with current choices checked. (See Figure 10-2.)

To see detailed information showing the line/port tag and channel number, choose **Show Channel Mapping Details** from the popup menu.

When you choose to see channel mapping details, each mapped channel is shown with the line tag, port tag, and channel number of the channel to which it is mapped. Each port node is color-coded to summarize the mapping of its channels: green mapped bearer channels and channels; yellow for unmapped bearer channels and channels; and blue for a port with no bearer channels and for a non-bearer channel. (See Figure 10-1.)

The tree supports multiple selection of non-adjacent nodes, and you can select at different levels at the same time (for example, mixing lines, groups, and channels). Hold down the **Ctrl** key and click on the non-adjacent entries you want to include.

If you select a mapped channel on one side, right-click on it, and choose **Go To Mapped Channel**, the corresponding channel's port is expanded on the other side and the corresponding individual channel itself is highlighted.

To see a particular mapped channel, select **Go To Mapped Channel** in the popup menu.

You can also show the signal path for a particular channel. The menu option is **Show Signal Path**.

10.2 Sort Options

You can sort the bearer channel lines by port, line, or type from the popup menu. Your current choice is checked. If you change your sort selection, the lines in each list are rearranged according to the new sort order.

Each list can be sorted on a different option. However, you may find it less confusing to sort all your lists the same way.

10.3 Map Bearer Channels

To connect bearer channels between the subscriber and network, do the following:

Step 1. Select the lines/ports or channels to be connected.

Step 2. Right-click on your selection to bring up the popup menu.

Step 3. Select **Map Bearer Channels**.

If you select an individual unmapped bearer channel from each side, these individual channels will be mapped. They will turn green to indicate that they are now mapped. Their lines/ports also turn green if this step makes them fully mapped.

If you select multiple unmapped bearer channels on each side, this will establish a set of mappings. The first selected bearer channel in the port on the left will be mapped to the first selected bearer channel on the right, the second to the second, and so on sequentially until all the selected channels on one side or the other have been mapped. The channels will turn green to indicate that they are now mapped. Their lines/ports also turn green if this step makes them fully mapped.

If you select one or more channel groups or whole lines/ports on each side, a set of mappings will be established. The first unmapped channel in the left selection will be mapped to the first unmapped channel on the right, the second to the second, and so on sequentially until all the unmapped channels on one side or the other have been mapped. Only unmapped bearer channels will be considered, so there may be gaps in the sequences on either side. They will turn green to indicate that they are now mapped. Their lines/ports also turn green if this step makes them fully mapped.

10.4 Unmap Bearer Channels

Just as you can map individual channels, you can also unmap channels that have been mapped. To unmap bearer channels, do the following:

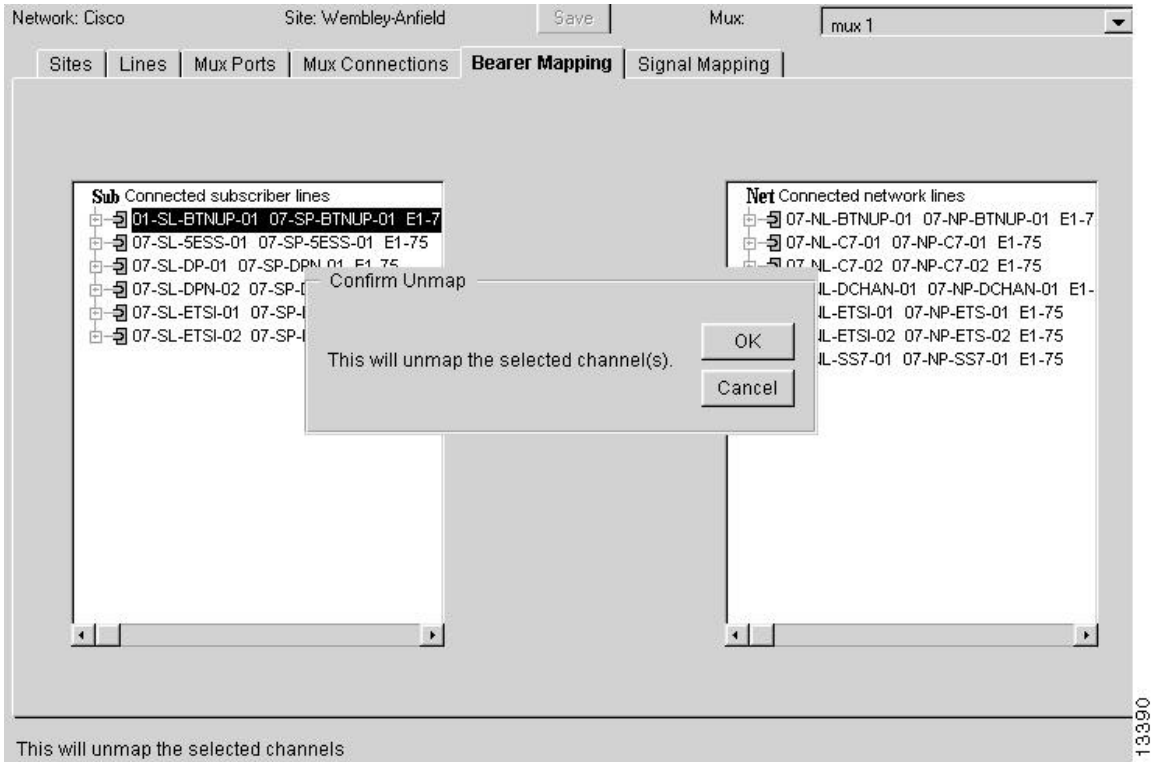
Step 1. Select the lines/ports or channels to be unmapped.

Step 2. Right click on your selection to bring up the popup menu.

Step 3. Select **Unmap Bearer Channels**.

A dialog box appears so that you can confirm that you want to unmap the selected channels. (See Figure 10-3.)

Figure 10-3. Confirm Unmap Dialog Box

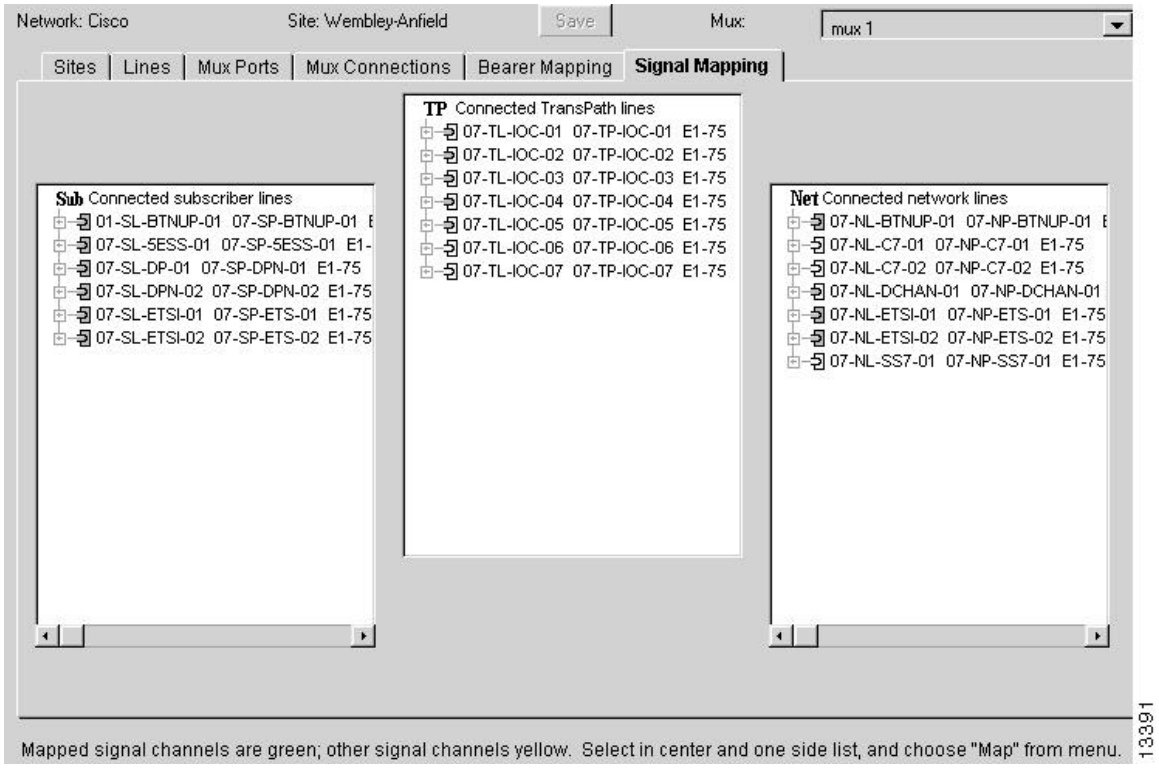


When you click **OK**, the channels or lines/ports will change color to show that they are unmapped. To stop the operation, click **Cancel**.

11. Signal Mapping

Just as you map bearer channels between the subscriber and network ports, you can map signal channels (D-channels) from the subscriber or network ports to TransPath ports. The display for this operation is the Signal Mapping tab. It shows subscriber ports and channels on the left side, network ports and channels on the right, and TransPath ports and channels in the middle. Each list is a tree. By default, it just shows ports, but you can expand any port to show its signal channels. Bearer and other non-signal channels do not appear in this display. (See Figure 11-1.)

Figure 11-1. Signal Mapping Tab

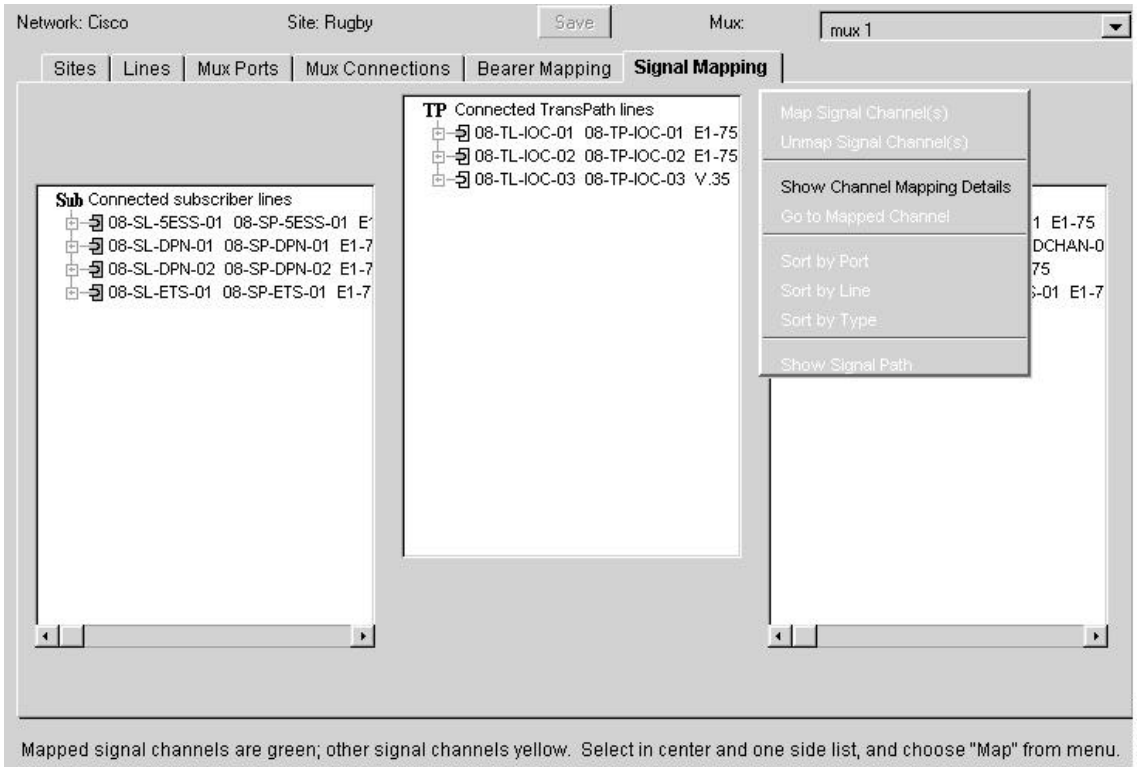


You can make multiple selections of non-adjacent nodes and you can select different levels at the same time (mixing lines and channels). Hold down the **Ctrl** key and click on the entries you want to select.

Each port node in the tree is described by its line tag, port tag, and type, and is color-coded to show whether its signal channels are mapped. If you expand a port to show its channels, each channel node shows its own function and channel number and some mapping information. The mapping information can just be status (mapped or not mapped), or it can be detailed information showing the line/port tag and channel number to which it is mapped.

To see more detail, highlight a line and right-click on it. A popup menu appears with several choices. (See Figure 11-2.)

Figure 11-2. Signal Mapping Popup Menu



The color-coding of ports, TransPaths, and channels is as follows: green for mapped signal channels; yellow for unmapped signal channels; and blue for no signal channel mapping (does not apply, no signal channels, or this is not a signal channel). (See Figure 11-2.)

11.1 List Options

In this display, you can make selections in the TransPath list and in one of the other lists (network and subscriber) at the same time. There cannot be active selections in both the network and subscriber lists at the same time; selecting in either one of the other lists will cancel any selection in the first.

When you select a mapped channel in the subscriber or network list, right-click on it to bring up the popup menu, and choose **Show Channel Mapping Details** (see Figure 11-1), the list expands to show more detail.

When you select a mapped channel in the subscriber or network list, right-click on it to bring up the popup menu, and choose **Go To Mapped Channel**, the corresponding channel in the TransPath list is highlighted. If necessary, the corresponding channel port is expanded and the list is scrolled to make the channel visible.

When you select a mapped channel in the subscriber or network list, right-click on it to bring up the popup menu, and choose **Show Signal Path**, the corresponding signal path is displayed.

11.2 Sort Options

You can sort the signal channel lines by port, line, or type from the popup menu shown in Figure 11-2. Your current choice is checked. If you change your sort selection, the lines in each list are rearranged according to the new sort order.

Each list can be sorted on a different option. However, you may find it less confusing to sort all your lists the same way.

11.3 Map Signal Channels

To connect signal channels between the subscriber or network and the TransPath component, do the following:

Step 1. Select ports or channels in the subscriber or network list.

Step 2. Select ports or channels in the TransPath list.

Step 3. Choose *Map Signal Channels* from the popup menu.

If the selections were individual unmapped signal channels, these individual channels will be mapped. They will turn green to show that they are now mapped. Their ports might also turn green if they are now fully mapped.

If the selections were multiple unmapped signal channels, groups of channels, or ports, a set of mappings will be established. The first signal channel in the selection in the subscriber or network list will be mapped to the first signal channel in the selection in the TransPath list, the second to the second, and so on sequentially until all the signal channels in one selection or the other have been mapped. The channels, if displayed, will turn green to reflect the fact that they are now mapped. Their ports might also turn green if they are now fully mapped.

11.4 Unmap Signal Channels

Just as you can map individual signal channels by selecting them, bringing up the popup menu (see Figure 11-2), and choosing **Map Signal Channels**, you can unmap signal channels that have been mapped.

To unmap signal channels that have been mapped, do the following:

Step 1. Click on a mapped signal channel from any list.

Step 2. Right click on the channel.

Step 3. Select **Unmap Signal Channels** from the popup menu.

The channels and their ports will change color to show that they are unmapped.

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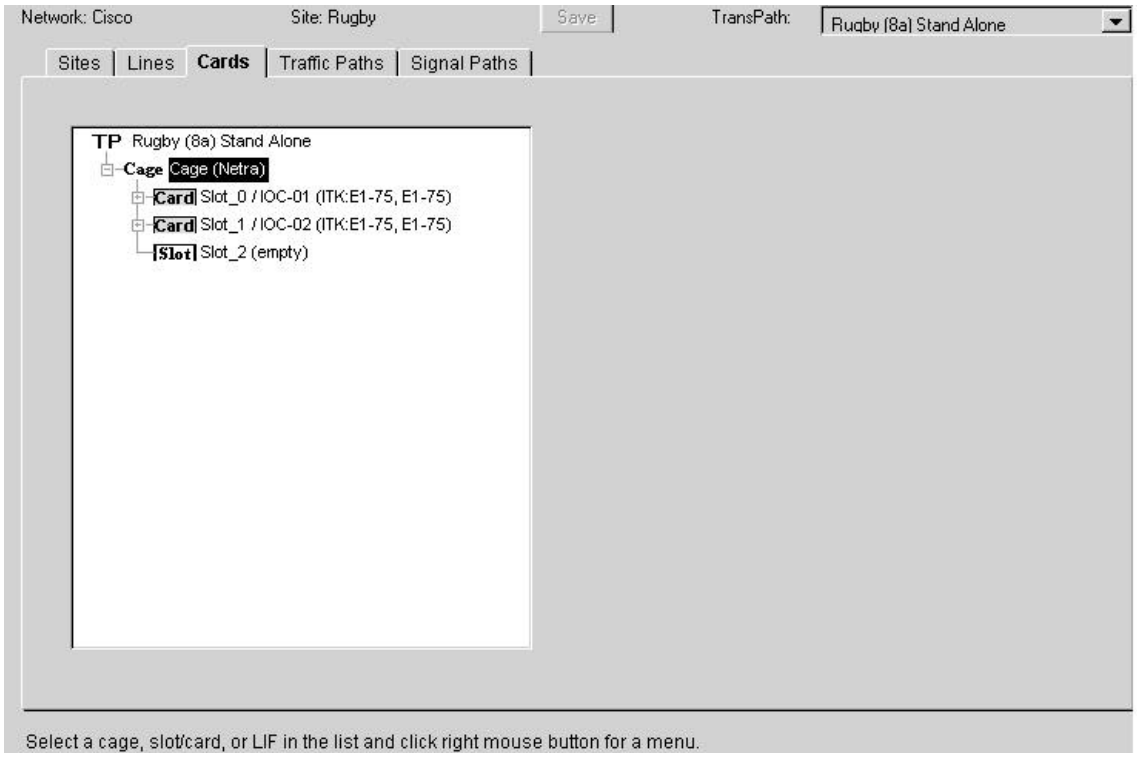
12. Cards

The first TransPath tab you see when you select a TransPath component in the Sites tab is Cards. The Cards tab tree expands to show the cages, slots, and cards in the selected TransPath component. (See Figure 12-1.)

Figure 12-1. Cards Tab

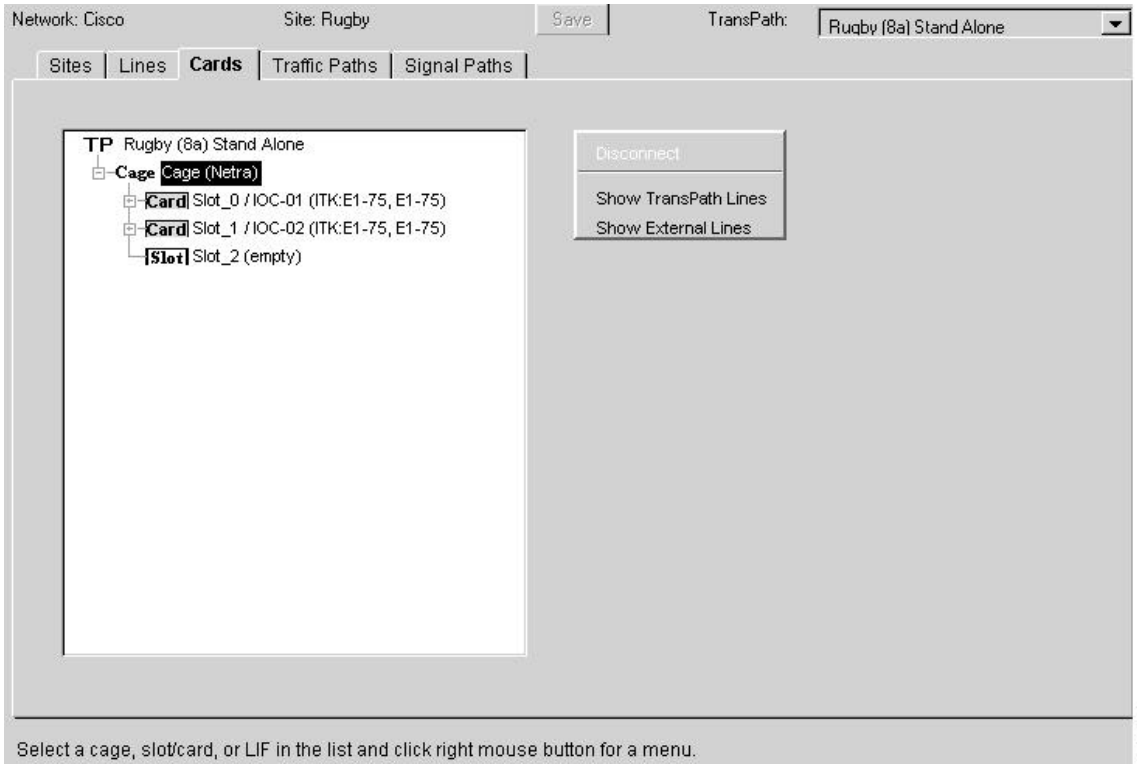


The root of the Cards tree is the selected TransPath component. The second level shows its cages, with a type and name for each. The third level shows slots: for each one it shows the slot name and card name (if a card has been added to the slot). The fourth level in the tree shows the LIFs. For each LIF it shows the connected line tag (if any).

The slots shown in Figure 12-1 do not correspond to the actual physical arrangement of the hardware.

By default, you see only the TransPath tree. The area to the right of the tree is empty. However, if you select the option to show TransPath lines or to show external lines, the list of lines appears on the right. To show lines, you need to open the basic Cards popup menu. To do this, leave all icons in the Cards tab unhighlighted and right-click in a blank area. The basic Cards popup menu appears. (See Figure 12-2.)

Figure 12-2. Cards Popup Menu



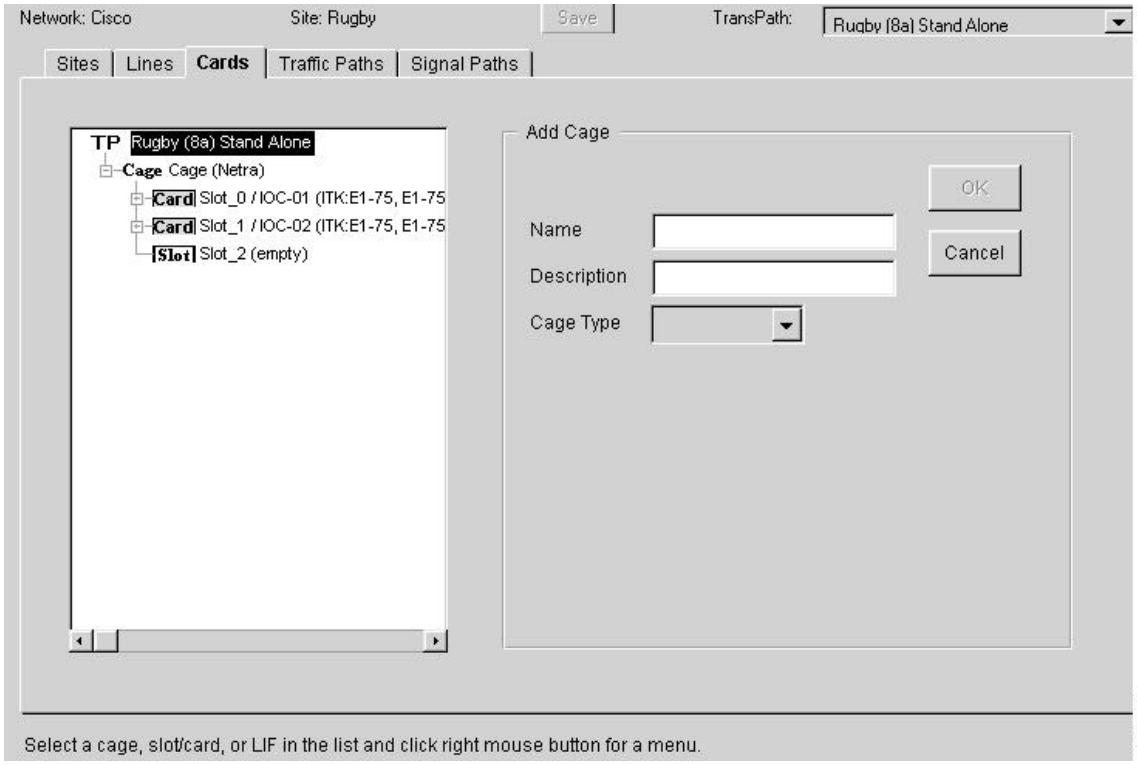
In addition to the options to show TransPath or external lines, this is where you can choose to display LIFs (unconnected, connected, or both). The number of popup menu options increases when you highlight an icon. The menu also differs slightly depending on which icon is highlighted:

- When you click on a TransPath component in the Cards tab and right-click on it, the popup menu now includes the **Add Cage** option.
- When you click on a cage and right-click on it, the **Properties** option is added and the **Add Cage** option becomes **Remove Cage***;* it is enabled if the cage has no cards in its slots. The number of slots available is predetermined by the type of cage. You cannot add or remove slots.
- When you click on a slot and right-click on it, the **Properties** option is added and the **Remove Cage** option becomes **Add Card**.
- When you click on a card and right-click on it, the **Properties** option is added and the **Add Card** option becomes **Remove Card**.
- When you click on an LIF and right-click on it, the **Properties** option disappears and options to **Connect** and **Disconnect** are added. These are only available when the LIF can be connected or disconnected.

12.1 Add Cage

If you select a TransPath component, right-click on it, and select **Add Cage** from the popup menu, a dialog box appears where you can specify the name, description (optional), and type for the new cage. (See Figure 12-3.)

Figure 12-3. Add Cage Dialog Box



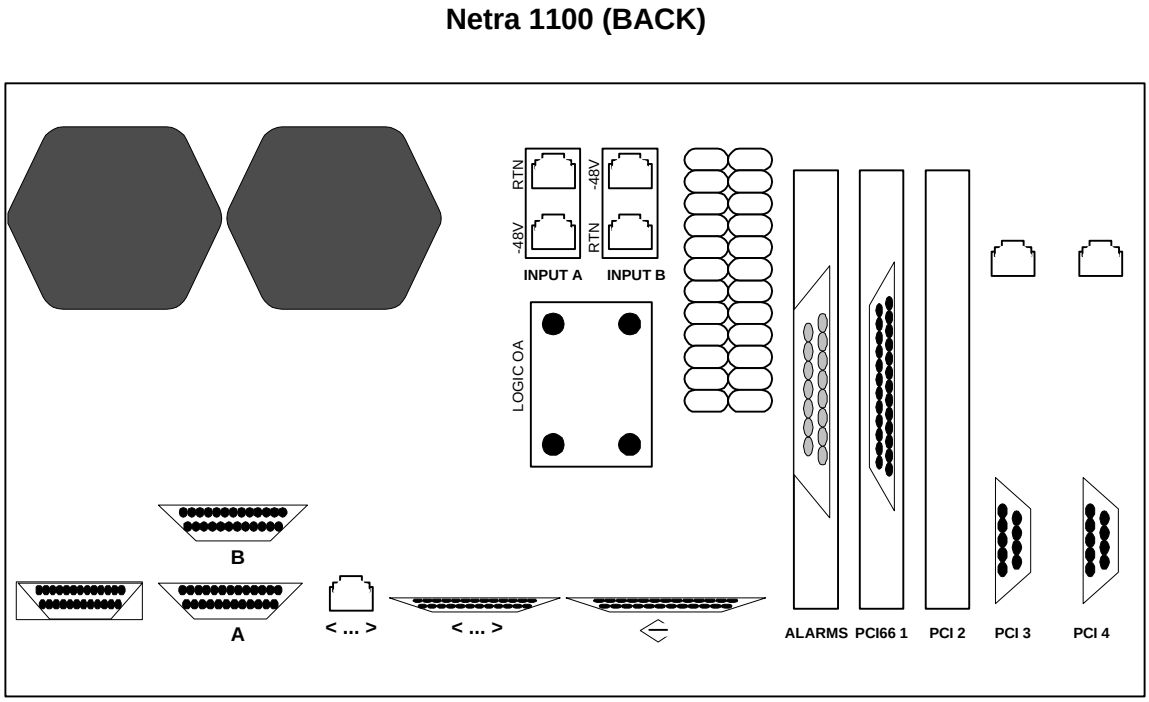
Type the name in a text field and choose the type from the type box, which contains a drop-down list of cage types. When you select the cage type, the description number and number of slots is displayed just below the type.

When you click **OK**, the Configuration Tool verifies that the cage name is unique within the TransPath component. If it is unique, the change is made. If the name is not unique, the Configuration Tool reports an error and you can try again.

12.2 Cage Properties

Cages have slots into which you put the appropriate cards for your system. (See Figure 12-4.)

Figure 12-4. Example Cage

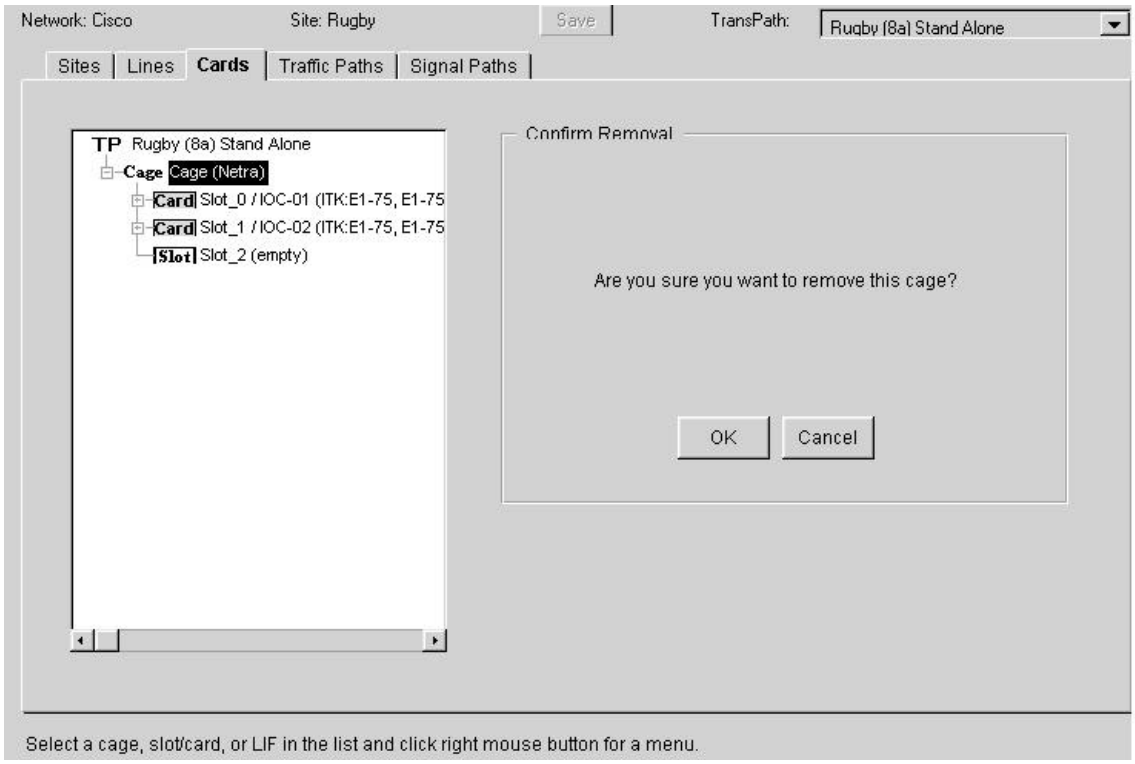


If you select a cage, right-click on it, and select **Properties** on the popup menu, a dialog box appears showing the cage name, description, and type. You can modify the name and description but not the type. The dialog box is similar to the **Add Cage Dialog Box**. (See Figure 12-3.)

12.3 Remove Cage

If you highlight an empty cage (one whose slots hold no cards), click on it, and select **Remove Cage** from the popup menu, a dialog box appears so that you can confirm that you want to remove the cage. (See Figure 12-5.)

Figure 12-5. Confirm Removal Dialog Box

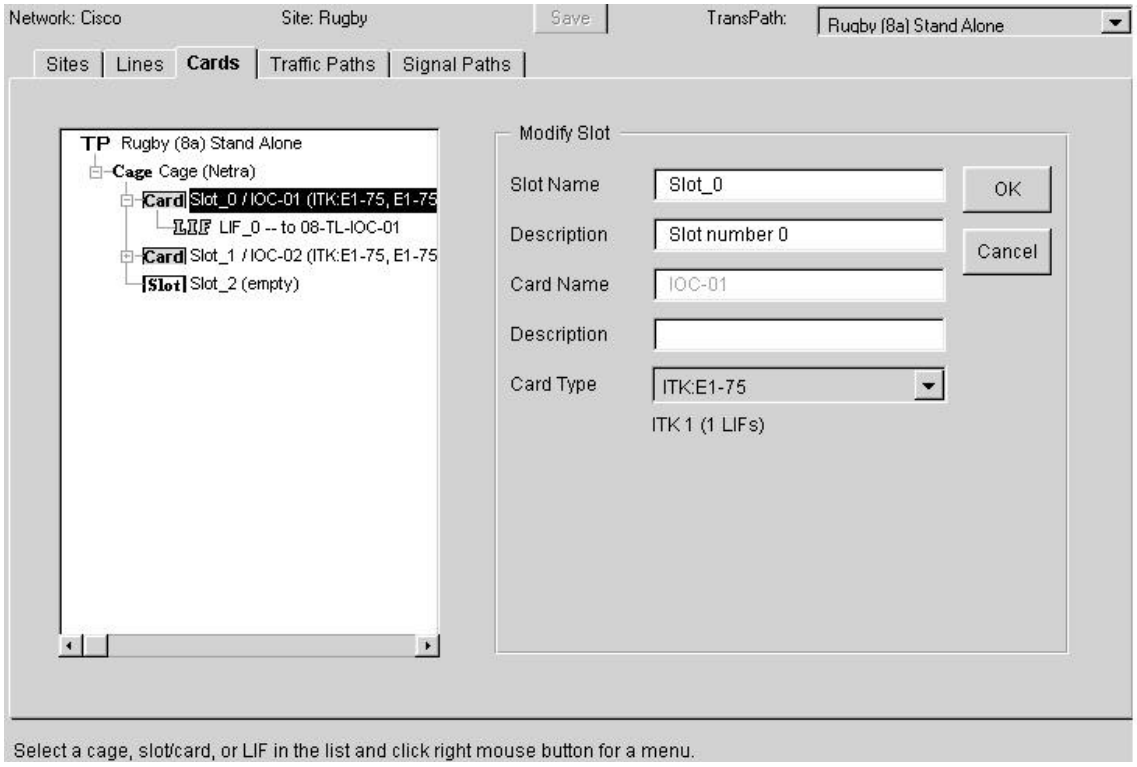


When you click **OK**, the cage is removed from the TransPath component. You cannot remove a cage that has a card in any slot.

12.4 Slot Properties

If you select a slot and choose **Properties** from the popup menu, a dialog box appears where you can modify the slot name and description (optional). Slots have no other properties. (See Figure 12-6.)

Figure 12-6. Modify Slot Dialog Box

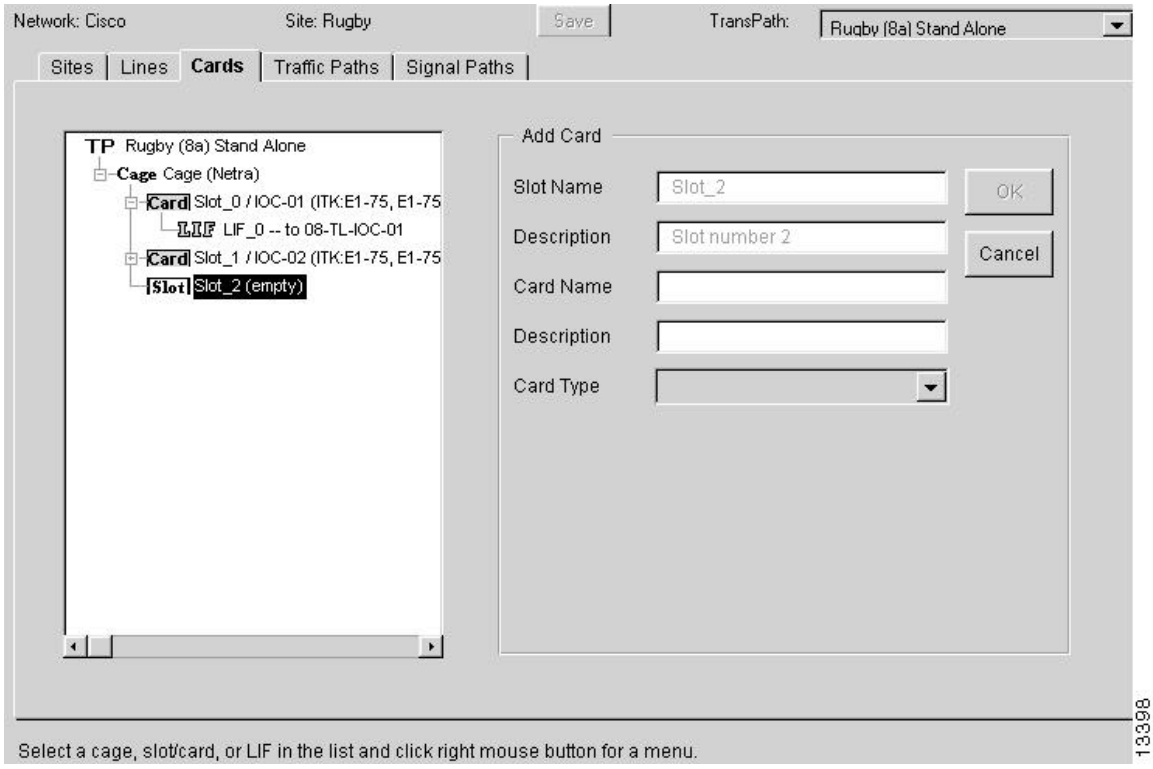


The dialog box shows information about the card in this slot or it shows empty boxes for the details if there is no card, but you cannot modify these here. (See Section 12.5, "Add Card.") When you click **OK**, the Configuration Tool verifies that the slot name is still unique and makes the change. If the name is not unique, a warning appears and you can try again.

12.5 Add Card

If you select an empty slot, right-click on it, and select **Add Card** from the popup menu, a dialog box appears where you can specify the card name, description, software load, and card type. (See Figure 12-7.)

Figure 12-7. Add Card Dialog Box



The card name and description are text fields. The software load and card type are presented as drop-down lists of choices in boxes. When you click **OK**, the card is added. (The **OK** button will not become active until all required entries have been made and are valid.) You cannot modify the slot name or

12.6 Remove Card

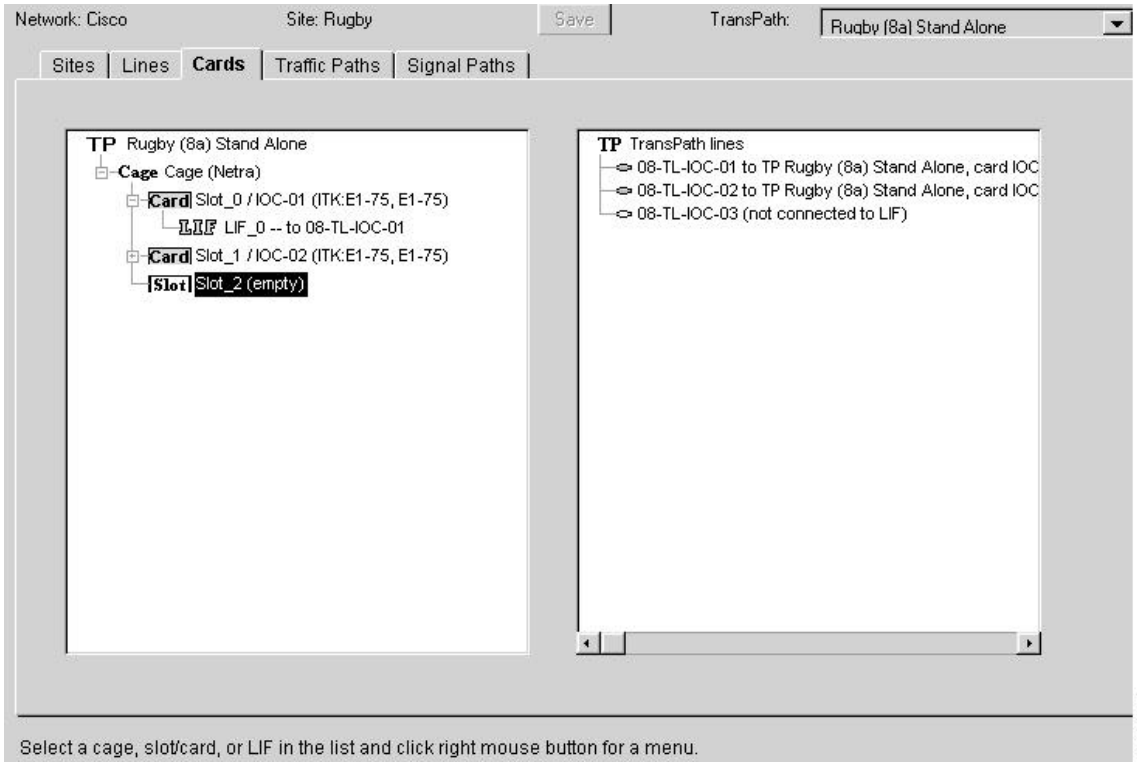
If you select a slot containing an unconnected card and choose **Remove Card** from the popup menu, a dialog box appears so that you can confirm that you want to remove this card. The dialog box is similar to the Remove Cage dialog box.

When you click **OK**, the card is removed. An unconnected card is one having no lines connected to its LIFs.

12.7 Connect Line to LIF

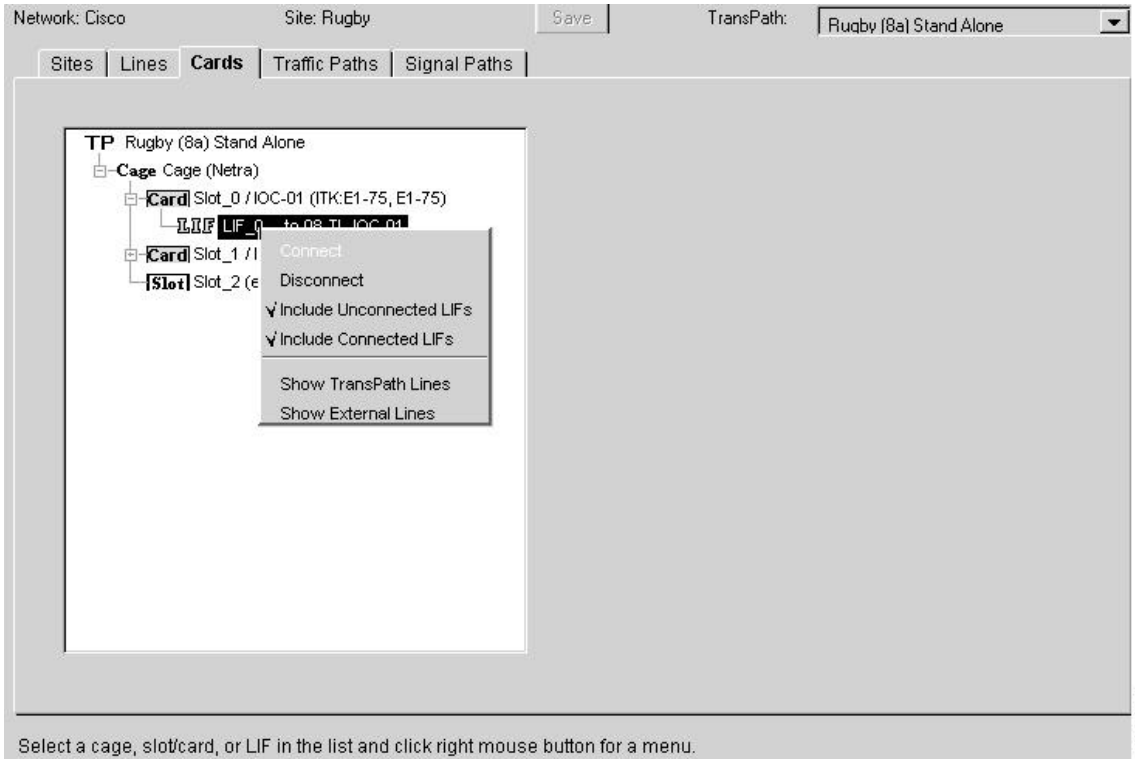
When you show TransPath lines on the right side of the tab, each entry shows the line information and the LIF (if any) to which it is connected. (See Figure 12-8.)

Figure 12-8. TransPath Lines List



When the TransPath tree shows an LIF, it also shows the tag of the line (if any) to which it is connected. You select separately in the TransPath tree and the lines list. You can only select one LIF and one line. When you select an LIF or a line and right-click on it, a popup menu appears.
(See Figure 12-9.)

Figure 12-9. Line Interface Popup Menu



To connect a line to an LIF, you must have chosen to show TransPath lines and have included unconnected LIFs in your TransPath tree.

- If you cannot see the TransPath lines to the right of the tree, go to the popup menu and select **Show TransPath Lines**.
- If you cannot see unconnected LIFs in the expanded tree, go to the popup menu and select the option **Include Unconnected LIFs**. The unconnected LIFs will appear.

Select the line and the LIF, right-click to call the LIF popup menu, and choose **Connect** from the menu.

This connects the LIFs and lines. The newly connected line and LIF turn green to show they are now connected. (If you have chosen to see only unconnected lines and LIFs, the newly connected line and LIF disappear from the list).

> **Note**: If you try to connect an LIF with one impedance to a line with a different impedance, you will see an error message that you cannot connect them. You can only connect LIFs and lines that have the same impedance.

12.8 Disconnect Line from LIF

To disconnect lines and LIFs, select a connected LIF or a connected line, right-click on it, and select **Disconnect** from the popup menu. This disconnects them. They turn yellow and their entries in the list are modified to show that they are no longer connected. If you have chosen to see only connected lines and LIFs, the affected LIF and line disappear from the list because they are no longer connected.

13. Traffic Paths

Select a TransPath component in the Site tab to display the TransPath tabs for that site. The Traffic Paths tab consists of a top portion where you can select a traffic path from a combo box and a bottom part containing three subtabs. The subtabs are for general information (which is on top), channels, and properties. (See Figure 13-1.)

Figure 13-1. Traffic Paths Tab

A traffic path is a set of destinations created independently of signal paths. A traffic path defines a path along which bearer channels are routed. For non-SS7 protocols, the traffic path merely consists of a tag and a set of bearer channels. For SS7 protocols, the traffic path will also include a destination point code (DPC), a network indicator, and CICs assigned to bearer channels. A traffic path may be assigned to more than one signal path.

You must select a protocol family to associate with a traffic path. If the protocol is FAS, the traffic path will be a name only. If the protocol is NFAS, you must enter a DPC, network indicator, name, and description (optional).

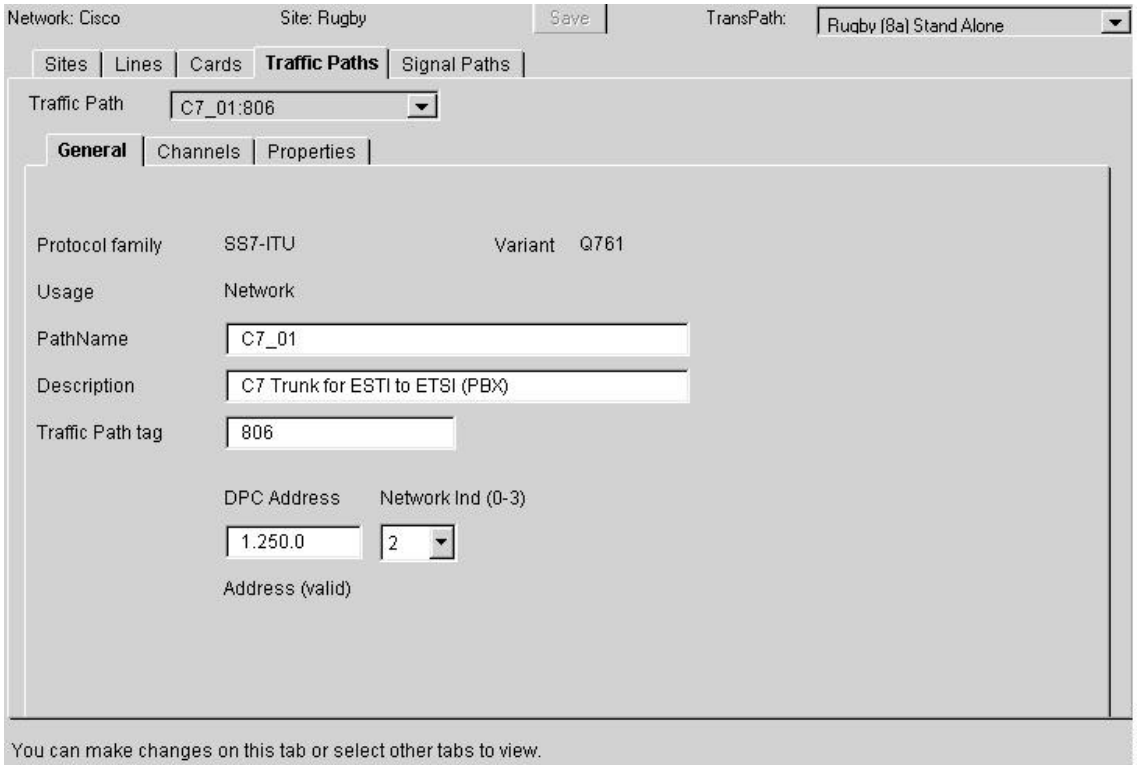
At the upper right side is a drop-down list of the TransPaths. If you want to work in another TransPath component, you can select it here. You do not have to return to the Sites tab to select a different TransPath component.

13.1 General Subtab

The General subtab is highlighted and displays a prompt to select a traffic path from the drop-down list or to add one. (See Figure 13-1.) Here you can add, modify, and delete traffic paths.

When you select a traffic path from the drop-down list, a dialog box displays the protocol family and variant, usage, path name, description, traffic path tag, DPC address, and network indicator for that path. (See Figure 13-2.)

Figure 13-2. Traffic Paths General Dialog Box



When you right-click while you are in a dialog box in the General subtab, a menu appears with two choices:

- Add Traffic Path
- Delete Traffic Path

The only way you can delete a traffic path is from this window while you have a traffic path dialog box open.

13.1.1 Add Traffic Path

Your other list option is to add a traffic path. When you select this option, a dialog box similar to the Traffic Path General dialog box appears and you use the Tab key to move from box to box to make selections or manually enter information.

You cannot switch to other subtabs or switch away from the Traffic Path tab until you click **OK** or **Cancel**.

13.1.2 Modify Traffic Path

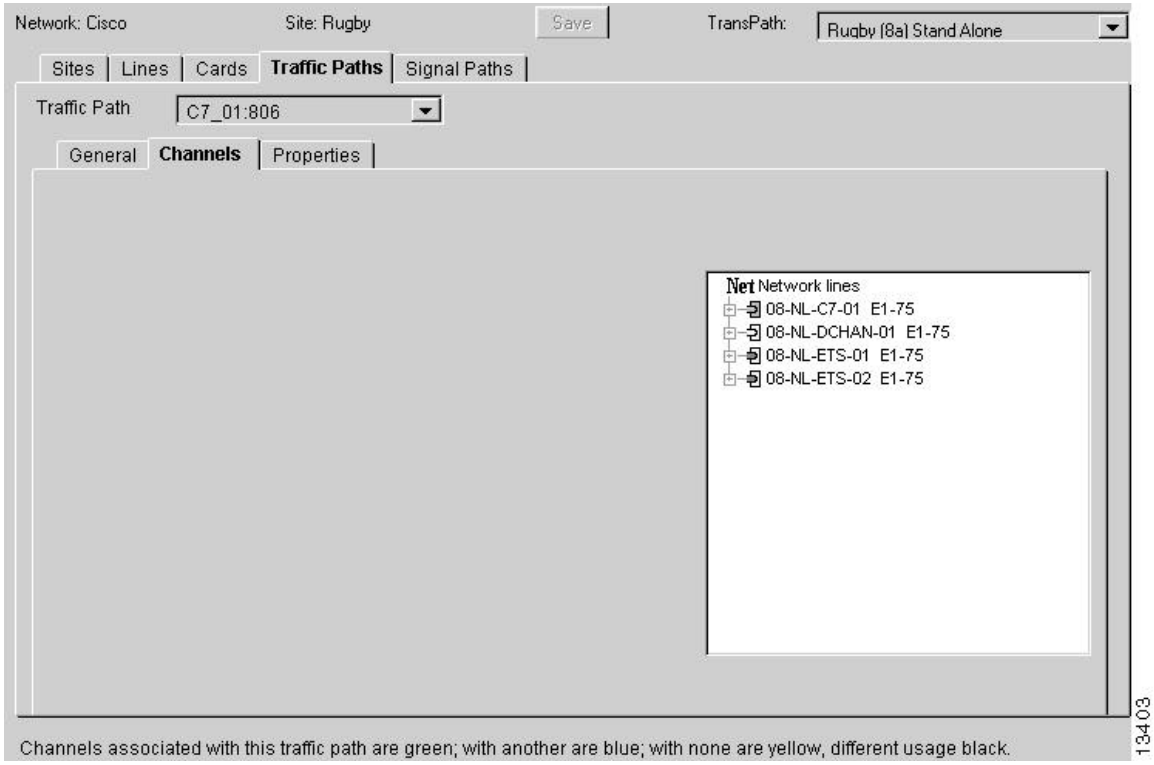
In the General subtab for an existing traffic path, you can modify the traffic path. You can change anything but the protocol family and variant and the usage in this dialog box.

When the traffic path is modified, **OK** and **Cancel** buttons appear; you cannot change tabs or subtabs until you click **OK** or **Cancel**.

13.2 Channels Subtab

The Channels subtab shows the subscriber lines for this TransPath component in a single list. (See Figure 13-3.)

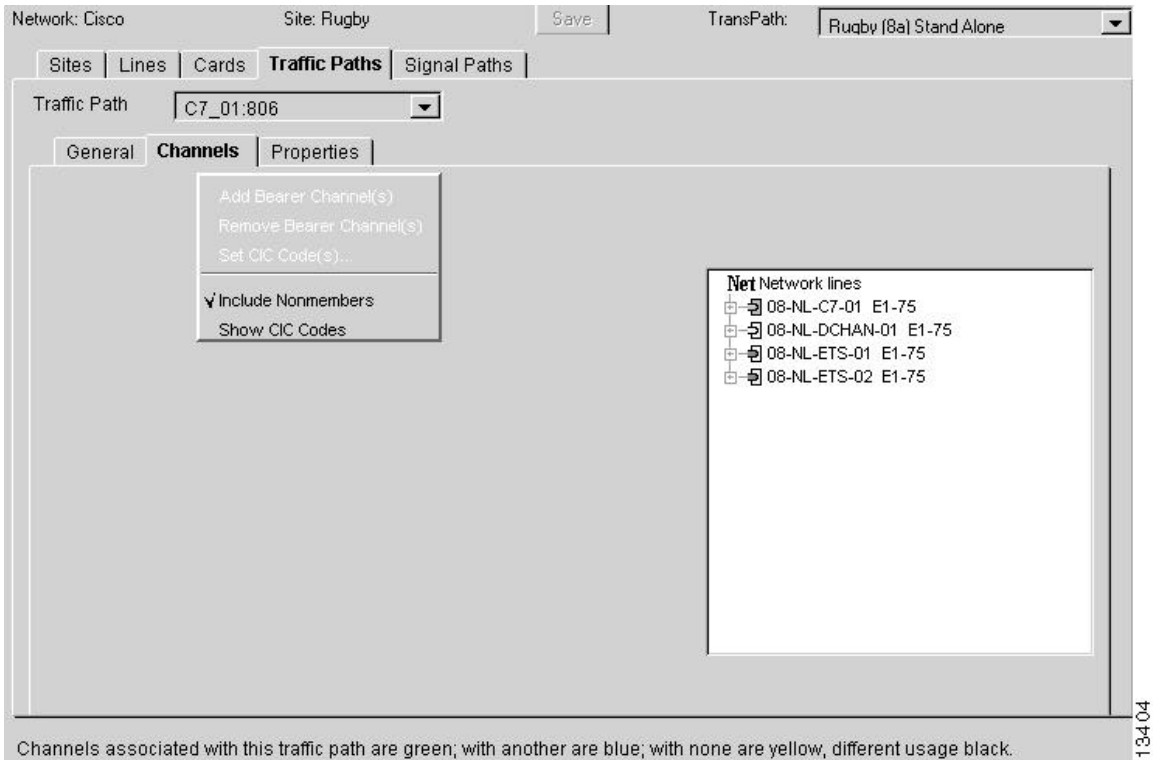
Figure 13-3. Traffic Paths Channels Subtab



Only those lines associated with this traffic path are green. Those associated with another traffic path in this TransPath component are blue. Those that have no association are yellow. Any lines associated with a different usage are black.

If you right-click on a line, a popup menu appears with current list choices checked. (See Figure 13-4.)

Figure 13-4. Traffic Paths Channels Popup Menu

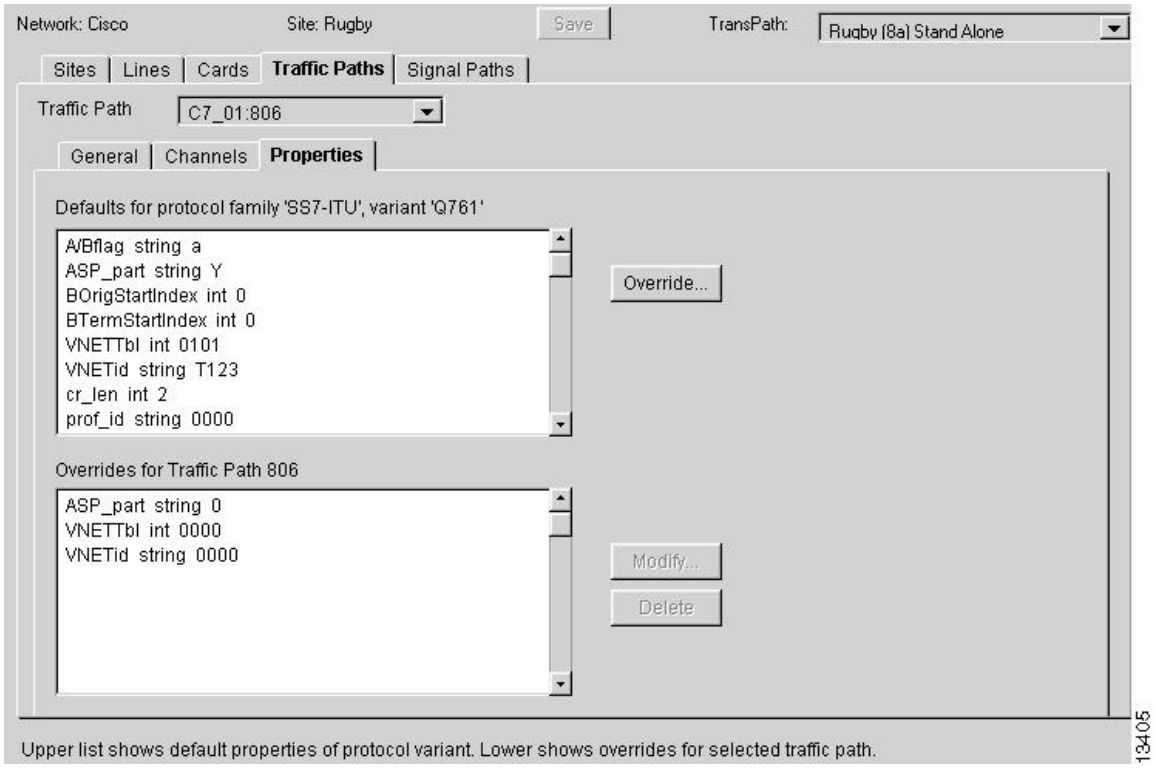


Here you can add and delete bearer channels and set CIC codes and how you want your list to display. If you select **Add Bearer Channel(s)**, a dialog box appears where you enter a starting CIC code.

13.3 Properties Subtab

The Properties subtab displays two lists. The top list shows the defaults for the protocol family and variant for this traffic path. (See Figure 13-5.)

Figure 13-5. Traffic Paths Properties Subtab



If you highlight an entry, the Override button becomes active. If you click on it, the entry is moved to the bottom pane, which contains the overrides for this traffic path. If you highlight an entry in the override list, the Modify and Delete buttons become active. If you click **Delete**, the entry disappears. If you click on **Modify**, a dialog box appears on the right. It shows the property, type, and default value for the override entry. You can change only the default value. Enter the new value and click **Modify** to make your change.

If you have the DPP application, you must override the default protocol settings (both 0) for the subscriber side link set to `BOrigStartIndex = 2` and `BTermStartIndex = 1` to integrate the DPP with the current Configuration Tool configuration.

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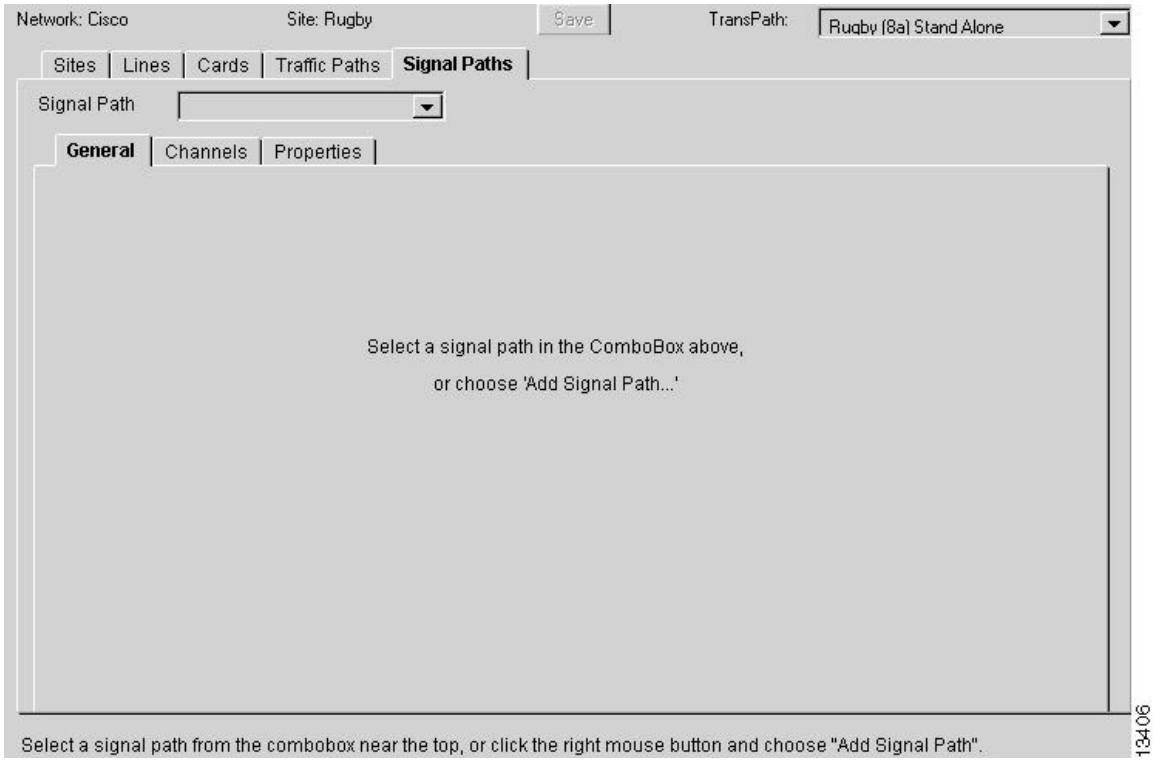
14. Signal Paths

A signal path is a set of bearer channels controlled by one or more signal channels. The number of signal channels associated with a signal path depends on the protocol specified for the signal path. Every bearer channel controlled by the TransPath component is part of one signal path.

The Signal Path tab consists of two boxes at the top where you can select a TransPath component and signal path from drop-down menus and a bottom part containing three subtabs. The subtabs are for general information, channels, and properties. (See Figure 14-1.)

Figure 14-1. Signal Paths Tab



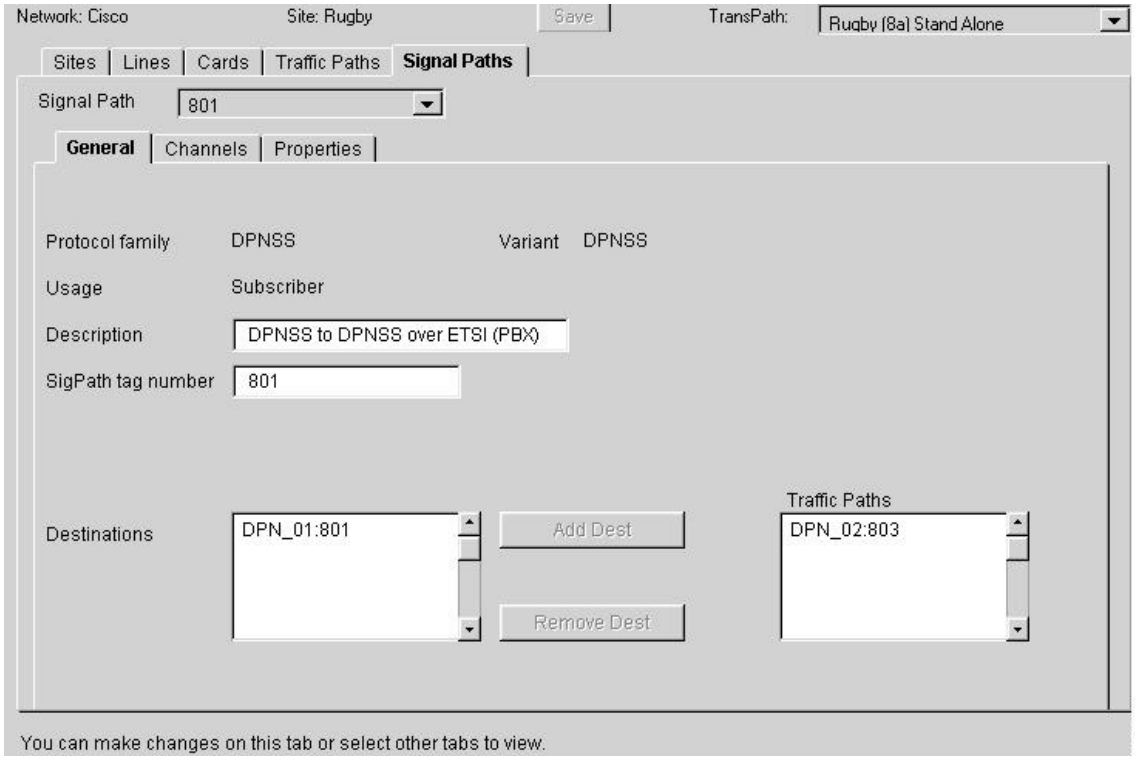
At the upper right side you have a drop-down list of the TransPaths components. If you want to work in another TransPath component, you can select it here. You do not have to return to the Sites tab to select a different TransPath component.

14.1 General Subtab

The General subtab is highlighted and displays a prompt to select a signal path from the drop-down list or add one. (See Figure 14-1.) Here you can add, modify, and delete signal paths.

When you select a signal path from the drop-down list, a dialog box displays the protocol family and variant, usage, description, and signal path tag for that path. For the SS7 protocol only, The OPC and APC addresses, starting CIC code, and DPCs also appear. You must add a destination from the traffic path list. (See Figure 14-2.)

Figure 14-2. Signal Paths General Dialog Box



When you right-click while you are in a dialog box in the General subtab, a menu appears with two choices:

- Add Signal Path
- Delete Signal Path

The only way you can delete a signal path is from this window while you have a signal path dialog box open.

14.1.1 Add Signal Path

One of your options is to go to the drop-down list and add a signal path. When you select this option, a dialog box similar to the Signal Paths General dialog box appears and you use the Tab key to move from box to box to make selections or manually enter information.

When you add a signal path, you will see a system-assigned sequence number, unspecified protocol choices, a blank description, and a blank path number. Buttons for **OK** and **Cancel** also appear. You cannot switch to other subtabs or switch away from the Signal Path tab until you click on one of the two buttons.

If an SS7 protocol is chosen, the CIC and point code fields also appear. There are no defaults for point codes. The starting CIC code defaults to 100.

When you choose a protocol family and variant and fill in the other required fields, then click **OK**, the new signal path is added to the list and selected. You can then switch to the other tabs and subtabs.

14.1.2 Modify Signal Path

In the General subtab for an existing signal path, you can modify the description and path number, and (for SS7) the CIC and point code data. You cannot change the usage or protocol for an existing signal path.

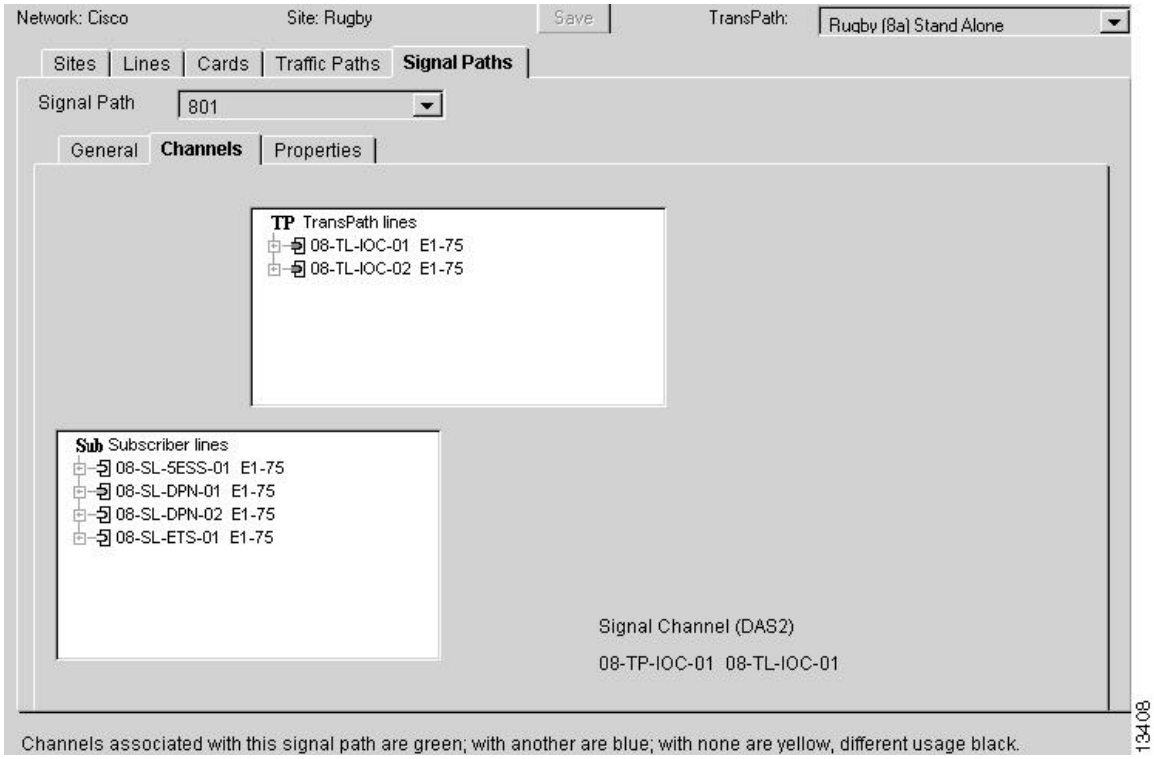
To change the description, signal path number, starting CIC code, or OPC, type a new value in the field. Buttons are available for adding, changing, and deleting point codes. When you choose **Add** or **Change**, a small dialog box appears at the lower right where you can enter or modify the point code.

When the signal path is modified, an OK and Cancel button appear; you cannot change tabs or subtabs until you click **OK** or **Cancel**.

14.2 Channels Subtab

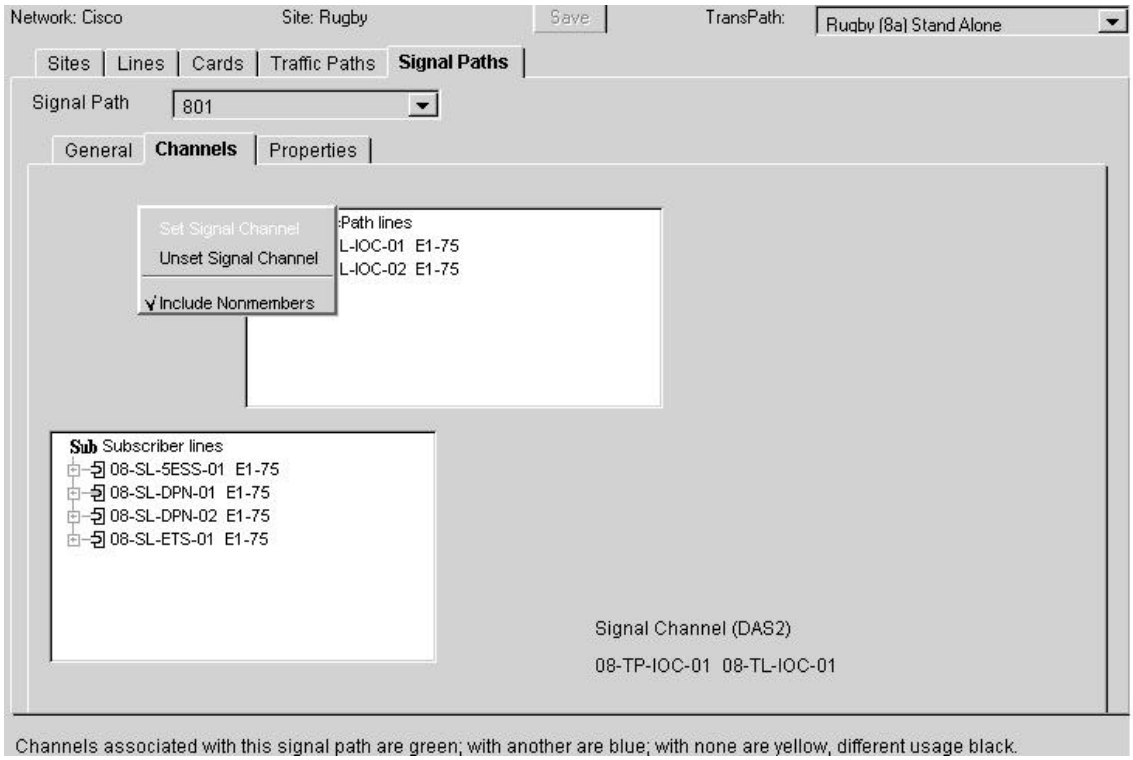
The Channels subtab shows the channels associated with the signal path. This includes bearer and signal channels. Presentation details vary somewhat with the choice of protocol and usage. (See Figure 14-3.)

Figure 14-3. Signal Paths Channels Subtab



If you right-click in the subtab, a popup menu appears. (See Figure 14-4.)

Figure 14-4. Signal Paths Channels Popup Menu



Only the available choices are active; unavailable choices are faded.

Here you can add channels to and remove channels from link sets, clear link sets, modify link set members and set display options to include nonmembers and show link set details.

If you have the Dial Plan Provisioning (DPP) application for number manipulation, under the Properties overrides section you must override the default settings (both 0) for the subscriber side link set to `BOrigStartIndex = 2` and `BTermStartIndex = 1` to integrate the DPP with the current Configuration Tool configuration.

14.2.1 Non-C7/SS7 Subscriber Signal Path

A non-SS7 subscriber signal path (and all subscriber signal paths are non-SS7), controls a set of bearer channels (a traffic path) from one or more subscriber ports and contains a single signal channel from some subscriber port, mapped to some signal channel of some TransPath port. If the protocol family is PRI, there is also an optional backup signal channel from some subscriber port, likewise mapped to some signal channel of a TransPath port. These signal channels are listed at the bottom center of the display.

The channel tab in this case shows the subscriber and TransPath ports as port-and-channel trees. The Subscriber tree shows bearer channels controlled by and signal channels included in the signal path. In this tree, all the bearer channels in a given subscriber line are grouped into a single non-expandable node.

14.2.2 Non-C7/SS7 Network Signal Path

For a non-SS7 network signal path, the display is similar to that for a non-SS7 subscriber signal path. There is a set of bearer channels from one or more network ports and a single signal channel from some network port, mapped to some signal channel of some TransPath port. If the protocol family is PRI, there is also an optional backup signal channel from some network port, likewise mapped to some signal channel of a TransPath port.

14.2.3 C7/SS7 Network Signal Path

The channel tab in this case shows the network and TransPath ports as port-and-channel trees. The site tree shows bearer channels controlled by and signal channels included in the signal path. In this tree, all bearer channels in a given subscriber line are grouped into a single non-expandable node. The TransPath tree by definition shows just signal channels.

For an SS7 network signal path, the display is somewhat different. As for a non-SS7 path, there is a set of bearer channels from one or more network ports, but here there may be one or more signal channels. These signal channels may come from one or more network ports, mapped to TransPath ports, or they may be carried on external signal-only lines that bypass the mux entirely and connect directly to the TransPath.

The signal paths channel tab for an SS7 network shows the network and TransPath ports as port-and-channel trees, but it also shows the TransPath external lines in a third tree. The site tree shows bearer and signal channels. In this tree, all of the bearer channels in a given subscriber line are grouped into a single node. If you expand this node to see the individual bearer channels, they are shown with their channel numbers and CIC codes. The ports in the TransPath tree and the lines in the TransPath external lines tree by definition only have signal channels.

By default, the ports/lines and channels listed in the channel subtab are only the ones actually associated with the signal path. To facilitate adding channels to a subtab, right-click in it and choose **Show Nonmembers** from the popup menu. This will show all mapped ports, lines, and channels, not just the ones associated with the signal path. In the case of signal channels, it will only include those that are associated with the current TransPath system. They are color-coded as follows: green for channels associated with this signal path, blue for channels associated with another signal path, and yellow for channels that are not associated with a signal path.

14.2.4 Setting Signal Channels for a Signal Path

To add a bearer channel to the signal path, select the signal path, right-click on it, and choose **Add to Link Set** from the popup menu. This can be done for a single bearer channel, for a group of bearer channels, or for all the bearer channels in one or more channel groups or lines.

When you add a set of bearer channels to an SS7 or C7 signal path, a small dialog box prompts you to specify a starting CIC code for the set. The selected channels will be assigned consecutive CIC codes beginning with the specified value. If you choose **Show CIC Codes** from the menu, bearer channels are displayed with their CIC codes.

The process of adding a signal channel varies with the protocol family. A DAS signal path can have only one signal channel. You set the signal path channel by selecting it from the line/channel tree (with non-

members shown) and choosing **Set Signal** from the popup menu. Once it is set, it is displayed at the bottom center of the Channels subtab. You can unset it by choosing **Unset Signal Channel**.

A PRI signal path has a primary signal channel, set as in the previous paragraph, plus an optional backup signal channel, which is set, displayed, and unset similarly.

In the SS7or C7 protocol, a signal path may have multiple signal channels; the set of signal channels for an SS7or C7 signal path is referred to as a *link set.* You can add signal channels to a link set by selecting channels in the line/channel tree (with non-members shown), right-clicking on them, and choosing **Add To Link Set** from the popup menu. Individual signal channels can be removed by selecting them in the line/channel tree, right-clicking on them, and choosing **Remove From Link Set** from the popup menu. The whole link set can be cleared by choosing **Clear Link Set** from the same menu.

The bearer channels grouped with a signal channel may be in the same line as the signal channel, in other lines, or both. A few rules simplify things:

- All bearer channels in a given line belong to the same signal channel. A line cannot be split.
- If a line contains one signal channel, all bearers in that line belong to that signal channel.
- If a line has no signal channels, you must choose a signal channel in some other line to support it.
- If a line contains bearers and multiple signal channels, you must choose one of those signal channels to support all of the lineš bearers.

These rules are not enforced by the Configuration Tool.

When you add channels to the signal path, the channels and their lines change color as shown in the table above. If they do this in the network or subscriber list, the channels and lines to which they are mapped in a TransPath list also change because they too are in the signal path. The reverse is true as well; if you add channels from a TransPath list, their mapped counterparts in the subscriber or network list change. When you add channels from a TransPath external lines list, only that list is affected.

You can select lines rather than channels in the trees; the effect is as if you ad selected all of the channels in those lines. Note that any signal path may have multiple bearer channels, but only an SS7/C7 signal path may have more than two signal channels.

To add a bearer channel to the signal path, select it in the tree, right-click on it, and choose **Add Bearer Channel** from the popup menu.

The dialog shows the current link set members and the selected signal channel. For a signal channel that is mapped through the mux, the dialog shows both the TransPath line/channel and the network or subscriber line/channel that it maps to. For an external-usage line, only the selected line/channel is shown.

The dialog also has a scroll menu where you can select a link code and a numeric field; here you can type a priority. The link code is a number between 0 and 15, but must unique within the link set. The scroll menu lists the link codes that have not already been used in the link set.

When you click **OK**, the new member is added to the link set. The channel turns green in the line/channel tree. If you have chosen to see link set details, the link code and priority appear on the affected channel.

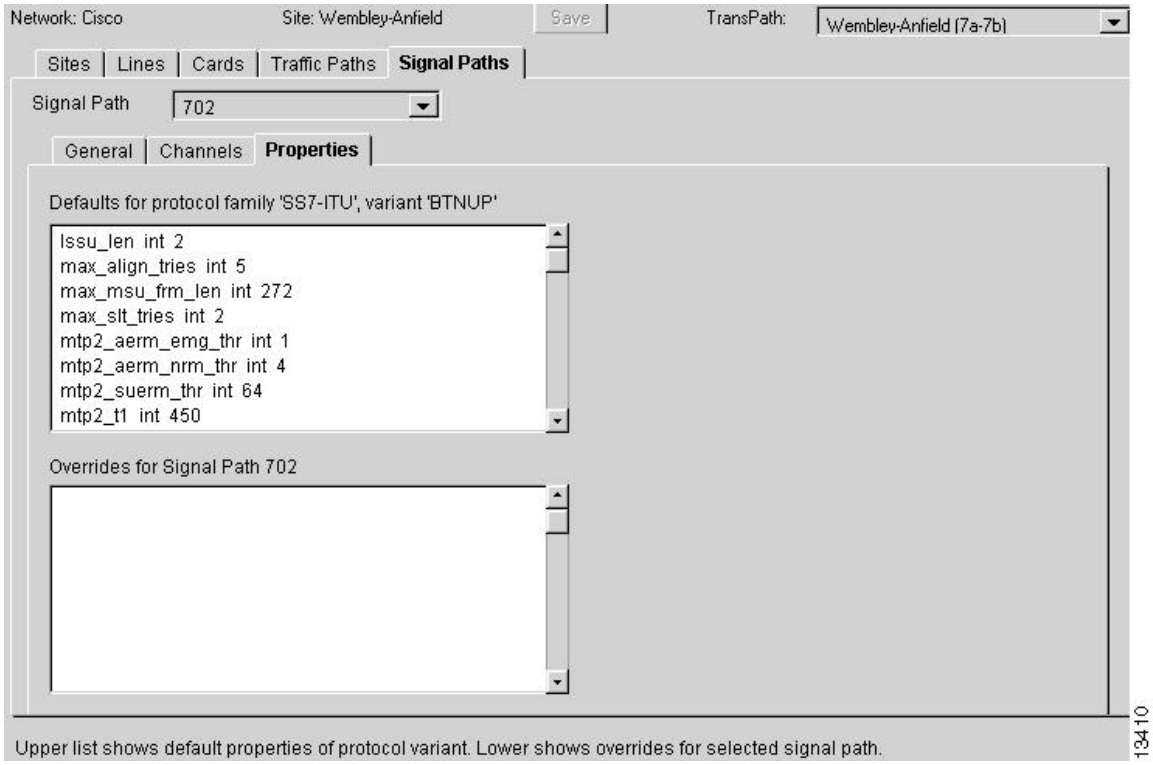
You can modify link set details for a link set member by selecting it and choosing **Modify Link Set Details** from the menu. The same dialog appears. You can change the link code and priority, and click **OK** when done.

You can remove individual signal channels by selecting them in the line/channel tree and choosing **Remove From Link Set**. Clear the whole link set by choosing **Clear Link Set** from the menu.

14.3 Properties Subtab

The Signal Path Properties subtab shows properties for an SS7 signal path. (See Figure 14-5.)

Figure 14-5. Signal Paths Properties Subtab



Properties are for viewing only. You do not have access to change them. This tab has no popup menu.

14.4 Assign CIC to Bearers

Each bearer channel in an SS7 signal path has an associated numeric CIC code. Assign a range of CIC codes to all the bearer channels in an SS7 signal path from the General subtab for that signal path. Set a value in the Starting CIC Code field. The bearer channels are then numbered sequentially (based on their order in a TransPath component).

15. Glossary

A few terms used throughout this guide and related to the TransPath system are defined in this glossary.

Build~~Cr~~eate flat files that are ready for use by the TransPath system

Deploy~~Se~~nd flat files that are ready for use to the TransPath system repository

Signal Path~~Ro~~ute of a signal channel that carries signaling data

Tag~~Id~~entification information, including a number plus other information

Configuration Tool~~Se~~rvice management tool that has a GUI

Traffic Path~~Ro~~ute of a bearer channel that carries voice traffic

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16. Index

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