TimeCraft Release 2.6.2

User's Guide

Revision A - June, 2016

Part Number: 098-00641-262

User's Guide updates are available at: www.microsemi.com

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How to Use This Guide

This section describes the format, layout, and purpose of this guide.

In This Preface

Purpose of This Guide

The *TimeCraft 2.6.2 User's Guide* provides information on how to configure and manage the following network elements:

- SSU-2000
- TimeProvider
- TimeHub
- TimeSource 3x00
- TimeSource 3x50

Who Should Read This Guide

System administrators and other technical personnel who install the TimeCraft application and who install, provision, and maintain the supported network elements.

Structure of This Guide

This guide contains the following sections:

Chapter, Title	Description
Chapter 2, SSU-2000	Provides information on how to use TimeCraft to configure an SSU-2000 network element (NE)
Chapter 3, TimeProvider	Provides information on how to use TimeCraft to configure a TimeProvider network element (NE)
Chapter 4, TimeHub	Provides information on how to use TimeCraft to configure a TimeHub network element (NE)
Chapter 5, TimeSource 3x00	Provides information on how to use TimeCraft to configure a TimeSource 3x00 network element (NE)
Chapter 6, TimeSource 3x50	Provides information on how to use TimeCraft to configure a TimeSource 3x50 network element (NE)
Chapter 7, Error Messages	Provides information on the error messages returned.
Index	Provides references to individual topics within this guide.

Conventions Used in This Guide

This guide uses the following conventions:

- **Acronyms and Abbreviations** – Terms are spelled out the first time they appear in text. Thereafter, only the acronym or abbreviation is used.
- **Revision Control** – The title page lists the printing date and versions of the product this guide describes.
- **Typographical Conventions** – This guide uses the typographical conventions described in the table below.

When text appears this way...	... it means:
TimeCraft 2.6.2 User's Guide	The title of a document.
SSU **CRITICAL** **IOC1**	An operating mode, alarm state, status, or chassis label.
Select **File**, **Open**...	Click the Open option on the File menu.
Press **Enter** Press **;**	A named keyboard key. The key name is shown as it appears on the keyboard. An explanation of the key's acronym or function immediately follows the first reference to the key, if required.
`SSU` `Username:`	Text in a source file or a system prompt or other text that appears on a screen.
`PING` `STATUS`	A command you enter at a system prompt or text you enter in response to a program prompt. You must enter commands for case-sensitive operating systems exactly as shown.
A *re-timing* application	A word or term being emphasized.
Microsemi ***does not*** recommend...	A word or term given special emphasis.

Warnings, Cautions, Recommendations, and Notes

Warnings, Cautions, Recommendations, and Notes attract attention to essential or critical information in this guide. The types of information included in each are explained in the following examples.

Warning: To avoid serious personal injury or death, *do not* disregard warnings. All warnings use this symbol. Warnings are installation, operation, or maintenance procedures, practices, or statements, that if not strictly observed, may result in serious personal injury or even death.

Caution: To avoid personal injury, *do not* disregard cautions. All cautions use this symbol. Cautions are installation, operation, or maintenance procedures, practices, conditions, or statements, that if not strictly observed, may result in damage to, or destruction of, the equipment. Cautions are also used to indicate a long-term health hazard.

ESD Caution: To avoid personal injury and electrostatic discharge (ESD) damage to equipment, *do not* disregard ESD cautions. All ESD cautions use this symbol. ESD cautions are installation, operation, or maintenance procedures, practices, conditions, or statements that if not strictly observed, may result in possible personal injury, electrostatic discharge damage to, or destruction of, static-sensitive components of the equipment.

Electrical Shock Caution: To avoid electrical shock and possible personal injury, do not disregard electrical shock cautions. All electrical shock cautions use this symbol. Electrical shock cautions are practices, procedures, or statements, that if not strictly observed, may result in possible personal injury, electrical shock damage to, or destruction of components of the equipment.

Recommendation: All recommendations use this symbol. Recommendations indicate manufacturer-tested methods or known functionality. Recommendations contain installation, operation, or maintenance procedures, practices, conditions, or statements, that provide important information for optimum performance results.

Note: All notes use this symbol. Notes contain installation, operation, or maintenance procedures, practices, conditions, or statements, that alert you to important information, which may make your task easier or increase your understanding.

Related Documents and Information

Other helpful documents and software tools are listed below. See your Microsemi representative or sales office for a complete list of available documentation.

- SSU-2000 Synchronization Supply Unit and the SDU-2000 Synchronization Distribution Unit, part number 12713020-002-2
- SSU-2000 Technical Reference, part number 12713020-002-3
- TimeProvider 1000 and 1100 Edge Clock User's Guide, part number 097-58001-02
- TimeProvider 1000 and 1100 Node Clock TL1 Reference Guide, part number 097-58001-01
- TimeHub 5500 User's Guide, part number 097-55501-01
- TimeHub 5500 TL1 Reference Guide, part number 097-55501-02
- TimeSource 3000 GPS Primary Reference Source, part number 097-72000-02
- TimeSource 3100 GPS Primary Reference Source, part number 097-72020-01
- TimeSource 3500 GPS Primary Reference Source, part number 097-72050-01
- TimeSource 3600 GPS Primary Reference Source, part number 097-72060-01
- TimeSource 3x50 GPS Primary Reference Source, part number 098-00466-000

Note: Microsemi offers training courses designed to enhance your knowledge of the TimeCraft 2.6.2. Contact your local representative or sales office for a complete list of courses and outlines.

Technical Support

Technical support is provided 24 hours a day through Microsemi's Frequency and Time Division (FTD) Services and Support. Telephone support is available by the hour, in multi-hour blocks, or on a contract basis.

U.S.A. Call Center:
Microsemi
Frequency and Time Division
3870 N 1st St.
San Jose, CA 95134

Toll-free North America: 888-367-7966
Tel: 408-428-7907
Fax: 408-428-7998

E-mail: ftd.support@microsemi.com
Internet: http://www.microsemi.com/ftdsupport

Europe, Middle East, and Africa (EMEA) Call Center:
Microsemi FTD Services and Support EMEA
Altlaufstrasse 42
85635 Hoehenkirchen-Siegertsbrunn
Germany

Tel: +49 700 3288 6435
Fax: +49 8104 662 433

E-mail: ftd.emeasupport@microsemi.com
Internet :http://www.microsemi.com/ftdsupport

What's New In This Guide

The following changes and additions were made from 098-00641-000 Rev. A.

- Added descriptions and screen captures for TimeSource 3X50 ePRTC.

Chapter 1 Installation

This chapter provides information on how to use install TimeCraft.

In This Chapter

Overview

This chapter includes details about how to install and uninstall TimeCraft.

System Requirements

The following are the recommended minimal requirements to support this product:

- Operating Systems:
  - Windows XP
  - Windows 7 32-bit and 64-bit
  - Windows 8 64-bit
- 1 GHz Pentium Processor
- 512 MB RAM
- 1 GB Free Disk Space
- 8x CD-ROM drive
- SVGA display (minimum screen resolution set at 1280 x 1024)

Supported Network Elements – Support Matrix

The following table provides a list of the current supported hardware and firmware revisions. Refer to the System Release Notice (SRN) for firmware versions and compatibility for the product and particular release version you are using.

Table 1-1. Hardware and Firmware Support Matrix

System	Versions
TimeProvider 1000/1100	1.0, 2.1, 2.2, 3.0, 3.1, 3.1.1, 3.2, 3.3, 3.4
SSU 2000	4.1, 4.2, 5.1, 6.0. 6.1.1, 6.2, 6.3, 6.4, 7.0, 7.1, 7.2
TimeHub	R4209C, R4315C, R4328E, 3.2.2, 4.1.3, 5.0.5, 6.0, 6.1
TimeSource 3500/3000	1.06.06, 1.06.07, 1.06.10, 1.07.02, 1.07.04, 1.07.06
TimeSource 3600/3100	1.06.04, 1.06.09, 1.06.11, 1.07.05
TimeSource 3x50	1.0, 2.0.2

Installing The TimeCraft Application

Notes:

Administrative privileges may be required to install this product.

Please read this procedure and Uninstalling The TimeCraft Application, on page 41 before attempting to install this release.

TimeCraft 2.3, TimeCraft 2.4, TimeCraft 2.5, or TimeCraft 2.6 can be upgraded using TimeCraft 2.6.2. TimeCraft 2.6.2 is not upgradable from TimeCraft 2.2 or earlier versions. If earlier versions of TimeCraft (2.2 or earlier) exist on the target system, before installing TimeCraft 2.6.2, save the connections folders and then ensure that all earlier versions of TimeCraft have been uninstalled.

Follow the procedure for uninstallation in Uninstalling The TimeCraft Application, on page 41.

Note: Use the following steps to backup connections:

1. Open Windows Explorer and browse to the TimeCraft installed location (Default is "C:\Program Files\Symmetricom\TimeCraft").
2. Copy the connections folder to another location.
3. Uninstall earlier version of TimeCraft.
4. Install TimeCraft 2.6.2.
5. Copy the Connections folder to the TimeCraft installed location (Default is "C:\Program Files\Microsemi\TimeCraft" on 32 bit OS, and "C:\Program Files (x86)\Microsemi\TimeCraft" in case of 64 bit OS).

Note: To migrate the connections created in TimeCraft 2.2 and earlier to the TimeCraft 2.6.2 connections folder structure, you can use Windows explorer to create the directories with the following steps:

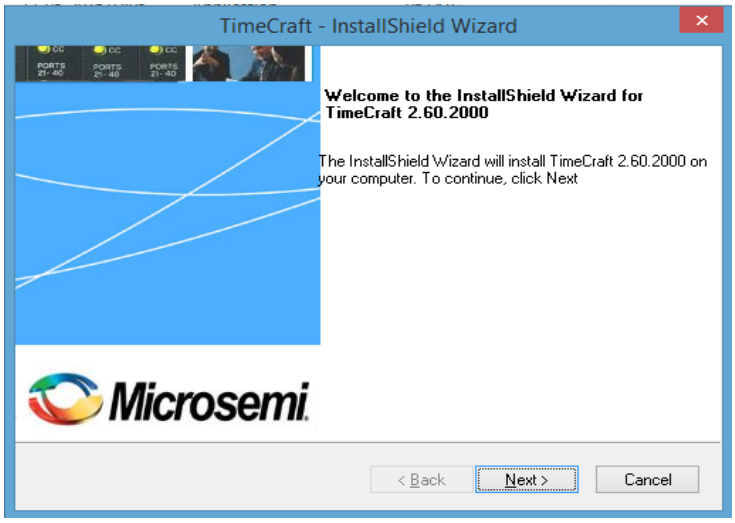
1. Open Windows Explorer and browse to the Connections folder in the TimeCraft installation location (Default is "C:\Program Files\Symmetricom\TimeCraft").
2. Create sub folders to reflect site/location as desired.
3. Move the connection files in the connection folder created in TimeCraft 2.2 and earlier to the created sub folders.

To verify that the connections were properly created, start the TimeCraft application, select the **Connection** menu item and click **Open Connection**. The connections should appear in the folder trees.

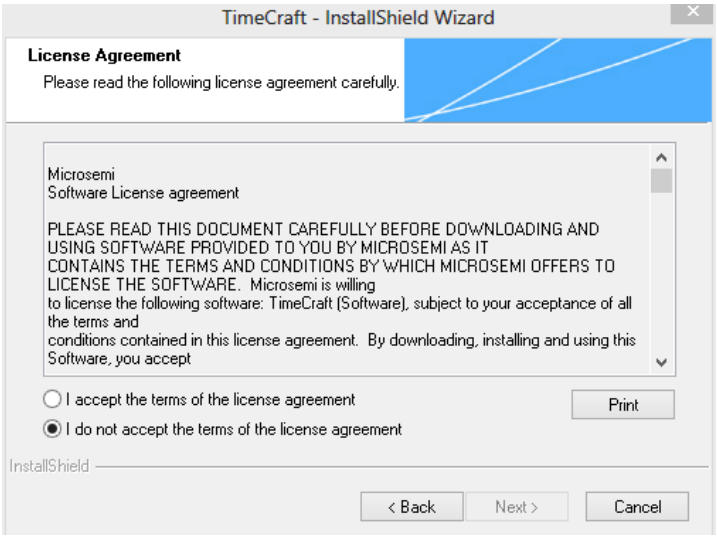
Note: If TimeCraft 2.3, 2.2, 2.1, or 2.0 is to be re-installed for some reason, TimeCraft 2.6.2 must be uninstalled first. Refer to Uninstalling The TimeCraft Application**, on page 41**. This helps avoid registry or directory conflicts due to known issues with the TimeCraft Installer.

Use the following procedure to install TimeCraft:

1. Insert the CD-media into the CD-ROM drive.
2. Open the CD-ROM folder and double click on “Setup.exe”.
3. When the installer Welcome screen appears, click **Next**.



4. Click the “I accept the terms of the license agreement” radio button and click **Next**.



a. SynCraft/TimeCraft Previous Version File Located:

If the Installer detects that a previous version of TimeCraft or SynCraft prior to version 2.2 is already installed, a message dialog appears stating that the application must be uninstalled before you can continue. Refer to the procedure Uninstalling The TimeCraft Application, on page 41.

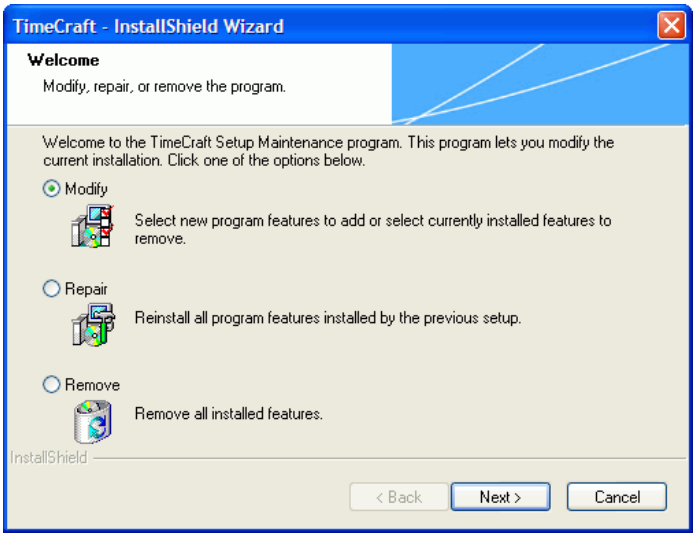
If the SynCraft or TimeCraft Installer can't be located in the programs list, please go to the directory C:\Program Files\Symmetricom\ (or any directory where TimeCraft/SynCraft was installed) and locate the TimeCraft/SynCraft folder(s). The folder should include a "TimeCraftUninstall.exe" file, which can be used to uninstall the directory. Double-click on the "TimeCraftUninstall.exe" file to run it.

If the "TimeCraftUninstall.exe" file can't be located, manually delete the TimeCraft/SynCraft folders by dragging them to the Recycle Bin. Then follow the procedure Removing SynCraft / TimeCraft Files From System Registry, on page 43 to remove the SynCraft/TimeCraft files from the system registry.

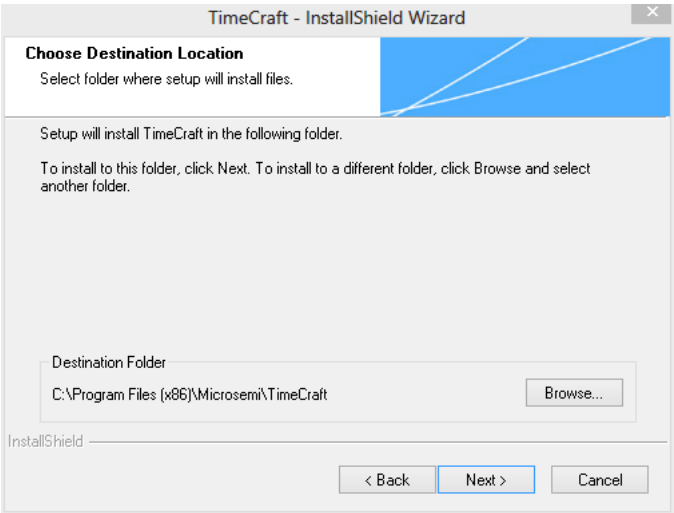
b. TimeCraft 2.2 or later is present
If the Installer detects that a previous version of TimeCraft or SynCraft later than or including version 2.2 is already installed, a message dialog appears prompting you to upgrade.

c. TimeCraft 2.6.2 Already Present:

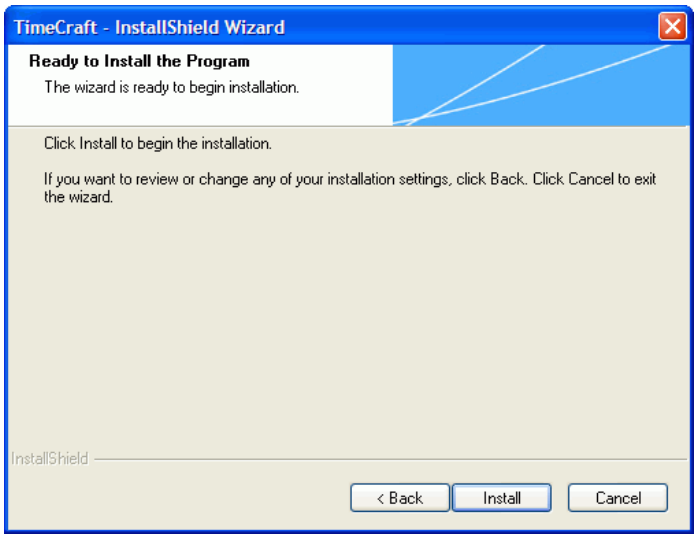
If the installer detects that TimeCraft 2.6.2 is already present on the system, the following screen appears. Click the radio button for the appropriate task: Modify, Repair, or Remove. Click **Next** and follow the instructions on the screen.



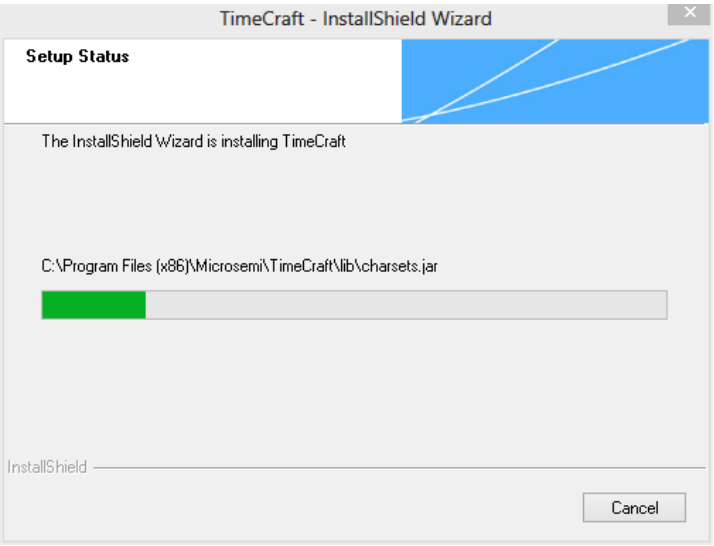
5. Click **Browse** to navigate to a desired directory, or click **Next** to install TimeCraft in the default directory. The default directory is "C:\Program Files" on 32 Bit OS and "C:\Program Files (x86)" on 64 bit OS and the installer automatically creates the \Microsemi\TimeCraft directory.



6. Click **Install** to continue.

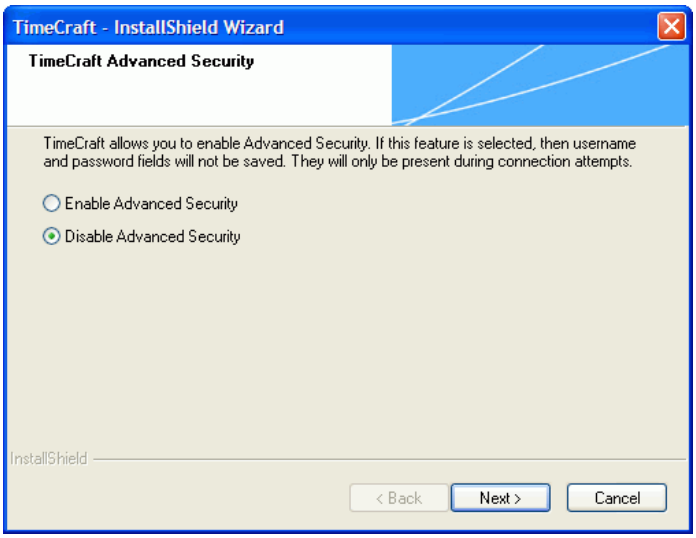


7. During installation, a status bar indicates the installation progress.

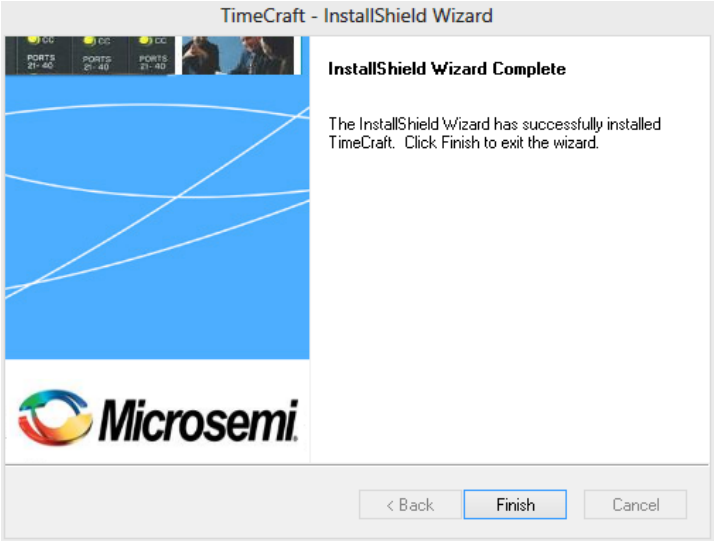


8. Select the Enable Advanced Security radio button, or the Disable Advanced Security radio button to enable or disable advanced security. If advanced security is enabled, the user is required to provide a username and password with each attempt to open a connection to a device. If advanced security is disabled, this information is stored on the computer so the user does not need to enter the username and password with each attempt to open a connection to a device.

   Then click the **Next** button.



9. The InstallShield Wizard Complete screen appears when the installation is finished. Click the **Finish** button.



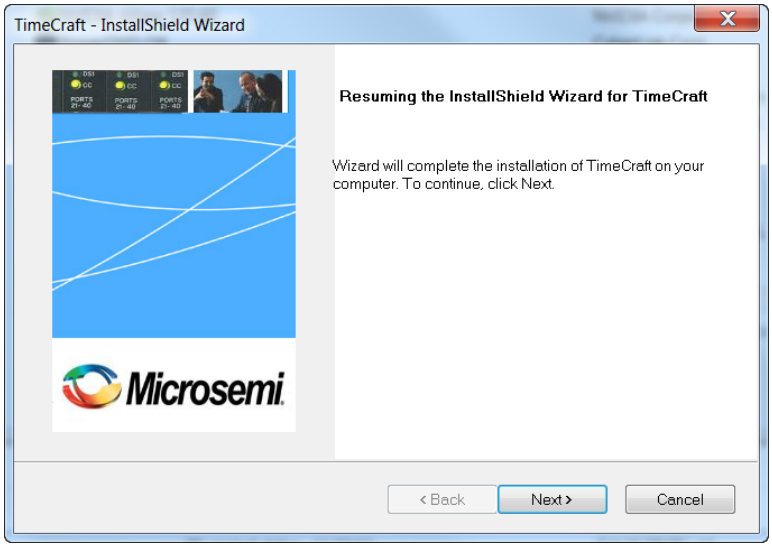
Note: After upgrading and existing installation of TimeCraft with 2.6.2 on Vista or Windows 7, copy the connection details which are stored in the user virtual store directory to the new installed location.

Upgrading from TimeCraft 2.3/2.4/2.5 or later to TimeCraft 2.6.2

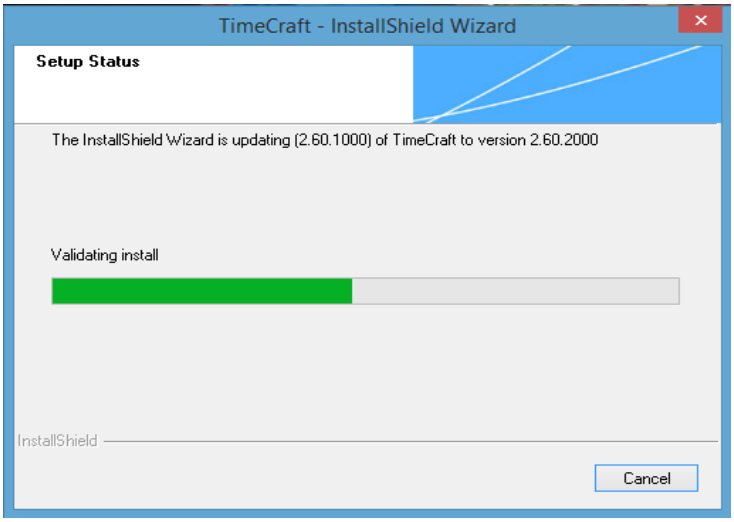
Use the following procedure to upgradeTimeCraft 2.6.2.

1. Insert the CD-media into the CD-ROM drive.
2. Open the CD-ROM folder and double click ON “Setup.exe”.
3. When the upgrade confirmation dialog appears, click **Yes**.

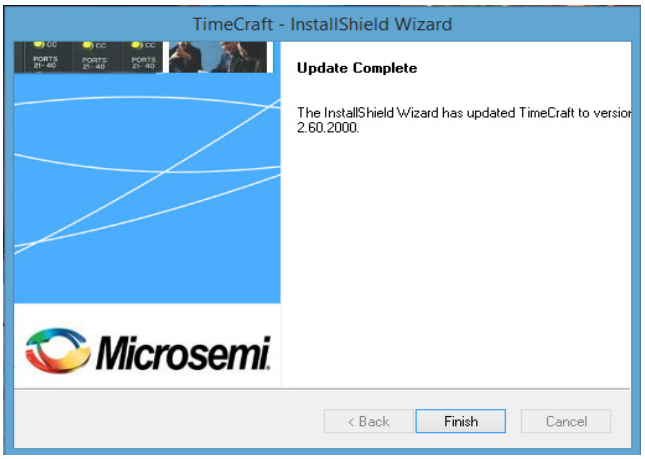
4. When the installer Resume screen appears, click **Next**.



5. During upgrade, a status bar indicates the upgrade progress



6. The InstallShield Wizard Update screen appears when the update is finished. Click the **Finish** button.



Note: After upgrading and existing installation of TimeCraft with 2.6.2 on Vista or Windows 7, copy the connection folder information to the location for that version.

Uninstalling The TimeCraft Application

Note: Before you uninstall either SynCraft or TimeCraft, if you want to retain your list of connections make a copy of the connections folder located in the \Program Files\Symmetricom\SynCraft or \TimeCraft directory. Move the copy of the connections folder out of the application directory so that it is not deleted during the uninstall. After you install TimeCraft, copy the connections folder to the "C:\Program Files\Microsemi\TimeCraft" directory on 32 Bit OS or "C:\Program Files (x86)\Microsemi\TimeCraft" directory on 64 Bit OS.

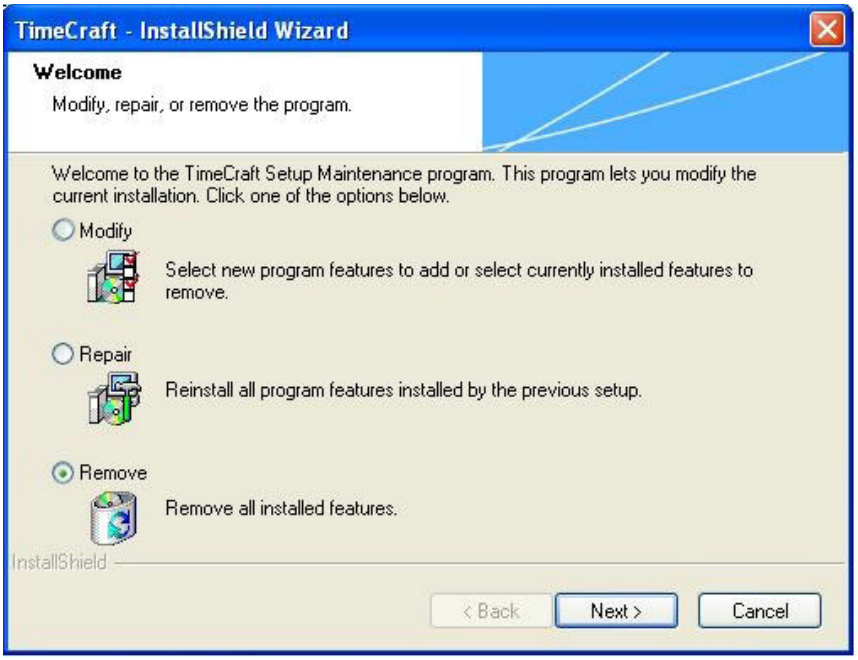
Ensure that all TimeCraft window are closed before uninstalling TimeCraft.

Use the following procedure to uninstall the applications associated with TimeCraft:

Note: Use the standard Windows procedure for uninstalling a program. This should be repeated individually for every program.

There are two methods for uninstalling TimeCraft 2.6.2 as shown in Step 1., and Step 2.

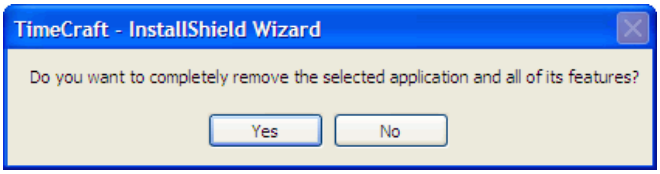
1. Users can uninstall TimeCraft 2.6.2 by clicking “setup.exe” from the CD-ROM and choosing the **Remove** option in the TimeCraft Maintenance window and clicking **Next**. Then continue with Step 3.



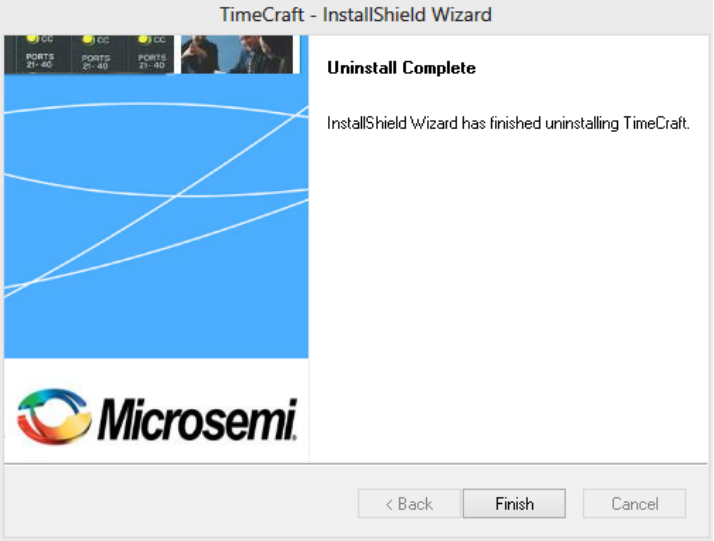
Or

2. From the **Start** menu, select **All Programs**->**Symmetricom**->**TimeCraft**->**UnInstall TimeCraft**. Then continue with Step 3.

3. In the InstallShield Wizard screen, click **Yes** to remove the application and all features.



4. When the uninstall is complete, click **Finish**.



5. Repeat these steps to remove any other installed applications.

6. Ensure the \Program Files\Symmetricom or \Program Files\Microsemi directory is empty after uninstallation. If a TimeCraft/Syncraft directory remains, open it. The directory should include a “TimeCraftUninstall.exe” file, which can be used to uninstall the directory. Double-click on the “TimeCraftUninstall.exe” file to run it.

   If the you can’t locate the “TimeCraftUninstall.exe” file, manually delete the TimeCraft/SynCraft folders by dragging them to the Recycle Bin.

Note: On Windows Vista and Windows 7, after uninstalling TimeCraft some application files may still be present in the virtual store directory. This may cause TimeCraft to “remember” settings from a previous installation which has already been uninstalled. Therefore, for a clean uninstall, open the C:\Users\User_name\AppData\Local\VirtualStore\MyApp folder, and then delete any obsolete application data.

Removing SynCraft / TimeCraft Files From System Registry

Caution:

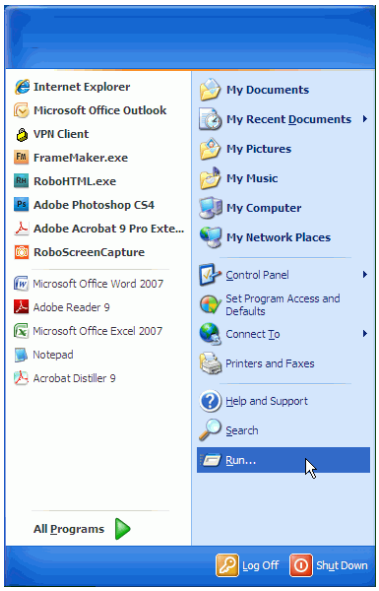
Microsemi recommends that the following procedure only be performed by Network/PC System Administrators.

Be very careful when removing SynCraft or TimeCraft files from the registry. Please follow the instructions below very closely and carefully. Microsemi is not responsible for any unintended deletetion of registry files.

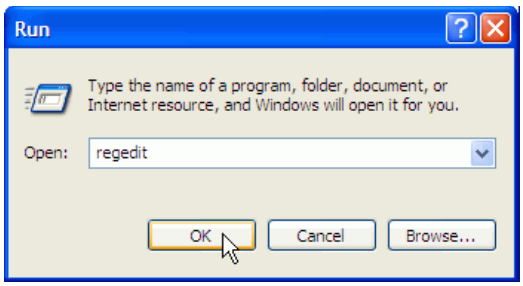
If you have any questions or concerns about this procedure, please call Microsemi Technical Support for assistance.

1. Click on the **Start** button.

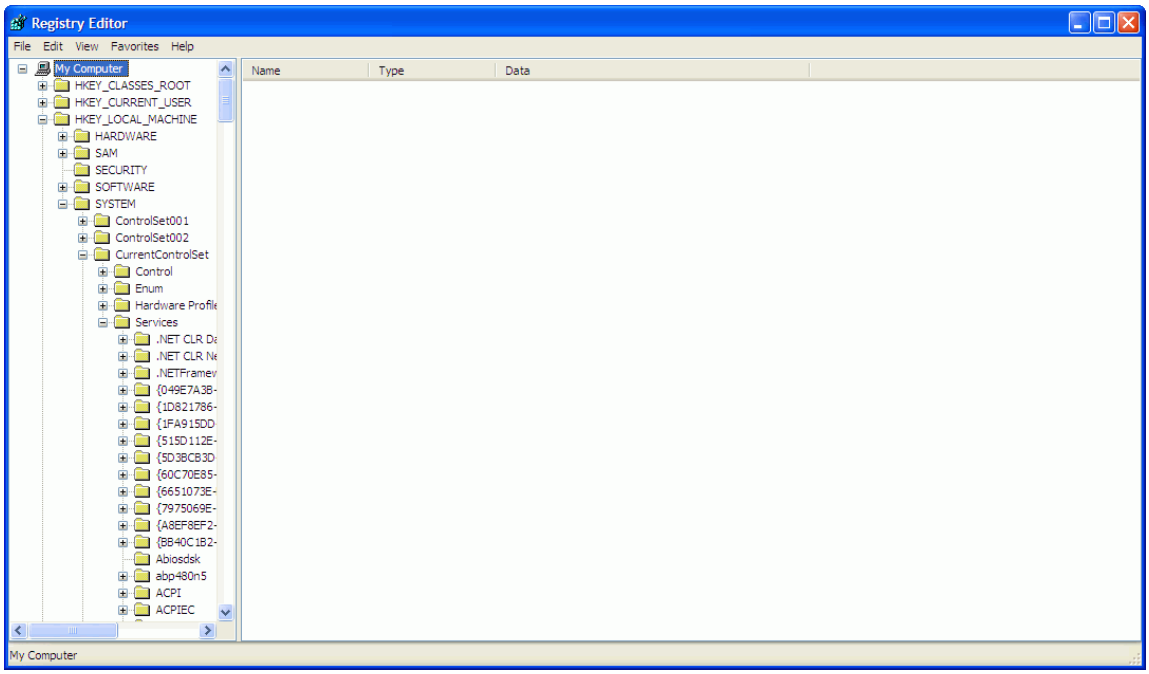
2. Select **Run...**



3. Type in “regedit” and click on the **OK** button.

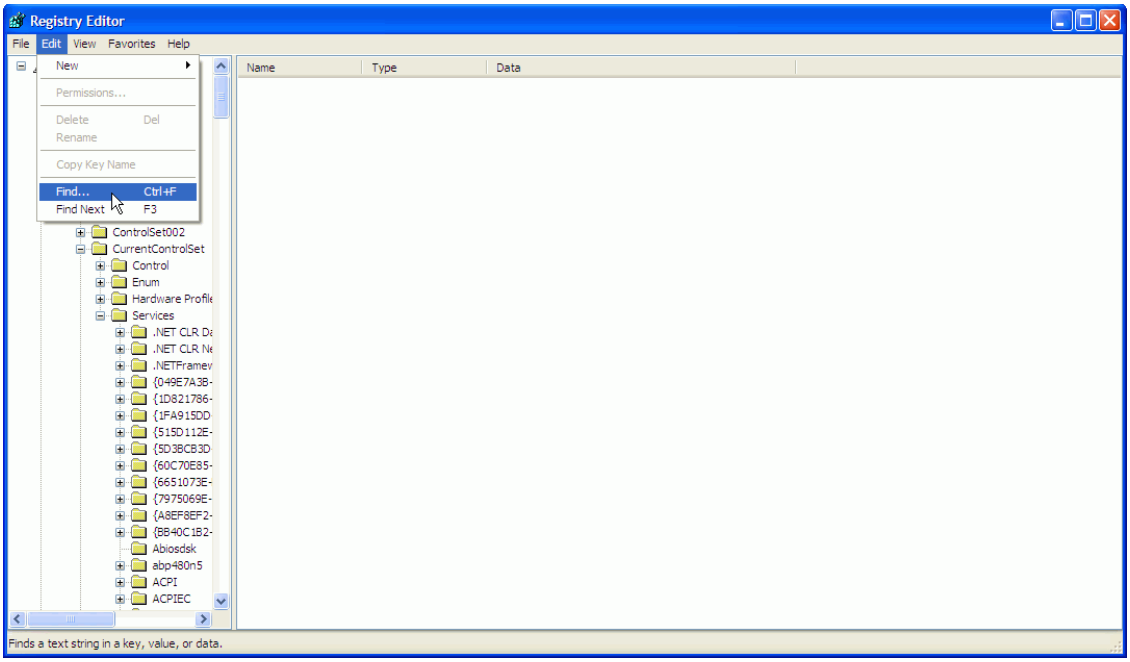


The Registry Editor window appears.

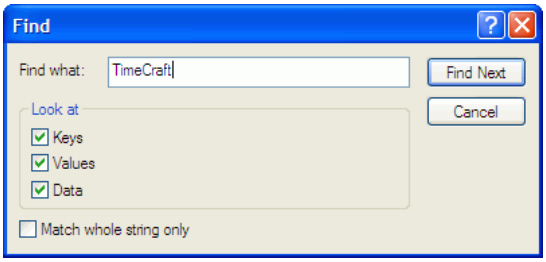


4. Select **My Computer** from the left tree. Then select **Find** from the **Edit** menu.

   My Computer > Edit > Find



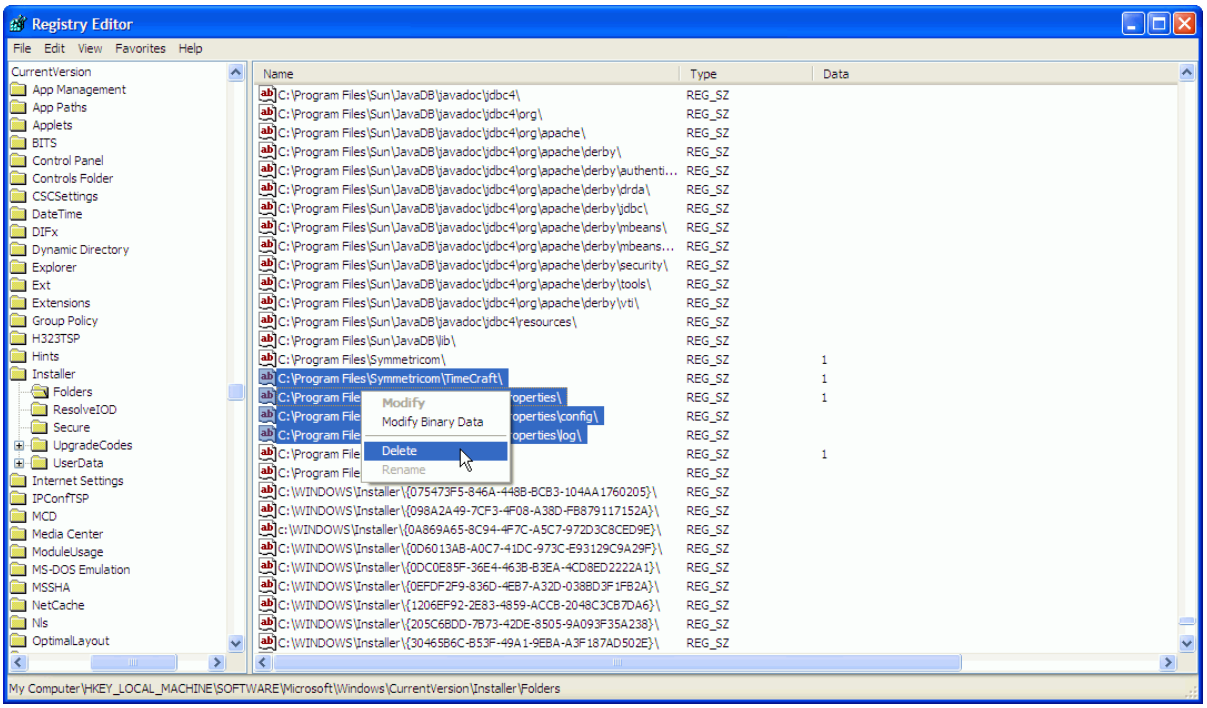
5. Enter “SynCraft” or “TimeCraft” in the “Find what” field. Click the **Find Next** button and wait for the search result.



6. If any SynCraft or TimeCraft files are found, select them. Then right-click on the selected files and select **Delete** to remove them from the registry.

Caution:

Be very careful when selecting SynCraft or TimeCraft files and deleting them from the registry. Microsemi recommends that this process only be performed by Network/PC System Administrators. Microsemi is not responsible for any unintended deletion of registry files.



7. Press **Find Next** (or F3) to continue the search, delete all findings. Repeat Steps 6 and 7 until all TimeCraft/SynCraft files are found and deleted.

Chapter 2 SSU-2000

This chapter provides information on how to use TimeCraft to configure an SSU-2000 network element (NE).

In This Chapter

Overview

Navigation Overview

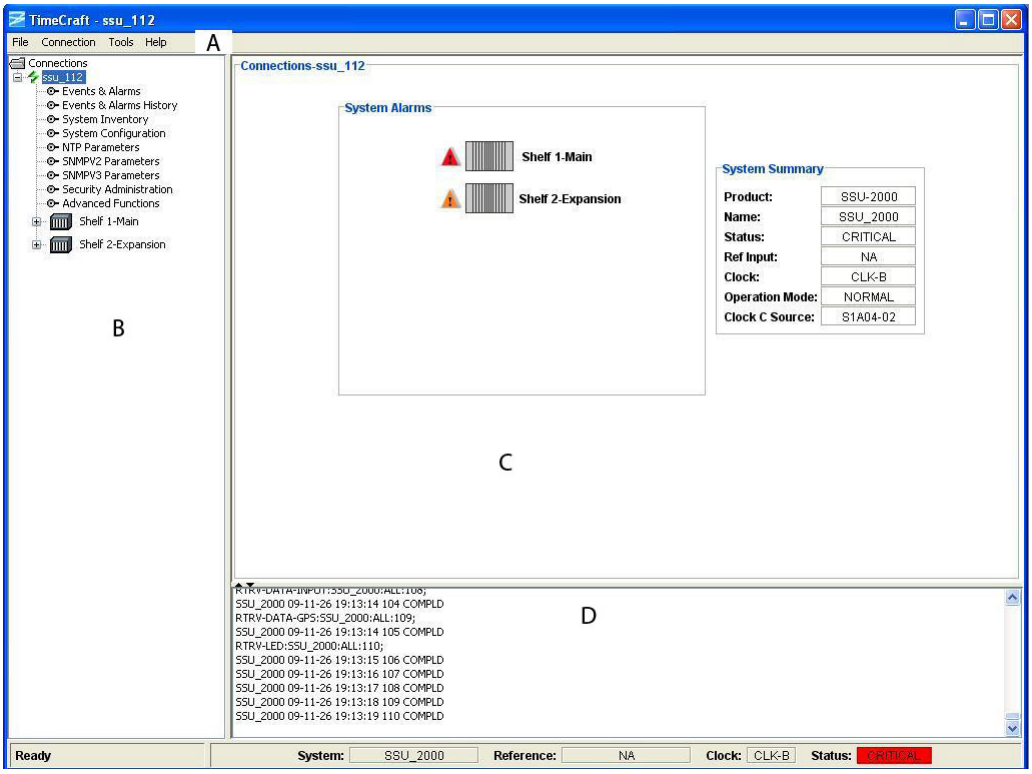
Menu Items (A) allow you to:

- Exit the Application
- Manage Network Element Connections
- Create Performance Charts
- View the TL1 Log
- Upgrade the Firmware
- Open a Telnet Session
- Open a Terminal Window
- Open Help Files

The **Browser View** Panel (B) remains empty until the user opens any connection. Once the network element is connected, the Browser provides a list of modules installed in that element. And after closing the connection, the browser displays an empty screen.

The **Detail View** panel (C) provides a graphical view of the module that is selected in the Browser. In the Detail View panel, you can see the configuration settings and edit the settings.

TL1 commands are displayed in the **TL1 View** panel (D) and allows users to view the TL1 commands sent to the network element and view network element responses. The TL1 commands are passive and cannot be edited.



Menu Items

Main Menu items include **File**, **Connection**, **Tools**, and **Help**. The following information describes the submenu items for each Main Menu item.

Field / Section	Description
File	
Exit	Exit the TimeCraft Application
Connection	
New Connection	Create a new connection to a network element by allowing the user to save the connection in the connections folder or create sub folders up to 5 levels and save them in the sub folders
Open Connection	Open a connection to the network element by browsing the connections folder hierarchy
Close Connection	Close the current session

Edit...	Edit a chosen network element's connection properties by browsing the connections folder hierarchy
Refresh Connection	Refresh the view of the currently connected network element
Delete...	Delete a chosen network element's connection setup by browsing the connections folder hierarchy
Tools	
Performance Charting	Launches the **Performance Setup** screen to setup performance graphing for MTIE, TDEV, and Phase data
TL1 Log View	Displays the TL1 log for the current month or click Refresh to display the log for the current session
Firmware Upload...	To upload new firmware to the SSU-2000, SSU-2000 NTP blades, SSU-2000 PTP blades, SSU-2000 IMC card, SSU-2000 Legacy blades, TimeHub, TimeHub NTP blades, TimeHub PTP blades, TimeProvider, TimeSource, OT-21, TSG-3800 and PRS-10 network elements.
Telnet	Launches a telnet session to the highlighted network element. See **Note** that follows.
Terminal	Launches a terminal window that allows you to enter and send TL1 commands and also displays received responses and autonomous messages
Help	
TimeCraft Help	Obtain online help for the TimeCraft System
About TimeCraft	Displays TimeCraft copyright and version information

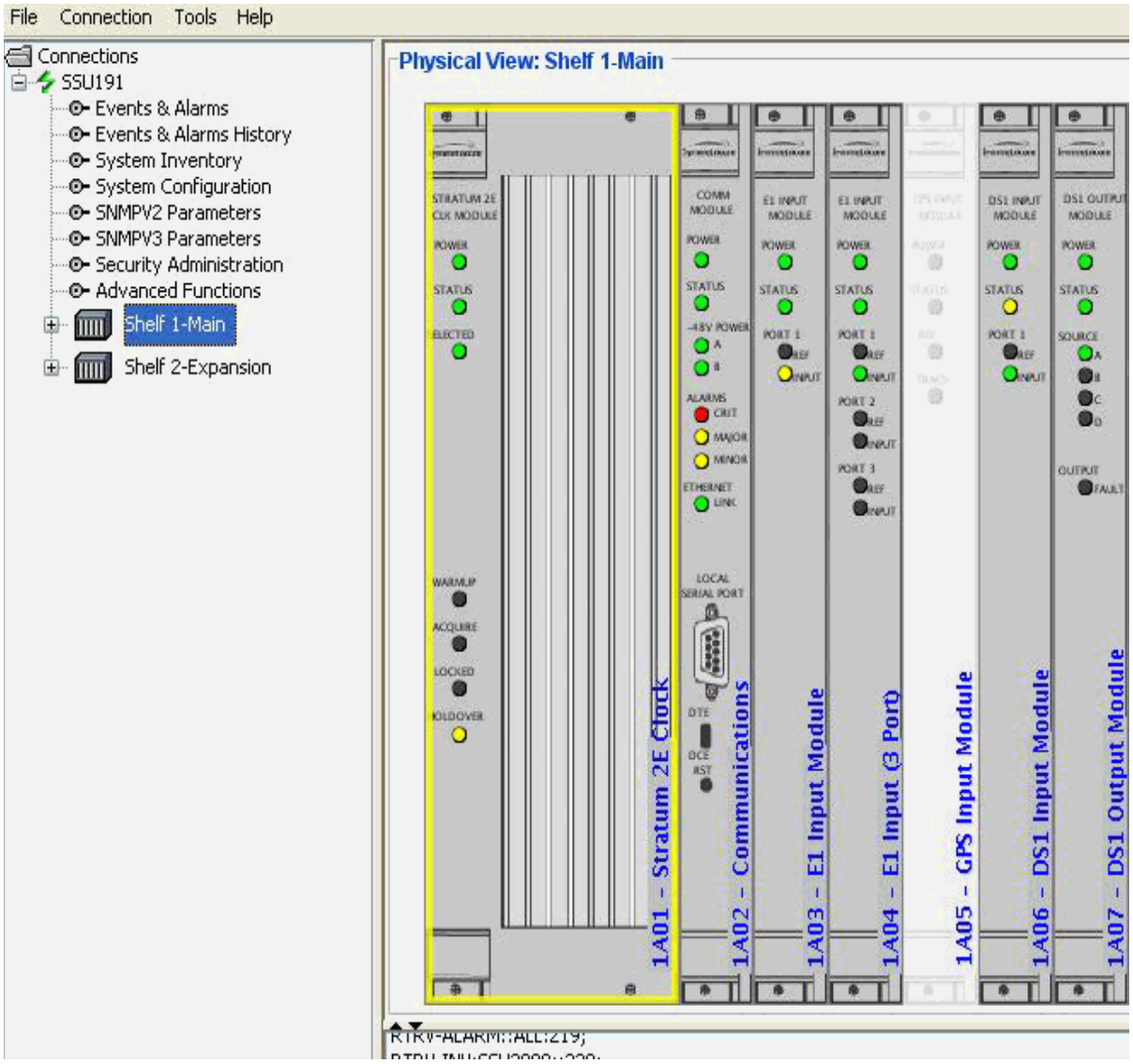
Note: By default, the telnet utility on Windows 7 will not be available. To use telnet on Windows 7, you need to install the telnet utility manually.

Main Shelf Screen

The Main Shelf screen is displayed in the Detail View panel of the TimeCraft Main screen. Each module in this view is a simulation of modules in the physical SSU-2000 main shelf. Alarm LEDs are always active and replicate the status indications of those on the modules in the physical shelf. Clicking any modules will open a screen displaying more information about that module. Each module is also listed in the tree structure of the Browser View panel and reflects the same alarm status information. Clicking any module in the tree structure will display information on that module in the Detail View panel. Right clicking the mouse in the Browser view provides additional functions particular to the highlighted item.

For the SSU-2000, module AIDs designate the Main Shelf as S1. For example, an AID of S1A03 indicates the module in the third slot of the Main Shelf.

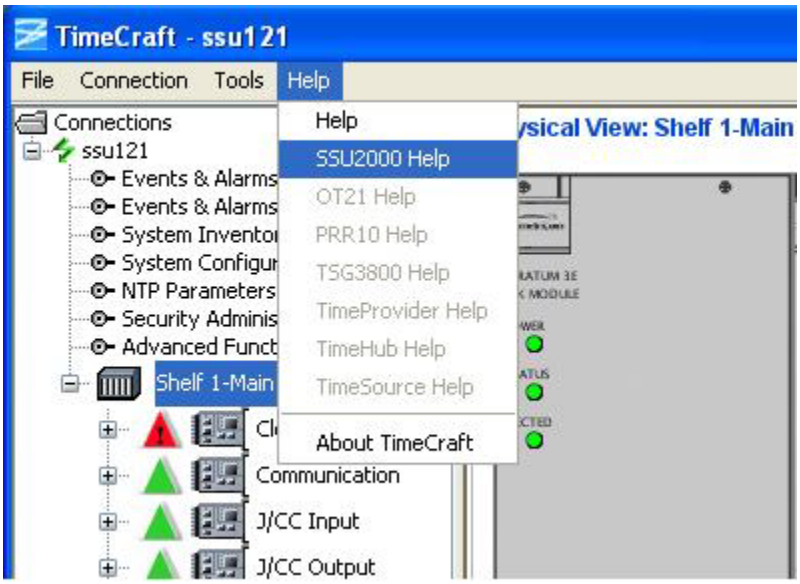
The SSU-2000 can support up to 4 Expansion Shelves. Expansion Shelves are designated as S2 through S5. For example, an AID of S2A05 indicates the module in the fifth slot of Expansion Shelf 1. An AID of S5A02 indicates the module in the second slot of Expansion Shelf 4.



Online Help

The Online Help provides complete standalone help for the TimeCraft system. You can access Help topics using one of the following methods:

- TimeCraft Main Menu (shown below)
- Online Help Search Feature (after launching Help)
- Help buttons on network element screens



Field	Description
Help	Opens a basic Online Help system containing information about error codes and how to manage connections
SSU2000 Help	Opens TimeCraft SSU2000 Online Help
OT21 Help	Opens TimeCraft OT21 Online Help
PRR10 Help	Opens TimeCraft PRR10 Online Help
TSG3800 Help	Opens TimeCraft TSG3800 Online Help
TimeProvider Help	Opens TimeCraft TimeProvider Online Help
TimeHub Help	Opens TimeCraft TimeHub Online Help
TimeSource Help	Opens TimeCraft TimeSource Online Help
About TimeCraft	Displays TimeCraft copyright and version information

Connection Management

New Connection

To establish a new connection:

1. Click **Connection** on the menu bar.
2. Click **New Connection** from the drop-down menu to open the "Create New Connection" screen.

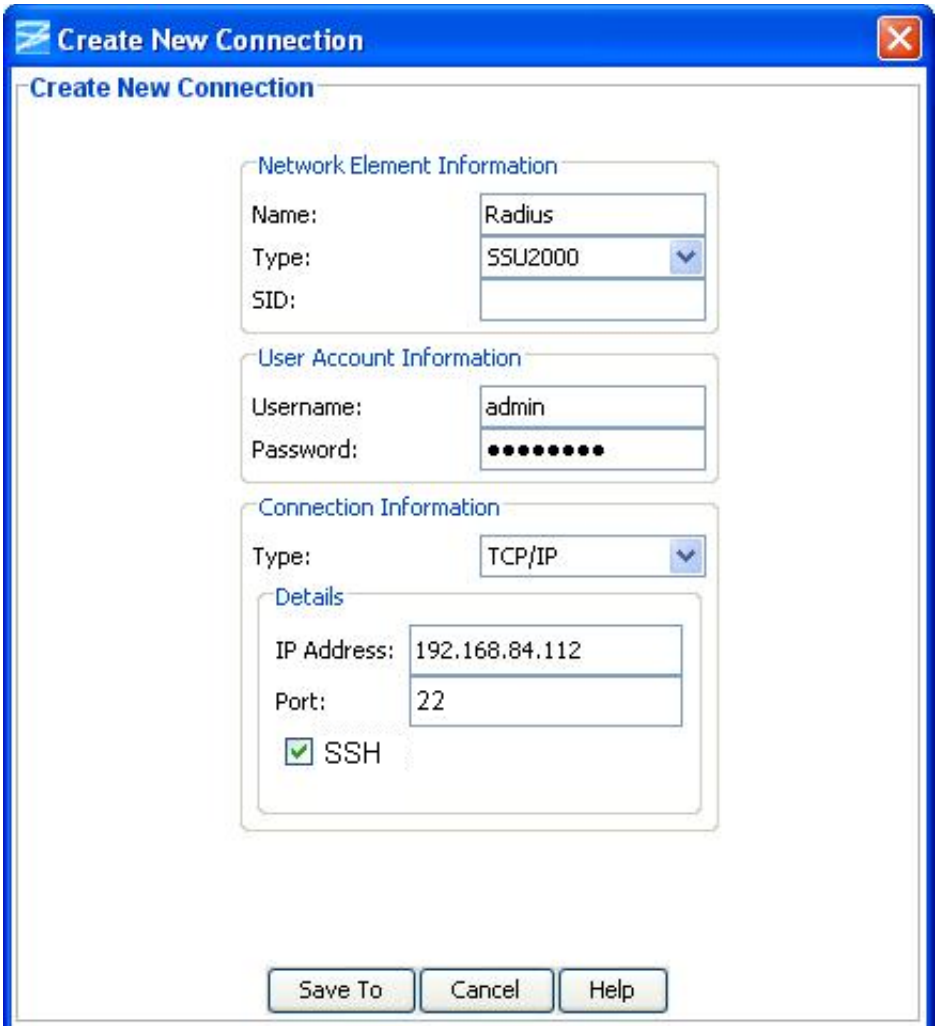
3. Enter the appropriate data in all fields described in the table below.

4. Click the **Save To** button to open the file Chooser dialog.

5. The User can save the connection (.conprops file) under the connections folder or create a sub folder in the connections folder.

Note: Once the sub folder is created, if the folder is not getting the focus, select the folder manually.

6. Click **Save** to save the data and close the dialog box, or click **Cancel** to close the dialog box without saving the data entered.



Note: Some text box information changes to provide details associated with the type of network element selected.

Note: If TimeCraft Advanced Security is enabled, Username and Password fields will not be shown to the user.

Section and Field	Description or Action
Network Element Information	
Name	Enter a unique name for this connection as it will appear in the connection list
Type	From the drop-down menu, select the type of network element with which to connect
SID	This is the source identifier. When a connection command is sent to the network element (TID), the source identifier (SID) is sent back. The default SID is the network name.
User Account Information	
Username	Enter a username to log on to the network element
Password	Enter a password. The password field displays asterisks when text is entered. If security is not enabled on the network element, the Account and Password fields may be left blank. **Note:** The password is case sensitive.
Connection Information	
Type	Connection Type determines how TimeCraft will connect to the network element. From this drop-down menu, select TCP/IP, serial/USB-serial, or modem. The default is TCP/IP.
TCP/IP Connection Details	
IP Address	Enter the IP address of the network element selected in the Network Element Information Section
Port	Enter the host port for the IP address. Ports 2000 (default) and 3083 are available for TCP/IP connections.Microsemi recommends Port 3083. See Verify/Change TCP/IP Port for SSU-2000.
SSH	Select the check box to manage a SSU 2000 (Linux Communication module) using SSH. Port 22 is used while managing SSU 2000 devices.
Serial / USB-Serial Connection Details	

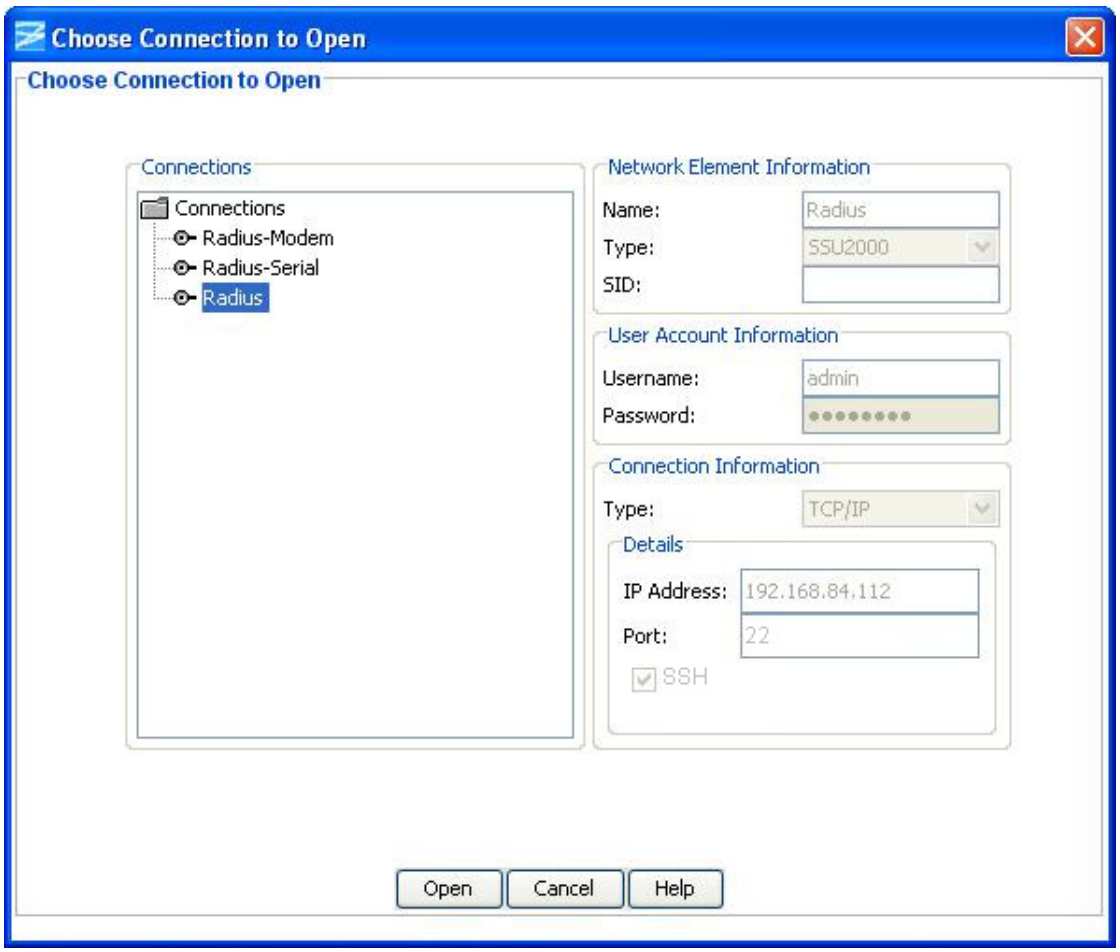
Com Port	This field indicates the serial/USB-serial communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, 4, 5, 6, 7, or 8. The default is Com Port 1. See Verify USB-Serial COM Port for details.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 2400 bps.
SSU Enabled	Select the check box to manage an SSU 2000 (Linux Communication module).
Modem Connection Details	
Com Port	This field indicates the communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, or 4. The default is Com Port 1.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 2400 bps.
Phone	This field is for the modem's telephone number.
SSH Enabled	Select the check box to manage a SSU 2000 (Linux Communication module).

Open Connection

To open a connection from the Main Menu:

1. Click **Connection**.
2. Click **Open Connection** from the drop-down menu to open the "Choose Connection to Open" screen.
3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.
4. Click on a network element to select it and click the **Open** button.

Note: If TimeCraft Advanced Security is enabled, Username and Password fields will not be shown to the user.



Close Connection

To close a connection from the Main Menu:

1. Click **Connection**.
2. Select **Close Connection** from the drop-down window to close the current session.

To close a connection from the Browser panel:

1. Select a network element.
2. Left-click and select **Close Connection** in the drop-down window to close the current session.

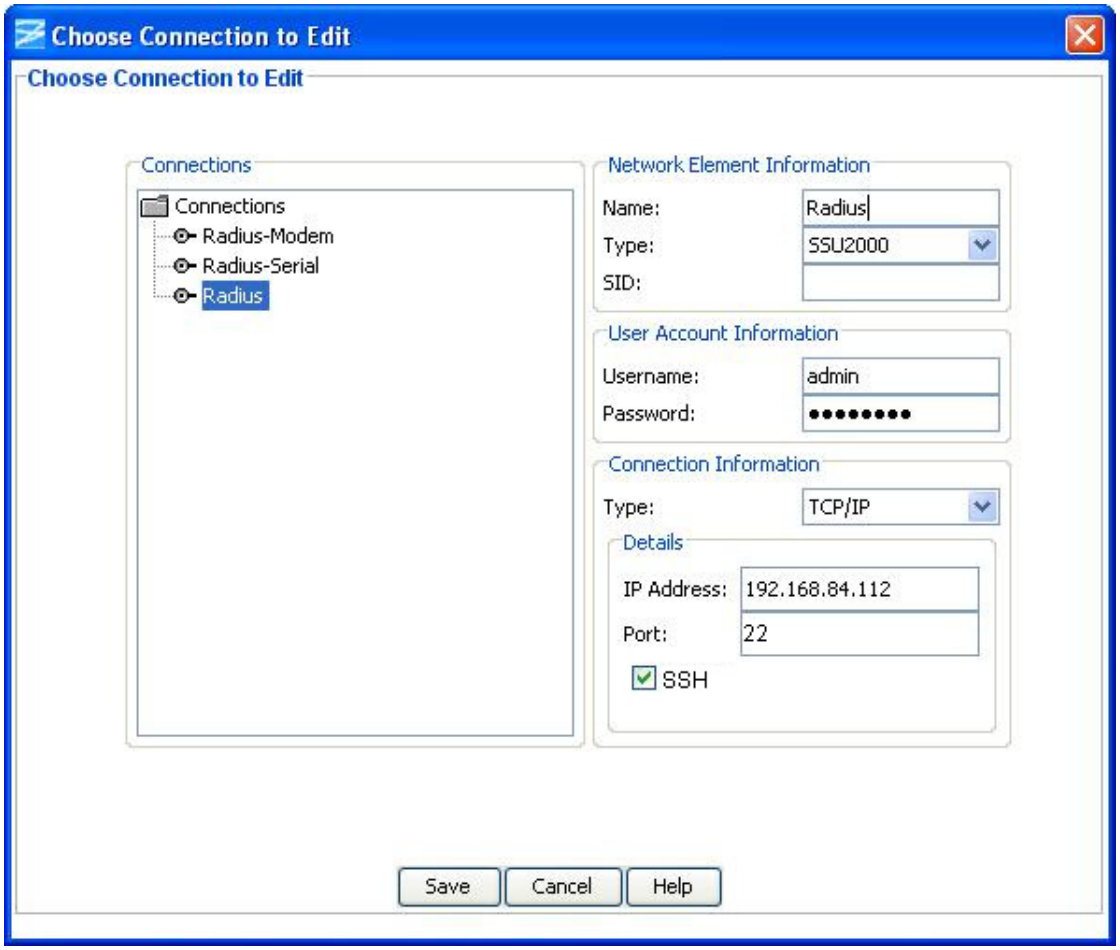
Edit Connection

To edit a network element:

1. Click **Connection** on the Main Menu.
2. Click **Edit...** from the drop-down menu to open the "Choose Connection to Edit" screen.
3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.
4. Select a network element in the selected sub folder under the "Connections" panel (left panel).
5. Edit the content of appropriate field which you want to edit.
6. Click **Save** to save the data and close the dialog box, or click **Cancel** to close the dialog box without saving data.

Note: If a folder does not contain connection files, then that folder will not be displayed in the connections folder hierarchy as a directory structure.

Note: If you want to move the connection files to a different location/folder inside the 'connections' directory, browse to the TimeCraft installed directory through windows explorer, open the connections folder and then move the connections file to the desired location/folder.



Notes:
Some text box information changes to provide details associated with the type of network element selected.

If TimeCraft Advanced Security is enabled, Username and Password fields will not be shown to the user.

Section and Field	Description or Action
Network Element Information	
Name	Enter a unique name for this connection as it will appear in the connection list
Type	From the drop-down menu, select the type as TimeHub
SID	This is the source identifier. When a connection command is sent to the network element (TID), the source identifier (SID) is sent back. The default SID is the network name.

User Account Information	
Username	Enter a username to log on to the network element
Password	Enter a password. The password field displays asterisks when text is entered. If security is not enabled on the network element, the Account and Password fields may be left blank. **Note:** The password is case sensitive.
Connection Information	
Type	Connection Type determines how TimeCraft will connect to the network element. From this drop-down menu, select TCP/IP, serial/USB-serial, or modem. The default is TCP/IP.
TCP/IP Connection Details	
IP Address	Enter the IP address of the network element selected in the Network Element Information Section
Port	Enter the host port for the IP address. Ports 2000 and 3083 are available for TCP/IP connections. Microsemi recommends Port 3083. See Verify TCP/IP Port for SSU-2000.
SSH	Select the check box to manage a SSU 2000 (Linux Communication module). Port 22 is used while managing SSU 2000 devices.
Serial / USB-Serial Connection Details	
Com Port	This field indicates the serial/USB-serial communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, 4, 5, 6, 7, or 8. The default is Com Port 1. See Verify USB-Serial COM Port for details.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 2400 bps.
SSH Enabled	Select the check box to manage an SSU 2000 (Linux Communication module).
Modem Connection Details	
Com Port	This field indicates the communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, or 4. The default is Com Port 1.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 2400 bps.
Phone	This field is for the modem's telephone number.
SSH Enabled	Select the check box to manage an SSU 2000 (Linux Communication module).

Refresh Connection

To refresh the system view from the Main Menu:

1. Click **Connection**.
2. Select **Refresh Connection** from the drop-down window.

To refresh the system view from the Browser panel:

1. Select the network element.
2. Left-click and select **Refresh Connection** from the drop-down screen.

Delete Connection

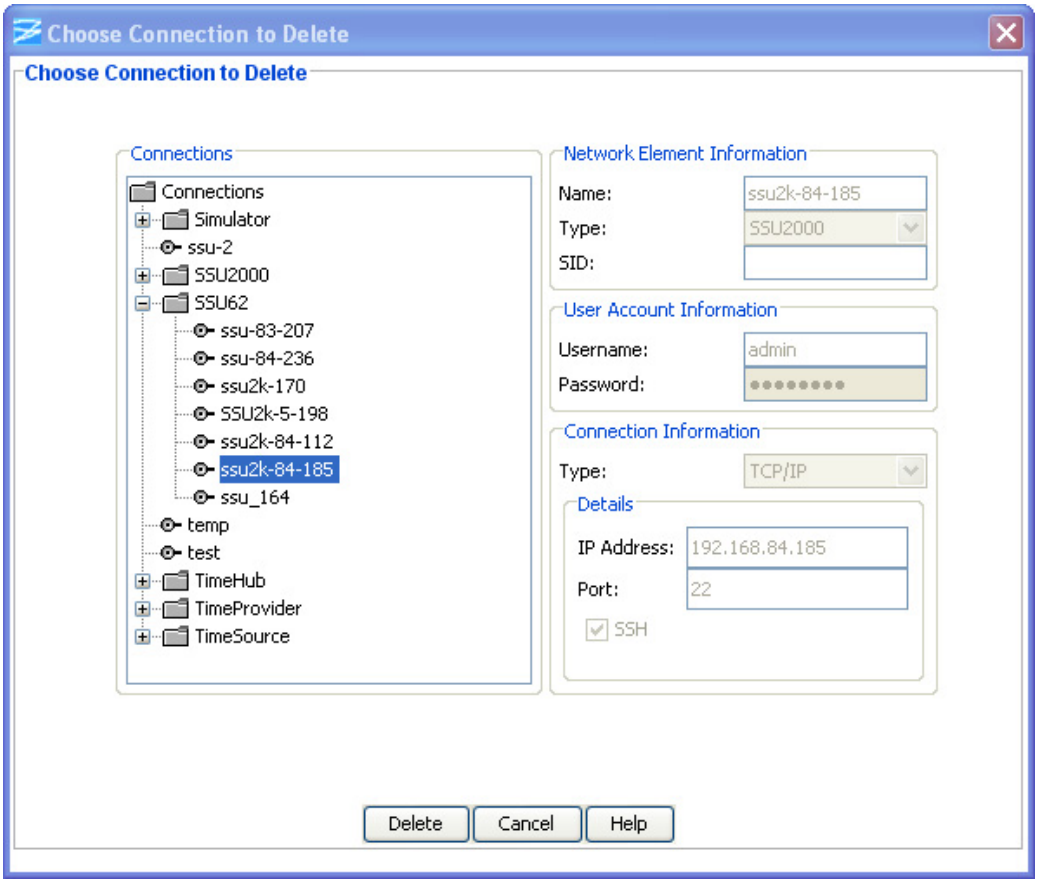
To delete a connection from the Main Menu:

1. Click **Connection**.
2. Click **Delete...** from the drop-down window to open the "Choose Connection to Delete" screen.
3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.
4. Select the network element you want to delete.
5. Click the **Delete** button to delete the connection and return to the Main Menu, or click **Cancel** to close the dialog box without deleting the network element.

Note: If a folder does not contain connection files, then that folder will not be displayed in the connections folder hierarchy as a directory structure.

Note: To delete a folder in the connections directory, browse to the TimeCraft installed location (Default is "C:\Program Files\Symmetricom\TimeCraft"). Open the connections folder and delete the particular folder. Deleting the folder will lead to deletion of all the connections present in that folder.

Note: If TimeCraft Advanced Security is enabled, Username and Password fields will not be shown to the user.



Verify USB-Serial COM Port

TimeCraft requires that the COM port be specified when creating a new connection with USB-serial, or editing an existing connection to use USB-serial. The USB-to-serial adapter will typically be assigned a COM port when the driver software is installed. To determine the COM port for USB-to-serial, follow the procedures below:

For Windows Vista OS

6. Click on the **Start** button.

7. Right-click on **Computer**. Select "Properties" from the menu that appears.

8. Click on **Device Manager**.

9. Double-Click on **Ports (COM & LPT)** to display the port assignments.

10. Locate the port assigned to the USB-to-serial adapter, as shown in the image below.

For Windows XP OS

11. Click on the **Start** button.

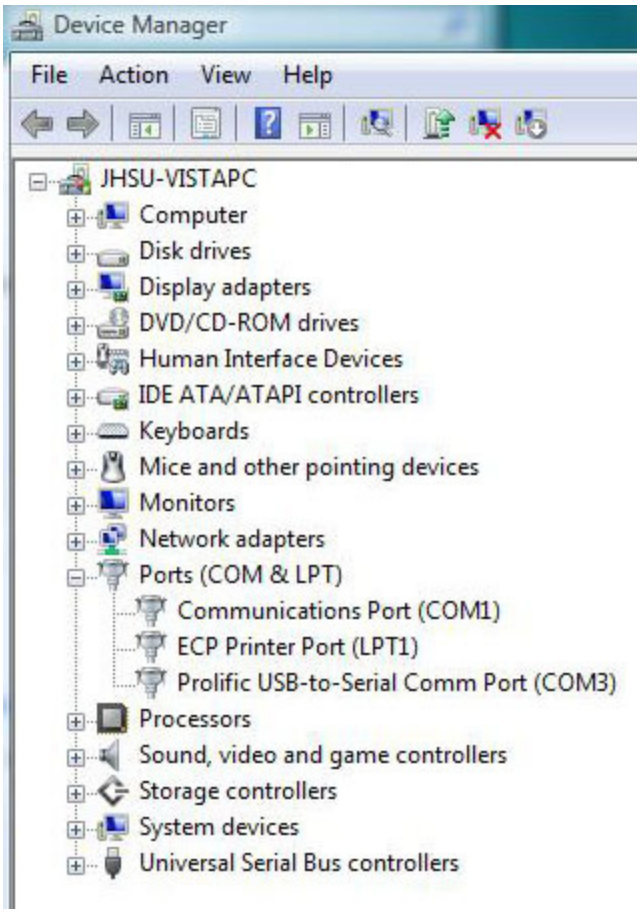
12. Right-click on **My Computer**. Select "Properties" from the menu that appears.

13. Click on the **Hardware** tab.

14. Click on the **Device Manager** button.

15. Double-Click on **Ports (COM & LPT)** to display the port assignments.

16. Locate the port assigned to the USB-to-serial adapter, as shown in the image below.



Verify TCP/IP Port for SSU-2000

With Release 6.0 and later the SSU-2000 supports port number 3083 for TCP/IP connections. Port 2000 (default) is still supported for backwards compatibility, but Microsemi recommends using port 3083 to avoid any possible conflicts.

Note: For SSU 2000 Linux Communication Module devices, use port 22 for SSH connections.

The TCP/IP port number for the SSU-2000 must be specified when making a new connection with TimeCraft or when editing an existing connection. If the running port number on the SSU-2000 is unknown, it can be queried via Telnet with ICS commands.

To Query Port Via Telnet with ICS Command:

1. Click on the **Start** button.

2. Click on **Run...**. The Run window will appear.

3. Type in `cmd` and press **Enter**. The cmd.exe window will appear.

4. Type in `telnet <IP address of SSU-2000>` and press **Enter**. A prompt with the SSU-2000 name will appear with a successful connection.

   Example: for an address of 192.168.6.118,

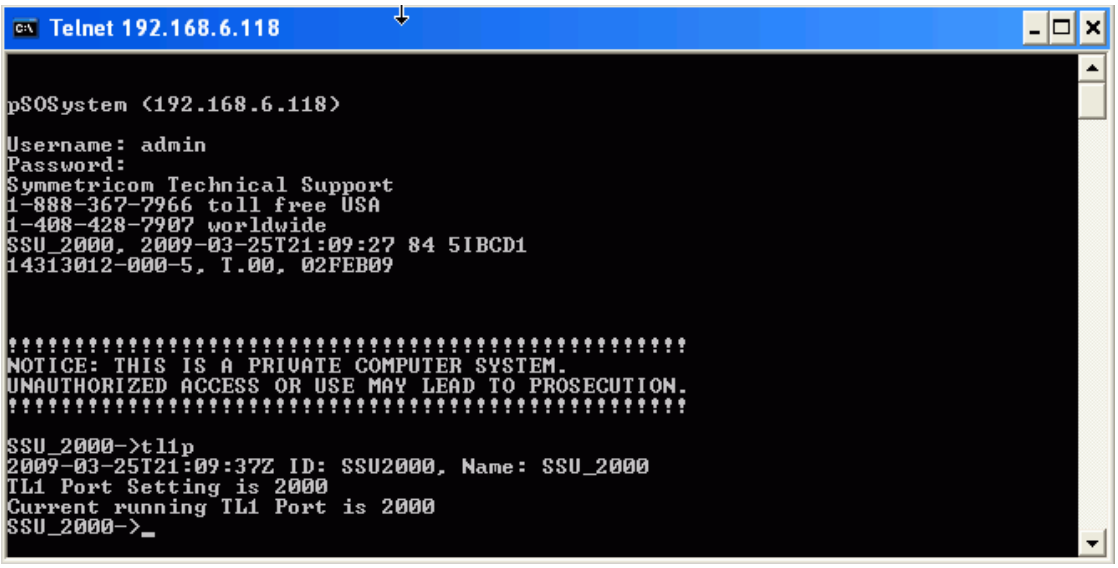
   >telnet 192.168.6.118 <**Enter**>

   SSU_2000>

5. Type in the command `tl1P` and press **Enter**. The window will display the port setting and the current running port, as shown below.

   See the procedure To Change Port via Telnet With ICS Commands below.

Note: If the port setting is different than the current running port, the port setting will not be implemented until the COMM module in the SSU-2000 has been restarted.



```
pSOSystem (192.168.6.118)

Username: admin
Password:
Symmetricom Technical Support
1-888-367-7966 toll free USA
1-408-428-7907 worldwide
SSU_2000, 2009-03-25T21:09:27 84 5IBCD1
14313012-000-5, T.00, 02FEB09



!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
NOTICE: THIS IS A PRIVATE COMPUTER SYSTEM.
UNAUTHORIZED ACCESS OR USE MAY LEAD TO PROSECUTION.
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

SSU_2000->tl1p
2009-03-25T21:09:37Z ID: SSU2000, Name: SSU_2000
TL1 Port Setting is 2000
Current running TL1 Port is 2000
SSU_2000->_
```

To Change Port Via Telnet With ICS Commands:

1. To change the port setting to 3083, type in the command "`tl1p <port>`". The communication module must be restarted to make the new port setting the running port.

2. To restart the COMM module and implement the new port setting, type in "`restart <AID>`" using the AID of the COMM module.

   Example: for a port number of "3083" and COMM module with an AID of "S1A4",

   SSU_2000>tl1p 3083 <**Enter**>

   SSU_2000>restart s1a4

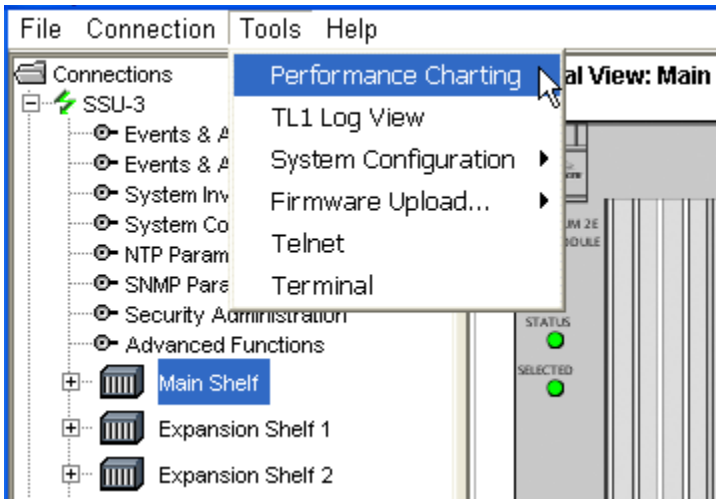
Tools

Start Performance Charting

To start performance charting:

1. Click the **Tools** menu item.

2. Click **Performance Charting** in the drop-down menu to open the Performance Graphing screen.



See Also:

MTIE Chart
TDEV Chart
Phase Chart

TL1 Log View

The TL1 Log View screen displays a file of TL1 commands generated by TimeCraft and received from network elements.

To open the TL1 Log screen:

1. Click the **Tools** menu item.

2. Click **TL1 Log View** in the drop-down menu to open the TL1 Log screen.

3. Click **Refresh** to update the file to display the log for the current session, or click **Close** to close the TL1 Log View screen.

```
Receive| 09:07:56:349| PortReader_090719256|

   SSU 06-03-03 15:07:54
M  152 COMPLD
   "S1A03: 1,,,EMPTY"
   "S1A03: 2,17,083,OK"
   "S1A03: 3,,,EMPTY"
   "S1A03: 4,24,066,OK"
   "S1A03: 5,04,074,OK"
   "S1A03: 6,02,074,OK"
   "S1A03: 7,09,058,OK"
   "S1A03: 8,28,058,OK"
;
Send| 09:07:56:365| PortReader_090719256| RTRV-STATUS-OUTPUT:SSU:S3A10:157;
Receive| 09:07:56:365| PortReader_090719256|

   SSU 06-03-03 15:07:54
M  153 COMPLD
   "S1A03:1,2,H,221,50"
   "S1A03:2,4,H,200,86"
   "S1A03:3,9,H,285,34"
   "S1A03:4,17,H,47,42"
   "S1A03:5,24,H,42,45"
```

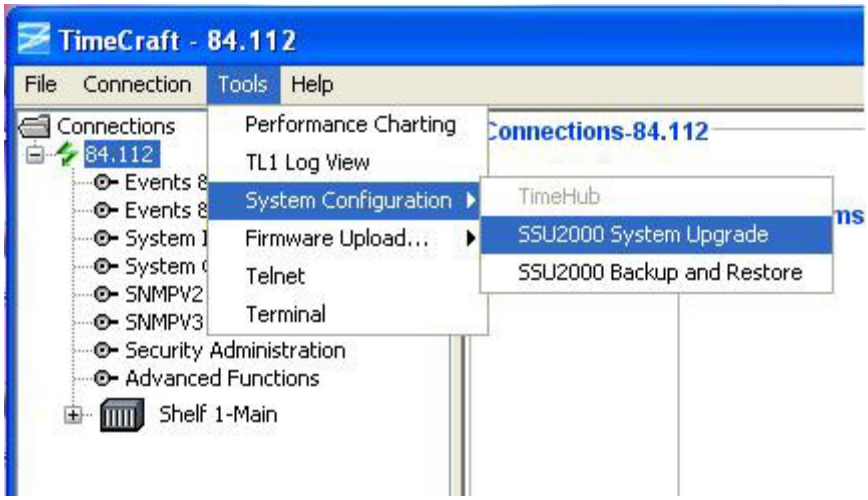
Refresh Close

SSU2000 System Upgrade

Note: This options is allowed only for SSU 2000 Linux Communication Module devices.

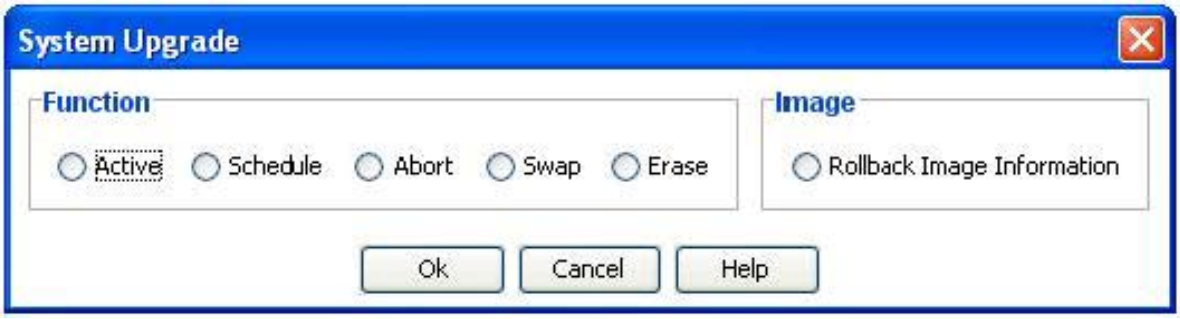
To perform a System Upgrade on SSU 2000 Linux Communication Module devices:

1. Click the **Tools** menu item.
2. Click **System Configuration** in the drop-down menu.
3. Select **SSU2000 System Upgrade** in the displayed list to open the System Upgrade screen.



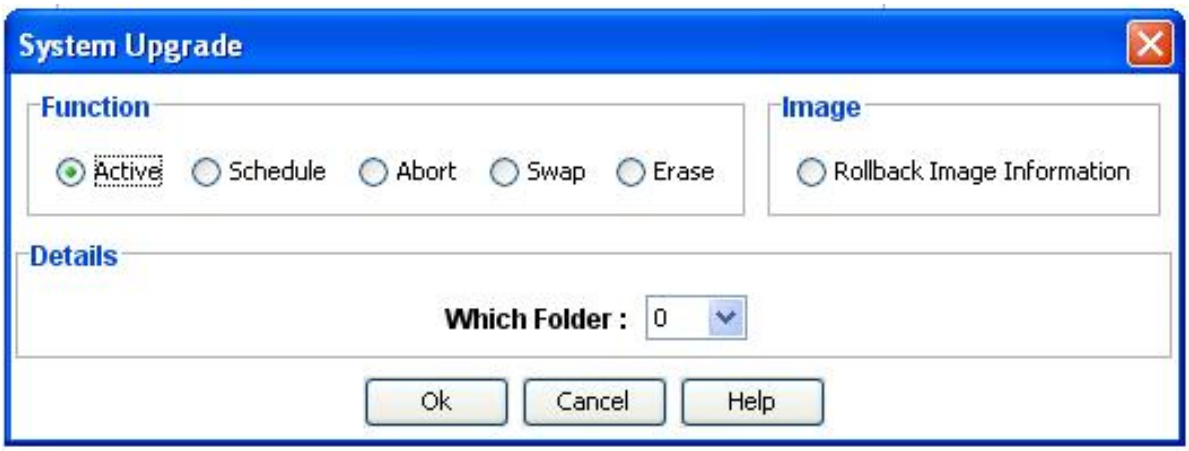
Function

Note: These options are allowed only for Admin Level Users.



Active

Select **Active** to set the folder as the active folder.

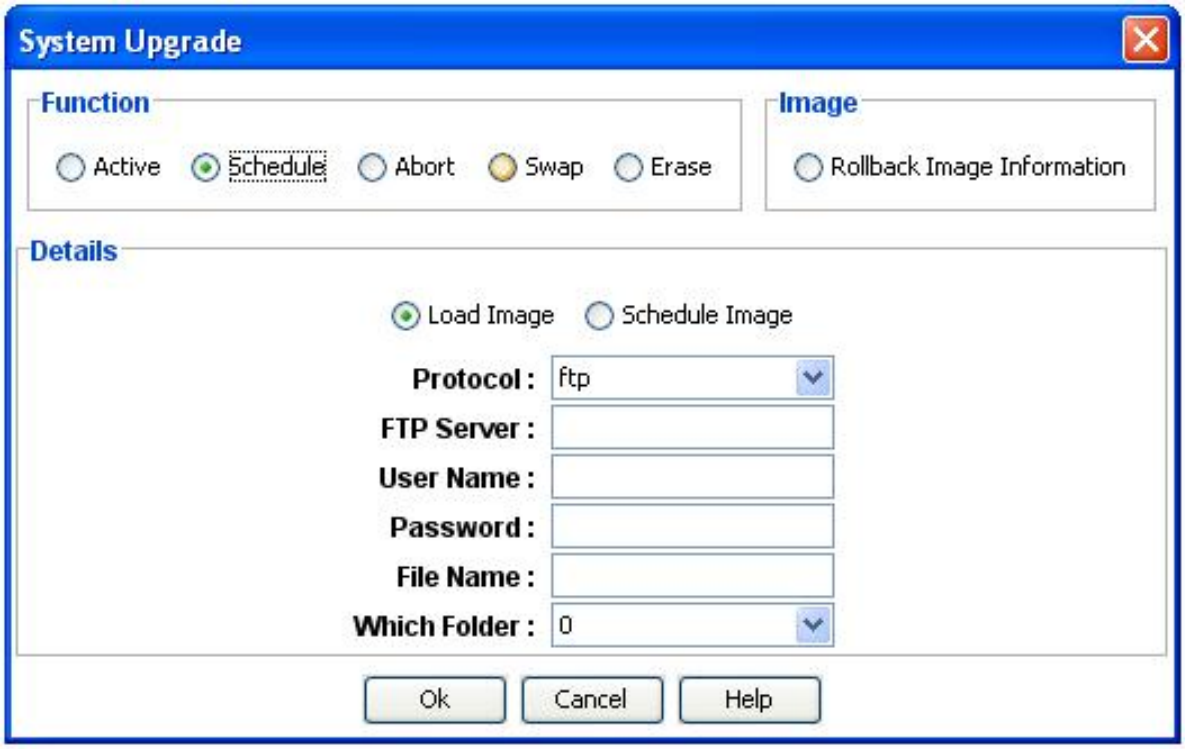


Section and Field	Description or Action
Which Folder	An operand to specify which folder you want to set as Active Image Folder.

Select 0 or 1 from the "Which Folder" drop-down list and Click **Ok** to set the folder as the Active Image Folder.

Schedule

Select **Schedule** to load and schedule a System Upgrade. By default, the Load Image option is selected as shown below.

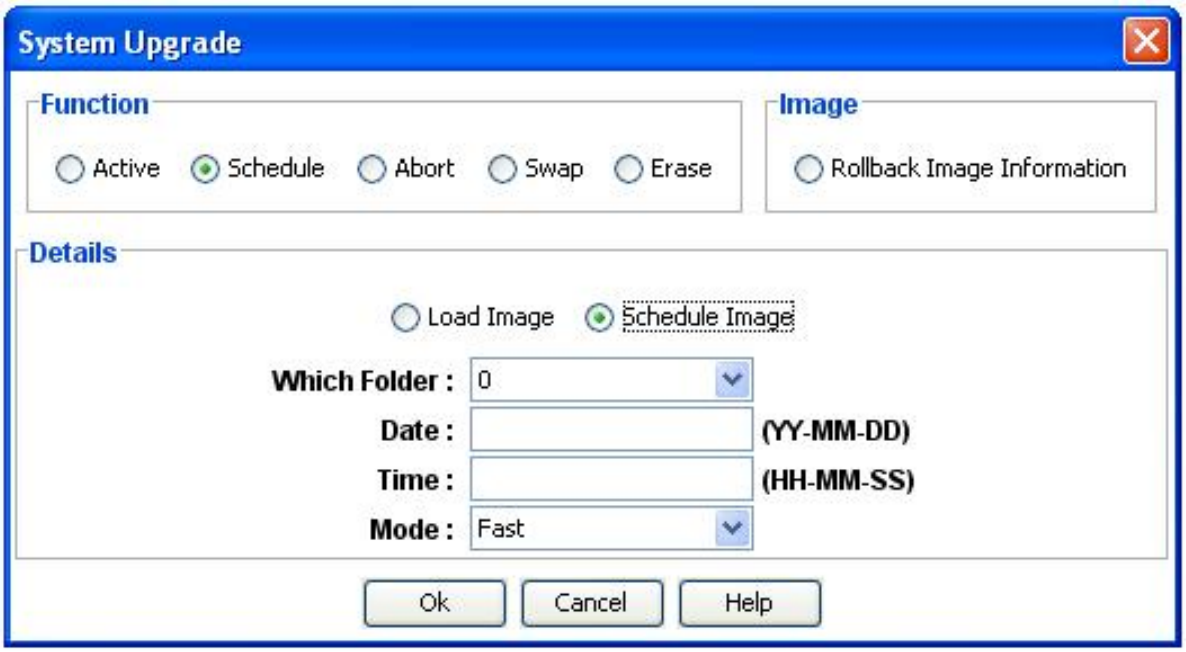


Section and Field	Description or Action
Protocol	Protocol user. The possible values are ftp or sftp.
FTP Server	IP Address of the FTP server.
User Name	User Name of the FTP server.

Password	Password for the FTP server.
File Name	The file name of the image to be downloaded from the server. This requires file path as part of the file name.
Which Folder	An operand to specify which folder you want to store this compressed image.

Enter the required information and click **Ok** to load the image.

To Schedule an image, select **Schedule Image** as shown below.



Section and Field	Description or Action
Which Folder	An operand to specify which folder where the compressed image is stored.
Date	Date when the System Upgrade is scheduled.
Time	Time when the System Upgrade is scheduled.
Mode	The Possible values are FAST or OPERATIONAL. Fast will upgrade as fast as possible; the operational mode will consider redundancy such as clock module to ensure signal integrity.

Enter the required information and click **Ok** to schedule the image.

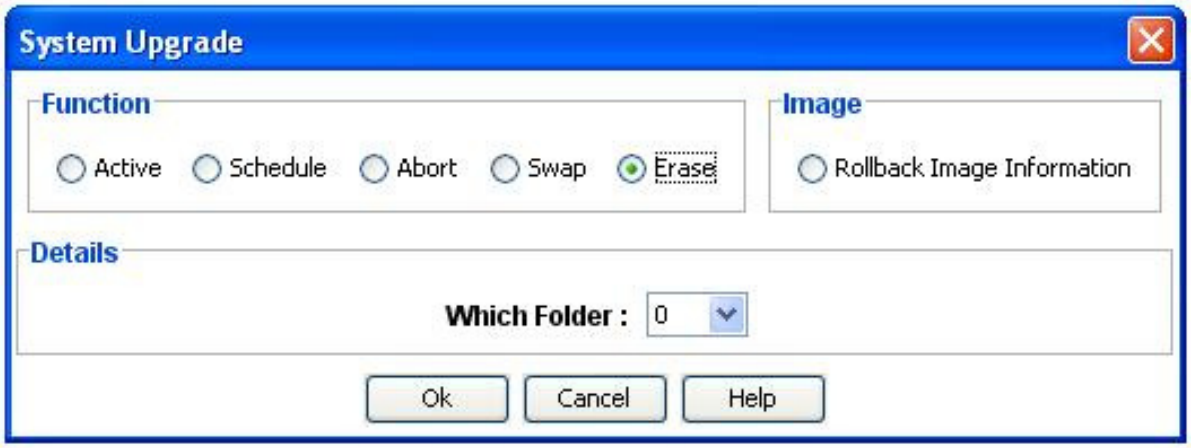
Abort

Select **Abort** and click **Ok** to abort a previously scheduled action.

Swap

Select Swap and click **Ok** to rollover the active folder number.

Erase

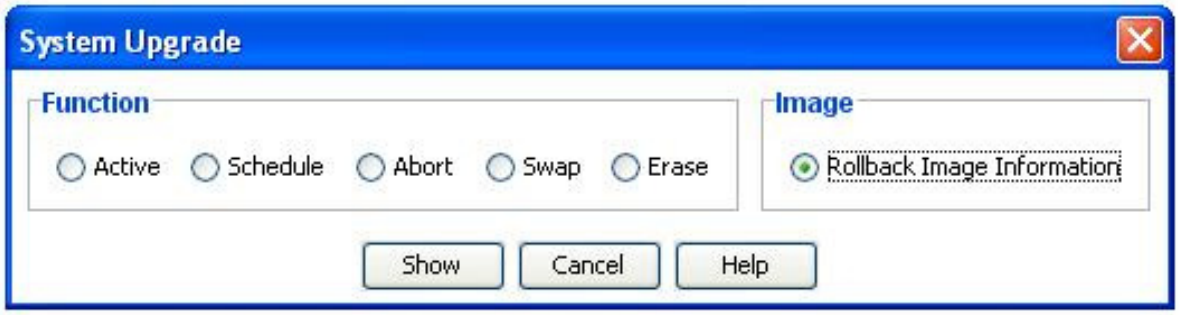


Section and Field	Description or Action
Which Folder	An operand to specify which folder where you want to erase all contents.

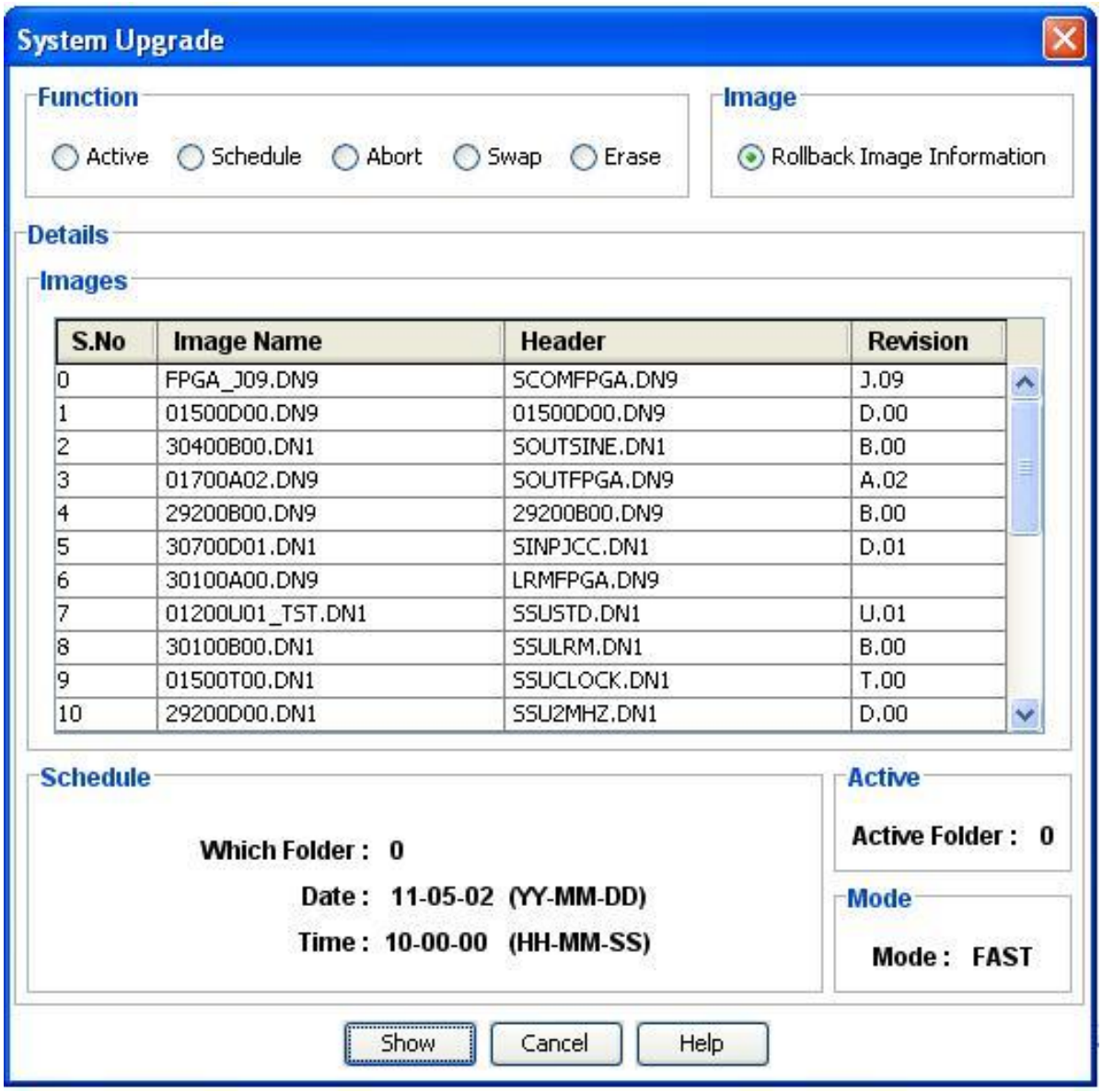
Select 0 or 1 from the "Which Folder" drop-down list and click **Ok** to erase all contents.

Image

Select Rollback Image Information to view all contents of the rollback image stored in the folders.



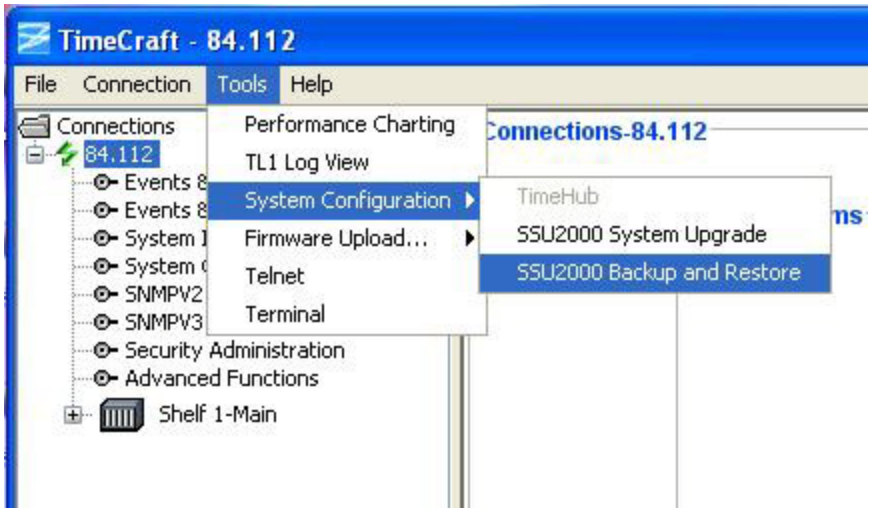
Click **Show** to retrieve rollback image information as shown below.



SSU2000 Backup and Restore

To perform Backup and Restore on SSU 2000 Linux Communication Module devices:

1. Click the **Tools** menu item.
2. Click **System Configuration** in the drop-down menu.
3. Select **SSU2000 Backup and Restore** in the displayed list to open the Configuration Backup and Restore screen.



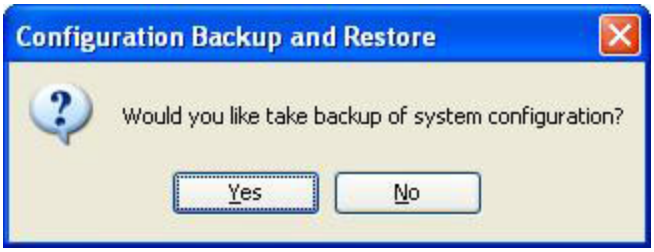
Configuration Backup

1. By default the Backup option (radio button) is selected when the user opens the Configuration Backup and Restore screen.

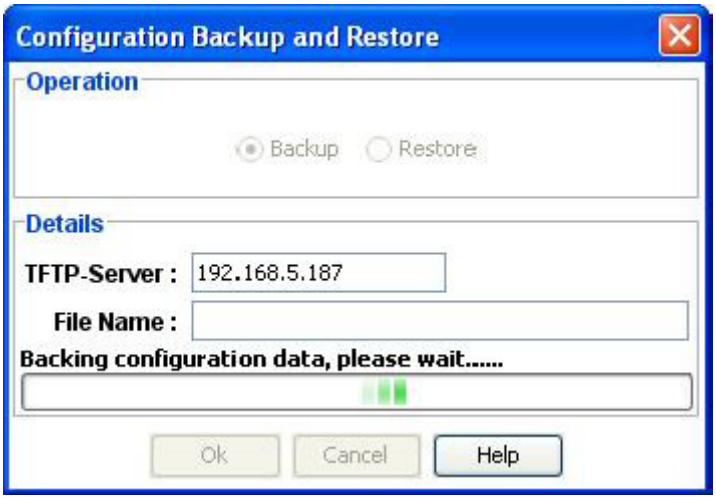
2. Enter the TFTP-Server IP address and File Name and Click **Ok**.

Note: If the File Name is not specified, the default file name is SSUCONFIG.

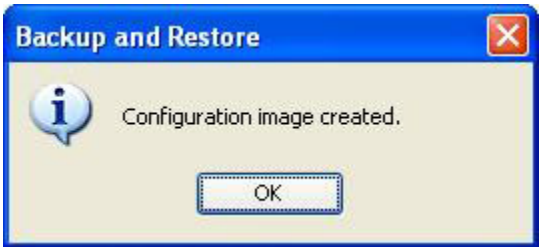
3. The user will be prompted with a confirmation massage. Click **Yes** to proceed.



4. During the backup of configuration data, a progress bar will be displayed.

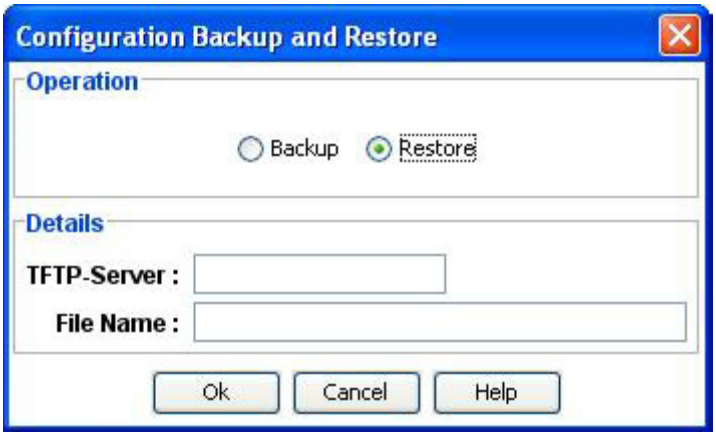


5. When Configuration Backup is completed, a screen indicates that the image was created. Click **Ok** to close the Backup and Restore screen.



Configuration Restore

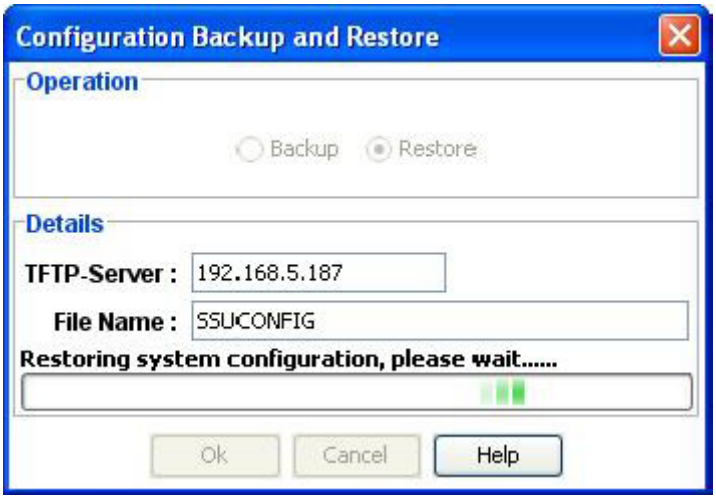
1. Select the Restore option.



2. Enter the TFTP-Server IP address and File Name and Click **Ok**.

3. The user will be prompted with a confirmation massage. Click **Yes** to proceed.

4. During Restore, a progress bar is displayed.



5. When Configuration Restore is complete, a screen indicates that it has completed successfully. Click **Ok** to close the Backup and Restore screen.

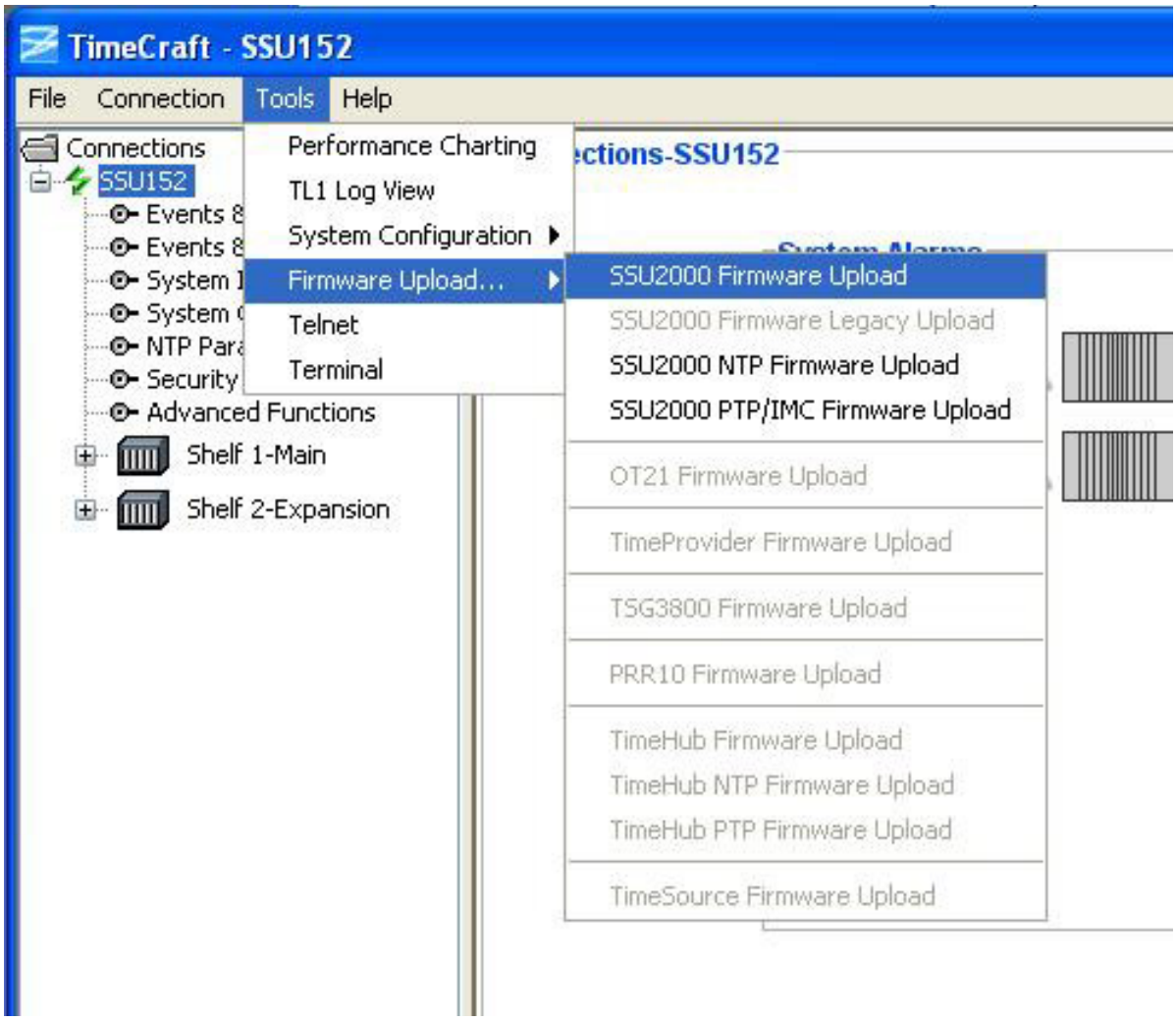
Firmware Upload

The SSU-2000 allows you to upload either NTP firmware to the PackeTime module, or to upload firmware to other modules. To upload new firmware to an SSU-2000:

1. Click the **Tools** menu item.

2. Click **Firmware Upload...** in the drop-down menu.

3. Select **SSU2000 Firmware Upload** in the displayed list to open the firmware navigation screen, or select **SSU2000 NTP/PTP Firmware Upload** in the displayed list to open the NTP firmware navigation screen.



See Also:
Installing Firmware

Uploading Firmware

Uploading NTP Firmware

Uploading Legacy Firmware

Uploading PTP/IMC Firmware

Starting a Telnet Session

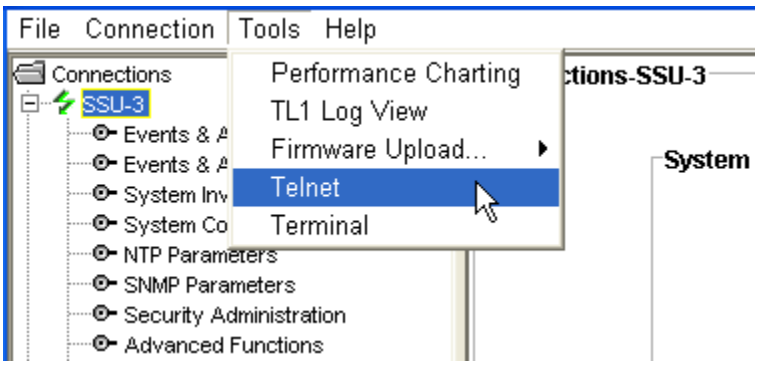
To start a telnet session:

1. Click the Tools menu item.

2. Select Telnet in the Tools menu to open a telnet session.

3. To open a telnet session for any network element, type the command "open IP_Address". IP_Address is the ip address of the element.

Note: If a network element is connected, then a telnet session for that network element is automatically opened.

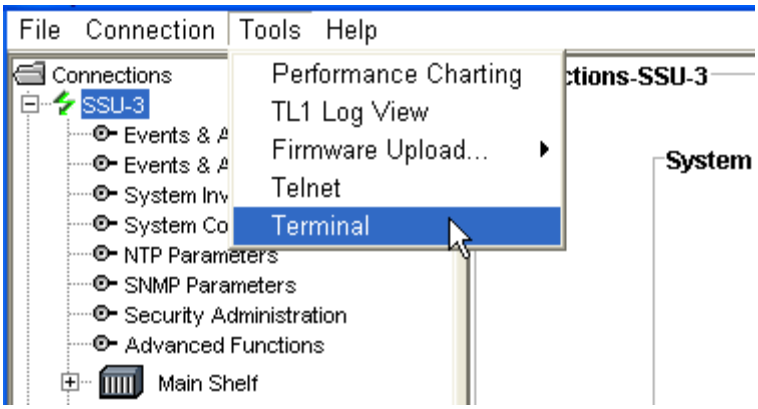


Note: For users operating on Windows Vista and Windows 7, Telnet must be enabled in Windows in order for Telnet to work in TimeCraft.

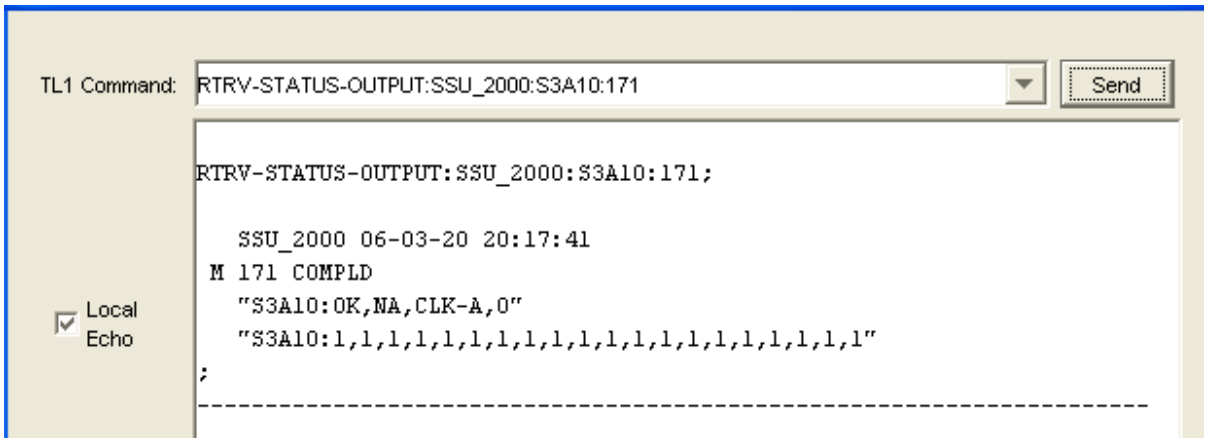
Using The Terminal Screen

To use the terminal screen:

1. Click the **Tools** menu item.
2. Click **Terminal** in the drop-down menu to open the terminal screen.
3. Type a TL1 command into the TL1 Command text box.
4. Click **Send** to enter the command.



Note: Click the **Local Echo** check box to display the command along with the response.



Installing Firmware

Before You Start

Before you start uploading firmware, please read the following information to become familiar with the process.

It is a good practice to first check the System Inventory and make a note of the current firmware installed in the modules for reference. After installation, you can then check the inventory to ensure the correct version is installed in each module. And before you start uploading firmware, you may want to open a Telnet session to directly monitor the progress.

Things to Know

Checking System Inventory

The System Inventory screen provides a list of all installed modules in the currently connected SSU-2000. It lists the serial number, hardware and software part numbers, and the hardware and software revision numbers.

Opening A Telnet Session

Opening a Telnet session to the SSU-2000 and observing the command responses is a good way to monitor the firmware upload and installation progress. You can automatically open a Telnet session to the currently connected network element by selecting the **Tools** menu item and clicking **Telnet**. See Opening A Telnet Session for details.

Uploading Firmware

In a system with redundant Clock and Output modules, the upgrade process automatically provides uninterrupted service. In a system with non-redundant Clock or Output modules, any non-redundant outputs are temporarily interrupted. Most firmware upgrades do not result in a loss of module or system configuration, but there are exceptions. Contact Microsemi's Frequency and Time Division (FTD) Services and Support to determine the impact of the upgrade process on the retention of system configuration.

You normally load software in one of the following instances:

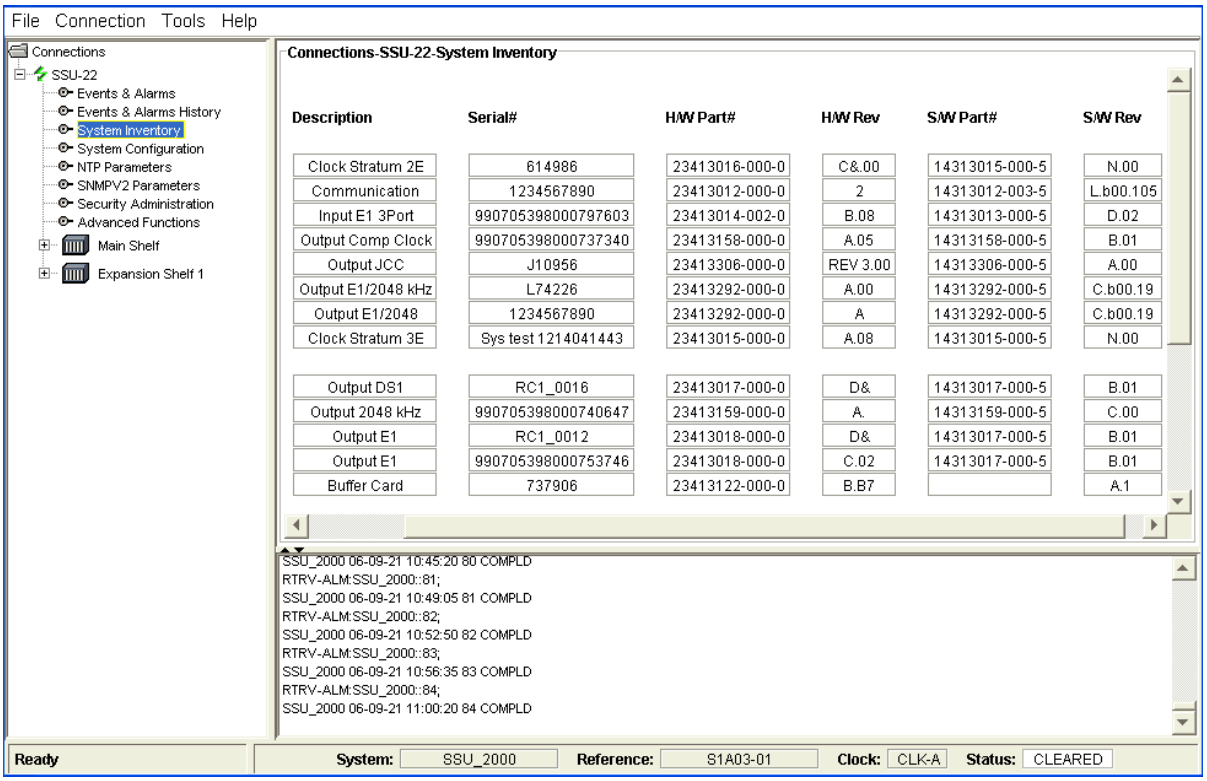
- Microsemi releases updated software
- You want to add a software-based function (SNMP or NTP) to your current configuration
- Software in your shelf has become corrupt

Contact FTD Services and Support for information on obtaining firmware source files.

Checking System Inventory

The System Inventory screen provides a list of all installed modules in the currently connected SSU-2000. It lists the serial number, hardware and software part numbers, and the hardware and software revision numbers.

You can make a note of the information on this screen for reference and then after firmware installation you can check the System Inventory to ensure the correct firmware version is installed in each module.



Opening A Telnet Session

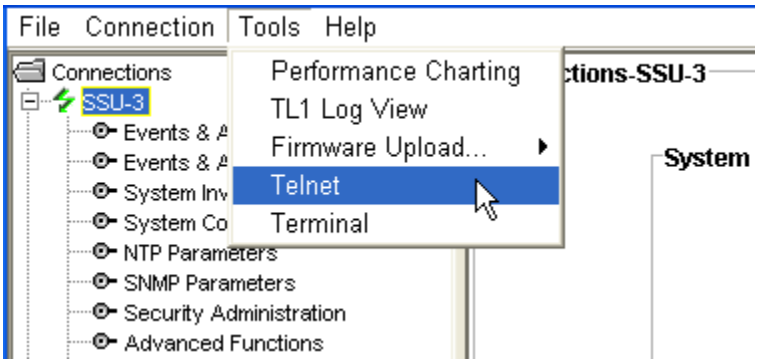
During firmware installation, having a Telnet session window open allows you to view all of the network element's event-generated responses including those associated with firmware installation.

Note: The Telnet session window is for reference only and is not a requirement for firmware installation, but you must open the Telnet session before starting the firmware upload procedure to view the firmware upload and installation progress.

Note: The procedure described here for opening a Telnet session applies to TCP/IP only. To open a second monitoring session using RS-232, you must open an ICS terminal session with a second serial connection.

Use the following procedure to open a Telnet session to provide a view of the firmware upload progress:

1. Click **Tools** on the application menu bar.



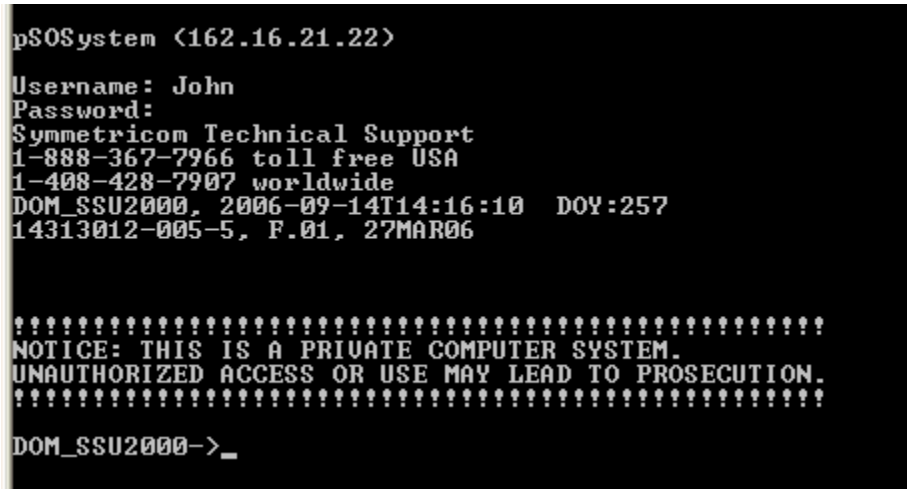
2. Click **Telnet** from the drop-down menu to open a Telnet session window as shown below.

3. At the Username prompt, type an administrator username and press Enter.

4. At the Password prompt, type an administrator password and press Enter

---

Note: The Telnet session window displays responses to commands sent to the currently connected network element.



```
pSOSystem (162.16.21.22)

Username: John
Password:
Symmetricom Technical Support
1-888-367-7966 toll free USA
1-408-428-7907 worldwide
DOM_SSU2000, 2006-09-14T14:16:10  DOY:257
14313012-005-5, F.01, 27MAR06



!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
NOTICE: THIS IS A PRIVATE COMPUTER SYSTEM.
UNAUTHORIZED ACCESS OR USE MAY LEAD TO PROSECUTION.
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

DOM_SSU2000->_
```

Uploading Firmware

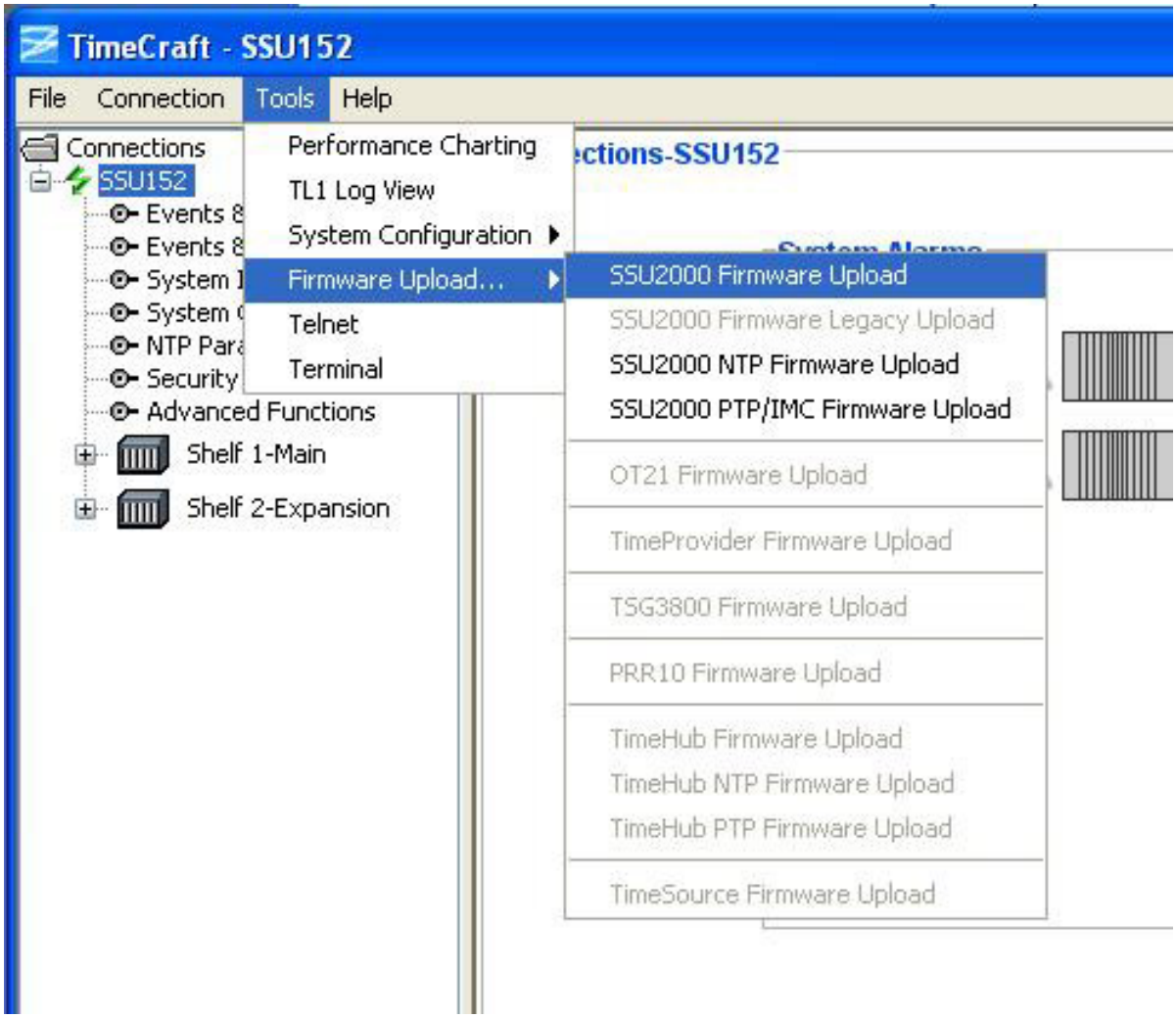
When you install firmware in the SSU-2000, if you have a Telnet session window open you can view the installation progress in addition to any other event-generated responses.

Use the following procedure to upload firmware to an SSU-2000:

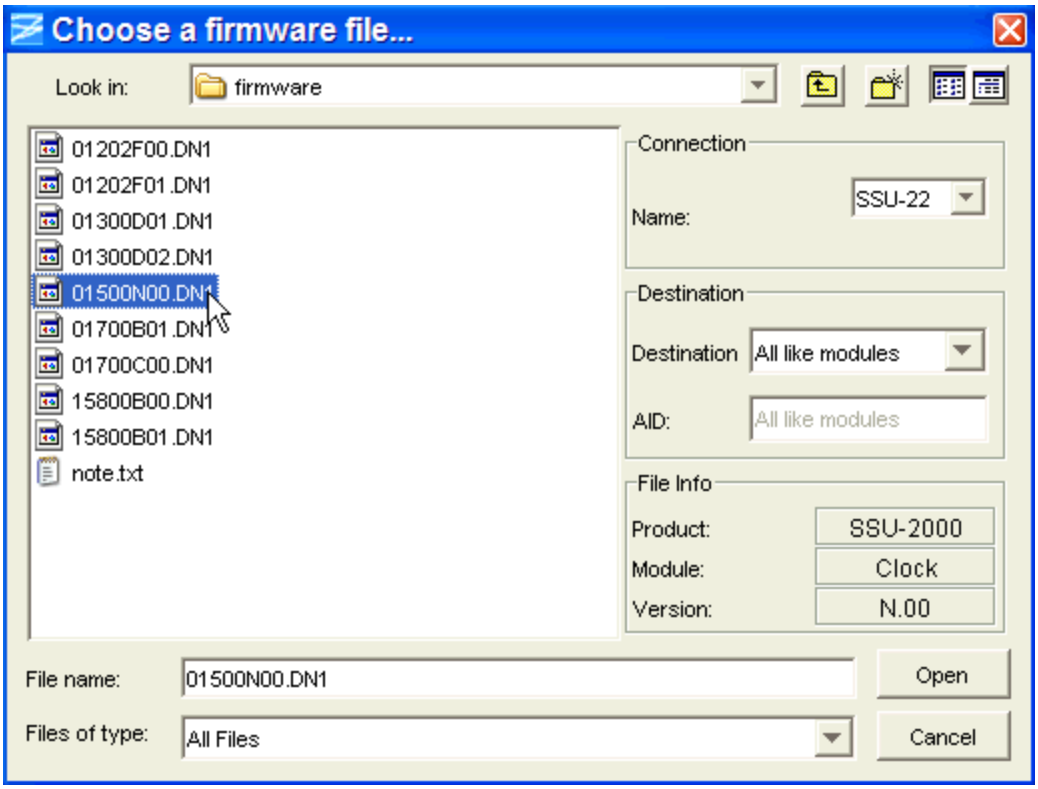
1. Click **Tools** on the application menu bar.

2. Click **Firmware Upload...** from the drop-down menu.

3. Select **SSU2000 Firmware Upload** in the displayed list.



4. At the **Choose a firmware file...** screen, navigate to the directory containing the firmware and select the appropriate file. Ensure that the **File Info** pane displays the correct product, module, and version for upgrade.

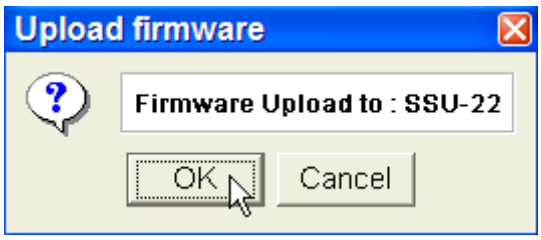


5. Select the name of the network element that you want to upload new firmware to in the **Name** drop-down box of the **Connection** pane.

6. Select a destination for firmware upload in the **Destination** drop-down box. If you select **Specific module**, enter the module AID in the **AID** text box. If you select **All like modules**, the firmware will be installed sequentially in all modules that use the selected firmware.

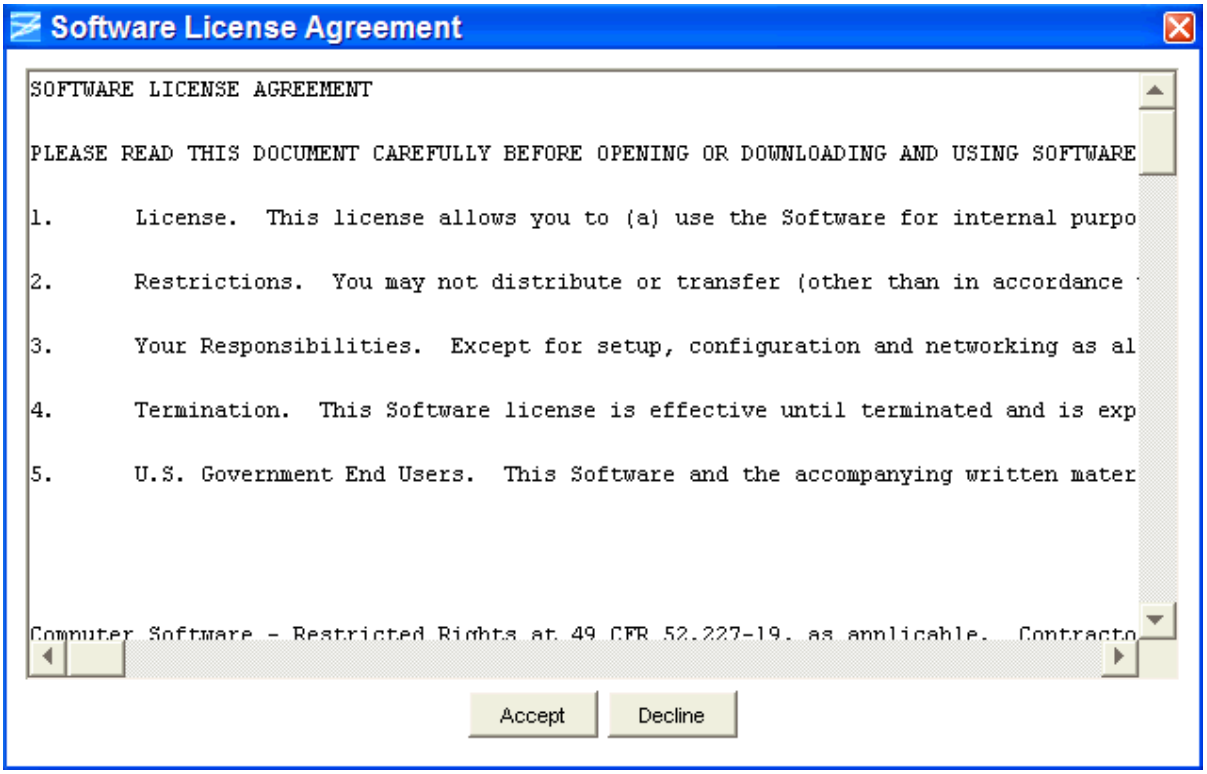
7. Click **Open** to select the file for uploading, or click **Cancel** to exit the firmware upload procedure.

8. At the **Upload firmware** screen, click **OK** or click **Cancel** to exit the firmware upload procedure.

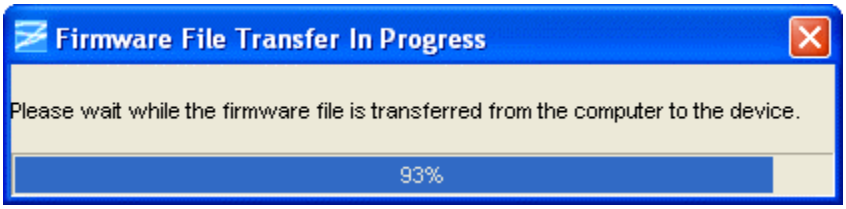


9. Click **Accept** in the **Software License Agreement** window to begin firmware transfer to the Communications module.

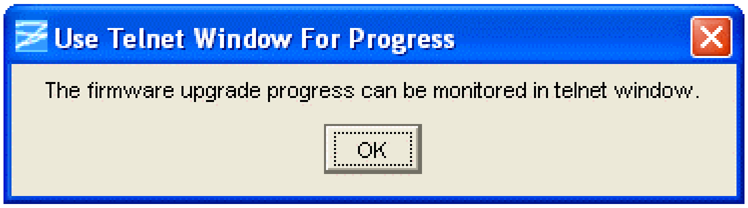
> **Note:** If you click **Decline**, a **Decline Agreement** window is displayed indicating your upload will be cancelled. Click **OK** to cancel the upload procedure.



10. During firmware transfer to the Communications module, TimeCraft displays the following dialog screen with progress bar. When file transfer is complete, the Use Telnet Window For Progress screen is displayed. Click **OK** to close the screen.



11. When the firmware transfer is finished, a checksum calculation ensures the file is complete and the Use Telnet Window For Progress screen is displayed. Click **OK** to close the window. If the checksum is *not* correct, the SSU-2000 resumes normal operation with the original software.

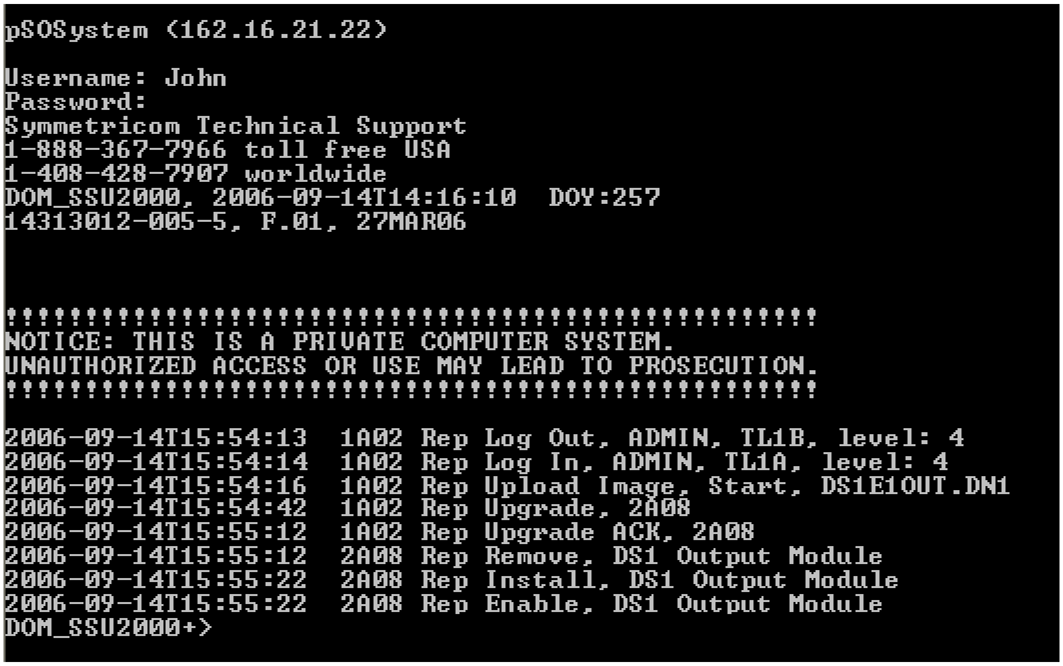


The firmware upgrade progress can be monitored in telnet window.

You can view the progress in the Telnet session window, as shown below, if it was opened in the previous procedure (see Opening A Telnet Session). The Telnet session displays an `Upload Image, Start` response during firmware file transfer to the Communications module and then displays various status responses during installation. The key responses that pertain to firmware installation are as follows:

- `Upload Image, Start,` <firmware filename>
- `Upgrade,` <module location>
- `Upgrade ACK,` <module location>
- `Remove,` <module type>
- `Install,` <module type>
- `Enable,` <module type>
- Upload Image, Completed

Note: If you are installing a firmware file in more than one module, you will see an `Upgrade, Upgrade ACK, Remove, Install, and Enable` response for each module.



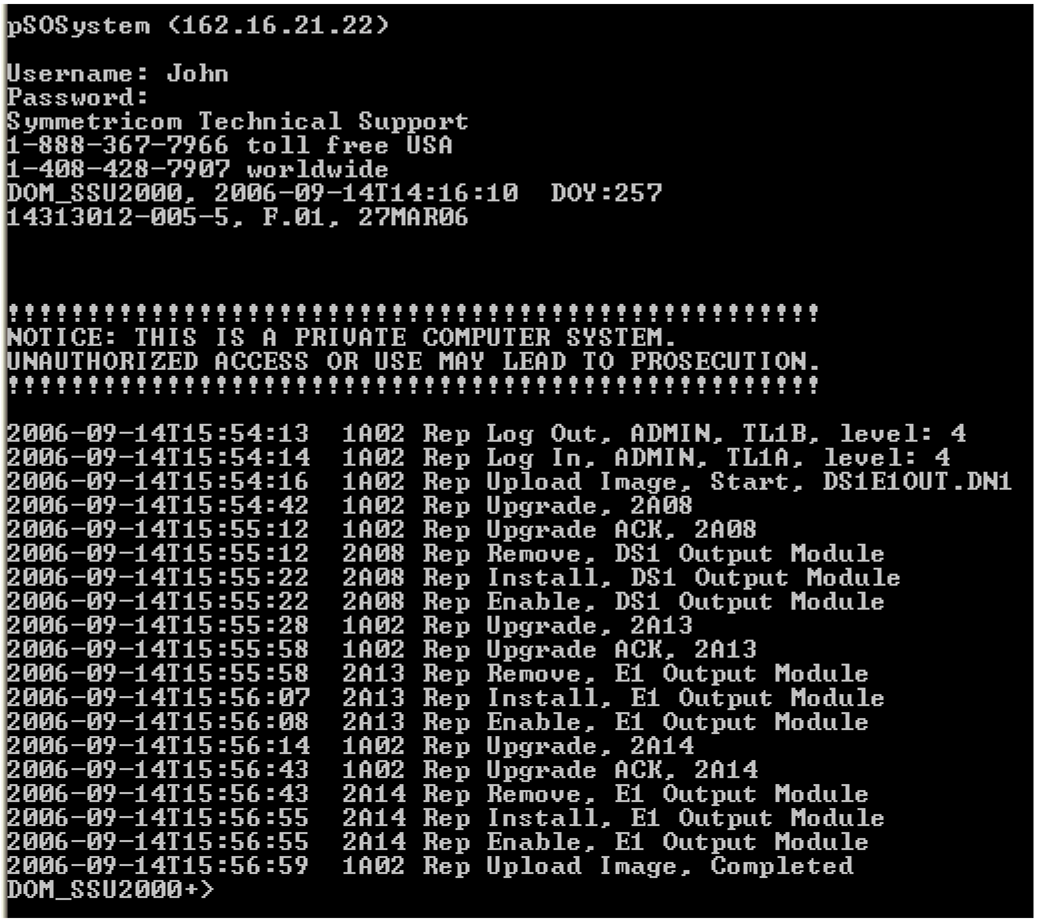
```
pSOSystem (162.16.21.22)

Username: John
Password:
Symmetricom Technical Support
1-888-367-7966 toll free USA
1-408-428-7907 worldwide
DOM_SSU2000, 2006-09-14T14:16:10  DOY:257
14313012-005-5, F.01, 27MAR06



!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
NOTICE: THIS IS A PRIVATE COMPUTER SYSTEM.
UNAUTHORIZED ACCESS OR USE MAY LEAD TO PROSECUTION.
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

2006-09-14T15:54:13  1A02 Rep Log Out, ADMIN, TL1B, level: 4
2006-09-14T15:54:14  1A02 Rep Log In, ADMIN, TL1A, level: 4
2006-09-14T15:54:16  1A02 Rep Upload Image, Start, DS1E1OUT.DN1
2006-09-14T15:54:42  1A02 Rep Upgrade, 2A08
2006-09-14T15:55:12  1A02 Rep Upgrade ACK, 2A08
2006-09-14T15:55:12  2A08 Rep Remove, DS1 Output Module
2006-09-14T15:55:22  2A08 Rep Install, DS1 Output Module
2006-09-14T15:55:22  2A08 Rep Enable, DS1 Output Module
DOM_SSU2000+>
```

12. If the module selected for updating is the Communications module, `Upgrade ACK` is the last response returned in the Telnet session and the firmware is installed. When installation to the Communications module is complete, the following screen is displayed.

13. If the module selected for updating is not the Communications module, the firmware is copied to the selected module, a checksum again ensures the file is complete, and the firmware is then installed.

Note: If you are updating more than one of the same type of module, each one is updated sequentially. If one module fails to update, it is skipped and the remaining modules are updated. As each module is updated, the Telnet session displays an `Upgrade, Upgrade ACK, Remove, Install, and Enable` response for each one as shown in the screen below.

14. When installation is complete, the SSU-2000 returns an `Upload Image, Completed` response as shown below.



```
pSOSystem (162.16.21.22)

Username: John
Password:
Symmetricom Technical Support
1-888-367-7966 toll free USA
1-408-428-7907 worldwide
DOM_SSU2000, 2006-09-14T14:16:10  DOY:257
14313012-005-5, F.01, 27MAR06



!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
NOTICE: THIS IS A PRIVATE COMPUTER SYSTEM.
UNAUTHORIZED ACCESS OR USE MAY LEAD TO PROSECUTION.
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

2006-09-14T15:54:13  1A02 Rep Log Out, ADMIN, TL1B, level: 4
2006-09-14T15:54:14  1A02 Rep Log In, ADMIN, TL1A, level: 4
2006-09-14T15:54:16  1A02 Rep Upload Image, Start, DS1E1OUT.DN1
2006-09-14T15:54:42  1A02 Rep Upgrade, 2A08
2006-09-14T15:55:12  1A02 Rep Upgrade ACK, 2A08
2006-09-14T15:55:12  2A08 Rep Remove, DS1 Output Module
2006-09-14T15:55:22  2A08 Rep Install, DS1 Output Module
2006-09-14T15:55:22  2A08 Rep Enable, DS1 Output Module
2006-09-14T15:55:28  1A02 Rep Upgrade, 2A13
2006-09-14T15:55:58  1A02 Rep Upgrade ACK, 2A13
2006-09-14T15:55:58  2A13 Rep Remove, E1 Output Module
2006-09-14T15:56:07  2A13 Rep Install, E1 Output Module
2006-09-14T15:56:08  2A13 Rep Enable, E1 Output Module
2006-09-14T15:56:14  1A02 Rep Upgrade, 2A14
2006-09-14T15:56:43  1A02 Rep Upgrade ACK, 2A14
2006-09-14T15:56:43  2A14 Rep Remove, E1 Output Module
2006-09-14T15:56:55  2A14 Rep Install, E1 Output Module
2006-09-14T15:56:55  2A14 Rep Enable, E1 Output Module
2006-09-14T15:56:59  1A02 Rep Upload Image, Completed
DOM_SSU2000+>
```

15. Open the TimeCraft connection to the shelf to verify the installation. If the Communications module was upgraded, you may need to wait for the module to restart before you can connect.

16. Select System Inventory and confirm that the new software is installed in the appropriate modules.

Uploading Legacy Firmware

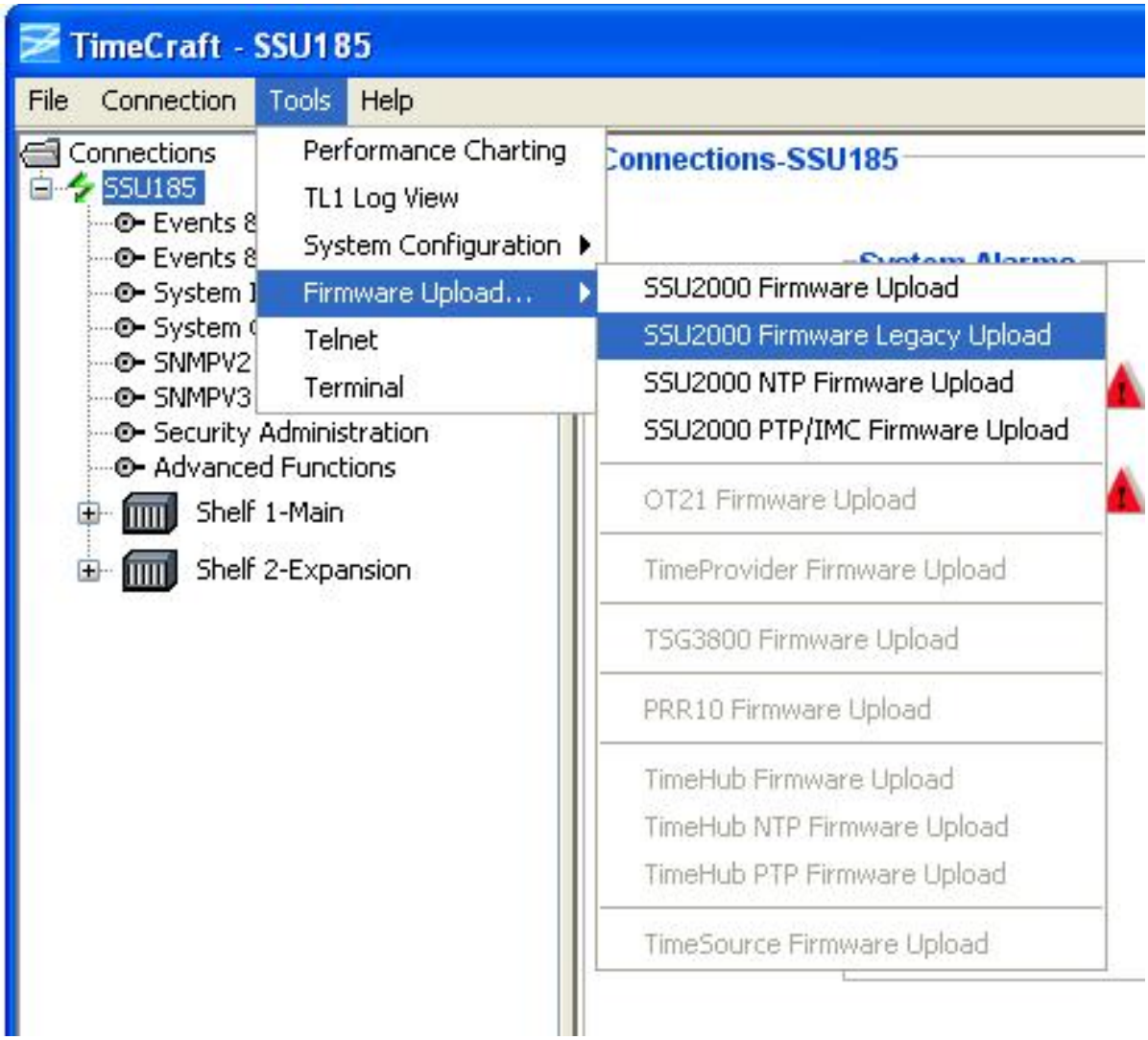
Note: This feature is applicable only from SSU 2000 Linux Communication Module devices.

Use the following procedure to upload Legacy Firmware on SSU 2000 Linux Communication Module devices:

1. Click Tools on the application menu bar.

2. Click **Firmware Upload...** on the drop-down menu.

3. Select **SSU2000 Firmware Legacy Upload** in the displayed list.



4. At the Legacy Firmware Upload screen shown below, select the module you want to upgrade in the Aid drop-down box.

5. Enter the FTP server path and firmware file name in the Full File Path text box.

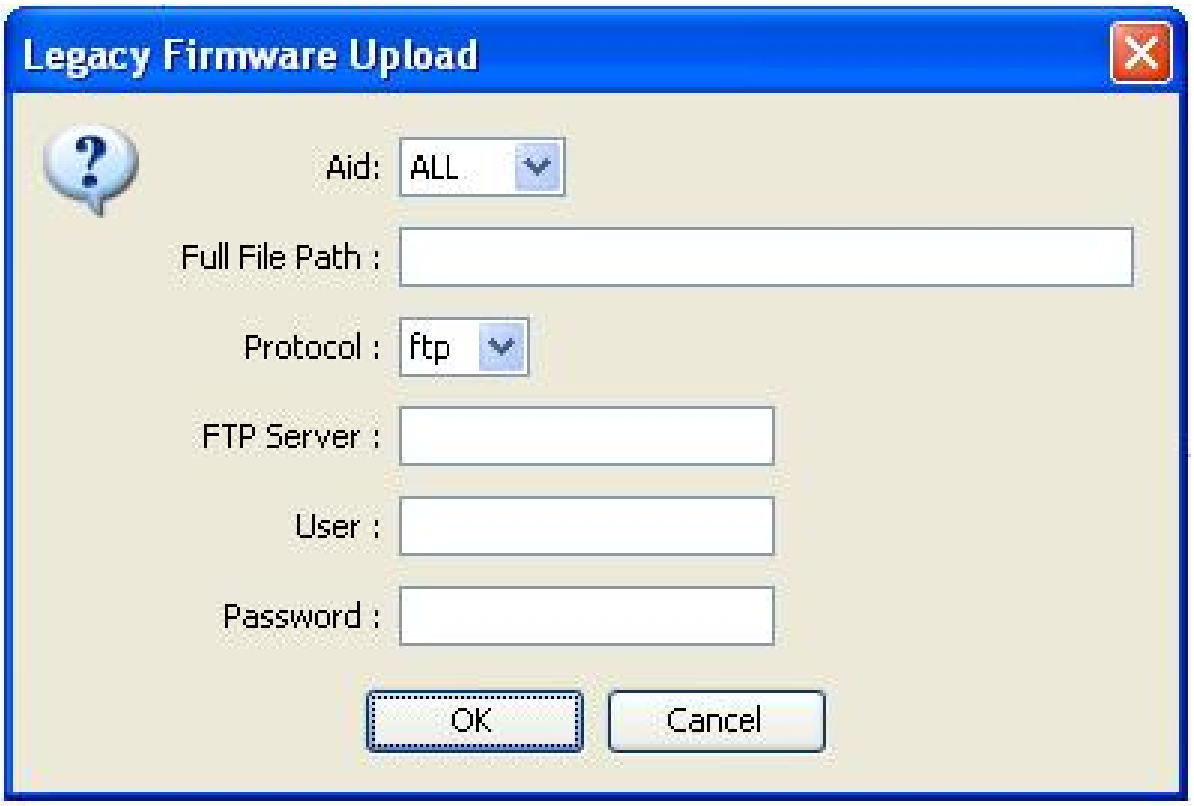
6. Select either ftp or sftp in the Protocol drop-down box.

7. Enter the IP Address in the FTP Server text box.

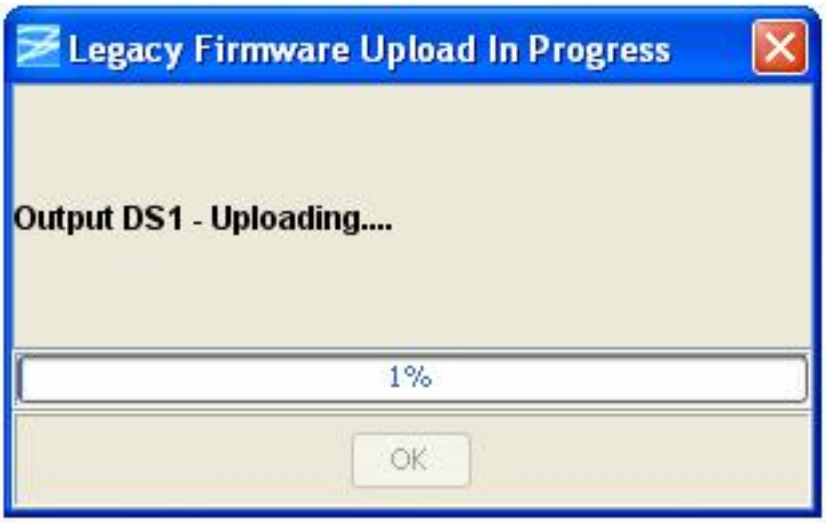
8. Enter a valid user name in the User text box.

9. Enter a valid password in the Password text box.

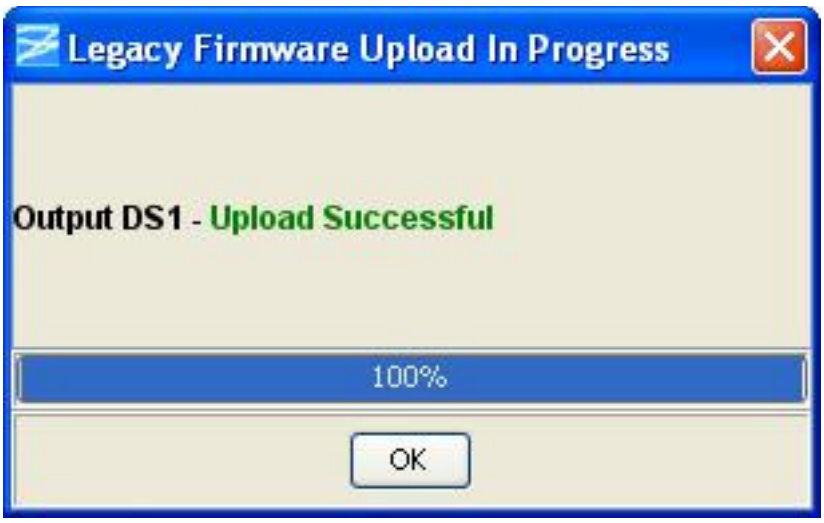
10. Click Ok to start the upload, or Cancel to exit the Legacy Firmware Upload screen.



11. During Legacy Firmware Upload, a progress bar indicates the time remaining to complete the process.



12. When the Upload is finished, a screen indicates that it has successfully completed. Click Ok to close the Legacy Firmware Upload In Progress screen.

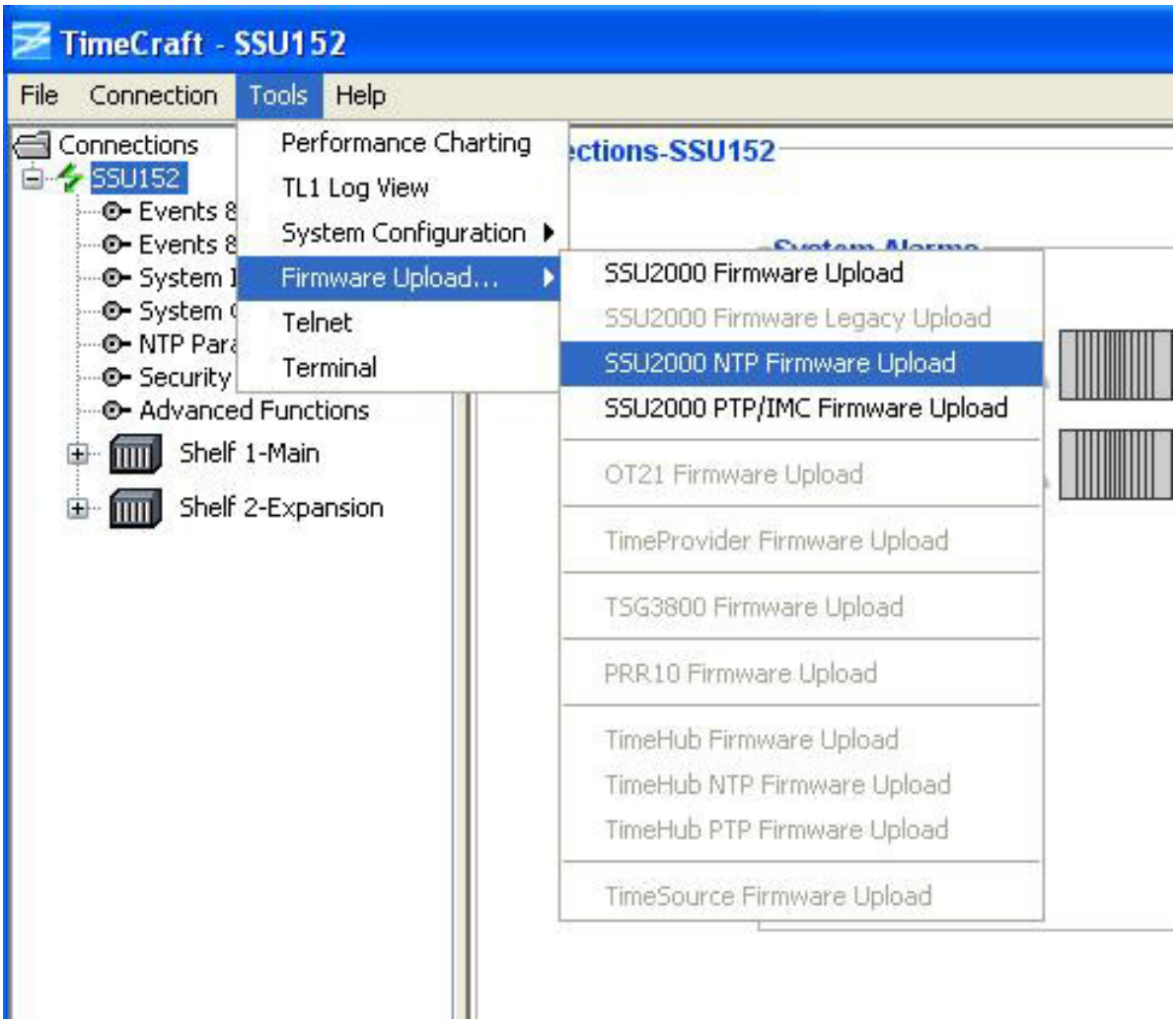


Uploading NTP Firmware

When you install firmware in the SSU-2000, if you have a Telnet session window open you can view the installation progress in addition to any other event-generated responses.

Use the following procedure to upload NTP firmware to an SSU-2000:

1. Click **Tools** on the application menu bar.
2. Click **Firmware Upload...** from the drop-down menu.
3. Select **SSU2000 NTP Firmware Upload** in the displayed list.



4. At the **Upload firmware** screen shown below, select the module you want to upgrade in the **Aid:** drop-down box.

5. Enter the FTP server path and firmware filename in the **Full File Path:** text box.

6. Select either ftp or sftp in the **Protocol** drop-down box.

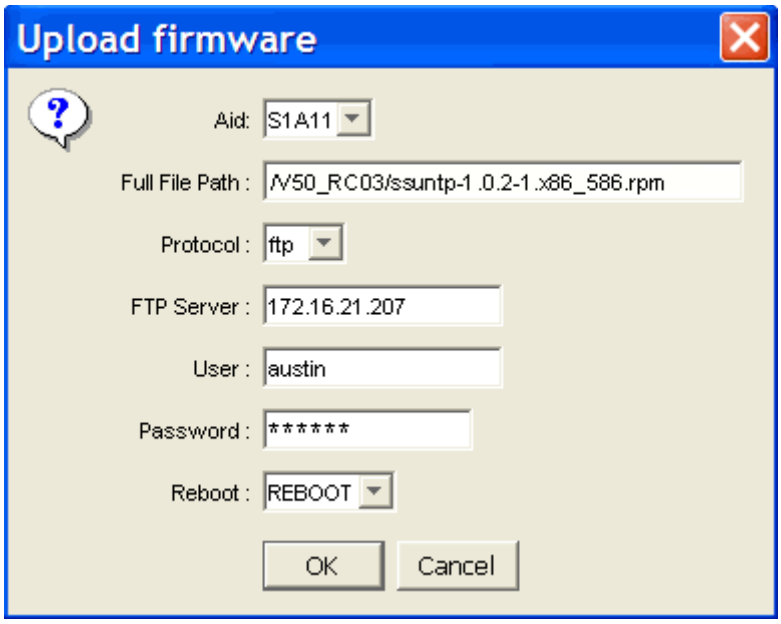
7. Enter the IP address in the **FTP Server:** text box.

8. Enter a valid user name in the **User:** text box.

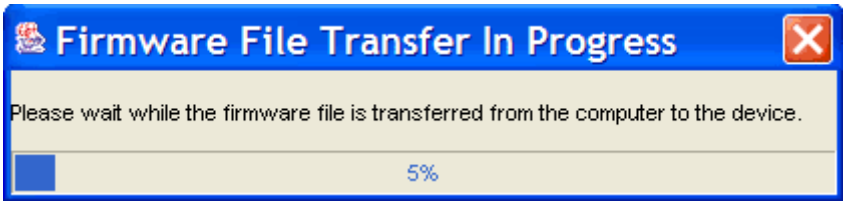
9. Enter a valid password in the **Password:** text box.

10. Select REBOOT or MANUAL in the **Reboot:** drop-down box. If you select REBOOT, the unit automatically reboots after the firmware installation is complete.

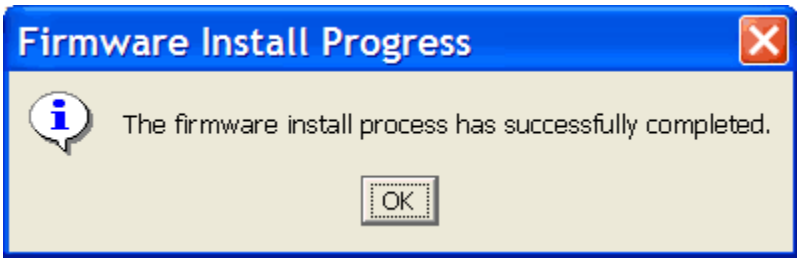
11. Click **OK** to start the upload, or **Cancel** to exit the Upload firmware screen.



12. During firmware file transfer, a progress bar indicates the time remaining to complete the process.



13. When the installation is finished, a screen indicates that it has successfully completed. Click **OK** to close the **Firmware Install Progress** screen.



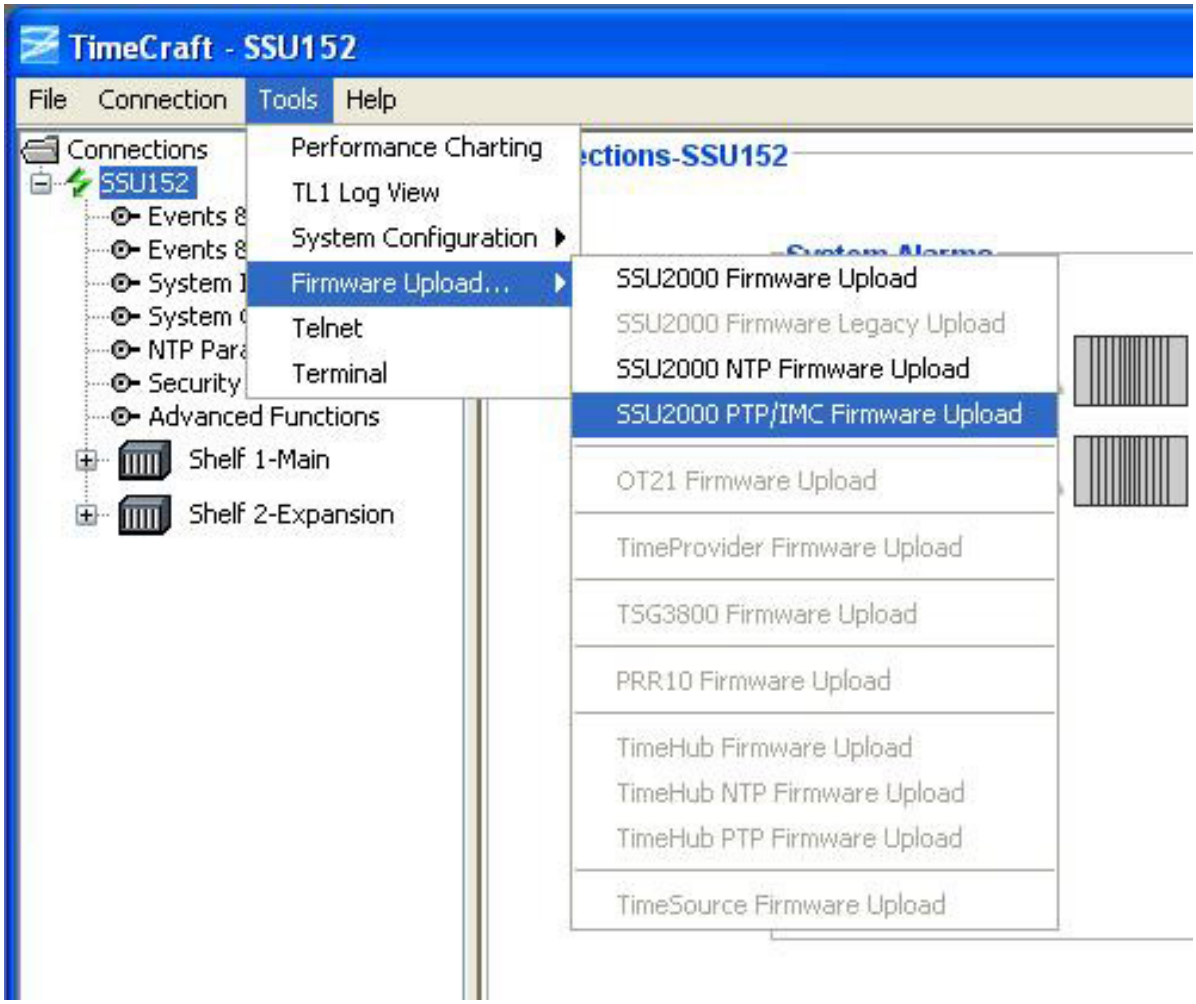
Uploading PTP/IMC Firmware

When you install firmware in the SSU-2000, if you have a Telnet session window open you can view the installation progress in addition to any other event-generated responses.Use the following procedure to upload PTP firmware to an SSU-2000:

1. Click **Tools** on the application menu bar.

2. Click **Firmware Upload...** from the drop-down menu.

3. Select **SSU2000 PTP/IMC Firmware Upload** in the displayed list.



4. At the Upload firmware screen shown below, select the module you want to upgrade in the Aid: drop-down box.

5. Enter the FTP server path and firmware filename in the Full File Path: text box.

6. Select either ftp or sftp in the Protocol drop-down box.

7. Enter the IP address in the FTP Server: text box.

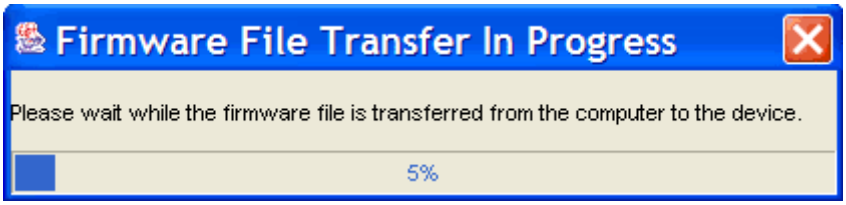
8. Enter a valid user name in the User: text box.

9. Enter a valid password in the Password: text box.

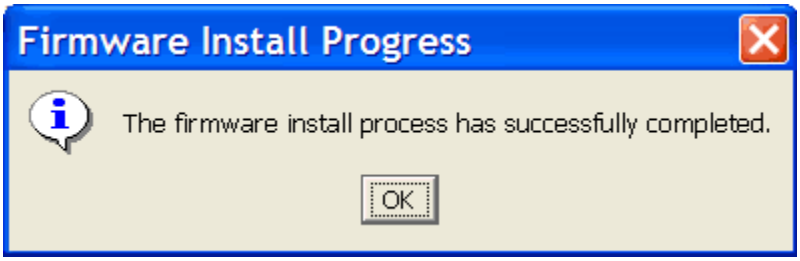
10. Select REBOOT or MANUAL in the Reboot: drop-down box. If you select REBOOT, the unit automatically reboots after the firmware installation is complete.

11. Click **OK** to start the upload, or **Cancel** to exit the Upload firmware screen.

12. During firmware file transfer, a progress bar indicates the time remaining to complete the process.



13. When the installation is finished, a screen indicates that it has successfully completed. Click **OK** to close the **Firmware Install Progress** screen.



System Information

System Status

When you open a connection to an SSU-2000, the Connections screen is displayed. This screen provides:

- A System Alarms display, and
- A System Summary

Click a shelf icon in the System Alarms pane for a graphical display of all installed modules in that shelf.

System Alarms

Each shelf in the system is displayed in the System Alarms pane. A top level alarm status is shown for each shelf.

Alarm color coded indications are:

- Critical - red
- Major - orange
- Minor - amber
- Normal - green

Note: The shelves and alarm status are also indicated by color in the tree structure in the Browser View panel.

System Summary

The System Summary pane provides high level information about the selected system. Each field is described in the table below.

Field / Section	Description
System Summary	
Product	Displays the product name
Name	Displays the name of the selected system
Status	Shows highest alarm level reported
Reference Input	Reference Input lists input ports and module location identified by shelf and slot (AID). Displays the input reference currently used by the system
Clock	Displays the clock module currently in use by the system
Operation Mode	Displays the operating mode - NORMAL, SUBTENDING, or JAPANESE
Clock C Source	Displays the chassis slot location of the Clock C Source card

System Events and Alarms

The Events and Alarms screen displays current events and alarms color coded according to the level of severity. You can sort the list by clicking on the column designator. You can sort by:

- AID
- Severity
- Type
- Service Affect
- Description
- Module Type

The fields are described in the following table.

Column	Description
AID	The Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000 where an event or alarm occurred
Severity	Indicates the level of severity of an alarm when it is first logged. Levels include: Critical Major and Minor
Type	Indicates the module event number
Service Affect	Indicates whether an alarm is Service Affecting (SA) or Not Service Affecting (NSA)
Description	This field displays a description of each alarm type indicated
Module Type	Indicates the type of module where an event or alarm occurred

System Events and Alarms History

TimeCraft has extensive event detection, reporting, and alarm generation capabilities that permit monitoring of an SSU-2000. Events are defined as conditions within the unit that indicate:

1. Abnormal operation, or

2. A change in the unit's operational status.

Alarms are a subset of events that indicate:

1. A condition that may require operator intervention, or

2. A degradation of the unit in operation.

The Events & Alarms History screen allows a user to set display options for event and alarm reporting. The most recent events and alarms are added to the top of the display. Alarms are color coded according to severity. The fields are described in the table below.

Field / Section	Description
Display Selection	Use the Display Selection section to set event and alarm viewing preferences. To set the number of events or alarms to view, select Last 20, Last 100 or Last 500 from the drop-down list box. To set event or alarm viewing options, select Alarms & Events, Alarms Only, or Events Only from the drop-down list box. Click **Select** after making selections.
Events and Alarms History	
Time Stamp	Time Stamp displays the year, month, day, hours, minutes, and seconds of an event or alarm condition in the format: YYYY-MM-DD-HH-MM-SS.
AID	The Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000 where an event or alarm occurred.
Module Type	Indicates the type of module where an event or alarm occurred
Condition	Indicates the Event Number for the event. Numbers 0-31 are Alarm events, others are non-alarm events.
Description	This field displays a description of each alarm indicated.
Level	Indicates the level of severity of an alarm when it is first logged. Levels include: Critical, Major, and Minor. Cleared indicates that an alarm condition is no longer in alarm mode.
Service Affecting	Indicates whether an alarm is Service Affecting (SA) or Not Service Affecting (NSA).

Alarm Definitions

System Critical Alarm

System critical alarms are a class of alarms that indicate an immediate service affecting condition that requires immediate user intervention, for example, loss of a communication module or loss of input power to the chassis. System alarm indicators for critical alarms are red.

System Major Alarm

System major alarms are a class of alarms that may require immediate user intervention. These alarms may be elevated to a higher level via a user defined time period (Alarm Elevation Time) set in Alarm Configuration screen. System alarm indicators for major alarms are orange.

System Minor Alarm

System minor alarms are a class of alarms that indicate the unit performance is degrading. These alarms may be elevated to a higher level via a user defined time period (Alarm Elevation Time) set in Alarm Configuration screen. System alarm indicators for minor alarms are amber.

Module Critical Alarm

Module critical alarms are a class of alarms that indicate an immediate service affecting condition that requires immediate user intervention, for example, loss of a communication module or loss of input power to the chassis. Module alarm indicators for critical alarms are red.

Module Major Alarms

Module major alarms are a class of alarms that may require immediate user intervention. These alarms may be elevated to a higher level via a user defined time period (Alarm Elevation Time) set in Alarm Configuration screen. Module alarm indicators for major alarms are orange.

Module Minor Alarm

Module minor alarms are a class of alarms that indicate the unit performance is degrading. These alarms may be elevated to a higher level via a user defined time period (Alarm Elevation Time) set in Alarm Configuration screen. Module alarm indicators for minor alarms are amber.

Module Ignore Alarm

The Ignore option ignores any alarm indication. Alarms are logged but not reported.

Module Report Alarm

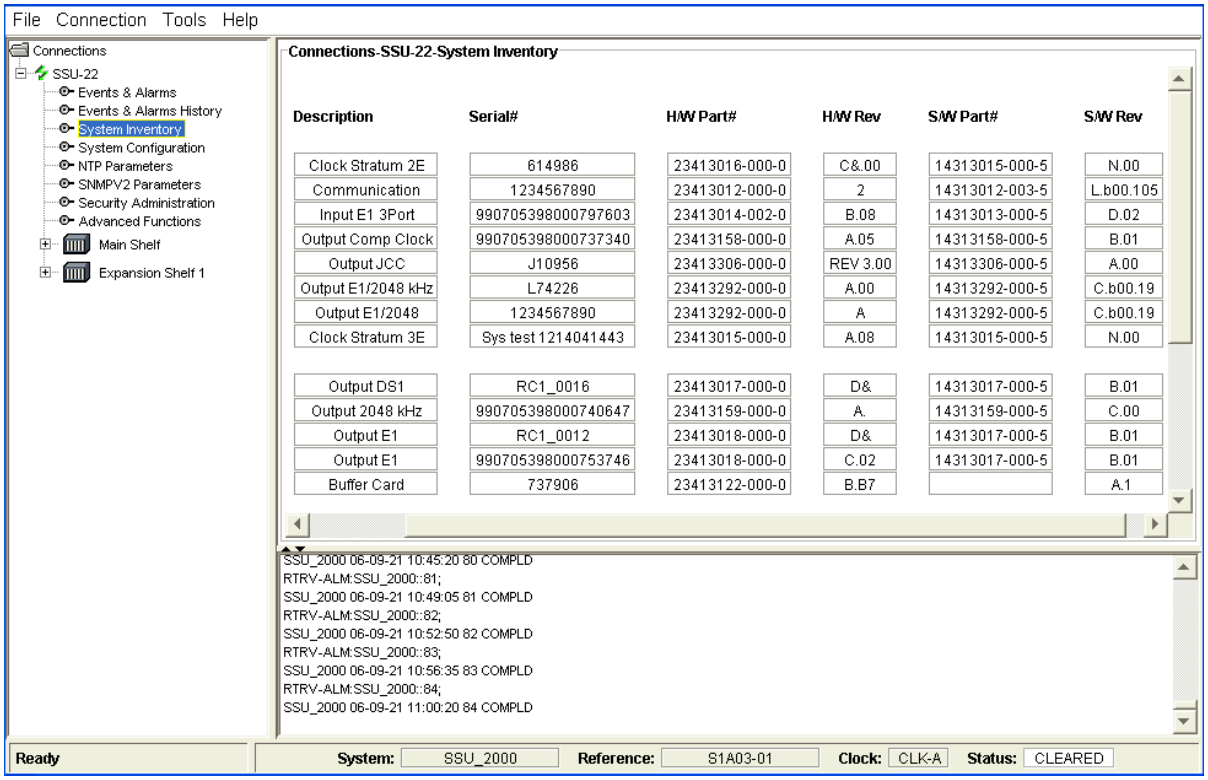
The Report mode option is used to report alarm indications only. A report-only message occurs for an alarm condition.

System Inventory

The System Inventory screen displays a list of all modules and provides information for each module in a system.

Field/Section	Description
AID	The Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Description	Displays the module type
Serial #	The module serial number
H/W Part #	The module part number
H/W Rev	The last revision date of the module

S/W Part#	The part number of the software revision [1)]
S/W Rev	The last revision date of the software [1)]
Note: [1)] A blank S/W Part# and a S/W Rev of A.0 indicates a modules that was removed. Removed modules are also indicated by a blank card image in the shelf physical view. The removed module's configuration data is retained until a new module is installed, or until the Communications module's nonvolatile memory is cleared.	



System Configuration

System Configuration Description

The System Configuration screen provides configuration information that affects system behavior. Click **Edit** to change the system configuration fields. Each field is described in the table below.

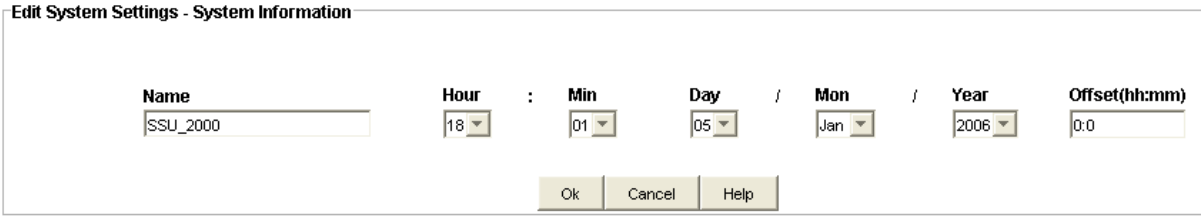
Field / Section	Description
System Information	
Name	Indicates name of currently connected system.
Time / Date	Indicates current time and date of currently connected system.
Time Offset	The offset time in hours and minutes.
Refresh	**Refresh Card** ENABLED/DISABLED Indicates if refresh upon removing a module is enabled or disabled. Microsemi recommends enabling refresh. If refresh is disabled, you must manually refresh the connection before working with a removed module. **Auto Refresh** DISABLED/ENABLED Indicates if the auto refresh is enabled or disabled. Refresh Interval Indicates the refresh interval time (from 1 to 60 minutes).
Input Status	
Input Reference	Reference Input lists module location identified by shelf and slot (AID) and port name.
Switch Mode	Options are Auto Switch, Auto Switch & Return, or Off. **Note:** AR means Auto Switch in Return Mode.
Selection Mode	Options are PQL or Priority.
Phase Build Out	Options are Disabled, Event, Report, or None.
TOD	
Source AID	Access identifier for a module that can deliver TOD source (either GPS or PackeTime)
Priority	Priority level of the ToD source module (from 0 to 8)
Operating Mode	
Mode	Options are Normal, Subtending, or Japanese.
Alarm Elevation	The Alarm Elevation Time setting allows the alarm severity level to increase over a specified period of time.
Clock Status	
Clock	The clock field displays installed clocks. If a clock is not installed, associated fields will be grayed out.
PQL	The Priority Quality Level (PQL) is a Synchronization Status Message (SSM) table that provides translation between DS1 and E1 SSMs**.**

Status	Indicates if a clock module is enabled or disabled and if it has been selected to generate output.
Mode	This field displays the current clock mode. Possible messages include Acquire, Locked, or Holdover.
Tau Value	The Tau value is how long data is averaged (in seconds) to compute the output frequency control loop.
Auto Return	The auto-return (revertive mode) feature returns the original clock to primary when proper criteria has been re-established.
Autonomous Message Format	
Mode	When autonomous messages (events and alarms) are generated, the format is in the selected mode. Selections are GR-831 and GR-833.

Edit System Information

To change the system name:

1. Type the new name in the **Name** field.
2. Use the time/date drop-down boxes to change the system time and date.
3. Type a time offset in hours and minutes in the **Offset** text box in the format hh:mm.
4. Click **OK** to save changes and return to the System Configuration screen, or click **Cancel** to return to the System Configuration screen without saving changes.



Edit Refresh Configuration

The edit refresh configuration function allows you to enable or disable card refresh, enable or disable auto refresh, and to set a refresh interval time range of 1 to 60 minutes.

Note: If you enable auto refresh and then manually refresh the connection from the Connection menu item, you must re-set the Auto Refresh setting to ENABLED.

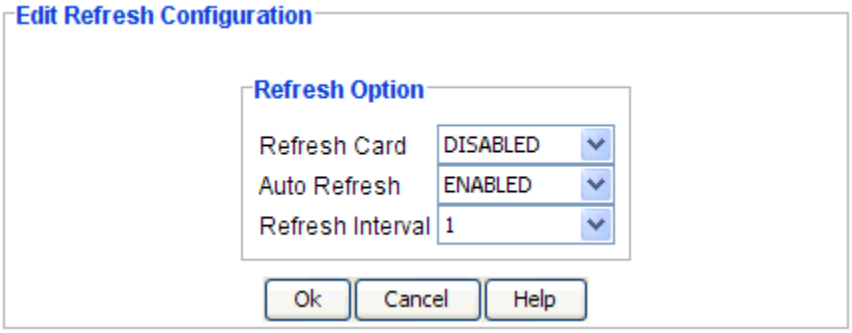
To set the refresh configuration:

1. In the Refresh Card drop-down box, select either **DISABLED** or **ENABLED**.

> **Note:** Microsemi recommends enabling refresh. If refresh is disabled, you must manually refresh the connection after removing a module.

2. In the Auto Refresh drop-down box, select either **DISABLED** or **ENABLED**.
3. In the Refresh Interval drop-down box select a time from 1 to 60 minutes.
4. Click **OK** to accept changes and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving changes.

> **Note:** If you have the TL1 Log View screen open and the log file becomes too large after multiple refreshes, the following warning message appears "The log file is too large for TimeCraft to Display". In this case, you must view the log file with a different application, such as Notepad or Word.



Edit System TOD Configuration

To change the system name:

1. Use the Source Aid drop-down box to select the access identifier for a module that can deliver TOD source (either GPS or PackeTime).
2. Use the Priority drop-down box to select the priority level of the ToD source module (from 0 to 8).
3. Click **OK** to save changes and return to the System Configuration screen, or click **Cancel** to return to the System Configuration screen without saving changes.

Edit System Input Parameters

To set the input parameters:

1. Enter the AID and name of the input port to use as the input reference in the **Input Reference** drop-down box.

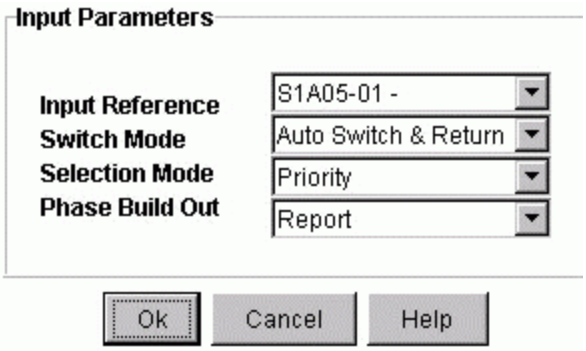
2. Select **Auto Switch**, **Auto Switch & Return** or **Off** in the **Switch Mode** drop-down box.

Note: AR means Auto Switch in Return Mode.

3. Select **PQL** or **Priority** in the **Selection Mode** drop-down box.

4. Select **Disabled**, **Event**, **Report**, or **None** in the **Phase Build Out** drop-down box.

5. Click **OK** to accept changes and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving changes.



Edit Operating Mode

To edit the operating mode:

1. Select either **NORMAL**, **SUBTENDING**, or **JAPANESE** in the Mode drop-down box.

2. Click **Ok** to accept changes and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving changes.

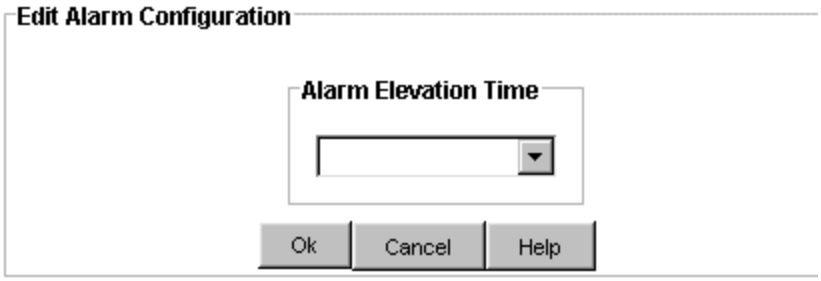
Edit System Alarm Elevation Time

To set the alarm elevation time:

1. In the Alarm Elevation Time drop-down box, enter the number of seconds the alarm must persist before elevating to the next higher alarm level or select **Disabled** for no alarm elevation time. Values include 0 (immediate) to 86,400 (1 day).

2. Click **OK** to accept changes and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving changes.

Note: Alarm elevation may be set for each module on its Module Configuration panel, or for the entire system on the System Configuration panel.



Edit System Clock Status

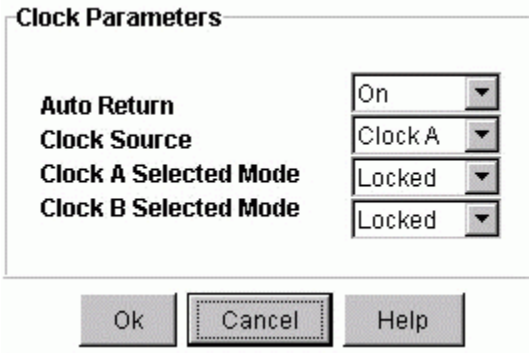
If you select **On** in the **Auto Return** drop-down box, the system automatically returns to the original clock when proper criteria has been re-established. When Auto Return is selected, the remaining drop-down boxes are grayed out to prevent modification.

To manually select a clock:

1. Select **Off** in the **Auto Return** drop-down box.
2. Select the desired clock in the **Clock Source** drop-down box.
3. Select the desired mode in the **Clock A Selected Mode** drop-down box.
4. Select the desired mode in the **Clock B Selected Mode** drop-down box.

Note: Mode defines the minimum required state for a clock to be selected.

5. Click **OK** to accept changes and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving changes.



Edit Autonomous Message Format

The SSU-2000 sends autonomous reports in response to a detected alarm condition or status change. You can select one of two formats for autonomous messages: GR-831 or GR-833. The RTRV-PRMTR-TL1FORMAT command is used to select which format is generated. These reports are similar to the RTRV-ALARM command responses, but contain an alarm code rather than the complied line.

The GR-831 format for an autonomous alarm report is:

```
<cr lf>
^^^sid^date^time <cr lf>
```

```
alrmcde^atag^REPT^ALM^[AIDTYPE]<cr lf>
^^^"aid:ntfcncde,condtype,srveff,ocrdat,ocrtm:condscr"<cr
lf>
```

The GR-833 format for an autonomous event report is:

```
<cr lf>
^^^sid^date^time <cr lf>
alrmcde^atag^REPT^EVT<cr lf>
^^^"aid:ntfcncde,condtype,srveff,ocrdat,ocrtm:condscr"<cr
lf>
```

Use the following procedure to set the autonomous message format:

1. In the Mode drop-down box, select GR831 or GR833. This selection determines the format of the event and alarm messages.

2. Click OK to accept changes and return to the System Configuration screen, or Cancel to return to the System Configuration screen without saving changes.

NTP Parameters

Network Time Protocol (NTP)

Network Time Protocol is an internet protocol used to synchronize computer clocks to the same time reference.

The unit can run as a server application and a client application. In addition, broadcast mode may be implemented as either a server or client. The NTP server always runs and the client and broadcast modes are enabled independently by assignment of addresses and setting of timers.

Click **Edit** to change the Network Time Protocol parameters. The fields are described in the table below.

Field / Section	Description
NTP IP Address 1	
Mode Selection	The Mode Selections are Not Assigned, Broadcast Server, Broadcast Client, and Client.
IP Mask	The IP Mask is displayed only if the Broadcast Server option is selected in Mode Selection. This is the IP mask of the time source.
Interval	The interval is displayed only if the Broadcast Server option is selected in Mode Selection. Interval defines the rate in seconds at which the time is broadcast by the server.
IP Address	The IP Address is displayed only if the Broadcast Client or Client option is selected in Mode Selection. This is the IP address to be used as broadcast client or client.
Offset	The Offset is displayed only if the Broadcast Client or Client option is selected in Mode Selection. This is the number of seconds used to adjust the local time.
Delay	The Delay is displayed only if the Broadcast Client or Client option is selected in Mode Selection. This is the calculated delay in the communication path.
Dispersion	The Dispersion is displayed only if the Broadcast Client or Client option is selected in Mode Selection. This value indicates the accuracy of the offset/delay settings.
Interval (Sec)	Sets the rate (in seconds) at which the time is to be broadcast by the server.
NTP IP Address 2 and 3	
Mode Selection	The Mode Selections are Not Assigned, Broadcast Server, Broadcast Client, and Client.
IP Address	The IP address to be used as broadcast client or client.
Offset	The number of seconds used to adjust the local time.
Delay	The calculated delay in the communication path.
Dispersion	This value indicates the accuracy of the offset/delay settings.
Interval (Sec)	Sets the rate (in seconds) at which the time is to be broadcast by the server.
Current System Mode	Displays the current mode setting for the system.
PREFER	Indicates the preferred time-of-day source in the SSU-2000 from GPS or an NTP client.

Edit Network Time Protocol IP Addresses

When you edit the NTP IP Address 1, you can setup the Address as either a broadcast server, broadcast client, or client. Address 2 and 3 can only be setup as Broadcast Client or Client.

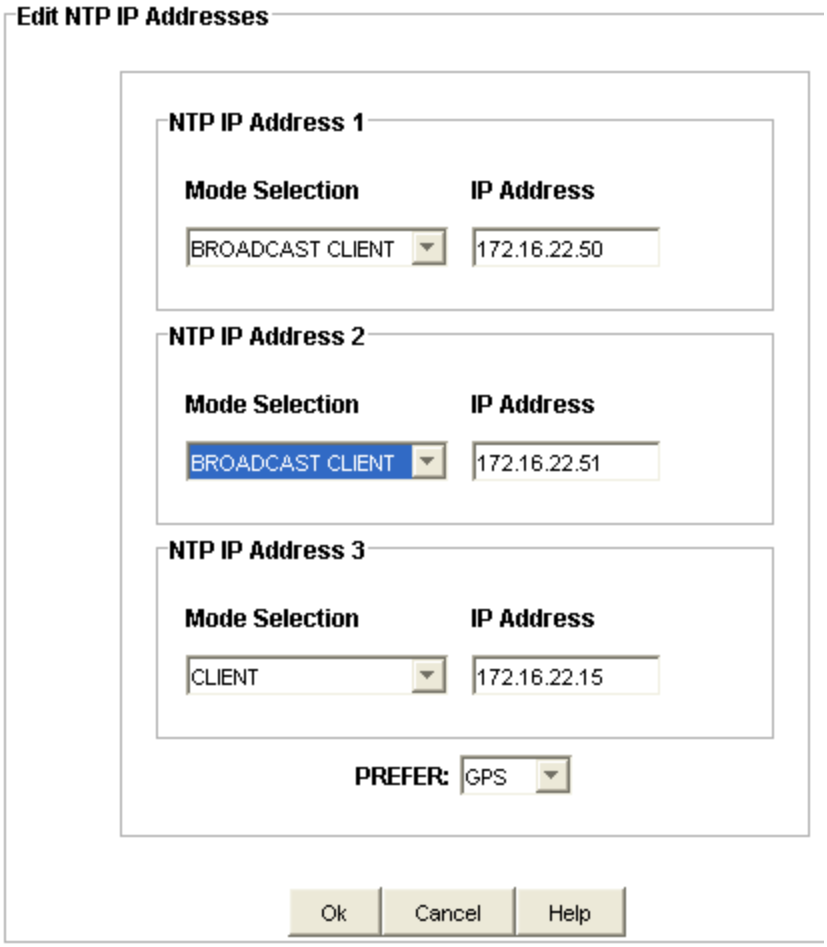
The **PREFER:** drop-down box allows you to select the time-of-day source in the SSU-2000 as either GPS or an NTP client.

Use the following procedure to setup NTP IP Address 1, 2, or 3 as either a broadcast client or client:

1. Select **BROADCAST CLIENT** or **CLIENT** in the **Mode Selection** drop-down box.

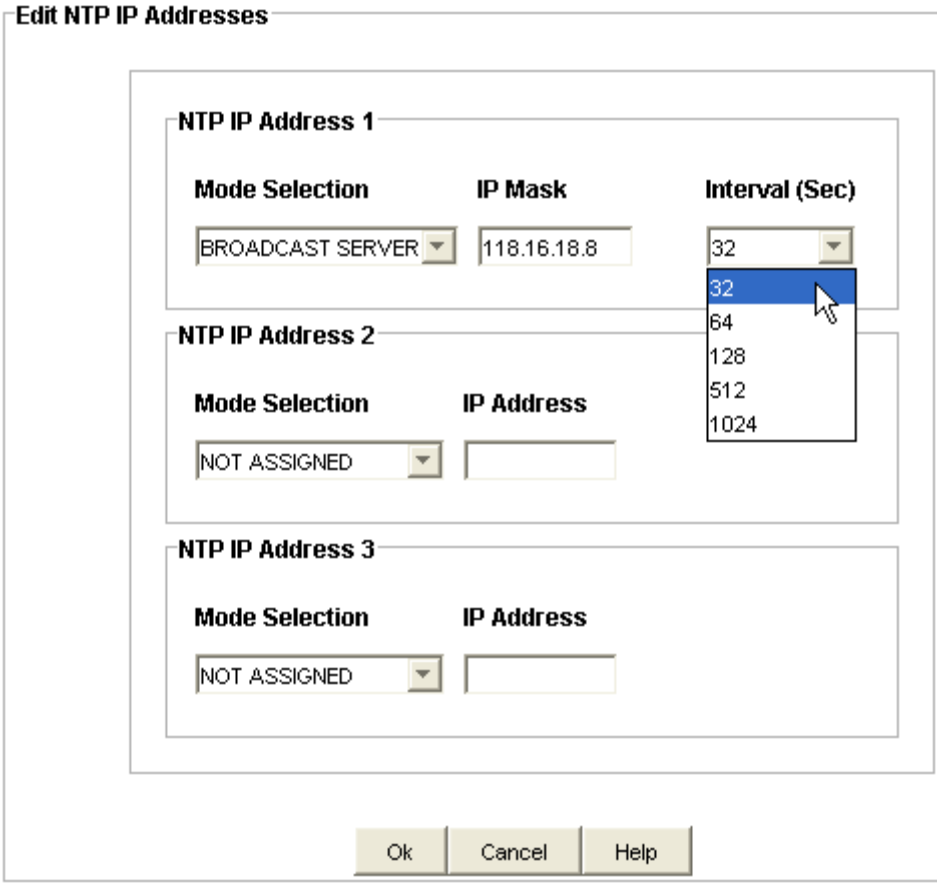
2. Enter the IP address of the Broadcast Client or Client in the **IP Address** text box.

3. Click **OK** to accept changes and return to the NTP IP Addresses screen, or **Cancel** to return to the NTP IP Addresses screen without saving changes.



Use the following procedure to setup NTP IP Address 1 as a broadcast server:

1. Select **BROADCAST SERVER** in the **Mode Selection** drop-down box.
2. Enter the IP mask address of the time source in the **IP Mask** text box.
3. Select the time in seconds in the **Interval** drop-down box. This is the rate in seconds that the time will be broadcast by the server.
4. Click **OK** to accept changes and return to the NTP IP Addresses screen, or **Cancel** to return to the NTP IP Addresses screen without saving changes.



Mode Selection

Broadcast Server - configures the SSU-2000 as a broadcast time server at the specified IP Address. The broadcast interval (in seconds) defines the rate at which the time will be broadcast by the server.

Broadcast Client - accepts time from a broadcast server specified by IP Address.

Client - requests the time from the time server (specified by IP Address); this time sets the time in the SSU-2000.

SNMP Parameters

Simple Network Management Protocol (SNMP)

The SNMP Configuration screen provides information on SNMP configuration settings, Community Settings (SNMPv2), Trap Reporting (SNMPv2), User Settings (SNMPv3), and SNMPv3 Manager setup.

The fields are described in the table below.

Click **Edit** to change the parameters.

Field / Section	Description
SNMP Configuration	
SNMP	This field enables or disables the SNMP interface. Options are Enabled or Disabled.
Trap On	Trap On selects what is to be reported via the SNMP Trap mechanism. Options are Alarm only or Events & Alarms.
Notification (SNMPv3 only)	Sets the SNMP notification type to SNMPv2, SNMPv3, or both.
Keep Alive	User defined time in which an event is generated by the SSU-2000 to alert the upstream support system that the SSU-2000 and associated communication path is functional.
Community Strings	**SNMPv2 Only**
Level	Supervisory, Craftsperson, and User.
Read	This SNMP Community string is required for read operations. The SSU-2000 also allows users to define a User level to further define the access rights.
Write	This SNMP Community string is required for write operations. The SSU-2000 also allows users to define a User level to further define the access rights.
Trap Reporting	**SNMPv2 Only**
IP Address	IP address where trap reports are sent.
User Settings	**SNMPv3 Only**
User Name:	User name which may be up to 20 characters.
Authentication Algorithm	The choices are HMAC-MD5 and HMAC-SHA.
Authentication Key	The authentication key is 16 characters for the MD5 algorithm and 20 characters for the SHA algorithm.
Privacy Key	Contains the 16 character privacy key.

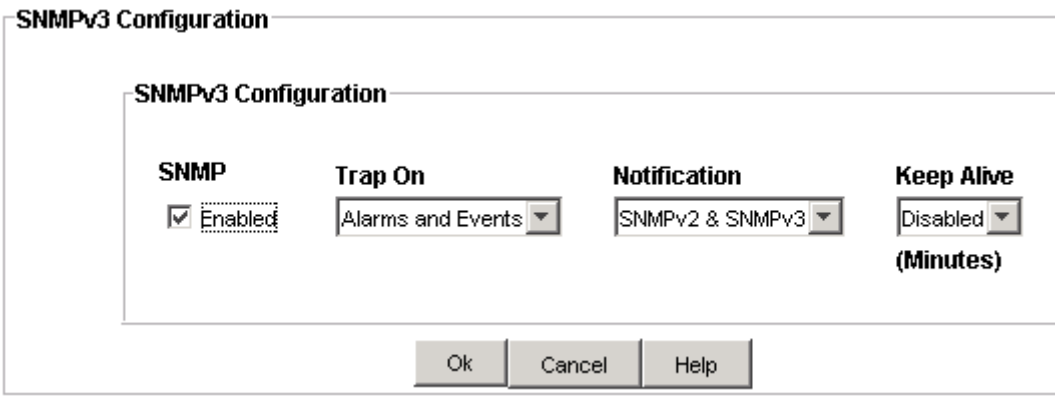
SNMPv3 Manager	SNMPv3 Only
IP Address	Manager IP address where trap reports are sent.
User Name	The user name associated with the manager IP address.

Edit SNMP Main Configuration

To set up the SNMP Configuration screen:

1. Click the check box to enable SNMP (a check indicates SNMP enabled and no check indicates SNMP not enabled).
2. Select Alarms or Events and Alarms in the **Trap On** drop-down box.
3. Select Disabled or a time of 1 to 60 minutes in the **Keep Alive** drop-down box.
4. (SNMPv3 only) Select SNMPv3 notification type to SNMPv2, SNMPv3, or both when an event occurs.
5. Click **OK** to accept changes and return to the SNMP Parameters screen, or **Cancel** to return to the SNMP Parameters screen without saving changes.

Note: Notification Type refers to SNMPv3 only.



Edit SNMP Community Settings

Note: SNMP Community Settings applies to SNMPv2 only.

To edit the SNMP Community Settings:

1. In the **Level** drop-down box, select **Supervisor**, **Craft**, or **User**.

- Supervisory Level allows "Administrator" to perform all functions of "Craft" and "User" level. Additionally, can perform configuration modifications.
- Craftsperson Level allows "Craftsperson" to perform all functions of "User" level. Additionally, may read and has limited set ability.
- User Level allows "User" to only read and retrieve status information.

2. Enter a read string in the **Read** text box. For each level, the user can set one "Read" Community string. The "Read" string is visible when typed.

3. Enter a write string in the **Write** text box. For each level, the user can set one "Write" Community string. The "Write" string is treated as a secure password and is not displayed when typed.

4. Click **OK** to accept changes and return to the SNMP Parameters screen, or **Cancel** to return to the SNMP Parameters screen without saving changes.

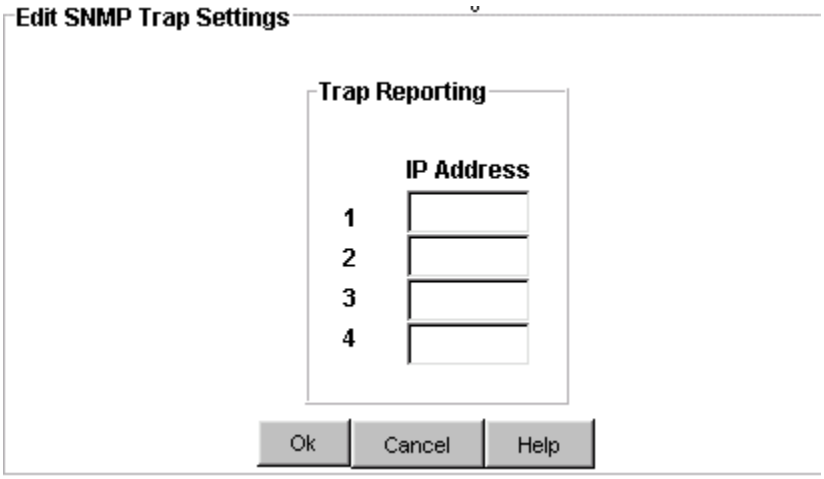
5. To delete all existing users, click the **Clear All** button. It deletes all users and returns to the SNMPv2 parameters screen.

Edit SNMP Trap Reporting

Note: Trap Reporting applies to SNMPv2 only.

To set up Trap Reporting:

1. Enter a valid IP address in text boxes 1 through 4.
2. Click **OK** to accept changes and return to the SNMP Parameters screen, or **Cancel** to return to the SNMP Parameters screen without saving the changes.



SNMPv3 User Settings

This Interface allows you to change the SNMPv3 Security System. There are four modes - ADD / DEL / MOD / INIT.

To add a new user:

1. Click the **New User** Button

2. A New SNMPv3 User dialog pop-up appears.

3. Type in the user name with a maximum of 20 characters and a minimum of 3 characters.

4. Choose either the MD5 or SHA authentication algorithm from the combo box selection.

5. Type in the authentication key with a maximum of 20 characters and a minimum of 8 characters.

6. Type in the privacy key with a maximum of 20 characters and a minimum of 8 characters.

7. Click **Ok** to accept the changes and return to the SNMPv3 Parameters screen, or click **Cancel** to return to the SNMPv3 parameters screen without saving changes.

To edit an existing user:

1. Choose the connection to be edited and click the **Edit User** button.

2. An Edit SNMPv3 User dialog pop-up appears.

3. Choose either the MD5 or SHA authentication algorithm from the combo box selection.

4. Type in the authentication key with a maximum of 20 characters and a minimum of 8 characters.

5. Type in the privacy key with a maximum of 20 characters and a minimum of 8 characters.

6. Click **Ok** to accept the changes and return to the SNMPv3 Parameters screen, or click **Cancel** to return to the SNMPv3 parameters screen without saving changes.

To delete an existing user:

1. Choose the connection to be deleted and click the **Delete** button.
2. A message pop-up appears stating "Are you sure?"
3. Click **Yes** to delete the selected user, or **No** to close the message and return to the SNMPv3 parameters screen without deleting the user.

To clear all existing user:

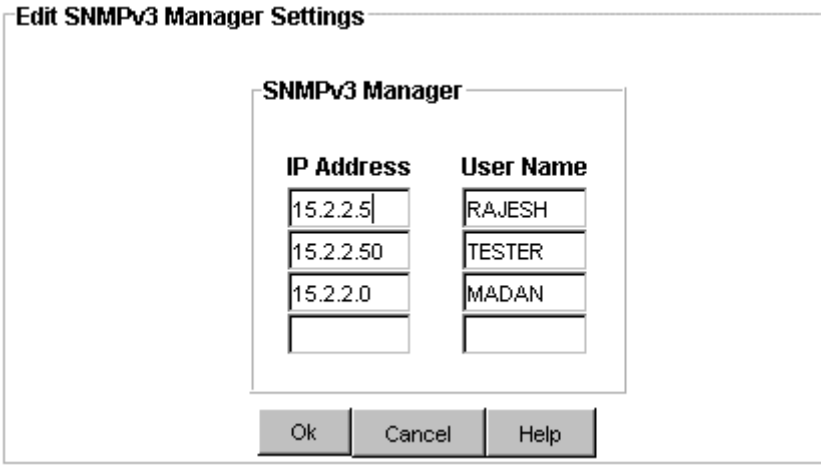
1. Click the **Clear All** button.
2. A message pop-up appears stating "Deletes all existing users. Are you sure?"
3. Click **Yes** to delete all user and return to the SNMPv3 parameters screen, or **No** to return to the SNMPv3 parameters screen without deleting the users.

Note: The User Level field is not supported in this release.

Edit SNMPv3 Manager Settings

To set up the manager IP address and user name for trap reporting:

1. Enter a valid IP address in the text box.
2. Enter a corresponding user name.
3. Click **OK** to save the entries and return to the SNMP Parameters screen, or **Cancel** to return to the SNMP Parameters screen without saving the entries.



Security Administration

Security Administration Description

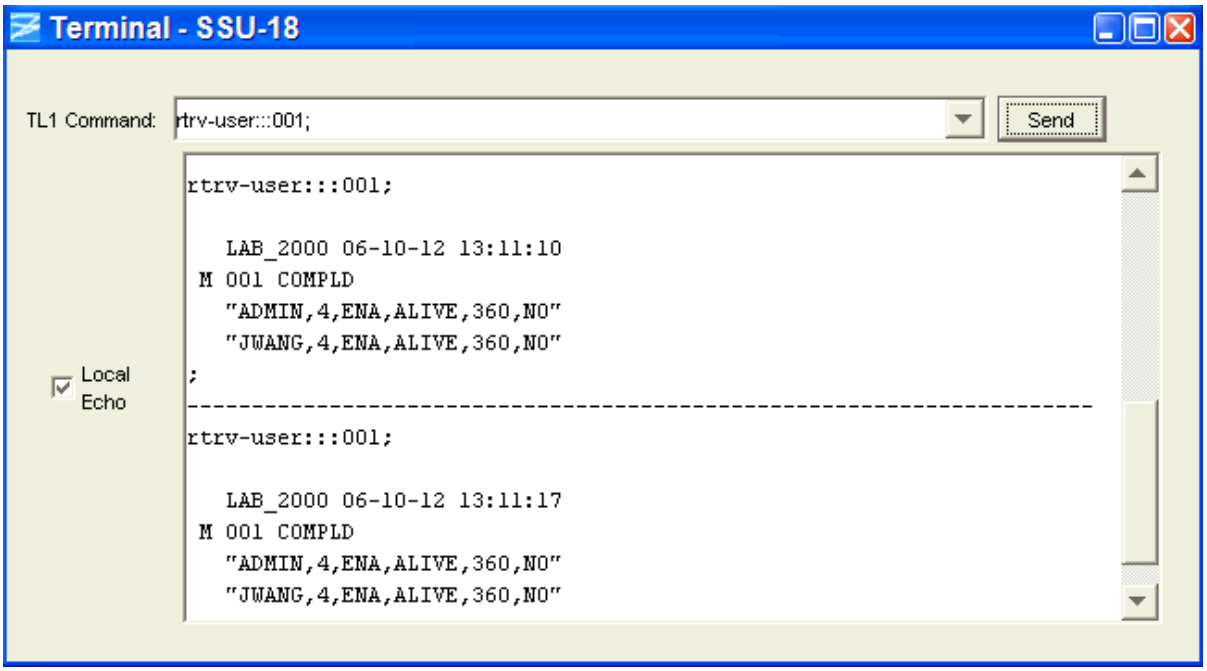
The Security Administration screen allows an administrator to manage user login. When a new user is created, the administrator can associate one of four access security levels with each username. Each security access level grants the privileges of all lower levels plus additional privileges.

Administrators can perform the following management functions:

- Add a user
- Edit a users password and security level
- Delete a user
- Disable a user
- Enable a user
- Unlock a user

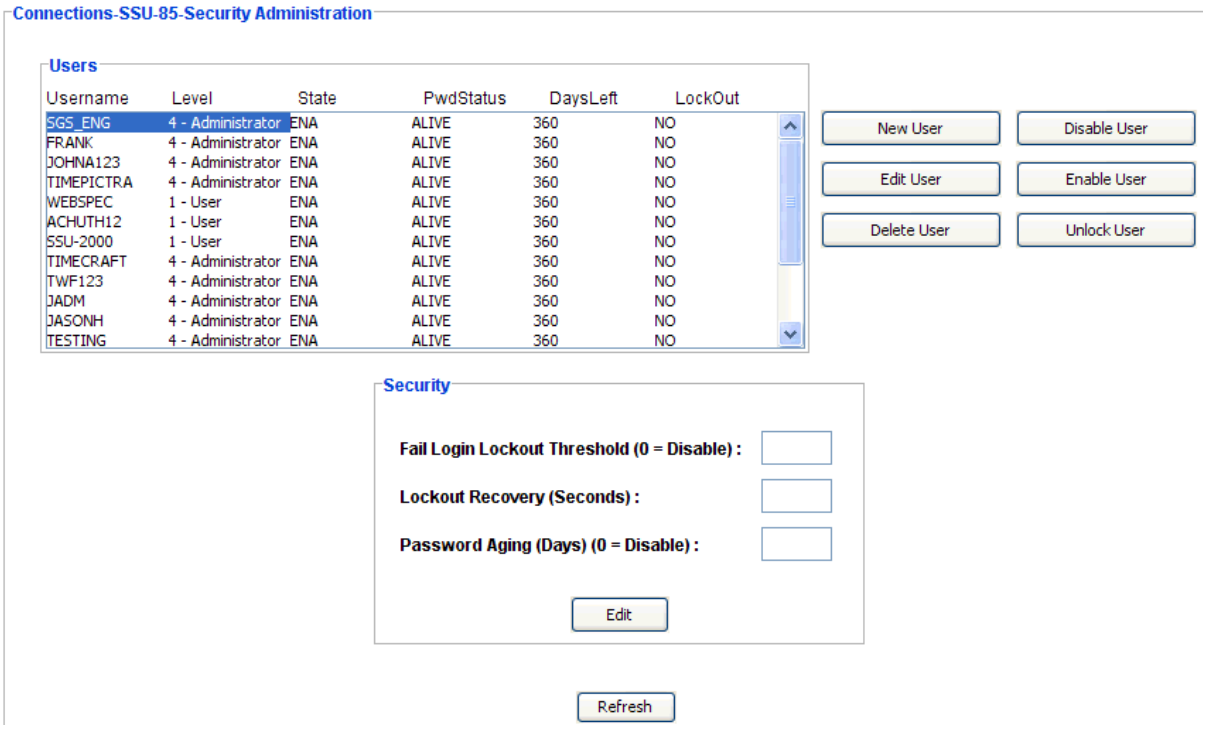
You can use the Terminal located under the **Tools** menu item to send the RTRV-USER TL1 command to view the following:

- State: if the user is enabled or disabled.
- PasswordState: if a password is alive or expired.
- PasswordDaysLeft: number of days for a user that their password is valid.
- Lockout: if a user is locked out or not.



The administrator can also manage a security feature that locks out any user who fails a specified number of login attempts. The settings are described in the following table. Click **Edit** to change the Security settings. Click **Refresh** to update the Security setting display.

Item	Description
Fail Login Lockout Threshold	This setting is from 2 to 5 attempts. A setting of 0 disables the lockout function.
Lockout Recovery	This setting is from 10 to 86400 seconds with a default of 60.
Password Aging	This setting is from 10 to 360 days. A setting of 0 disables password aging.



System Security Levels

System security levels are described in the following table.

Level	ID	Description
Idle	0	Security level 0 is available when no user is logged in. This level allows Idle users to view a list of available commands (HELP), syntax, software version number, unit id, or to login.
User	1	User-level users can: Perform level 0 functions View information about the current configuration and operation Change communication settings such as line termination and echo Changes made by users at this level remain in effect only until the user logs out

Technician	2	Technician-level users (CRAFT persons) can: Perform level 0 through 1 functions Read or set all installation functions
Supervisor	3	Supervisor-level users can: Perform level 0 through 2 functions Read or set all functions
Administrator	4	Administrator-level users can: Perform level 0 through 3 functions View and set software configurations Add, delete, or modify the user table Log off any user from any port

Edit Security Configuration

Note: This feature is not applicable for SSU 2000 Radius Enabled devices

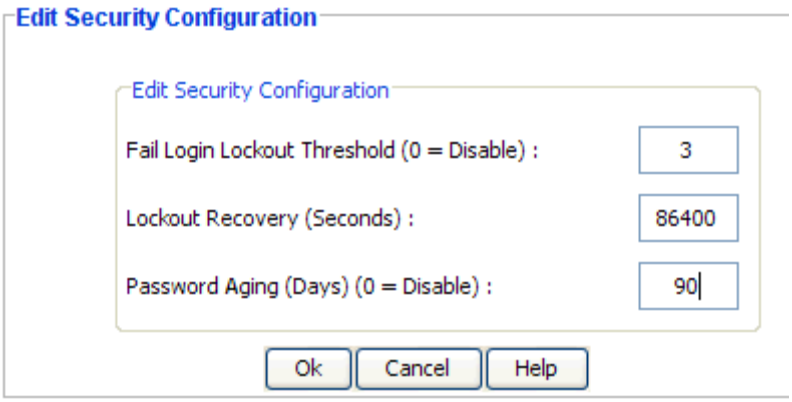
Use the following procedure to edit the security lockout function. This locks out any user for a specified time who fails a specified number of login attempts.

1. Enter a number from 0 to 5 in the **Fail login Lockout Threshold (0 = Disable)** text box for the number of times a user can enter an incorrect password before the user is prevented from further login attempts. A 0 disables this function to allow unlimited login attempts.

2. Enter a number from 10 to 86400 seconds in the **Lockout Recovery (Seconds)** text box for the time required to pass before a user is allowed to attempt login after lockout has occurred (86400 seconds = 24 hours).

3. Enter a number from 10 to 360 in the **Password Aging (Days) (0 = Disable)** text box to determine the number of days before a users must change their password. If you enter 0, a password will not have to be changed.

4. Click **OK** to accept changes and return to the Security Administration screen, or **Cancel** to return to the Security Administration screen without saving changes.

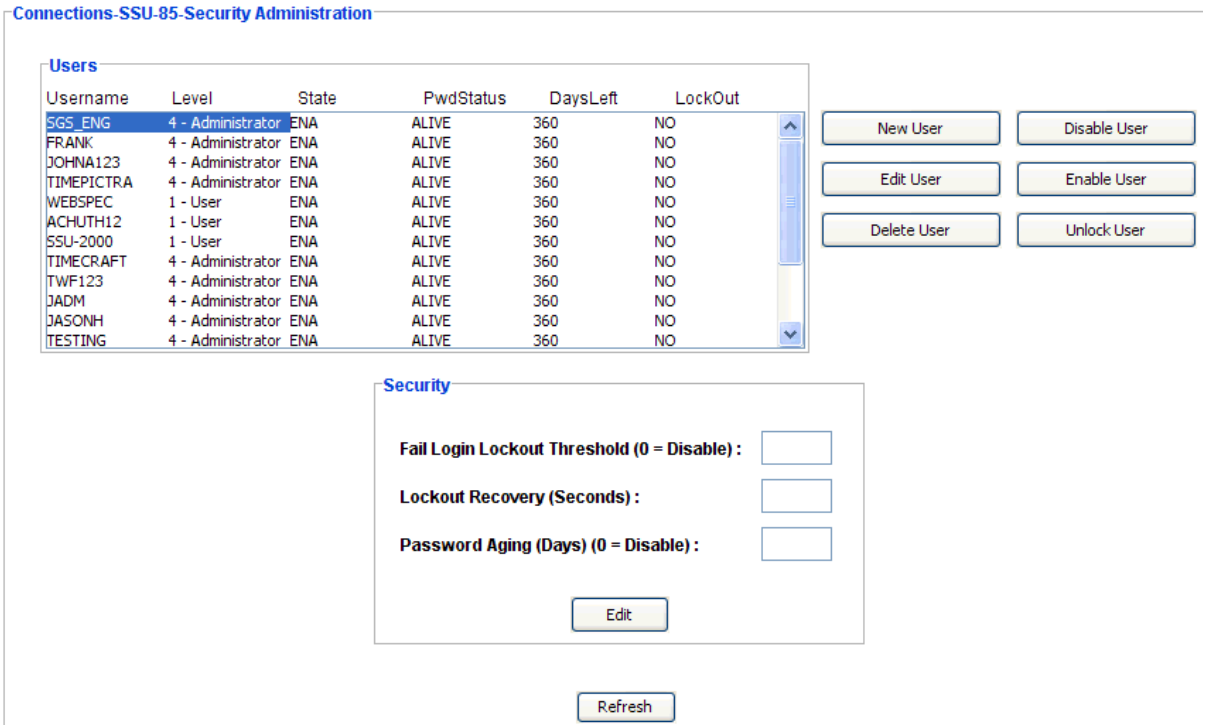


Add a User

Use the following procedure to add a new user:

Note: In some systems with older software, the Security Administration screen will not display all of these functions.

1. Click **New User** in the Security Administration window.



2. Enter a name from 4 to 32 characters in the **Username** text box.

3. Enter a password in the **Password** text box.

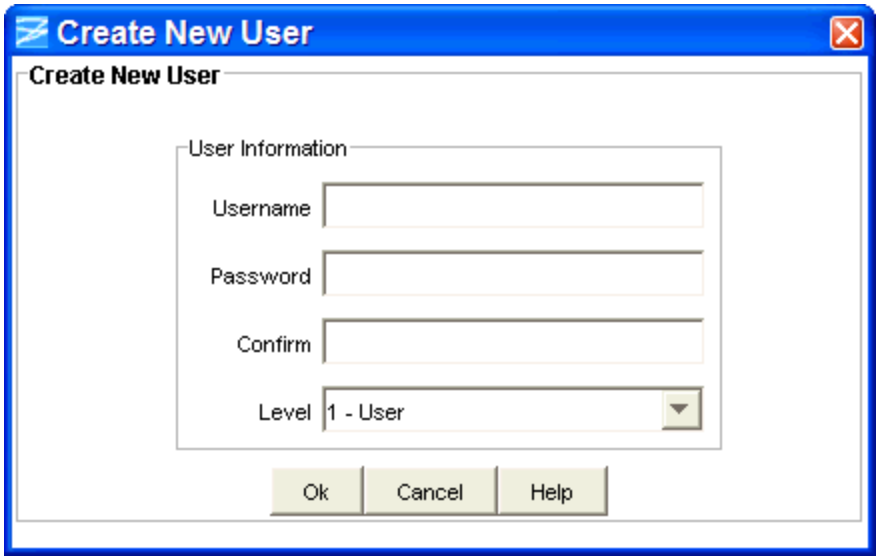
The following is a list of requirements for passwords:

- Null strings are not accepted
- Password must be from 6 to 32 characters
- Password must contain at least one alphabetic character, one numeric character, and one special character (e.g. punctuation)
- Passwords cannot have a colon ':', quote '"', comma ',' or blank character embedded
- Passwords cannot be the same as the username
- A new password cannot be the same as one of the previous three passwords

4. Enter the same password again in the **Confirm** text box (Password and Confirm must match to create the user).

5. Select a level in the Level drop-down box.

6. Click **OK** to accept changes and return to the Security Administration screen, or **Cancel** to return to the Security Administration screen without saving changes.



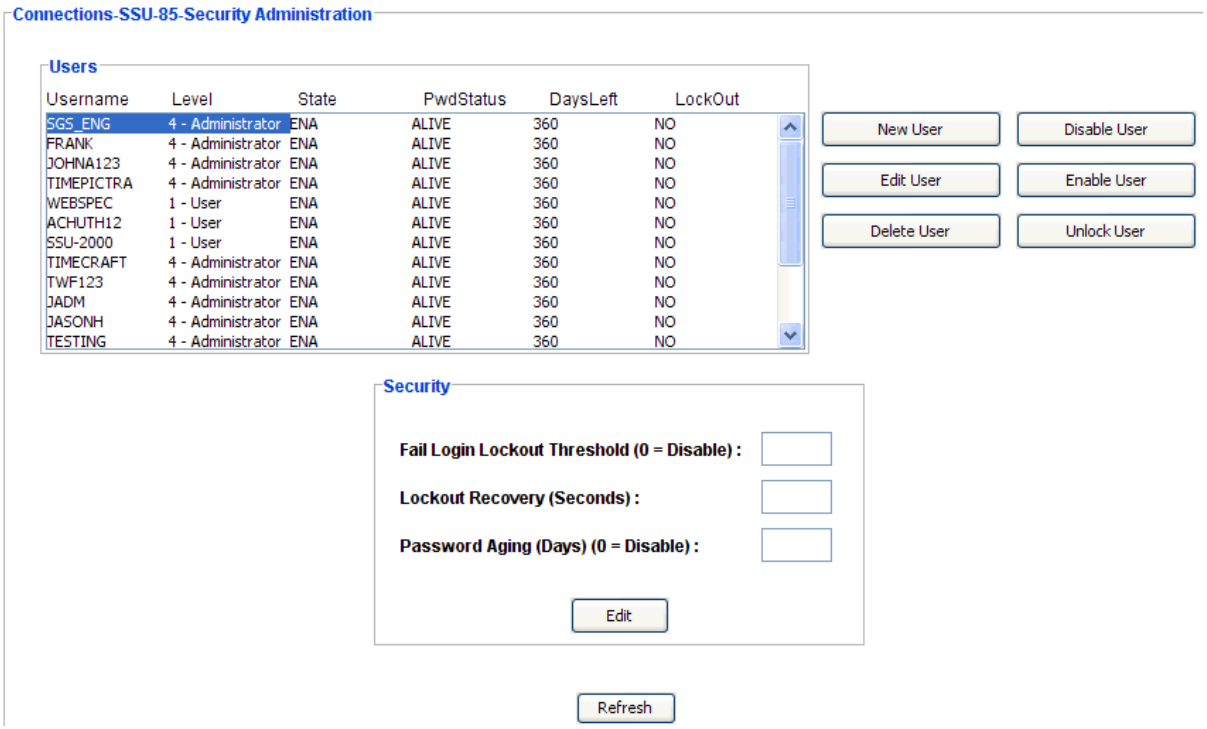
Edit an Existing User

Use the following procedure to edit an existing user:

Note: In some systems with older software, the Security Administration screen will not display all of these functions.

1. Select the Username in the list of users to be edited in the Security Administration Users window.

2. Click **Edit User**.



3. Enter a new password in the **Password** text box.

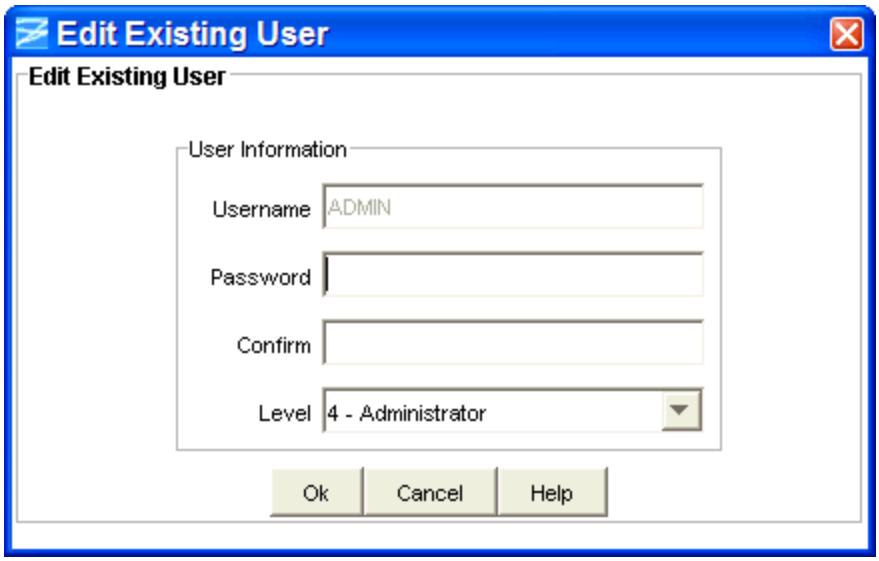
The following is a list of requirements for passwords:

- Null strings are not accepted
- Password must be from 6 to 32 characters
- Password must contain at least one alphabetic character, one numeric character, and one special character (e.g. punctuation)
- Passwords cannot have a colon ':', quote '"', comma ',' or blank character embedded
- Passwords cannot be the same as the username
- A new password cannot be the same as one of the previous three passwords

4. Enter the same password again in the **Confirm** text box (Password and Confirm must match to create the user).

5. Select a new level in the Level drop-down box.

6. Click **OK** to accept changes and return to the Security Administration screen, or **Cancel** to return to the Security Administration screen without saving changes.

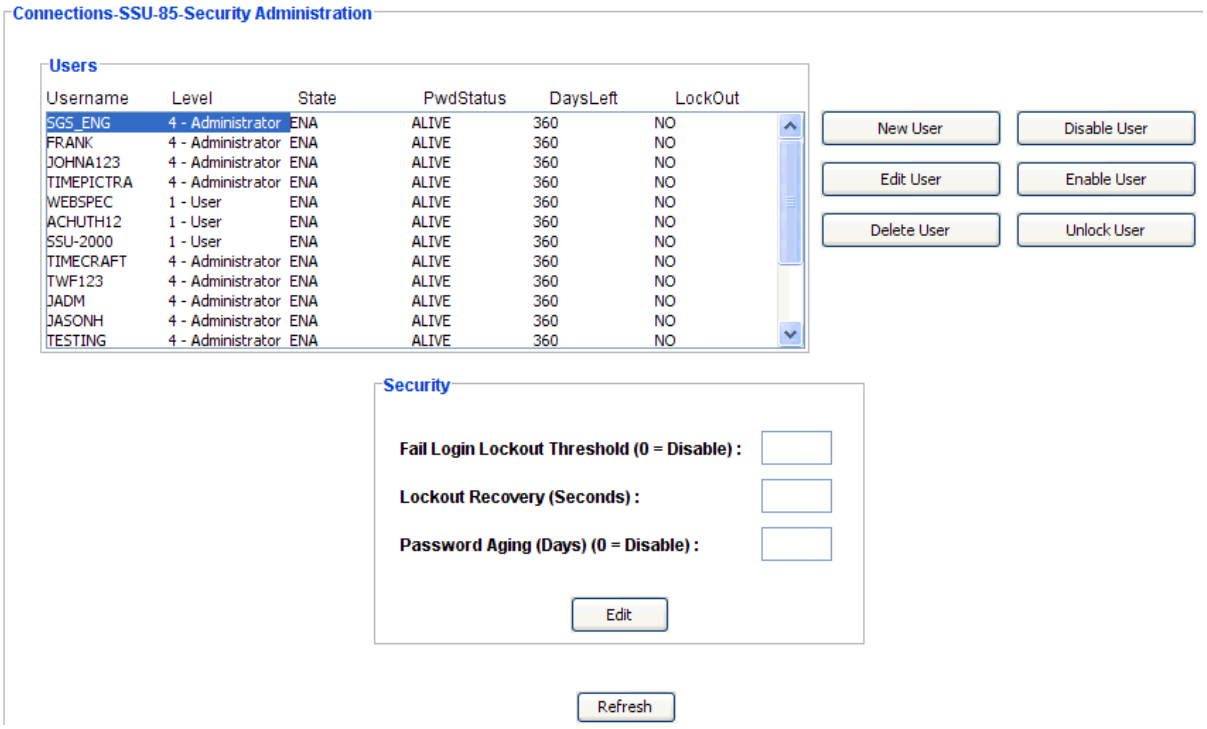


Delete a User

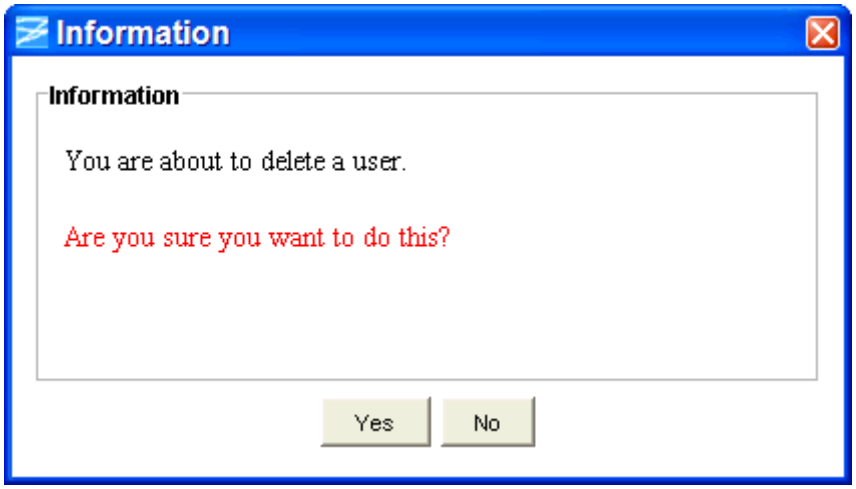
Use the following procedure to delete a user:

Note: In some systems with older software, the Security Administration screen will not display all of these functions.

1. Select the Username in the list of users to be deleted in the Security Administration Users window.



2. Click **Delete User**. The following screen appears.



3. If you want to delete the user, click **Yes**, or if you do not want to delete the user, click **No** to return to the Security Administration screen.

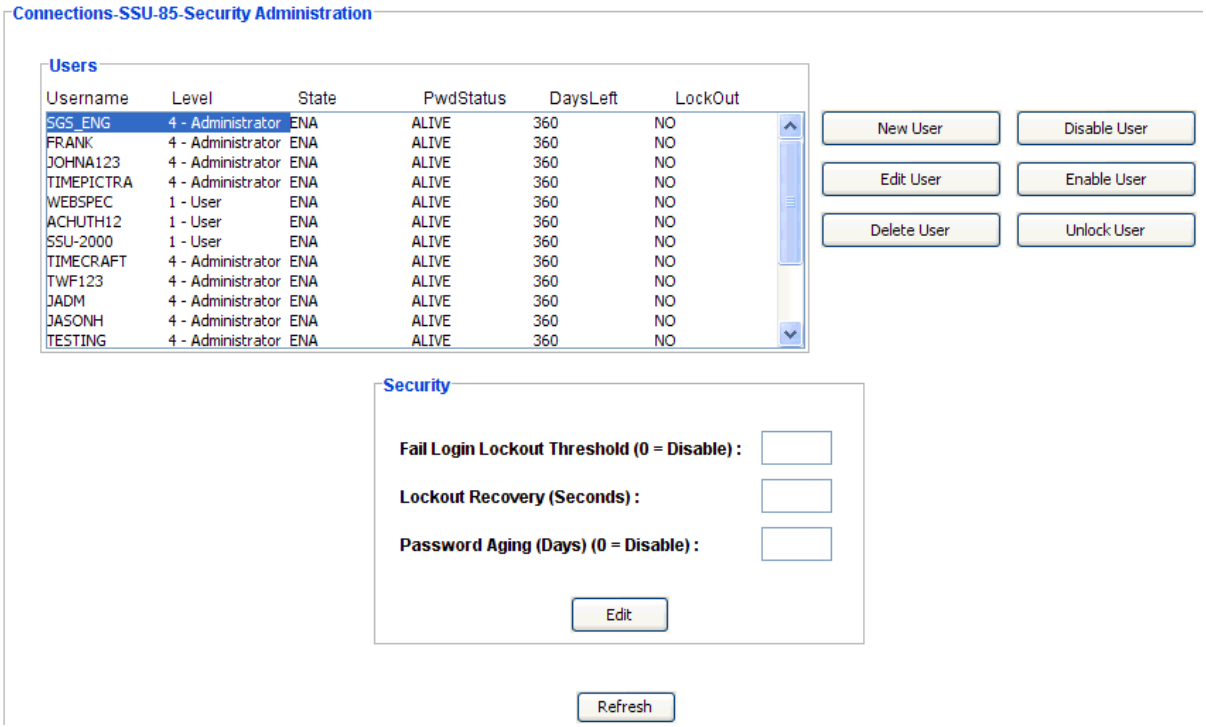
Disable a User

Note: This feature is not applicable for SSU 2000 Radius Enabled devices.

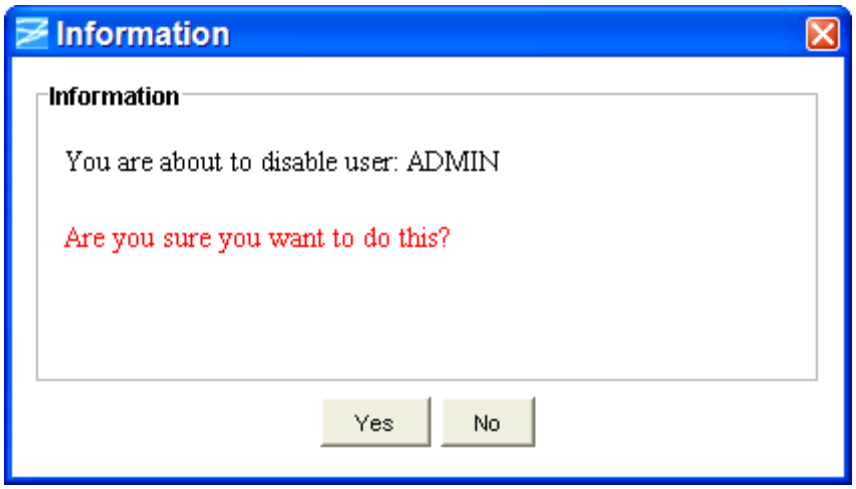
Use the following procedure to disable a user:

Note: In some systems with older software, the Security Administration screen will not display all of these functions.

1. Select the Username in the list of users to be disabled in the Security Administration Users window.



2. Click **Disable User**. The following screen appears.



3. If you want to disable the user, click **Yes**, or if you do not want to disable the user, click **No** to return to the Security Administration screen.

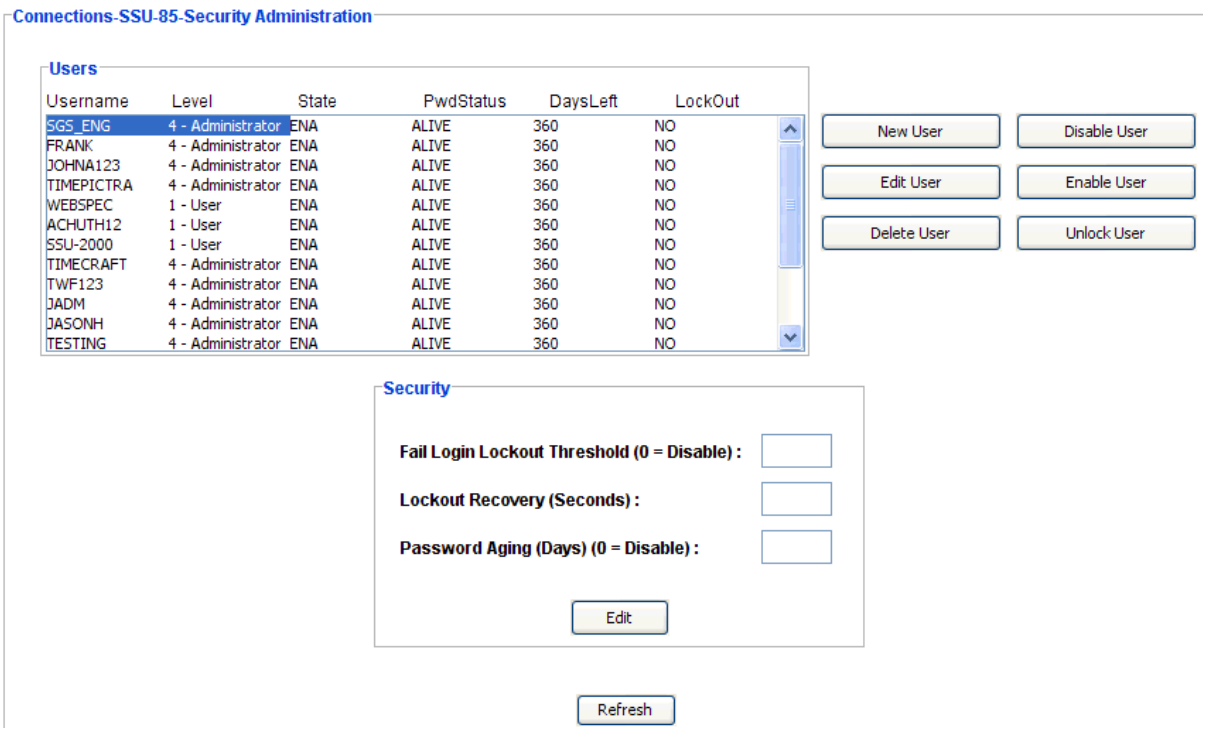
Enable a User

Note: This feature is not applicable for SSU 2000 Radius Enabled devices.

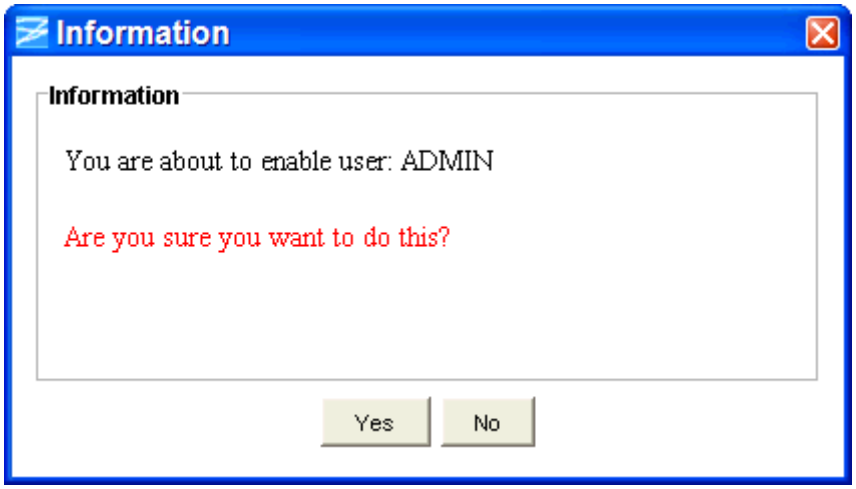
Use the following procedure to enable a user:

Note: In some systems with older software, the Security Administration screen will not display all of these functions.

1. Select the Username in the list of users to be enabled in the Security Administration Users window.



2. Click **Enable User**. The following screen appears.



3. If you want to enable the user, click **Yes**, or if you do not want to enable the user, click **No** to return to the Security Administration screen.

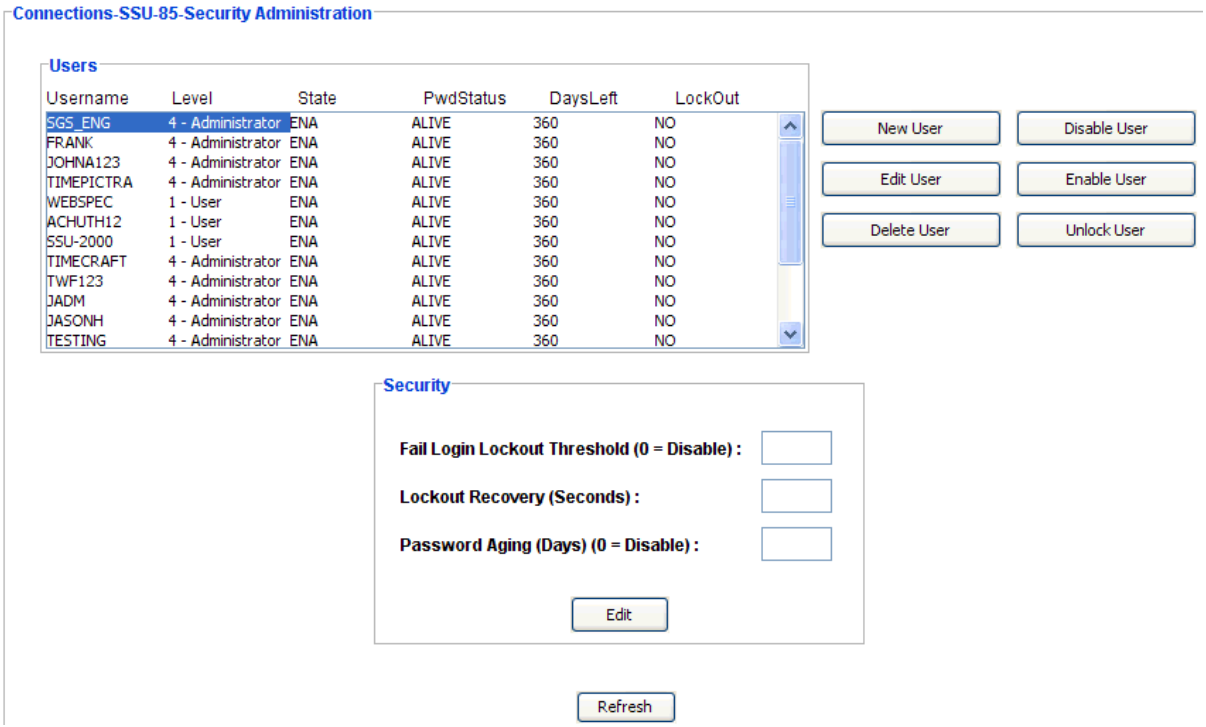
Unlock a User

Note: This feature is not applicable for SSU 2000 Radius Enabled devices.

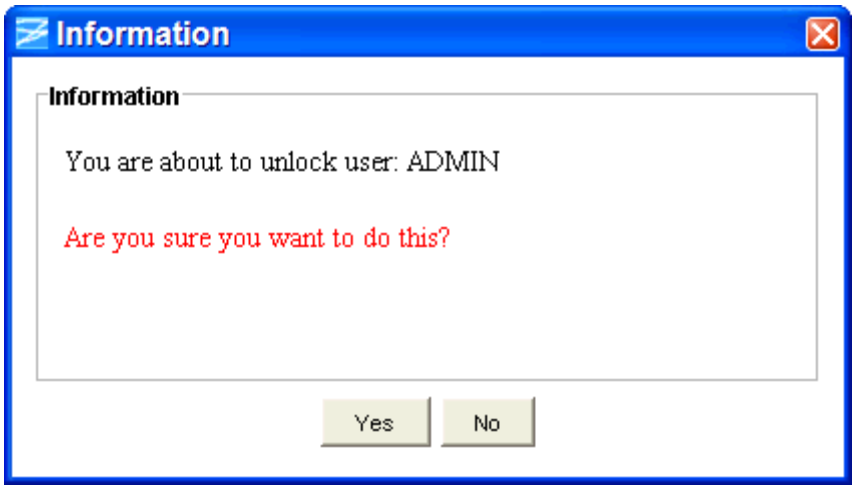
Use the following procedure to unlock a user:

Note: In some systems with older software, the Security Administration screen will not display all of these functions.

1. Select the Username in the list of users to be unlocked in the Security Administration Users window.



2. Click **Unlock User**. The following screen appears.



3. If you want to unlock the user, click **Yes**, or if you do not want to unlock the user, click **No** to return to the Security Administration screen.

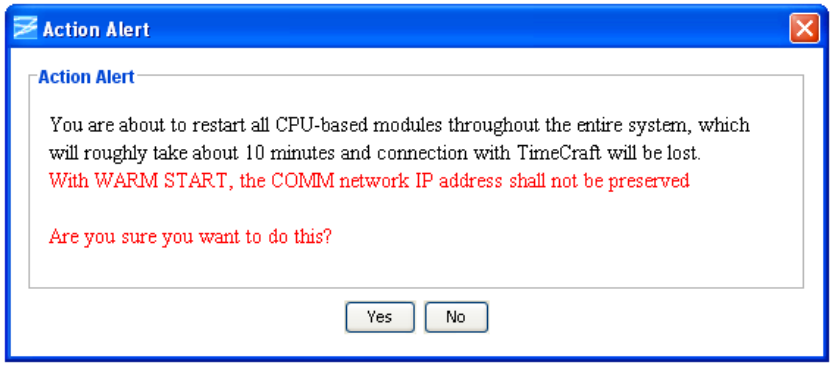
Advanced Functions

Advanced Functions Description

As the Advanced Functions tree node is clicked, the Advanced Functions panel is displayed.

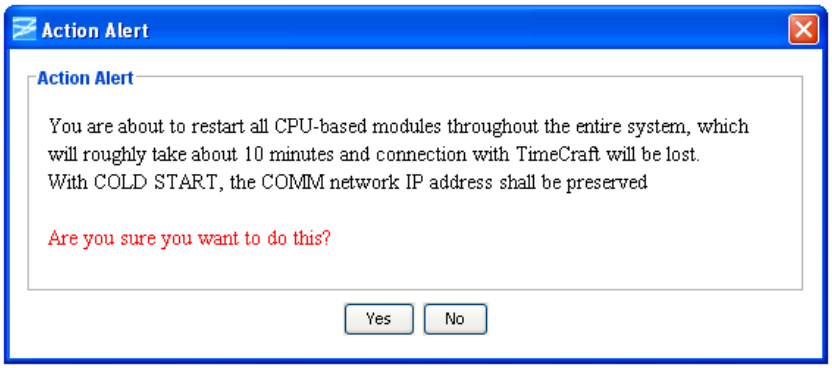
Click the buttons on the Advanced Functions screen to perform the following functions.

- Click **Clock A** to zero all inputs relative to Clock A
- Click **Clock B** to zero all inputs relative to Clock B
- Click **Warm** to perform a system-level warm start. The following confirmation dialog box displays:



- The warm start reboots each of the modules in the entire system while retaining all user settings. During the reboot, performance data will be cleared and the event log in the Communications module will also be cleared. The warm start process takes approximately 10 minutes.
- Users must wait until the warm start process is completed before querying or provisioning the system.

- Click **Cold** to perform a system-level cold start. The following confirmation dialog box displays:



- The cold start reboots each of the modules in the entire system and returns user settings to the factory default values of each module. Since all the modules are rebooted, all performance data will be cleared as well as all entries in the event log of the Communications module. With a cold start, the communication network IP address is preserved. The cold start process takes approximately 10 minutes.
- Users must wait until the cold start process is completed before querying or provisioning the system.

Note: The **Cold** button will be displayed/enabled for legacy devices (prior to SSU 2000 6.3).

Clock Module

Clock Module Status

The Clock screen provides information on:

- Inventory Summary
- Module Status
- Clock Status
- Alarm Status

Each field of the Clock Module Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when you click **Refresh** (under **Connection** on the Main Menu).

Field / Section	Description
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Module Status	The Status field indicates whether the clock module is activated (enabled) or not activated (disabled).
Clock Status	Indicates whether clock module is selected or in standby mode.
PQL	The Priority Quality Level (PQL) is a Synchronization Status Message (SSM) table which allows for translation between DS1 and E1 SSMs.
Mode	This field displays the current clock mode. Possible messages include Acquire, Locked, or Holdover. This setting is changed in the Clock Module Configuration screen.
Tau	The Tau value is how long data is averaged (in seconds) to compute the output frequency control loop.
Clock Offset	This is the clock frequency offset. The frequency offset depends on the clock type, and is typically less than 2E-10 for ST2, 1E-6 for ST3E, and less than 2E-07 for TYPEI clocks.
Sigma	The sigma value indicates the stability of the clock, which should be less than 1E-9.
Alarm Status	Displays only active alarms.
Alarm	This field displays the clock module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active alarms are indicated. **Note:** Alarm #8 is only indicated for the 2E (Rubidium) clock.
Description	This field displays a description of each alarm indicated on the clock module. Only active alarms are indicated. If no alarms are present, the first alarm description will read "None".
Level	This field indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, and Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Service Affecting	This field Indicates whether an alarm response message affects service. A response will display either a Yes or No message.
Message	This message further describes the alarm description

Clock Alarm Configuration

The Clock Module Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels
- Start Delay Time
- Clear Delay Time

Click **Edit** to set the parameters. Alarm Reporting fields are described in the table below.

Field / Section	Description
Alarm Number	This field displays the module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the module. Only active alarms are indicated. If no alarms are present, the first alarm description will read "None".
Level	This field indicates the severity of an alarm when it is first logged. Click **Edit** to set the Alarm level. Levels include: Critical, Major, Minor, Report, and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Delay	
Start	Delays the start of an alarm report by the number of seconds entered in the Delay Start field. Valid entries for this field are 0 to 86,400 seconds.
Clear	Delays the clearing of an alarm report by the number of seconds entered in the Delay Clear field. Valid entries for this field are 0 to 86,400 seconds.

Edit Clock Alarm Configuration

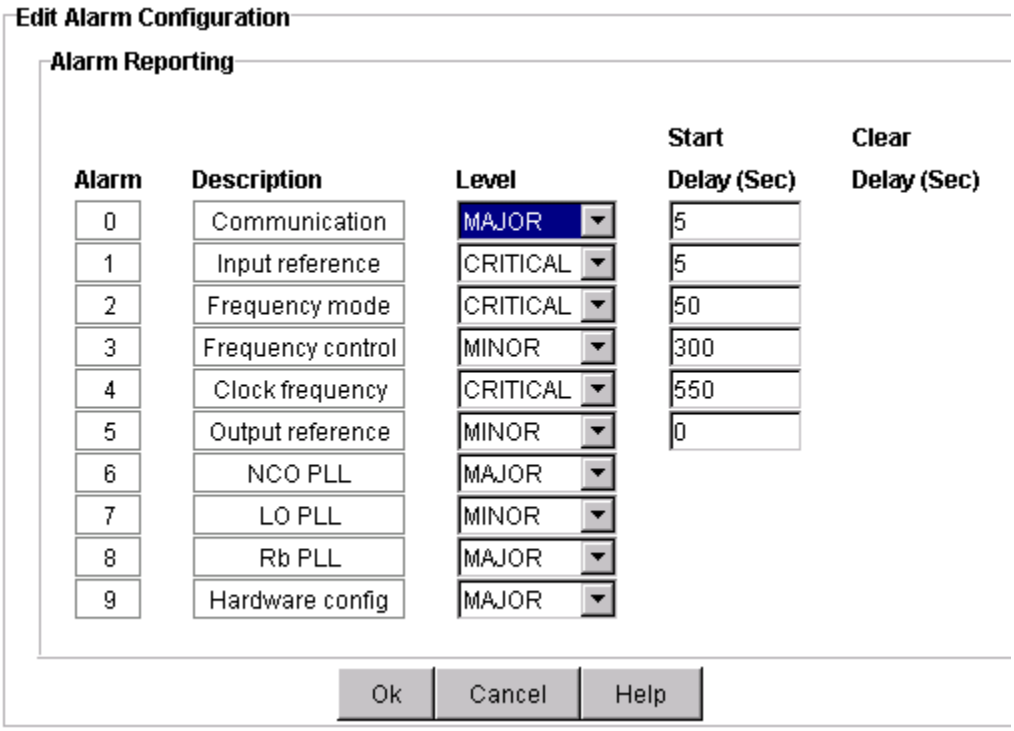
To edit the Alarm Reporting screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Enter the start delay time in seconds in the **Start Delay** text boxes. This delays the start of an alarm report by the number of seconds entered. Valid entries for this field are 0 to 86,400 seconds.

3. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.

Note: Stratum 3E and Type 1 clocks do not have alarm number 8.



Clock Module Inventory

The Clock Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Inventory Data	
AID	Access Identifier (AID) denotes a shelf (S1), module (01), and port (A) within the SSU-2000
Description	Indicates module type
Serial	Indicates the Clock module serial number
Software Revision	Indicates the latest revision level of the Clock module software
Hardware Revision	Indicates the last revision date of the Clock module
Software / Hardware Part	Indicates the part number of the specific revision
Date of Last Reset	Indicates date of last module reset
Date of Manufacture	Indicates when the module was manufactured

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

Clock Module Configuration

The Clock Module Configuration screen allows you to set various parameters for the Clock Module. The screen consists of three information sections:

- Module Status
- Alarm Elevation Time
- Clock Configuration

Click the **Edit** button in each section to set the parameters. Each field is described in the table below.

Field / Section	Description
Module Status	The Module Status field indicates whether the clock module is activated (enabled) or not activated (disabled).
Alarm Elevation Time	The Alarm Elevation Time setting allows the alarm severity to increase over a specified period of time.
Clock Configuration	
Warmup Delay	Sets amount of time for clock warmup cycle in seconds. Valid range is 900 to 3600 seconds.
Min and Max Tau	Displays the minimum and maximum setting for how long data is averaged (in seconds) to compute the output frequency control loop.
Input switch	Displays the clock switching method, AR for auto return (revertive) selection, AS for auto switch (but not revertive), or OFF for no auto switch.
Input select	Displays the input reference selection mode, PRI or PQL.
Min and Max Tau Limit	Displays the Minimum and Maximum Tau limits depending on clock type. Valid range is as follows: Stratum 2E 300 to 10,000 seconds Type 1 150 to 1200 Stratum 3E 150 to 1200
Frequency Time Out	Displays the time out value in minutes. The range is a value between 60 and 10000 with a default value of 1440.

Edit Clock Module Alarm Elevation Time

To edit the alarm elevation time:

1. Enter the appropriate alarm elevation time in seconds (0 to 86,400) or select Disabled in the drop-down box.

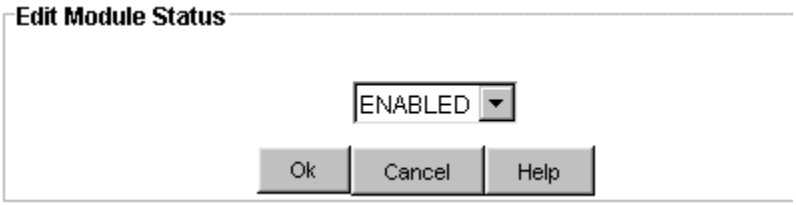
2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Edit Clock Module Status

To edit the module status:

1. Select either ENABLED or DISABLED in the drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



Edit Clock Configuration

To edit the clock configuration:

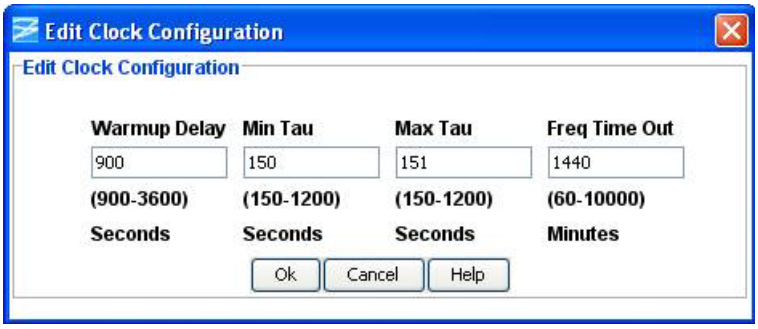
1. Enter the appropriate time in seconds for clock warmup cycle in the **Warmup Delay** text box. Range is between 900 and 3600 seconds.

2. Enter the appropriate time in seconds in the **Min Tau** and **Max Tau** text boxes. Valid ranges are 300 to 10,000 seconds for 2E clocks and 150 to 1200 seconds for 3E clocks and for Type-1 clocks.

Note: Max Tau must be greater than Min Tau.

3. Enter the appropriate time in minutes. Valid range is between 60 and 10000 with a default value of 1440.

4. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



Clock Module Advanced Functions

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Hard Restart** - performs hard reset of module
- **Save User** - saves current module configuration as defined by user
- **Restore User** - restores last configuration saved by user
- **Restore Factory** - returns current module to factory default configuration

Communications Module

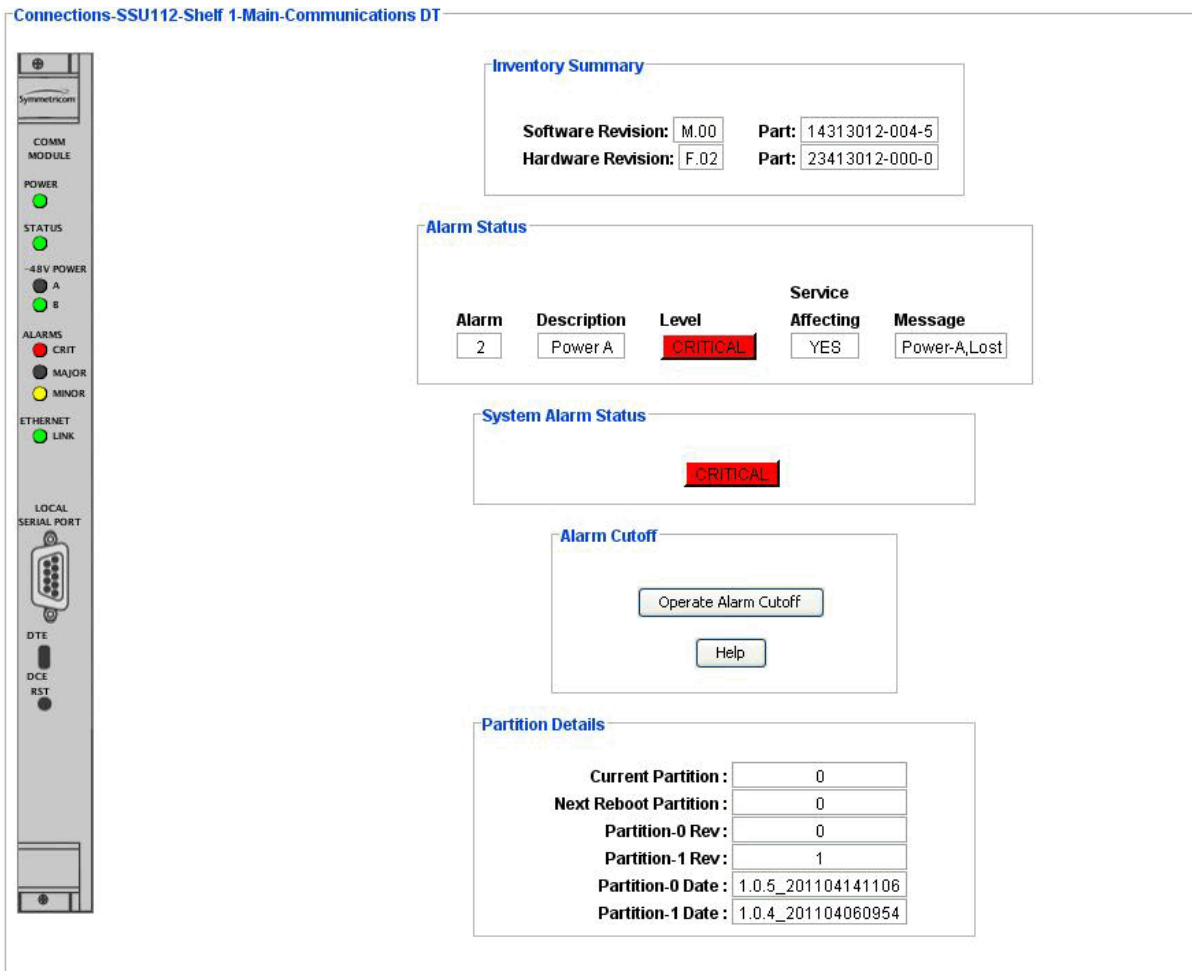
Communications Module Status

The Communications Module Status screen shown below provides the following:

- Inventory Summary
- Alarm Status
- System Alarm Status
- Alarm Cutoff
- Partition Details

Note: Partition Details is applicable for SSU 2000 Linux Communication Module devices.

Note: The module image is dynamically updated if the auto-refresh function is used or when you click **Refresh** (under **Connection** on the Main Menu).



Each field of the screen is described in the following table.

Field / Section	Description
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Alarm Status	
Alarm	This field displays the communications module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each module alarm indicated on the communications module. Only active alarms are indicated. If no alarms are present, the first alarm description displays **No active alarms**.

Level	This field indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, and Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Service Affecting	This field Indicates whether an alarm response message affects service. A response is either a Yes or No
Message	This message further describes the alarm description
System Alarm Status	The System Alarm Status field shows the highest active alarm in the system. **Note:** This is a system alarm, not a module alarm. This system alarm will be reflected in the Alarms section of the simulated Communications module shown in the Communications Module Status screen. System alarm levels include: Critical, Major, and Minor. All LEDs are either ON in the designated color or OFF.
Alarm Cutoff	Clicking the **Operate Alarm Cutoff** button creates a momentary change of state (pulse) on the alarm relay, which allows a specially-built alarm panel to squelch the audio alarm. Alarm panels that do not have this capability ignore the pulse. Contact your Microsemi representative for further details on this alarm panel.
Partition Details	
Current Partition	The Partition where the software is currently running
Next Reboot Partition	The Partition where the module boots up
Partition-0 Rev	Firmware revision of the image on Partition-0
Partition-1 Rev	Firmware revision of the image on Partition-1
Partition-0 Date	Date on which image in loaded on Partition-0
Partition-1 Date	Date on which image in loaded on Partition-1

Communications Module Alarm Configuration

The Communication Module Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels
- Start Delay Time
- Clear Delay Time

Alarm Reporting

Alarm	Description	Level	Start Delay (Sec)	Clear Delay (Sec)
0	Communication	MINOR	5	IMMEDIATE
1	InterCommunication	MINOR	30	IMMEDIATE
2	Power A	MINOR	IMMEDIATE	IMMEDIATE
3	Power B	MINOR	IMMEDIATE	IMMEDIATE
4	SPI Watchdog	IGNORE	IMMEDIATE	IMMEDIATE
5	Shelf #2 Comm	CRITICAL	0	IMMEDIATE
6	Shelf #3 Comm	CRITICAL	0	IMMEDIATE
7	Shelf #4 Comm	CRITICAL	0	IMMEDIATE
8	Shelf #5 Comm	MAJOR	0	IMMEDIATE
9	Module removed	MINOR	5	IMMEDIATE
10	System Conflict	MINOR	0	IMMEDIATE

Edit

Refresh

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

Field / Section	Description
Alarm	This field displays the communications module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the communications module. Only active alarms are indicated. If no alarms are present, the first alarm description will read "None".
Level	This field indicates the severity of an alarm when it is first logged. Click **Edit** to set the Alarm level. Levels include: Critical, Major, Minor, Report and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Delay	Indicates delay in seconds
Start	Delays the start of an alarm report by the number of seconds entered in the Delay Start field. Valid entries for this field are 0 to 86,400 seconds.
Clear	Delays the clearing of an alarm report by the number of seconds entered in the Delay Clear field. Valid entries for this field are 0 to 86,400 seconds.

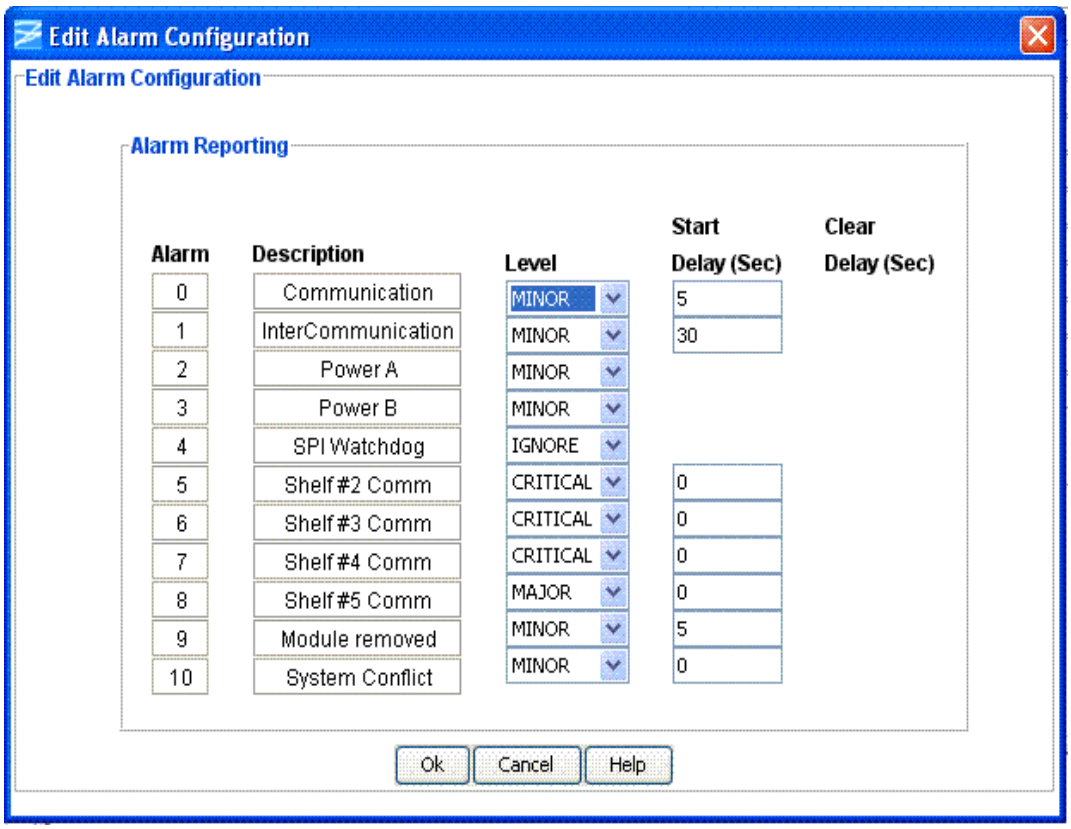
Edit Communication Module Alarm Configuration

To edit the Alarm Reporting screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Enter the start delay time in seconds in the **Start Delay** text boxes. This delays the start of an alarm report by the number of seconds entered. Valid entries for this field are 0 to 86,400 seconds.

3. Click Ok to accept changes and return to the Alarm Configuration screen, or Cancel to return to the Alarm Configuration screen without saving changes.



Communication Module Alarm Descriptions

Module to Module Communication - This alarm indicates the status of the communication between modules. Status messages "OK" or "Bad" are returned.

Output Controller Mastership - This alarm identifies the status of the master reference clock. Status messages "OK" or "Bad" are returned.

Status of Power A - This alarm indicates the status of the A-BUS power input. Status messages "OK" or "Lost" are returned.

Status of Power B - This alarm indicates the status of the B-BUS power input. Status messages "OK" or "Lost" are returned.

SPI Watchdog - This alarm indicates the status of the serial peripheral interface hardware (SPI watchdog timeout) for the communications module. Status messages "OK" or " Timeout" are returned.

Communications Module Inventory

The Communications Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Inventory Data	
AID	Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Description	Indicates module type
Serial	Indicates the communications module serial number
Hardware Revision	Indicates the last revision date of the communications module
Software Revision	Indicates the latest revision level of the communications module software
Hardware / Software Part	Indicates the part number of the specific revision
Date Last Reset	Indicates date of last module reset
Date Manufactured	Indicates when the module was manufactured

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

Communications Module Configuration

The Communications Module Configuration screen provides information on configuration settings for the module including:

- Alarm Elevation Time
- TCP/IP Configuration
- Serial Configuration
- Radius Details
- Firewall Details
- Partition Details

Note: Radius Details, Firewall Details and Partition Details are applicable for SSU2000 Radius-enabled devices

Each field is described in the table below.

Click the **Edit** button in each section to set the parameters.

Field / Section	Description
Alarm Elevation Time	The Alarm Elevation Time setting allows the alarm severity to increase over a specified period of time.
TCP / IP	The TCP/IP section displays details associated with a TCP/IP connection.
Host IP	Provides current Internet Protocol (IP) address information
Gateway	Change gateway address
Mask	Change the subnet mask

Mac	Communication Mac Address
Telnet Timeout	Time before Telnet session terminates
TL1 Timeout	Time before TL1 session terminates
Keep Alive	User defined time in which an event is generated by the SSU-2000 to alert the upstream support system that the SSU-2000 and associated communication path is functional
Serial Communication	The Serial Communication section displays details associated with a serial connection.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 1200 bps, 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 9600 bps.
Echo	Sets echo to full or half duplex (On or Off)
EOL	Sets end of line characters sent by the Communication module. Options are CR, LF, or CRLF.
Mode	Sets mode of communication to either ASCII or TL1
Timeout	This alarm indicates the status of the serial peripheral interface hardware (SPI watchdog timeout) for the communications module. Status messages OK or Timeout are returned.
TCP/IP Ping	TCP/IP Ping allows you to ping a remote host via TCP/IP to verify that the SSU-2000 is communicating over a network.
TCP/IP Address	Specifies the host address, given in the ###.###.###.### format, where ### is a number between 0 and 255.
Result	Displays the response, either OK or FAIL.
Radius Details	The **Radius Details** section displays details associated with Radius Configuration (Applicable only for SSU 2000 Linux Communication Module Devices).
IP	IP Address of the Radius Server
Status	State of the Radius Server
Firewall Details	The **Firewall Details** section displays details associated with Firewall Settings (Applicable only for SSU 2000 Linux Communication Module Devices).
FTP	FTP state of the Linux IMC Card
ICMP	ICMP state of the Linux IMC Card
Telnet	Telnet state of the Linux IMC Card
SFTP	SFTP state of the Linux IMC Card
RADIUS	RADIUS state of the Linux IMC Card
SSH	SSH state of the Linux IMC Card
TFTP	TFTP state of the Linux IMC Card
SNMP	SNMP state of the Linux IMC Card

Partition Details	The **Partition Details** section displays details associated with Partition details (Applicable only for SSU 2000 Linux Communication Module Devices).
Current Partition	The Partition where the software is currently running
Next Reboot Partition	The Partition where the module boots up
Partition-0 Rev	Firmware revision of the image on Partition-0
Partition-1 Rev	Firmware revision of the image on Partition-1
Partition-0 Date	Date on which image in loaded on Partition-0
Partition-1 Date	Date on which image in loaded on Partition-1

Edit Communications Module Alarm Elevation Time

To edit the alarm configuration:

1. Enter the appropriate alarm elevation time in seconds or select **Disabled** in the drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Edit Communication Module TCP/IP

To edit the TCP/IP configuration:

1. Enter the host IP address in the **Host IP** text box.

2. Enter the gateway address if needed in the **Gateway** text box.

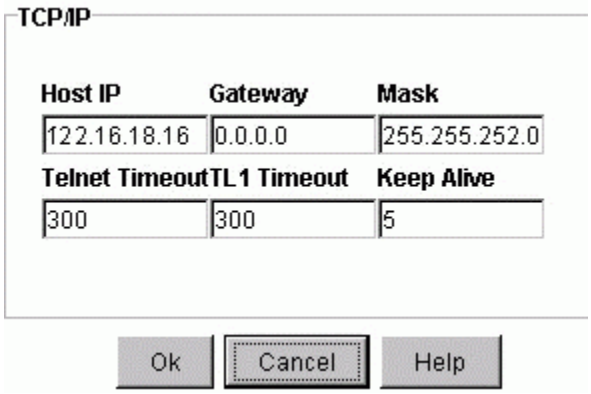
3. Enter the subnet mask in the **Mask** text box.

4. Enter a telnet session time-out in seconds in the **Telnet Timeout** text box.

5. Enter a TL1 session time-out in seconds the **TL1 Timeout** text box.

6. Enter a keep alive time in seconds in the **Keep Alive** text box.

7. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



Edit Serial Connection Configuration

To edit the serial configuration:

1. Select the appropriate baud rate in the **Baud Rate** drop-down list.
2. Select echo on or off in the **Echo** drop-down list.
3. Select CR, LF, or CRLF in the **EOL** drop-down list.
4. Select ASCII or TL1 in the **Mode** drop-down list.
5. Enter a time in seconds or select NEVER in the **Timeout** drop-down list.
6. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Note: For SSU 2000 Linux Communication Module Devices, Comm L, Comm A Configurations are not applicable and for Comm B Baud Rate and Mode are not configurable.

TCP/IP Ping

To use TCP/IP Ping:

1. Enter a valid IP address in dotted decimal format (xxx.xxx.xxx.xxx where x is 0 to 255) in the TCP/IP Address text box.

2. Click **Ping**.

3. View the response in the Result text box, either OK or FAIL. FAIL indicates that the SSU-2000 is not communicating over a network.

Edit Radius Configuration

Note: Only Admin Level users can edit Radius Configuration.

To edit the Radius Configuration:

1. Enter the Radius Server IP address in the **IP** text box.

2. Select ENABLED or DISABLED in the **Status** drop-down list.

3. Enter the Radius Key value in the **Radius Key** text box.

4. Select **Ok** to accept the changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving the changes.

Edit Firewall Details

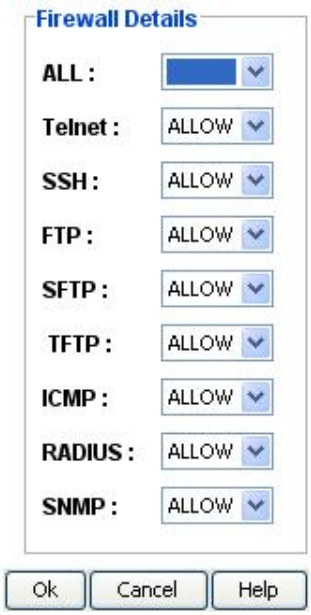
Note: Only Admin Level users can edit Firewall Details.

To edit the Firewall Details:

1. Select **ALLOW** or **BLOCK** from the **ALL** drop-down list to allow or block all Firewall settings.

2. If you want to set particular Firewall, Select **ALLOW** or **BLOCK** from respective drop-down list.

3. Select **Ok** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving the changes.



Edit Partition Details

To edit the Partition Details:

1. Select 0 or 1 in the Next Reboot Partition drop-down list

2. Select Ok to accept changes and return to the Module Configuration screen, or Cancel to return to the Module Configuration screen without saving the changes.

Communications Module Advanced Functions

Note: These functions are not applicable for SSU 2000 Linux Communication Module devices.

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Save User** - saves current module configuration as defined by user
- **Restore User** - restores last configuration saved by user
- **Restore Factory** - returns current module to factory default configuration

GNSS/GPS Input Module

GNSS/GPS Module Status

The GNSS/GPS Module Status screen consists of three status information sections:

- Inventory Summary
- Module Status
- Port Status

Each field of the Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when you click **Refresh** (under **Connection** on the Main screen).

Field / Section	Description
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software

Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Module Status	Indicates whether GNSS/GPS module is enabled or disabled
Port Status	
GNSS/GPS Input Port	Click the GNSS/GPS Input Port button to display active alarms.
State	Indicates the current condition of the port. Messages include: OK, Disabled, and Faulted.
Priority	User established priority of port
PQL	The Priority Quality Level (PQL) allows the system to compare and rate the signal quality from different sources and provide an effective way to communicate the quality of output signals.
Phase	GNSS/GPS input modules receive signals and perform phase measurement comparisons with the clock modules that are installed in the SSU-2000. The clock modules use this information to phase and frequency lock to the incoming signal. These fields indicate the phase offset, in nano seconds, of the received signal versus the A and B clocks.
Constellation Mode	The Constellation Mode details are used for MTIE Calc configuration. Values are GPS, GLONASS, or GPS_GLONASS. (Applicable for SSU 2000 7.0 devices)

GNSS/GPS Port Alarms

GNSS/GPS Input Port Alarm Status

The Alarm Status screen provides a list of active alarms.

The fields are described in the table below.

Field / Section	Description
Alarm Reporting	
Alarm	This field displays the GNSS/GPS module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the GPS module. Only active alarms are indicated. If no alarms are present, the first alarm description will read None.
Level	This field indicates the severity of an alarm when it is first logged. Alarm level is set in the GNSS/GPS Alarm Configuration screen. Levels include: Critical, Major, and Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.

Delay	
Service Affecting	This field indicates whether an alarm response message affects service. A response will display either a Yes or No message.
Message	This field provides the alarm description.

GNSS/GPS Input Port Alarm Configuration

The GNSS/GPS Input Port Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels
- Start Delay Time
- Clear Delay Time

Alarm Reporting

Alarm	Description	Level	Start Delay (Sec)	Clear Delay (Sec)
0	Hardware config	MAJOR	0	IMMEDIATE
1	Tracking	MAJOR	300	IMMEDIATE
2	Antenna connected	MAJOR	30	IMMEDIATE
3	Antenna shorted	MAJOR	30	IMMEDIATE
4	Engine hardware	MAJOR	IMMEDIATE	IMMEDIATE
5	Engine system	MINOR	300	IMMEDIATE
6	Position	MINOR	600	IMMEDIATE
7	Clock PLL	MAJOR	0	IMMEDIATE
8	GPS Slot	MAJOR	0	IMMEDIATE
9	GPS Qualifier	REPORT	60	IMMEDIATE
10	Phase hardware	MAJOR	0	IMMEDIATE
11	MTIE/L1	MINOR	0	IMMEDIATE
12	MTIE/L2	MAJOR	0	IMMEDIATE
13	FREQ	MINOR	0	IMMEDIATE

Edit

Refresh

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

Field / Section	Description
Alarm Reporting	
Alarm	This field displays the GNSS/GPS module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the GNSS/GPS module. Only active alarms are indicated.
Level	This field indicates the severity of an alarm when it is first logged. Click **Edit** to set the Alarm level. Levels include: Critical, Major, Minor, Report and Ignore.
Delay	
Start	Delays the start of an alarm report by the number of seconds entered in the Delay Start field. Valid entries for this field are 0 to 86,400 seconds.
Clear	Delays the clearing of an alarm report by the number of seconds entered in the Delay Clear field. Valid entries for this field are 0 to 86,400 seconds.

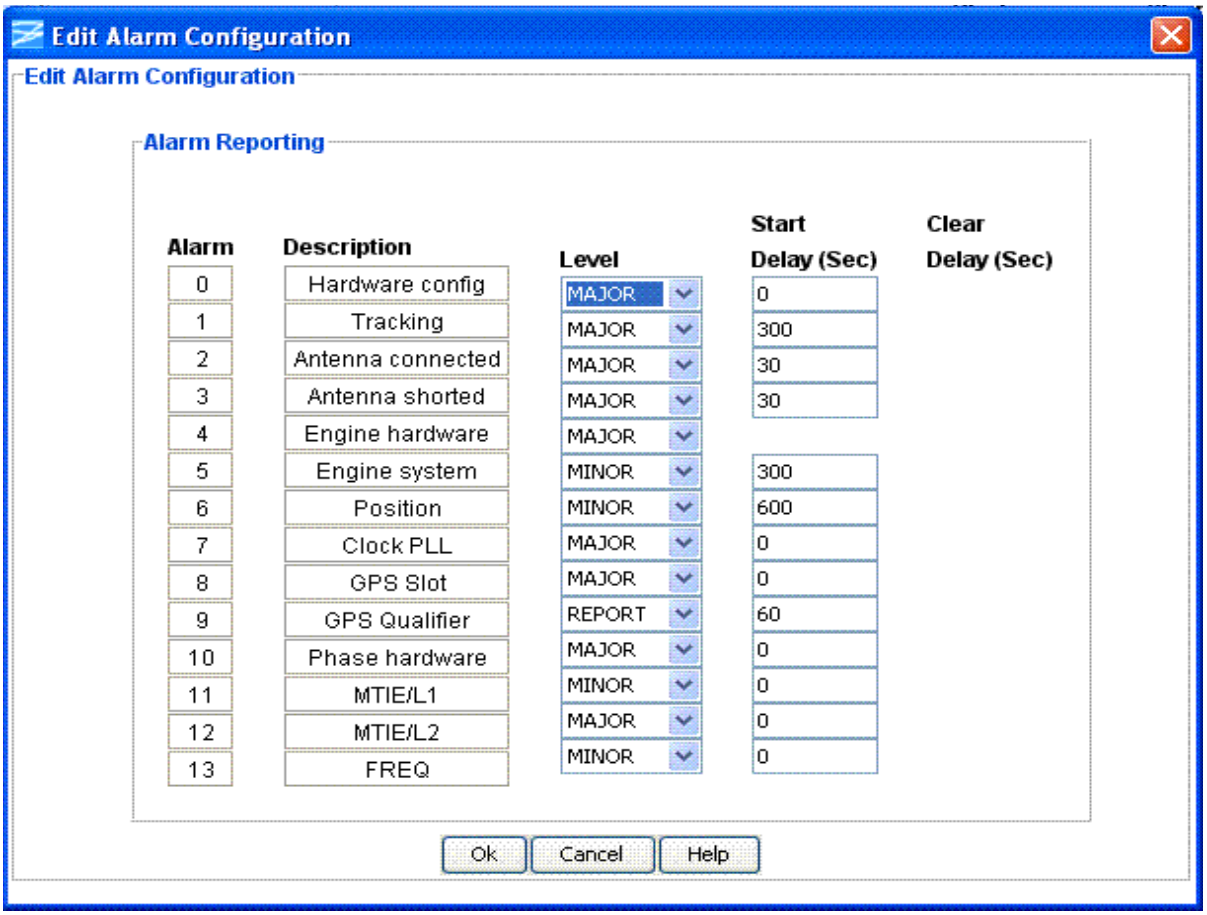
Edit GNSS/GPS Alarm Configuration

To edit the Alarm Reporting screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Enter the start delay time in seconds in the **Start Delay** text boxes. This delays the start of an alarm report by the number of seconds entered. Valid entries for this field are 0 to 86,400 seconds.

3. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



GNSS/GPS Port Configuration

GNSS/GPS Port Configuration Parameters

The Port Configuration screen provides a view of the following GNSS/GPS input port settings:

- Engine Parameters
- Antenna Parameters

The fields are described in the table below.

Click **Edit** to configure the desired field.

Field / Section	Description
Engine Parameters	
Current PDOP	Position Dilution of Precision - A measurement that indicates the geometry of the GPS satellites being tracked, a lower value indicates a better geometry

Pos EL	Minimum satellite elevation to be used for positioning
Time EL	Minimum satellite elevation to be used for timing
Antenna Parameters	
Latitude	Current latitude of GNSS/GPS module
Longitude	Current longitude of GNSS/GPS module
Height	GNSS/GPS's elevation above sea level
Mode	Indicates whether module positioning mode is calculated or user defined
Avg	Current position averaging value

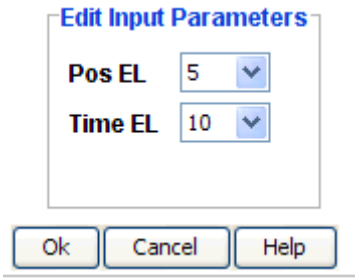
Edit GNSS/GPS Engine Parameters

To edit the GNSS/GPS engine parameters:

1. Select the minimum satellite elevation to use for positioning [0 to 50 degrees] in the **Pos EL** drop-down box.

2. Select the minimum satellite elevation to use for timing [0 to 50 degrees] in the **Time EL** drop-down box.

3. Click **OK** to accept changes and return to the GPS Port Configuration screen, or **Cancel** to return to the GNSS/GPS Port Configuration screen without saving changes.



Edit GNSS/GPS Antenna Parameters

To edit the antenna parameters, select Automatic or Manual in the **Selection Method** field:

Automatic Selection Method

1. Enter a number from 10 to 3600 in the **#Averages** text box. This sets the maximum number of averages to perform on the position calculations.

2. Click **OK** to accept changes and return to the GNSS/GPS Port Configuration screen, or **Cancel** to return to the GNSS/GPS Port Configuration screen without saving changes.

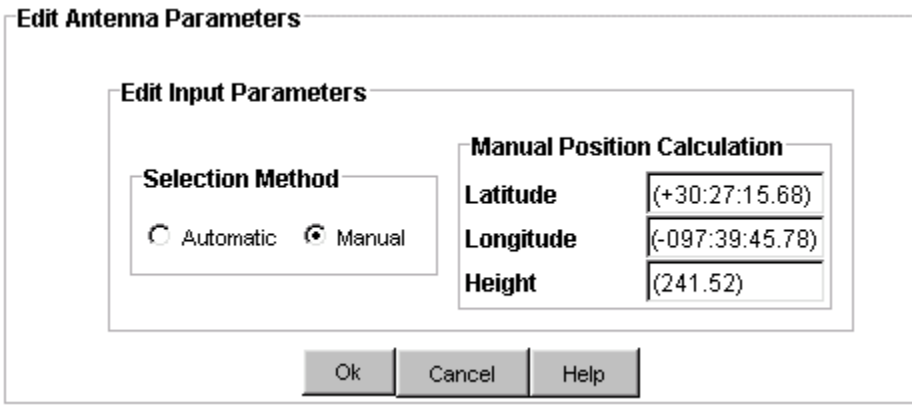
Manual Selection Method

1. Enter the latitude (+/- 90 degrees) of the receiver in the format (DD)- MM-SS.SS in the **Latitude** text box.

2. Enter the longitude (+/- 180 degrees) of the receiver in the format (DD)- MM-SS.SS in the **Longitude** text box.

3. Enter the current height (+/- 10000.0 meters) of the receiver in the **Height** text box.

4. Click **OK** to accept changes and return to the GNSS/GPS Port Configuration screen, or **Cancel** to return to the GNSS/GPS Port Configuration screen without saving changes.



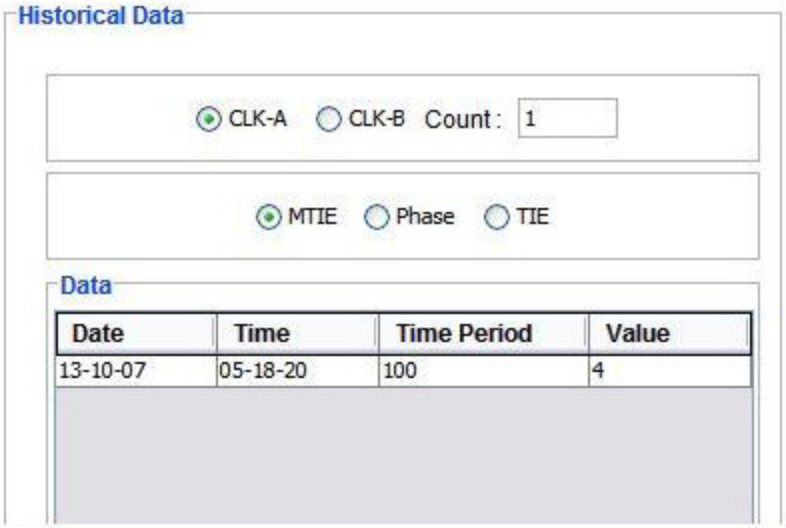
Note: The Edit Antenna Parameters screen does not provide a status view. The GNSS/GPS module by default is set to Automatic mode even though Manual mode is selected. To ensure the exact operation of the GNSS/GPS Input module, it is recommended that you use only the default Automatic mode. Click **Cancel** to return to Automatic mode.

GNSS/GPS Port Monitoring

GNSS/GPS Port Monitoring Configuration

The GNSS/GPS Port Monitoring Configuration screen provides information on MTIE alarm limits, frequency alarm limits, and historical data.

The fields are described in the table below. The historical data portion of the screen is shown below.



Click **Edit** to change the input port Monitoring Configuration fields.

Field / Section	Description
MTIE Alarm Limits	
Level 1 Alarm	MTIE Error limit 1
Level 1 Clear	MTIE Clear limit 1
Level 2 Alarm	MTIE Error limit 2
Level 2 Clear	MTIE Clear limit 2
T10	MTIE 10-second period
T100	MTIE 100-second period
T1K	MTIE 1,000-second period
T10K	MTIE 10,000-second period
T100K	MTIE 100,000-second period
Mask Definition	
Frequency Alarm Limits	
Thresholds	Sets frequency TAU, default is 400, range is 10-1000
Error A	Max 10,000,000 ps/s
Clear A	Max 10,000,000 ps/s
Error B	Max 10,000,000 ps/s
Clear B	Max 10,000,000 ps/s

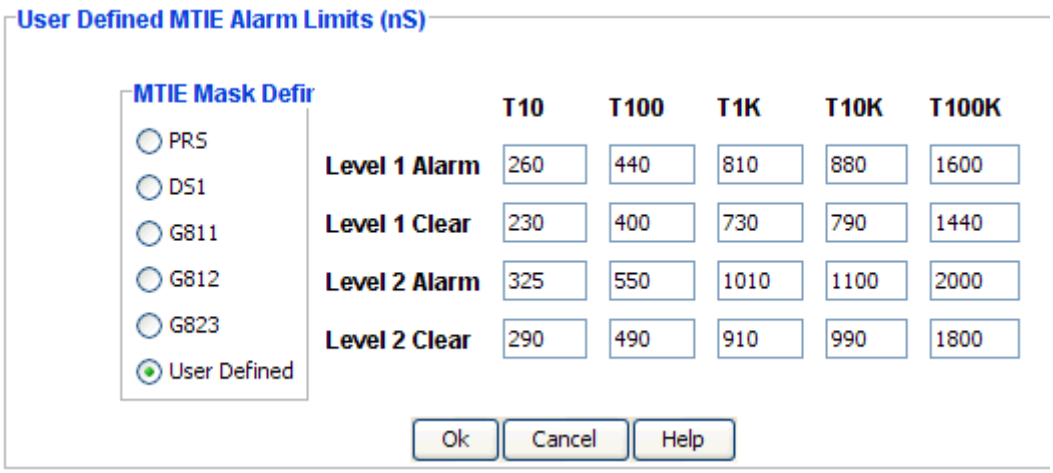
Frequency Error	
Tau A	10 - 1000 seconds
Tau B	10 - 1000 seconds

Edit GNSS/GPS MTIE Alarm Limits

To configure the MTIE alarm limits:

1. Select the appropriate pre-defined MTIE mask definition or set up a user defined mask by entering the appropriate alarm and clear time. The measurement time period is in nano seconds. The range is 0 to 60,000.

2. Click **OK** to accept changes and return to the Monitoring Configuration screen, or **Cancel** to return to the Monitoring Configuration screen without saving changes.



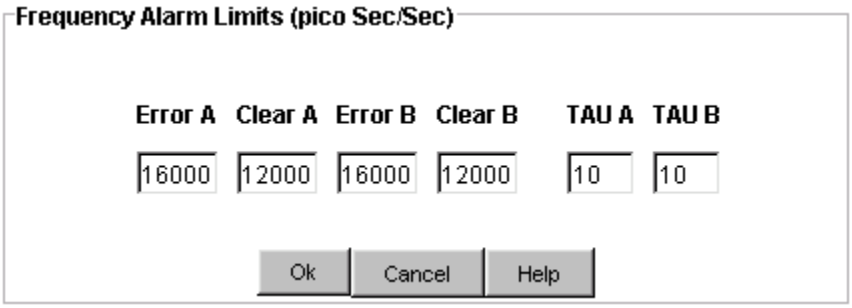
Edit GNSS/GPS Frequency Alarm Limits

To configure the GNSS/GPS input frequency alarm limits:

1. Enter the appropriate time in seconds in the text boxes.

Note: Error A and B and Clear A and B maximum is 10,000,000 ps/s. TAU is 10 to 1000 seconds.

2. Click **OK** to accept changes and return to the Monitoring Configuration screen, or **Cancel** to return to the Monitoring Configuration screen without saving changes.



GNSS/GPS Module Satellite Tracking

The Satellite Tracking screen provides a graphical view of the satellites being tracked. Satellite data is described in the table below.

Field / Section	Description
Satellite Data	
Channel	Indicates channels currently tracking satellites. Only tracking channels are shown.
SV #	Satellite Vehicle Number - This is the identification number of the satellite being tracked
SNR	Signal to Noise Ratio
Status	Indicates tracking status (see table below)
Health	Indicates the health of the satellite. Contents are H or U
Azimuth	Satellites horizontal position measured in degrees clockwise from the north
Elevation	Vertical position of satellite in degrees from the horizon
PPSSigma	This value is a measurement of the stability of the GPS engine's 1PPS output versus the SSU's selected local oscillator
T3Sigma	This is used to determine if the GPS Qualifier alarm should be set or cleared The Current 1PPS Sigma value is compared to the 3-Sigma threshold The 3-Sigma threshold is a dynamic value that is updated in real-time

Status indicates the tracking status of the systems signal acquisition on the specified channel. Status messages are listed in the table below.

Status Message	Definition
SRC	Searching
FRQ	Frequency locking
COD	Code locking
MSG	Unit is receiving a summary of visible satellite status
TIM	Setting time
EPH	Setting ephemeris data
OK	Satellite is being used in the timing solution

GNSS/GPS Module Inventory

The GNSS/GPS Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Inventory Data	
AID	Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Serial	Indicates the GPS module serial number
Date of Last Reset	Indicates date of last module reset
Description	Indicates module type
Date Manufactured	Indicates when the module was manufactured
Hardware Revision	Indicates the last revision date of the GPS module
Software Revision	Indicates the latest revision level of the GNSS/GPS module software
Software / Hardware Part	Indicates the part number of the specific revision

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

GNSS/GPS Module Configuration

GNSS/GPS Input Module Configuration

The Module Configuration screen provides setup information for the input module.

The fields are described in the table below.

Click **Edit** to configure the fields.

Field / Section	Description
Alarm Elevation Time	The Alarm Elevation Time setting allows the alarm severity to increase over a specified period of time.
Module Status	The Status field indicates whether the clock module is activated (enabled) or not activated (disabled).
Input Parameters	
Priority	Monitor or 1 to 10 (input reference selection order with 1 being highest priority and 10 being lowest priority)
PQL	The Priority Quality Level (PQL) allows the system to compare and rate the input signal quality and provide an effective way to communicate the quality of output signals.
Pos EL	Sets the minimum satellite elevation level in degrees for positioning. The range is 0 to 50.
Time EL	Sets the minimum satellite elevation level in degrees for timing. The range is 0 to 50.

PDOP	Sets the current Position Dilution of Precision or pdop mask (1 through 10). Pdop is a measurement that indicates the geometry of the GPS satellites that the SSU-2000 is tracking. Lower values indicate better geometry.
Sigma	Limit of the noise measurement
Constellation Mode	The Constellation Mode details are used for MTIE Calc configuration. Values at GPS, GLONASS, or GPS_GLONASS (Applicable for SSU 2000 7.0 devices.)

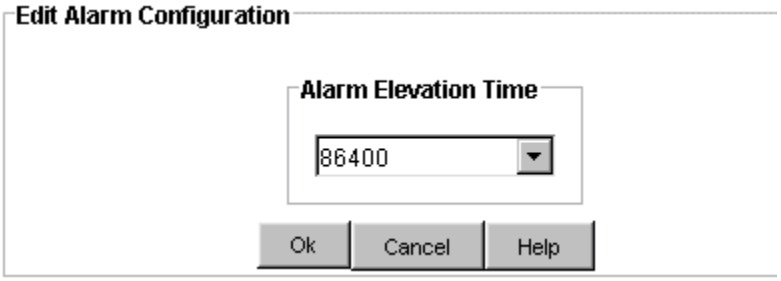
Edit GNSS/GPS Alarm Elevation Time

To set the alarm elevation time:

1. Enter the appropriate number of seconds the alarm must persist before elevating to the next higher alarm level, or select DISABLED in the drop-down box for no alarm elevation time.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Alarm elevation may be set for each module on its Module Configuration panel, or for the entire system on the System Configuration panel.

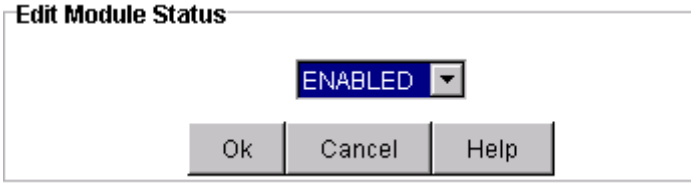


Edit GNSS/GPS Module Status

To edit module status:

1. Select either ENABLED or DISABLED in the drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



Edit GNSS/GPS Input Parameters

To edit input parameters:

1. Select the priority level (Monitor or 1 to 10) in the **Priority** drop-down box. This is the input reference selection order with 1 being highest priority and 10 being lowest priority.

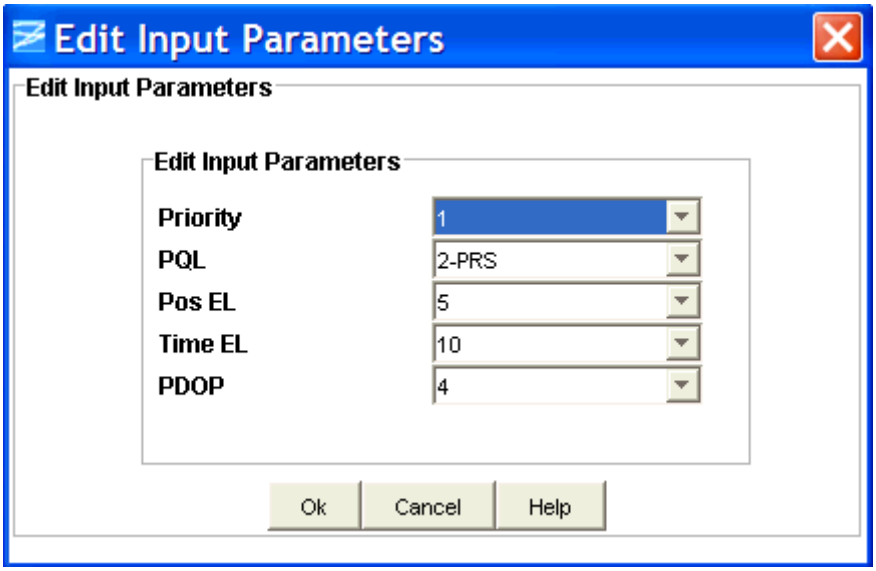
2. Select the PQL number (and clock information) in the **PQL** drop-down box. This is the input reference selection order from 1 to 9 with 1 being highest priority and 9 being lowest priority.

3. Select the minimum satellite elevation level in degrees for positioning in the **Pos EL** drop-down box.

4. Select the minimum satellite elevation level in degrees for timing in the **Time EL** drop-down box.

5. Select the Position Dilution of Precision, or pdop mask in the **PDOP** drop-down box.

6. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



Edit Constellation Mode

To edit the Constellation Mode details used for MTIE Calc configuration:

1. Click the **Edit** button in the CMode box.

2. Select a value from the Constellation Mode drop-down list: GPS, GLONASS, or GPS_GLONASS. (Applicable for SSU 2000 7.0 devices.)

3. Click **OK** to accept changes and return to the Monitoring Configuration screen, or **Cancel** to return to the Monitoring Configuration screen without saving changes.

GNSS/GPS Module Advanced Functions

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Save User** - saves current module configuration as defined by user
- **Restore User** - restores last configuration saved by user
- **Restore Factory** - returns current module to factory default configuration

DS1/E1 Input Module

DS1 and E1 Input Module Status

The Input Module Status screen consists of three status information sections:

- Module Status
- Inventory Summary
- Port Status

Each field of the Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when **Refresh** is clicked (under **Connection** on the Main screen). DS1 and E1 Input modules can have 1-port or 3-port configurations.

Field / Section	Description
Module Status	
Module Status	The Status field indicates whether the selected input module is enabled or disabled. Disabled ports clear all existing alarms and do not report any additional alarms or measurement data.
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Port Status	
Port	An LED is provided for rapid identification of error sources. Clicking this button displays the associated port status screen.
State	Indicates the current condition of the port. Messages include: OK, Disabled, and Faulted.
Priority	User established priority of port
PQL	The Priority Quality Level (PQL) is a Synchronization Status Message (SSM) table which allows for translation between DS1 and E1 SSMs. Values range from 1 to 9 with 1 being the most stable.
Phase	The E1 and DS1 input modules receive signals and perform phase measurement comparisons with the clock modules that are installed in the SSU-2000. The clock modules use this information to phase and frequency lock to the incoming signal. These fields indicate the phase offset, in nano seconds, of the received signal versus the A and B clocks.
Frequency	These fields indicate the frequency offset, in picosecs/second, of the received signal versus the A and B clocks.
Show Counts	Displays the Show Counts screen

DS1 and E1 Input Module Error Counts

The Current Counts screen displays:

- **Error Counts** (number of errors detected)
- **Clear Counts** (number of times an error cleared the alarm threshold)

Errors are tracked for:

- **LOS** - Loss of Signal indicates an input signal error.
- **AIS** - Alarm Indication Signaling is a code transmitted downstream in a digital network that shows that an upstream failure has been detected and alarmed.

- **OOF** - Out Of Frame occurs when the framer chip cannot determine framing.
- **BPV** - Bipolar Violation is the presence of two consecutive "one" bits of the same polarity on the T carrier line.
- **CRC** - Cyclic Redundancy Checking is a process used to check the integrity of a block of data.

Buttons include:

- **Refresh Counts** - Click to update the screen. Otherwise, the screen refreshes every 30 seconds.
- **Show Status** - Click to display the Module Status screen.

DS1/E1 Input Port Alarms

DS1 and E1 Input Port Alarm Reporting

The Alarm Status screen provides a list of active alarms.

- **Alarm** - Displays the input module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
- **Description** - Displays a description of each alarm indicated on the input module. Only active alarms are indicated. If no alarms are present, the first alarm description will read None.
- **Level** - Indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, and Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
- **Service Affecting** - Indicates whether an alarm response message affects service. A response will display either a Yes or No message.
- **Message** - Describes the alarm description.

DS1 and E1 Input Port Alarm Configuration

The DS1 and E1 Input Module Port Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels
- Start Delay Time
- Clear Delay Time

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

Field / Section	Description
Alarm	This field displays the input module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the input module. Only active alarms are indicated. If no alarms are present, the first alarm description will read "None".
Level	This field indicates the severity of an alarm when it is first logged. Click **Edit** to set the Alarm level. Levels include: Critical, Major, Minor, Report, and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Delay	
Start	Delays the start of an alarm report by the number of seconds entered in the Delay Start field. Valid entries for this field are 0 to 86,400 seconds.
Clear	Delays the clearing of an alarm report by the number of seconds entered in the Delay Clear field. Valid entries for this field are 0 to 86,400 seconds.

Edit DS1 and E1 Input Port Alarm Configuration

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Enter the start delay time in seconds in the **Start Delay** text boxes. This delays the start of an alarm report by the number of seconds entered. Valid entries for this field are 0 to 86,400 seconds.

3. Click one of the following in the **Apply To** field:

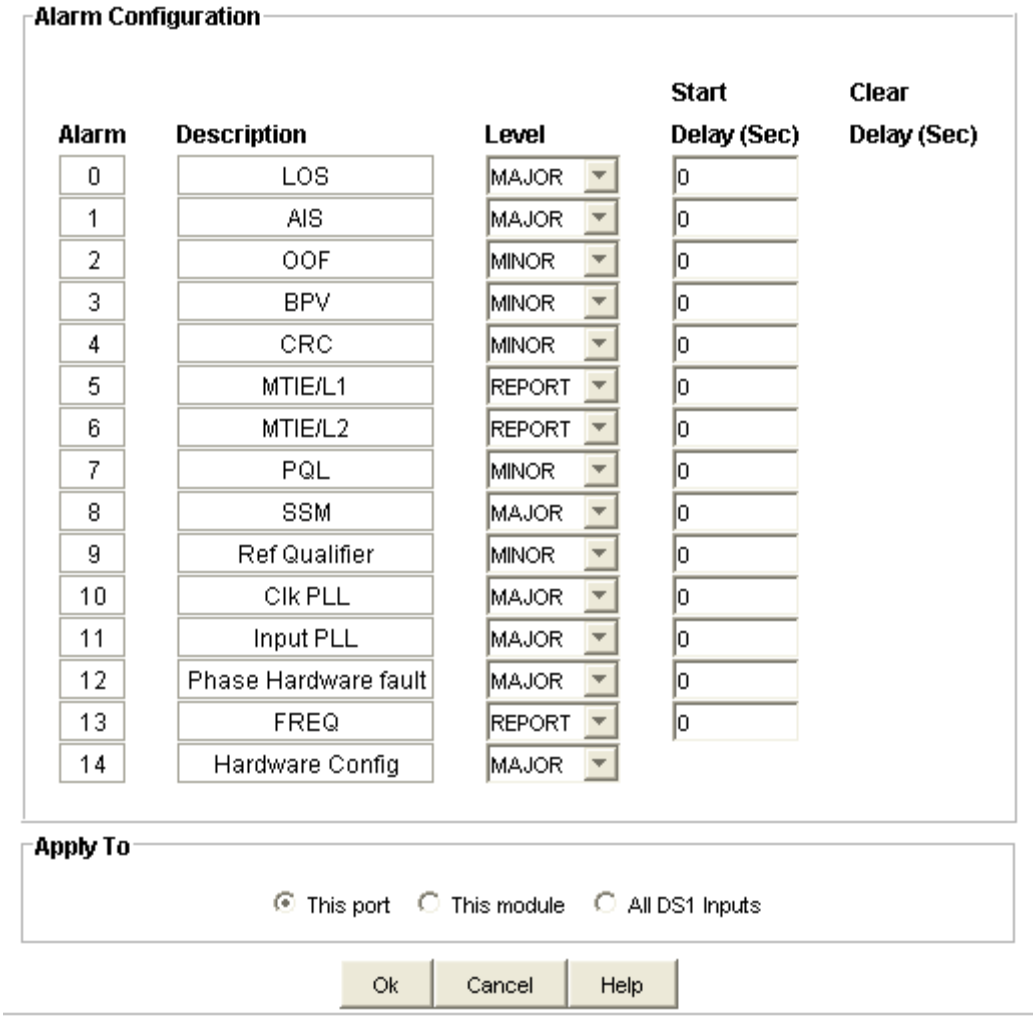
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All DS1 (E1) Inputs (select this field to apply these settings to all DS1 or E1 inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

4. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



DS1/E1 Input Port Description

DS1 and E1 Input Port Configuration

The Port Configuration screen provides a view of the following input port settings:

- General
- Input Signal Control
- Port Quality Control

The fields are described in the table below.

Click **Edit** to change the Port Configuration fields.

Field / Section	Description
General	This section provides general information on port status.
Port Name	Indicates the name of the selected port
Enabled	Indicates whether the port is on or off
Gain	Indicates whether the gain is on or off
External Fault	Cesium fault indication level. Settings are High, Low, or Off. **Note:** External Fault is only available at the first port of a Module.
Input Signal Control	This section provides information on input signal control.
Module Type	Indicates whether input module is a DS1 or E1
Framing Type	Framed signal - D4, ESF, 1, 1.544, 2.048, 5 or 10 if DS1, CAS, CCS, 1, 1.544, 2.048, 5, or 10 if E1, and unframed signal if specified as CLK
Sync Status Messaging	Indicates whether SSM is on or off.
Zero Suppression	Indicates whether zero suppression is on or off
CRC Checking	Indicates whether CRC checking is on or off
Port Quality Control	Provides information on PQL settings
Current PQL	Displays current Priority Quality Level
Provisioned PQL	Sets a Priority Quality Level to a given input port
Port Priority	Monitor or 1 to 10
SSM Bit Position (E1 only)	Sets the E1 bit position to 4,5,6,7, or 8 (SSM Bit is only shown for E1 modules)

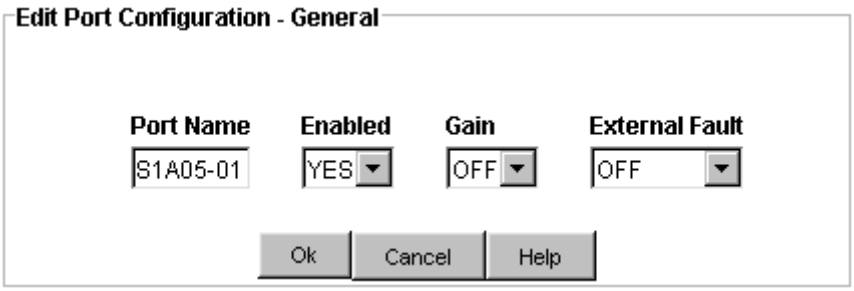
Edit DS1 and E1 General Input Port Configuration

To set the general port configuration:

1. Enter a port name in the **Port Name** text box.
2. Select YES to enable the port or NO to disable the port in the **Enabled** drop-down box.
3. Select ON to turn on gain or OFF to turn off gain in the **Gain** drop-down box.
4. Select High, Low, or Off in the **External Fault** drop-down box.

5. Click **OK** to accept changes and return to the Port Configuration screen, or **Cancel** to return to the Port Configuration screen without saving changes.

Note: External Fault is only available at the first port of a module.



Edit DS1 and E1 Input Signal Control Configuration

Note: The module type cannot be edited. It is automatically set to either DS1 or E1.

To configure the Input Signal Control:

1. Select the appropriate framing mode in the **Framing Type** drop-down box. Options are:

- **ESF** - for DS1 modules
- **D4** - for DS1 modules
- **CCS** - for E1 modules
- **CAS** - for E1 modules
- **1** - 1 MHz for unframed signals
- **1.544** - 1.544 MHz for unframed signals
- **2.048** - 2.048 MHz for unframed signals
- **5** - 5 MHz for unframed signals
- **10** - 10 MHz for unframed signals

2. Select ON or OFF in the **Zero Suppression** drop-down box.
3. Select ON or OFF in the **CRC Checking** drop-down box.
4. Select ON to read or OFF to ignore SSM messages in the **Sync Status Messaging** drop-down box.
5. Click one of the following in the **Apply To** field:

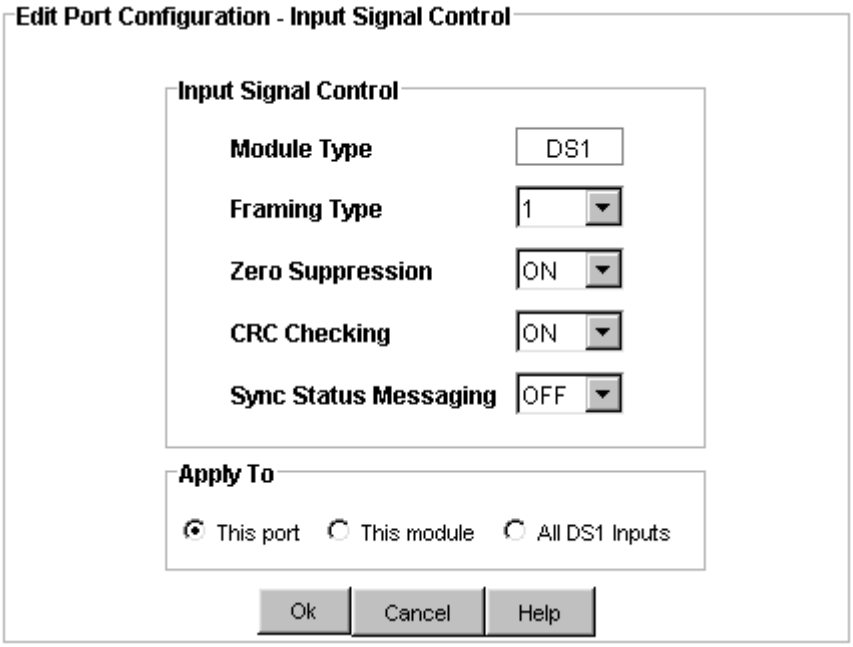
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All DS1 (E1) Inputs (select this field to apply these settings to all DS1 or E1 inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

6. Click **OK** to accept changes and return to the Port Configuration screen, or **Cancel** to return to the Port Configuration screen without saving changes.



Edit DS1 and E1 Input Port Quality Control

Note: The **Current PQL** text box cannot be edited.

To configure the Input Port Quality Control:

1. Select a number (and clock information) from 1 to 9 in the **Provisioned PQL** drop-down box.

2. Select Mon (monitor only) or a number from 1 to 10 in the **Port Priority** drop-down box. 1 is the highest and 10 is the lowest order of reference selection.

3. Select a number from 4 to 8 in the **SSM Bit Position** drop-down box (for E1 only).

4. Click one of the following in the **Apply To** field:

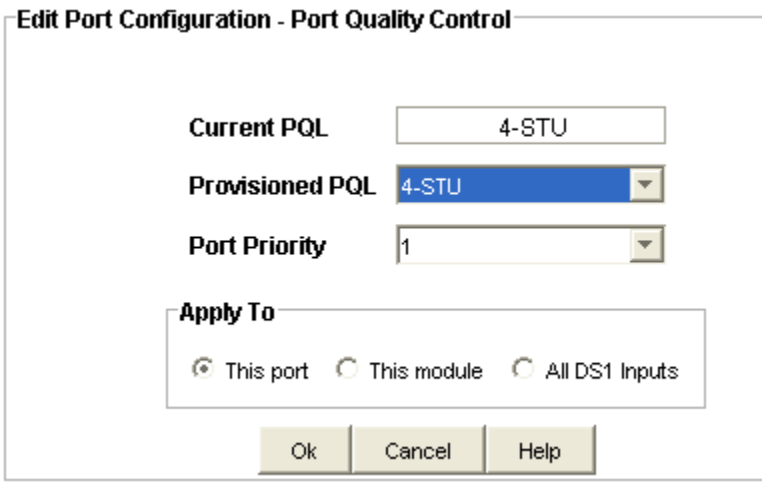
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All DS1 (E1) Inputs (select this field to apply these settings to all DS1 or E1 inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

5. Click **OK** to accept changes and return to the Port Configuration screen, or **Cancel** to return to the Port Configuration screen without saving changes.

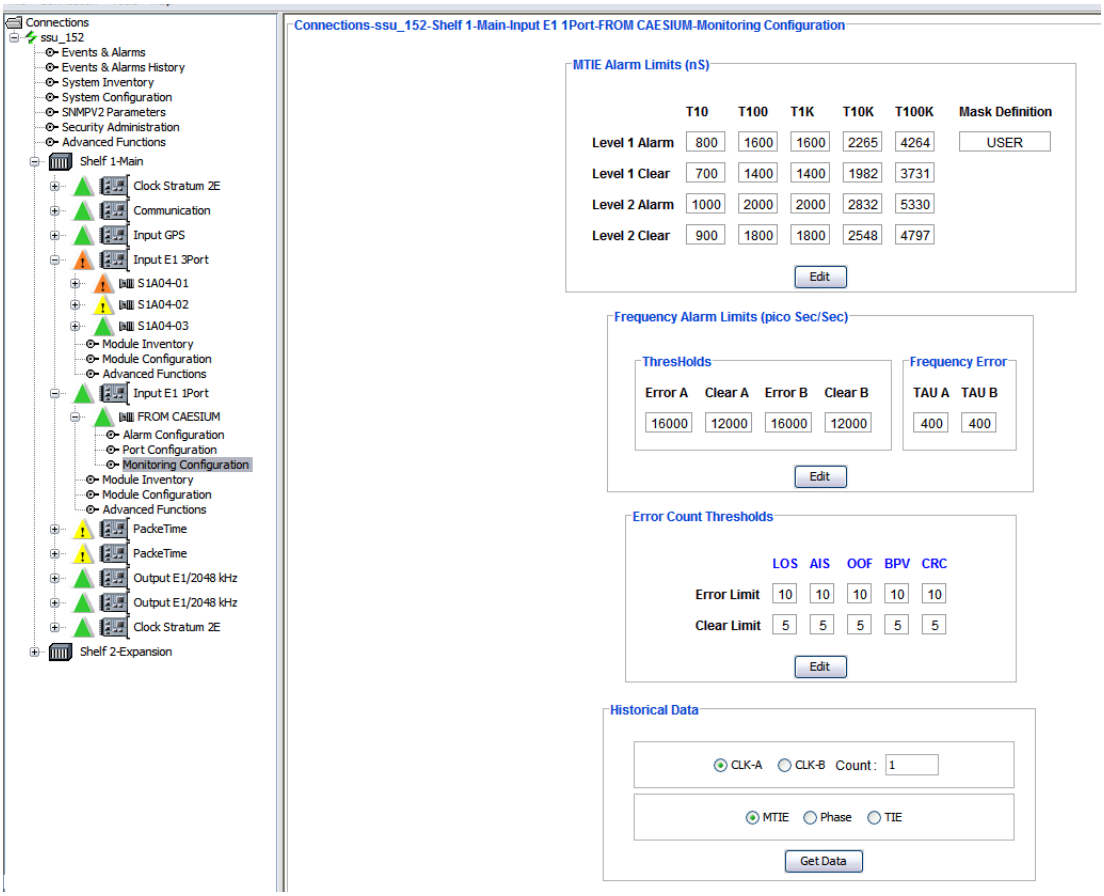


DS1/E1 Input Port Monitoring Description

DS1 and E1 Input Port Monitoring Configuration

The Input Port Monitoring Configuration screen provides information on MTIE alarm limits, frequency alarm limits, error count thresholds, and Historical Data.

Note: Historical Data summary panel will not be displayed for legacy devices (below SSU 2000 6.3).



The fields are described in the table below.

Click **Edit** to change the input port Monitoring Configuration fields.

Field / Section	Description
MTIE Alarm Limits	
Level 1 Alarm	MTIE Error limit 1
Level 1 Clear	MTIE Clear limit 1
Level 2 Alarm	MTIE Error limit 2
Level 2 Clear	MTIE Clear limit 2
T10	MTIE 10-second period
T100	MTIE 100-second period
T1K	MTIE 1,000-second period
T10K	MTIE 10,000-second period
T100K	MTIE 100,000-second period

Mask Definition	Displays the selected MTIE Mask Definition
Frequency Alarm Limits	
Thresholds	Sets frequency TAU, default is 400, range is 10-1000
Error A	Max 10,000,000 ps/s
Clear A	Max 10,000,000 ps/s
Error B	Max 10,000,000 ps/s
Clear B	Max 10,000,000 ps/s
Frequency Error	
Tau A	10 - 1000 seconds
Tau B	10 - 1000 seconds
Error Count Thresholds	
Error Limit	Sets the number of seconds before an alarm condition is raised
Clear Limit	Sets the number of seconds before an alarm is cleared
LOS	Loss of Signal - Generic term which is used specifically in different signal domains. Ranges are from 0 to 100 seconds.
AIS	Alarm Indication Signaling - A code transmitted downstream in a digital network that shows that an upstream failure has been detected and alarmed. Ranges are from 0 to 100 seconds.
OOF	Out Of Frame - occurs when the framer chip cannot determine framing. Ranges are from 1 to 10,000 seconds.
BPV	Bipolar Violation - The presence of two consecutive "one" bits of the same polarity on the T carrier line. Ranges are from 1 to 10,000 seconds.
CRC	Cyclic Redundancy Checking - A process used to check the integrity of a block of data. Ranges are from 1 to 10,000 seconds.

Edit DS1 and E1 Input MTIE Alarm Limits

To configure the MTIE alarm limits:

1. Select the appropriate pre-defined MTIE mask definition or set up a user defined mask. The measurement time period is in nano seconds.

2. Click one of the following in the **Apply To** field:

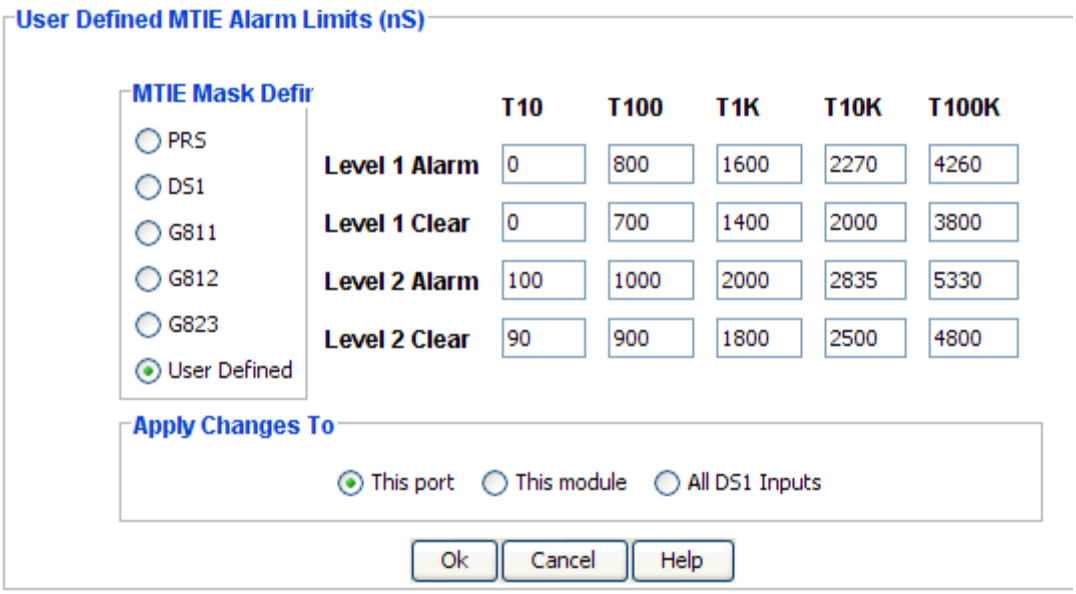
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All DS1 (E1) Inputs (select this field to apply these settings to all DS1 or E1 inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

3. Click **OK** to accept changes and return to the Monitoring Configuration screen, or **Cancel** to return to the Monitoring Configuration screen without saving changes.



Edit DS1 and E1 Input Frequency Alarm Limits

To configure the input frequency alarm limits:

1. Enter the appropriate time in seconds in the text boxes.

Note: Error A and B and Clear A and B maximum is 10,000,000 ps/s. TAU is 10 to 1000 seconds.

2. Click one of the following in the **Apply To** field:

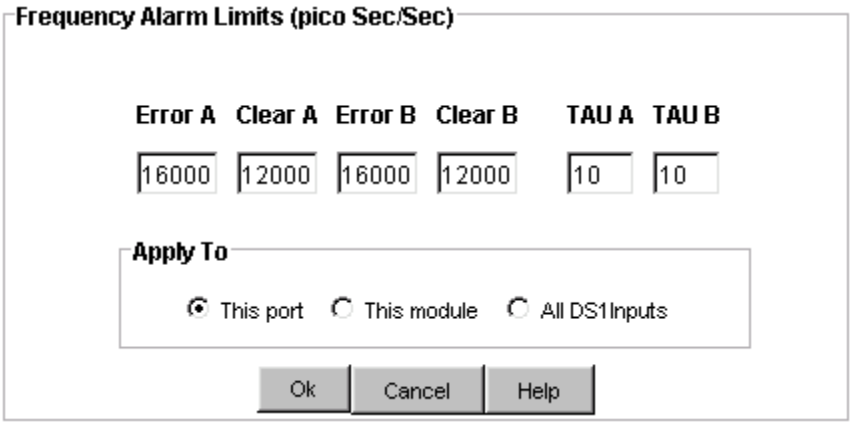
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All DS1 (E1) Inputs (select this field to apply these settings to all DS1 or E1 inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

3. Click **OK** to accept changes and return to the Monitoring Configuration screen, or **Cancel** to return to the Monitoring Configuration screen without saving changes.



Edit DS1 and E1 Input Error Count Thresholds

To configure the Input Error Count Threshold:

1. Enter the appropriate time in seconds in the text boxes. Selections include:

Error Limit - the number of seconds before an alarm condition is raised

Clear Limit - the number of seconds before an alarm is cleared

Alarm Conditions

- **LOS** - Los of Signal range is 0 to 100 seconds
- **AIS** - Alarm Indication Signaling range is 0 to 100 seconds
- **OOF** - Out Of Frame range is 1 to 10,000 seconds
- **BPV** - Bipolar Violation range is 1 to 10,000 seconds
- **CRC** - Cyclic Redundancy Checking range is 1 to 10,000 seconds

2. Click one of the following in the **Apply To** field:

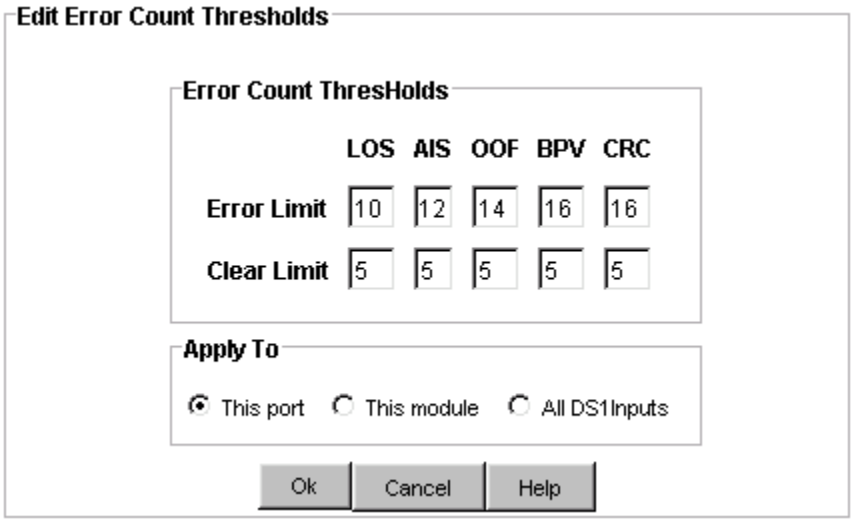
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All DS1 (E1) Inputs (select this field to apply these settings to all DS1 or E1 inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

Click **OK** to accept changes and return to the Monitoring Configuration screen, or **Cancel** to return to the Monitoring Configuration screen without saving changes.



Historical Data

The Historical Data panel displays MTIE, Phase, or TIE data.

1. Select settings for the data you want to view.
2. To use data that reflects the current settings, click **Get Data**.

Historical Data

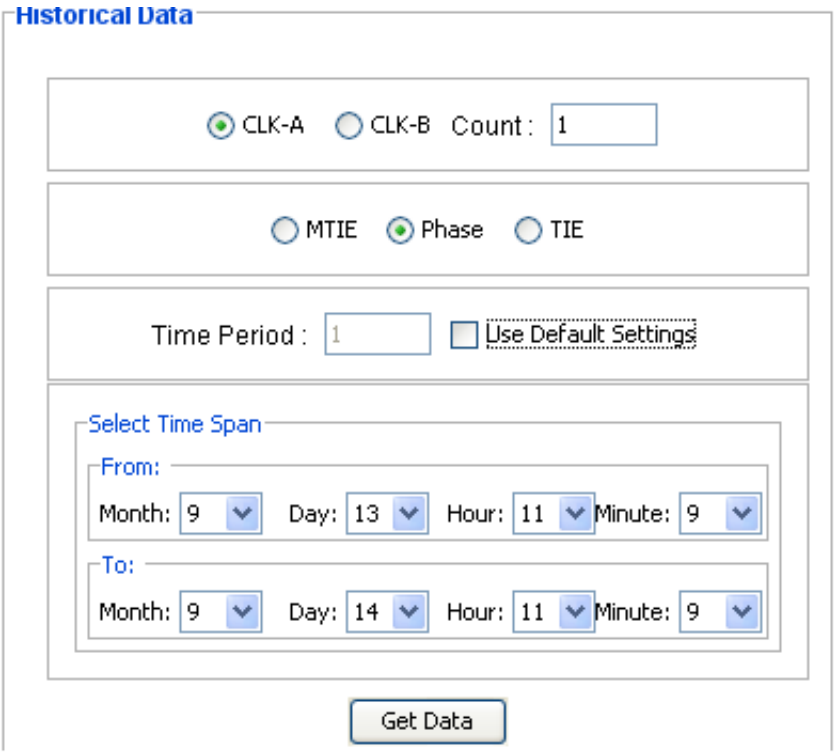
CLK-A CLK-B Count: 20

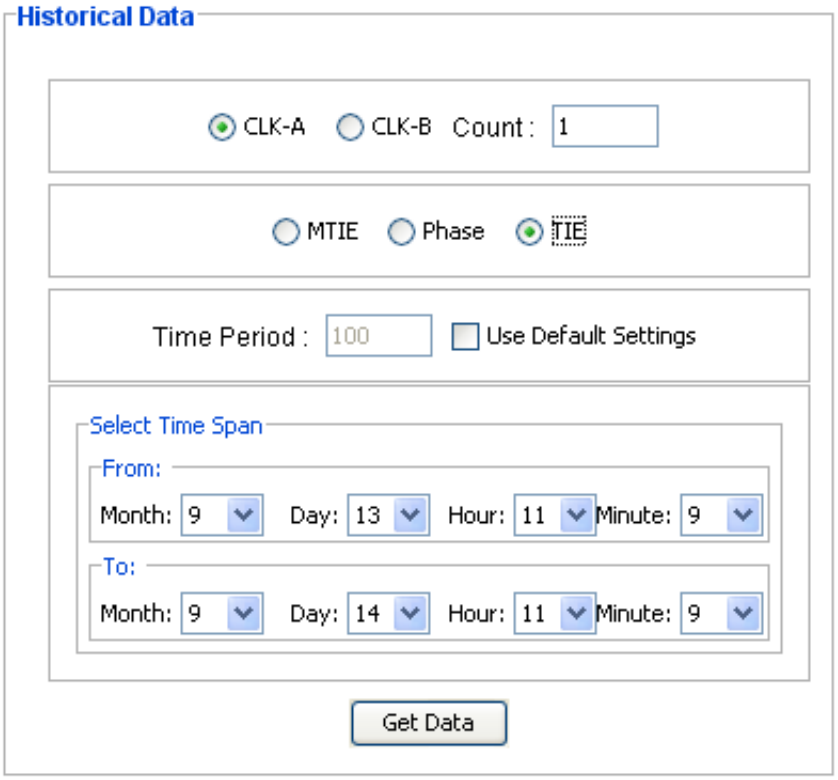
MTIE Phase TIE

Data

Date	Time	Time Period	Value
12-08-28	08-23-20	100	12
12-08-28	08-25-00	100	12
12-08-28	08-26-40	100	19
12-08-28	08-28-20	100	15
12-08-28	08-30-00	100	13
12-08-28	08-31-40	100	11
12-08-28	08-33-20	100	18
12-08-28	08-35-00	100	16
12-08-28	08-36-40	100	15
12-08-28	08-38-20	100	14
12-08-28	08-40-00	100	23

Get Data


Historical Data
CLK-A
CLK-B
Count :
1
MTIE
Phase
TIE
Time Period :
1
Use Default Settings
Select Time Span
From:
Month: 9
Day: 13
Hour: 11
Minute: 9
To:
Month: 9
Day: 14
Hour: 11
Minute: 9
Get Data


Historical Data
CLK-A
CLK-B
Count :
1
MTIE
Phase
TIE
Time Period :
100
Use Default Settings
Select Time Span
From:
Month: 9
Day: 13
Hour: 11
Minute: 9
To:
Month: 9
Day: 14
Hour: 11
Minute: 9
Get Data

Get Historical Data

To get historical data for MTIE, Phase, or TIE, do the following:

1. Click the **CLK-A or CLK-B** buttons in the **Historical Data** window to select the clock source.

2. Enter a **Count** value for the total history values you want to view. If **MTIE** or **TIE** is selected, the range is 1-1000. If **Phase** is selected, the range is 1-4000. In all cases, the default is 1.

3. Select **MTIE**, **Phase**, or **TIE**. When **MTIE** is selected, no further settings are needed and you can click the **Get Data** button.

4. When **Phase** or **TIE** is selected, select a time period or click Use Default Settings. The default value for time period is 1.

5. Select a **Time Span** by selecting month, day, hour, and minutes for the **From** and **To** values.

6. When you have finished setting values, click the **Get Data** button. When the button is clicked, the table displays date, time, time period, and the values.

DS1/E1 Module Description

DS1 and E1 Input Module Configuration

The Input Module Configuration screen provides information on alarm elevation time, module status, MTIE Calc, and Phase S1 Port.

Alarm Elevation Time - This setting allows the alarm severity to increase over the specified time in seconds. The range is 60 to 500,000 seconds.

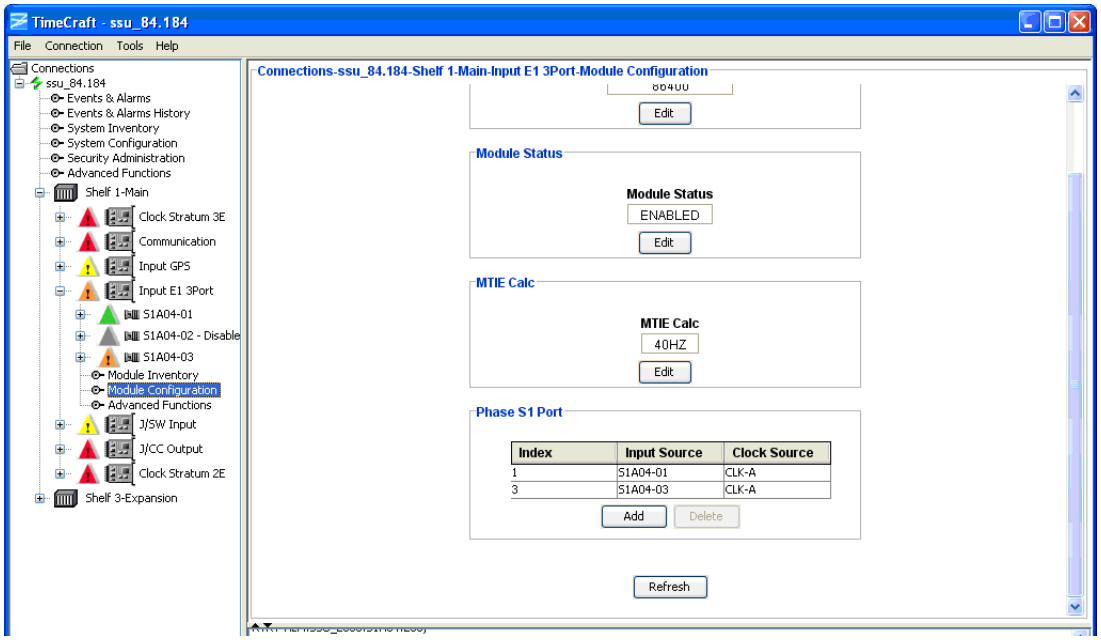
Module Status - This field indicates whether the clock module is activated (enabled) or not activated (disabled).

MTIE CALC - This field indicates which MTIE Calculator (40HZ | 1HZ) shall be used to calculate MTIE.

Phase S1 Port - This field indicates displays which input port with its associated clock source shall be used to retrieve 1-second phase data.

Note: MTIE Calc summary panel will not be displayed for legacy devices (below SSU 2000 6.3)

Note: Phase S1 summary panel will not be displayed for legacy devices (below SSU 2000 6.3) and SSU 2000 dual processor devices.



Click **Edit** to change the Module Configuration fields.

Edit DS1 and E1 Input Alarm Elevation Time

To configure the alarm elevation time:

1. Select Disabled in the drop-down box to disable the alarm elevation time, or enter a time in seconds. The range is 60 to 500,000 seconds.

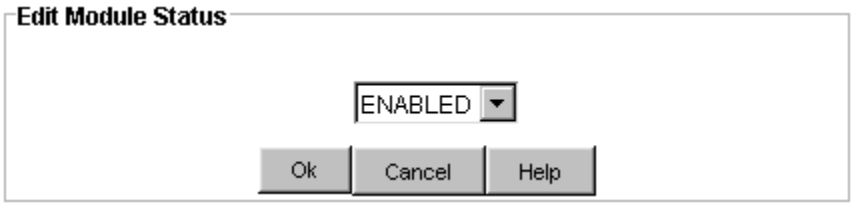
2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Edit DS1 and E1 Module Status

To configure the module status:

1. Select ENABLED or DISABLED in the drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



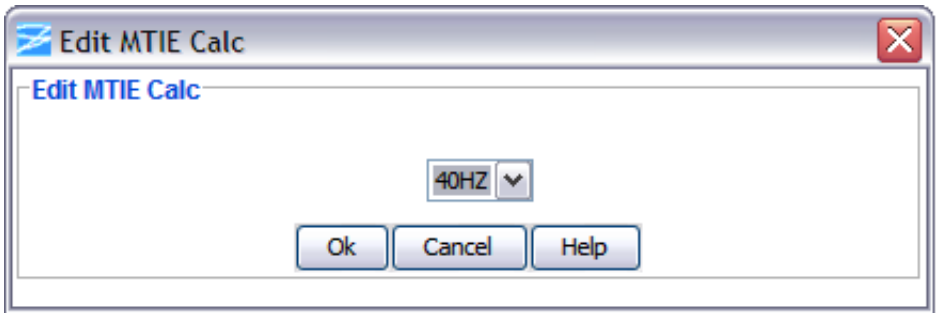
Edit DS1 and E1 MTIE Calc

To configure MTIE Calc:

1. Click the **Edit** button in the MTIE Calc window to open the Edit MTIE Calc window.

2. Enter a value of 40 HZ or 1Hz.

3. Click **Ok** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

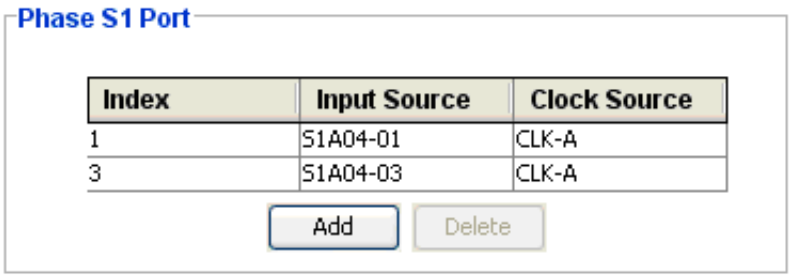


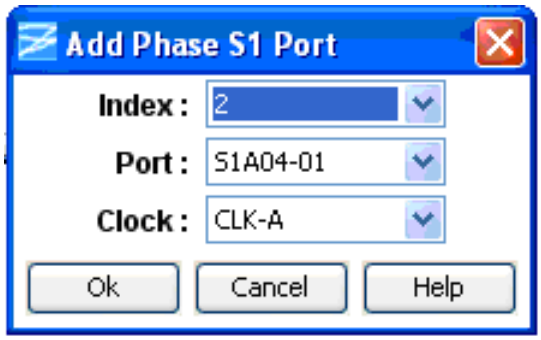
Note: Edit MTIE Calc summary panel will not be displayed for legacy devices (below SSU 2000 6.3)

Phase S1 Port Configuration

To configure a Phase S1 Port:

1. Click the **Add** button in the Phase S1 Port window to open the Add S1 Port window. If all indexes are configured, this button is disabled.





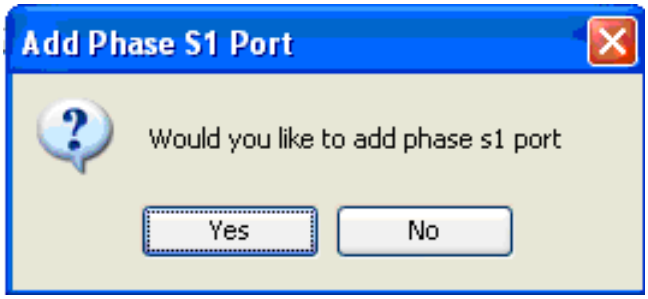
2. Select an Index value in the **Index** drop-down box.

3. Select a Port value in the **Port** drop-down box.

4. Select a Clock value of CLK-A or CLK-B in the **Clock** drop-down box.

5. Click **OK** to accept changes and return to the Phase S1 port screen, or **Cancel** to return to the Phase S1 port screen without saving changes.

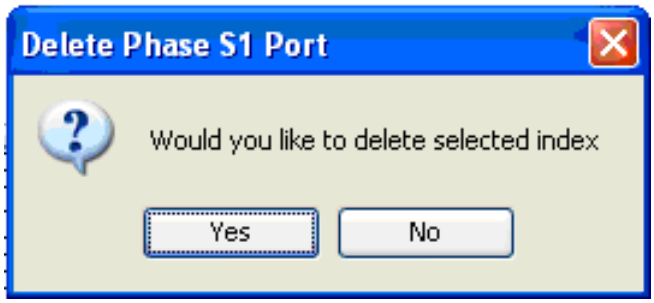
6. After clicking **OK**, the following confirmation dialog displays. Click **Yes** to add the Phase S1 port.



Delete Phase S1 Port

To delete the Phase S1 port, do the following:

1. Select the phase index to be deleted from the Phase S1 Port Screen.
2. Click the **Delete** button.
3. When prompted Would you like to delete the selected index?, click **Yes**.



Note: By default the **Delete** button will be disabled. Upon selection of any index entry, the **Delete** button will be enabled.

DS1 and E1 Input Module Inventory

The DS1 and E1 Input Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Inventory Data	
AID	The Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Description	Displays type of module
Serial#	Indicates the input module serial number
Hardware Rev	Indicates the last revision date of the input module
Software Rev	Indicates the latest revision level of the input module software
Hardware/Software Part	Indicates the part number of the specific revision
Date Last Reset	Indicates date of last module reset
Date Manufactured	Indicates when the module was manufactured

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

DS1 and E1 Input Module Advanced Functions

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Save User** - saves current module configuration as defined by user
- **Restore Factory** - returns current module to factory default configuration
- **Restore User** - restores last configuration saved by user

JSW Input Module

JSW Input Module Status

The Input Module Status screen consists of three status information sections:

- Module Status
- Inventory Summary
- Port Status

Each field of the Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when **Refresh** is clicked (under **Connection** on the Main screen). JSW Input modules can have 1-port or 3-port configurations.

For details on Historical Data, see Historical Data beginning on page 176.

For a description and details on Phase S1 Port, see DS1/E1 Module Description beginning on page 179.

For details on Phase S1 configuration, see Phase S1 Port Configuration on page 182.

Field / Section	Description
Module Status	
Module Status	The Status field indicates whether the selected input module is enabled or disabled. Disabled ports clear all existing alarms and do not report any additional alarms or measurement data.
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Port Status	
Port	An LED is provided for rapid identification of error sources. Clicking this button displays the associated port status screen.
State	Indicates the current condition of the port. Messages include: OK, Disabled, and Faulted.
Priority	User established priority of port

PQL	Values range from 1 to 9 with 1 being the most stable.
Phase	The input modules receive signals and perform phase measurement comparisons with the clock modules that are installed in the SSU-2000. The clock modules use this information to phase and frequency lock to the incoming signal.
Frequency	These fields indicate the frequency offset, in picosecs/second, of the received signal versus the A and B clocks.

JSW Input Port Alarms

JSW Input Port Alarm Reporting

The Alarm Status screen provides a list of active alarms.

- **Alarm** - Displays the input module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
- **Description** - Displays a description of each alarm indicated on the input module. Only active alarms are indicated. If no alarms are present, the first alarm description will read None.
- **Level** - Indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, and Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
- **Service Affecting** - Indicates whether an alarm response message affects service. A response will display either a Yes or No message.
- **Message** - Describes the alarm description.

JSW Input Port Alarm Configuration

The Input Module Port Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels
- Start Delay Time
- Clear Delay Time

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

Field / Section	Description
Alarm	This field displays the input module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the input module. Only active alarms are indicated. If no alarms are present, the first alarm description will read "None".
Level	This field indicates the severity of an alarm when it is first logged. Click **Edit** to set the Alarm level. Levels include: Critical, Major, Minor, Report, and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Delay	
Start	Delays the start of an alarm report by the number of seconds entered in the Delay Start field. Valid entries for this field are 0 to 86,400 seconds.
Clear	Delays the clearing of an alarm report by the number of seconds entered in the Delay Clear field. Valid entries for this field are 0 to 86,400 seconds.

Edit JSW Input Port Alarm Configuration

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Enter the start delay time in seconds in the **Start Delay** text boxes. This delays the start of an alarm report by the number of seconds entered. Valid entries for this field are 0 to 86,400 seconds.

3. Click one of the following in the **Apply To** field:

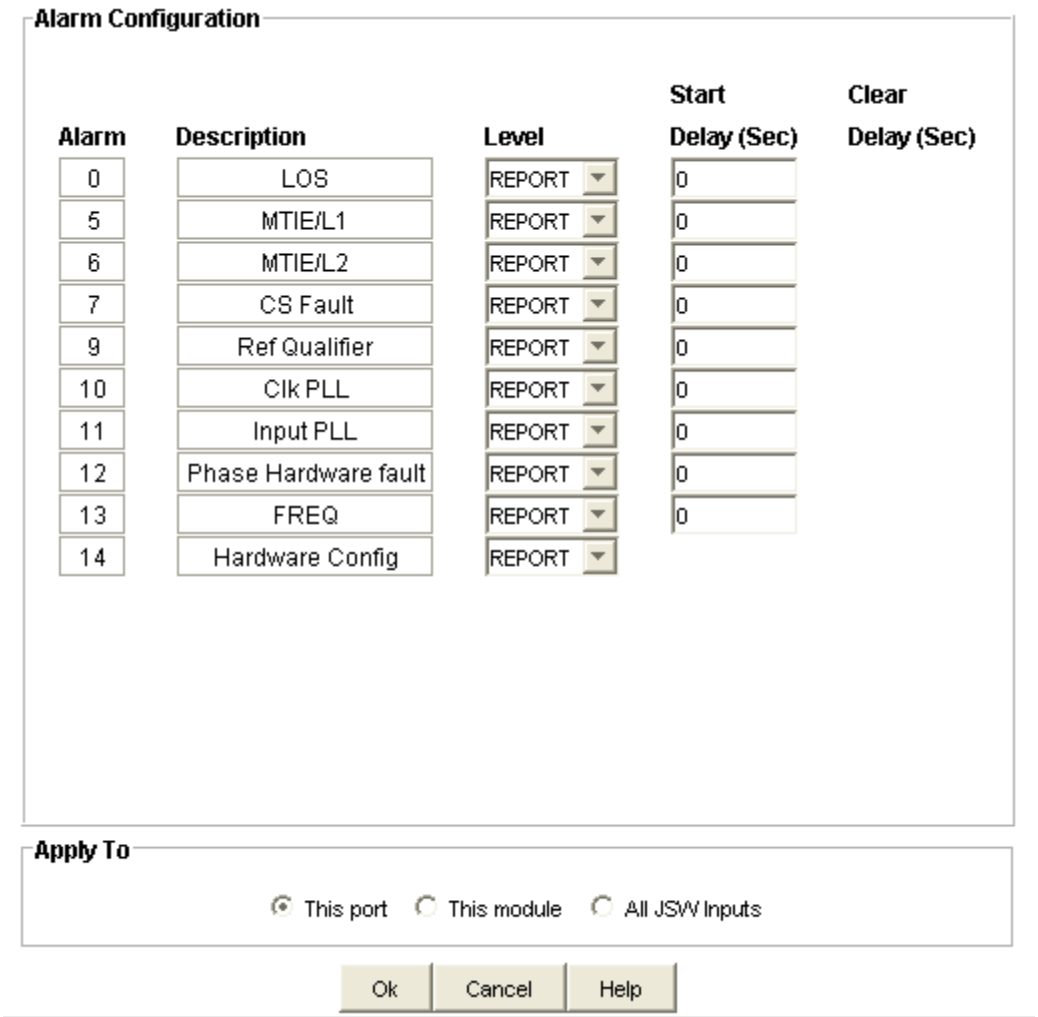
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All JSW Inputs (select this field to apply these settings to all JSW inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

4. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



JSW Input Port Configuration

JSW Input Port Configuration

The Port Configuration screen provides a view of the following input port settings:

- General
- Input Signal Control
- Port Quality Control

The fields are described in the table below.

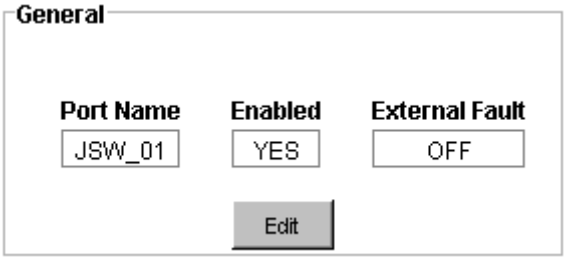
Click **Edit** to change the Port Configuration fields.

Field / Section	Description
General	This section provides general information on port status.
Port Name	Indicates the name of the selected port.
Enabled	Indicates whether the port is on or off.
External Fault	Cesium fault indication level. Settings are High, Low, or Off.
Input Signal Control	This section provides information on input signal control.
Module Type	Indicates the type of module.
Frequency	1.544 or 6.312
Port Quality Control	Provides information on PQL settings.
Current PQL	Displays current Priority Quality Level.
Provisioned PQL	Sets a Priority Quality Level to a given input port.
Port Priority	Monitor or 1 to 10.

Edit JSW General Input Port Configuration

To set the general port configuration:

1. Enter a port name in the **Port Name** text box.
2. Select YES to enable the port or NO to disable the port in the **Enabled** drop-down box.
3. Select High, Low, or Off in the **External Fault** drop-down box.
4. Click **OK** to accept changes and return to the Port Configuration screen, or **Cancel** to return to the Port Configuration screen without saving changes.



Edit JSW Input Signal Control Configuration

To configure the Input Signal Control:

1. Select the frequency in the **Frequency (MHz)** drop-down box. Options are:

- **1.544** - 1.544 MHz for unframed signals
- **6.312** - 6.312 MHz for unframed signals

2. Click one of the following in the **Apply To** field:

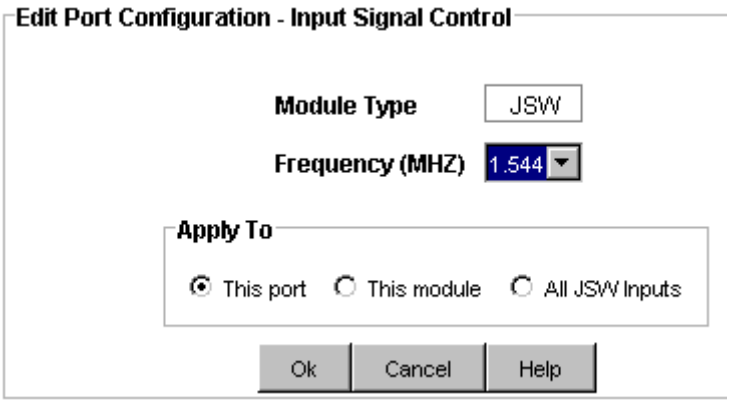
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All JSW Inputs (select this field to apply these settings to all JSW inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

3. Click **OK** to accept changes and return to the Port Configuration screen, or **Cancel** to return to the Port Configuration screen without saving changes.



Edit JSW Input Port Quality Control

Note: The **Current PQL** text box cannot be edited.

To configure the Input Port Quality Control:

1. Select a number (and clock information) from 1 to 9 in the **Provisioned PQL** drop-down box.

2. Select Mon (monitor only) or a number from 1 to 10 in the **Port Priority** drop-down box. 1 is the highest and 10 is the lowest order of reference selection.

3. Click one of the following in the **Apply To** field:

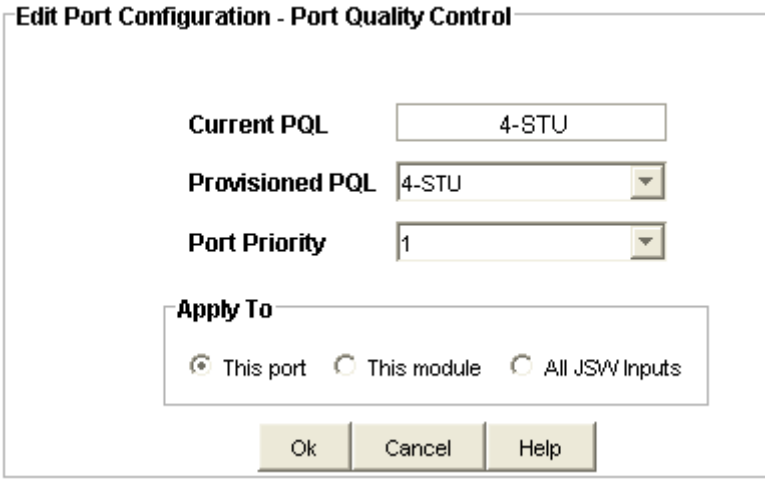
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All Inputs (select this field to apply these settings to all JSW inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

4. Click **OK** to accept changes and return to the Port Configuration screen, or **Cancel** to return to the Port Configuration screen without saving changes.



JSW Input Port Monitoring Configuration

JSW Input Port Monitoring Configuration

The Input Port Monitoring Configuration screen provides information on MTIE alarm limits, frequency alarm limits, and error count thresholds.

The fields are described in the table below.

Click **Edit** to change the input port Monitoring Configuration fields.

Field / Section	Description
MTIE Alarm Limits	
Level 1 Alarm	MTIE Error limit 1
Level 1 Clear	MTIE Clear limit 1

Level 2 Alarm	MTIE Error limit 2
Level 2 Clear	MTIE Clear limit 2
T10	MTIE 10-second period
T100	MTIE 100-second period
T1K	MTIE 1,000-second period
T10K	MTIE 10,000-second period
T100K	MTIE 100,000-second period
Mask Definition	Displays the selected MTIE Mask Definition
Frequency Alarm Limits	
Thresholds	Sets frequency TAU, default is 400, range is 10-1000
Error A	Max 10,000,000 ps/s
Clear A	Max 10,000,000 ps/s
Error B	Max 10,000,000 ps/s
Clear B	Max 10,000,000 ps/s
Frequency Error	
Tau A	10 - 1000 seconds
Tau B	10 - 1000 seconds

Edit JSW Input MTIE Alarm Limits

To configure the MTIE alarm limits:

1. Select the appropriate pre-defined MTIE mask definition or set up a user defined mask. The measurement time period is in nano seconds.

2. Click one of the following in the **Apply To** field:

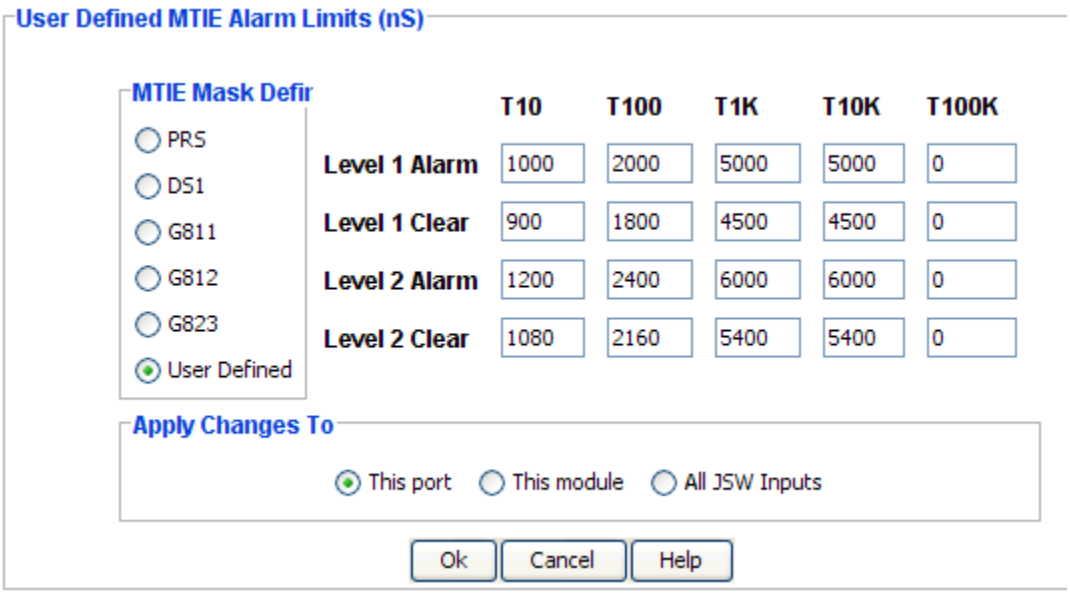
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All Inputs (select this field to apply these settings to all JSW inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

3. Click **OK** to accept changes and return to the Monitoring Configuration screen, or **Cancel** to return to the Monitoring Configuration screen without saving changes.



Edit JSW Input Frequency Alarm Limits

To configure the input frequency alarm limits:

1. Enter the appropriate time in seconds in the text boxes.

Note: Error A and B and Clear A and B maximum is 10,000,000 ps/s. TAU is 10 to 1000 seconds.

2. Click one of the following in the **Apply To** field:

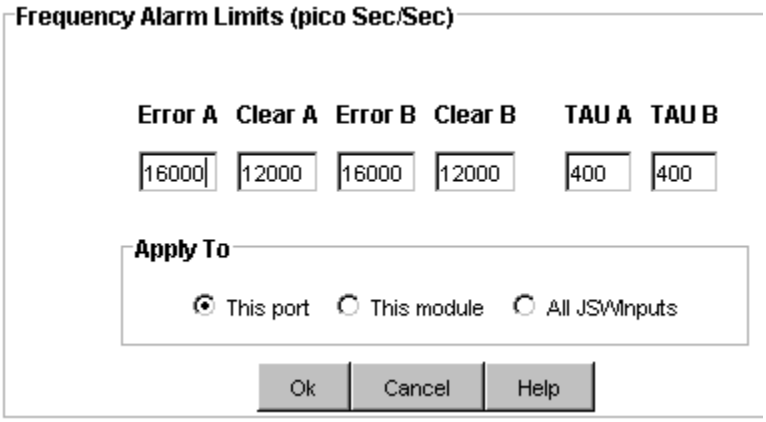
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All JSW Inputs (select this field to apply these settings to all JSW inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

3. Click **OK** to accept changes and return to the Monitoring Configuration screen, or **Cancel** to return to the Monitoring Configuration screen without saving changes.



JSW Module Configuration

JSW Input Module Configuration

The Input Module Configuration screen provides information on alarm elevation time and module status.

Alarm Elevation Time - This setting allows the alarm severity to increase over the specified time in seconds. The range is 60 to 500,000 seconds.

Module Status - This field indicates whether the clock module is activated (enabled) or not activated (disabled).

Click **Edit** to change the Module Configuration fields.

Edit JSW Input Alarm Elevation Time

To configure the alarm elevation time:

1. Select Disabled in the drop-down box to disable the alarm elevation time, or enter a time in seconds. The range is 60 to 500,000 seconds.

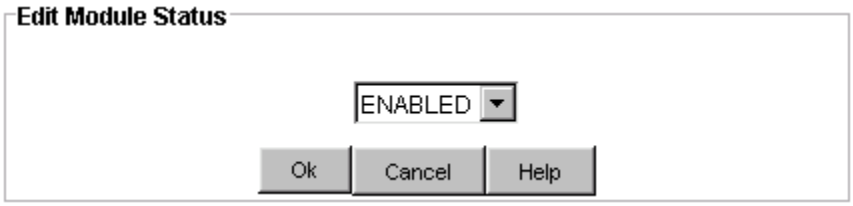
2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Edit JSW Module Status

To configure the module status:

1. Select ENABLED or DISABLED in the drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



JSW Input Module Inventory

The JSW Input Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Inventory Data	
AID	The Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Description	Displays type of module
Serial	Indicates the input module serial number
Hardware Rev	Indicates the last revision date of the input module
Software Rev	Indicates the latest revision level of the input module software
Hardware/Software Part	Indicates the part number of the specific revision
Date Last Reset	Indicates date of last module reset
Date Manufactured	Indicates when the module was manufactured

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

JSW Input Module Advanced Functions

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Save User** - saves current module configuration as defined by user
- **Restore Factory** - returns current module to factory default configuration
- **Restore User** - restores last configuration saved by user

Composite Clock (CC) Input Module

Composite Clock Input Module Status

The Input Module Status screen consists of three status information sections:

- Module Status
- Inventory Summary
- Port Status

Each field of the Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when **Refresh** is clicked (under **Connection** on the Main screen). Composite Clock Input modules can have 1-port or 3-port configurations.

For details on Historical Data, see Historical Data beginning on page 176.

For a description and details on Phase S1 Port, see DS1/E1 Module Description beginning on page 179.

For details on Phase S1 configuration, see Phase S1 Port Configuration on page 182.

Field / Section	Description
Module Status	
Module Status	The Status field indicates whether the selected input module is enabled or disabled. Disabled ports clear all existing alarms and do not report any additional alarms or measurement data.
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Port Status	
Port	An LED is provided for rapid identification of error sources. Clicking this button displays the associated port status screen.
State	Indicates the current condition of the port. Messages include: OK, Disabled, and Faulted.
Priority	User established priority of port
PQL	The Priority Quality Level (PQL) is a Synchronization Status Message (SSM) table which allows for translation between SSMs. Values range from 1 to 9 with 1 being the most stable.
Phase	Modules receive signals and perform phase measurement comparisons with the clock modules that are installed in the SSU-2000. The clock modules use this information to phase and frequency lock to the incoming signal. These fields indicate the phase offset, in nano seconds, of the received signal versus the A and B clocks.
Show Counts	Displays the Show Counts screen

Composite Clock Input Module Error Counts

The Current Counts screen displays:

- **Error Counts** (number of errors detected)
- **Clear Counts** (number of times an error cleared the alarm threshold)

Errors are tracked for:

- **LOS** - Loss of Signal indicates an input signal error.
- **BPV** - Bipolar Violation is the presence of two consecutive "one" bits of the same polarity on the T carrier line.

Buttons include:

- **Refresh Counts** - Click to update the screen. Otherwise, the screen refreshes every 30 seconds.
- **Show Status** - Click to display the Module Status screen.

Composite Clock Input Port Alarm Reporting

The Alarm Status screen provides a list of active alarms.

- **Alarm** - Displays the input module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
- **Description** - Displays a description of each alarm indicated on the input module. Only active alarms are indicated. If no alarms are present, the first alarm description will read None.
- **Level** - Indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, and Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
- **Service Affecting** - Indicates whether an alarm response message affects service. A response will display either a Yes or No message.
- **Message** - Describes the alarm description.

Composite Clock Input Port Alarm Configuration

The Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels
- Start Delay Time
- Clear Delay Time

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

Field / Section	Description
Alarm	This field displays the input module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the input module. Only active alarms are indicated. If no alarms are present, the first alarm description will read None.
Level	This field indicates the severity of an alarm when it is first logged. Levels include: Critical, Major, Minor, Report and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Delay	
Start	Delays the start of an alarm report by the number of seconds entered in the Delay Start field. Valid entries for this field are 0 to 86,400 seconds.
Clear	Delays the clearing of an alarm report by the number of seconds entered in the Delay Clear field. Valid entries for this field are 0 to 86,400 seconds.

Edit Composite Clock Input Port Alarm Configuration

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Enter the start delay time in seconds in the **Start Delay** text boxes. This delays the start of an alarm report by the number of seconds entered. Valid entries for this field are 0 to 86,400 seconds.

3. Enter the clear delay time in seconds in the **Clear Delay** text boxes. This delays the clearing of an alarm report by the number of seconds entered. Valid entries for this field are 0 to 86,400 seconds.

4. Click one of the following in the **Apply To** field:

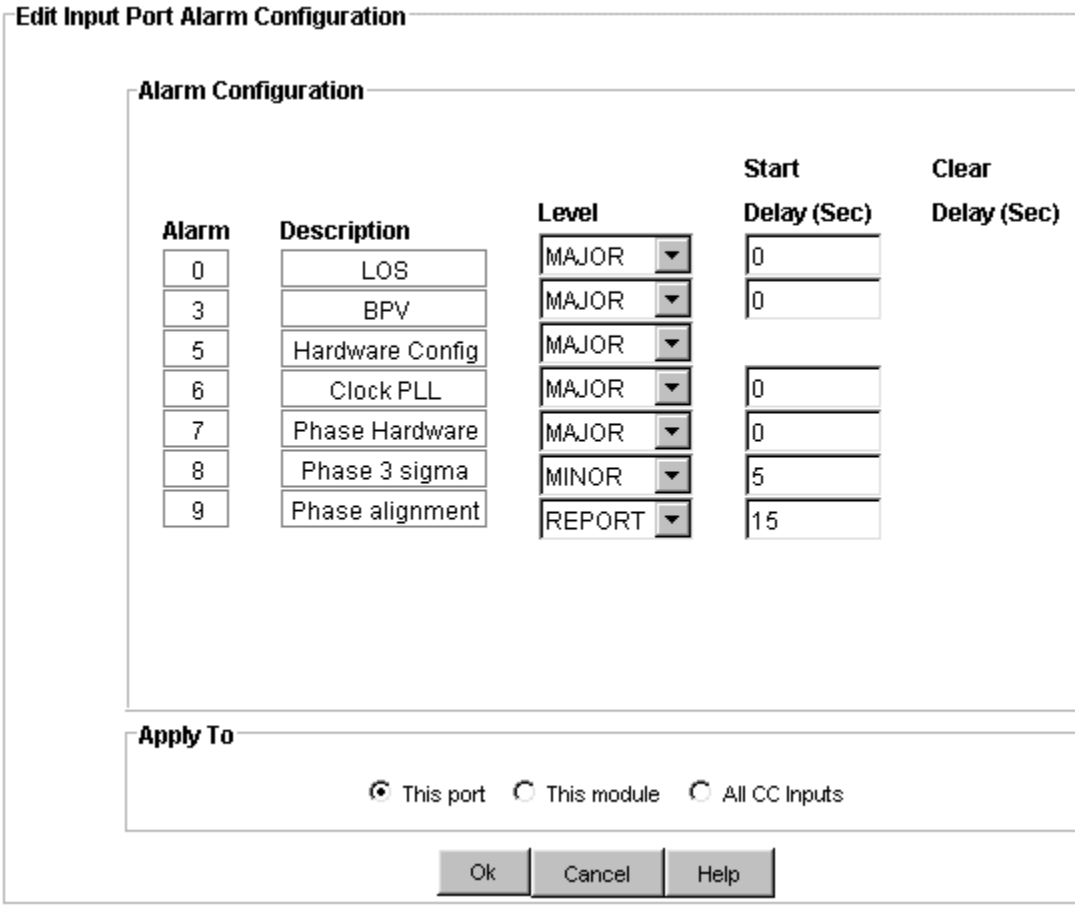
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All CC Inputs (select this field to apply these settings to all CC inputs in the system)

> **Note:** Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

5. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



Composite Clock Input Port Configuration

The Port Configuration screen provides a view of the following input port settings:

- General
- Input Signal Control
- Port Quality Control

The fields are described in the table below.

Click **Edit** to change the Port Configuration fields.

Field / Section	Description
General	This section provides general information on port status.
Port Name	Indicates the name of the selected port
Enabled	Indicates whether the port is on or off
Input Signal Control	This section provides information on input signal control.
Module Type	Indicates a Composite Clock input module
Framing Type	Framed signal - CC
Port Quality Control	
Current PQL	Displays current Priority Quality Level
Provisioned PQL	Sets a Priority Quality Level to a given input port
Port Priority	Monitor or 1 to 10 with 1 being the highest priority and 10 the lowest.

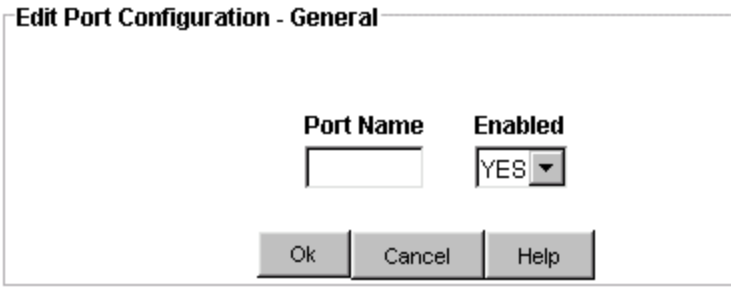
Edit Composite Clock General Input Port Configuration

To set the general port configuration:

1. Enter a port name in the **Port Name** text box.

2. Select Yes to enable the port or No to disable the port in the **Enabled** drop-down box.

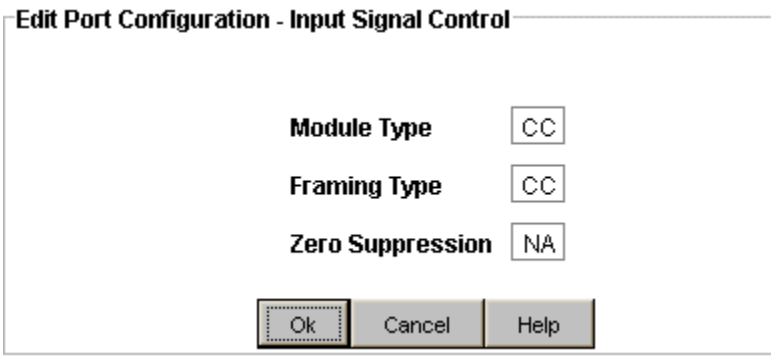
Click **OK** to accept changes and return to the Port Configuration screen, or **Cancel** to return to the Port Configuration screen without saving changes.



Edit Composite Clock Input Signal Control Configuration

The Composite Clock module type and framing type cannot be edited. It is automatically set to CC.

Click **OK** or **Cancel** to return to the Port Configuration screen.



Edit Composite Clock Input Port Quality Control

Note: The **Current PQL** text box cannot be edited.

To configure the Input Port Quality Control:

1. Select a number (and clock information) from 1 to 9 in the **Provisioned PQL** drop-down box.

2. Select Mon (monitor only) or a number from 1 to 10 in the **Port Priority** drop-down box. 1 is the highest and 10 is the lowest order of reference selection.

3. Click one of the following in the **Apply To** field:

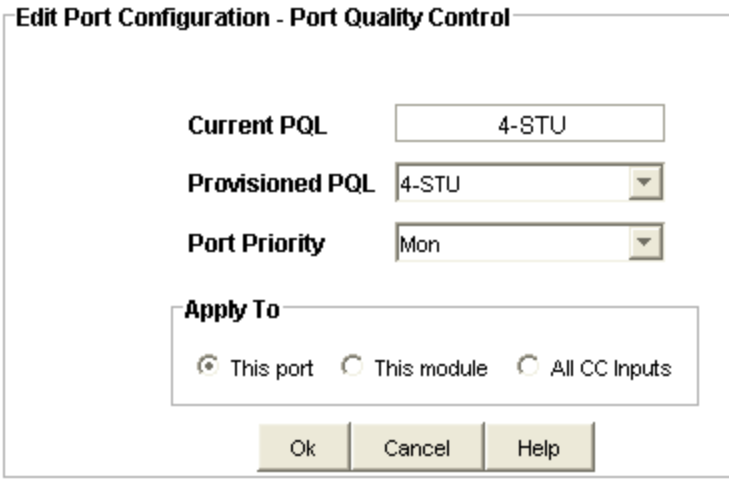
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All CC Inputs (select this field to apply these settings to all CC inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

4. Click **OK** to accept changes and return to the Port Configuration screen, or **Cancel** to return to the Port Configuration screen without saving changes.



Composite Clock Input Port Monitoring Configuration

The Error Count Thresholds screen displays the error limit and clear limit settings for Loss-of-Signal and Bipolar Violation.

The fields are described in the table below.

Click **Edit** to change the Error Count Thresholds fields.

Field / Section	Description
Error Count Thresholds	
Error Limit	Sets the number of seconds before an alarm condition is raised
Clear Limit	Sets the number of seconds before an alarm is cleared
LOS	Loss of Signal - Generic term which is used specifically in different signal domains. Ranges are from 0 to 100 seconds.
BPV	Bipolar Violation - The presence of two consecutive "one" bits of the same polarity on the T carrier line. Ranges are from 0 - 100,000 seconds.

Edit Composite Clock Input Error Count Thresholds

To configure the Input Error Count Threshold:

1. Enter the appropriate time in seconds in the text boxes. Selections include:

- **Error Limit** - the number of seconds before an alarm condition is raised
- **Clear Limit** - the number of seconds before an alarm is cleared

Alarm Conditions

- **LOS** - Los of Signal range is 0 to 100 seconds
- **BPV** - Bipolar Violation range is 0 to 100,000 seconds

2. Click one of the following in the **Apply To** field:

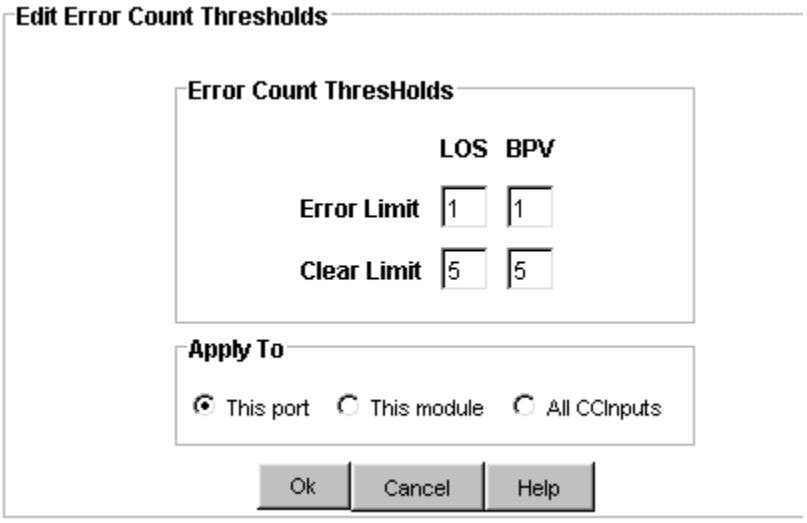
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All CC Inputs (select this field to apply these settings to all CC inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

3. Click **OK** to accept changes and return to the Monitoring Configuration screen, or **Cancel** to



Composite Clock Input Module Configuration

The Input Module Configuration screen provides information on alarm elevation time and module status.

Alarm Elevation Time - This setting allows the alarm severity to increase over the specified time in seconds. The range is 60 to 500,000 seconds.

Module Status - This field indicates whether the clock module is activated (enabled) or not activated (disabled).

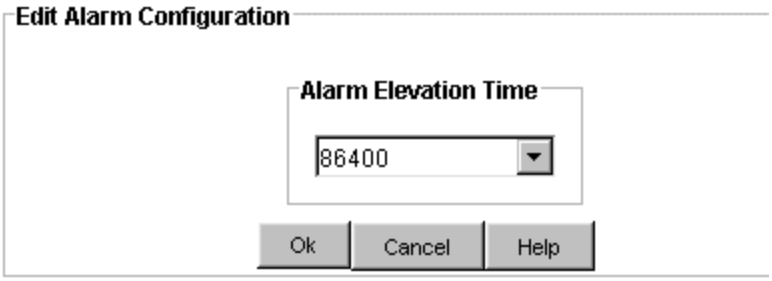
Click **Edit** to change the Module Configuration fields.

Edit Composite Clock Input Alarm Elevation Time

To configure the alarm elevation time:

1. Select Disabled in the drop-down box to disable the alarm elevation time, or enter a time in seconds. The range is 60 to 500,000 seconds.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

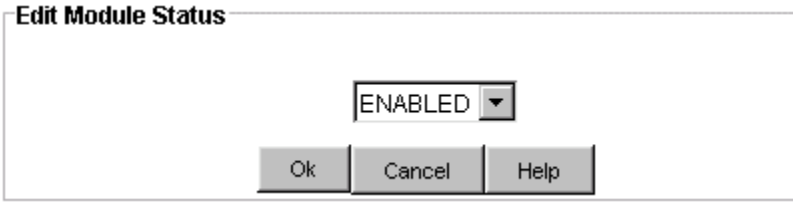


Edit Composite Clock Module Status

To configure the module status:

1. Select ENABLED or DISABLED in the drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



Composite Clock Input Module Inventory

The Composite Clock Input Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Module Inventory	
AID	The Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Description	Displays type of module
Hardware Rev	Indicates the last revision date of the input module
Hardware Part	Indicates the part number of the specific revision
Serial	Indicates the input module serial number
Adapter	Indicates the adapter number
Date Last Reset	Indicates date of last module reset
Date Manufactured	Indicates when the module was manufactured
Software Rev	Indicates the latest revision level of the input module software
Software Part	Indicates the part number of the specific revision

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

Composite Clock Input Module Advanced Functions

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Save User** - saves current module configuration as defined by user
- **Restore User** - restores last configuration saved by user
- **Restore Factory** - returns current module to factory default configuration

JCC Input Module

JCC Input Module Status

The Input Module Status screen consists of three status information sections:

- Module Status
- Inventory Summary
- Port Status

Each field of the Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when **Refresh** is clicked (under **Connection** on the Main screen). Composite Clock Input modules can have 1-port or 3-port configurations.

For details on Historical Data, see Historical Data beginning on page 176.

For a description and details on Phase S1 Port, see DS1/E1 Module Description beginning on page 179.

For details on Phase S1 configuration, see Phase S1 Port Configuration on page 182.

Field / Section	Description
Module Status	
Module Status	The Status field indicates whether the selected input module is enabled or disabled. Disabled ports clear all existing alarms and do not report any additional alarms or measurement data.
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Port Status	
Port	An LED is provided for rapid identification of error sources. Clicking this button displays the associated port status screen.
State	Indicates the current condition of the port. Messages include: OK, Disabled, and Faulted.

Priority	User established priority of port
PQL	The Priority Quality Level (PQL) is a Synchronization Status Message (SSM) table which allows for translation between SSMs. Values range from 1 to 9 with 1 being the most stable.
Phase	Modules receive signals and perform phase measurement comparisons with the clock modules that are installed in the SSU-2000. The clock modules use this information to phase and frequency lock to the incoming signal. These fields indicate the phase offset, in nano seconds, of the received signal versus the A and B clocks.

JCC Input Port Alarms

JCC Input Port Alarm Reporting

The Alarm Status screen provides a list of active alarms.

- **Alarm** - Displays the input module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
- **Description** - Displays a description of each alarm indicated on the input module. Only active alarms are indicated. If no alarms are present, the first alarm description will read None.
- **Level** - Indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, and Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
- **Service Affecting** - Indicates whether an alarm response message affects service. A response will display either a Yes or No message.
- **Message** - Describes the alarm description.

JCC Input Port Alarm Configuration

The Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels
- Start Delay Time
- Clear Delay Time

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

Field / Section	Description
Alarm	This field displays the input module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the input module. Only active alarms are indicated. If no alarms are present, the first alarm description will read None.
Level	This field indicates the severity of an alarm when it is first logged. Levels include: Critical, Major, Minor, Report and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Delay	
Start	Delays the start of an alarm report by the number of seconds entered in the Delay Start field. Valid entries for this field are 0 to 86,400 seconds.
Clear	Delays the clearing of an alarm report by the number of seconds entered in the Delay Clear field. Valid entries for this field are 0 to 86,400 seconds.

Edit JCC Input Port Alarm Configuration

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Enter the start delay time in seconds in the **Start Delay** text boxes. This delays the start of an alarm report by the number of seconds entered. Valid entries for this field are 0 to 86,400 seconds.

3. Click one of the following in the **Apply To** field:

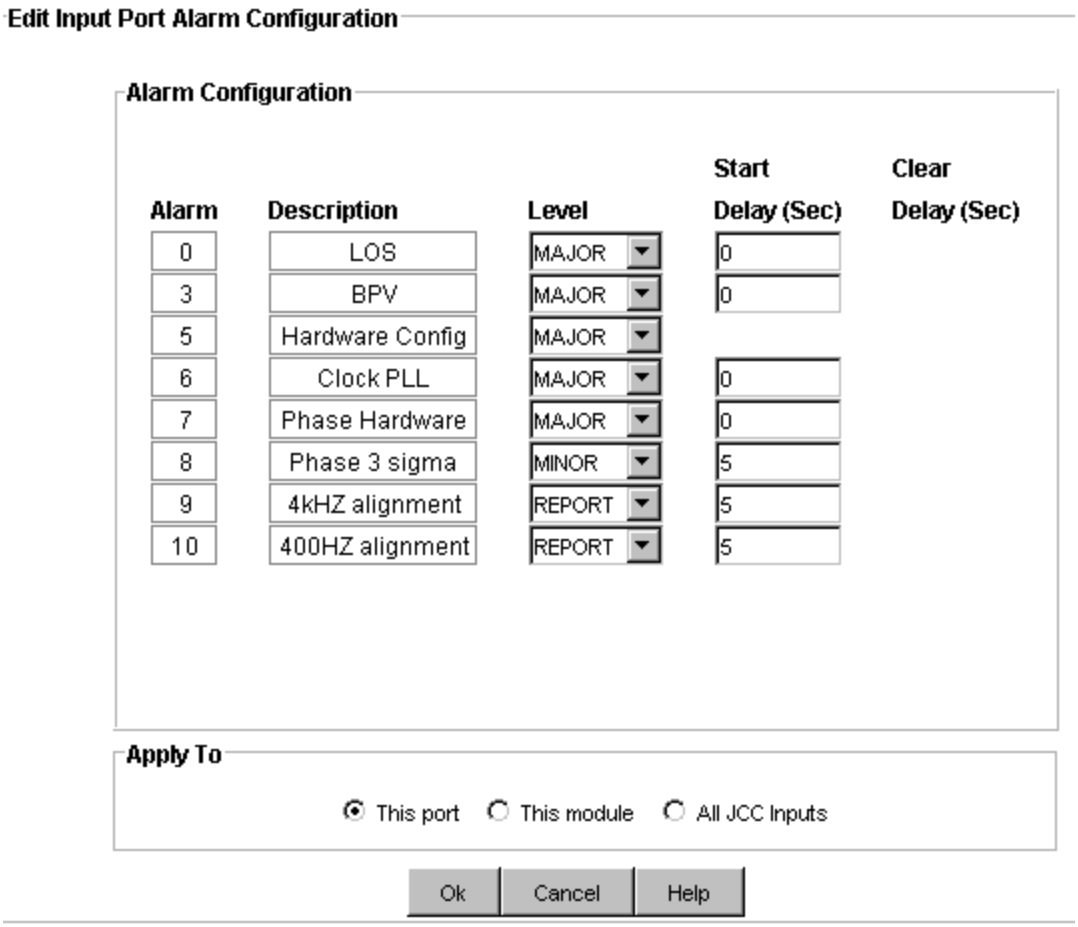
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All JCC Inputs (select this field to apply these settings to all JCC inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

4. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



JCC Input Port Configuration

JCC Input Port Configuration

The Port Configuration screen provides a view of the following input port settings:

- General
- Input Signal Control
- Port Quality Control

The fields are described in the table below.

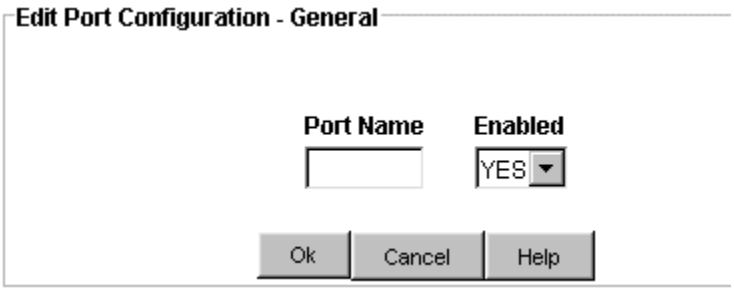
Click **Edit** to change the Port Configuration fields.

Field / Section	Description
General	This section provides general information on port status.
Port Name	Indicates the name of the selected port
Enabled	Indicates whether the port is on or off
Input Signal Control	This section provides information on input signal control.
Module Type	Indicates a Composite Clock input module
400 Hz	Sets 400 Hz bipolar violation on or off.
Port Quality Control	
Current PQL	Displays current Priority Quality Level
Provisioned PQL	Sets a Priority Quality Level to a given input port
Port Priority	Monitor or 1 to 10 with 1 being the highest priority and 10 the lowest.

Edit JCC General Input Port Configuration

To set the general port configuration:

1. Enter a port name in the **Port Name** text box.
2. Select Yes to enable the port or No to disable the port in the **Enabled** drop-down box.
3. Click **OK** to accept changes and return to the Port Configuration screen, or **Cancel** to return to the Port Configuration screen without saving changes.



Edit JCC Input Signal Control Configuration

Note: The module type cannot be edited. It is automatically set to JCC.

To configure the Input Signal Control:

1. Select ON or OFF in the **400 Hz** drop-down box.

2. Click one of the following in the **Apply To** field:

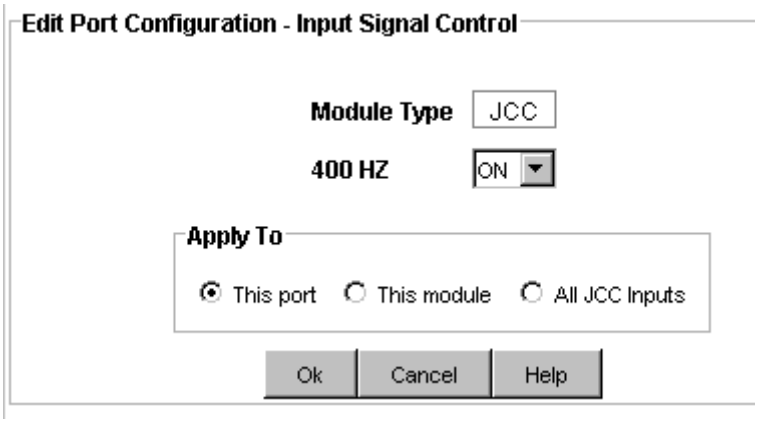
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All JCC Inputs (select this field to apply these settings to all JCC inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

3. Click **OK** to accept changes and return to the Port Configuration screen, or **Cancel** to return to the Port Configuration screen without saving changes.



Edit JCC Input Port Quality Control

Note: The **Current PQL** text box cannot be edited.

To configure the Input Port Quality Control:

1. Select a number (and clock information) from 1 to 9 in the **Provisioned PQL** drop-down box.

2. Select Mon (monitor only) or a number from 1 to 10 in the **Port Priority** drop-down box. 1 is the highest and 10 is the lowest order of reference selection.

3. Click one of the following in the **Apply To** field:

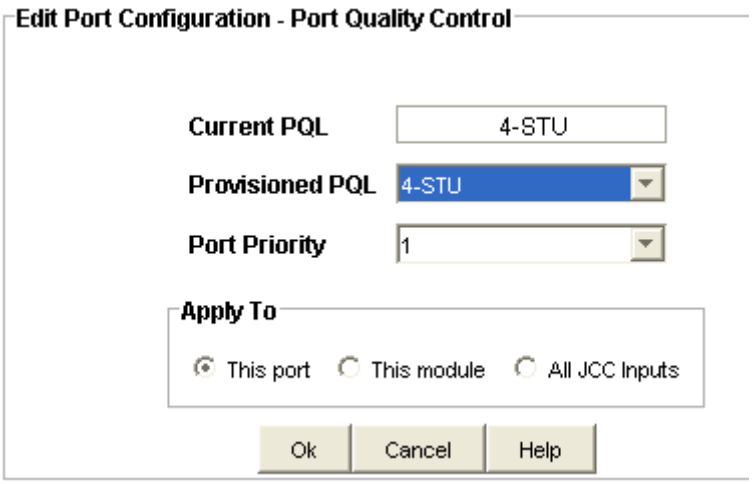
This Port (select this field to apply these settings to this port only)

This Module (select this field to apply these settings to this module only)

All JCC Inputs (select this field to apply these settings to all JCC inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

4. Click **OK** to accept changes and return to the Port Configuration screen, or **Cancel** to return to the Port Configuration screen without saving changes.



JCC Input Module Inventory

The Input Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Module Inventory	
AID	The Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Description	Displays type of module
Hardware Rev	Indicates the last revision date of the input module
Hardware Part	Indicates the part number of the specific revision
Serial	Indicates the input module serial number
Adapter	Indicates the adapter number
Date Last Reset	Indicates date of last module reset
Date Manufactured	Indicates when the module was manufactured
Software Rev	Indicates the latest revision level of the input module software
Software Part	Indicates the part number of the specific revision

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

JCC Module Configuration

JCC Input Module Configuration

The Input Module Configuration screen provides information on alarm elevation time and module status.

Alarm Elevation Time - This setting allows the alarm severity to increase over the specified time in seconds. The range is 60 to 500,000 seconds.

Module Status - This field indicates whether the clock module is activated (enabled) or not activated (disabled).

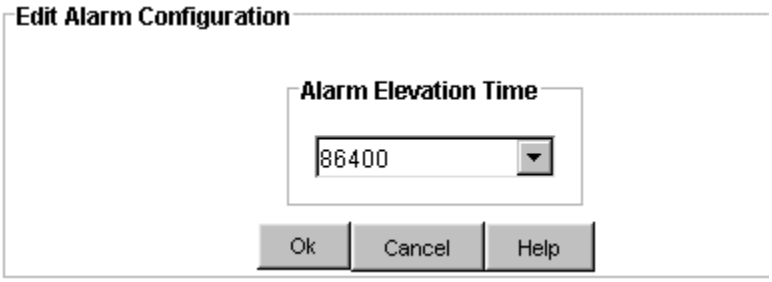
Click **Edit** to change the Module Configuration fields.

Edit JCC Input Alarm Elevation Time

To configure the alarm elevation time:

1. Select Disabled in the drop-down box to disable the alarm elevation time, or enter a time in seconds. The range is 60 to 500,000 seconds.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

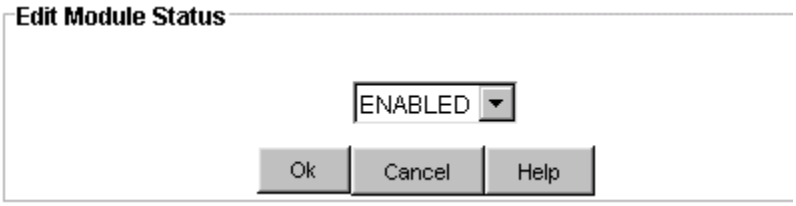


Edit JCC Module Status

To configure the module status:

1. Select ENABLED or DISABLED in the drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



JCC Input Module Advanced Functions

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Save User** - saves current module configuration as defined by user
- **Restore User** - restores last configuration saved by user
- **Restore Factory** - returns current module to factory default configuration

DS1/E1 Output Module

DS1 and E1 Output Module Status

The Output Module Status screen consists of three status information sections:

- Inventory Summary
- Module Status
- Alarm Status

Each field of the Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when **Refresh** is clicked (under **Connection** on the Main screen).

Field / Section	Description
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Module Status	
Status	The Status field indicates whether the selected output module is enabled or disabled.
PQL	The Priority Quality Level (PQL) is a Synchronization Status Message (SSM) table which allows for translation between DS1 and E1 SSM's.
Clock	The clock field displays installed clocks
Redundant to	This module and AID specified are redundant to each other

Alarm Status	
Alarm	This field displays the Output Module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active alarms are indicated.
Description	This field displays a description of each alarm indicated on the Output Module. Only active alarms are indicated. If no alarms are present, the first alarm description will read "None".
Level	This field indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Service Affecting	This field Indicates whether an alarm response message affects service. A response will display either a "Yes" or "No" message.
Message	This message further describes the alarm description

DS1 and E1 Output Port Configuration

The Port Configuration screen provides a view of the following output port settings:

- **Port** - Indicates port number.
- **Name** - Indicates user defined name for port number.
- **Status** - Indicates the current condition of the port. Messages include Enabled, Disabled, and Faulted. Disabled ports are highlighted in Red. Faulted states reflect severity of alarms: Critical - red, Major - orange, and Minor - amber.
- **Length** - Indicates output line length in feet. Line length is shown for DS1 only.

Click **Edit** to change the Port Configuration fields.

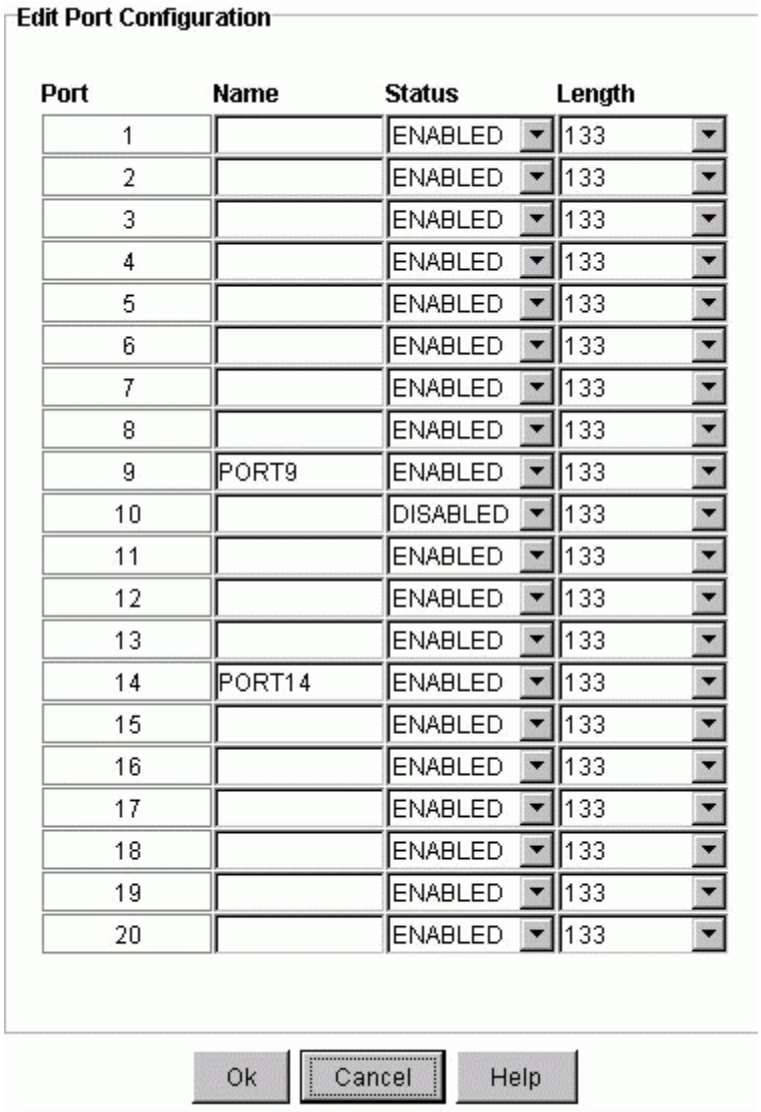
Edit DS1 and E1 Output Module Port Configuration

To edit the port configuration:

1. Enter a port name in the **Name** text box.
2. Select ENABLED or DISABLED in the **Status** drop-down box.
3. Select a line compensation length in the **Length** drop-down box. This is the length of the cable from the SSU-2000 to the network element being synchronized.

Note: The length parameter is only available with the DS1 output module.

4. Click **OK** to save changes and return to the Output Module Port Configuration screen or click **Cancel** to return without saving changes.



DS1 and E1 Output Module Alarm Configuration

The Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

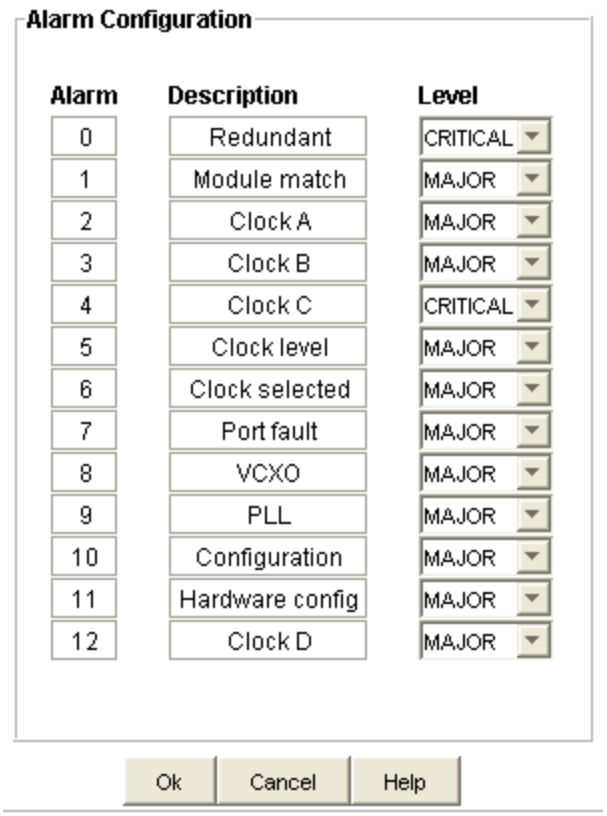
Section / Field	Description
Alarm Reporting	
Alarm	This field displays the output module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the output module. Only active alarms are indicated.
Level	This field indicates the severity of an alarm when it is first logged. Levels include: Critical, Major, Minor, Report and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.

Edit DS1 and E1 Output Module Alarm Configuration

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



DS1 and E1 Output Module Inventory

The Output Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Module Inventory	
AID	The Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Serial	Indicates the output module serial number
Date Last Reset	Indicates date of last module reset
Description	Displays type of module

Date Manufactured	Indicates when the module was manufactured
Hardware Rev	Indicates the last revision date of the output module
Software Rev	Indicates the latest revision level of the output module software
Hardware/Software Part	Indicates the part number of the specific revision
Adapter	Adapter panel type

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

DS1 and E1 Module Configuration

The Module Configuration screen provides information about the output module setup. Click **Edit** to make changes to the settings. The fields are described in the table below.

Field / Section	Description
Alarm Elevation	Number of seconds the alarm must persist before elevating to the next higher alarm level (or set to **DISABLE**)
Module Status	Shows module as being either **ENABLED** or **DISABLED**
Module Parameters	To set module parameters described below
Mode	Sets T1 framing mode to either ESF or D4
Min Clock	Sets minimum clock level to Acquire or Locked
Clk C Bypass	Enables or Disables bypass mode to support Clock C
Zero Suppression	Select ON (eliminates leading zeros) or select OFF
CRC Generation	Cyclic Redundancy Check - Select ON (verifies transmission) or OFF (CRC Generation is only shown for E1 outputs)
SSM Bit	Sets the E1 bit position to 4,5,6,7, or 8 (SSM Bit is only shown for E1 outputs)

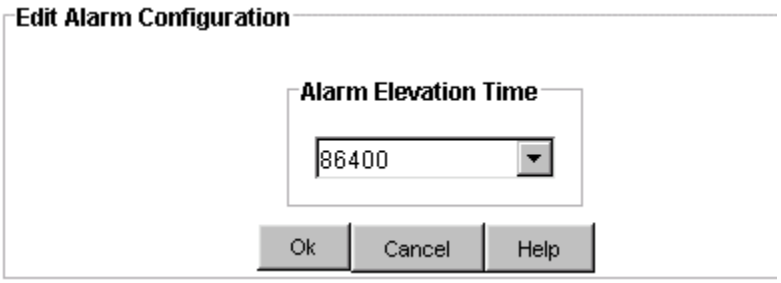
Edit DS1 and E1 Alarm Elevation Time

To configure the alarm elevation time:

1. Select DISABLED in the drop-down box to disable the alarm elevation time, or enter a time in seconds that the alarm must persist before elevating to the next higher alarm level. The range is 60 to 500,000 seconds.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Note: Alarm elevation may be set for each module on its Module Configuration panel, or for the entire system on the System Configuration panel.

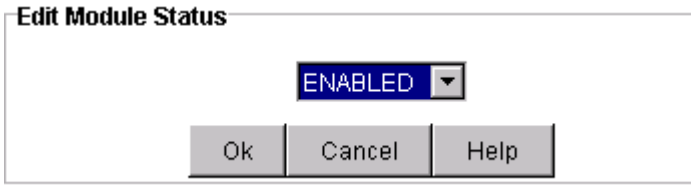


Edit DS1 and E1 Module Status

To configure the module status:

1. Select ENABLED or DISABLED in the drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



Edit DS1 and E1 Output Module Parameters

To change the module parameters:

1. Select the appropriate framing mode in the **Mode** drop-down box (ESF or D4 for DS1 modules and CCS or CAS for E1 modules).

2. Select Acquire or Locked in the **Min Clock** drop-down box.

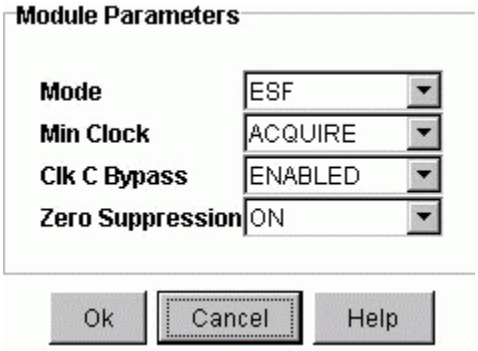
3. Select ENABLED or DISABLED in the **Clk C Bypass** drop-down box. Set to Enable when an initial input reference port is used as the Clock C pass through.

4. Select ON or OFF in the **Zero Suppression** drop-down box. ON eliminates leading zeros.

5. Select ON or OFF in the **CRC Generation** drop-down box (shown on E1 modules only). ON verifies correct transmission of data block.

6. Select numbers 4 through 8 in the **SSM Bit** drop-down box (shown on E1 modules only).

7. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



DS1 and E1 Output Module Advanced Functions

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Save User** - saves current module configuration as defined by user
- **Restore User** - restores last configuration saved by user
- **Restore Factory** - returns current module to factory default configuration

2048 Output Module

2048 Output Module Status

The Output Module Status screen consists of three status information sections:

- Inventory Summary
- Module Status
- Alarm Status

Each field of the Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when **Refresh** is clicked (under **Connection** on the Main screen).

Field / Section	Description
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Module Status	
Status	The Status field indicates whether the selected output module is enabled or disabled
PQL	The Priority Quality Level (PQL) is a Synchronization Status Message (SSM) table which allows for translation between DS1 and E1 SSM's
Clock	The clock field displays installed clocks
Redundant to	This module and AID specified are redundant to each other
Alarm Status	
Alarm	This field displays the 2048 Output Module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active alarms are indicated.
Description	This field displays a description of each alarm indicated on the 2048 Output Module. Only active alarms are indicated. If no alarms are present, the first alarm description will read "None".

Level	This field indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, and Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Service Affecting	This field Indicates whether an alarm response message affects service. A response will display either a "Yes" or "No" message.
Message	This message further describes the alarm description

2048 Output Module Port Configuration

The Port Configuration screen provides a view of the following output port settings:

- **Port** - Indicates port number.
- **Name** - Indicates user defined name for port number.
- **Status** - Indicates the current condition of the port. Messages include Enabled, Disabled, and Faulted. Disabled ports are highlighted in Red. Faulted states reflect severity of alarms: Critical - red, Major - orange, and Minor - amber.
- **Squelch** - Indicates the Priority Quality Level at which the port output is turned off.

Click **Edit** to change the Port Configuration fields.

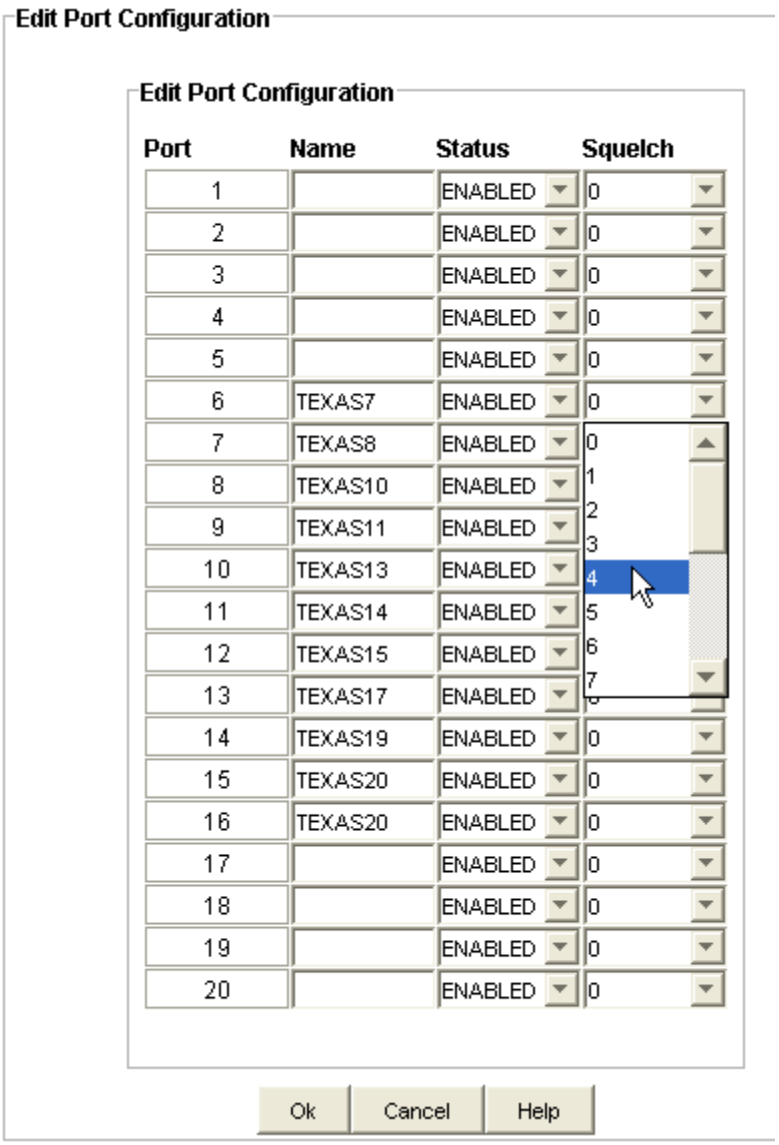
Edit 2048 Output Port Configuration

To edit the port configuration:

1. Enter a port name in the **Name** text box.
2. Select ENABLED or DISABLED in the **Status** drop-down box.
3. Select the port squelch value (0 through 16) in the **Squelch** drop-down box (0 disables squelch).

Note: The squelch setting is related to the Priority Quality Level and allows you to selectively turn off (squelch) the outputs during periods of degraded performance.

4. Click **OK** to save changes and return to the Output Module Port Configuration screen or click **Cancel** to return without saving changes.



2048 Output Module Alarm Configuration

The Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

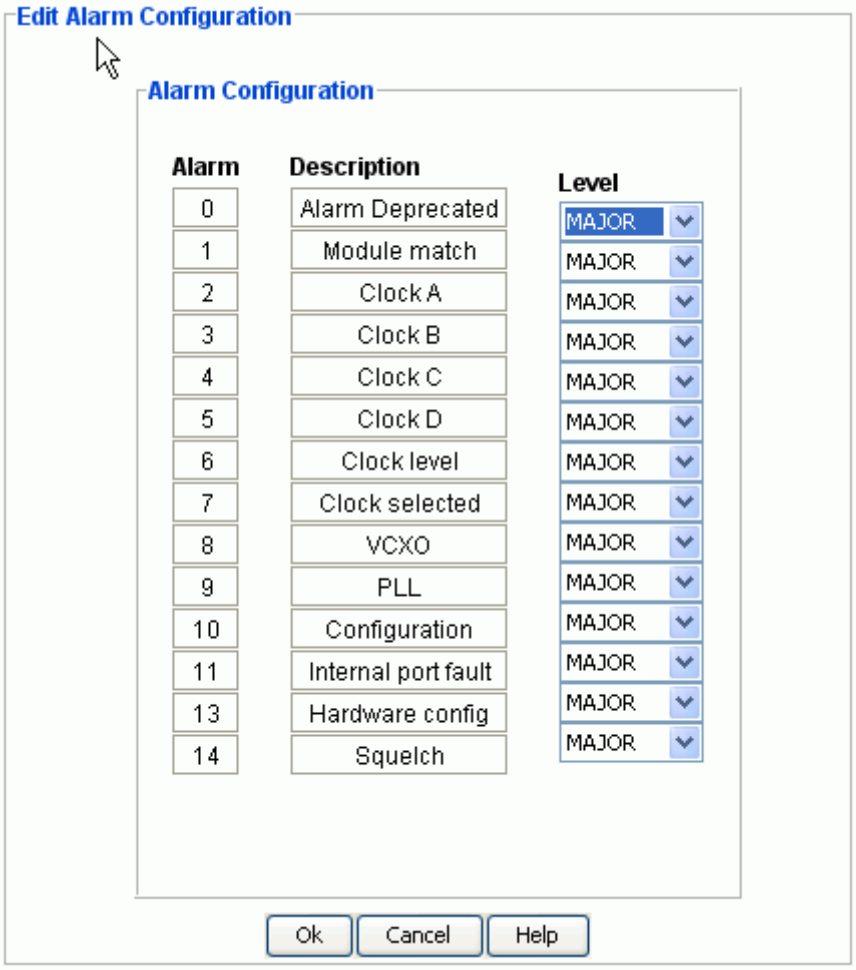
Section / Field	Description
Alarm Reporting	
Alarm	This field displays the output module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the output module. Only active alarms are indicated.
Level	This field indicates the severity of an alarm when it is first logged. Levels include: Critical, Major, Minor, Report and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.

Edit 2048 Output Module Alarm Configuration

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



2048 Output Module Inventory

The Output Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Inventory Data	
AID	Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000

Serial	Indicates the 2048 Output Module serial number
Date of Last Reset	Indicates date of last module reset
Description	Indicates module type
Date Manufactured	Indicates when the module was manufactured
Hardware Revision	Indicates the last revision date of the 2048 Output Module
Software Revision	Indicates the latest revision level of the 2048 Output Module software
Software / Hardware Part	Indicates the part number of the specific revision
Adapter	Adapter panel type

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

2048 Output Module Configuration

The Module Configuration screen provides information about the output module setup.

The fields are described in the table below.

Click **Edit** to make changes to the settings.

Field / Section	Description
Alarm Elevation Time	Number of seconds the alarm must persist before elevating to the next higher alarm level (or set to **DISABLE**)
Module Status	Shows module as being either **ENABLED** or **DISABLED**
Module Parameters	To set module parameters described below
Min Clock	Sets minimum clock level to Acquire or Locked
Clk C Bypass	Determines whether Clock C will be selected
Fault Mode	Determines output module port response to output faults

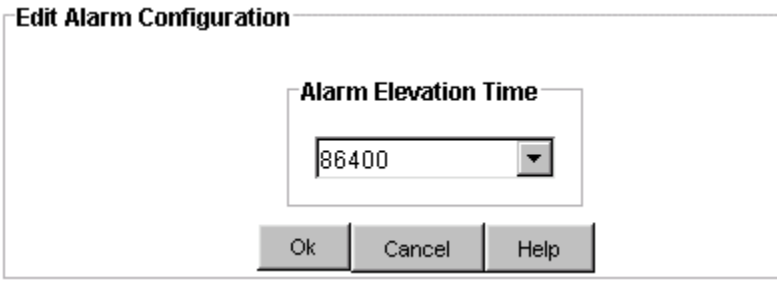
Edit 2048 Output Module Alarm Elevation Time

To configure the alarm elevation time:

1. Select Disabled in the drop-down box to disable the alarm elevation time, or enter a time in seconds that the alarm must persist before elevating to the next higher alarm level. The range is 60 to 500,000 seconds.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Note: Alarm elevation may be set for each module on its Module Configuration panel, or for the entire system on the System Configuration panel.

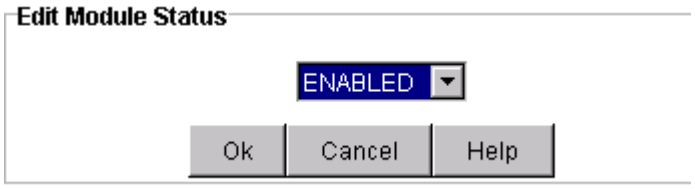


Edit 2048 Output Module Status

To configure the module status:

1. Select ENABLED or DISABLED in the drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



Edit 2048 Output Module Parameters

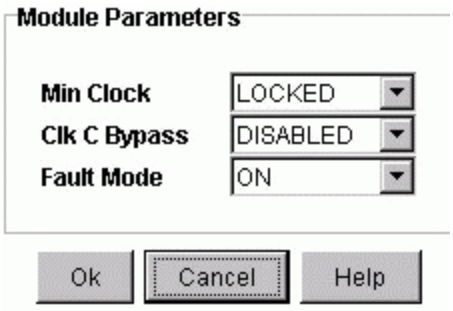
To change the module parameters:

1. Select Acquire or Locked in the **Min Clock** drop-down box.

2. Select ENABLED or DISABLED in the **Clk C Bypass** drop-down box. Set to Enable when an initial input reference port is used as the Clock C pass through.

3. Select ON, OFF, or AUTOMATIC in the **Fault Mode** drop-down box (shown on E1 modules only).

4. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



2048 Advanced Functions

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Save User** - saves current module configuration as defined by user
- **Restore User** - restores last configuration saved by user
- **Restore Factory** - returns current module to factory default configuration

JSW Output Module

JSW Output Module Status

The Output Module Status screen consists of three status information sections:

- Inventory Summary
- Module Status
- Alarm Status

Each field of the Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when **Refresh** is clicked (under **Connection** on the Main screen).

Field / Section	Description
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Module Status	
Status	The Status field indicates whether the selected output module is enabled or disabled.
PQL	The Priority Quality Level (PQL) is a Synchronization Status Message (SSM) table which allows for translation between DS1 and E1 SSM's**.**
Clock	The clock field displays installed clocks
Redundant to	This module and AID specified are redundant to each other
Alarm Status	
Alarm	This field displays the Output Module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active alarms are indicated.
Description	This field displays a description of each alarm indicated on the Output Module. Only active alarms are indicated. If no alarms are present, the first alarm description will read "None".
Level	This field indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Service Affecting	This field Indicates whether an alarm response message affects service. A response will display either a "Yes" or "No" message.
Message	This message further describes the alarm description

JSW Output Port Configuration

The Port Configuration screen provides a view of the following output port settings:

- **Port** - Indicates port number.
- **Name** - Indicates user defined name for port number.
- **Status** - Indicates the current condition of the port. Messages include Enabled, Disabled, and Faulted. Disabled ports are highlighted in Red. Faulted states reflect severity of alarms: Critical - red, Major - orange, and Minor - amber.

- **Squelch** - Allows you to selectively turn off (squelch) any of the 20 output ports during periods of degraded performance. Zero disables the squelch function. Values above zero set the PQL threshold level and enable the squelch function. When the system PQL is greater than the threshold PQL, the output is squelched.

Click **Edit** to change the Port Configuration fields.

Edit JSW Output Module Port Configuration

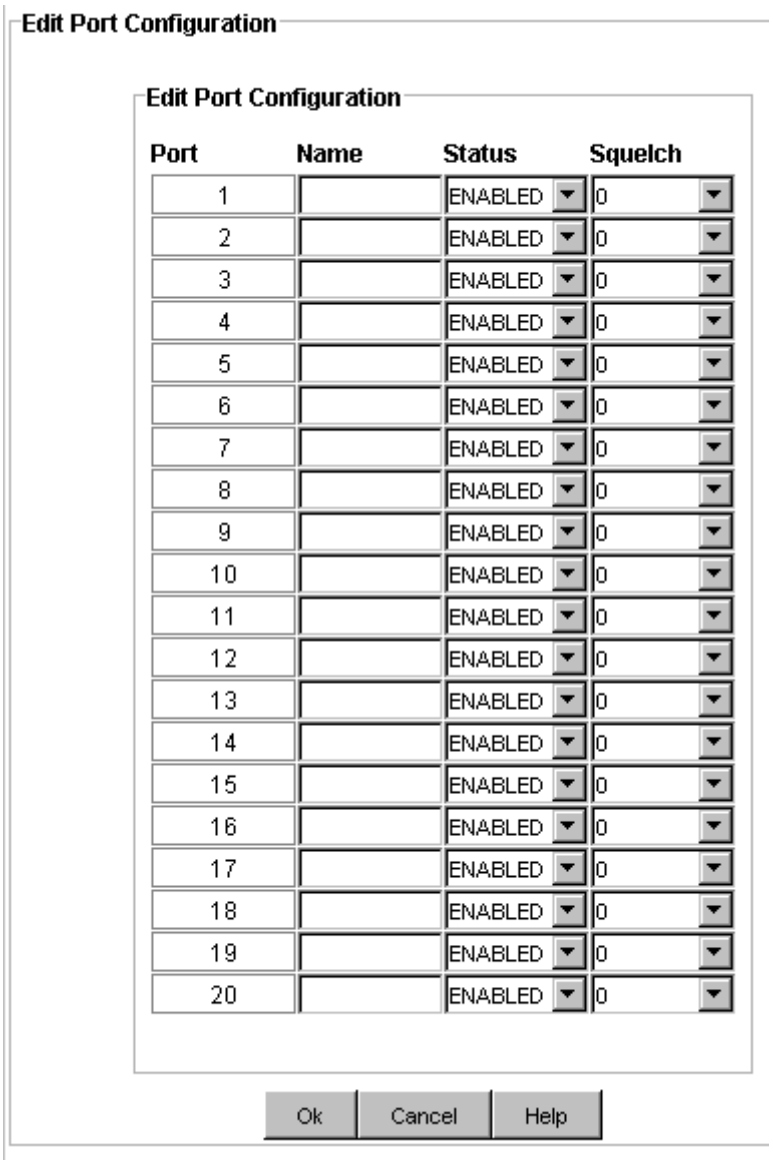
To edit the port configuration:

1. Enter a port name in the **Name** text box.

2. Select ENABLED or DISABLED in the **Status** drop-down box.

3. Select a squelch value in the **Squelch** drop-down box. Zero disables the squelch function. Values above zero set the PQL threshold level and enable the squelch function. When the system PQL is greater than the threshold PQL, the output is squelched.

4. Click **OK** to save changes and return to the Output Module Port Configuration screen or click **Cancel** to return without saving changes.



JSW Output Module Alarm Configuration

The Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

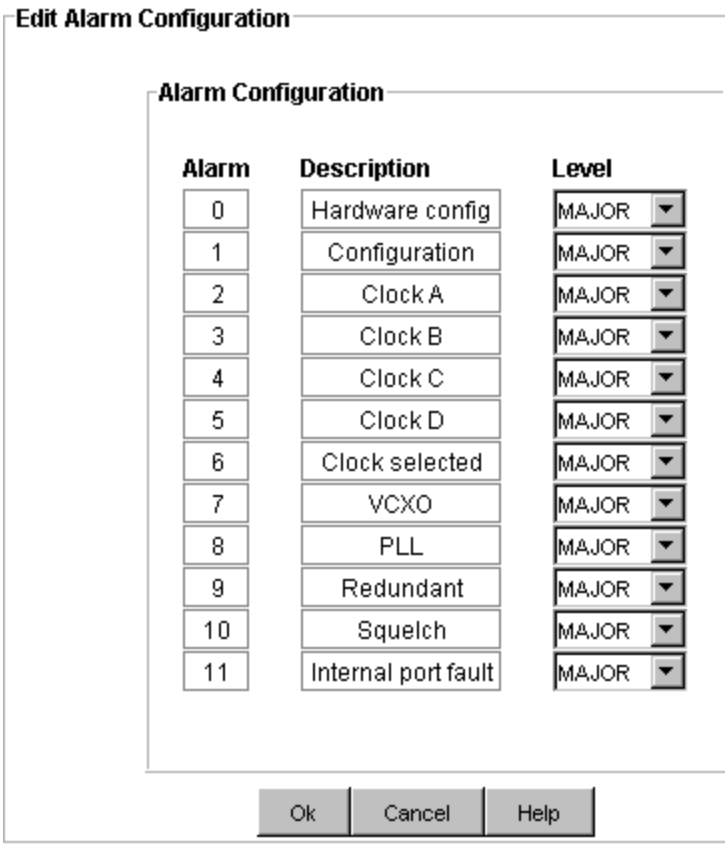
Section / Field	Description
Alarm Reporting	
Alarm	This field displays the output module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the output module. Only active alarms are indicated.
Level	This field indicates the severity of an alarm when it is first logged. Levels include: Critical, Major, Minor, Report and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.

Edit JSW Output Module Alarm Configuration

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



JSW Output Module Inventory

The Output Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Inventory Data	
AID	The Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Serial	Indicates the output module serial number
Date Last Reset	Indicates date of last module reset

Description	Displays type of module
Date Manufactured	Indicates when the module was manufactured
Hardware Rev	Indicates the last revision date of the output module
Software Rev	Indicates the latest revision level of the output module software
Hardware/Software Part	Indicates the part number of the specific revision

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

JSW Output Module Configuration

The Module Configuration screen provides information about the output module setup. Click **Edit** to make changes to the settings. The fields are described in the table below.

Field / Section	Description
Alarm Elevation	Number of seconds the alarm must persist before elevating to the next higher alarm level (or set to **DISABLE**)
Module Status	Shows module as being either **ENABLED** or **DISABLED**
Module Parameters	To set module parameters described below
Frequency	Set the module frequency to either 1.544 or 6.312 MHz.
Clk C Bypass	Enables or Disables bypass mode to support Clock C

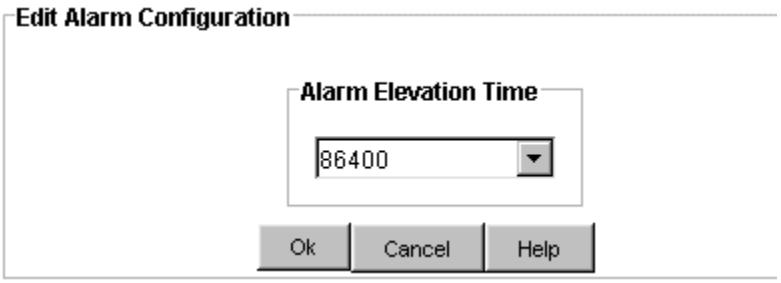
Edit JSW Output Module Alarm Elevation Time

To configure the alarm elevation time:

1. Select DISABLED in the drop-down box to disable the alarm elevation time, or enter a time in seconds that the alarm must persist before elevating to the next higher alarm level. The range is 60 to 500,000 seconds.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Note: Alarm elevation may be set for each module on its Module Configuration panel, or for the entire system on the System Configuration panel.

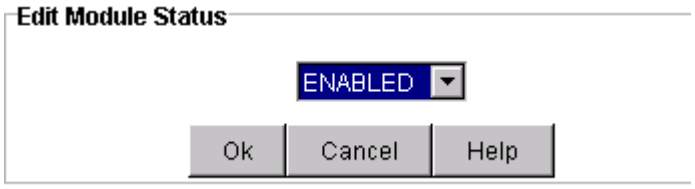


Edit JSW Output Module Status

To configure the module status:

1. Select ENABLED or DISABLED in the drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



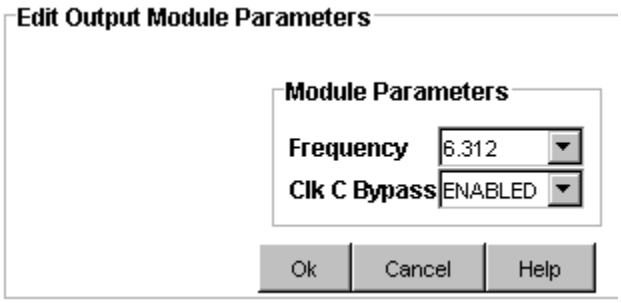
Edit JSW Output Module Parameters

To change the module parameters:

1. Select the appropriate frequency in the **Frequency** drop-down box (1.544 or 6.312).

2. Select ENABLED or DISABLED in the **Clk C Bypass** drop-down box. Set to Enable when an initial input reference port is used as the Clock C pass through.

3. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



JSW Output Module Advanced Functions

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Save User** - saves current module configuration as defined by user
- **Restore User** - restores last configuration saved by user
- **Restore Factory** - returns current module to factory default configuration

Composite Clock Output Module

Composite Clock Output Module Status

The Output Module Status screen consists of three status information sections:

- Inventory Summary
- Module Status
- Alarm Status

Each field of the Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when **Refresh** is clicked (under **Connection** on the Main screen).

Field / Section	Description
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Module Status	
Status	The Status field indicates whether the selected output module is enabled or disabled.
PQL	The Priority Quality Level (PQL) is a Synchronization Status Message (SSM) table which allows for translation between DS1 and E1 SSM's.
Clock	The clock field displays installed clocks
Redundant to	This module and AID specified are redundant to each other
Alarm Status	
Alarm	This field displays the composite clock module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active alarms are indicated.
Description	This field displays a description of each alarm indicated on the composite clock module. Only active alarms are indicated. If no alarms are present, the first alarm description displays **None**.
Level	This field indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, and Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Service Affecting	This field Indicates whether an alarm response message affects service. A response will display either a "Yes" or "No" message.
Message	This message further describes the alarm description

Composite Clock Output Module Port Configuration

The Port Configuration screen provides a view of the following output port settings:

- **Port** - Indicates port number.
- **Name** - Indicates user defined name for port number.
- **Status** - Indicates the current condition of the port. Messages include ENABLED, DISABLED, and FAULTED. Disabled ports are highlighted in Red. Faulted states reflect severity of alarms: Critical - red, Major - orange, and Minor - amber.
- **Line Comp** - Output line length in increments of 500 feet

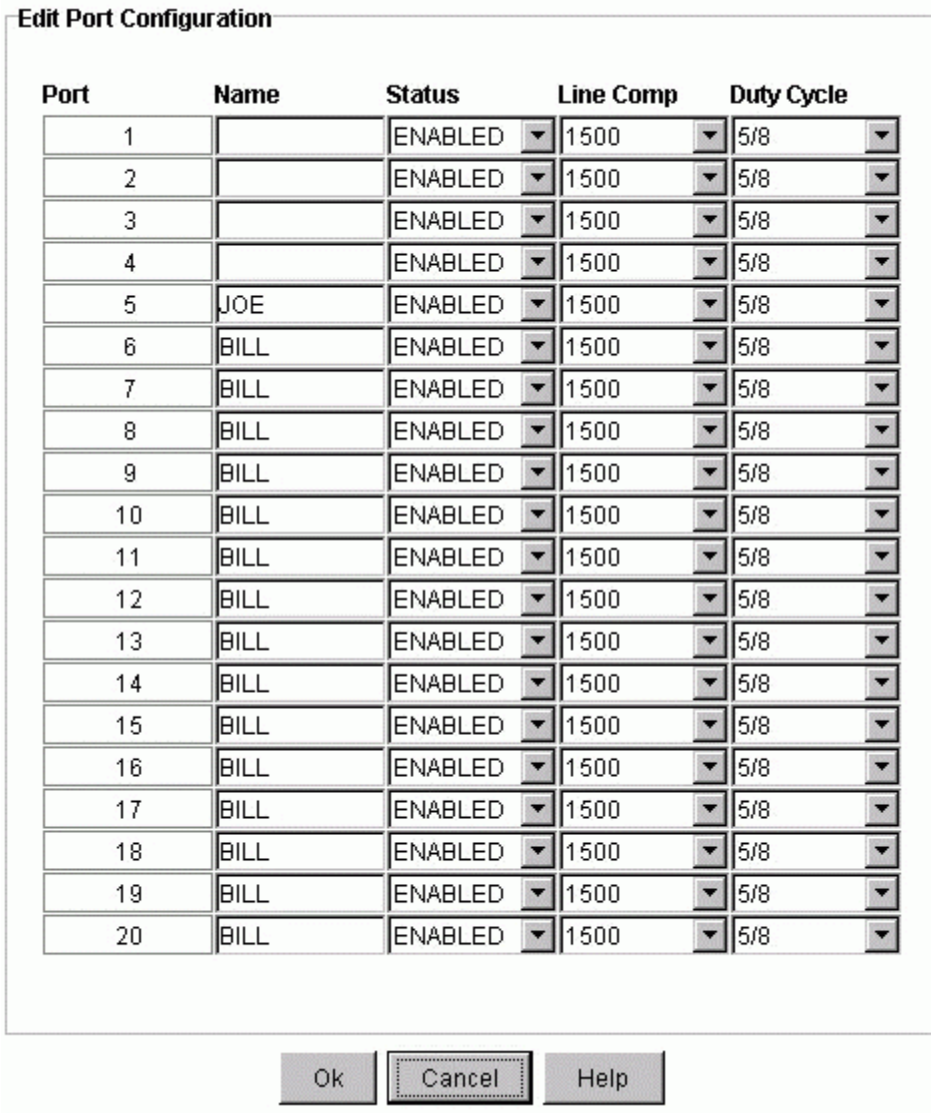
- **Duty Cycle** - 50/50 or 63/37

Click **Edit** to change the Port Configuration fields.

Edit Composite Clock Module Port Configuration

To edit the port configuration:

1. Enter a port name in the **Name** text box.
2. Select ENABLED or DISABLED in the **Status** drop-down box.
3. Select a line compensation in the **Line Comp** drop-down box.
4. Select a duty cycle in the **Duty Cycle** drop-down box.
5. Click **OK** to save changes and return to the Output Module Port Configuration screen or click **Cancel** to return without saving changes.



Edit Port Configuration

Port	Name	Status	Line Comp	Duty Cycle
1		ENABLED	1500	5/8
2		ENABLED	1500	5/8
3		ENABLED	1500	5/8
4		ENABLED	1500	5/8
5	JOE	ENABLED	1500	5/8
6	BILL	ENABLED	1500	5/8
7	BILL	ENABLED	1500	5/8
8	BILL	ENABLED	1500	5/8
9	BILL	ENABLED	1500	5/8
10	BILL	ENABLED	1500	5/8
11	BILL	ENABLED	1500	5/8
12	BILL	ENABLED	1500	5/8
13	BILL	ENABLED	1500	5/8
14	BILL	ENABLED	1500	5/8
15	BILL	ENABLED	1500	5/8
16	BILL	ENABLED	1500	5/8
17	BILL	ENABLED	1500	5/8
18	BILL	ENABLED	1500	5/8
19	BILL	ENABLED	1500	5/8
20	BILL	ENABLED	1500	5/8

Ok Cancel Help

Composite Clock Output Alarm Configuration

The Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

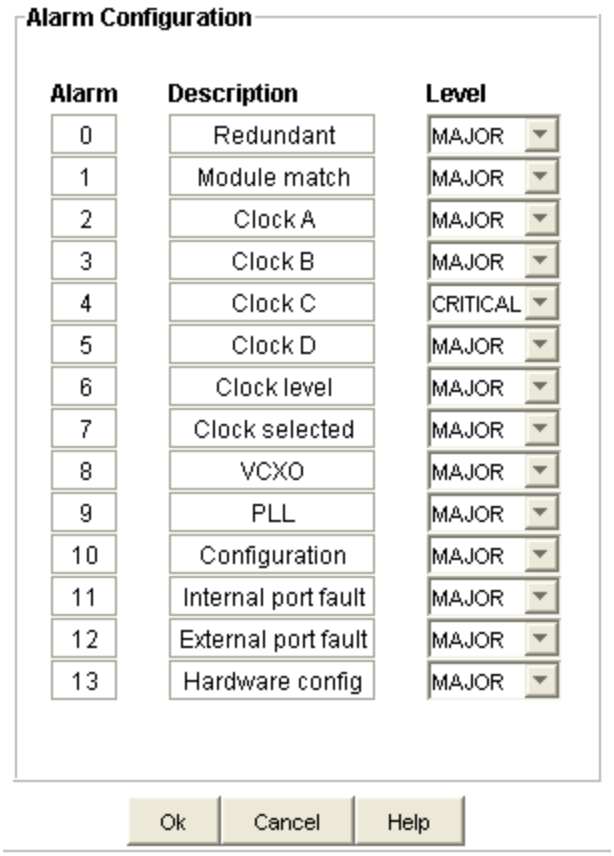
Section / Field	Description
Alarm Reporting	
Alarm	This field displays the output module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the output module. Only active alarms are indicated.
Level	This field indicates the severity of an alarm when it is first logged. Levels include: Critical, Major, Minor, Report and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.

Edit Composite Clock Output Alarm Configuration

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



Composite Clock Output Module Inventory

The Output Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Inventory Data	
AID	Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Serial	Indicates the Composite Clock module serial number
Date of Last Reset	Indicates date of last module reset

Description	Indicates module type
Date Manufactured	Indicates when the module was manufactured
Hardware Revision	Indicates the last revision date of the clock module
Software Revision	Indicates the latest revision level of the Composite Clock module software
Software / Hardware Part	Indicates the part number of the specific revision
Adapter	Adapter panel type

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

Composite Clock Output Module Configuration

The Module Configuration screen provides information about the output module setup.

The fields are described in the table below.

Click **Edit** to make changes to the settings.

Field / Section	Description
Alarm Elevation Time	Number of seconds the alarm must persist before elevating to the next higher alarm level (or set to DISABLE)
Module Status	ENABLED or DISABLED
Module Parameters	To set module parameters described below
Min Clock	Acquired, or Locked
Clk C Bypass	Enabled or Disabled

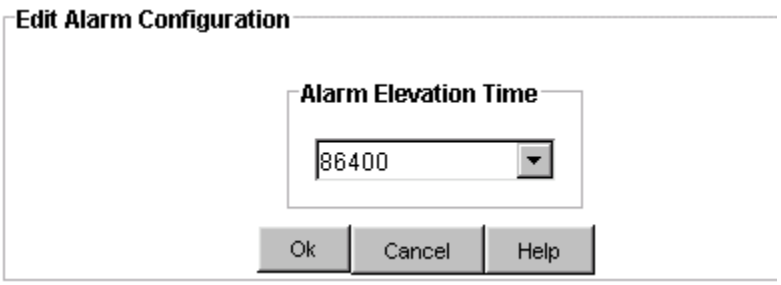
Edit Composite Clock Output Module Alarm Elevation Time

To configure the alarm elevation time:

1. Select Disabled in the drop-down box to disable the alarm elevation time, or enter a time in seconds that the alarm must persist before elevating to the next higher alarm level. The range is 60 to 500,000 seconds.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Note: Alarm elevation may be set for each module on its Module Configuration panel, or for the entire system on the System Configuration panel.

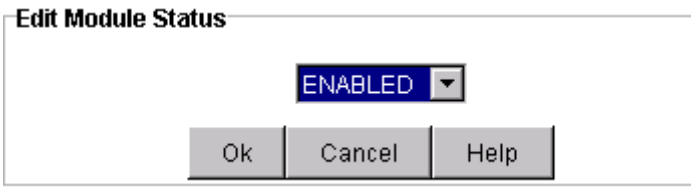


Edit Composite Clock Output Module Status

To configure the module status:

1. Select ENABLED or DISABLED in the drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



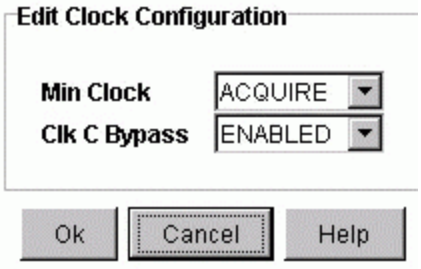
Edit Composite Clock Output Module Parameters

To change the module parameters:

1. Select Acquire or Locked in the **Min Clock** drop-down box.

2. Select ENABLED or Disabled in the **Clk C Bypass** drop-down box. Set to Enable when an initial input reference port is used as the Clock C pass through.

3. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



Composite Clock Output Module Advanced Functions

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Save User** - saves current module configuration as defined by user
- **Restore User** - restores last configuration saved by user
- **Restore Factory** - returns current module to factory default configuration

JCC Output Module

JCC Output Module Status

The Output Module Status screen consists of three status information sections:

- Inventory Summary
- Module Status
- Alarm Status

Each field of the Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when **Refresh** is clicked (under **Connection** on the Main screen).

Field / Section	Description
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software

Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Module Status	
Status	The Status field indicates whether the selected output module is enabled or disabled.
PQL	The Priority Quality Level (PQL) is a Synchronization Status Message (SSM) table which allows for translation between DS1 and E1 SSM's**.**
Clock	The clock field displays installed clocks
Redundant to	This module and AID specified are redundant to each other
Alarm Status	
Alarm	This field displays the composite clock module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active alarms are indicated.
Description	This field displays a description of each alarm indicated on the composite clock module. Only active alarms are indicated. If no alarms are present, the first alarm description displays **None**.
Level	This field indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, and Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Service Affecting	This field Indicates whether an alarm response message affects service. A response will display either a "Yes" or "No" message.
Message	This message further describes the alarm description

JCC Output Module Port Configuration

The Port Configuration screen provides a view of the following output port settings:

- **Port** - Indicates port number.
- **Name** - Indicates user defined name for port number.
- **Status** - Indicates the current condition of the port. Messages include ENABLED, DISABLED, and FAULTED. Disabled ports are highlighted in Red. Faulted states reflect severity of alarms: Critical - red, Major - orange, and Minor - amber.
- **Line Comp** - Output line length in increments of 500 feet

Click **Edit** to change the Port Configuration fields.

Edit JCC Module Port Configuration

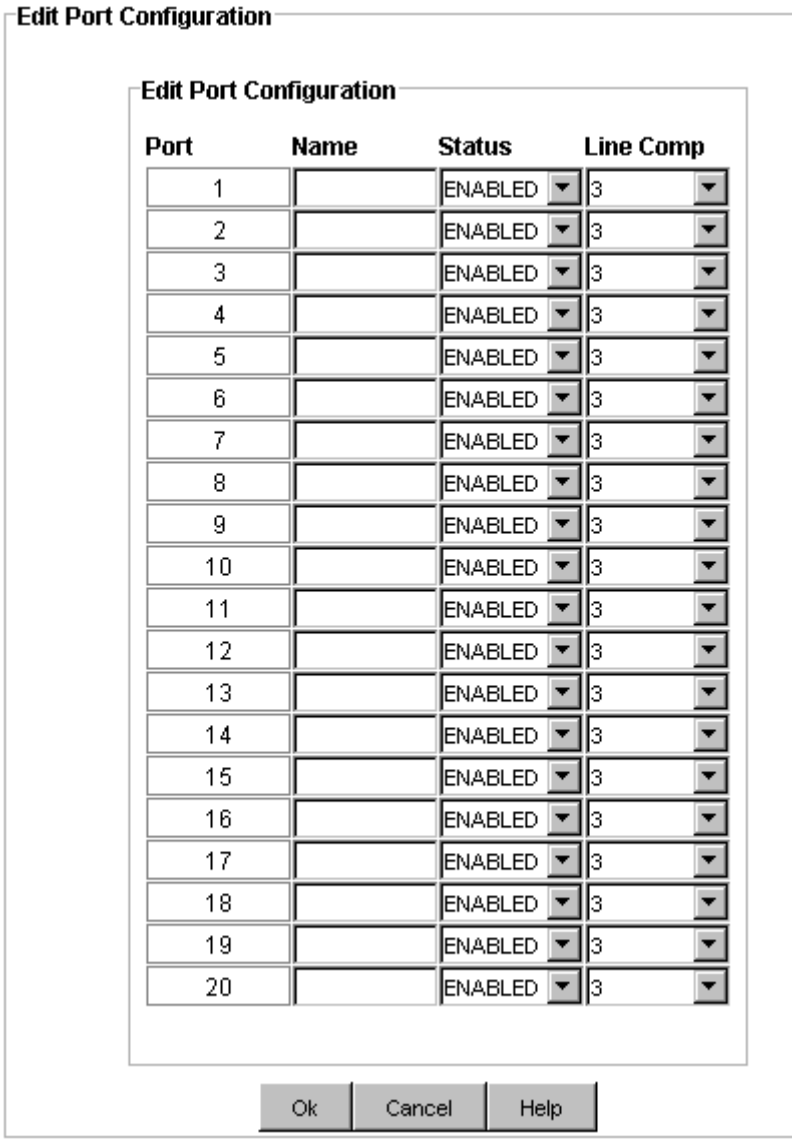
To edit the port configuration:

1. Enter a port name in the **Name** text box.

2. Select ENABLED or DISABLED in the **Status** drop-down box.

3. Select a line compensation in the **Line Comp** drop-down box.

4. Click **OK** to save changes and return to the Output Module Port Configuration screen or click **Cancel** to return without saving changes.



JCC Output Alarm Configuration

The Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

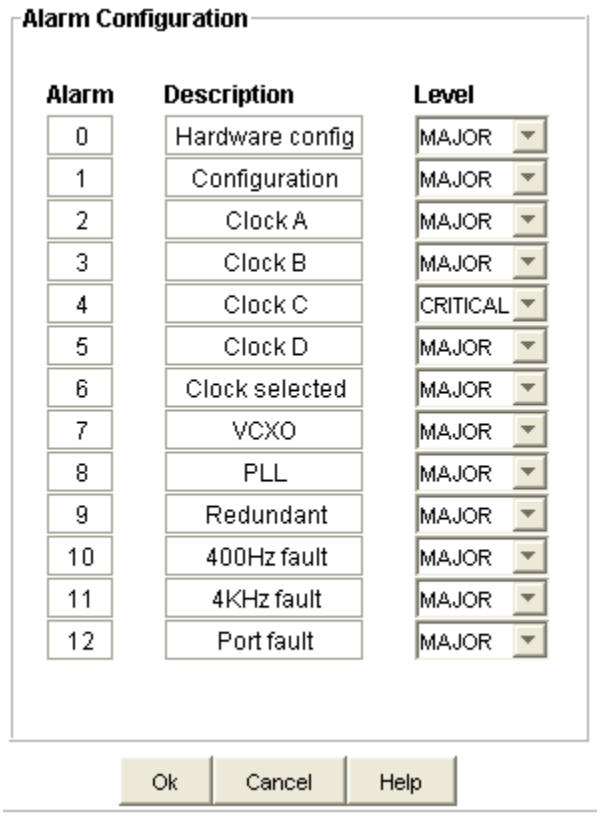
Section / Field	Description
Alarm Reporting	
Alarm	This field displays the output module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the output module. Only active alarms are indicated.
Level	This field indicates the severity of an alarm when it is first logged. Levels include: Critical, Major, Minor, Report and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.

Edit JCC Output Alarm Configuration

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



JCC Output Module Inventory

The Output Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Inventory Data	
AID	Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Serial	Indicates the Composite Clock module serial number
Date of Last Reset	Indicates date of last module reset
Description	Indicates module type

Date Manufactured	Indicates when the module was manufactured
Hardware Revision	Indicates the last revision date of the clock module
Software Revision	Indicates the latest revision level of the Composite Clock module software
Software / Hardware Part	Indicates the part number of the specific revision
Adapter	Adapter panel type

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

JCC Output Module Advanced Functions

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Save User** - saves current module configuration as defined by user
- **Restore User** - restores last configuration saved by user
- **Restore Factory** - returns current module to factory default configuration

JCC Output Module Configuration

The Module Configuration screen provides information about the output module setup.

The fields are described in the table below.

Click **Edit** to make changes to the settings.

Field / Section	Description
Alarm Elevation Time	Number of seconds the alarm must persist before elevating to the next higher alarm level (or set to DISABLE)
Module Status	ENABLED or DISABLED
Module Parameters	To set module parameters described below
400 Hz BPV	ENABLE or DISABLE the 400 Hz Bipolar Violation
Clk C Bypass	ENABLE or DISABLE the Clock C Bypass

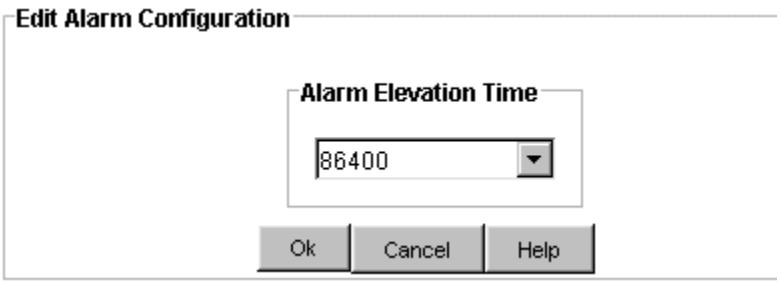
Edit JCC Output Module Alarm Elevation Time

To configure the alarm elevation time:

1. Select Disabled in the drop-down box to disable the alarm elevation time, or enter a time in seconds that the alarm must persist before elevating to the next higher alarm level. The range is 60 to 500,000 seconds.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Note: Alarm elevation may be set for each module on its Module Configuration panel, or for the entire system on the System Configuration panel.

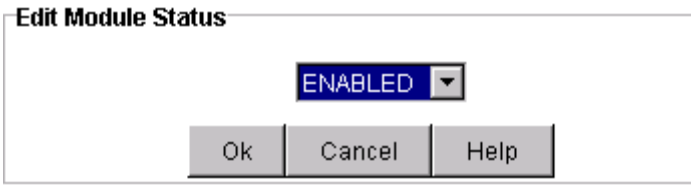


Edit JCC Output Module Status

To configure the module status:

1. Select ENABLED or DISABLED in the drop-down box.

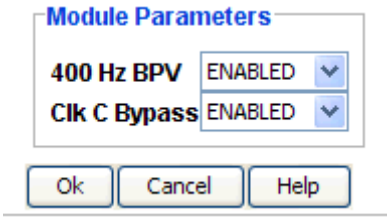
2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



Edit JCC Output Module Parameters

To change the module parameters:

1. Select ENABLED or DISABLED in the **400 Hz BPV** drop-down box.
2. Select ENABLED or DISABLED in the **Clk C Bypass** drop-down box. Set to Enable when an initial input reference port is used as the Clock C pass through.
3. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



RS-422 Output Module

RS-422 Output Module Status

The Output Module Status screen consists of three status information sections:

- Inventory Summary
- Module Status
- Alarm Status

Each field of the Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when **Refresh** is clicked (under **Connection** on the Main screen).

Field / Section	Description
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Module Status	
Status	The Status field indicates whether the selected output module is enabled or disabled
PQL	The Priority Quality Level (PQL) is a Synchronization Status Message (SSM) table which allows for translation between DS1 and E1 SSM's
Clock	The clock field displays installed clocks
Redundant to	This module and AID specified are redundant to each other
Alarm Status	
Alarm	This field displays the RS-422 Output Module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active alarms are indicated.
Description	This field displays a description of each alarm indicated on the RS-422 Output Module. Only active alarms are indicated. If no alarms are present, the first alarm description will read "None".
Level	This field indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, and Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Service Affecting	This field Indicates whether an alarm response message affects service. A response will display either a "Yes" or "No" message.
Message	This message further describes the alarm description

RS-422 Output Module Port Configuration

The Port Configuration screen provides a view of the following output port settings:

- **Port** - Indicates port number.
- **Name** - Indicates user defined name for port number.
- **Status** - Indicates the current condition of the port. Messages include Enabled, Disabled, and Faulted. Disabled ports are highlighted in Red. Faulted states reflect severity of alarms: Critical - red, Major - orange, and Minor - amber.
- **Freq** - Indicates frequency for a particular port.

Click **Edit** to change the Port Configuration fields.

Edit RS-422 Output Port Configuration

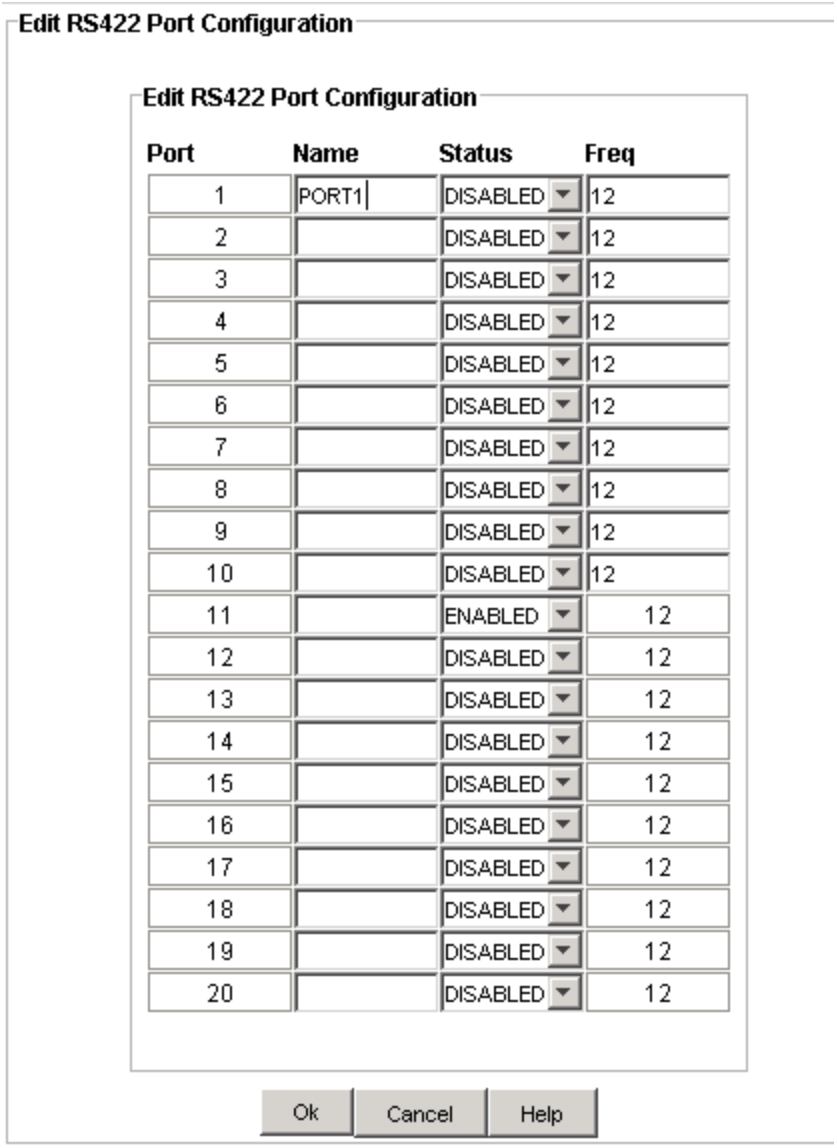
To edit the port configuration:

1. Enter a port name in the **Name** text box.

2. Select ENABLED or DISABLED in the **Status** drop-down box.

3. Type a frequency in the **Freq** text box. Frequency is set to values of 1 to 512, which correspond to 8 to 4096 kHz in 8 kHz increments. The frequency selected for port 1 (balanced) is also present on port 11 (single-ended); the frequency selected for port 2 determines the frequency for port 12; and so on.

4. Click **OK** to save changes and return to the Output Module Port Configuration screen or click **Cancel** to return without saving changes.



RS-422 Output Module Alarm Configuration

The Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

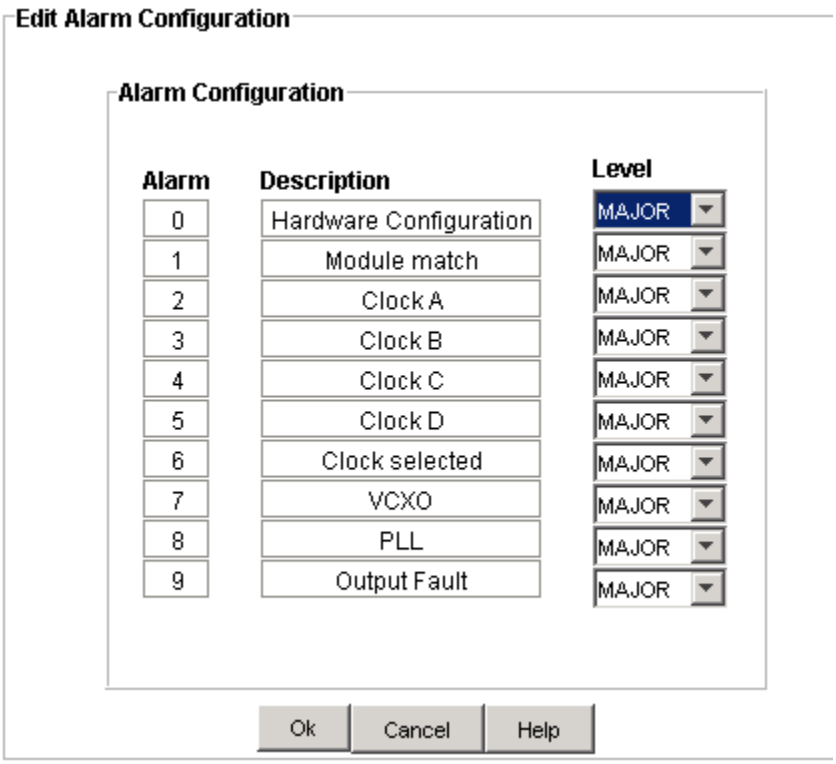
Section / Field	Description
Alarm Reporting	
Alarm	This field displays the output module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the output module. Only active alarms are indicated.
Level	This field indicates the severity of an alarm when it is first logged. Levels include: Critical, Major, Minor, Report and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.

Edit RS-422 Output Module Alarm Configuration

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



RS-422 Output Module Inventory

The Output Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Inventory Data	
AID	Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Serial	Indicates the RS-422 Output Module serial number
Date of Last Reset	Indicates date of last module reset
Description	Indicates module type
Date Manufactured	Indicates when the module was manufactured

Hardware Revision	Indicates the revision level of the RS-422 Output Module
Software Revision	Indicates the latest revision level of the RS-422 Output Module software
Software / Hardware Part	Indicates the part number of the specific revision

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

RS-422 Output Module Configuration

The Module Configuration screen provides information about the output module setup.

The fields are described in the table below.

Click **Edit** to make changes to the settings.

Field / Section	Description
Alarm Elevation Time	Number of seconds the alarm must persist before elevating to the next higher alarm level (or set to **DISABLE**)
Module Status	Shows module as being either **ENABLED** or **DISABLED**
Module Parameters	To set module parameters described below
Mode	Set to 422 (only selection)
Clk C Bypass	Determines whether Clock C will be selected
FLT Mode	Determines output module port response to output faults

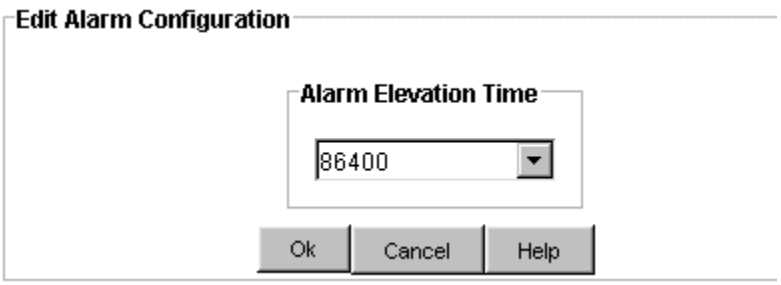
Edit RS-422 Output Module Alarm Elevation Time

To configure the alarm elevation time:

1. Select Disabled in the drop-down box to disable the alarm elevation time, or enter a time in seconds that the alarm must persist before elevating to the next higher alarm level. The range is 60 to 500,000 seconds.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Note: Alarm elevation may be set for each module on its Module Configuration panel, or for the entire system on the System Configuration panel.

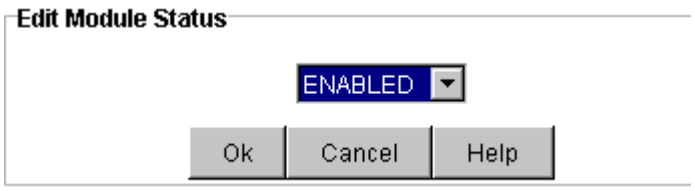


Edit RS-422 Output Module Status

To configure the module status:

1. Select ENABLED or DISABLED in the drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



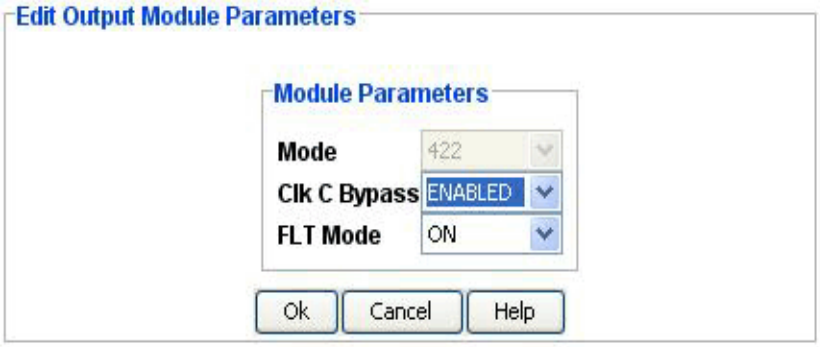
Edit RS-422 Output Module Parameters

To change the module parameters:

1. Select ENABLED or DISABLED in the **Clk C Bypass** drop-down box. Set to Enable when an initial input reference port is used as the Clock C pass through.

2. Select ON, OFF, or AUTO in the **FLT Mode** drop-down box.

3. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



RS-422 Advanced Functions

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Save User** - saves current module configuration as defined by user
- **Restore User** - restores last configuration saved by user
- **Restore Factory** - returns current module to factory default configuration

E1/2048 Output Module

E1/2048 Output Module Status

The Output Module Status screen consists of three status information sections:

- Inventory Summary
- Module Status
- Alarm Status

Each field of the Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when **Refresh** is clicked (under **Connection** on the Main screen).

Field / Section	Description
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Module Status	
Status	The Status field indicates whether the selected output module is enabled or disabled.
PQL	The Priority Quality Level (PQL) is a Synchronization Status Message (SSM) table which allows for translation between DS1 and E1 SSM's**.**
Clock	The clock field displays installed clocks
Redundant to	This module and AID specified are redundant to each other
Alarm Status	
Alarm	This field displays the Output Module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active alarms are indicated.
Description	This field displays a description of each alarm indicated on the Output Module. Only active alarms are indicated. If no alarms are present, the first alarm description will read "None".
Level	This field indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Service Affecting	This field Indicates whether an alarm response message affects service. A response will display either a "Yes" or "No" message.
Message	This message further describes the alarm description

E1/2048 Output Port Configuration

The Port Configuration screen provides a view of the following output port settings:

- **Port** - Indicates port number.
- **Name** - Indicates user defined name for port number.
- **Status** - Indicates the current condition of the port. Messages include Enabled, Disabled, and Faulted. Disabled ports are highlighted in Red. Faulted states reflect severity of alarms: Critical - red, Major - orange, and Minor - amber.
- **Signal** - Indicates the port signal type, E1 or 2048 kHz

- **Squelch** - Indicates the Priority Quality Level at which the port output is turned off.

Click **Edit** to change the Port Configuration fields.

Edit E1/2048 Output Module Port Configuration

To edit the port configuration:

1. Enter a port name in the **Name** text box.
2. Select ENABLED or DISABLED in the **Status** drop-down box.
3. Select the port signal in the **Signal** drop-down box (either E1 or 2048 kHz).
4. Select the port squelch value (0 through 16) in the **Squelch** drop-down box (0 disables squelch).

Note: The squelch setting is related to the Priority Quality Level and allows you to selectively turn off (squelch) the outputs during periods of degraded performance.

5. Click **OK** to save changes and return to the Output Module Port Configuration screen or click **Cancel** to return without saving changes.

Edit Output Port Parameters

Port	Name	Status	Signal	Squelch
1	TEST	ENABLED	E1	0
2	TEST2	ENABLED	E1	0
3	TEST3	ENABLED	2048	0
4	TEST4	ENABLED	E1	0
5		ENABLED	E1	0
6		ENABLED	E1	0
7		ENABLED	E1	0
8		ENABLED	E1	0
9		ENABLED	E1	0
10		ENABLED	E1	0
11		ENABLED	E1	0
12		ENABLED	E1	0
13		ENABLED	E1	0
14		ENABLED	E1	0
15		ENABLED	E1	0
16		ENABLED	E1	0
17		ENABLED	E1	0
18		ENABLED	E1	0
19		ENABLED	E1	0
20		ENABLED	E1	0

Ok Cancel Help

E1/2048 Output Module Alarm Configuration

The Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

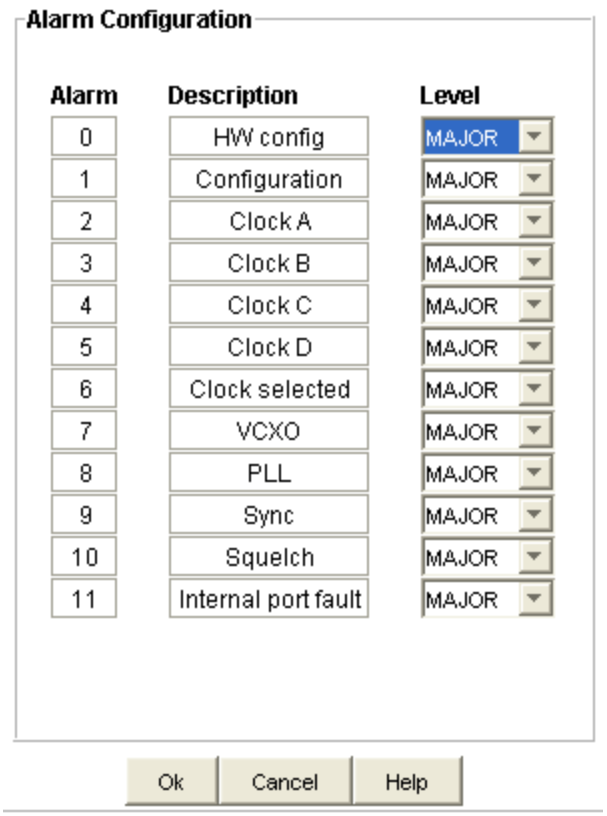
Section / Field	Description
Alarm Reporting	
Alarm	This field displays the output module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the output module. Only active alarms are indicated.
Level	This field indicates the severity of an alarm when it is first logged. Levels include: Critical, Major, Minor, Report and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.

Edit E1/2048 Output Module Alarm Configuration

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



E1/2048 Output Module Inventory

The Output Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Module Inventory	
AID	The Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Serial	Indicates the output module serial number
Date Last Reset	Indicates date of last module reset
Description	Displays type of module

Date Manufactured	Indicates when the module was manufactured
Hardware Rev	Indicates the last revision level of the output module
Software Rev	Indicates the latest revision level of the output module software
Hardware/Software Part	Indicates the part number of the specific revision
Adapter	Adapter panel type

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

E1/2048 Output Module Configuration

The Module Configuration screen provides information about the output module setup. Click **Edit** to make changes to the settings. The fields are described in the table below.

Field / Section	Description
Alarm Elevation	Number of seconds the alarm must persist before elevating to the next higher alarm level (or set to **DISABLE**)
Module Status	Shows module as being either **ENABLED** or **DISABLED**
Module Parameters	To set module parameters described below
Clk C Bypass	Enables or Disables bypass mode to support Clock C
Zero Suppression	Select ON (eliminates leading zeros) or select OFF
Mode	Sets E1 framing mode to either CCS or CAS
CRC	Cyclic Redundancy Check - Select ON (verifies transmission) or OFF
SSM	Synchronization Status Messages - Select ON (provides clock quality information to any equipment that uses synchronization inputs) or OFF
SSM Bit	Sets the E1 bit position to 4,5,6,7, or 8 (SSM Bit is only shown for E1 outputs)

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

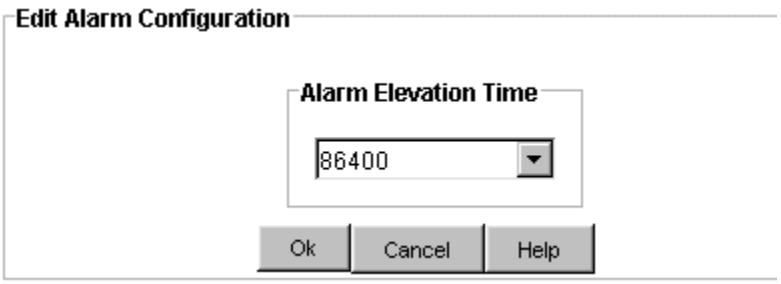
Edit E1/2048 Output Module Alarm Elevation Time

To configure the alarm elevation time:

1. Select DISABLED in the drop-down box to disable the alarm elevation time, or enter a time in seconds that the alarm must persist before elevating to the next higher alarm level. The range is 60 to 500,000 seconds.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Note: Alarm elevation may be set for each module on its Module Configuration panel, or for the entire system on the System Configuration panel.

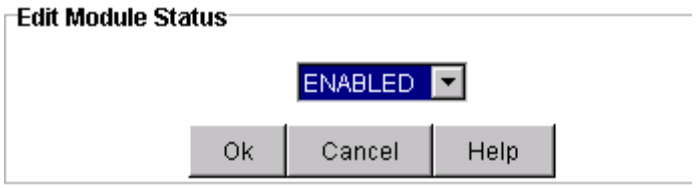


Edit E1/2048 Module Status

To configure the module status:

1. Select ENABLED or DISABLED in the drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



Edit E1/2048 Output Module Parameters

To change the module parameters:

1. Select ENABLED or DISABLED in the **Clk C Bypass** drop-down box. Set to Enable when an initial input reference port is used as the Clock C pass through.

2. Select ON or OFF in the **Zero Suppression** drop-down box. ON eliminates leading zeros.

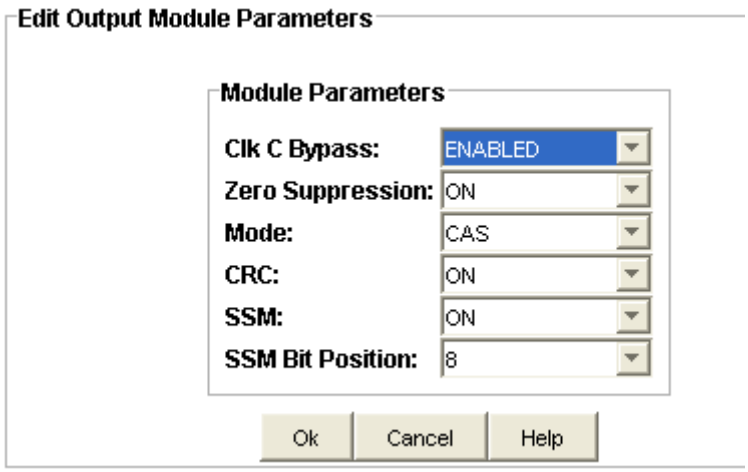
3. Select CCS or CAS E1 framing mode in the **Mode** drop-down box.

4. Select ON to verify transmission or OFF in the **CRC** drop-down box.

5. Select ON to provide clock quality information to any equipment that uses synchronization inputs) or OFF in the **SSM** drop-down box.

6. Select bit position 4, 5, 6, 7, or 8 for transmitting SSM in the **SSM Bit Position** drop-down box.

7. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



E1/2048 Output Module Advanced Functions

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Save User** - saves current module configuration as defined by user
- **Restore User** - restores last configuration saved by user
- **Restore Factory** - returns current module to factory default configuration

Line Retiming Module/Unit

Line Retiming Module Status (LRM / LRU)

The Line Retiming Module Status screen consists of three status information sections:

- Module Status
- Inventory Summary
- Port Status

Each field of the Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when **Refresh** is clicked (under **Connection** on the Main screen).

Note: A Line Retiming product may have a designation as either a Line Retiming Module (**LRM**) or Line Retiming Unit (**LRU**). The LRUs and LRMs may have 2- or 4-port configurations (Dual or Quad).

Field / Section	Description
Module Status	
Module Status	Indicates if the selected module is enabled or disabled
Clock Source	The clock field displays installed clocks
CTAID	Indicates whether the Cut-Through Assembly is installed or not, and if so, whether it is a dual card or a quad card
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision

Port Status	Provides the following port status indicators: State indicates if the port is enabled, disabled, or in cut-through mode and provides an indicator of the highest alarm level. Frame indicates Los, Ais, Lof, Bpv, and Slip indicate the current second error condition, either OK, or Fault to indicate an error has occurred. SlipCount indicates the slips in a 24 hour period. Los_Side2 (the LOS of Side 2), either OK, or Fault to indicate an error has occurred.
Show BPV	Displays the Current BPV Data screen with the following BPV data (current operating mode and status) of an E1 LRM module or port: 60SRATE is the BPV error rate (float value) per second in a 60-second window. 24HRATE is the BPV error rate (float value) per second in an 86400-second window. ES indicates (integer) that the BPV accumulates BPV Errored Seconds (BPV-ES) when any seconds have a BPV error. SES indicates (integer) that the BPV accumulates BPV Severely Errored Seconds (BPV-SES) when any seconds have a severely BPV error. SESR is the BPV Severely Errored Ratio (float value).
Refresh BPV	Refreshes the BPV port data
Show Status	Returns you to the Port Status screen
Port Status	
Alarm	This field displays the LRM Module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active alarms are indicated.
Description	This field displays a description of each alarm indicated on the LRM Module. Only active alarms are indicated. If no alarms are present, the first alarm description will read "None".
Level	This field indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Service Affecting	This field Indicates whether an alarm response message affects service. A response will display either a "Yes" or "No" message.
Message	This message further describes the alarm condition

Line Retiming Module BPV Data (LRM / LRU)

The Line Retiming Module BPV Data screen provides a view of the following (one for each port):

- **60SRATE** - BPV error rate per second in a 60 second time window
- **24HRATE** - BPV error rate per second in a 24 hour time window
- **ES** - Number of BPV Errored Seconds
- **SES** - Number of BPV Severely Errored Seconds
- **SESR** - Ratio of BPV SES during a 1200 second time window

Buttons include:

- **Refresh BPV** - Click to update the screen. Otherwise, the screen refreshes every 30 seconds.
- **Show Status** - Click to display the Module Status screen.

Note: A Line Retiming product may have a designation as either a Line Retiming Module (**LRM**) or Line Retiming Unit (**LRU**). The LRUs and LRMs may have 2- or 4-port configurations (Dual or Quad).

Line Retiming Module Port Alarms

Line Retiming Module Alarm Configuration (LRM / LRU)

The Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels
- Start Delay (Sec)
- Clear Delay (Sec)

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

Section / Field	Description
Alarm Reporting	
Alarm	This field displays the output module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the output module. Only active alarms are indicated.

Level	This field indicates the severity of an alarm when it is logged. Levels include: Critical, Major, Minor, Report and Ignore.
Start Delay (Sec)	Delays the start of an alarm report by the number of seconds entered in the Delay Start field. Valid entries for this field are 0 to 86,400 seconds
Clear Delay (Sec)	Delays the clearing of an alarm report by the number of seconds entered in the Delay Clear field. Valid entries for this field are 0 to 86,400 seconds

Note: A Line Retiming product may have a designation as either a Line Retiming Module (**LRM**) or Line Retiming Unit (**LRU**). The LRUs and LRMs may have 2- or 4-port configurations (Dual or Quad).

Edit Line Retiming Module Alarm Configuration (LRM / LRU)

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Depending on the alarm number, alarm levels can include Ignore, Minor, and Report.

2. Enter the start delay time in seconds in the **Start Delay** text boxes. This delays the start of an alarm report by the number of seconds entered. Valid entries for this field are 0 to 86,400 seconds.

3. Click one of the following in the **Apply To** field:

This Port (select this field to apply these settings to this port only)

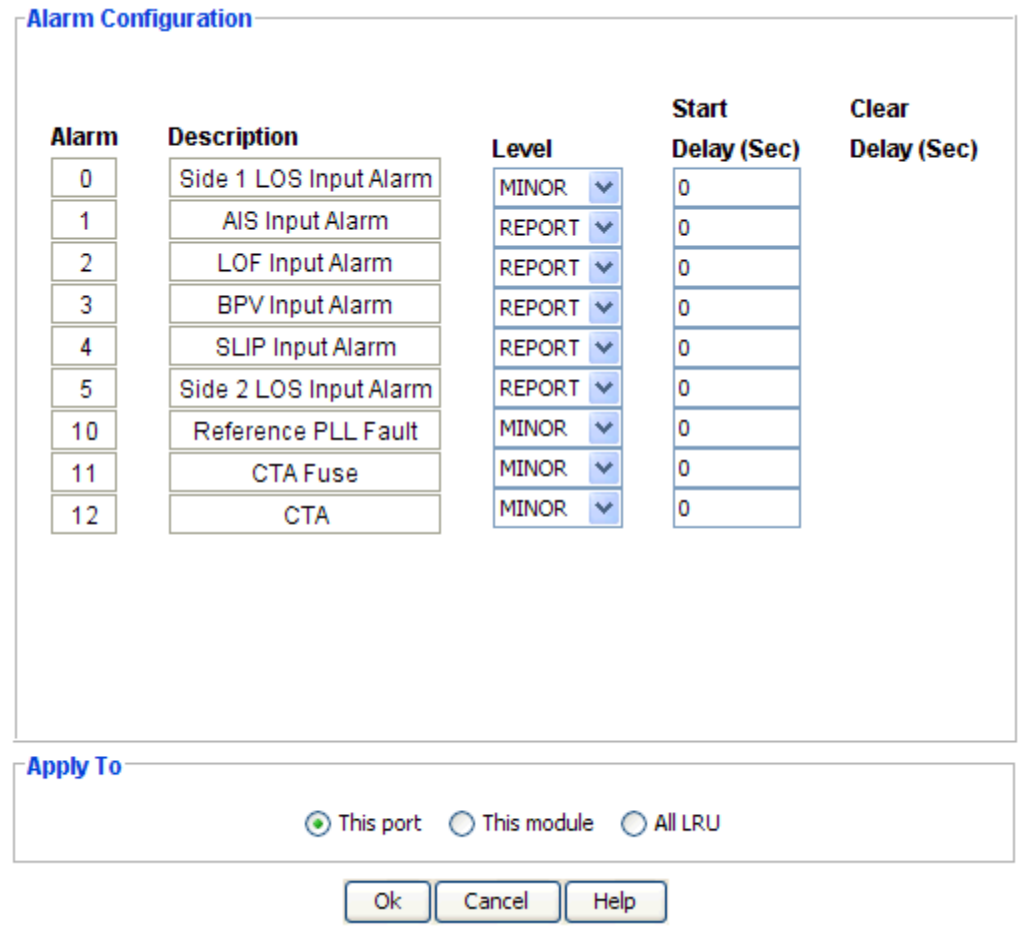
This Module (select this field to apply these settings to this module only)

All DS1 (E1) Inputs (select this field to apply these settings to all DS1 or E1 inputs in the system)

Note: Selecting any of the Apply To radio buttons will only apply the change(s) being made to values in the edit window, not the total list of configurable values. If you wish to change all port/module settings to a specific value, you can change the setting to a different one and then back with the desired Apply To radio button selected.

4. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.

Note: A Line Retiming product may have a designation as either a Line Retiming Module (**LRM**) or Line Retiming Unit (**LRU**). The LRUs and LRMs may have 2- or 4-port configurations (Dual or Quad).



Line Retiming Module Ports

Line Retiming Module Port Configuration (LRM / LRU)

The Port Configuration screen provides a view of the following output port settings:

- **Circuit ID** - Indicates the name, if any, assigned to a port
- **Enabled** - Indicates one of three port states: enabled, cut-through mode, or disabled
- **Line Build-out Len** - Indicates line build-out length in feet
- **Slip Error Threshold** - Indicates 24-hour slip error threshold
- **Reference Fault** - Indicates fault strategy - SQUELCH or AIS

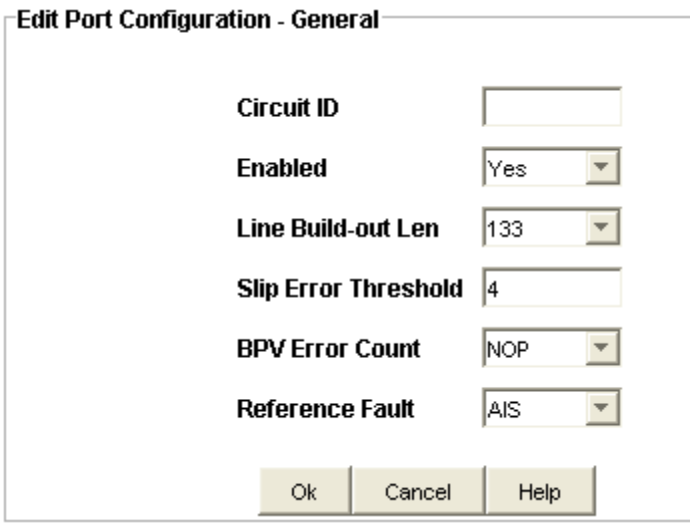
Click **Edit** to change the Port Configuration fields.

Note: A Line Retiming product may have a designation as either a Line Retiming Module (**LRM**) or Line Retiming Unit (**LRU**). The LRUs and LRMs may have 2- or 4-port configurations (Dual or Quad).

Edit Line Retiming Module Port Configuration (LRM / LRU)

To edit the port configuration:

1. Enter a port circuit id (0-43 ASCII characters) in the **Circuit ID** text box.
2. Select Yes or No in the **Enabled** drop-down box.
3. Select the line build-out value in feet in the **Line Build-out Len** drop-down box. The Line Build-out Len parameter applies only to the DS1 Line Retiming Module.
4. Enter a 24-hour slip error threshold (1-255) in the **Slip Error Threshold** text box.
5. Select CLEAR or NO in the **BPV Error Count** drop-down box.
6. Select SQUELCH or AIS in the **Reference Fault** drop-down box.
7. Click **OK** to save changes and return to the Output Module Port Configuration screen or click **Cancel** to return without saving changes.



Line Retiming Module Configuration

Line Retiming Module Inventory (LRM / LRU)

The Output Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Module Inventory	
AID	The Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Serial	Indicates the output module serial number
Date Last Reset	Indicates date of last module reset
Description	Displays type of module
Date Manufactured	Indicates when the module was manufactured
Hardware Rev	Indicates the last revision level of the output module
Software Rev	Indicates the latest revision level of the output module software
Hardware/Software Part	Indicates the part number of the specific revision

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

Note: A Line Retiming product may have a designation as either a Line Retiming Module (**LRM**) or Line Retiming Unit (**LRU**). The LRUs and LRMs may have 2- or 4-port configurations (Dual or Quad).

Line Retiming Module Configuration (LRM / LRU)

The Module Configuration screen provides information about the output module configuration.

Module Status - This field indicates whether the clock module is activated (enabled) or not activated (disabled).

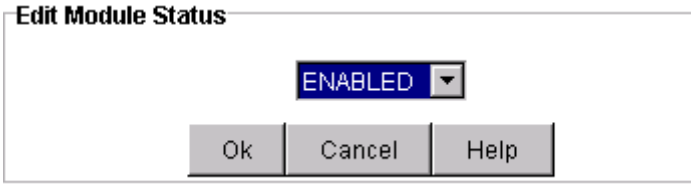
Click **Edit** to change the Module Status.

Note: A Line Retiming product may have a designation as either a Line Retiming Module (**LRM**) or Line Retiming Unit (**LRU**). The LRUs and LRMs may have 2- or 4-port configurations (Dual or Quad).

Edit Line Retiming Module Status (LRM / LRU)

To configure the module status:

1. Select ENABLED or DISABLED in the drop-down box.
2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



Note: A Line Retiming product may have a designation as either a Line Retiming Module (**LRM**) or Line Retiming Unit (**LRU**). The LRUs and LRMs may have 2- or 4-port configurations (Dual or Quad).

Line Retiming Module Advanced Functions (LRM / LRU)

Click the buttons on the Advanced Functions screen to perform the following operations:

- **Restart** - restarts module
- **Save User** - saves current module configuration as defined by user
- **Restore User** - restores last configuration saved by user
- **Restore Factory** - returns current module to factory default configuration

Note: A Line Retiming product may have a designation as either a Line Retiming Module (**LRM**) or Line Retiming Unit (**LRU**). The LRUs and LRMs may have 2- or 4-port configurations (Dual or Quad).

PackeTime Module

PackeTime Module Screen

The PackeTime Module screen consists of three status information sections:

- Inventory Summary
- Module Status
- Alarm Status

Each field of the screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when you click **Refresh**.

Field / Section	Description
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Module Status	
Module Status	Indicates whether the selected module is enabled or disabled.
Firmware Image	Indicates which firmware image (0 or 1) is loaded when the module reboots.
Preferred TOD	Indicates preferred TOD. TODSRC indicates that the GPS module is the source. PEER indicates a Peer has been selected as the source if operating in Client or Broadcast Client mode.
Redundant Status	Indicates the modules redundant status, either active (ACT), standby (STDBY), or NA if not redundant.
Redundant To	This module and AID specified are redundant to each other
Alarm Status	
Alarm	This field displays the module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active alarms are indicated.
Description	This field displays a description of each alarm indicated on the module. Only active alarms are indicated. If no alarms are present, the first alarm description will read "None".

Level	This field indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, and Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Service Affecting	This field Indicates whether an alarm response message affects service. A response will display either a "Yes" or "No" message.
Message	This message further describes the alarm description

PackeTime Port Configuration

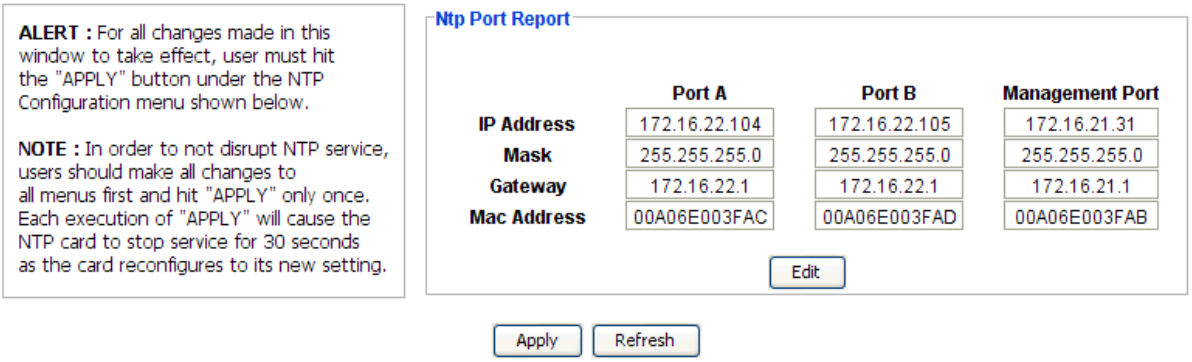
The Port Configuration screen provides a view of the following port settings for Port A, Port B, and the Management Port:

- IP Address
- Mask
- Gateway
- Mac Address

The fields are described in the table below.

Click **Edit** to change the Port Configuration fields. After making the changes on the Edit screen, you must click **Apply** on this screen for the changes to take effect. Click **Refresh** to update the display.

Item	Description
IP Address	The port's IP address in the IPv4 format (###.###.###.###)
Mask	The port's IP mask in the IPv4 format (###.###.###.###)
Gateway	The port's IP gateway in the IPv4 format (###.###.###.###)
Mac Address	The Media Access Control address



Edit PackeTime Port Configuration

To set the port configuration:

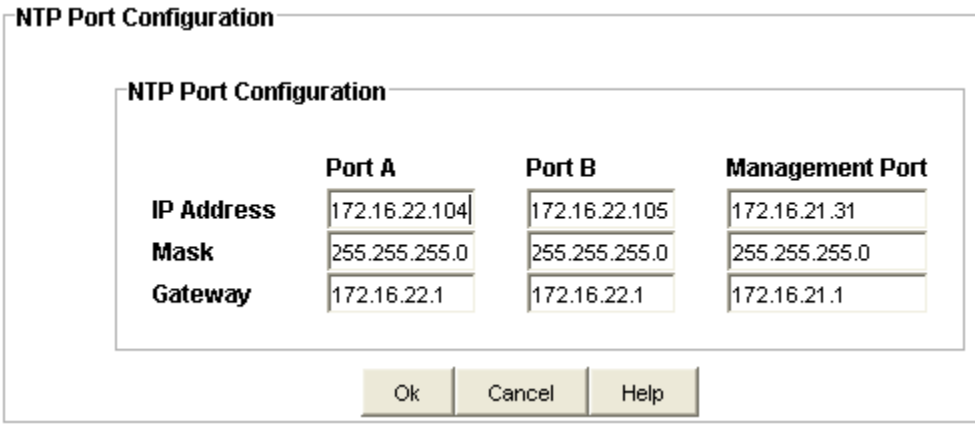
1. Enter the IP address for each port in IPv4 format (###.###.###.###) in the **IP Address** text boxes.

2. Enter the mask address for each port in IPv4 format (###.###.###.###) in the **Mac Address** text boxes.

3. Enter the gateway address for each port in IPv4 format (###.###.###.###) in the **Gateway Address** text boxes.

4. Click **OK** to accept changes and return to the NTP Port Report screen, or **Cancel** to return to the NTP Port Report screen without saving changes.

Note: After making the changes on the Edit screen, you must click **Apply** on the PackeTime Port Configuration screen for the changes to take effect.



PackeTime Alarm Configuration

The Alarm Configuration screen provides a view of:

- Alarm Numbers
- Alarm Descriptions
- Alarm Levels
- Start Delay Time
- Clear Delay Time

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

Field / Section	Description
Alarm	This field displays the input module alarm number. Alarm numbers display in numerical order and correspond to an alarm description.
Description	This field displays a description of each alarm indicated on the module.
Level	This field indicates the severity of an alarm when it is first logged. Click **Edit** to set the Alarm level. Levels include: Critical, Major, Minor, Report, and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Delay	
Start	Delays the start of an alarm report by the number of seconds entered in the Start Delay field. Valid entries for this field are 0 to 86,400 seconds.
Clear	Delays the clearing of an alarm report by the number of seconds entered in the Clear Delay field. Valid entries for this field are 0 to 86,400 seconds.

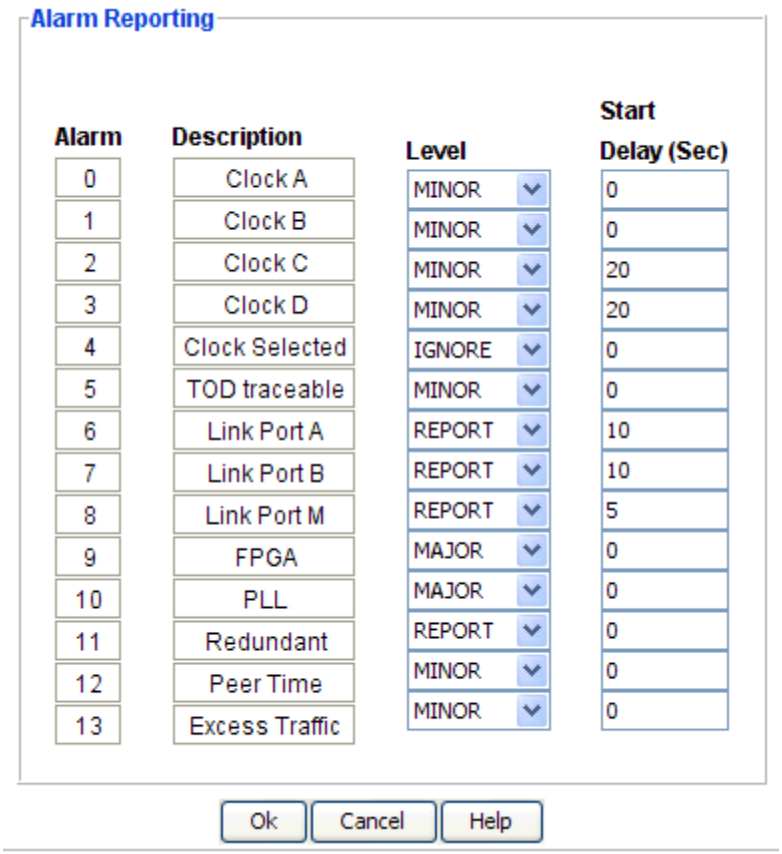
Edit PackeTime Alarm Configuration

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Enter the start delay time in seconds in the **Start Delay** text boxes. This delays the start of an alarm report by the number of seconds entered. Valid entries for this field are 0 to 86,400 seconds.

3. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



PackeTime Module Inventory

The Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Inventory Data	
AID	The Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Description	Displays type of module
Serial	Indicates the module serial number

Hardware Rev	Indicates the last revision level of the input module
Software Rev	Indicates the latest revision level of the input module software
Hardware/Software Part	Indicates the part number of the specific revision
Date Last Reset	The date when the module was last reset
Date Manufactured	The date when the module was manufactured
Refresh	Updates the text fields

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

Inventory Data

AID	S1A10
Description	PackeTime
Hardware Rev	A
Hardware Part	23413325-000-0
Serial	Q92301
Date Last Reset	09-10-29
Date Manufactured	07-12-20
Software Rev	B.01
Software Part	17313325-000-5

PLD Information

Count	Revision
0	B.01 09-03-02

Refresh

PackeTime Module Configuration

NTP Module Configuration

The PackeTime Module Configuration screen consists of five status information sections:

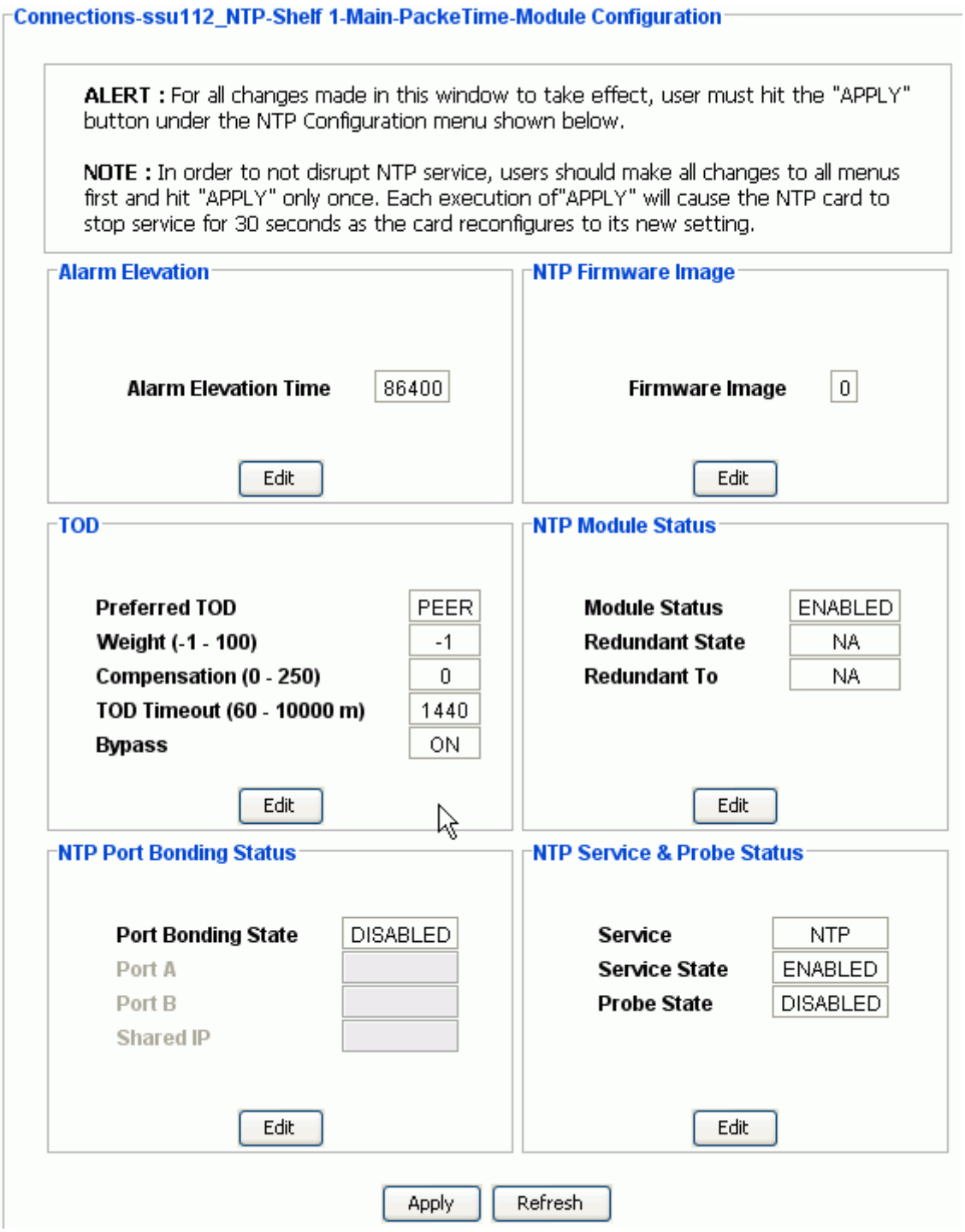
- Alarm Elevation
- NTP Module Status
- NTP Firmware Image
- TOD
- NTP Port Bonding Status
- NTP Service & Probe Status

Note: After making the changes on the Edit screen, you must click Apply on the NTP Module Configuration screen for the changes to take effect. After making the changes on the Edit screen, you must click Apply on this screen for the changes to take effect. However, to not disrupt NTP service, you should make all changes first then click Apply only once. Each time you click Apply, the NTP card stops service for 30 seconds while it re-configures to its new settings. Click Refresh to update the display.

Each field of the module configuration screen is described in the table below.

Item	Description
Alarm Elevation	Indicates the number of seconds the alarm must persist before elevating to the next higher alarm level. Values include 0 (immediate) to 86,400 (1 day). The range is 60 to 500,000 seconds. May also be disabled for no alarm elevation time.
NTP Module Status	
Module Status	Indicates if the selected module is enabled or disabled.
Redundant State	Displays the module's redundant state (active (ACT), standby (STDBY), or NA if not redundant.
Redundant To	The AID of the redundant card.
NTP Firmware Image	Indicates which firmware image is in use by the PackeTime module (0 or 1).
TOD	
Preferred TOD	Indicates the preferred time of day source. TODSRC sets the GPS module as the source. PEER selects a Peer if operating in Client or Broadcast Client mode.
Weight (-1 - 100)	Indicates the load (bandwidth) distribution between port-A and port-B as a percentage. For example, 70 means port-A gets 70% of total bandwidth, port-B gets the remaining 30%. If port-A reaches 70% of total bandwidth but port-B has no traffic, the 30% of bandwidth is wasted, because port-A cannot use it. To allow either port to use all the bandwidth, set the weight to -1, indicating no limit between port-A and port-B (either port-A or port-B can get all the bandwidth, based on first-come, first-serve). Thus the range of this parameter is -1 to 100. For bonding mode, this parameter must be forced to -1, so the active port can use 100% of the bandwidth. For non-bonding mode, you can set any value between -1 and 100.

Compensation (0 - 250)	Compensation is antenna cable delay in the case of GPS ToD Source(s) or the delay induced by the cable(s) used to connect expansion shelves. Valid user compensation values range from 0 thru 250 for a total compensation range of 0 to 25000 ns (25 us). **Note:** The GPS is always zero, not user setable.
TOD Timeout (60 - 10000 m)	Displays the peer availability timeout from 60 minutes to 10000 minutes.
Bypass	Indicates if bypass mode to support Clock C is enabled or disabled.
NTP Port Bonding Status	
Port Bonding State	Displays if port bonding is enabled or disabled.
Port A	Indicates if the port is selected as the active port.
Port B	Indicates if the port is selected as the active port.
Shared IP	Displays the shared IP address for the Bonded Ports or null (if disabled).
NTP Service & Probe State	
Service	Displays the specified service.
Service State	Indicates if the specified service is enabled or disabled.
Probe State	Indicates if the PROBE state for troubleshooting is enabled or disabled.



Edit PackeTime Alarm Elevation Configuration

To configure the alarm elevation time:

1. In the Alarm Elevation Time drop-down box, enter the number of seconds the alarm must persist before elevating to the next higher alarm level or select

Disabled for no alarm elevation time. Values include 0 (immediate) to 86,400 (1 day). The range is 60 to 500,000 seconds.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Note: Alarm elevation may be set for each module on its Module Configuration panel, or for the entire system on the System Configuration panel.

Note: After making the changes on the Edit screen, you must click Apply on the NTP Module Configuration screen for the changes to take effect.

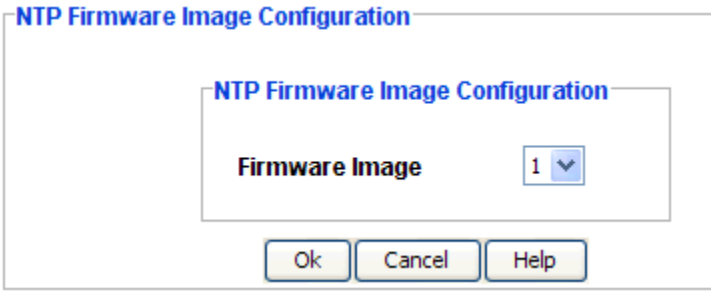
Edit PackeTime NTP Firmware Image Configuration

To configure the firmware image:

1. Select 0 or 1 in the NTP Firmware Image Configuration drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Note: After making the changes on the Edit screen, you must click **Apply** on the NTP Module Configuration screen for the changes to take effect. Neither clicking **Ok** on this screen nor clicking the **Apply** button on the Module Configuration screen will activate the firmware. When you change the firmware image, the new image is not activated until the module is rebooted. The user can reboot the module in TimeCraft by clicking **Restart** in the Advanced Functions menu.



Edit PackeTime TOD

To configure the NTP TOD configuration:

1. Select TODSRC or PEER in the Preferred TOD drop-down box.

2. Select -1 or 1 to 100 in the Weight (-1 - 100) scrolling entry box. To allow either port to use all the bandwidth, set weight to -1, or select a number from 1 to 100 to assign a specific percentage of the bandwidth to port A.

Note: In the scrolling entry boxes, you can also click in the box and type in the desired number.

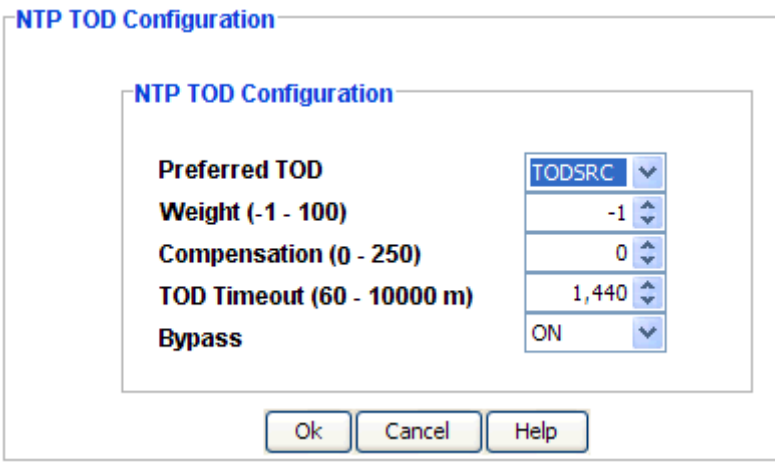
3. Select 0 to 250 in the Compensation (0 - 250) scrolling entry box to compensate for cable delay.

4. Select 60 to 10000 minutes in the TOD Timeout (60 - 10000 m) scrolling entry box to enter the peer availability timeout from 60 minutes to 10000 minutes.

5. Select ON or OFF in the Bypass drop-down box to enable or disable bypass mode to support Clock C.

6. Click **OK** to accept changes and return to the Module Status screen, or **Cancel** to return to the Module Status screen without saving changes.

Note: After making the changes on the Edit screen, you must click **Apply** on the NTP Module Configuration screen for the changes to take effect.



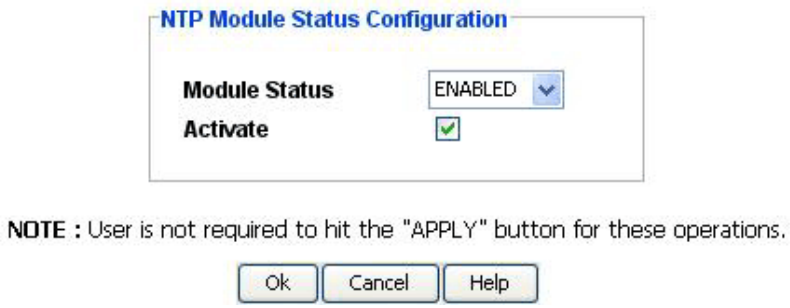
Edit PackeTime NTP Module Status

To configure the module status and firmware image:

1. Select ENABLED or DISABLED in the Module Status drop-down box.

2. Click the check-mark box to activate the redundant module, or remove the check-mark to deactivate the redundant module.

3. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.



Edit PackeTime NTP Port Bonding Status

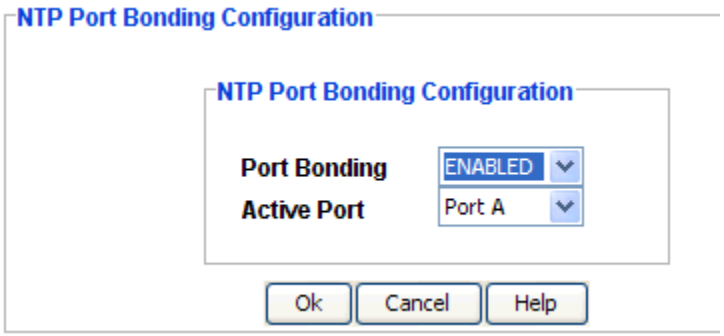
To configure the NTP port bonding status:

1. Select ENABLED or DISABLED in the NTP Port Bonding Configuration drop-down box.

2. If Port Bonding ENABLED is selected in step 1, select Port A or Port B in the Active Port drop-down box.

3. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Note: After making the changes on the Edit screen, you must click **Apply** on the NTP Module Configuration screen for the changes to take effect.

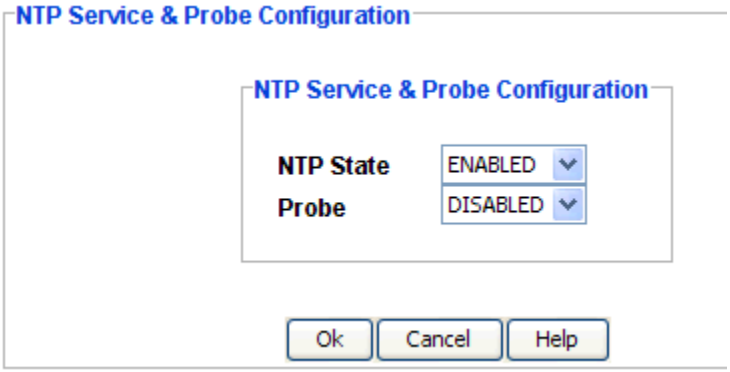


Edit PackeTime NTP Service and Probe Configuration

To configure NTP service and probe:

1. Select ENABLED or DISABLED in the NTP State drop-down box.
2. Select ENABLED or DISABLED in the Probe drop-down box to enable or disable the PROBE state for troubleshooting.
3. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Note: After making the changes on the Edit screen, you must click **Apply** on the NTP Module Configuration screen for the changes to take effect.

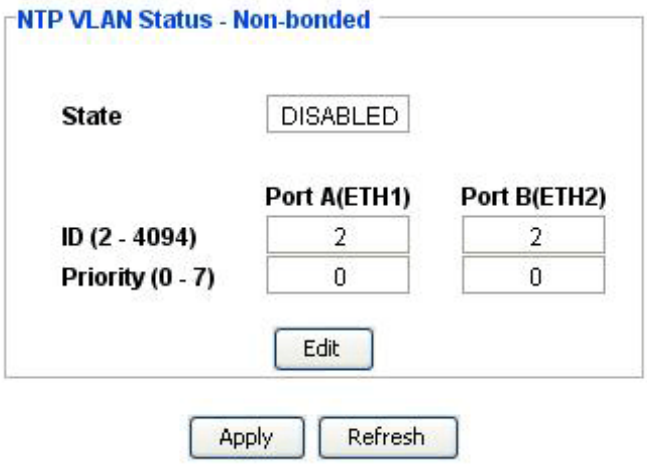


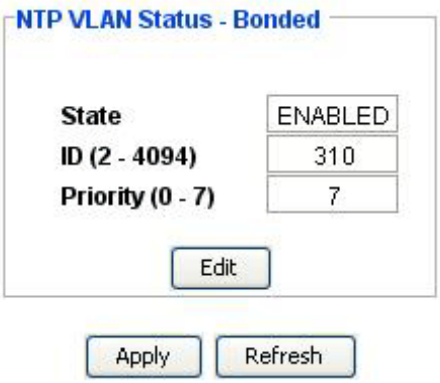
NTP VLAN Status

VLAN is the Virtual Local Area Network and the VLAN Status can either be non-bonded or bonded between Port A (Ethernet 1) and Port B (Ethernet 2). The following information describes both views. Click **Edit** to change the VLAN configuration.

Note: After making the changes on the Edit screen, you must click **Apply** on this screen for the changes to take effect.

Item	Description
State	Displays the VLAN state, either enabled or disabled
ID (2 - 4094)	Displays the VLAN identification (2 to 4094) with a separate ID for each port if they are not bonded or one ID for the bonded ports
Priority (0 - 7)	Displays the VLAN priority (0 to 7) with a separate priority for each port if they are not bonded or one priority for the bonded ports





Edit VLAN Status

The procedure for configuring both bonded and non-bonded ports is similar as shown in the figures below. For non-bonded ports, perform the following procedure and select an ID and priority setting for both ports A and B. If the ports are bonded, you will only select one ID and one priority setting.

To configure VLAN:

1. Select ENABLED or DISABLED in the **State** drop-down box.

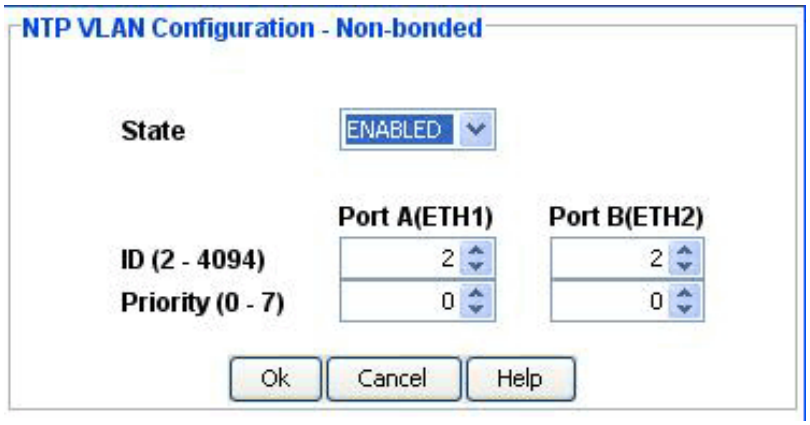
2. Enter a number from 2 to 4094 in the **ID (2 - 4094)** scrolling entry box.

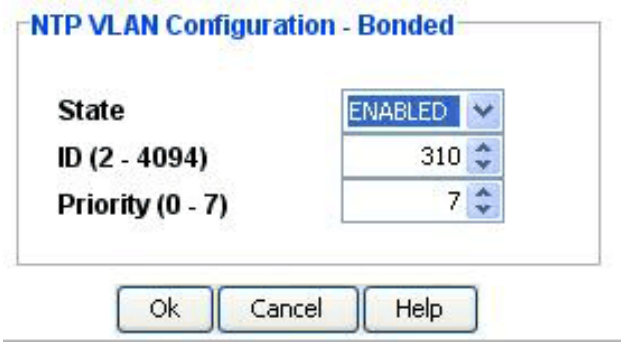
Note: In the scrolling entry boxes, you can also click in the box and type in the desired number.

3. Enter a number from 0 to 7 in the **Priority (0 - 7)** scrolling entry box.

4. Click **OK** to accept changes and return to the Module Configuration VLAN screen, or **Cancel** to return to the Module Configuration VLAN screen without saving changes.

Note: After making the changes on the Edit screen, you must click Apply on the VLAN screen for the changes to take effect.

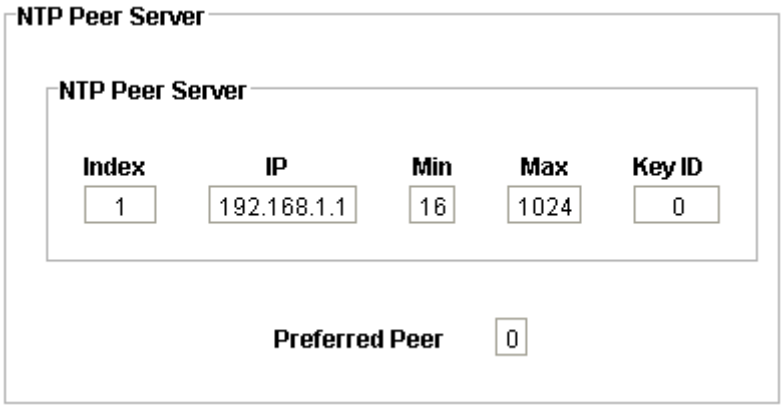




PackeTime NTP Peer Server

Each field of the PackeTime NTP Peer Server screen is described in the table below.

Item	Description
Index	The index value of the NTP peer server (1 through 8)
IP	The NTP peer server's IP address
Min	The minimum request rate in seconds for Client mode 16 | 32 | 64 | 128 | 256 | 512 | 1024
Max	The maximum request rate in seconds for Client mode 16 | 32 | 64 | 128 | 256 | 512 | 1024
Key ID	The current authentication key (0 to 65534) the default is 0 (no authentication
Preferred Peer	The Preferred Peer index (0 to 8) 0 indicates no preference



See Also:
PackeTime Peer Server Configuration

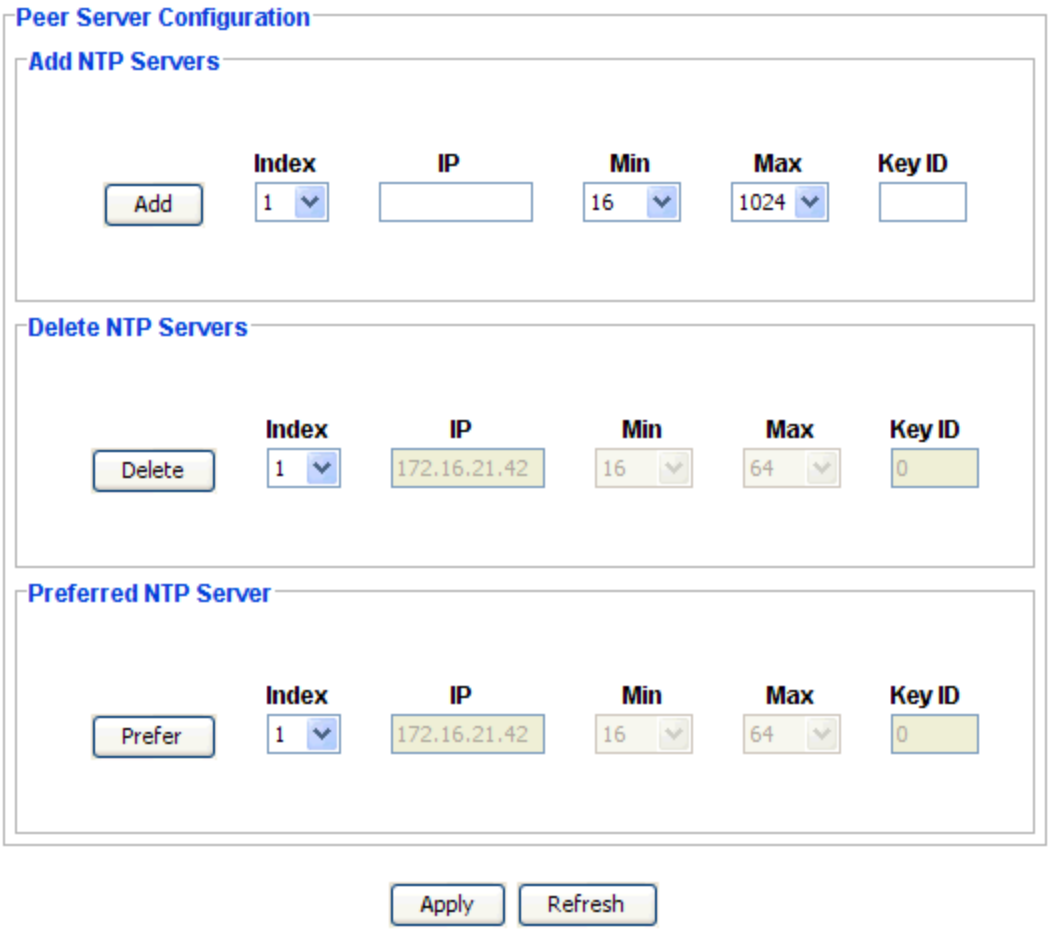
Peer Information

PackeTime Peer Server Configuration

The PackeTime Peer Server Configuration screen allows you to add, delete, or set a preferred NTP server. The server parameters are described in the following table. You can define up to eight NTP Servers (defined by their IP address), allowing the PackeTime module to operate in NTP Mode 3, NTP Client.

Note: For all changes to take effect, you must click **Apply** after clicking **Add**, **Delete**, or **Prefer**. However, to not disrupt NTP service, you should make all changes first then click Apply only once. Each time you click Apply, the NTP card stops service for 30 seconds while it re-configures to its new settings. Click **Refresh** to update the display.

Field	Value	Description
Index	1 – 8	Sets an arbitrary index value to the NTP server at the specified IP address; default is 1
IP		Defines the NTP server IP address
Min	16|32|64|128 |256|512|1024	Sets the minimum request rate in seconds in Client mode; default is 16
Max	16|32|64|128 |256|512|1024	Sets the maximum request rate in seconds in Client mode; default is 1024
Key ID	0 – 65534	Sets the ID of an authentication key; default is 0 (no authentication)



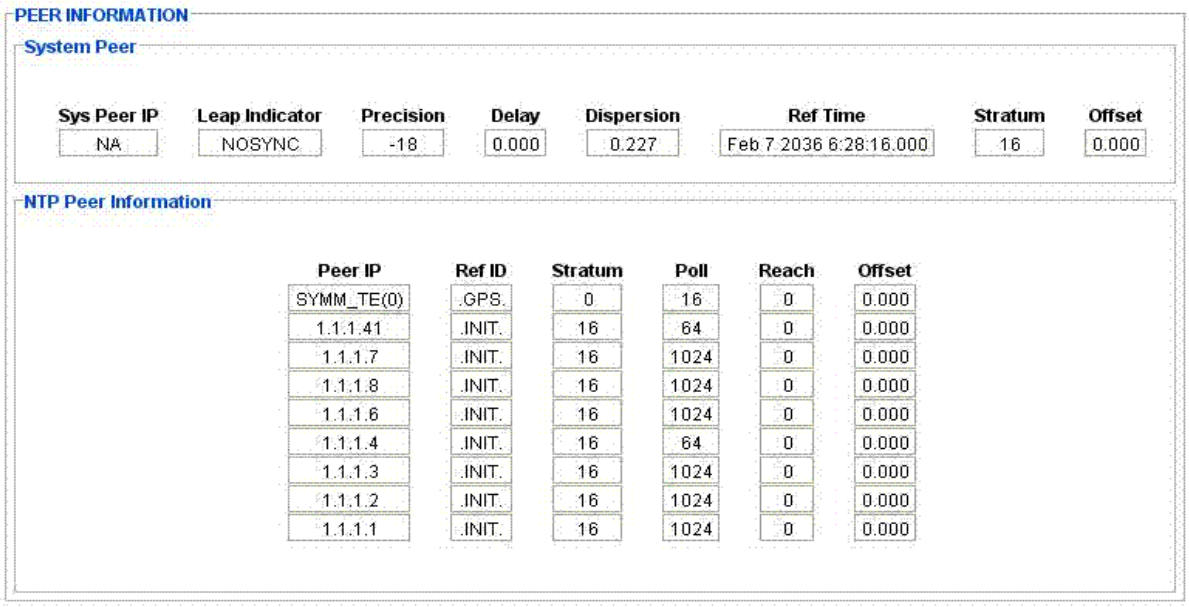
Note: The Preferred NTP server Index range is from 0 to 8.The value 0 indicates no preference.

Peer Information

The information provided in the Peer Information screen is described in the following table.

Item	Description
System Peer	
Sys Peer IP	The system peer's ip address
Leap Indicator	The NTP server leap indicator (0, +1, -1, or NOSYNC)
Precision	Measure of the number of significant bits in NTP timestamp

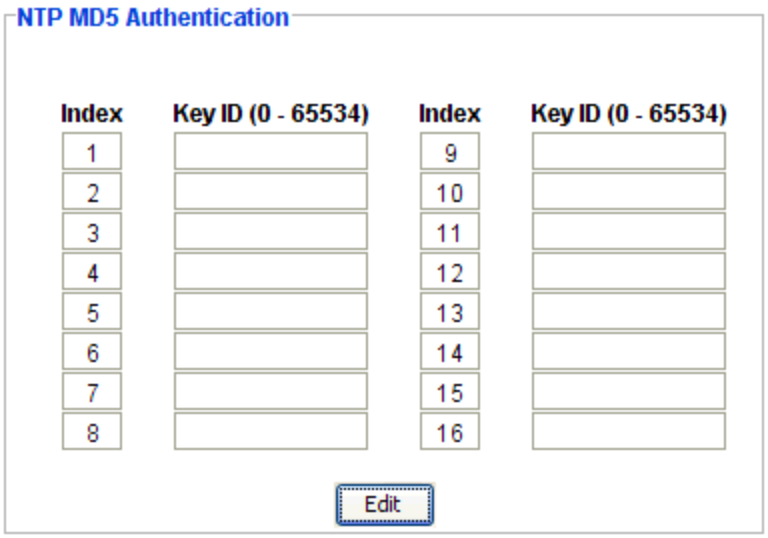
Delay	The calculated delay in the communication path
Dispersion	Value that indicates the accuracy of the offset/delay settings
Ref Time	The local time
Stratum	The peer's stratum number
Offset	The number of seconds (partial seconds) that the local time was adjusted by
NTP Peer Information	
Peer IP	NTP Peer's address
Ref ID	NTP system reference
Stratum	NTP server stratum level
Poll	NTP server poll interval
Reach	NTP server reachability
Offset	The client’s calculated time offset value for the specified server



NTP MD5 Authentication

The information provided in the NTP MD5 Authentication screen is described in the following table. Click **Edit** to configure the NTP MD5 Authentication screen.

Item	Description
Index	16 possible sets of keyid and keys
Key ID (0 - 65534)	The port's authentication key ID, default is 0 (no authentication) range is 0 to 65534



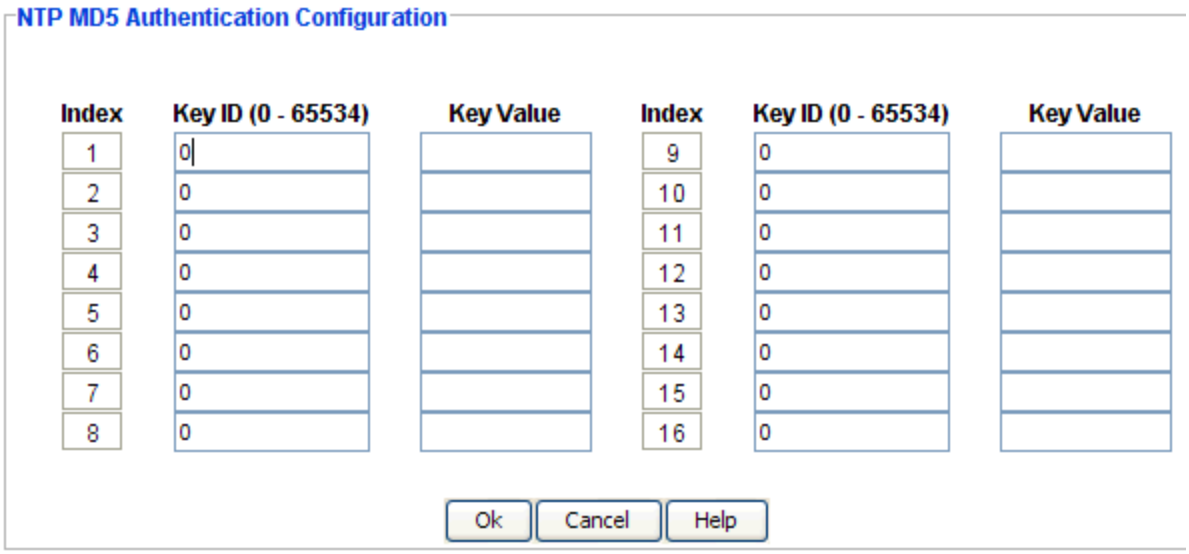
Edit NTP MD5 Authentication

To configure NTP MD5 Authentication:

1. Enter a key ID in the Key ID (0 - 65534) entry box. This is the port's authentication key ID, default is 0 (no authentication) with a range of 0 to 65534.

2. Enter a value in the Key Value entry box. Key Value is the NTP port's authentication key used to create the MD5 hash associated with the key ID. The key is comprised of up to 32 ASCII characters, a minimum of 8 characters is required.

3. Click **OK** to accept changes and return to the Module Configuration Authentication screen, or **Cancel** to return to the Module Configuration Authentication screen without saving changes.

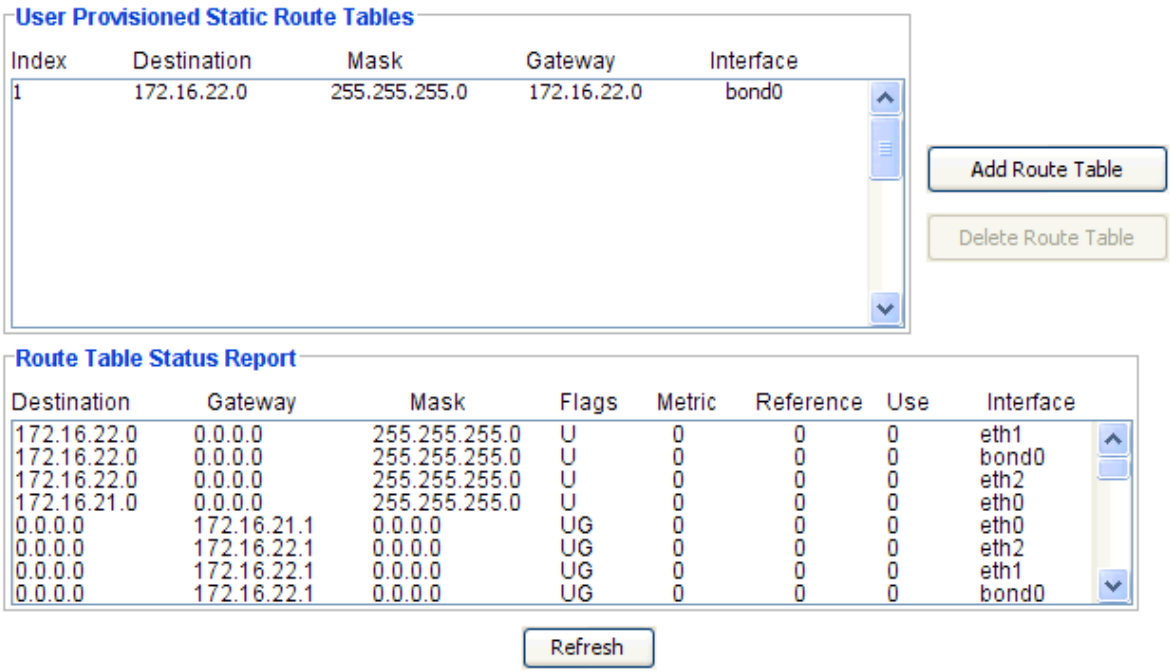


Route Tables

The information provided in the Static Route Tables screen is described in the following table. Click **Add Route Table** to create a table or click **Delete Route Table** to delete a highlighted table. Click **Refresh** to update the Route Table Status Report list.

Item	Description
User Provisioned Static Route Tables	
Index	A value of 1 through 6 (six tables maximum) to provide an index of the Route Table, default is 1.
Destination	The destination network or destination host.
Mask	The netmask for the destination net; 255.255.255.255 for a host destination and 0.0.0.0 for the default route.
Gateway	The gateway address.
Interface	Indicates if the interface is bonded or non-bonded.
Route Table Status Report	
Destination	The destination network or destination host, 0.0.0.0 is default
Gateway	The gateway address, 0.0.0.0 is the default if not set
Mask	The netmask for the destination net; 255.255.255.255 for a host destination and 0.0.0.0 for the default route

Flags	Flags are as follows ■ U (route is up) ■ H (target is a host) ■ G (use gateway) ■ R (reinstate route for dynamic routing) ■ D (dynamically installed by daemon or redirect) ■ M (modified from routing daemon or redirect) ■ A (installed by addrconf) ■ C (cache entry) ■ ! (reject route)
Metric	The distance to the target (usually counted in hops)
Reference	Number of references to this route
Use	Count of lookups for the route
Interface	Interface to which packets for this route are sent - 0 = (SxAy-M), 1 = (SxAy-A), 2 = (SxAy-B)

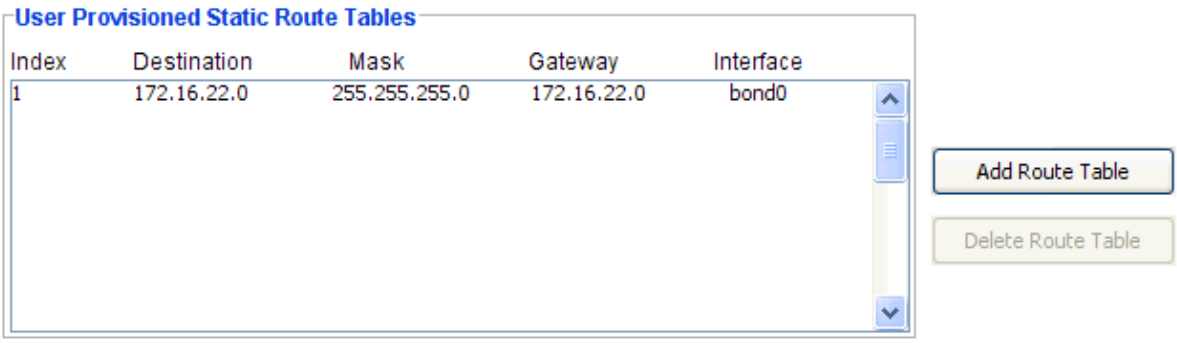


Add / Delete Route Table

Adding a Route Table

To add a route table:

1. Click **Add Route Table** in the User Provisioned Static Route Table screen.

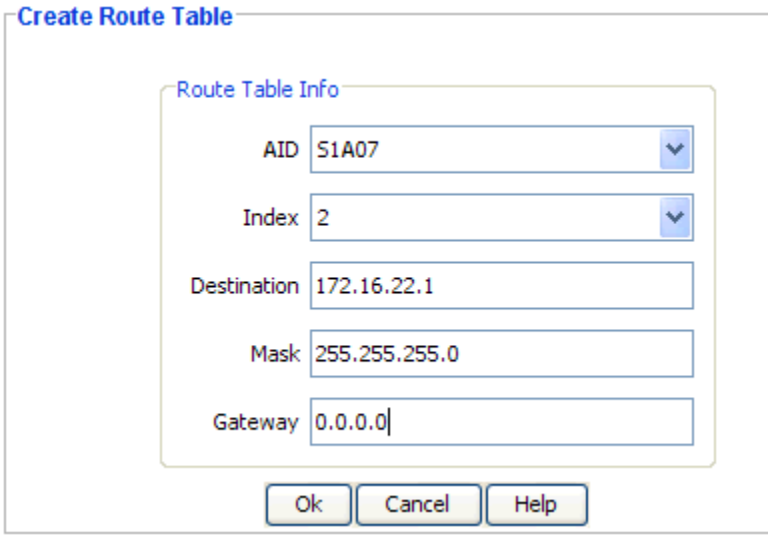


2. In the Create Route Table screen that appears, select the Access Identifier in the **AID** drop-down box.

3. Select an index number in the Index drop-down box. You can select up to six indexes and previously selected indexes are not displayed.

4. Enter an IP address in the **Destination** text box, enter a mask address in the **Mask** text box, enter a gateway address in the **Gateway** text box.

5. Click **OK** to accept changes and return to the Module Configuration Route Tables screen, or **Cancel** to return to the Module Configuration Route Tables screen without saving changes.



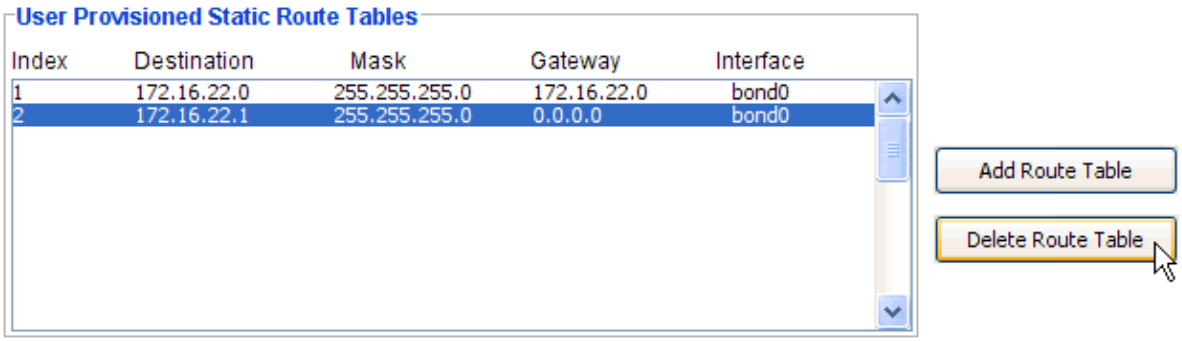
Deleting a Route Table

To delete a route table:

1. Using the left mouse button, click to select the route table you want to delete.

2. Click **Delete Route Table**. A query screen appears asking if you are sure you want to delete the table.

3. Click **Yes** in the query screen to delete the selected table.



PackeTime Advanced Functions

PackeTime Module Functions allows you to reset the module or remove logical data of the module from SSU-2000.

Ping allows you to ping *from* the specified port *to* an IP address. The response message is OK if the ping was successful or Fail if unsuccessful.

Configuration Functions allow you to save or restore configuration settings.

- Save User allows you to save any configuration changes made in the current session.
- Restore User button restores the configuration settings to the saved values.
- Restore Factory button restores the configuration settings to the factory values.

PackeTimePTP Module

PackeTimePTP Screen

The PackeTimePTP screen consists of the following status information sections:

- Inventory Summary
- Module Status
- Alarm Status
- SyncE Status

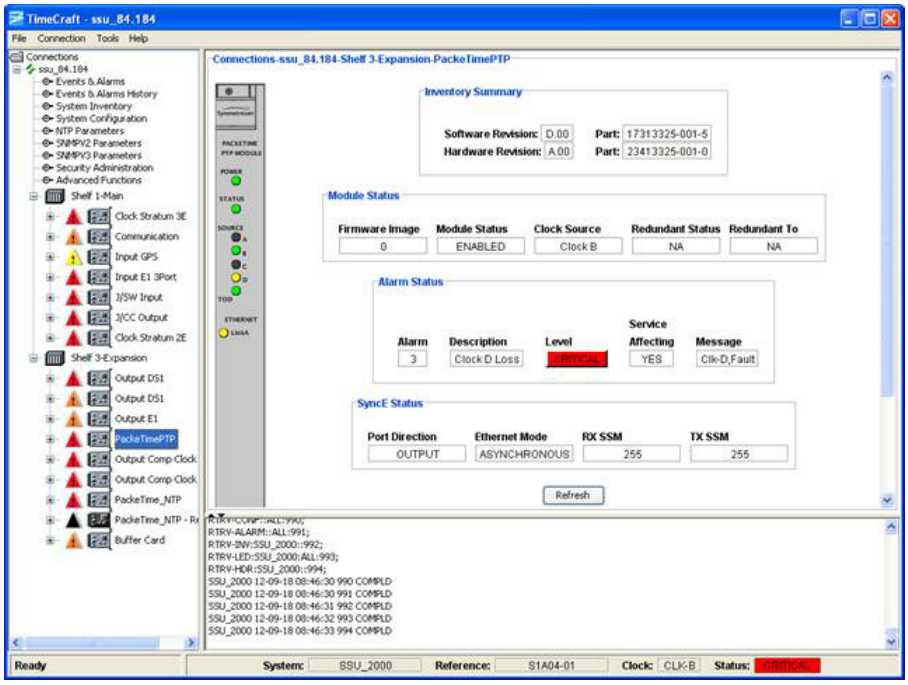
Each field of the screen is described in the table below.

The module image is dynamically updated every 60 seconds, or when you click **Refresh**. The refresh rate can be changed in the System Configuration screen, which can be accessed from the command tree.

Note: Only a subset of the PackeTimePTP module information is dynamically updated. The screens that display information that is not dynamically updated include Refresh buttons to allow users to refresh data when desired. The subset of info that is dynamically updated includes: active alarms and events, inventory info, LEDs, GPS tracking data, and user information.

Field / Section	Description
Inventory Summary	
Software Revision	Indicates the latest revision level of the module software
Hardware Revision	Indicates the manufacturing revision of the module
Part	Indicates the part number of the specific revision
Module Status	
Module Status	Indicates whether the selected module is enabled or disabled.
Firmware Image	Indicates which firmware image (0 or 1) is loaded when the module reboots.
Clock Source	Indicates which clock source is used for the module. Possibilities are CLK-A, CLK-B, CLK-C, CLK-D, or NONE.
Redundant Status	Indicates the modules redundant status, either active (ACT), standby (STDBY), or NA if not redundant.
Redundant To	This module and AID specified are redundant to each other
Alarm Status	

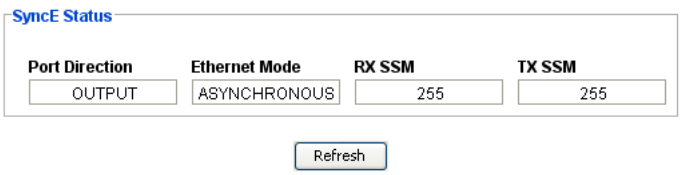
Alarm	This field displays the module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active alarms are indicated.
Description	This field displays a description of each alarm indicated on the module. Only active alarms are indicated. If no alarms are present, the first alarm description will read "None".
Level	This field indicates the severity of an alarm when it is first logged. Alarm level is set in the Alarm Configuration screen. Levels include: Critical, Major, and Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Service Affecting	This field Indicates whether an alarm response message affects service. A response will display either a "Yes" or "No" message.
Message	This message further describes the alarm description
SyncE Status	
Port Direction	Indicates the SyncE port direction. The output port is a SyncE master port and the input port is a SyncE slave port.
Ethernet Mode	Indicates whether SyncE operating on an Ethernet port is synchronous or asynchronous.
RX SSM	Displays the current RX SSM value. Range is 0-15. If 255, SyncE does not receive ESMC messages
TX SSM	Displays the current TX SSM value. Range is 0-15. If 255, SyncE does not transmit ESMC messages



PTP SyncE Status

To view the PTP SyncE Status:

1. In the PTP SyncE Status box, view the current values.
2. In version 6.4, only Output is supported for Port Direction. The output port is a SyncE master port, and the input port is a SyncE slave port.
3. Ethernet Mode shows whether SyncE operating on an Ethernet port is synchronous or asynchronous.
4. RX SSM shows the current rx ssm value (0 - 15). If 255, the SyncE port does not receive ESMC messages.
5. TX SSM shows the current tx ssm value (0 - 15). If 255, the SyncE port does not transmit ESMC messages.



PackeTime PTP Port Configuration

The Port Configuration screen provides a view of the following port settings for the Service Port and the Management Port:

- IP Address
- Mask
- Gateway
- Mac Address

The fields are described in the table below.

Click **Edit** to change the Port Configuration fields. After making the changes on the Edit screen, you must click **Apply** on this screen for the changes to take effect. Click **Refresh** to update the display.

Item	Description
IP Address	The port's IP address in the IPv4 format (###.###.###.###)

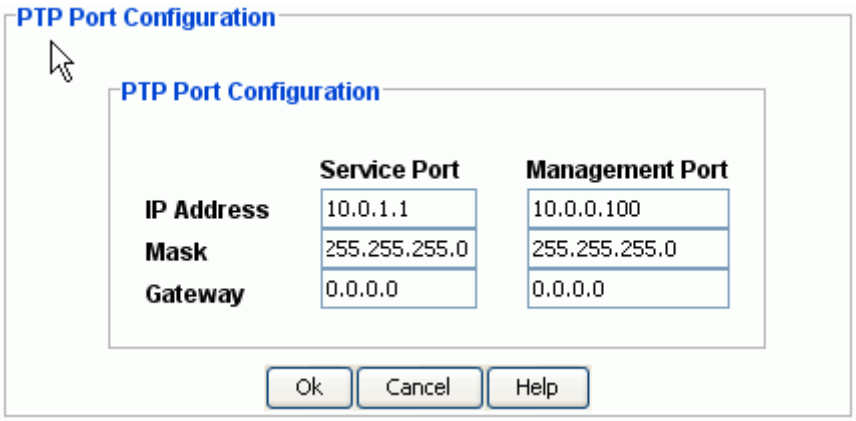
Mask	The port's IP mask in the IPv4 format (###.###.###.###)
Gateway	The port's IP gateway in the IPv4 format (###.###.###.###)
Mac Address	The Media Access Control address

Edit PackeTimePTP Port Configuration

To set the port configuration:

1. Enter the IP address for each port in IPv4 format (###.###.###.###) in the **IP Address** text boxes.
2. Enter the mask address for each port in IPv4 format (###.###.###.###) in the **Mask** text boxes.
3. Enter the gateway address for each port in IPv4 format (###.###.###.###) in the **Gateway** text boxes.
4. Click **OK** to accept changes and return to the PTP Port Report screen, or **Cancel** to return to the PTP Port Report screen without saving changes.

Note: After making the changes on the Edit screen, you must click Apply on the PTP Port Configuration screen for the changes to take effect.



PackeTimePTP Alarm Configuration

The Alarm Configuration screen provides a view of:

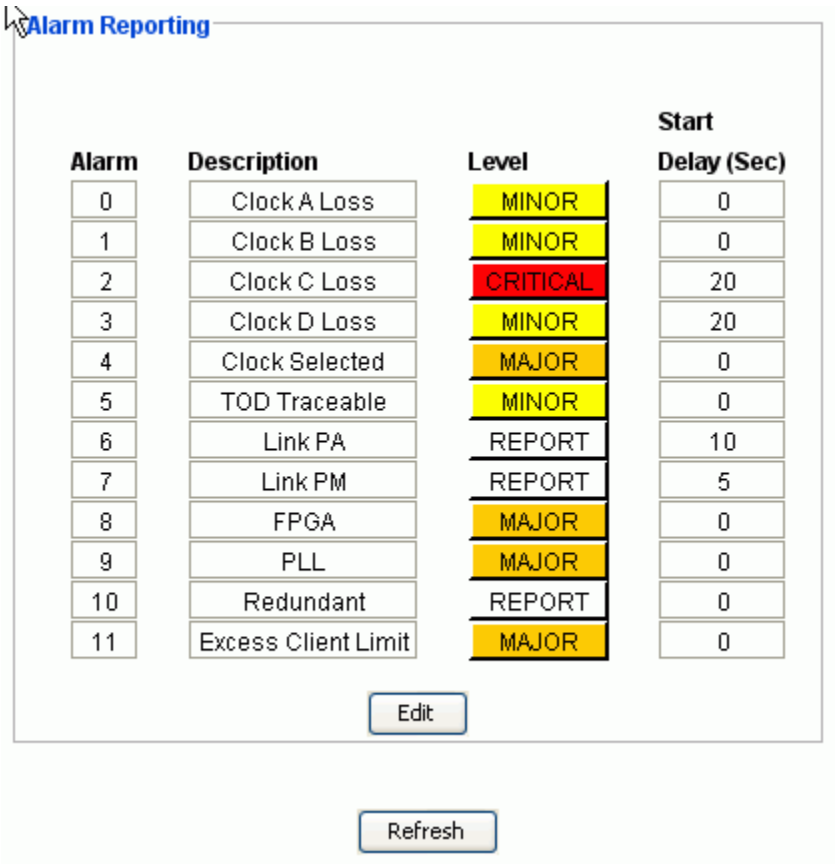
- Alarm Numbers
- Alarm Descriptions

- Alarm Levels
- Start Delay Time

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

Field / Section	Description
Alarm	This field displays the input module alarm number. Alarm numbers display in numerical order and correspond to an alarm description.
Description	This field displays a description of each alarm indicated on the module.
Level	This field indicates the severity of an alarm when it is first logged. Click **Edit** to set the Alarm level. Levels include: Critical, Major, Minor, Report, and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Start Delay	Delays the start of an alarm report by the number of seconds entered in the Start Delay field. Valid entries for this field are 0 to 86,400 seconds.



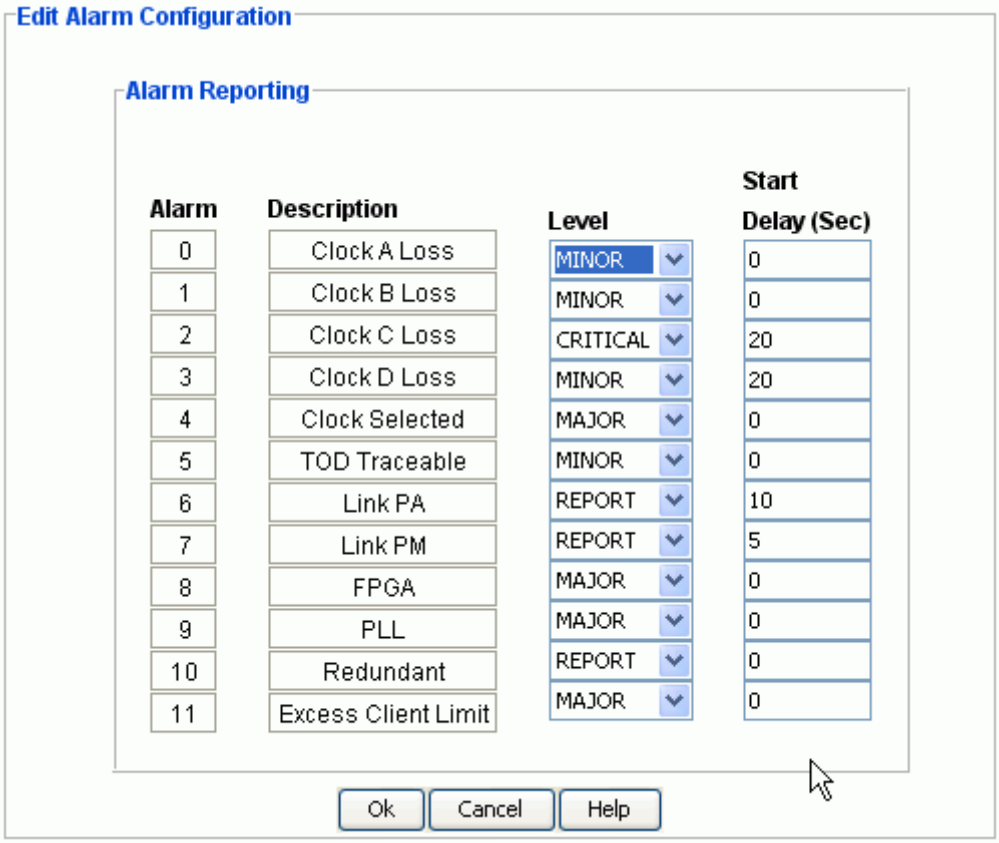
Edit PackeTime PTP Alarm Configuration

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Enter the start delay time in seconds in the **Start Delay** text boxes. This delays the start of an alarm report by the number of seconds entered. Valid entries for this field are 0 to 86,400 seconds.

3. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



PackeTimePTP Module Inventory

The Module Inventory screen displays module data which will be useful when specific module information is needed, for example:

- When consulting with technical support
- Upgrading firmware
- For general reference

No fields are editable. Each field of the Inventory screen is described in the table below.

Field / Section	Description
Inventory Data	
AID	The Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Description	Displays type of module
Serial	Indicates the module serial number
Hardware Rev	Indicates the last revision level of the input module
Software Rev	Indicates the latest revision level of the input module software
Hardware/Software Part	Indicates the part number of the specific revision
Date Last Reset	The date when the module was last reset
Date Manufactured	The date when the module was manufactured
Refresh Button	Updates the text fields

PLD Information

Field / Section	Description
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date is when the version was created, if available.

Inventory Data

AID	S2A14
Description	PackeTimePTP
Hardware Rev	A.00
Hardware Part	23413325-001-0
Serial	R67271
Date Last Reset	09-03-13
Date Manufactured	08-11-21
Software Rev	A.00
Software Part	17313325-001-5

PLD Information

Count	Revision
0	A.00 09-03-02

Refresh

Module Configuration

PackeTimePTP Module Configuration

The PackeTimePTP Module Configuration screen consists of the following status information sections:

- Alarm Elevation Time
- PTP Differentiated Service Code Point
- PTP Firmware Image
- PTP Service
- PTP Module Status
- PTP Message Rates
- PTP Port Attributes

- PTP Unicast
- PTP Two Step State
- PTP Profile
- PTP SSM Option
- PTP SyncE
- PTP MGMT Default Data Set
- PTP MGMT Clock Description
- PTP MGMT Time Message
- PTP MGMT Port Data Set

Note: After making the changes on the Edit screen, you must click Apply on this screen for the changes to take effect. However, to not disrupt PTP service, you should make all changes first then click Apply only once. Each time you click Apply, the PTP card stops service for 30 seconds while it re-configures to its new settings. Click Refresh to update the display.

Each field of the module configuration screen is described in the table below.

Item	Description
Alarm Elevation	Indicates the number of seconds the alarm must persist before elevating to the next higher alarm level. Values include 0 (immediate) to 86,400 (1 day). The range is 60 to 500,000 seconds. May also be disabled for no alarm elevation time.
PTP Differentiated Service Code Point	
State	Defines the Differentiated Service Code Point (DSCP) state, Enabled or Disabled
DS Value	Shows the DS value used in the IP header to classify IP traffic
PTP Firmware Image	Indicates which firmware image is in use by the PackeTimePTP module (0 or 1).
PTP Service	
Service	Indicates the type of service available. PTP only.
Service State	Indicates the PTP Service state, Enabled or Disabled
PTP Module Status	
Module Status	Indicates the status of the PTP module, Enabled or Disabled.
Redundant State	Identifies the Port Bonding state of the selected PTP module

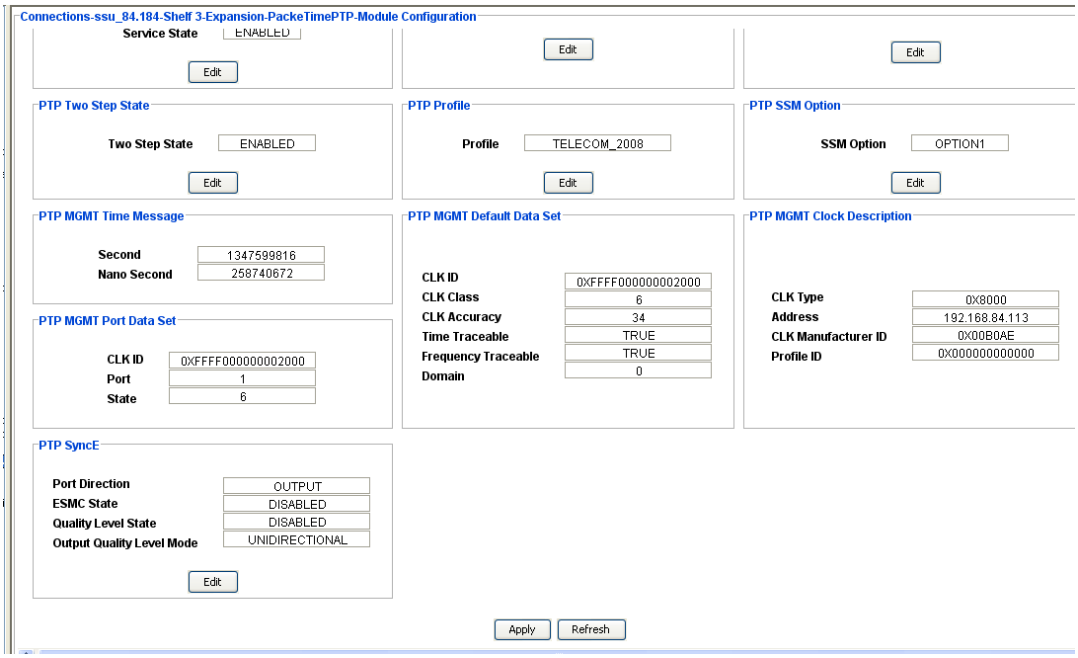
Redundant To	Identifies the AID of the device to which the selected PTP module is bonded
Clock Source	Identifies the clock source. Possibilities are CLK-A, CLK-B, CLK-C, CLK-D, or NONE.
Bypass	Allows Clock C selection, ON or OFF.
All	Defines if the service port transmission rate is to be auto-negotiated (0) transmission rate with downstream element
Ethernet Rate	Defines the service port transmission rate as either 100BaseT (100) or 1000BaseT (1000). **Note:** this setting is only applied to the copper SFP, not fiber. If fiber SFP installed, this setting shall be ignored
PTP Message Rates	
Sync Msg Rate	Indicates the PTP unicast Sync message rate, (2^y), in seconds. Range = –7 to 7. A value of -7, which means 128 per second.
Announce Msg Rate	Indicates the PTP unicast Announce message rate, (2^y), in seconds. Range = –3 to 4. A value of -3, which means 8 per second.
Delay Msg Rate	Indicates the PTP unicast Delay message rate, (2^y), in seconds. Range = –7 to 7. A value of -6, which means 64 per second.
PTP Port Attributes	
Clock ID	The PTP Port Clock Identity (64-bit value). The format is 0Xaaaaaaaaaaaaaaaa. The “a” represents a hex value. The clockid format contains a prefix hex number token (0X) following up to 16 hex characters.
Priority 1	Indicates the PTP Port Priority 1. Range = 0 to 255
Priority 2	Indicates the PTP Port Priority 2. Range = 0 to 255
Domain	Indicates the PTP Domain. Range = 0 to 255
Time Scale	Indicates the time scale, PTP or ARB (arbitrary)
Max Clients	Indicates the maximum number of clients. Range = 64 to 125 **Note:** SSU2000 Linux Communication Module can have up to 400 clients.
PTP Unicast	
Max Dynamic Unicast Lease Interval	Indicates the PTP maximum Dynamic Unicast Lease Interval. Range = 10 to 1000 seconds
Negotiate State	Indicates the PTP Unicast Negotiation state, Enabled or Disabled.
Two Step State	
Two Step State	Indicates whether the Two Step clock operation is enabled. This panel is not displayed for legacy devices earlier than SSU 2000 6.3.
Profile	
Profile	Identifies PTP profile to ITU_G8265_1 or TELCOM_2008 selection. This panel is not displayed for legacy devices earlier than SSU 2000 6.3.
SSM Option	

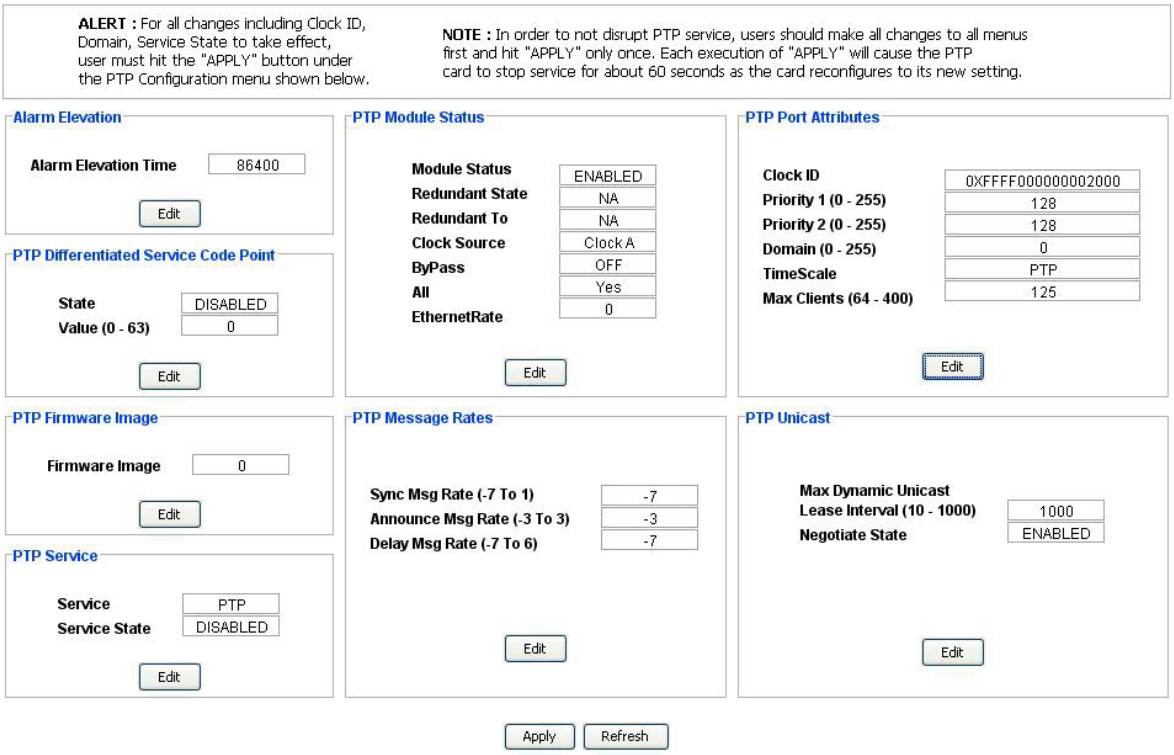
SSM Option	This option is only available when PTP runs on ITU_G.8265.1. All the clock classes are defined according to the PQL (Priority Quality Level) value. Users are allowed to choose SSM Option 1 or Option 2 to determine the exact clock class. This panel is not displayed for legacy devices earlier than SSU 2000 6.3.
PTP Management Time Message	
Second	Identifies PTP current time in seconds
Nano Second	Identifies PTP fractional current time in nanoseconds
PTP Management Default Data Set	
Clock ID	Identifies PTP Clock ID which must be unique to avoid system conflicts and ensure interoperability. It is recommended that each active PackeTime PTP card's ClockID be set using the MAC-based value. The format is 0Xaaaaaaaaaaaaaaaa. The "a" represents a hex value. The 0X is a hex number token. The format contains a prefix hex number token (0X) following up to 16 hexadecimal characters.
Clock Class	Identifies the PTP master clock class
Clock Accuracy	Identifies the PTP master clock accuracy per the clock accuracy table
Time Traceable	Indicates if the time is traceable
Frequency Traceable	Indicates if the frequency is traceable.
Domain	Indicates the 8-bit domain number
PTP Management Clock Description	
Clock Description	Indicates PTP clock identification information ■ Type - 16-bits value that is hard coded to 0x8000 Ordinary Clock. The format is a hexadecimal which contains a prefix hexadecimal number token (0X). ■ Address - IP address of the PTP port. ■ Manufacturer ID - 3-bytes array. The format is hexadecimal format which contains a prefix hexadecimal number token (0X). ■ Profile ID - 6-bytes array. The format is hexadecimal which contains a prefix hexadecimal number token (0X).

Port Data Set	Indicates the following port information: ■ clock ID – 8 bytes array of PTP Clock ID - must be unique to avoid system conflicts and ensure interoperability, it is recommended that each active PackeTime PTP card's ClockID be set using the MAC-based value. The format is 0Xaaaaaaaaaaaaaaaa. The "a" represents a hex value. The 0X is a hex number token. The format contains a prefix hex number token (0X) following up to 16 hexadecimal characters ■ Port – PTP port number, a 16-bit number ■ State – PTP port state, an 8-bit number
PTP SyncE	
Port Direction	Indicates the SyncE port direction as either output or input. The output port is a SyncE master port and input port is a SyncE slave port.
ESMC State	Indicates whether SyncE ESMC is being used. If ESMC is enabled, the ESMC is used.
Quality Level State	Indicates whether QL (SSM) state in the ESMC is being used. If enabled, the SSM in the ESMC is used.
Output Quality Level Mode	Indicates the Output QL mode is either unidirectional or bidirectional

Note: Two Step State, Profile, SSM Option, and PTPT Management Message summary panels will not be displayed for legacy devices (below SSU 2000 6.3).

PTP SyncE Settings summary panel will not be displayed for legacy devices (below SSU 2000 6.4).





Edit PackeTime PTP Alarm Elevation Configuration

To configure the alarm elevation time:

1. In the Alarm Elevation Time drop-down box, enter the number of seconds the alarm must persist before elevating to the next higher alarm level or select

Disabled for no alarm elevation time. Values include 0 (immediate) to 86,400 (1 day). The range is 60 to 500,000 seconds.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

3. Click **Apply** in the Module Configuration Screen to apply the changes.

Note: After making the changes on the Edit screen, you must click Apply on the PackeTime PTP Module Configuration screen for the changes to take effect.

Note: Alarm elevation may be set for each module on its Module Configuration panel, or for the entire system on the System Configuration panel.

Edit PackeTimePTP Differentiated Service Code Point Configuration

To configure the Differentiated Service Code Point:

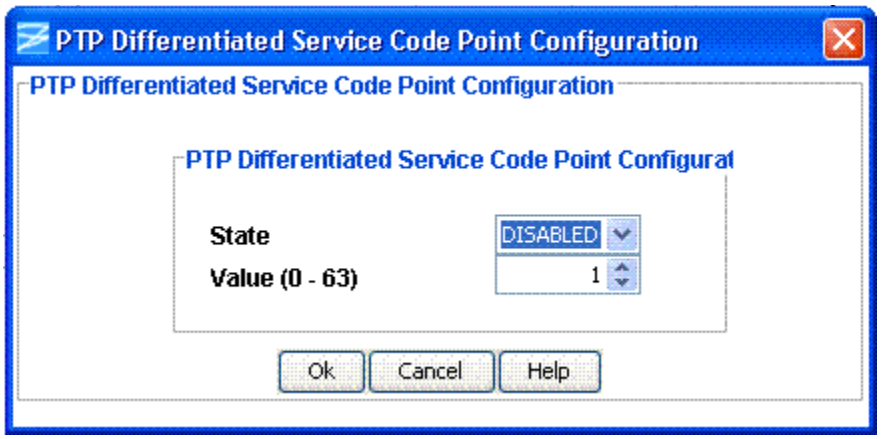
1. Select Disabled in the DSCP State drop-down box to disable. Or select Enabled in the DSCP State drop-down box to enable.

2. In the DS Value box, set the desired value. The range is 0 to 63.

3. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

4. Click **Apply** in the Module Configuration Screen to apply the changes.

Note: After making the changes on the Edit screen, you must click Apply on the PackeTime PTP Module Configuration screen for the changes to take effect.



Edit PackeTimePTP Firmware Image Configuration

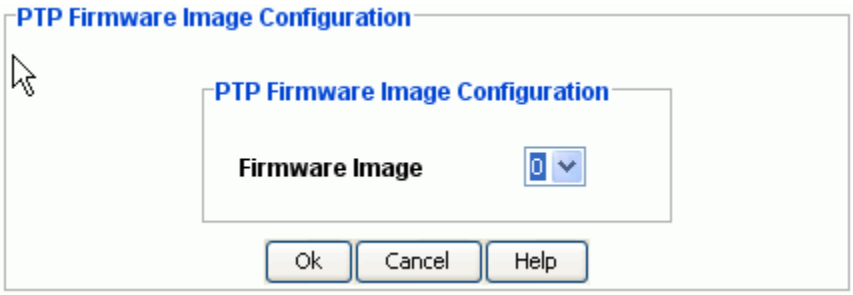
To configure the firmware image:

1. Select 0 or 1 in the PTP Firmware Image Configuration drop-down box.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

Note: Neither clicking **Ok** on this screen nor clicking the **Apply** button on the Module Configuration screen will activate the firmware. When you change the firmware image, the new image is not activated until the module is rebooted. The user can reboot the module in TimeCraft by clicking **Restart** in the Advanced Functions menu.

Note: After making the changes on the Edit screen, you must click Apply on the PackeTime PTP Module Configuration screen for the changes to take effect.



Edit PackeTime PTP Message Rates Configuration

To configure the PTP message rates:

1. In the Sync Msg Rate box, set the desired value. The range is –7 to 7.

2. In the Announce Msg Rate box, set the desired value. The range is –3 to 4.

3. In the Delay Msg Rate box, set the desired value. The range is –7 to 7.

4. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

5. Click **Apply** in the Module Configuration Screen to apply the changes.

Note: After making the changes on the Edit screen, you must click Apply on the PackeTime PTP Module Configuration screen for the changes to take effect.

Edit PackeTime PTP Module Status Configuration

The procedure for configuring redundant and non-redundant PackeTime PTP modules is similar. For redundant modules (see Fig. 1), follow the procedure below To configure non-redundant modules (see Fig. 2), follow the procedure below but skip Step 2.

1. In the Module Status drop-down box select ENABLED or DISABLED.

2. Click the Activate check-mark box to activate the redundant module, or remove the check-mark to deactivate the redundant module. If modules are not redundant, skip to Step 3 of this procedure.

3. In the Bypass drop-down box select ENABLED or DISABLED.

4. Click the All check-mark box to set the service port transmission rate to be auto-negotiated (0) transmission rate with downstream element.

5. In the Ethernet Rate drop-down box select either 100 or 1000 (MBPS).

6. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

7. Click **Apply** in the Module Configuration Screen to apply the changes.

Note: After making the changes on the Edit screen, you must click Apply on the PackeTime PTP Module Configuration screen for the changes to take effect.

Fig. 1: Redundant Modules – Edit Status Configuration Dialog

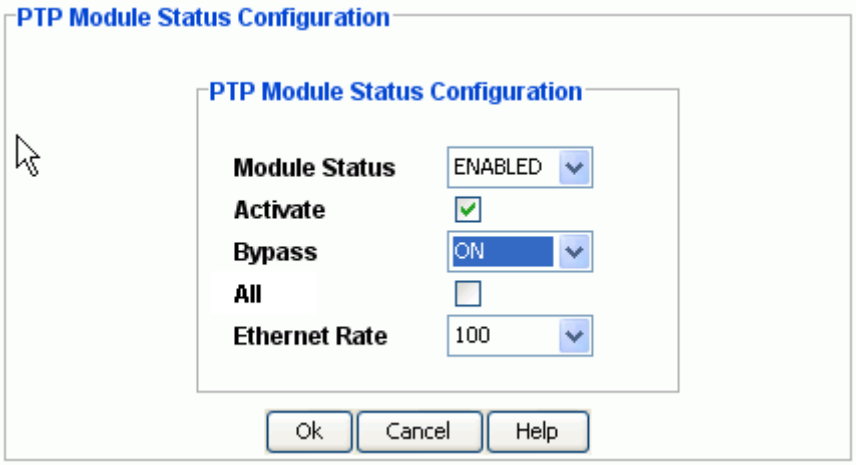
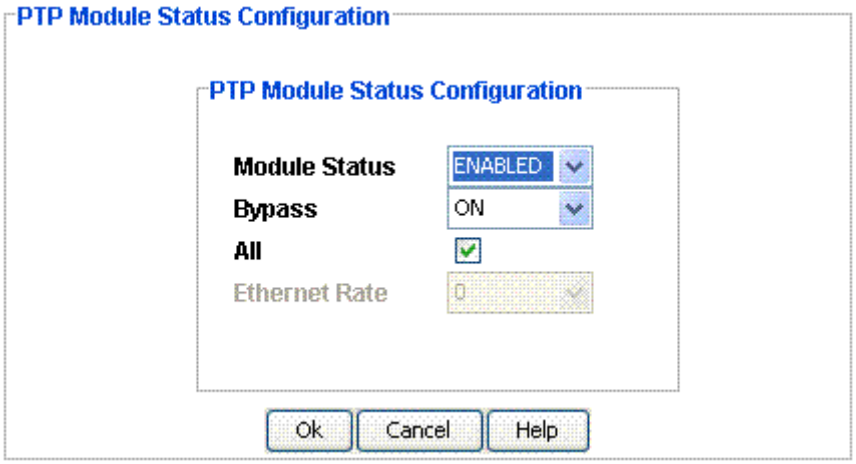


Fig. 2: Non-Redundant Modules – Edit Status Configuration Dialog



Edit PackeTime PTP Port Attributes Configuration

To configure the PTP port attributes:

1. In the Clock ID box, set the desired value. The ID must be a 64-bit value. The format is 0Xaaaaaaaaaaaaaaaa, where the “a” represents a hex value. The clockid format contains a prefix hex number token (0X) following up to 16 hex characters.

2. In the Priority 1 box, set the desired value. The range is 0 to 255.

3. In the Priority 2 box, set the desired value. The range is 0 to 255.

4. In the Domain box, set the desired value. The range is 0 to 255.

5. In the Time Scale drop-down box, select the PTP or ARB.

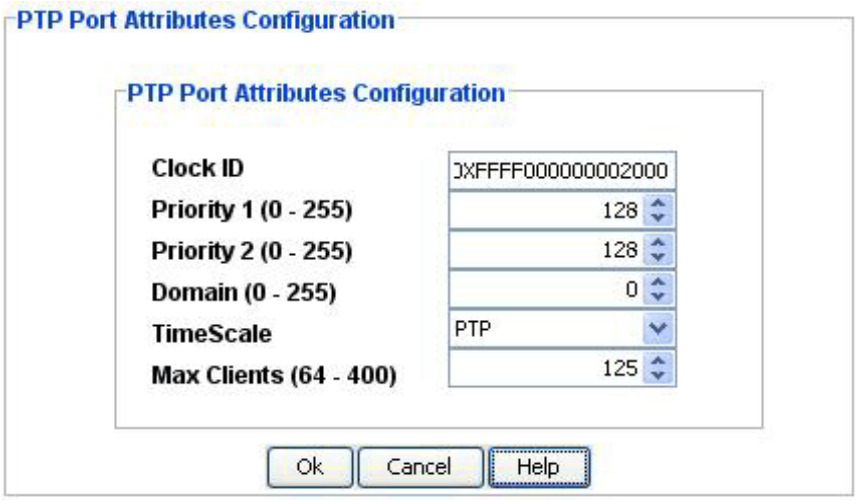
6. In the Max Clients box, set the desired value. The range is 64 to 125.

Note: For SSU2000 6.2, the maximum number of clients is 400.

7. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

8. Click **Apply** in the Module Configuration Screen to apply the changes.

Note: After making the changes on the Edit screen, you must click Apply on the PackeTime PTP Module Configuration screen for the changes to take effect.



Edit PackeTimePTP Service Configuration

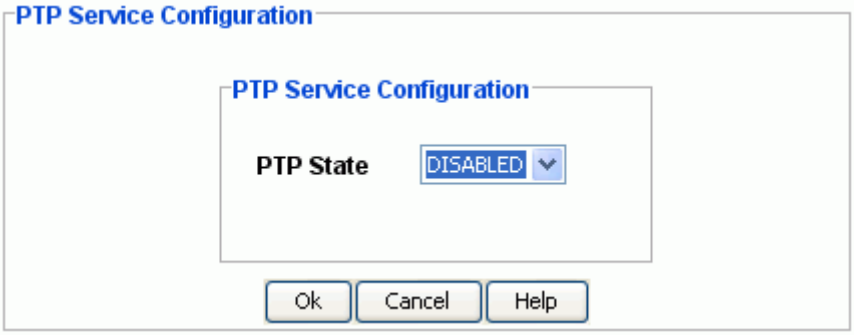
To configure the PTP Service:

1. Select Disabled in the drop-down box to disable. Or select Enabled in the drop-down box to enable.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

3. Click **Apply** in the Module Configuration Screen to apply the changes.

Note: After making the changes on the Edit screen, you must click Apply on the PackeTime PTP Module Configuration screen for the changes to take effect.



Edit PackeTime PTP Unicast Configuration

To set the PTP Unicast configuration:

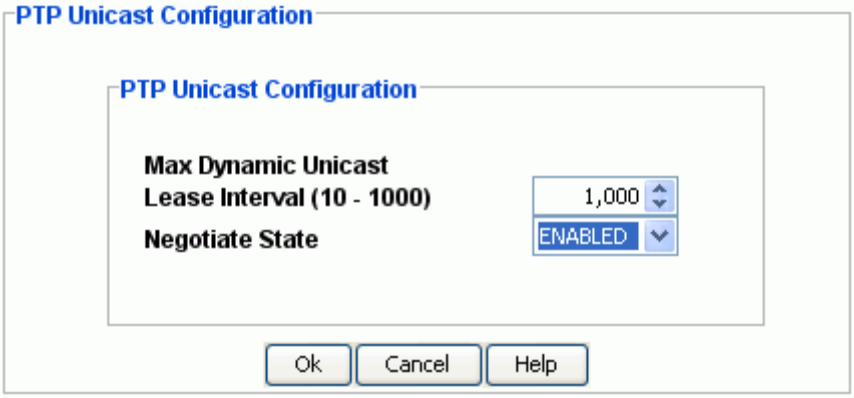
1. In the Max Dynamic Unicast Lease Interval box, set the desired value. The range is 10 to 1000 seconds.

2. Select Disabled in the Negotiate State drop-down box to disable. Or select Enabled in the Negotiate State drop-down box to enable.

3. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

4. Click **Apply** in the Module Configuration Screen to apply the changes.

Note: After making the changes on the Edit screen, you must click Apply on the PackeTime PTP Module Configuration screen for the changes to take effect.



Client List Screen

The Client List screen provides a way to view the Client List for the selected PackeTimePTP module.

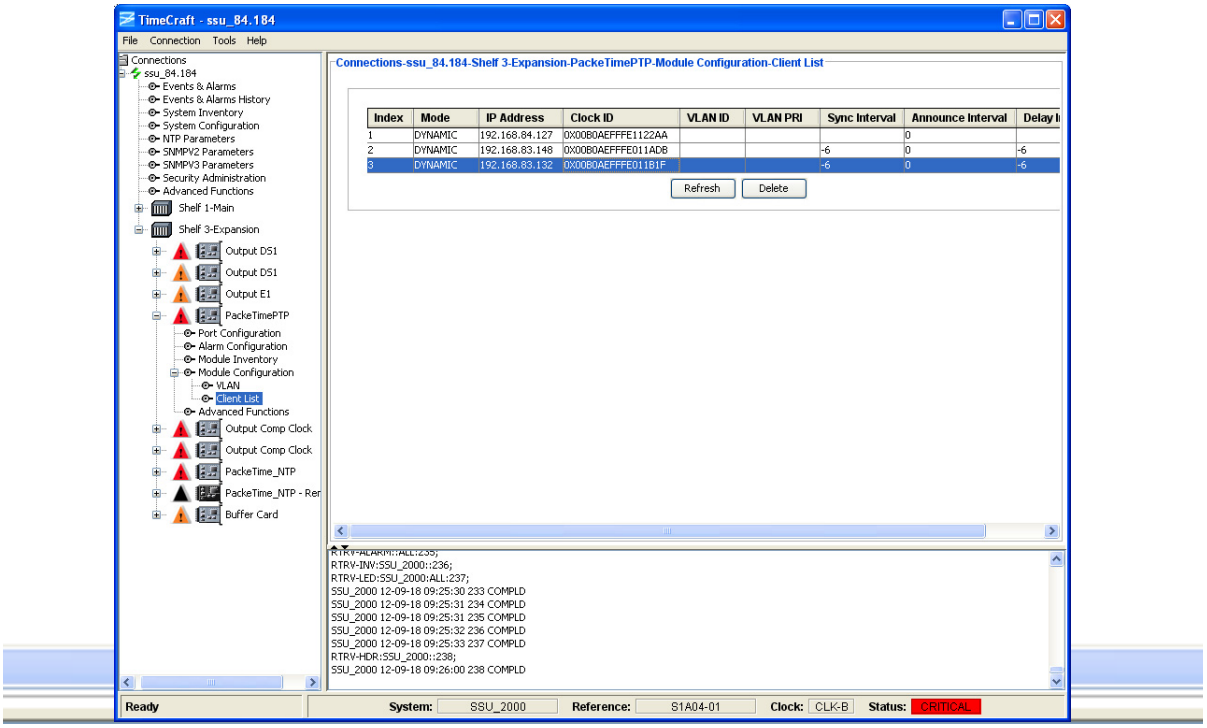
Connections-SSU112-Shelf 1-Main-PackeTimePTP-Module Configuration-Client List

Index	Mode	IP Address	Clock ID	VLAN ID	VLAN PRI	Sync Interval	Announce Interval	Delay Interval
50	DYNAMIC	192.168.10.31	0X011094FFFF00001F	2	1	-7	-3	-7
51	DYNAMIC	192.168.10.32	0X011094FFFF000020	2	1	-7	-3	-7
52	DYNAMIC	192.168.10.33	0X011094FFFF000021	2	1	-7	-3	-7
53	DYNAMIC	192.168.10.34	0X011094FFFF000022	2	1	-7	-3	-7
54	DYNAMIC	192.168.10.35	0X011094FFFF000023	2	1	-7	-3	-7
55	DYNAMIC	192.168.10.36	0X011094FFFF000024	2	1	-7	-3	-7
56	DYNAMIC	192.168.10.37	0X011094FFFF000025	2	1	-7	-3	-7
57	DYNAMIC	192.168.10.38	0X011094FFFF000026	2	1	-7	-3	-7
58	DYNAMIC	192.168.10.39	0X011094FFFF000027	2	1	-7	-3	-7
59	DYNAMIC	192.168.10.40	0X011094FFFF000028	2	1	-7	-3	-7
60	DYNAMIC	192.168.10.41	0X011094FFFF000029	2	1	-7	-3	-7
61	DYNAMIC	192.168.10.42	0X011094FFFF00002A	2	1	-7	-3	-7
62	DYNAMIC	192.168.10.43	0X011094FFFF00002B	2	1	-7	-3	-7
63	DYNAMIC	192.168.20.13	0X021094FFFF00000D	568	1	-7	-3	-7
64	DYNAMIC	192.168.20.14	0X021094FFFF00000E	568	1	-7	-3	-7
65	DYNAMIC	192.168.20.15	0X021094FFFF00000F	568	1	-7	-3	-7
66	DYNAMIC	192.168.20.16	0X021094FFFF000010	568	1	-7	-3	-7
67	DYNAMIC	192.168.20.17	0X021094FFFF000011	568	1	-7	-3	-7
68	DYNAMIC	192.168.20.18	0X021094FFFF000012	568	1	-7	-3	-7
69	DYNAMIC	192.168.20.19	0X021094FFFF000013	568	1	-7	-3	-7
70	DYNAMIC	192.168.20.20	0X021094FFFF000014	568	1	-7	-3	-7
71	DYNAMIC	192.168.20.21	0X021094FFFF000015	568	1	-7	-3	-7
72	DYNAMIC	192.168.20.22	0X021094FFFF000016	568	1	-7	-3	-7
73	DYNAMIC	192.168.20.23	0X021094FFFF000017	568	1	-7	-3	-7

Delete PTP client

To delete a PTP Client.

1. Click the Client List in the tree node.
2. Select the PTP client to remove from the Client List.
3. Click the **Delete** button in the Client list.



4. Click **Yes** to confirm.

Note: Delete button will be enabled/displayed for legacy devices (below SSU 2000 6.4).

Edit PTP Two Step State Configuration

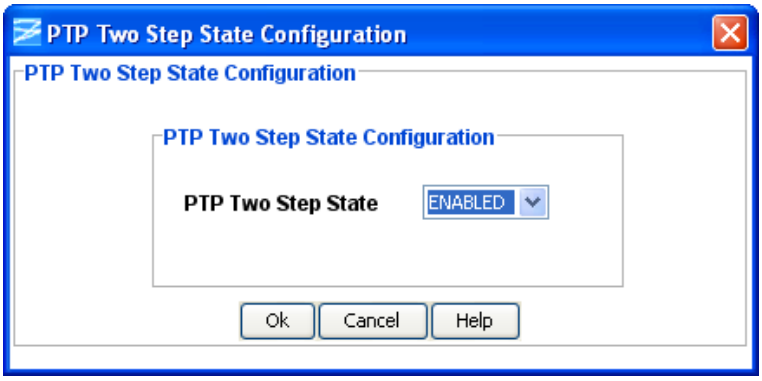
To set the PTP Two Step State configuration:

1. In the PTP Two Step State Configuration box, set the desired value. Select Disabled in the PTP Two Step State drop-down box to disable. Or select Enabled in the drop-down box to enable.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

3. Click **Apply** in the Module Configuration Screen to apply the changes.

Note: After making the changes on the Edit screen, you must click Apply on the PackeTime PTP Module Configuration screen for the changes to take effect.



Edit PTP Profile Configuration

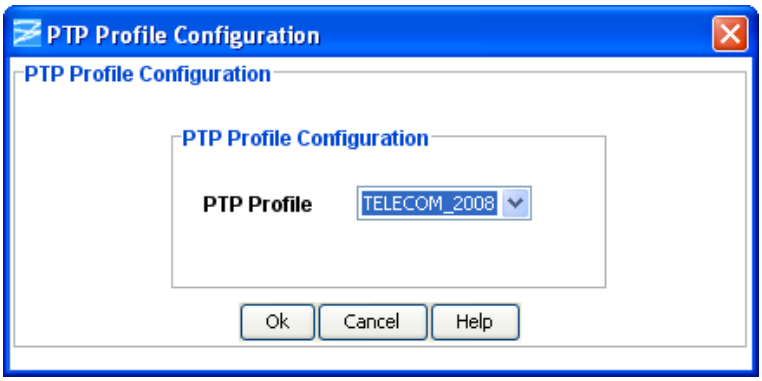
To set the PTP Profile configuration:

1. In the PTP Profile Configuration box, set the desired value. Select TELECOM_2008 in the PTP Profile drop-down box to or select ITU_G8265_1.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

3. Click **Apply** in the Module Configuration Screen to apply the changes.

Note: After making the changes on the Edit screen, you must click Apply on the PackeTime PTP Module Configuration screen for the changes to take effect.



Edit PTP SSM Option Configuration

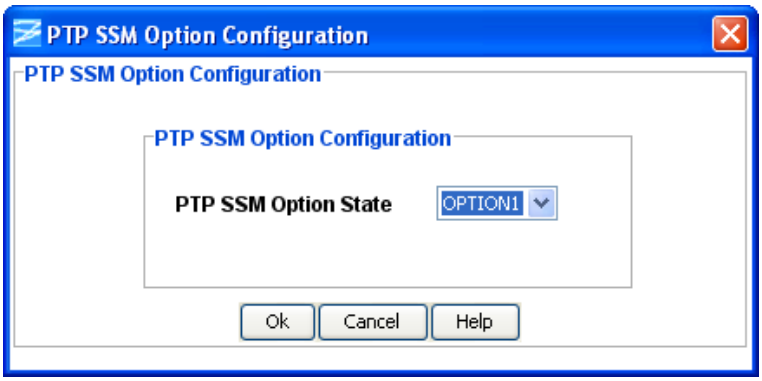
To set the PTP SSM Option configuration:

1. In the PTP SSM Option Configuration box, set the desired value using the drop-down box. The values are OPTION1 or OPTION2.

2. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

3. Click **Apply** in the Module Configuration Screen to apply the changes.

Note: After making the changes on the Edit screen, you must click **Apply** on the PackeTime PTP Module Configuration screen for the changes to take effect.



Edit PTP SyncE Configuration

To edit the PTP SyncE Configuration:

1. In the PTP SyncE Configuration box, edit the current values.

2. Select Output in the Port direction drop-down box to set the port direction to output.

3. Select Disabled in the ESMC State drop-down box to disable. Or, select Enabled in the drop-down box to enable.

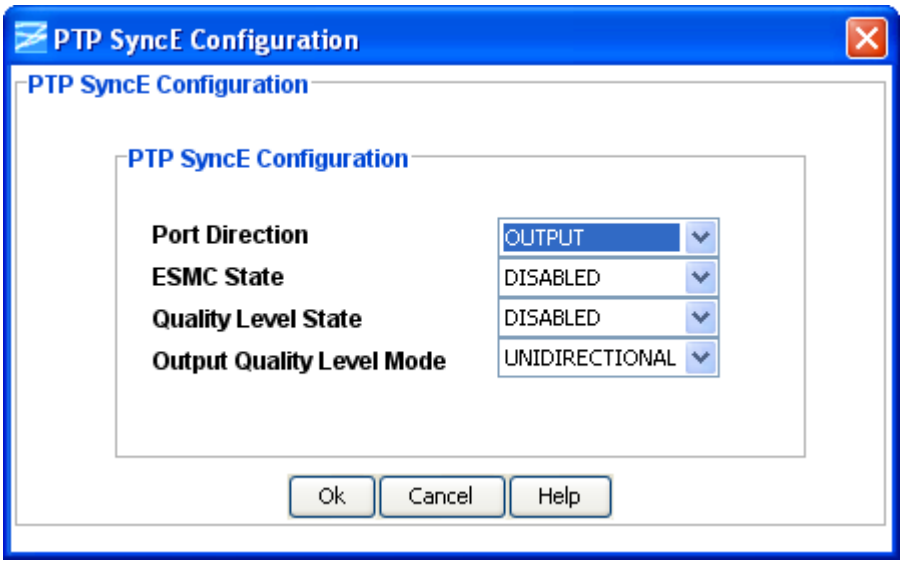
4. Select Disabled in the Quality Level State drop-down box to disable. Or, select Enabled in the drop-down box to enable.

5. Select Unidirectional in the Output Quality Level Mode drop-down box to set up one way output. Or, select Bidirectional in the drop-down box to enable bidirectional output.

6. Click **OK** to accept changes and return to the Module Configuration screen, or **Cancel** to return to the Module Configuration screen without saving changes.

7. Click **Apply** in the Module Configuration Screen to apply the changes.

Note: After making the changes on the Edit screen, you must click **Apply** on the PackeTime PTP Module Configuration screen for the changes to take effect.



PTP VLAN

VLAN is the Virtual Local Area Network. The following information describes the fields in this screen.

Item	Description
AID	The Access Identifier (AID) denotes the shelf, module, and port within the SSU-2000 where the PackeTimePTP module is installed.
Index (1 - 4)	The index value of the PTP VLAN port (1 through 4) at the specified IP Address
State	Displays the VLAN state, either enabled or disabled
ID (2 - 4094)	Displays the VLAN identification (2 to 4094)
Priority (0 - 7)	Displays the VLAN priority (0 to 7) with a separate priority for each port if they are not bonded or one priority for the bonded ports
IP Address	The VLAN's IP address in the IPv4 format (###.###.###.###)
IP Mask	The VLAN's IP mask in the IPv4 format (###.###.###.###)
IP Gateway	The VLAN's IP gateway in the IPv4 format (###.###.###.###)

To change a VLAN configuration, select the desired VLAN and click **Edit VLAN**.

To delete* a VLAN configuration, select the desired VLAN and click **Delete VLAN.**

To enable a VLAN configuration, select the desired VLAN and click **Enable VLAN**.

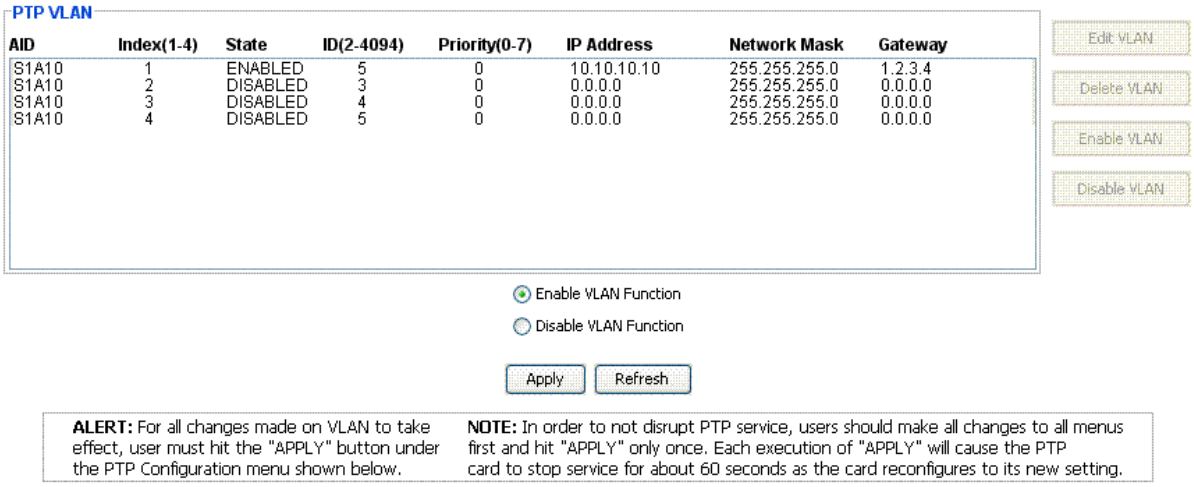
To disable a VLAN configuration, select the desired VLAN and click **Disable VLAN**.

To enable the VLAN Function, click the **Enable VLAN** radio button.

To disable the VLAN Function, click the **Disable VLAN** radio button.

Note: Deleting a VLAN does not delete the VLAN from the PackeTimePTP module. The Delete VLAN operation sets the VLAN State to Disable for the selected VLAN and sets the IP and Gateway for that VLAN to 0.0.0.0

Note: After making the changes on the Edit screen, you must click Apply on this screen for the changes to take effect.



Edit PTP VLAN

To configure VLAN:

8. In the **ID** scrolling entry box, enter a number from 2 to 4094.

Note: In the scrolling entry boxes, you can also click in the box and type in the desired number.

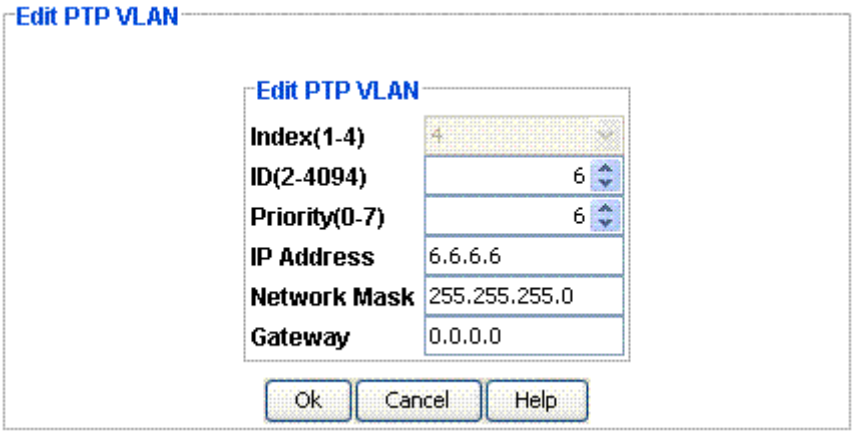
9. In the **Priority (0 - 7)** scrolling entry box, enter a number from 0 to 7.
10. In the **IP Address** entry box, enter the desired IP address.
11. In the **Network Mask** entry box, enter the desired mask.

12. In the **Gateway** entry box, enter the desired Gateway address.

13. Click **OK** to accept changes and return to the Module Configuration VLAN screen, or **Cancel** to return to the Module Configuration VLAN screen without saving changes.

14. Click **Apply** in the Module Configuration Screen to apply the changes.

Note: After making the changes on the Edit screen, you must click Apply on the PTP VLAN Screen screen for the changes to take effect.



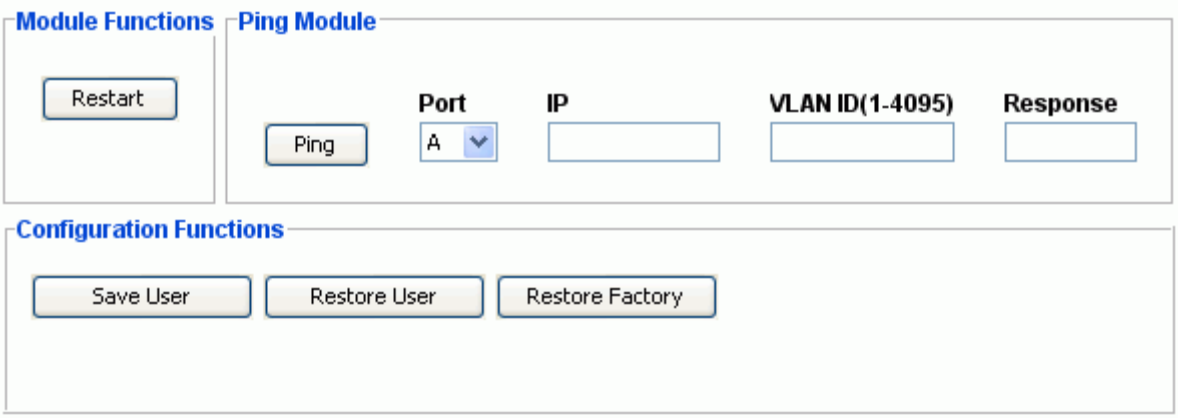
PackeTimePTP Advanced Functions

PackeTimePTP Module Functions allows you to reset the module or remove logical data of the module from the SSU-2000.

Ping allows you to ping *from* the specified port *to* an IP address. The response message is OK if the ping was successful or FAIL if unsuccessful.

Configuration Functions allow you to save or restore configuration settings.

- Save User allows you to save any configuration changes made in the current session.
- Restore User button restores the configuration settings to the saved values.
- Restore Factory button restores the configuration settings to the factory values.



Buffer Card

Buffer Card Status

The Output Module Status screen consists of three status information sections:

- Inventory Data
- PLD Information
- Alarm Status

Each field of the Status screen is described in the table below.

The module image is dynamically updated every 30 seconds, or when **Refresh** is clicked (under **Connection** on the Main screen).

Field / Section	Description
Inventory Data	Displays module location and type
AID	Access Identifier (AID) denotes a shelf, module, and port within the SSU-2000
Serial	Displays module serial number
Description	Indicates module type
Inventory Summary	
Hardware Revision	Indicates the manufacturing revision of the module
Hardware Part	Indicates the part number of the specific revision
Date of Last Reset	Indicates date of last module reset
Date Manufactured	Indicates the manufacture date of module

PLD Information	
Count	Indicates the software version count which varies from 0 to 5
Revision	Indicates the revision string of the module, generally as X.yy [YY-MM-DD] where X is the major revision number, yy is the minor revision, and the optional date when the version was created, if available.
Alarm Status	
Alarm	This field displays the buffer module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each module alarm indicated on the buffer module. Only active alarms are indicated. If no alarms are present, the first alarm description will read "None".
Level	This field indicates the severity of an alarm when it is first logged. Levels include: Critical, Major, and Minor. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Service Affecting	This field Indicates whether an alarm response message affects service. A response will display either a "Yes" or "No" message
Message	This message further describes the alarm description

Buffer Card Alarm Configuration

The Alarm Configuration screen provides a view of:

- Active Alarms
- Alarm Descriptions
- Alarm Levels
- Start Delay
- Clear Delay

Alarm Reporting fields are described in the table below.

Click **Edit** to set the parameters.

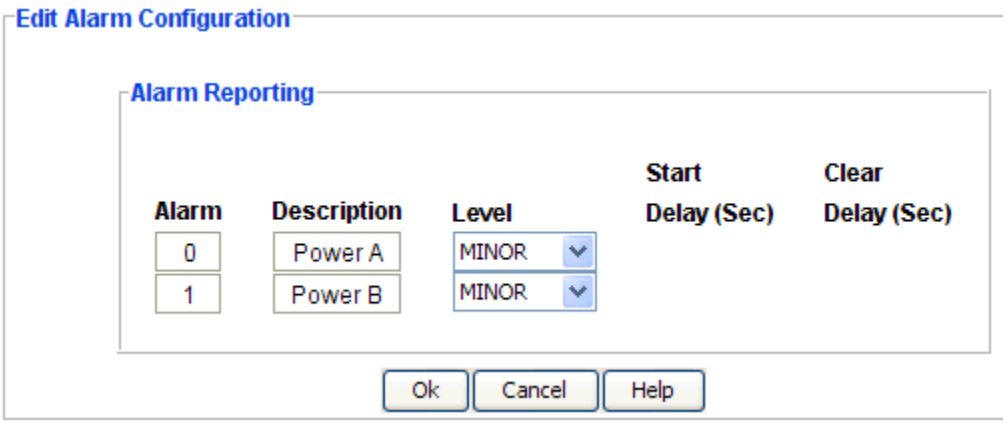
Field / Section	Description
Alarm	This field displays the input module alarm number. Alarm numbers display in numerical order and correspond to an alarm description. Only active module alarms are indicated.
Description	This field displays a description of each alarm indicated on the input module. Only active alarms are indicated. If no alarms are present, the first alarm description displays **None**.
Level	This field indicates the severity of an alarm when it is first logged. Levels include: Critical, Major, Minor, Report and Ignore. This is distinct from the Alarm Elevation Time setting, which allows the alarm severity to increase over a specified period of time.
Delay	
Start	Delays the start of an alarm report by the number of seconds entered in the Delay Start field. Valid entries for this field are 0 to 86,400 seconds.
Clear	Delays the clearing of an alarm report by the number of seconds entered in the Delay Clear field. Valid entries for this field are 0 to 86,400 seconds.

Edit Buffer Card Alarm Configuration

To edit the Alarm Configuration screen:

1. Select the appropriate alarm level in the drop-down boxes. Alarm levels include Ignore, Minor, Major, Critical, and Report.

2. Click **OK** to accept changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



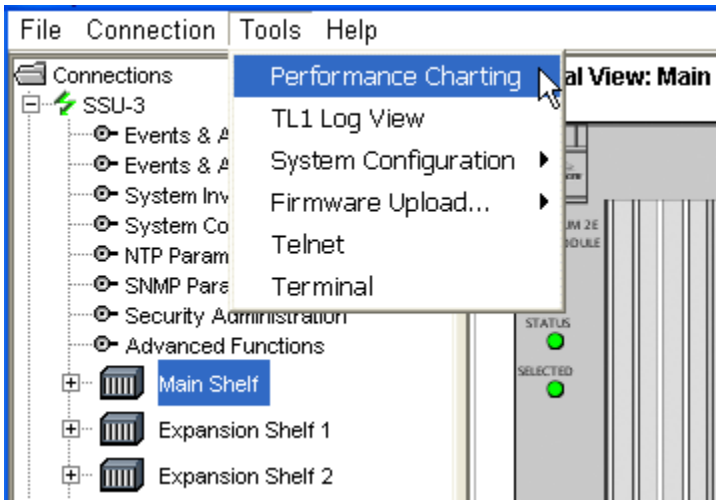
Performance Graphing

Start Performance Charting

To start performance charting:

1. Click the **Tools** menu item.

2. Click **Performance Charting** in the drop-down menu to open the Performance Graphing screen.

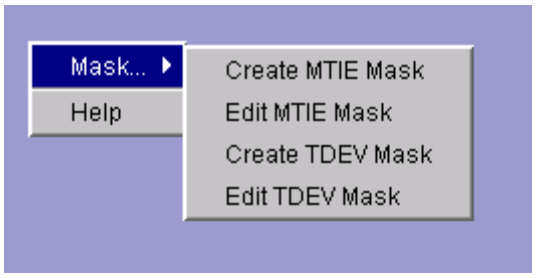


See Also:
MTIE Chart
TDEV Chart
Phase Chart

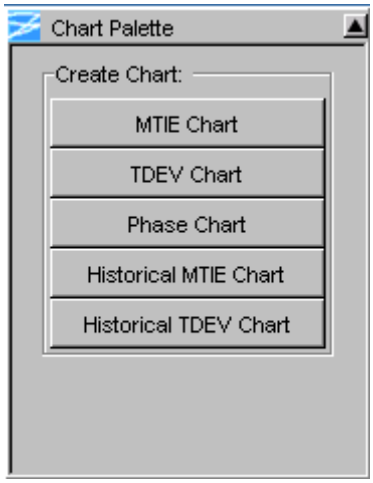
Performance Charting Main Screen

The Performance Charting Main Screen provides query dialog boxes for accessing MTIE, TDEV, Phase, Historical MTIE, and Historical TDEV data from the SSU-2000.

Right-clicking the desktop invokes the desktop pop-up menu. This menu provides access to creating and editing MTIE and TDEV masks, and the TimeCraft online help system.



The Chart Palette dialog screen may be moved by clicking and holding either the right or left mouse button and dragging it to the desired location.

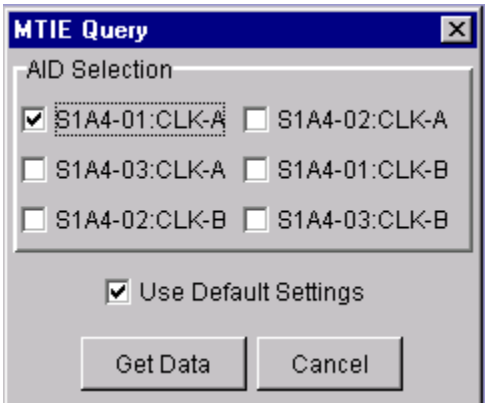


MTIE Chart

To create an MTIE chart:

1. Click Tools on the main menu and select Performance Charting in the drop-down window.

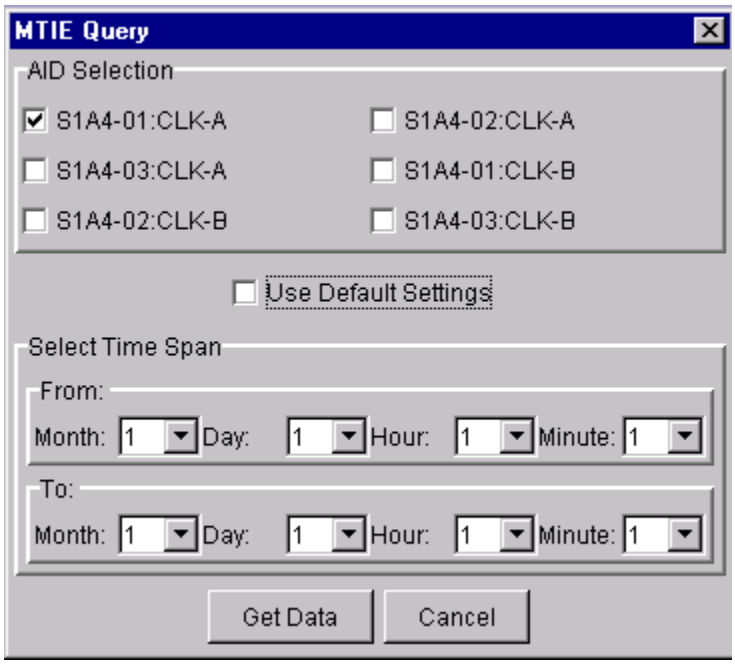
2. Click the **MTIE Chart** button in the **Chart Palette** window to open the **MTIE Query** window.



3. Right-click the check boxes of the input module(s) in **AID Selection** pane that you want to graph.

4. To use default data, ensure the "Use Default Settings" check box is checked and click **Get Data**.

Note: To manually select time spans, right-click the "Use Default Settings" box to de-select it. The MTIE Query dialog box (shown below) expands to provide options for selecting time spans. Select **From** and **To** date and time values in the drop-down selection boxes and click **Get Data**.



The Chart Palette provides check boxes for both pre-defined industry standard masks and the returned data series from the network element.

The Chart Package provides the following functions:

- De-select a data series item to remove the related graph points from the chart.
- Mouse-over a data point to display its label.
- Enlarge a section of the chart by clicking and dragging the desired section. The data series displays in a new chart window.
- Left-click the mouse button anywhere in the window to reset the chart to the original display.

Right-click menu options are described in the table below.

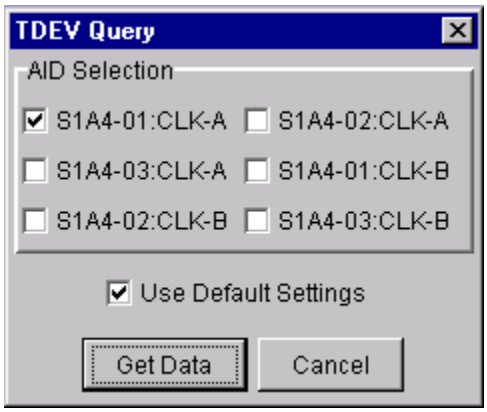
Right-Click Menu Options	Description
Grid Lines	Horizontal, Vertical option allows users to hide/display horizontal and vertical lines
Color or Black and White	Toggles chart between color or black and white display **Note:** In some cases, when you switch from color to black and white and back to color, some portions of the chart lines may drop out.
Chart Size	Sets chart display size - 2400 x 1800, 1600 x 1024, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480
Show All Labels or Show Dwell Labels	Toggles chart between displaying series labels and not displaying series labels
Print	Print, Print Preview and Cancel
Save As...	Save chart as CSV (comma separated values)
Mask	To create and edit MTIE and TDEV masks
Help	Invokes TimeCraft online help

TDEV Chart

To create a TDEV chart:

1. Click Tools on the main menu and select Performance Charting in the drop-down window.

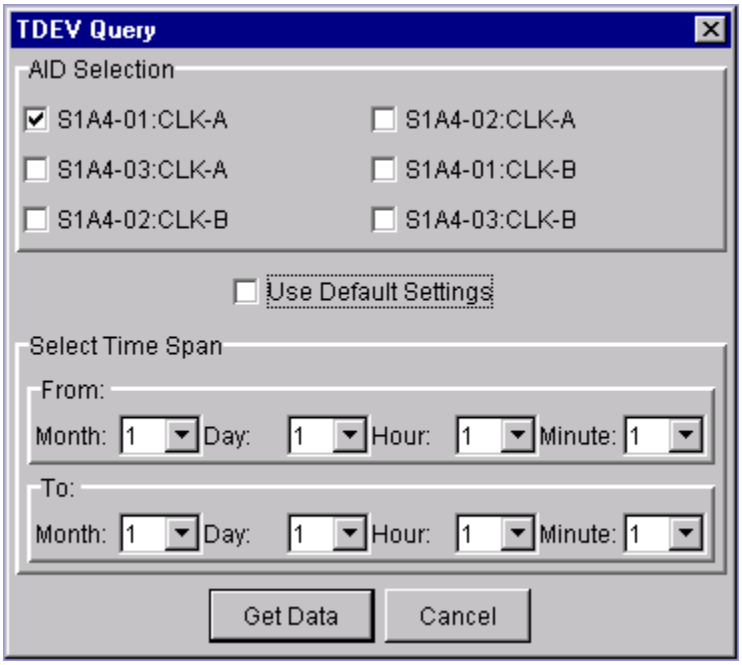
2. Click the **TDEV Chart** button in the **Chart Palette** window to open the **TDEV Query** window.



3. Right-click the check boxes of the input module(s) in **AID Selection** pane that you want to graph.

4. To use default data, ensure the "Use Default Settings" check box is checked and click **Get Data**.

Note: To manually select time spans, right-click the "Use Default Settings" box to de-select it. The TDEV Query dialog box (shown below) expands to provide options for selecting time spans. Select **From** and **To** date and time values in the drop-down selection boxes and click **Get Data**.



The Chart Palette provides check boxes for both pre-defined industry standard masks and the returned data series from the network element.

The Chart Package provides the following functions:

- De-select a data series item to remove the related graph points from the chart.
- Mouse-over a data point to display its label.
- Enlarge a section of the chart by clicking and dragging the desired section. The data series displays in a new chart window.
- Left-click the mouse button anywhere in the window to reset the chart to the original display.

Right-click menu options are described in the table below.

Right-Click Menu Options	Description
Grid Lines	Horizontal, Vertical option allows users to hide/display horizontal and vertical lines
Color or Black and White	Toggles chart between color or black and white display
Chart Size	Sets chart display size - 2400 x 1800, 1600 x 1024, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480
Show All Labels or Show Dwell Labels	Toggles chart between displaying series labels and not displaying series labels
Print	Print, Print Preview and Cancel
Save As...	Save chart as CSV (comma separated values)
Masks...	To create and edit MTIE and TDEV masks
Help	Invokes TimeCraft online help

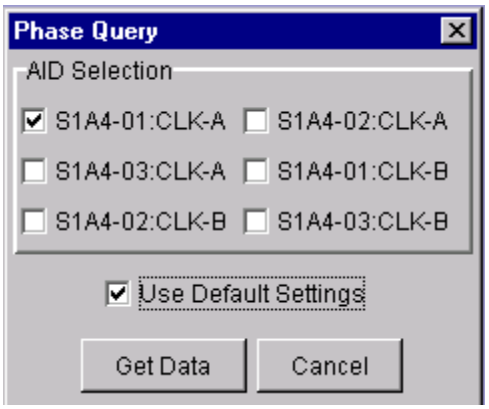
Phase Chart

To create a Phase chart:

1. Click Tools on the main menu and select Performance Charting in the drop-down window.

2. Click the **Phase Chart** button in the **Chart Palette** window to open the **Phase Query** window.

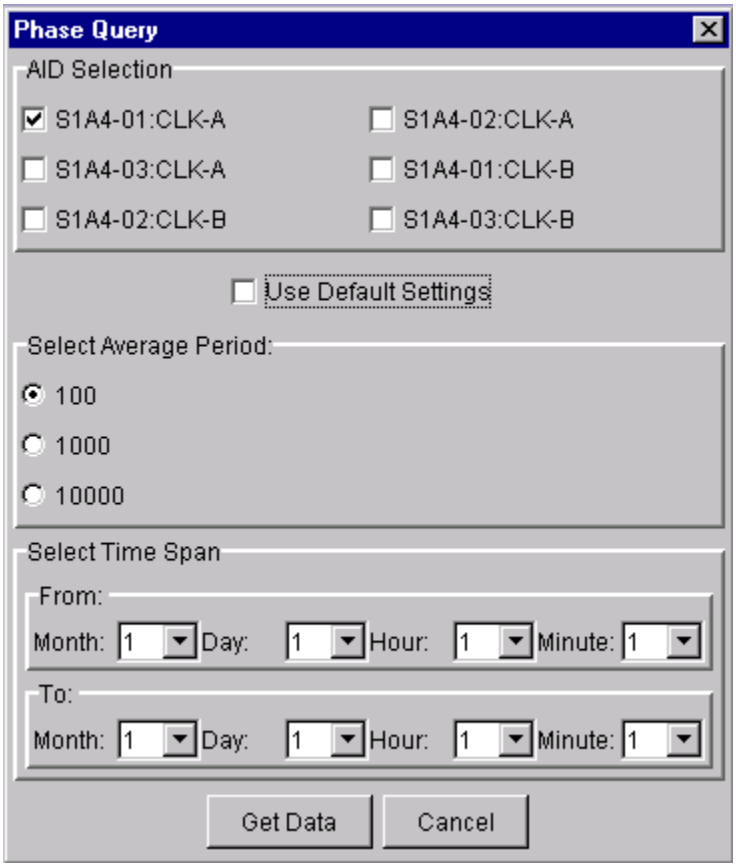
Note: Phase and Time Interval Error (TIE) are the same measurement.



3. Right-click the check boxes of the input module(s) in **AID Selection** pane that you want to graph.

4. To use default data, ensure the "Use Default Settings" check box is checked and click **Get Data**.

Note: To manually select time spans, right-click the "Use Default Settings" box to de-select it. The Phase Query dialog box (shown below) expands to provide options for selecting time spans. Select **From** and **To** date and time values in the drop-down selection boxes and click **Get Data**.



The Chart Palette provides check boxes for both pre-defined industry standard masks and the returned data series from the network element.

The Chart Package provides the following functions:

- De-select a data series item to remove the related graph points from the chart.
- Mouse-over a data point to display its label.
- Enlarge a section of the chart by clicking and dragging the desired section. The data series displays in a new chart window.
- Left-click the mouse button anywhere in the window to reset the chart to the original display.

Right-click menu options are described in the table below.

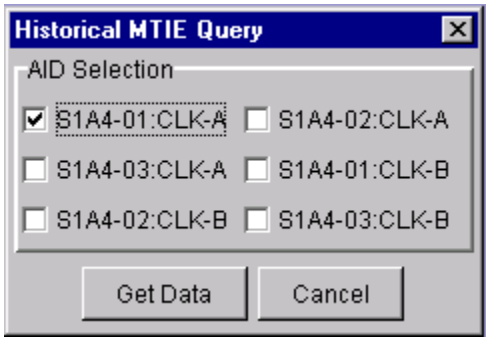
Right-Click Menu Options	Description
Grid Lines	Horizontal, Vertical option allows users to hide/display horizontal and vertical lines
Color or Black and White	Toggles chart between color or black and white display
Chart Size	Sets chart display size - 2400 x 1800, 1600 x 1024, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480
Show All Labels or Show Dwell Labels	Toggles chart between displaying series labels and not displaying series labels
Print	Print, Print Preview and Cancel
Save As...	Save chart as CSV (comma separated values)
Masks...	To create and edit MTIE and TDEV masks
Help	Invokes TimeCraft online help

Historical MTIE Chart

To create a historical MTIE chart:

1. Click Tools on the main menu and select Performance Charting in the drop-down window.

2. Click the **Historical MTIE Chart** button in the **Chart Palette** window to open the **Historical MTIE Query** window.



3. Right-click the check boxes of the input module(s) in **AID Selection** pane that you want to graph.

4. Click **Get Data**.

The Chart Palette provides check boxes for both pre-defined industry standard masks and the returned data series from the network element.

The Chart Package provides the following functions:

- De-select a data series item to remove the related graph points from the MTIE chart.
- Mouse-over a data point to display its label.
- Enlarge a section of the chart by clicking and dragging the desired section. The data series displays in a new chart window.
- Left-click the mouse button anywhere in the window to reset the chart to the original display.

Right-click menu options are described in the table below.

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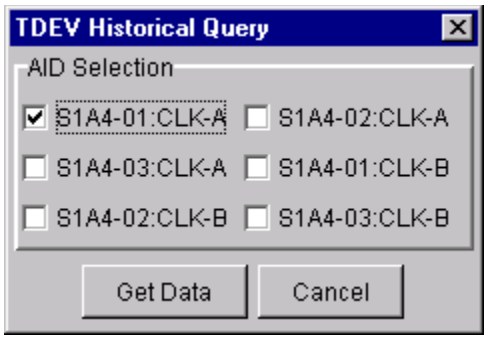
Chart Size	Sets chart display size - 2400 x 1800, 1600 x 1024, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480
Show All Labels or Show Dwell Labels	Toggles chart between displaying series labels and not displaying series labels
Print	Print, Print Preview and Cancel
Save As...	Save chart as CSV (comma separated values)
Masks...	To create and edit MTIE and TDEV masks
Help	Invokes TimeCraft online help

Historical TDEV Chart

To create a historical TDEV chart:

1. Click Tools on the main menu and select Performance Charting in the drop-down window.

2. Click the **Historical TDEV Chart** button in the **Chart Palette** window to open the **Historical TDEV Query** window.



3. Right-click the check boxes of the input module(s) in **AID Selection** pane that you want to graph.

4. Click **Get Data**.

The Chart Palette provides check boxes for both pre-defined industry standard masks and the returned data series from the network element.

The Chart Package provides the following functions:

- De-select a data series item to remove the related graph points from the MTIE chart.
- Mouse-over a data point to display its label.
- Enlarge a section of the chart by clicking and dragging the desired section. The data series displays in a new chart window.
- Left-click the mouse button anywhere in the window to reset the chart to the original display.

Right-click menu options are described in the table below.

Right-Click Menu Options	Description
Grid Lines	Horizontal, Vertical option allows users to hide/display horizontal and vertical lines
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Chart Size	Sets chart display size - 2400 x 1800, 1600 x 1024, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480
Show All Labels or Show Dwell Labels	Toggles chart between displaying series labels and not displaying series labels
Print	Print, Print Preview and Cancel
Save As...	Save chart as CSV (comma separated values)
Masks...	To create and edit MTIE and TDEV masks
Help	Invokes TimeCraft online help

Modem Configuration

To configure the 3Com Courier V.Everything modem connected to a TimeCraft PC, use the factory defaults. To configure the 3Com Courier V.Everything modem while connected to an SSU-2000 or OT-21, use settings outlined in the table below.

Dip Switches	Description
1 Down	Ignore DTR*
2 Up	Set verbal result code display
3 Up	Disable result codes*
4 Down	Disable the echo in off-line commands*
5 Up	Enable auto answer*
6 Down	Carrier Detect always on*
7 Up	Display result codes in all modes
8 Down	Enable AT commands
9 Up	Disconnect on escape(+++)
10 Up	Load configuration from NVRAM
& Commands	**Description**
&H0	Disable transmit data flow control
&R1	Ignore RTS
S Registers	**Description**
S0	1-3 to set the number of rings on which to auto answer
* different from factory defaults	
Notes: If the Network Element is set to DCE mode, a null modem cable must be used from the modem to the Network Element. If the Network Element is set to DTE mode, a straight modem cable must be used from the modem to the Network Element.	

Chapter 3 TimeProvider

This chapter provides information on how to use TimeCraft to configure a TimeProvider network element (NE).

In This Chapter

Overview

Navigation Overview

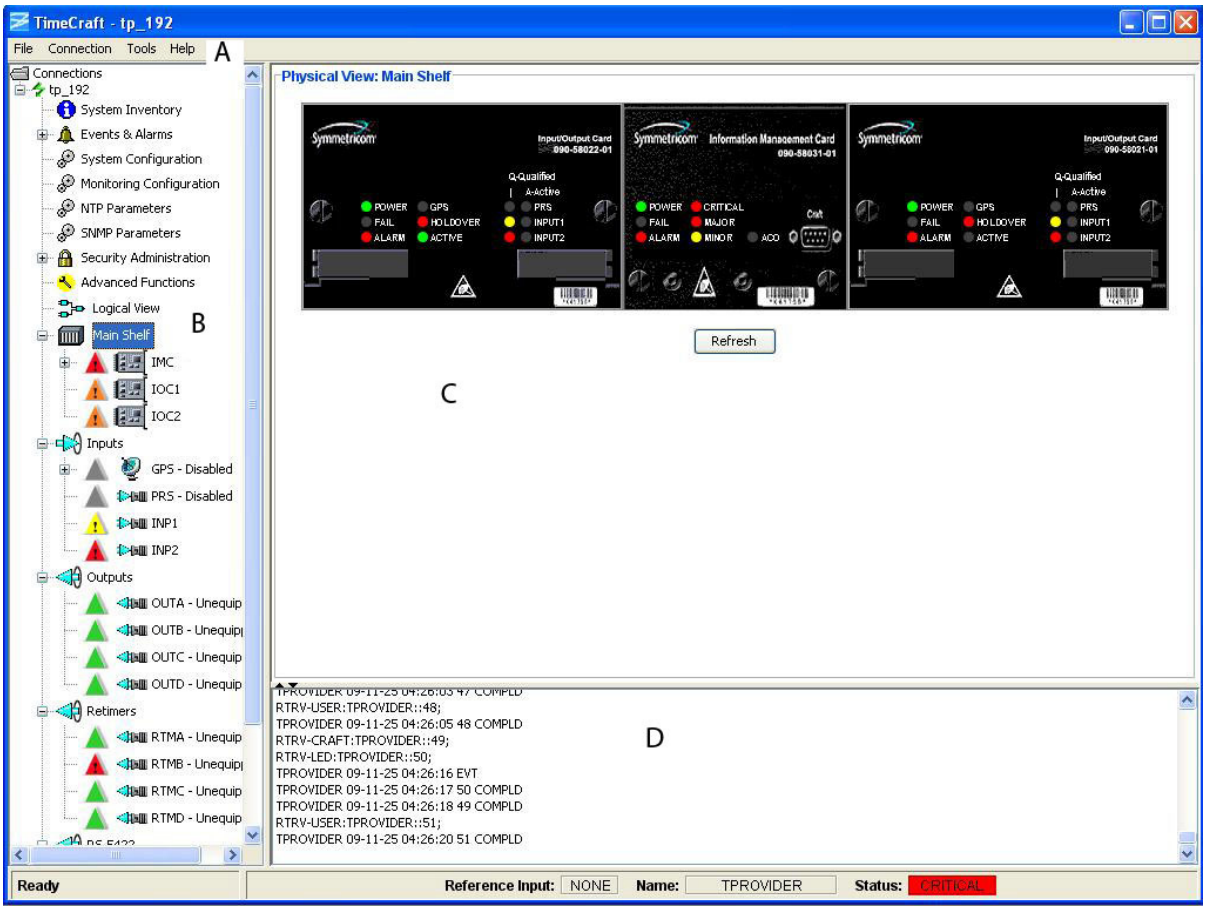
Menu Items (A) allow you to:

- Exit the Application
- Manage Network Element Connections
- Create Performance Charts
- View the TL1 Log
- Upgrade the Firmware
- Open a Telnet Session
- Open Help Files

The **Browser View** panel (B) remains empty until user opens any connection. Once the network element is connected, the Browser provides a list of modules installed in that element. And after closing the connection, the browser displays an empty screen.

The **Detail View** panel (C) provides a graphical view of the module that is selected in the Browser. In the Detail View panel, you can see the configuration settings and edit the settings.

TL1 commands are displayed in the **TL1 View** panel (D) and allows users to view the TL1 commands sent to the network element and view network element responses. The TL1 commands are passive and cannot be edited.



Menu Items

Main Menu items include **File**, **Connection**, **Tools**, and **Help**. The following information describes the submenu items for each Main Menu item.

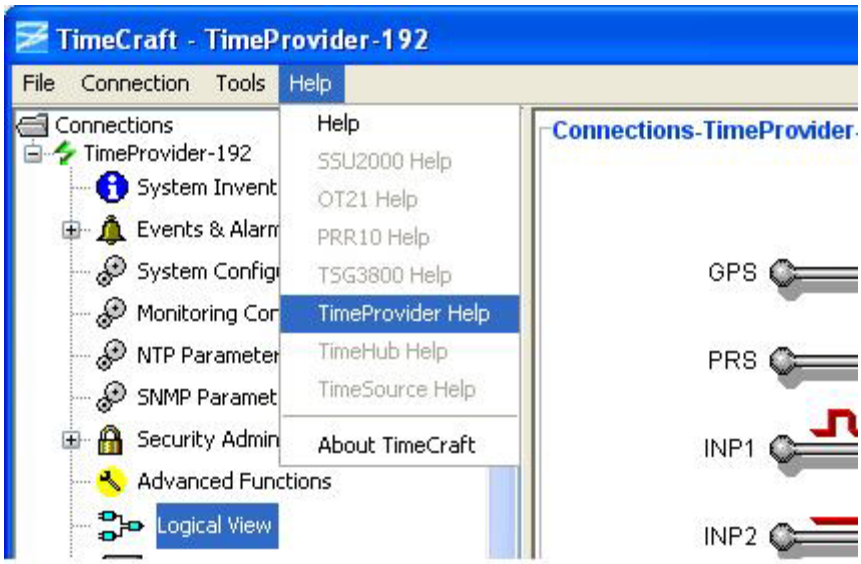
Field / Section	Description
File	
Exit	Exit the TimeCraft Application
Connection	
New Connection	Create a new connection to a network element by allowing user to save the connection in the connections folder or create sub folders up to 5 levels and save them in the sub folders.
Open Connection	Open a connection to the network element by browsing the connections folder hierarchy.
Close Connection	Close the current session

Edit...	Edit a chosen network element's connection properties by browsing the connections folder hierarchy
Refresh Connection	Refresh the view of the currently connected network element
Delete...	Delete a chosen network element's connection setup by browsing the connections folder hierarchy
Tools	
Performance Charting	Launches the **Performance Setup** screen to setup performance graphing for MTIE, TDEV, and Phase data
TL1 Log View	Displays the TL1 log for the current month or click Refresh to display the log for the current session
Firmware Upload...	To upload new firmware to a network element
Telnet	Launches a telnet session to the highlighted network element
Terminal	Launches a terminal window that allows you to enter and send TL1 commands and also displays received responses and autonomous messages
Help	
TimeCraft Help	Obtain online help for the TimeCraft System
About TimeCraft	Displays TimeCraft copyright and version information

Online Help

The Online help provides complete, standalone help for TimeCraft. You can access Help topics using one of the following methods:

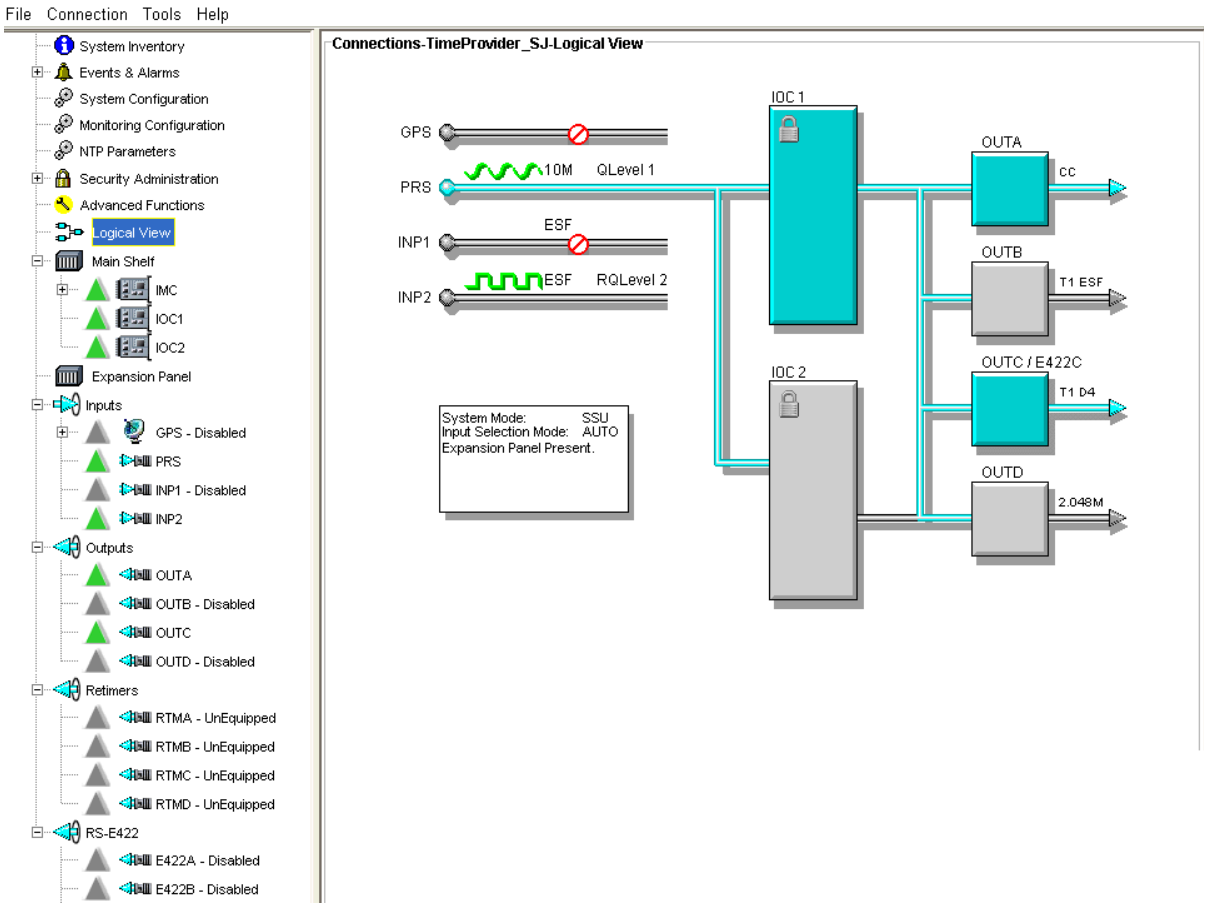
- Main Menu (shown below)
- Online Help Search Feature (after launching Help)
- Help buttons on network element screens



Field	Description
Help	Opens a basic Online Help system containing information about error codes and how to manage connections
SSU2000 Help	Opens SSU2000 Online Help
OT21 Help	Opens OT21 Online Help
PRR10 Help	Opens PRR10 Online Help
TSG3800 Help	Opens TSG3800 Online Help
TimeProvider Help	Opens TimeProvider Online Help
TimeHub Help	Opens TimeHub Online Help
TimeSource	Opens TimeSource Online Help
About TimeCraft	Displays copyright and version information

TimeProvider Navigation

TimeProvider's help provides context help with details, screens, and configuration information. When TimeCraft connects to the TimeProvider, the Logical View screen is displayed as shown in the diagram below. Click the items in the Browser View window or the Details View window for details on the specific sections.



Connection Management

Connections

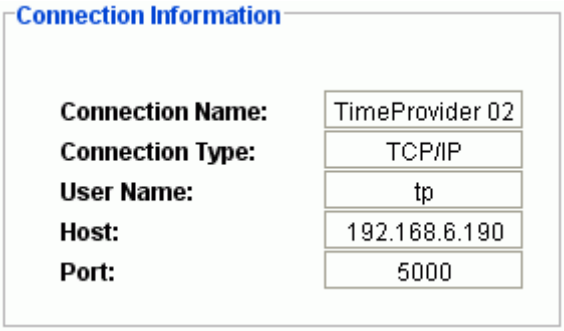
A connection in TimeCraft represents an element to be managed. Connections can be added, deleted, modified, opened, refreshed, or closed. The connection item holds the communication parameter used to establish a connection to the element, including the address, type of element and user/password information. Connections can be accessed from the connection menu item and you can open only one connection at a time. For more information see the following sections:

Operation	Explanation	Available
New	Creates a new connection.	Always.
Open	Connects to an existing connection.	Only when no other connection is open.
Close	Closes an open connection.	Only when a connection is open.

Edit	Modify connection parameters.	Always, but cannot edit an open connection.
Refresh	Initializes an open connection.	Only for an open connection.
Delete	Deleted a connection.	Always, but cannot delete an open connection.

Connection Information

Clicking on the top-level icon for the TimeProvider unit that is currently connected brings up a screen with information about the connection.



Related Topic
Connections

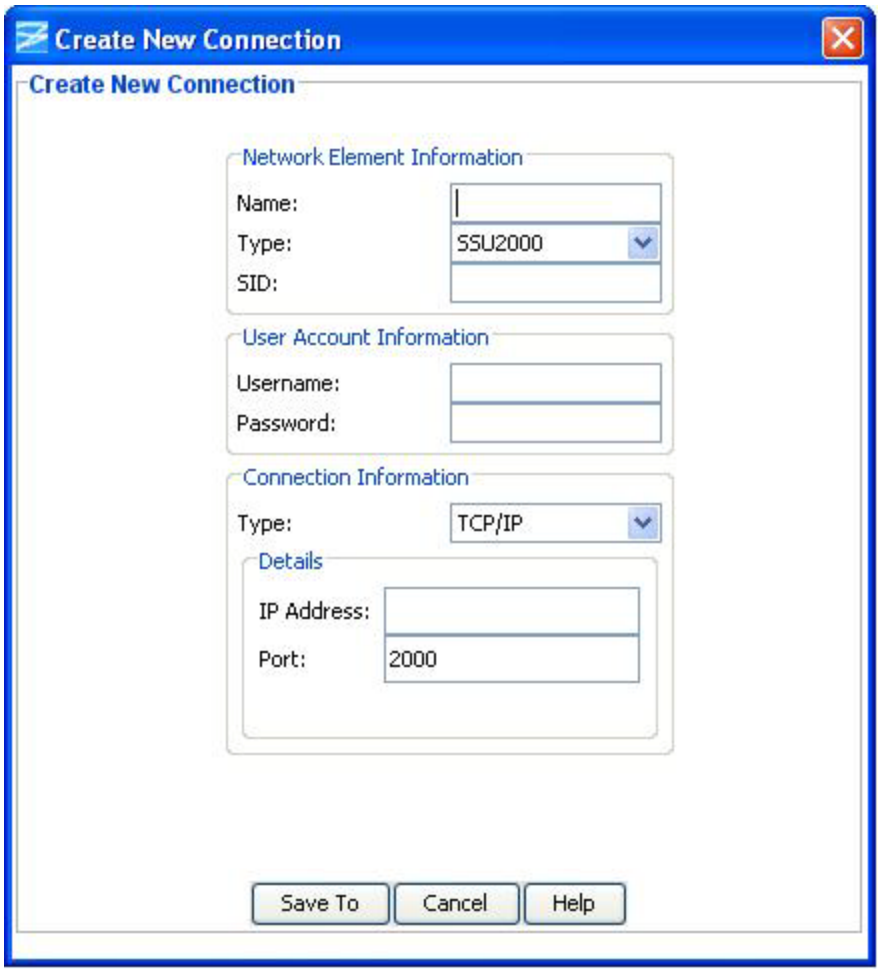
New Connection

To establish a new connection:

1. Click **Connection** on the menu bar.
2. Click **New Connection** from the drop-down menu to open the "Create New Connection" screen.
3. Enter the appropriate data in all fields described in the table below.
4. Click the **Save To** button to open file Chooser dialog.
5. The user can save the connection (.conprops file) in the connections folder or create a sub folder in the connections folder.

Note: Once the sub folder is created, if the folder is not getting the focus, select the folder manually.

6. Click **Save** to save the data and close the dialog box, or click **Cancel** close the dialog box without saving the data entered.



Section and Field	Description or Action
Network Element Information	
Name	Enter a unique name for this connection as it will appear in the connection list
Type	From the drop-down menu, select the type as TimeHub.
SID	This is the source identifier. When a connection command is sent to the network element (TID), the source identifier (SID) is sent back. The default SID is the network name.
User Account Information	
Username	Enter a username to log on to the network element

Password	Enter a password. The password field displays asterisks when text is entered. If security is not enabled on the network element, the Account and Password fields may be left blank. **Note:** The password is case sensitive.
Connection Information	
Type	Connection Type determines how TimeCraft will connect to the network element. From this drop-down menu, select TCP/IP, serial/USB-serial, or modem. The default is TCP/IP.
TCP/IP Connection Details	
IP Address	Enter the IP address of the network element selected in the Network Element Information Section
Port	The only available port is 5000, and the system always defaults to this port.
Serial / USB-Serial Connection Details	
Com Port	This field indicates the serial/USB-serial communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, 4, 5, 6, 7 or 8. The default is Com Port 1. See Verify USB-Serial COM Port.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, 19200 bps, 28800 bps, 38400 bps, and 57600 bps. The default is 9600bps.
Modem Connection Details	
Com Port	This field indicates the communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, or 4. The default is Com Port 1.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options:2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 2400 bps.
Phone	This field is for the modem's telephone number.

Open Connection

To open a connection from the Main Menu:

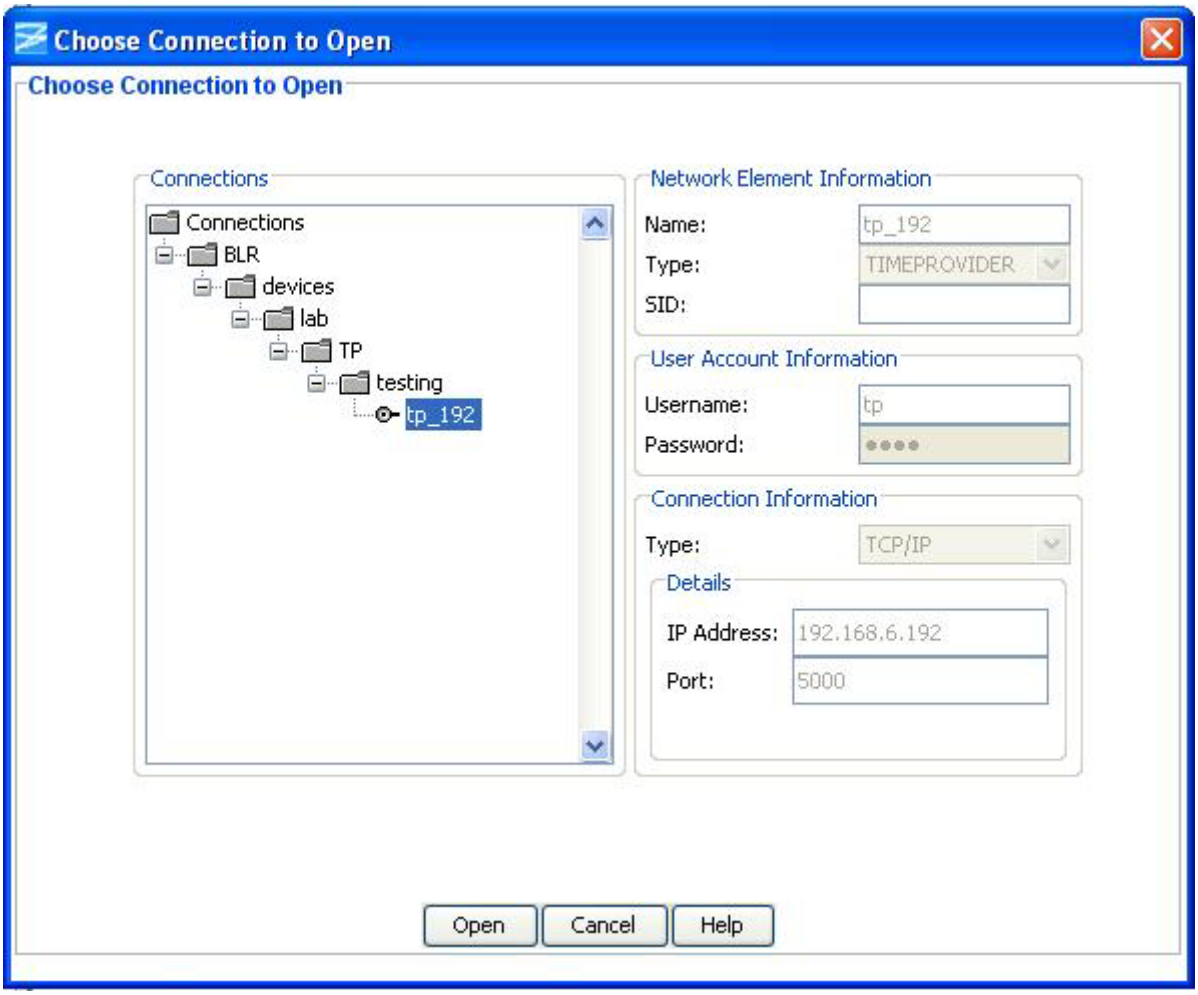
1. Click **Connection**.

2. Click **Open Connection** from the drop-down menu to open the "Choose Connection to Open" screen.

> **Note:** Available connections are displayed in the connections panel (left side) as a directory structure. And the information about the highlighted connection is displayed in the area to the right of the connection panel. If a folder does not contain connection files, then that folder will not be displayed in the connections folder hierarchy as a directory structure.

3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.

4. Click on a network element to select it and click the **Open** button.



Close Connection

To close a connection from the Browser panel:

1. Select a network element.
2. Left-click and select **Close Connection** in the drop-down window to close the current session.

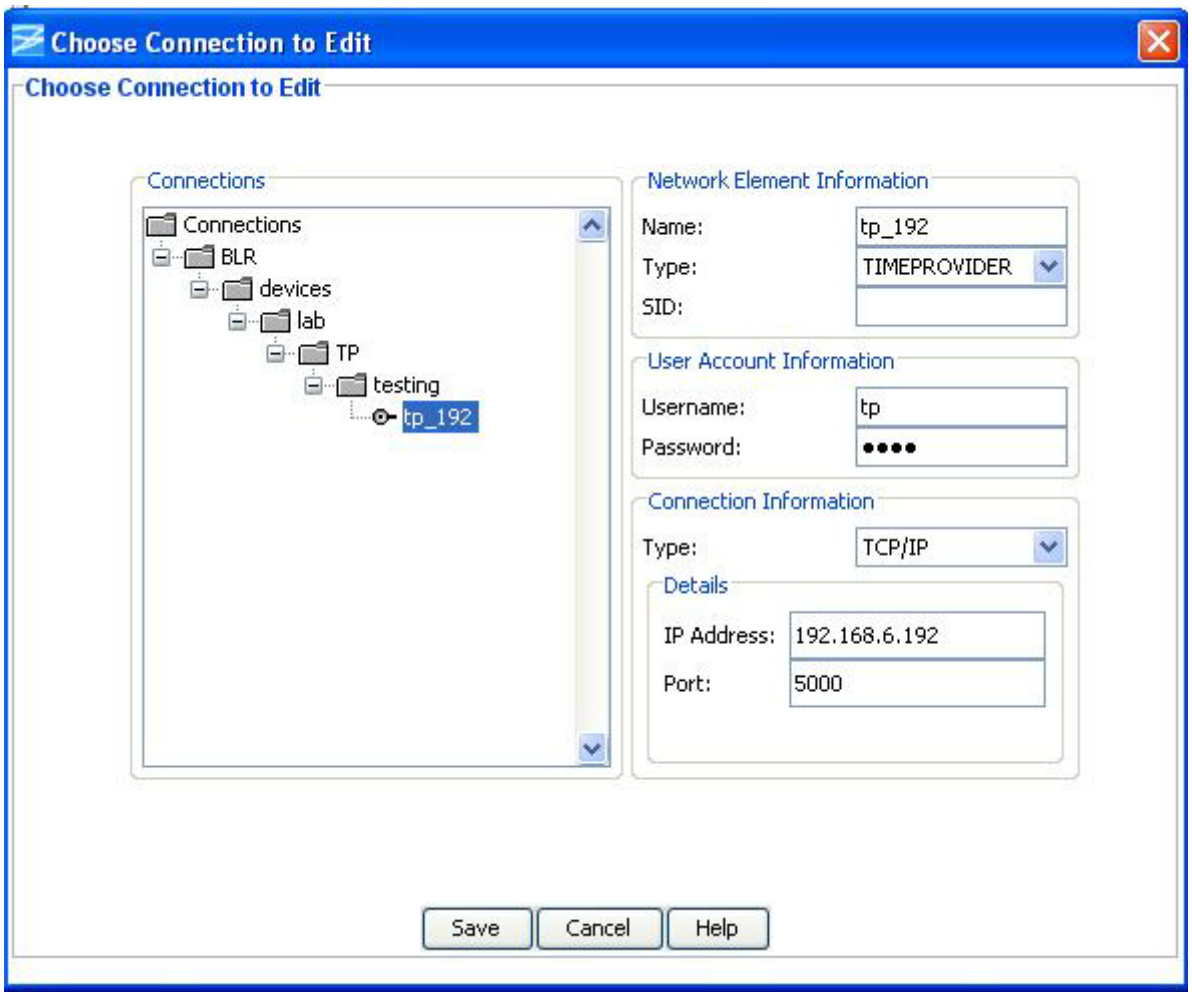
Edit Connection

To edit a network element:

1. Click **Connection** on the Main Menu.
2. Click **Edit...** from the drop-down menu to open the "Choose Connection to Edit" screen.
3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.
4. Select a network element in the selected sub folder under the "Connections" panel (left panel).
5. Edit the content of appropriate field that you want to edit.
6. Click **Save** to save the data and close the dialog box, or click **Cancel** to close the dialog box without saving data.

Note: If a folder does not contain connection files, then that folder will not be displayed in the connections folder hierarchy as a directory structure.

Note: If you want to move the connection files to a different location/folder inside the 'connections' directory, browse to the TimeCraft installed directory through windows explorer, open the connections folder and then move the connections file to the desired location/folder.



Note: Some text box information changes to provide details associated with the type of network element selected.

Section and Field	Description or Action
Network Element Information	
Name	Enter a unique name for this connection as it will appear in the connection list
Type	From the drop-down menu, select the type of network element with which to connect
SID	This is the source identifier. When a connection command is sent to the network element (TID), the source identifier (SID) is sent back. The default SID is the network name.
User Account Information	
Username	Enter a username to log on to the network element

Password	Enter a password. The password field displays asterisks when text is entered. If security is not enabled on the network element, the Account and Password fields may be left blank. **Note:** The password is case sensitive.
Connection Information	
Type	Connection Type determines how TimeCraft will connect to the network element. From this drop-down menu, select TCP/IP, serial/USB-serial, or modem. The default is TCP/IP.
TCP/IP Connection Details	
IP Address	Enter the IP address of the network element selected in the Network Element Information Section
Port	The only available port is 5000, and the system always defaults to this port.
Serial / USB-Serial Connection Details	
Com Port	This field indicates the serial/USB-serial communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, 4, 5, 6, 7 or 8. The default is Com Port 1. See Verify USB-Serial COM Port.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, 19200 bps, 28800 bps, 38400 bps, and 57600 bps. The default is 9600bps.
Modem Connection Details	
Com Port	This field indicates the communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, or 4. The default is Com Port 1.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 2400 bps.
Phone	This field is for the modem's telephone number.

Refresh Connection

To refresh the system view from the Browser panel:

1. Select the network element.
2. Left-click and select **Refresh Connection** from the drop-down screen.

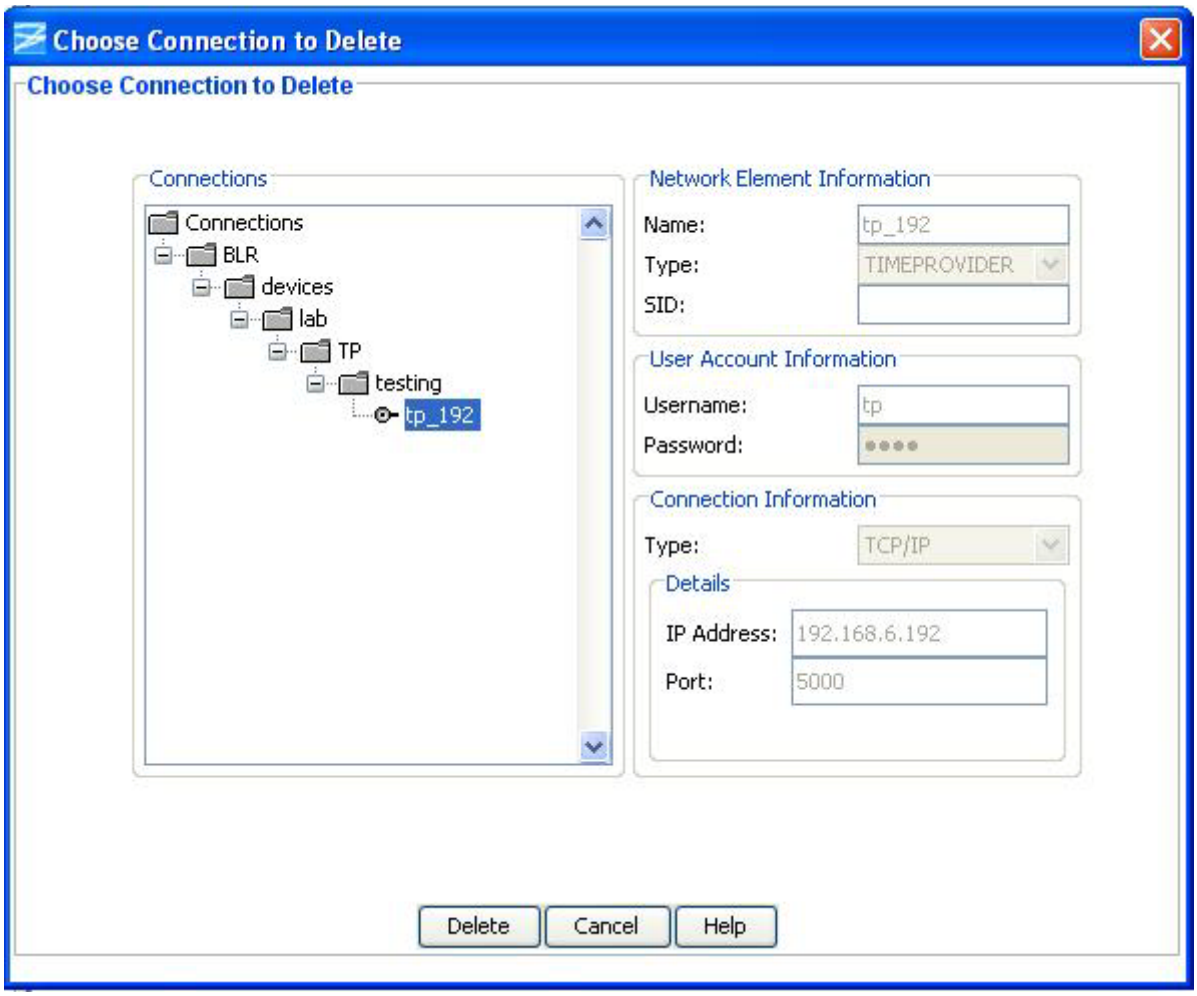
Delete Connection

To delete a connection from the Main Menu:

1. Click **Connection**.
2. Click **Delete...** from the drop-down window to open the "Choose Connection to Delete" screen.
3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.
4. Select the network element you want to delete.
5. Click the **Delete** button to delete the connection and return to the Main Menu, or click **Cancel** to close the dialog box without deleting the network element.

Note: If a folder does not contain connection files, then that folder will not be displayed in the connections folder hierarchy as a directory structure.

Note: To delete a folder in the connections directory, browse to the TimeCraft installed location (Default is "C:\Program Files\Symmetricom\TimeCraft"). Open the connections folder and delete the particular folder. Deleting the folder will lead to deletion of all the connections present in that folder.



Verify USB-Serial COM Port

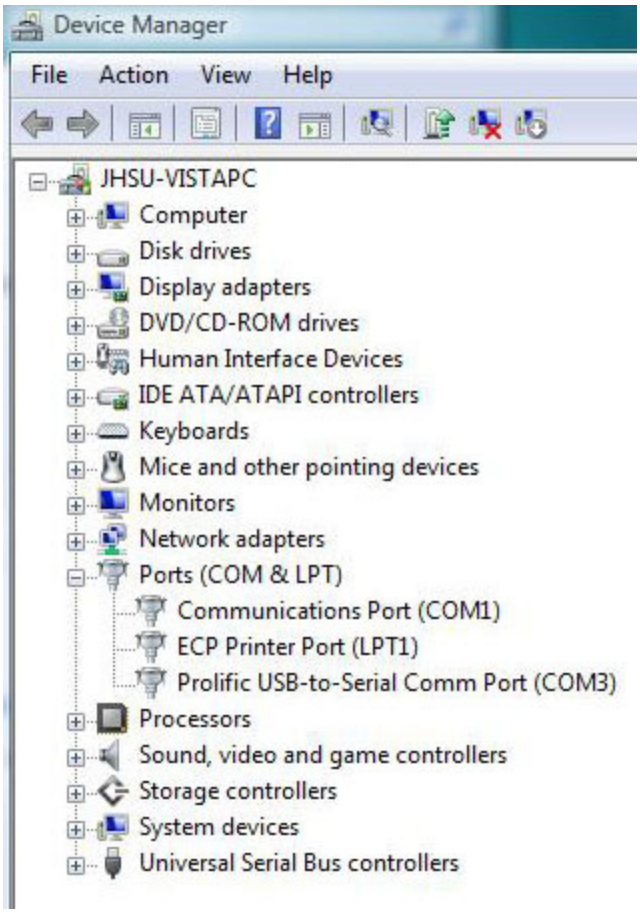
TimeCraft requires that the COM port be specified when creating a new connection with USB-serial, or editing an existing connection to use USB-serial. The USB-to-serial adapter will typically be assigned a COM port when the driver software is installed. To determine the COM port for USB-to-serial, follow the procedures below:

For Windows Vista OS

1. Click on the **Start** button.
2. Right-click on **Computer**. Select "Properties" from the menu that appears.
3. Click on **Device Manager**.
4. Double-Click on **Ports (COM & LPT)** to display the port assignments.
5. Locate the port assigned to the USB-to-serial adapter, as shown in the image below.

For Windows XP OS

1. Click on the **Start** button.
2. Right-click on **My Computer**. Select "Properties" from the menu that appears.
3. Click on the **Hardware** tab.
4. Click on the **Device Manager** button.
5. Double-Click on **Ports (COM & LPT)** to display the port assignments.
6. Locate the port assigned to the USB-to-serial adapter, as shown in the image below.



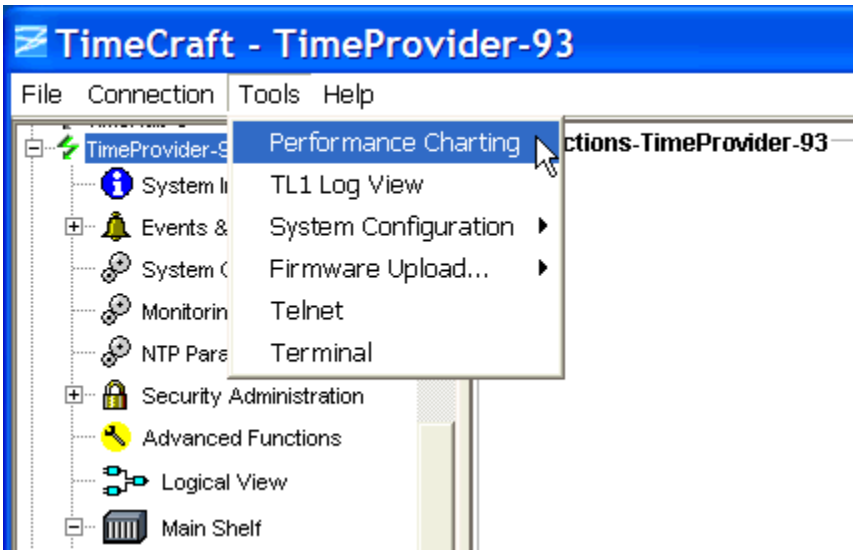
Tools

Start Performance Charting

To start performance charting:

1. Click the **Tools** menu item.

2. Click **Performance Charting** in the drop-down menu to open the Performance Graphing screen.



See Also:
MTIE Chart
TDEV Chart

TL1 Log View

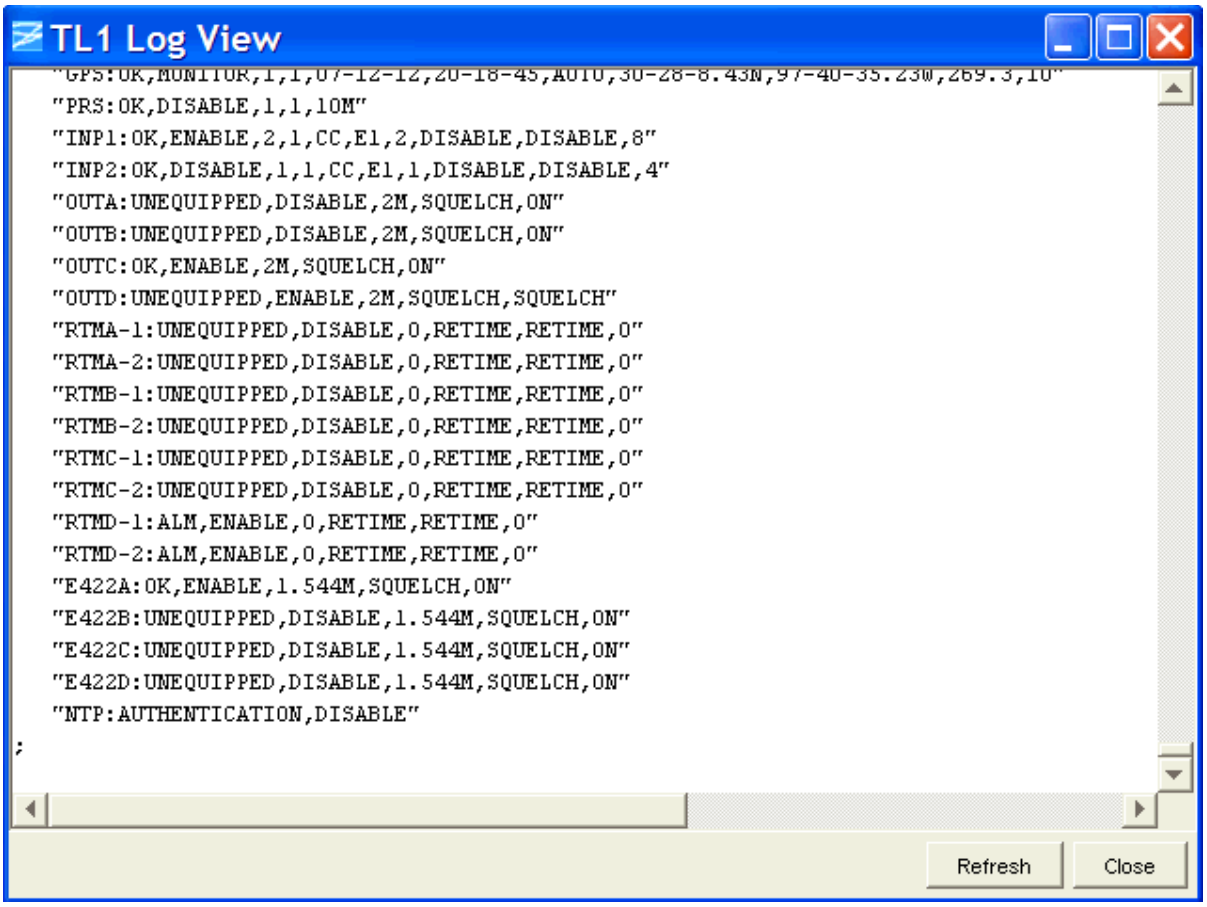
The TL1 Log View screen displays a file of TL1 commands generated by TimeCraft and received from network elements.

To open the TL1 Log screen:

1. Click the **Tools** menu item.

2. Click **TL1 Log View** in the drop-down menu to open the TL1 Log screen.

3. Click **Refresh** to update the file to display the log for the current session, or click **Close** to close the TL1 Log View screen.

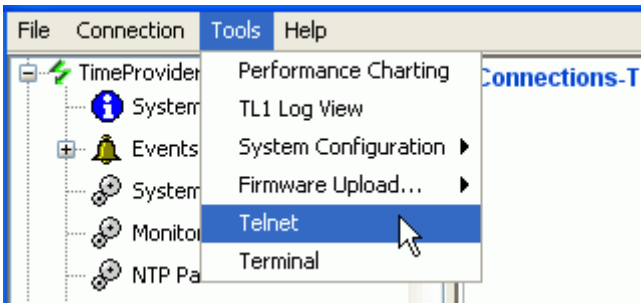


Starting a Telnet Session

To start a telnet session:

1. Click the Tools menu item.
2. Select Telnet in the Tools menu to open a telnet session.
3. To open a telnet session for any network element, type the command "open IP_Address". IP_Address is the ip address of the element.

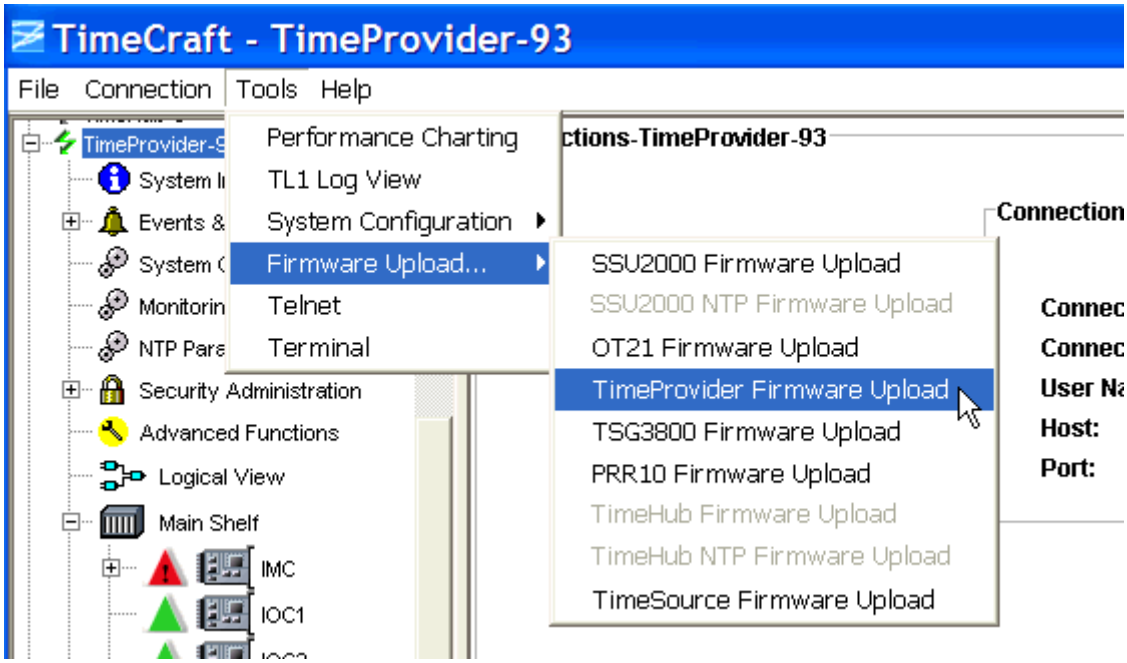
Note: If a network element is connected, then a telnet session for that network element is automatically opened.



Firmware Upload

To upload new firmware to a TimeProvider:

1. Click the **Tools** menu item.
2. Click **Firmware Upload...** in the drop-down menu.
3. Select **TimeProvider Firmware Upload** in the displayed list to open the firmware navigation screen.



Also See
Upload New Firmware

Upload New Firmware

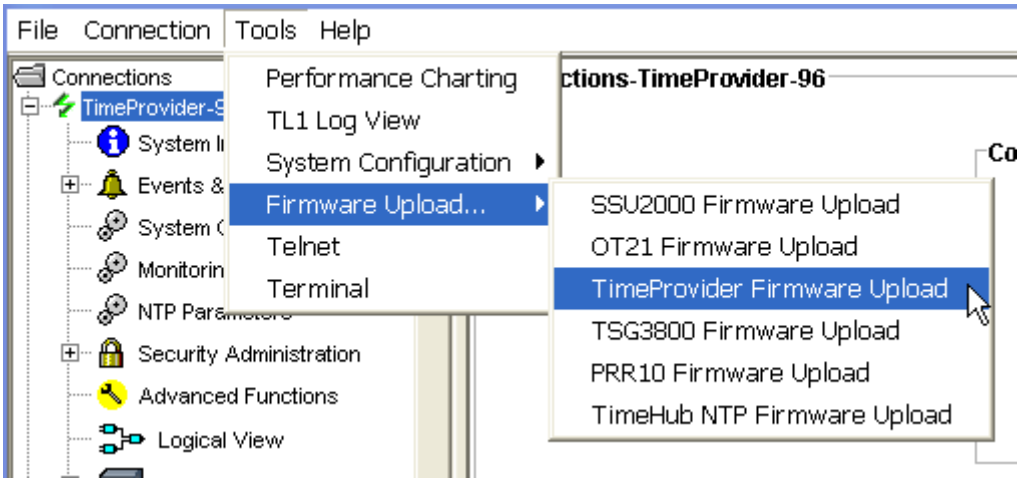
The TimeProvider supports Y-modem firmware upload for both IMC and IOC cards.

Firmware Upload is activated from the Tools menu. Use the following procedure to upload new firmware to a TimeProvider:

1. Click **Tools** on the application menu bar.

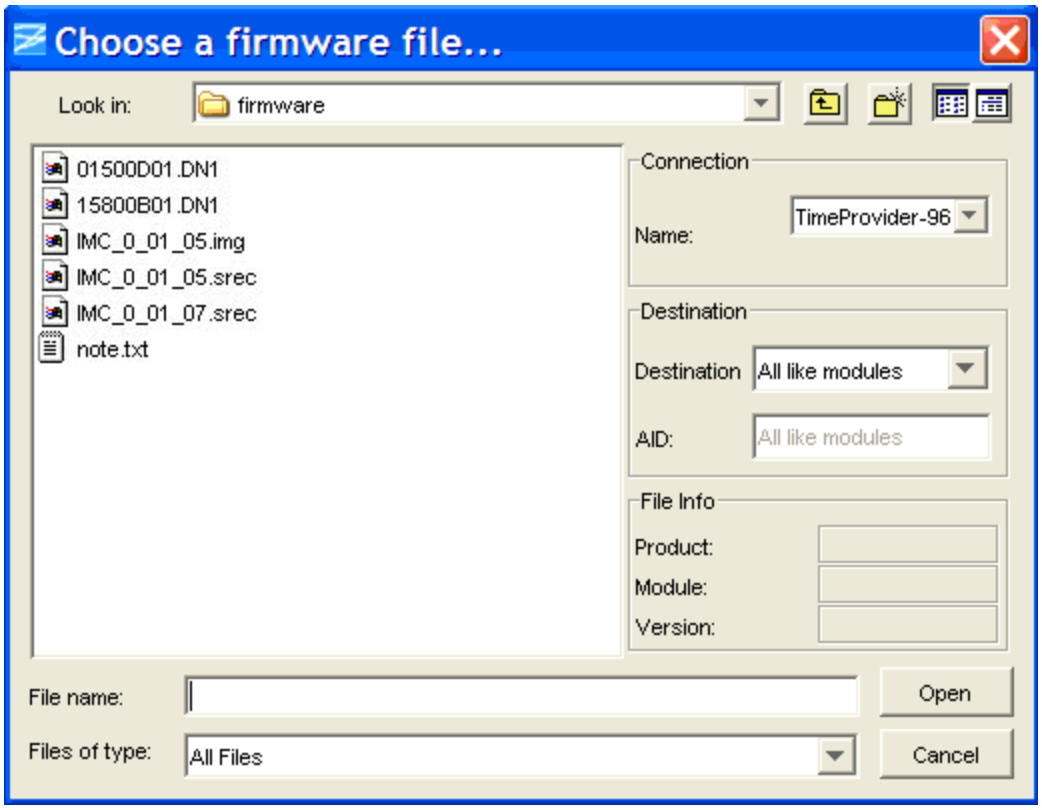
2. Click **Firmware Upload...** from the drop-down menu.

3. Select **TimeProvider Firmware Upload** in the displayed list.

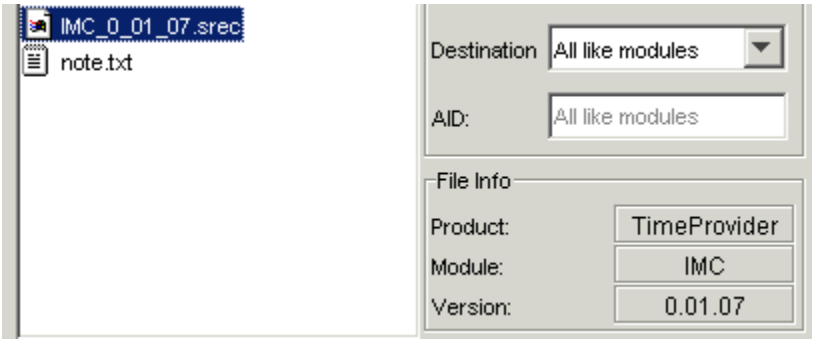


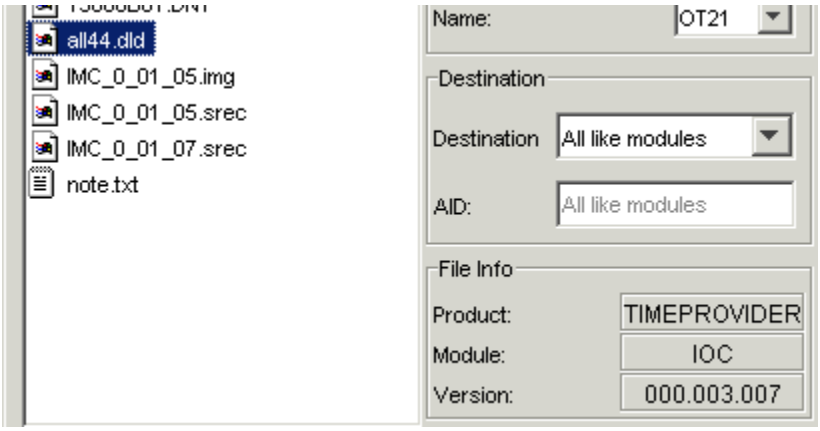
4. At the **Choose a firmware file...** screen, navigate to the directory containing the firmware and select the appropriate file.

Note: When you install TimeCraft, an empty directory titled "firmware" is created in the application directory. This can be a convenient location to store firmware since it is the default firmware directory used by TimeCraft.

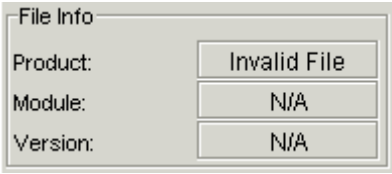


5. Select the software to be downloaded: the IMC card uses srec file names and the IOC card uses dld file names.

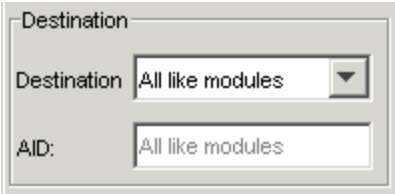




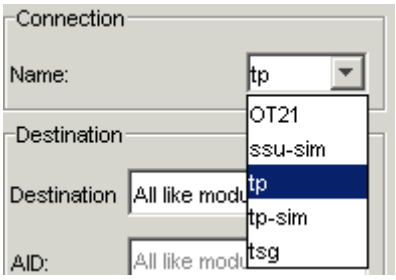
6. When a file is selected the File Info panel is updated. Ensure that the File Info pane displays the correct product, module, and version for upgrade. If the wrong file type is selected the File Info panel is set to invalid:



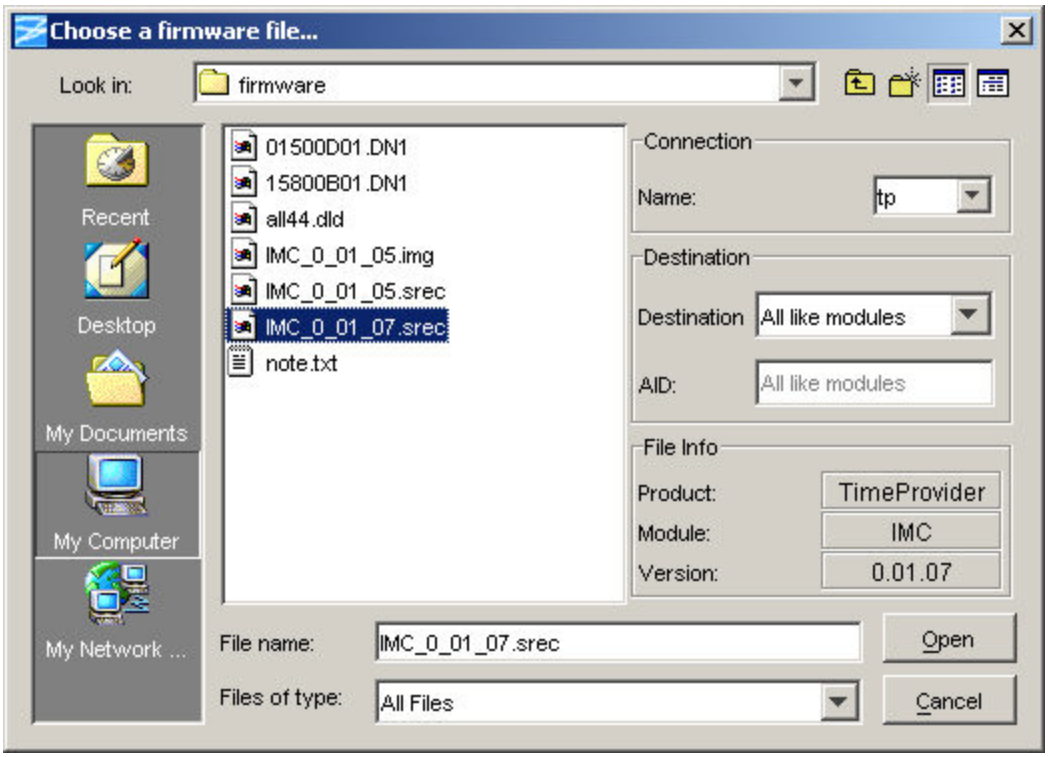
7. Select a destination for firmware upload in the **Destination** drop-down box. The default is **All like modules** which will download to the IMC, or both IOCs. This is the recommended setting.



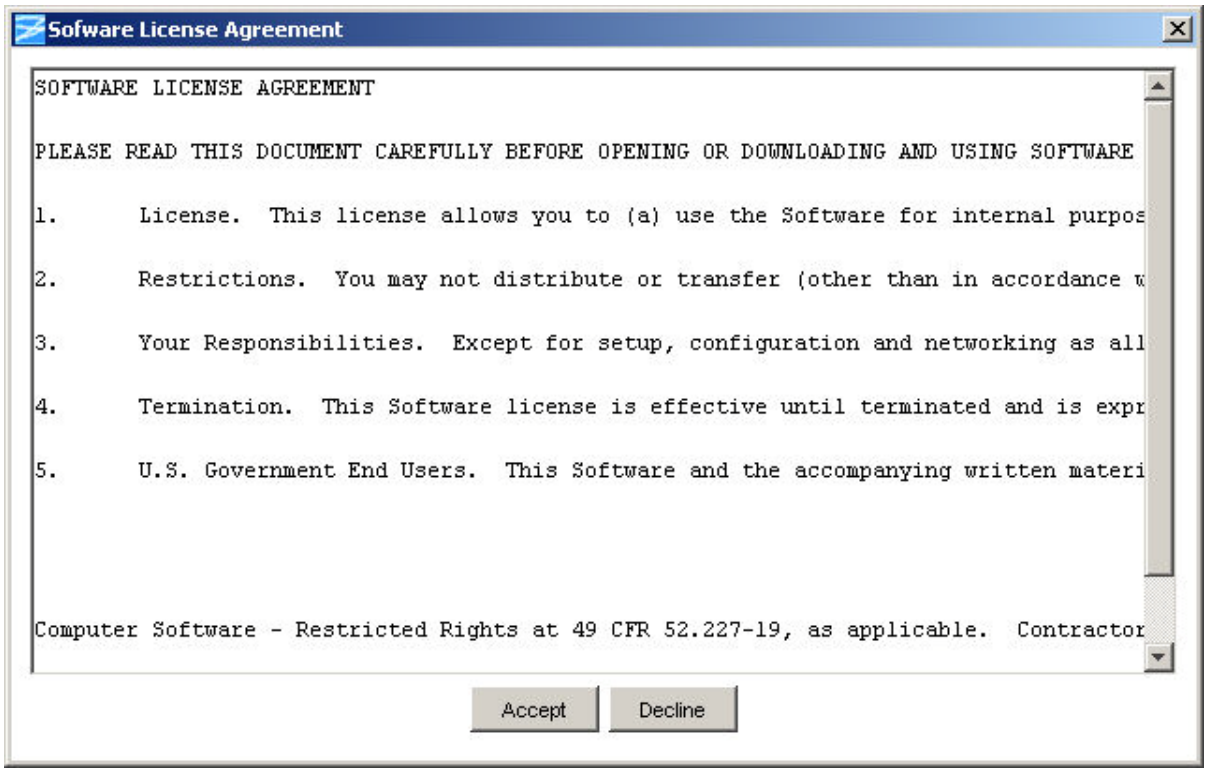
8. Select the name of the network element that you want to upload new firmware to in the **Name** drop-down box of the **Connection** pane.



9. Click **Open** to select the file for uploading, or click **Cancel** to exit the firmware upload procedure.

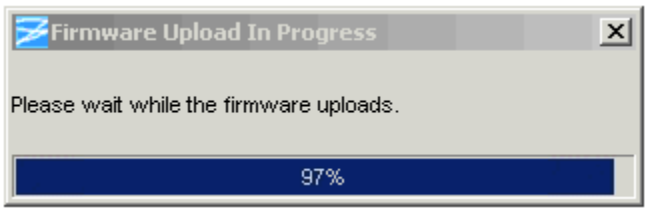


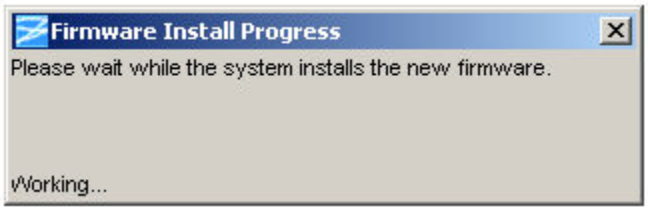
10. Click **Accept** to accept the software license agreement before downloading.

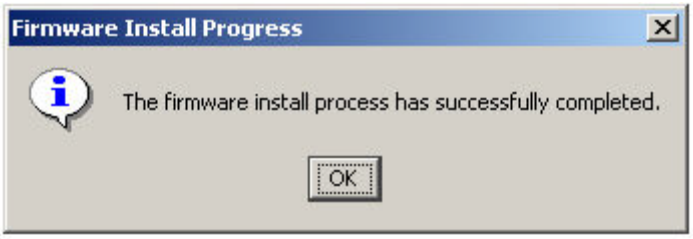


11. A progress bar displays the file upload progress. Click **OK** after the install process has successfully completed.

Note: All other users are logged out and the new firmware is automatically started on the card. If the IMC is being updated, it takes a few minutes after the download has completed to access the TimeProvider again.

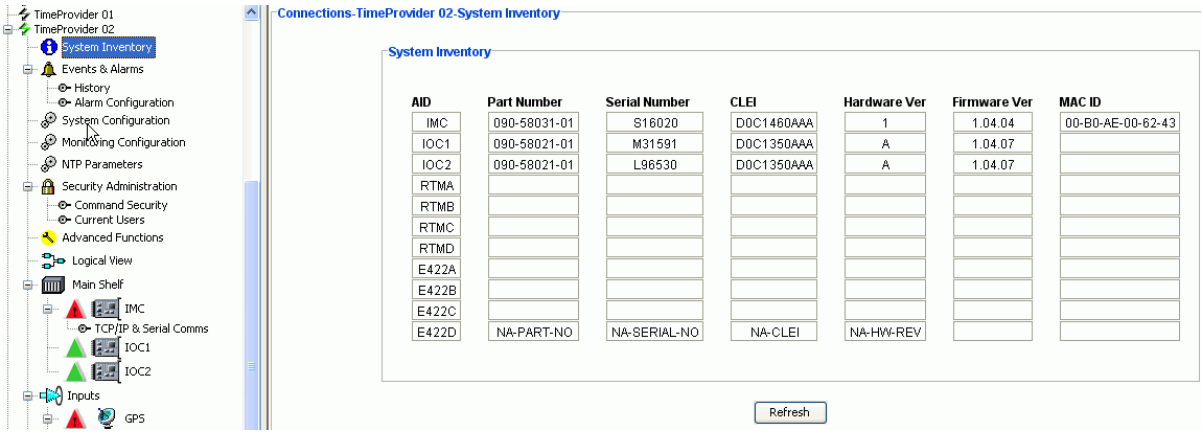






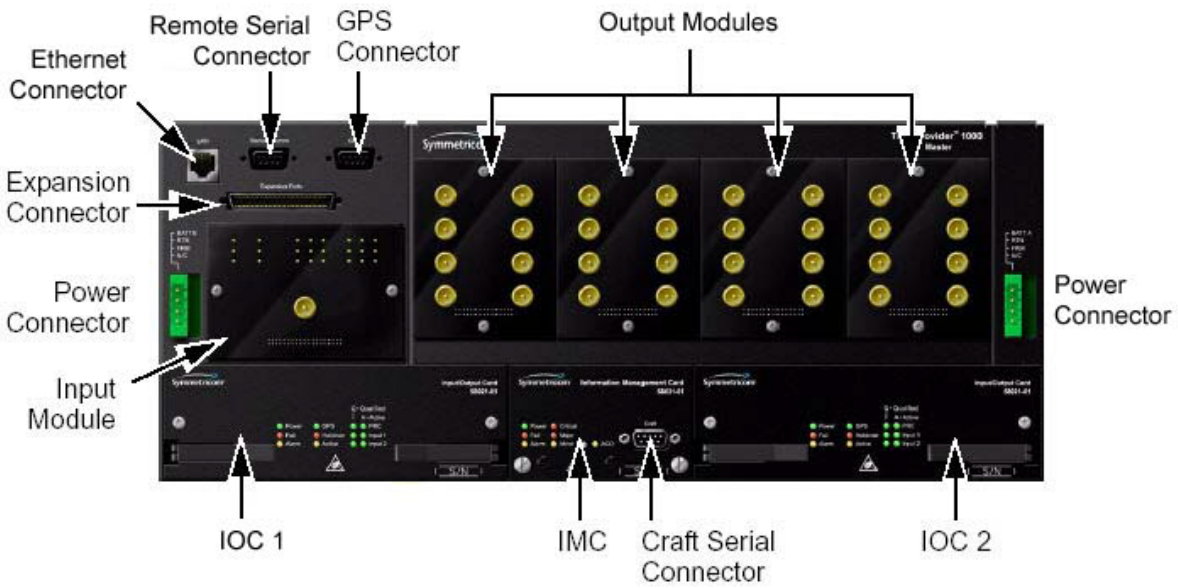
System Inventory

The System Inventory screen provides details on the Information Management Card and the Input/Output Card as shown below. The IMC displays its MAC address, and the IOC its clock type.



AID	Part Number	Serial Number	CLEI	Hardware Ver	Firmware Ver	MAC ID
IMC	090-58031-01	S16020	D0C1460AAA	1	1.04.04	00-B0-AE-00-62-43
IOC1	090-58021-01	M31591	D0C1350AAA	A	1.04.07	
IOC2	090-58021-01	L96530	D0C1350AAA	A	1.04.07	
RTMA						
RTMB						
RTMC						
RTMD						
E422A						
E422B						
E422C						
E422D	NA-PART-NO	NA-SERIAL-NO	NA-CLEI	NA-HW-REV		

TimeProvider Physical Layout



Events and Alarms

Events and Alarms Panel

The Events and Alarms panel shows the TimeProvider's current active alarms. Alarms are ordered chronologically and the screen is updated each time a new alarms is raised or cleared on the element. Each field is described in the tables below.

The list of alarms can be sorted by clicking the column heading. Columns may also be moved by clicking in the header and dragging with the mouse.

Click the columns in the diagram below for a description of the field.

Alarms And Events

10 Entries

AID	AID Type	Severity	Type	Service Aff...	Timestamp	Description
GPS	T1	CRITICAL	MTIE	NSA	08-12-12 13-04-37	MTIE THRESHOLD EXCEEDED
GPS	T1	MINOR	FFOFF	NSA	09-01-22 01-38-46	FFOFF THRESHOLD EXCEEDED
PRS	T1	CRITICAL	INPDISQ	NSA	09-01-09 05-51-00	INPUT DISQUALIFIED AS POSSIBLE REFERENCE
PRS	T1	CRITICAL	INPLOS	NSA	09-01-09 05-51-00	LOS FAULT
INP1	T1	CRITICAL	INPDISQ	NSA	08-12-12 12-46-08	INPUT DISQUALIFIED AS POSSIBLE REFERENCE
INP1	T1	CRITICAL	INPLOS	NSA	08-12-12 12-46-08	LOS FAULT
INP2	T1	CRITICAL	INPLOS	NSA	09-01-09 08-34-36	LOS FAULT
IOC1	EQPT	BTBCKUP	SC	08-12-10	11-41-09	BESTIME BACKUP REFERENCES DISQUALIFIED
IOC2	EQPT	BTBCKUP	SC	08-12-10	11-41-09	BESTIME BACKUP REFERENCES DISQUALIFIED
GPS	T1	CRITICAL	INPDISQ	NSA	08-12-12 13-01-40	INPUT DISQUALIFIED AS POSSIBLE REFERENCE

Refresh

Service Affect has two values:

SA = Service Affecting.

NSA = Non Service Affecting.

Time Stamp is the time reported by the element when the alarm occurred. Its format is yy-mm-dd hh-mm-ss.

Condition Type	Description of Alarm Condition	AIDTYPE	Service Affecting	Default Error Delay	Edit Error Delay
AID = SYS					
EXTALM	The external alarm used to monitor alarms generated by external equipment	EQPT	NSA	IMMED	NO
EXPFAIL	The connection to the expansion output panel has been lost	EQPT	SA	IMMED	NO
PWRA	The IMC has detected the loss of power on the A connection	EQPT	NSA	IMMED	NO

PWRB	The IMC has detected the loss of power on the B connection	EQPT	NSA	IMMED	NO
AID = IMC					
IOC1COMM	A communication alarm with either of the IOC1 modules	EQPT	NSA	IMMED	NO
IOC2COMM	A communication alarm with either of the IOC2 modules	EQPT	NSA	IMMED	NO
AID = IOC1					
IMC1COMM	A communication alarm with the IMC module and IOC1 module	EQPT	NSA	IMMED	NO
IOC1TO2COMM	A communication alarm from IOC1 module to IOC2 module	EQPT	NSA	IMMED	NO
IOCFAIL	A summary alarm for failures of the IOC hardware that are not specified in other alarms	EQPT	SA	IMMED	NO
CLKBRDG	The local oscillator on the specified IOC is in Bridging Mode	EQPT	NSA	IMMED	NO
CLKHOLD	The local oscillator on the specified IOC is in Holdover Mode	EQPT	SA	IMMED	NO

CLKFREE	The local oscillator on the specified IOC is in Free-run mode	EQPT	SA	IMMED	NO
CLKWARM	The local oscillator on the specified IOC is in Warm-up mode	EQPT	SA	IMMED	NO
AID = IOC2					
IMC2COMM	A communication alarm with the IMC module and IOC2 module	EQPT	NSA	IMMED	NO
IOC2TO1COMM	A communication alarm from IOC2 module to IOC1 module	EQPT	NSA	IMMED	NO
IOCFAIL	A summary alarm for failures of the IOC hardware that are not specified in other alarms	EQPT	SA	IMMED	NO
CLKBRDG	The local oscillator on the specified IOC is in Bridging Mode	EQPT	NSA	IMMED	NO
CLKHOLD	The local oscillator on the specified IOC is in Holdover Mode	EQPT	SA	IMMED	NO
CLKFREE	The local oscillator on the specified IOC is in Free-run mode	EQPT	SA	IMMED	NO

CLKWARM	The local oscillator on the specified IOC is in Warm-up mode	EQPT	SA	IMMED	NO
AID = PRS					
INPDISQ	The specified input has been Disqualified or Qualified as a possible system reference. The fault condition must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. Once INPDISQ has been set, the alarm clears once the input signal is fault free for the Clear Delay Time (CLRDELAY)	T1	NSA	FLTDELAY	YES

INPLOS	The specified input port has Loss Of Signal. When LOS is detected, the input is immediately removed from the possible reference list. The LOS must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. When the INPLOS is set, the alarm clears once the input signal is LOS free for the Clear Delay Time (CLRDELAY)	T1	NSA	IMMED	NO

INPFRQ	The specified input port's calculated received frequency is exceeding the pull-in range of the local oscillator. The received signal's calculated frequency alarmed condition will disqualify the input as a possible reference. When INPFRQ is set, the alarm clears once the input frequency is within the defined pull-in range limits	T1	NSA	IMMED	NO
INPPHASE	The specified input port has an excessive phase measurement that disqualifies it from being used	T1	NSA	IMMED	NO

EXDSC	Input has had excessive discontinuities. This is indicated when there are more than three signal faults of the same type within a 5 minute window. The alarm clears once the 5 minute window contains less than 3 alarms of the same type	T1	NSA	IMMED	NO
AID = INP1 or INP2					
INPDISQ	The specified input has been Disqualified or Qualified as a possible system reference. The fault condition must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. When INPDISQ is set, the alarm clears once the input signal is fault free for the Clear Delay Time (CLRDELAY)	T1	NSA	FLTDELAY	YES

INPAIS	The specified input port is receiving an Alarm Indication Signal. When AIS is detected, the input is immediately removed from the possible reference list. The AIS must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. When INPAIS is set, the alarm clears once the input signal is AIS free for the Clear Delay Time (CLRDELAY)	T1	NSA	IMMED	NO

INPLOS	The specified input port has Loss Of Signal. When LOS is detected, the input is immediately removed from the possible reference list. The LOS must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. When INPLOS is set the alarm clears once the input signal is LOS free for he Clear Delay Time (CLRDELAY)	T1	NSA	IMMED	NO

INPOOF	The specified input port is receiving an Out Of Frame signal. When OOF is detected, the input is immediately removed from the possible reference list. The OOF must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. When INPOOF is set, the alarm clears once the input signal is OOF free for he Clear Delay Time (CLRDELAY)	T1	NSA	IMMED	NO

INPFRQ	The specified input ports calculated received frequency is exceeding the pull-in range of the local oscillator. The received signal's calculated frequency alarmed condition will disqualify the input as a possible reference. When INPFRQ is set, the alarm clears once the input frequency is within the defined pull-in range limits.	T1	NSA	IMMED	NO

INPPHASE	The specified input port has an excessive phase measurement that disqualifies it from being used.	T1	NSA	IMMED	NO
INPQL	Alarm indicating the received SSM is of lesser quality than the Local Oscillators QLEVEL for a specified input.	T1	NSA	IMMED	NO
EXDSC	Input has had excessive discontinuities. This is indicated when there are more than three signal faults of the same type within a 5 minute window. The alarm clears once the 5 minute window contains less than 3 alarms of the same type.	T1	NSA	IMMED	NO

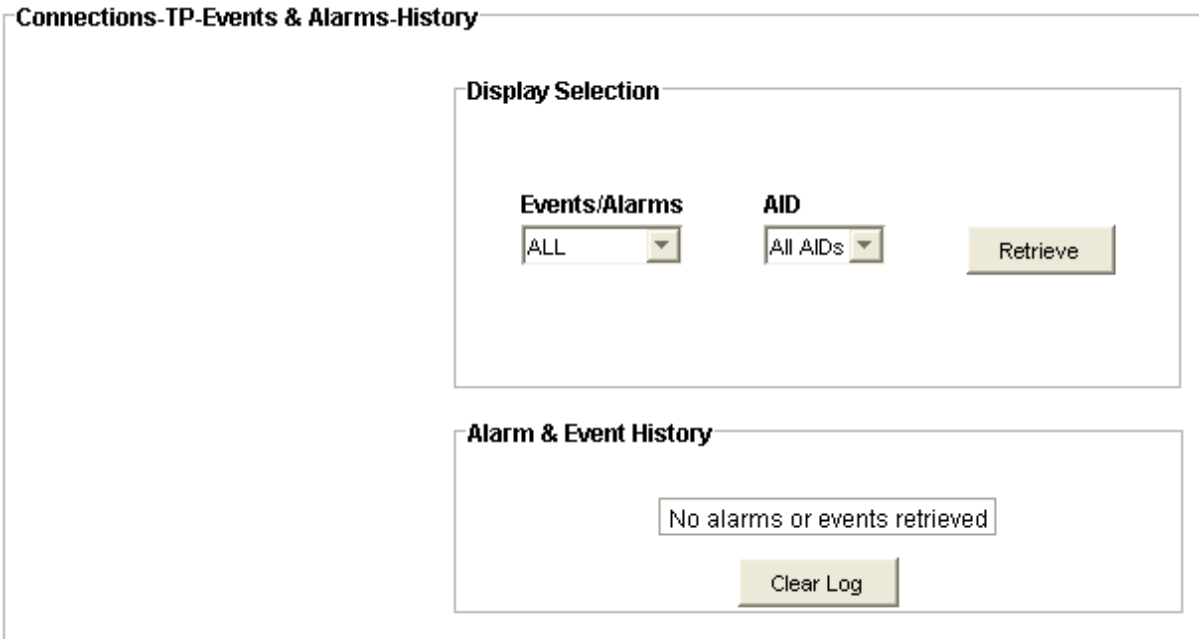
History

The TimeProvider stores the 500 most recent alarmed and non-alarmed events. Click the Retrieve button on the Display Selection screen to retrieve and display the alarm and event log. In the Events/Alarms drop-down box you can select alarms, events, or both alarms and events (ALL).

Note: If you select ALL, the time required to retrieve the alarms and events can be up to two minutes.

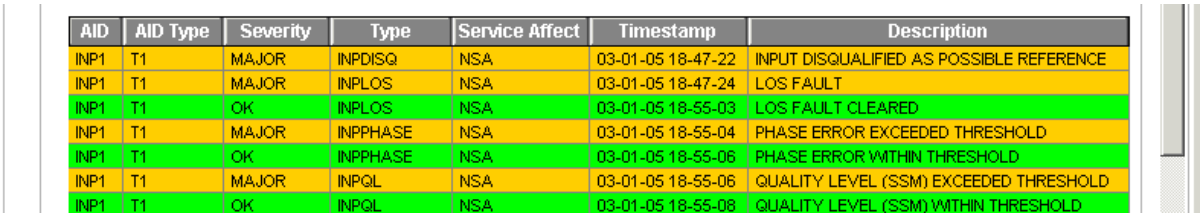
In the AID drop-down box you can select all AIDs or the individual AIDs.

Click the Clear Log button at the bottom of the list of Alarm & Event History to clear the log file. This will permanently delete the list of events.



The list of alarms can be sorted by clicking the column heading. Columns may also be moved by clicking in the header and dragging with the mouse.

Click on the columns in the diagram below for a description.



AID	AID Type	Severity	Type	Service Affect	Timestamp	Description
INP1	T1	MAJOR	INPDISQ	NSA	03-01-05 18-47-22	INPUT DISQUALIFIED AS POSSIBLE REFERENCE
INP1	T1	MAJOR	INPLOS	NSA	03-01-05 18-47-24	LOS FAULT
INP1	T1	OK	INPLOS	NSA	03-01-05 18-55-03	LOS FAULT CLEARED
INP1	T1	MAJOR	INPPHASE	NSA	03-01-05 18-55-04	PHASE ERROR EXCEEDED THRESHOLD
INP1	T1	OK	INPPHASE	NSA	03-01-05 18-55-06	PHASE ERROR WITHIN THRESHOLD
INP1	T1	MAJOR	INPQL	NSA	03-01-05 18-55-06	QUALITY LEVEL (SSM) EXCEEDED THRESHOLD
INP1	T1	OK	INPQL	NSA	03-01-05 18-55-08	QUALITY LEVEL (SSM) WITHIN THRESHOLD

AID of alarmed equipment/system	Explanation	TL1 Keywords
SYS	System level AID	AID
IMC	Information Management Card	AID
IOC1	Input Output Card in slot1	AID
IOC2	Input Output Card in slot2	AID
PRS	Primary Reference Source	AID
INP1 or INP2	Line input 1 or 2	AID

Service Effect has two values:
SA = Service Effecting.

NSA = Non Service Effecting.

Time Stamp is the time reported by the element when the alarm occurred. It format is yy-mm-dd hh-mm-ss.

Condition Type	Description of Alarm Condition	AIDTYPE	Service Effecting	Default Error Delay	Edit Error Delay
AID = SYS					
EXTALM	The external alarm used to monitor alarms generated by external equipment	EQPT	NSA	IMMED	NO
EXPFAIL	The connection to the expansion output panel has been lost	EQPT	SA	IMMED	NO
PWRA	The IMC has detected the loss of power on the A connection	EQPT	NSA	IMMED	NO
PWRB	The IMC has detected the loss of power on the B connection	EQPT	NSA	IMMED	NO
AID = IMC					
IOC1COMM	A communication alarm with either of the IOC1 modules	EQPT	NSA	IMMED	NO
IOC2COMM	A communication alarm with either of the IOC2 modules	EQPT	NSA	IMMED	NO

AID = IOC1					
IMC1COMM	A communication alarm with the IMC module and IOC1 module	EQPT	NSA	IMMED	NO
IOC1TO2COMM	A communication alarm from IOC1 module to IOC2 module	EQPT	NSA	IMMED	NO
IOCFAIL	A summary alarm for failures of the IOC hardware that are not specified in other alarms	EQPT	SA	IMMED	NO
CLKBRDG	The local oscillator on the specified IOC is in Bridging Mode	EQPT	NSA	IMMED	NO
CLKHOLD	The local oscillator on the specified IOC is in Holdover Mode	EQPT	SA	IMMED	NO
CLKFREE	The local oscillator on the specified IOC is in Free-run mode	EQPT	SA	IMMED	NO
CLKWARM	The local oscillator on the specified IOC is in Warm-up mode	EQPT	SA	IMMED	NO
AID = IOC2					
IMC2COMM	A communication alarm with the IMC module and IOC2 module	EQPT	NSA	IMMED	NO

IOC2TO1COMM	A communication alarm from IOC2 module to IOC1 module	EQPT	NSA	IMMED	NO
IOCFAIL	A summary alarm for failures of the IOC hardware that are not specified in other alarms	EQPT	SA	IMMED	NO
CLKBRDG	The local oscillator on the specified IOC is in Bridging Mode	EQPT	NSA	IMMED	NO
CLKHOLD	The local oscillator on the specified IOC is in Holdover Mode	EQPT	SA	IMMED	NO
CLKFREE	The local oscillator on the specified IOC is in Free-run mode	EQPT	SA	IMMED	NO
CLKWARM	The local oscillator on the specified IOC is in Warm-up mode	EQPT	SA	IMMED	NO
AID = PRS					

INPDISQ	The specified input has been Disqualified or Qualified as a possible system reference. The fault condition must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. Once INPDISQ has been set, the alarm clears once the input signal is fault free for the Clear Delay Time (CLRDELAY)	T1	NSA	FLTDELAY	YES

INPLOS	The specified input port has Loss Of Signal. When LOS is detected, the input is immediately removed from the possible reference list. The LOS must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. When the INPLOS is set, the alarm clears once the input signal is LOS free for the Clear Delay Time (CLRDELAY)	T1	NSA	IMMED	NO

INPFRQ	The specified input port's calculated received frequency is exceeding the pull-in range of the local oscillator. The received signal's calculated frequency alarmed condition will disqualify the input as a possible reference. When INPFRQ is set, the alarm clears once the input frequency is within the defined pull-in range limits	T1	NSA	IMMED	NO
INPPHASE	The specified input port has an excessive phase measurement that disqualifies it from being used	T1	NSA	IMMED	NO

EXDSC	Input has had excessive discontinuities. This is indicated when there are more than three signal faults of the same type within a 5 minute window. The alarm clears once the 5 minute window contains less than 3 alarms of the same type	T1	NSA	IMMED	NO
AID = INP1 or INP2					
INPDISQ	The specified input has been Disqualified or Qualified as a possible system reference. The fault condition must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. When INPDISQ is set, the alarm clears once the input signal is fault free for the Clear Delay Time (CLRDELAY)	T1	NSA	FLTDELAY	YES

INPAIS	The specified input port is receiving an Alarm Indication Signal. When AIS is detected, the input is immediately removed from the possible reference list. The AIS must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. When INPAIS is set, the alarm clears once the input signal is AIS free for the Clear Delay Time (CLRDELAY)	T1	NSA	IMMED	NO

INPLOS	The specified input port has Loss Of Signal. When LOS is detected, the input is immediately removed from the possible reference list. The LOS must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. When INPLOS is set the alarm clears once the input signal is LOS free for he Clear Delay Time (CLRDELAY)	T1	NSA	IMMED	NO

INPOOF	The specified input port is receiving an Out Of Frame signal. When OOF is detected, the input is immediately removed from the possible reference list. The OOF must be continuously present for the Fault Delay Time (FLTDELAY) before disqualifying the input as a possible reference. When INPOOF is set, the alarm clears once the input signal is OOF free for he Clear Delay Time (CLRDELAY)	T1	NSA	IMMED	NO

INPFRQ	The specified input ports calculated received frequency is exceeding the pull-in range of the local oscillator. The received signal's calculated frequency alarmed condition will disqualify the input as a possible reference. When INPFRQ is set, the alarm clears once the input frequency is within the defined pull-in range limits.	T1	NSA	IMMED	NO

INPPHASE	The specified input port has an excessive phase measurement that disqualifies it from being used.	T1	NSA	IMMED	NO
INPQL	Alarm indicating the received SSM is of lesser quality than the Local Oscillators QLEVEL for a specified input.	T1	NSA	IMMED	NO
EXDSC	Input has had excessive discontinuities. This is indicated when there are more than three signal faults of the same type within a 5 minute window. The alarm clears once the 5 minute window contains less than 3 alarms of the same type.	T1	NSA	IMMED	NO

Alarm Configuration

The Alarm Configuration screen below shows the currently defined alarm levels for the AIDs and Event IDs and an explanation of the alarm.

Elevation: indicates if alarm elevation is enabled or disabled. When enabled, minor alarms are elevate to major, and major alarms are elevate to critical after the system elevation time has elapsed.

The system elevation time is 86400 seconds (24 hours), and *cannot* be changed.

Click **Edit** to change the AID and EventID alarm levels.

Connections-TP-Events & Alarms-Alarm Configuration

Alarm Configuration

Elevation: ENABLE

AID	Event ID	Level	Description
IMC	IOC1COMM	MINOR	A communication alarm with the IOC1 module
IMC	IOC2COMM	MINOR	A communication alarm with the IOC2 module
SYS	IOC1EQPT	MAJOR	IOC1 has been removed from the system or installed in the system
SYS	IOC2EQPT	CRITICAL	IOC2 has been removed from the system or installed in the system
SYS	PWRA	MAJOR	The IMC has detected the loss of power on the A connection
SYS	PWRB	MAJOR	The IMC has detected the loss of power on the B connection
SYS	EXTALM1	MAJOR	The external alarm1 is used to monitor alarms generated by external equipment
SYS	EXTALM2	CRITICAL	The external alarm2 is used to monitor alarms generated by external equipment
SYS	COMPAT	MAJOR	System Components, e.g. IOC Software to IOC Hardware, are not compatible
IMC	IMCFAIL	CRITICAL	A summary alarm for IMC BIST Faults
GPS	ANTCOMM	MINOR	The GPS Antenna communication is not functioning
GPS	GPSPOS	NOT ALARMED	The GPS Engine is position has not been determined
GPS	GPSSYS	MINOR	The GPS System is in fault due to BIST, TRAIM, and/or UTC/ephemeris data errors
GPS	GPSTRK	MINOR	The GPS Engine is not tracking any satellites
GPS	MTIE	MINOR	The specified input has exceeded at least one of the MTIE thresholds
GPS	FFOFF	MINOR	The specified input has exceeded FFOFF threshold
PRS	MTIE	MINOR	The specified input has exceeded at least one of the MTIE thresholds
PRS	FFOFF	MINOR	The specified input has exceeded FFOFF threshold
E422A	E422EQPT	MINOR	
E422B	E422EQPT	MAJOR	
E422C	E422EQPT	MAJOR	
E422D	E422EQPT	MAJOR	

Edit

Edit Alarm Configuration

To change an alarm level:

1. Select ENABLE or DISABLE in the Elevation: drop-down box to enable or disable alarm elevation. When enabled, minor alarms are elevate to major, and major alarms are elevate to critical after the system elevation time has elapsed.

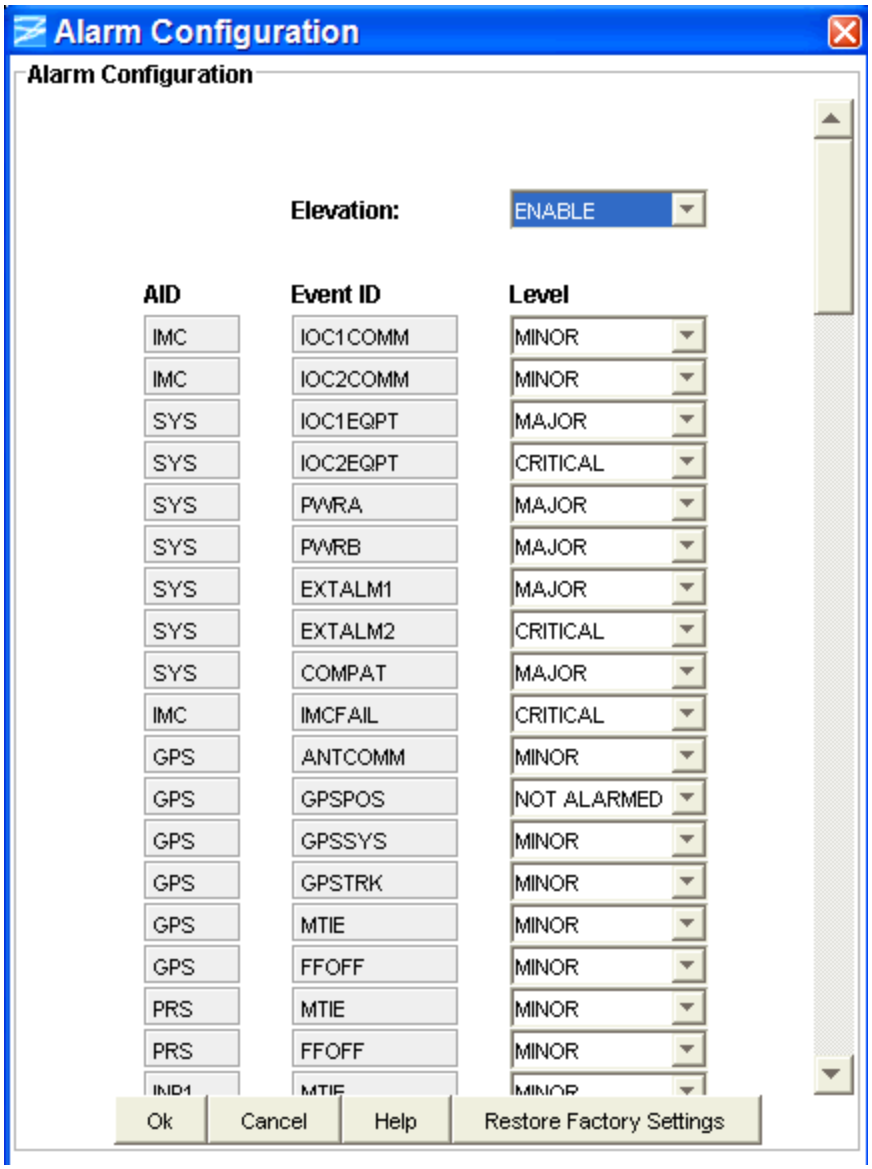
Note: The system elevation time is 86400 seconds (24 hours), and *cannot* be changed.

2. Click the Level drop-down box that corresponds to the AID and Event ID you want to change.

3. Select the desired level from the list: Critical, Major, Minor, Not Alarmed, Not Reported, or Clear.

4. Click **OK** to accept the changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.

Note: Click **Restore Factory Settings** to reset all alarm severity settings to the factory defaults.



System Configuration

System Configuration Screen

The System Configuration screen displays:

- Event Format
- System Mode Settings
- System Date and Time
- System Identification

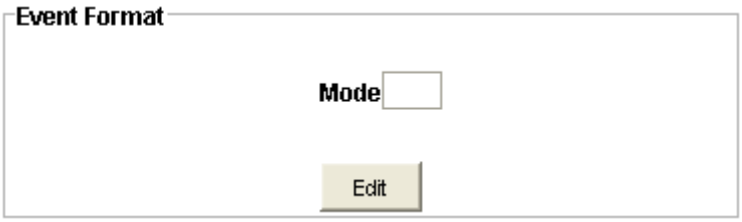
- System Synchronization Settings
- System Equipment Settings
- System Status Settings
- Master Shelf Version

Event Format

You can configure the TimeProvider event response to be in either Legacy format or GR-833 format.

The Legacy format contains the access identifier (aid), component of system (aidtype), condition type (condtype), effect of condition (condeff), occurrence date (ocrdat), occurrence time (ocrtim), and condition description (condscr).

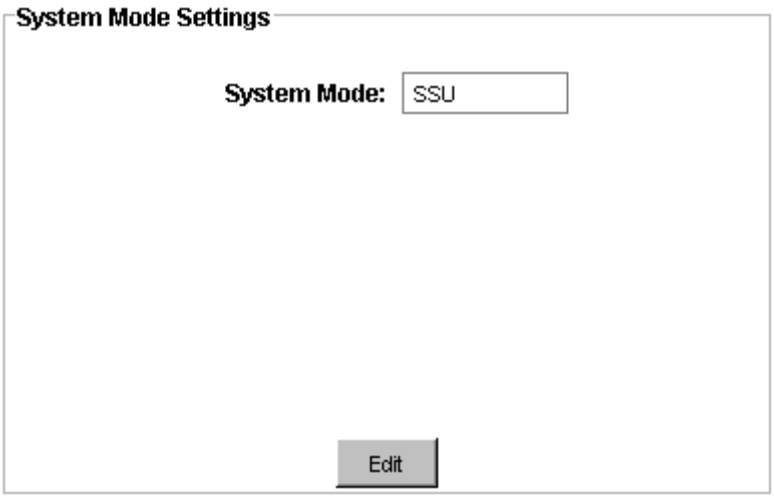
The GR833 format contains the access identifier (aid), condition type (condtype), effect of condition (condeff), occurrence date (ocrdat), occurrence time (ocrtim), and condition description (condscr).



System Mode Settings

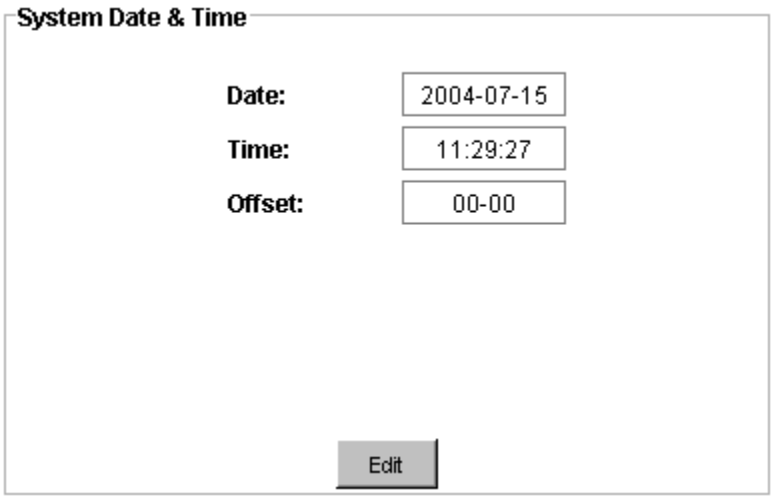
You can configure the TimeProvider to operate in one of three modes:

- Synchronization Supply Unit (SSU)
- Subtending (SUB) - as defined by Telcordia GR-378 Section 7
- Primary Reference Receiver (PRR) - when you connect the Microsemi GPS Timing Antenna



System Date and Time

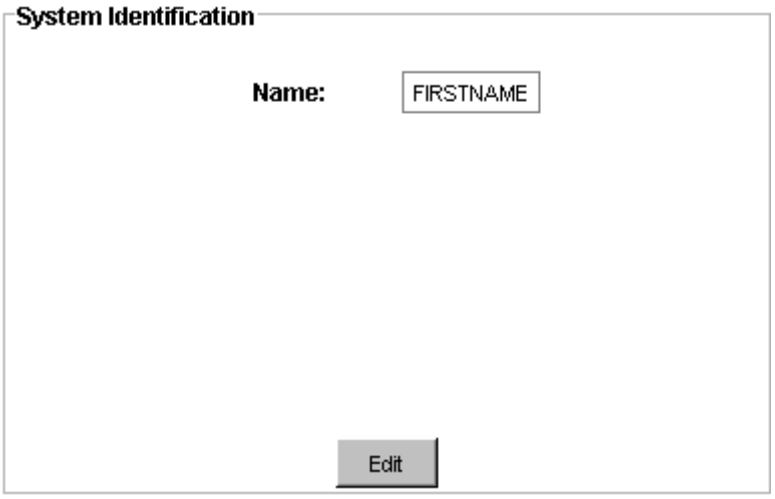
The System Date And Time screen displays the date and time that is set on the TimeProvider. Offset, shown in hours and minutes, displays the Universal Time Conversion (UTC) setting. TimeProvider uses local time for all timestamps within the system.



System Identification

The System Identification (SID) is the name of the TimeProvider that appears in normal and error response messages sent by the unit. It can be up to 20 alphanumeric characters.

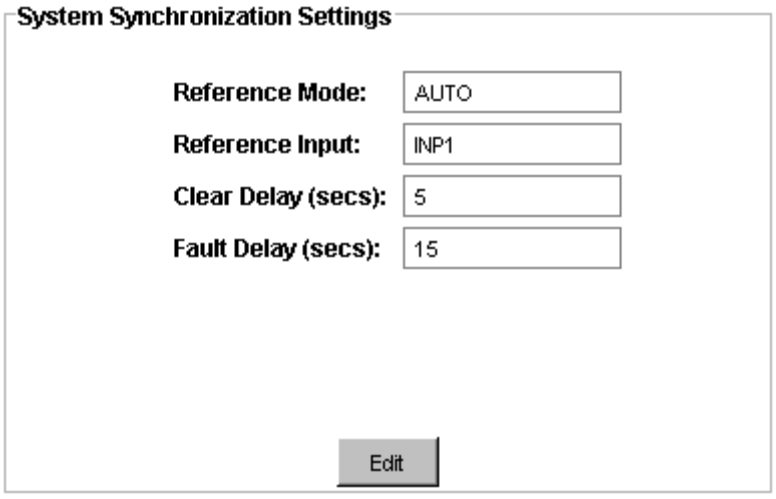
Note: Do not use the " or space characters in a name.



System Synchronization Settings

The System Synchronization screen allows you to assign the following settings:

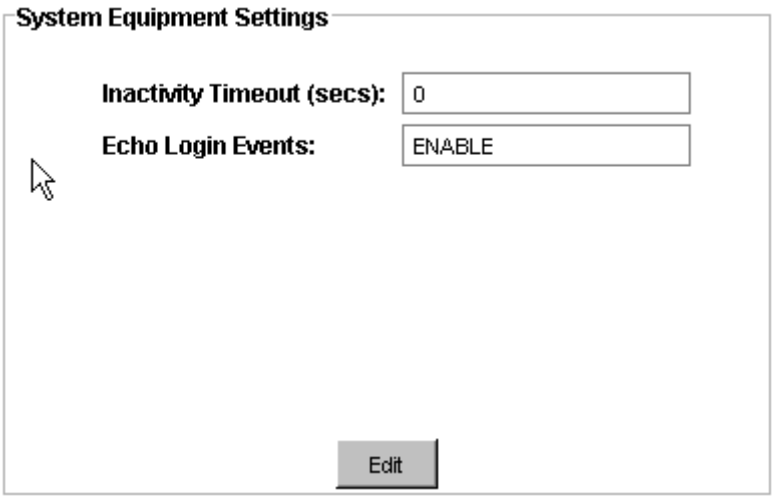
- **Reference Mode:** Allows you to set the reference selection mode to AUTO or FORCED. In AUTO, the system uses QLEVEL and Priority to select the system reference. In FORCED, the user selects the system reference.
- **Reference Input:** Allows you to manually select the input for reference. Reference Mode must be set to FORCED before you can select the input: GPS, PRS, INP1, INP2.
- **Clear Delay:** Allows you to set the time before a fault is cleared or before it is declared valid. The range is 0 to 1000 seconds.
- **Fault Delay:** Allows you to set the time before a fault is declared due to input faults: LOS, AIS, or OOF. The range is 1 to 15 seconds



System Equipment Settings

The System Equipment Settings screen allows you to assign the following settings:

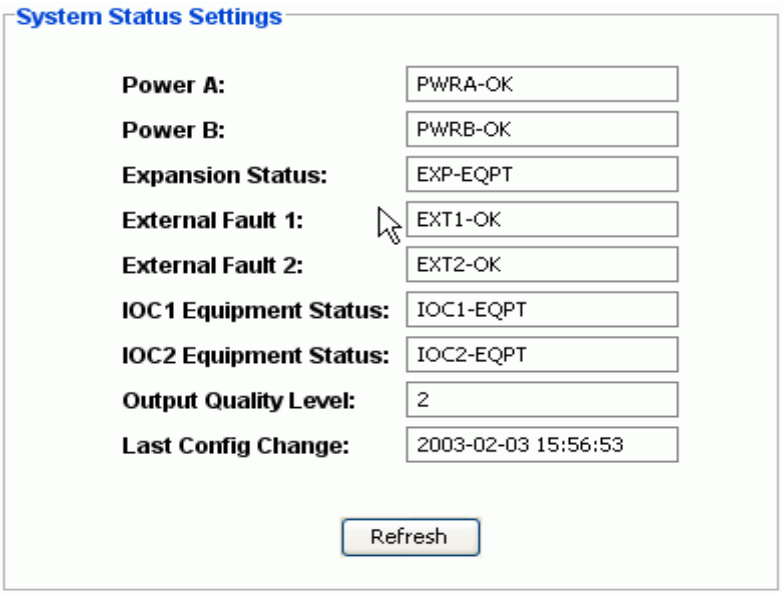
- **Inactivity Timeout:** Allows you to define the amount of time for user command inactivity prior to automatic user logoff.
- **Echo Login/logout Events:** Allows you to configure the system to echo the login or logout events.



System Status Settings

The System Status Settings screen provides the status of the following items:

- **Power A:** PWRA-OK or PWRA-FAIL. Indicates Power Supply A is OK, or has failed.
- **Power B:** PWRA-OK or PWRA-FAIL. Indicates Power Supply B is OK, or has failed
- **Expansion Status:** EXP-OK, or EXP-FAIL. Indicates the connection to the expansion output panel is OK, or has been lost.
- **External Fault 1**: EXT1-OK or EXT1-FAIL. Indicates if connector 1 contact closures or OK or activated.
- **External Fault 2:** Either EXT2-OK or EXT2-FAIL. Indicates if connector 2 contact closures or OK or activated.
- **IOC1 Equipment Status:** Either IOC1-EQPT or IOC1-UNEQPT. Indicates if IOC card is plugged in, or not plugged in.
- **IOC2 Equipment Status:** Either IOC2-EQPT or IOC2-UNEQPT. Indicates if IOC card is plugged in, or not plugged in.
- **Output Quality Level:** Indicates the system output quality level (1 through 9).
- **Last Config Change:** Time of last instance a user provisioned the system.



Edit Event Format

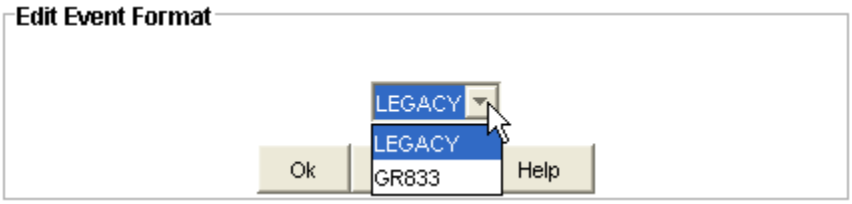
To edit the Event Format setting:

1. In the Event Format window, select LEGACY or GR833.

   The Legacy format contains the access identifier (aid), component of system (aidtype), condition type (condtype), effect of condition (condeff), occurrence date (ocrdat), occurrence time (ocrtim), and condition description (condscr).

   The GR833 format contains the access identifier (aid), condition type (condtype), effect of condition (condeff), occurrence date (ocrdat), occurrence time (ocrtim), and condition description (condscr).

2. Click **OK** to accept the changes and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving changes.

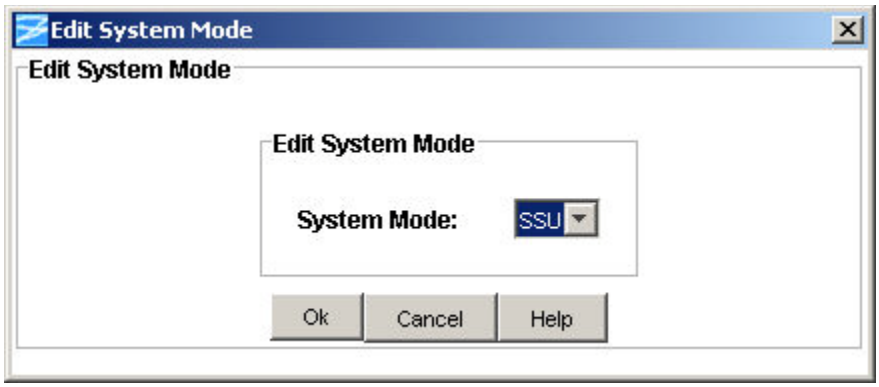


Edit System Mode

To edit the System Mode setting:

1. In the System Mode drop-down box, select SSU, SUB, or PRR.

2. Click **OK** to accept the changes and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving changes.



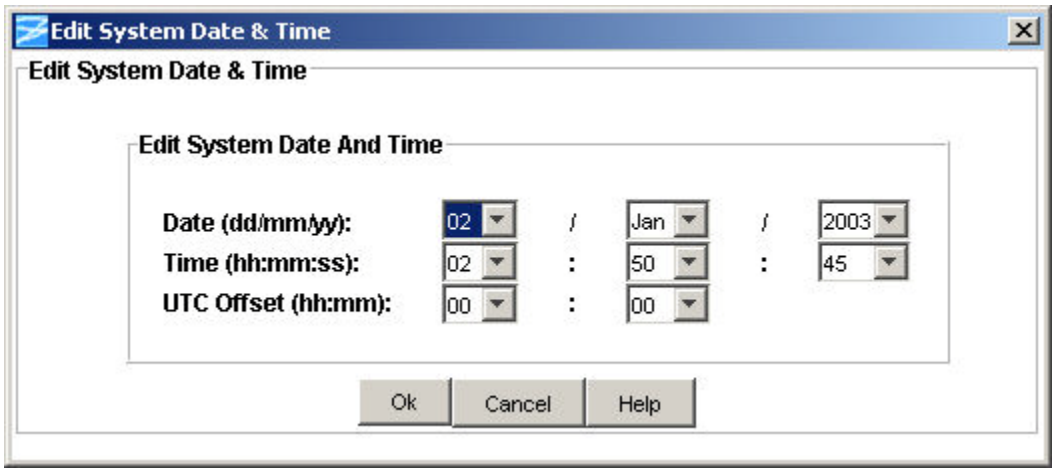
Edit System Date and Time

To edit the System Date and Time:

1. In the Date drop-down boxes, select the day, month, and year.
2. In the Time drop-down boxes, select the hour, minutes, and seconds.
3. In the UTC Offset drop-down boxes, select the hour and minutes.

Note: The UTC Offset, hours and minutes, allows the system to base it's time on the Universal Time Conversion (requires GPS option), but uses local time for all timestamps within the system.

4. Click **OK** to accept the changes and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving changes.



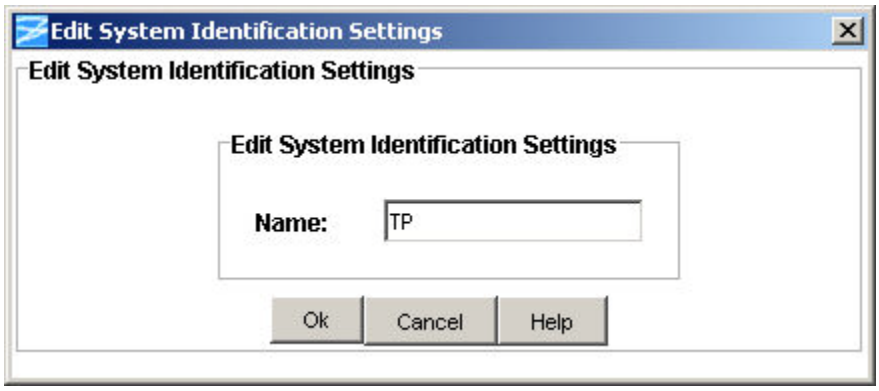
Edit System Identification (SID)

To edit the System Identification:

1. Type a name for the TimeProvider in the Name text box.

2. Click **OK** to accept the entry and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving the entry.

Note: The name can be up to 20 alphanumeric characters. Do not use the " or space characters in the name.



Edit System Synchronization Settings

To edit the System Synchronization Settings:

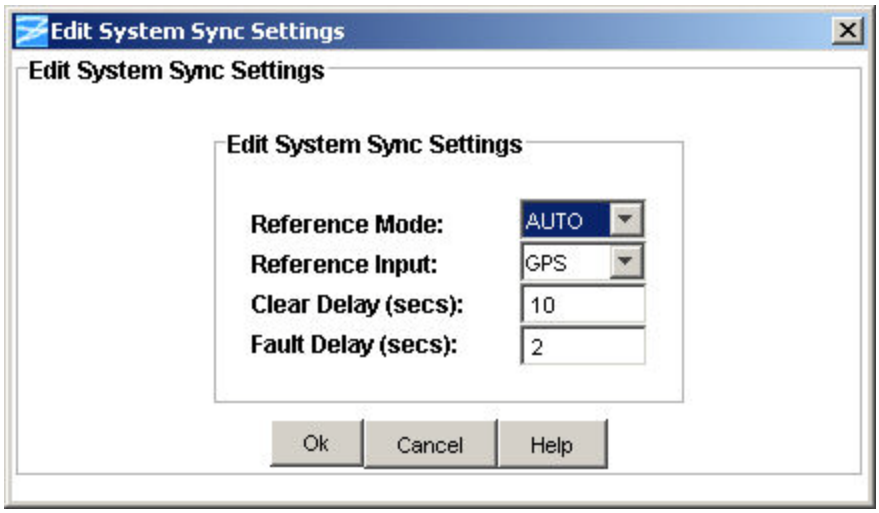
1. In the Reference Mode drop-down box, select AUTO or FORCED. In AUTO, the system uses QLEVEL and Priority to select the system reference. In FORCED, the user selects the system reference.

2. In the Reference Input drop-down box, select GPS, PRS, INP1, or INP2. The TimeProvider selects the user set reference input *only* if the Reference Mode (in step 1) is set to FORCED.

3. In the Clear Delay drop-down box, enter the time in seconds (0 to 1000) before a fault is cleared.

4. In the Fault Delay drop-down box, enter the time in seconds (1 to 180) before a fault is declared due to input faults: LOS, AIS, or OOF.

5. Click **OK** to accept the entry and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving the entry.



Edit System Equipment Settings

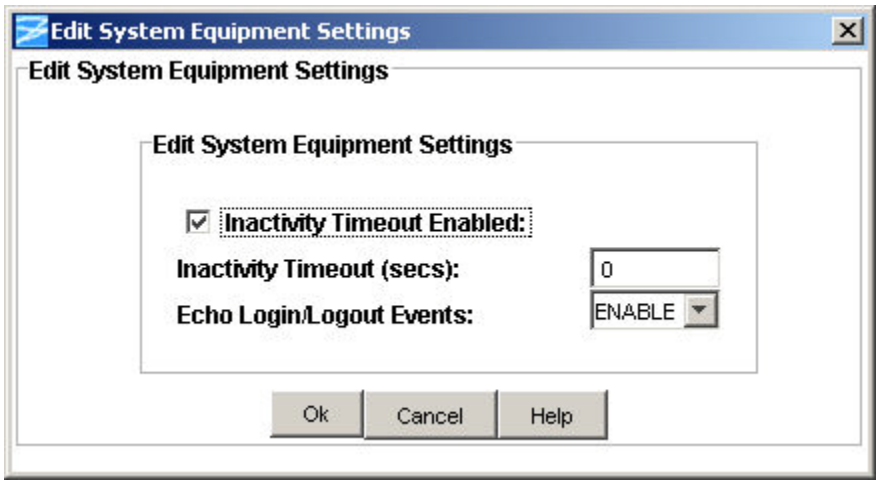
To edit System Equipment Settings:

1. Click the check-box and verify that a check mark appears in the box to enable the inactivity time-out function. Click the check-box again and verify that a check mark does not appear in the box to disable the inactivity time-out function.

2. Enter a time in seconds to indicate the time of inactivity required prior to automatic user log off.

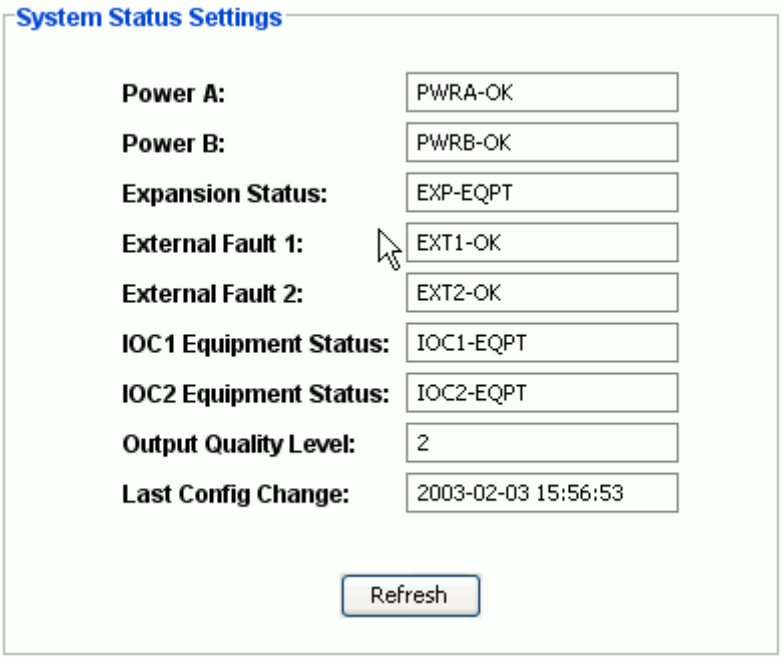
3. At the Echo Login/Logout Events drop-down box, select ENABLE or DISABLE. ENABLE allows the system to echo the login or logout events.

4. Click **OK** to accept the changes and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving the changes.



System Status Settings

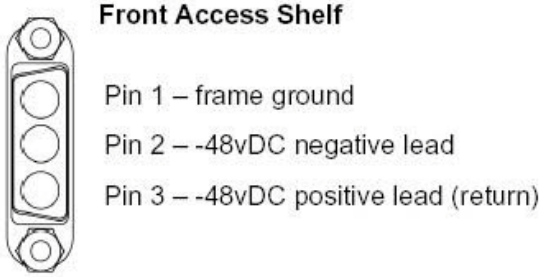
The System Status Settings screen indicates whether the power inputs are OK or have failed, if the expansion panel is OK or in alarm mode, if there are external alarms, the status of the input and output clock module, the output quality level, and when the last configuration change was made.



Power A: Either PWRA-OK or PWRA-FAIL (FAIL indicates a failure of power supply A)

Power B: Either PWRA-OK or PWRA-FAIL (FAIL indicates a failure of power supply B)

TiP0005



TiP0004

Expansion Status: Either EXP-OK, or EXP-FAIL (FAIL indicates the connection to the expansion output panel has been lost)

External Fault 1: Either EXT1-OK or EXT1-FAIL (FAIL indicates the contact closures have activated an external alarm)

External Fault 2: Either EXT2-OK or EXT2-FAIL (FAIL indicates the contact closures have activated an external alarm)

IOC1 Equipment Status: Either IOC1-EQPT or IOC1-UNEQPT (UNEQPT indicates the card is not plugged in)

IOC2 Equipment Status: Either IOC2-EQPT or IOC2-UNEQPT (UNEQPT indicates the card is not plugged in)

Output Quality Level: Indicates the system output quality level (1 through 9).

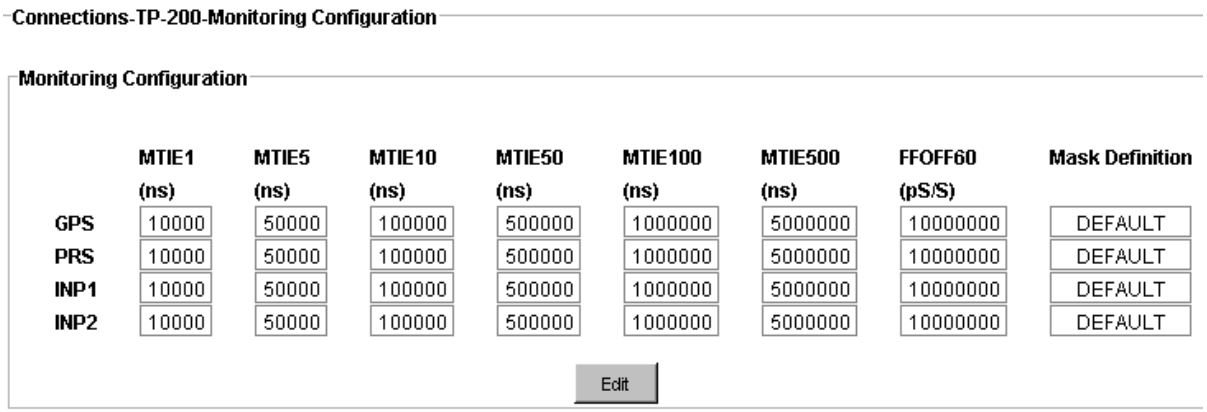
Last Config Change: Time of last instance when a user provisioned the system.

Monitoring Configuration

Monitoring Configuration Screen

The Monitoring Configuration screen allows you to set MTIE and FFOFF threshold values for the GPS, PRS, INP1, and INP2 inputs. Using MTIE and FFOFF data, the TimeProvider can generate alarms based on user-specified thresholds and can disqualify an input, causing the TimeProvider to switch references or enter the Holdover mode.

The selectable mask definitions are DEFAULT, GPS-R, PRS, DS1, OCN, PRC, TYPE I, TYPE II, and USER. USER is the only selection that allows you to set the MTIE and FFOFF threshold values manually. All other masks are pre-defined and cannot be changed.



	MTIE1 (ns)	MTIE5 (ns)	MTIE10 (ns)	MTIE50 (ns)	MTIE100 (ns)	MTIE500 (ns)	FFOFF60 (pS/S)	Mask Definition
GPS	10000	50000	100000	500000	1000000	5000000	10000000	DEFAULT
PRS	10000	50000	100000	500000	1000000	5000000	10000000	DEFAULT
INP1	10000	50000	100000	500000	1000000	5000000	10000000	DEFAULT
INP2	10000	50000	100000	500000	1000000	5000000	10000000	DEFAULT

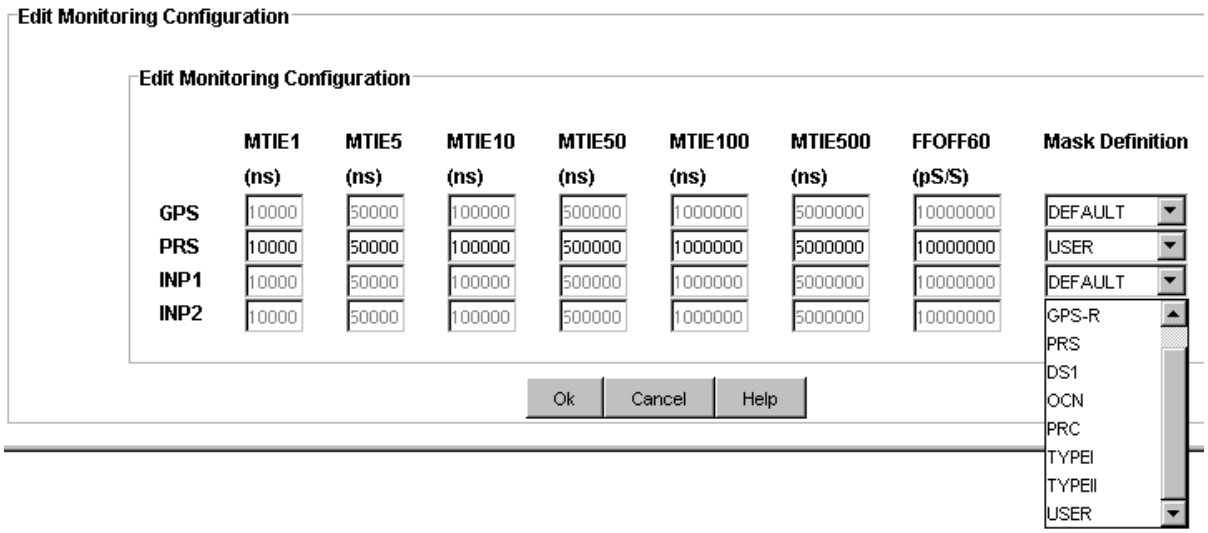
Edit Monitoring Configuration

To edit Monitoring Configuration:

1. Click the **Mask Definition** drop-down box and select a mask.

2. If you select USER, enter the MTIE and FFOFF values in the corresponding text boxes.

3. Click **OK** to accept the changes and return to the Monitoring Configuration screen, or **Cancel** to return to the Monitoring Configuration screen without saving the changes.



NTP Parameters

NTP Parameters

The NTP Parameters screen allows you to enable NTP, setup authentication, setup broadcast parameters, setup peer parameters, and displays peer information.

MD5 authentication can be enable or disable and is available in server and client modes. Client configuration for MD5 operation requires Server IP, MD5 Authentication Key, and Key ID.

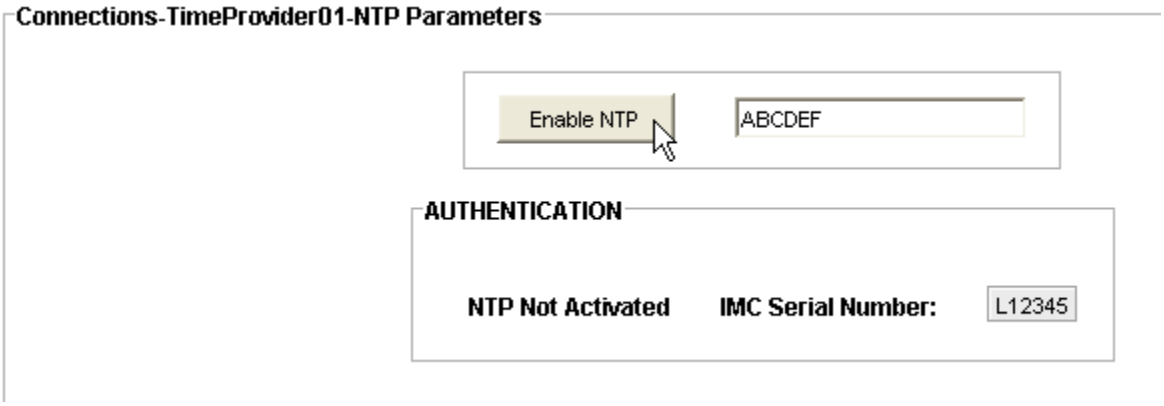
The user can enter an MD5 Authentication Key of up to 32 ASCII characters that is not case-sensitive. The Key ID range is from 0 to 65535.

Enable NTP

Use the following procedure to enable NTP:

1. At the NTP Parameters screen, enter the appropriate key in the text box.

2. Click **Enable NTP**.



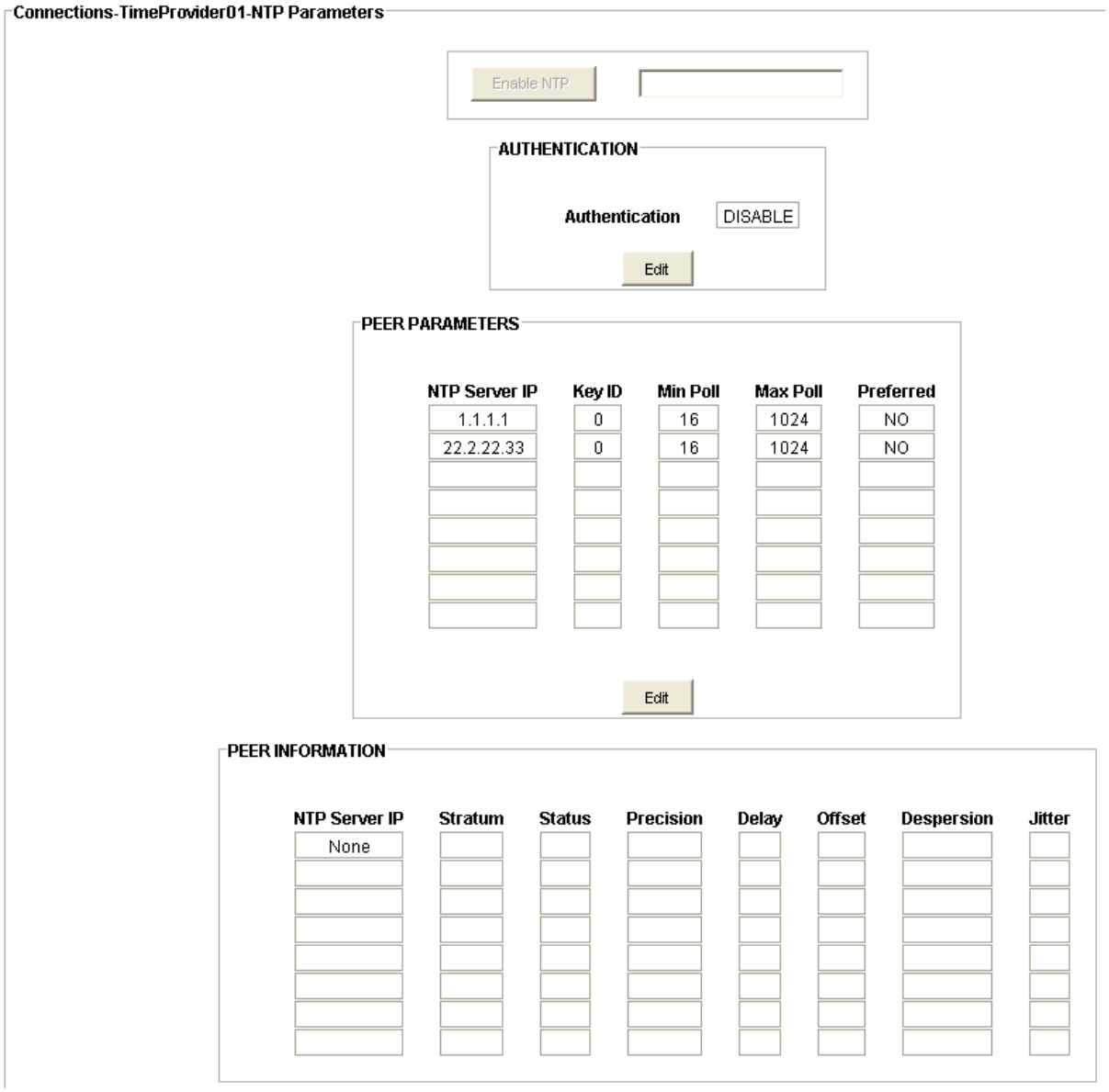
3. When NTP is enabled, the screen shown below is displayed.

Also See

Edit NTP Authentication Configuration

Edit NTP Peer Configuration

NTP Peer Information

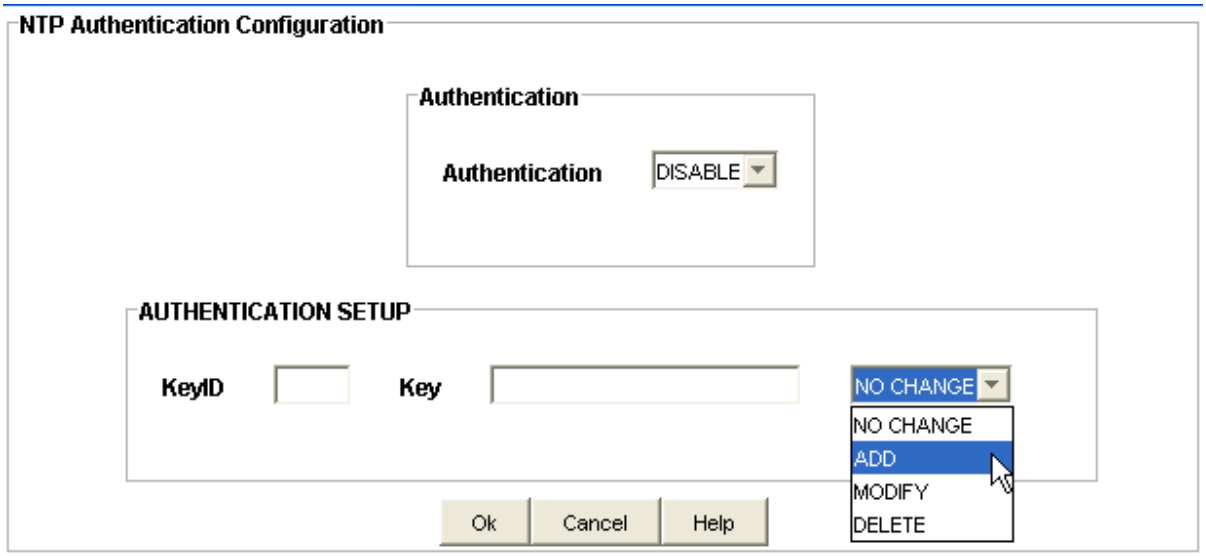


Edit NTP Authentication Configuration

To edit the NTP authentication configuration:

1. Select Enabled or disabled from the Authentication drop-down box.
2. Enter a KeyID from 1 to 65535.
3. Enter a Key of up to 32 ASCII characters that are not case-sensitive.
4. Select NO CHANGE, ADD, MODIFY, or DELETE in the drop-down box.

5. Click **OK** to accept the changes and return to the Monitoring Configuration screen, or **Cancel** to return to the Monitoring Configuration screen without saving the changes.



Edit NTP Peer Configuration

To edit the NTP peer configuration:

1. Enter the NTP Server IP in dotted decimal notation.

2. Enter a KeyID from 1 to 65535.

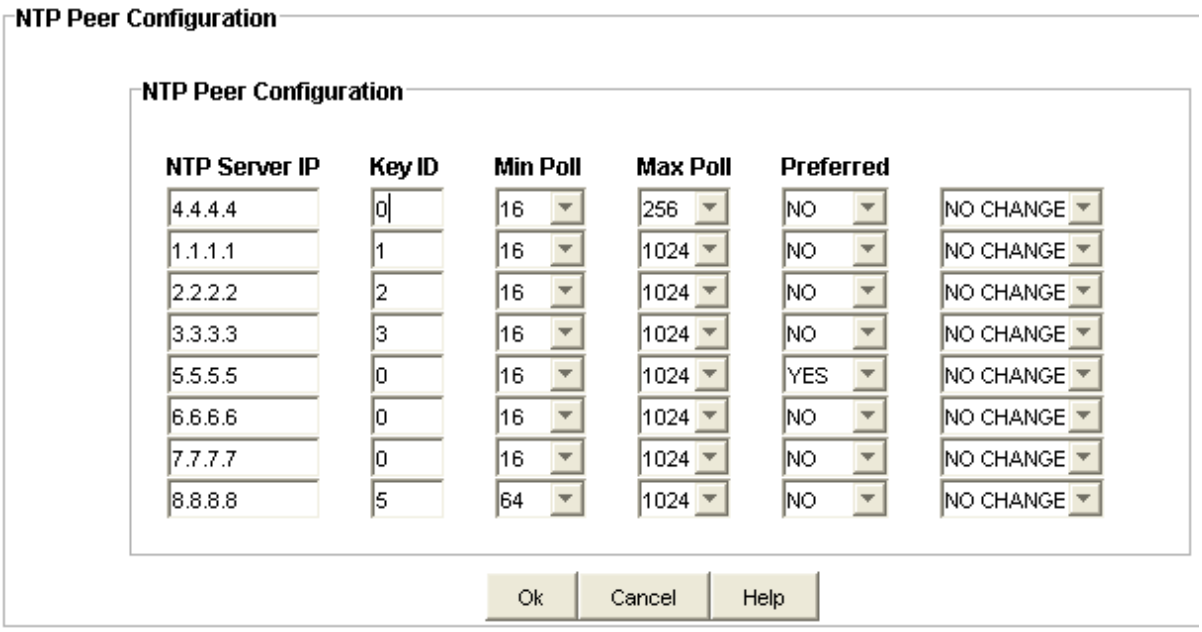
3. Select 16, 32, 64, 128, 256, 512, or 1024 from the Min Poll drop-down box (the minimum time (in seconds) between Server time requests).

4. Select 1024, 512, 256, 128, 64, 32, or 16 from the Max Poll drop-down box (the maximum time (in seconds) between Server time requests).

5. Select YES or NO from the Preferred drop-down box (only one selection can be the preferred server setting).

6. Select NO CHANGE, ADD, MODIFY, or DELETE in the drop-down box.

7. Click **OK** to accept the changes and return to the Monitoring Configuration screen, or **Cancel** to return to the Monitoring Configuration screen without saving the changes.



NTP Peer Information

This screen provides NTP Peer information for each peer (up to 8). The data includes information on the server IP, server stratum level, server LI (decimal), root dispersion value, and root delay value.

SNMP Parameters

Simple Network Management Protocol (SNMP)

The SNMP Configuration screen provides information on SNMP configuration settings.

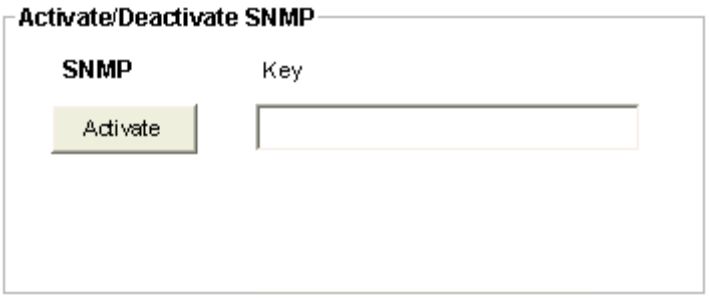
The fields are described in the table below.

Field / Section	Description
Activate/Deactivate SNMP	
SNMP	Click this button to Activate or Deactivate the SNMP interface.
Key	Up to 20 case-sensitive characters to enable SNMP. The key cannot contain the characters “ : ; \ /
SNMP Access Configuration	

SNMP	Indicates if SNMP is enabled or disabled.
Access Port	The SNMP access port number.
Edit	Click **Edit** to change the SNMP Access Configuration.
MIB System Information	
Description	User entry text field.
Contact	User entry text field.
Name	User entry text field.
Location	User entry text field.
Edit	Click **Edit** to change the MIB System Information.
SNMP Principal Configuration	
Name:	User name.
Access Level:	User access level **None** – Anyone with access to a serial or Ethernet port on the TimeProvider can execute commands set to this security level. **User** – Can execute commands set at the User security level. **Admin** – Can execute commands set at the Admin security level. **Security** – Can access every command available.
Type	User Authentication Protocol - The authentication key is 16 characters for the MD5 algorithm and 20 characters for the SHA algorithm.
Engine ID	SNMP Engine Identifier.
New Principal	Click to enter a new principal name.
Edit Principal	Click to edit a principal name.
Delete Principal	Click to delete a principal name.
SNMP Trap configuration	
IP Address	Manager IP address where trap reports are sent.
User Name	The user name associated with the manager IP address.
Timeout(s)	The time in seconds that the system retries to send traps.
Retry Count(s)	The number of retries that have occurred.
Trap Port	Trap port number.
Edit	Click **Edit** to change the SNMP Access Configuration.

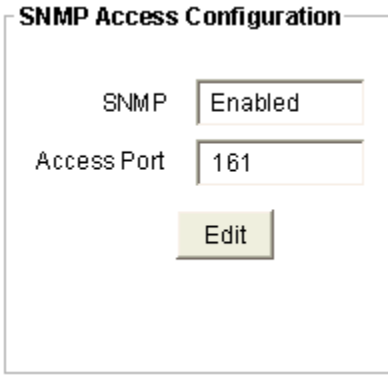
Activate SNMP

If SNMP is not activated, the **Activate** button and **Key** text field are enabled. To activate SNMP, type the key code into the **Key** text box and click **Activate.**



SNMP Access Configuration

The SNMP Access Configuration screen indicates if **SNMP** is enabled or disabled and displays the access port number if enabled. If **SNMP** is disabled, the **Access Port** displays a 0. Click **Edit** to change the configuration.



Edit SNMP Access Port

Perform the following steps to edit the SNMP Access Port Settings:

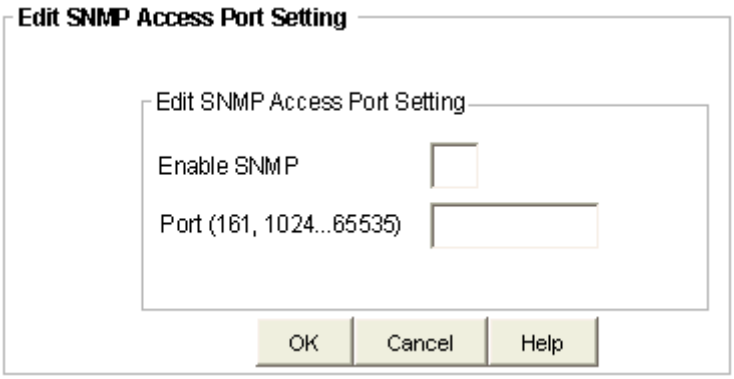
1. To enable SNMP, click the **Enable SNMP** check box so that it displays a check mark. To disable SNMP, uncheck the box.

2. If you uncheck the box to disable SNMP, a conformation message is displayed. Click **Yes** to precede, or **Cancel** to exit without disabling SNMP.

3. If you are enabling SNMP, enter the desired port number in the **Port** text box.

4. Click **OK** to accept changes and return to the SNMP Parameters screen, or **Cancel** to return to the SNMP Parameters screen without saving the changes.

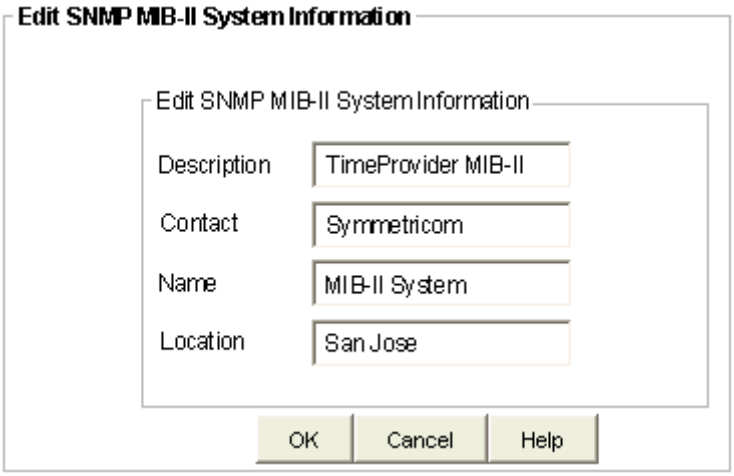
Note: A message is displayed indicating that the change will not be effective until the IMC reboots.



Edit SNMP MIB-II System Information

Perform the following steps to edit the SNMP MIB-II System Information:

1. Enter a description in the **Description** text box.
2. Enter contact information in the **Contact** text box.
3. Enter a name in the **Name** text box.
4. Enter a location in the **Location** text box.
5. Click **OK** to accept changes and return to the SNMP Parameters screen, or **Cancel** to return to the SNMP Parameters screen without saving the changes.



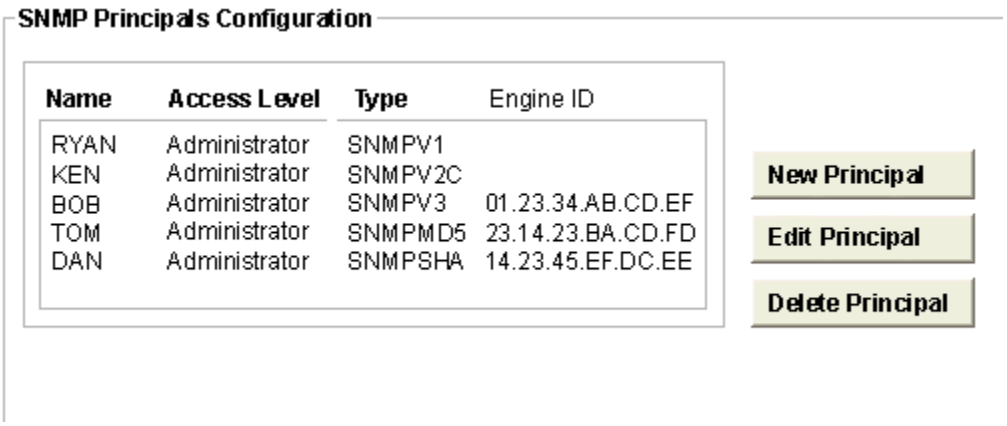
SNMP Principals Configuration

The SNMP Principals Configuration screen allows you to:

- Create a new principal
- Edit a principal

- Delete a principal

The items in the configuration screen are described in the table below.

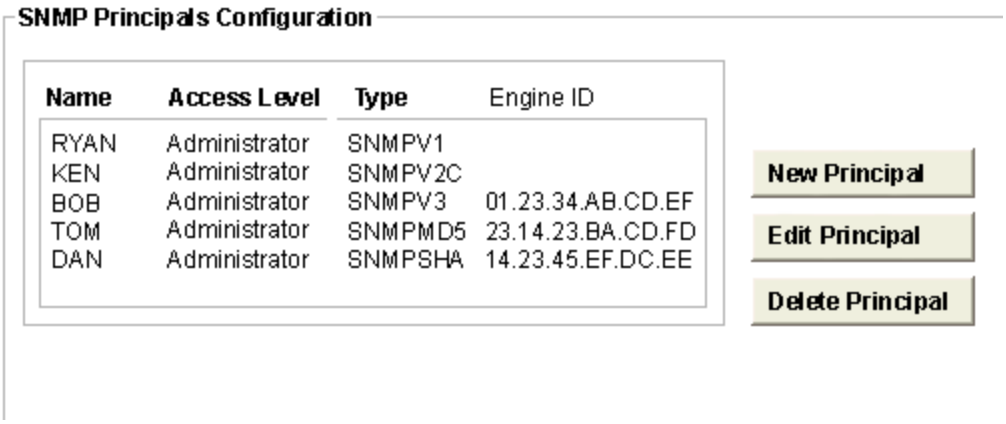


Item	Description
Name	User entered identification
Access Level	User access level **None** – Anyone with access to a serial or Ethernet port on the TimeProvider can execute commands set to this security level. **User** – Can execute commands set at the User security level. **Admin** – Can execute commands set at the Admin security level. **Security** – Can access every command available.
Type	User Type SNMPV1, SNMPV2C, SNMPV3, SNMPMD5, SNMPMD5DES, SNMPSHA, SNMPSHADES
Engine ID	User entered value that identifies the SNMP engine - Does not apply to SNMPV1 or SNMPV2
New Principal	Allows you to add a new principal to the configuration list
Edit Principal	Allows you to edit a principal in the configuration list
Delete Principal	Allows you to delete a principal from the configuration list

Create New Principal

Use the following procedure to create a new principal:

1. Click **New Principal** on the SNMP Principals Configuration screen.



2. Type a user name in the **Name** text field of the Create New Principal screen shown below. This can be any combination of alpha-numeric characters.

3. Select the type of SNMP desired in the **Type** drop-down box.

> **Note:** If **SNMPV1**, **SNMPV2C**, or **SNMPV3** is selected, the **Auth Algo**, **AuthPass**, **PrivPass** and **Confirm** fields are non-functioning since they are not applicable to SNMPV1, SNMPV2C and SNMPV3 users. If **SNMPMD5** or **SNMPSHA** is selected, the **PrivPass** and **Confirm** fields are non-functioning. If **SNMPMD5DES** or **SNMPSHADES** is selected, all fields are enabled.

4. Select **MD5** or **SHA** (authentication algorithm type) in the **Auth Algo** drop-down box.

5. Type the user password in the **AuthPass** text box.

6. Re-type the user password in the **Confirm** text box.

7. Type the password in the **PrivPass** text box.

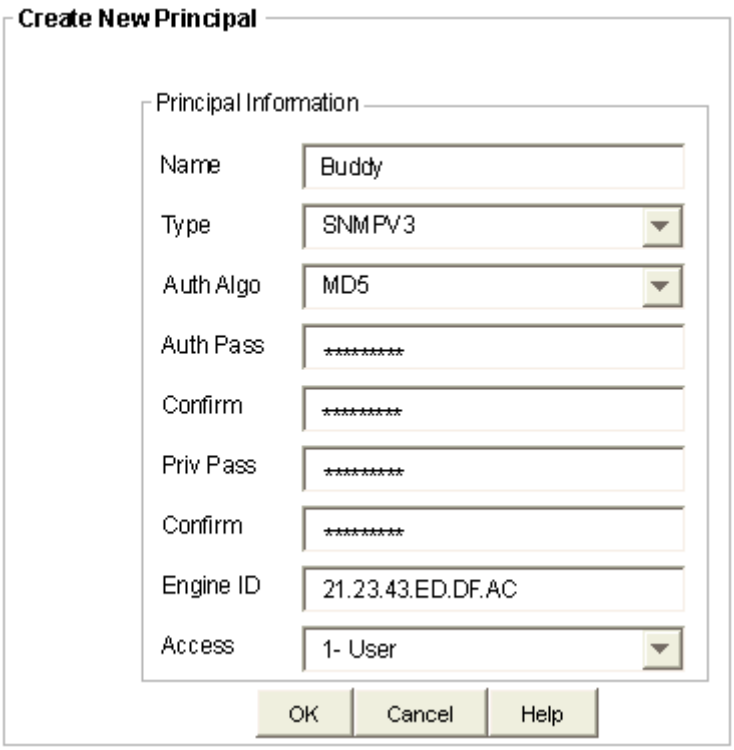
8. Re-type the password in the **Confirm** text box.

9. Type the engine ID in the **Engine ID** text box. If SNMPV1 or SNMPV2C is selected in the **Type** drop-down box, the Engine ID field is non-functioning.

10. Select the user level in the Access drop-down box. User levels are as follows:

- **None** – Anyone with access to a serial or Ethernet port on the TimeProvider can execute commands set to this security level.
- **User** – Can execute commands set at the User security level.
- **Admin** – Can execute commands set at the Admin security level.
- **Security** – Can access every command available.

11. Click **OK** to accept changes and return to the SNMP Principals Configuration screen, or **Cancel** to return to the SNMP Principals Configuration screen without saving changes.

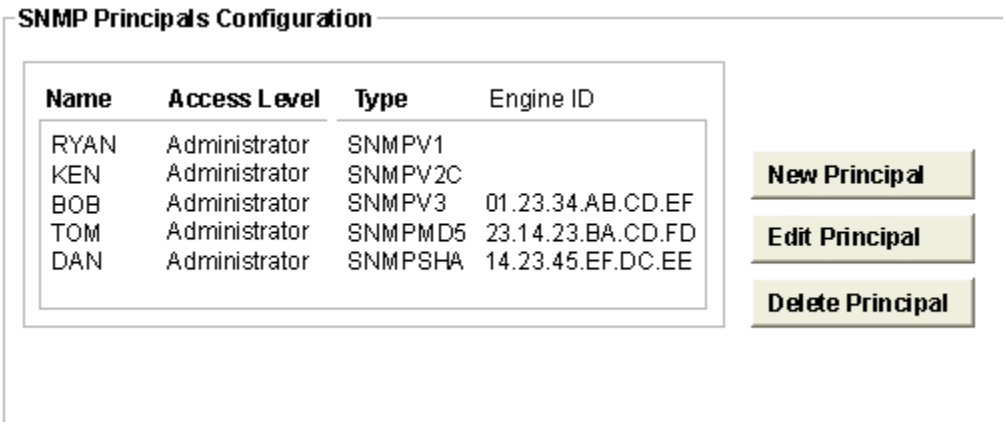


Edit SNMP Principal

Use the following procedure to edit an existing principal:

1. Click **Edit Principal** on the SNMP Principals Configuration screen.

Note: the **Name** text field is not editable.



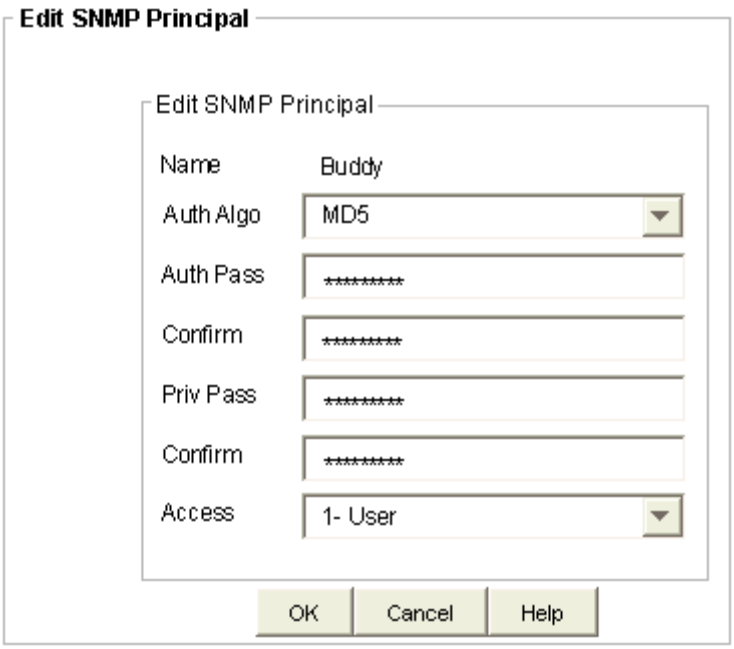
2. Select the type of SNMP desired in the **Type** drop-down box.

> **Note:** If **SNMPV1**, **SNMPV2C**, or **SNMPV3** is selected, only the **Access** drop-down box is editable. If **SNMPMD5** or **SNMPSHA** is selected, the **PrivPass** and **Confirm** fields are non-functioning. If **SNMPMD5DES** or **SNMPSHADES** is selected, all fields are enabled.

3. Select **MD5** or **SHA** (authentication algorithm type) in the **Auth Algo** drop-down box.
4. Type the user password in the **AuthPass** text box.
5. Re-type the user password in the **Confirm** text box.
6. Type the password in the **PrivPass** text box.
7. Re-type the password in the **Confirm** text box.
8. Type the engine ID in the **Engine ID** text box. If SNMPV1 or SNMPV2C is selected in the **Type** drop-down box, the Engine ID field is non-functioning.
9. Select the user level in the Access drop-down box. User levels are as follows:

- **None** – Anyone with access to a serial or Ethernet port on the TimeProvider can execute commands set to this security level.
- **User** – Can execute commands set at the User security level.
- **Admin** – Can execute commands set at the Admin security level.
- **Security** – Can access every command available.

10. Click **OK** to accept changes and return to the SNMP Principals Configuration screen, or **Cancel** to return to the SNMP Principals Configuration screen without saving changes.

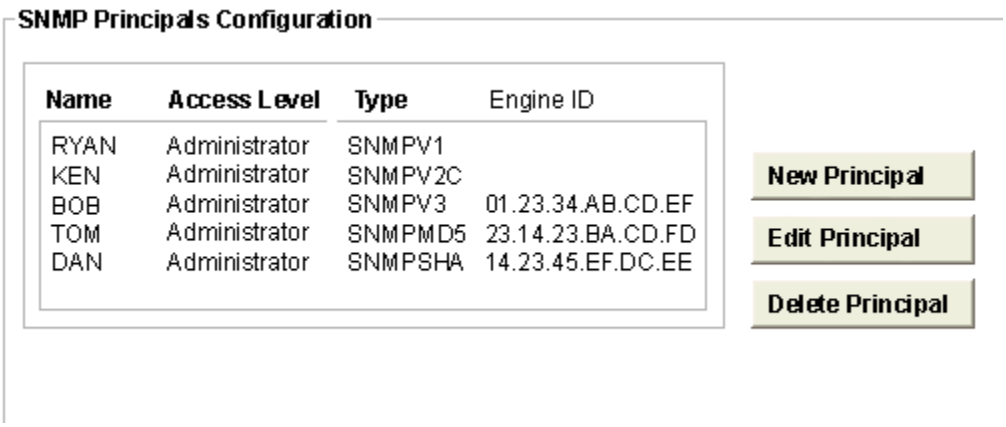


Delete Principal

To delete an existing principal:

1. Click **Delete Principal** on the SNMP Principals Configuration screen.

1. In the confirmation screen that appears, click **Yes** to delete the SNMP Principal, or click **No** to exit without deleting the SNMP Principal.



Edit SNMP Trap Settings

Use the following procedure to set up the Trap Settings screen:

1. Enter the trap IP address in the **IP Address** text box. This is the IP address where trap reports are sent.

2. Select a name in the **Principal Name** drop-down box.

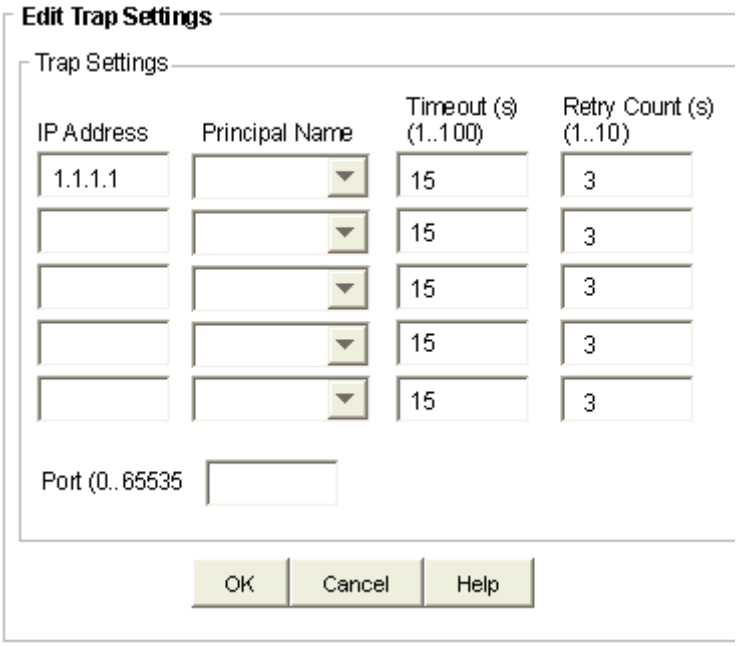
> **Note:** The Principal Name field lists all available Principals, but if no principals are defined, a warning message indicates that no SNMP principals are defined and you cannot edit trap settings.

3. Type a default timeout in the **Timeout (s)** text box. The Timeout default is 15 and the range is 1 to 100 second.

4. Type a default time in the **Retry Count(s)** text box. The default is 3 and the range is 1 to 10 second.

5. Type a port number in the **Port** text box. The default is port 162. It applies to all 5 managers, and if set to 0 no notification is sent. The range is 0 to 65535.

6. Click **OK** to accept changes and return to the SNMP Principals Configuration screen, or **Cancel** to return to the SNMP Principals Configuration screen without saving changes.

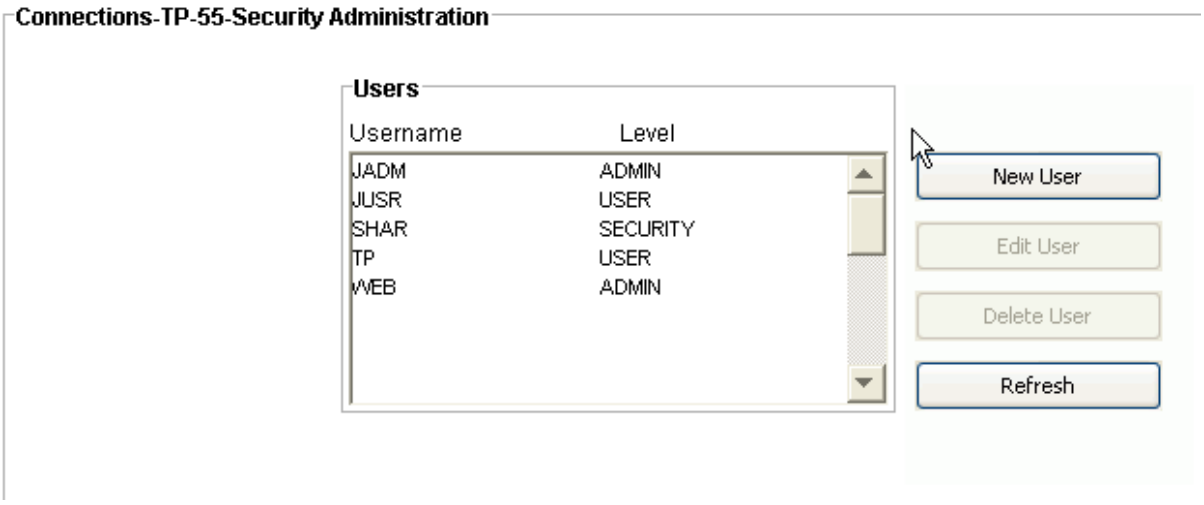


Security Administration

Security Administration Screen

The Security Administration screen allows an administrator to associate one of four access security levels with each username. Each security access level grants the privileges of all lower levels plus additional privileges.

- Click **New User** to Add a user
- Click **Edit User** to Edit the selected user Information
- Click **Delete User** to delete the selected user. An "Are you sure?" dialog box appears before removing user the from list.



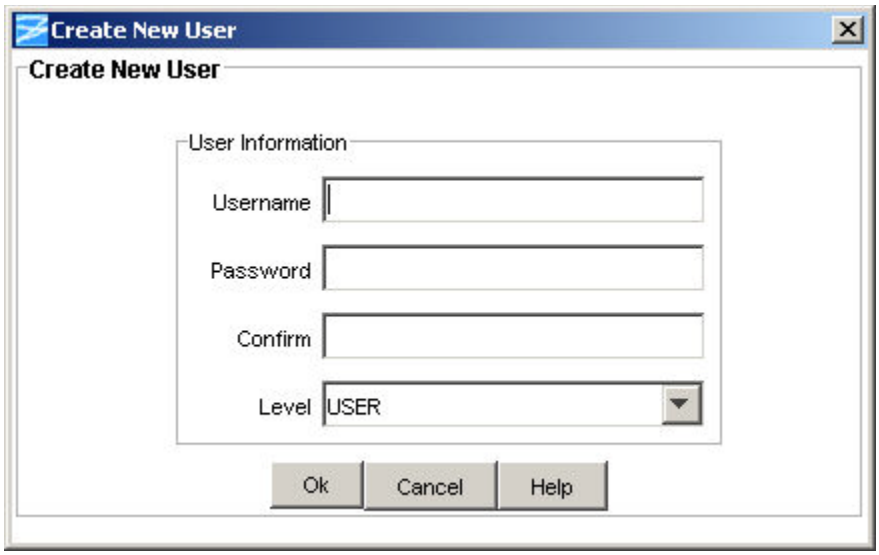
Add a User

To create a new user:

1. Enter a name in the **Username** text box.
2. Enter a password in the **Password** text box. Acceptable characters include the "printable" ASCII characters from 32 to 127 (0x20 to 0x7F).

Note: TimeProvider passwords are case sensitive.

3. Enter the same password again in the **Confirm** text box (Password and Confirm must match to create the user).
4. Select a level in the Level drop-down box.
5. Click **OK** to accept changes and return to the Security Administration screen, or **Cancel** to return to the Security Administration screen without saving changes.



Edit an Existing User

To edit an existing user:

1. Enter a new password in the **Password** text box. Acceptable characters include the "printable" ASCII characters from 32 to 127 (0x20 to 0x7F).

Note: TimeProvider passwords are case sensitive.

---

2. Enter the same password again in the **Confirm** text box (Password and Confirm must match to create the user).

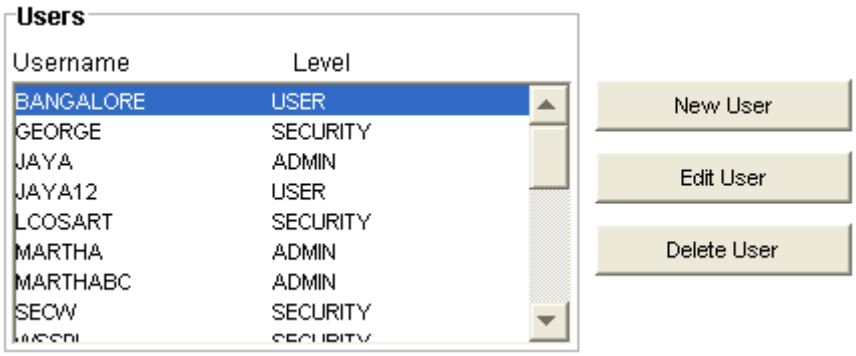
3. Select a new level in the Level drop-down box.

4. Click **OK** to accept changes and return to the Security Administration screen, or **Cancel** to return to the Security Administration screen without saving changes.

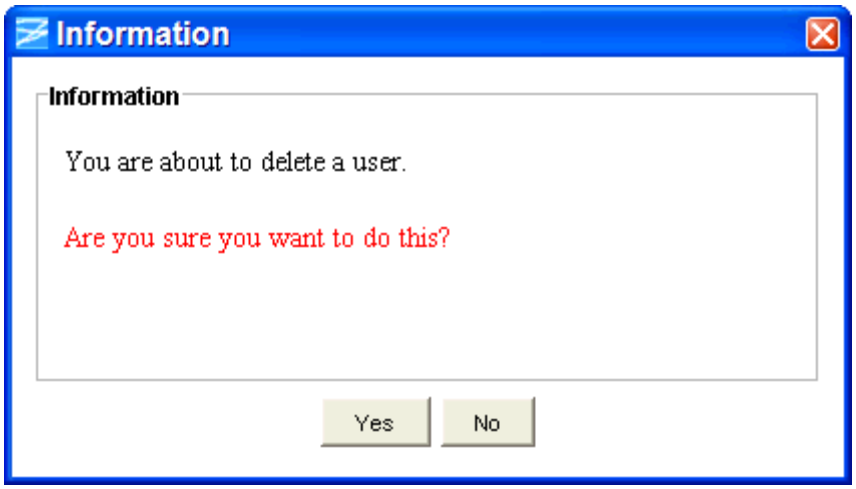
Delete a User

Use the following procedure to delete a user:

1. Select the Username in the list of users to be deleted.



2. Click **Delete User**. The following screen appears.

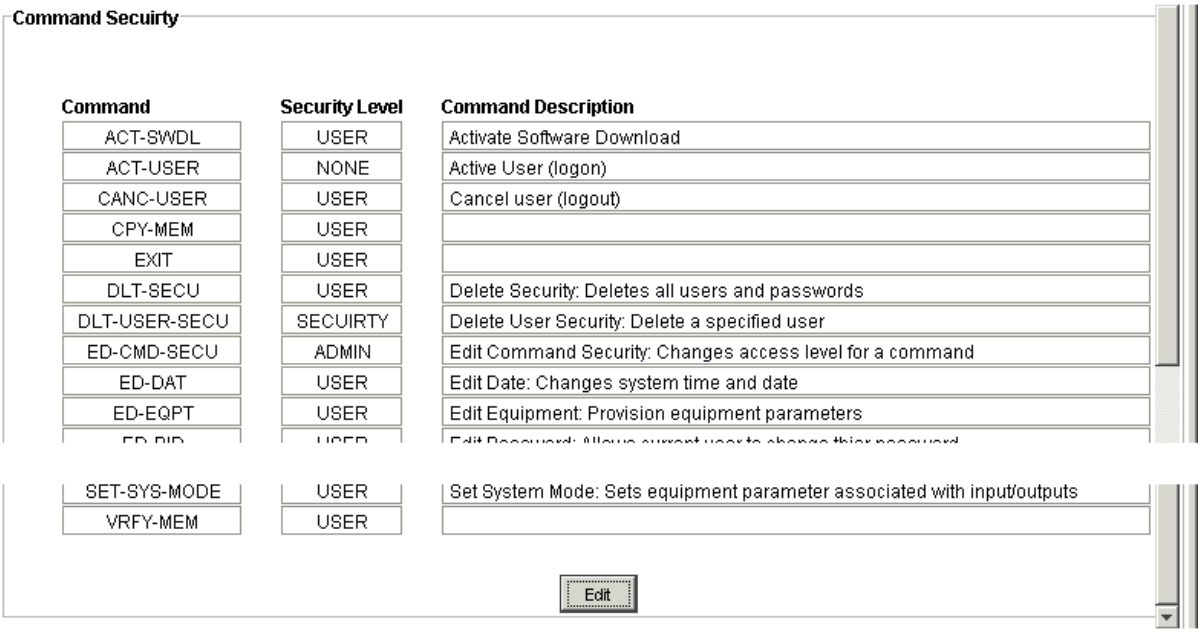


3. If you want to delete the user, click **Yes**, or if you do not want to delete the user, click **No** to return to the Security Administration screen.

Command Security

The TimeProvider allows each TL1 command to be run by different levels of user (NONE, USER, ADMIN and SECURITY). The command security details panel shows the current user-level allowed for each command. The Security Level NONE permits a command to be executed at any access level.

Click **Edit** to change the security levels for the commands.



Edit Command Security

To edit the Command Security Level:

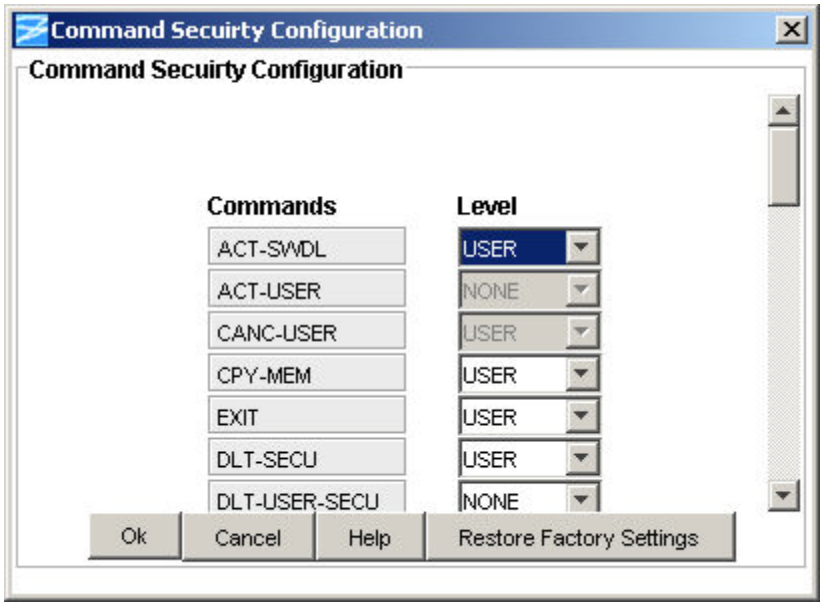
1. Click the Level drop-down box.

2. Select the desired system security level: NONE, USER, ADMIN, or SECURITY.

Note: The commands with grayed-out drop-down boxes are not configurable.

3. Click **OK** to accept the changes and return to the Security Administration Command Security screen, or **Cancel** to return to the Security Administration Command Security screen without saving changes.

Note: Click **Restore Factory Settings** to return the command security levels back to the factory default levels.

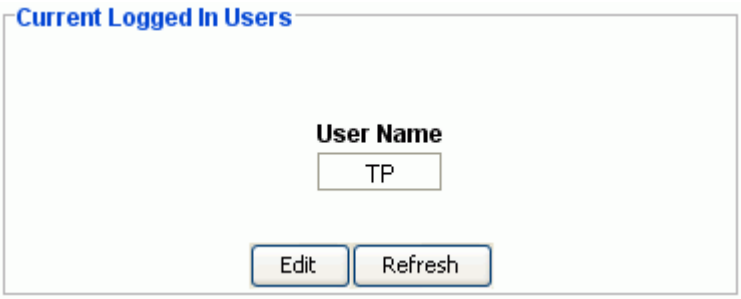


Current Users

The Current Users detail panel lists the users currently logged in to the TimeProvider.

Click **Refresh** to get an update of the list.

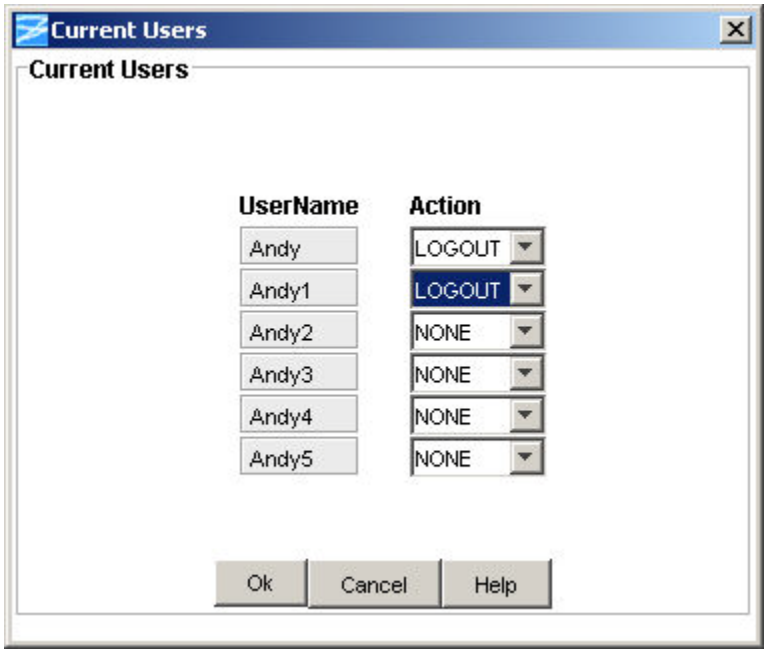
Click **Edit** to log users out.



Edit Current Users

The Edit Current Users screen allows you to log out a current user:

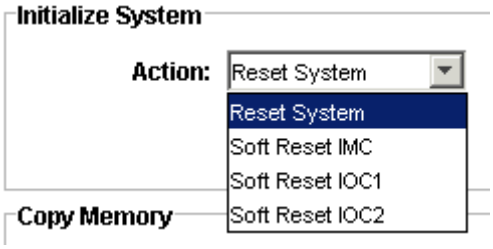
1. Click the Action drop-down box next to the name of the user you want to log out.
2. Select LOGOUT.
3. Click **OK** to accept the change and return to the Security Administration Current Users screen, or **Cancel** to return to the Security Administration Current Users screen without saving the change.



Advanced Functions

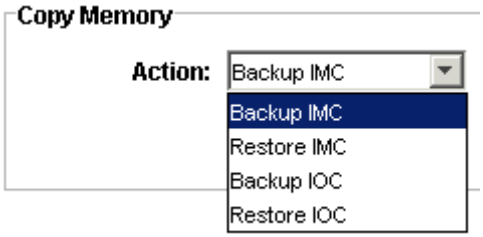
The advanced features of the TimeProvider include System Initialization, Copy Memory functions and Copy IOC firmware functions.

The System Initialization allows four options:



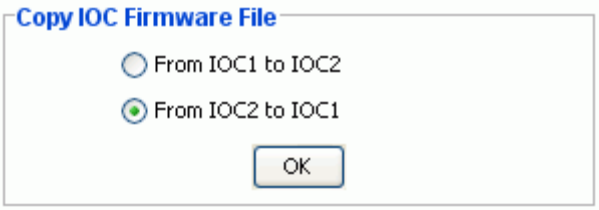
- **Reset System:** Does a complete system reset and all circuit packs are reset. Communication and synchronization outputs are lost during this operation.
- **Soft Reset IMC:** Resets the IMC card. Communication is lost during this operation.
- **Soft Reset IOC1:** Reset IOC1 card, if IOC2 is working no synchronization outputs are affected.
- **Soft Reset IOC2:** Reset IOC1 card, if IOC2 is working no synchronization outputs are affected.

The Copy Memory allows the system i-state to be backed up between different cards, it has four options:



- **Backup IMC:** Copies the i-state for IMC to IOC.
- **Restore IMC:** Copies the IMC i-state from the IOC to IMC.
- **Backup IOC:** Copies the IOC i-state for IOC to IMC.
- **Restore IOC:** Copies the IOC i-state from the IMC to IOC

The Copy IOC Firmware File allows the IOC firmware from the Active card to be backed up to the Standby card. It has two options:



- **From IOC1 to IOC2:** Copies the firmware from IOC1 card to IOC2 card.
- **From IOC2 to IOC1:** Copies the firmware from IOC2 card to IOC1 card.

Note: The feature to copy from one IOC card to the other is only available when both IOC cards are installed. This feature is not available when only one IOC card is available.

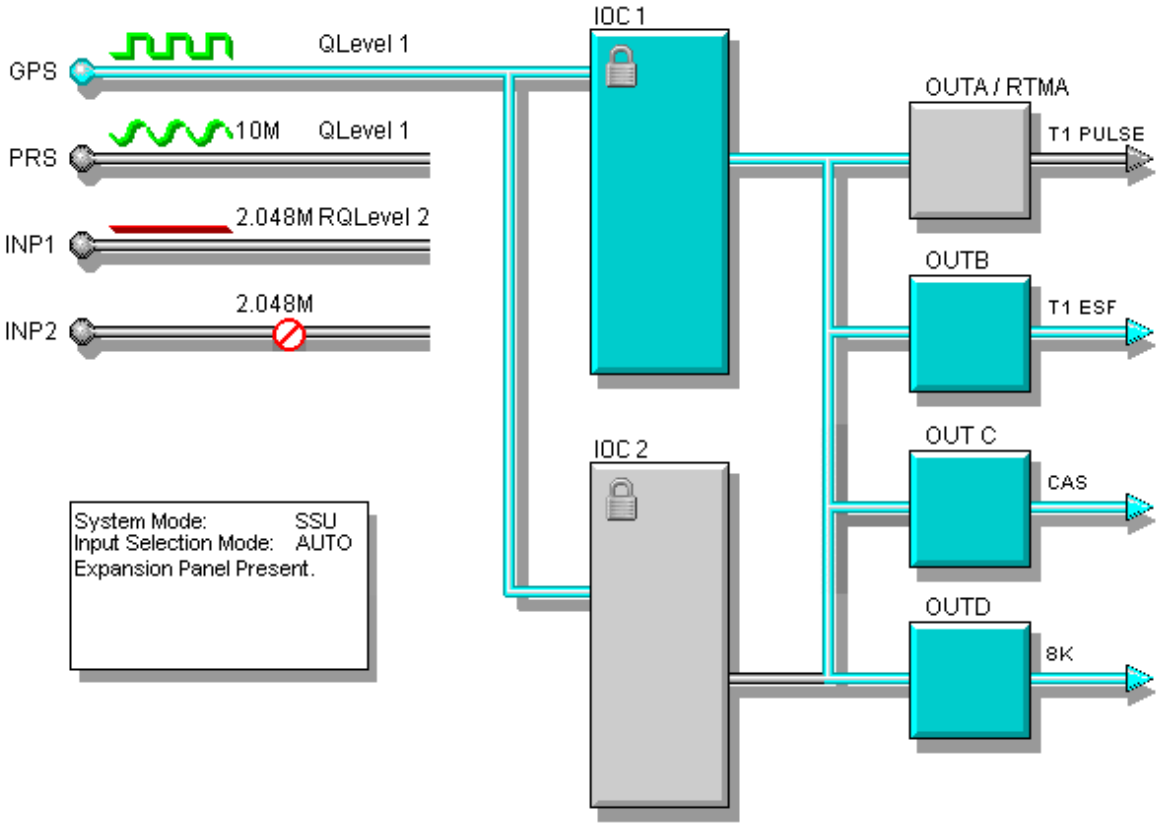
Note: Copying firmware is only allowed from the Active card to the Standby card. The user is not allowed to copy firmware from the Standby card to the Active card.

Logical View

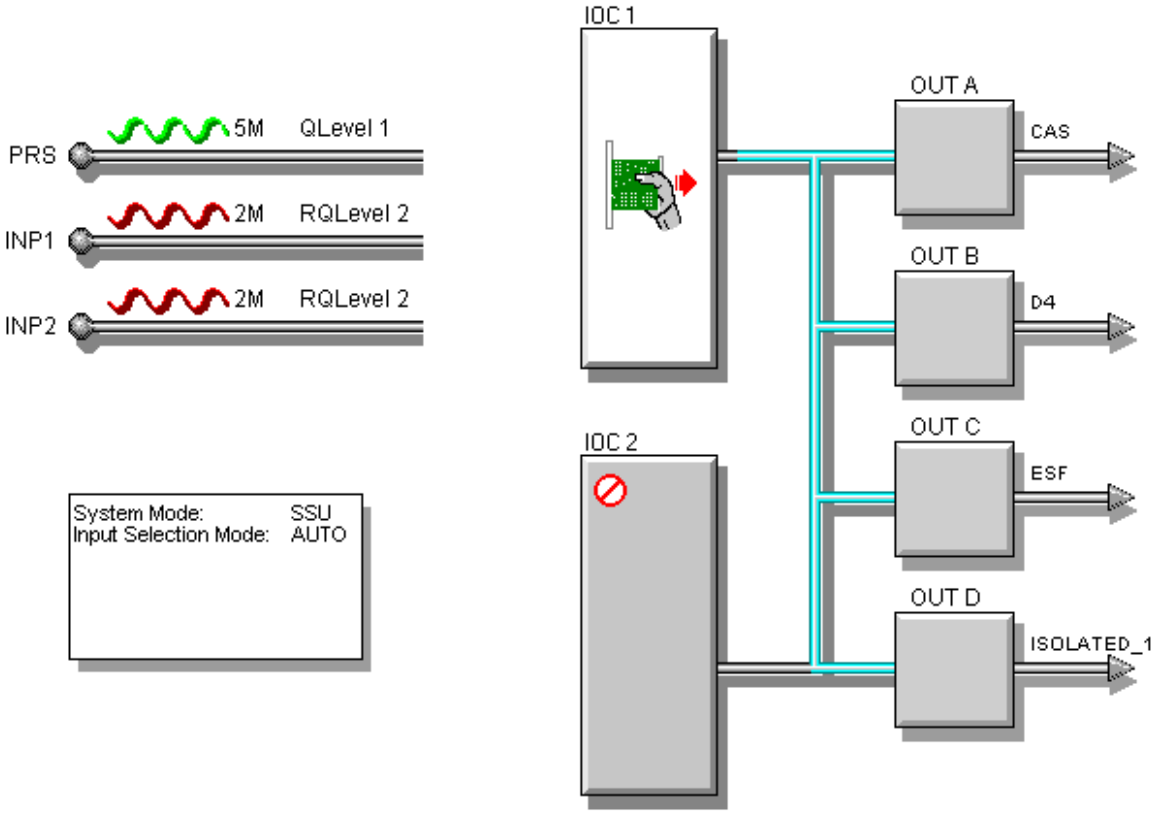
Logical View Screen

The Logical View for the TimeProvider shows the status of the TimeProvider's inputs, clocks, and outputs, it indicates if an expansion panel is present, and it shows the active synchronization path (INP1 in the graphic below). INP1 is the reference feeding IOC1 and IOC2.

In this illustration only IOC1 is active and feeding the outputs. OUTA is configured for retiming, but the output is disabled and OUTB, OUTC, and OUTD are active. Click on an element below for details on the part.

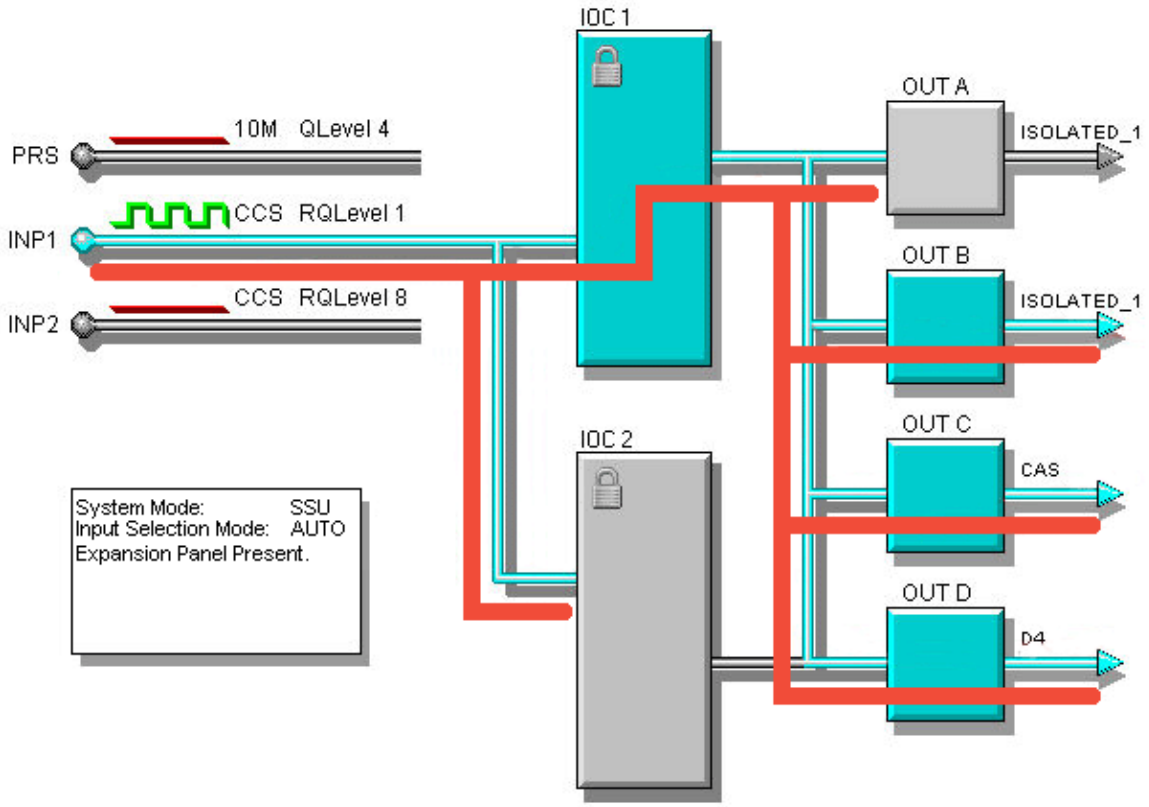


The logical view can also show the states of the IOC. Below is a TimeProvider with IOC1 unplugged and IOC2 out of service:



Synchronization Path

The logical view of the TimeProvider show the active synchronization trail through the element. The green pipes show where the sync is flowing. Superimposed below in red we can see the active input is INP1 which is feeding both IOCs, then that IOC1 is feeding OUT(A-D) and the actual outputs for OUTB to OUTD. This path is updated in real time when changes occur on the TimeProvider.



Expansion Panel

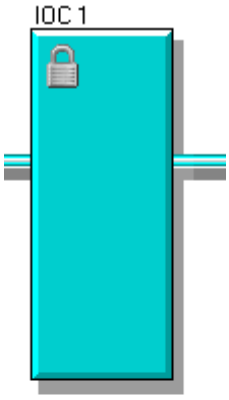
The TimeProvider's optional Expansion Panel doubles (from 32 to 64) the number of output channels available. The outputs are arranged in four groups labeled A, B, C, and D with eight outputs per group; each group can be configured independently. The Expansion Panel receives timing signals from the TimeProvider main shelf through an expansion cable.

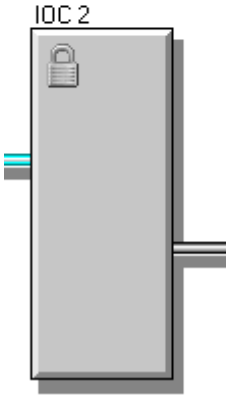
IOC

Both IOC cards are displayed in the logical view and they are color code with either gray for Standby or green for Active. In the top left corner of each IOC is a padlock symbol which indicates the status of the IOC clock.

IOC graphic	Explanation	TL1 Keywords

	The IOC clock is locked to a system input.	<clkmode> LOCKED, FASTLOCK
	The IOC clock is NOT locked to a system input.	<clkmode> WARMUP, FREERUN, BRIDGING or HOLDOVER
	The IOC clock is out of service	

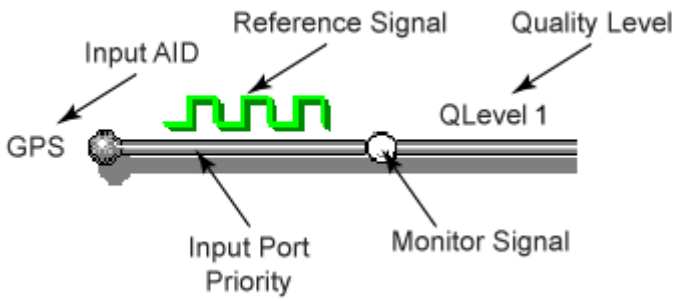




GPS

The GPS Input is made up of five elements:

- Input AID
- Reference Signal
- Quality Level
- Input Port Priority
- Monitor Signal



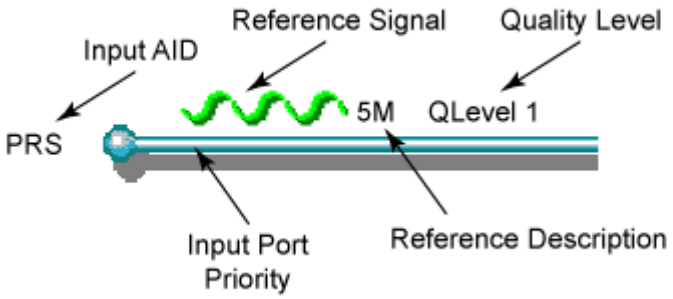
These element illustrate the state of the input and are updated in real time. The following tables describe each element and TL1 states/keywords that control them.

Input Port Graphic	Explanation	TL1 Keywords
	Working enabled port, which is not the reference input.	<INPSTATE> ENABLED
	Current reference input.	<REFINPUT> current AID
	Port currently in Monitor Mode.	<INPSTATE> MONITOR
	Port currently Disabled.	<INPSTATE> DISABLED

PRS

The PRS input is made up of five elements:

- Input AID
- Reference Signal
- Quality Level
- Input Port Priority
- Reference Description



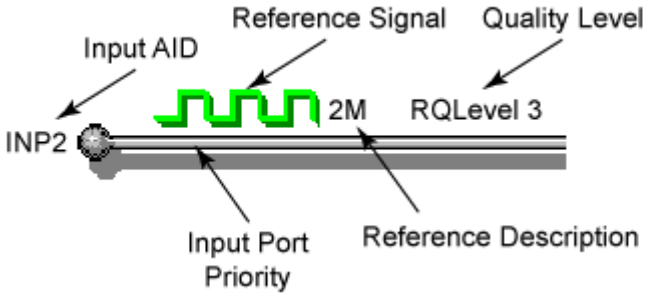
These elements illustrate the state of the input and are updated in real time. The following tables describe each element and the TL1 states/keywords that control them.

Input Port Graphic	Explanation	TL1 Keywords
	Working enabled port, which is not the reference input.	<INPSTATE> ENABLED
	Current reference input.	<REFINPUT> current AID
	Port currently in Monitor Mode.	<INPSTATE> MONITOR
	Port currently Disabled.	<INPSTATE> DISABLED

Input

Each Input is made up of five elements:

- Input AID
- Reference Signal
- Quality Level
- Input Port Priority
- Reference Description



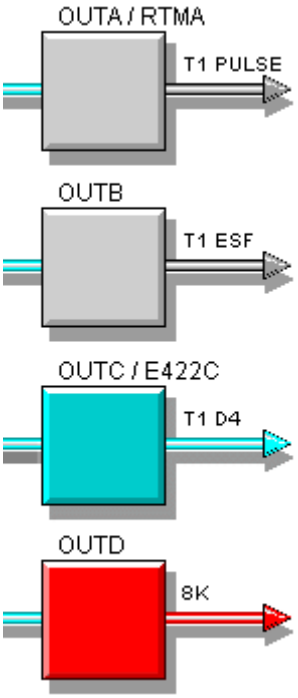
These elements illustrate the state of the input and are updated in real time. The following tables describe each element and the TL1 states/keywords that control them.

Input Port Graphic	Explanation	TL1 Keywords
	Working enabled port, which is not the reference input.	<INPSTATE> ENABLED
	Current reference input.	<REFINPUT> current AID
	Port currently in Monitor Mode.	<INPSTATE> MONITOR
	Port currently Disabled.	<INPSTATE> DISABLED

Outputs

Each output group in the TimeProvider is shown in the logical view and is color coded as follows:

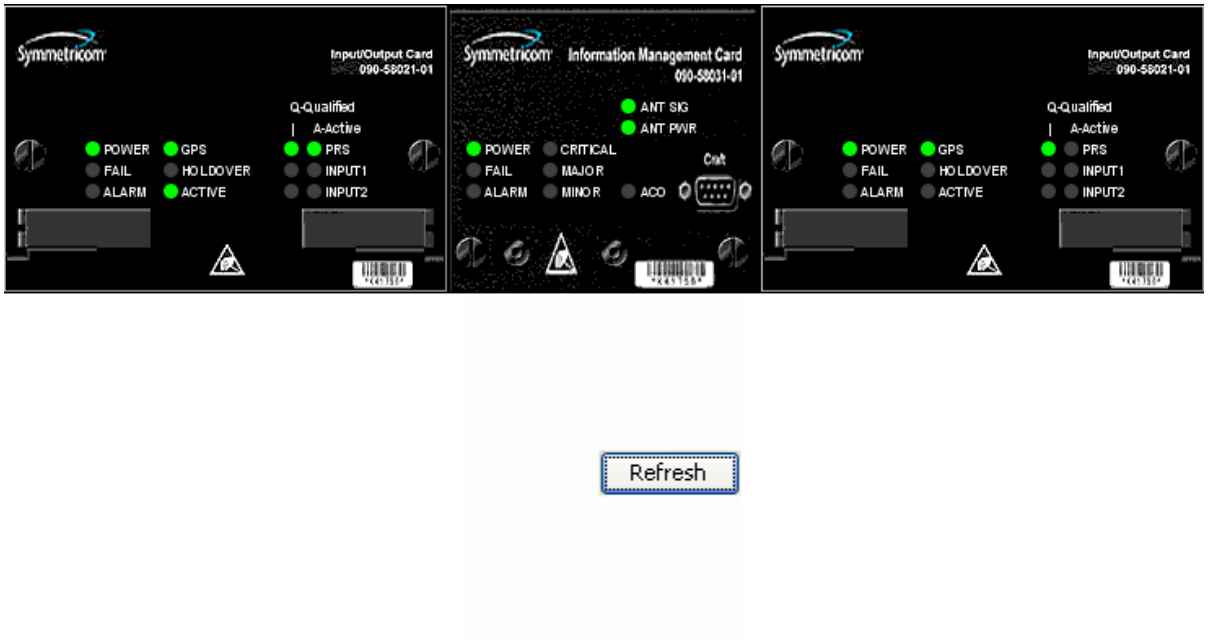
- Green is ENABLED (providing an output signal)
- Grey is DISABLED (not providing an output signal)
- Red is in alarm state



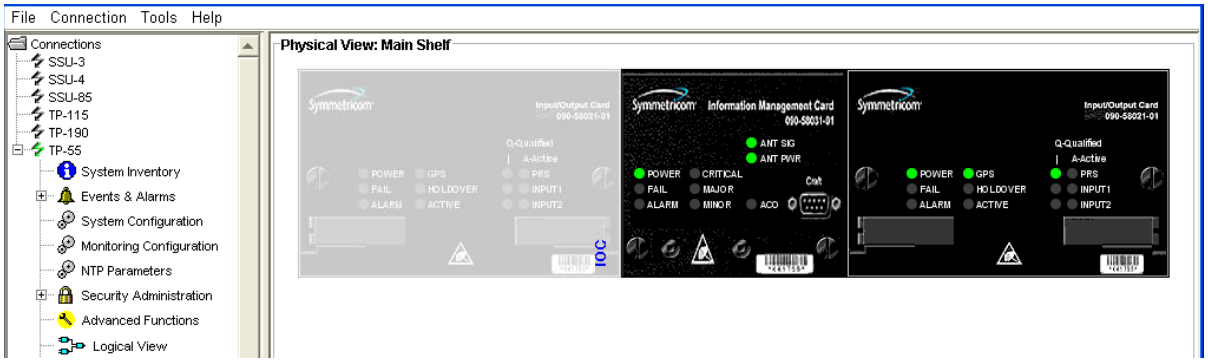
Main Shelf

Main Shelf Screen

The Main Shelf view for the TimeProvider shows the status of the IOC and IMC cards. The LEDs for each card are displayed in realtime to indicate changes on the TimeProvider. Click the **Refresh** button to update the Main Shelf view.



The Main Shelf view also indicates when a card is removed, as in IOC1 below:

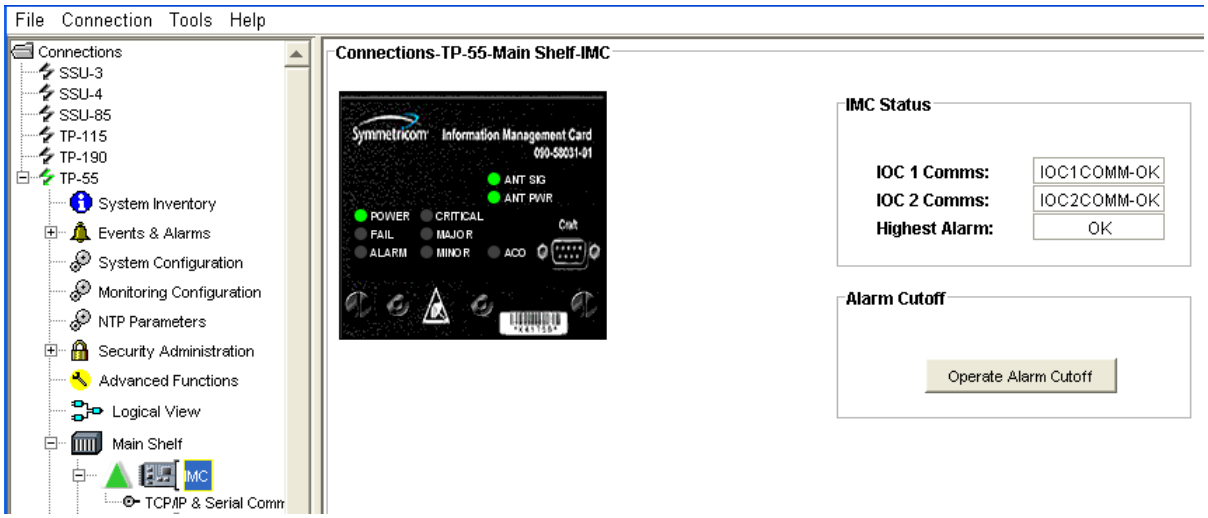


Information Management Card

IMC Operation

The Information Management Card serves as a communications/alarm interface. It contains a processor that manages communications between the two IOCs and the serial and Ethernet communications ports.

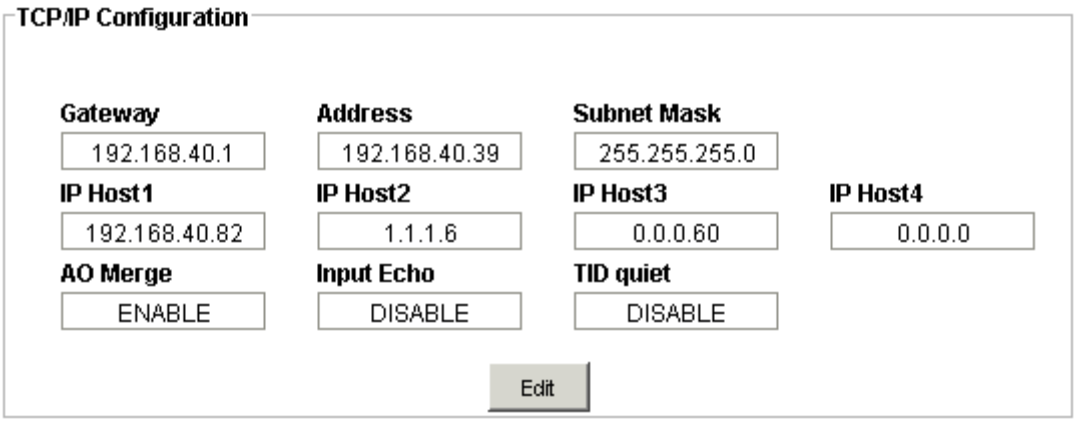
The IMC view shows the current status of the IMC, including the LEDs updated in real time, the internal card communication status, and highest active alarm severity.



LED Name	Condition	Description
Power	Green Off	Power is On Power is Off
Fail	Red Off	Card failure No failure
Alarm	Red Off	Card alarm No alarm
Critical	Red Off	Critical system alarm No alarm
Major	Red Off	Major system alarm No alarm
Minor	Yellow Off	Minor system alarm No alarm
Alarm Cutoff (ACO)	Green Off	On Off

TCP/IP Configuration

The details panel for TCP/IP & Serial Comms contains all the information about current IP and serial configurations. The associated edit button allows you to set the parameters described below.



Gateway: IP address of the default gateway. Default=127.0.0.1 range=1.0.0.1 to 254.255.255.254

Address: This is the address of the Network Element. Default=127.0.0.1 range=1.0.0.1 to 254.255.255.254

Subnet Mask: This is the subnet mask. Default=255.255.255.0 range=1.0.0.1 to 254.255.255.254

IP Host1: IP address of an element manager. The TimeProvider will attempt to send alarms/events to this address. Default=254.255.255.0 - Range=1.0.0.1 to 254.255.255.254

IP Host2: IP address of an element manager. The TimeProvider will attempt to send alarms/events to this address. Default=254.255.255.0 - Range=1.0.0.1 to 254.255.255.254

IP Host3: IP address of an element manager. The TimeProvider will attempt to send alarms/events to this address. Default=254.255.255.0 - Range=1.0.0.1 to 254.255.255.254

IP Host4: IP address of an element manager. The TimeProvider will attempt to send alarms/events to this address. Default=254.255.255.0 - Range=1.0.0.1 to 254.255.255.254

AO Merge: Autonomous event generation for the current session

- ENABLE = Autonomous messages are displayed in the current session
- DISABLE = Autonomous messages are not displayed in the current session.

Input Echo: The current sessions echo setting.

- DISABLE = User's keystrokes are not echoed
- ENABLE = User's keystrokes are echoed

TID quiet: Allows users to provision the session to echo or not to echo the TID.

- DISABLE = TID is echoed default
- ENABLE = TID is not echoed

Edit TCP/IP Configuration

To edit the TCP/IP configuration:

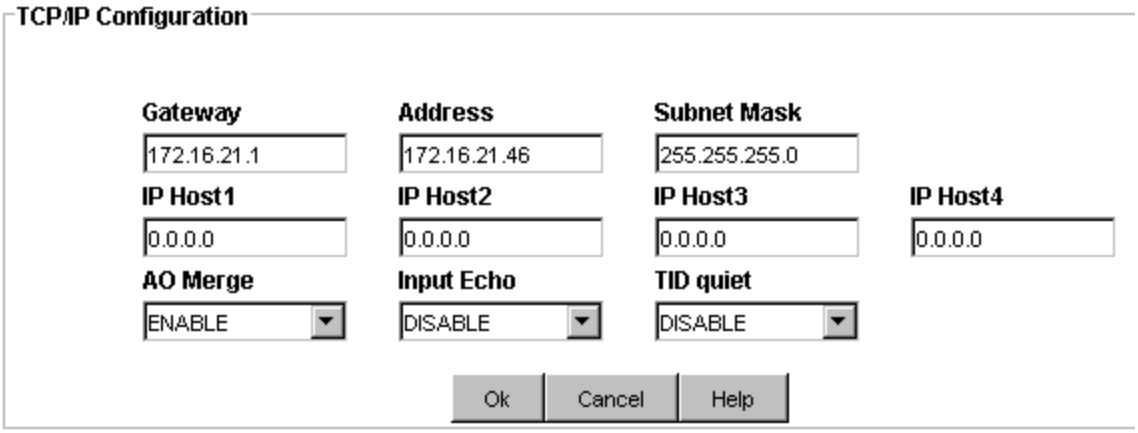
1. Enter the IP address of the default gateway in the Gateway text box.
2. Enter the IP address of the Network Element in the Address text box.
3. Enter the subnet mask address in the Subnet Mask text box (default is 255.255.255.0)

Note: IP Host addressing in not fully functional at this time.

4. Select Enable or Disable in the AO Merge drop-down box to enable or disable the display of autonomous messages.
5. Select Enable or Disable in the Input Echo drop-down box. When set to Enable, characters you type at the keyboard also appear on the monitor.

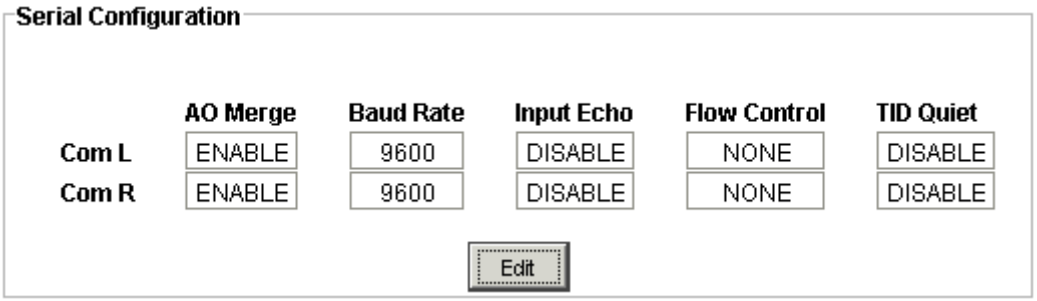
Note: If one keystroke generates two characters on the monitor, set Input Echo to Disable.

6. Select Enable or Disable in the TID Quiet drop-down box to enable or disable the echo of the <tid>.
7. Click **OK** to accept the changes and return to the Main Shelf, IMC, TCP/IP and Comms screen, or **Cancel** to return to the Main Shelf, IMC, TCP/IP and Comms screen without saving changes.



Serial Comms Configuration

The details panel for TCP/IP & Serial Comms contains all the information about current IP and serial configurations. The associated edit button allows you to set the parameters described below.



AO Merge: Autonomous event generation for the current session

- ENABLE = Autonomous messages are displayed in the current session
- DISABLE = Autonomous messages are not displayed in the current session.

Baud Rate: The serial Baud Rate either 2400 | 9600 | 19200 | 28800 | 38400 | 57600 | 115200

Input Echo: The current sessions echo setting.

- DISABLE = User's keystrokes are not echoed
- ENABLE = User's keystrokes are echoed

Flow Control: The handshaking mode on the Local or Remote port to None, Hardware, Software, or Hardware/Software.

TID quiet: Allows users to provision the session to echo or not to echo the TID.

- DISABLE = TID is echoed default
- ENABLE = TID is not echoed

Edit Serial Comms Configuration

To edit the Serial configuration:

1. Select Enable or Disable in the AO Merge drop-down box for Com L and Com R to enable or disable the display of autonomous messages.

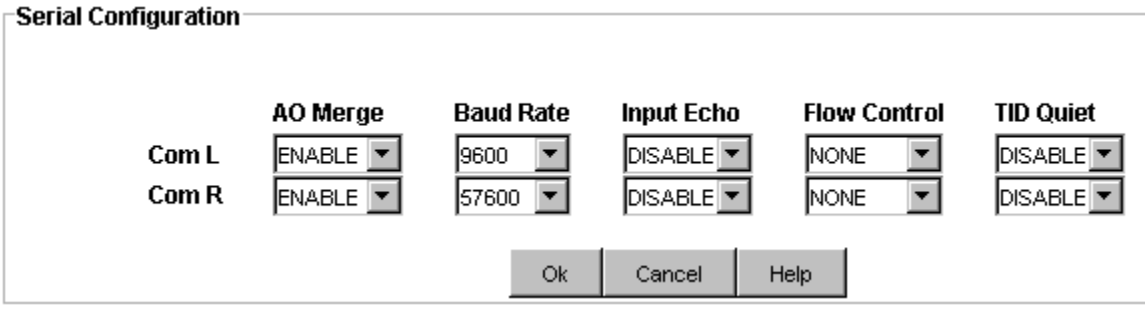
2. Select the baud rate in the Baud Rate drop-down box for Com L and Com R. Selections are: 2400, 9600, 19200, 28800, 38400, 57600, 115200.

3. Select Enable or Disable in the Input Echo drop-down box for Com L and Com R. When set to Enable, characters you type at the keyboard also appear on the monitor.

4. Select the handshaking mode in the Flow Control drop-down box for Com L and Com R. Selections are: None, SW (software), HW (hardware), and SWHW (software or hardware).

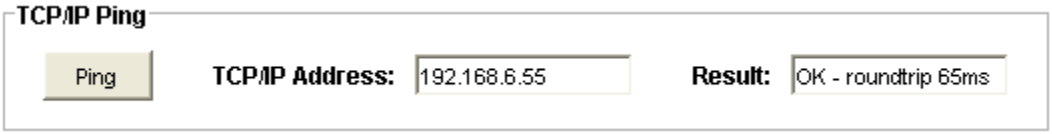
5. Select Enable or Disable in the TID Quiet drop-down box for Com L and Com R to enable or disable the echo of the <tid>.

6. Click **OK** to accept the changes and return to the Main Shelf, IMC, TCP/IP and Comms screen, or **Cancel** to return to the Main Shelf, IMC, TCP/IP and Comms screen without saving changes.



TCP/IP Ping

TCP/IP Ping allows you to enter a TCP/IP address and ping the unit and then displays the results.



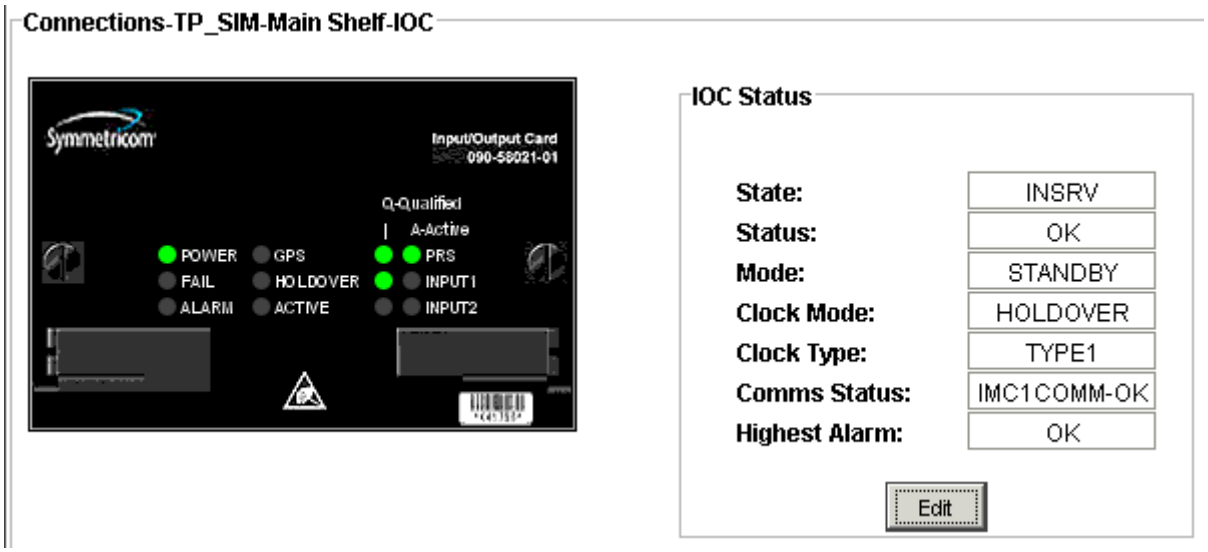
Input/Output Card

IOC Operation

The TimeProvider operates with one or two Input/Output and Clock Modules (IOC) for redundant or non-redundant operation. The IOC accepts the incoming reference signal and decodes the SSM if present. With the system properly provisioned and a reference signal selected, the local oscillator in the IOC operates in one of the following modes:

- Warm-up
- Fast-lock
- Normal lock
- Holdover
- Free-run

After the IOC has been in the Normal lock mode for at least three days, SmartClock holdover mode becomes available. Compared to the normal holdover mode, SmartClock holdover mode provides a superior output quality.



IOC State	Explanation
INSRV	In Service. IOC is working correctly and may be used for output signal generation
OOSRV	Out of Service. IOC has been taken out of service, it will not be used to generate outputs or monitor inputs. No alarms are generated by the IOC.

Edit IOC Status Configuration

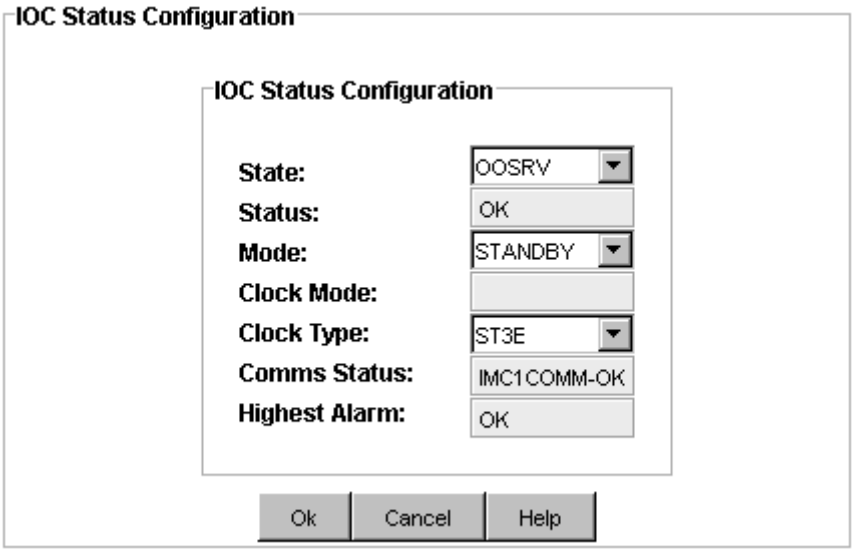
To edit the IOC status:

1. Select INSRV or OOSRV in the State drop-down box. INSRV allows the IOC to be used for output signal generation. OOSRV indicates the IOC has been taken out of service and will not be used to generate outputs or monitor inputs.

2. Select Active or Standby in the Mode drop-down box. Setting one IOC to Active forces the other IOC to Standby mode. In Active mode, the IOC provides an output signal and monitors the input signal.

3. Select ST3E or TYPE 1 for the Quartz based IOC, or select ST2 or TYPE II for the Rubidium based IOC in the Clock Type drop-down box. The systems quality level is determined by this setting when the clock is in HOLDOVER.

4. Click **OK** to accept the changes and return to the IOC Status screen, or **Cancel** to return to the IOC Status screen without saving changes.



Inputs

Input Selection

Choosing a system reference is based on the following considerations:

- User-assigned Priority Level
- User-assigned Input State
- SSM
- Active alarms on an input

Priority Level

Telcordia GR-378 and GR-1244 define two reference selection modes:

- Revertive
- Non-revertive

In the revertive mode, when an input used as the system reference is disqualified (for any reason), that input returns, or reverts, to the system reference when the disqualifying reason is removed. The system reference switches two times: once when the disqualifying event occurs, and again when the input is no longer disqualified.

In the non-revertive mode, the system reference does not revert to the initial input when the reason for disqualification is removed. The system reference switches only once when the disqualifying event occurs.

To provision the TimeProvider as non-revertive, you must provision the user-assigned Priority Level on all inputs to the same value (1, 2, 3, or 4). If you provision any of the inputs to a different Priority Level the TimeProvider is in the revertive mode.

Input State

You can provision each input to one of three states:

- Disabled – the input is not used
- Monitor – the system monitors the input for signal faults and performance data, but it cannot be selected as the system reference
- Enabled – the system monitors the input for signal faults and performance data, and it can be selected as the system reference

SSM

The following table illustrates which input is the active system reference under several different input conditions when the TimeProvider is in the SSM mode.

Sequence	QLevel on PRC	QLevel on INP1	QLevel on INP2	Non-Revertive Active Reference[1]	Revertive Active Reference[2]
1	2	2	2	PRC	INP1
2	4	2	2	INP1	INP1
3	4	4	2	INP2	INP2
4	4	4	4	INP2	INP1
5	4	4	2	INP2	INP2
6	4	2	2	INP2	INP1
7	2	2	2	INP2	INP1
8	2	2	LOS	PRC	INP1
9	2	LOS	2	PRC	PRC
10	LOS	LOS	2	INP2	INP2
11	LOS	LOS	LOS	Holdover	Holdover
12	LOS	LOS	2	INP2	INP2
13	2	LOS	2	INP2	PRC
14	2	2	2	INP2	INP1

Notes:

[1]Non-revertive example. Priority Levels set to: PRC = 3, INP1 = 3, and INP2 = 3

[2]Revertive example. Priority Levels set to: PRC = 2, INP1 = 1, and INP2 = 2

SUB

The following table illustrates which input is the active system reference under several different input conditions when the TimeProvider is in the Subtending mode.

Sequence	QLevel on INP1	QLevel on INP2	Non-Revertive Active Reference[1]	Revertive Active Reference[2]
1	1	1	INP1	INP1
2	2	1	INP2	INP2
3	2	2	INP2	INP1
4	2	1	INP2	INP2
5	1	1	INP2	INP1
6	1	LOS	INP1	INP1
7	LOS	LOS	Holdover	Holdover
8	LOS	1	INP2	INP2
9	1	1	INP2	INP1

Notes:

[1]Non-revertive example. Priority Levels set to: INP1 = 3, and INP2 = 3

[2]Revertive example. Priority Levels set to: INP1 = 1, and INP2 = 2

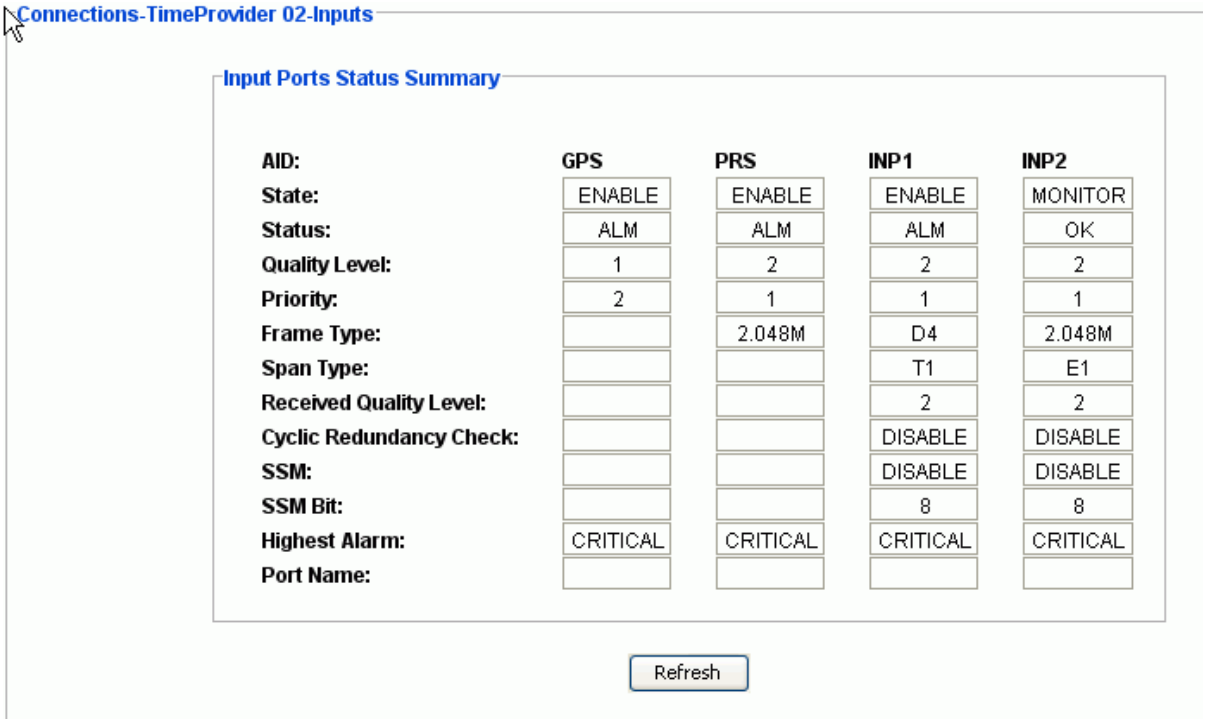
PRR Reference Selection

In the PRR mode, the TimeProvider has only one possible reference input: the GPS. If that input is not available, the TimeProvider enters the Bridging mode, which is similar to Holdover mode in SSU or SUB.

Input Ports Status Summary

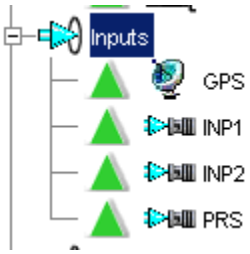
The TimeProvider can have four external inputs: one PRS Input; two Span Inputs; and one GPS Input.

The figure below is an example of the input port status summary.



AID:	GPS	PRS	INP1	INP2
State:	ENABLE	ENABLE	ENABLE	MONITOR
Status:	ALM	ALM	ALM	OK
Quality Level:	1	2	2	2
Priority:	2	1	1	1
Frame Type:		2.048M	D4	2.048M
Span Type:			T1	E1
Received Quality Level:			2	2
Cyclic Redundancy Check:			DISABLE	DISABLE
SSM:			DISABLE	DISABLE
SSM Bit:			8	8
Highest Alarm:	CRITICAL	CRITICAL	CRITICAL	CRITICAL
Port Name:				

Each input has a color coded triangle that reflects the alarm level on each input.



 No alarms

 Minor Alarm

 Major Alarm

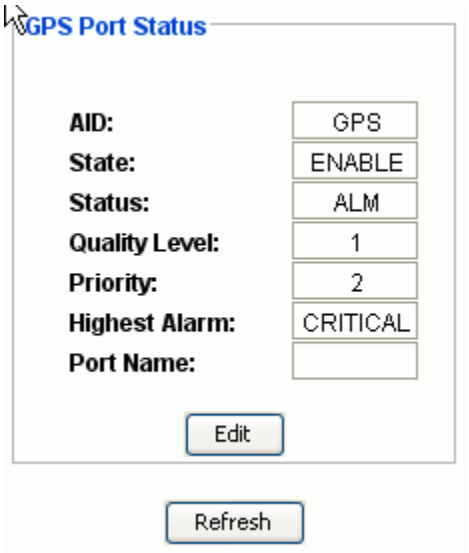
 Critical Alarm

Related Topic
Input Selection

GPS

GPS Input Port Status

The GPS input operates as another input reference to the TimeProvider and is treated in the same manner as all other input references (PRS, INP1, or INP2). If the GPS input is active but later becomes disqualified, then the TimeProvider switches to the next available input reference according to the switching rules (Priority, SSM, etc.). If there are no other qualified inputs, then the TimeProvider enters the holdover state until an input is requalified.



Edit GPS Port Status Configuration

To edit the GPS input:

1. Set the State to either ENABLED or DISABLED.

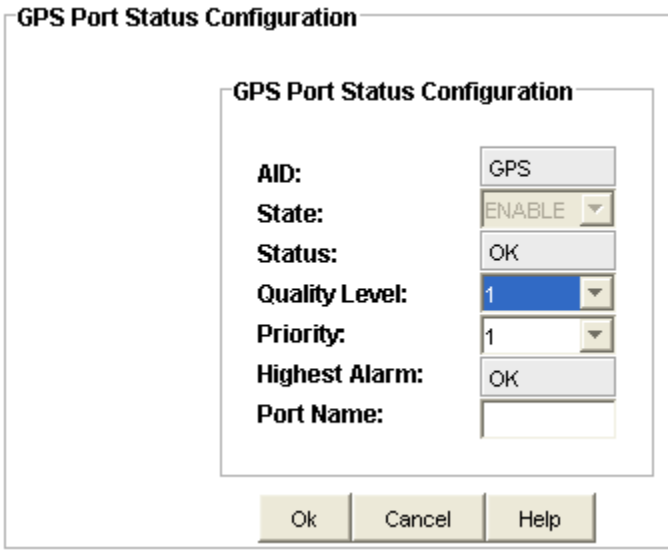
2. Set the Quality Level to 1 through 9 to select one of the following settings. This value determines which input is used when the active input is disqualified.

   1 = PRS
   2 = UNK/STU
   3 = TYPE II/ST2
   4 = TYPE I
   5 = TYPE V/TNC
   6 = TYPE III/ST3E
   7 = TYPE IV/ST3
   8 = G.813OPT3/SMC
   9 = DUS

3. Set the Priority to 1 through 4. A lower Priority level number indicates a higher priority and the input with the highest qualified priority is selected.

4. Enter a user assigned name to identify the port.

5. Click **OK** to accept the changes and return to the GPS Port Status screen, or **Cancel** to return to the GPS Port Status screen without saving changes.



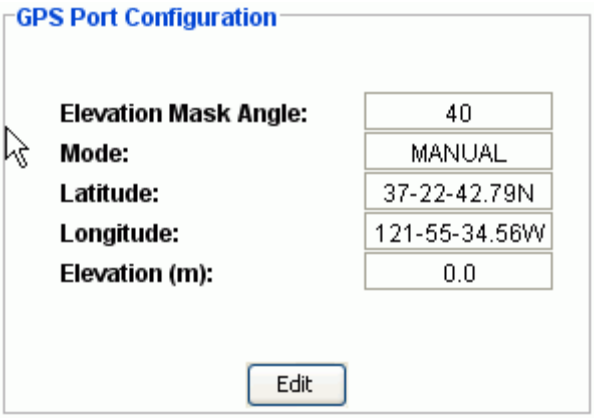
GPS Port Configuration

The GPS port configuration screen provides a display of the GPS port configuration.

The fields are described in the table below.

Click **Edit** to configure the desired fields.

Field	Description
Elevation Mask Angle	The elevation mask angle that is entered in degrees from 5 to 45
Mode	Indicates whether module positioning mode is automatically calculated or user defined
Latitude	Current latitude of GPS module
Longitude	Current longitude of GPS module
Elevation	GPS antenna elevation above sea level, in meters



Edit GPS Port Configuration

To edit the GPS port configuration:

1. Enter the elevation mask angle in degrees between 5 and 45.

2. Set the mode to Auto or Manual.

Note: In Auto mode, the antenna position (latitude, longitude, and elevation) is automatically computed or re-computed and then set. In Manual mode, the user sets the antenna position.

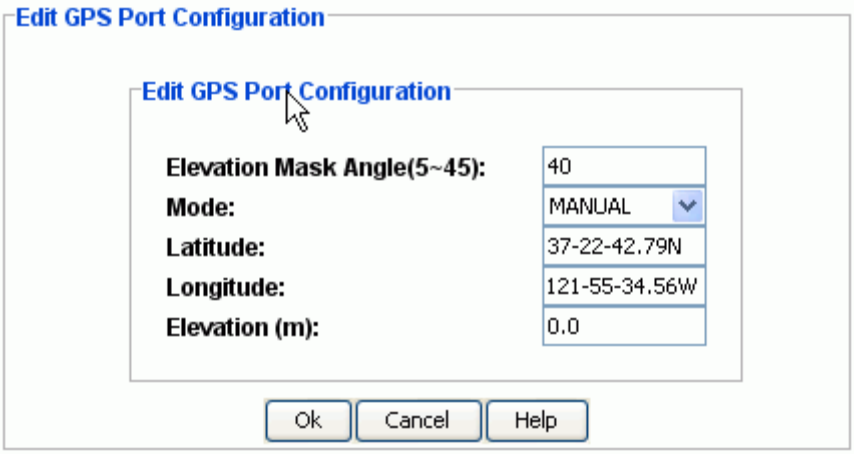
3. If you set the Mode to Manual, use the following format to enter the parameters:

   Latitude: degrees-minutes-seconds North or South (dd-mm-ss.ssN or dd-mm-ss.ssS)

   Longitude: degrees-minutes-seconds East or West (dd-mm-ss.ssE or dd-mm-ss.ssW)

   Elevation: height in meters (±hhhh.h)

4. Click **OK** to accept the changes and return to the GPS Port Status screen, or **Cancel** to return to the GPS Port Status screen without saving changes.



GPS Module Satellite Tracking

The Satellite Tracking screen provides a graphical view of the satellites being tracked. Satellite data is described in the table below.

Field / Section	Description
Satellite Data	
Channel	Indicates channels currently tracking satellites. Only tracking channels are shown.
SV #	Satellite Vehicle Number - This is the identification number of the satellite being tracked
SNR	Signal to Noise Ratio
Health	Indicates the health of the satellite. States are OK and UNH
Azimuth	Satellites horizontal position measured in degrees clockwise from the north
Elevation	Vertical position of satellite in degrees from the horizon

PRS

PRS Input Port Status Configuration

The Primary Reference Signal (PRS) is one of four possible inputs that are available on the TimeProvider. It can be enabled (eligible for input select), or disabled (not eligible for input select).

The status is either OK (no alarms) or ALM (active alarm(s) on outputs). When an input is in alarm mode, it will always be disqualified.

The quality level can be set from 1 to 9, this value determines which input is used when the active input is disqualified.

1 = PRS
2 = UNK/STU
3 = TYPE II/ST2
4 = TYPE I
5 = TYPE V/TNC
6 = TYPE III/ST3E
7 = TYPE IV/ST3
8 = G.813OPT3/SMC
9 = DUS

The priority setting determines which input is selected. A lower Priority level number indicates a higher priority and the input with the highest qualified priority is the one that is selected.

A PRS input supports three analog frame type values 2,048 kHz (2M), 1.544 MHz (1.544M), 2.048 MHz (2M), 5.00 MHz (5M), 6.312 MHz (6.312M) and 10.00 MHz (10M).

The highest alarm level can be critical, major, minor, or OK.

The port name is a user entered name to identify the port.

Edit PRS Port Status Configuration

To edit the PRS input:

1. Set the State to either Enabled or Disabled. Enabled allows the port to be selected to receive an input signal.

2. Set the Quality Level to 1 through 9 to select one of the following settings. This value determines which input is used when the active input is disqualified.

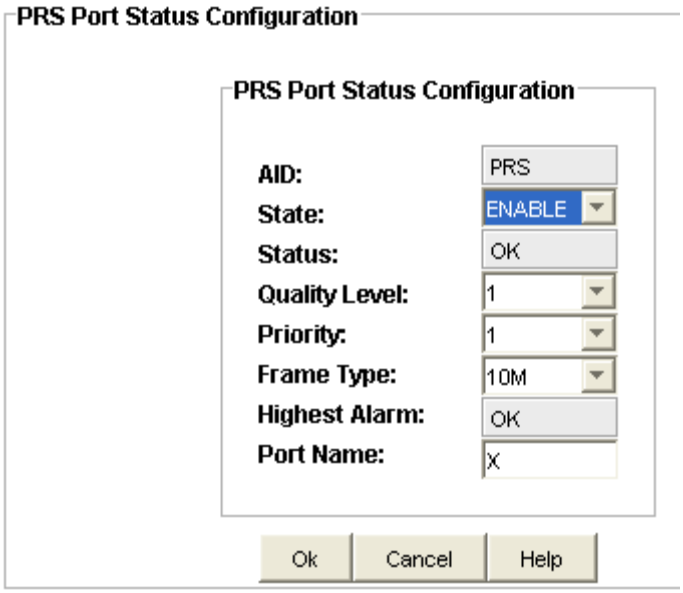
   1 = PRS
   2 = UNK/STU
   3 = TYPE II/ST2
   4 = TYPE I
   5 = TYPE V/TNC
   6 = TYPE III/ST3E
   7 = TYPE IV/ST3
   8 = G.813OPT3/SMC
   9 = DUS

3. Set the Priority to 1 through 4. A lower Priority level number indicates a higher priority and the input with the highest qualified priority is selected.

4. Set the Frame type to either 1.544M, 2M, 5M, 6.312M, or 10M.

5. Enter a user assigned name to identify the port.

6. Click **OK** to accept the changes and return to the PRS Port Status screen, or **Cancel** to return to the PRS Port Status screen without saving changes.



INP1 & INP2

INP Port Status

The Input Port Status screen provides information on port configuration. The fields are described in the table below. Click **Edit** to change the port configuration fields.

Field	Description
AID	Indicates the port - INP1 or INP2.
State	Indicates if the port is enabled or disabled.
Status	Indicates if there are alarms (ALM) or no alarms (OK).
Quality Level	Indicates the quality level setting 1 through 9 - determines which input is used when the active input is disqualified. 1 = PRS 2 = UNK/STU 3 = TYPE II/ST2 4 = TYPE I 5 = TYPE V/TNC 6 = TYPE III/ST3E 7 = TYPE IV/ST3 8 = G.813OPT3/SMC 9 = DUS
Priority	Indicates the priority level setting 1 through 4 - a lower number indicates a higher priority and the highest qualified priority is selected.

Frame Type	Indicates the Frame type - either 1.544M, 2.048M, 6.312M, CCS, CAS, ESF, or D4. **Note:** When the system configuration is set to subtending mode, you can select frame types CC, JCC, or JCC4.
Span Type	Indicates if E1 or T1 Span Type is selected. **Note:** You can set Span Type in IMC software version 2.01 or later.
Received Quality Level	Indicates the Received Quality Level - the SSM value detected/received on the input.
Cyclic Redundancy Check	Indicates if CRC is enabled or disabled.
SSM	Indicates if the T1 (ESF) or E1 (CCS or CAS) input is provisioned to read (Enabled) or not to read (Disabled) the received SSM.
SSM Bit	Sets the SSM bit position to 4, 5, 6, 7, or 8.
Highest Alarm	Indicates the highest alarm level or OK if no alarms present.
Port Name	User entered name to identify the port.

Edit Input Port Configuration

To edit the Input Port Configuration screen:

1. Set the State to either Enabled, Disabled, or Monitor. Enabled allows the port to be selected to receive an input signal and Monitor allows you to monitor input port performance.

2. Set the Quality Level to 1 through 9 to select one of the following settings. This value determines which input is used when the active input is disqualified.

   1 = PRS
   2 = UNK/STU
   3 = TYPE II/ST2
   4 = TYPE I
   5 = TYPE V/TNC
   6 = TYPE III/ST3E
   7 = TYPE IV/ST3
   8 = G.813OPT3/SMC
   9 = DUS

3. Set the Priority to 1 through 4. A lower Priority level number indicates a higher priority and the input with the highest qualified priority is selected.

4. Set the Frame type. When the system configuration is set to SSU, select either 1.544M, 2.048M, 6.312M, CCS, CAS, ESF, or D4. When the system configuration is set to SUB, select either CC, JCC, or JCC4.

5. Set the Span Type to either E1 or T1.

Note: You can set the Span Type in IMC software version 2.01 or later.

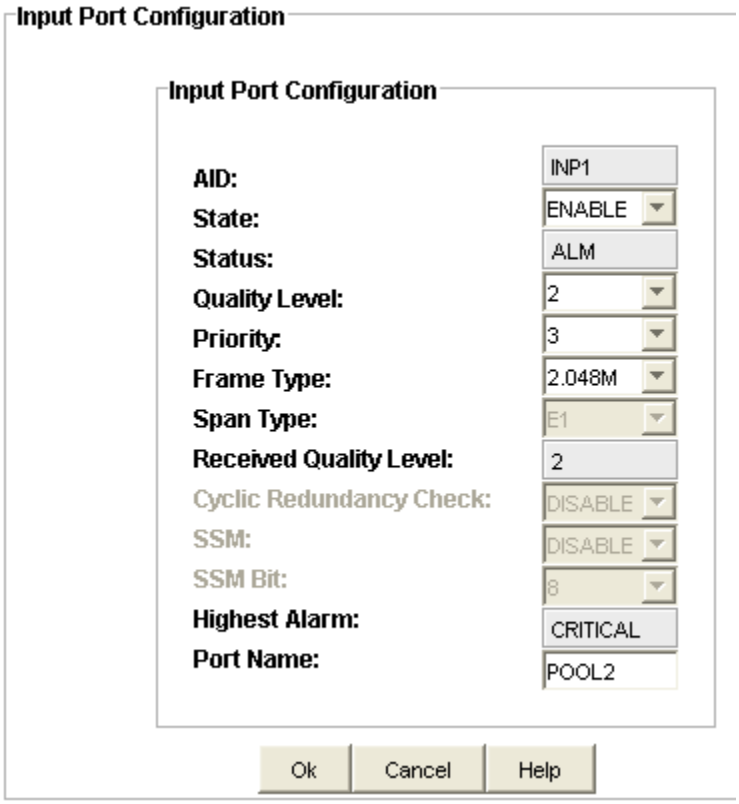
6. Set the Cyclic Redundancy Check to Enable or Disable. This allows you to provision the E1 (CRC) to enable or disable the use of CRC4. If the E1 input is provisioned to read SSM, CRC4 is automatically enabled.

7. Set the SSM to either Enable or Disable. This allows you to provision the T1 (ESF) or E1 (CCS or CAS) input to read or not to read the received SSM.

8. Set the SSM Bit to 4 through 8. This allows you to provision the E1 (CCS or CAS) SSM bit position to allow the input to read the SSM.

9. Enter a user assigned name to identify the port.

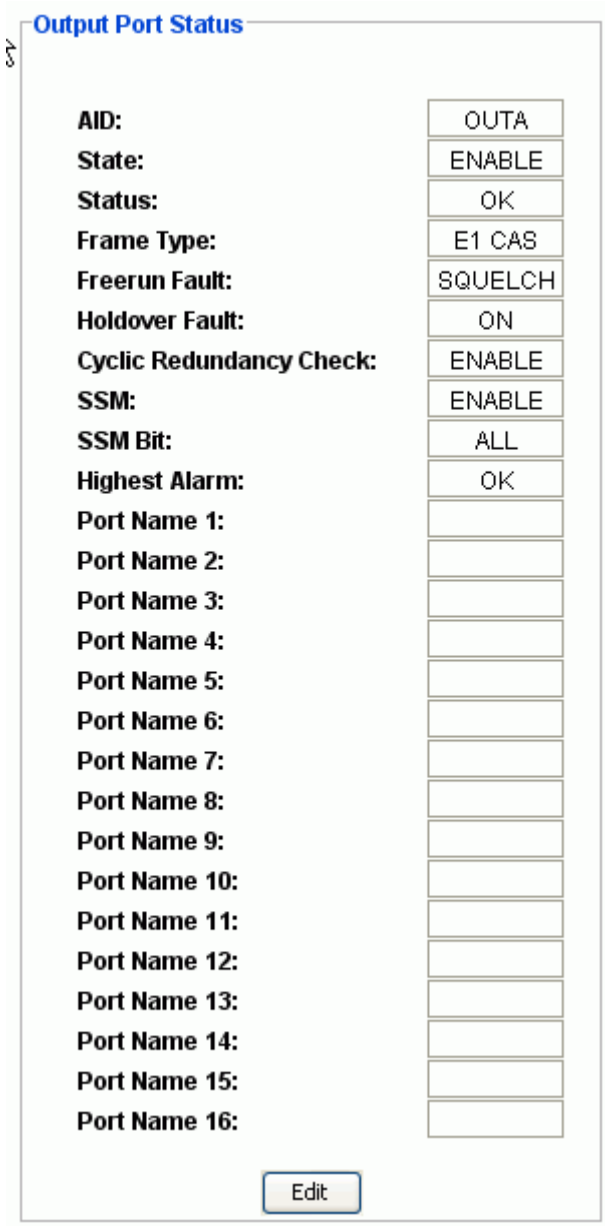
10. Click **OK** to accept the changes and return to the Input Port Status screen, or **Cancel** to return to the Input Port Status screen without saving changes.



Outputs

Output Port Status

TimeProvider outputs are configured in groups (OUTA, OUTB, OUTC and OUTD), each group can be enabled (providing output), or disabled (not providing output).



Output Port Status

AID:	OUTA
State:	ENABLE
Status:	OK
Frame Type:	E1 CAS
Freerun Fault:	SQUELCH
Holdover Fault:	ON
Cyclic Redundancy Check:	ENABLE
SSM:	ENABLE
SSM Bit:	ALL
Highest Alarm:	OK
Port Name 1:	
Port Name 2:	
Port Name 3:	
Port Name 4:	
Port Name 5:	
Port Name 6:	
Port Name 7:	
Port Name 8:	
Port Name 9:	
Port Name 10:	
Port Name 11:	
Port Name 12:	
Port Name 13:	
Port Name 14:	
Port Name 15:	
Port Name 16:	

Edit

Each output icon has a color coded triangle that reflects the alarm level on that output.

No alarms

Minor Alarm

Major Alarm

Critical Alarm

The status can be either OK (no alarms) or ALM (active alarm(s) on outputs).

The following tables provide an explanation of Frame Type, Free-run Fault, and Holdover Fault.

Frame Type	Explanation
1.544M	An analog 1.544 MHz signal
2M	An analog 2.048 MHz signal
6.312M	An analog 6.312 MHz signal
CAS	A digital E1 2 Mb signal with Common Associative Signaling
CCS	A digital E1 2 Mb signal with Common Channel Signaling
T1 D4	A T1 signal with D4 format
T1 ESF	A T1 signal with Extended Super Frame format
T1 PULSE	Used for testing the T1 signal mask and should not be used for normal operation
CC	A Composite Clock signal
JCC	A Japanese Composite Clock signal
JCC4	A Japan Composite Clock signal with 400 Hz
8K	An analog 8 kHz signal

Free-run Fault setting defines if the output fault is set or not set when the Local Oscillator enters Free-run mode. Holdover Fault setting defines if the output fault is set or not set when the Local Oscillator enters Holdover mode.

Free-run / Holdover Fault	Explanation

ON	In fault mode generate outputs based upon system SSM
AIS	In fault mode generate AIS outputs
SQUELCH	In fault mode outputs are turned off

Output Ports Status Summary

TimeProvider outputs are configured in groups (OUTA, OUTB, OUTC and OUTD), each group can be enabled (providing output), or disabled (not providing output).

Output Ports Status Summary

AID:	OUTA	OUTB	OUTC	OUTD
State:	ENABLE	ENABLE	ENABLE	ENABLE
Status:	UNEQUIPPED	UNEQUIPPED	UNEQUIPPED	UNEQUIPPED
Frame Type:	E1 CAS	E1 CAS	T1 ESF	6.312M
Freerun Fault:	SQUELCH	SQUELCH	SQUELCH	SQUELCH
Holdover Fault:	ON	ON	ON	ON
Cyclic Redundancy Check:	ENABLE	ENABLE	ENABLE	ENABLE
SSM:	ENABLE	ENABLE	ENABLE	ENABLE
SSM Bit:	ALL	7	ALL	ALL
Highest Alarm:	OK	OK	OK	OK
Port Name 1:	1			
Port Name 2:	$			
Port Name 3:	& * ^			
Port Name 4:	~ ~ ~			
Port Name 5:				
Port Name 6:				
Port Name 7:				
Port Name 8:				
Port Name 9:				
Port Name 10:				
Port Name 11:				
Port Name 12:				
Port Name 13:				
Port Name 14:				
Port Name 15:				
Port Name 16:				

Refresh

Each output icon has a color coded triangle that reflects the alarm level on that output.

No alarms

Minor Alarm

Major Alarm

Critical Alarm

The status can be either OK (no alarms) or ALM (active alarm(s) on outputs).

Related Topics
Output Port Status

Edit Outputs

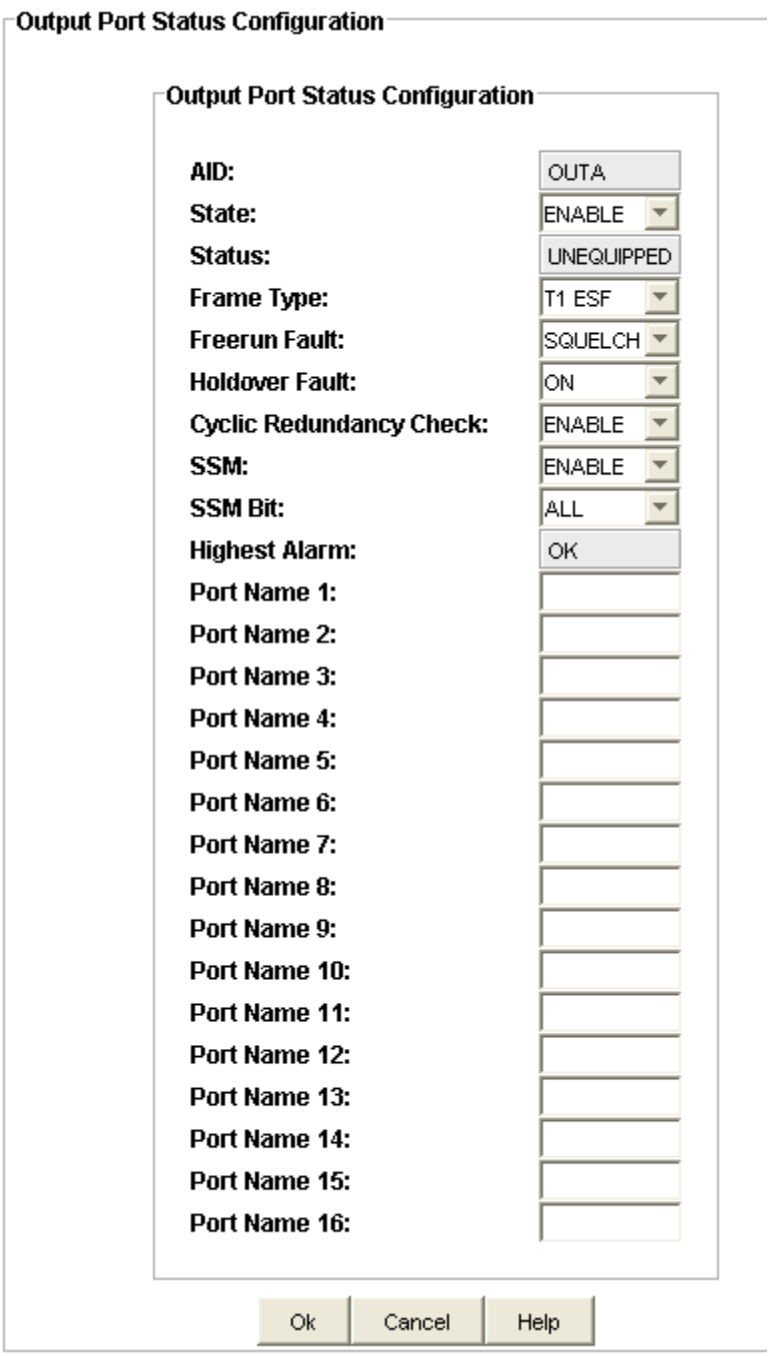
Edit Output Port Status

To edit the Output Port Status Configuration:

1. Set the State to ENABLE or DISABLE.
2. Set the Frame Type to 1.544M, 2.048M, 6.312M, E1 CAS, E1 CCS, T1 D4, T1 ESF, T1 PULSE, CC, JCC, JCC4, or 8K.

Note: T1 PULSE is used for testing the T1 signal mask and should not be used for normal operation.

3. Set the Free-run Fault to ON, SQUELCH, or AIS. This determines the action taken when the local oscillator enters the Free-run mode.
4. Set the Holdover Fault to ON, SQUELCH, or AIS. This determines the action taken when the local oscillator enters the Holdover mode.
5. Set CRC to ENABLE or DISABLE.
6. Set SSM to ENABLE or DISABLE.
7. Set SSM Bit to 4, 5, 6, 7, 8, or ALL (this defines the bit containing the SSM).
8. Enter a user assigned name to identify the port.
9. Click **OK** to accept the changes and return to the Output Port Status screen, or **Cancel** to return to the Output Port Status screen without saving changes.



Retimers

Retimer Ports Status

TimeProvider retimers are configured in groups (RTMA, RTMB, RTMC and RTMD), each group can be enabled (providing output), or disabled (not providing output).

Each retimer icon has a color coded triangle that reflects the alarm level on that output.

 No alarms

 Minor Alarm

 Major Alarm

 Critical Alarm

The channel status can be either OK (no alarms), ALM (active alarm(s) on outputs), or UNEQUIPPED.

The Channel State can be either ENABLED or DISABLED.

The Line Build-out indicates the electronically simulated length of the cable.

The Free-run Fault can be either CUTTHRU (module does not provide retimed signals) or RETIME (module does provide retimed signals). The Free-run Fault setting defines the Retimer mode when the Local Oscillator enters Free-run mode.

The Holdover Fault can be either CUTTHRU (module does not provide retimed signals) or RETIME (module does provide retimed signals). The Holdover Fault setting defines the Retimer mode when the Local Oscillator enters Holdover mode.

The Slip Threshold is the maximum number of slips that can occur in a 24-hour period. The range is 1 to 255.

The Port Names can be set by the user.

Retimer Port Status

AID:	RTMA
Channel 1 Status:	OK
Channel 2 Status:	OK
Channel 1 State:	ENABLE
Channel 2 State:	ENABLE
Line Buildout 1:	0-133FT
Line Buildout 2:	0-133FT
Free-run Fault 1:	RETIME
Free-run Fault 2:	RETIME
Holdover Fault 1:	RETIME
Holdover Fault 2:	RETIME
Slip Threshold 1:	4
Slip Threshold 2:	4
Port name 1:	
Port name 2:	
Highest Alarm:	CRITICAL

Edit

Retimer Port Status Summary

TimeProvider retimers are configured in groups (RTMA, RTMB, RTMC and RTMD), each group can be enabled (providing output), or disabled (not providing output).

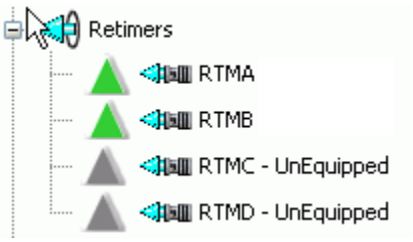
The figure below is an example of the retimer port status summary.

Retimer Ports Status Summary

AID:	RTMA	RTMB	RTMC	RTMD
Channel 1 Status:	OK	OK	UNEQUIPPED	UNEQUIPPED
Channel 2 Status:	OK	OK	UNEQUIPPED	UNEQUIPPED
Channel 1 State:	ENABLE	ENABLE	ENABLE	ENABLE
Channel 2 State:	ENABLE	ENABLE	ENABLE	ENABLE
Line Buildout 1:	0-133FT	0-133FT	0-133FT	0-133FT
Line Buildout 2:	0-133FT	0-133FT	0-133FT	0-133FT
Free-run Fault 1:	RETIME	RETIME	RETIME	RETIME
Free-run Fault 2:	RETIME	RETIME	RETIME	RETIME
Holdover Fault 1:	RETIME	RETIME	RETIME	RETIME
Holdover Fault 2:	RETIME	RETIME	RETIME	RETIME
Slip Threshold 1:	4	4	4	4
Slip Threshold 2:	4	4	4	4
Port name 1:				
Port name 2:				
Highest Alarm:	OK	OK	OK	OK

Refresh

Each retimer icon has a color coded triangle that reflects the alarm level on that output.



No alarms

Minor Alarm

Major Alarm

Critical Alarm

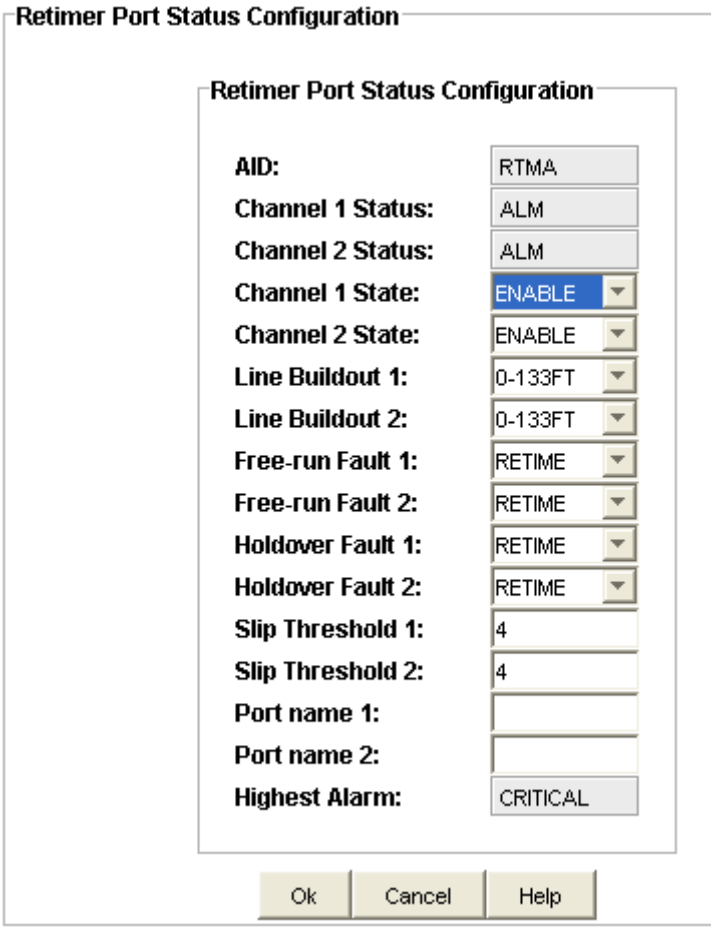
Related Topic

Retimer Port Status

Edit Retimer Port Status

To edit the Retimer Port Status Configuration:

1. Set the Channel State to Enable or Disable.
2. Set the Line Build-out to the desired length.
3. Set the Free-run Fault to CUTTHRU or RETIME. This determines the action taken when the local oscillator enters the Free-run mode.
4. Set the Holdover Fault to CUTTHRU or RETIME. This determines the action taken when the local oscillator enters the Holdover mode.
5. Set the Slip Threshold to desired setting (1 to 255).
6. Enter a user assigned name to identify the port.
7. Click **OK** to accept the changes and return to the Retimer Port Status screen, or **Cancel** to return to the Retimer Port Status screen without saving changes.



RS-E422

RS-E422 Port Status

The TimeProvider E422 ports are configured in groups (E422A, E422B, E422C and E422D), each group can be enabled (providing output), or disabled (not providing output).

Each port icon has a color coded triangle that reflects the alarm level on that output.

 No alarms

 Minor Alarm

 Major Alarm

 Critical Alarm

The Channel State can be either ENABLED or DISABLED.

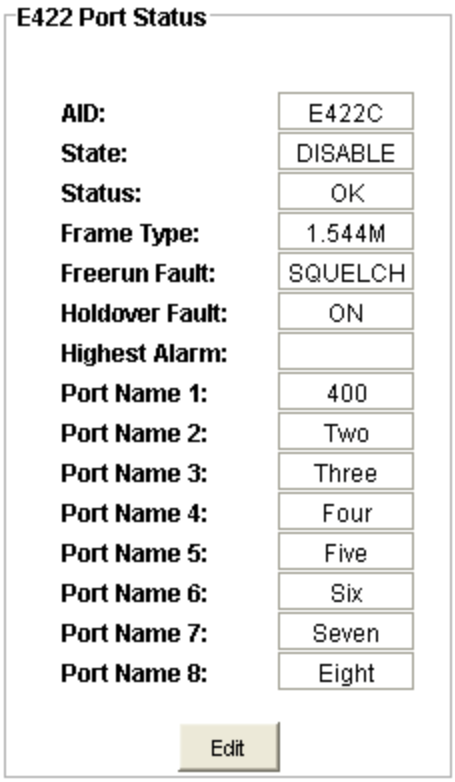
The channel status can be either OK (no alarms), ALM (active alarm(s) on outputs), or UNEQUIPPED.

The Frame Type can be set to either 1.544M, 2.048M.

The Freerun Fault and Holdover Fault can be set to either ON or SQUELCH.

The Highest Alarm indicates the most sever alarm level.

The Port Names can be set by the user.



RS-E422 Port Status Summary

TimeProvider RS-E422 ports are configured in groups (E422A, E422B, E422C and E422D), each group can be enabled (providing output), or disabled (not providing output).

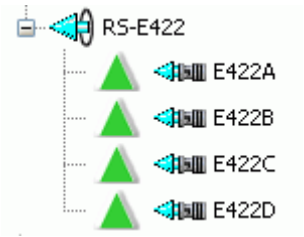
The figure below is an example of the RS-E422 port status summary.

E422 Ports Status Summary

AID:	E422A	E422B	E422C	E422D
State:	ENABLE	ENABLE	ENABLE	ENABLE
Status:	UNEQUIPPED	UNEQUIPPED	UNEQUIPPED	OK
Frame Type:	1.544M	1.544M	1.544M	1.544M
Freerun Fault:	SQUELCH	SQUELCH	SQUELCH	SQUELCH
Holdover Fault:	ON	ON	ON	ON
Highest Alarm:	OK	OK	OK	OK
Port Name 1:				
Port Name 2:				
Port Name 3:				
Port Name 4:				
Port Name 5:				
Port Name 6:				
Port Name 7:				
Port Name 8:				

Refresh

Each E422 icon has a color coded triangle that reflects the alarm level on that output.



No alarms

Minor Alarm

Major Alarm

Critical Alarm

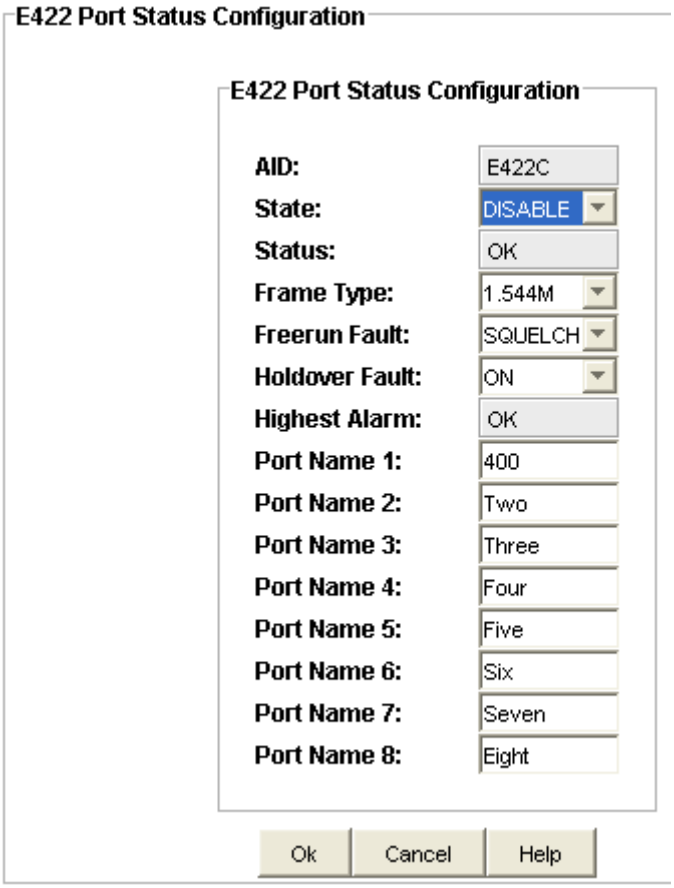
Related Topic

E422 Port Status

Edit RS-E422 Port Status

To edit the E422 ouputs:

1. Set the State to either Enabled or Disabled. Enabled allows the port to provide an output signal.
2. Set the Frame type to either 1.544M or 2M.
3. Set the Freerun Fault to either ON or SQUELCH.
4. Set the Holdover Fault to either ON or SQUELCH.
5. Enter a user assigned name to identify the port.
6. Click **OK** to accept the changes and return to the E422 Port Status screen, or **Cancel** to return to the E422 Port Status screen without saving changes.



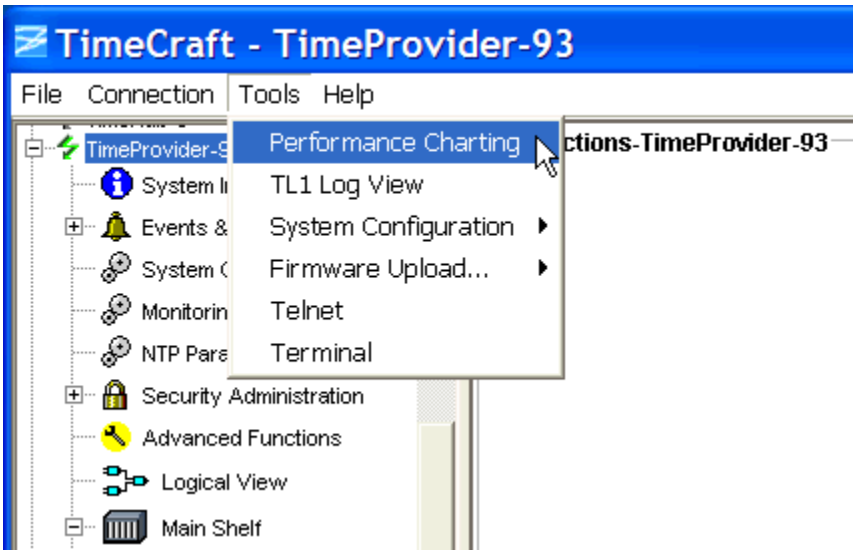
Performance Charting

Start Performance Charting

To start performance charting:

1. Click the **Tools** menu item.

2. Click **Performance Charting** in the drop-down menu to open the Performance Graphing screen.

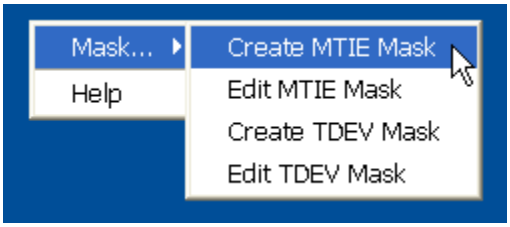


See Also:
MTIE Chart
TDEV Chart

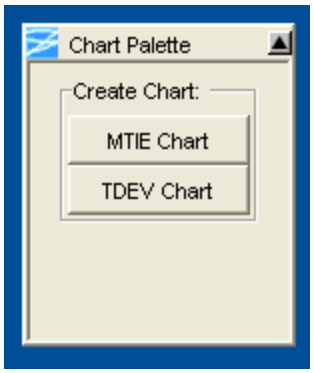
Performance Charting Main Screen

The Performance Charting Main Screen provides query dialog boxes for accessing MTIE, and TDEV data from a TimeProvider.

Right-clicking the desktop invokes the desktop pop-up menu. This menu provides access to creating and editing MTIE and TDEV masks, and the TimeCraft online help system.



you can move the Chart Palette dialog screen by clicking and holding either the right or left mouse button and dragging it to the desired location.

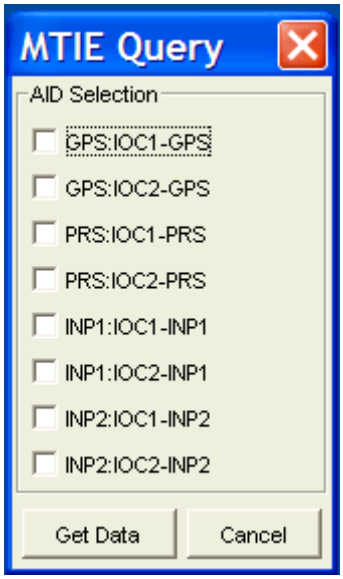


MTIE Chart

To create an MTIE chart:

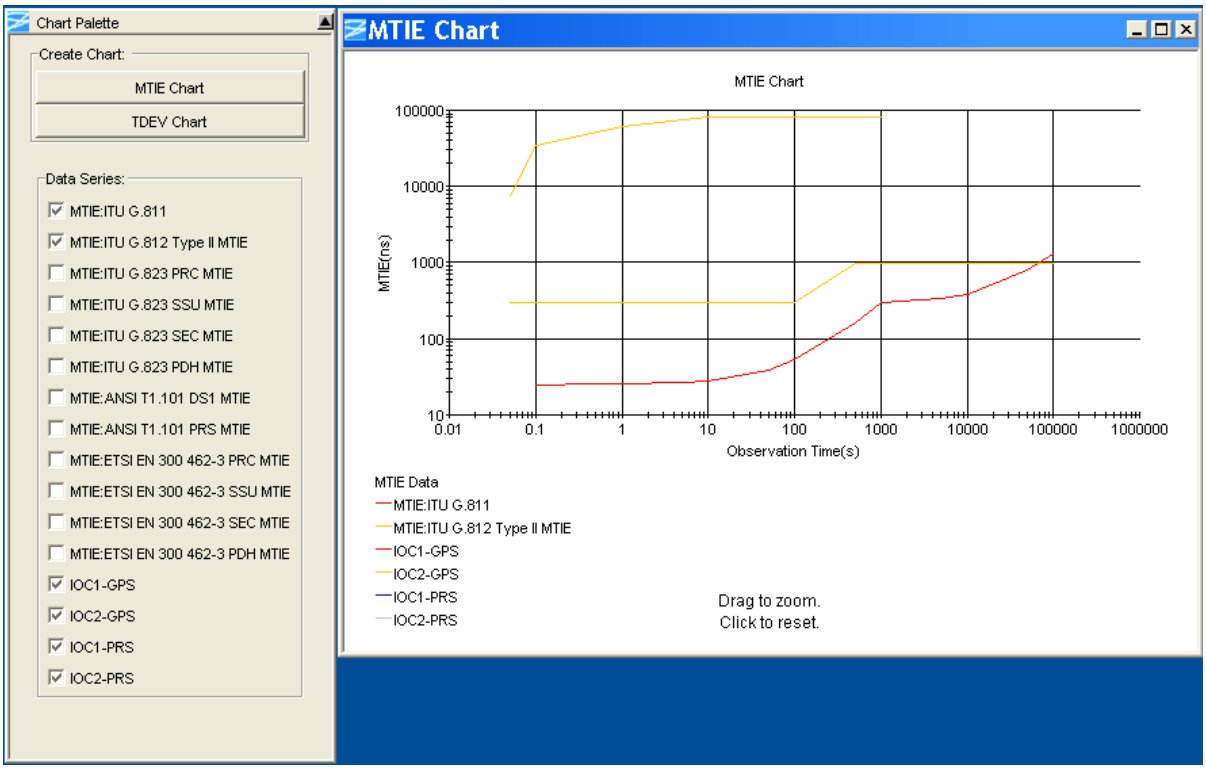
1. Click Tools on the main menu and select **Performance Charting** in the drop-down window.

2. Click the **MTIE Chart** button in the **Chart Palette** window to open the **MTIE Query** window.



3. Left-click the check boxes of the input module(s) in the **AID Selection** pane that you want to graph.

4. Click **Get Data** to open the Chart Palette Data Series window.



5. In the Data Series section, as shown above, left-click the MTIE data items you want to display in the chart.

The Chart Palette provides check boxes for both pre-defined industry standard masks and the returned data series from the network element.

The Chart Package provides the following functions:

- De-select a data series item to remove the related graph points from the chart.
- Mouse-over a data point to display its label.
- Enlarge a section of the chart by clicking and dragging the desired section. The data series displays in a new chart window.
- Left-click the mouse button anywhere in the window to reset the chart to the original display.

Right-click menu options are described in the table below.

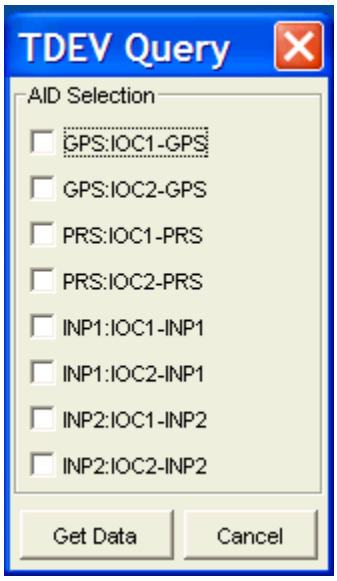
Right-Click Menu Options	Description
Grid Lines	Horizontal, Vertical option allows users to hide/display horizontal and vertical lines
Color or Black and White	Toggles chart between color or black and white display **Note:** In some cases, when you switch from color to black and white and back to color, some portions of the chart lines may drop out.
Chart Size	Sets chart display size - 2400 x 1800, 1600 x 1024, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480
Show All Labels or Show Dwell Labels	Toggles chart between displaying series labels and not displaying series labels
Print	Print, Print Preview and Cancel
Save As...	Save chart as CSV (comma separated values)
Mask	To create and edit MTIE and TDEV masks
Help	Invokes TimeCraft online help

TDEV Chart

To create a TDEV chart:

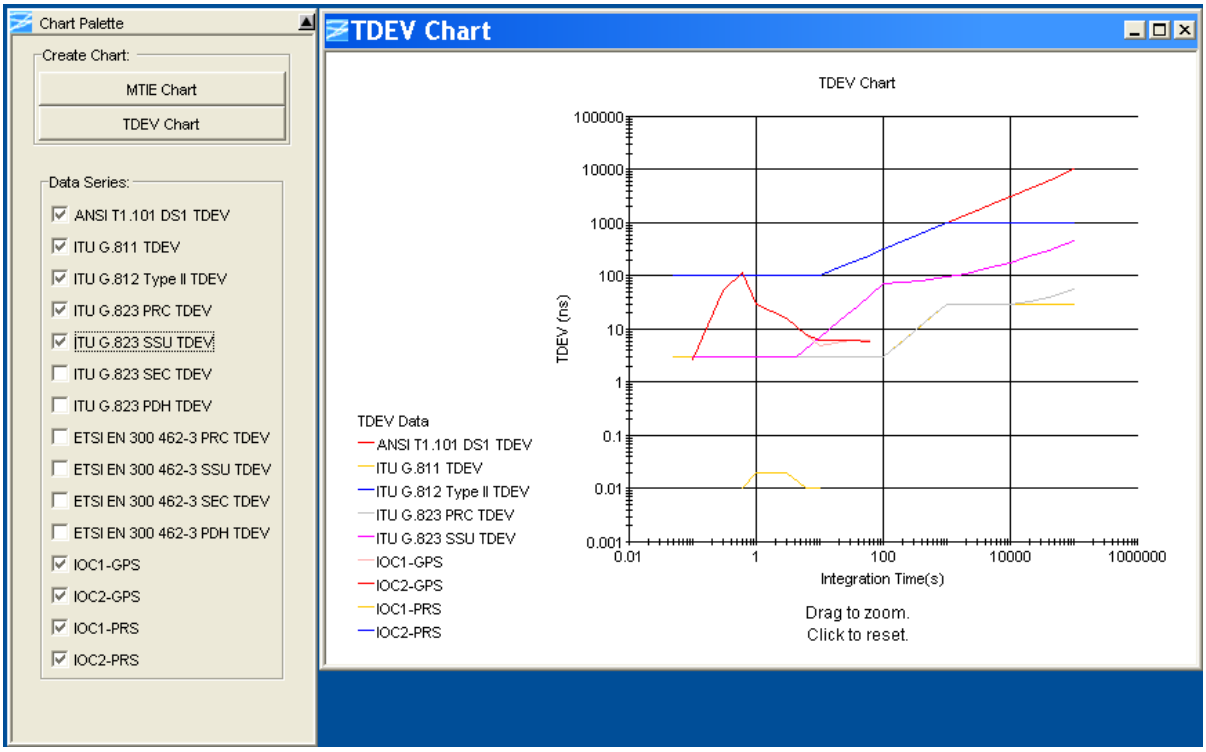
1. Click Tools on the main menu and select **Performance Charting** in the drop-down window.

2. Click the **TDEV Chart** button in the **Chart Palette** window to open the **TDEV Query** window.



3. Left-click the check boxes of the input module(s) in **AID Selection** pane that you want to graph.

4. Click **Get Data** to open the Chart Palette Data Series window.



5. In the Data Series section, as shown above, left-click the TDEV data items you want to display in the chart.

The Chart Palette provides check boxes for both pre-defined industry standard masks and the returned data series from the network element.

The Chart Package provides the following functions:

- De-select a data series item to remove the related graph points from the chart.
- Mouse-over a data point to display its label.
- Enlarge a section of the chart by clicking and dragging the desired section. The data series displays in a new chart window.
- Left-click the mouse button anywhere in the window to reset the chart to the original display.

Right-click menu options are described in the table below.

Right-Click Menu Options	Description
Grid Lines	Horizontal, Vertical option allows users to hide/display horizontal and vertical lines
Color or Black and White	Toggles chart between color or black and white display
Chart Size	Sets chart display size - 2400 x 1800, 1600 x 1024, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480
Show All Labels or Show Dwell Labels	Toggles chart between displaying series labels and not displaying series labels
Print	Print, Print Preview and Cancel
Save As...	Save chart as CSV (comma separated values)
Masks...	To create and edit MTIE and TDEV masks
Help	Invokes TimeCraft online help

Modem Configuration

To configure the 3Com Courier V.Everything modem connected to a TimeCraft PC, use the factory defaults. To configure the 3Com Courier V.Everything modem while connected to a network element, use settings outlined in the table below.

Dip Switches	Description
1 Down	Ignore DTR*
2 Up	Set verbal result code display
3 Up	Disable result codes*
4 Down	Disable the echo in off-line commands*
5 Up	Enable auto answer*
6 Down	Carrier Detect always on*
7 Up	Display result codes in all modes
8 Down	Enable AT commands
9 Up	Disconnect on escape(+++)
10 Up	Load configuration from NVRAM
& Commands	**Description**
&H0	Disable transmit data flow control
&R1	Ignore RTS

S Registers	Description
S0	1-3 to set the number of rings on which to auto answer
* different from factory defaults	
Notes: If the Network Element is set to DCE mode, a null modem cable must be used from the modem to the Network Element. If the Network Element is set to DTE mode, a straight modem cable must be used from the modem to the Network Element.	

Chapter 4 TimeHub

This chapter provides information on how to use TimeCraft to configure a TimeHub network element (NE).

In This Chapter

Overview

Menu Items

Main Menu items include **File**, **Connection**, **Tools**, and **Help**. The following information describes the submenu items for each Main Menu item.

Field / Section	Description
File	
Exit	Exit the TimeCraft Application
Connection	
New Connection	Create a new connection to a network element by allowing the user to save the connection in the connections folder or to create up to 5 levels of sub folders and save them in the sub folders.
Open Connection	Open a connection to the network element by browsing the connections folder hierarchy.
Close Connection	Close the current session
Edit...	Edit a chosen network element's connection properties by browsing the connections folder hierarchy
Refresh Connection	Refresh the view of the currently connected network element
Delete...	Delete a chosen network element’s connection setup by browsing the connections folder hierarchy
Tools	
Performance Charting	Launches the Performance Setup screen to setup performance graphing for MRTIE and TDEV data
TL1 Log View	Displays the TL1 log for the current month or click Refresh to display the log for the current session
System Configuration	Allows you to save the active clock card configuration, configure a new clock card, and verify that the active clock card configuration data matches the configuration data on the clock card in a second shelf.
Firmware Upload...	To upload new firmware to network elements
Terminal	Launches a terminal window that allows you to enter and send TL1 commands and also displays received responses and autonomous messages
Help	
TimeCraft Help	Obtain online help for the TimeCraft System
About TimeCraft	Displays TimeCraft copyright and version information

Navigation Overview

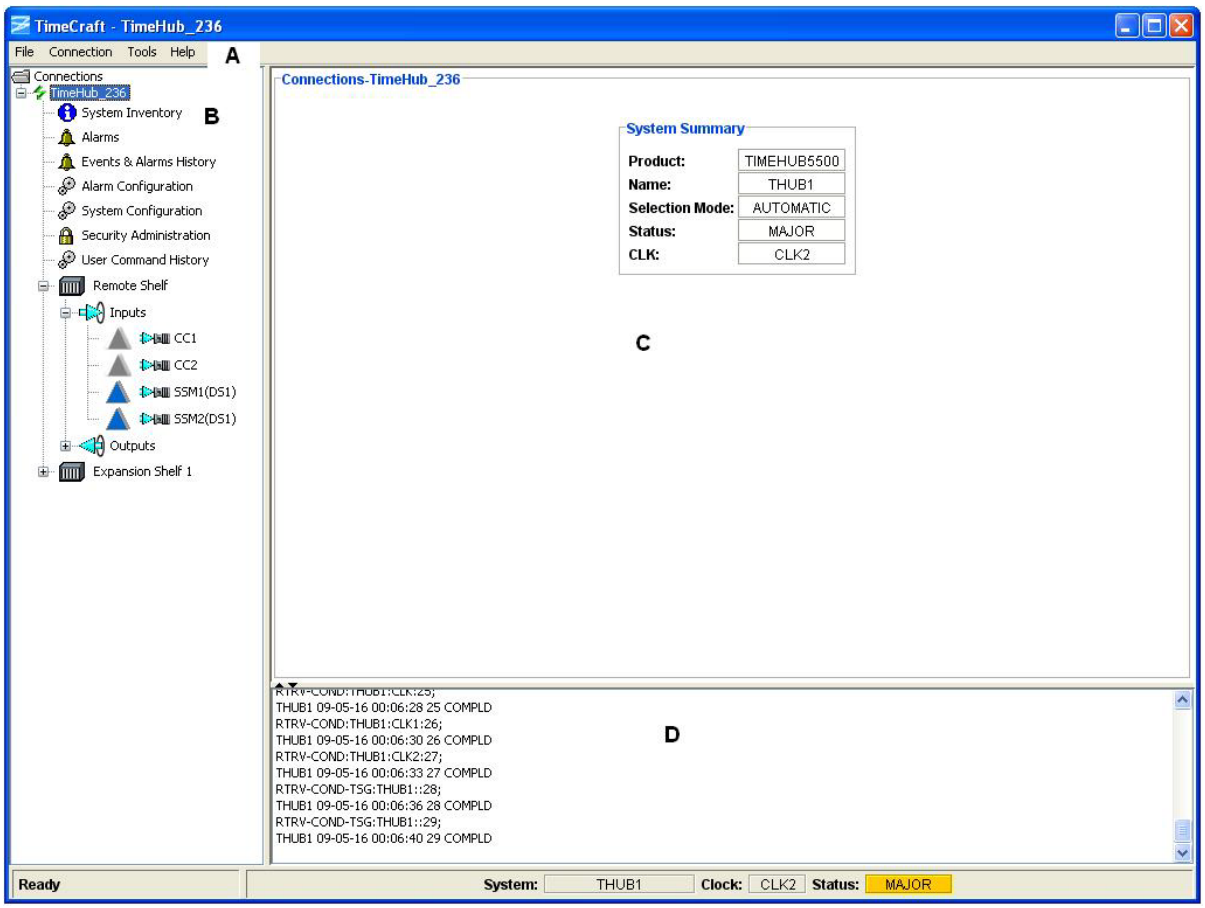
Menu Items (**A**) allow you to:

- Exit the Application
- Manage Network Element Connections
- View the TL1 Log
- Launch a terminal window to send TL1 commands
- Open Help Files

The **Browser View** panel (**B**) remains empty until the user opens any connection. Once a network element is connected, the Browser provides a list of modules installed in that element. And after closing the connection, the browser displays an empty screen.

The **Detail View** panel (**C**) provides a graphical view of the module that is selected in the Browser. In the Detail View panel, you can see the configuration settings and edit the settings.

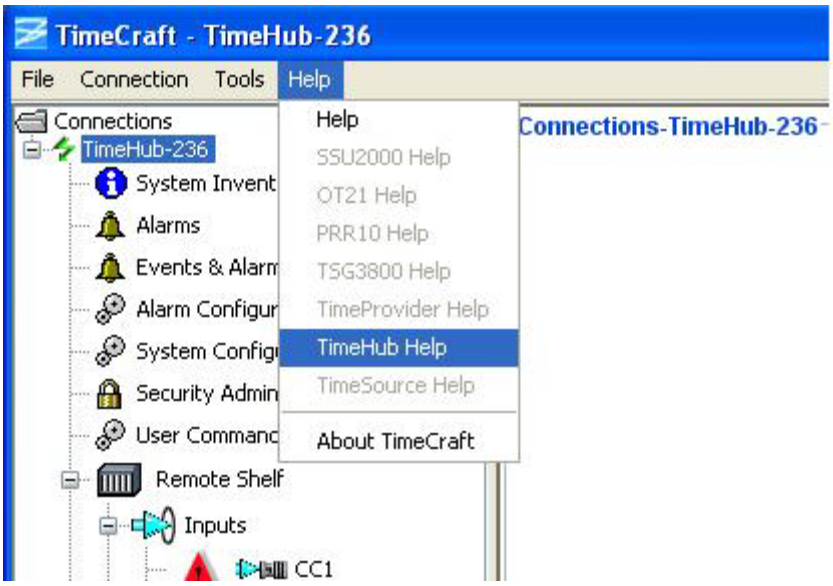
TL1 commands are displayed in the **TL1 View** panel (**D**) and allows users to view the TL1 commands sent to the network element and view network element responses. The TL1 commands are passive and cannot be edited.



Online Help

The Online help provides complete, standalone help for the TimeCraft system. You can access Help topics using one of the following methods:

- TimeCraft Main Menu (shown below)
- Online Help Search Feature (after launching Help)
- Help buttons on network element screens



Field	Description
Help	Opens a basic Online Help system containing information about error codes and how to manage connections
SSU2000 Help	Opens TimeCraft SSU2000 Online Help
OT21 Help	Opens TimeCraft OT21 Online Help
PRR10 Help	Opens TimeCraft PRR10 Online Help
TSG3800 Help	Opens TimeCraft TSG3800 Online Help
TimeProvider Help	Opens TimeCraft TimeProvider Online Help
TimeHub Help	Opens TimeCraft TimeHub Online Help
TimeSource	Opens TimeSource Online Help
About TimeCraft	Displays TimeCraft copyright and version information

Connection Management

Connections

A connection in TimeCraft represents an element to be managed. Connections can be added, deleted, modified, opened, refreshed, or closed. The connection item holds the communication parameter used to establish a connection to the element, including the address, type of element and user/password information. Connections can be accessed from the connection menu item and you can open only one connection at a time. For more information see the following sections:

Operation	Explanation	Available
New	Creates a new connection.	Always.
Open	Connects to an existing connection.	Only when no other connection is open.
Close	Closes an open connection.	Only when a connection is open.
Edit	Modify connection parameters.	Always, but cannot edit an open connection.
Refresh	Initializes an open connection.	Only for an open connection.
Delete	Deleted a connection.	Always, but cannot delete an open connection.

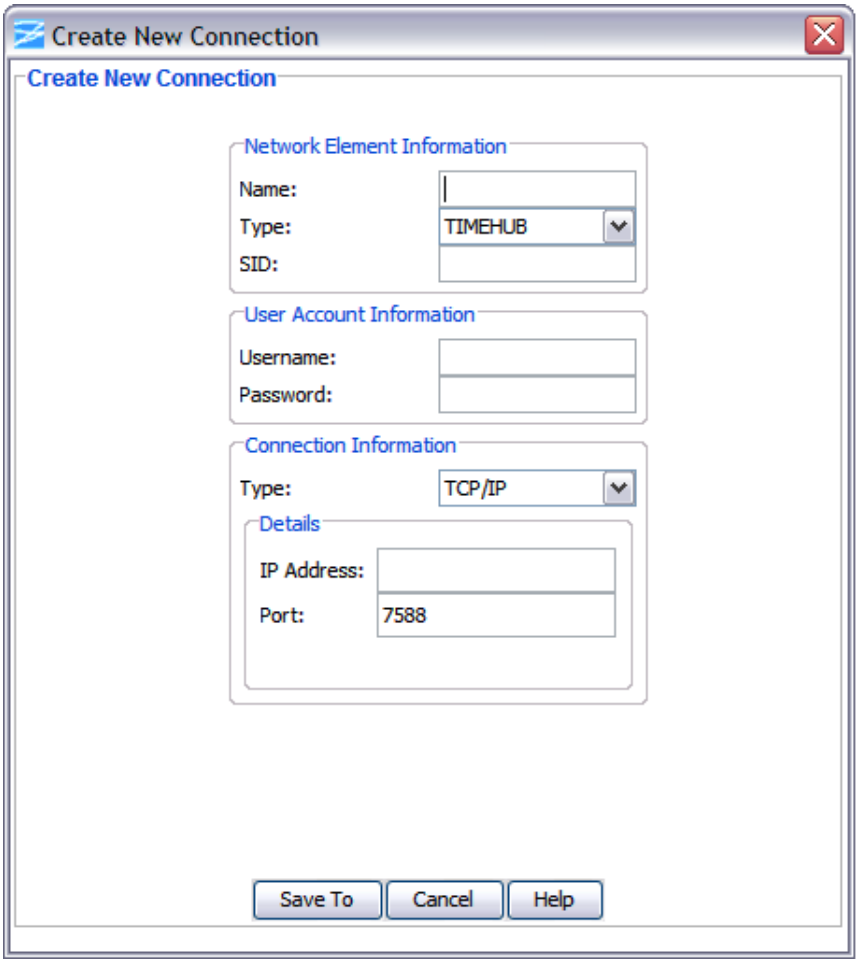
New Connection

To establish a new connection:

1. Click **Connection** on the menu bar.
2. Click **New Connection** from the drop-down menu to open the "Create New Connection" screen.
3. Enter the appropriate data in all fields described in the table below.
4. Click the **Save To** button to open file Chooser dialog.
5. The user can save the connection (.conprops file) in the connections folder or create a sub folder in the connections folder.

Note: Once the sub folder is created, if the folder is not getting the focus, select the folder manually.

6. Click **Save** to save the data and close the dialog box, or click **Cancel** close the dialog box without saving the data entered.



Note: Some text box information changes to provide details associated with the type of network element selected.

Section and Field	Description or Action
Network Element Information	
Name	Enter a unique name for this connection as it will appear in the connection list
Type	From the drop-down menu, select the type of network element with which to connect
SID	This is the source identifier. When a connection command is sent to the network element (TID), the source identifier (SID) is sent back. The default SID is the network name.
User Account Information	
Username	Enter a username to log on to the network element

Password	Enter a password. The password field displays asterisks when text is entered. If security is not enabled on the network element, the Account and Password fields may be left blank. **Note:** The password is case sensitive.
Connection Information	
Type	Connection Type determines how TimeCraft will connect to the network element. From this drop-down menu, select TCP/IP, serial/USB-serial, or modem. The default is TCP/IP.
TCP/IP Connection Details	
IP Address	Enter the IP address of the network element selected in the Network Element Information Section
Port	Enter the host port for the IP address
Serial / USB-Serial Connection Details	
Com Port	This field indicates the serial/USB-serial communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, 4, 5, 6, 7 or 8. The default is Com Port 1. See Verify USB-Serial COM Port.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 2400 bps.
Modem Connection Details	
Com Port	This field indicates the communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, or 4. The default is Com Port 1.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 2400 bps.
Phone	This field is for the modem's telephone number.

Open Connection

To open a connection from the Main Menu:

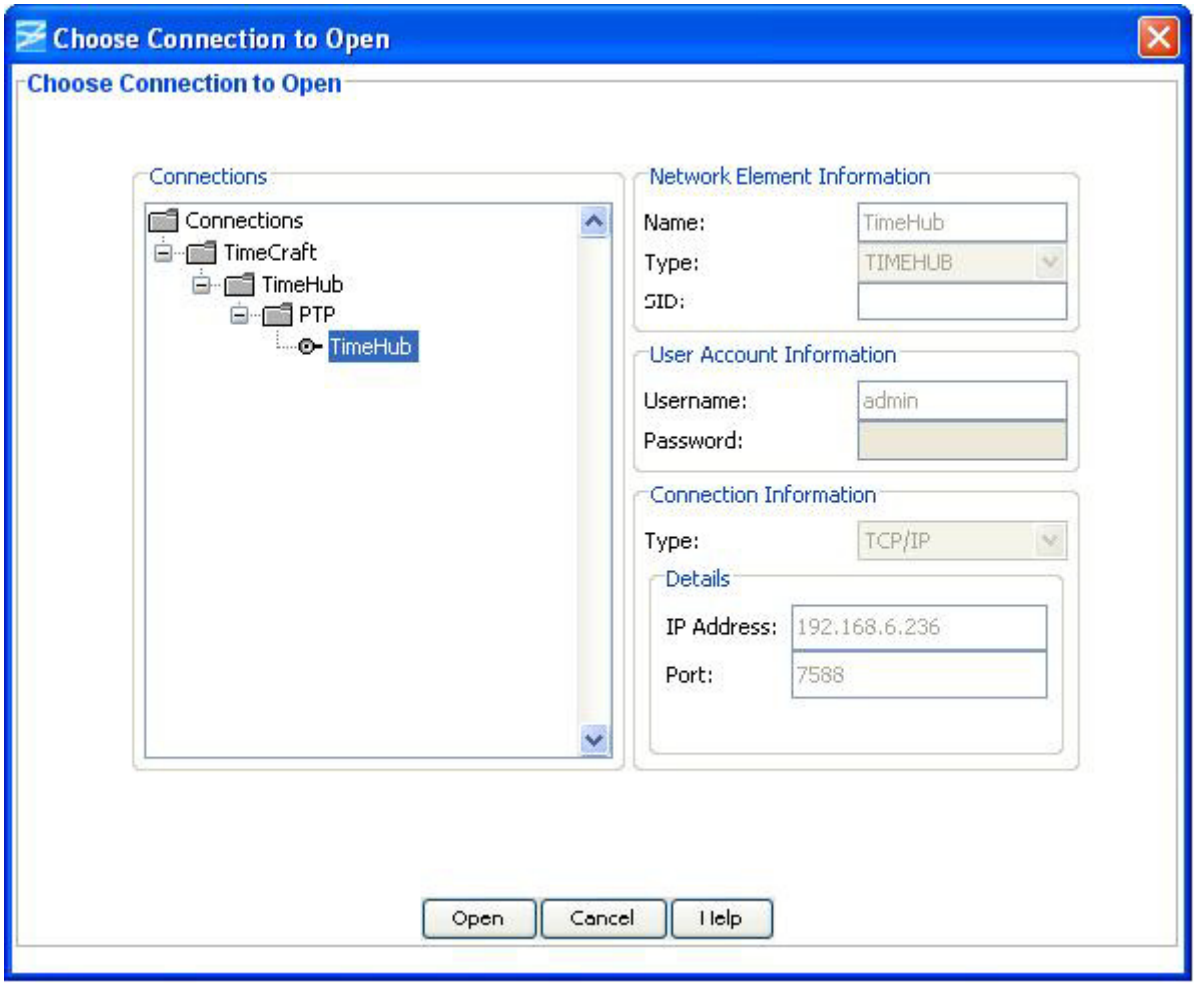
1. Click **Connection**.

2. Click **Open Connection** from the drop-down menu to open the "Choose Connection to Open" screen.

Note: Available connections are displayed in the connections panel (left side) as a directory structure. And the information about the highlighted connection is displayed in the area to the right of the connection panel. If a folder does not contain connection files, then that folder will not be displayed in the connections folder hierarchy as a directory structure.

3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.

4. Click on a network element to select it and click the **Open** button.



Close Connection

To close a connection from the Browser panel:

1. Select a network element.
2. Left-click and select **Close Connection** in the drop-down window to close the current session.

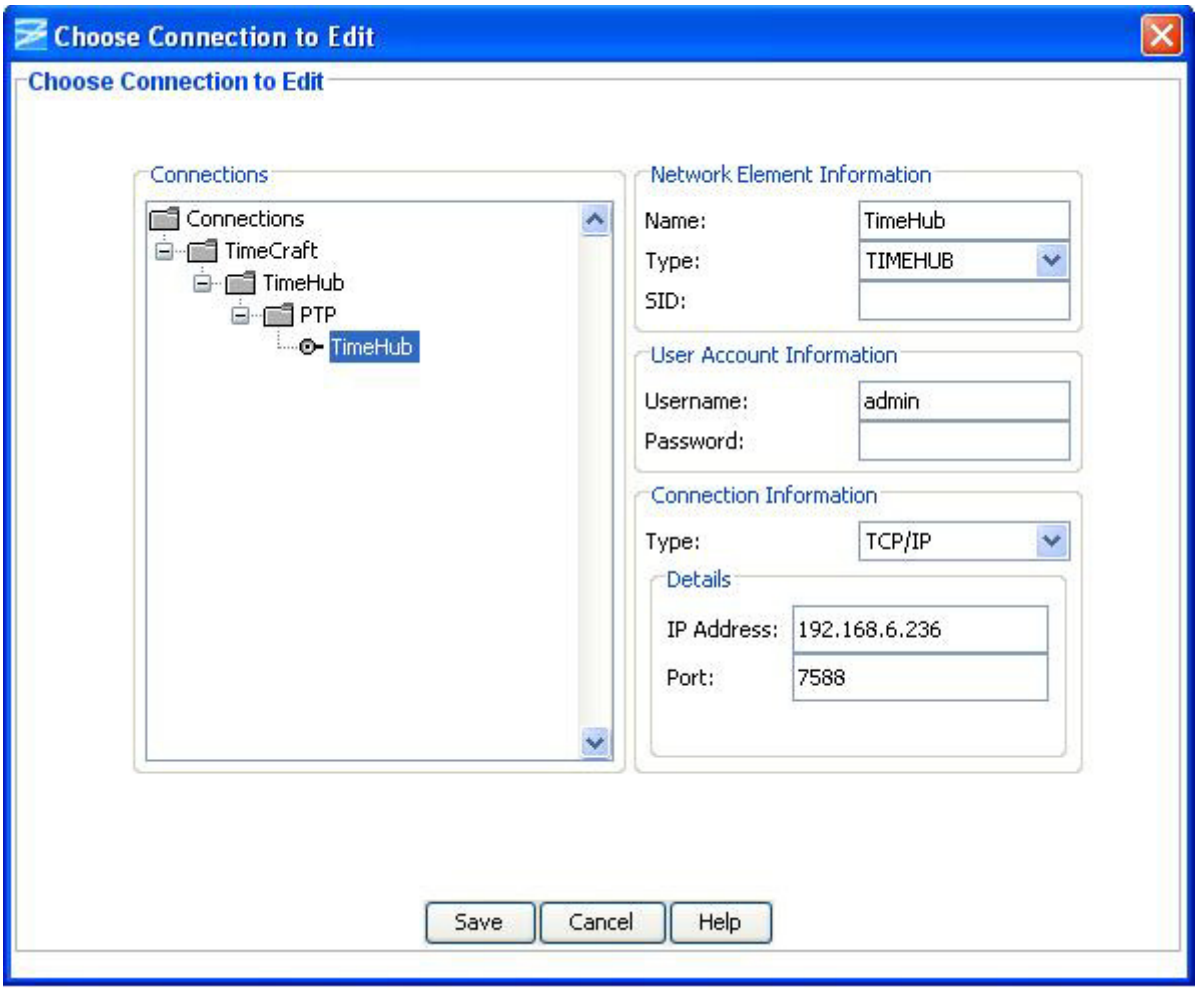
Edit Connection

To edit a network element:

1. Click **Connection** on the Main Menu.
2. Click **Edit...** from the drop-down menu to open the "Choose Connection to Edit" screen.
3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.
4. Select a network element in the selected sub folder under the "Connections" panel (left panel).
5. Edit the content of appropriate field that you want to edit.
6. Click **Save** to save the data and close the dialog box, or click **Cancel** to close the dialog box without saving data.

Note: If a folder does not contain connection files, then that folder will not be displayed in the connections folder hierarchy as a directory structure.

Note: If you want to move the connection files to a different location/folder inside the 'connections' directory, browse to the TimeCraft installed directory through windows explorer, open the connections folder and then move the connections file to the desired location/folder.



Note: Some text box information changes to provide details associated with the type of network element selected.

Section and Field	Description or Action
Network Element Information	
Name	Enter a unique name for this connection as it will appear in the connection list
Type	From the drop-down menu, select the type of network element with which to connect
SID	This is the source identifier. When a connection command is sent to the network element (TID), the source identifier (SID) is sent back. The default SID is the network name.
User Account Information	
Username	Enter a username to log on to the network element

Password	Enter a password. The password field displays asterisks when text is entered. If security is not enabled on the network element, the Account and Password fields may be left blank. **Note:** The password is case sensitive.
Connection Information	
Type	Connection Type determines how TimeCraft will connect to the network element. From this drop-down menu, select TCP/IP, serial/USB-serial, or modem. The default is TCP/IP.
TCP/IP Connection Details	
IP Address	Enter the IP address of the network element selected in the Network Element Information Section
Port	Enter the host port for the IP address
Serial / USB-Serial Connection Details	
Com Port	This field indicates the serial/USB-serial communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, 4, 5, 6, 7 or 8. The default is Com Port 1. See Verify USB-Serial COM Port.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 2400 bps.
Modem Connection Details	
Com Port	This field indicates the communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, or 4. The default is Com Port 1.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 2400 bps.
Phone	This field is for the modem's telephone number.

Refresh Connection

To refresh the system view from the Browser panel:

1. Select the network element.
2. Left-click and select **Refresh Connection** from the drop-down screen.

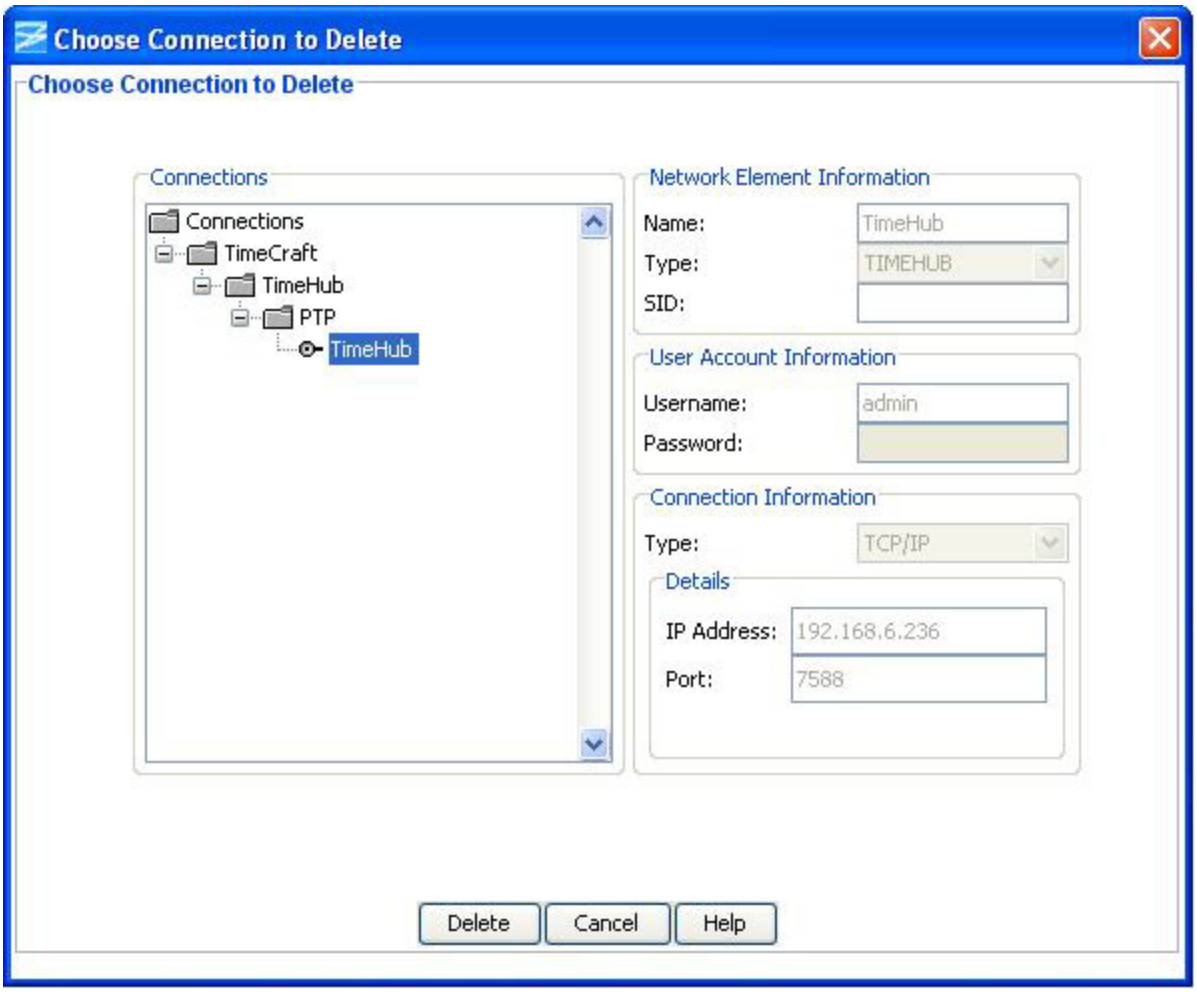
Delete Connection

To delete a connection from the Main Menu:

1. Click **Connection**.
2. Click **Delete...** from the drop-down window to open the "Choose Connection to Delete" screen.
3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.
4. Select the network element you want to delete.
5. Click the **Delete** button to delete the connection and return to the Main Menu, or click **Cancel** to close the dialog box without deleting the network element.

Note: If a folder does not contain connection files, then that folder will not be displayed in the connections folder hierarchy as a directory structure.

Note: To delete a folder in the connections directory, browse to the TimeCraft installed location (Default is "C:\Program Files\Symmetricom\TimeCraft"). Open the connections folder and delete the particular folder. Deleting the folder will lead to deletion of all the connections present in that folder.



Verify USB-Serial COM Port

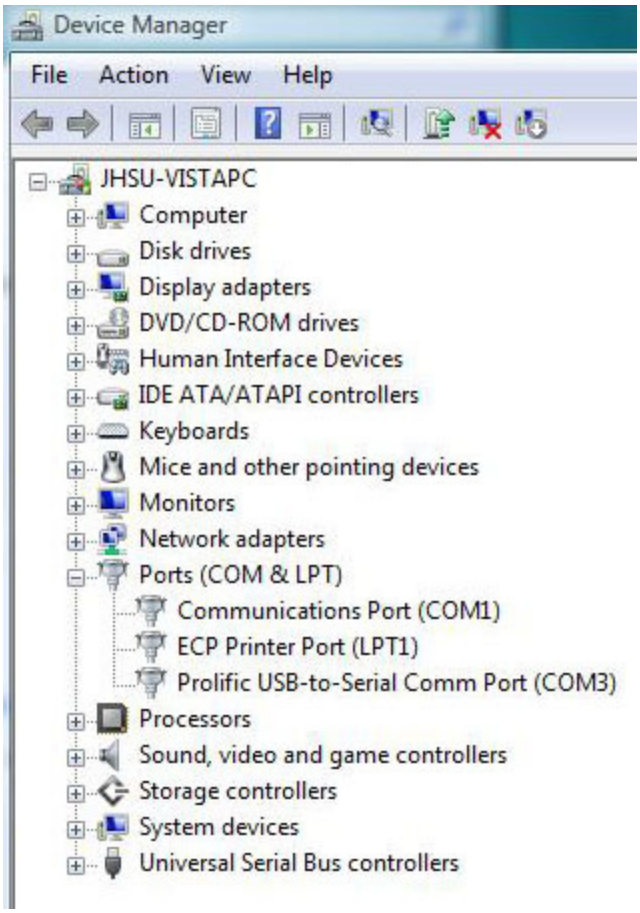
TimeCraft requires that the COM port be specified when creating a new connection with USB-serial, or editing an existing connection to use USB-serial. The USB-to-serial adapter will typically be assigned a COM port when the driver software is installed. To determine the COM port for USB-to-serial, follow the procedures below:

For Windows Vista OS

1. Click on the **Start** button.
2. Right-click on **Computer**. Select "Properties" from the menu that appears.
3. Click on **Device Manager**.
4. Double-Click on **Ports (COM & LPT)** to display the port assignments.
5. Locate the port assigned to the USB-to-serial adapter, as shown in the image below.

For Windows XP OS

1. Click on the **Start** button.
2. Right-click on **My Computer**. Select "Properties" from the menu that appears.
3. Click on the **Hardware** tab.
4. Click on the **Device Manager** button.
5. Double-Click on **Ports (COM & LPT)** to display the port assignments.
6. Locate the port assigned to the USB-to-serial adapter, as shown in the image below.



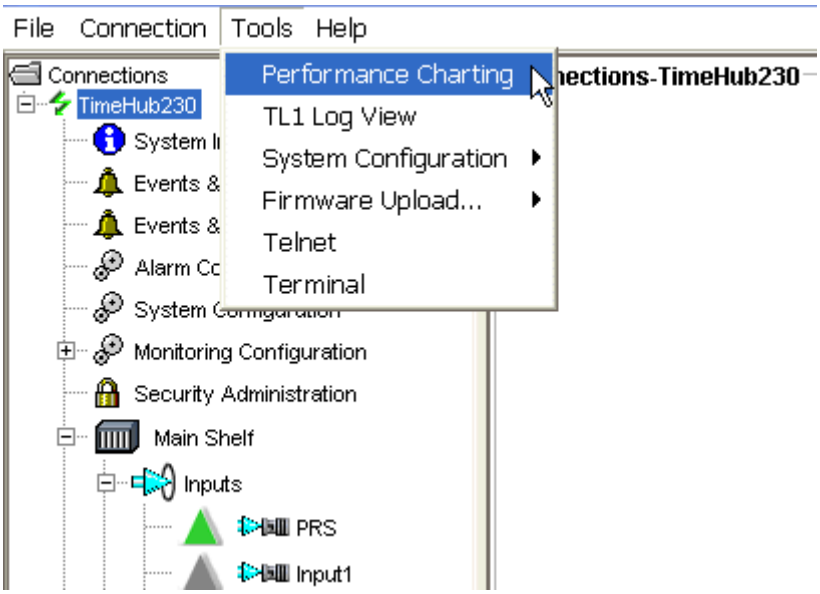
Tools Menu

Start Performance Charting

To start performance charting:

1. Click the **Tools** menu item.

2. Click **Performance Charting** in the drop-down menu to open the Performance Charting screen.



See Also:
MRTIE Chart

TDEV Chart

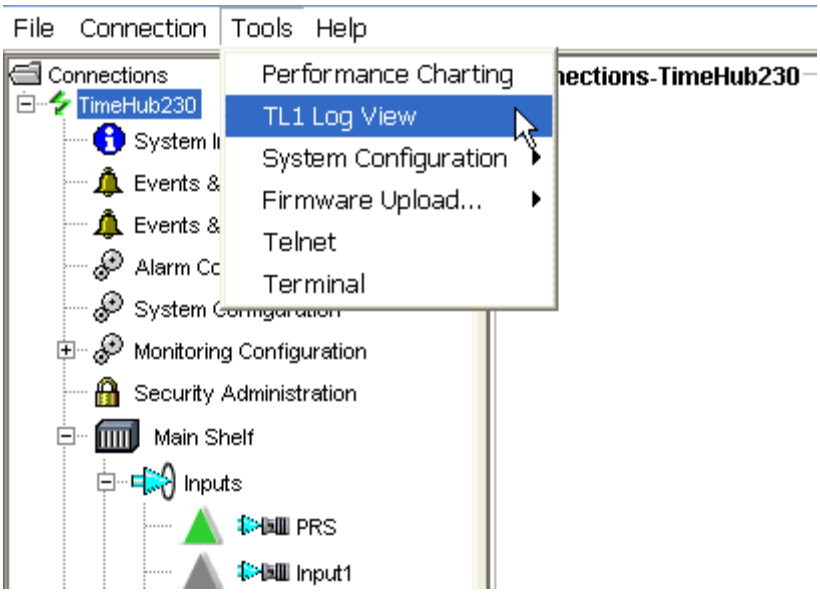
TL1 Log View

The TL1 Log View screen displays a file of TL1 commands generated by TimeCraft and received from network elements.

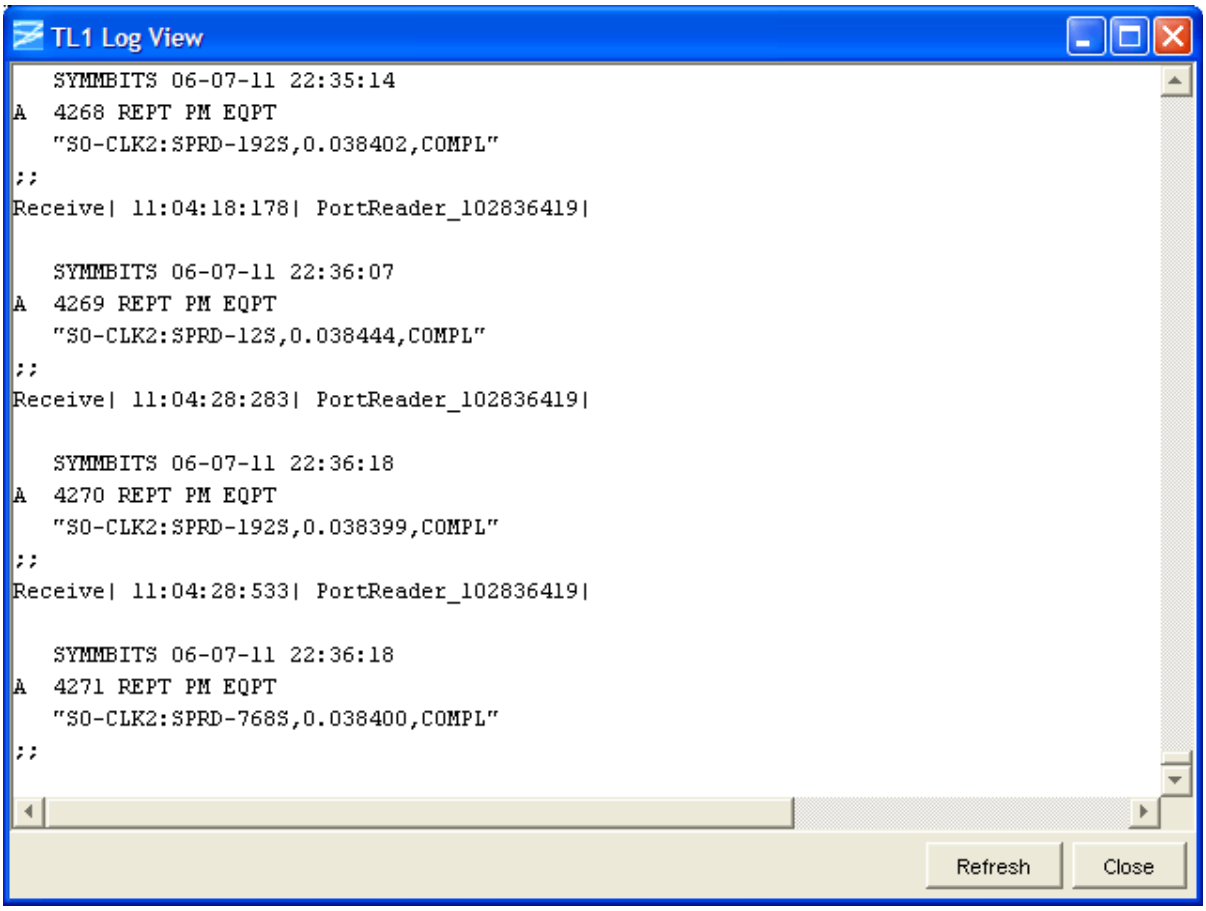
To open the TL1 Log screen:

1. Click the **Tools** menu item.

2. Click **TL1 Log View** in the drop-down menu to open the TL1 Log screen.



3. Click **Refresh** to update the file to display the log for the current session, or click **Close** to close the TL1 Log View screen.

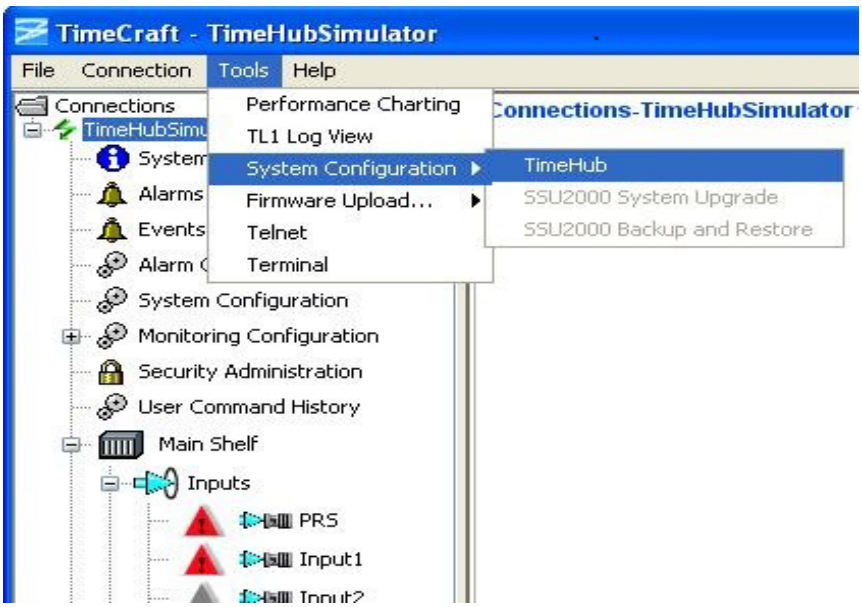


System Configuration

To start System Configuration Data Transfer:

1. Click the **Tools** menu item.

2. Select **System Configuration** in the drop-down menu and click TimeHub to open the System Configuration Data Transfer screen.



See Also:
System Configuration Data Transfer

Firmware Upload

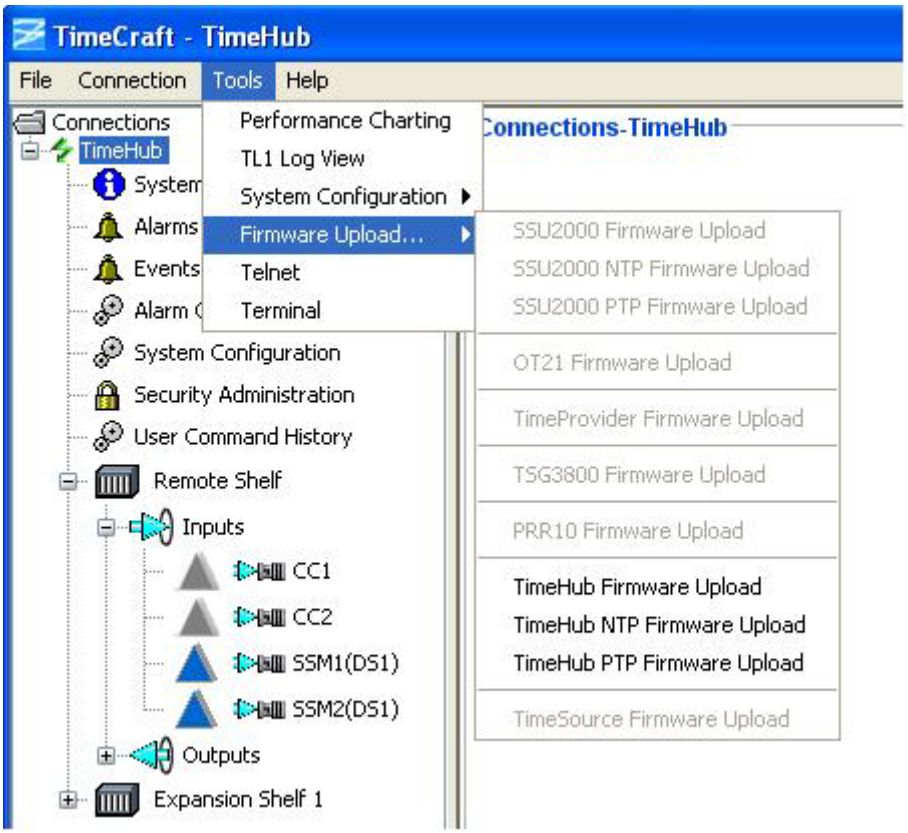
Firmware Upload under the Tools menu allows you to install firmware in the IMC card, Clock card, NTP blade, or PTP blade. The files to be uploaded must be located on an FTP or SFTP server that TimeCraft can access.

Use the following procedure to open the firmware installation screen:

1. Click the **Tools** menu item.

2. Click **Firmware Upload...** in the drop-down menu.

3. Select **TimeHub Firmware Upload**, **TimeHub NTP Firmware Upload**, or **TimeHub PTP Firmware Upload** in the displayed list to open the Upload Firmware screen.



See Also:

Installing Firmware

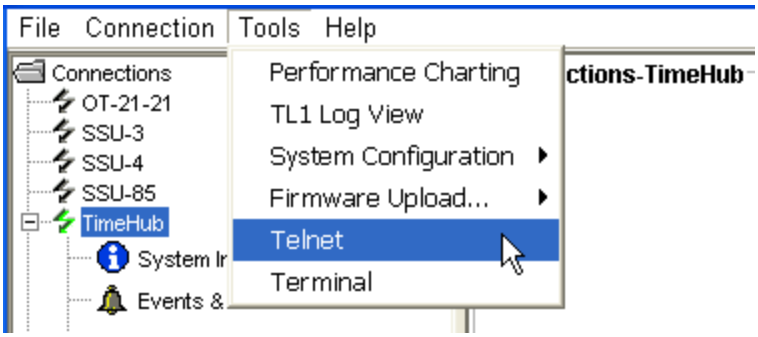
Installing NTP Firmware

Starting a Telnet Session

To start a telnet session:

1. Click the Tools menu item.
2. Select Telnet in the Tools menu to open a telnet session.
3. To open a telnet session for any network element, type the command "open IP_Address". IP_Address is the ip address of the element.

Note: If a network element is connected, then a telnet session for that network element is automatically opened.



Using The Terminal Screen

The Terminal Screen shown below allows you to key in and send TL1 commands and view the responses. If you select the Local Echo check box, the command you send is displayed along with the response.

Following is a list of frequently used commands:

- RTRV-NETYPE-ALL – This command is used to retrieve inventory information about the TimeHub. The details obtained are like the company name, model number, Equipment type and also the details of Management Card, CLK, and Output Driver Cards. Hotkey for this operation is F2.

  Syntax is – `RTRV-NETYPE-ALL:::<ctag>;`

- RTRV-COND– This command is used to retrieve information about CLK Cards, input cards, input signals, and Output Driver Cards. Hotkey for this operation is F3.

  Syntax is – `RTRV-COND:::<ctag>;`

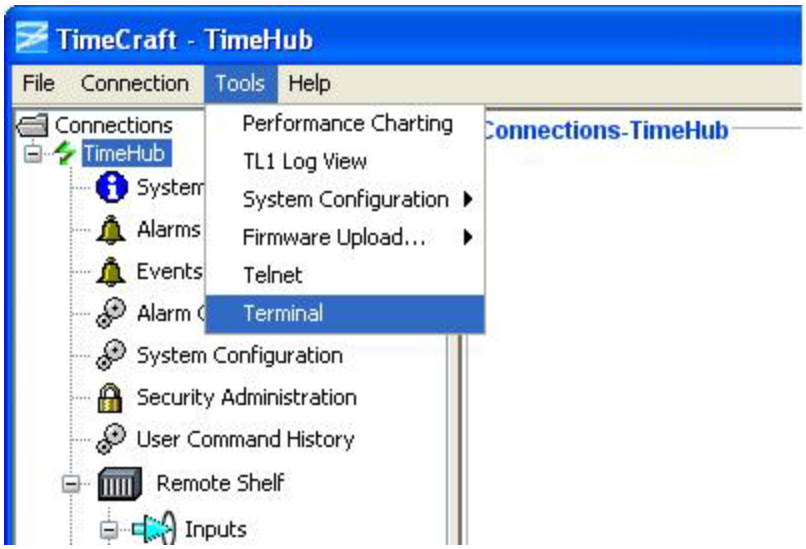
- RTRV-ALM – Use the Retrieve Alarm Condition (RTRV-ALM) command to retrieve a list of all currently active alarms.

  The Retrieve Alarm Condition command is similar to the Retrieve Condition command, except that it only reports events, which are causing alarms (critical, major, and minor). Hotkey for this operation is F4.

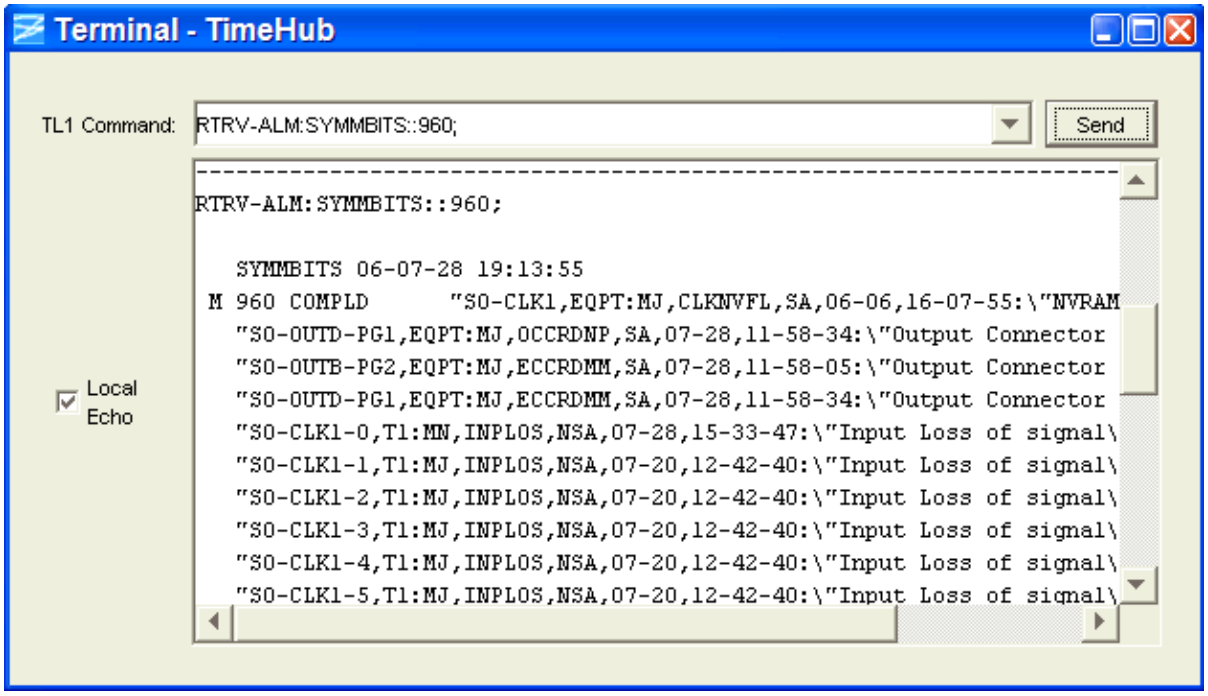
  Syntax is – `RTRV-ALM:::<ctag>;`

To use the terminal screen:

1. Click the **Tools** menu item.
2. Click **Terminal** in the drop-down menu to open the terminal screen.
3. Type a TL1 command into the TL1 Command text box.
4. Click **Send** to enter the command.



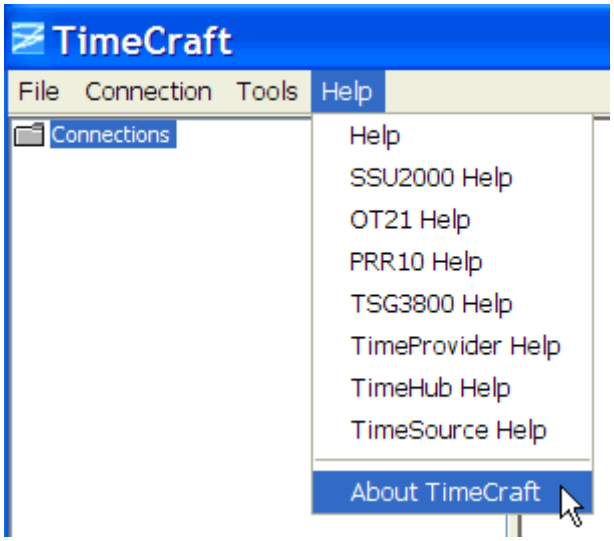
Note: Click the **Local Echo** check box to display the command along with the response.



Installing Firmware

Installing Firmware

The TimeCraft application must be at version 2.0 or later to perform a TimeHub firmware download. To check the TimeCraft version, go to the **Help** menu item and select **About TimeCraft**.



Saving System Configuration before Firmware Upload

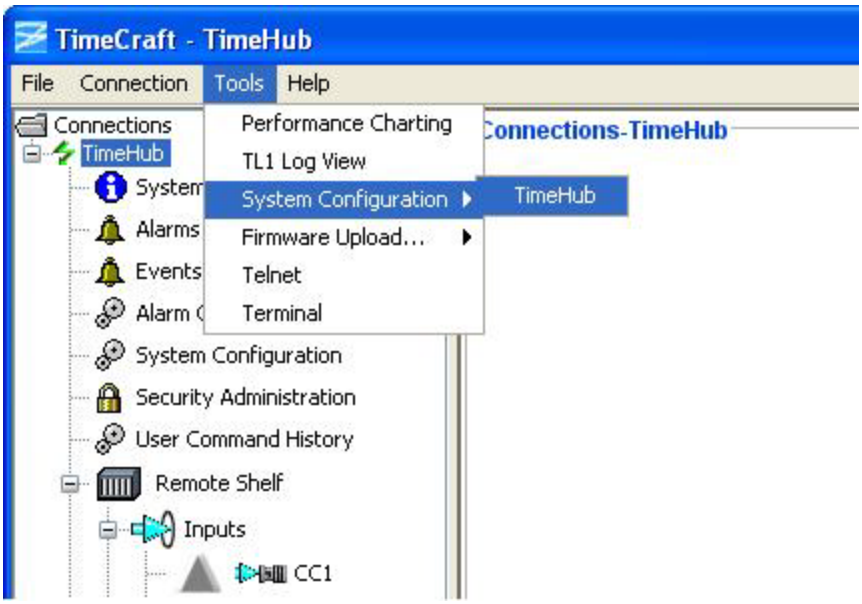
The sequence to perform firmware upload while saving the system configuration is to first save the system configuration, and then perform a firmware upload.

Note: To perform a full upload to a system with an IMC card and two clock cards, takes an average of 45 minutes using TimeCraft.

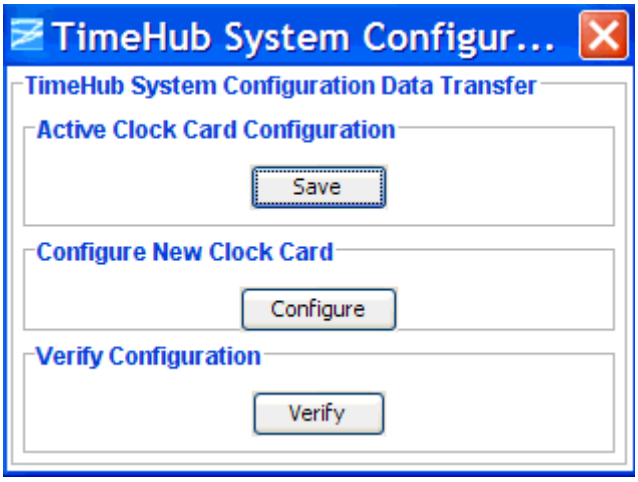
Note: When uploading to a TimeHub system, the IMC firmware is loaded first, and the clocks cards are loaded next in sequence.

Use the following procedure to save the system configuration:

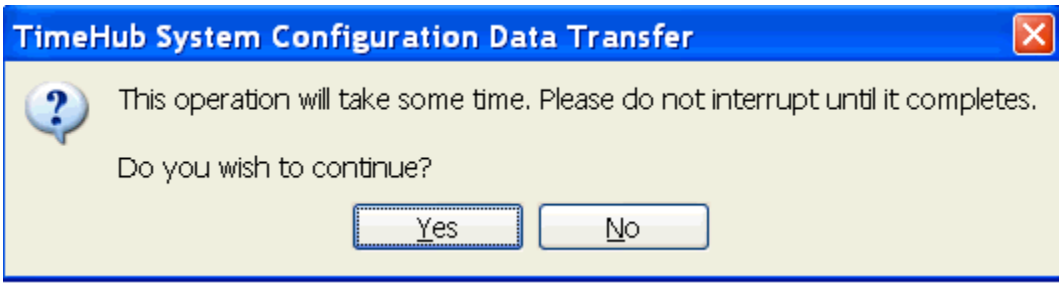
1. Click the **Tools** menu item and select **System Configuration** and **TimeHub**.



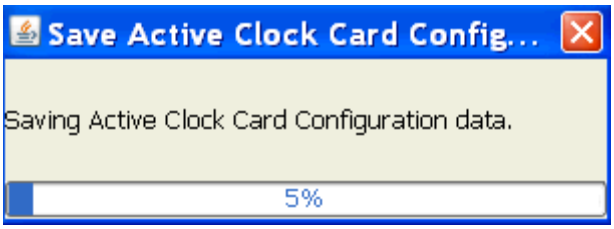
2. A new menu appears prompting the user to select a button. Click **Save** to make an image of the TimeHub configuration.



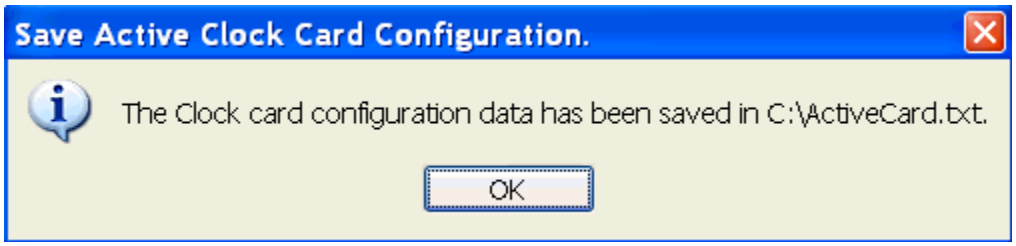
3. Select **Yes** at the confirmation window that appears prompting you to confirm the Save operation.



4. A status bar appears showing the progress of the Save operation.



5. Once the Save operation has completed, a message appears alerting the user to the location of the saved configuration file. This file can be used at a later time to upload the system configuration to new or replacement clock cards, or in the unlikely event that the clock cards are corrupted, the system configuration can be restored from this file. Click **OK** to close the message screen.



6. Click the red **X** box to close the Save window.

TimeHub Firmware Upload

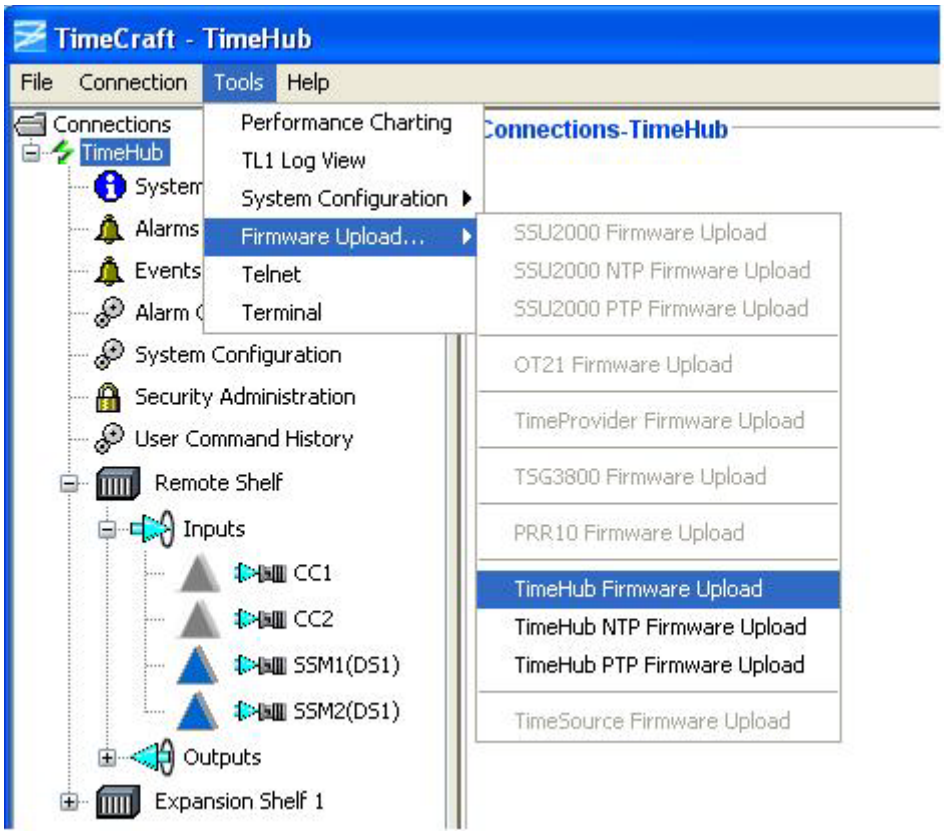
Firmware files that are to be uploaded to a TimeHub must be located on an FTP or SFTP server that TimeCraft can access.

Use the following procedure to upload new firmware to a TimeHub:

7. Click the **Tools** menu item.

8. Click **Firmware Upload...** in the drop-down menu.

9. Select **TimeHub Firmware Upload** in the displayed list to open the FTP Server Parameters screen.



10. In the FTP Server Parameters screen, select either **All Cards (IMC, Clock Cards)**, **Clock Cards (Standby & Active)**, **IMC**, or **Standby Clock Card** in the **Download to:** drop-down box.

11. Enter the FTP/SFTP server IP address in the **FTP Server:** text box.

12. Enter a valid user name in the **Enter the User ID:** text box. Enter a valid user that is stored within the TimeHub system. To perform the download to the TimeHub, that user must have SECURITY level access.

13. Enter the user's password in the **Enter the Password:** text box.

14. Enter the firmware filename in the **File Name:** text box, or click **Browse** to navigate to the directory on the FTP server containing the file. Select the file and click **OK** to enter it into the text box.

Note: The file must be located on an FTP or SFTP server that TimeCraft can access.

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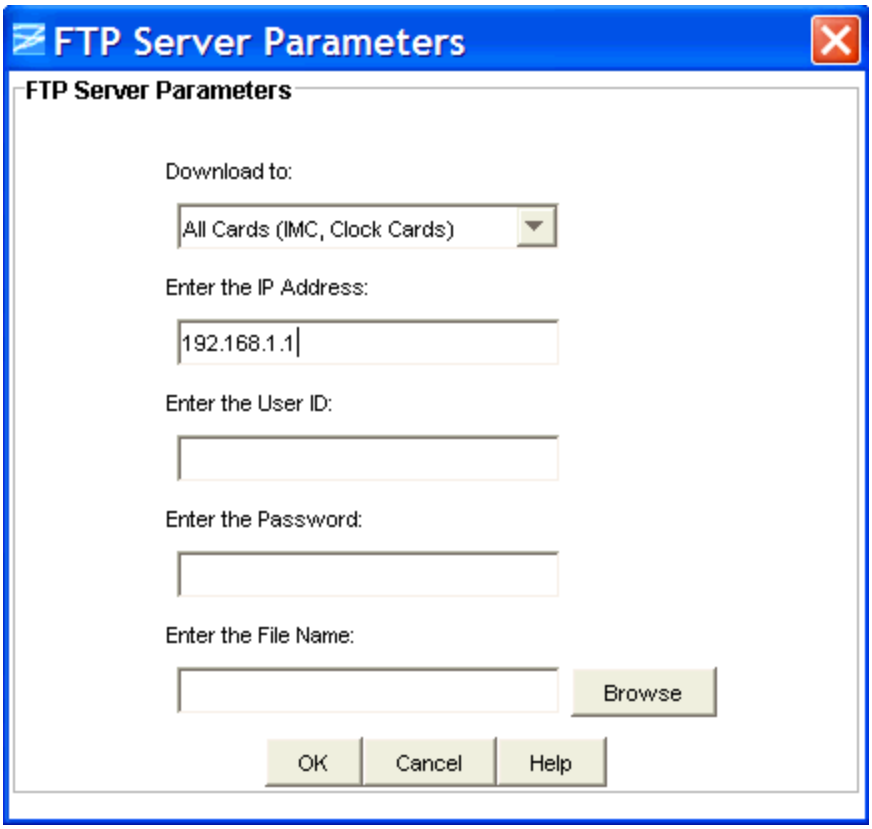
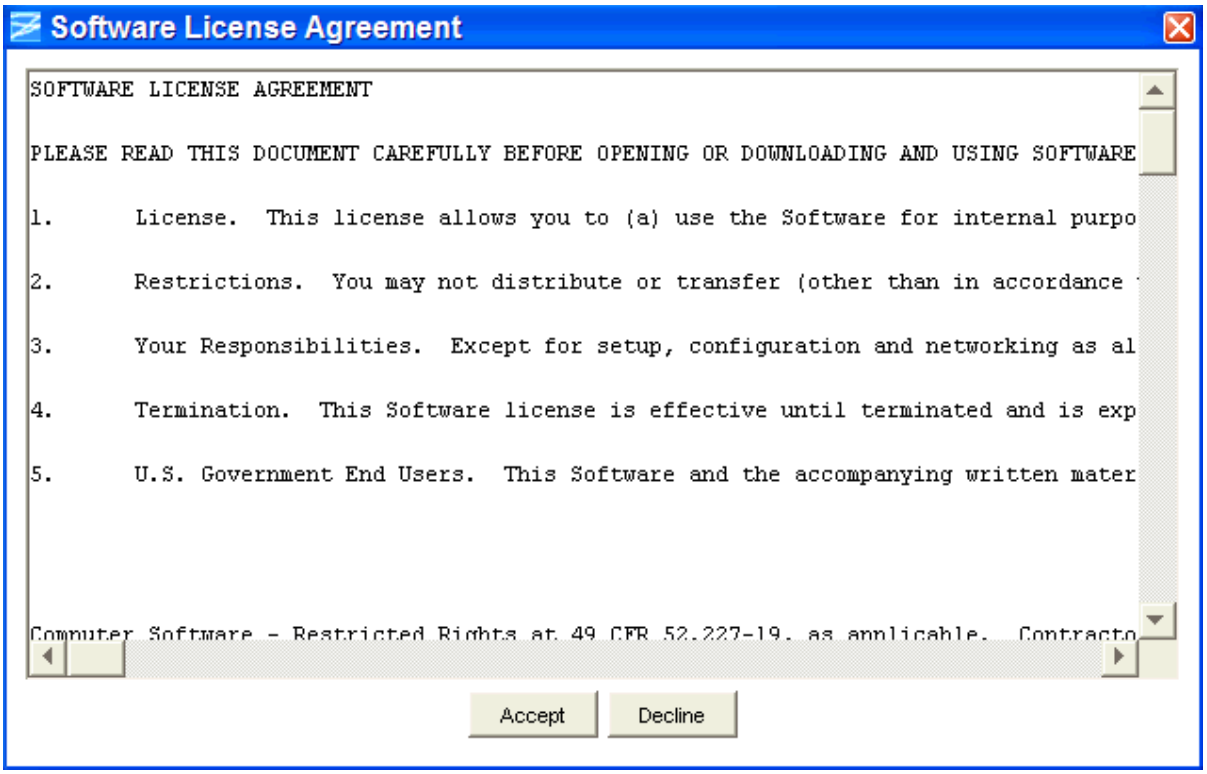
15. Click **OK** to start the upload process, or click **Cancel** to exit the upload procedure. When you click **OK**, the **Software License Agreement** screen is displayed.

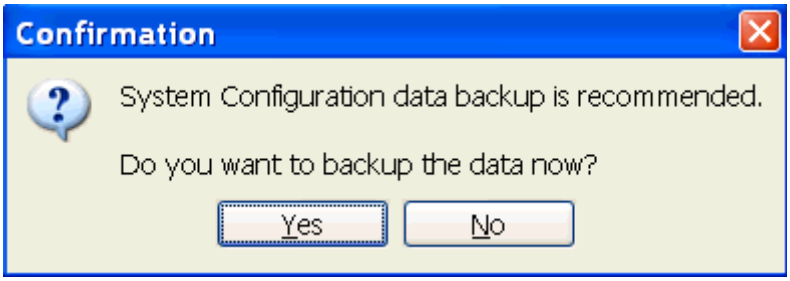


16. Click **Accept** in the **Software License Agreement** window to begin firmware transfer.

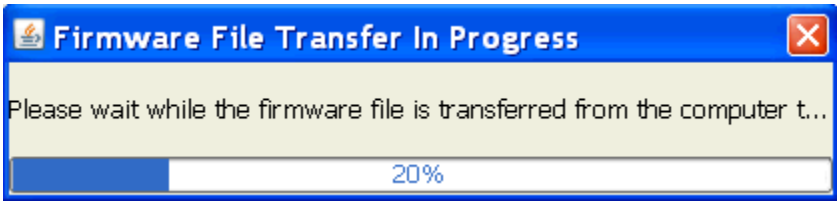
Note: If you click **Decline**, a **Decline Agreement** window is displayed indicating your upload will be cancelled. Click **OK** to cancel the upload procedure.



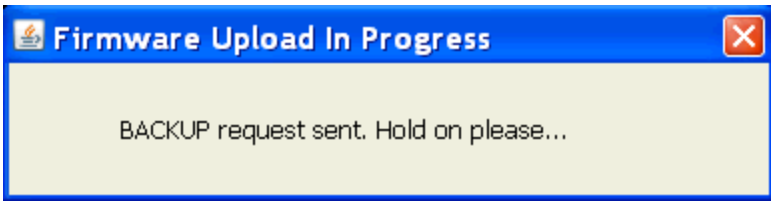
17. A prompt appears asking if you want to save system configuration. Select **No** since this operation was completed in step 2.



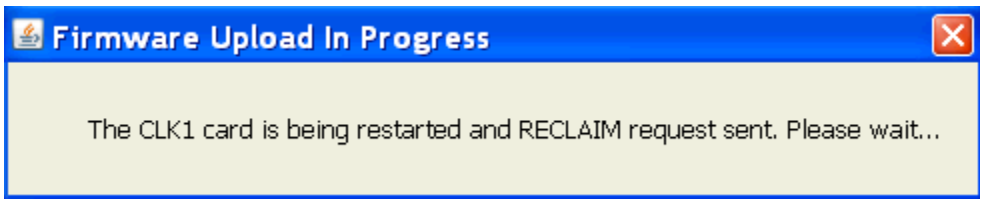
18. During firmware transfer, TimeCraft displays the following dialog screen with progress bar.



19. When the firmware upload is complete, messages appear alerting the user to internal actions by the TimeHub during the upload. For each card being uploaded, a backup operation occurs. Do not disturb the TimeHub during this time.

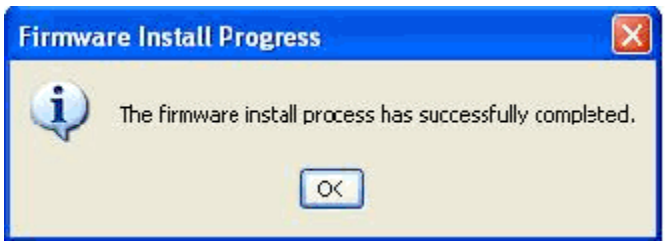


20. For each card being uploaded to, a reclaim is performed. Do not disturb the TimeHub during this time.



21. When the installation is finished, a screen indicates that it has successfully completed. At this instance, do not disturb the TimeHub system for another 5 minutes because the TimeHub may still be busy.

22. Click **OK** to close the **Firmware Install Progress** screen.



Installing NTP Firmware

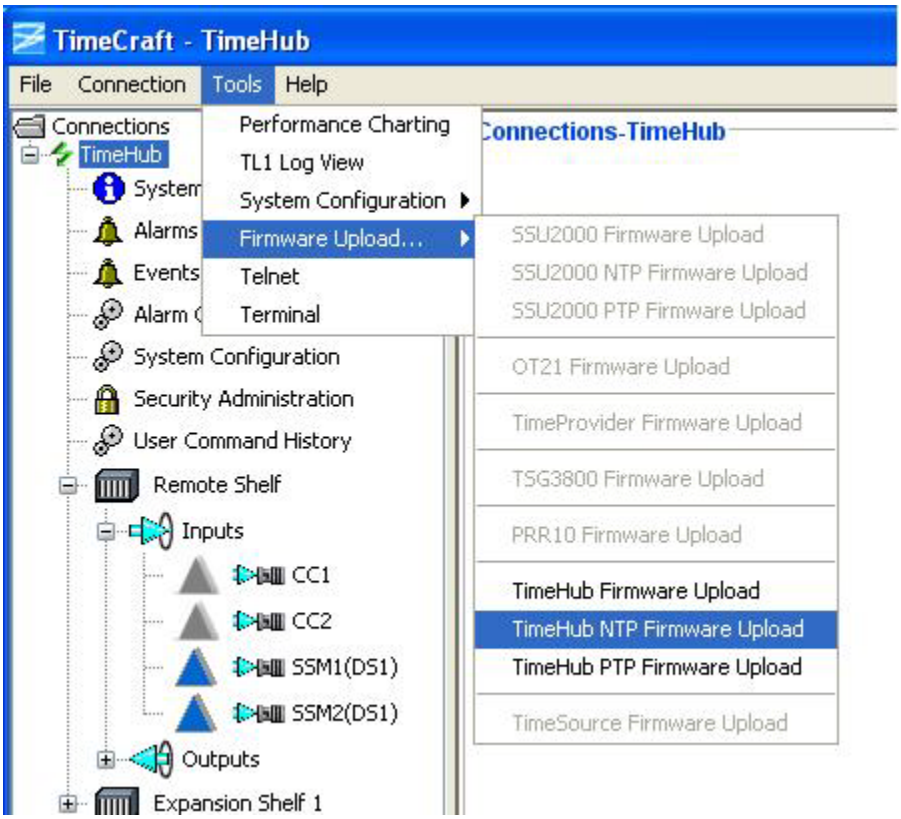
Firmware files that are to be uploaded to a TimeHub must be located on an FTP or SFTP server that TimeCraft can access.

Use the following procedure to upload new firmware to a TimeHub:

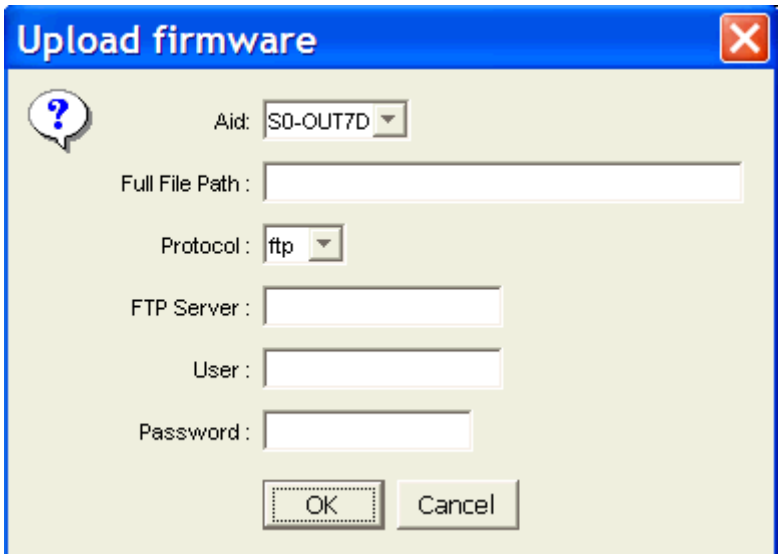
1. Click the **Tools** menu item.

2. Click **Firmware Upload...** in the drop-down menu.

3. Select **TimeHub NTP Firmware Upload** in the displayed list to open the Upload Firmware screen.



4. In the **Upload Firmware** dialog screen, select the NTP Blade in the AID: drop-down box.

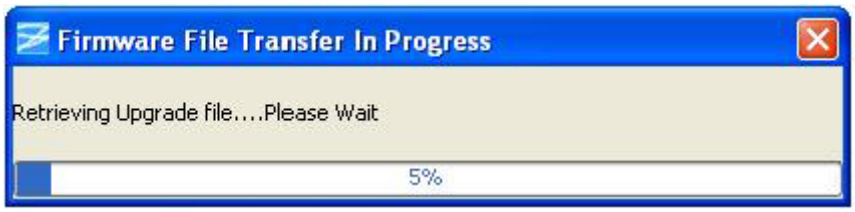


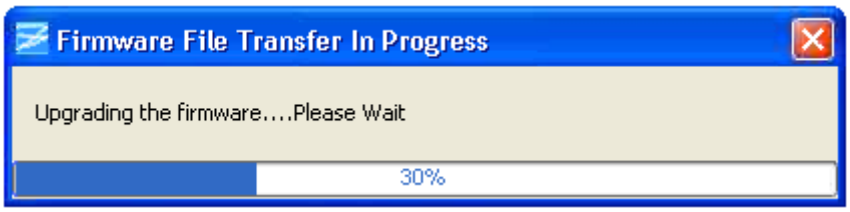
5. Enter the firmware filename (the full path name) in the **Full File Path:** text box.

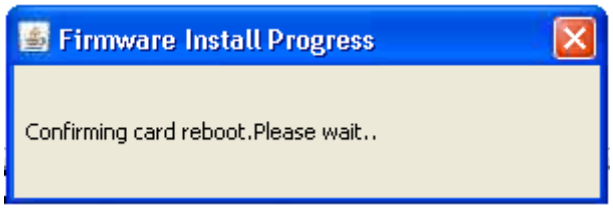
6. Select either ftp or sftp in the **Protocol:** drop-down box.

7. Enter the FTP server IP address in the **FTP Server:** text box.

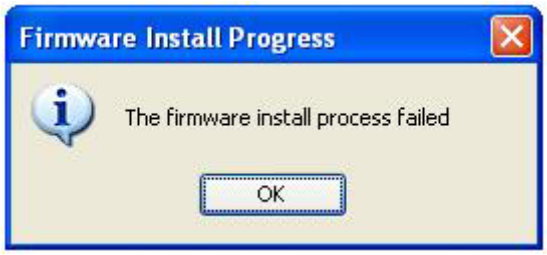
8. Enter a valid user name in the **User** text box.
9. Enter the user's password in the **Password** text box.
10. Click **OK** to start the upload, or click **Cancel** to exit the upload procedure.
11. During the Firmware upload, the following progress bar is displayed.



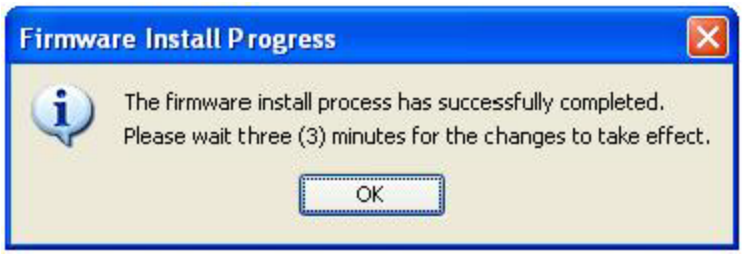




12. If the firmware upload fails, a message is displayed stating that Firmware upload failed.

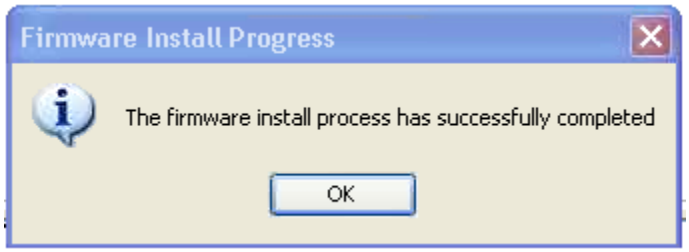


13. If the firmware upload is successful, a message is displayed stating that Firmware upload was successfully.



After Firmware upgrade is successfully completed, the user has to wait for at least three minutes for configuration to update the device and the card to reboot, if the reboot option was selected as 'Yes'.

If the reboot option was selected as 'No' then click on OK after the Firmware update is successfully completed to effect the changes.

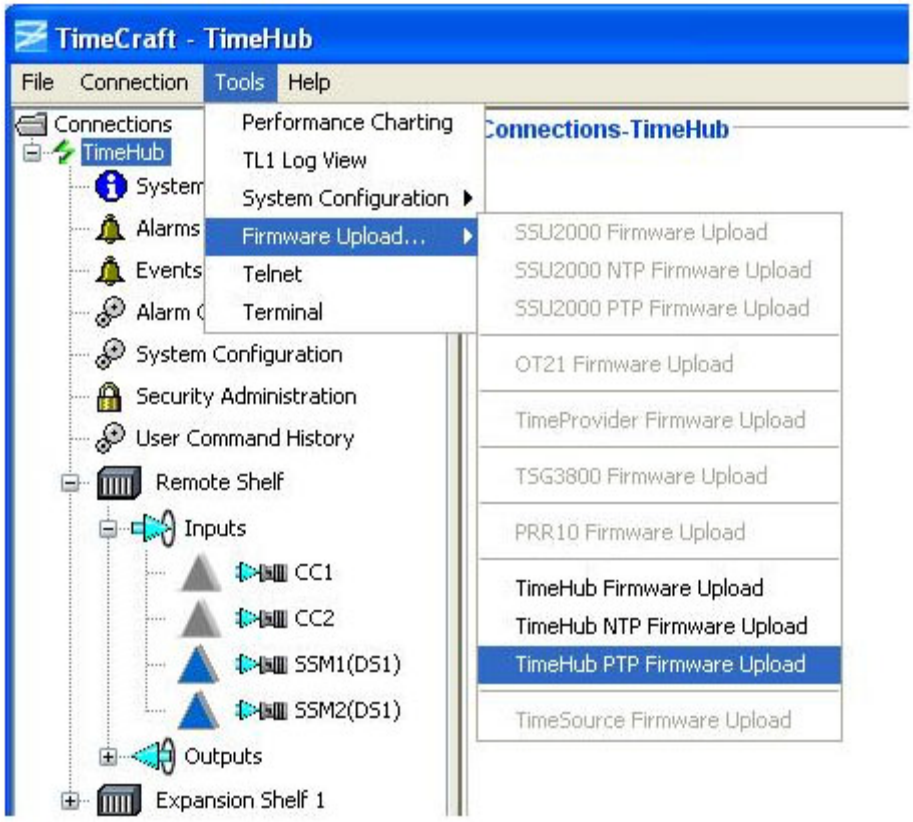


Installing PTP Firmware

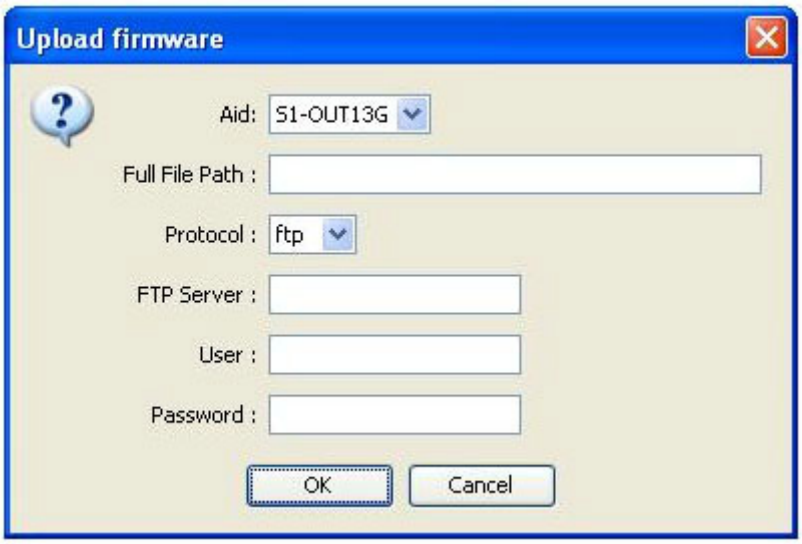
Firmware files that are to be uploaded to a TimeHub must be located on an FTP or SFTP server that TimeCraft can access.

Use the following procedure to upload new firmware to a TimeHub:

1. Click the **Tools** menu item.
2. Click **Firmware Upload...** in the drop-down menu.
3. Select **TimeHub PTP Firmware Upload** in the displayed list to open the Upload Firmware screen.



4. In the **Upload Firmware** dialog screen, select the PTP Blade in the AID: drop-down box.



5. Enter the firmware filename (the full path name) in the **Full File Path:** text box.

6. Select either ftp or sftp in the **Protocol:** drop-down box.

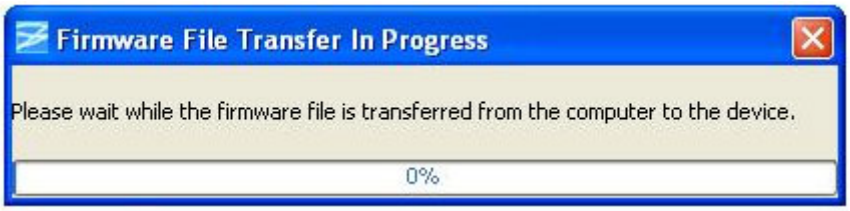
7. Enter the FTP server IP address in the **FTP Server:** text box.

8. Enter a valid user name in the **User** text box.

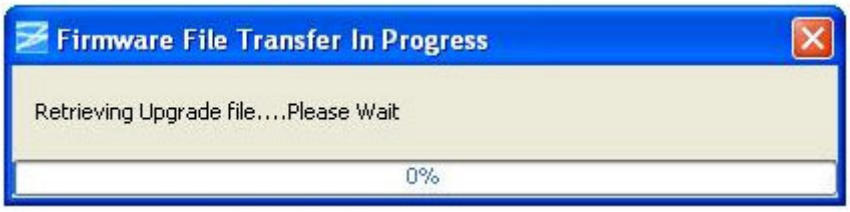
9. Enter the user's password in the **Password** text box.

10. Click **OK** to start the upload, or click **Cancel** to exit the upload procedure.

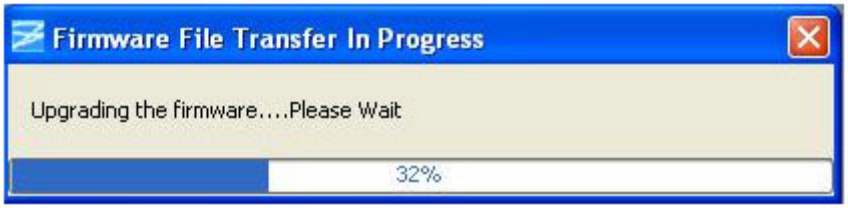
11. During the Firmware upload, the following progress bar is displayed.

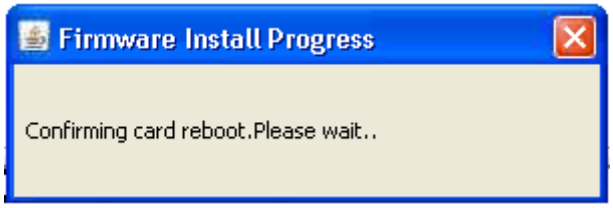


12. When the Firmware file is transferred from the FTP server to the device, the status of the progress bar changes to “Retrieving Upgrade file”.



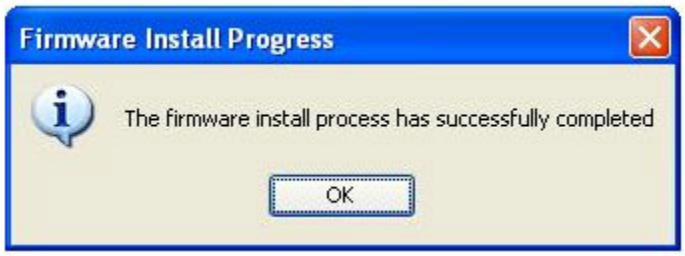
13. When the upgrade file is retrieved successfully, the TimeCraft starts upgrading the firmware to the device and the following progress bar is displayed.





14. If the firmware upload fails, a message is displayed stating that Firmware upload failed.

15. If the firmware upload is successful, a message is displayed stating that Firmware upload was successfully.



Note: While Uploading the PTP firmware, if you select the active card for firmware download, a warning message appears stating “Recommend to download firmware to standby card first, then switch the cards and perform download again” if there is another standby card installed. Click **OK** in this window then choose the Stand by card for firmware download. After the download, switch the active card to stand by then upload the firmware.

When card is in Standby mode, the confirmation message will be shown as follows: "The firmware install process has successfully completed. Card is in Standby mode".

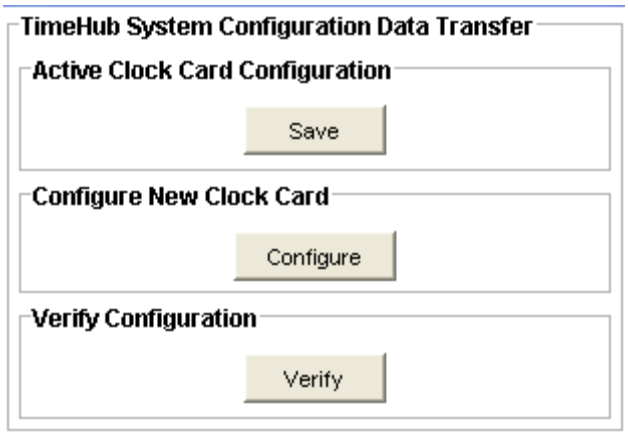
System Configuration Data Transfer

System Configuration Data Transfer

The System Configuration Data Transfer screen allows you to:

- Save the active clock card configuration
- Configure a new clock card
- Verify that the active clock card configuration data matches the configuration data on the clock card in a second shelf.

Click the **Tools** menu item, select System Configuration, and click TimeHub to display the following screen.



See Also:

Save Clock Card Configuration

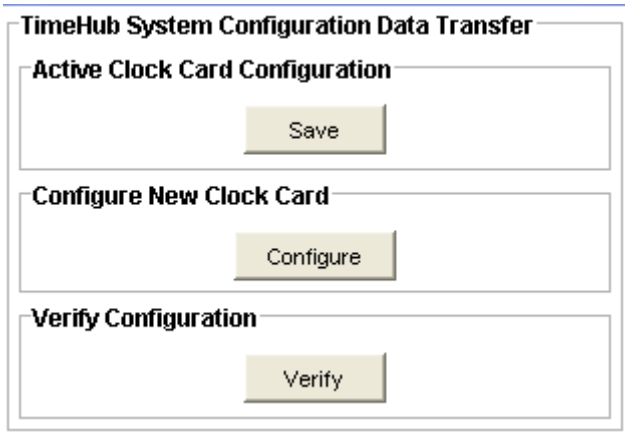
Configure New Clock Card

Verify Clock Card Configuration

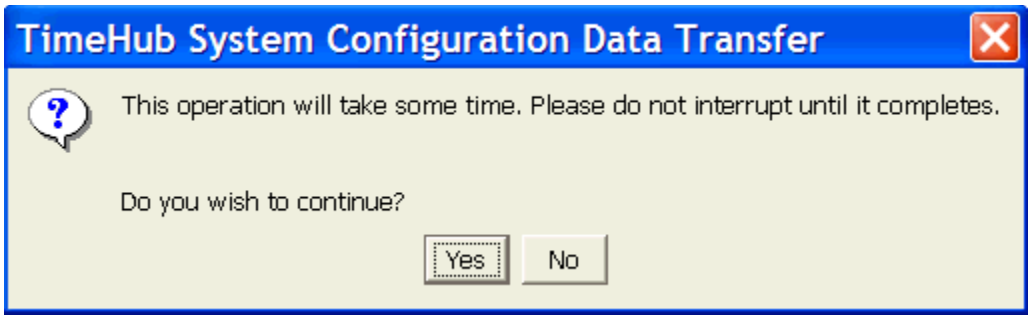
Save Active Clock Card Configuration

Use the following steps to save the active clock card configuration data.

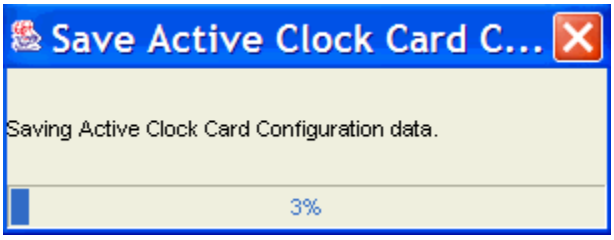
1. Click **Save** to save the clock card configuration to a file (C:\ActiveCard.txt).



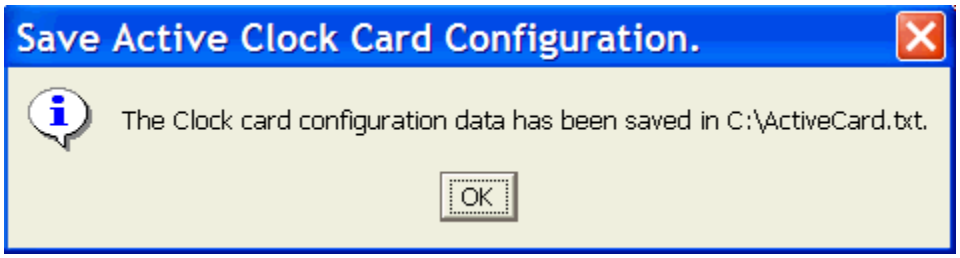
2. At the following screen, click **Yes** to continue, or **No** to exit the function.



3. The following screen displays an indicator of the time remaining for completion of the process.



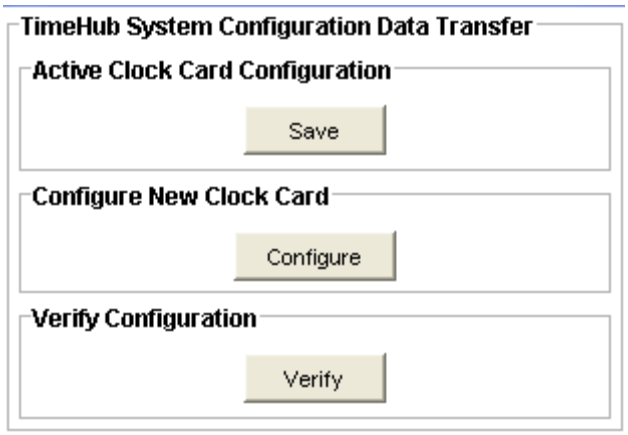
4. When the data file is complete, a message is displayed as shown below. Click **OK** to complete the process.



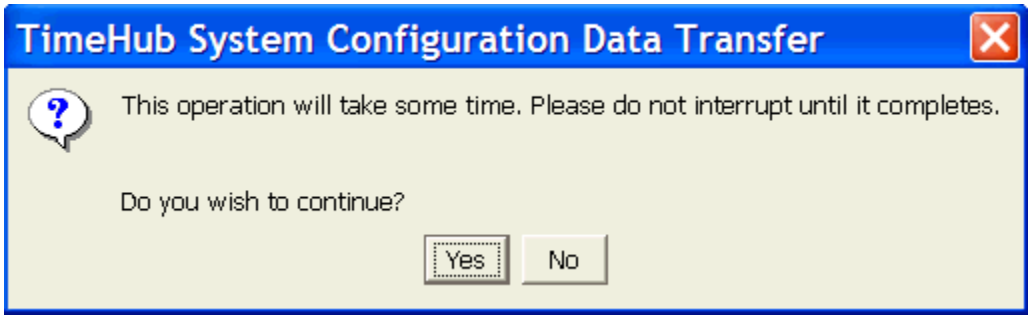
Configure New Clock Card

Use the following steps to configure a new clock card.

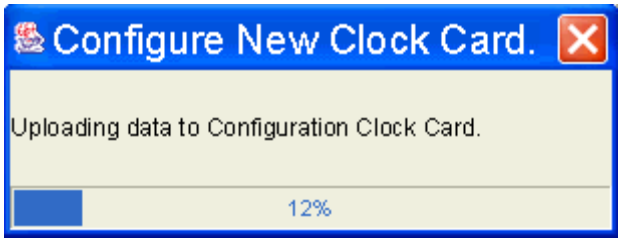
1. Click **Configure** to upload the active clock card configuration data file (written to C:\ActiveCard.txt) to a clock card in a second shelf.



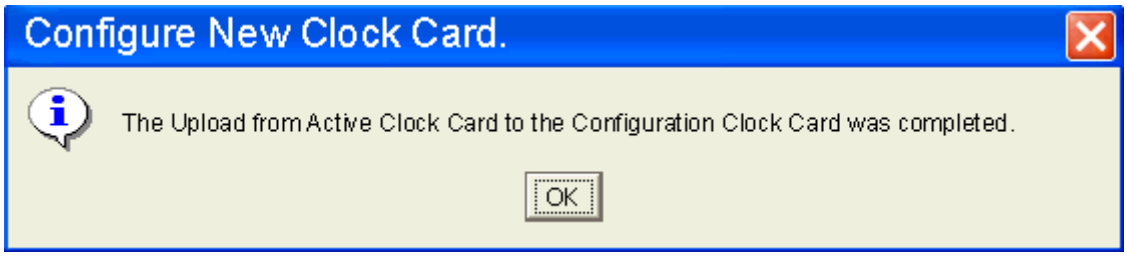
At the following screen, click **Yes** to continue, or **No** to exit the function.



2. The following screen displays an indicator of the time remaining for completion of the process.



3. When configuration is complete, a message is displayed as shown below. Click **OK** to complete the process.

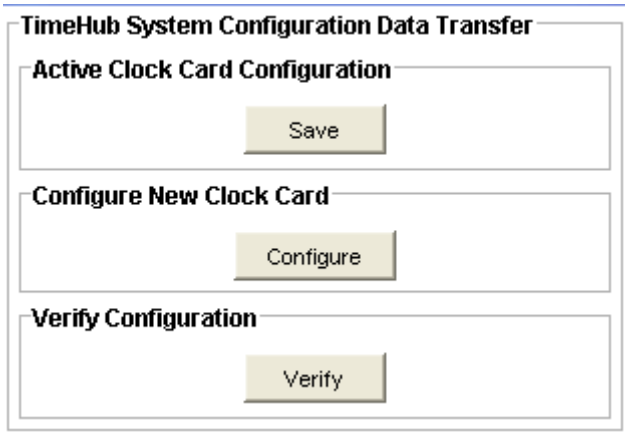


Verify Clock Card Configuration

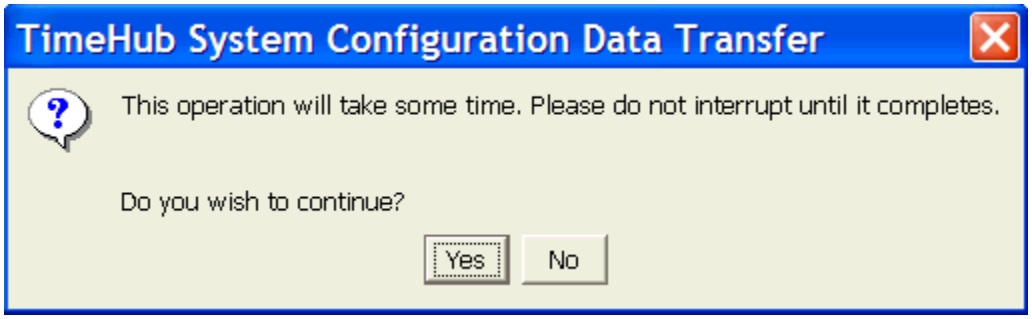
When you verify the clock card configuration, a second clock card's data file is written to C:\ConfigCard.txt and is compared to the file C:\ActiveCard.txt. If the two files match, a message is displayed to inform you that the configuration data on both the active clock card and the configuration clock card are identical. If the files are not identical, a message is displayed to inform you that the configuration data does not match. Select **Yes** to reload the configuration data from the active clock card to the configuration clock card.

Use the following steps to verify that the configuration data on a second clock card matches the configuration data of the active clock card.

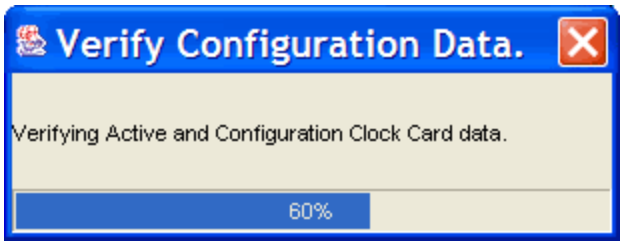
1. Click **Verify** to check if the configuration data on a second clock card matches the configuration data of the active clock card.



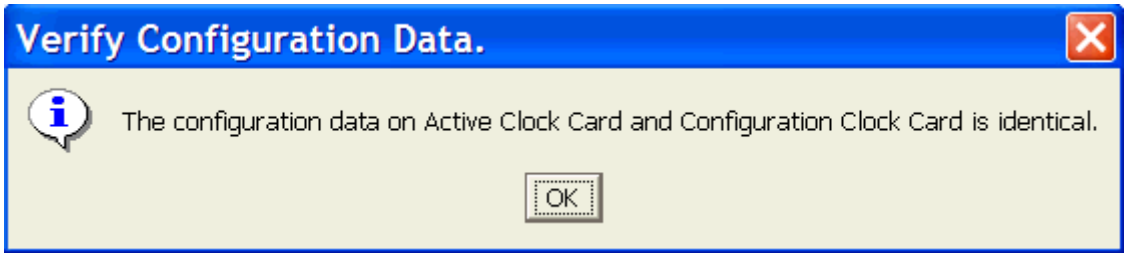
2. At the following screen, click **Yes** to continue, or **No** to exit the function.



3. The following screen displays an indicator of the time remaining for completion of the process.



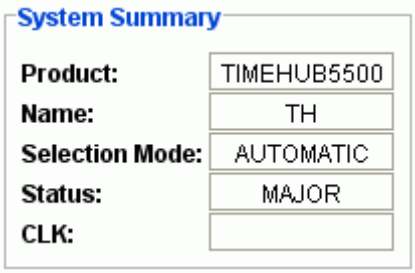
4. When the data file is complete, a message is displayed as shown below. Click **OK** to complete the process.



System Summary

The System Summary screen provides the following information:

- Product
- Name
- Selection Mode
- Status
- CLK



System Inventory

The System Inventory screen provides the following information for each card:

- Shelf Number and Card Type (Information Management Card, Clock Card, Input card, or Output Card)

- Card Firmware Version
- Card Model Number
- Card Serial Number
- Card CLEI Code (COMMON LANGUAGE Equipment Code)
- Card ECI Code (Equipment Catalog Item code)

System Inventory

AID	Firmware#	Model#	Serial#	CLEI	ECI#
S0-IMC	4.1.3	090-55542-01-B	Q11130	D0TPN0VAAE	150744
S0-CLK1	4.1.3	090-55514-02-B	J44990	D0TPVRKAAA	299460
S0-CLK2	4.1.0	090-55514-02-A	L41032	D0TPKRKAAA	299462
S0-OUT1A	R4236A	090-55581-01-B	00K98409	D0TPJNMAAA	106045
S0-OUT2A	R4236A	090-55581-01-B	00K98405	D0TPJNMAAA	106045
S0-OUT3B	R4236A	090-55581-01-B	00K98479	D0TPJNMAAA	106045
S0-OUT4B	R4236A	090-55581-01-B	00K98475	D0TPJNMAAA	106045
S0-OUT7D		UNKNOWN			
S0-OUT8D		UNKNOWN			
S4-ECC1	E	090-55545-01-B		D0C1ZZYAAA	142720
S4-ECC2	E	090-55545-01-B		D0C1ZZYAAA	142720
S4-OUT1A	R4236A	090-55581-01-B	00K98435	D0TPJNMAAA	106045
S4-OUT2A	R4236A	090-55581-01-B	00K75887	D0TPJNMAAA	106045
S4-OUT3B	2.0.6	090-55582-01-A	A12345	clei111	eci12345
S4-OUT5C	R4236A	090-55581-01-B	00K98379	D0TPJNMAAA	106045
S4-OUT6C	R4236A	090-55581-01-B	00K98428	D0TPJNMAAA	106045
S4-OUT7D	R4236A	090-55581-01-B	00K98365	D0TPJNMAAA	106045
S4-OUT8D	R4236A	090-55581-01-B	00K98369	D0TPJNMAAA	106045
S4-OUT9E	R4236A	090-55581-01-B	00K98432	D0TPJNMAAA	106045
S4-OUT10E	R4236A	090-55581-01-B	00K98380	D0TPJNMAAA	106045
S4-OUT11F	R4236A	090-55581-01-B	00K98433	D0TPJNMAAA	106045
S4-OUT12F	R4236A	090-55581-01-B	00K98444	D0TPJNMAAA	106045
S4-OUT13G	R4236A	090-55581-01-B	00K98425	D0TPJNMAAA	106045
S4-OUT14G	R4236A	090-55581-01-B	00K98431	D0TPJNMAAA	106045
S4-OUT15H	R4236A	090-55581-01-B	00K98464	D0TPJNMAAA	106045
S4-OUT16H	R4236A	090-55581-01-B	00K98436	D0TPJNMAAA	106045

Refresh

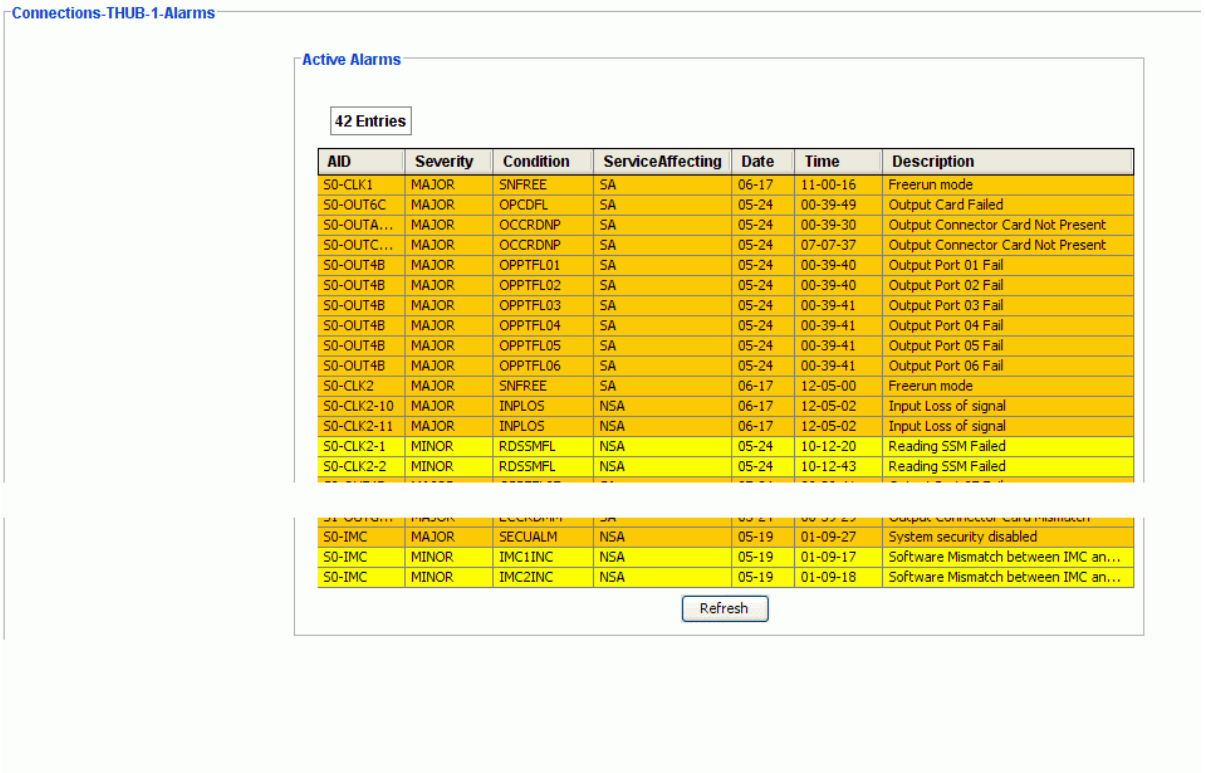
Events and Alarms

Active Alarms Screen

The Active Alarms panel shows the TimeHub's current active alarms. Alarms are ordered chronologically and the screen is updated each time a new alarms is raised or cleared on the element. Each field is described in the tables below.

The list of alarms can be sorted by clicking the column heading. Columns can also be moved by clicking in the header and dragging with the mouse.

Item	Description
AID	Card location by shelf number; clock, management, or output card; output card letter; and output port number.
Severity	Alarm setting: critical, major, minor, cleared, non-alarmed, not reported.
Condition	Indicates the identifier for the event.
Service Affecting	Indicates whether an alarm is Service Affecting (SA) or Not Service Affecting (NSA).
Date	Displays the month and day of an event or alarm condition.
Time	Displays the hour, minute, and second of an event or alarm condition.
Description	This field displays a description of each alarm type indicated.
Refresh	Click to update the alarms list.



AID	Severity	Condition	ServiceAffecting	Date	Time	Description
S0-CLK1	MAJOR	SNFREE	SA	06-17	11-00-16	Freerun mode
S0-OUT6C	MAJOR	OPCDFL	SA	05-24	00-39-49	Output Card Failed
S0-OUTA...	MAJOR	OCCRDNP	SA	05-24	00-39-30	Output Connector Card Not Present
S0-OUTC...	MAJOR	OCCRDNP	SA	05-24	07-07-37	Output Connector Card Not Present
S0-OUT4B	MAJOR	OPPTFL01	SA	05-24	00-39-40	Output Port 01 Fail
S0-OUT4B	MAJOR	OPPTFL02	SA	05-24	00-39-40	Output Port 02 Fail
S0-OUT4B	MAJOR	OPPTFL03	SA	05-24	00-39-41	Output Port 03 Fail
S0-OUT4B	MAJOR	OPPTFL04	SA	05-24	00-39-41	Output Port 04 Fail
S0-OUT4B	MAJOR	OPPTFL05	SA	05-24	00-39-41	Output Port 05 Fail
S0-OUT4B	MAJOR	OPPTFL06	SA	05-24	00-39-41	Output Port 06 Fail
S0-CLK2	MAJOR	SNFREE	SA	06-17	12-05-00	Freerun mode
S0-CLK2-10	MAJOR	INPLOS	NSA	06-17	12-05-02	Input Loss of signal
S0-CLK2-11	MAJOR	INPLOS	NSA	06-17	12-05-02	Input Loss of signal
S0-CLK2-1	MINOR	RDSSMFL	NSA	05-24	10-12-20	Reading SSM Failed
S0-CLK2-2	MINOR	RDSSMFL	NSA	05-24	10-12-43	Reading SSM Failed
S0-IMC	MAJOR	SECUALM	NSA	05-19	01-09-27	System security disabled
S0-IMC	MINOR	IMC1INC	NSA	05-19	01-09-17	Software Mismatch between IMC an...
S0-IMC	MINOR	IMC2INC	NSA	05-19	01-09-18	Software Mismatch between IMC an...

Events and Alarms History

The Events and Alarms Display Selection allows you to display events and alarms related to the clock cards and output cards. You can view events and alarms or just the alarms for the active clock, clock 1, or clock 2 described in the following table.

Item	Description
ACTIVE	Displays equipment related alarms from both Clock cards and the Output cards, but only displays input signal related alarms from the active Clock card.
CLK1	Displays both equipment related and signal related alarms from Clock card 1 if it is the active card or inactive card. All alarms related to this card are reported.
CLK2	Displays both equipment related and signal related alarms from Clock card 2 if it is the active card or inactive card. All alarms related to this card are reported.

Use the following procedure to set up the events and alarms history display selection:

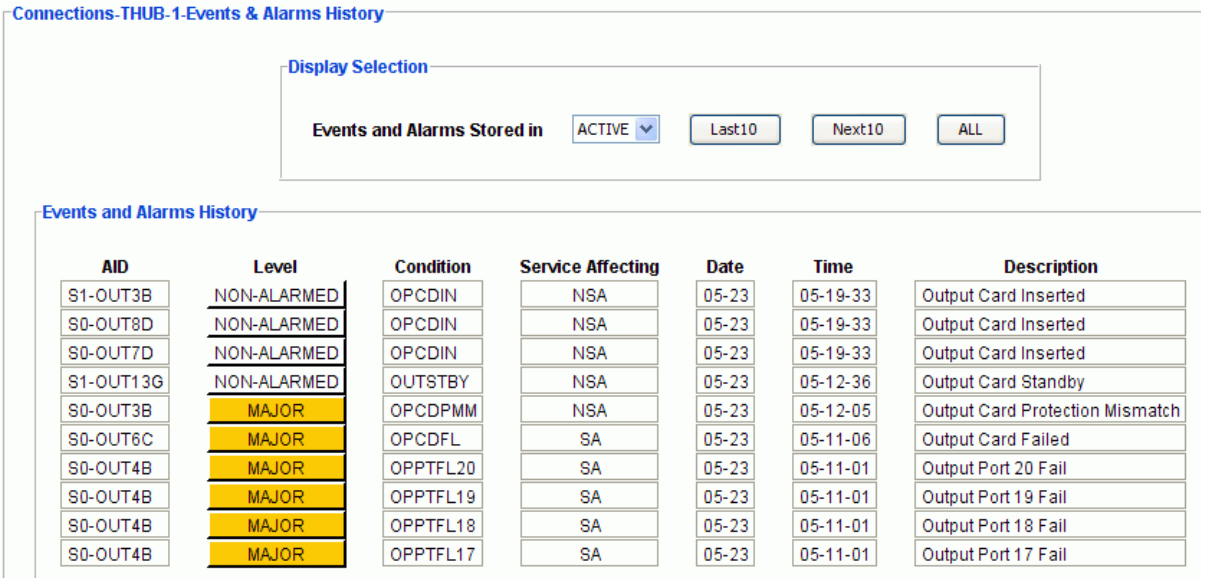
1. Click the drop down list on the Display Selection screen and select either Events and Alarms, or Alarms Only.

2. Click the drop down list on the Display Selection screen and select either ACTIVE, CLK1, or CLK2.

3. Click **Last10** to display the previous 10 events based on the date and time the event was reported.

4. Click **Next10** to display the next 10 events based on the date and time the event was reported.

5. Click **All** to display the list of stored events.



AID	Level	Condition	Service Affecting	Date	Time	Description
S1-OUT3B	NON-ALARMED	OPCDIN	NSA	05-23	05-19-33	Output Card Inserted
S0-OUT8D	NON-ALARMED	OPCDIN	NSA	05-23	05-19-33	Output Card Inserted
S0-OUT7D	NON-ALARMED	OPCDIN	NSA	05-23	05-19-33	Output Card Inserted
S1-OUT13G	NON-ALARMED	OUTSTBY	NSA	05-23	05-12-36	Output Card Standby
S0-OUT3B	MAJOR	OPCDPMM	NSA	05-23	05-12-05	Output Card Protection Mismatch
S0-OUT6C	MAJOR	OPCDFL	SA	05-23	05-11-06	Output Card Failed
S0-OUT4B	MAJOR	OPPTFL20	SA	05-23	05-11-01	Output Port 20 Fail
S0-OUT4B	MAJOR	OPPTFL19	SA	05-23	05-11-01	Output Port 19 Fail
S0-OUT4B	MAJOR	OPPTFL18	SA	05-23	05-11-01	Output Port 18 Fail
S0-OUT4B	MAJOR	OPPTFL17	SA	05-23	05-11-01	Output Port 17 Fail

Alarm Configuration

The Alarm Configuration screen below shows the currently defined alarm levels for the AIDs and Event IDs, if it is being logged or not, and a description of the alarm.

Click **Edit** to change the AID and EventID alarm levels and the logging selection.

Note: You can only change the alarm level if it is not grayed out.

Connections-THUB-1-Alarm Configuration

Alarm Configuration

AID	Event ID	Level	LOG	Description
S0-CLK	BTTMODE	NONE	N	BTT Mode Active
S0-CLK	EXPWRA	MAJOR	Y	Power supply A in expansion failed
S0-CLK	EXPWRB	MAJOR	Y	Power supply B in expansion failed
S0-CLK	EXSHELF	FAIL	Y	Expansion shelf out of service
S0-CLK	EXNC1L1	MAJOR	Y	Missing information from CLK1 via Link 1
S0-CLK	EXNC1L2	MAJOR	Y	Missing information from CLK1 via Link 2
S0-CLK	EXNC2L2	MAJOR	Y	Missing information from CLK2 via Link 2
S0-CLK	EXOTHCLK	NONALM	Y	Expansion Clock tracking the other main Clock
S0-CLK	EXNC2L1	MAJOR	Y	Missing information from CLK2 via Link 1
S0-CLK	CLKGONE	FAIL	N	The Management card cannot detect the presence of the indicated Clock card
S0-CLK	CLKFAIL	MINOR	Y	CLK Fail
S0-CLK	CLKWARM	FAIL	Y	Clock WarmUp
S0-CLK	CLKACTV	NONALM	Y	CLK Active
S0-CLK	CLKCDIN	NONALM	Y	Other Clock cards inserted
S0-CLK	CLKDISA	MINOR	Y	CLK Disagree in channel Quality
S0-CLK	CLKNCOM	MAJOR	Y	Clock communication failure
S0-CLK	CLKOFFL	MINOR	Y	CLK offline
S0-CLK	CFGCHD	NONE	N	Configuration changed

Edit Alarm Configuration

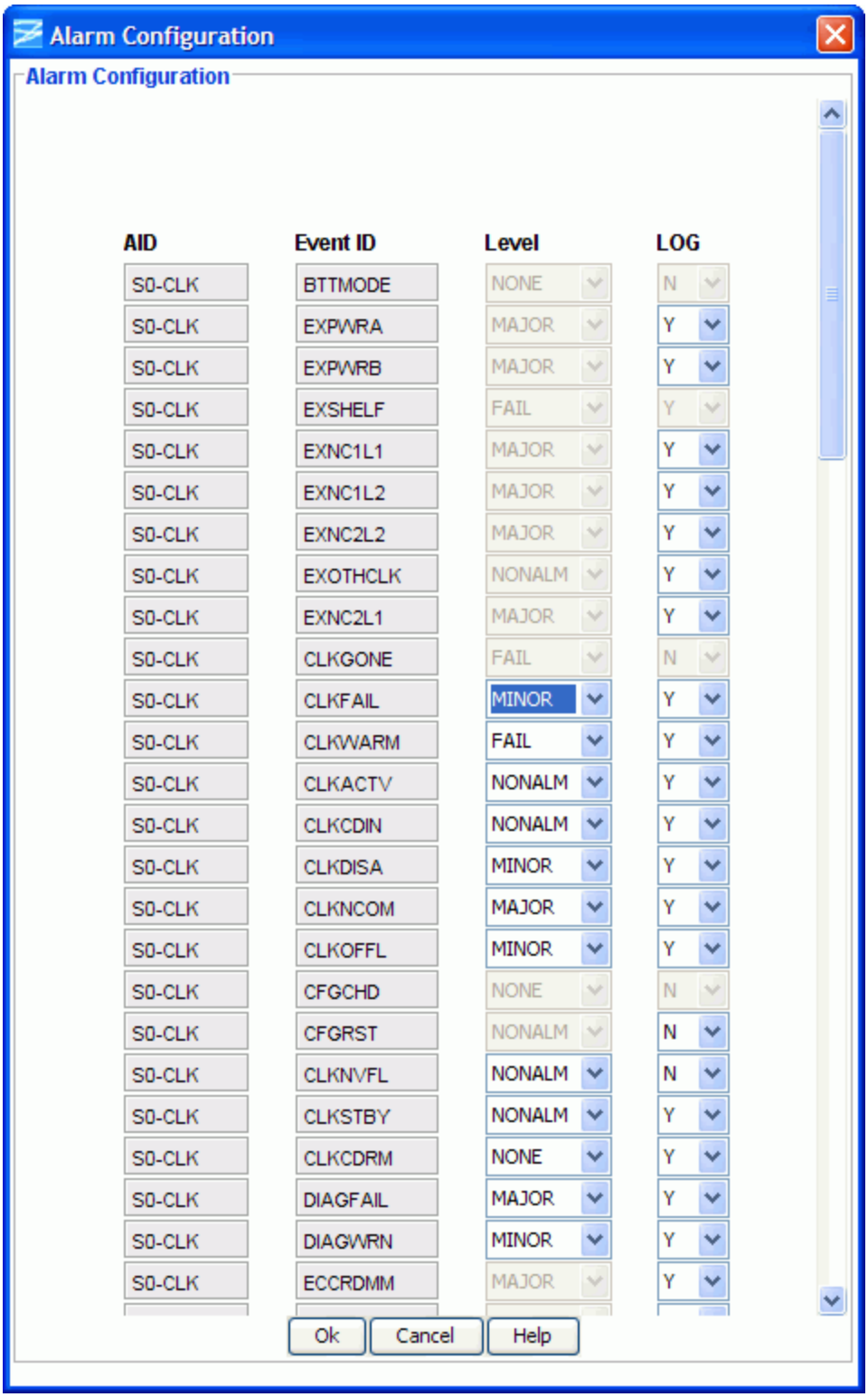
Use the following procedure to change an alarm level and logging selection:

1. Click the Level drop-down box that corresponds to the AID and Event ID you want to change.

Note: You can only change the alarm level if it is not grayed out.

2. Select the desired level from the list: FAIL, MAJOR, MINOR, NONALM, or NONE.

3. Click **OK** to accept the changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving changes.



AID	Event ID	Level	LOG
S0-CLK	BTTMODE	NONE	N
S0-CLK	EXPWRA	MAJOR	Y
S0-CLK	EXPWRB	MAJOR	Y
S0-CLK	EXSHELF	FAIL	Y
S0-CLK	EXNC1L1	MAJOR	Y
S0-CLK	EXNC1L2	MAJOR	Y
S0-CLK	EXNC2L2	MAJOR	Y
S0-CLK	EXOTHCLK	NONALM	Y
S0-CLK	EXNC2L1	MAJOR	Y
S0-CLK	CLKGONE	FAIL	N
S0-CLK	CLKFAIL	MINOR	Y
S0-CLK	CLKWARM	FAIL	Y
S0-CLK	CLKACTV	NONALM	Y
S0-CLK	CLKCDIN	NONALM	Y
S0-CLK	CLKDISA	MINOR	Y
S0-CLK	CLKNCOM	MAJOR	Y
S0-CLK	CLKOFFL	MINOR	Y
S0-CLK	CFGCHD	NONE	N
S0-CLK	CFGRST	NONALM	N
S0-CLK	CLKNVFL	NONALM	N
S0-CLK	CLKSTBY	NONALM	Y
S0-CLK	CLKCDRM	NONE	Y
S0-CLK	DIAGFAIL	MAJOR	Y
S0-CLK	DIAGWRN	MINOR	Y
S0-CLK	ECCRDMM	MAJOR	Y

System Configuration Setup

System Configuration Screen

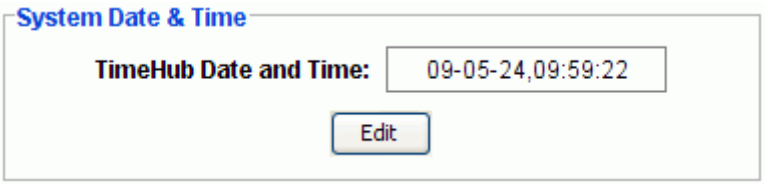
The System Configuration screen displays the following functions:

- System Date and Time
- System Identification
- Port Configuration
- TCP/IP Configuration
- PTP UTCOFFSET
- Master Shelf Version

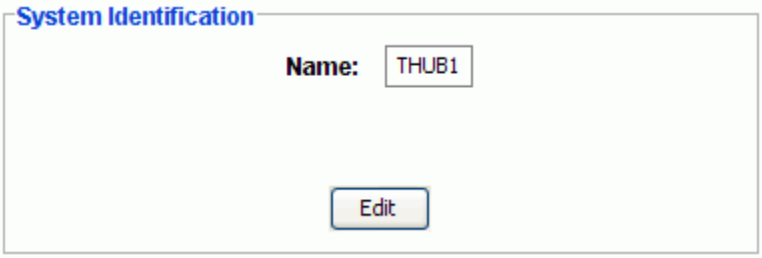
Click **Edit** to change the settings for each function.

Master Shelf Version is applicable only for TimeHub 6.0 devices.

System Date and Time displays the date and time that is set on the TimeHub.



System Identification displays the name of the TimeHub that appears in response messages sent by the unit.



Port Configuration displays the local and remote port settings for Automatic Messages and log on.

Port Configuration

Local Automatic Messages:	ALWAYS
Remote Automatic Messages:	ALWAYS
Local Port:	ENABLED
Local Baud Rate:	9600
Remote Port:	ENABLED

Edit

TCP/IP Configuration displays the network settings.

TCP/IP Configuration

IPNE:	192.168.6.236
IPSUBNET:	255.255.255.0
IPGATE:	192.168.6.1
IPEM1:	10.0.0.1
IPEM2:	0.0.0.1
IPLM1:	0.0.0.1
IPLM2:	0.0.0.1
PORTCMDS:	7588
PORTAO:	7589
INACTTIME:	101
AOMERGE:	Y
SCRAMBLE:	N

Edit

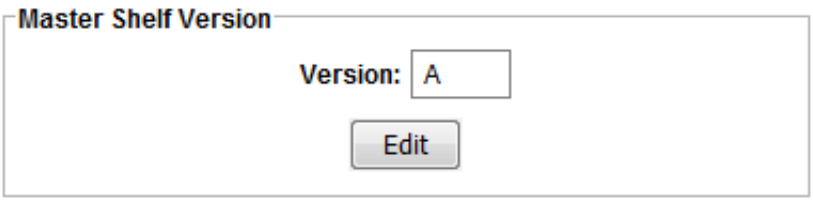
PTP UTCOFFSET displays the UTC offset value of the PTP Server card.

PTP UTCOFFSET

UTCOFFSET(-1 To 100)	34

Edit

Master Shelf Version displays the Master Shelf version number.

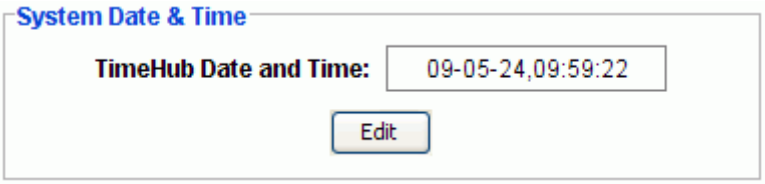


Master Shelf Version is applicable only for TimeHub 6.0 devices.

System Date and Time

The System Date And Time screen displays the date and time that is set on the TimeHub. TimeHub uses local time for all timestamps within the system. Click Edit to change the date and time.

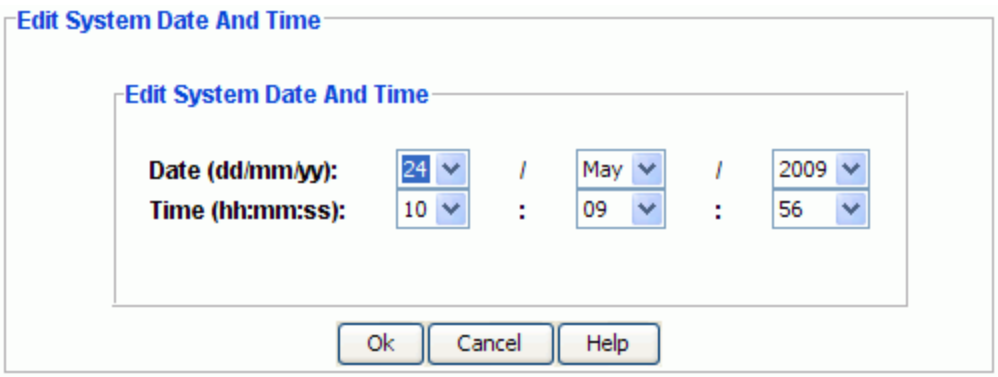
Click **Edit** to change the settings.



Edit System Date and Time

Use the following procedure to edit the System Date and Time:

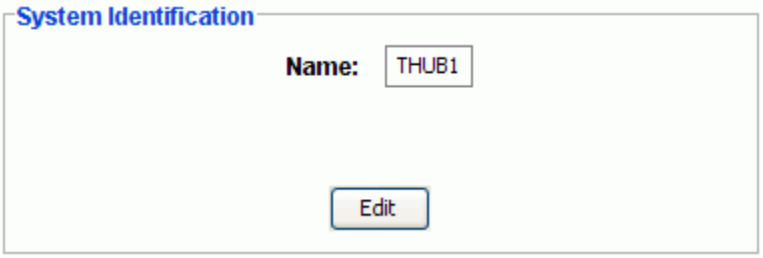
1. In the Date drop-down boxes, select the day, month, and year.
2. In the Time drop-down boxes, select the hour, minutes, and seconds.
3. Click **OK** to accept the changes and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving changes.



System Identification

The System Identification (SID) is the name of the TimeHub that appears in normal and error response messages sent by the unit. It can be up to 20 alphanumeric characters.

Click **Edit** to change the settings.



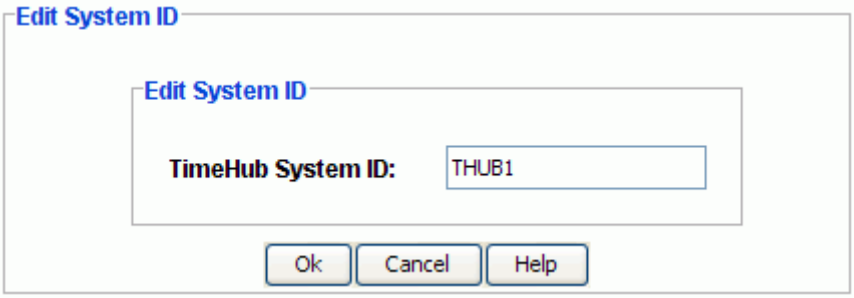
Edit System Identification (SID)

Use the following procedure to edit the System Identification:

1. Type a name for the TimeHub in the TimeHub System ID: text box.

2. Click **OK** to accept the entry and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving the entry.

Note: The name can be up to 20 alphanumeric characters.

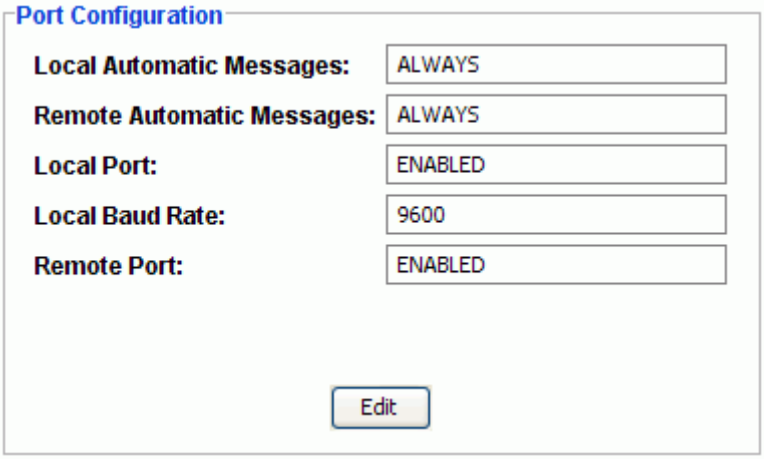


Port Configuration

The port configuration functions, shown in the figure below are described in the following table.

Click **Edit** to change the settings for each function.

Note: You cannot disable a port at which you are logged on. Disabling a port to which a user is logged on will cause the user to be logged off, but does not prevent Automatic Messages from being sent to the port.



Item	Description
Local Automatic Messages	Displays the local port setting for reporting Automatic Messages. The selections are as follows: ALWAYS - Always reports Automatic Messages (default) LOGIN - Only reports Automatic Messages when logged in NEVER - Never reports Automatic Messages
Remote Automatic Messages	Displays the remote port setting for reporting Automatic Messages. The selections are as follows: ALWAYS - Always reports Automatic Messages (default) LOGIN - Only reports Automatic Messages when logged in NEVER - Never reports Automatic Messages
Local Port	Displays the local port setting for enabling or disabling the ability to log on.
Local Baud Rate	Displays the baud rate on the local port.
Remote Port	Displays the remote port setting for enabling or disabling the ability to log on.

Edit Port Configuration

Use the following procedure to edit the Port Configuration:

1. Select ALWAYS, LOGIN, or NEVER in the Local Automatic Messages drop-down box to select the setting for reporting Automatic Messages on the local port.

2. Select ALWAYS, LOGIN, or NEVER in the Remote Automatic Messages drop-down box to select the setting for reporting Automatic Messages on the remote port.

3. Select ENABLE or DISABLE in the Local Port drop-down box to enable or disable the ability to log in at the local port.

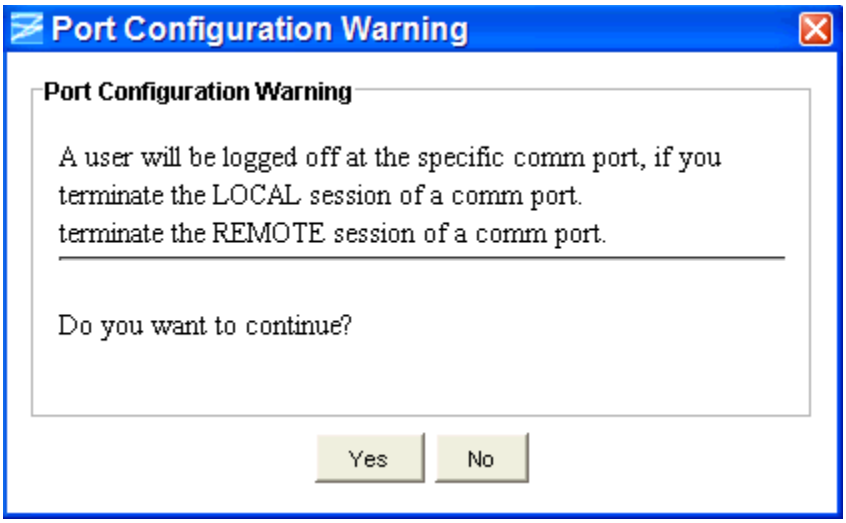
4. Select the desired baud rate in the Local Baud Rate drop-down box.

5. Select ENABLE or DISABLE in the Remote Port drop-down box to enable or disable the ability to log in at the remote port.

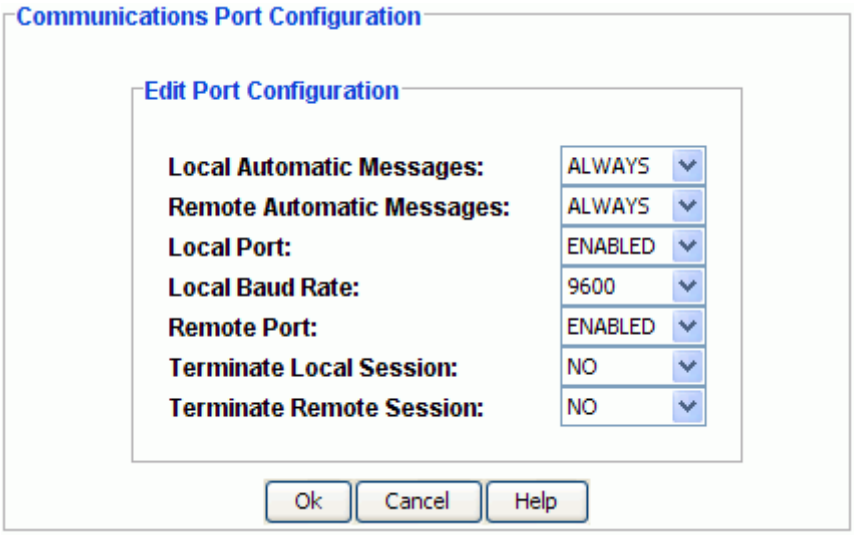
6. Select YES or NO in the Terminate Local Session drop-down box. Selecting YES will terminate the session on the local port. Clicking **OK** brings up a warning screen shown below. Click **Yes** to terminate the local session, or click **No** to return to the Edit Port Configuration screen.

7. Select YES or NO in the Terminate Remote Session drop-down box. Selecting YES will terminate the session on the remote port. Clicking **OK** brings up a

warning screen shown below. Click **Yes** to terminate the remote session, or click **No** to return to the Edit Port Configuration screen.



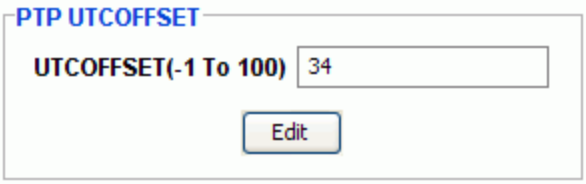
8. At the Edit Port Configuration screen, click **OK** to accept the entry and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving the entry.



PTP UTC OFFSET

A PTP card must be installed in the device for the PTP UTCOFFSET Panel to be displayed. This panel displays the UTCOFFSET value of the device which can vary from -1 to 100.

Click **Edit** to change the settings.

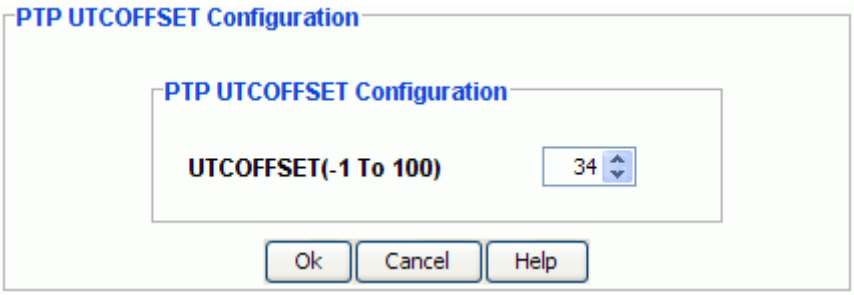


Edit PTP UTC OFFSET Configuration

Use the following procedure to edit the PTP UTC OFFSET Configuration:

1. Click the up or down incrementing arrows in the display box to change the offset. You can also click in the display box, type the desired number, and press the **Enter** key to change the offset.

2. Click **OK** to accept the changes and return to the PTP UTC OFFSET screen, or **Cancel** to return to the PTP UTC OFFSET screen without saving changes.



TCP/IP Configuration

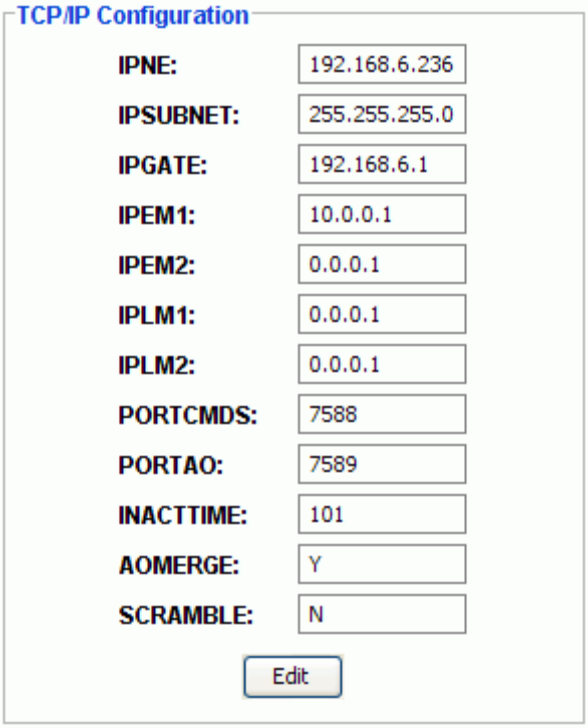
TCP/IP network operation requires the following:

1. 55542-01 Management Card

2. TCP/IP parameters must be configured

The standard Management Card supports a 10Base-T LAN connection. Before testing the LAN port or installing the TimeHub on a network, the following network parameters must be set via the TimeHub Local Port:

The TCP/IP Configuration, shown in the figure below, displays the network settings as described in the following table. Click **Edit** to change the settings. Consult with your network manager if you have questions about values.



Item	Function	Description
IPNE	Set the TimeHub IP Address in the AUX memory	The IPNE address can be a range of values from 0.0.0.0 to 225.255.255.255. In most situations, a block of IP addresses have been reserved for the network usage.
IPSUBNET	Set the Subnetwork Mask IP Address	The IPSUBNET address can be a range of values from 0.0.0.0 to 255.255.255.255. Consult with the network manager.
IPGATE	Set the Gateway IP Address	The IPGATE address can be a range of values from 0.0.0.0 to 225.255.255.255.
IPEM1 IPEM2	Set the Element Manager IP Address	The IPEM1 address for the primary element manager (EM) can be a range of values from 0.0.0.0 to 225.255.255.255. The TimeHub also supports an alternate element manager (IPEM2) IP address. The TimeHub uses the alternate address for event reporting in case of communication failure with the primary EM. A switch setting on the Management Card (S6–8) allows communication from a specified element manager IP addresses. Otherwise, communication from any IP address is accepted.

IPLM1 IPLM2	Set the Local Manager IP Address	The IPLM1 address for the primary local manager (LM) can be a range of values from 0.0.0.0 to 225.255.255.255. The TimeHub also supports an alternate local manager (IPLM2) IP address. The TimeHub uses the alternate address for event reporting in case of communication failure with the primary EM. A switch setting on the Management Card (S6–8) allows communication from a specified element manager IP addresses. Otherwise, communication from any IP address is accepted. The local manager feature allows you to test the LAN connection using a local PC connected to the LAN port. The PC should be configured to communicate properly with a network device. When a connection with local manager is accomplished via the LAN port, commands and automatic event reporting is merged by default, regardless of the AOMERGE setting. (Refer to Command Port and Automatic Output Port Number for descriptions.)
PORTCMDS	Set the Command Port Number	The PORTCMDS number has a range of 5001 to 20000 (default = 7588). It specifies the port for command/response Command Port Number reporting. When the AOMERGE feature is set to Y, both commands and automatic event reporting are carried on this port.
PORTAO	Set the Automatic Output Port Number	The PORTAO number has a range of 5001 to 20000 (default = 7589). It specifies the port for automatic event reporting. When the AOMERGE feature is set to N, commands and automatic event reporting are carried on separate ports. If set to Y, then events are not reported on this port but instead are sent to the Command port.

INACTTIME	Set the Inactivity Time	The INACTTIME setting specifies the length of time a connection will continue without the occurrence of an automatic output message. The inactivity timer has a setting range of 0 to 10000, where each count has a time value of 0.1 seconds (100 ms). For example, a setting of 100 specifies that after 10 seconds without the occurrence of an automatic message, the connection to the TimeHub will be closed.
AOMERGE	Set the Automatic Output Merge Feature	The AOMERGE setting specifies whether the messages and commands are carried separately on two different ports or combined onto one. The network parameters for the two ports are: PORTCMDS and PORTAO. When merged, the commands and automatic messages are carried on the command port (PORTCMDS). Operation using the Network Management software requires that separate ports be used. AOMERGE=Y or N. **Note:** If the IP address of the element manager (IPEM) is set similar to that of the local manager (IPLM1 or IPLM2), the output is merged, regardless of the AOMERGE value. In this case, it is assumed that only the local manager software is being used which does not support having the commands and events carried on separate ports.
SCRAMBLE	Set the Scramble Feature	The SCRAMBLE setting specifies that communications sent to and received from the TimeHub are scrambled. SCRAMBLE=Y or N. The default value is N. The SCRAMBLE feature supports a low-level encryption for communications to and from the TimeHub. It requires use of the TimeScan THC Network Management software and a network connection to the LAN port of the TimeHub. If the SCRAMBLE value is set to Y over the LAN port, whatever network program being used to communicate with the TimeHub must also be capable of supporting the SCRAMBLE algorithm. Otherwise, a visit to the site of the TimeHub will be required to disable the SCRAMBLE feature via the Local port. **Note:** It is essential that the set of parameters in the AUX memory be correct before applying new values. IF THEY ARE NOT CORRECT, it may become impossible to reconnect to the LAN port! In this case, it is necessary to use the Local Port to re-establish valid parameters before network communications are possible. In some cases, if the Management Card determines an inconsistency among the network parameters, it attempts to restore the IPNE, IPGATE, and IPSUBNET parameters to their earlier values. This is done in an attempt to allow communication to take place. However, this does not protect against the situation where the values are valid but are not what the user had intended to enter.

Edit TCP/IP Configuration

Use the following procedure to edit the TCP/IP Configuration:

Note: Consult with your network manager if you have questions about values.

1. Enter the AUX memory IP address in the IPNE text box. The IPNE address can be a range of values from 0.0.0.0 to 225.255.255.255.

2. Enter the Subnetwork Mask IP address in the IPSUBNET text box. The IPSUBNET address can be a range of values from 0.0.0.0 to 225.255.255.255.

3. Enter the Gateway IP address in the IPGATE text box. The IPGATE address can be a range of values from 0.0.0.0 to 225.255.255.255.

4. Enter the Element Manager IP address in the IPEM1 text box. The IPEM1 address can be a range of values from 0.0.0.0 to 225.255.255.255.

5. Enter the alternate Element Manager IP address in the IPEM2 text box. The IPEM2 address can be a range of values from 0.0.0.0 to 225.255.255.255.

6. Enter the Local Manager IP address in the IPLM1 text box. The IPLM1 address can be a range of values from 0.0.0.0 to 225.255.255.255.

7. Enter the alternate Local Manager IP address in the IPLM2 text box. The IPLM2 address can be a range of values from 0.0.0.0 to 225.255.255.255.

8. Enter the Command Port Number in the PORTCMDS text box. The PORTCMDS has a range of 5001 to 20000 (default = 7588). This specifies the port for command/response Command Port Number reporting.

Note: When the AOMERGE feature is set to Y, both commands and automatic event reporting are carried on this port.

9. Enter the Automatic Output Port Number in the PORTAO text box. The PORTAO has a range of 5001 to 20000 (default = 7589). This specifies the port for automatic event reporting.

Note: When the AOMERGE feature is set to N, commands and automatic event reporting are carried on separate ports. If set to Y, events are not reported on this port but instead are sent to the Command port.

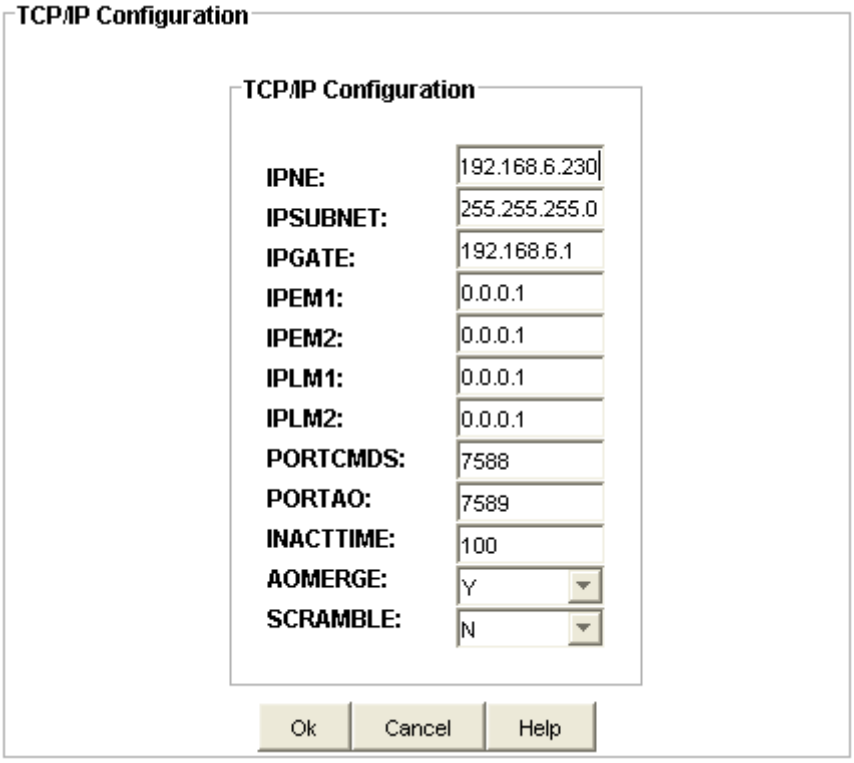
10. Enter the Inactivity Time in the INACTTIME text box. The INACTTIME setting specifies the length of time a connection will continue without the occurrence of an automatic output message.

> **Note:** The inactivity timer has a setting range of 0 to 10000, where each count has a time value of 0.1 seconds (100 ms). For example, a setting of 100 specifies that after 10 seconds without the occurrence of an automatic message, the connection to the TimeHub will be closed.

11. Set the Automatic Output Merge Feature to Y or N in the AOMERGE drop-down box. The AOMERGE setting specifies whether the messages and commands are carried separately on two different ports or combined onto one (see steps 8 and 9 above).

12. Set the Scramble Feature to Y or N in the SCRAMBLE drop-down box. The SCRAMBLE setting specifies that communications sent to and received from the TimeHub are either scrambled (Y) or not scrambled (N).

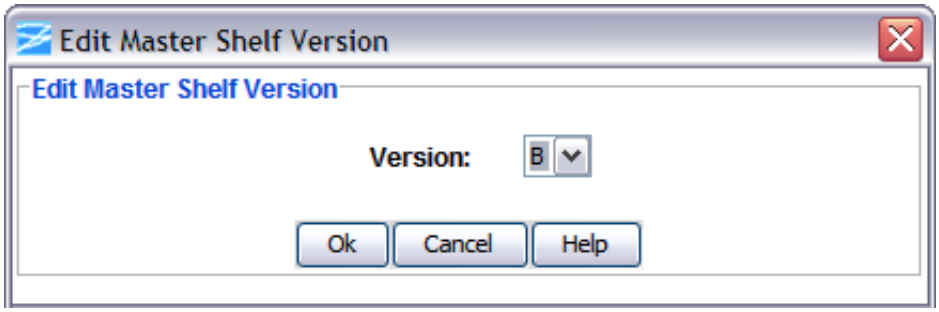
13. Click **OK** to accept the entry and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving the entry.



Edit Master Shelf Version

Use the following procedure to edit the Master Shelf version:

1. Click Edit to edit the Master Shelf version.
2. Enter the Master Shelf Version by selecting A or B from the Version drop-down list.
3. Click **OK** to accept the changes and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving changes.



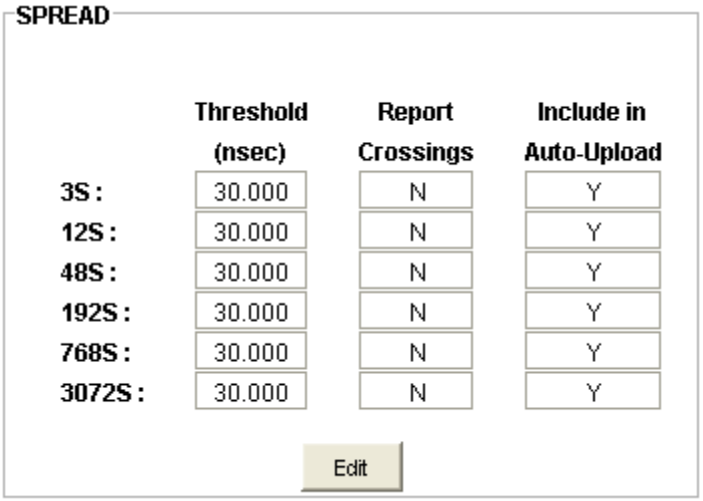
Master Shelf Version is applicable only for TimeHub 6.0 devices.

Monitoring Configuration

SPREAD

Frequency Spread has averaging time intervals of 3, 12, 48, 192, 768, and 3072 seconds. The functions and settings for each time interval are described in the following table.

Item	Description
Threshold	This value defines a boundary for the performance measurement interval and can be set from 0 ppm to 7,300,000 ppm.
Report Crossings	Indicates if the threshold setting is used (Y) or if it is not used (N) to cause automatic reporting of the measurement when it crosses the threshold in either direction.
Include in Auto-Upload	Indicates the number of good measurements (1 through 15) that must occur following a bad measurement before an input signal can be qualified and for the event to be cleared.



Edit SPREAD

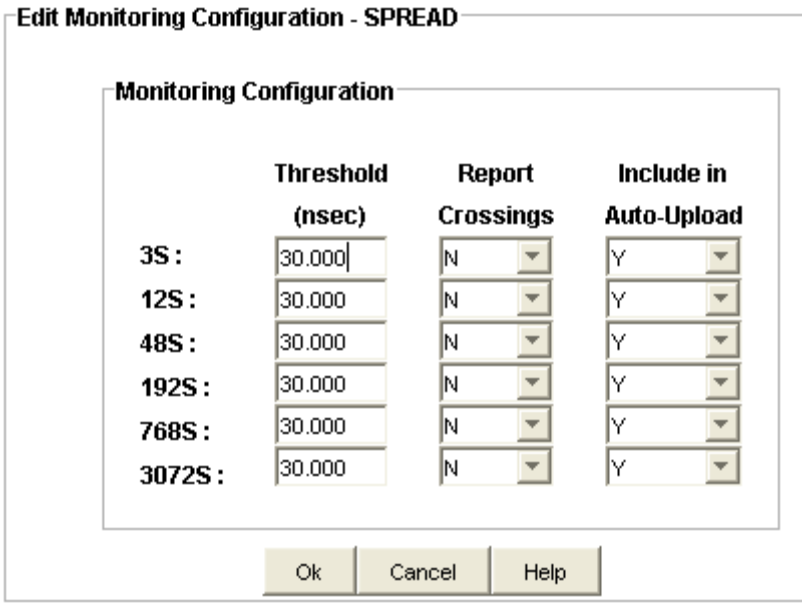
Use the following procedure to set up the SPREAD monitoring configuration for each time interval:

1. Enter a Threshold from 0 ppm to 7,300,000 ppm to set the boundary for the performance measurement interval.

2. In the Report Crossings drop-down box, select either Y or N to enable (Y) or disable (N) automatic reporting when the threshold is crossed.

3. In the Include in Auto-Upload drop-down box, select either Y or N to allow (Y) or inhibit (N) automatic display of performance data for a particular input channel.

4. Click **OK** to accept changes and return to the SPREAD screen, or **Cancel** to return to the SPREAD screen without saving changes.



PRS and Input Port

TDEV

Time Deviation (TDEV) has averaging time intervals of 1, 4, 16, 64, 256, and 1024 seconds. The functions and settings for each time interval are described in the following table.

Item	Description
Use for Qualifying	Indicates if the time interval is enabled (Y) or disabled (N) as a criteria for qualifying the input.
Threshold	This value defines a boundary for the performance measurement interval and can be set from 0 to 800,000 nano seconds.
Report Crossings	Indicates if the threshold setting is used (Y) or if it is not used (N) to cause automatic reporting of the measurement when it crosses the threshold in either direction.
Include in Auto-Upload	Indicates if the automatic display of performance data is allowed (Y) or inhibited (N) for a particular input channel.
Good Meas Required	Indicates the number of good measurements (1 through 15) that must occur following a bad measurement before an input signal can be qualified and for the event to be cleared.

TDEV

	Use for Qualifying	Threshold (nsec)	Report Crossings	Include in Auto-Upload	Good Meas Required
1S :	Y	99.000	Y	Y	8
4S :	Y	99.000	Y	Y	8
16S :	Y	99.000	Y	Y	8
64S :	Y	99.000	Y	Y	8
256S :	Y	99.000	Y	Y	8
1024S :	Y	99.000	Y	Y	8

Edit

Edit TDEV

Use the following procedure to set up the TDEV monitoring configuration for each time interval:

1. In the Use for Qualifying drop-down box, select either Y or N to enable (Y) or disable (N) a time interval as a criteria for qualifying the input.

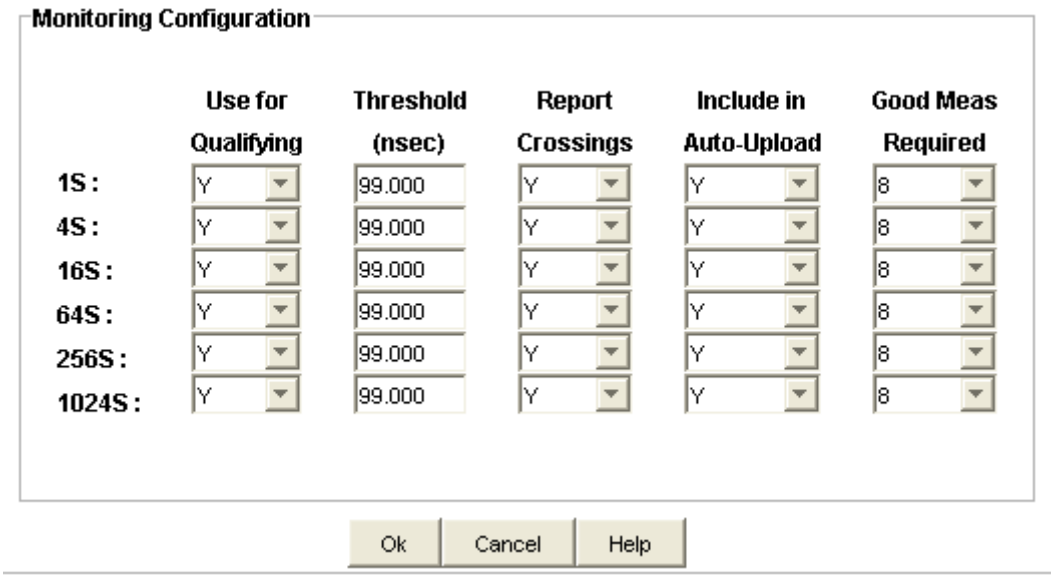
2. Enter a Threshold from 0 to 800,000 to set the boundary for the performance measurement interval.

3. In the Report Crossings drop-down box, select either Y or N to enable (Y) or disable (N) automatic reporting when the threshold is crossed.

4. In the Include in Auto-Upload drop-down box, select either Y or N to allow (Y) or inhibit (N) automatic display of performance data for a particular input channel.

5. In the Good Meas Required drop-down box, select 1 through 15.

6. Click **OK** to accept changes and return to the TDEV screen, or **Cancel** to return to the TDEV screen without saving changes.



FFOFF

Fractional Frequency Offset (FFOFF) has averaging time intervals of 3, 12, 48, 192, 768, and 3072 seconds. The functions and settings for each time interval are described in the following table.

Item	Description
Threshold	This value defines a boundary for the performance measurement interval and can be set from 0 ppm to 7,300,000 ppm.
Use for Qualifying	Indicates if the time interval is enabled (Y) or disabled (N) as a criteria for qualifying the input.
Report Crossings	Indicates if the threshold setting is used (Y) or if it is not used (N) to cause automatic reporting of the measurement when it crosses the threshold in either direction.
Include in Auto-Upload	Indicates if the automatic display of performance data is allowed (Y) or inhibited (N) for a particular input channel.
Good Meas Required	Indicates the number of good measurements (1 through 15) that must occur following a bad measurement before an input signal can be qualified and for the event to be cleared.

FFOFF

	Use for Qualifying	Threshold (nsec)	Report Crossings	Include in Auto-Upload	Good Meas Required
3S :	Y	0.000	N	N	1
12S :	N	0.000	N	N	1
48S :	N	0.000	N	N	1
192S :	N	0.000	N	N	1
768S :	N	0.000	N	N	1
3072S :	N	0.000	N	N	1

Edit

Edit FFOFF

Use the following procedure to set up the FFOFF monitoring configuration for each time interval:

1. In the Use for Qualifying drop-down box, select either Y or N to enable (Y) or disable (N) a time interval as a criteria for qualifying the input.

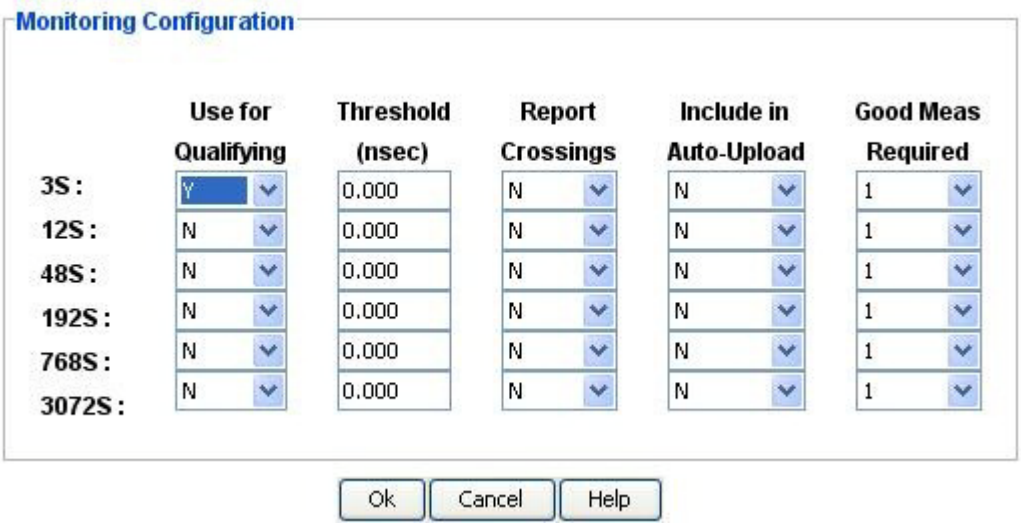
2. Enter a Threshold from 0 ppm to 7,300,000 ppm to set the boundary for the performance measurement interval.

3. In the Report Crossings drop-down box, select either Y or N to enable (Y) or disable (N) automatic reporting when the threshold is crossed.

4. In the Include in Auto-Upload drop-down box, select either Y or N to allow (Y) or inhibit (N) automatic display of performance data for a particular input channel.

5. In the Good Meas Required drop-down box, select 1 through 15.

6. Click **OK** to accept changes and return to the FFOFF screen, or **Cancel** to return to the FFOFF screen without saving changes.



MRTIE

Maximum Relative Time Interval Error (MRTIE) has averaging time intervals of 1 second, 1, 15, and 30 minutes, 1, 2, 8, and 24. The functions and settings for each time interval are described in the following table.

Item	Description
Use for Qualifying	Indicates if the time interval is enabled (Y) or disabled (N) as a criteria for qualifying the input.
Threshold	This value defines a boundary for the performance measurement interval and can be set from 0 to 1,900,000,000 nano seconds.
Report Crossings	Indicates if the threshold setting is used (Y) or if it is not used (N) to cause automatic reporting of the measurement when it crosses the threshold in either direction.
Include in Auto-Upload	Indicates if the automatic display of performance data is allowed (Y) or inhibited (N) for a particular input channel.
Good Meas Required	Indicates the number of good measurements (1 through 15) that must occur following a bad measurement before an input signal can be qualified and for the event to be cleared.

MRTIE

	Use for Qualifying	Threshold (nsec)	Report Crossings	Include in Auto-Upload	Good Meas Required
1S :	Y	99.000	Y	N	2
1M :	Y	99.000	Y	N	2
15M :	Y	99.000	N	N	2
30M :	Y	99.000	N	N	2
1H :	Y	99.000	N	N	2
2H :	Y	99.000	N	N	2
8H :	Y	99.000	N	N	2
24H :	Y	99.000	N	N	2

Edit

Edit MRTIE

Use the following procedure to set up the MRTIE monitoring configuration for each time interval:

1. In the Use for Qualifying drop-down box, select either Y or N to enable (Y) or disable (N) a time interval as a criteria for qualifying the input.

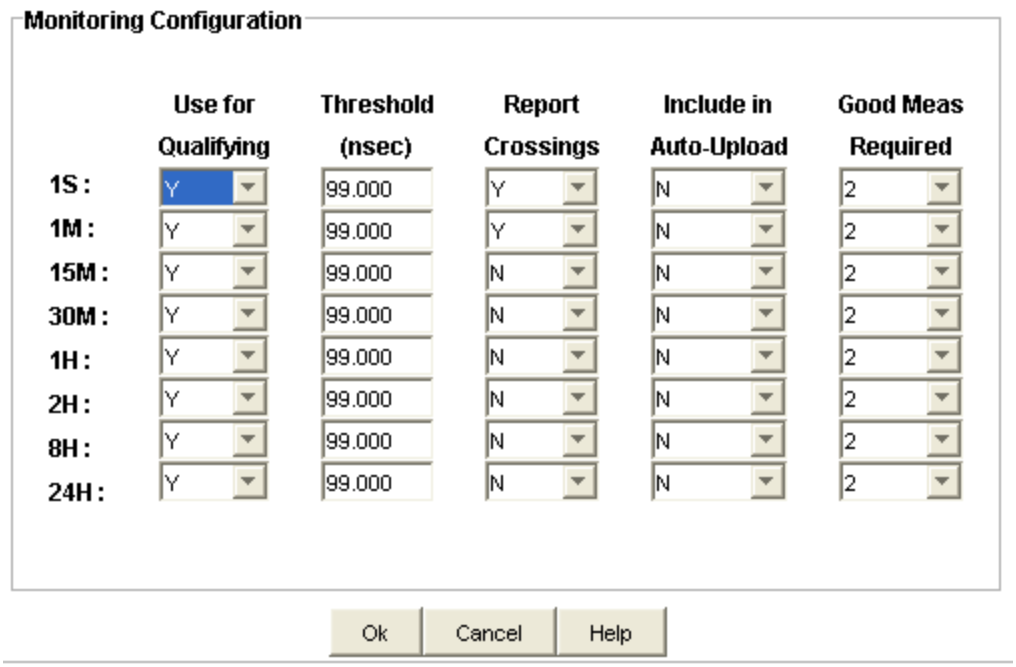
2. Enter a Threshold from 0 to 1,900,000,000 to set the boundary for the performance measurement interval.

3. In the Report Crossings drop-down box, select either Y or N to enable (Y) or disable (N) automatic reporting when the threshold is crossed.

4. In the Include in Auto-Upload drop-down box, select either Y or N to allow (Y) or inhibit (N) automatic display of performance data for a particular input channel.

5. In the Good Meas Required drop-down box, select 1 through 15.

6. Click **OK** to accept changes and return to the MRTIE screen, or **Cancel** to return to the MRTIE screen without saving changes.



LMRTIE

Latest Maximum Relative Time Interval Error (LMRTIE) has averaging time intervals of 1 second, 1, 15, and 30 minutes, 1, 2, 8, and 24. The functions and settings for each time interval are described in the following table.

Item	Description
Use for Qualifying	Indicates if the time interval is enabled (Y) or disabled (N) as a criteria for qualifying the input.
Threshold	This value defines a boundary for the performance measurement interval and can be set from 0 to 1,900,000,000 nano seconds.
Report Crossings	Indicates if the threshold setting is used (Y) or if it is not used (N) to cause automatic reporting of the measurement when it crosses the threshold in either direction.
Include in Auto-Upload	Indicates if the automatic display of performance data is allowed (Y) or inhibited (N) for a particular input channel.
Good Meas Required	Indicates the number of good measurements (1 through 15) that must occur following a bad measurement before an input signal can be qualified and for the event to be cleared.

LMRTIE

	Use for Qualifying	Threshold (nsec)	Report Crossings	Include in Auto-Upload	Good Meas Required
1S :	Y	0.000	Y	N	1
1M :	Y	0.000	Y	Y	1
15M :	N	0.000	N	N	1
30M :	N	0.000	N	N	1
1H :	N	0.000	N	N	1
2H :	N	0.000	N	N	1
8H :	N	0.000	N	N	1
24H :	N	0.000	N	N	1

Edit

Edit LMRTIE

Use the following procedure to set up the LMRTIE monitoring configuration for each time interval:

1. In the Use for Qualifying drop-down box, select either Y or N to enable (Y) or disable (N) a time interval as a criteria for qualifying the input.

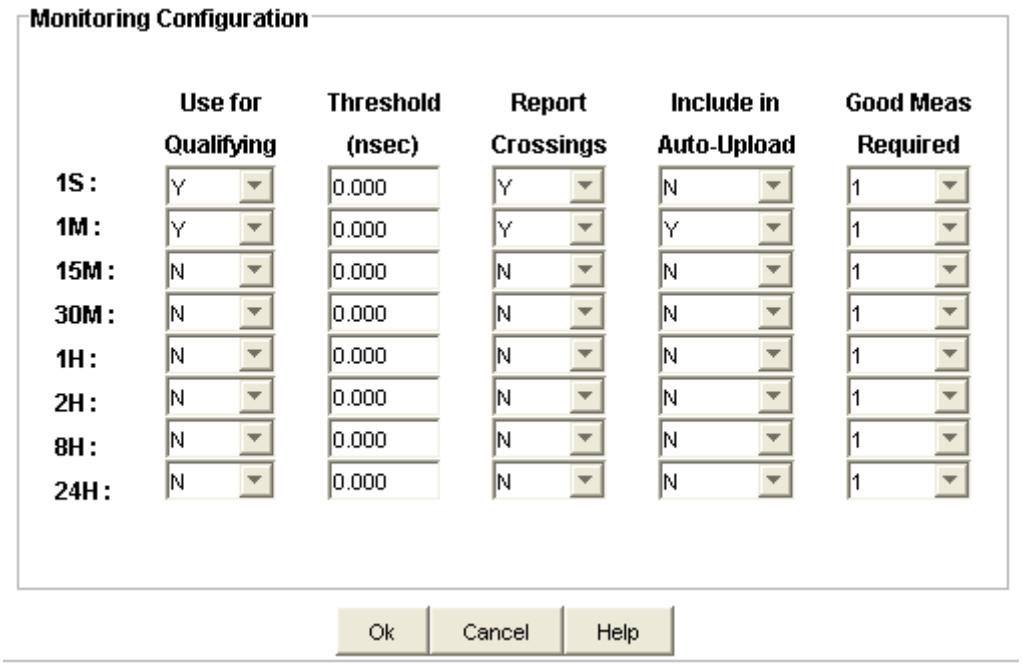
2. Enter a Threshold from 0 to 1,900,000,000 to set the boundary for the performance measurement interval.

3. In the Report Crossings drop-down box, select either Y or N to enable (Y) or disable (N) automatic reporting when the threshold is crossed.

4. In the Include in Auto-Upload drop-down box, select either Y or N to allow (Y) or inhibit (N) automatic display of performance data for a particular input channel.

5. In the Good Meas Required drop-down box, select 1 through 15.

6. Click **OK** to accept changes and return to the LMRTIE screen, or **Cancel** to return to the LMRTIE screen without saving changes.



TIE

Time Interval Error (TIE) has averaging time intervals of 1 second, 1, 15, and 30 minutes, 1, 2, 8, and 24. The functions and settings for each time interval are described in the following table.

Item	Description
Use for Qualifying	Indicates if the time interval is enabled (Y) or disabled (N) as a criteria for qualifying the input.
Threshold	This value defines a boundary for the performance measurement interval.
Report Crossings	Indicates if the threshold setting is used (Y) or if it is not used (N) to cause automatic reporting of the measurement when it crosses the threshold in either direction.
Include in Auto-Upload	Indicates if the automatic display of performance data is allowed (Y) or inhibited (N) for a particular input channel.
Good Meas Required	Indicates the number of good measurements (1 through 15) that must occur following a bad measurement before an input signal can be qualified and for the event to be cleared.

TIE

	Use for Qualifying	Threshold (nsec)	Report Crossings	Include in Auto-Upload	Good Meas Required
1S :	N	0.000	N	N	1
1M :	N	0.000	N	N	1
15M :	N	0.000	N	N	1
30M :	Y	88.000	Y	Y	1
1H :	N	0.000	N	Y	1
2H :	N	0.000	N	N	1
8H :	N	0.000	N	N	1
24H :	N	77.000	N	N	4

Edit

Edit TIE

Use the following procedure to set up the TIE monitoring configuration for each time interval:

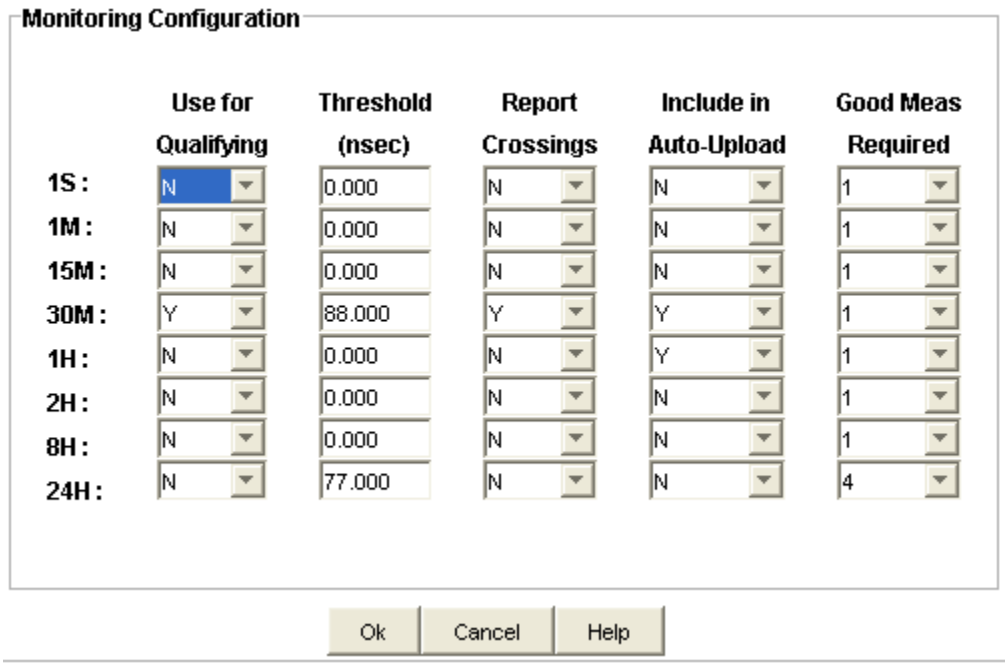
1. In the Use for Qualifying drop-down box, select either Y or N to enable (Y) or disable (N) a time interval as a criteria for qualifying the input.

2. In the Report Crossings drop-down box, select either Y or N to enable (Y) or disable (N) automatic reporting when the threshold is crossed.

3. In the Include in Auto-Upload drop-down box, select either Y or N to allow (Y) or inhibit (N) automatic display of performance data for a particular input channel.

4. In the Good Meas Required drop-down box, select 1 through 15.

5. Click **OK** to accept changes and return to the TIE screen, or **Cancel** to return to the TIE screen without saving changes.



WAND

WAND has averaging time intervals of 1 second, 1, 15, and 30 minutes, 1, 2, 8, and 24. The functions and settings for each time interval are described in the following table.

Item	Description
Use for Qualifying	Indicates if the time interval is enabled (Y) or disabled (N) as a criteria for qualifying the input.
Threshold	This value defines a boundary for the performance measurement interval.
Report Crossings	Indicates if the threshold setting is used (Y) or if it is not used (N) to cause automatic reporting of the measurement when it crosses the threshold in either direction.
Include in Auto-Upload	Indicates if the automatic display of performance data is allowed (Y) or inhibited (N) for a particular input channel.
Good Meas Required	Indicates the number of good measurements (1 through 15) that must occur following a bad measurement before an input signal can be qualified and for the event to be cleared.

WAND

	Use for Qualifying	Threshold (nsec)	Report Crossings	Include in Auto-Upload	Good Meas Required
1S :	N	10.000	Y	N	9
1M :	N	0.000	N	N	1
15M :	N	0.000	N	N	1
30M :	N	0.000	N	N	1
1H :	N	0.000	N	N	1
2H :	N	0.000	N	N	1
8H :	N	0.000	N	N	1
24H :	N	0.000	N	N	4

Edit

Edit WAND

Use the following procedure to set up the WAND monitoring configuration for each time interval:

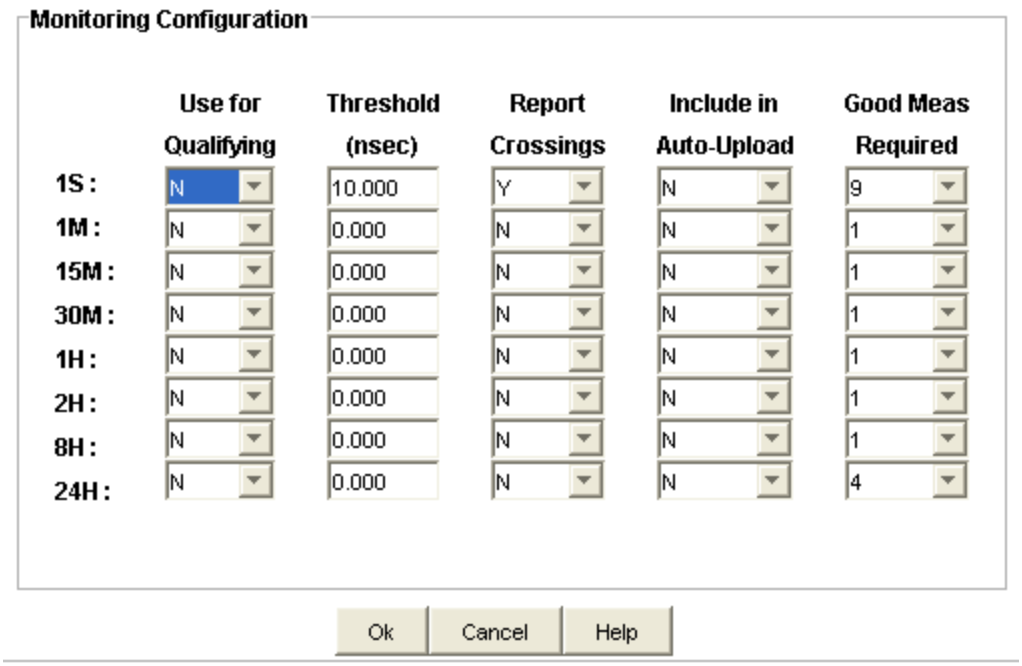
1. In the Use for Qualifying drop-down box, select either Y or N to enable (Y) or disable (N) a time interval as a criteria for qualifying the input.

2. In the Report Crossings drop-down box, select either Y or N to enable (Y) or disable (N) automatic reporting when the threshold is crossed.

3. In the Include in Auto-Upload drop-down box, select either Y or N to allow (Y) or inhibit (N) automatic display of performance data for a particular input channel.

4. In the Good Meas Required drop-down box, select 1 through 15.

5. Click **OK** to accept changes and return to the WAND screen, or **Cancel** to return to the WAND screen without saving changes.



Security Administration

Setting Up Security

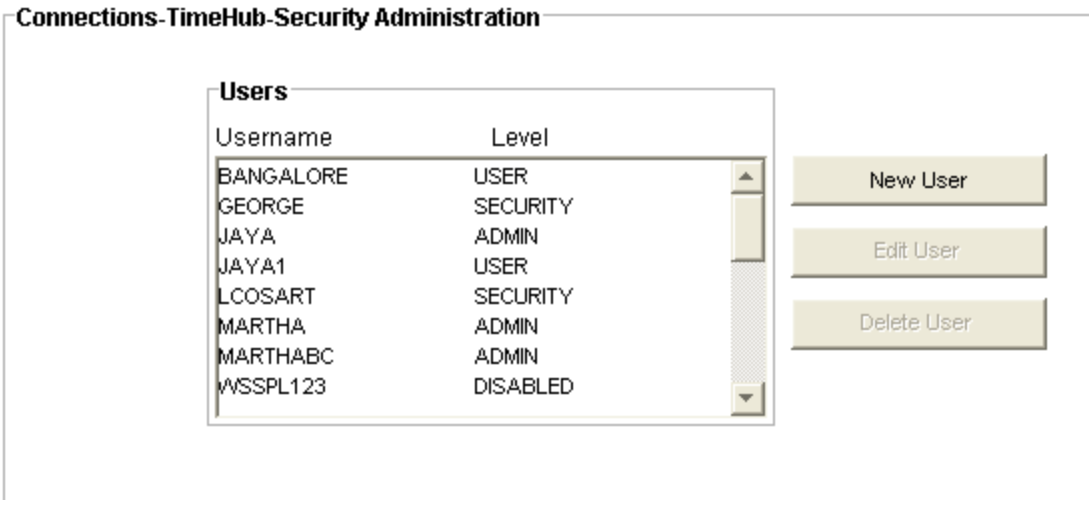
When shipped from the factory, the TimeHub comes with the security feature disabled. With the security feature disabled, access to the TimeHub is unrestricted.

For instructions on how to set up the security feature, refer to the TimeHub User's Guide, part number 097-55501-01.

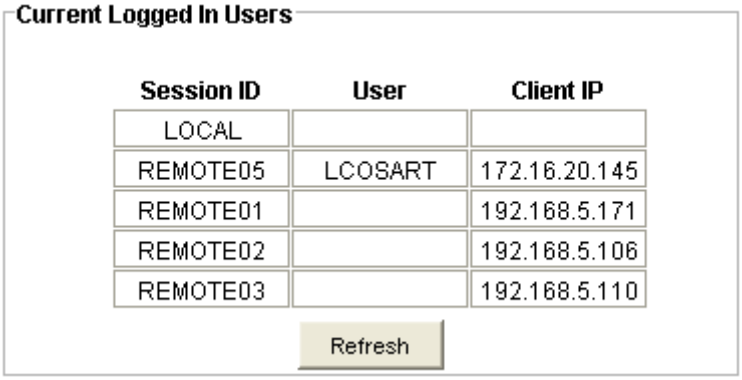
Security Administration

The Security Administration screen allows an administrator to associate one of three access security levels with each username. Each security access level grants the privileges of all lower levels plus additional privileges.

- Click **New User** to Add a user
- Click **Edit User** to Edit the selected user Information
- Click **Delete User** to delete the selected user. An "Are you sure?" dialog box appears before removing the user from the list.



The Security Administration screen also displays a list of currently logged in users with a **Refresh** button that updates the list.



Add a User

Use the following procedure to create a new user:

1. Enter a name in the **Username** text box.

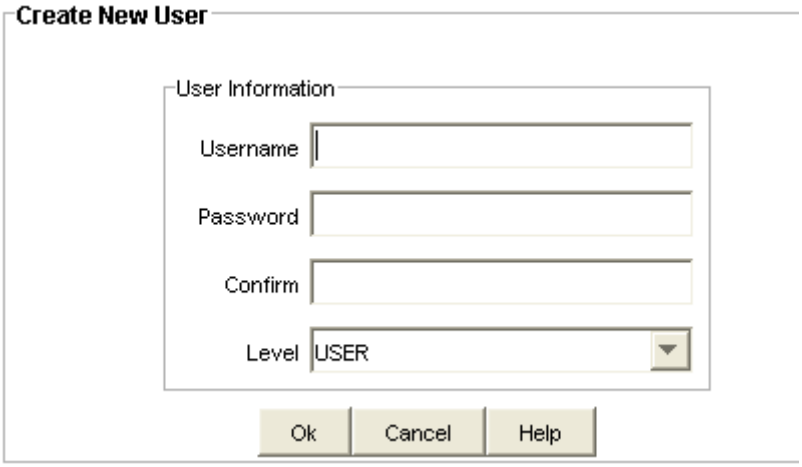
2. Enter a password in the **Password** text box. Acceptable characters include the "printable" ASCII characters from 32 to 127 (0x20 to 0x7F).

Note: TimeHub passwords can be up to ten case-sensitive characters. They must include at least two non-alphabetic characters and must include at least one special character: any printing character other than a letter of the alphabet, a number, a comma, a colon, or a semicolon.

3. Enter the same password again in the **Confirm** text box (Password and Confirm must match to create the user).

4. Select a level in the Level drop-down box.

5. Click **OK** to accept changes and return to the Security Administration screen, or **Cancel** to return to the Security Administration screen without saving changes.



Edit an Existing User

Use the following procedure to edit an existing user:

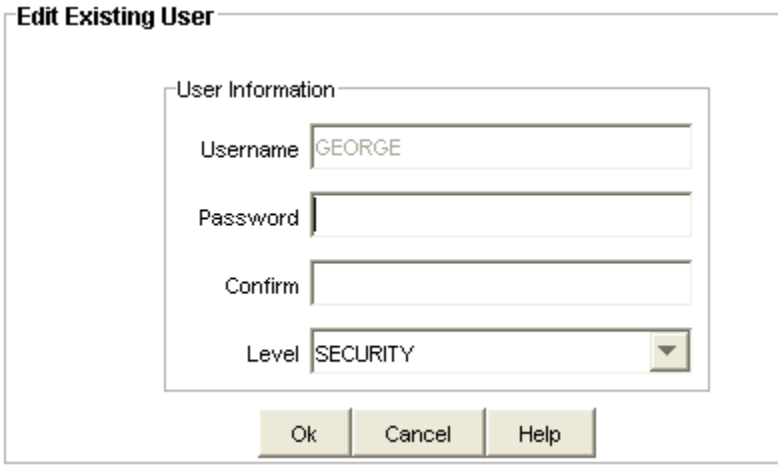
1. Enter a new password in the **Password** text box. Acceptable characters include the "printable" ASCII characters from 32 to 127 (0x20 to 0x7F).

Note: TimeHub passwords are case sensitive.

2. Enter the same password again in the **Confirm** text box (Password and Confirm must match to create the user).

3. Select a new level in the Level drop-down box.

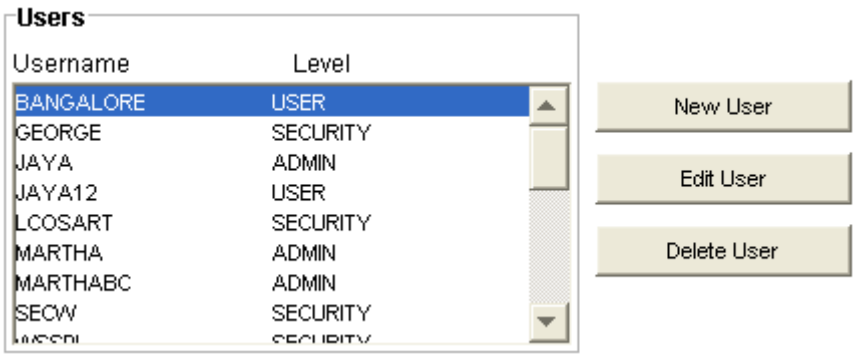
4. Click **OK** to accept changes and return to the Security Administration screen, or **Cancel** to return to the Security Administration screen without saving changes.



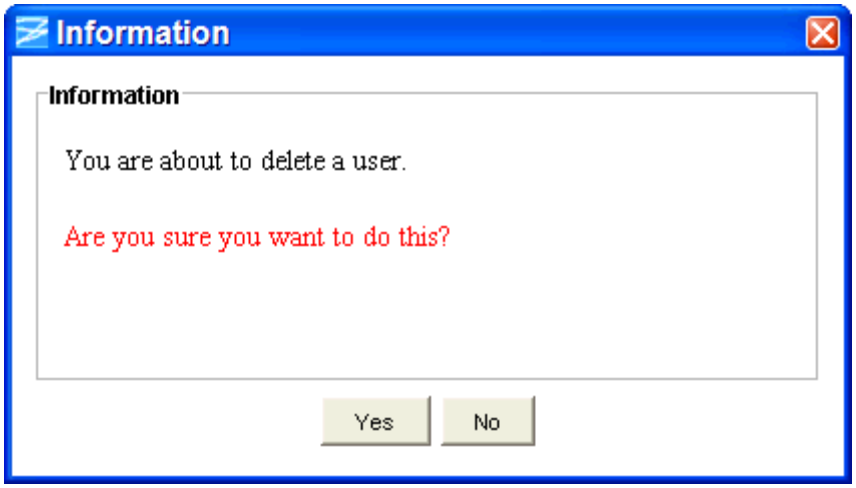
Delete a User

Use the following procedure to delete a user:

1. Select the Username in the list of users to be deleted.



2. Click **Delete User**. The following screen appears.



3. If you want to delete the user, click **Yes**, or if you do not want to delete the user, click **No** to return to the Security Administration screen.

User Command History

The User Command History screen provides a log of the command history with the following items:

- User ID
- User security authorization level (Secure, Admin, User, Not logged in)
- Communication port type (Ethernet port or Local serial port)
- The command
- System response message
- Date and Time when the command was sent
- Date and time when the system responded

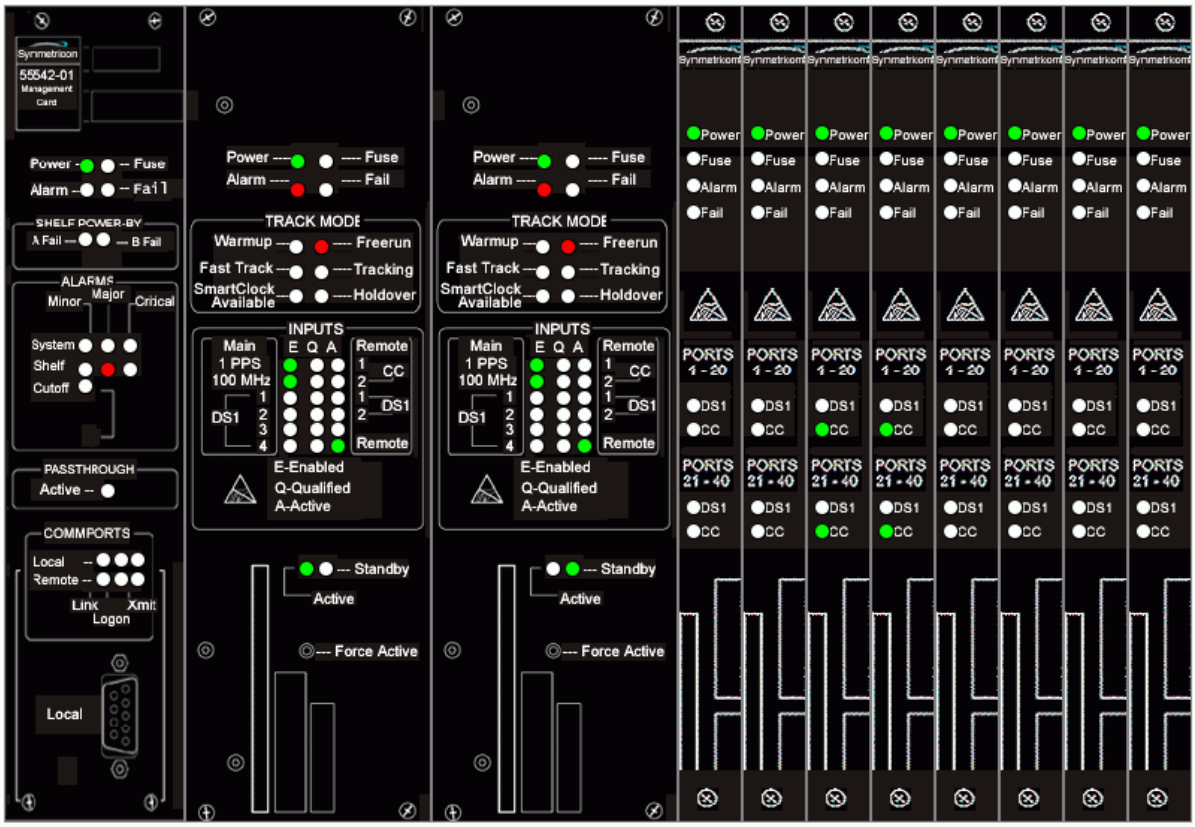
User Command History

User ID	Security Level	COM Port Type	Command	Response	Send Time	Response Time
	Not logged in	ETHERNET	RTRV-CID-SECU:SYMMBITS:REMOTE:75	COMPLD	2007-06-02 07:02:32	07-06-02 07:02:32
	Not logged in	ETHERNET	RTRV-CID-SECU:SYMMBITS:LOCAL:74	COMPLD	2007-06-02 07:02:32	07-06-02 07:02:32
	Not logged in	ETHERNET	RTRV-STATUS:::1	COMPLD	2007-06-02 06:56:00	07-06-02 06:56:00
	Not logged in	ETHERNET	CANC-USER:SYMMBITS::137	COMPLD	2007-06-02 06:54:47	07-06-02 06:54:47
	Not logged in	ETHERNET	RTRV-CID-SECU:SYMMBITS:REMOTE:75	COMPLD	2007-06-02 06:22:32	07-06-02 06:22:32
	Not logged in	ETHERNET	RTRV-CID-SECU:SYMMBITS:LOCAL:74	COMPLD	2007-06-02 06:22:32	07-06-02 06:22:32
	Not logged in	ETHERNET	RTRV-STATUS:::1	COMPLD	2007-06-02 06:16:12	07-06-02 06:16:12
	Not logged in	ETHERNET	RTRV-CMD-SECU::RTRV-CMD-HIST:OTR7HV:jsec,jay...	COMPLD	2007-06-02 06:02:28	07-06-02 06:02:28
	Not logged in	ETHERNET	RTRV-CMD-SECU::INIT-CKTID:OTR7HU:jsec,jaya 123	COMPLD	2007-06-02 06:02:27	07-06-02 06:02:28
	Not logged in	ETHERNET	RTRV-CMD-SECU::RTRV-CKTID:OTR7HS:jsec,jaya 123	COMPLD	2007-06-02 06:02:27	07-06-02 06:02:27
	Not logged in	ETHERNET	RTRV-CMD-SECU::RTRV-NTP-INFO:OTR7HR:jsec,jaya...	COMPLD	2007-06-02 06:02:27	07-06-02 06:02:27
	Not logged in	ETHERNET	RTRV-CMD-SECU::LOAD-PROGRAM:OTR7HQ:jsec,ja...	COMPLD	2007-06-02 06:02:27	07-06-02 06:02:27
	Not logged in	ETHERNET	RTRV-CMD-SECU::VRF-SFWR:OTR7HP:jsec,jaya 123	COMPLD	2007-06-02 06:02:26	07-06-02 06:02:26
	Not logged in	ETHERNET	RTRV-CMD-SECU::SET-TH-TSG:OTR7HN:jsec,jaya 123	COMPLD	2007-06-02 06:02:26	07-06-02 06:02:26
	Not logged in	ETHERNET	RTRV-CMD-SECU::SET-SYNCN:OTR7HM:jsec,jaya 123	COMPLD	2007-06-02 06:02:26	07-06-02 06:02:26
	Not logged in	ETHERNET	RTRV-CMD-SECU::SET-SID:OTR7HL:jsec,jaya 123	COMPLD	2007-06-02 06:02:25	07-06-02 06:02:25
	Not logged in	ETHERNET	RTRV-CMD-SECU::SET-ATTR-TSG:OTR7HK:jsec,jaya...	COMPLD	2007-06-02 06:02:25	07-06-02 06:02:25
	Not logged in	ETHERNET	RTRV-CMD-SECU::RTRV-USER:OTR7HI:jsec,jaya 123	COMPLD	2007-06-02 06:02:25	07-06-02 06:02:25
	Not logged in	ETHERNET	RTRV-CMD-SECU::RTRV-TH-TSG:OTR7HH:jsec,jaya ...	COMPLD	2007-06-02 06:02:24	07-06-02 06:02:24
	Not logged in	ETHERNET	RTRV-CMD-SECU::RTRV-SYNC:OTR7HG:jsec,jaya 123	COMPLD	2007-06-02 06:02:24	07-06-02 06:02:24
	Not logged in	ETHERNET	RTRV-CMD-SECU::RTRV-STATUS:OTR7HF:jsec,jaya	COMPLD	2007-06-02 06:02:24	07-06-02 06:02:24

Main Shelf

Main Shelf View

The TimeHub Main Shelf view provides a front panel view of the TimeHub.



Inputs

Input Port Status Summary

The Input Port Status Summary screen provides a view of the PRS port and Input port settings. The TimeHub can have a PRS port and four Input ports, or as an option, you can install a Clock card with four additional DS1 inputs for a total of nine inputs. Inputs 5 through 8 can be monitored for performance, but none can be selected as the active input timing reference that drives the outputs. Port settings are described in the following table.

Click **Refresh** to update the display.

Input Ports Status Summary

	PRS	Input1	Input2	Input3	Input4	Input5	Input6	Input7	Input8
State:	ENABLE	DISABLE	DISABLE	DISABLE	DISABLE				
Expected State:	ENABLE	DISABLE	DISABLE	DISABLE	DISABLE				
Status:	ACTIVE	DISABLED	DISABLED	DISABLED	DISABLED	DISABLED	DISABLED	DISABLED	DISABLED
Priority:	8	3	6	2	3	2	6	3	2
Frame Type:	10MHZ	ESF	ESF	ESF	ESF	D4	ESF	D4	ESF
Read SSM:		ENABLE	ENABLE	ENABLE	ENABLE	DISABLE	DISABLE	DISABLE	ENABLE
Current SSM:	1	2	2	2	2	2	2	2	2
Monitor:	ENABLE	DISABLE	DISABLE	DISABLE	DISABLE	DISABLE	DISABLE	DISABLE	DISABLE
Bridged Input:		NO	NO	NO	NO				

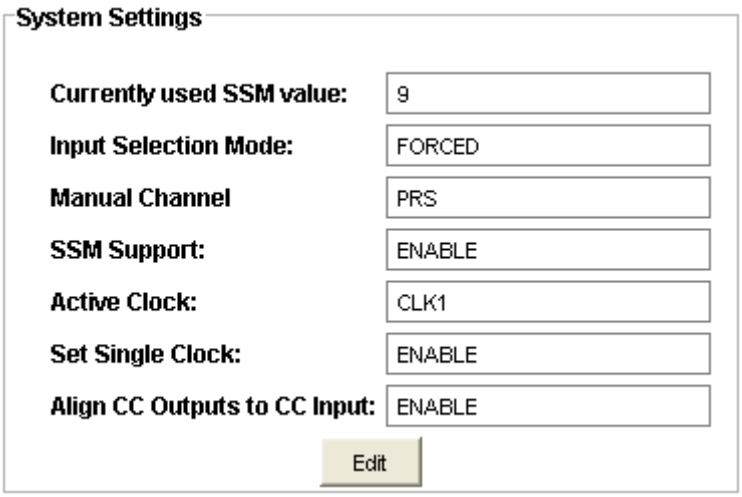
Refresh

Item	Description
State	Indicates if the port is enabled or disabled as an input timing reference. Inputs 5 through 8 cannot be activated, they are only available for monitoring.
Expected State	Indicates if the port's expected state as an input timing reference is enabled or disabled. Inputs 5 through 8 cannot be activated, they are only available for monitoring.
Status	Displays one of the following port status indications: ■ ACTIVE ■ QUALIFIED ■ NOT QUALIFIED ■ INPUT LOS ■ IMPAIRMENT ■ DISABLED
Priority	Displays the priority setting (0 through 9). The priority setting provides a way to prefer a particular input for use as the active timing reference when more than one input has been qualified. The lower the number, the higher the priority. The default is that the PRS input has highest priority and all others are equal.
Frame Type	Displays the PRS reference frequency and the DS1 input frame type.
Read SSM	Indicates if the input is enabled or disabled to use SSM messages as part of the input qualification process.
Current SSM	Displays the ports current SSM.
Monitor	Indicates if port monitoring is enabled or disabled. **Note:** Port monitoring can be enabled even if the port *is not* enabled as a timing reference.
Bridged Input	Indicates if the reference signal on this port is bridged. **Note:** If a reference signal is bridged, it will be nominally 20 dB lower in amplitude than a signal that is terminated at the input.

System Settings

The System Settings screen provides a view of the system settings described in the following table.

Click **Edit** to change the settings.



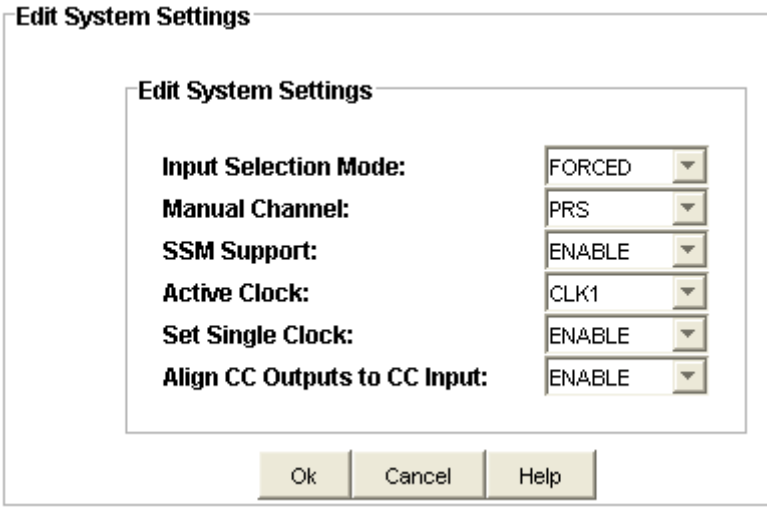
Item	Description
Currently used SSM value	Displays the priority value (0 through 9).
Input Selection Mode	Automatic The TimeHub automatically selects the qualified input to use as the active timing reference. Manual The TimeHub attempts to use the requested channel as the active timing reference (see Manual Channel below). **Note:** If the requested channel is not qualified, the setting goes to Automatic. Once the requested channel is accepted, if it later becomes disqualified for any reason, the setting goes back to Automatic. Forced The TimeHub attempts to use the requested channel as the active timing reference. **Note:** If the requested channel is not qualified, the Clock card enters holdover mode (even if there are other qualified inputs). If the requested channel subsequently becomes qualified, it becomes the active timing reference.
Manual Channel	Displays the port to be used when the **Input Selection Mode** is set to Manual.
SSM Support	Indicates if SSM support is enabled or disabled.

Active Clock	Displays the active Clock card (Clock 1 or Clock 2).
Set Single Clock	Indicates if the single clock setting is enabled or disabled. **Note:** If the normal operation for a shelf is with a single Clock card (non-redundant operation), selecting ENABLE prevents an alarm for this condition.
Align CC Outputs to CC Input	Indicates if phase-alignment of a CC output to a CC input is enabled or disabled. **Note:** Bipolar violations are adjusted on the output so that they are phase-matched (time-aligned to within tens of nanoseconds) to the bipolar violations of the same polarity on the input.

Edit System Settings

Use the following procedure to edit the system settings:

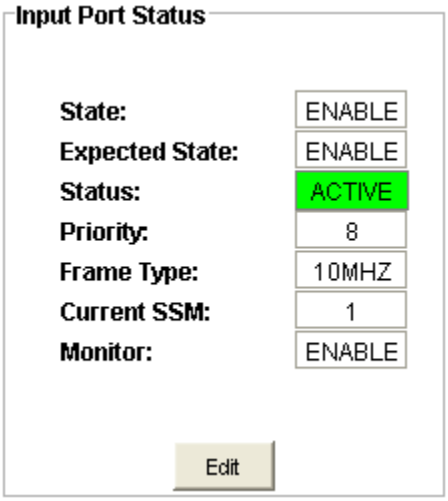
1. Select AUTOMATIC, MANUAL, or FORCED in the Input Selection Mode drop-down box.
2. Select either PRS or an input channel in the Manual Channel drop-down box to select a port to be used when the Input Selection Mode is set to MANUAL.
3. Select ENABLE or DISABLE in the SSM Support drop-down box.
4. Select CLK1 or CLK2 in the Active Clock drop-down box.
5. Select ENABLE or DISABLE in the Set Single Clock drop-down box.
6. Select ENABLE or DISABLE in the Align CC Outputs to CC Input drop-down box.
7. Click **OK** to accept changes and return to the System Settings screen, or **Cancel** to return to the System Settings screen without saving changes.



PRS Input Port Status

The PRS Input Port Status screen shown below provides a view of the port settings described in the following table.

Click **Edit** to change the settings.



Item	Description
State	Indicates if the port is enabled or disabled as an input timing reference.
Expected State	Indicates if the port's expected state as an input timing reference is enabled or disabled.

Status	Displays one of the following port status indications: ■ ACTIVE ■ QUALIFIED ■ NOT QUALIFIED ■ INPUT LOS ■ IMPAIRMENT ■ DISABLED
Priority	Displays the priority setting (0 through 9). The priority setting provides a way to prefer a particular input for use as the active timing reference when more than one input has been qualified. The lower the number, the higher the priority. The default is that the PRS input has highest priority and all others are equal.
Frame Type	Displays the PRS reference frequency: 5 MHZ or 10 MHZ.
Current SSM	Displays the ports current SSM.
Monitor	Indicates if port monitoring is enabled or disabled. **Note:** Port monitoring can be enabled even if the port *is not* enabled as a timing reference.

Edit PRS Input Port Configuration

Use the following procedure to edit the PRS Input Port configuration:

1. Select either ENABLE or DISABLE in the State drop-down box to enable or disable the port as an input timing reference.

2. Select either ENABLE or DISABLE in the Expected State drop-down box to indicate if the port's state is set to ENABLE or DISABLE.

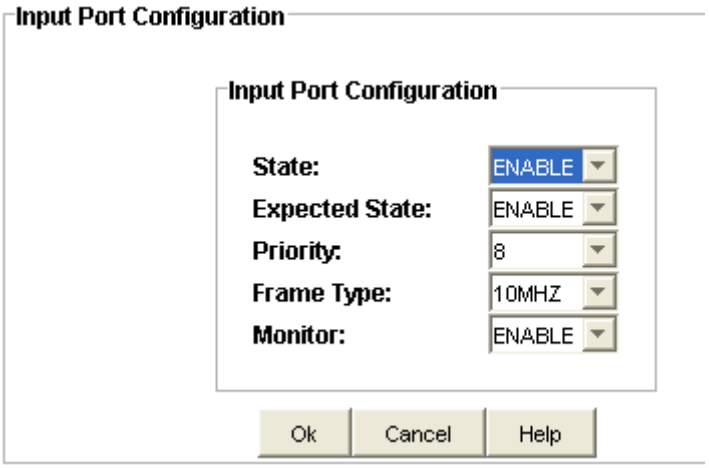
3. Select a number from 0 to 12 in the Priority drop-down box to set the port's priority to be used as an active timing reference. A lower number indicates a higher priority.

4. Select either 5MHZ or 10MHZ to set the port's frame type frequency.

5. Select either ENABLE or DISABLE in the Monitor drop-down box to enable or disable port monitoring.

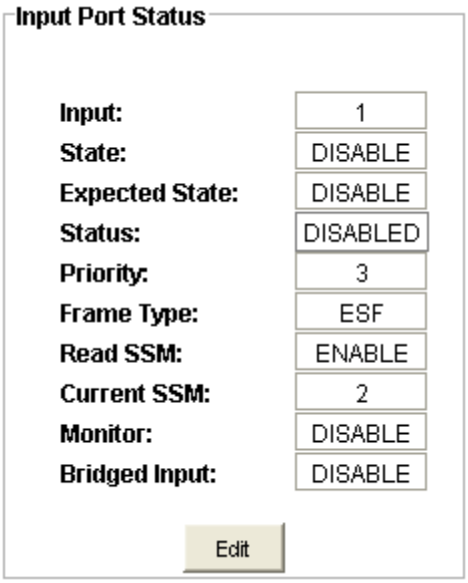
Note: Port monitoring can be enabled even if the port *is not* enabled as a timing reference.

6. Click **OK** to accept changes and return to the Input Port Status screen, or **Cancel** to return to the Input Port Status screen without saving changes.



Input Port Status

The TimeHub provides four input ports or eight ports if an optional Clock card is installed to provide four additional outputs. The Input Port Status screen shown below provides a view of the port settings described in the following table. Click Edit to change the settings.



Item	Description
Input	Indicates the port number.
State	Indicates if the port is enabled or disabled as an input timing reference.
Expected State	Indicates if the port's expected state as an input timing reference is enabled or disabled.

Status	Displays one of the following port status indications: ■ ACTIVE ■ QUALIFIED ■ NOT QUALIFIED ■ INPUT LOS ■ IMPAIRMENT ■ DISABLED
Priority	Displays the priority setting (0 through 9). The priority setting provides a way to prefer a particular input for use as the active timing reference when more than one input has been qualified. The lower the number, the higher the priority. The default is that the PRS input has highest priority and all others are equal.
Frame Type	Displays the port's frame type setting (ESF or D4).
Read SSM	Indicates if the input is enabled or disabled to use SSM messages as part of the input qualification process. **Note:** D4-framed DS1 inputs do not allow the Read SSM selection since they are not capable of SSM decoding.
Current SSM	Displays the ports current SSM.
Monitor	Indicates if port monitoring is enabled or disabled. **Note:** Port monitoring can be enabled even if the port *is not* enabled as a timing reference.
Bridged Input	If the reference signal on this port is bridged and not terminated, the bridged input setting should be set to ENABLE. **Note:** If a reference signal is bridged, it will be nominally 20 dB lower in amplitude than a signal that is terminated at the input.

Edit Input Port Configuration

Use the following procedure to edit the Input Port configuration:

1. Select either ENABLE or DISABLE in the State drop-down box to enable or disable the port as an input timing reference.

2. Select either ENABLE or DISABLE in the Expected State drop-down box to indicate if the port's state is set to ENABLE or DISABLE.

3. Select a number from 0 to 12 in the Priority drop-down box to set the port's priority to be used as an active timing reference.

Note: A lower number configures the port to a higher priority.

4. Select either ESF or D4 in the Frame Type drop-down box to set the port's frame type.

5. Select either ENABLE or DISABLE in the Read SSM drop-down box to enable or disable the port to use SSM messages as part of the input qualification process.

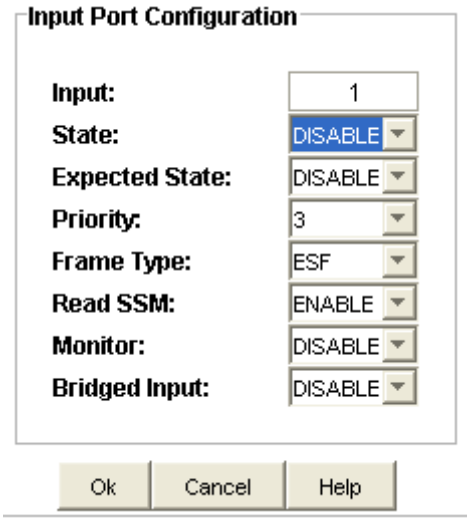
Note: D4-framed DS1 inputs do not allow the Read SSM selection since they are not capable of SSM decoding.

6. Select either ENABLE or DISABLE in the Monitor drop-down box to enable or disable port monitoring.

Note: Port monitoring can be enabled even if the port *is not* enabled as a timing reference.

7. Select either ENABLE or DISABLE in the Bridged Input drop-down box. If the reference signal on this port is bridged and not terminated, the bridged input setting should be set to ENABLE.

8. Click **OK** to accept changes and return to the Input Port Status screen, or **Cancel** to return to the Input Port Status screen without saving changes.



Outputs

Output Port Status Summary

The TimeHub main shelf provides four output groups: OUTA, OUTB, OUTC, and OUTD. Output Driver cards provide either non-protected or protected DS1 or CC outputs, NTP, or 5 MHz output signals.

A single DS1 or CC Output Driver card provides 40 non-protected outputs. Two Output Driver cards functioning as a pair provide 40 protected outputs. An Output Driver card can provide either 20 DS1 and 20 CC outputs or 40 of either type.

A single 5 MHz Output card provides four non-protected outputs. Two 5 MHz Output cards functioning as a pair provide 4 protected outputs.

Output Ports Status Summary

	OUTA	OUTB	OUTD
State:	ENABLE	ENABLE	ENABLE
Connector Card 1-20 :	EMPTY	CC	EMPTY
Connector Card 21-40 :	EMPTY	CC	EMPTY
Expected Card 1-20 :	DONT-CARE	DS1	DONT-CARE
Expected Card 21-40 :	CC	DS1	DONT-CARE
Expected Driver Card :	55581	55581	DONT-CARE
Expected Protection :	REQUIRED	REQUIRED	DONT-CARE
Frame Type 1-20 :	ESF	ESF	D4
Frame Type 21-40 :	D4	ESF	D4
CCDelay, Ports 1-20 :	0	900	100
CCDelay, Ports 21-40 :	5300	1000	100

5MHz Card Status Summary

	OUTC
State:	ENABLE
Expected Conn Card :	EMPTY
Expected Card 1-4 :	5MHZ
Expected Driver Card :	DONT-CARE
Expected Protection :	DONT-CARE

Refresh

Save Labels Load Labels

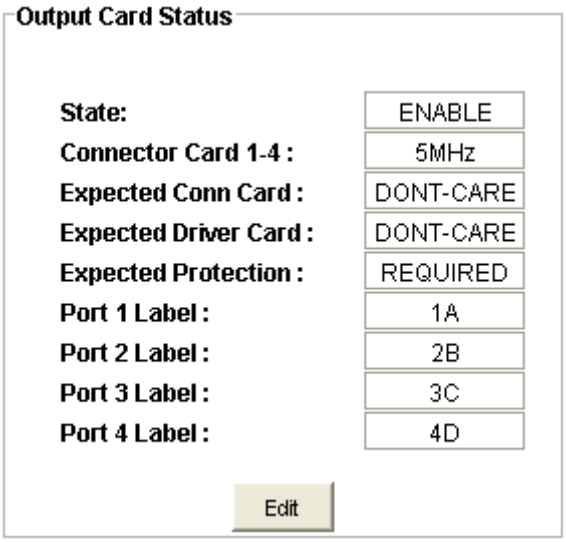
Click **Refresh** to update the display.

Click **Save Labels** to save the labels to a text file.

Click **Load Labels** to import a saved labels text file.

5 MHz Output Card Status

Output Card Status configuration, shown in the following figure, provides a view of the 5 MHz output card status settings described in the table below. Click **Edit** to change the settings.



Item	Description
State	Indicates if the port is enabled or disabled.
Connector Card 1-4	Displays the Port Group configuration.
Expected Conn Card	The expected output connector card type, either DONT-CARE or 5MHZ. DONT-CARE means that there is no requirement and the outputs will be allowed to function regardless of the type of connector card that is installed.
Expected Driver Card	The expected driver card type, either DONT-CARE or 55583. DONT-CARE means that there is no requirement and any card is okay. The outputs will be allowed to function regardless of the type of connector card installed.
Expected Protection	The setting for output card protection. DONT-CARE establishes no requirement. REQUIRED means that *two* Output Driver Cards are expected in the targeted slot-pair.
Port 1 Label Port 2 Label Port 3 Label Port 4 Label	User entered port labels for ports 1 through 4.

Edit 5 MHz Output Card Configuration

Use the following procedure to edit the 5 MHz Output Card configuration.

1. Select either ENABLED or DISABLED in the State drop-down box to enable or disable the port.

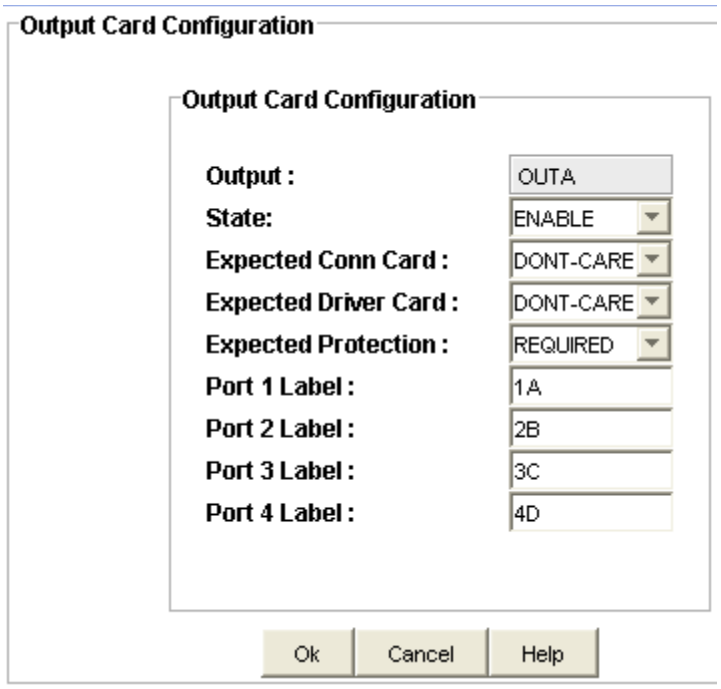
2. Select either DONT-CARE or 5MHZ in the Expected Conn Card drop-down box to choose the type of output card that is expected to be installed.

3. Select either DONT-CARE or 55583 in the Expected Driver Card drop-down box.

4. Select either REQUIRED or DONT-CARE in the Expected Protection drop-down box.

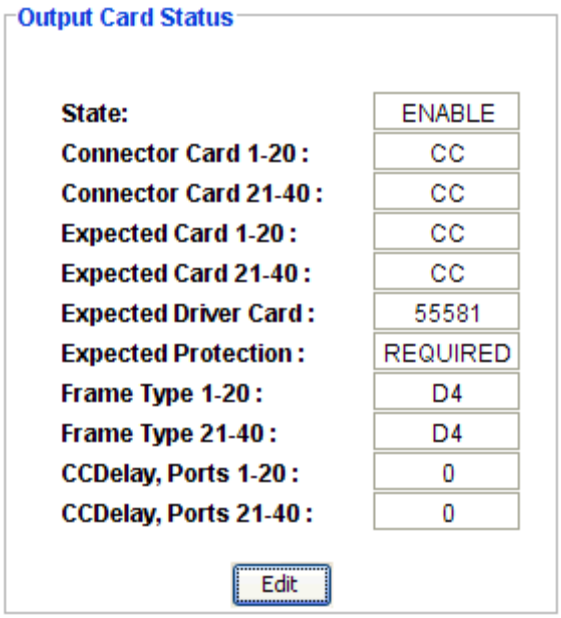
5. Enter a user defined port label in Port 1 Label through Port 4 Label text boxes.

6. Click **OK** to accept changes and return to the Output Card Status screen, or **Cancel** to return to the Output Card Status screen without saving changes.



DS1 or CC Output Card Status

Output Card Status configuration, shown in the following figure, provides a view of the output card status settings described in the table below. Click **Edit** to change the settings.



Item	Description
State	Indicates if the port is enabled or disabled.
Connector Card 1-20 Connector Card 21-40	Displays the configuration of Port Group 1 through 20 and for Port Group 21 through 40. The options are either DS1, CC, or EMPTY if no Connector Card is installed.
Expected Card 1-20 Expected Card 21-40	The expected Output Connector card type for Port Group 1 through 20 and for Port Group 21 through 40. DONT-CARE means that there is no requirement and the outputs will be allowed to function regardless of the type of connector card that is installed.
Expected Driver Card	The expected output connector card type. DONT-CARE means that there is no requirement and any card is okay. The outputs will be allowed to function regardless of the type of connector card installed. If the option 55581 is selected, it means that two 55581 type Output Driver Cards are expected in the targeted slot-pair.

Expected Protection	The setting for output card protection. DONT-CARE establishes no requirement. REQUIRED means that *two* Output Driver Cards are expected in the targeted slot-pair.
Frame Type 1-20 Frame Type 21-40	The selected frame type for Port Group 1 through 20 and for Port Group 21 through 40. The selections are either ESF or D4. Notes: If Connector Card 1-20 is provisioned for composite clock (CC), then Frame Type is disabled for Frame Type 1-20. If Connector Card 21-40 is provisioned for composite clock (CC, then Frame Type is disabled for Frame Type 21-40.
CCDelay, Ports 1-20 CCDelay, Ports 21-40	The compensation setting for cable delay on any CC output for Port Group 1 through 20 and for Port Group 21 through 40. This capability may be needed when a long CC run is used. The setting is in feet of cable and can be set from 0 to 6000 feet. Increasing the setting causes the CC signal to be advanced (sent earlier) by the amount of time that corresponds to the number of feet of cable specified. This has the desired effect of causing the signal to arrive at the end of the cable run with no apparent delay.

Edit DS1 or CC Output Card Configuration

Use the following procedure to edit the DS1 or CC Output Card configuration.

1. Select either ENABLED or DISABLED in the State drop-down box to enable or disable the port.
2. Select either DONT-CARE, DS1, or CC in the Expected Card 1-20 drop-down box to choose the type of output card that is expected to be installed.
3. Select either DONT-CARE, DS1, or CC in the Expected Card 21-40 drop-down box to choose the type of output card that is expected to be installed.
4. Select either DONT-CARE or 55581 in the Expected Driver Card drop-down box.
5. Select either REQUIRED or DONT-CARE in the Expected Protection drop-down box.
6. Select either ESF or D4 in the Frame Type 1-20 drop-down box.

Note: If Connector Card 1-20 is provisioned for composite clock (CC), then Frame Type is disabled for Frame Type 1-20.

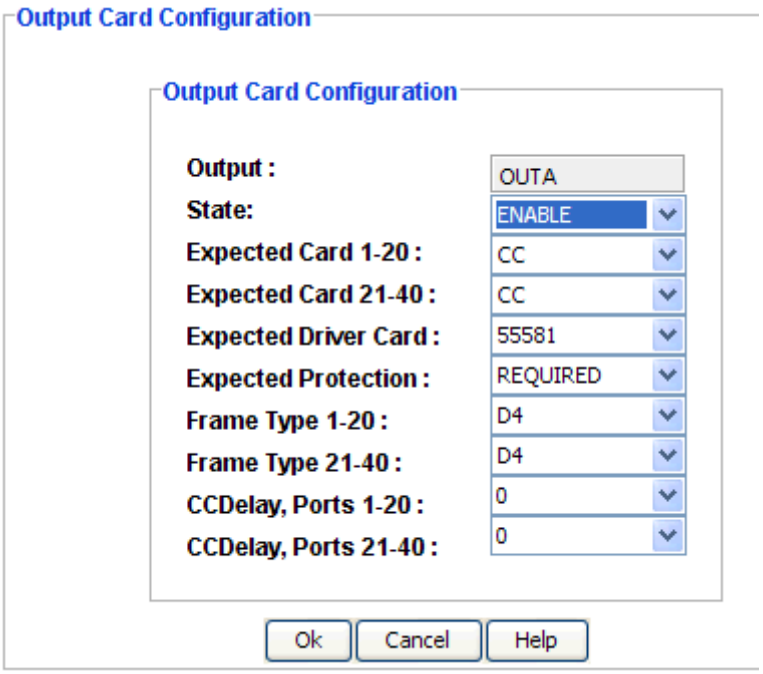
7. Select either ESF or D4 in the Frame Type 21-40 drop-down box.

Note: If Connector Card 21-40 is provisioned for composite clock (CC), then Frame Type is disabled for Frame Type 21-40.

8. Select the compensation setting for cable delay (0 through 6000 feet) in the CCDelay, Ports 1-20 drop-down box.

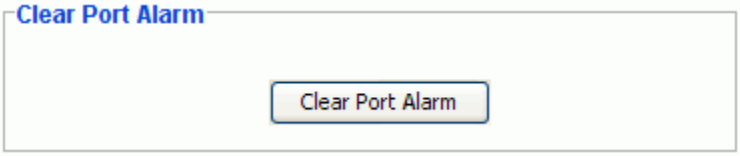
9. Select the compensation setting for cable delay (0 through 6000 feet) in the CCDelay, Ports 21-40 drop-down box.

10. Click **OK** to accept changes and return to the Output Card Status screen, or **Cancel** to return to the Output Card Status screen without saving changes.



Clear Port Alarm

Click the **Clear Port Alarm** button to attempt to clear an output port alarm that was set due to a temporary external condition.



Output Card Port Status

The Output Card Port Status shows the port State, CCDelay settings, and user defined port name for both Port Group 1 through 20 and Port Group 21 through 40. The settings are described in the table below. Click **Edit** to change the settings.

Output Card Port Status

	State	CC Delay	Port Label		State	CC Delay	Port Label
Port 1:	DISABLE	DISABLE		Port 21:	DISABLE	DISABLE	
Port 2:	DISABLE	DISABLE		Port 22:	DISABLE	DISABLE	
Port 3:	DISABLE	DISABLE		Port 23:	DISABLE	DISABLE	
Port 4:	DISABLE	DISABLE		Port 24:	DISABLE	DISABLE	
Port 5:	DISABLE	DISABLE		Port 25:	DISABLE	DISABLE	
Port 6:	DISABLE	DISABLE		Port 26:	DISABLE	DISABLE	
Port 7:	DISABLE	DISABLE		Port 27:	DISABLE	DISABLE	
Port 8:	DISABLE	DISABLE		Port 28:	DISABLE	DISABLE	
Port 9:	DISABLE	DISABLE		Port 29:	DISABLE	DISABLE	
Port 10:	DISABLE	DISABLE		Port 30:	ENABLE	ENABLE	
Port 11:	DISABLE	DISABLE		Port 31:	ENABLE	ENABLE	
Port 12:	DISABLE	DISABLE		Port 32:	ENABLE	ENABLE	
Port 13:	DISABLE	DISABLE		Port 33:	ENABLE	ENABLE	
Port 14:	DISABLE	DISABLE		Port 34:	ENABLE	ENABLE	
Port 15:	DISABLE	DISABLE		Port 35:	ENABLE	ENABLE	
Port 16:	DISABLE	DISABLE		Port 36:	ENABLE	ENABLE	
Port 17:	DISABLE	DISABLE		Port 37:	ENABLE	ENABLE	
Port 18:	DISABLE	DISABLE		Port 38:	ENABLE	ENABLE	
Port 19:	DISABLE	DISABLE		Port 39:	ENABLE	ENABLE	
Port 20:	DISABLE	DISABLE		Port 40:	ENABLE	ENABLE	

Edit

Item	Description
State	Displays the port configuration, either enabled or disabled.
CC Delay	Displays the port configuration for composite clock cable compensation, either enabled or disabled. This capability may be needed when a long CC run is used.
Port Label	User defined port name up to 40 characters. Most printable ASCII characters are allowed. Characters not allowed are double quotation mark, comma, colon, semicolon, and back slash. This function requires ADMIN level access.

Edit Output Port Configuration

Use the following procedure to set up the output port configuration.

1. For each port, select either ENABLE or DISABLE in the State drop-down box to enable or disable each individual port, or click **Enable All** or **Disable All** to either enable or disable the port state on all ports.

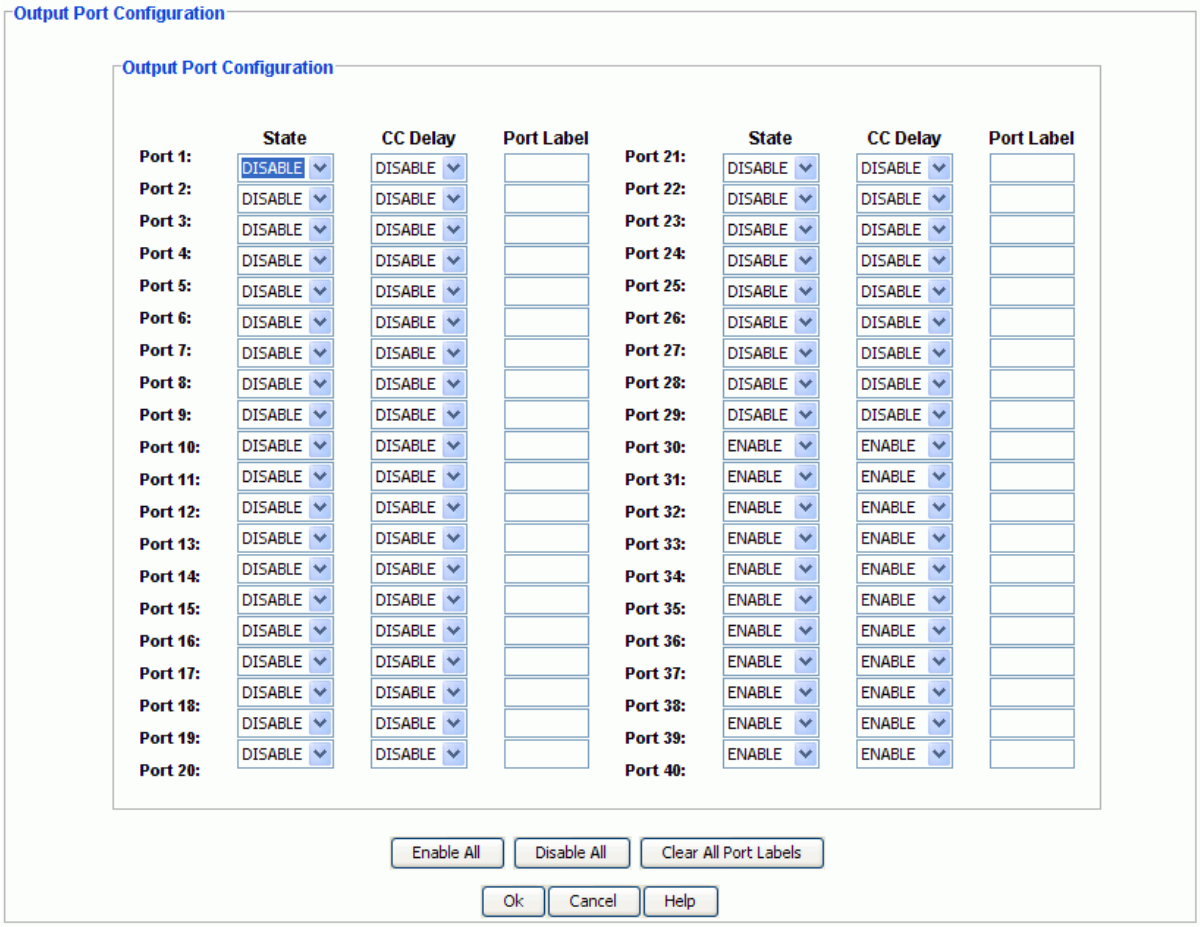
2. For each port, select either ENABLE or DISABLE in the CC Delay drop-down box to enable or disable CC Delay on each individual port.

Note: CCDelay may be needed when a long CC run is used.

3. For each port, enter a user defined name in the Port Label text box. Most printable ASCII characters are allowed. Characters not allowed are double quotation mark, comma, colon, semicolon, and back slash. This function requires ADMIN level access.

4. To delete all port labels, click **Clear All Port Labels**.

5. Click **OK** to accept changes and return to the Output Card Status screen, or **Cancel** to return to the Output Card Status screen without saving changes.



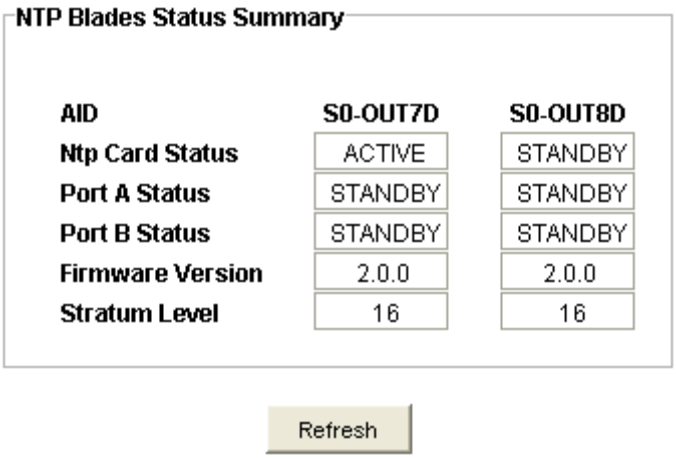
NTP Blades

NTP Blades Status Summary

The NTP Blades Status Summary screen provides the following information:

Click **Refresh** to update the display.

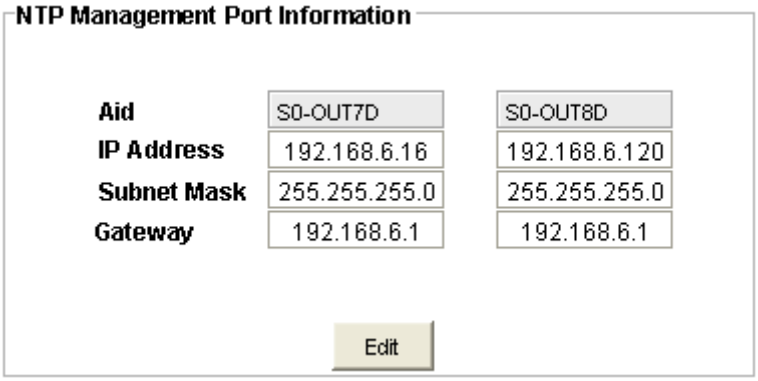
Item	Description
NTP Card Status	Administrative state of the NTP card, either ACTIVE or STANDBY.
Port A Status Port B Status	Indicates if the port status is ACTIVE, STANDBY, or STANDALONE.
Firmware Version	NTP card firmware version.
Stratum Level	The NTP server stratum level.



NTP Management Port Information

The NTP Management Port Information screen provides the following information. Click **Edit** to change the selections.

Item	Description
AID	Access Identifier (shelf number and output group).
IP Address	Indicates the IP address of the local management port.
Subnet Mask	
Gateway	Indicates the IP address of the local gateway that is used during the download session.



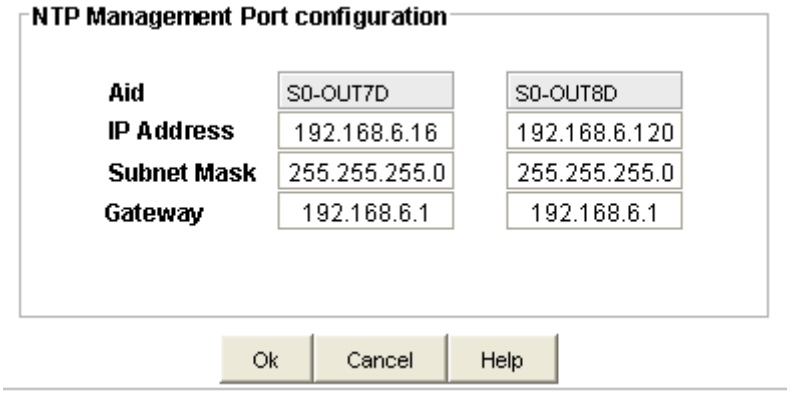
Edit NTP Management Port Configuration

Use the following procedure to set up the NTP Management Port configuration:

1. Enter the local management port IP address in dotted decimal format.
2. Enter the local management port subnet mask address in dotted decimal format.
3. Enter the local gateway IP address in dotted decimal format.
4. Click **OK** to accept changes and return to the NTP Blade Card Status screen, or **Cancel** to return to the NTP Blade Card Status screen without saving changes.

Note: For all changes made in this window to take effect, you must click **Apply** in the NTP Configuration screen.

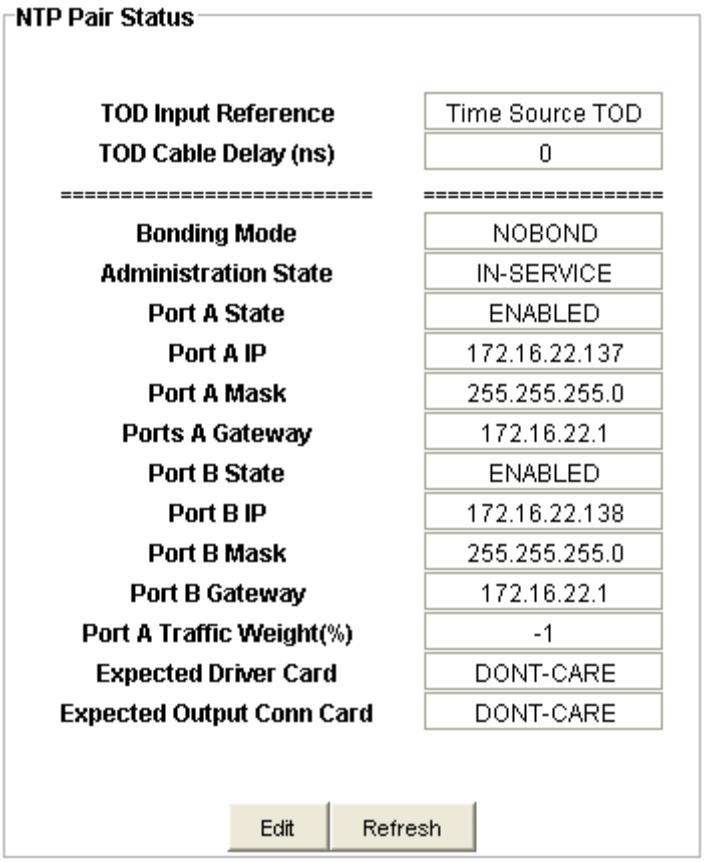
Note: To minimize disruption of NTP service, make all changes to all menus first and then click **Apply** in the NTP Configuration screen. Each time you click **Apply**, the NTP card stops service for 30 seconds as the card re-configures to its new setting.



NTP Pair Status

The NTP Pair Status screen provides the information described in the following table. Click **Edit** to change the settings and click **Refresh** to update the display.

Item	Description
TOD Input Reference	Displays the Time Source TOD input channel state. If the TOD channel is enabled, Time Source TOD is displayed. If the TOD channel is disabled, External NTP Server is displayed.
TOD Cable Delay (ns)	Displays the cable delay setting in feet. **Note:** This field is grayed out if External NTP Server is displayed in the TOD Input Reference above.
Bonding Mode	Displays either no bonding (NOBOND) or active stand by (ACTSTBY). **Note:** If the Bonding Mode is ACTSTBY, Port B IP, Port B Mask, and Port B Gateway are grayed out.
Administration State	Indicates if the NTP Pair is in service or out of service.
Port A State	Indicates if Port A is enabled or disabled. **Note:** If the Port A IP address is set to 0.0.0.0, the Port A state is disabled and Port A IP, Port A Mask as well Port A Gateway are grayed out.
Port A IP	Port A IP address in dotted decimal notation of range 0.0.0.0 to 255.255.255.255.
Port A Mask	Port A subnet mask IP address in dotted decimal notation of range 0.0.0.0 to 255.255.255.255.
Port A Gateway	Port A gateway IP address in dotted decimal notation of range 0.0.0.0 to 255.255.255.255.
Port B State	Indicates if Port B is enabled or disabled. **Note:** If the Port B IP address is set to 0.0.0.0, the Port B state is disabled and Port B IP, Port B Mask as well Port B Gateway are grayed out.
Port B IP	Port B IP address in dotted decimal notation of range 0.0.0.0 to 255.255.255.255.
Port B Mask	Port B subnet mask IP address in dotted decimal notation of range 0.0.0.0 to 255.255.255.255.
Port B Gateway	Port B gateway IP address in dotted decimal notation of range 0.0.0.0 to 255.255.255.255.
Port A Traffic Weight (%)	Selection range is 1 to 98 and -1.
Expected Driver Card	Displays the expected driver card, either DONT-CARE or 55582.
Expected Output Conn Card	Displays the expected Output Connector card setting, either DONT-CARE, TS, or GTS.



Edit NTP Pair Configuration

Use the following procedure to set up the NTP Pair Status configuration:

1. Select Time source TOD or External NTP Server in the TOD Input Reference drop-down box.

2. Enter the number of feet to compensate for cable delay in the TOD Cable Delay (ns) text box. You cannot configure this function if External NTP Server is selected for TOD Input Reference.

3. In the Bonding Mode drop-down box, select either NOBOND (no bonding) or ACTSTBY (active stand by).

4. In the Administrative State drop-down box, select either IN-SERVICE or OUT-SERVICE to enable or to disable the administrative state of the NTP card.

5. In the Port A State drop-down box, select ENABLED or DISABLED. If you select DISABLE, you cannot configure the Port A IP, Port A Mask, and Port A Gateway.

6. In the Port A IP text box, enter the IP address in dotted decimal format. You cannot configure this function if you selected DISABLE in the Port A State drop-down box.

7. In the Port A Mask text box, enter the subnet mask address in dotted decimal format. You cannot configure this function if you selected DISABLE in the Port A State drop-down box.

8. In the Port A Gateway text box, enter the gateway IP address in dotted decimal format. You cannot configure this function if you selected DISABLE in the Port A State drop-down box.

9. In the Port B IP text box, enter the IP address in dotted decimal format. You cannot configure this function if you selected ACTSTBY in the Bonding Mode drop-down box, or if you selected DISABLE in the Port B State drop-down box.

10. In the Port B Mask text box, enter the subnet mask address in dotted decimal format. You cannot configure this function if you selected ACTSTBY in the Bonding Mode drop-down box, or if you selected DISABLE in the Port B State drop-down box.

11. In the Port B Gateway text box, enter the gateway IP address in dotted decimal format. You cannot configure this function if you selected ACTSTBY in the Bonding Mode drop-down box, or if you selected DISABLE in the Port B State drop-down box.

12. In the Port A Traffic Weight (%) drop-down box, select a number in the range from 1 to 98 or -1.

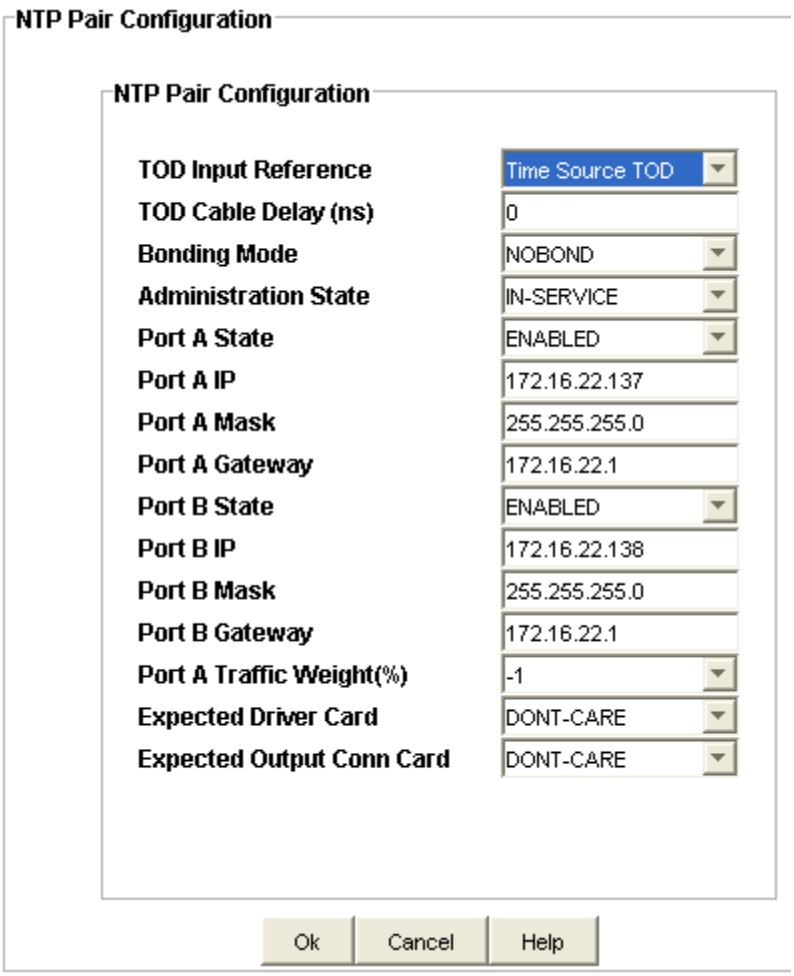
13. In the Expected Driver Card drop-down box, select DONT-CARE or 55582 to select the expected driver card choice.

14. In the Expected Output Conn Card drop-down box, select DONT-CARE, GTS, or TS to select the expected output connector card choice.

15. Click **OK** to accept changes and return to the NTP Pair Status screen, or **Cancel** to return to the NTP Pair Status screen without saving changes.

Note: For all changes made in this window to take effect, you must click **Apply** in the NTP Configuration screen.

Note: To minimize disruption of NTP service, make all changes to all menus first and then click **Apply** in the NTP Configuration screen. Each time you click **Apply**, the NTP card stops service for 30 seconds as the card re-configures to its new setting.

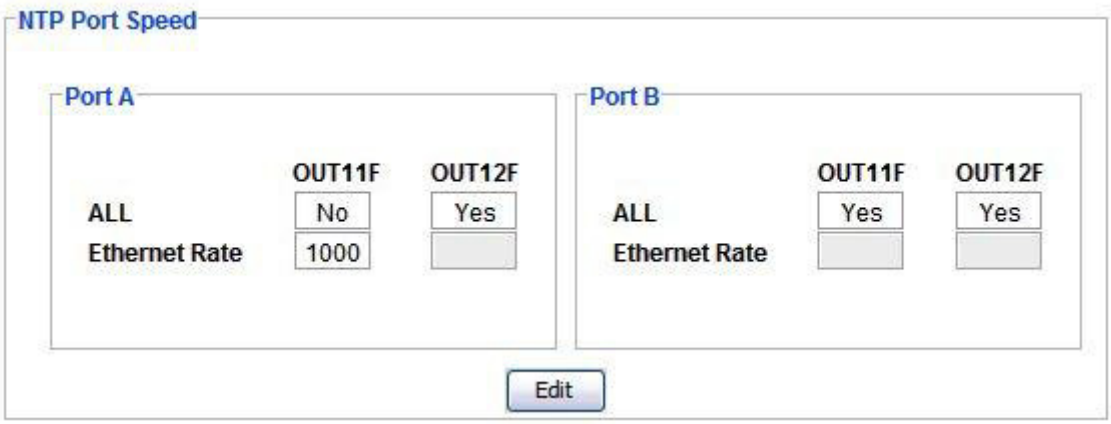


NTP Port Speed

The NTP Port Speed screen provides details about the NTP port speeds, where:

- **ALL = Yes**: Auto-Negotiation ON, either 100Base-T or 1000Base-T
- **Ethernet Rate = 1000**: Auto-Negotiation OFF, only 1000Base-T
- **Ethernet Rate = 100**: Auto-Negotiation OFF, only 100Base-T

Click **Edit** to change the settings and click Refresh to update the display.



Edit NTP Port Speed Configuration

Use the following procedure to set up the NTP Port Speed configuration for Port A and Port B:

1. Select the All check box (which disables the Ethernet Rate field) or Uncheck the ALL check box to select the value from the Ethernet Rate field's drop-down menu.

2. Use the drop-down menu in the Ethernet field to select either 100 or 1000.

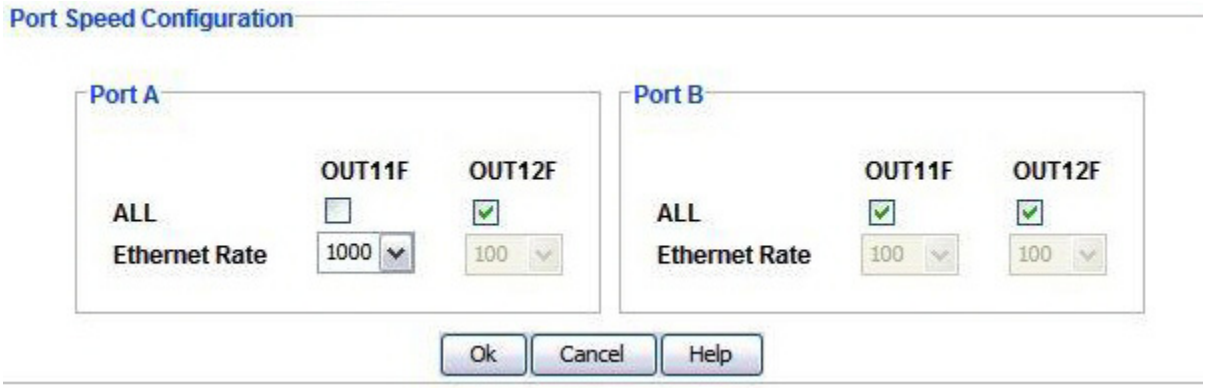
3. Click **OK** to accept changes and return to the NTP Blade screen (OUTF or OUTH), or **Cancel** to return to the NTP Blade screen (OUTF or OUTH) without saving changes.

The speed settings are:

- **ALL = Yes**: Auto-Negotiation ON, either 100Base-T or 1000Base-T
- **Ethernet Rate = 1000**: Auto-Negotiation OFF, only 1000Base-T
- **Ethernet Rate = 100**: Auto-Negotiation OFF, only 100Base-T

Note: For all changes made in this window to take effect, you must click **Apply** in the NTP Configuration screen.

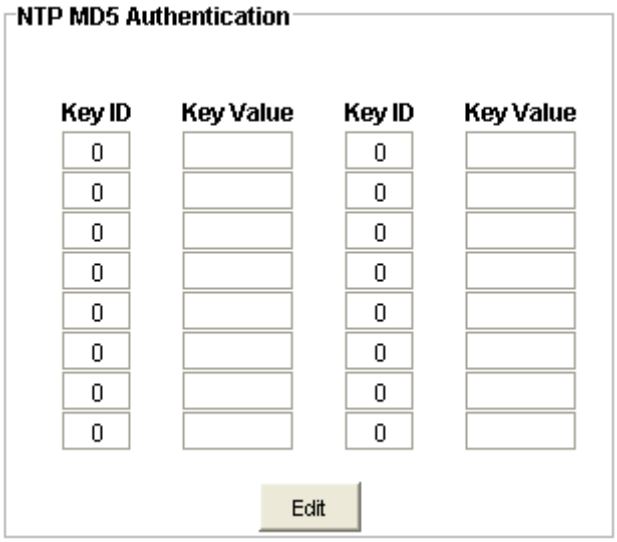
Note: To minimize disruption of NTP service, make all changes to all menus first and then click **Apply** in the NTP Configuration screen. Each time you click **Apply**, the NTP card stops service for 30 seconds as the card re-configures to its new setting.



Note: Ethernet Rate is non-editable, when Auto Negotiation is ON.

NTP MD5 Authentication

The NTP MD5 Authentication screen displays the NTP server authentication attributes. Key ID can be any number from 0 to 65534, and Key Value can be most of the printable ASCII characters. Characters not allowed are double quotation mark, comma, colon, semicolon, and back slash.



Edit NTP MD5 Authentication

Use the following procedure to edit the NTP MD5 Authentication screen:

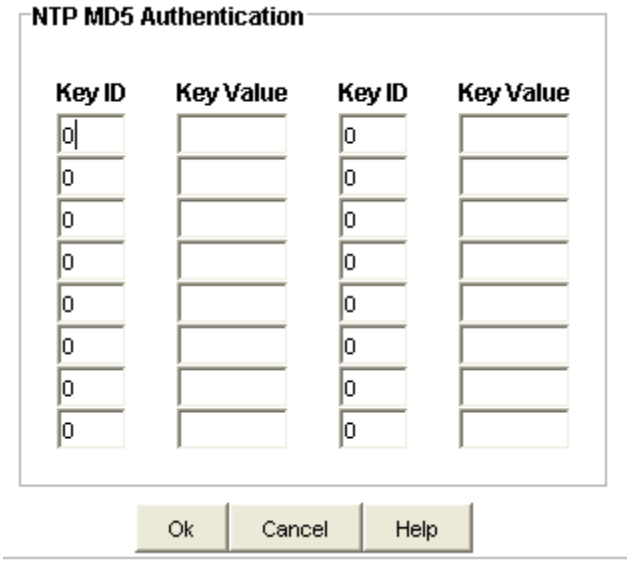
1. Enter a value from 0 to 65534 in the Key ID text box. You must enter a number that is not already used.

2. Enter up to 32 ASCII characters in the Key Value text box. Most of the printable ASCII characters are allowed. Characters not allowed are double quotation mark, comma, colon, semicolon, and back slash.

3. Click **OK** to accept changes and return to the NTP Authentication screen, or **Cancel** to return to the NTP Authentication screen without saving changes.

Note: For all changes made in this window to take effect, you must click **Apply** in the NTP Configuration screen.

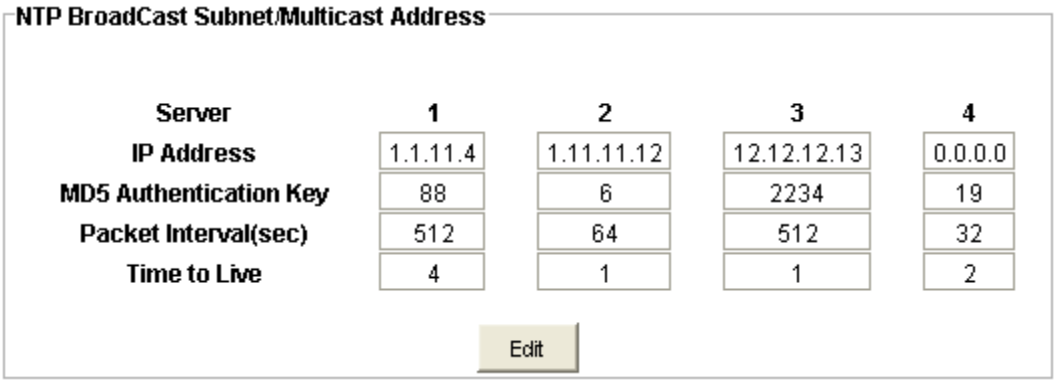
Note: To minimize disruption of NTP service, make all changes to all menus first and then click **Apply** in the NTP Configuration screen. Each time you click **Apply**, the NTP card stops service for 30 seconds as the card re-configures to its new setting.



NTP Broadcast Subnet/Multicast Address

The NTP Broadcast Subnet/Multicast Address screen provides information for each server as described in the following table.

Item	Description
IP Address	NTP server's IP address in dotted decimal format from 0.0.0.0 to 255.255.255.255.
MD5 Authentication Key	NTP server's MD5 Authentication key from 0 to 65534. 0 is no MD5 Authentication.
Packet Interval	NTP server's packet interval, in seconds from 16 to 1024 (16 | 32 | 64 | 128 | 256 | 512 | 1024).
Time to Live	Indicates the number of hops (from 0 to 7) used for broadcast mode.



Edit NTP Broadcast Subnet/Multicast Address Configuration

Use the following procedure to configure the NTP Broadcast Subnet/Multicast Address Configuration screen:

1. In the IP Address text box, enter the NTP server's IP address in dotted decimal format in a range from 0.0.0.0 to 255.255.255.255.

2. In the MD5 Authentication Key drop-down box, select the NTP server's MD5 Authentication key that was setup in the NTP Authentication screen.

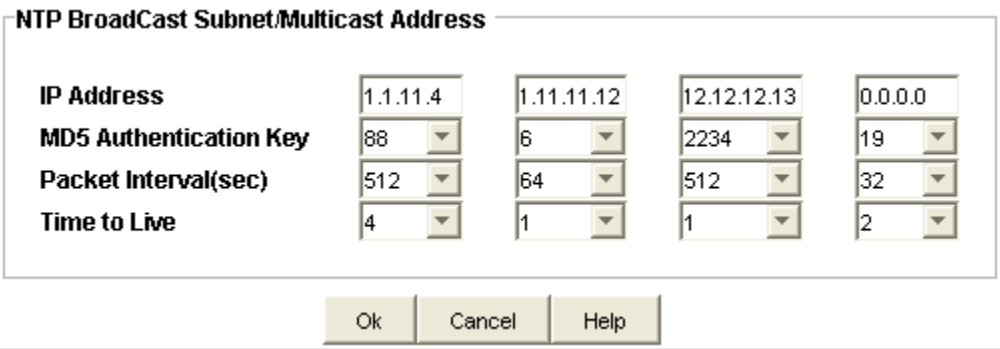
3. In the Packet Interval drop-down box, select the NTP server's packet interval, in seconds from 16 to 1024 (16 | 32 | 64 | 128 | 256 | 512 | 1024).

4. In the Time to Live drop-down box, select the number of hops (from 0 to 7) used for broadcast mode.

5. Click **OK** to accept changes and return to the NTP Broadcast Subnet/Multicast Address screen, or **Cancel** to return to the NTP Broadcast Server screen without saving changes.

Note: For all changes made in this window to take effect, you must click **Apply** in the NTP Configuration screen.

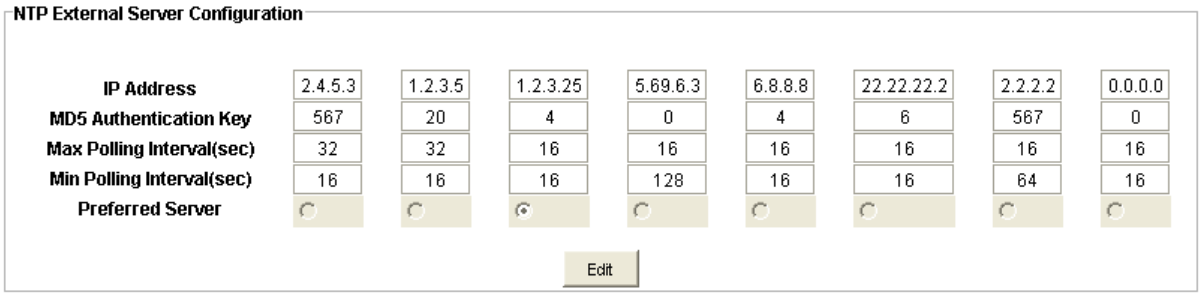
Note: To minimize disruption of NTP service, make all changes to all menus first and then click **Apply** in the NTP Configuration screen. Each time you click **Apply**, the NTP card stops service for 30 seconds as the card re-configures to its new setting.



NTP External Server Configuration

The NTP External Server Configuration screen displays the attributes of a NTP server operating in external server mode. Up to eight NTP servers can be configured.

Item	Description
IP Address	NTP server's IP address in dotted decimal format from 0.0.0.0 to 255.255.255.255.
MD5 Authentication	NTP server's MD5 Authentication key from 0 to 65534. 0 is no MD5 Authentication.
Max Polling Interval	Maximum length of time between server time requests, in seconds from 16 to 1024 (16 | 32 | 64 | 128 | 256 | 512 | 1024).
Min Polling Interval	Minimum length of time between server time requests, in seconds from 16 to 1024 (16 | 32 | 64 | 128 | 256 | 512 | 1024).
Preferred Server	Selects the server at the specified IP address.



Edit NTP External Server Configuration

Use the following procedure to change the NTP External Server Configuration screen:

1. In the IP Address text box, enter the NTP server's IP address in dotted decimal format in a range from 0.0.0.0 to 255.255.255.255.

2. In the MD5 Authentication Key drop-down box, select the NTP server's MD5 Authentication key that was setup in the NTP Authentication screen.

3. In the Max Polling Interval drop-down box, select the NTP server's packet rate, in seconds from 16 to 1024 (16 | 32 | 64 | 128 | 256 | 512 | 1024).

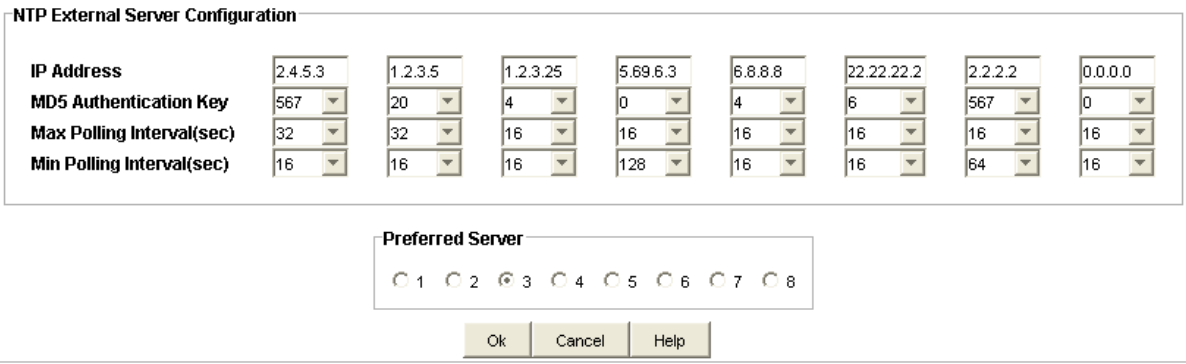
4. In the Min Polling Interval drop-down box, select the NTP server's packet rate, in seconds from 16 to 1024 (16 | 32 | 64 | 128 | 256 | 512 | 1024).

5. Click one of the desired boxes to select the preferred server at the specified IP address. An **X** indicates the selected server.

6. Click **OK** to accept changes and return to the NTP Client/Server Configuration screen, or **Cancel** to return to the NTP Client/Server Configuration screen without saving changes.

Note: For all changes made in this window to take effect, you must click **Apply** in the NTP Configuration screen.

Note: To minimize disruption of NTP service, make all changes to all menus first and then click **Apply** in the NTP Configuration screen. Each time you click **Apply**, the NTP card stops service for 30 seconds as the card re-configures to its new setting.



NTP Configuration

The NTP Configuration screen allows you to apply, save, or restore the configuration when you make changes to the following screens:

- NTP Management Port Info
- NTP Pair Status
- NTP MD5 Authentication
- NTP Broadcast Subnet/Multicast Address
- NTP External Server configuration

Note: For all changes to take effect in the windows listed above, you must click **Apply** in the NTP Configuration screen.

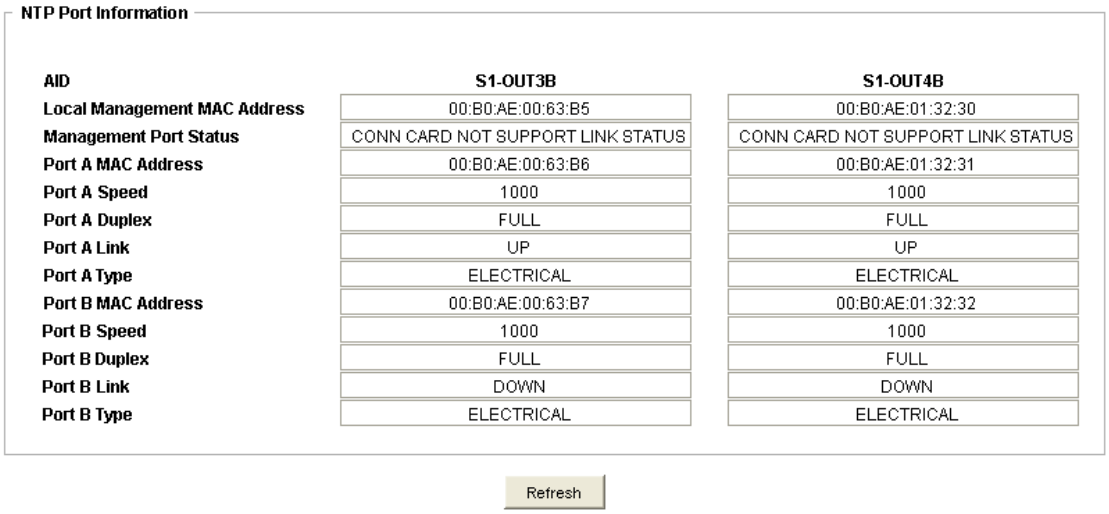
Click **Apply** to apply the selected configuration, click **Save** to save the configuration, or click **Restore** to restore the former configuration in the NTP Configuration screen.

NTP Port Information

The NTP Port Information screen provides the following information:

Click **Refresh** to update the display.

Item	Description
AID	Access Identifier (shelf number and output group).
Local Management MAC Address	MAC address of the local management port (00-B0-AE-XX-XX-XX).
Management Port Status	Indicates the management port status.
Port A MAC Address	Port A MAC address of the NTP card port A (00-B0-AE-XX-XX-XX).
Port A Speed	Port A speed setting, either 100 Mbps or 1000 Mbps.
Port A Duplex	Port A duplex setting, either FULL or HALF.
Port A Link	Indicates if the port link is UP or DOWN.
Port A Type	Indicates Port A type, either ELEECTRICAL, OPTICAL, or UNKNOWN.
Port B MAC Address	Port B MAC address of NTP card port B (00-B0-AE-XX-XX-XX).
Port B Speed	Port B speed setting, either 100 Mbps or 1000 Mbps.
Port B Duplex	Port B duplex setting, either FULL or HALF.
Port B Link	Indicates if the port link is UP or DOWN.
Port B Type	Indicates Port B type, either ELEECTRICAL, OPTICAL, or UNKNOWN.



NTP Port Information

AID	S1-OUT3B	S1-OUT4B
Local Management MAC Address	00:B0:AE:00:63:B5	00:B0:AE:01:32:30
Management Port Status	CONN CARD NOT SUPPORT LINK STATUS	CONN CARD NOT SUPPORT LINK STATUS
Port A MAC Address	00:B0:AE:00:63:B6	00:B0:AE:01:32:31
Port A Speed	1000	1000
Port A Duplex	FULL	FULL
Port A Link	UP	UP
Port A Type	ELECTRICAL	ELECTRICAL
Port B MAC Address	00:B0:AE:00:63:B7	00:B0:AE:01:32:32
Port B Speed	1000	1000
Port B Duplex	FULL	FULL
Port B Link	DOWN	DOWN
Port B Type	ELECTRICAL	ELECTRICAL

Refresh

NTP Status Summary

The NTP Status Summary screen provides the following information.

Click **Refresh** to update the display.

Item	Description
AID	Access Identifier (shelf number and output group).
Leap Indicator	The NTP server leap indicator.
Precision (usec)	Measure of the number of significant bits in NTP timestamp in microseconds.
Stratum	The NTP server stratum level.
Root Delay (msec)	The calculated root delay value in milliseconds to the primary source.
Root Dispersion (msec)	The NTP system Root Dispersion (max error relative to the primary reference source at the root of the synchronization subnet, in milliseconds).
System Peer	The peer selected by the server as the most likely to provide the best timing information.
Peer Reference ID	The NTP system Reference ID (reference clock: stratum 1 - ANSI code, stratum 2 or greater: IP address of peer selected).
Peer Reference Time	The local time.
Peer Stratum	The stratum level of the peer if this peer is the server for the NTP card server.
Peer Poll Interval (sec)	The NTP server poll interval in seconds.
Peer Reachability	The NTP server reachability
Peer Offset (msec)	The client's calculated time offset value in milliseconds for the specified server.

NTP Status Summary

AID	S0-OUT7D	S0-OUT8D
Leap Indicator	NOSYNC	NOSYNC
Precision (usec)	4	4
Stratum	16	16
Root Delay (msec)	0.000	0.000
Root Dispersion (msec)	0.000	0.000
System Peer	NA	NA
Peer Reference ID	NA	NA
Peer Reference Time	NA	NA
Peer Stratum	NA	NA
Peer Poll Interval (sec)	NA	NA
Peer Reachability	NA	NA
Peer Offset (msec)	NA	NA

Refresh

NTP Blade Events and Alarms

The NTP Blade Events and Alarms screen shows the AID, date, time, and description of NTP related events and alarms.

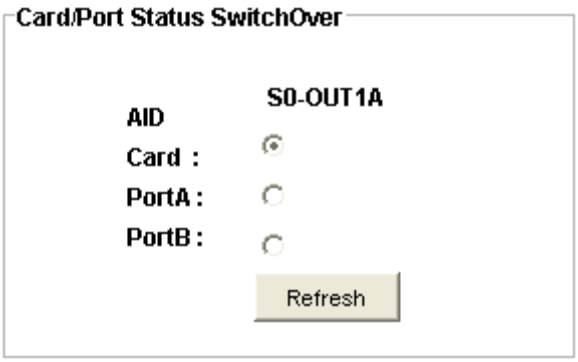
Events and Alarms

AID	DATE	TIME	DESCRIPTION
S0-OUT7D	2004-12-15	07:05:43	ALARM Port B link error
S0-OUT7D	2004-12-15	07:05:43	ALARM Port A link error
S0-OUT8D	2004-12-06	06:01:20	ALARM Port B link error
S0-OUT8D	2004-12-06	06:01:20	ALARM Port A link error

Refresh

Card/Ports State SwitchOver

The Card/Port State SwitchOver screen allows you to select which NTP card and which port is active. Click the appropriate radio button to select the desired card and port then click **Refresh**.



Reboot Card

The Reboot Card screen allows you to reboot the selected NTP card. Click the check box of the card you want to reboot and click **Reboot**.

Note: If a check box is not selected, the Reboot button is disabled.

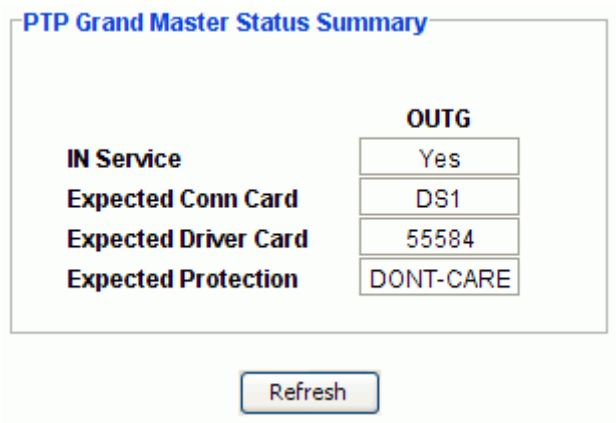
PTP Grand Master

PTP Grand Master Status Summary

The PTP Grand Master Status Summary screen information is described in the table below:

Click **Refresh** to update the display.

Item	Description
IN Service	Indicates if the port is enabled and in service or not enabled and not in service.
Expected Conn Card	Indicates the Output Connector card type. Values are as follows: DONT-CARE - No card type requirement CC - Composite Clock card type DS1 - DS1 card type TS - PTP Connector card without GPS option GTS - PTP Connector card with GPS option
Expected Driver Card	Indicates the Output Driver card type. Values are as follows: DONT-CARE - No card type requirement 55581 55582 55583 55584
Expected Protection	Indicates the Output card protection. Values are as follows: DONT-CARE - No requirement REQUIRED - Two Output Driver cards must be in the specified slot pair



PTP Grand Master Output Port

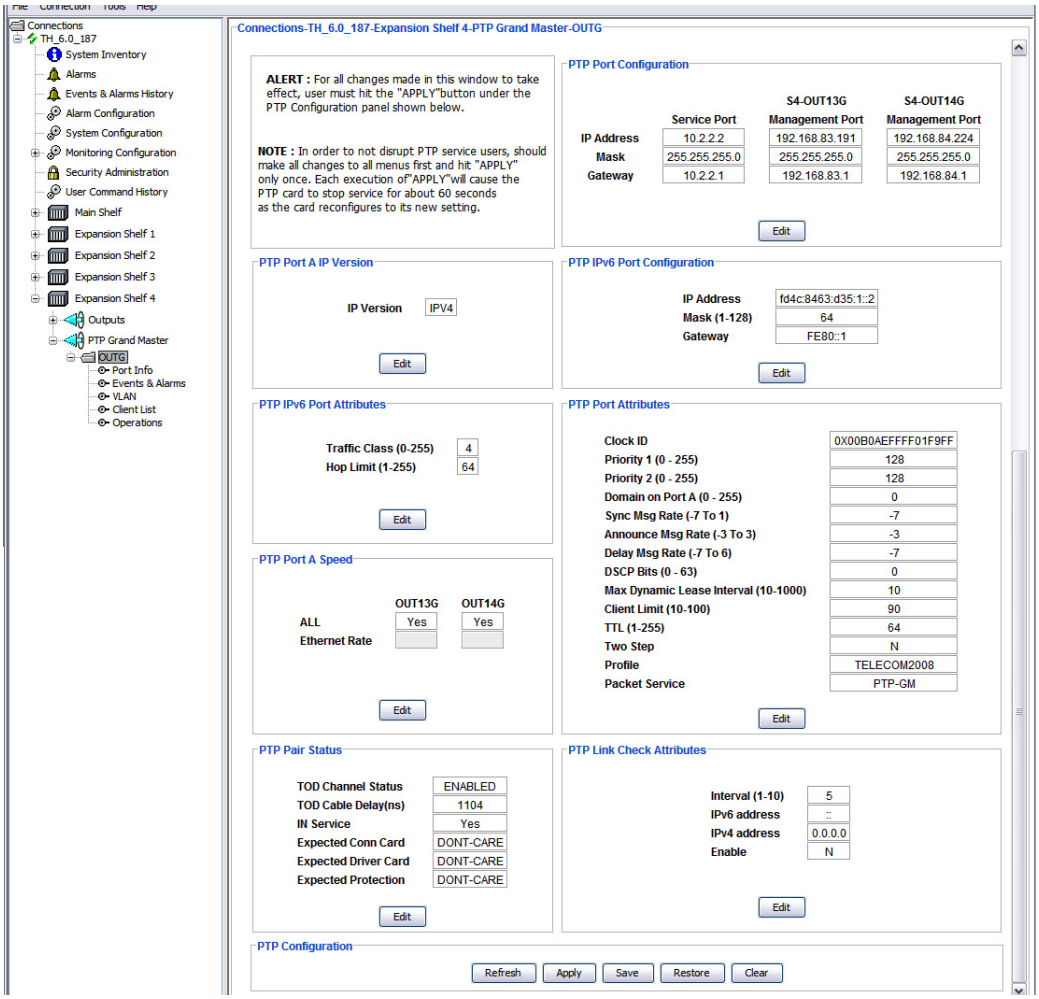
PTP Grand Master Output

The PTP Grand Master Output screen consists of the following status information sections:

- PTP Port Configuration

- PTP IPv6 Port Configuration
- PTP Pair Status
- PTP Port A Speed
- PTP Port Attributes
- PTP IPv6 Port Attributes
- PTP Link Check Attributes
- PTP Port A IP Version

Note: PTP IPv6 Port Configuration, PTP IPv6 Link Attributes, PTP Link Check Attributes and PTP Port A IP Version are applicable only for TimeHub 6.0 devices.



PTP Port Configuration

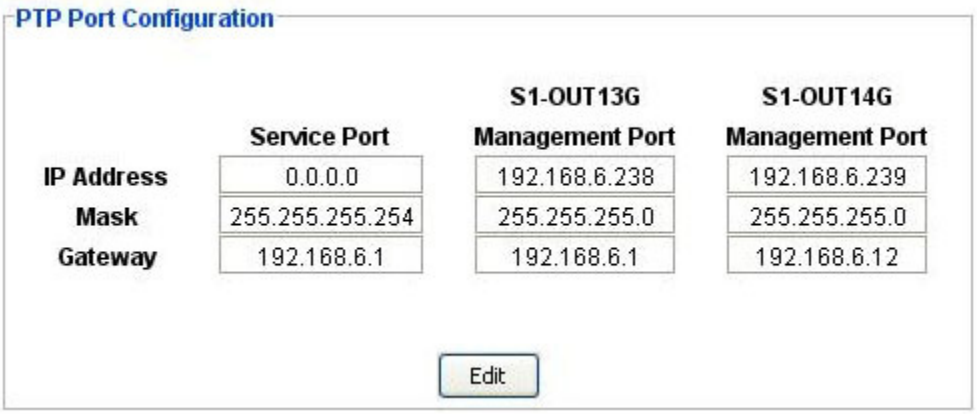
The PTP Port Configuration screen provides a view of the following port settings for the Service Port and Management Ports:

- IP Address
- Mask
- Gateway

The fields are described in the table below.

Click **Edit** to change the Port Configuration fields. After making the changes on the Edit screen, you must click **Apply** on this screen for the changes to take effect. Click **Refresh** to update the display.

Item	Description
IP Address	The port's IP address in the IPv4 format (###.###.###.###)
Mask	The port's IP mask in the IPv4 format (###.###.###.###)
Gateway	The port's IP gateway in the IPv4 format (###.###.###.###)



Edit PTP Port Configuration

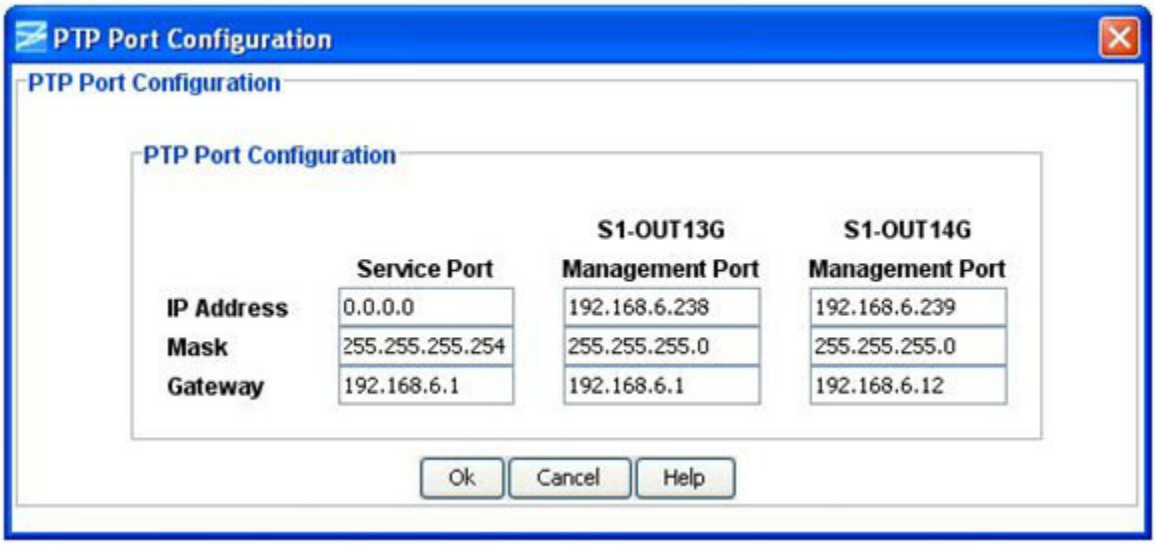
Use the following procedure to set up the PTP Port configuration:

1. Enter the local management port IP address in dotted decimal format.
2. Enter the local management port subnet mask address in dotted decimal format.
3. Enter the local gateway IP address in dotted decimal format.

4. Enter the Service port IP address in dotted decimal format.
5. Enter the Service port subnet mask address in dotted decimal format.
6. Enter the Service gateway IP address in dotted decimal format.
7. Click **OK** to accept changes and return to the PTP Blade Card Status screen (OUTX), or **Cancel** to return to the PTP Blade Card Status screen (OUTX) without saving changes.

Note: For all changes made in this window to take effect, you must click **Apply** in the PTP Configuration screen.

Note: To minimize disruption of PTP service users, make all changes to all menus first and then click **Apply** in the PTP Configuration screen. Each time you click **Apply**, the PTP card stops service for 30 seconds as the card re-configures to its new setting.



PTP IPv6 Port Configuration

The IPv6 Port Configuration screen provides the information described in the following table. Click **Edit** to change the settings.

Item	Description

IP Address	The port's IP address in the IPv6 format (The preferred form is X:X:X:X:X:X:X:X, where the 'X's are the hexadecimal values of the eight 16-bit pieces of the address.
Mask	The port's IP mask. Range is 1 to 128. Default is 64.
Gateway	The port's IP gateway in the IPv6 format (The preferred form is X:X:X:X:X:X:X:X, where the 'X's are the hexadecimal values of the eight 16-bit pieces of the address.)

Note: PTP IPv6 Port Configuration is applicable only for TimeHub 6.0 devices.

Edit IPv6 Port Configuration

Use the following procedure to set up the PTP IPv6 Port configuration:

1. Enter the IP address in IPv6 format. (The preferred form is X:X:X:X:X:X:X:X, where the 'X's are the hexadecimal values of the eight 16-bit pieces of the address.)

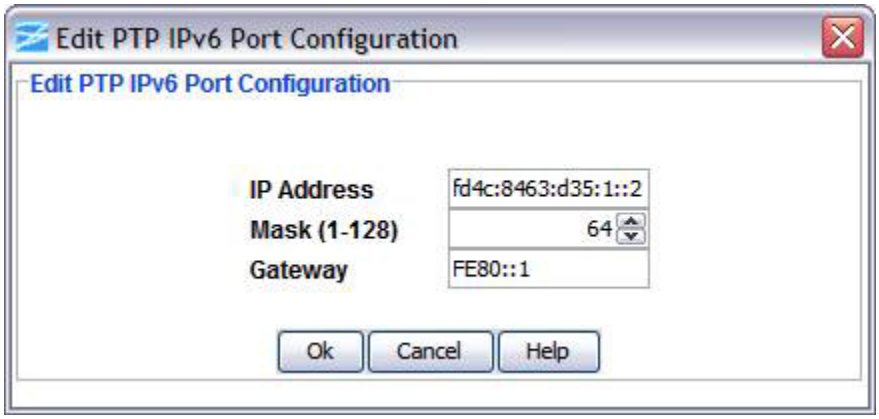
2. Select the Mask field and choose the mask value by clicking the up/down arrow button or by directly entering the value in the field. The range is 1 to 128.

3. Enter the gateway IP address in IPv6 format (The preferred form is X:X:X:X:X:X:X:X, where the 'X's are the hexadecimal values of the eight 16-bit pieces of the address.)

4. Click **OK** to accept changes or **Cancel** to return to the PTP Blade Card Status screen (OUTX) without saving changes.

Note: For all changes made in this window to take effect, you must click **Apply** in the PTP Configuration screen.

Note: To minimize disruption of PTP service users, make all changes to all menus first and then click **Apply** in the PTP Configuration screen. Each time you click **Apply**, the PTP card stops service for 30 seconds as the card re-configures to its new setting.



Note: Edit PTP IPv6 Port Configuration is applicable only for TimeHub 6.0 devices.

PTP Pair Status

The PTP Pair Status screen provides the information described in the following table. Click **Edit** to change the settings.

Item	Description
TOD Channel Status	Displays the channel status is Enabled or Disabled.
TOD Cable Delay (ns)	Displays the cable delay setting in feet and varies from 2 to 4094.
IN Service	Indicates if the PTP Service state is Enabled or Disabled.

Excepted Conn Card	Displays the expected conn card which can be DONT-CARE /CC/DS1/TS/GTS.
Excepted Driver Card	Displays the expected driver card which can be DONT-CARE/55581/ 55582/ 55583/ 55584.
Excepted Protection	Displays the expected Protection status, either Dont-Care or Required.

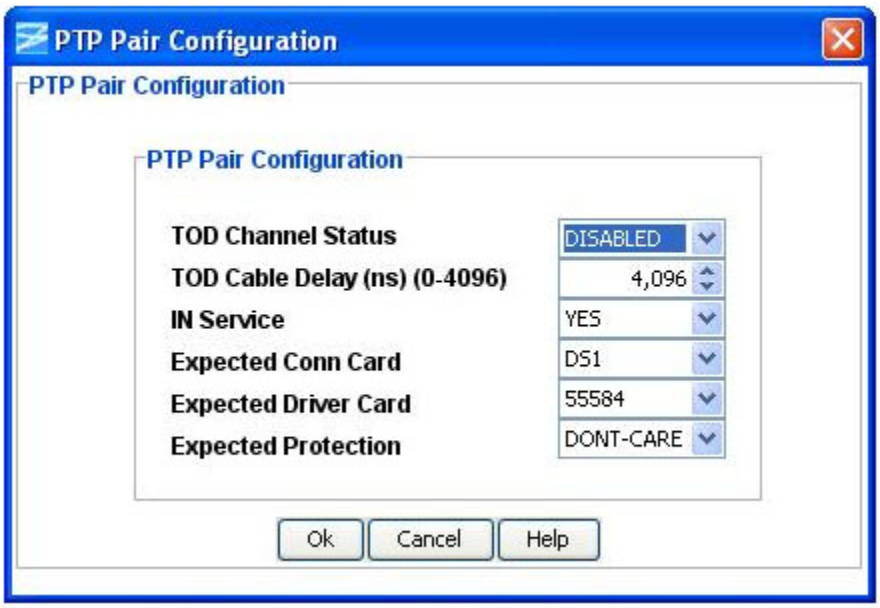
Edit PTP Pair Status Configuration

1. Use the following procedure to set up the PTP Pair Status configuration:
2. Select the TOD Channel Status Combo box and choose either Enable or Disable.
3. Select the TOD cable Delay field and choose a cable delay value by pressing up/down arrow buttons in the field or directly enter the value in the field. TOD cable Delay value varies from 0 to 4096.
4. Select the IN Service Combo box and choose either Yes to enable or No to disable the PTP service state.
5. Select the Expected Conn Card field and choose the desired Conn card type. The Conn card can be DONT-CARE / CC / DS1 / TS / GTS.
6. Select the Expected Driver Card field and choose the desired Driver card type. The Driver card can be DONT-CARE / 55581 / 55582 / 55583 / 55584.
7. Select the Expected Protection field and choose either Don't-Care or Required.

8. Click **OK** to accept changes and return to the PTP Blade Card Status screen (OUTX), or **Cancel** to return to the PTP Blade Card Status screen (OUTX) without saving changes.

Note: For all changes made in this window to take effect, you must click **Apply** in the PTP Configuration screen.

Note: To minimize disruption of PTP service, make all changes to all menus first and then click **Apply** in the PTP Configuration screen. Each time you click **Apply**, the PTP card stops service for 30 seconds as the card re-configures to its new setting.

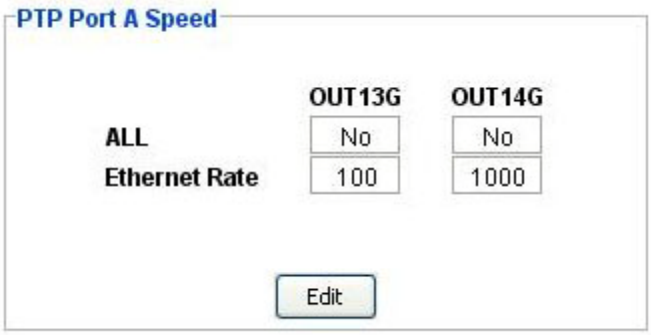


PTP Port A Speed

The PTP Port A Speed screen provides the following information described in the following table. Click **Edit** to change the settings.

Item	Description
All	Displays the Port A speed setting, ALL.
Ethernet Rate	Displays the Port A speed setting, either 100 or 1000.

Note: If the Port A speed is selected as All, the Ethernet Rate field is disabled.



Edit PTP Port A Speed

Use the following procedure to set up the PTP Port A Speed configuration:

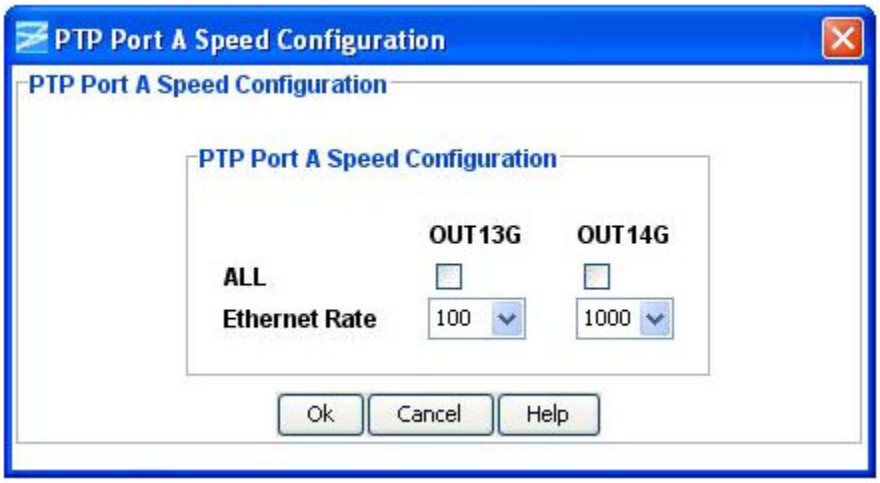
1. Select the **All** Check box which leads the Ethernet Rate field to disable or Uncheck **ALL** check boxes to select the value from the Ethernet Rate field.

2. Select the Ethernet field and choose either 100 or 1000.

3. Click **OK** to accept changes and return to the PTP Blade Card Status screen (OUTX), or **Cancel** to return to the PTP Blade Card Status screen (OUTX) without saving changes.

Note: For all changes made in this window to take effect, you must click **Apply** in the PTP Configuration screen.

Note: To minimize disruption of PTP service, make all changes to all menus first and then click **Apply** in the PTP Configuration screen. Each time you click **Apply**, the PTP card stops service for 30 seconds as the card re-configures to its new setting.



PTP Port A IP Version

The PTP Port A IP Version screen provides the information described in the following table. Click **Edit** to change the settings.

Item	Description
IP Version	Value is IPv6 or IPv4.

Note: PTP Port A IP Version is applicable only for TimeHub 6.0 devices.

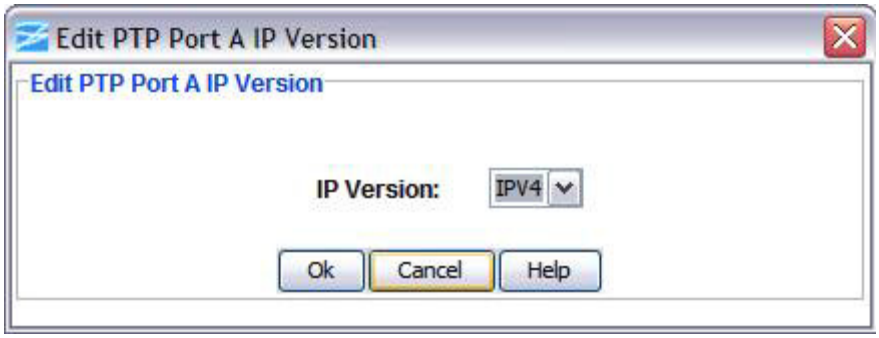
Edit PTP Port A IP Version

Use the following procedure to set up the PTP Port A IP Version configuration:

1. Enter the IP value using the drop-down box.
2. Click **OK** to accept changes and return to the PTP Blade Card Status screen (OUTX), or **Cancel** to return to the PTP Blade Card Status screen (OUTX) without saving changes.

Note: For all changes made in this window to take effect, you must click **Apply** in the PTP Configuration screen.

Note: To minimize disruption of PTP service, make all changes to all menus first and then click **Apply** in the PTP Configuration screen. Each time you click **Apply**, the PTP card stops service for 30 seconds as the card re-configures to its new setting.



Note: Edit PTP Port A IP Version is applicable only for TimeHub 6.0 devices.

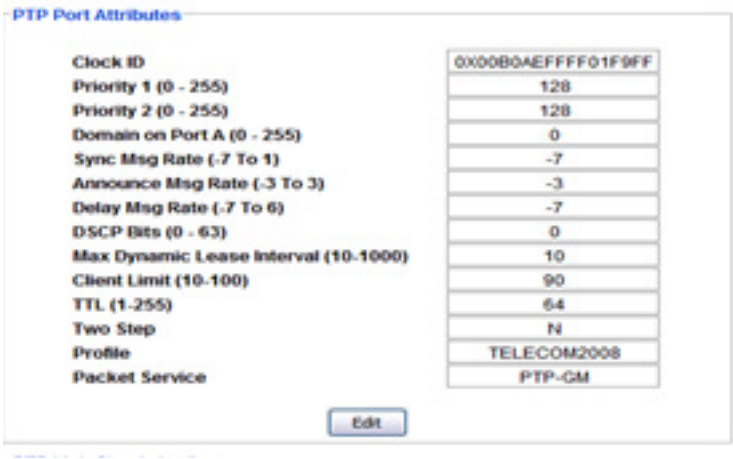
PTP Port Attributes

The PTP Port Attributes screen provides the information described in the following table. Click **Edit** to change the settings.

Item	Description
Clock ID	The PTP Port Clock Identity (64-bit value). The format is 0Xaaaaaaaaaaaaaaaa. The “a” represents a hex value. The clockid format contains a prefix hex number token (0X) following up to 16 hex characters.
Priority 1(0 - 255)	Indicates the PTP Port Priority 1. Range is 0 to 255.
Priority 2 (0 - 255)	Indicates the PTP Port Priority 2. Range is 0 to 255.
Domain on port A(0 - 255)	Indicates the PTP Domain. Range is 0 to 255.
Sync Msg Rate (-7 to 1)	Indicates the PTP unicast Sync message rate, (2^y), in seconds. Range is -7 to 1. A value of -7 means 128 per second.
Announce Msg Rate(-3 to 3)	Indicates the PTP unicast Announce message rate, (2^y), in seconds. Range is -3 to 3. A value of -3 means 8 per second.
Delay Msg Rate (-7 to 6)	Indicates the PTP unicast Delay message rate, (2^y), in seconds. Range is -7 to 6. A value of -6 means 64 per second.
DSCP Bits (0 – 63)	Indicates DSCP value. Range is 0 to 63.

Max Dynamic Lease Interval (10 – 1000)	Indicates the PTP maximum Dynamic Unicast Lease Interval. Range is 10 to 1000 seconds.
Client Limit (10- 100)	Indicates the Client Limit Threshold, expressed as percentage of absolute client limit that will produce an alarm. Range is valid integer from 10 to 100. Default is 90.
TTL (1-255)	Indicates PTP IPv4 TTL. Range is from 1 to 255. Default is 64.
Two Step	Indicates whether Two Step mode is enabled. Value is either Y or N. Default is N.
Profile	Indicates generic Unicast PTP profile type used in telecom before ITU-T G.8265.1 (TELECOM2008). TELECOM2008 is the only available option.
Packet Service	Indicates the type of packet service used by the PTP blade. PTP_GM is the only available option.

Note: Client Limit, TTL, Two Step, Profile and Packet Service are applicable only for TimeHub 6.0 devices.



Edit PTP Port Attributes

Use the following procedure to set up the PTP Port Attributes configuration:

1. Select the Clock ID field and enter the Clock ID value. The PTP Port Clock Identity (64-bit value). The format is 0Xaaaaaaaaaaaaaaaa. The “a” represents a hex value. The clockid format contains a prefix hex number token (0X) following up to 16 hex characters.

2. Select the Priority1 field and choose the priority value by clicking the up/down arrow button or by directly entering the value in the field. The range is 0 to 255.

3. Select the Priority2 field and choose the priority value by clicking the up/down arrow button or by directly entering the value in the field. The range is 0 to 255.

4. Select the Domain on Port A field and choose the Domain port value by clicking the up/down arrow button or by directly entering the value in the field. The range is 0 to 255.

5. Select the Sync Msg Rate field and choose the Sync msg rate value by clicking the up/down arrow button or by directly entering the value in the field. The range is -7 to 1.

6. Select the Announce Msg Rate field and choose the Announce msg rate value by clicking the up/down arrow button or by directly entering the value in the field. The range is -3 to 3.

7. Select the Delay Msg Rate field and choose the Delay msg rate value by clicking the up/down arrow button or by directly entering the value in the field. The range is -7 to 6.

8. Select the DSCP Bits field and choose the DSCP bits value by clicking the up/down arrow button or by directly entering the value in the field. The range is 0 to 63.

9. In the Max Dynamic Unicast Lease Interval box, set the desired value. The range is 10 to 1000 seconds.

10. Select the Client Limit field and enter the number of PTP clients to be retrieved before an alarm occurs by clicking the up/down arrow button or by directly entering the value in the field. The range is 10 to 100.

11. Select the TTL field and enter the limit for the lifespan of PTP packets by clicking the up/down arrow button or by directly entering the value in the field. The range is 1 to 255.

12. Select the Two Step field and choose either Y or N.

13. Select the Profile field and choose the value, TELECOM2008.

14. Select the Packet Service field and choose the value, PTP-GM.

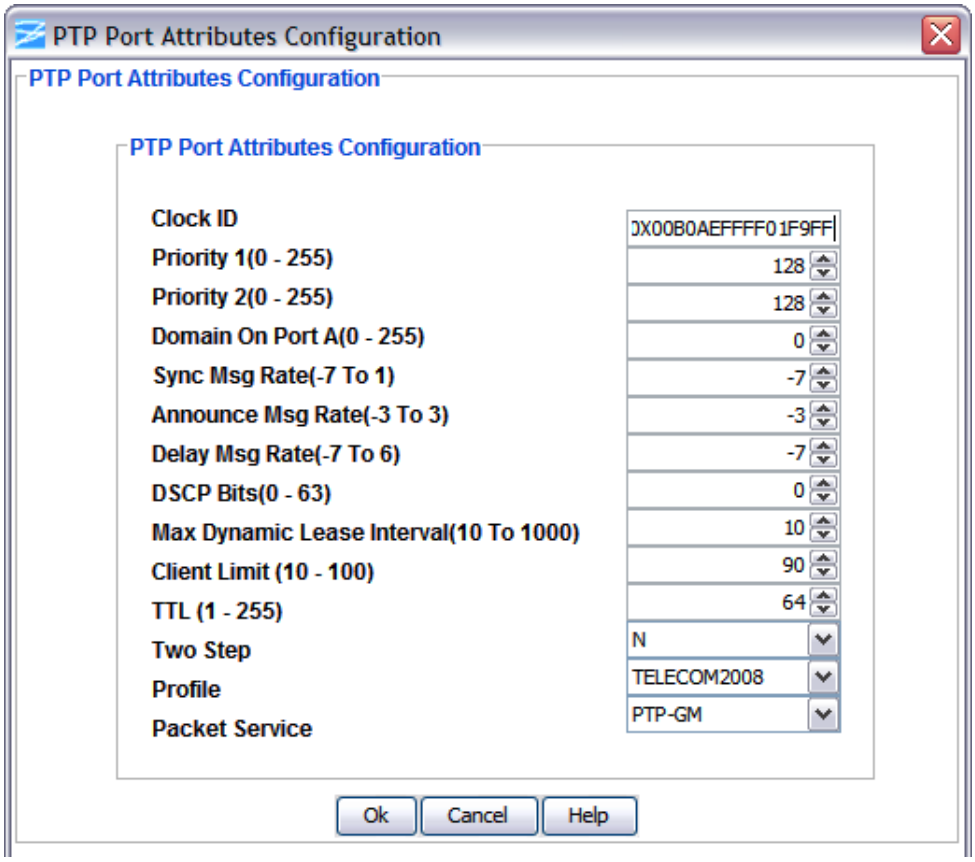
15. Click **OK** to accept changes and return to the PTP Blade Card Status screen (OUTX), or **Cancel** to return to the PTP Blade Card Status screen (OUTX) without saving changes.

Note: If you directly edit out of range values in the spinner fields (The field with up\down buttons) the previous valid value is restored.

Note: For all changes made in this window to take effect, you must click **Apply** in the PTP Configuration screen.

Note: To minimize disruption of PTP service, make all changes to all menus first and then click **Apply** in the PTP Configuration screen. Each time you click **Apply**, the PTP card stops service for 30 seconds as the card re-configures to its new setting.

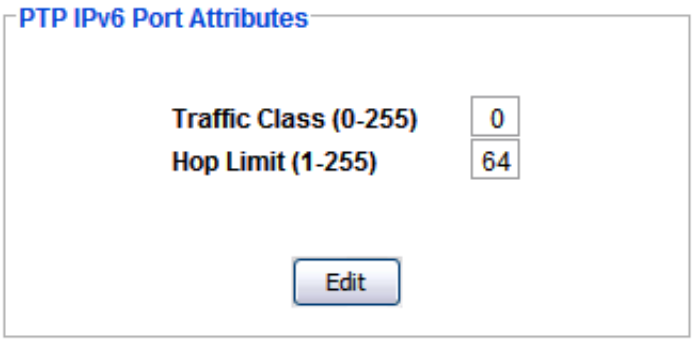
Note: Client Limit, TTL, Two Step, Profile and Packet Service are applicable only for TimeHub 6.0 devices.



PTP IPv6 Port Attributes

The PTP IPv6 Port Attributes screen provides the information described in the following table. Click **Edit** to change the settings.

Item	Description
Traffic Class	Indicates the PTP IPv6 Traffic Class. Range is valid integer between 0 and 255. Default is 0.
Hop Limit	Indicates the PTP IPv6 Hop Limit. Range is integer between 1 and 255. Default is 64.



Note: PTP IPv6 Port Attributes is applicable to TimeHub 6.0 devices.

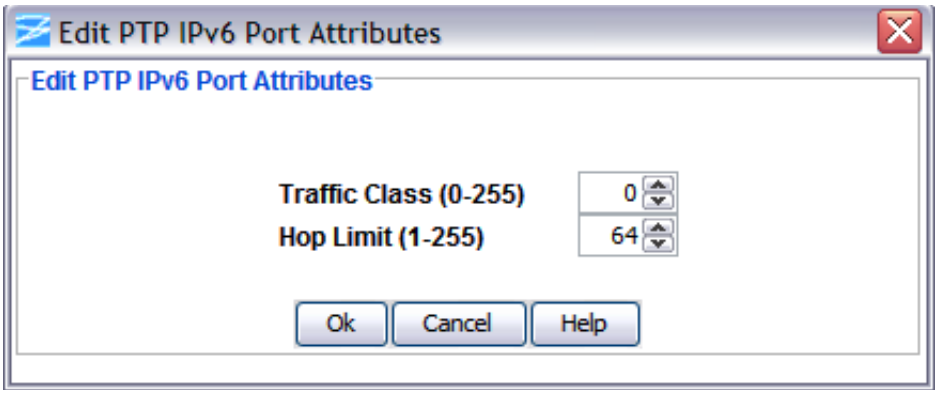
Edit PTP IPv6 Port Attributes

Use the following procedure to set up the PTP IPv6 Port Attributes configuration:

1. Select the Traffic Class field and choose the traffic class value by clicking the up/down arrow button or by directly entering the value in the field. The range is 0 to 255.

2. Select the Hop Limit field and choose the hop limit value by clicking the up/down arrow button or by directly entering the value in the field. The range is 1 to 255.

3. Click **OK** to accept changes and return to the PTP Blade Card Status screen (OUTX), or **Cancel** to return to the PTP Blade Card Status screen (OUTX) without saving changes.



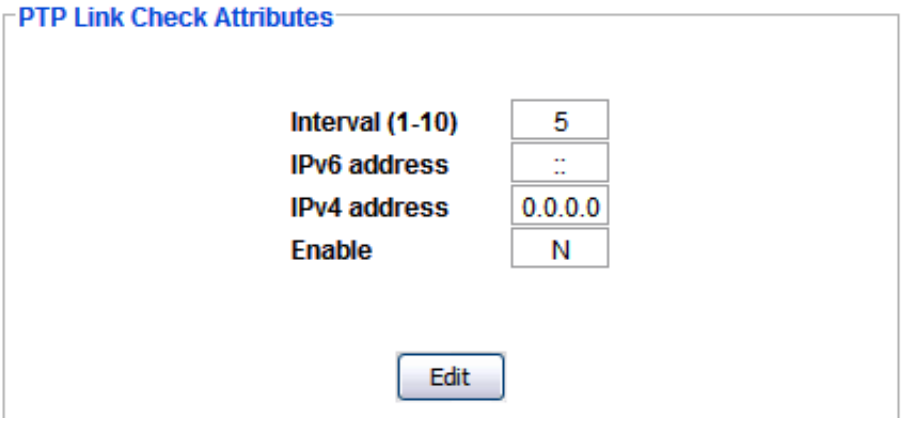
Note: Edit PTP IPv6 Port Attributes is applicable to TimeHub 6.0 devices.

PTP Link Check Attributes

The PTP Link Check Attributes screen provides the information described in the following table. Click **Edit** to change the settings.

Item	Description
Interval	Value is 1-10.
IPv6 address	The port's IP mask in the IPv6 format (The preferred form is X:X:X:X:X:X:X:X, where the 'X's are the hexadecimal values of the eight 16-bit pieces of the address.)
IPv4 address	The port's IP address in the IPv4 format (###.###.###.###)
Enable	Value is Y to enable or N to disable.

Note: PTP Link Check Attributes is applicable only for TimeHub 6.0 devices.



Edit PTP Link Check Attributes

Use the following procedure to set up the PTP Link Check Attributes configuration:

1. Enter the Interval value of 1-10.

2. Enter the IPv6 address in IPv6 format (The preferred form is X:X:X:X:X:X:X:X, where the 'X's are the hexadecimal values of the eight 16-bit pieces of the address.)

3. Enter the IPv4 address in dotted decimal format.

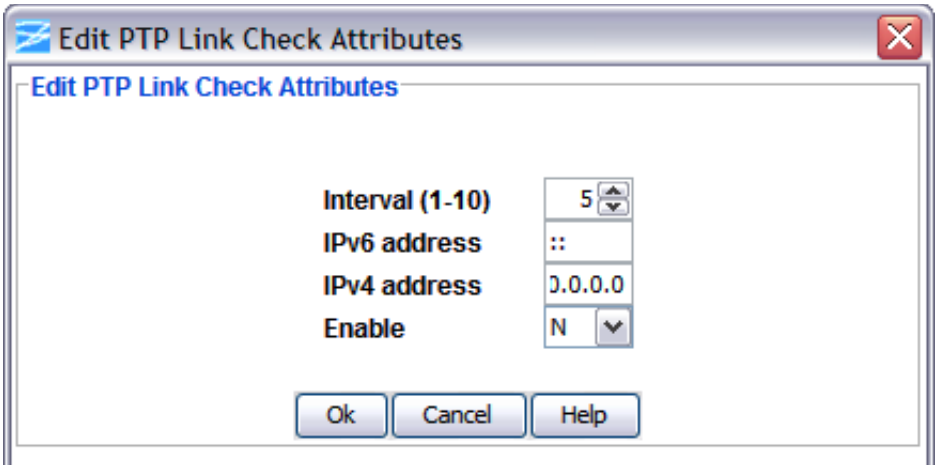
4. Select an Enable option (Y/N) from the drop-down box.

5. Click **OK** to accept changes and return to the PTP Blade Card Status screen (OUTX), or **Cancel** to return to the PTP Blade Card Status screen (OUTX) without saving changes.

Note: For all changes made in this window to take effect, you must click **Apply** in the PTP Configuration screen.

Note: To minimize disruption of PTP service, make all changes to all menus first and then click **Apply** in the PTP Configuration screen. Each time you click **Apply**, the PTP card stops service for 30 seconds as the card re-configures to its new setting.

Note: Edit PTP Link Check Attributes is applicable only for TimeHub 6.0 devices.



PTP Configuration

The PTP Configuration screen allows you to Refresh, Apply, Save, Restore or Clear the configuration when you make changes to the following screens:

- PTP Port Configuration

- PTP IPv6 Port Configuration
- PTP Port A IP Version
- PTP Pair Status
- PTP Port A Speed
- PTP Link Check Attributes
- PTP Port Attributes
- PTP IPv6 Port Attributes

Note: For all changes made in this window to take effect, you must click **Apply** in the PTP Configuration screen.

Click **Apply** to apply the selected configuration, click **Save** to save the configuration, or click **Restore** to restore the former configuration in the PTP Configuration screen, click **Clear** to clear the configuration and click **Refresh** to update the screen with the latest configuration.

PTP Port Information

The PTP Port Information screen provides the following information:

Click **Refresh** to update the display.

Item	Description
AID	Access Identifier (shelf number and output group).
PTP Card Status	Indicates the PTP card State. PTP card state can be Active\Stand-By\INIT.
PTP Loop Status	Indicates the loop status of PTP card.
Firmware Version	Indicates the latest revision level of the PTP module software.
Port A MAC Address	Port A MAC address of the PTP card port A (00-B0-AE-XX-XX-XX).
Port A Type	Indicates Port A type, either ELEECTRICAL, OPTICAL, or UNKNOWN.
Port A Speed	Port A speed setting, either 100 Mbps or 1000 Mbps.
Port A Link	Indicates if the port link is UP or DOWN.
Local Management MAC Address	MAC address of the local management port (00-B0-AE-XX-XX-XX).
TOD Format	Indicates the TOD Format. TOD format can be CISCO\None...

PTP Port Information

AID	S1-OUT13G	S1-OUT14G
PTP Card Status	STANDBY	ACTIVE
PTP Loop Status	TRACKBITS	TRACKBITS
Firmware Version	1.0.01	1.0.0
Port A MAC Address	00:B0:AE:01:36:0A	00:B0:AE:01:A1:8E
Port A Type	UNKNOWN	UNKNOWN
Port A Speed	10	10
Port A Link	DOWN	DOWN
Local Management MAC Address	00:B0:AE:01:36:0C	00:B0:AE:01:A1:90
TODFORMAT	UNKNOWN	UNKNOWN

Refresh

PTP Events and Alarms

The PTP Events and Alarms screen provides the following information:

Click **Refresh** to update the display.

Item	Description
AID	Access Identifier (shelf number and output group).
Date	Indicates the date the event\alarm was generated.
Time	Indicates the time event\alarm was generated.
Description	Provides a description of the event\alarm.

PTP VLAN

VLAN is the Virtual Local Area Network. The PTP VLAN screen provides the following information:

Item	Description
AID	The Access Identifier (AID) denotes the shelf, module, and port within the TimeHub where the PTP module is installed.
ID (2-4094)	Displays the VLAN identification (2 to 4094)
Priority (0-7)	Displays the VLAN priority (0 to 7)
IP Address	The VLAN's IP address in the IPv4 format (###.###.###.###)
Network Mask	The VLAN's IP mask in the IPv4 format (###.###.###.###)
IP Gateway	The VLAN's IP gateway in the IPv4 format (###.###.###.###)

1. To change a VLAN configuration, select the desired VLAN and click **Edit VLAN**.

Note: To edit VLAN values VLAN must be enabled. Otherwise, TimeCraft does not allow you to edit/select VLAN values.

2. Click the **Enable** or **Disable VLAN Function** radio button to enable or disable the VLAN function.

3. Click **Apply** to apply the updated information.

4. Click **Refresh** to update the display.

PTP VLAN

AID	ID(2-4094)	Priority(0-7)	IP Address	Network Mask	Gateway
S1-OUTG	2	2	192.168.2.2	255.255.255.0	192.168.2.10
S1-OUTG	3	0	0.0.0.0	255.255.255.0	0.0.0.0
S1-OUTG	4	0	0.0.0.0	255.255.255.0	0.0.0.0
S1-OUTG	5	0	0.0.0.0	255.255.255.0	0.0.0.0

Enable VLAN Function

Disable VLAN Function

Edit VLAN Refresh

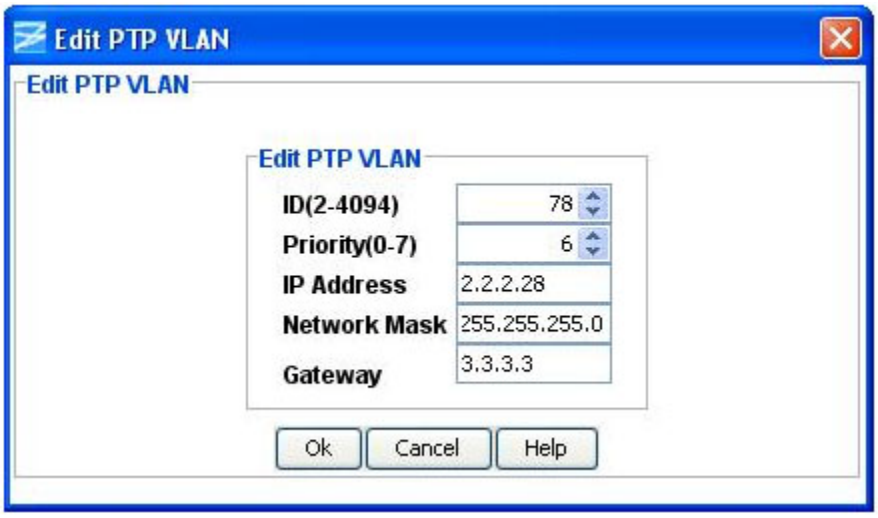
Apply

Edit PTP VLAN

Use the following procedure to configure PTP VLAN:

1. Select **Edit VLAN** to open the Edit PTP VLAN window.
2. Change the ID by clicking the up/down arrow button or by directly entering the value in the field. The ID range is from 2 to 4094.
3. Change the Priority (0 - 7) by clicking the up/down arrow button or by directly entering the value in the field. The range varies from 0 to 7.
4. Enter the desired IP address in the IP Address entry box.
5. Enter the desired mask in the Network Mask entry box.
6. Enter the desired Gateway address in the Gateway entry box.
7. Click **OK** to accept changes and return to the PTP VLAN screen, or **Cancel** to return to the PTP VLAN screen without saving changes.

Note: To minimize disruption of PTP service, make all changes to all menus first and then click **Apply** in the PTP Configuration screen. Each time you click **Apply**, the PTP card stops service for 30 seconds as the card re-configures to its new setting.

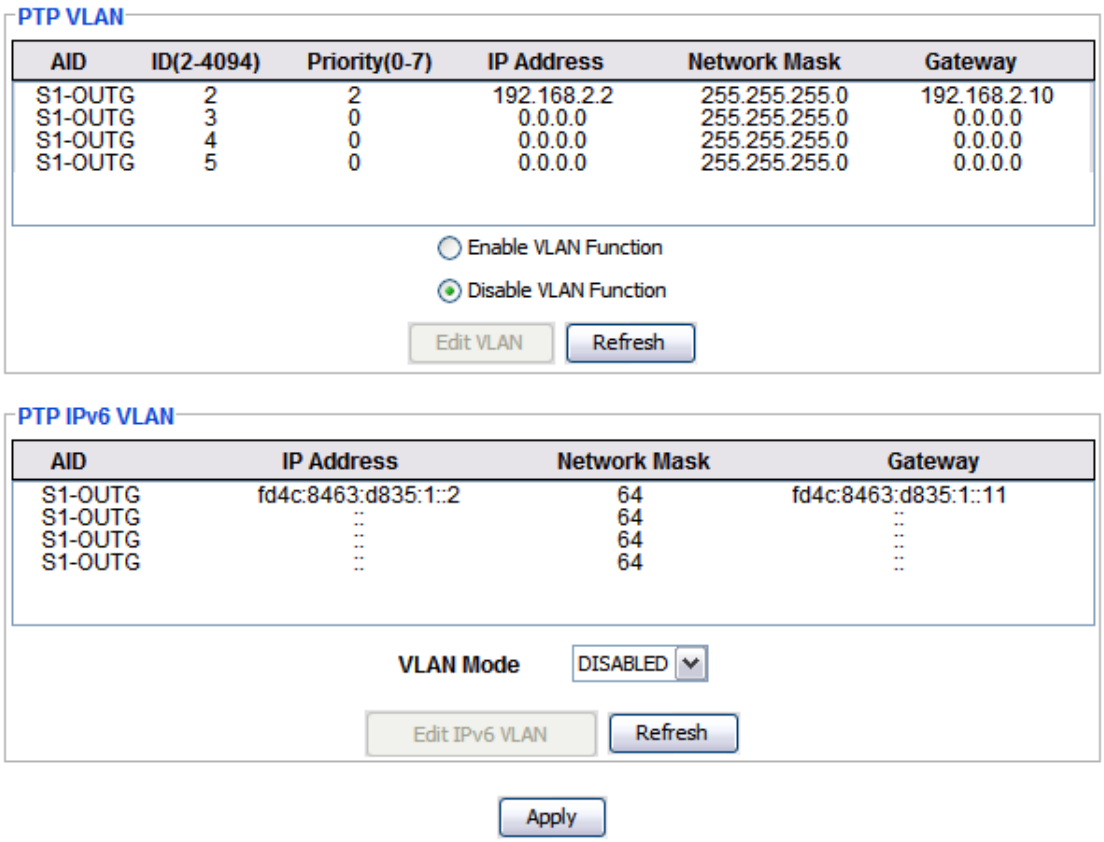


PTP IPv6 VLAN

The PTP IPv6 VLAN screen provides the following information:

Item	Description
AID	The Access Identifier (AID) denotes the shelf, module, and port within the TimeHub where the PTP module is installed.
IP Address	The VLAN's IP address in the IPv6 address in the IPv6 format (The preferred form is X:X:X:X:X:X:X:X, where the 'X's are the hexadecimal values of the eight 16-bit pieces of the address.)
Network Mask	The VLAN's IP mask. Range is between 1 to 128.
IP Gateway	The VLAN's IPv6 gateway in the IPv6 format (The preferred form is X:X:X:X:X:X:X:X, where the 'X's are the hexadecimal values of the eight 16-bit pieces of the address.)

Note: PTP IPv6 VLAN is applicable only for TimeHub 6.0 devices.



1. To change a VLAN configuration, select the desired VLAN and click **Edit IPv6 VLAN**.

> **Note:** To edit iPv6 VLAN values IPv6 VLAN must be enabled. Otherwise, TimeCraft does not allow you to edit/select IPv6 VLAN values.

2. Click the **VLAN Mode** drop-down box to select enable or disable the VLAN Mode function.

3. Click **Apply** to apply the updated information.

4. Click **Refresh** to update the display.

When VLAN mode is enabled, the Edit IPv6 VLAN button displays when you select a row in the IPv6 VLAN table.

Edit PTP IPv6 VLAN

Use the following procedure to configure PTP IPv6 VLAN:

1. Select **Edit IPv6 VLAN** to open the Edit PTP IPv6 VLAN window.

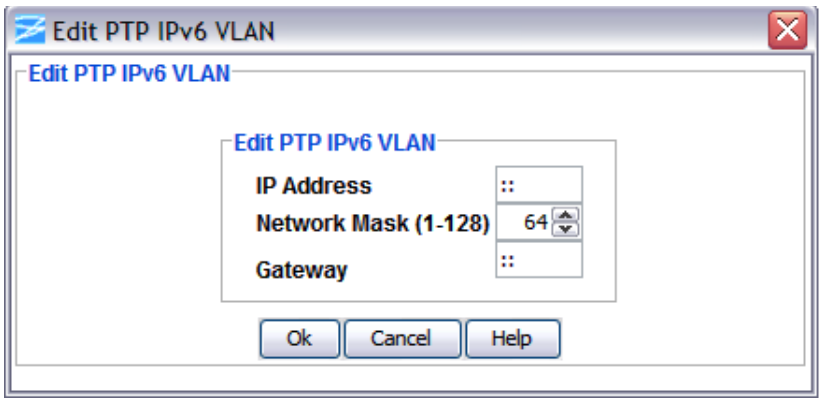
2. Enter the desired IPv6 address in the IP Address entry box.

3. Enter the desired mask in the Network Mask by clicking the up/down arrow button or by directly entering the value in the field. The range varies from 1 to 128.

4. Enter the desired IPv6 gateway address in the Gateway entry box.

5. Click **OK** to accept changes and return to the PTP IPv6 VLAN screen, or **Cancel** to return to the PTP IPv6 VLAN screen without saving changes.

Note: To minimize disruption of PTP service, make all changes to all menus first and then click **Apply** in the PTP Configuration screen. Each time you click **Apply**, the PTP card stops service for 30 seconds as the card re-configures to its new setting.



Note: Edit PTP IPv6 VLAN is applicable to TimeHub 6.0 devices.

PTP Client List

The Client List screen provides a view of the Client List for the selected PTP module.

The Client List screen also provides the following details for the Client that is selected in the list:

- Clock ID
- IP Address (IPv4 or IPv6)
- Announce Interval

- Announce Duration
- Sync Interval
- Sync Duration
- Delay Response Interval
- Delay Response Duration.

Note: If the PTP module has no active card, the PTP Client List displays a “No active card” message. If no client is defined for the selected PTP module, a “No client defined yet” message is displayed.

Note: The maximum clients allowed for PTP is 125.

Click **Refresh** to update the display.

PTP Client List

Index	IP Address	Clock ID
1	192.168.1.102	00B0AEFFFE0345D9

Delete Refresh

PTP Client Details

Clock ID	00B0AEFFFE0345D9
IP	192.168.1.102
Announce Interval	1
Announce Duration	300
Sync Interval	-6
Sync Duration	300
Delay Resp Interval	-6
Delay Resp Duration	300

Select the client from the PTP Client List, to display corresponding client details in PTP Client Details section.

Note: If PTP Port A IP Version is IPv6, the IP Address field in client list will be displayed in IPv6 format.

Remove PTP Client

To remove a client from the PTP Client list, do the following.

1. Select a client from the Client List table and click the **Delete** button.
2. Click **Yes** to confirm. The selected client will be deleted from the client list.

Note: Remove PTP Client is applicable only for TimeHub 6.0 devices.

Note: Delete button will not be visible for legacy devices (below TimeHub 6.0).

Ping Module

The Ping Module screen provides the following information:

Item	Description
AID	The Access Identifier (AID) denotes the shelf, module, and port within the TimeHub where the PTP module is installed.
Port	Port A identifies the port of the PTP server module.
IP Address	The VLAN's IP address in the IPv4 or IPv6 format. See **Note** that follows.
VLAN ID	The VLAN's ID. Range is 2 - 4094. If VLAN MODE is disabled, this option is not available.
Response	The Ping response. Values are OK or FAIL.

Note: VLAN's IP Address format is based on PTP Port A IP Version

To send a ping command to the specified port, click the **Ping** button.

Note: Ping Module is applicable only for TimeHub 6.0 devices.

Operations Card Status Switchover

The Card Status Switch Over screen allows you to switch the PTP card state to active/stand by. Click the appropriate radio button to select the desired card which you want to be active.

Click **Refresh** to update the display.

Operations Reboot Card

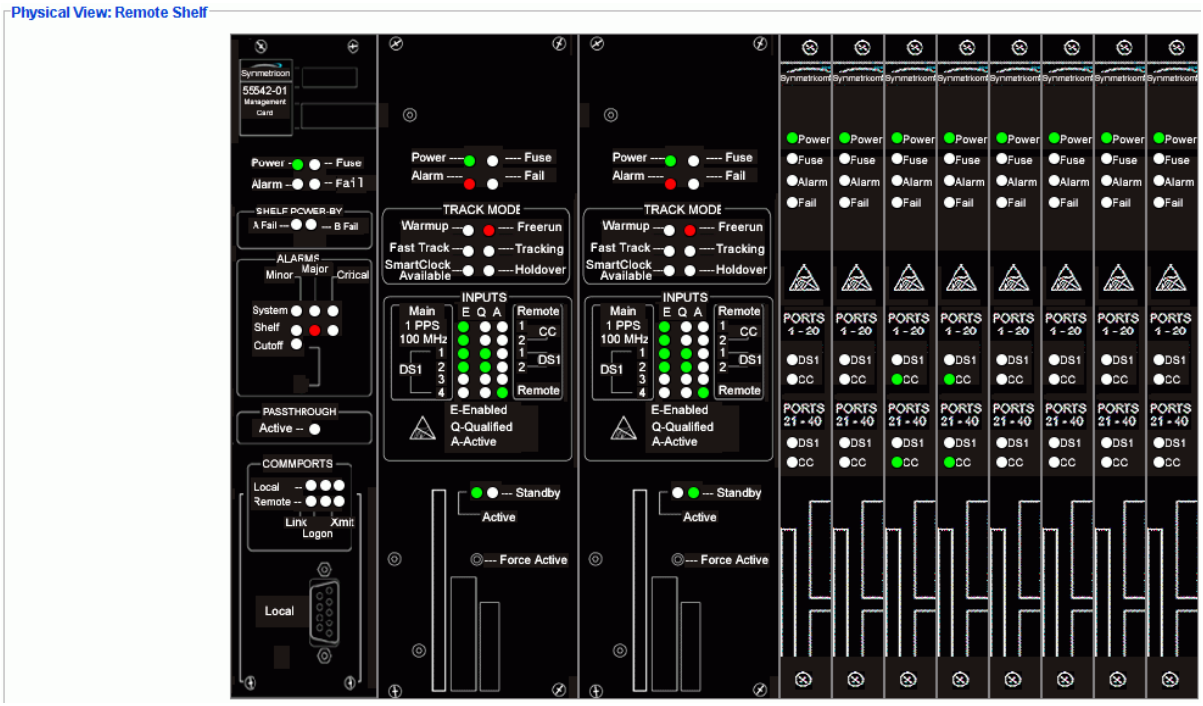
The Reboot Card screen allows you to reboot the selected PTP card. Click the check box of the card you want to reboot and click **Reboot**.

Note: If a check box is not selected, the Reboot button is disabled.

Remote Shelf

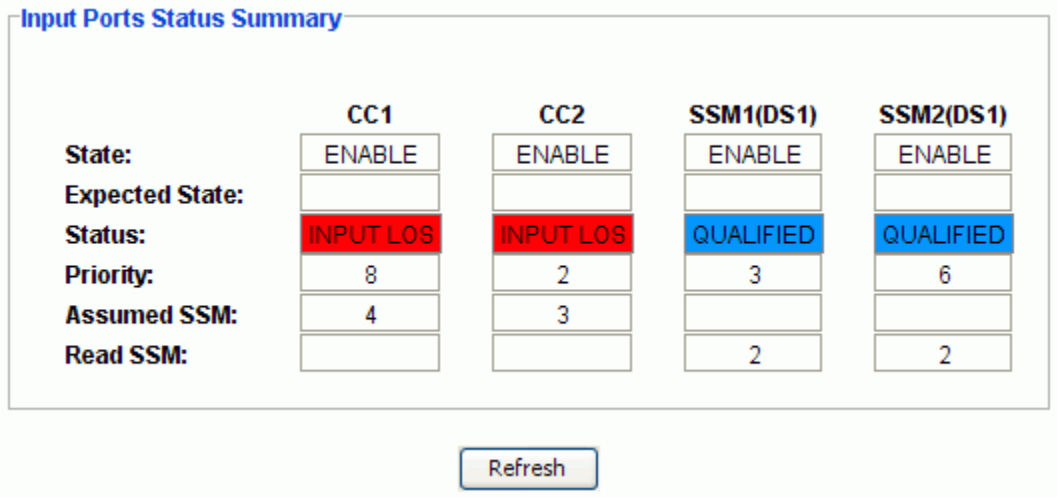
Remote Shelf View

The TimeHub Remote Shelf view provides a front panel view of the remote TimeHub.



Remote Shelf Port Status Summary

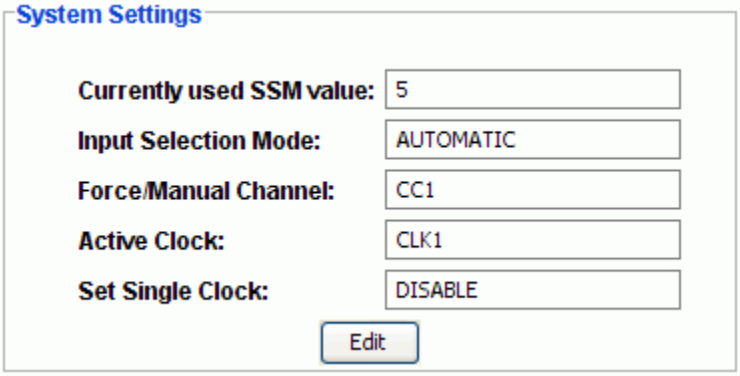
The Remote Shelf Input Port Status Summary screen provides a view of the remote shelf attributes for composite clock inputs 1 and 2 and for the two DS1 inputs that are used to receive SSM information from the master shelf. Click **Refresh** to update the display.



Item	Description
State	Indicates if the port is enabled or disabled as an input timing reference. **Note:** You should disable unused inputs so that they do not generate alarms.
Status	Displays one of the following port status indications: ■ ACTIVE ■ QUALIFIED ■ NOT QUALIFIED ■ INPUT LOS ■ IMPAIRMENT ■ DISABLED
Priority	Displays the priority setting (0 through 9). The priority setting provides a way to prefer a particular input for use as the active timing reference when more than one input has been qualified. The lower the number, the higher the priority.
Assumed SSM	Displays the assumed SSM quality level. The assumed SSM level is used when SSM is disabled.
Read SSM	Displays the reading of the port SSM bit.

Remote Shelf System Settings

The Remote Shelf System Settings screen provides a view of the system settings described in the table below. Click **Edit** to change the settings.



Item	Description
Currently used SSM value	Displays the priority value (0 through 9).
Input Selection Mode	Automatic The TimeHub automatically selects the qualified input to use as the active timing reference. Manual The TimeHub attempts to use the requested channel as the active timing reference (see Manual Channel below). **Note:** If the requested channel is not qualified, the setting goes to Automatic. Once the requested channel is accepted, if it later becomes disqualified for any reason, the setting goes back to Automatic. Forced The TimeHub attempts to use the requested channel as the active timing reference. **Note:** If the requested channel is not qualified, the Clock card enters holdover mode (even if there are other qualified inputs). If the requested channel subsequently becomes qualified, it becomes the active timing reference.
Force/Manual Channel	Displays the port to be used when the **Input Selection Mode** is set to Manual.
Active Clock	Displays the active Clock card (Clock 1 or Clock 2).
Set Single Clock	Indicates if the single clock setting is enabled or disabled. **Note:** If the normal operation for a shelf is with a single Clock card (non-redundant operation), selecting ENABLE prevents an alarm for this condition.

Edit Remote Shelf System Settings

Use the following procedure to edit the remote shelf system settings:

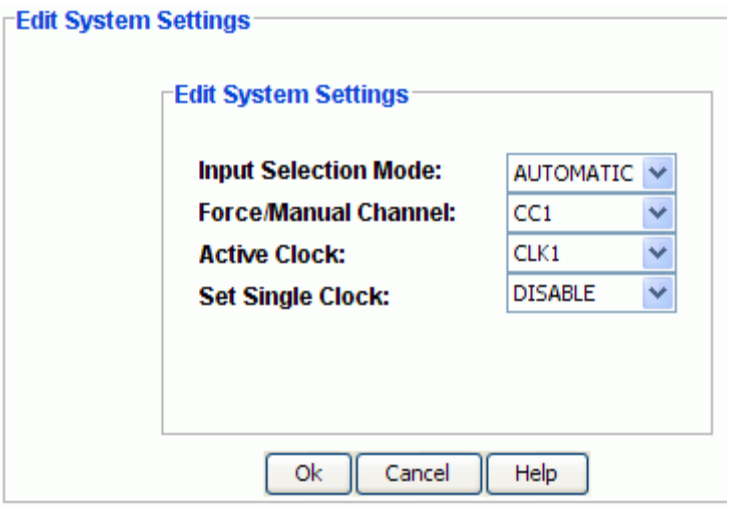
1. Select AUTOMATIC, MANUAL, or FORCED in the Input Selection Mode drop-down box.

2. Select either CC1 or CC2 in the Force/Manual Channel drop-down box to select a port to be used when the Input Selection Mode is set to MANUAL.

3. Select CHANGE or NO CHANGE in the Active Clock drop-down box.

4. Select ENABLE or DISABLE in the Set Single Clock drop-down box.

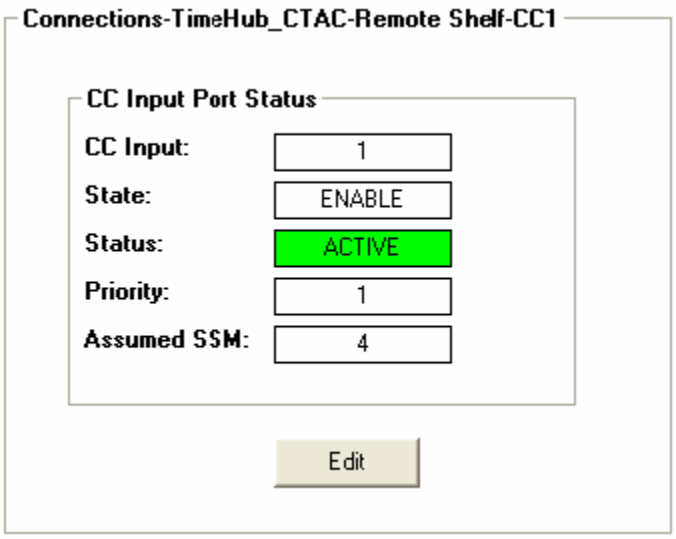
5. Click **OK** to accept changes and return to the System Settings screen, or **Cancel** to return to the System Settings screen without saving changes.



Remote Shelf Input Ports

CC1/CC2 Inputs

When the TimeHub is set up as a remote shelf the input timing reference must be composite clock. The Input Port Status screen shown below provides a view of the port settings described in the following table. Click **Edit** to change the settings.



Item	Description
CC Input	Indicates the port number.
State	Indicates if the port is enabled or disabled as an input timing reference.

Status	Displays one of the following port status indications: ■ ACTIVE ■ QUALIFIED ■ NOT QUALIFIED ■ INPUT LOS ■ IMPAIRMENT ■ DISABLED
Priority	Displays the priority setting (0 through 9). The priority setting provides a way to prefer a particular input for use as the active timing reference when more than one input has been qualified. The lower the number, the higher the priority. The default is that the PRS input has highest priority and all others are equal.
Assumed SSM	Displays the assumed SSM quality level. The assumed SSM level 1 to 9 is used when SSM is disabled. The values are as follows: 1. Stratum 1 Traceable (PRS) 2. Synchronized – Traceability Unknown (STU) 3. Stratum 2 Traceable (ST2) 4. Transit Node Clock Traceable (TNC) 5. Stratum 3E Traceable (ST3E) 6. Stratum 3 Traceable (ST3) 7. SONET Minimum Clock (SMC) 8. Stratum 4 Traceable (ST4) 9. Do not use for synchronization (DUS)

Edit CC Input Port Configuration

Use the following procedure to edit the CC Input Port configuration:

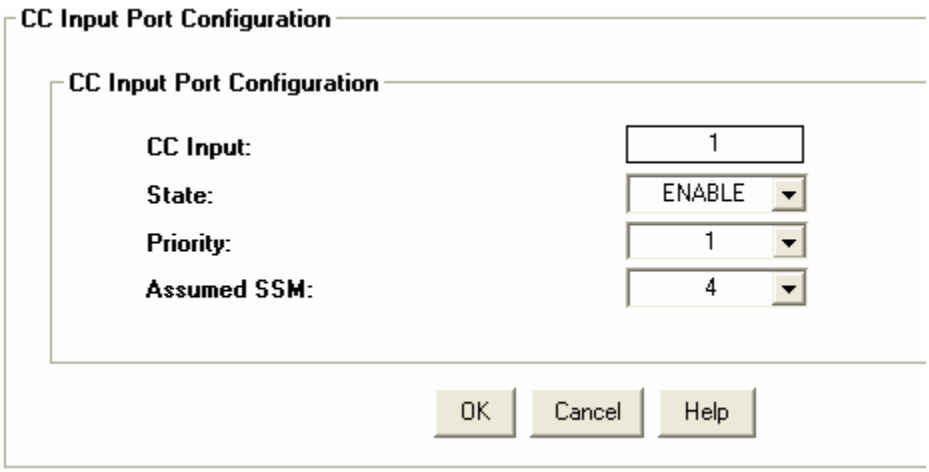
1. Select either ENABLE or DISABLE in the State drop-down box to enable or disable the port as an input timing reference.

2. Select a number from 0 to 9 in the Priority drop-down box to set the port's priority to be used as an active timing reference.

Note: A lower number configures the port to a higher priority.

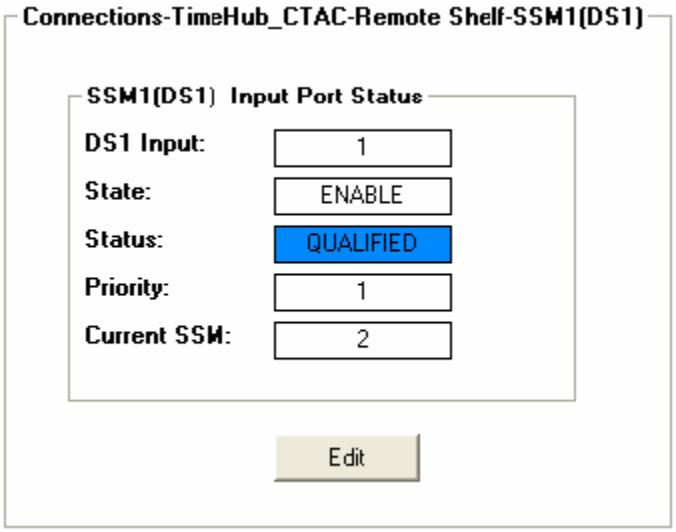
3. Select a number from 1 to 9 in the Assumed SSM drop-down box.

4. Click **OK** to accept changes and return to the Input Port Status screen, or **Cancel** to return to the Input Port Status screen without saving changes.



SSM1/SSM2 DS1 Inputs

When the TimeHub is set up as a remote shelf the two DS1 inputs are used to receive SSM information from the master shelf. The SSM (DS1) Input Port Configuration settings, shown in the figure below, are described in the following table. Click Edit to change the settings.



Item	Description
DS1 Input	Indicates the port number.
State	Indicates if the port is enabled or disabled as an input timing reference.

Status	Displays one of the following port status indications: ■ ACTIVE ■ QUALIFIED ■ NOT QUALIFIED ■ INPUT LOS ■ IMPAIRMENT ■ DISABLED
Priority	Displays the priority setting (1 through 9). The priority setting provides a way to prefer a particular input for use as the active timing reference when more than one input has been qualified. The lower the number, the higher the priority. The default is that the PRS input has highest priority and all others are equal.
Current SSM	Displays the ports current SSM.

Edit SSM1/SSM2 DS1 Inputs

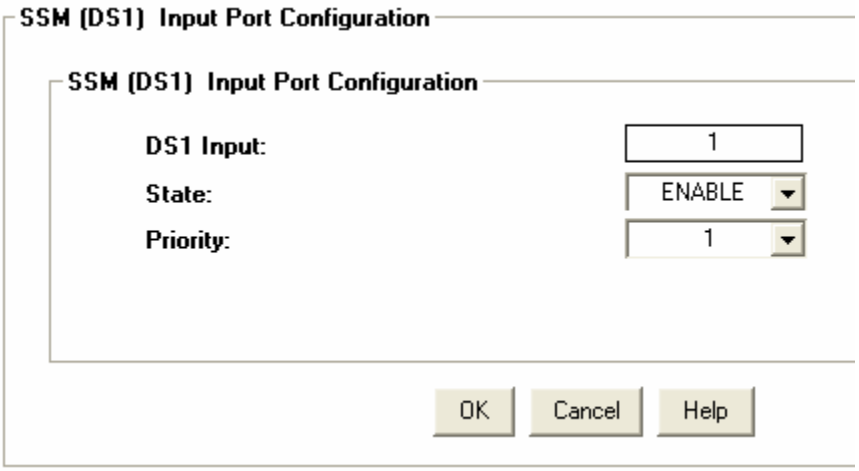
Use the following procedure to edit the SSM DS1 Input Port configuration:

1. Select either ENABLE or DISABLE in the State drop-down box to enable or disable the port as an input timing reference.

2. Select a number from 0 to 9 in the Priority drop-down box to set the port's priority to be used as an active timing reference.

Note: A lower number configures the port to a higher priority.

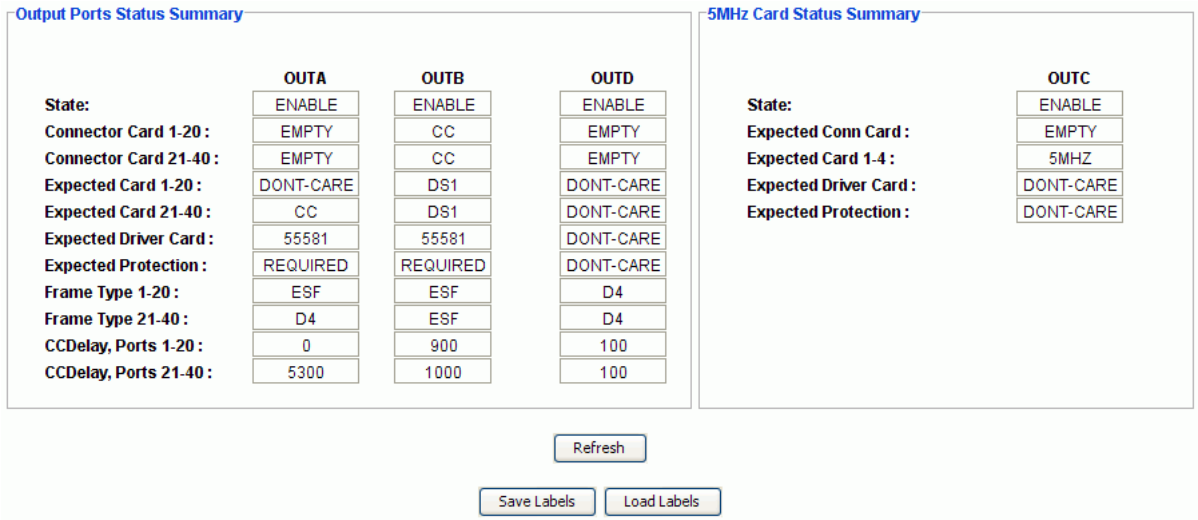
3. Click **OK** to accept changes and return to the Input Port Status screen, or **Cancel** to return to the Input Port Status screen without saving changes.



Remote Shelf Output Ports

Remote Output Port Status Summary

The TimeHub Remote shelf provides four output groups: OUTA, OUTB, OUTC, and OUTD. Output Port Status Summary, shown below, is described in the following table.



Output Ports Status Summary

	OUTA	OUTB	OUTD
State:	ENABLE	ENABLE	ENABLE
Connector Card 1-20 :	EMPTY	CC	EMPTY
Connector Card 21-40 :	EMPTY	CC	EMPTY
Expected Card 1-20 :	DONT-CARE	DS1	DONT-CARE
Expected Card 21-40 :	CC	DS1	DONT-CARE
Expected Driver Card :	55581	55581	DONT-CARE
Expected Protection :	REQUIRED	REQUIRED	DONT-CARE
Frame Type 1-20 :	ESF	ESF	D4
Frame Type 21-40 :	D4	ESF	D4
CCDelay, Ports 1-20 :	0	900	100
CCDelay, Ports 21-40 :	5300	1000	100

5MHz Card Status Summary

	OUTC
State:	ENABLE
Expected Conn Card :	EMPTY
Expected Card 1-4 :	5MHZ
Expected Driver Card :	DONT-CARE
Expected Protection :	DONT-CARE

Refresh

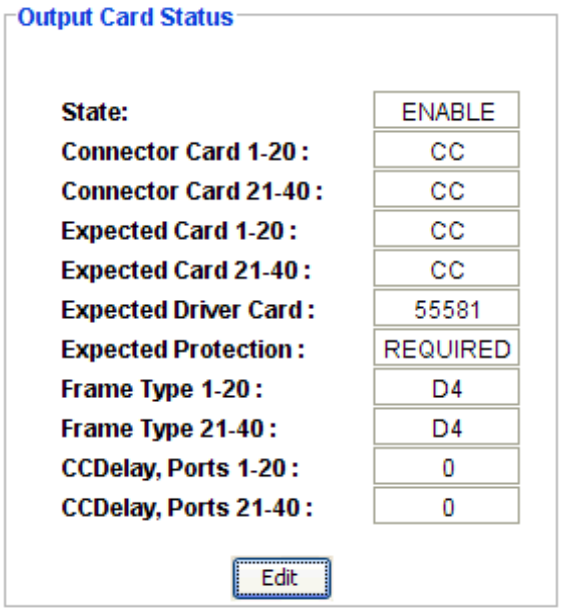
Save Labels Load Labels

Item	Description
Connector Card 1-20 Connector Card 21-40	Displays the configuration of Port Group 1 through 20 and for Port Group 21 through 40. The options are either DS1, CC, or EMPTY if no Connector Card is installed.
Expected Card 1-20 Expected Card 21-40	Displays the expected Output Connector card type for Port Group 1 through 20 and for Port Group 21 through 40. DONT-CARE means that there is no requirement and the outputs will be allowed to function regardless of the type of connector card that is installed.
Expected Driver Card	Displays the expected output connector card type. DONT-CARE means that there is no requirement and any card is okay. The outputs will be allowed to function regardless of the type of connector card installed. If the option 55581 is selected, it means that two 55581 type Output Driver Cards are expected in the targeted slot-pair.

Expected Protection	Displays the requirement for output card protection. DONT-CARE establishes no requirement. REQUIRED means that *two* Output Driver Cards are expected in the targeted slot-pair.
Frame Type 1-20 Frame Type 21-40	Displays the frame type for Port Group 1 through 20 and for Port Group 21 through 40. The selections are either ESF or D4. Notes: If Connector Card 1-20 is provisioned for composite clock (CC), then Frame Type is disabled for Frame Type 1-20. If Connector Card 21-40 is provisioned for composite clock (CC, then Frame Type is disabled for Frame Type 21-40.
CCDelay, Ports 1-20 CCDelay, Ports 21-40	Displays the compensation setting for Cable Delay on any CC output for Port Group 1 through 20 and for Port Group 21 through 40. This capability may be needed when a long CC run is used. The setting is in feet of cable and can be set from 0 to 6000 feet. Increasing the setting causes the CC signal to be advanced (sent earlier) by the amount of time that corresponds to the number of feet of cable specified. This has the desired effect of causing the signal to arrive at the end of the cable run with no apparent delay.

Remote Output Card Status

Remote Shelf Output Card Status configuration, shown in the figure below, is explained in the following table. Click Edit to change the settings.



Item	Description
Output	The selected output group (OUTA, OUTB, OUTC, or OUTD). **Note:** Expansion shelves provide four additional output groups (OUTE, OUTF, OUTG, and OUTH).
Connector Card 1-20 Connector Card 21-40	Displays the configuration of Port Group 1 through 20 and for Port Group 21 through 40. The options are either DS1, CC, or EMPTY if no Connector Card is installed.
Expected Card 1-20 Expected Card 21-40	The expected Output Connector card type for Port Group 1 through 20 and for Port Group 21 through 40. DONT-CARE means that there is no requirement and the outputs will be allowed to function regardless of the type of connector card that is installed.
Expected Driver Card	The expected output connector card type. DONT-CARE means that there is no requirement and any card is okay. The outputs will be allowed to function regardless of the type of connector card installed. If the option 55581 is selected, it means that two 55581 type Output Driver Cards are expected in the targeted slot-pair.
Expected Protection	The setting for output card protection. DONT-CARE establishes no requirement. REQUIRED means that *two* Output Driver Cards are expected in the targeted slot-pair.
Frame Type 1-20 Frame Type 21-40	The selected frame type for Port Group 1 through 20 and for Port Group 21 through 40. The selections are either ESF or D4. Notes: If Connector Card 1-20 is provisioned for composite clock (CC), then Frame Type is disabled for Frame Type 1-20. If Connector Card 21-40 is provisioned for composite clock (CC, then Frame Type is disabled for Frame Type 21-40.
CCDelay, Ports 1-20 CCDelay, Ports 21-40	The compensation setting for cable delay on any CC output for Port Group 1 through 20 and for Port Group 21 through 40. This capability may be needed when a long CC run is used. The setting is in feet of cable and can be set from 0 to 6000 feet. Increasing the setting causes the CC signal to be advanced (sent earlier) by the amount of time that corresponds to the number of feet of cable specified. This has the desired effect of causing the signal to arrive at the end of the cable run with no apparent delay.

Edit Remote Output Card Configuration

Use the following procedure to edit the Remote Shelf Output Card configuration.

1. Select either DONT-CARE, DS1, or CC in the Expected Card 1-20 drop-down box to choose the type of output card that is expected to be installed.

2. Select either DONT-CARE, DS1, or CC in the Expected Card 21-40 drop-down box to choose the type of output card that is expected to be installed.

3. Select either DONT-CARE or 55581 in the Expected Driver Card drop-down box.

4. Select either REQUIRED or DONT-CARE in the Expected Protection drop-down box.

5. Select either ESF or D4 in the Frame Type 1-20 drop-down box.

Note: If Connector Card 1-20 is provisioned for composite clock (CC), then Frame Type is disabled for Frame Type 1-20.

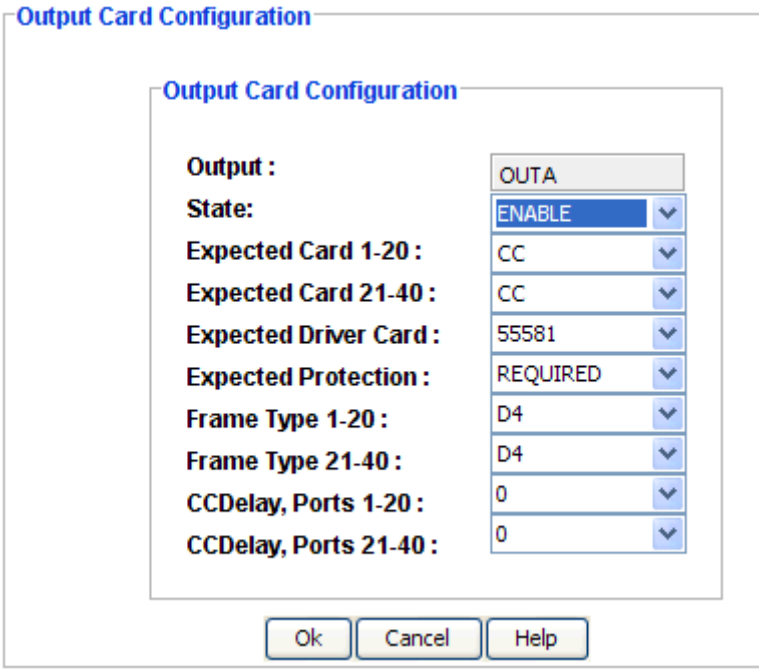
6. Select either ESF or D4 in the Frame Type 21-40 drop-down box.

Note: If Connector Card 21-40 is provisioned for composite clock (CC), then Frame Type is disabled for Frame Type 21-40.

7. Select the compensation setting for cable delay (0 through 6000 feet) in the CCDelay, Ports 1-20 drop-down box.

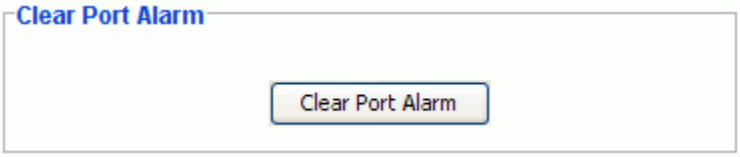
8. Select the compensation setting for cable delay (0 through 6000 feet) in the CCDelay, Ports 21-40 drop-down box.

9. Click **OK** to accept changes and return to the Output Card Status screen, or **Cancel** to return to the Output Card Status screen without saving changes.



Clear Port Alarm

Click the **Clear Port Alarm** button to attempt to clear an output port alarm that was set due to a temporary external condition.



Remote Shelf Output Card Port Status

The Remote Shelf Output Card Port Status shows the port State and CCDelay settings for both Port Group 1 through 20 and Port Group 21 through 40. The settings are described in the following table. Click Edit to change the settings.

Output Card Port Status

	State	CC Delay	Port Label		State	CC Delay	Port Label
Port 1:	DISABLE	DISABLE		Port 21:	DISABLE	DISABLE	
Port 2:	DISABLE	DISABLE		Port 22:	DISABLE	DISABLE	
Port 3:	DISABLE	DISABLE		Port 23:	DISABLE	DISABLE	
Port 4:	DISABLE	DISABLE		Port 24:	DISABLE	DISABLE	
Port 5:	DISABLE	DISABLE		Port 25:	DISABLE	DISABLE	
Port 6:	DISABLE	DISABLE		Port 26:	DISABLE	DISABLE	
Port 7:	DISABLE	DISABLE		Port 27:	DISABLE	DISABLE	
Port 8:	DISABLE	DISABLE		Port 28:	DISABLE	DISABLE	
Port 9:	DISABLE	DISABLE		Port 29:	DISABLE	DISABLE	
Port 10:	DISABLE	DISABLE		Port 30:	ENABLE	ENABLE	
Port 11:	DISABLE	DISABLE		Port 31:	ENABLE	ENABLE	
Port 12:	DISABLE	DISABLE		Port 32:	ENABLE	ENABLE	
Port 13:	DISABLE	DISABLE		Port 33:	ENABLE	ENABLE	
Port 14:	DISABLE	DISABLE		Port 34:	ENABLE	ENABLE	
Port 15:	DISABLE	DISABLE		Port 35:	ENABLE	ENABLE	
Port 16:	DISABLE	DISABLE		Port 36:	ENABLE	ENABLE	
Port 17:	DISABLE	DISABLE		Port 37:	ENABLE	ENABLE	
Port 18:	DISABLE	DISABLE		Port 38:	ENABLE	ENABLE	
Port 19:	DISABLE	DISABLE		Port 39:	ENABLE	ENABLE	
Port 20:	DISABLE	DISABLE		Port 40:	ENABLE	ENABLE	

Edit

Item	Description
State	Displays the port configuration, either enabled or disabled.
CC Delay	Displays the port configuration for composite clock cable compensation, either enabled or disabled. This capability may be needed when a long CC run is used.

Edit Remote Shelf Output Port Configuration

Use the following procedure to set up the Remote Shelf output port configuration.

1. For each port, select either ENABLE or DISABLE in the State drop-down box to enable or disable each individual port, or click **Enable All** or **Disable All** to either enable or disable the port state on all ports.

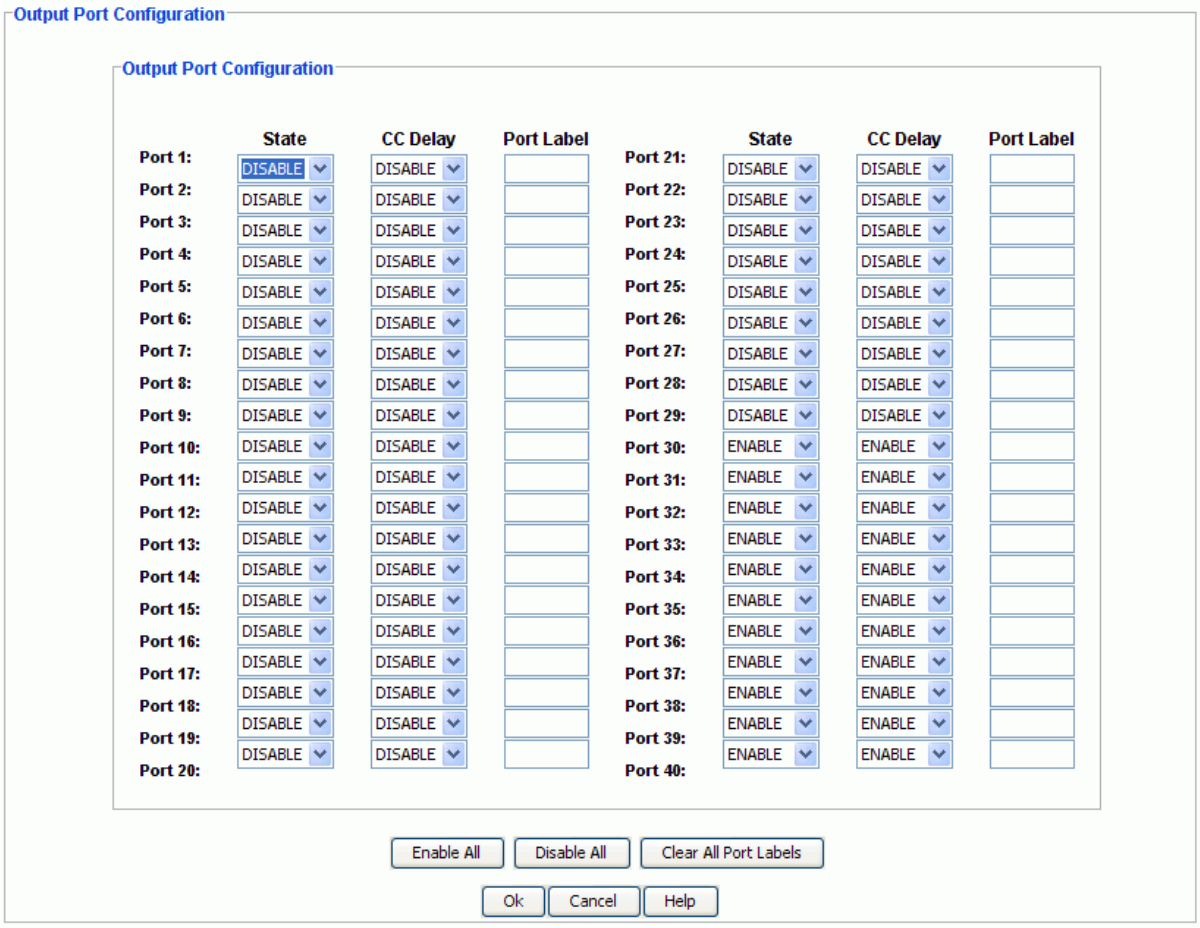
2. For each port, select either ENABLE or DISABLE in the CC Delay drop-down box to enable or disable CC Delay on each individual port.

Note: CCDelay may be needed when a long CC run is used.

3. For each port, enter a user defined name in the Port Label text box. Most printable ASCII characters are allowed. Characters not allowed are double quotation mark, comma, colon, semicolon, and back slash. This function requires ADMIN level access.

4. To delete all port labels, click **Clear All Port Labels**.

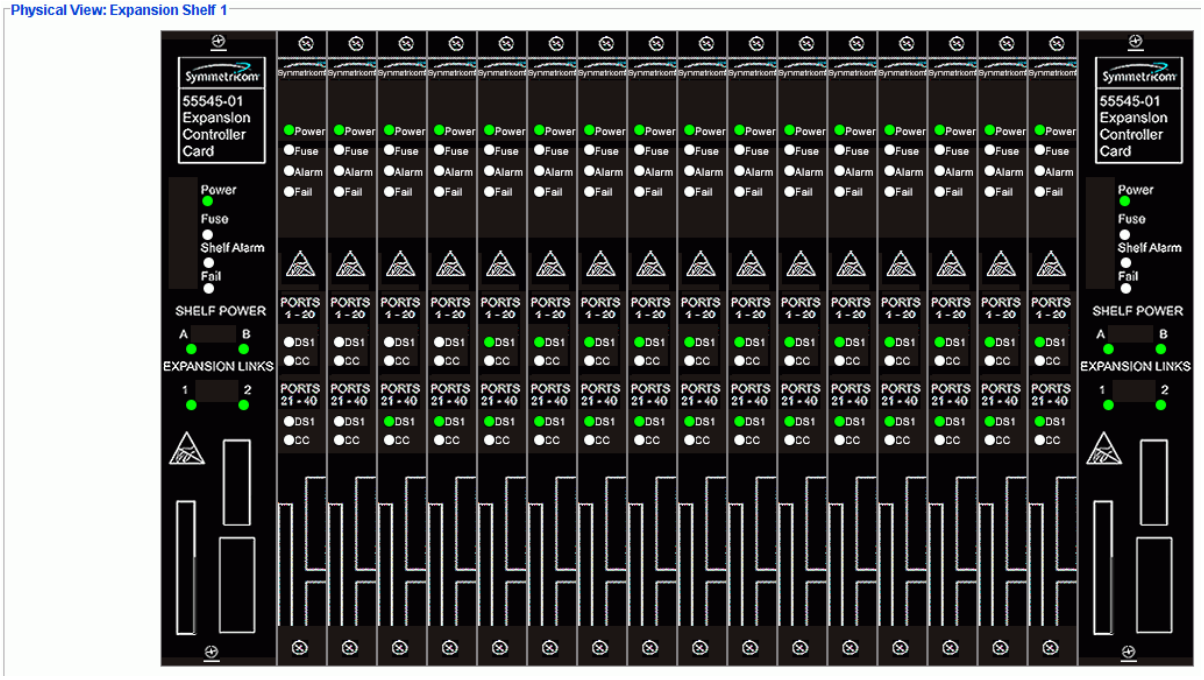
5. Click **OK** to accept changes and return to the Output Card Status screen, or **Cancel** to return to the Output Card Status screen without saving changes.



Expansion Shelves

Expansion Shelf Outputs

The Expansion shelf is for situations requiring more outputs than can be provided by a Master shelf, the TimeHub supports one to four Expansion shelves. Each Expansion shelf provides up to 320 protected inputs; using four expansion shelves, a TimeHub can provide a total of 1420 outputs.



Expansion Shelf Output Port Status Summary

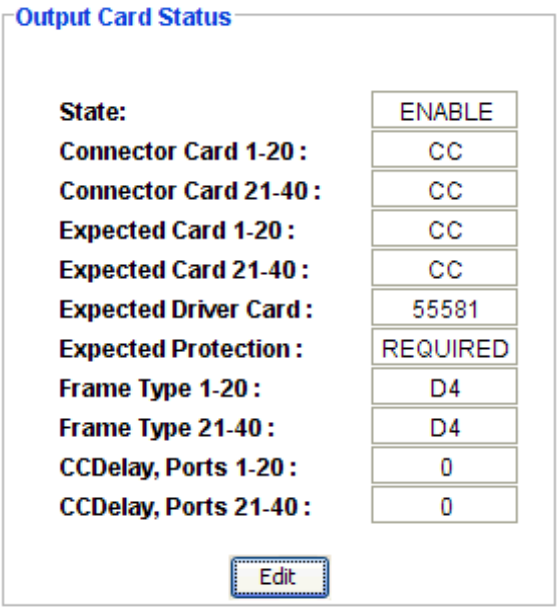
The TimeHub expansion shelf provides eight output groups: OUTA, OUTB, OUTC, OUTD, OUTE, OUTF, OUTG, OUTH.

Output Port Status Summary is described in the following table.

Item	Description
Connector Card 1-20 Connector Card 21-40	Displays the configuration of Port Group 1 through 20 and for Port Group 21 through 40. The options are either DS1, CC, or EMPTY if no Connector Card is installed.
Expected Card 1-20 Expected Card 21-40	Displays the expected Output Connector card type for Port Group 1 through 20 and for Port Group 21 through 40. DONT-CARE means that there is no requirement and the outputs will be allowed to function regardless of the type of connector card that is installed.
Expected Driver Card	Displays the expected output connector card type. DONT-CARE means that there is no requirement and any card is okay. The outputs will be allowed to function regardless of the type of connector card installed. If the option 55581 is selected, it means that two 55581 type Output Driver Cards are expected in the targeted slot-pair.
Expected Protection	Displays the requirement for output card protection. DONT-CARE establishes no requirement. REQUIRED means that *two* Output Driver Cards are expected in the targeted slot-pair.
Frame Type 1-20 Frame Type 21-40	Displays the frame type for Port Group 1 through 20 and for Port Group 21 through 40. The selections are either ESF or D4. Notes: If Connector Card 1-20 is provisioned for composite clock (CC), then Frame Type is disabled for Frame Type 1-20. If Connector Card 21-40 is provisioned for composite clock (CC, then Frame Type is disabled for Frame Type 21-40.
CCDelay, Ports 1-20 CCDelay, Ports 21-40	Displays the compensation setting for Cable Delay on any CC output for Port Group 1 through 20 and for Port Group 21 through 40. This capability may be needed when a long CC run is used. The setting is in feet of cable and can be set from 0 to 6000 feet. Increasing the setting causes the CC signal to be advanced (sent earlier) by the amount of time that corresponds to the number of feet of cable specified. This has the desired effect of causing the signal to arrive at the end of the cable run with no apparent delay.

Expansion Shelf Output Card Status

The Expansion Shelf Output Card Status configuration, shown in the figure below, is explained in the following table. Click Edit to change the settings.



Item	Description
Output	The selected output group (OUTA, OUTB, OUTC, or OUTD). **Note:** Expansion shelves provide four additional output groups (OUTE, OUTF, OUTG, and OUTH).
Connector Card 1-20 Connector Card 21-40	Displays the configuration of Port Group 1 through 20 and for Port Group 21 through 40. The options are either DS1, CC, or EMPTY if no Connector Card is installed.
Expected Card 1-20 Expected Card 21-40	The expected Output Connector card type for Port Group 1 through 20 and for Port Group 21 through 40. DONT-CARE means that there is no requirement and the outputs will be allowed to function regardless of the type of connector card that is installed.
Expected Driver Card	The expected output connector card type. DONT-CARE means that there is no requirement and any card is okay. The outputs will be allowed to function regardless of the type of connector card installed. If the option 55581 is selected, it means that two 55581 type Output Driver Cards are expected in the targeted slot-pair.

Expected Protection	The setting for output card protection. DONT-CARE establishes no requirement. REQUIRED means that *two* Output Driver Cards are expected in the targeted slot-pair.
Frame Type 1-20 Frame Type 21-40	The selected frame type for Port Group 1 through 20 and for Port Group 21 through 40. The selections are either ESF or D4. Notes: If Connector Card 1-20 is provisioned for composite clock (CC), then Frame Type is disabled for Frame Type 1-20. If Connector Card 21-40 is provisioned for composite clock (CC, then Frame Type is disabled for Frame Type 21-40.
CCDelay, Ports 1-20 CCDelay, Ports 21-40	The compensation setting for cable delay on any CC output for Port Group 1 through 20 and for Port Group 21 through 40. This capability may be needed when a long CC run is used. The setting is in feet of cable and can be set from 0 to 6000 feet. Increasing the setting causes the CC signal to be advanced (sent earlier) by the amount of time that corresponds to the number of feet of cable specified. This has the desired effect of causing the signal to arrive at the end of the cable run with no apparent delay.

Edit Expansion Shelf Output Card Configuration

Use the following procedure to edit the Expansion Shelf Output Card configuration.

1. Select either DONT-CARE, DS1, or CC in the Expected Card 1-20 drop-down box to choose the type of output card that is expected to be installed.
2. Select either DONT-CARE, DS1, or CC in the Expected Card 21-40 drop-down box to choose the type of output card that is expected to be installed.
3. Select either DONT-CARE or 55581 in the Expected Driver Card drop-down box.
4. Select either REQUIRED or DONT-CARE in the Expected Protection drop-down box.
5. Select either ESF or D4 in the Frame Type 1-20 drop-down box.

Note: If Connector Card 1-20 is provisioned for composite clock (CC), then Frame Type is disabled for Frame Type 1-20.

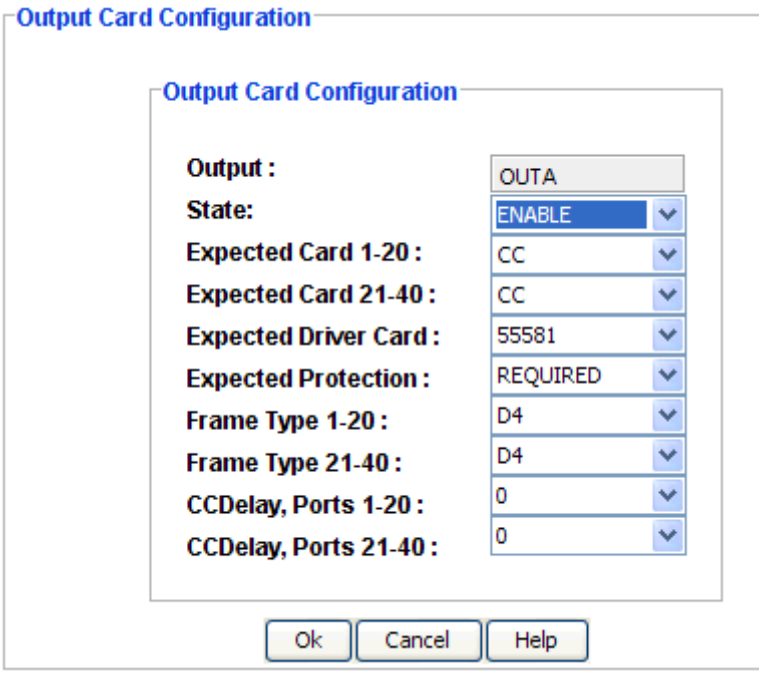
6. Select either ESF or D4 in the Frame Type 21-40 drop-down box.

Note: If Connector Card 21-40 is provisioned for composite clock (CC), then Frame Type is disabled for Frame Type 21-40.

7. Select the compensation setting for cable delay (0 through 6000 feet) in the CCDelay, Ports 1-20 drop-down box.

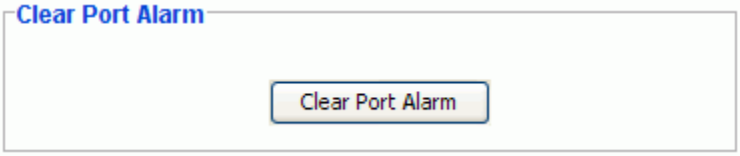
8. Select the compensation setting for cable delay (0 through 6000 feet) in the CCDelay, Ports 21-40 drop-down box.

9. Click **OK** to accept changes and return to the Output Card Status screen, or **Cancel** to return to the Output Card Status screen without saving changes.



Clear Port Alarm

Click the **Clear Port Alarm** button to attempt to clear an output port alarm that was set due to a temporary external condition.



Expansion Shelf Output Card Port Status

The Expansion Shelf Output Card Port Status shows the port State and CCDelay settings for both Port Group 1 through 20 and Port Group 21 through 40. The settings are described in the following table. Click Edit to change the settings.

Output Card Port Status

	State	CC Delay	Port Label		State	CC Delay	Port Label
Port 1:	DISABLE	DISABLE		Port 21:	DISABLE	DISABLE	
Port 2:	DISABLE	DISABLE		Port 22:	DISABLE	DISABLE	
Port 3:	DISABLE	DISABLE		Port 23:	DISABLE	DISABLE	
Port 4:	DISABLE	DISABLE		Port 24:	DISABLE	DISABLE	
Port 5:	DISABLE	DISABLE		Port 25:	DISABLE	DISABLE	
Port 6:	DISABLE	DISABLE		Port 26:	DISABLE	DISABLE	
Port 7:	DISABLE	DISABLE		Port 27:	DISABLE	DISABLE	
Port 8:	DISABLE	DISABLE		Port 28:	DISABLE	DISABLE	
Port 9:	DISABLE	DISABLE		Port 29:	DISABLE	DISABLE	
Port 10:	DISABLE	DISABLE		Port 30:	ENABLE	ENABLE	
Port 11:	DISABLE	DISABLE		Port 31:	ENABLE	ENABLE	
Port 12:	DISABLE	DISABLE		Port 32:	ENABLE	ENABLE	
Port 13:	DISABLE	DISABLE		Port 33:	ENABLE	ENABLE	
Port 14:	DISABLE	DISABLE		Port 34:	ENABLE	ENABLE	
Port 15:	DISABLE	DISABLE		Port 35:	ENABLE	ENABLE	
Port 16:	DISABLE	DISABLE		Port 36:	ENABLE	ENABLE	
Port 17:	DISABLE	DISABLE		Port 37:	ENABLE	ENABLE	
Port 18:	DISABLE	DISABLE		Port 38:	ENABLE	ENABLE	
Port 19:	DISABLE	DISABLE		Port 39:	ENABLE	ENABLE	
Port 20:	DISABLE	DISABLE		Port 40:	ENABLE	ENABLE	

Edit

Item	Description
State	Displays the port configuration, either enabled or disabled.
CC Delay	Displays the port configuration for composite clock cable compensation, either enabled or disabled. This capability may be needed when a long CC run is used.

Edit Expansion Shelf Output Port Configuration

Use the following procedure to set up the Expansion Shelf output port configuration.

1. For each port, select either ENABLE or DISABLE in the State drop-down box to enable or disable each individual port, or click **Enable All** or **Disable All** to either enable or disable the port state on all ports.

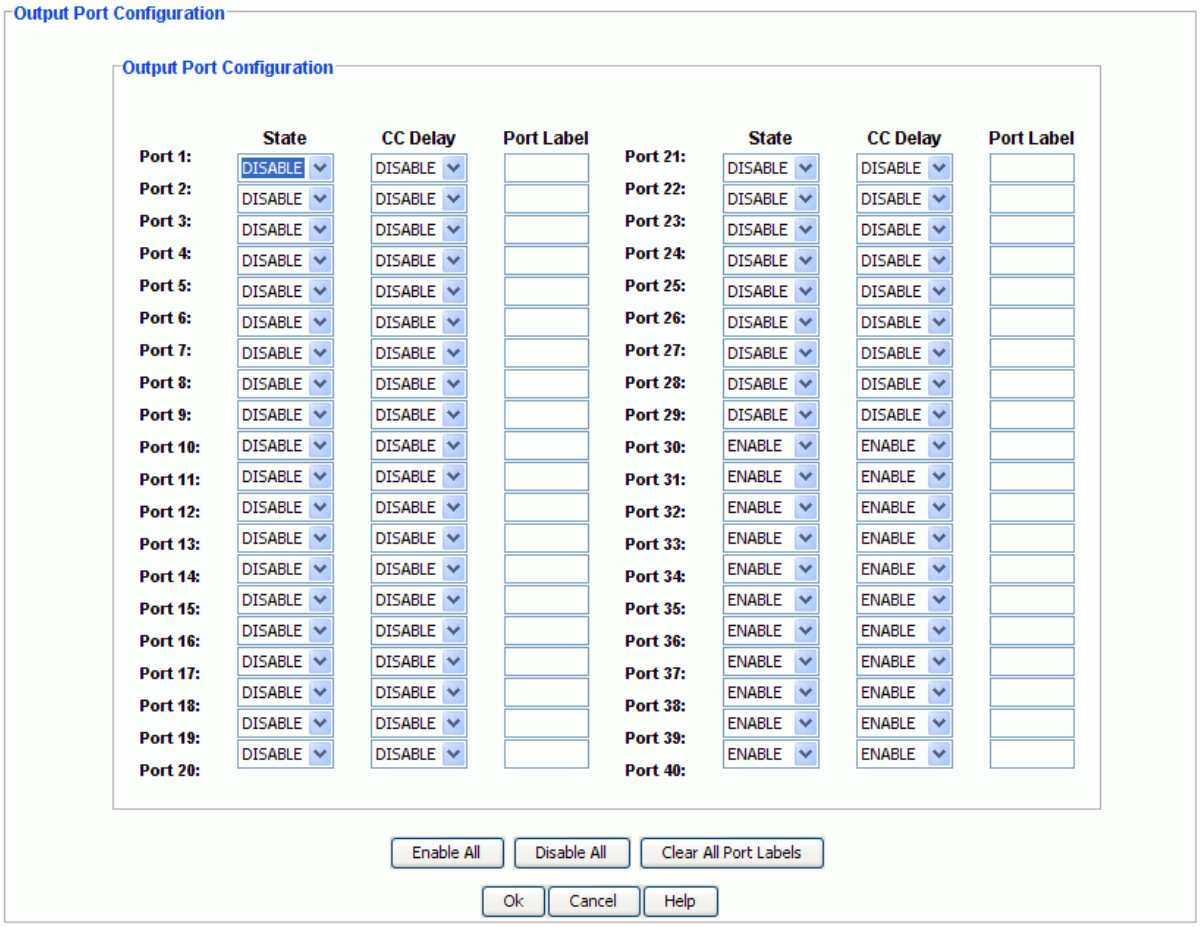
2. For each port, select either ENABLE or DISABLE in the CC Delay drop-down box to enable or disable CC Delay on each individual port.

Note: CCDelay may be needed when a long CC run is used.

3. For each port, enter a user defined name in the Port Label text box. Most printable ASCII characters are allowed. Characters not allowed are double quotation mark, comma, colon, semicolon, and back slash. This function requires ADMIN level access.

4. To delete all port labels, click **Clear All Port Labels**.

5. Click **OK** to accept changes and return to the Output Card Status screen, or **Cancel** to return to the Output Card Status screen without saving changes.



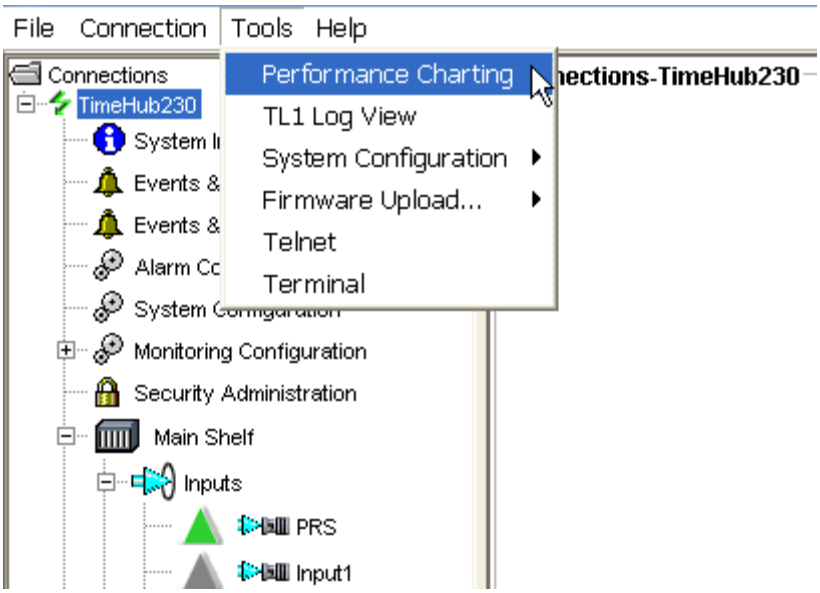
Performance Charting

Start Performance Charting

To start performance charting:

1. Click the **Tools** menu item.

2. Click **Performance Charting** in the drop-down menu to open the Performance Charting screen.



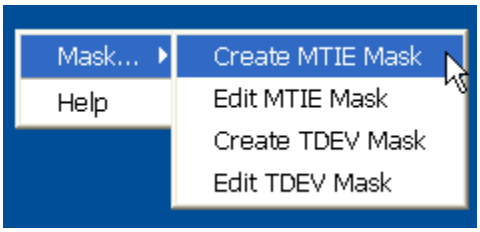
See Also:
MRTIE Chart

TDEV Chart

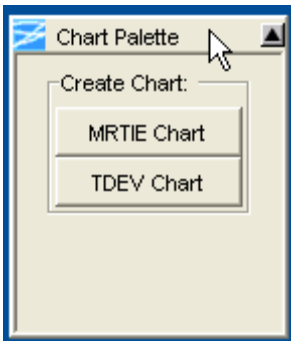
Performance Charting Main Screen

The Performance Charting Main Screen provides query dialog boxes for accessing MRTIE and TDEV data from the TimeHub.

Right-clicking the desktop invokes the desktop pop-up menu. This menu provides access to creating and editing MRTIE and TDEV masks, and the TimeCraft online help system.



The Chart Palette dialog screen may be moved by clicking and holding either the right or left mouse button and dragging it to the desired location.

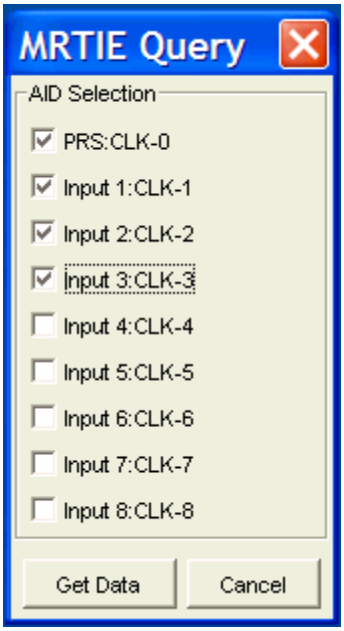


MRTIE Chart

To create an MRTIE chart:

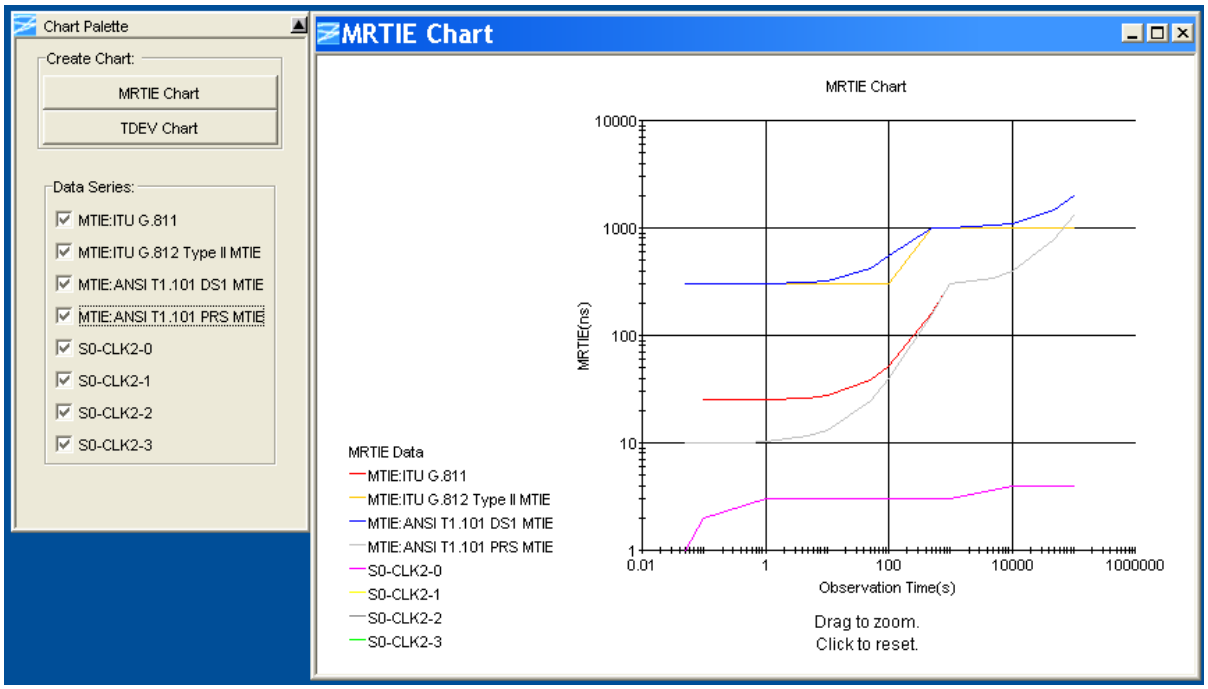
1. Click Tools on the main menu and select Performance Charting in the drop-down window.

2. Click the **MRTIE Chart** button in the **Chart Palette** window to open the **MRTIE Query** window.



3. Right-click the check boxes of the input module(s) in **AID Selection** pane that you want to graph.

4. Click **Get Data** to display the MRTIE Chart as shown in the sample below.



The Chart Palette provides check boxes for both pre-defined industry standard masks and the returned data series from the network element.

The Chart Package provides the following functions:

- De-select a data series item to remove the related graph points from the chart.
- Mouse-over a data point on the chart to display its label.
- Enlarge a section of the chart by clicking and dragging the desired section. The data series displays in a new chart window.
- Left-click the mouse button anywhere in the window to reset the chart to the original display.

Right-click menu options are described in the table below.

Right-Click Menu Options	Description
Grid Lines	Horizontal, Vertical option allows users to hide/display horizontal and vertical lines
Color or Black and White	Toggles chart between color or black and white display **Note:** In some cases, when you switch from color to black and white and back to color, some portions of the chart lines may drop out.
Chart Size	Sets chart display size - 2400 x 1800, 1600 x 1024, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480
Show All Labels or Show Dwell Labels	Toggles chart between displaying series labels and not displaying series labels

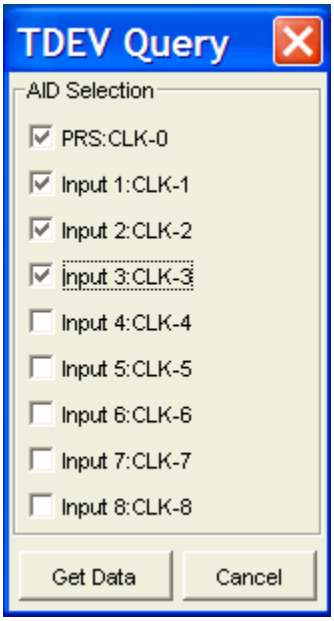
Print	Print, Print Preview and Cancel
Save As...	Save chart as CSV (comma separated values)
Mask	To create and edit MRTIE and TDEV masks
Help	Invokes TimeCraft online help

TDEV Chart

To create a TDEV chart:

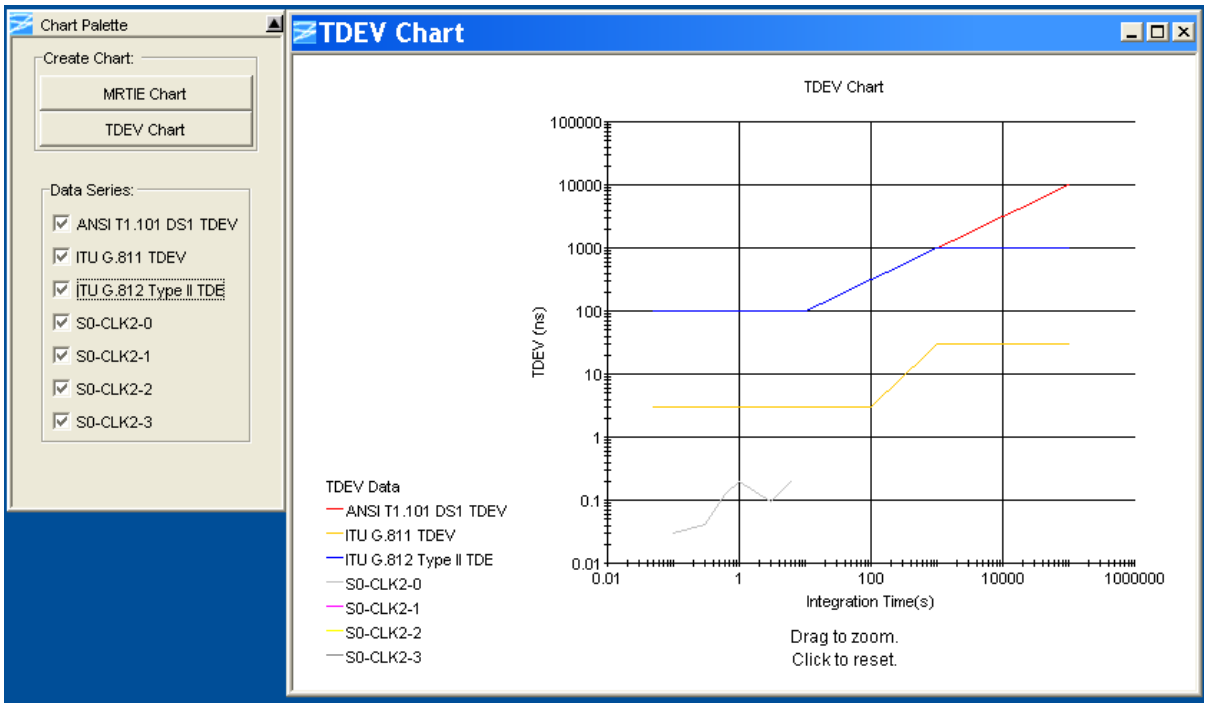
1. Click Tools on the main menu and select Performance Charting in the drop-down window.

2. Click the **TDEV Chart** button in the **Chart Palette** window to open the **TDEV Query** window.



3. Right-click the check boxes of the input module(s) in **AID Selection** pane that you want to graph.

4. Click **Get Data** to display the TDEV Chart as shown in the sample below.



The Chart Palette provides check boxes for both pre-defined industry standard masks and the returned data series from the network element.

The Chart Package provides the following functions:

- De-select a data series item to remove the related graph points from the chart.
- Mouse-over a data point to display its label.
- Enlarge a section of the chart by clicking and dragging the desired section. The data series displays in a new chart window.
- Left-click the mouse button anywhere in the window to reset the chart to the original display.

Right-click menu options are described in the table below.

Right-Click Menu Options	Description
Grid Lines	Horizontal, Vertical option allows users to hide/display horizontal and vertical lines
Color or Black and White	Toggles chart between color or black and white display
Chart Size	Sets chart display size - 2400 x 1800, 1600 x 1024, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480
Show All Labels or Show Dwell Labels	Toggles chart between displaying series labels and not displaying series labels
Print	Print, Print Preview and Cancel

Save As...	Save chart as CSV (comma separated values)
Masks...	To create and edit MRTIE and TDEV masks
Help	Invokes TimeCraft online help

Modem Configuration

To configure the 3Com Courier V.Everything modem connected to a TimeCraft PC, use the factory defaults. To configure the 3Com Courier V.Everything modem while connected to a network element, use settings outlined in the table below.

Dip Switches	Description
1 Down	Ignore DTR*
2 Up	Set verbal result code display
3 Up	Disable result codes*
4 Down	Disable the echo in off-line commands*
5 Up	Enable auto answer*
6 Down	Carrier Detect always on*
7 Up	Display result codes in all modes
8 Down	Enable AT commands
9 Up	Disconnect on escape(+++)
10 Up	Load configuration from NVRAM
& Commands	**Description**
&H0	Disable transmit data flow control
&R1	Ignore RTS
S Registers	**Description**
S0	1-3 to set the number of rings on which to auto answer
* different from factory defaults	
Notes: If the Network Element is set to DCE mode, a null modem cable must be used from the modem to the Network Element. If the Network Element is set to DTE mode, a straight modem cable must be used from the modem to the Network Element.	

Chapter 5 TimeSource 3x00

This chapter provides information on how to use TimeCraft to configure a TimeSource 3x00 network element (NE).

In This Chapter

Overview

Menu Items

Main Menu items include **File**, **Connection**, **Tools**, and **Help**. The following information describes the submenu items for each Main Menu item.

Field / Section	Description
File	
Exit	Exit the TimeCraft Application
Connection	
New Connection	Create a new connection to a network element by allowing the user to save the connection in the connections folder or to create up to 5 levels of sub folders and save them in the sub folders.
Open Connection	Open a connection to the network element by browsing the connections folder hierarchy.
Close Connection	Close the current session.
Edit...	Edit a chosen network element's connection properties by browsing the connections folder hierarchy
Refresh Connection	Refresh the view of the currently connected network element
Delete...	Delete a chosen network element’s connection setup by browsing the connections folder hierarchy
Tools	
TL1 Log View	Displays the TL1 log for the current month or click Refresh to display the log for the current session
Terminal	Launches a terminal window that allows you to enter and send TL1 commands and also displays received responses and autonomous messages
Help	
TimeCraft Help	Obtain online help for the TimeCraft System
About TimeCraft	Displays TimeCraft copyright and version information

Navigation Overview

Menu Items (**A**) allow you to:

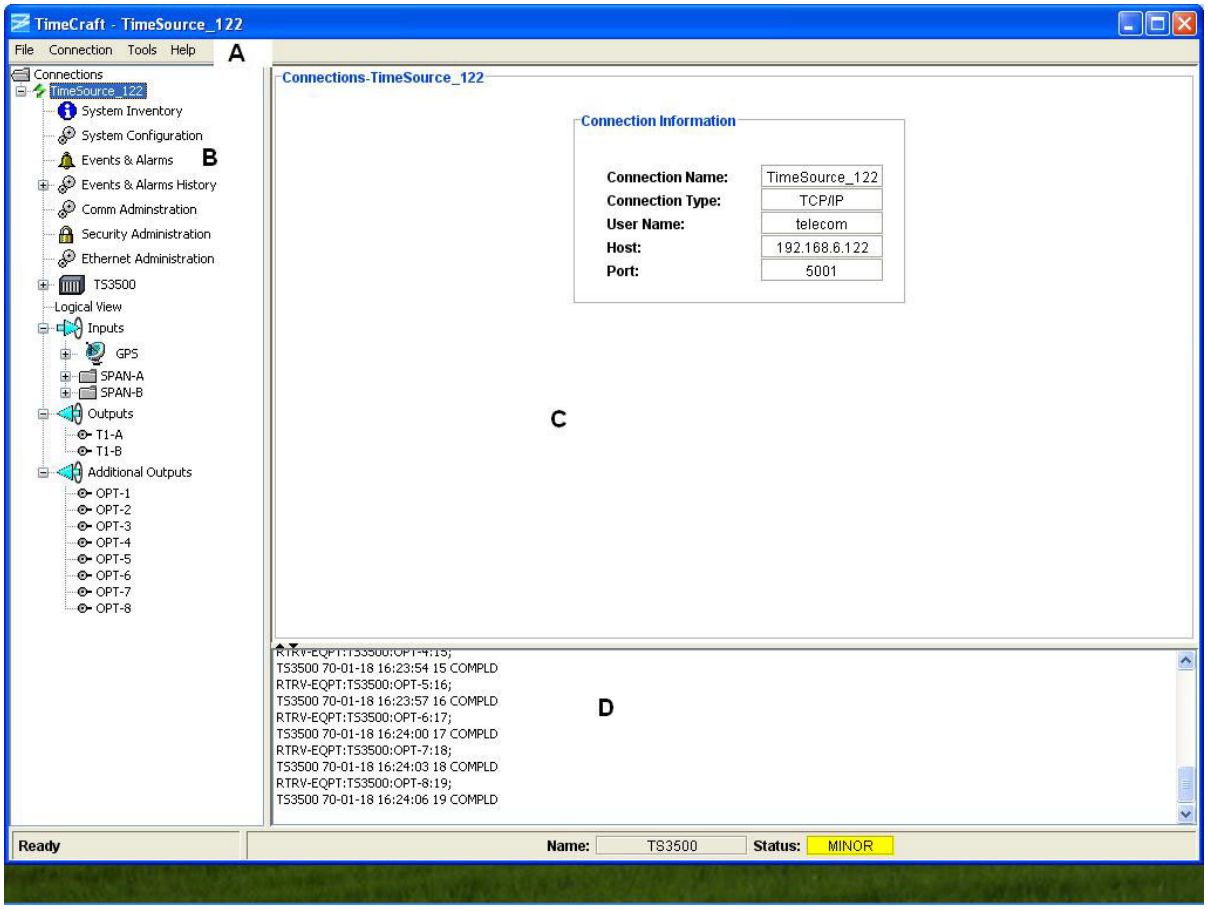
- Exit the Application

- Manage Network Element Connections
- View the TL1 Log
- Launch a terminal window to send TL1 commands
- Open Help Files

The **Browser View** panel (**B**) remains empty until the user opens any connection. Once a network element is connected, the Browser provides a list of modules installed in that element. And after closing the connection, the browser displays an empty screen.

The **Detail View** panel (**C**) provides a graphical view of the module that is selected in the Browser. In the Detail View panel, you can see the configuration settings and edit the settings.

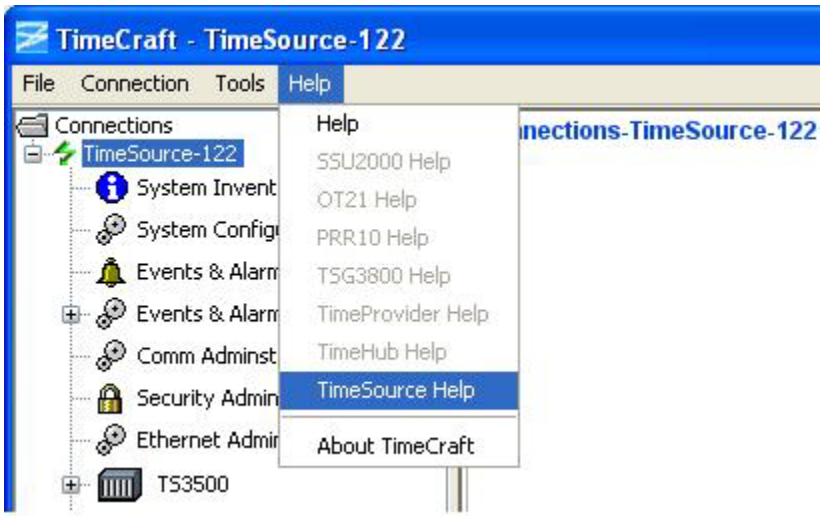
TL1 commands are displayed in the **TL1 View** panel (**D**) and allows users to view the TL1 commands sent to the network element and view network element responses. The TL1 commands are passive and cannot be edited.



Online Help

The Online help provides complete, standalone help for the TimeCraft system. You can access Help topics using one of the following methods:

- TimeCraft Main Menu (shown below)
- Online Help Search Feature (after launching Help)
- Help buttons on network element screens



Field	Description
Help	Opens a basic Online Help system containing information about error codes and how to manage connections
SSU2000 Help	Opens TimeCraft SSU2000 Online Help
OT21 Help	Opens TimeCraft OT21 Online Help
PRR10 Help	Opens TimeCraft PRR10 Online Help
TSG3800 Help	Opens TimeCraft TSG3800 Online Help
PRS50 Help	Opens TimeCraft PRS50 Online Help
TimeProvider Help	Opens TimeCraft TimeProvider Online Help
TimeHub Help	Opens TimeCraft TimeHub Online Help
TimeSource Help	Opens TimeCraft TimeSource 3x00 Online Help
TimeSource 3x50 Help	Opens TimeCraft TimeSource 3x50 Online Help
About TimeCraft	Displays TimeCraft copyright and version information

Connection Management

Connections

A connection in TimeCraft represents an element to be managed. Connections can be added, deleted, modified, opened, refreshed, or closed. The connection item holds the communication parameter used to establish a connection to the element, including the address, type of element and user/password information. Connections can be accessed from the connection menu item and you can open only one connection at a time. For more information see the following sections:

Operation	Explanation	Available
New	Creates a new connection.	Always.
Open	Connects to an existing connection.	Only when no other connection is open.
Close	Closes an open connection.	Only when a connection is open.
Edit	Modify connection parameters.	Always, but cannot edit an open connection.
Refresh	Initializes an open connection.	Only for an open connection.
Delete	Deleted a connection.	Always, but cannot delete an open connection.

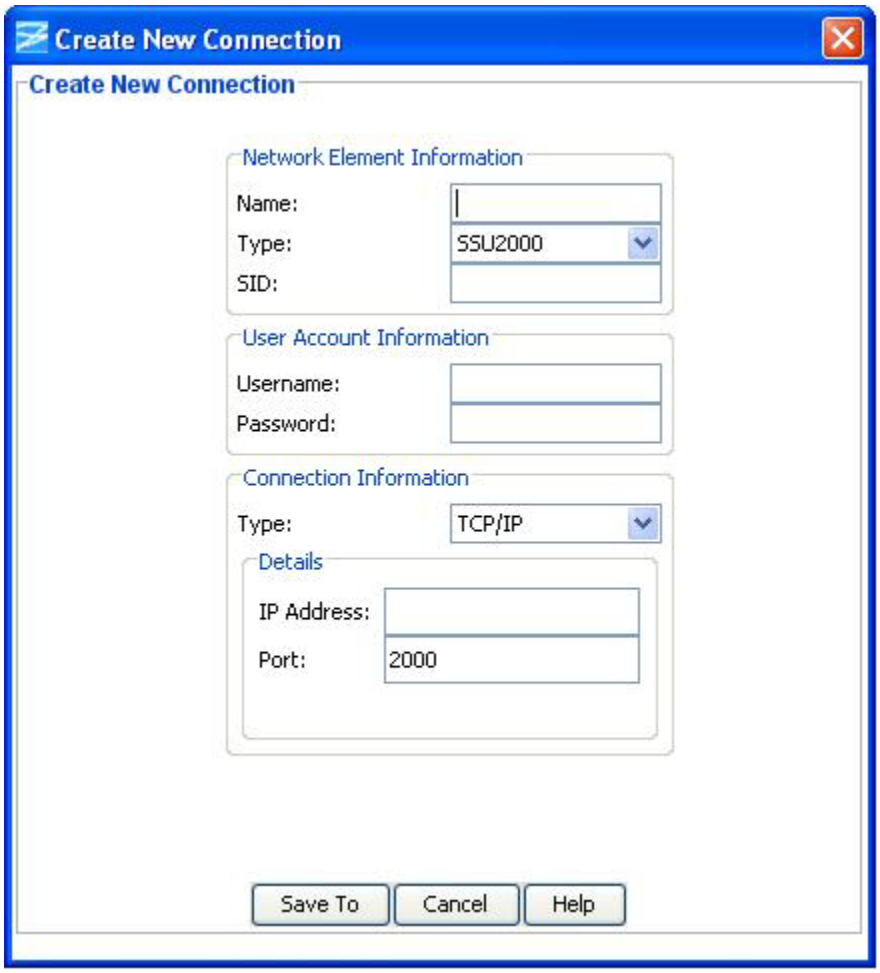
New Connection

To establish a new connection:

1. Click **Connection** on the menu bar.
2. Click **New Connection** from the drop-down menu to open the "Create New Connection" screen.
3. Enter the appropriate data in all fields described in the table below.
4. Click the **Save To** button to open file Chooser dialog.
5. The user can save the connection (.conprops file) in the connections folder or create a sub folder in the connections folder.

Note: Once the sub folder is created, if the folder is not getting the focus, select the folder manually.

6. Click **Save** to save the data and close the dialog box, or click **Cancel** close the dialog box without saving the data entered.



Note: Some text box information changes to provide details associated with the type of network element selected.

Section and Field	Description or Action
Network Element Information	
Name	Enter a unique name for this connection as it will appear in the connection list

Type	From the drop-down menu, select the type of network element with which to connect
SID	This is the source identifier. When a connection command is sent to the network element (TID), the source identifier (SID) is sent back. The default SID is the network name.
User Account Information	
Username	Enter a username to log on to the network element
Password	Enter a password. The password field displays asterisks when text is entered. If security is not enabled on the network element, the Account and Password fields may be left blank. **Note.** The password is case sensitive.
Connection Information	
Type	Connection Type determines how TimeCraft will connect to the network element. From this drop-down menu, select TCP/IP, serial/USB-serial, or modem. The default is TCP/IP.
TCP/IP Connection Details	
IP Address	Enter the IP address of the network element selected in the Network Element Information Section
Port	Enter the host port for the IP address
Serial / USB-Serial Connection Details	
Com Port	This field indicates the serial/USB-serial communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, 4, 5, 6, 7 or 8. The default is Com Port 1. See Verify USB-Serial COM Port.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, 19,200 bps, 38,400 bps or 57,600 bps. The default is 9600 bps.
Modem Connection Details	
Com Port	This field indicates the communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, or 4. The default is Com Port 1.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 2400 bps.
Phone	This field is for the modem's telephone number.

Open Connection

To open a connection from the Main Menu:

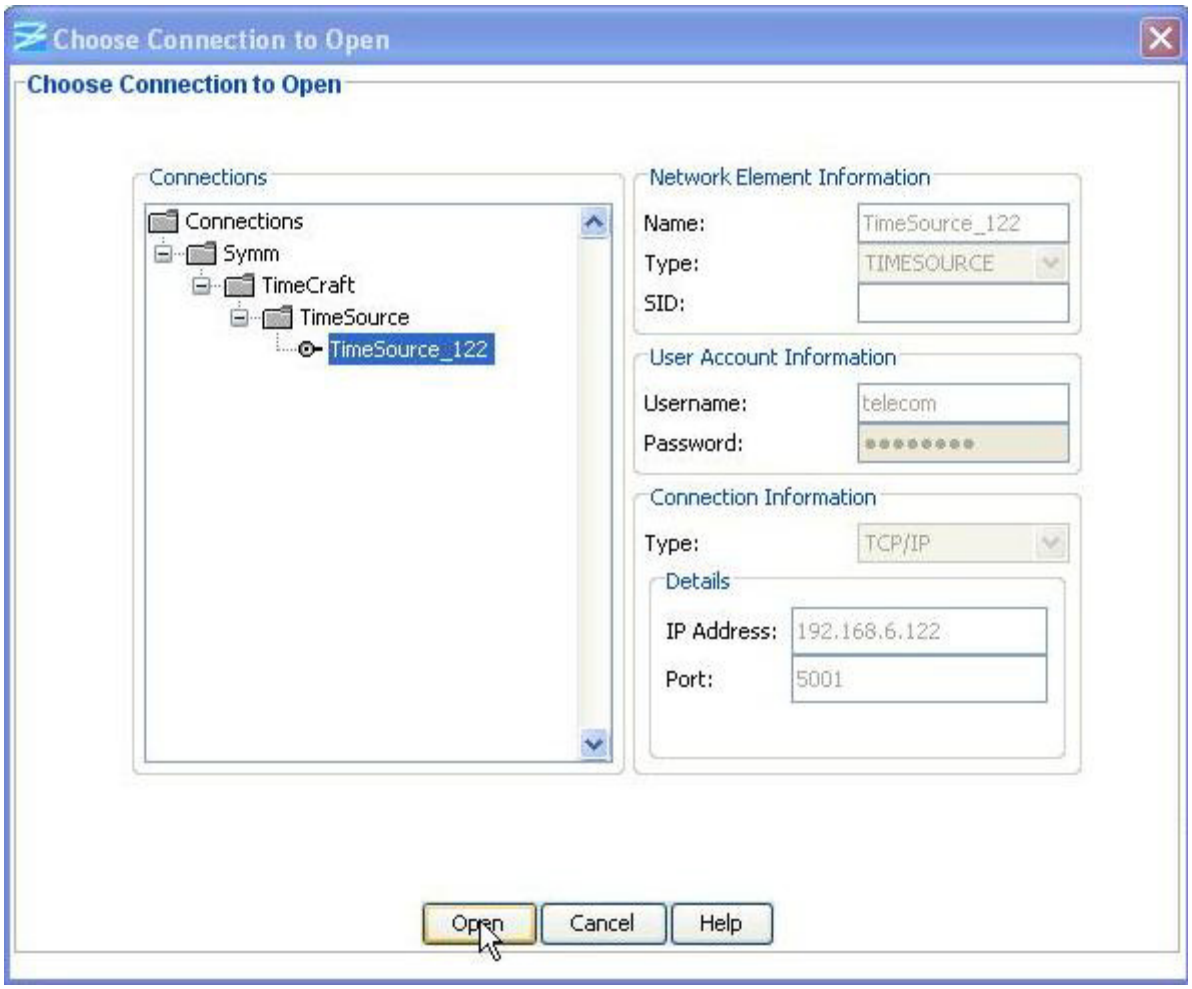
1. Click **Connection**.

2. Click **Open Connection** from the drop-down menu to open the "Choose Connection to Open" screen.

Note: Available connections are displayed in the connections panel (left side) as a directory structure. And the information about the highlighted connection is displayed in the area to the right of the connection panel. If a folder does not contain connection files, then that folder will not be displayed in the connections folder hierarchy as a directory structure.

3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.

4. Click on a network element to select it and click the **Open** button.



Close Connection

To close a connection from the Browser panel:

1. Select a network element.
2. Left-click and select **Close Connection** in the drop-down window to close the current session.

Edit Connection

To edit a network element:

1. Click **Connection** on the Main Menu.
2. Click **Edit...** from the drop-down menu to open the "Choose Connection to Edit" screen.

3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.

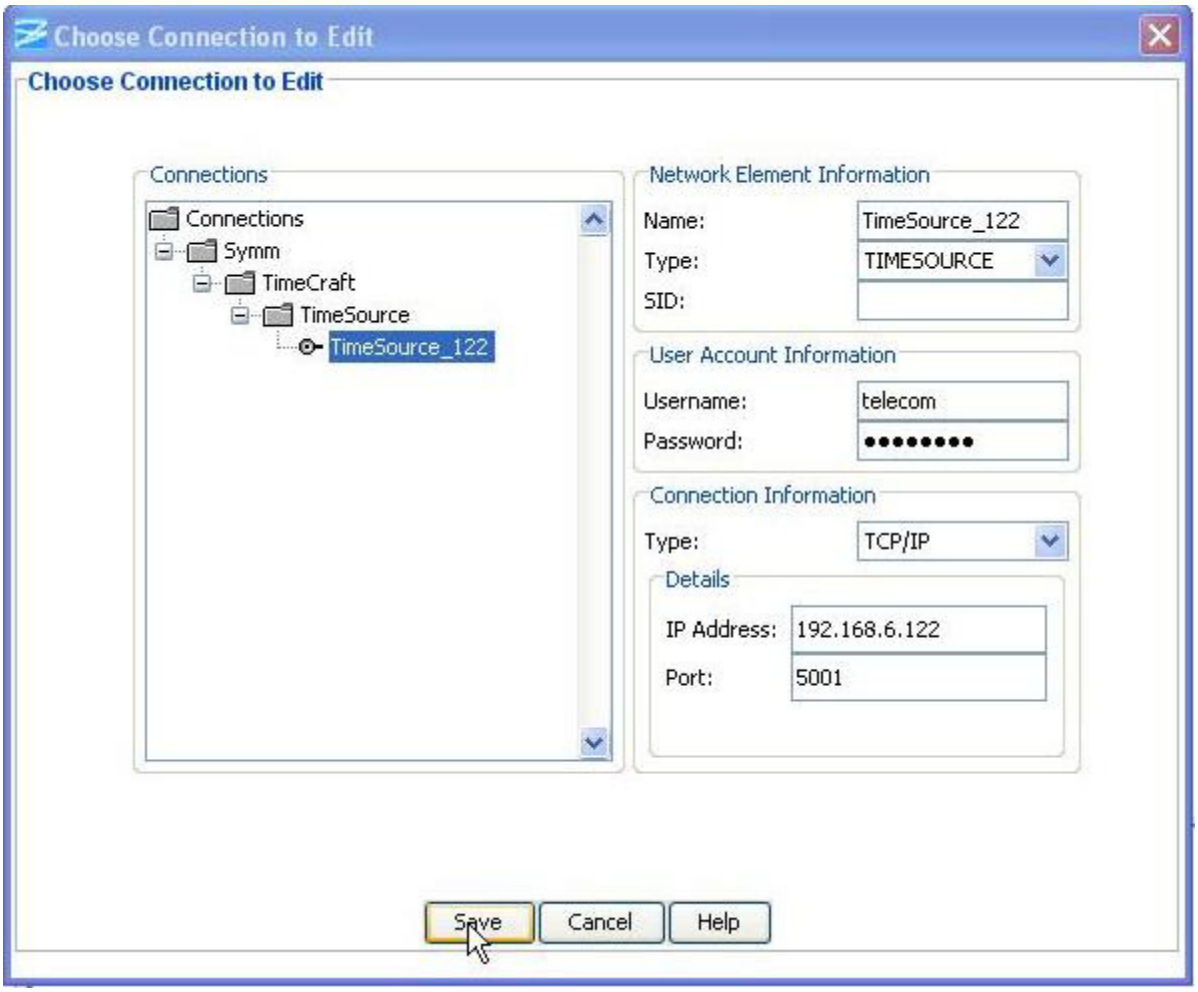
4. Select a network element in the selected sub folder under the "Connections" panel (left panel).

5. Edit the content of appropriate field that you want to edit.

6. Click **Save** to save the data and close the dialog box, or click **Cancel** to close the dialog box without saving data.

Note: If a folder does not contain connection files, then that folder will not be displayed in the connections folder hierarchy as a directory structure.

Note: If you want to move the connection files to a different location/folder inside the 'connections' directory, browse to the TimeCraft installed directory through windows explorer, open the connections folder and then move the connections file to the desired location/folder.



Note: Some text box information changes to provide details associated with the type of network element selected.

Section and Field	Description or Action
Network Element Information	
Name	Enter a unique name for this connection as it will appear in the connection list
Type	From the drop-down menu, select the type of network element with which to connect
SID	This is the source identifier. When a connection command is sent to the network element (TID), the source identifier (SID) is sent back. The default SID is the network name.

User Account Information	
Username	Enter a username to log on to the network element
Password	Enter a password. The password field displays asterisks when text is entered. If security is not enabled on the network element, the Account and Password fields may be left blank. **Note.** The password is case sensitive.
Connection Information	
Type	Connection Type determines how TimeCraft will connect to the network element. From this drop-down menu, select TCP/IP, serial/USB-serial, or modem. The default is TCP/IP.
TCP/IP Connection Details	
IP Address	Enter the IP address of the network element selected in the Network Element Information Section
Port	Enter the host port for the IP address
Serial / USB-Serial Connection Details	
Com Port	This field indicates the serial/USB-serial communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, 4, 5, 6, 7 or 8. The default is Com Port 1. See Verify USB-Serial COM Port.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 9600 bps.
Modem Connection Details	
Com Port	This field indicates the communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 1, 2, 3, or 4. The default is Com Port 1.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 2400 bps.
Phone	This field is for the modem's telephone number.

Refresh Connection

To refresh the system view from the Browser panel:

1. Select the network element.
2. Left-click and select **Refresh Connection** from the drop-down screen.

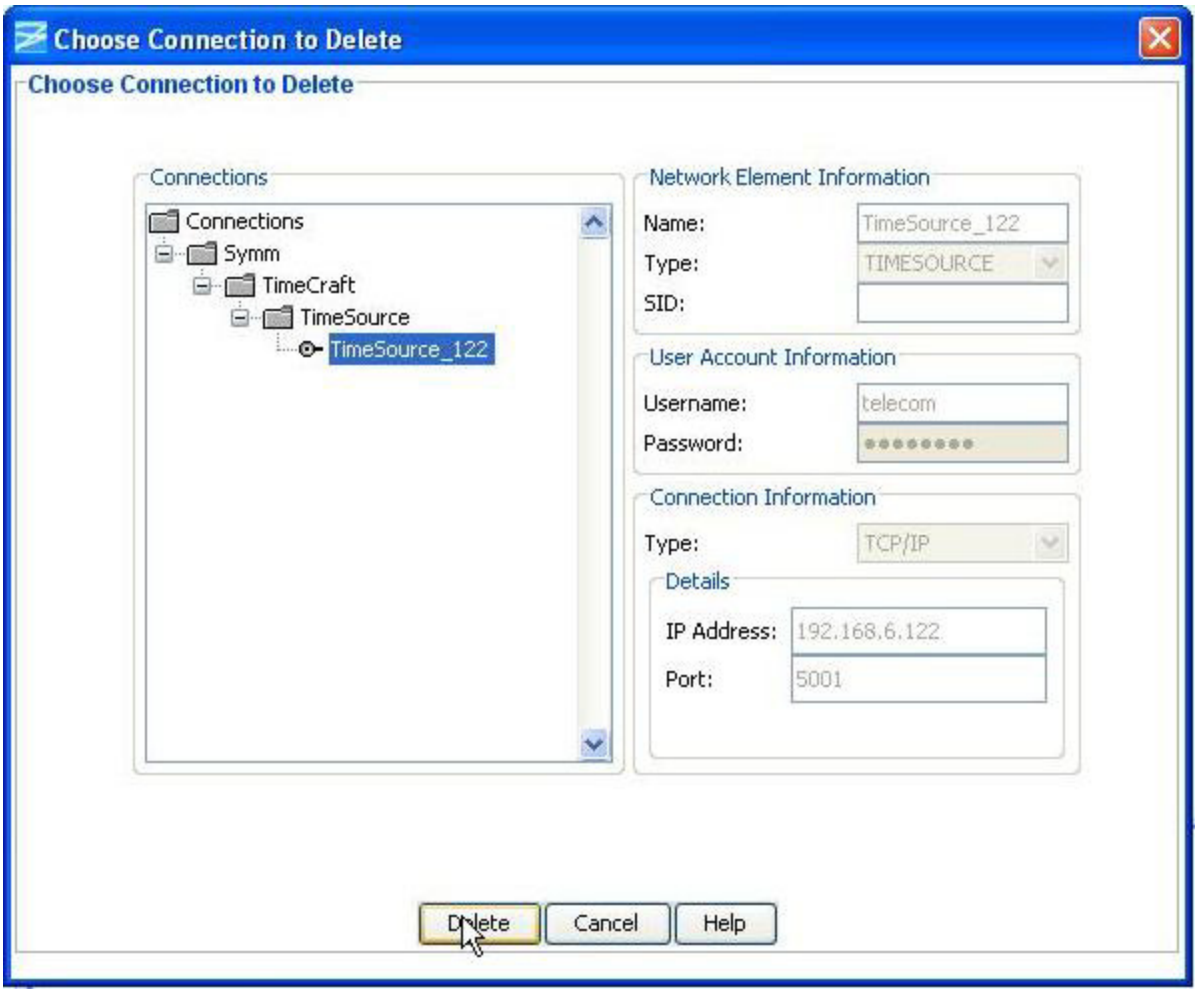
Delete Connection

To delete a connection from the Main Menu:

1. Click **Connection**.
2. Click **Delete...** from the drop-down window to open the "Choose Connection to Delete" screen.
3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.
4. Select the network element you want to delete.
5. Click the **Delete** button to delete the connection and return to the Main Menu, or click **Cancel** to close the dialog box without deleting the network element.

Note: If a folder does not contain connection files, then that folder will not be displayed in the connections folder hierarchy as a directory structure.

Note: To delete a folder in the connections directory, browse to the TimeCraft installed location (Default is "C:\Program Files\Symmetricom\TimeCraft"). Open the connections folder and delete the particular folder. Deleting the folder will lead to deletion of all the connections present in that folder.



Verify USB-Serial COM Port

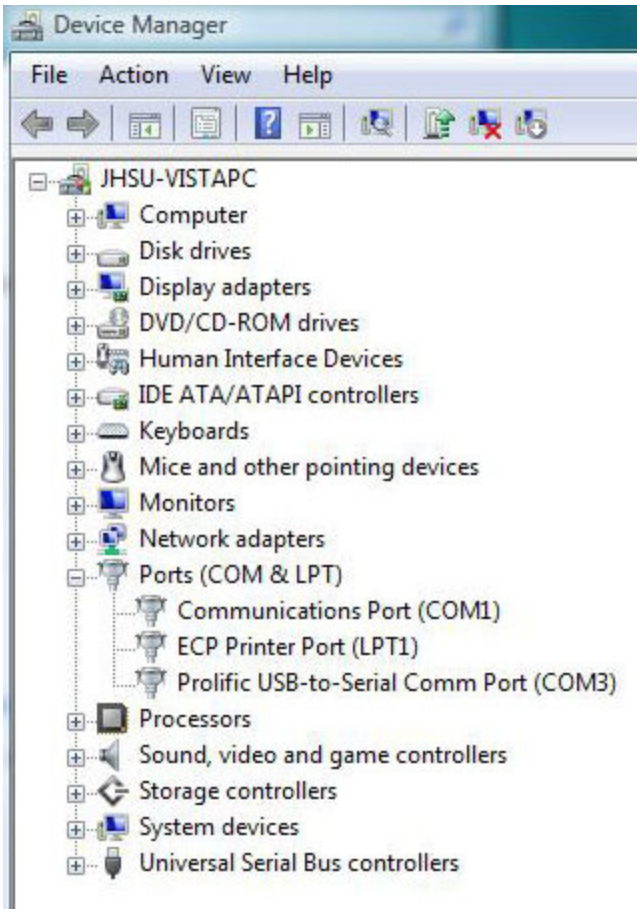
TimeCraft requires that the COM port be specified when creating a new connection with USB-serial, or editing an existing connection to use USB-serial. The USB-to-serial adapter will typically be assigned a COM port when the driver software is installed. To determine the COM port for USB-to-serial, follow the procedures below:

For Windows Vista OS

1. Click on the **Start** button.
2. Right-click on **Computer**. Select "Properties" from the menu that appears.
3. Click on **Device Manager**.
4. Double-Click on **Ports (COM & LPT)** to display the port assignments.
5. Locate the port assigned to the USB-to-serial adapter, as shown in the image below.

For Windows XP OS

1. Click on the **Start** button.
2. Right-click on **My Computer**. Select "Properties" from the menu that appears.
3. Click on the **Hardware** tab.
4. Click on the **Device Manager** button.
5. Double-Click on **Ports (COM & LPT)** to display the port assignments.
6. Locate the port assigned to the USB-to-serial adapter, as shown in the image below.



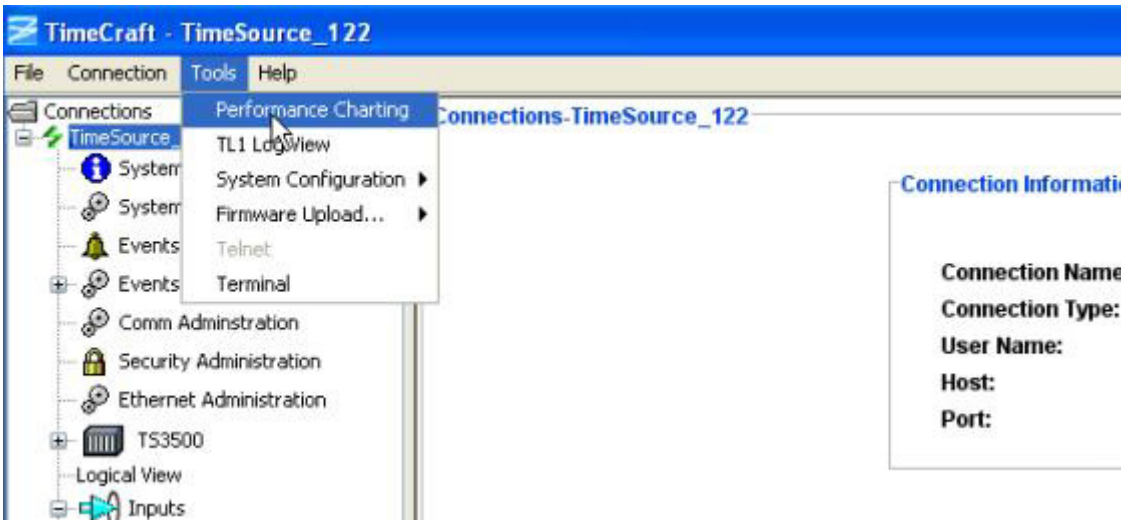
Tools Menu

Start Performance Charting

To start performance charting:

1. Click the **Tools** menu item.

2. Click **Performance Charting** in the drop-down menu to open the Performance Charting screen.



See Also:
MTIE Chart

TDEV Chart

TL1 Log View

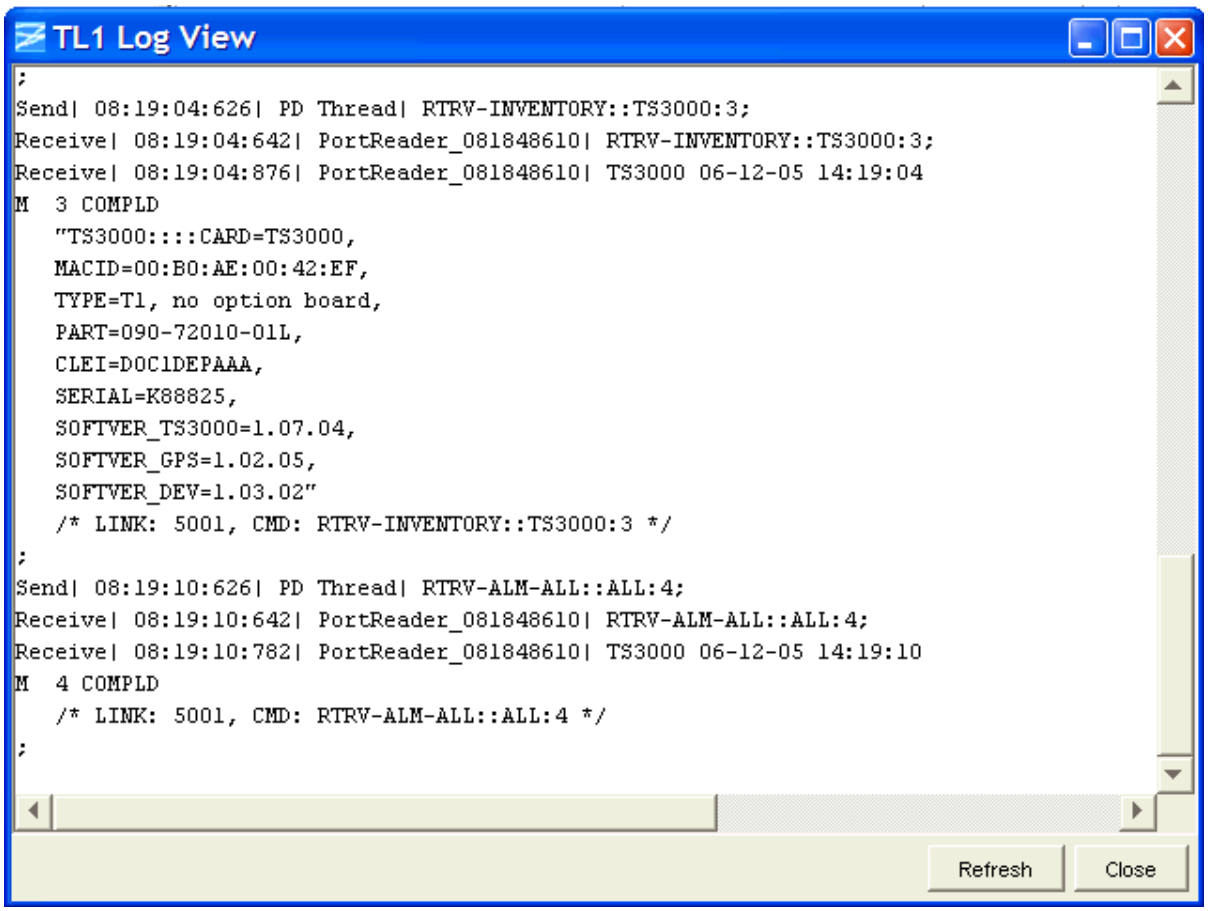
The TL1 Log View screen displays a file of TL1 commands generated by TimeCraft and received from network elements.

To open the TL1 Log screen:

1. Click the **Tools** menu item.

2. Click **TL1 Log View** in the drop-down menu to open the TL1 Log screen.

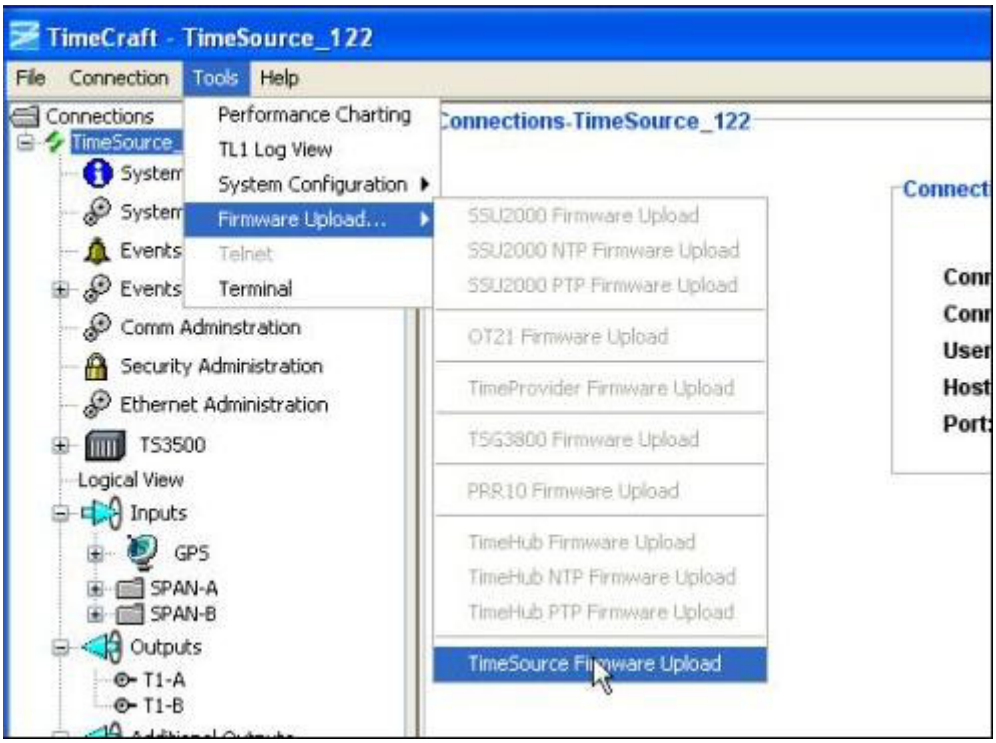
3. Click **Refresh** to update the file to display the log for the current session, or click **Close** to close the TL1 Log View screen.



Firmware Upload

To upload new firmware to TimeSource:

1. Click the **Tools** menu item.
2. Click **Firmware Upload...** in the drop-down menu.
3. Select **TimeSource Firmware Upload** in the displayed list to open the firmware navigation screen.



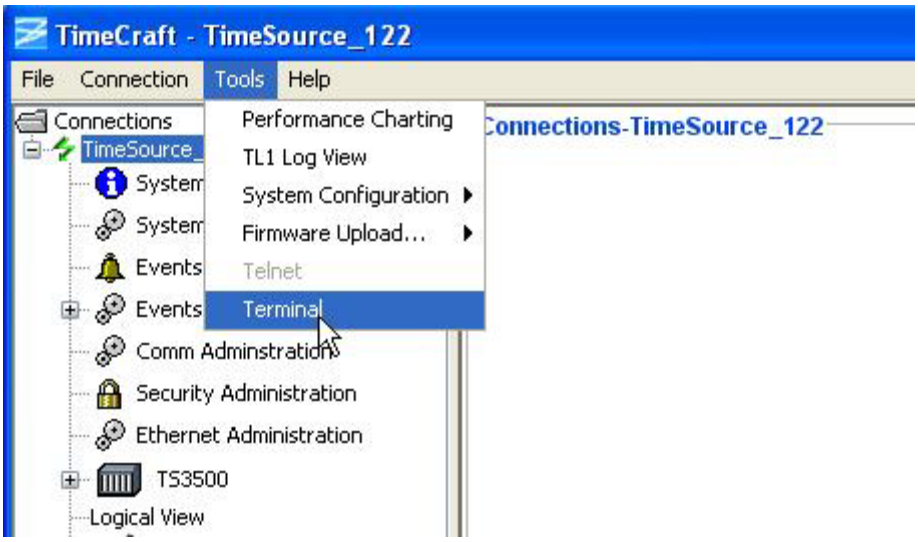
See Also:
Uploading Firmware

Using The Terminal Screen

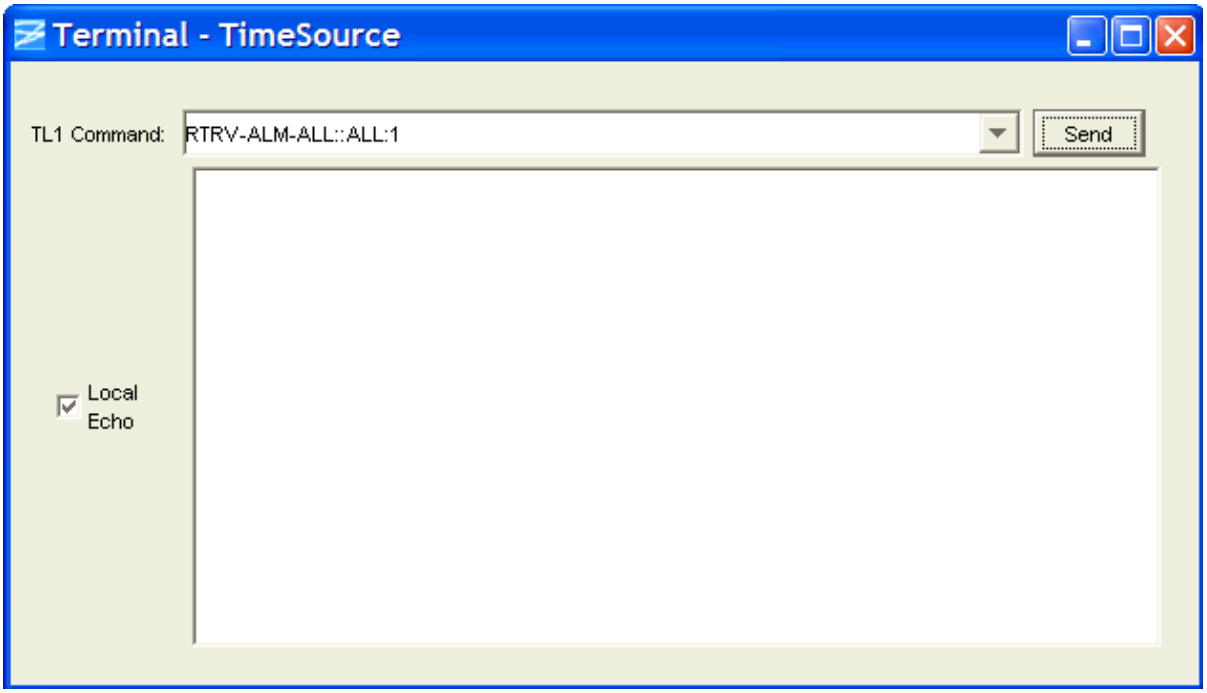
The Terminal Screen shown below allows you to key in and send TL1 commands and view the responses. If you select the Local Echo check box, the command you send is displayed along with the response.

To use the terminal screen:

1. Click the **Tools** menu item.
2. Click **Terminal** in the drop-down menu to open the terminal screen.
3. Type a TL1 command into the TL1 Command text box.
4. Click **Send** to enter the command.



Note: Click the **Local Echo** check box to display the command along with the response.



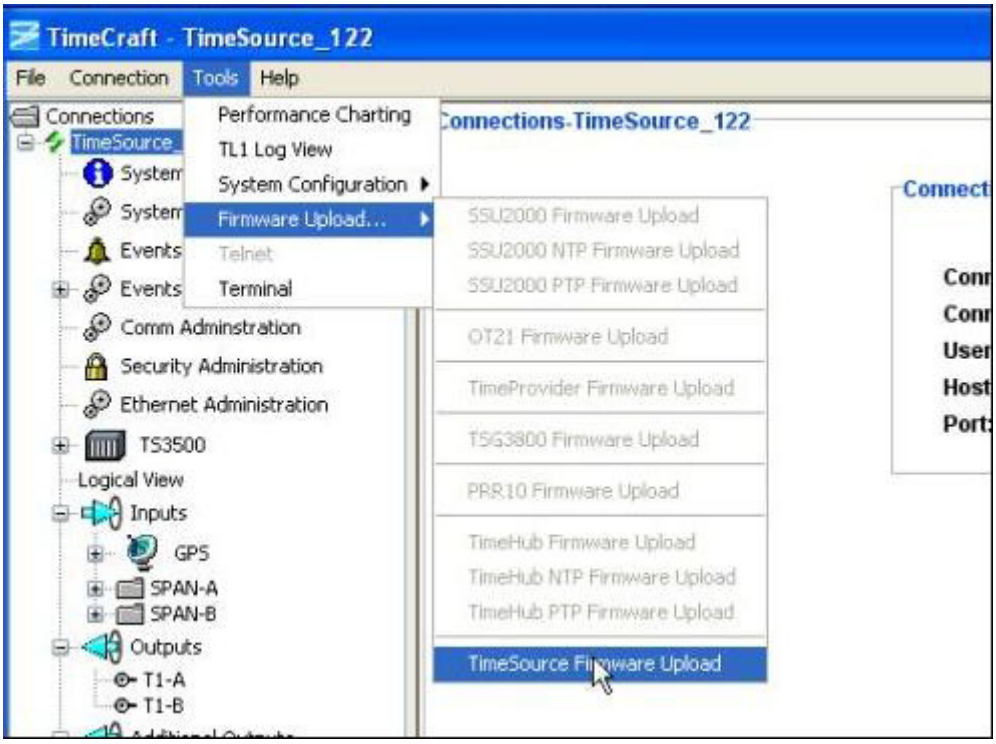
Note: TimeCraft does not support Telnet connections with TimeSource.

Firmware Upload

Uploading Firmware

Use the following procedure to upload firmware to TimeSource:

1. Click **Tools** on the application menu bar.
2. Click **Firmware Upload...** from the drop-down menu.
3. Select **TimeSource Firmware Upload** in the displayed list.



4. At the **TimeSource Firmware Upload** screen, click either the RS232 or TCP/IP radio buttons to select either RS232 or TCP/IP according to your connection type.
5. Enter a user name in the **User Name:** text box.
6. Enter a valid password in the **Password:** text box.
7. If you selected RS232 in step 4, select the appropriate port in the **Comm Port** drop-down box. Or, if you selected TCP/IP in step 4, enter the FTP server IP address in the **IP Address** text box.
8. Enter the port number in the **Port** text box. Port 5001 is the default port.

9. Enter the file name in the **Choose the Firmware File:** text box, or click **Browse** to navigate to the directory on the FTP server containing the file. Select the file and click **OK** to enter it into the text box.

Baud Rate - This field indicates the upload baud rate. If you select the **Use High Speed** check box, 115200 (115K) bps is set. The default is 9600 bps.

Note: The file must be located on an FTP or SFTP server that TimeCraft can access.

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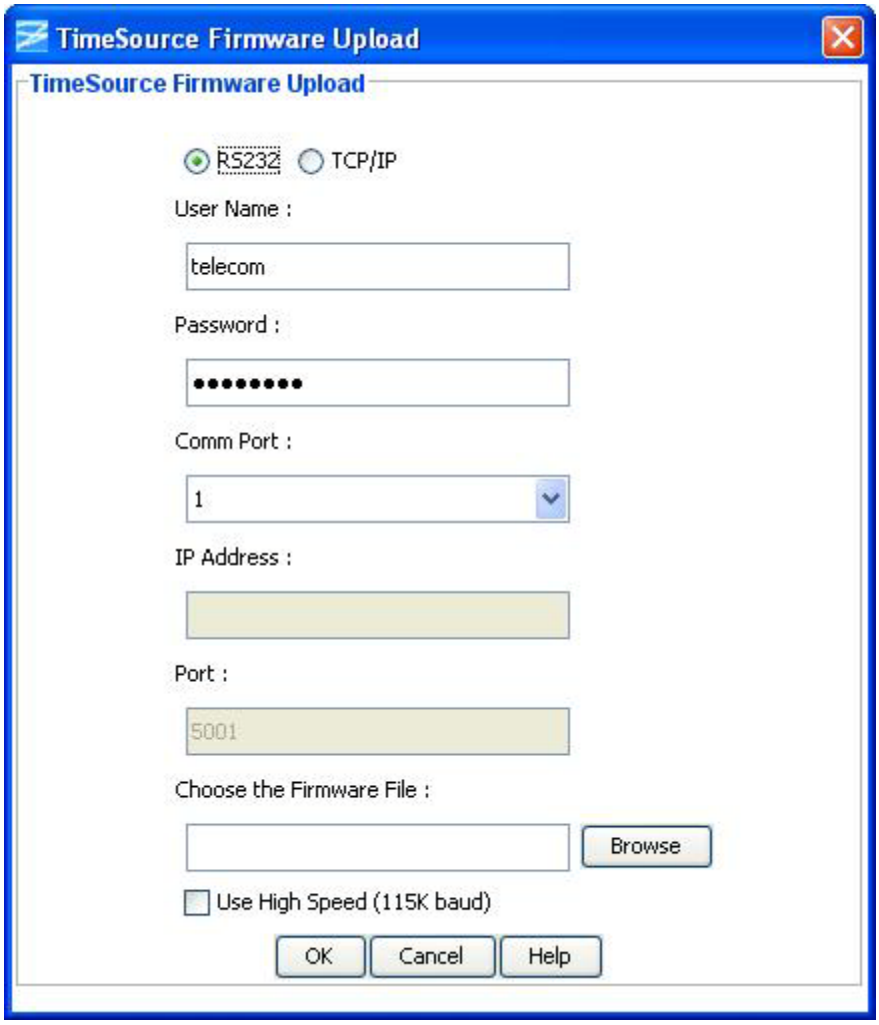
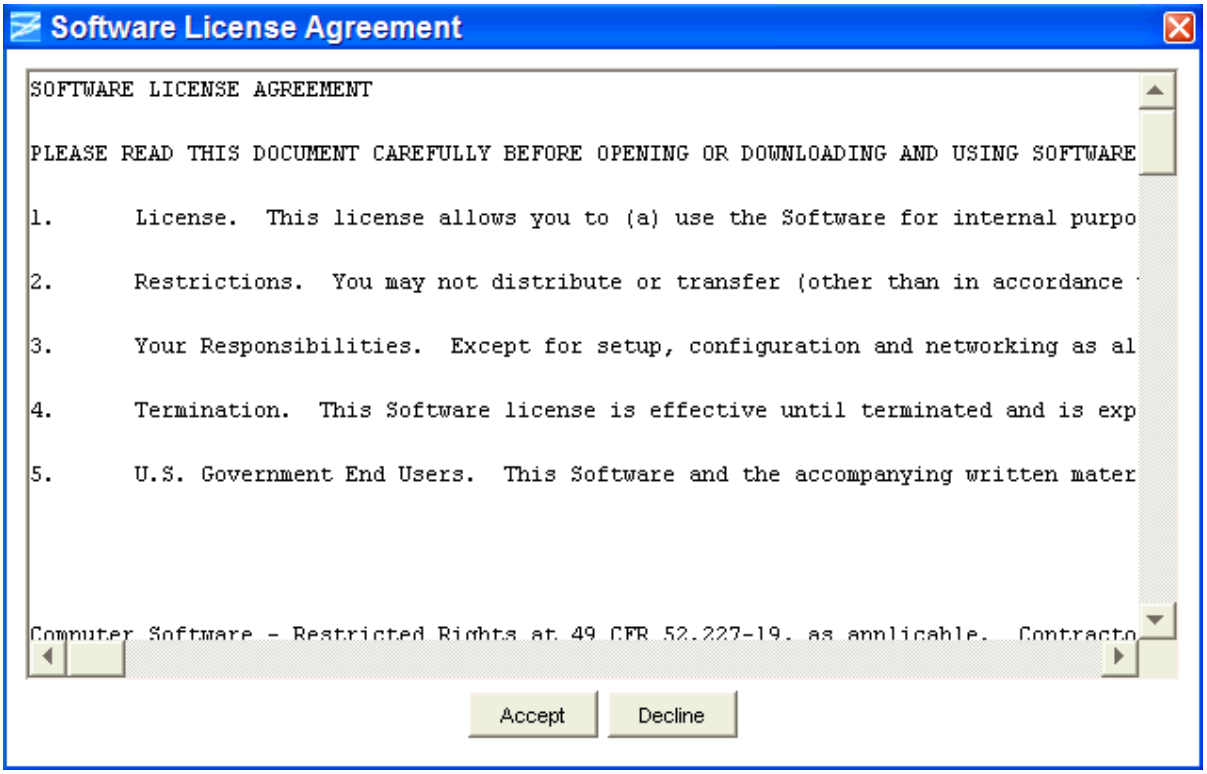
10. Click **OK** to begin the upload process, or click **Cancel** to exit the firmware upload procedure. When you click **OK**, the **Software License Agreement** screen is displayed.

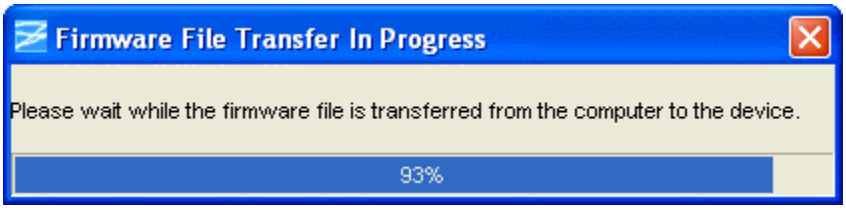


11. Click **Accept** in the **Software License Agreement** window to begin firmware transfer.

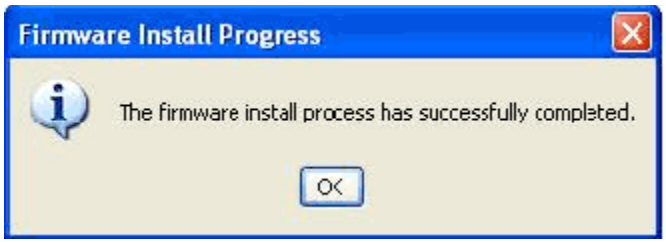
> **Note:** If you click **Decline**, a **Decline Agreement** window is displayed indicating your upload will be cancelled. Click **OK** to cancel the upload procedure.



12. During firmware transfer, TimeCraft displays the following dialog screen with progress bar and the user is disconnected from the TimeSource during upload.



13. When the installation is finished, a screen indicates that it has successfully completed. Click **OK** to close the **Firmware Install Progress** screen.

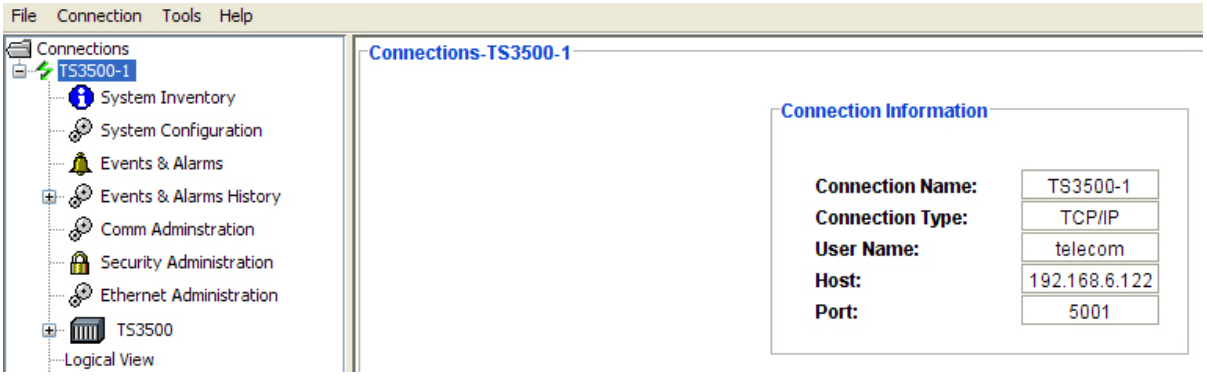


Connection Information

Connection Information Screen

Clicking on the top-level icon for the TimeSource unit that is currently connected brings up a screen with information about the connection. The Connection Information screen provides the following information:

- **Connection Name:** The Network Element Information name assigned during New Connection setup
- **Connection Type:** Either TCP/IP, Serial/USB-Serial, or Modem
- **User Name:** The user name assigned during New Connection setup
- **Host:** The host IP address
- **Port:** The communications port

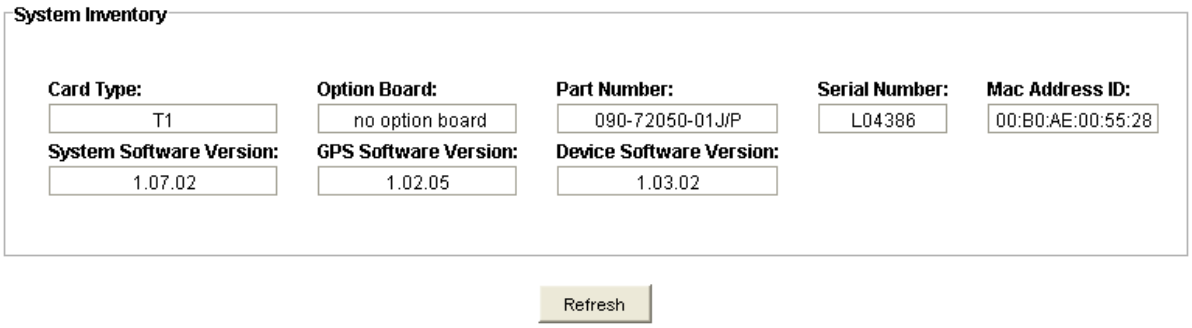


System Inventory

System Inventory Screen

The System Inventory screen provides the following information:

Item	Description
Card Type	T1 CCK IRGB
Option Board	NO OPTION BOARD T1 OPTION BOARD CCK OPTION BOARD IRIG OPTION BOARD MIXED E1/T1 OPTION BOARD with eight mixed E1/T1 outputs MIXED T1/CCK OPTION BOARD with eight mixed T1/CCK outputs
Part Number	System Part Number
Serial Number	System Serial Number
MAC Address ID	MAC address in hexadecimal format
System Software Version	Operating System Firmware Version
GPS Software Version	GPS Receiver Firmware Version
Device Software Version	Hardware Option Firmware Version
Refresh	Click **Refresh** to update the display

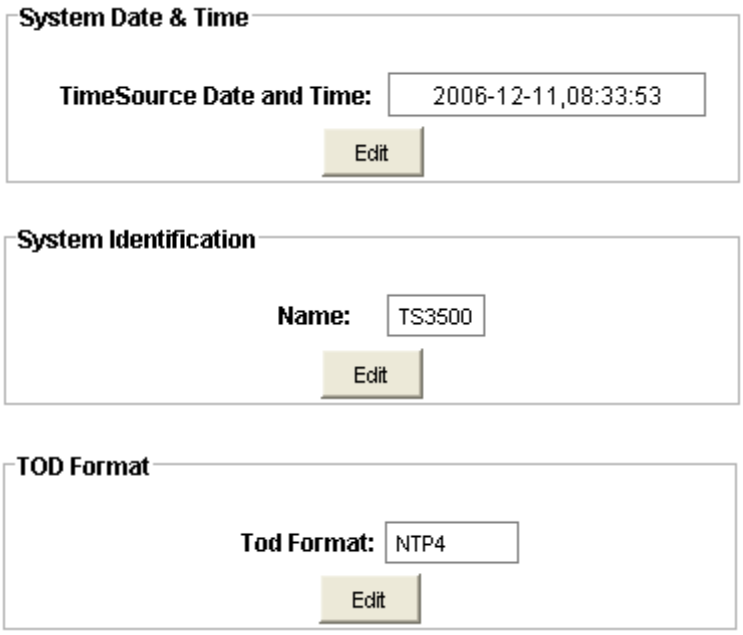


System Configuration

System Configuration Screen

The System Configuration screen allows you to set the TimeSource system date and time, system identification, and the time-of-day (TOD) format. If a TOD device is installed, the TOD format selection must correspond to the device; either a Cisco router or NTP Type 4 compatible device.

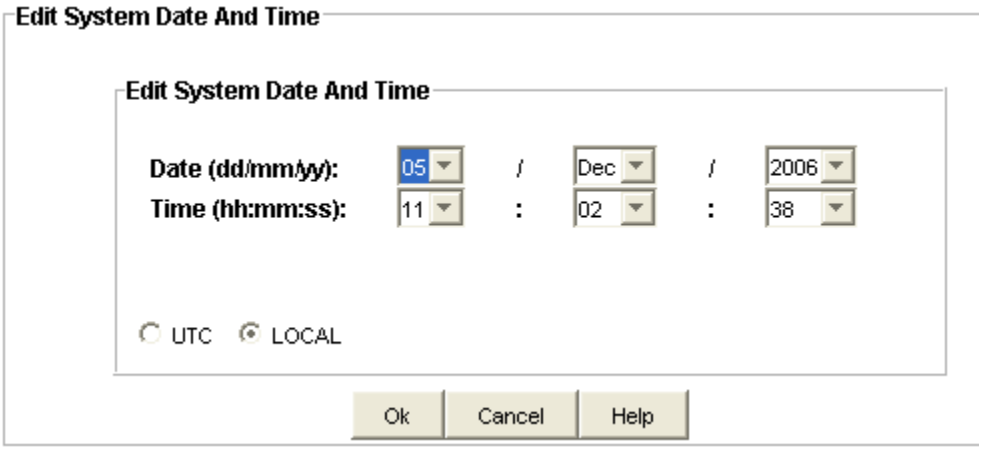
Click **Edit** to change the TimeSource Date and Time, the System Identification Name, or the TOD Format.



Edit System Date and Time

Use the following procedure to edit the System Date and Time:

1. Select the appropriate day in the day selection drop-down box.
2. Select the appropriate month in the month selection drop-down box.
3. Select the appropriate year in the year selection drop-down box.
4. Select the appropriate hour in the hour selection drop-down box.
5. Select the appropriate minute in the minute selection drop-down box.
6. Select the appropriate second in the second selection drop-down box.
7. Click the appropriate radio button to select either UTC or LOCAL time.
8. Click **OK** to accept changes and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving changes.

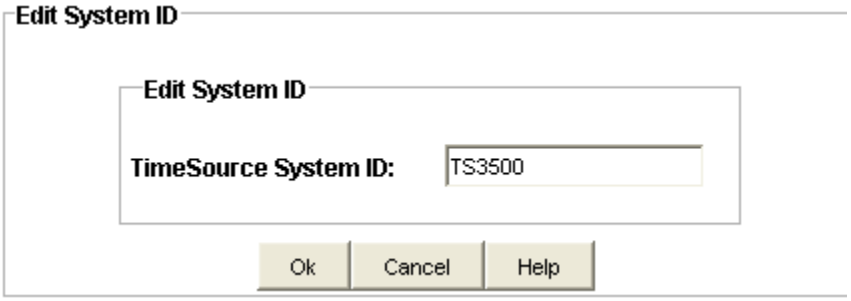


Edit System Identification

Use the following procedure to edit the System ID:

1. Enter the desired identifier in the TimeSource **System ID:** text box.

2. Click **OK** to accept changes and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving changes.

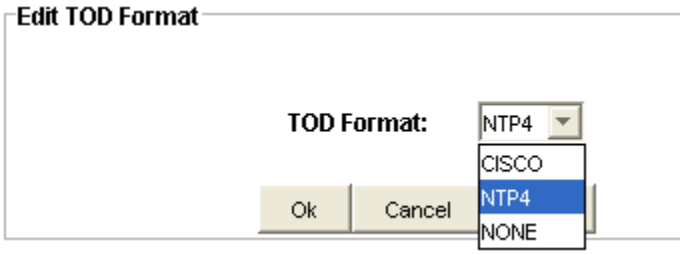


Edit TOD Format

Use the following procedure to edit the System Time-of-Day format:

1. In the **TOD Format:** drop-down box, select either CISCO if a Cisco router is installed, NTP4 if an NTP Type 4 compatible device is installed, or NONE if no NTP device is installed.

2. Click **OK** to accept the selection and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving the selection.



Events and Alarms

Events and Alarms Screen

The Events and Alarms screen shows the current active events. Events are ordered chronologically and the screen is updated each time a new event is raised or cleared on the element. Each field is described in the table below.

The list of events can be sorted by clicking the column heading. Columns can also be moved by clicking in the header and dragging with the mouse.

Each event is color coded to indicate severity as follows:

- Critical Severity (Red)
- Major Severity (Orange)
- Minor Severity (Yellow)
- Event Severity (White)
- Not-alarmed Severity (White)

Click **Refresh** to display new events.

Item	Description
AID	Access identifier for the object of the message.
Severity	Alarm setting: critical, major, minor, event, or not-alarmed.
Condition	Indicates the identifier for the event.
Service Affecting	Indicates whether an alarm is Service Affecting (SA) or Not Service Affecting (NSA).
Date	Displays the month and day of an event or alarm condition.
Time	Displays the hour, minute, and second of an event or alarm condition.
Description	This field displays a description of each alarm type indicated.

Alarms And Events

2 Entries

AID	Severity	Condition	ServiceAffecting	Date	Time	Description
SPAN-A	MINOR	LOS	NSA	11-16	01-53-40	\"SPAN A LOSS OF SIGNAL\"
SPAN-B	MINOR	LOS	NSA	11-16	01-53-40	\"SPAN B LOSS OF SIGNAL\"

Refresh

Events and Alarms History

The Events and Alarms History screen shows a list of up to 500 logged events and alarms. You can display either events and alarms, or alarms only, and either the last 20, the last 100, or the last 500.

Use the following procedure to display a specified selection:

1. In the Display Selection window, select either the Last 20, Last 100, or Last 500 in the selection drop-down box to display the desired number of events and alarms.

2. Click **Select** to list the events.

Display Selection

Last 20 Select

Events and Alarms History

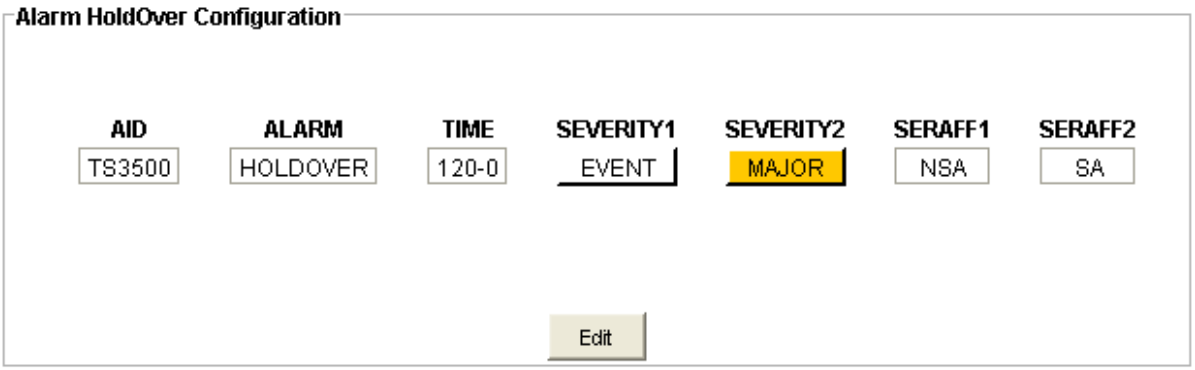
AID	Level	Condition	Service Affecting	Date	Time	Description
GPS	CRITICAL	ERROR	SA	03-26	16-36-44	\"GPS ERROR\"
CLK	MAJOR	STATE	SA	03-26	16-36-45	\"HOLDOVER\"
GPS	CLEARED	ERROR	SA	03-26	16-43-35	\"GPS ERROR\"
CLK	CLEARED	STATE	SA	03-26	16-43-36	\"HOLDOVER\"
GPS	CRITICAL	ERROR	SA	03-26	16-58-06	\"GPS ERROR\"
CLK	MAJOR	STATE	SA	03-26	16-58-06	\"HOLDOVER\"
GPS	CLEARED	ERROR	SA	03-26	17-00-36	\"GPS ERROR\"
CLK	CLEARED	STATE	SA	03-26	17-00-37	\"HOLDOVER\"
GPS	CRITICAL	ERROR	SA	03-26	18-54-03	\"GPS ERROR\"
CLK	MAJOR	STATE	SA	03-26	18-54-04	\"HOLDOVER\"

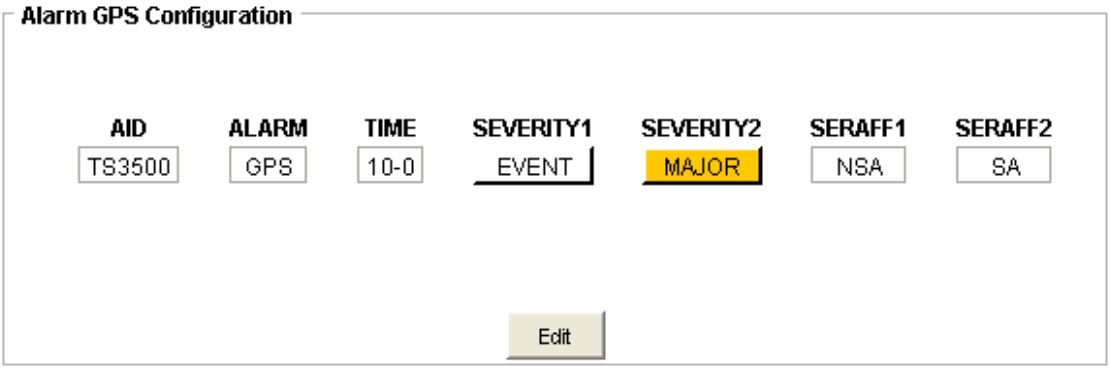
Alarm Configuration

The Alarm Configuration screen provides a view of the configuration settings for holdover and GPS.

You can set the parameters for TIME, SEVERITY1, and SERAFF1, which initially come into effect when the condition is detected, and you can set the parameters for SEVERITY2 and SERAFF2, which come into effect after a specified time.

Click **Edit** to change the settings.





Edit Alarm Holdover Configuration

Use the following procedure to set the alarm holdover configuration:

1. In the HRS drop-down box, select the number of hours (from 0 to 999) before the alarm is escalated.

2. In the MINS drop-down box, select the number of minutes (from 0 to 59) in addition to the hours set in step 1 before the alarm is escalated.

3. In the SEVERITY1 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

4. In the SEVERITY2 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

5. In the SERAFF1 drop-down box, select SA or NSA.

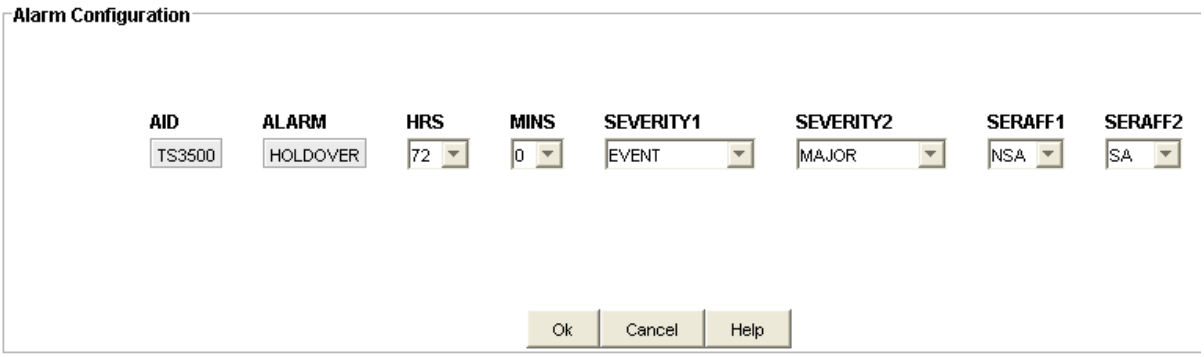
6. In the SERAFF2 drop-down box, select SA or NSA.

7. Click **OK** to accept the configuration changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving the configuration changes.

EVENT is a state that does not cause an alarm

SA indicates a Service-Affecting alarm

NSA indicates a Non-Service-Affecting alarm



Edit Alarm GPS Configuration

Use the following procedure to set the alarm GPS configuration:

1. In the HRS drop-down box, select the number of hours (from 0 to 999) before the alarm is escalated.

2. In the MINS drop-down box, select the number of minutes (from 0 to 59) in addition to the hours set in step 1 before the alarm is escalated.

3. In the SEVERITY1 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

4. In the SEVERITY2 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

5. In the SERAFF1 drop-down box, select SA or NSA.

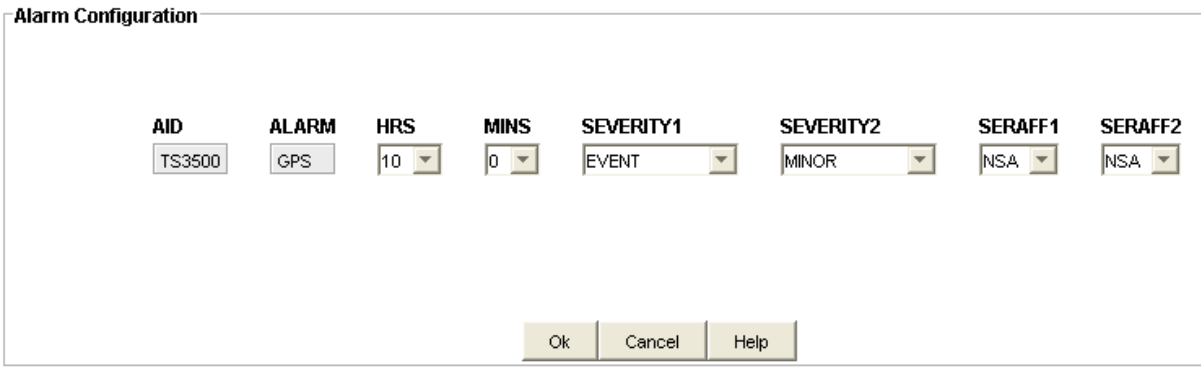
6. In the SERAFF2 drop-down box, select SA or NSA.

7. Click **OK** to accept the configuration changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving the configuration changes.

EVENT is a state that does not cause an alarm

SA indicates a Service-Affecting alarm

NSA indicates a Non-Service-Affecting alarm



Comm Administration

Comm Administration

The TimeSource provides three configurable serial communication ports for management facilities as show in the following figure. Click **Edit** to change the configuration. The table below provides a description of each attribute.

Comm Administration

COM:	COM-1	COM-2	COM-3
Baud Rate:	9600	9600	9600
Monitor:	INH	INH	INH
Keep Alive:	0	0	0
End Of Text:	00	00	00
Echo:	ALW	ALW	ALW
Report Alarm:	ALW1	ALW1	ALW1
Auto Log Off (mins):	20	20	20
Hardware Flow Control	INH	INH	
Software Flow Control	INH	INH	
Parity	NONE	NONE	NONE
Stop Bits:	1	1	1

Edit

Item	Description
Baud Rate	Data transfer rate of the port selections are 115000, 57600, 38400, 19200, 9600, 4800, 2400 and 1200
Monitor Message	Controls the viewing of communication port messages selections are INH to not view communication port messages and ALW to view communication port messages
Keep Alive	Controls the sending of the COMPLD message in minutes **Note:** When the value is zero, no COMPLD message is sent. When the value is between 1 and 255, the COMPLD message is sent accordingly.
End Of Text	Numeric value of the ASCII character to be used as an additional terminating character Zero indicates no additional terminating character **Note:** The End of Text must be set to zero, `00', for the port currently used.
Echo	Controls the ability of the port to echo received characters selections are INH to not echo received characters and ALW to echo received characters **Note:** Echo should be turned off (set to INH) for the port currently used.

Report Alarm	Sets the communication port capabilities as follows: ■ ALW0 - normal communication, no autonomous messages ■ ALW1 - normal communication, autonomous messages ■ ALW2 - autonomous messages received, logged on or not ■ INH - closes the connection and keeps the port from use (command must go to another port) (if the port is in use, this logs off the user) **Note:** Report Alarm should be turned on (set to ALWx) for the port currently used.
Auto-Log Off	Sets the number of minutes before the communication port disconnects through in-activity **Note:** Zero indicates auto-log off is disabled. Setting the auto-log off, between 1 and 255 minutes enables the attribute.
Hardware Flow Control	Controls whether the port uses hardware flow control selections are INH to not use hardware flow control and ALW to use hardware flow control
Software Flow Control	Controls whether the port uses software flow control selections are INH to not use software flow control and ALW to use software flow control
Parity	Specifies the parity checking on the communication port selections are EVEN, ODD, or NONE
Stop Bits	Specifies the number of stop bits being used by the communication port

Edit Comm Administration

The Edit Comm Administration screen allows you to configure the three serial communication ports. Use the following procedure to configure each port:

1. In the **Baud Rate** drop-down box, select the desired baud rate. Values are 115000, 57600, 38400, 19200, 9600, 4800, 2400 and 1200.

2. In the **Monitor** drop-down box, select INH to not view communication port messages or ALW to view communication port messages.

3. In the **Keep Alive** selection box, click the up or down arrow buttons to select the number of minutes (from 1 to 255) to control the delay in sending the COMPLD message. When the value is zero, no COMPLD message is sent.

4. In the **Echo** drop-down box, select INH to not echo received characters or ALW to echo received characters. It is recommended that Echo be turned off (set to INH) for the port currently used.

5. In the **Report Alarm** drop-down box, select INH to close the connection and keeps the port from use or ALW0, ALW1, or ALW2 to configure the port as follows:

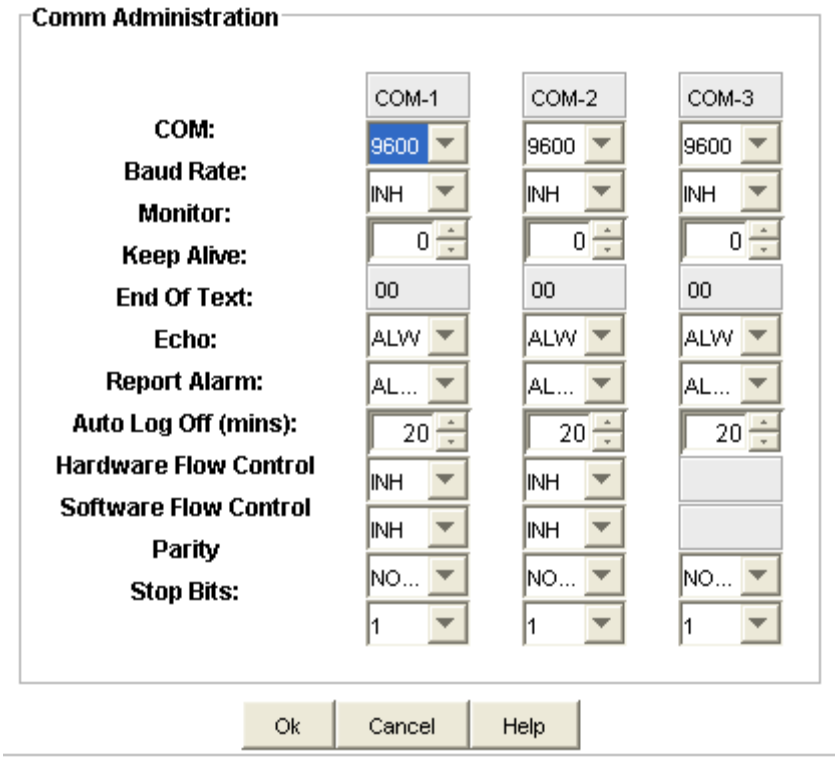
- ALW0 - normal communication, no autonomous messages
- ALW1 - normal communication, autonomous messages
- ALW2 - autonomous messages received, logged on or not

6. In the **Auto Log Off (mins)** selection box, click the up or down arrow buttons to enter the number of minutes (from 1 to 255) to control the time limit before the communication port disconnects through in-activity. When the value is zero, auto-log off is disabled.

7. In the **Hardware Flow Control** drop-down box, select INH to set the port to not use hardware flow control or ALW to set the port to use hardware flow control.

8. In the **Software Flow Control** drop-down box, select INH to set the port to not use software flow control or ALW to set the port to use software flow control.

9. Click **OK** to accept changes and return to the Comm Administration screen, or click **Cancel** to not saving the changes and return to the Comm Administration screen.



IP Administration

Ports 5001, 5002, 5003, and 5004 are configured to act as though a serial-port communication terminal were connected to them. These ports communicate TL1 commands, responses, and autonomous messages.

Port 5551 communicates with Element Managers, which may have NMS, TimePictra, or similar software. An Element Manager establishes a connection with port 5551 for TL1 commands and responses.

Click **Edit** to change the configuration. The table below provides a description of each attribute.

IP Administration

IP:	IP-5551	IP-5001	IP-5002	IP-5003	IP-5004
Monitor:	INH	INH	INH	INH	INH
Keep Alive:	0	0	0	0	0
End Of Text:	00	00	00	00	00
Echo:	INH	ALW	ALW	ALW	ALW
Report Alarm:	ALW0	ALW1	ALW1	ALW1	ALW1
Auto Log Off (mins):	20	20	20	20	20
Software Flow Control	INH	INH	INH	INH	INH

Edit

Item	Description
Monitor	Controls the viewing of communication port messages selections are INH to not view communication port messages and ALW to view communication port messages
Keep Alive	Controls the sending of the COMPLD message in minutes **Note:** When the value is zero, no COMPLD message is sent. When the value is between 1 and 255, the COMPLD message is sent accordingly.
End Of Text	Numeric value of the ASCII character to be used as an additional terminating character Zero indicates no additional terminating character **Note:** The End of Text must be set to zero, `00', for the port currently used.
Echo	Controls the ability of the port to echo received characters selections are INH to not echo received characters and ALW to echo received characters **Note:** Echo should be turned off (set to INH) for the port currently used.

Report Alarm	Sets the communication port capabilities as follows: ■ ALW0 - normal communication, no autonomous messages ■ ALW1 - normal communication, autonomous messages ■ ALW2 - autonomous messages received, logged on or not ■ INH - closes the connection and keeps the port from use (command must go to another port) (if the port is in use, this logs off the user) **Note:** Report Alarm should be turned on (set to ALWx) for the port currently used.
Auto-Log Off (mins)	Sets the number of minutes before the communication port disconnects through in-activity **Note:** Zero indicates auto-log off is disabled. Setting the auto-log off, between 1 and 255 minutes enables the attribute.
Software Flow Control	Controls whether the port uses software flow control selections are INH to not use software flow control and ALW to use software flow control

Edit IP Administration

The Edit IP Administration screen allows you to configure ports 5551, 5001, 5002, 5003, and 5004. Use the following procedure to edit the IP administration configuration for each port.

1. In the **Monitor** drop-down box, select INH to not view port messages or ALW to view port messages.

2. In the **Keep Alive** selection box, click the up or down arrow buttons to select the number of minutes (from 1 to 255) to control the delay in sending the COMPLD message. When the value is zero, no COMPLD message is sent.

3. In the **End Of Text** text box, enter any hex code from 1 to 9F or 0.
   Zero indicates no additional terminating character.

4. In the **Echo** drop-down box, select INH to not echo received characters or ALW to echo received characters. It is recommended that Echo be turned off (set to INH) for the port currently used.

5. In the **Report Alarm** drop-down box, select INH to close the connection and keep the port from use or ALW0, ALW1, or ALW2 to configure the port as follows:

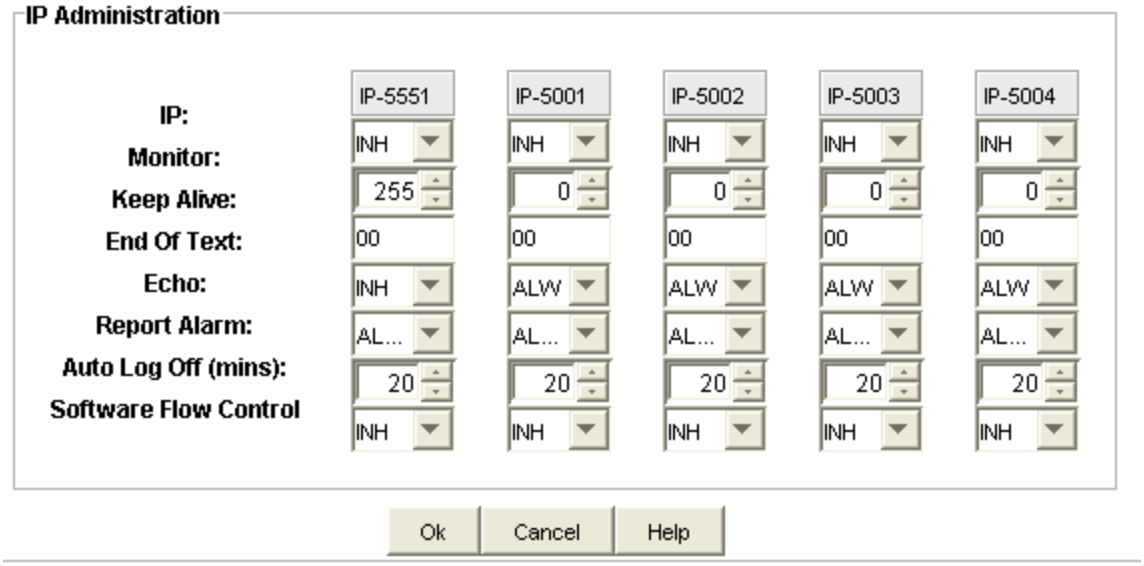
- ALW0 - normal communication, no autonomous messages
- ALW1 - normal communication, autonomous messages
- ALW2 - autonomous messages received, logged on or not

6. In the **Auto Log Off (mins)** selection box, click the up or down arrow buttons to enter the number of minutes (from 1 to 255) to control the time limit before the

communication port disconnects through in-activity. When the value is zero, auto-log off is disabled.

7. In the **Software Flow Control** drop-down box, select INH to set the port to not use software flow control or ALW to set the port to use software flow control.

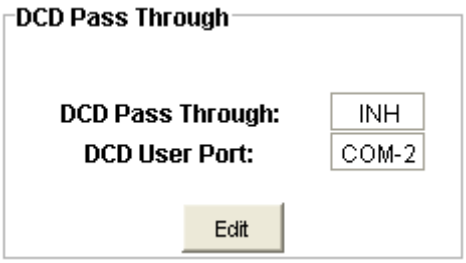
8. Click **OK** to accept changes and return to the IP Administration screen, or click **Cancel** to not saving the changes and return to the IP Administration screen.



DCD Pass Through

The pass through feature of the TimeSource allows the unit to front a DCD product to provide one management interface for a user site. The DCD Pass Through attribute can be set to either DCD communications port 1 (ALW1), port 2 (ALW2), or to Disabled (INH).

DCD User Port attribute represents the TimeSource serial Communications port and can be set to COM-1, COM-2, COM-3, COM-5001, COM-5002, 5003, or COM-5004.



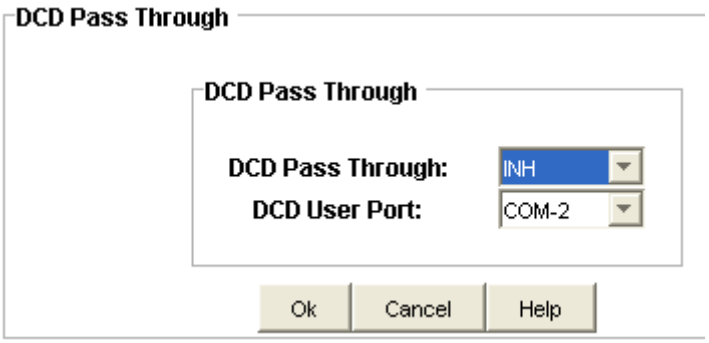
Edit DCD Pass Through

The Edit DCD Pass Through screen allows you to set the disable DCD pass through or enable DCD pass through using DCD communications port 1 or port 2 and to set up the TimeSource serial communication DCD user port.

1. In the **DCD Pass Through** drop-down box, select INH to disable DCD pass through, select ALW1 to enable DCD pass through on DCD communications port 1, or select ALW2 to enable DCD pass through on DCD communications port 2.

2. In the **DCD User Port** drop-down box, select the TimeSource serial Communications port to be used, either COM-1, COM-2, or COM-3, COM-5001, COM-5002, COM-5003, or COM-5004.

3. Click **OK** to accept changes and return to the DCD Pass Through screen, or click **Cancel** to not saving the changes and return to the DCD Pass Through screen.



Security Administration

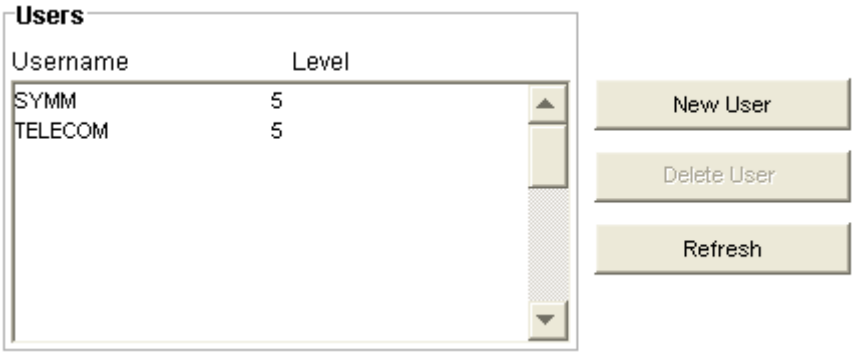
Security Administration

The Security Administration screen allows an administrator with level 5 access to associate one of five access security levels with each username. Each security access level grants the privileges of all lower levels plus additional privileges.

- Click **New User** to Add a user
- Click **Delete User** to delete the selected user. An "Are you sure?" dialog box appears before removing the user from the list.

- Click **Refresh** to update the user list.

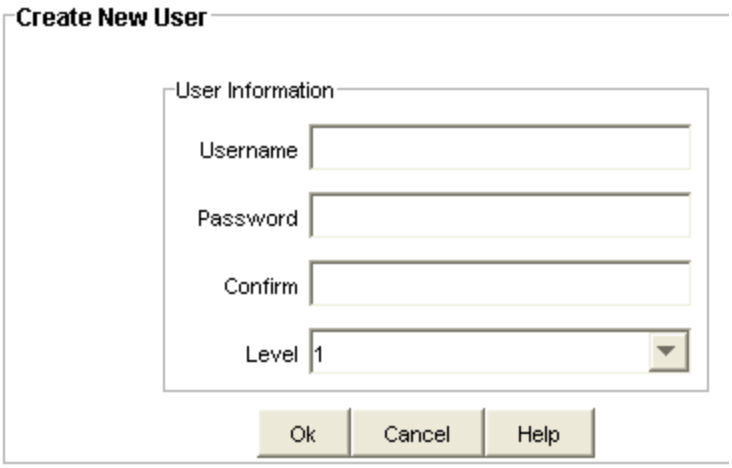
Note: TimeSource does not have an option to edit a user. To make changes to an existing user, you must delete the user and then add the user again.



Add a User

Use the following procedure to create a new user and refer to the table below for a description of each item:

1. Enter a name in the **Username** text box.
2. Enter a password in the **Password** text box. Acceptable characters include the "printable" ASCII characters from 32 to 127 (0x20 to 0x7F).
3. Enter the same password again in the **Confirm** text box (Password and Confirm must match to create the user).
4. Select a level in the Level drop-down box.
5. Click **OK** to accept changes and return to the Security Administration screen, or **Cancel** to return to the Security Administration screen without saving changes.

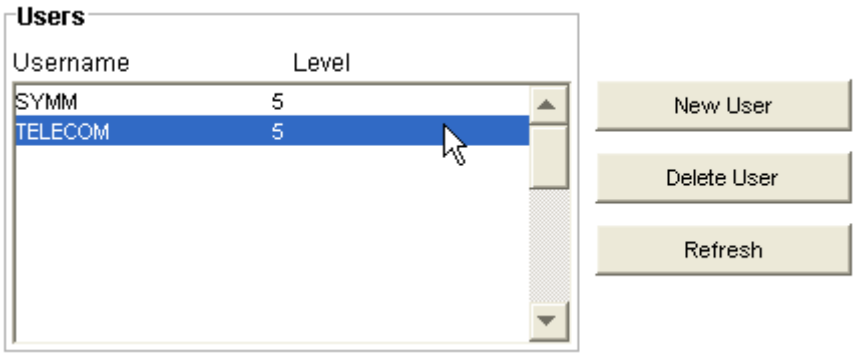


Item	Description
Username	Must start with an alpha character and have a maximum of 10 characters
Password	A minimum of 8 characters and a maximum of 10 characters Must contain at least one letter, one numeral, and one special character from the following: ! " $ % & ' ( ) * + - . / < > ? @ Password cannot be the same as Username even if extra characters are appended to password at the end
Access Level (1 - 5)	User access level used by a system administrator to assign a given level of access to system users. User access levels range from 1 to 5, with 1 being the lowest access level, and 5 being the highest access level. Level 5 allows users to enter or delete users.

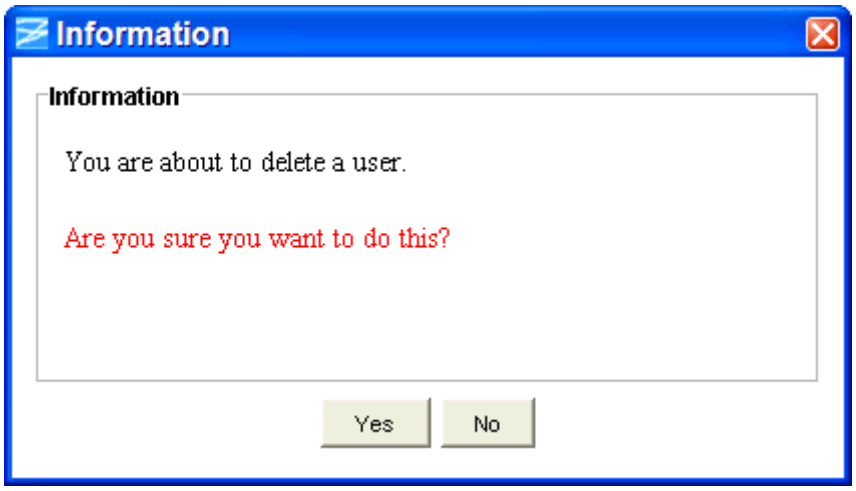
Delete a User

Use the following procedure to delete a user:

1. Select the Username in the list of users to be deleted.



2. Click **Delete User**. The following screen appears.



3. If you want to delete the user, click **Yes**, or if you do not want to delete the user, click **No** to return to the Security Administration screen.

Ethernet Administration

Ethernet Administration

The Ethernet Administration screen displays the following information:

Ethernet Administration Description

Inactivity Timer - Time selection that a disconnect from the Element Manager occurs if an autonomous message is not developed during this number of 100-ms units of inactivity (0 to 10,000, where 0 deactivates the timer).

Network Element IP - Network Element IP address for the TimeSource.

Default Gateway IP - Gateway IP address for the TimeSource.

Subnetwork Element IP - Subnetwork Element IP address for the TimeSource.

Click **Edit** to change the Ethernet Administration configuration.

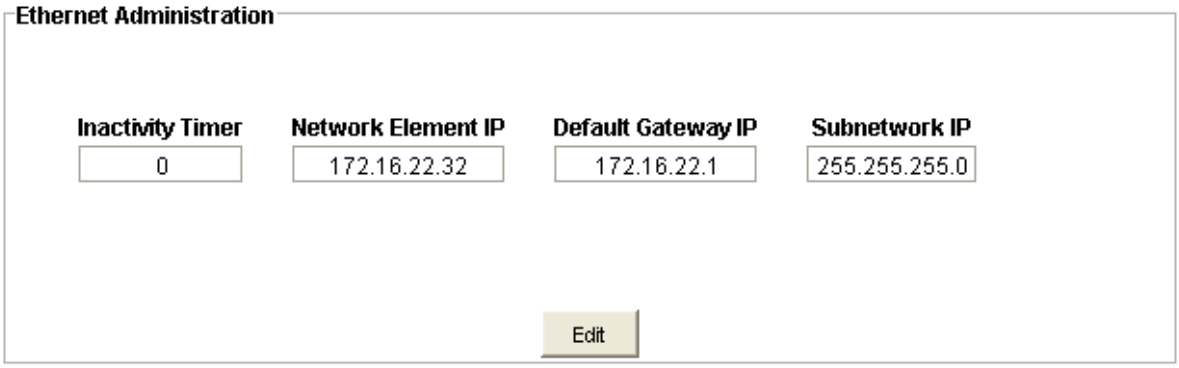
Element Manager Description
Primary IP Address - Primary Element IP address for the TimeSource.

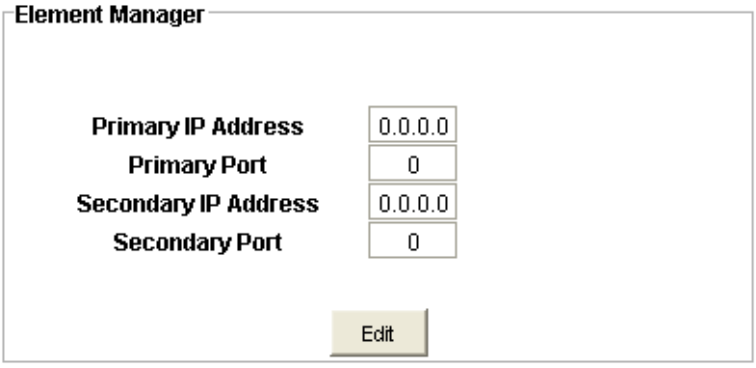
Primary Port - Port address for the primary element IP address for the TimeSource.

Secondary IP Address - Secondary Element IP address for the TimeSource.

Secondary Port - Port address for the secondary element IP address for the TimeSource.

Click **Edit** to change the Element Manager configuration.





Edit Ethernet Administration

Use the following procedure to change the Ethernet Administration configuration:

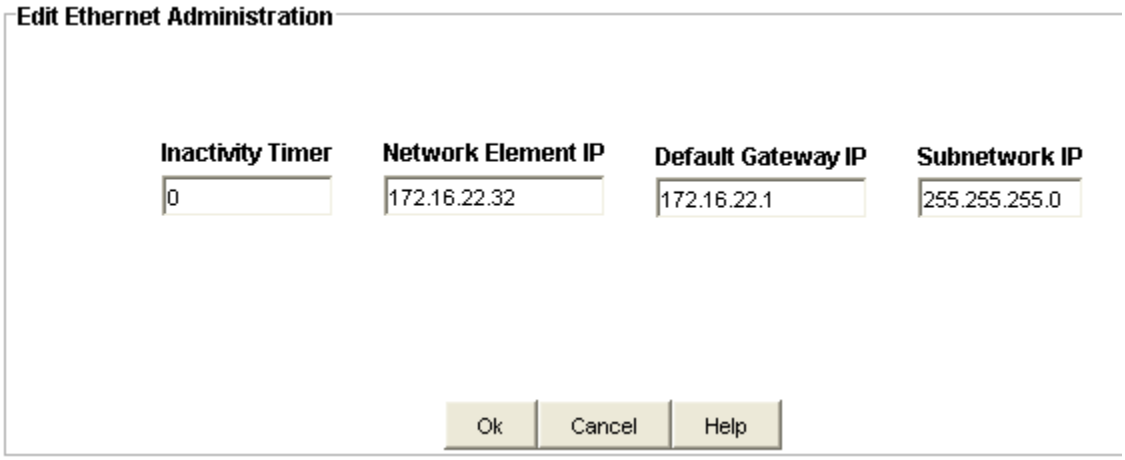
1. Enter a number from 0 to 10,000 in the **Inactivity Timer** entry box. This number multiplied by 100-ms equals the inactivity time. Zero deactivates the timer.

2. Enter the dotted decimal IP address in the **Network Element IP** entry box.

3. Enter the dotted decimal IP address in the **Default Gateway IP** entry box.

4. Enter the dotted decimal IP address in the **Subnetwork IP** entry box.

5. Click **OK** to accept the configuration changes and return to the Ethernet Administration screen, or **Cancel** to return to the Ethernet Administration screen without saving the configuration changes.



Edit Ethernet Elements

Use the following procedure to change the Ethernet Elements configuration:

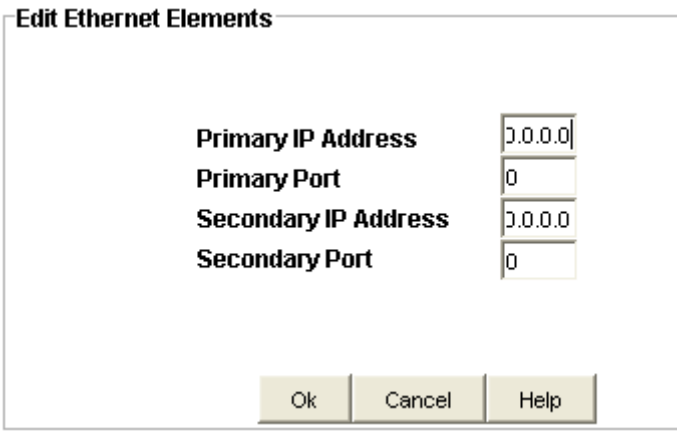
1. Enter the dotted decimal IP address in the **Primary IP Address** entry box.

2. Enter the port number into the **Primary Port** entry box.

3. Enter the dotted decimal IP address in the **Secondary IP Address** entry box.

4. Enter the port number into the **Secondary Port** entry box.

5. Click **OK** to accept the configuration changes and return to the Element Manager screen, or **Cancel** to return to the Element Manager screen without saving the configuration changes.

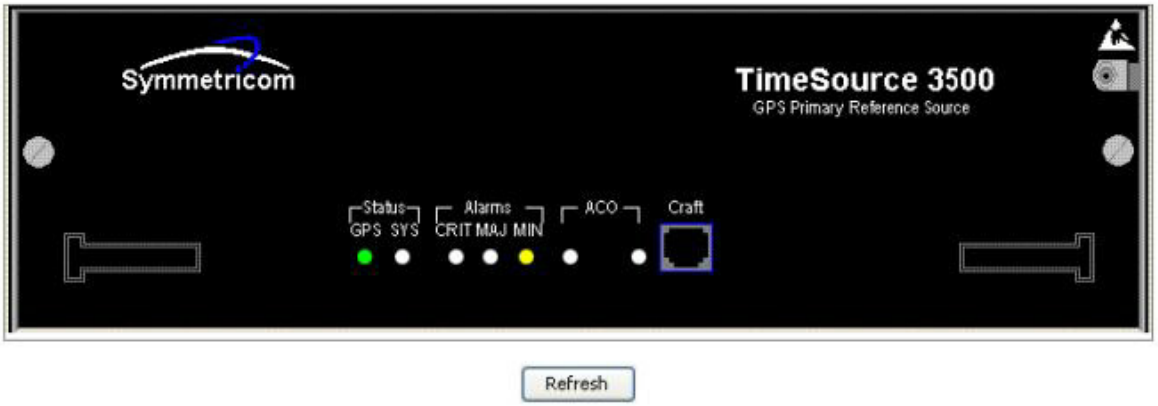


System View

System View Screen

The System View screen shows the system status with the LEDs displaying in real-time to indicate changes on the TimeSource. The LED color code is described in the table below.

Click **Refresh** to update the System view.



Name	State	Description	Action
Status GPS	Off	System is not powered.	If in warm-up, none required. If there is no power, apply power.
	Green	GPS is successfully tracking satellites, or is in warm-up.	None required.
	Yellow	A GPS event has occurred.	None required.
	Red	A GPS event, which has existed per the user alarm setting, has escalated to a minor alarm.	Refer to "Troubleshooting with Error Messages" in the user's guide to determine which type and combination of antenna alarms exist, and the recommended action.
Status SYS	Off	System is in warm-up mode or is not powered.	If in warm-up, none required. If there is no power, apply power.
	Green	The output signal is PRS.	None required.
	Red	The system has been in holdover per the user alarm setting, or there is a hardware fault.	Refer to "Troubleshooting with Error Messages" in the user's guide to determine which type and combination of alarms exist, and the recommended action.
Alarms CRIT	Off	There is no critical alarm.	None required.
	Red	A critical alarm has occurred because of a hardware failure.	Replace the plug-in card.
Alarms MAJ	Off	There is no major alarm.	None required.
	Red	The system has been in holdover per the user alarm setting.	Refer to "Troubleshooting with Error Messages" in the user's guide to determine which type and combination of antenna alarms exist, and the recommended action.

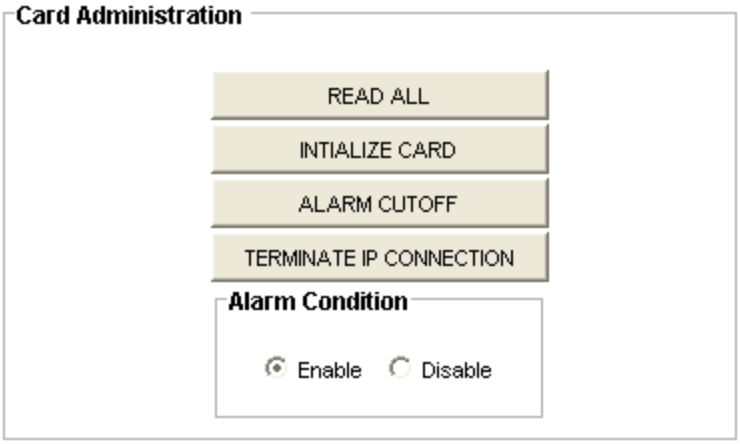
Alarms MIN	Off	There is no minor alarm.	
	Yellow	**One of the following four alarms has occurred.**	
	1	A minor alarm has occurred because Battery A or B has failed.	Troubleshoot and repair the specified –48 V battery input.
	2	A minor alarm has occurred because a software download is required.	Refer to "Troubleshooting with Error Messages" in the user's guide to determine which software needs to be downloaded and the recommended action.
	3	A minor alarm has occurred because an event (GPS error, temperature error, or span input problem) has escalated to a minor alarm.	Refer to "Troubleshooting with Error Messages" in the user's guide to determine which event occurred and the recommended action.
	4	A minor alarm has occurred because the antenna failed.	Refer to "Troubleshooting with Error Messages" in the user's guide to determine whether the minor alarm is due to antenna failure and the recommended action.
ACO (Lamp)	Off	The alarm cutoff function has not been activated.	None required. Press the ACO push button to silence all audible alarms.
	Green	The alarm cutoff function has been activated.	None required.
ACO (Push button)	—	Silences all audible alarms when pressed	None required.
Retimed Spans A or B (TimeSource3 100 990-72020-04 systems only) (TimeSource3 600 990-72060-04 systems only)	Off	This port has not been entered via the Enter Equipment command.	None required. If desired, enter this port via the `Enter Equipment` command.
	Green	This port has been entered via the Enter Equipment command, and no alarms are present.	None required.

Retimed Spans A or B (TimeSource3100 990-72020-04 systems only) (TimeSource3600 990-72060-04 systems only)	Red	An event (loss of signal) has occurred on this port.	Troubleshoot the traffic-carrying span input signal source; check the ESCIU port cable and connections.
Retimed Spans BYP (TimeSource3100 990-72020-04 systems only) (TimeSource3600 990-72060-04 systems only)	Off	Traffic-carrying E1 data stream is being retimed by the TimeSource 3100/3600 System.	None required.
	Red	Traffic-carrying E1 data stream is bypassing the TimeSource 3100/3600 System and not being retimed because the system is in holdover.	Refer to Table 5-2 in product User Guide to troubleshoot the GPS, SPAN x, and ROx error messages.

Card Administration

Clicking the functions on the Card Administration screen allows you to perform the functions described in the following table:

Function	Description
READ ALL	Retrieves the TimeSource card information, such as card version, input port priority, input port ID, input port source, and other values.
INITIALIZE CARD	Resets the TimeSource card to its default factory-set values.
ALARM CUTOFF	Disables alarms
TERMINATE IP CONNECTION	Terminates the IP session. A Confirmation window displays a warning that data may change if you precede. Click **OK** to terminate the session or click **Cancel** to close the window without terminating the session.
RO Frequency (for TimeSource 3000/3100 only)	Allows you to select the remote oscillator frequency either 5 MHZ or 10 MHz.
Alarm Condition	Select to Enable or Disable the alarm condition.



Logical View

Logical View Screen

The Logical View shows the status of the TimeSource received external inputs, the generated outputs, the active synchronization path, and depicts the current status.

The TimeSource 3x00 accepts the following inputs:

- GPS
- Span-A
- Span-B
- Remote Oscillator A
- Remote Oscillator B

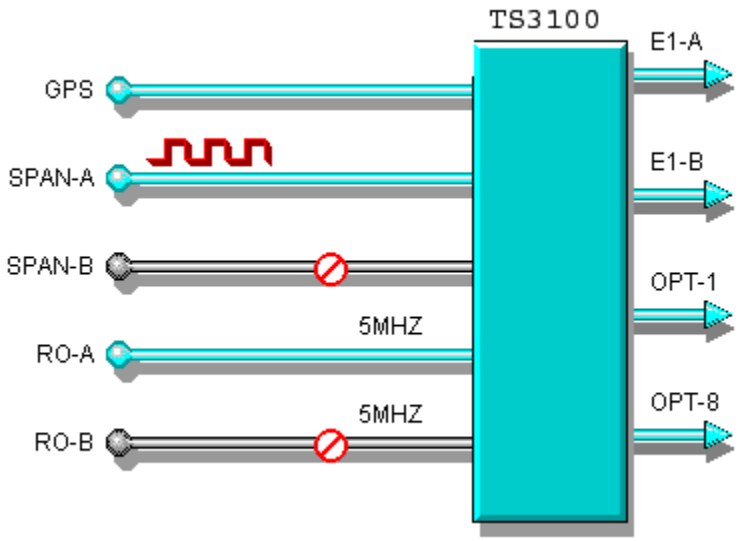
Note: The TS3500 and TS3600 do not accept Remote Oscillator inputs.

See inputs for an explanation of the input graphics shown in the following figure.

The TimeSource 3x00 provides two equipment outputs: either T1 or E1 depending on the system.

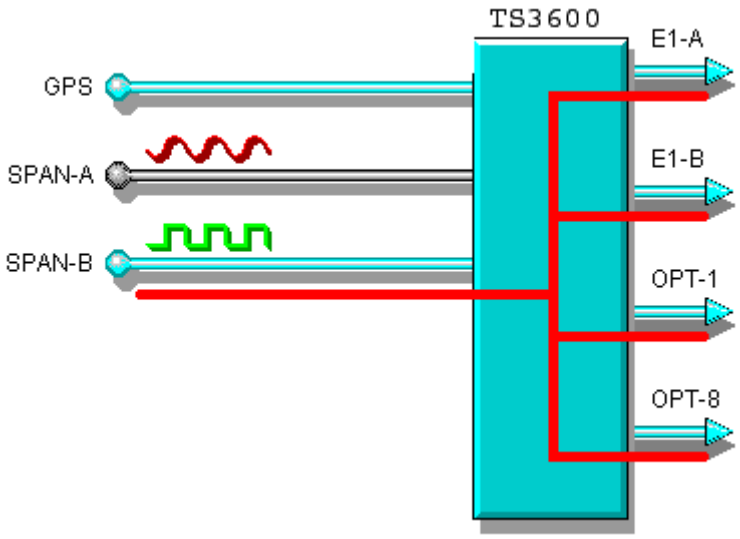
See outputs for an explanation of the output graphics shown in the following figure.

The TimeSource 3x00 may also have eight optional outputs (see the corresponding user's guide for details).



Synchronization Path

The logical view shows the active synchronization trail through the element. As shown below highlighted in red, the active input sync in this example is on the SPAN-B input. This path is updated in real time when changes occur.

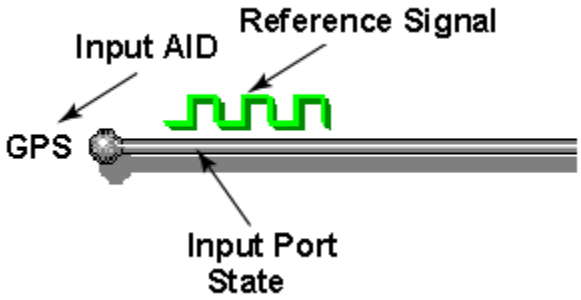


Input

Each Input is made up of four elements:

- Input AID
- Reference Signal

- Input Port Priority
- Reference Description



These elements illustrate the state of the input and are updated in real time. The following tables describe each element.

Input AID	Explanation
GPS, SPAN-A, SPAN-B, Remote Oscillator A, and Remote Oscillator B.	The AID of the input. **Note:** The TS3500 and TS3600 accept only the GPS, SPAN-A, and SPAN-B inputs.

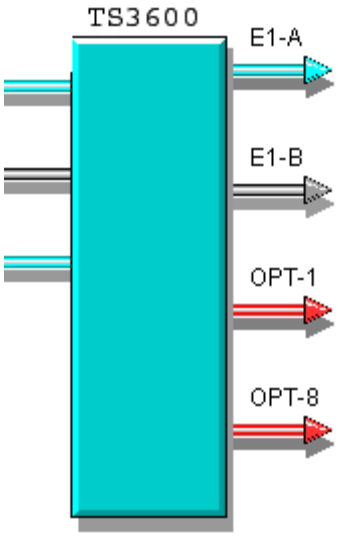
Outputs

The TimeSource 3x00 provides two equipment outputs: either T1 or E1 depending on the system.

The TimeSource 3x00 may also have eight optional outputs (see the corresponding user's guide for details).

The outputs are color coded as follows:

- Green indicates ENABLED (providing an output signal)
- Grey indicates DISABLED (not providing an output signal)
- Red indicates alarm state



Inputs

Input Ports Status Summary

The Input Port Status Summary screen displays the SPAN-A and SPAN-B port configuration as follows:

- **AID:** - Access identifier for the object.
- **Ensembling:** - ALW indicates the input is ensembled. INH indicates the input is not ensembled.
- **Monitoring:** - ALW indicates the input is monitored. INH indicates the input is not monitored.
- **SSM Quality:** - ALW indicates the SSM message is used to qualify input. INH indicates the SSM message is not used to qualify input.
- **Signal Type:** - ANALOG indicates an analog input signal of 2.048 MHz and DIGITAL indicates a digital input signal of 2.048 Mb/s.
- **SSM Channel:** - Indicates the SSM Channel setting of 4, 5, 6, 7, or 8. For example, 5 uses the Sa5 bit.
- **Refresh** - Click **Refresh** to update the display.

Note: Signal Type and SSM Channel are only available on the TimeSource 3100 and 3600. The Remote Oscillator input is only available on the TimeSource 3000 and 3100.

Input Ports Status Summary

AID:	RO-A	RO-B	SPAN-A	SPAN-B
Ensembling:	ALW	ALW	ALW	INH
Monitoring:	ALW	ALW	ALW	INH
SSM Quality:			ALW	INH
Signal Type:			DIGITAL	ANALOG
SSM Channel:			4	5

Refresh

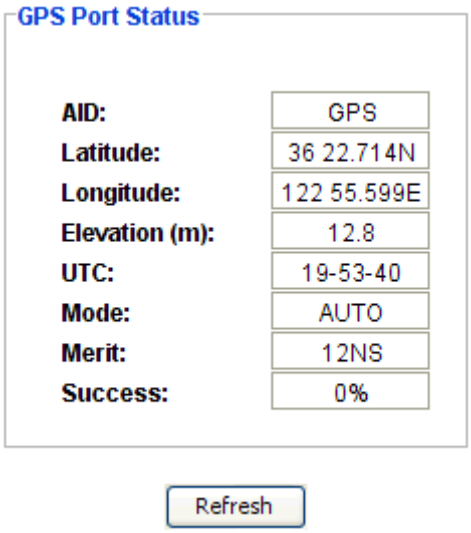
GPS

GPS Ports Status

The GPS Port Status screen displays the port configuration as follows:

- **AID:** - Access identifier for the object.
- **Latitude:** - Current latitude (north or south) in degrees, minutes, and decimal-fractions of a minute.
- **Longitude:** - Current longitude (east or west) in degrees, minutes, and decimal-fractions of a minute.
- **Elevation (m):** - Altitude in meters to the thousandth of a meter, referenced to mean sea level.
- **UTC:** - Universal Coordinated Time in hours (00 to 23), minutes (00 to 59), and seconds (00 to 59).
- **Mode:** - AUTO indicates automatic survey-in mode, MANUAL indicates manual survey-in mode.
- **Merit:** - Timing error estimate in nanoseconds.
- **Success:** - Percentage of time satellites are visible.
- **Refresh:** - Click **Refresh** to update the display.

Note: Mode, Merit, and Success apply only to the TimeSource 3500 and 3600.

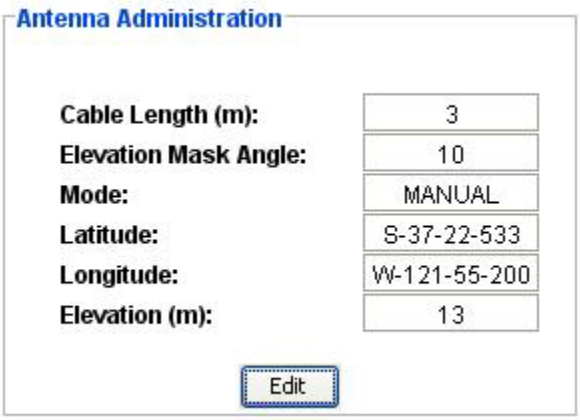


Antenna Administration

The Antenna Administration screen shows the antenna configuration as follows:

- **Cable Length:** - Antenna cable length in meters.
- **Elevation Mask Angle:** - Antenna elevation mask angle in degrees.
- **Mode:** - AUTO indicates automatic survey-in mode (use only with roof antenna configuration), MANUAL indicates manual survey-in mode (do not use with roof antenna configuration).
- **Latitude:** - Current latitude (north or south) in degrees, minutes, and decimal-fractions of a minute.
- **Longitude:** - Current longitude (east or west) in degrees, minutes, and decimal-fractions of a minute.
- **Elevation:** - Antenna elevation in meters.

Click **Edit** to change the configuration.



Edit Antenna Administration

Use the following procedure to change the Antenna configuration. The table below describes the configuration settings.

1. In the **Cable Length:** selection box, enter a number from 0 to 300 or click the up or down arrow buttons to select the antenna cable length in meters.

2. In the **Elevation Mask Angle:** selection box, enter a number from 0 to 45 or click the up or down arrow buttons to select a number.

3. Select AUTO or MANUAL in the **Mode:** drop-down box.

4. Select N or S in the **Latitude:** drop-down box.

5. In the **Degrees:** selection box, enter a number from 0 to 180 or click the up or down arrow buttons to select a number.

6. In the **Minutes:** selection box, enter a number from 0 to 60 or click the up or down arrow buttons to select a number.

7. In the **Decimal Minutes:** selection box, enter a number from 0 to 1000 or click the up or down arrow buttons to select a number.

8. Select E or W in the **Longitude:** drop-down box.

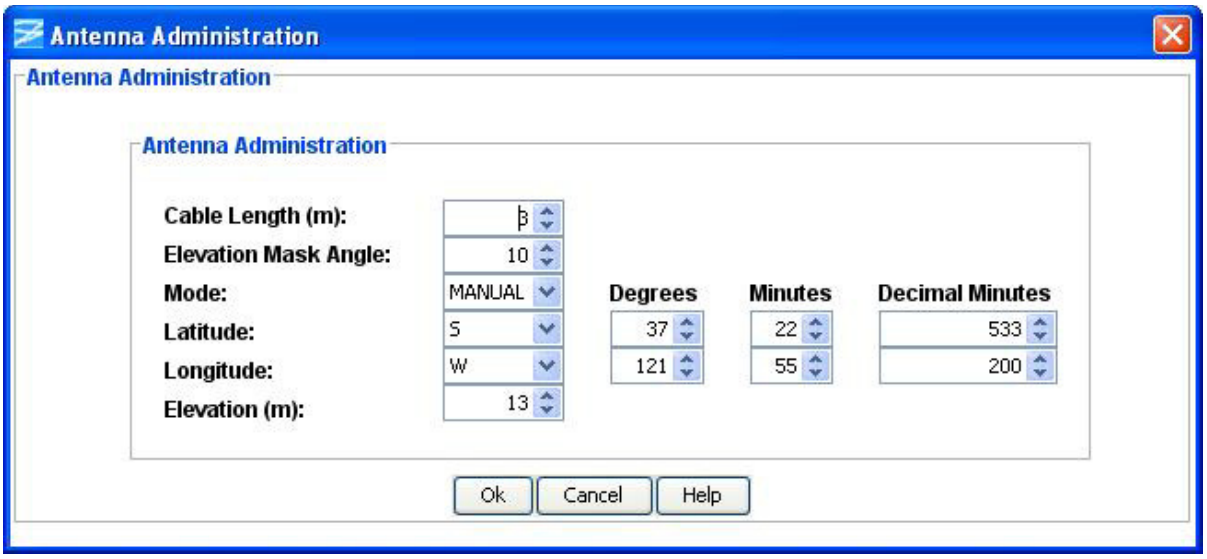
9. In the **Degrees:** selection box, enter a number from 0 to 180 or click the up or down arrow buttons to select a number.

10. In the **Minutes:** selection box, enter a number from 0 to 60 or click the up or down arrow buttons to select a number.

11. In the **Decimal Minutes:** selection box, enter a number from 0 to 1000 or click the up or down arrow buttons to select a number.

12. In the **Elevation:** selection box, enter a number from -1000 to 8000 or click the up or down arrow buttons to select a number.

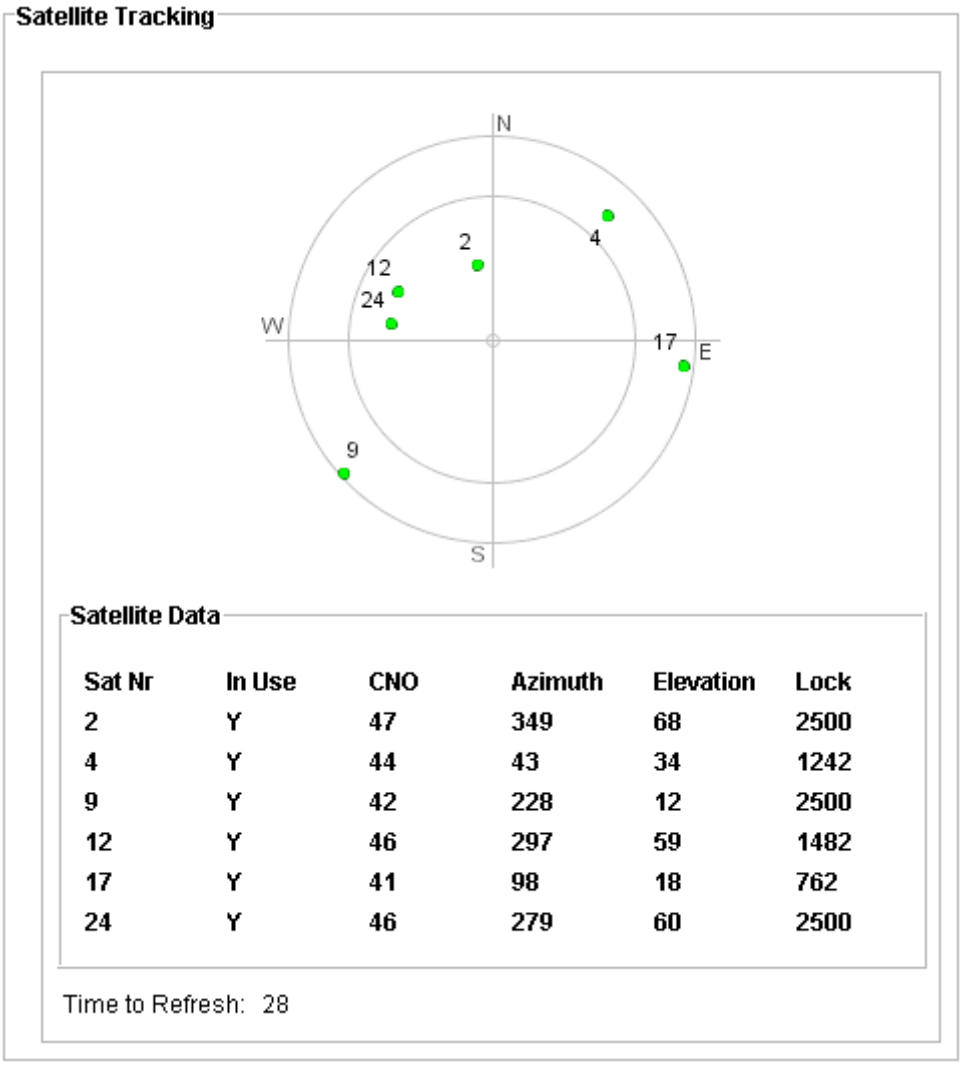
13. Click **OK** to accept changes and return to the Antenna Administration screen, or **Cancel** to return to the Antenna Administration screen without saving changes.



Item	Description
Cable Length:	Antenna cable length in meters (0 to 300)
Elevation Mask Angle:	Antenna elevation mask angle in degrees (0 to 45)
Mode:	AUTO - Automatic survey-in mode (use only with roof antenna configuration) MANUAL - Manual survey-in mode (do not use with roof antenna configuration)
Latitude:	N - North latitude S - South latitude
Longitude:	E - East Longitude W - West Longitude
Degrees	Degrees of latitude (0 to 180) Degrees of longitude (0 to 180)
Minutes	Minutes of latitude (1 to 60) Minutes of longitude (1 to 60)
Decimal Minutes	Decimal minutes of latitude (0 to 1000) Decimal minutes of longitude (0 to 1000)
Elevation:	Antenna elevation in meters (–1000 to 8000)

Satellite Tracking

The Satellite Tracking screen provides a graphical view of the satellites being tracked. Satellite data is described in the table below.



Item	Description
Sat Nr	Satellite identification number
In Use	Satellite in use
CNO	Satellite carrier-to-noise ratio
Azimuth	Satellite azimuth in degrees
Elevation	Satellite elevation in degrees
Lock	Number of seconds (1 to 2500) since the receiver locked to the satellite carrier

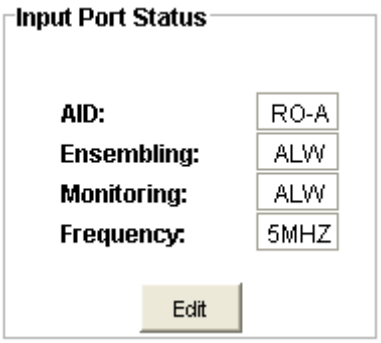
RO-A and RO-B

Remote Oscillator Input Port Status

The Input Port Status screens display the RO-A and RO-B port configuration as follows:

- **AID:** - Access identifier for the object.
- **Ensembling:** - ALW indicates the input is ensembled. INH indicates the input is not ensembled.
- **Monitoring:** - ALW indicates the input is monitored. INH indicates the input is not monitored.
- **Frequency:** - Indicates the selected frequency, either 5 MHz or 10 MHz.

Click **Edit** to change the port set up.

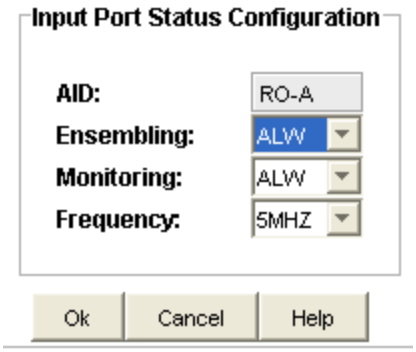


Edit Remote Oscillator Input Port Status

Use the following steps to change the RO-A and RO-B input port configuration. The configuration settings are described in the table below.

Note: The **Monitoring:** configuration must be set to ALW before you can configure **Ensembling:**.

1. Select ALW or INH in the **Ensembling:** drop-down box.
2. Select ALW or INH in the **Monitoring:** drop-down box.
3. Select 5MHZ or 10 MHZ in the **Frequency:** drop-down box.
4. Click **OK** to accept changes and return to the Input Port Status screen, or **Cancel** to return to the Input Port Status screen without saving changes.



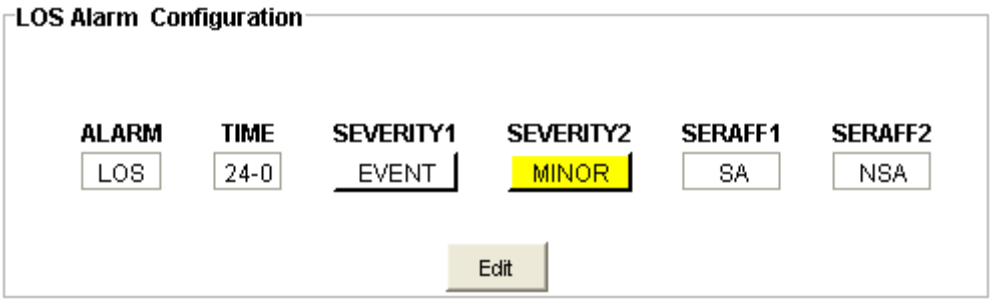
Item	Description
AID:	Access identifier for the object
Ensembling:	ALW indicates the input is ensembled. INH indicates the input is not ensembled
Monitoring:	ALW indicates the input is monitored. INH indicates the input is not monitored
Frequency:	Selects either 5 MHz or 10 MHz input frequency

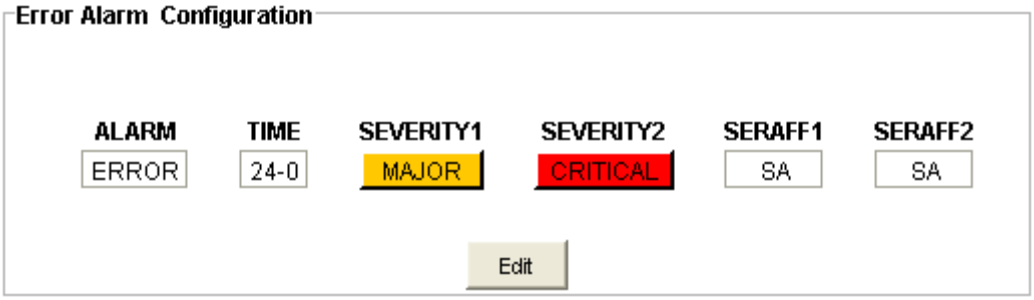
Remote Oscillator Alarm Configuration

The RO-A and RO-B Alarm Configuration screens provide a view of the configuration settings for LOS and Error alarms.

You can set the parameters for SEVERITY1 and SERAFF1 which initially come into effect when the condition is detected, and you can set the parameters for SEVERITY2 and SERAFF2 which come into effect after a specified time.

Click **Edit** to change the settings.





Edit Remote Oscillator LOS Alarm Configuration

Use the following procedure to set the LOS alarm configuration:

1. In the HRS drop-down box, select the number of hours (0 to 999) after a condition is initially detected that a major alarm with a service affecting flag is generated.

2. In the MINS drop-down box, select the number of minutes (0 to 59) in addition to the number of hours set in step 1 after a condition is initially detected that a major alarm with a service affecting flag is generated.

3. In the SEVERITY1 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

4. In the SEVERITY2 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

5. In the SERAFF1 drop-down box, select SA or NSA.

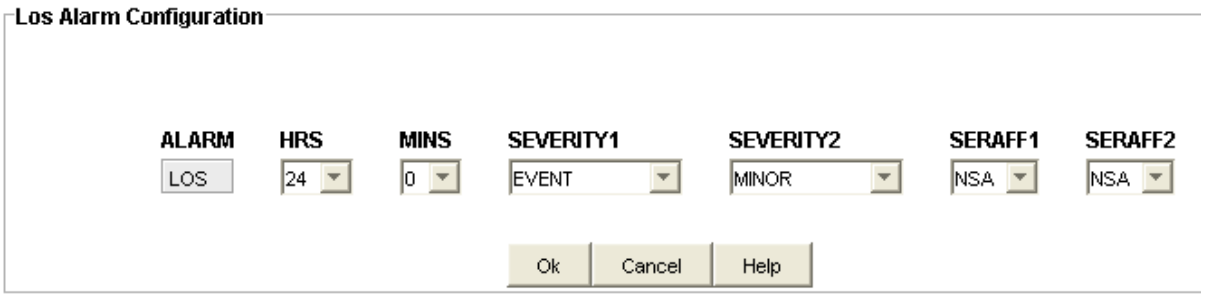
6. In the SERAFF2 drop-down box, select SA or NSA.

7. Click **OK** to accept the configuration changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving the configuration changes.

EVENT is a state that does not cause an alarm

SA indicates a Service-Affecting alarm

NSA indicates a Non-Service-Affecting alarm



Edit Remote Oscillator Error Alarm Configuration

Use the following procedure to set the Error alarm configuration:

1. In the HRS drop-down box, select the number of hours (0 to 999) after a condition is initially detected that a major alarm with a service affecting flag is generated.

2. In the MINS drop-down box, select the number of minutes (0 to 59) in addition to the number of hours set in step 1 after a condition is initially detected that a major alarm with a service affecting flag is generated.

3. In the SEVERITY1 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

4. In the SEVERITY2 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

5. In the SERAFF1 drop-down box, select SA or NSA.

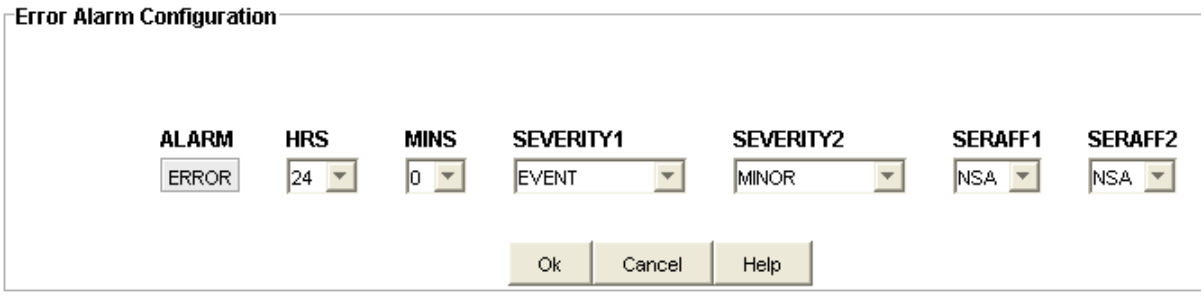
6. In the SERAFF2 drop-down box, select SA or NSA.

7. Click **OK** to accept the configuration changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving the configuration changes.

EVENT is a state that does not cause an alarm

SA indicates a Service-Affecting alarm

NSA indicates a Non-Service-Affecting alarm



SPAN A and SPAN B

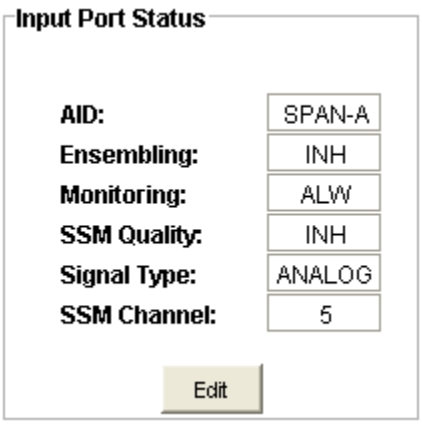
Input Port Status

The Input Port Status screens display the SPAN-A and SPAN-B port configuration as follows:

- **AID:** - Access identifier for the object.
- **Ensembling:** - ALW indicates the input is ensembled. INH indicates the input is not ensembled.
- **Monitoring:** - ALW indicates the input is monitored. INH indicates the input is not monitored.
- **SSM Quality:** - ALW indicates the SSM message is used to qualify input. INH indicates the SSM message is not used to qualify input.
- **Signal Type:** - ANALOG indicates an analog input signal of 2.048 MHz and DIGITAL indicates a digital input signal of 2.048 Mb/s.
- **SSM Channel:** - Indicates the SSM Channel setting of 4, 5, 6, 7, or 8, for example 5 uses the Sa5 bit.

Note: Signal Type and SSM Channel are only available on the TimeSource 3100 and 3600.

Click **Edit** to change the port set up.

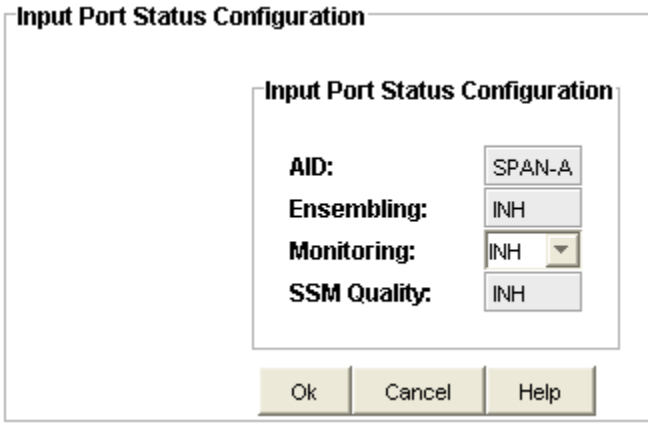


Edit Input Port Status

Use the following steps to change the SPAN-A and SPAN-B input port configuration. The configuration settings are described in the table below.

Note: The **Monitoring:** configuration must be set to ALW before you can configure **Ensembling:** and **SSM Quality:**.

1. Select ALW or INH in the **Ensembling:** drop-down box.
2. Select ALW or INH in the **Monitoring:** drop-down box.
3. Select ALW or INH in the **SSM Quality:** drop-down box.
4. Click **OK** to accept changes and return to the Input Port Status screen, or **Cancel** to return to the Input Port Status screen without saving changes.



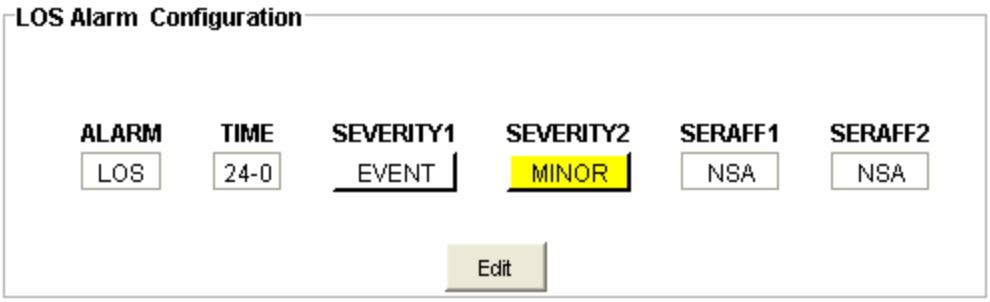
Item	Description
AID:	Access identifier for the object
Ensembling:	ALW indicates the input is ensembled. INH indicates the input is not ensembled
Monitoring:	ALW indicates the input is monitored. INH indicates the input is not monitored
SSM Quality:	ALW indicates the SSM message is used to qualify input. INH indicates the SSM message is not used to qualify input

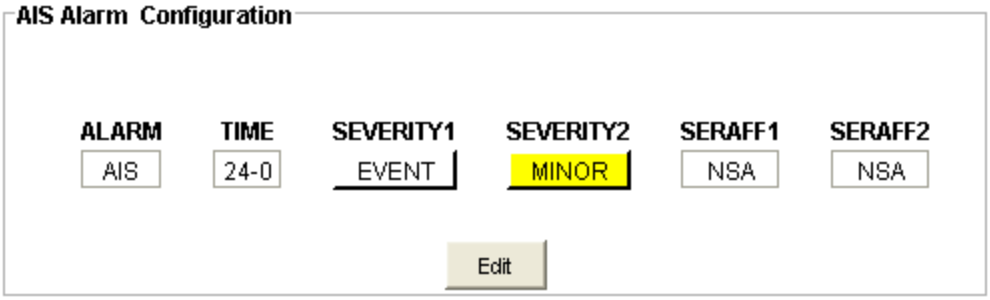
SPAN Alarm Configuration

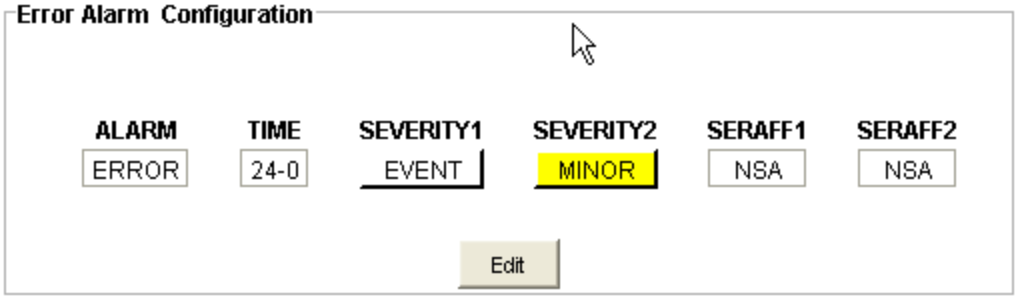
The SPAN A and SPAN B Alarm Configuration screens provide a view of the configuration settings for LOS, AIS and Error alarms.

You can set the parameters for SEVERITY1 and SERAFF1 which initially come into effect when the condition is detected, and you can set the parameters for SEVERITY2 and SERAFF2 which come into effect after a specified time.

Click **Edit** to change the settings.







Edit LOS Alarm Configuration

Use the following procedure to set the LOS alarm configuration:

1. In the HRS drop-down box, select the number of hours (0 to 999) after a condition is initially detected that a major alarm with a service affecting flag is generated.

2. In the MINS drop-down box, select the number of minutes (0 to 59) in addition to the number of hours set in step 1 after a condition is initially detected that a major alarm with a service affecting flag is generated.

3. In the SEVERITY1 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

4. In the SEVERITY2 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

5. In the SERAFF1 drop-down box, select SA or NSA.

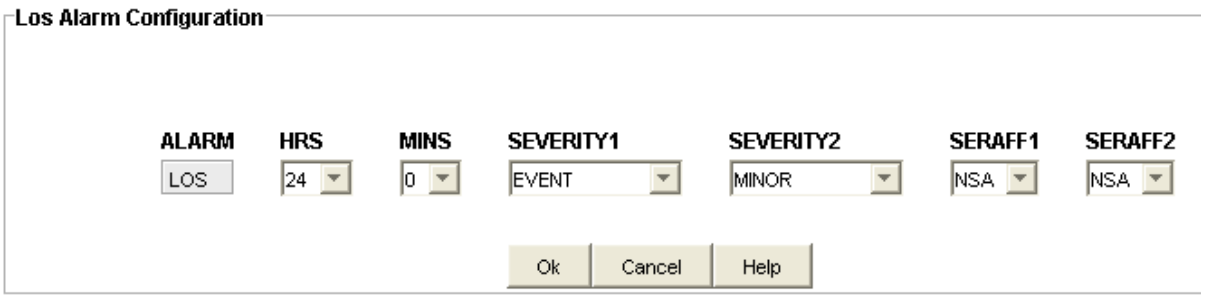
6. In the SERAFF2 drop-down box, select SA or NSA.

7. Click **OK** to accept the configuration changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving the configuration changes.

EVENT is a state that does not cause an alarm

SA indicates a Service-Affecting alarm

NSA indicates a Non-Service-Affecting alarm



Edit AIS Alarm Configuration

Use the following procedure to set the AIS alarm configuration:

1. In the HRS drop-down box, select the number of hours (0 to 999) after a condition is initially detected that a major alarm with a service affecting flag is generated.

2. In the MINS drop-down box, select the number of minutes (0 to 59) in addition to the number of hours set in step 1 after a condition is initially detected that a major alarm with a service affecting flag is generated.

3. In the SEVERITY1 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

4. In the SEVERITY2 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

5. In the SERAFF1 drop-down box, select SA or NSA.

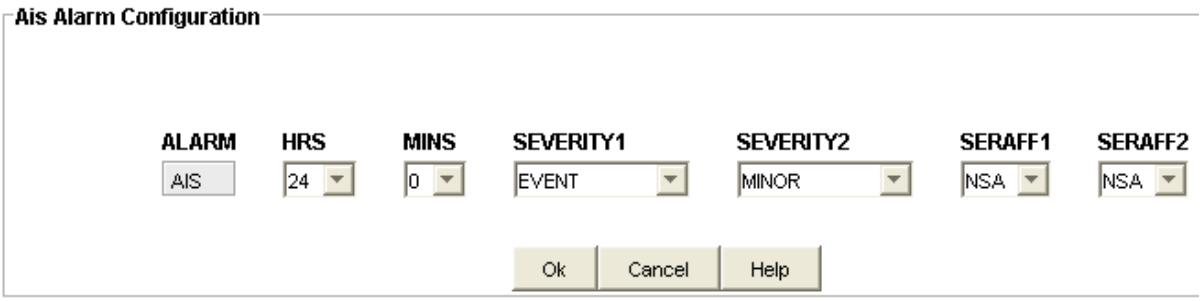
6. In the SERAFF2 drop-down box, select SA or NSA.

7. Click **OK** to accept the configuration changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving the configuration changes.

EVENT is a state that does not cause an alarm

SA indicates a Service-Affecting alarm

NSA indicates a Non-Service-Affecting alarm



Edit Error Alarm Configuration

Use the following procedure to set the Error alarm configuration:

1. In the HRS drop-down box, select the number of hours (0 to 999) after a condition is initially detected that a major alarm with a service affecting flag is generated.

2. In the MINS drop-down box, select the number of minutes (0 to 59) in addition to the number of hours set in step 1 after a condition is initially detected that a major alarm with a service affecting flag is generated.

3. In the SEVERITY1 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

4. In the SEVERITY2 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

5. In the SERAFF1 drop-down box, select SA or NSA.

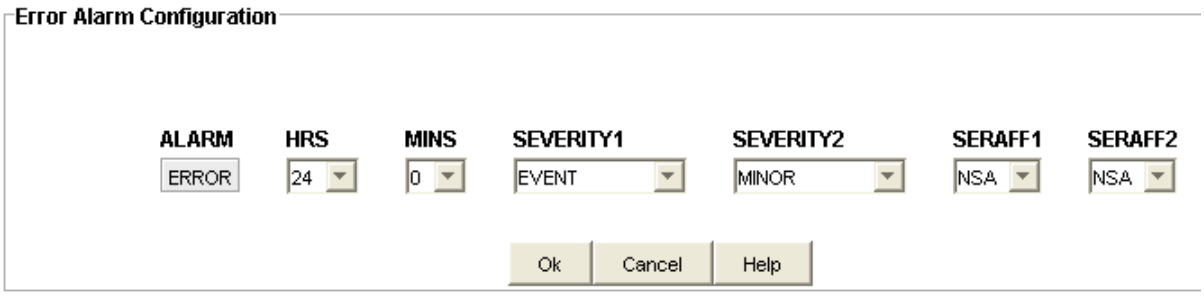
6. In the SERAFF2 drop-down box, select SA or NSA.

7. Click **OK** to accept the configuration changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving the configuration changes.

EVENT is a state that does not cause an alarm

SA indicates a Service-Affecting alarm

NSA indicates a Non-Service-Affecting alarm



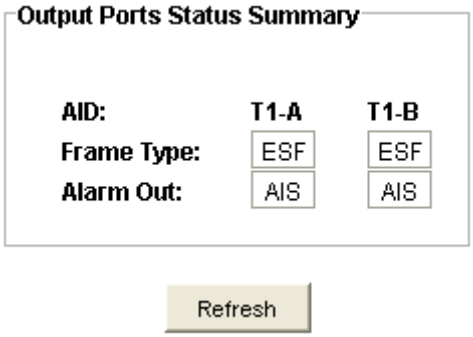
Outputs

Output Port Status Summary

The Output Port Status Summary screen shows the output port configuration as follows:

- **AID:** - Access identifier for the object.
- **Frame Type:** - ESF or D4 for T1 outputs and CAS, CAS4, CCS, CCS4, and NONE for E1 outputs.
- **Alarm Out:** - AIS, SQUELCH, or SSM.
- **Refresh** - Click **Refresh** to update the display.

Note: For SSM, framing format must be ESF.

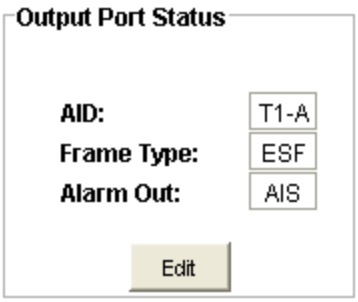


Output Port Status

The Output Port Status screen shows the output port configuration as follows:

- **AID:** - Access identifier for the object.

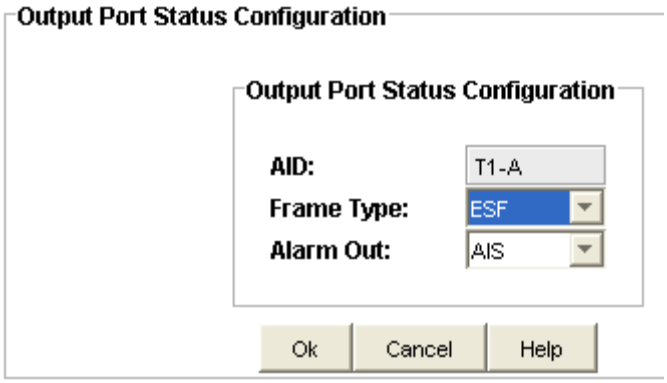
- **Frame Type:** - ESF or D4 for T1 outputs and CAS, CAS4, CCS, CCS4, and NONE for E1 outputs.
- **Alarm Out:** - AIS, SQUELCH, or SSM.



Edit Output Port Status Configuration

Use the following steps to edit the Output Port Status Configuration screen:

1. In the **Frame Type:** drop-down box, select ESF or D4 for T1 outputs and CAS, CAS4, CCS, CCS4, and NONE for E1 outputs.
2. In the **Alarm Out:** drop-down box, select AIS, SQUELCH, or SSM.
3. Click **OK** to accept the configuration changes and return to the Output Port Status screen, or **Cancel** to return to the Output Port Status screen without saving the configuration changes.

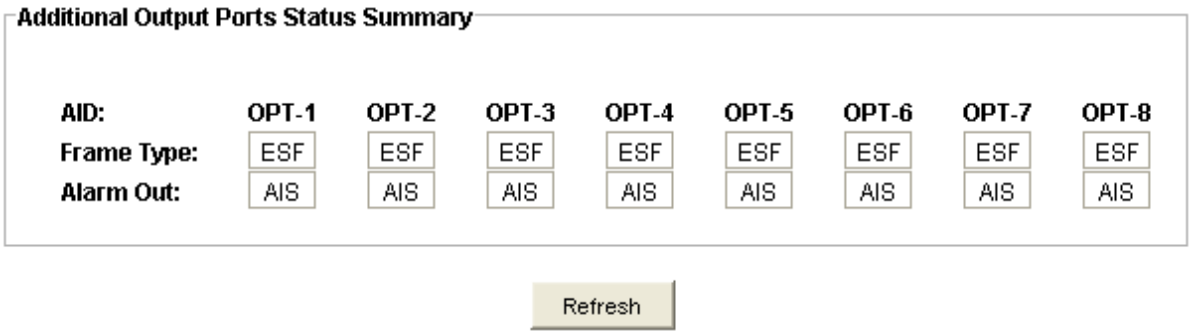


Additional Outputs

Additional Output Ports Status Summary

The Additional Output Ports Status Summary screen displays the configuration settings for all additional outputs as follows:

- **AID:** - Access identifier for the object.
- **Frame Type:** - ESF or D4 for T1 outputs and CAS, CAS4, CCS, CCS4, and NONE for E1 outputs.
- **Alarm Out:** - AIS, SQUELCH, or SSM.
- **Refresh** - Click **Refresh** to update the display.

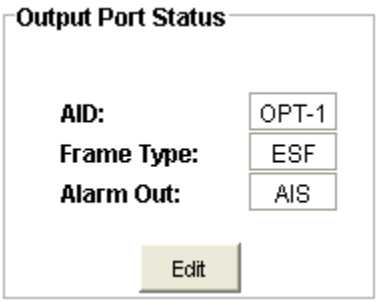


Additional Output Port Status

The Additional Output Ports Status screen displays the configuration settings for the selected additional output as follows:

- **AID:** - Access identifier for the object.
- **Frame Type:** - ESF or D4 for T1 outputs and CAS, CAS4, CCS, CCS4, and NONE for E1 outputs.
- **Alarm Out:** - AIS, SQUELCH, or SSM.

Click **Edit** to change the configuration.



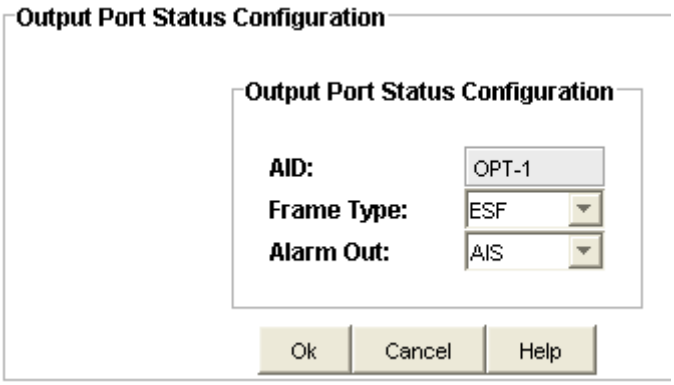
Edit Additional Output Port Status

Use the following steps to edit the Additional Output Port Status Configuration screen:

1. In the **Frame Type:** drop-down box, select ESF or D4 for T1 outputs and CAS, CAS4, CCS, CCS4, and NONE for E1 outputs.

2. In the **Alarm Out:** drop-down box, select AIS, SQUELCH, or SSM.

3. Click **OK** to accept the configuration changes and return to the Additional Output Port Status screen, or **Cancel** to return to the Additional Output Port Status screen without saving the configuration changes.



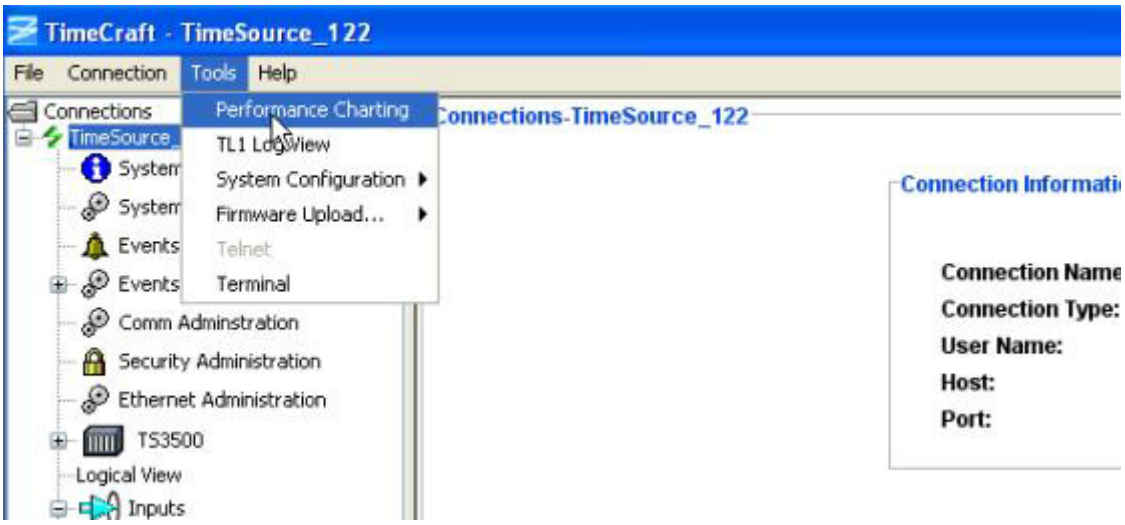
Performance Charting

Start Performance Charting

To start performance charting:

1. Click the **Tools** menu item.

2. Click **Performance Charting** in the drop-down menu to open the Performance Charting screen.



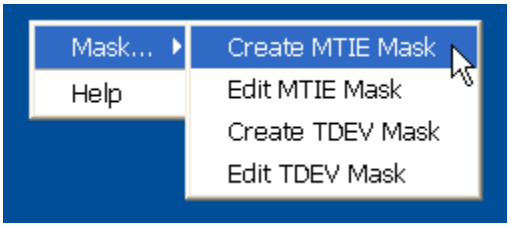
See Also:
MTIE Chart

TDEV Chart

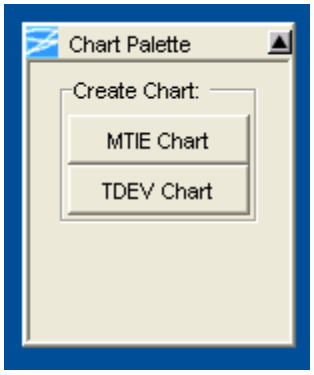
Performance Charting Main Screen

The Performance Charting Main Screen provides query dialog boxes for accessing MTIE and TDEV, data from a TimeSource.

Right-clicking the desktop opens the desktop pop-up menu. This menu provides access to creating and editing MTIE and TDEV masks, and the TimeCraft online help system.



you can move the Chart Palette dialog screen by clicking and holding either the right or left mouse button and dragging it to the desired location.

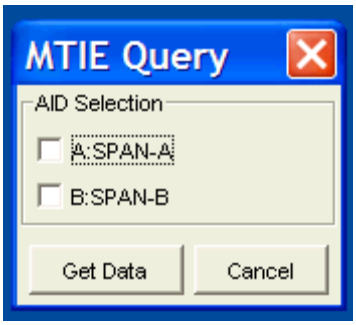


MTIE Chart

To create an MTIE chart:

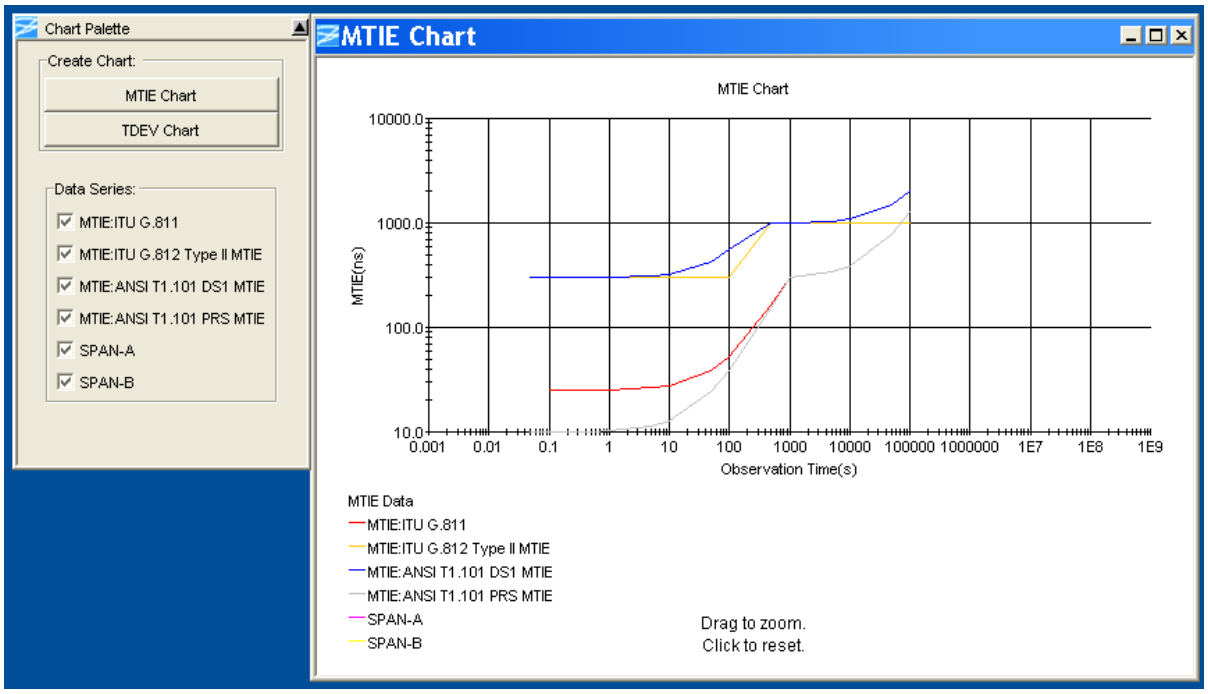
1. Click Tools on the main menu and select **Performance Charting** in the drop-down window.

2. Click the **MTIE Chart** button in the **Chart Palette** window to open the **MTIE Query** window.



3. Left-click the check boxes of the input module(s) in the **AID Selection** pane that you want to graph.

4. Click **Get Data** to open the Chart Palette Data Series window.



5. In the Data Series section, as shown above, left-click the MTIE data items you want to display in the chart.

The Chart Palette provides check boxes for both pre-defined industry standard masks and the returned data series from the network element.

The Chart Package provides the following functions:

- De-select a data series item to remove the related graph points from the chart.
- Mouse-over a data point to display its label.
- Enlarge a section of the chart by clicking and dragging the desired section. The data series displays in a new chart window.

- Left-click the mouse button anywhere in the window to reset the chart to the original display.

Right-click menu options are described in the table below.

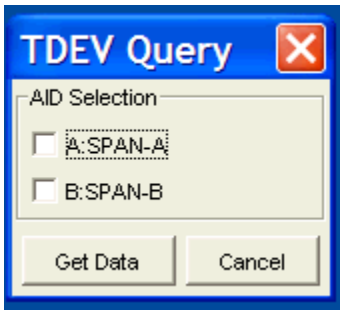
Right-Click Menu Options	Description
Grid Lines	Horizontal, Vertical option allows users to hide/display horizontal and vertical lines
Color or Black and White	Toggles chart between color or black and white display **Note:** In some cases, when you switch from color to black and white and back to color, some portions of the chart lines may drop out
Chart Size	Sets chart display size - 2400 x 1800, 1600 x 1024, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480
Show All Labels or Show Dwell Labels	Toggles chart between displaying series labels and not displaying series labels
Print	Printing options: Print, Print Preview and Cancel
Save As...	Save chart as CSV (comma separated values)
Mask	To create and edit MTIE and TDEV masks
Help	Invokes TimeCraft online help

TDEV Chart

To create a TDEV chart:

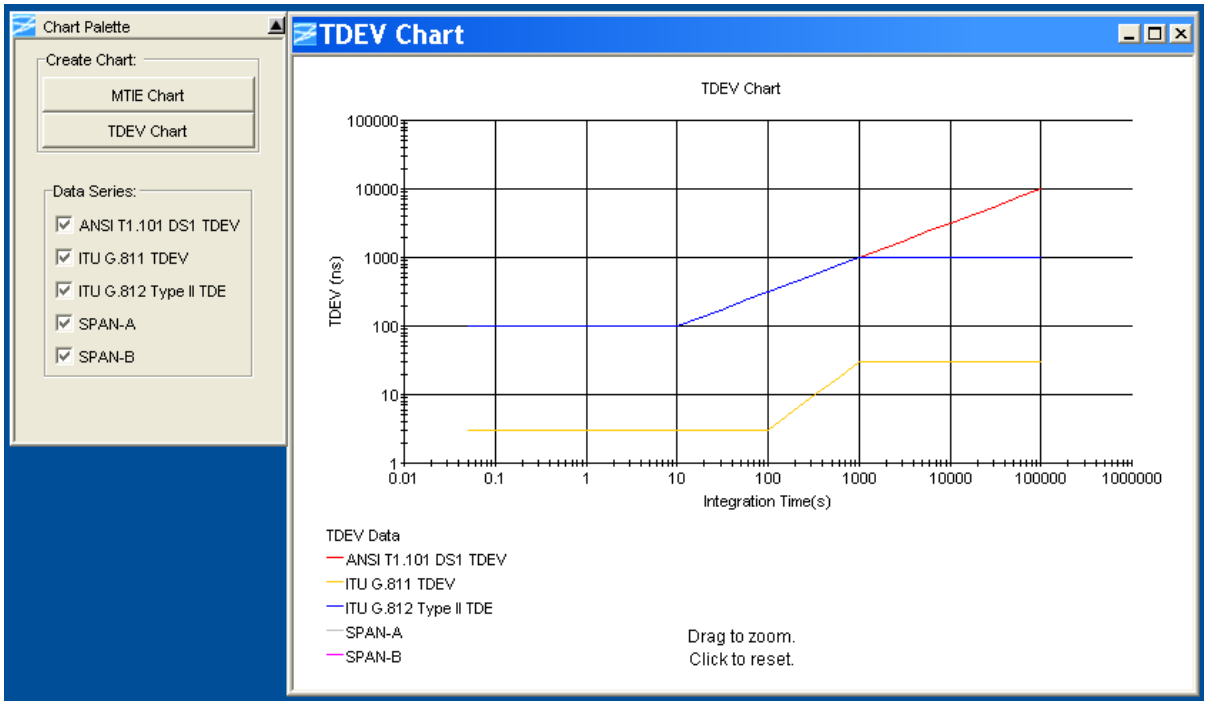
1. Click Tools on the main menu and select **Performance Charting** in the drop-down window.

2. Click the **TDEV Chart** button in the **Chart Palette** window to open the **TDEV Query** window.



3. Left-click the check boxes of the input module(s) in **AID Selection** pane that you want to graph.

4. Click **Get Data** to open the Chart Palette Data Series window.



5. In the Data Series section, as shown above, left-click the TDEV data items you want to display in the chart.

The Chart Palette provides check boxes for both pre-defined industry standard masks and the returned data series from the network element.

The Chart Package provides the following functions:

- De-select a data series item to remove the related graph points from the chart.
- Mouse-over a data point to display its label.
- Enlarge a section of the chart by clicking and dragging the desired section. The data series displays in a new chart window.
- Left-click the mouse button anywhere in the window to reset the chart to the original display.

Right-click menu options are described in the table below.

Right-Click Menu Options	Description
Grid Lines	Horizontal, Vertical option allows users to hide/display horizontal and vertical lines
Color or Black and White	Toggles chart between color or black and white display

Chart Size	Sets chart display size - 2400 x 1800, 1600 x 1024, 1280 x 960, 1024 x 768, 800 x 600, 640 x 480
Show All Labels or Show Dwell Labels	Toggles chart between displaying series labels and not displaying series labels
Print	Printing options: Print, Print Preview and Cancel
Save As...	Save chart as CSV (comma separated values)
Masks...	To create and edit MTIE and TDEV masks
Help	Invokes TimeCraft online help

Modem Configuration

To configure the 3Com Courier V.Everything modem connected to a TimeCraft PC, use the factory defaults. To configure the 3Com Courier V.Everything modem while connected to a network element, use settings outlined in the table below.

Dip Switches	Description
1 Down	Ignore DTR*
2 Up	Set verbal result code display
3 Up	Disable result codes*
4 Down	Disable the echo in off-line commands*
5 Up	Enable auto answer*
6 Down	Carrier Detect always on*
7 Up	Display result codes in all modes
8 Down	Enable AT commands
9 Up	Disconnect on escape(+++)
10 Up	Load configuration from NVRAM
& Commands	**Description**
&H0	Disable transmit data flow control
&R1	Ignore RTS
S Registers	**Description**

S0	1-3 to set the number of rings on which to auto answer
* different from factory defaults	
Notes: If the Network Element is set to DCE mode, a null modem cable must be used from the modem to the Network Element. If the Network Element is set to DTE mode, a straight modem cable must be used from the modem to the Network Element.	

Chapter 6 TimeSource 3x50

This chapter provides information on how to use TimeCraft to configure a TimeSource 3x50 network element (NE).

In This Chapter

Overview

Menu Items

Main Menu items include **File**, **Connection**, **Tools**, and **Help**. The following information describes the submenu items for each Main Menu item.

Field / Section	Description
File	
Exit	Exit the TimeCraft Application
Connection	
New Connection	Create a new connection to a network element by allowing the user to save the connection in the connections folder or to create up to 5 levels of sub folders and save them in the sub folders.
Open Connection	Open a connection to the network element by browsing the connections folder hierarchy.
Close Connection	Close the current session.
Edit...	Edit a chosen network element's connection properties by browsing the connections folder hierarchy
Refresh Connection	Refresh the view of the currently connected network element
Delete...	Delete a chosen network element’s connection setup by browsing the connections folder hierarchy
Tools	
TL1 Log View	Displays the TL1 log for the current month or click Refresh to display the log for the current session
System Configuration	Allows you to save the active clock card configuration, configure a new clock card, and verify that the active clock card configuration data matches the configuration data on the clock card in a second shelf for TimeHub or SSU2000.
Firmware Upload	To upload new firmware to a network element
Terminal	Launches a terminal window that allows you to enter and send TL1 commands and also displays received responses and autonomous messages
Help	
TimeCraft Help	Obtain online help for the TimeCraft System
About TimeCraft	Displays TimeCraft copyright and version information

Navigation Overview

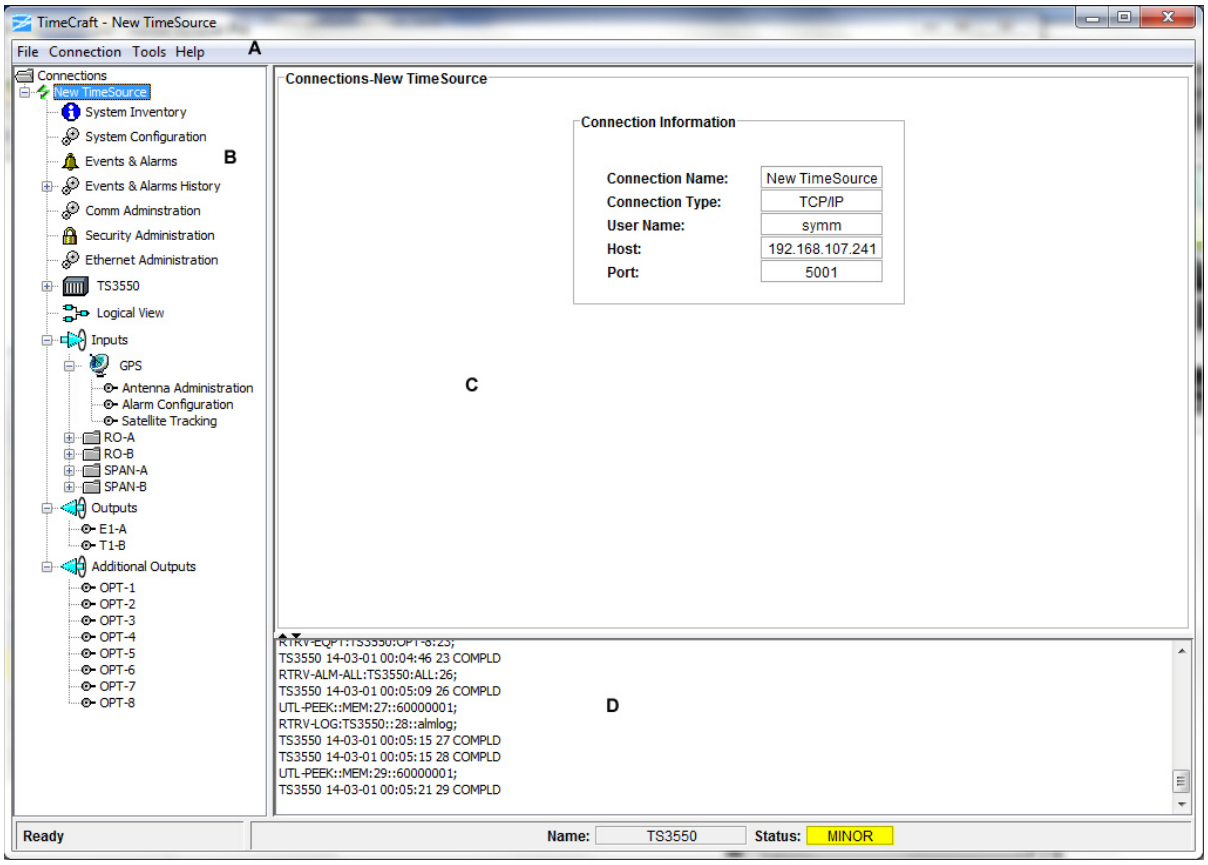
Menu Items (**A**) allow you to:

- Exit the Application
- Manage Network Element Connections
- View the TL1 Log
- Launch a terminal window to send TL1 commands
- Open Help Files

The **Browser View** panel (**B**) remains empty until the user opens any connection. Once a network element is connected, the Browser provides a list of modules installed in that element. And after closing the connection, the browser displays an empty screen.

The **Detail View** panel (**C**) provides a graphical view of the module that is selected in the Browser. In the Detail View panel, you can see the configuration settings and edit the settings.

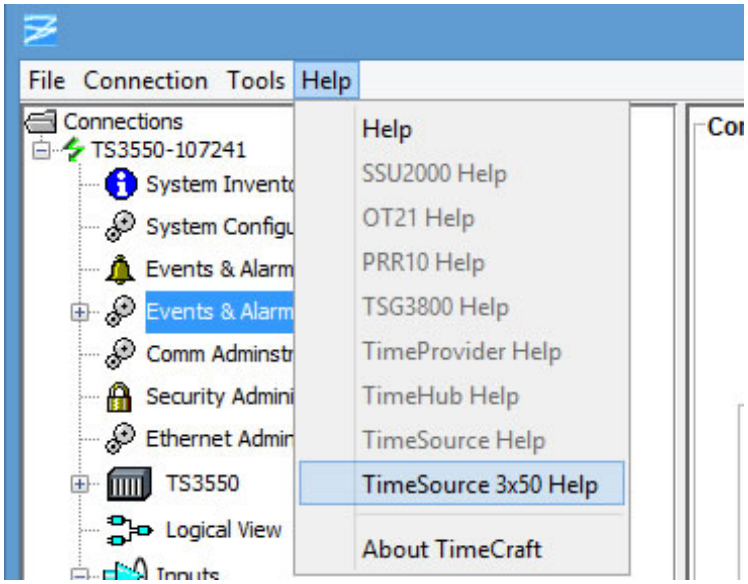
TL1 commands are displayed in the **TL1 View** panel (**D**) and allows users to view the TL1 commands sent to the network element and view network element responses. The TL1 commands are passive and cannot be edited.



Online Help

The Online help provides complete, standalone help for the TimeCraft system. You can access Help topics using one of the following methods:

- TimeCraft Main Menu (shown below)
- Online Help Search Feature (after launching Help)
- Help buttons on network element screens



Field	Description
Help	Opens a basic Online Help system containing information about error codes and how to manage connections
SSU2000 Help	Opens TimeCraft SSU2000 Online Help
OT21 Help	Opens TimeCraft OT21 Online Help
PRR10 Help	Opens TimeCraft PRR10 Online Help
TSG3800 Help	Opens TimeCraft TSG3800 Online Help
PRS50 Help	Opens TimeCraft PRS50 Online Help
TimeProvider Help	Opens TimeCraft TimeProvider Online Help
TimeHub Help	Opens TimeCraft TimeHub Online Help
TimeSource Help	Opens TimeCraft TimeSource 3x00 Online Help
TimeSource 3x50 Help	Opens TimeCraft TimeSource 3x50 Online Help
About TimeCraft	Displays TimeCraft copyright and version information

Connection Management

Connections

A connection in TimeCraft represents an element to be managed. Connections can be added, deleted, modified, opened, refreshed, or closed. The connection item holds the communication parameter used to establish a connection to the element, including the address, type of element and user/password information. Connections can be accessed from the connection menu item and you can open only one connection at a time. For more information see the following sections:

Operation	Explanation	Available
New	Creates a new connection.	Always.
Open	Connects to an existing connection.	Only when no other connection is open.
Close	Closes an open connection.	Only when a connection is open.
Edit	Modify connection parameters.	Always, but cannot edit an open connection.
Refresh	Initializes an open connection.	Only for an open connection.
Delete	Deleted a connection.	Always, but cannot delete an open connection.

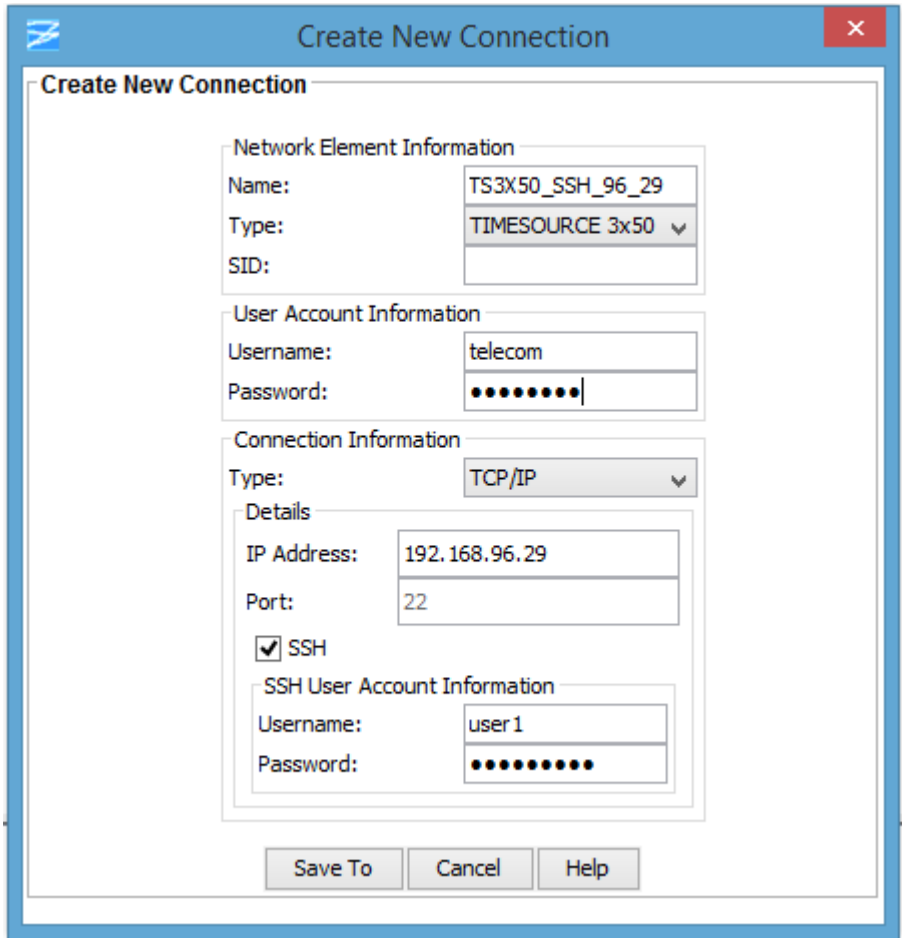
New Connection

To establish a new connection:

1. Click **Connection** on the menu bar.
2. Click **New Connection** from the drop-down menu to open the "Create New Connection" screen.
3. Enter the appropriate data in all fields described in the table below.
4. Click the **Save To** button to open file Chooser dialog.
5. The user can save the connection (.conprops file) in the connections folder or create a sub folder in the connections folder.

Note: Once the sub folder is created, if the folder is not getting the focus, select the folder manually.

6. Click **Save** to save the data and close the dialog box, or click **Cancel** close the dialog box without saving the data entered.



Note: Some text box information changes to provide details associated with the type of network element selected.

Section and Field	Description or Action
Network Element Information	
Name	Enter a unique name for this connection as it will appear in the connection list

Type	From the drop-down menu, select the type of network element with which to connect
SID	This is the source identifier. When a connection command is sent to the network element (TID), the source identifier (SID) is sent back. The default SID is the network name.
User Account Information	
Username	Enter a username to log on to the network element
Password	Enter a password. The password field displays asterisks when text is entered. If security is not enabled on the network element, the Account and Password fields may be left blank. **Note.** The password is case sensitive.
Connection Information	
Type	Connection Type determines how TimeCraft will connect to the network element. From this drop-down menu, select TCP/IP, serial/USB-serial, or modem. The default is TCP/IP.
TCP/IP Connection Details	
IP Address	Enter the IP address of the network element selected in the Network Element Information Section
Port	Enter the host port for the IP address
SSH	Select the check box to manage a TS3X50 using SSH
SSH User Account Information	
Username	Enter SSH username. (default users: user1 | user2 | user3 | user4 | user5)
Password	Enter password of an SSH user. The password field displays asterisks when text is entered. **Note.** The password is case sensitive.
Serial / USB-Serial Connection Details	
Com Port	This field indicates the serial/USB-serial communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 3, 4, 5, 6, 7 or 8. The default is Com Port 3. See Verify USB-Serial COM Port.
Baud Rate	This field indicates the connection baud rate, which is fixed at 57,600 bps.
Modem Connection Details	

Com Port	This field indicates the communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 3 or 4. The default is Com Port 3.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 2400 bps.
Phone	This field is for the modem's telephone number.

Open Connection

To open a connection from the Main Menu:

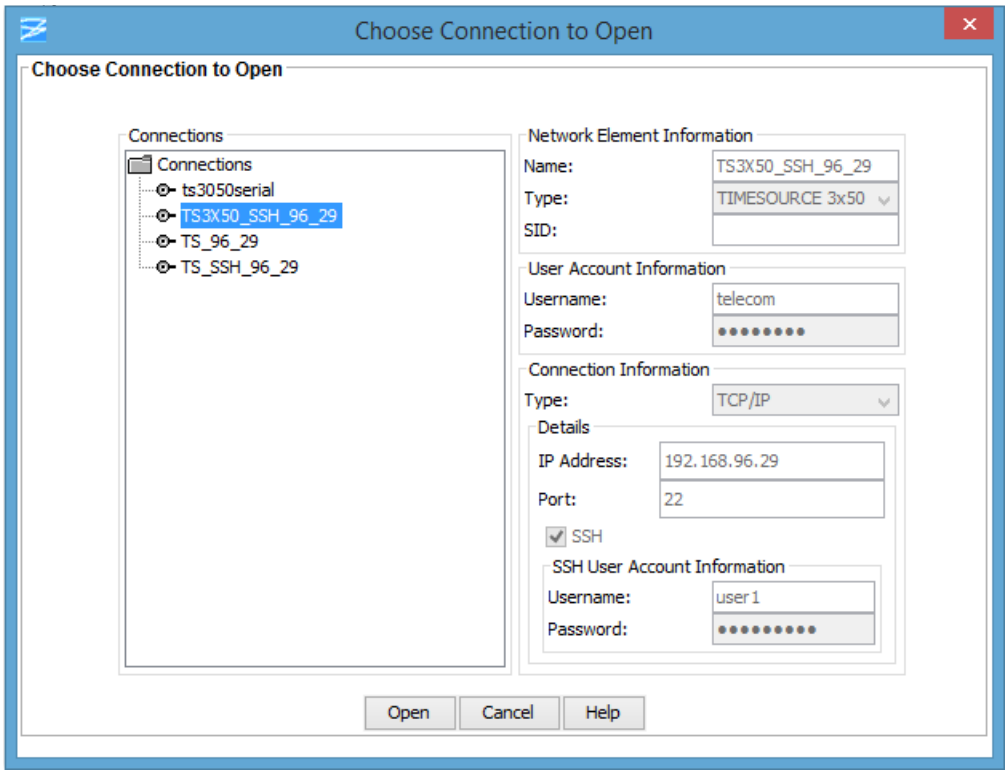
1. Click **Connection**.

2. Click **Open Connection** from the drop-down menu to open the "Choose Connection to Open" screen.

Note: Available connections are displayed in the connections panel (left side) as a directory structure. And the information about the highlighted connection is displayed in the area to the right of the connection panel. If a folder does not contain connection files, then that folder will not be displayed in the connections folder hierarchy as a directory structure.

3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.

4. Click on a network element to select it and click the **Open** button.



Close Connection

To close a connection from the Browser panel:

1. Select a network element.
2. Left-click and select **Close Connection** in the drop-down window to close the current session.

Edit Connection

To edit a network element:

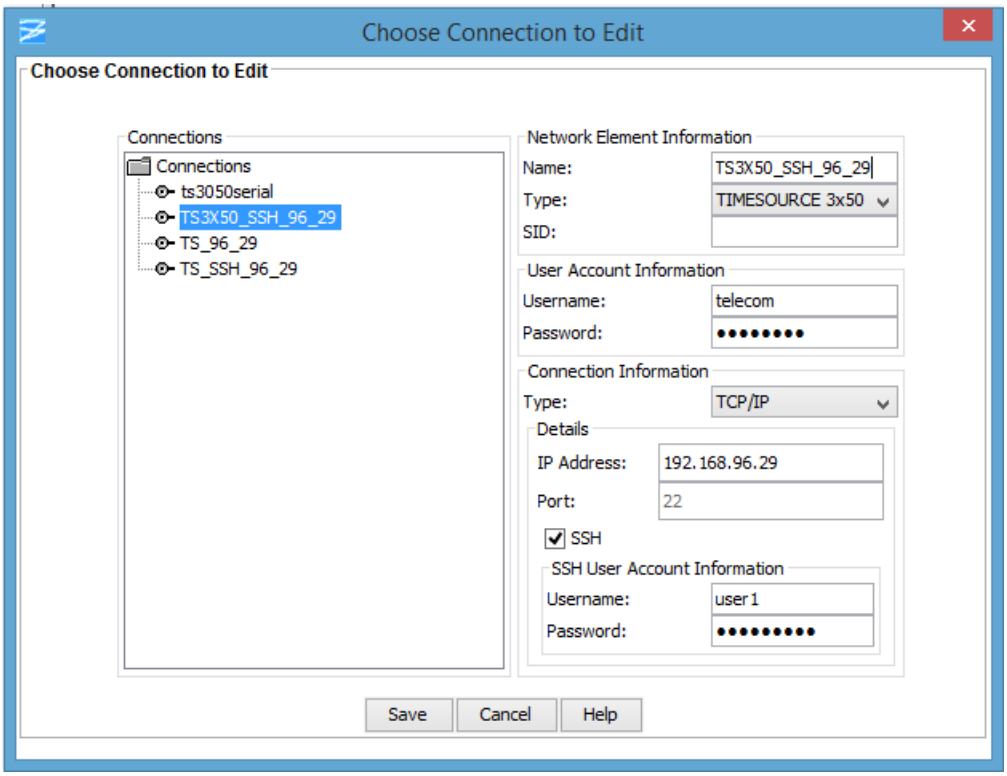
1. Click **Connection** on the Main Menu.
2. Click **Edit...** from the drop-down menu to open the "Choose Connection to Edit" screen.
3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.
4. Select a network element in the selected sub folder under the "Connections" panel (left panel).

5. Edit the content of appropriate field that you want to edit.

6. Click **Save** to save the data and close the dialog box, or click **Cancel** to close the dialog box without saving data.

Note: If a folder does not contain connection files, then that folder will not be displayed in the connections folder hierarchy as a directory structure.

Note: If you want to move the connection files to a different location/folder inside the 'connections' directory, browse to the TimeCraft installed directory through windows explorer, open the connections folder and then move the connections file to the desired location/folder.



Note: Some text box information changes to provide details associated with the type of network element selected.

Section and Field	Description or Action
Network Element Information	
Name	Enter a unique name for this connection as it will appear in the connection list
Type	From the drop-down menu, select the type of network element with which to connect
SID	This is the source identifier. When a connection command is sent to the network element (TID), the source identifier (SID) is sent back. The default SID is the network name.
User Account Information	
Username	Enter a username to log on to the network element
Password	Enter a password. The password field displays asterisks when text is entered. If security is not enabled on the network element, the Account and Password fields may be left blank. **Note.** The password is case sensitive.
Connection Information	
Type	Connection Type determines how TimeCraft will connect to the network element. From this drop-down menu, select TCP/IP, serial/USB-serial, or modem. The default is TCP/IP.
TCP/IP Connection Details	
IP Address	Enter the IP address of the network element selected in the Network Element Information Section
Port	Enter the host port for the IP address
SSH	Select the check box to manage a TS3X50 using SSH
SSH User Account Information	
Username	Enter SSH username. (default users: user1 | user2 | user3 | user4 | user5)
Password	Enter password of an SSH user. The password field displays asterisks when text is entered. **Note.** The password is case sensitive.
Serial / USB-Serial Connection Details	
Com Port	This field indicates the serial/USB-serial communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 3, 4, 5, 6, 7 or 8. The default is Com Port 3. See Verify USB-Serial COM Port.
Baud Rate	This field indicates the connection baud rate, which is fixed at 57,600 bps.

Modem Connection Details	
Com Port	This field indicates the communication port to use. From this drop-down menu, select the connection type from the following options: Com Port 3 or 4. The default is Com Port 3.
Baud Rate	This field indicates the connection baud rate. From the drop-down menu, select from the following options: 2400 bps, 4800 bps, 9600 bps, or 19,200 bps. The default is 2400 bps.
Phone	This field is for the modem's telephone number.

Refresh Connection

To refresh the system view from the Browser panel:

1. Select the network element.
2. Left-click and select **Refresh Connection** from the drop-down screen.

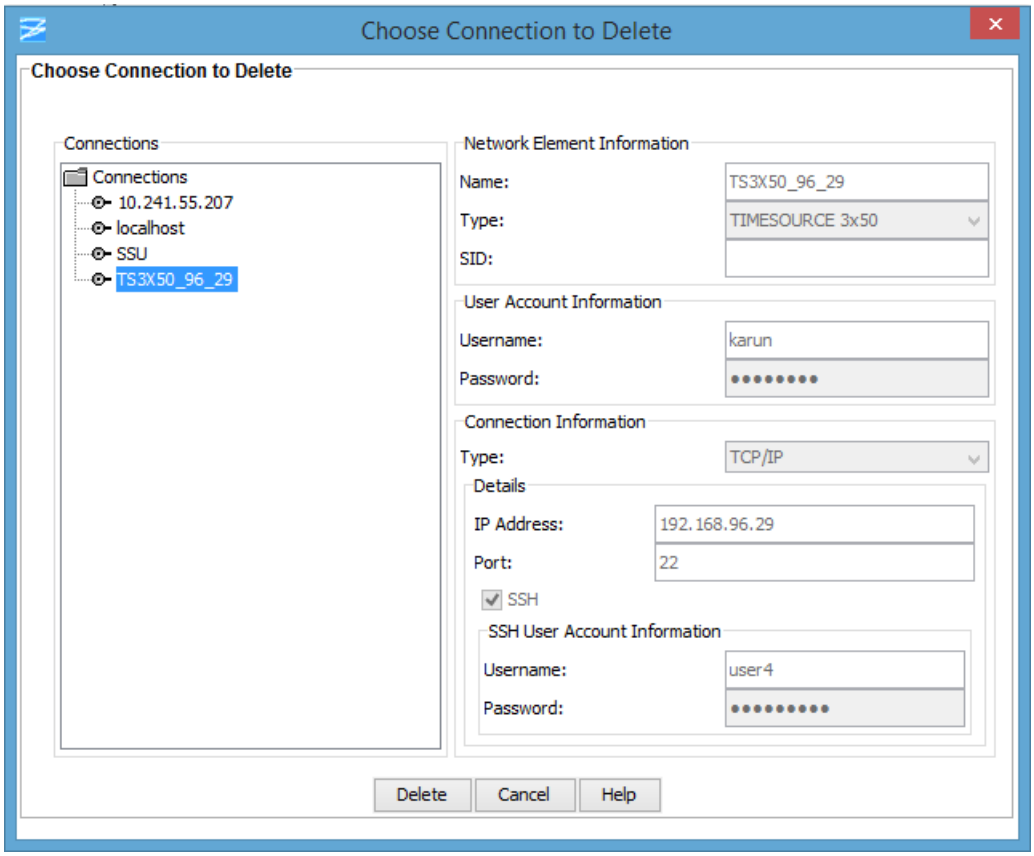
Delete Connection

To delete a connection from the Main Menu:

1. Click **Connection**.
2. Click **Delete...** from the drop-down window to open the "Choose Connection to Delete" screen.
3. Browse to the sub folders by expanding the tree node or by double clicking the folder name from the Connection list.
4. Select the network element you want to delete.
5. Click the **Delete** button to delete the connection and return to the Main Menu, or click **Cancel** to close the dialog box without deleting the network element.

Note: If a folder does not contain connection files, then that folder will not be displayed in the connections folder hierarchy as a directory structure.

Note: To delete a folder in the connections directory, browse to the TimeCraft installed location (Default is "C:\Program Files\Symmetricom\TimeCraft"). Open the connections folder and delete the particular folder. Deleting the folder will lead to deletion of all the connections present in that folder.



Verify USB-Serial COM Port

TimeCraft requires that the COM port be specified when creating a new connection with USB-serial, or editing an existing connection to use USB-serial. The USB-to-serial adapter will typically be assigned a COM port when the driver software is installed. To determine the COM port for USB-to-serial, follow the procedures below:

For Windows Vista OS

1. Click on the **Start** button.

2. Right-click on **Computer**. Select "Properties" from the menu that appears.

3. Click on **Device Manager**.

4. Double-Click on **Ports (COM & LPT)** to display the port assignments.

5. Locate the port assigned to the USB-to-serial adapter, as shown in the image below.

For Windows XP OS

1. Click on the **Start** button.

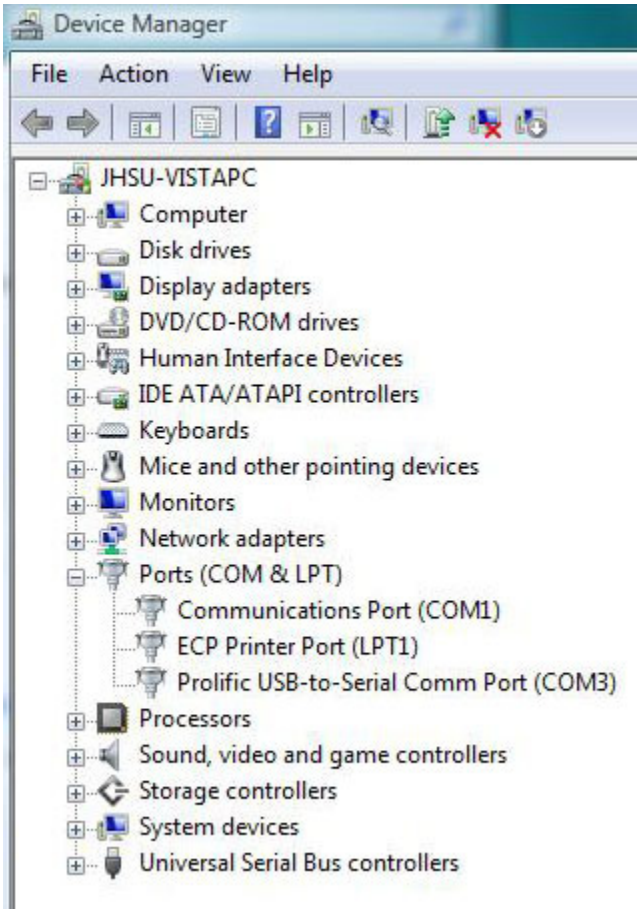
2. Right-click on **My Computer**. Select "Properties" from the menu that appears.

3. Click on the **Hardware** tab.

4. Click on the **Device Manager** button.

5. Double-Click on **Ports (COM & LPT)** to display the port assignments.

6. Locate the port assigned to the USB-to-serial adapter, as shown in the image below.



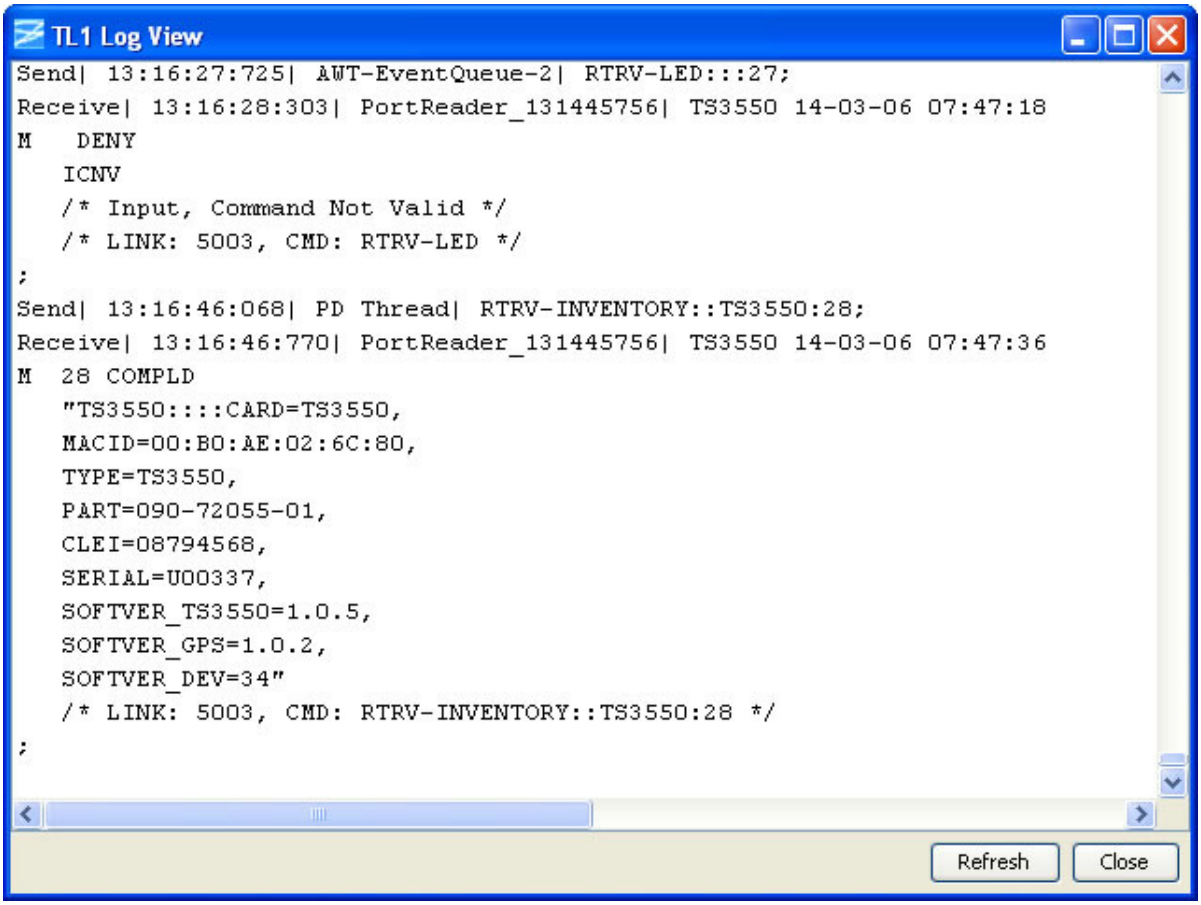
Tools Menu

TL1 Log View

The TL1 Log View screen displays a file of TL1 commands generated by TimeCraft and received from network elements.

To open the TL1 Log screen:

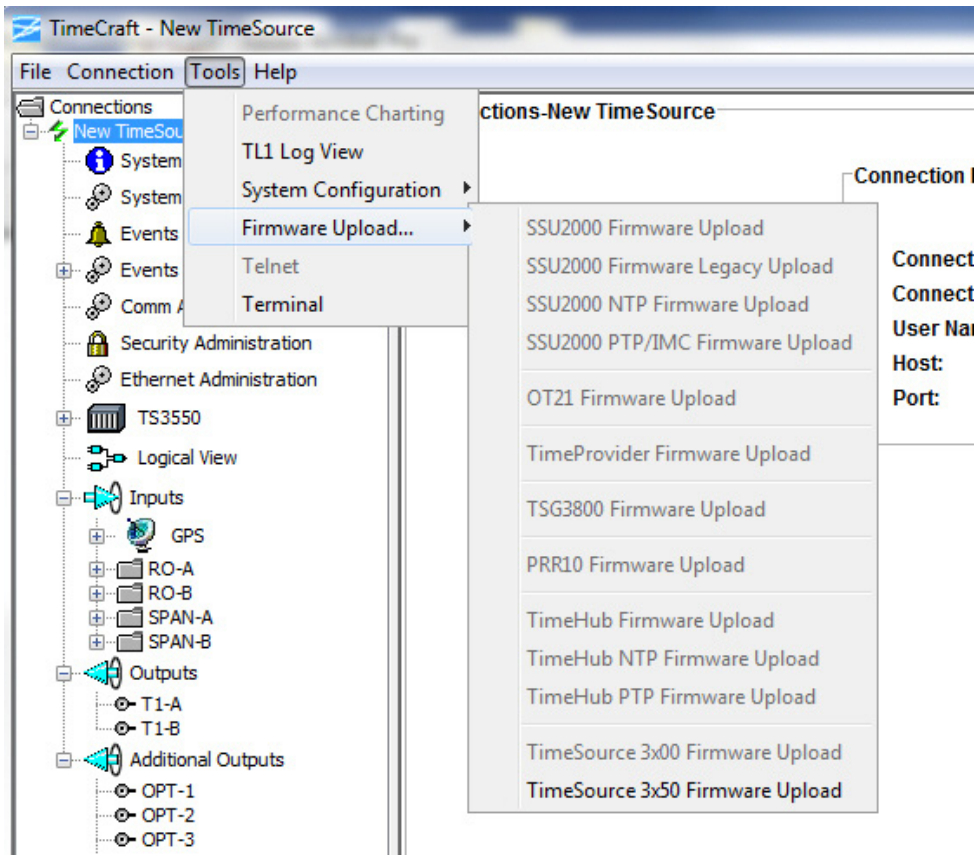
1. Click the **Tools** menu item.
2. Click **TL1 Log View** in the drop-down menu to open the TL1 Log screen.
3. Click **Refresh** to update the file to display the log for the current session, or click **Close** to close the TL1 Log View screen.



Firmware Upload

To upload new firmware to TimeSource 3x50:

1. Click the **Tools** menu item.
2. Click **Firmware Upload...** in the drop-down menu.
3. Select **TimeSource 3x50 Firmware Upload** in the displayed list to open the firmware navigation screen.



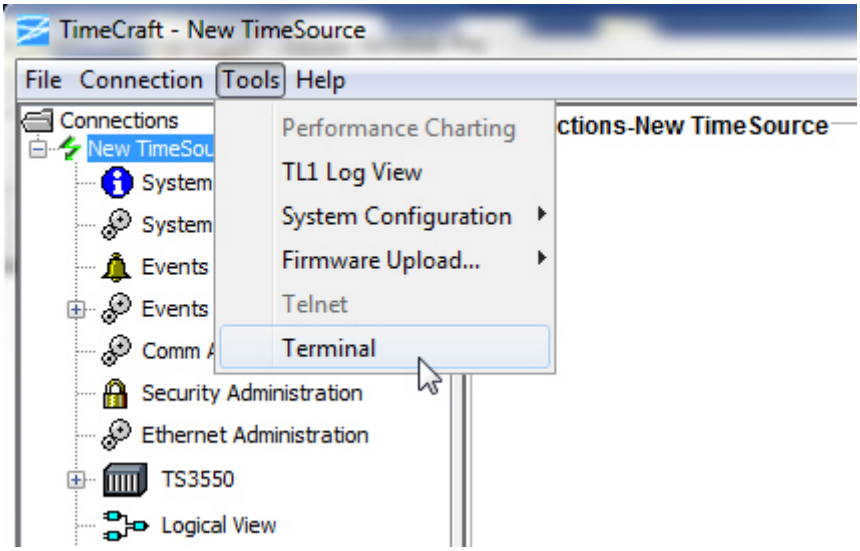
See Also:
Uploading Firmware

Using The Terminal Screen

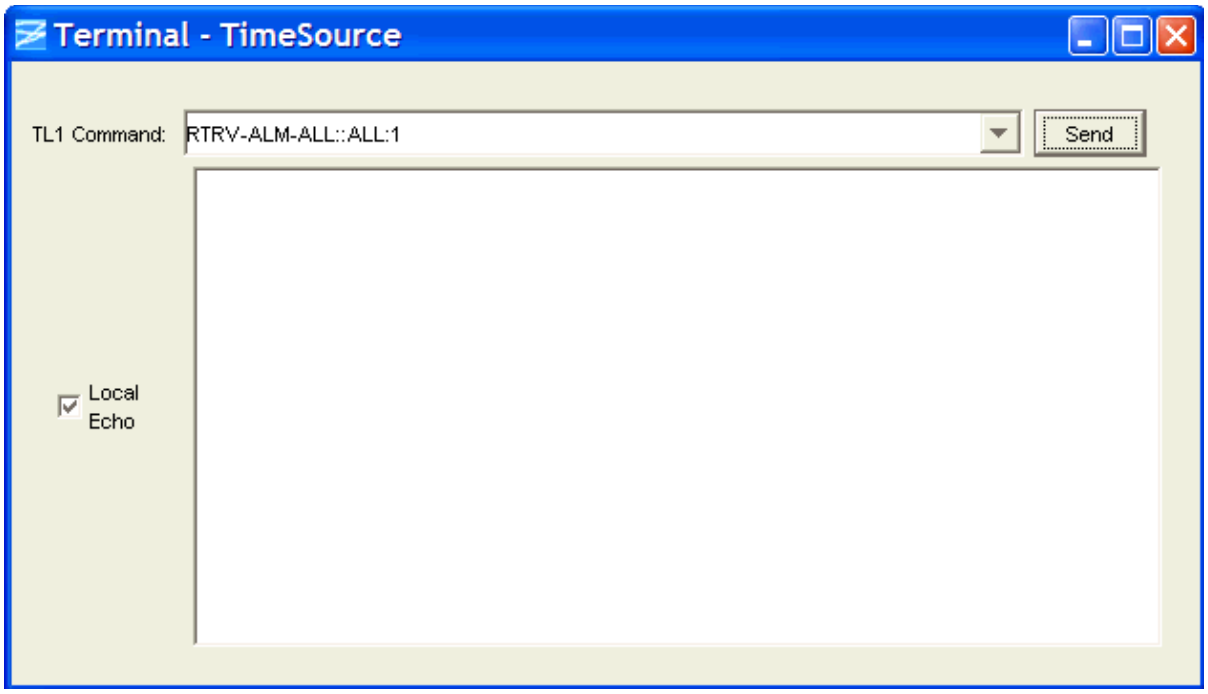
The Terminal Screen shown below allows you to key in and send TL1 commands and view the responses. If you select the Local Echo check box, the command you send is displayed along with the response.

To use the terminal screen:

1. Click the **Tools** menu item.
2. Click **Terminal** in the drop-down menu to open the terminal screen.
3. Type a TL1 command into the TL1 Command text box.
4. Click **Send** to enter the command.



Note: Click the **Local Echo** check box to display the command along with the response.



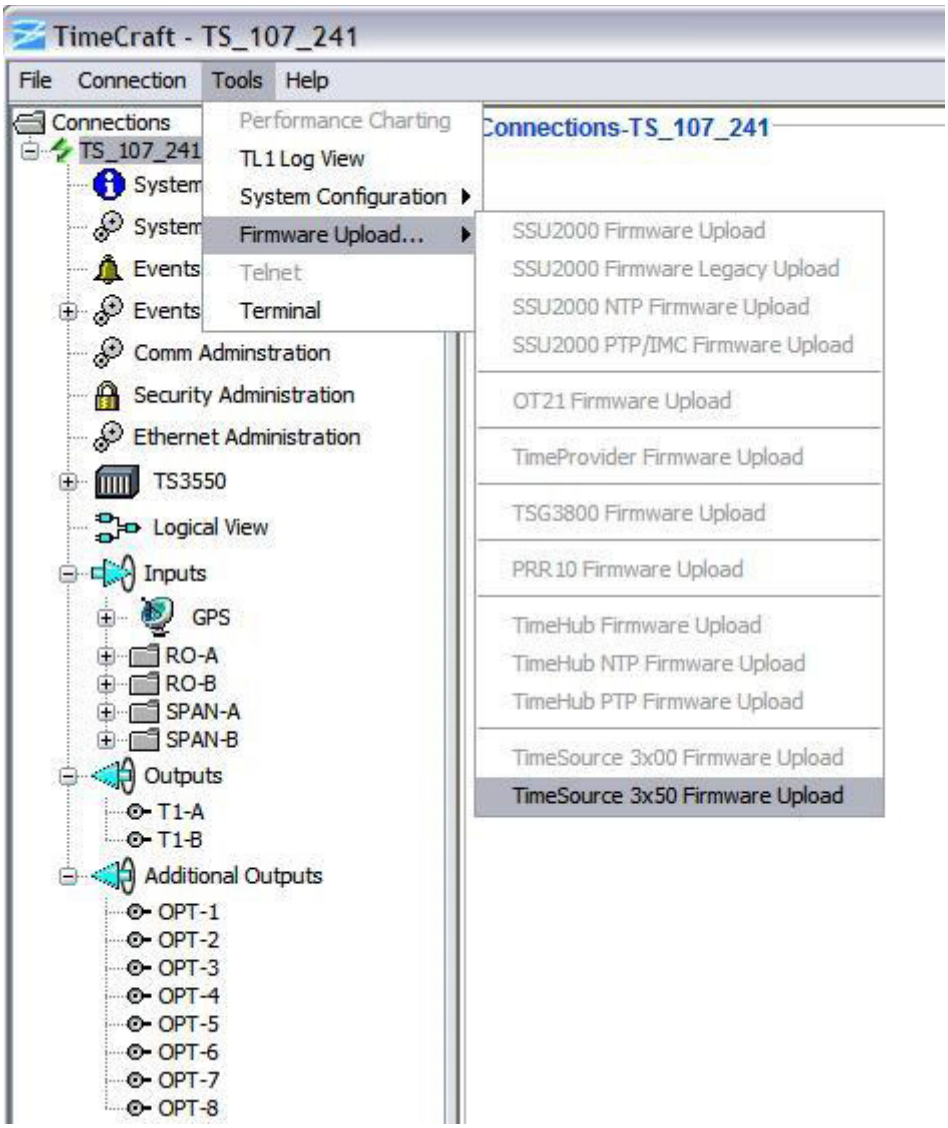
Note: TimeCraft does not support Telnet connections with TimeSource.

Firmware Upload

Uploading Firmware

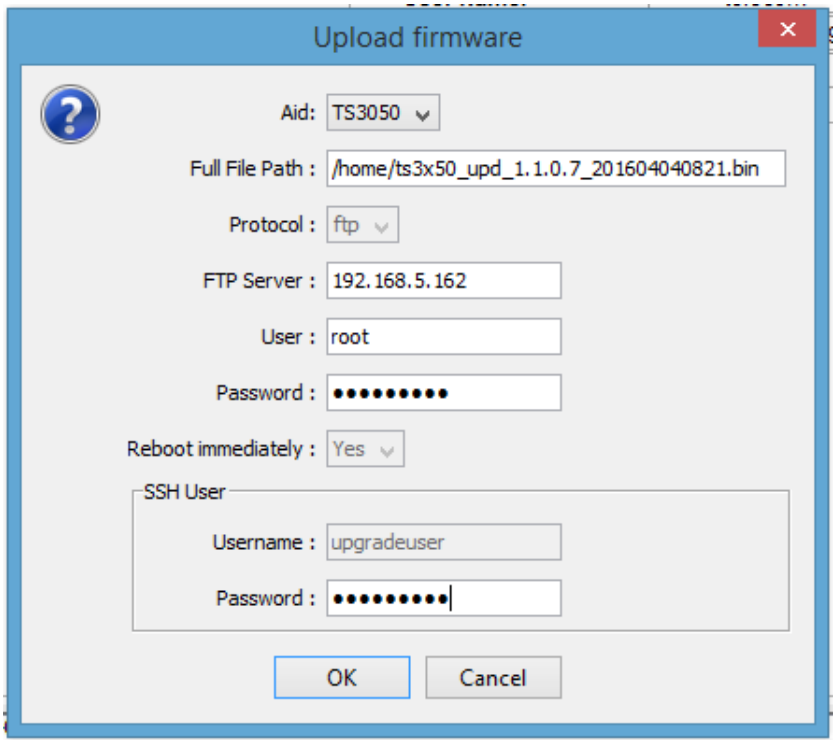
Use the following procedure to upload firmware to TimeSource:

1. Click **Tools** on the application menu bar.
2. Click **Firmware Upload...** from the drop-down menu.
3. Select **TimeSource Firmware Upload** in the displayed list.


TimeCraft - TS_107_241
File
Connection
Tools
Help
Connections
TS_107_241
System
System
Events
Events
Comm Adminstration
Security Administration
Ethernet Administration
TS3550
Logical View
Inputs
GPS
RO-A
RO-B
SPAN-A
SPAN-B
Outputs
T1-A
T1-B
Additional Outputs
OPT-1
OPT-2
OPT-3
OPT-4
OPT-5
OPT-6
OPT-7
OPT-8
Performance Charting
TL1 Log View
System Configuration
Firmware Upload...
Telnet
Terminal
Connections-TS_107_241
SSU2000 Firmware Upload
SSU2000 Firmware Legacy Upload
SSU2000 NTP Firmware Upload
SSU2000 PTP/IMC Firmware Upload
OT21 Firmware Upload
TimeProvider Firmware Upload
TSG3800 Firmware Upload
PRR10 Firmware Upload
TimeHub Firmware Upload
TimeHub NTP Firmware Upload
TimeHub PTP Firmware Upload
TimeSource 3x00 Firmware Upload
TimeSource 3x50 Firmware Upload

The Upload firmware dialog will appear:

If remote connection state is "SSH", then Upload Firmware screen will appear as below:



Enter a valid password for SSH user "upgradeuser" in the Password text field.

Note:

- The Reboot option will be disabled.
- By default SSH user "upgradeuser" will be used for upload procedure

4. At the **Upload Firmware** screen, Select either “TS3050/TS3550” or “GPS” from **Aid** drop-down box.

5. Enter the file name and path where the firmware files are stored in the **Full File Path** text box.

6. Select "FTP" or "SFTP" from the **Protocol** drop-down box.

7. Enter the FTP server IP address in the **IP Address** text box.

8. Enter a valid user name for the FTP server in the **User Name** text box.

9. Enter a valid password for the FTP server in the **Password** text box.

10. Select “Yes” or “No” in the **Reboot Immediately** drop-down box.

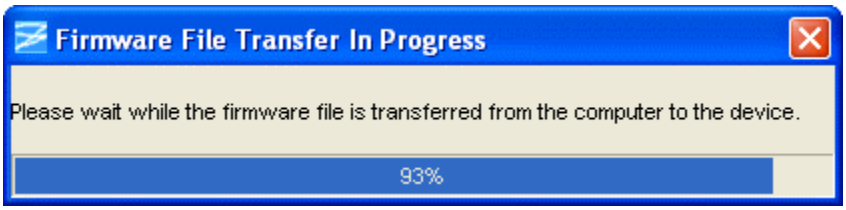
Note: The Reboot option will be disabled if the **Aid** is selected as GPS.

11. Click **OK** to begin the upload process, or click Cancel to exit the firmware upload procedure. When you click **OK**, the **Upload firmware** confirmation dialog is displayed..

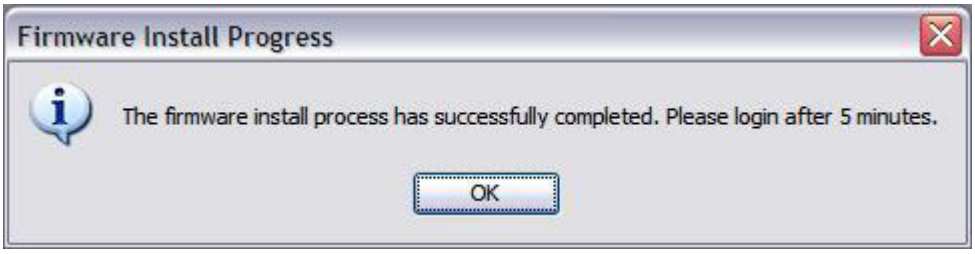
Note: The file must be located on an FTP or SFTP server that TimeCraft can access.

12. Click **OK** in the **Upload firmware** confirmation dialog to begin firmware transfer.

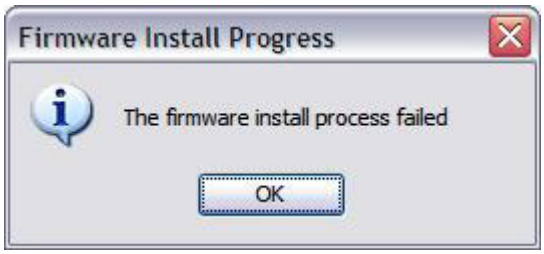
13. During firmware transfer, TimeCraft displays the following dialog screen with progress bar and the user is disconnected from the TimeSource during upload.



14. When the installation is finished, a screen indicates that it has successfully completed. Click **OK** to close the **Firmware Install Progress** screen.



15. If the installation fails, a screen indicates that it has not successfully completed. Click **OK** to close the **Firmware Install Progress** screen. Return to Step 1 of this procedure.

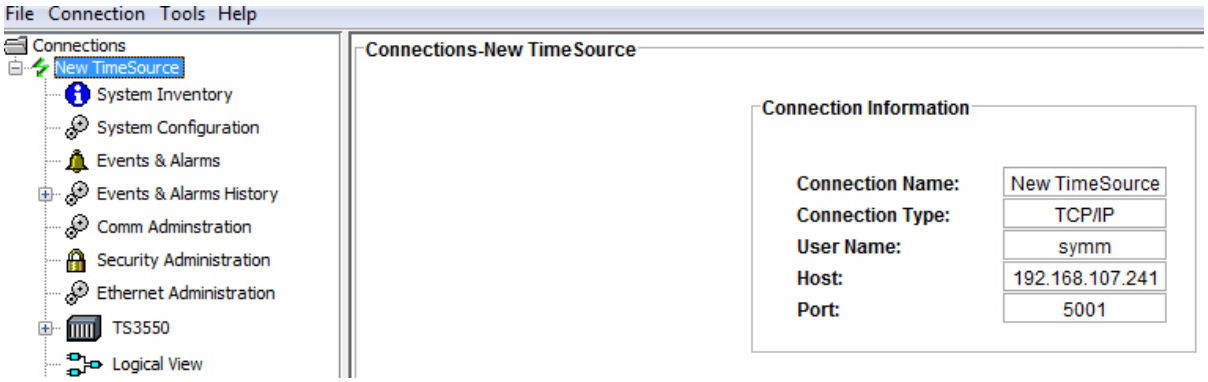


Connection Information

Connection Information Screen

Clicking on the top-level icon for the TimeSource unit that is currently connected brings up a screen with information about the connection. The Connection Information screen provides the following information:

- **Connection Name:** The Network Element Information name assigned during New Connection setup
- **Connection Type:** Either TCP/IP, Serial/USB-Serial, or Modem
- **User Name:** The user name assigned during New Connection setup
- **Host:** The host IP address
- **Port:** The communications port

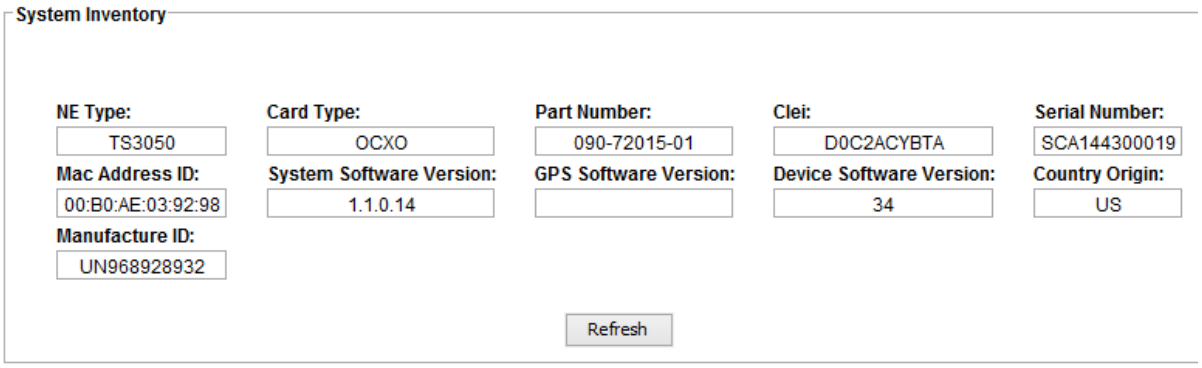


System Inventory

System Inventory Screen

The System Inventory screen provides the following information:

Item	Description
NE Type	Network Element Type ■ TS 3050 ■ TS 3550
Card Type	Quartz oscillator Rubidium oscillator
Part Number	System Part Number
CLEI	Common Language Equipment Identification
Serial Number	System Serial Number
MAC Address ID	MAC address in hexadecimal format
System Software Version	Operating System Firmware Version
GPS Software Version	GPS Receiver Firmware Version
Device Software Version	Hardware Option Firmware Version
Country Origin	Country of Origin
Manufacture ID	Manufacturer ID
Refresh	Click **Refresh** to update the display
License Details	Options Licenses: ■ SNTP ■ OPT (8 Optional Outputs)

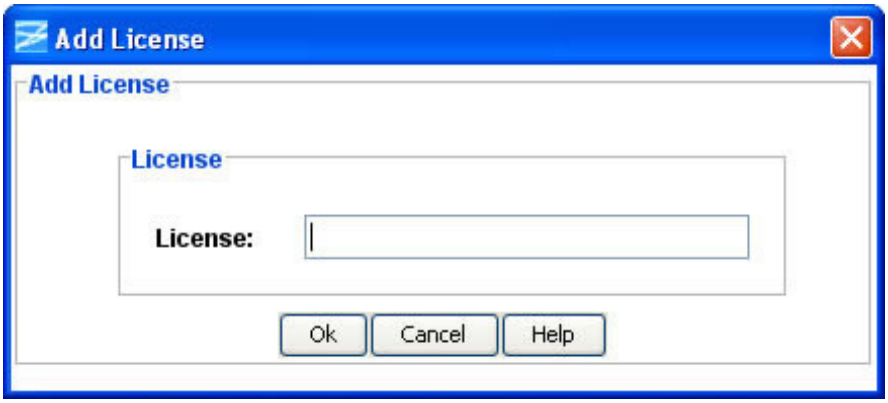


Note: In some systems with older system software version (1.0 or previous versions), the Country Origin and Manufacture ID will not be shown to user.

Add a License

Use the following procedure to add a license:

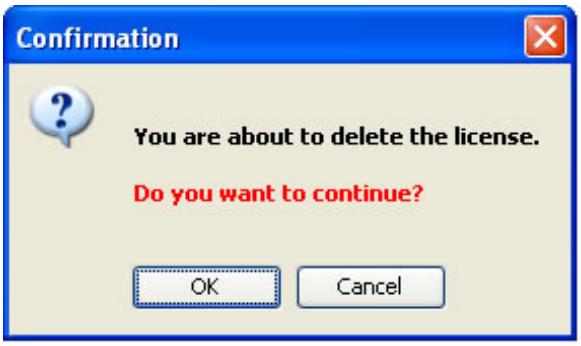
1. In the License Details screen, click the **Add** button.
2. Enter the 40-character license key in the **License** text box.
3. Click the **OK** button.



Delete a License

Use the following procedure to delete a license:

1. In the License Details screen, select the license to delete.
2. Click the **Delete** button.
3. The Delete Confirmation screen will appear. Click the **OK** button.

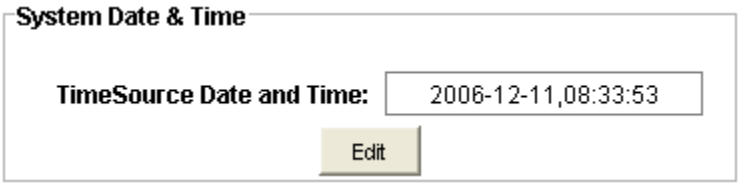


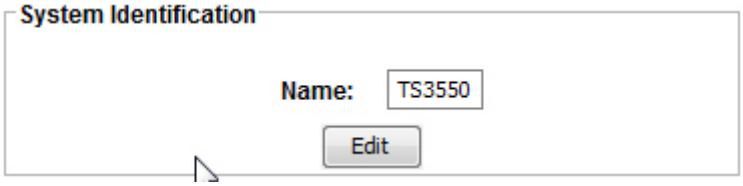
System Configuration

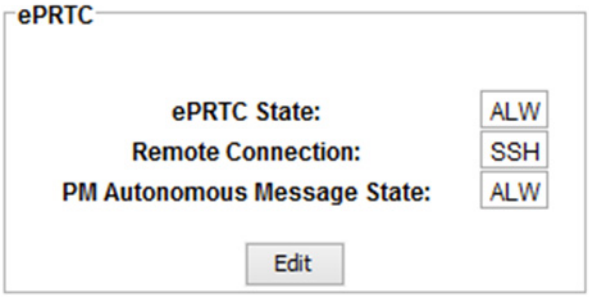
System Configuration Screen

The System Configuration screen allows you to set the TimeSource system date and time, system identification, ePRTC, and the time-of-day (TOD) format. If a TOD device is installed, the TOD format selection must correspond to the device; either a Cisco router or NTP Type 4 compatible device.

Click **Edit** to change the TimeSource Date and Time, the System Identification Name, ePRTC, or the TOD Format.







Item	Description
ePRTC State	Controls EPRTC function/performance. Selections are INH to disable ePRTC performance and ALW to enable ePRTC performance.
Remote Connection	Controls remote connectivity type. Selections are SSH to communicate device using security mode and TELNET to communicate device using TL1 session mode.
PM Autonomous Message State	Controls ePRTC autonomous status messages. Selections are INH to disable notification of ePRTC autonomous message and ALW to enable ePRTC notification of ePRTC autonomous message.

Note: In some systems with older system software version (1.0 or previous versions), the ePRTC summary details will not be shown to user.

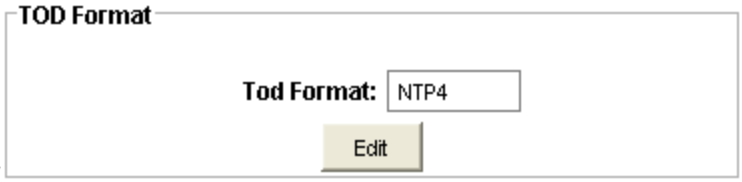
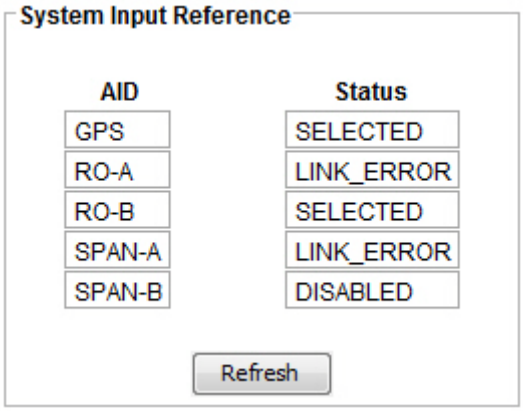


Figure 6-1



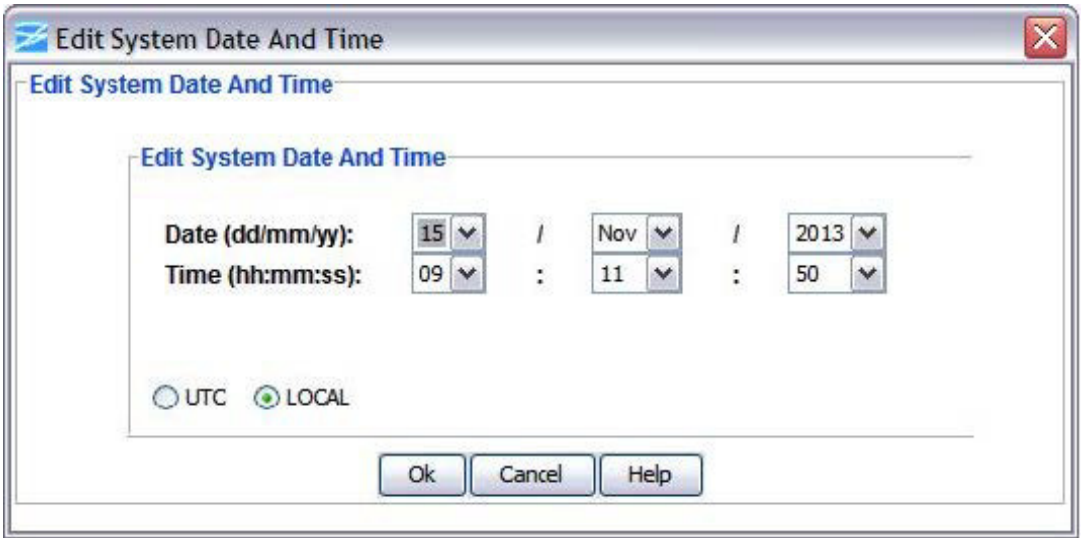
GPS Status Conditions	Description
Disabled	Not enabled using ENT-EQPT command
Link Error	Disqualified because antenna is not connected or has alarm
Disqualified	Disqualified because UTC time is not valid
Qualified	Qualified but not selected as reference
Selected	Selected as reference

RO and SPAN Status Conditions	Description
Disabled	Not enabled using ENT-EQPT command
Link Error	Disqualified because of Loss of Signal (LOS) alarm
Disqualified	Disqualified because of other alarm
Qualified	Qualified but not selected as reference
Selected	Selected as reference

Edit System Date and Time

Use the following procedure to edit the System Date and Time:

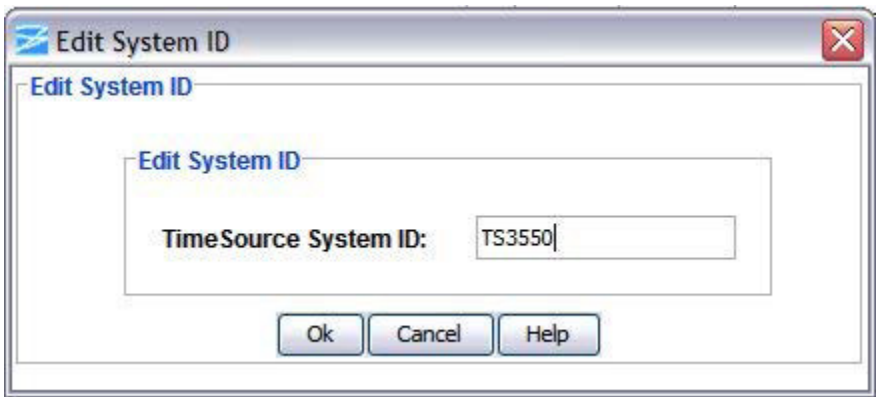
1. Select the appropriate day in the day selection drop-down box.
2. Select the appropriate month in the month selection drop-down box.
3. Select the appropriate year in the year selection drop-down box.
4. Select the appropriate hour in the hour selection drop-down box.
5. Select the appropriate minute in the minute selection drop-down box.
6. Select the appropriate second in the second selection drop-down box.
7. Click the appropriate radio button to select either UTC or LOCAL time.
8. Click **OK** to accept changes and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving changes.



Edit System Identification

Use the following procedure to edit the System ID:

1. Enter the desired identifier in the **TimeSource System ID:** text box.
2. Click **OK** to accept changes and return to the **System Configuration** screen, or **Cancel** to return to the **System Configuration** screen without saving changes.

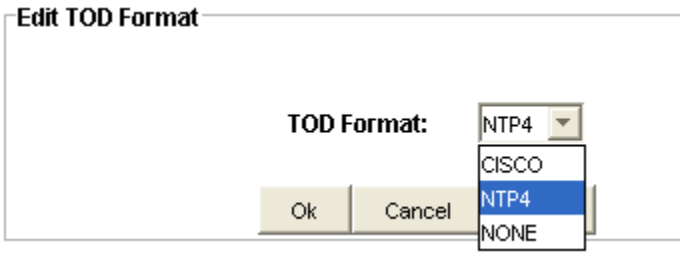


Edit TOD Format

Use the following procedure to edit the System Time-of-Day format:

1. In the **TOD Format:** drop-down box, select either CISCO if a Cisco router is installed, NTP4 if an NTP Type 4 compatible device is installed, or NONE if no NTP device is installed.

2. Click **OK** to accept the selection and return to the System Configuration screen, or **Cancel** to return to the System Configuration screen without saving the selection.



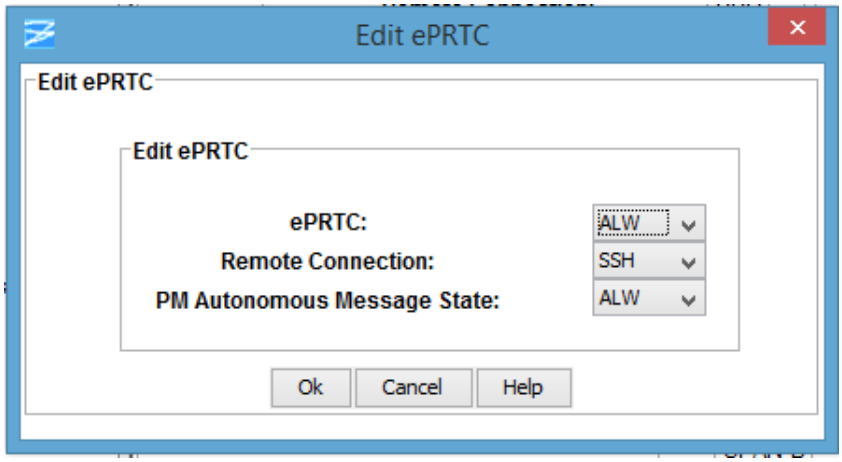
Edit ePRTC

The Edit ePRTC screen allows you to configure the ePRTC. Use the following procedure to configure ePRTC:

1. In the ePRTC drop-down box, select INH to disable ePRTC performance or ALW to enable ePRTC performance.

2. In the Remote Connection drop-down box, select SSH to communicate device using security mode or TELNET to communicate device using TL1 session.

3. In the PM Autonomous Message State drop-down box, select INH to disable notification of ePRTC autonomous message or ALW to enable notification of ePRTC autonomous message.



Events and Alarms

Events and Alarms Screen

The Events and Alarms screen shows the current active events and Performance Messages. Events are ordered chronologically and the screen is updated each time a new event is raised or cleared on the element. Each field is described in the table below.

The list of events can be sorted by clicking the column heading. Columns can also be moved by clicking in the header and dragging with the mouse.

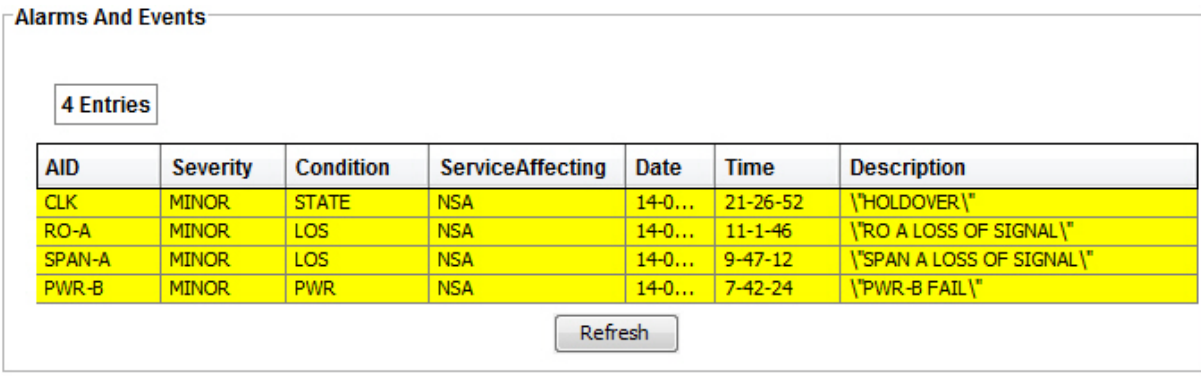
Each event is color coded to indicate severity as follows:

- Critical Severity (Red)
- Major Severity (Orange)
- Minor Severity (Yellow)
- Event Severity (White)
- Not-alarmed Severity (White)

Click **Refresh** to display new events.

Item	Description
AID	Access identifier for the object of the message.
Severity	Alarm setting: critical, major, minor, event, or not-alarmed.
Condition	Indicates the identifier for the event.

Service Affecting	Indicates whether an alarm is Service Affecting (SA) or Not Service Affecting (NSA).
Date	Displays the month and day of an event or alarm condition.
Time	Displays the hour, minute, and second of an event or alarm condition.
Description	This field displays a description of each alarm type indicated.



AID	Severity	Condition	ServiceAffecting	Date	Time	Description
CLK	MINOR	STATE	NSA	14-0...	21-26-52	\"HOLDOVER\"
RO-A	MINOR	LOS	NSA	14-0...	11-1-46	\"RO A LOSS OF SIGNAL\"
SPAN-A	MINOR	LOS	NSA	14-0...	9-47-12	\"SPAN A LOSS OF SIGNAL\"
PWR-B	MINOR	PWR	NSA	14-0...	7-42-24	\"PWR-B FAIL\"

Performance Message

The Performance Message screen shows the current performance metrics and the screen is updated each time a new PM event is raised on the element. Each filed is described in the table below.

Item	Description
Input	Identifies the specific input being reported on: ■ RO-A is Cesium connected to Remote Oscillator A input ■ RO-B is Cesium connected to Remote Oscillator B input ■ GNSS is input associated with GPS Antenna connection
Index	This is an integer value in range that increments each time the RO metric data is recomputed
Order	Specifies the most recent performance metrics data result for RO-A/RO-B/GNSS. The meaning of the values is: ■ 0 = most recent update ■ 1 = update 1 minute prior ■ 2 = update 2 minutes prior ■ 3 = update 3 minutes prior ■ 4 = update 4 minutes prior

Item	Description
Status	This is used to specify general status of information in the associated row
Average Frequency	Average frequency of RO in ppb
1Min MDEV	1 minute tau MDEV for RO (X.YYYYYY), in ppb
20Min MDEV	20 minute tau MDEV for RO (X.YYYYYY) in ppb
1Day MDEV	1 day tau MDEV for RO (X.YYYYYY) in ppb
Tracked Satellites	Average value of tracked satellites (XX.YYY)
Tracking Density	Tracking density value (X.YYY)
Dispersion	Dispersion measure value (XXX.YY)

Performance Message

Input	Index	Order	Status	Average Frequency	1Min MDEV	20Min MDEV	1Day MDEV	Tracked Satillites	Tracking Desnity	Dispersion
RO-A	0	0	0	0	0	0	0			
RO-A	0	1	0	0	0	0	0			
RO-A	0	2	0	0	0	0	0			
RO-A	0	3	0	0	0	0	0			
RO-A	0	4	0	0	0	0	0			
RO-B	0	0	0	0	0	0	0			
RO-B	0	1	0	0	0	0	0			
RO-B	0	2	0	0	0	0	0			
RO-B	0	3	0	0	0	0	0			
RO-B	0	4	0	0	0	0	0			
GNSS	582	0	16					0	0	0
GNSS	582	1	16					0	0	0
GNSS	582	2	16					0	0	0
GNSS	582	3	16					0	0	0
GNSS	582	4	16					0	0	0

Refresh

Note: In some systems with older system software version (1.0 or previous versions), the Performance Message details not be shown to user

Events and Alarms History

The Events and Alarms History screen shows a list of up to 500 logged events and alarms. You can display either events and alarms, or alarms only, and either the last 20, the last 100, or the last 500.

Use the following procedure to display a specified selection:

1. In the Display Selection window, select either the Last 20, Last 100, or Last 500 in the selection drop-down box to display the desired number of events and alarms.

2. Click **Select** to list the events.

Events and Alarms History

AID	Level	Condition	Service Affecting	Date	Time	Description
CLK	EVENT	STATE	NSA	13-11-14	23-39-36	\"STEADY\"
CLK	CLEARED	STATE	NSA	13-11-14	23-39-36	\"BRIDGING\"
CLK	EVENT	STATE	NSA	13-11-14	23-39-34	\"BRIDGING\"
CLK	CLEARED	STATE	NSA	13-11-14	23-39-34	\"STEADY\"
CLK	EVENT	STATE	NSA	13-11-14	22-29-0	\"STEADY\"
CLK	CLEARED	STATE	NSA	13-11-14	22-29-0	\"BRIDGING\"
CLK	EVENT	STATE	NSA	13-11-14	22-23-41	\"BRIDGING\"
CLK	CLEARED	STATE	NSA	13-11-14	22-23-41	\"STEADY\"
CLK	EVENT	STATE	NSA	13-11-14	22-23-0	\"STEADY\"
CLK	CLEARED	STATE	NSA	13-11-14	22-23-0	\"BRIDGING\"
CLK	EVENT	STATE	NSA	13-11-14	22-22-53	\"BRIDGING\"
CLK	CLEARED	STATE	NSA	13-11-14	22-22-53	\"STEADY\"
CLK	EVENT	STATE	NSA	13-11-14	22-22-43	\"STEADY\"
CLK	CLEARED	STATE	NSA	13-11-14	22-22-43	\"BRIDGING\"
CLK	EVENT	STATE	NSA	13-11-14	22-22-41	\"BRIDGING\"
CLK	CLEARED	STATE	NSA	13-11-14	22-22-41	\"STEADY\"
COM	EVENT	COMPORT	NSA	13-11-14	22-11-58	\"COMPORT COM-3 TIME
CLK	EVENT	STATE	NSA	13-11-14	21-3-56	\"STEADY\"
CLK	CLEARED	STATE	NSA	13-11-14	21-3-56	\"BRIDGING\"
CLK	EVENT	STATE	NSA	13-11-14	20-58-34	\"BRIDGING\"

Alarm Configuration

The Alarm Configuration screen provides a view of the configuration settings for the system.

You can set the parameters for TIME, SEVERITY1, and SERAFF1, which initially come into effect when the condition is detected, and you can set the parameters for SEVERITY2 and SERAFF2, which come into effect after a specified time.

Click **Edit** to change the settings.

AID	ALARM	TIME	SEVERITY1	SEVERITY2	SERAFF1	SERAFF2
TS3550	WARMUP	0-0	EVENT	EVENT	NSA	NSA
TS3550	CONT_WARMUP	2-0	EVENT	MINOR	NSA	NSA
TS3550	SETTLING	0-0	EVENT	EVENT	NSA	NSA
TS3550	STEADY	0-0	EVENT	EVENT	NSA	NSA
TS3550	BRIDGING	0-0	EVENT	EVENT	NSA	NSA
TS3550	HOLDOVER	3-1	MINOR	MINOR	NSA	NSA
TS3550	CONT_HOLDOVER	0-0	EVENT	EVENT	NSA	NSA
TS3550	SYSREBOOT	0-0	EVENT	EVENT	NSA	NSA
TS3550	PWROUTOFRANGE	0-0	CRITICAL	CRITICAL	SA	SA
TS3550	TEMP_ERR	24-0	EVENT	MINOR	NSA	NSA
TS3550	PLL_UNLOCK	0-0	CRITICAL	CRITICAL	SA	SA
TS3550	BATTERYA	0-0	MINOR	MINOR	NSA	NSA
TS3550	BATTERYB	0-0	MINOR	MINOR	NSA	NSA
TS3550	FPGAERR	0-0	CRITICAL	CRITICAL	SA	SA
TS3550	ANT_PLLUNLOCK	0-0	EVENT	EVENT	NSA	NSA
TS3550	ANT_RCVRCOMMERR	0-0	EVENT	EVENT	NSA	NSA
TS3550	ANT_RCVRPPSTMO	0-0	EVENT	EVENT	NSA	NSA
TS3550	ANT_PWROUTOFRANGE	0-0	EVENT	EVENT	NSA	NSA
TS3550	RB_UNLOCK	0-0	CRITICAL	CRITICAL	SA	SA
TS3550	COMPORTDISC	0-0	EVENT	EVENT	NSA	NSA
TS3550	COMPORTTMO	0-0	EVENT	EVENT	NSA	NSA
TS3550	SYSDNLDCOMPORT	0-0	EVENT	EVENT	NSA	NSA
TS3550	SYSDNLDSTATUS	0-0	EVENT	EVENT	NSA	NSA
TS3550	ANTDNLDCOMPORT	0-0	EVENT	EVENT	NSA	NSA
TS3550	ANTDNLDSTATUS	0-0	EVENT	EVENT	NSA	NSA
TS3550	ACOSTATE	0-0	EVENT	EVENT	NSA	NSA

Edit

Edit Alarm Configuration

Use the following procedure to set the alarm holdover configuration:

1. In the HRS drop-down box, select the number of hours (from 0 to 24) before the alarm is escalated.

2. In the MINS drop-down box, select the number of minutes (from 0 to 59) in addition to the hours set in step 1 before the alarm is escalated.

3. In the SEVERITY1 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

4. In the SEVERITY2 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

5. In the SERAFF1 drop-down box, select SA or NSA.

6. In the SERAFF2 drop-down box, select SA or NSA.

7. Click **OK** to accept the configuration changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving the configuration changes.

EVENT is a state that does not cause an alarm

SA indicates a Service-Affecting alarm

NSA indicates a Non-Service-Affecting alarm

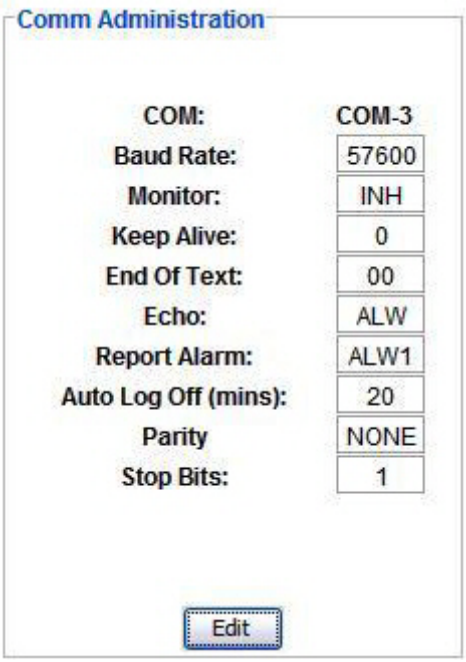
AID	ALARM	HRS	MINS	SEVERITY1	SEVERITY2	SERAFF1
TS3550	WARMUP	0	0	EVENT	EVENT	NSA
TS3550	CONT_WARMUP	2	0	EVENT	MINOR	NSA
TS3550	SETTLING	0	0	EVENT	EVENT	NSA
TS3550	STEADY	0	0	EVENT	EVENT	NSA
TS3550	BRIDGING	0	0	EVENT	EVENT	NSA
TS3550	HOLDOVER	0	0	MINOR	EVENT	NSA
TS3550	CONT_HOLDOVER	0	0	EVENT	EVENT	NSA
TS3550	SYSREBOOT	0	0	EVENT	EVENT	NSA
TS3550	PWROUTOFRANGE	0	0	CRITICAL	CRITICAL	SA
TS3550	TEMP_ERR	24	0	EVENT	MINOR	NSA
TS3550	PLL_UNLOCK	0	0	CRITICAL	CRITICAL	SA
TS3550	BATTERYA	0	0	MINOR	MINOR	NSA
TS3550	BATTERYB	0	0	MINOR	MINOR	NSA
TS3550	FPGAERR	0	0	CRITICAL	CRITICAL	SA
TS3550	ANT_PLLUNLOCK	0	0	EVENT	EVENT	NSA
TS3550	ANT_RCVRCOMMERR	0	0	EVENT	EVENT	NSA
TS3550	ANT_RCVRPPSTMO	0	0	EVENT	EVENT	NSA
TS3550	ANT_PWROUTOFRANGE	0	0	EVENT	EVENT	NSA
TS3550	RB_UNLOCK	0	0	CRITICAL	CRITICAL	SA
TS3550	COMPORTDISC	0	0	EVENT	EVENT	NSA
TS3550	COMPORTTMO	0	0	EVENT	EVENT	NSA
TS3550	SYSDNLDCOMPORT	0	0	EVENT	EVENT	NSA
TS3550	SYSDNLDSTATUS	0	0	EVENT	EVENT	NSA
TS3550	ANTDNLDCOMPORT	0	0	EVENT	EVENT	NSA
TS3550	ANTDNLDSTATUS	0	0	EVENT	EVENT	NSA
TS3550	ACOSTATE	0	0	EVENT	EVENT	NSA

Ok Cancel Help

Comm Administration

Comm Administration

The TimeSource provides a single configurable serial communication port for management facilities as show in the following figure. Click **Edit** to change the configuration. The table below provides a description of each attribute.



Item	Description
Baud Rate	Data transfer rate of the port selections are 115000, 57600, 38400, 19200, 9600, 4800, 2400 and 1200
Monitor Message	Controls the viewing of communication port messages selections are INH to not view communication port messages and ALW to view communication port messages
Keep Alive	Controls the sending of the COMPLD message in minutes **Note:** When the value is zero, no COMPLD message is sent. When the value is between 1 and 255, the COMPLD message is sent accordingly.
End Of Text	Numeric value of the ASCII character to be used as an additional terminating character Zero indicates no additional terminating character **Note:** The End of Text must be set to zero, `00', for the port currently used.

Echo	Controls the ability of the port to echo received characters selections are INH to not echo received characters and ALW to echo received characters **Note:** Echo should be turned off (set to INH) for the port currently used.
Report Alarm	Sets the communication port capabilities as follows: ■ ALW0 - normal communication, no autonomous messages ■ ALW1 - normal communication, autonomous messages ■ ALW2 - autonomous messages received, logged on or not ■ INH - closes the connection and keeps the port from use (command must go to another port) (if the port is in use, this logs off the user) **Note:** Report Alarm should be turned on (set to ALWx) for the port currently used.
Auto-Log Off	Sets the number of minutes before the communication port disconnects through in-activity **Note:** Zero indicates auto-log off is disabled. Setting the auto-log off, between 1 and 255 minutes enables the attribute.
Parity	Specifies the parity checking on the communication port selections are EVEN, ODD, or NONE
Stop Bits	Specifies the number of stop bits being used by the communication port

Edit Comm Administration

The Edit Comm Administration screen allows you to configure the COM3 serial communication port. Use the following procedure to configure the port:

1. In the **Monitor** drop-down box, select INH to not view communication port messages or ALW to view communication port messages.

2. In the **Keep Alive** selection box, click the up or down arrow buttons to select the number of minutes (from 1 to 255) to control the delay in sending the COMPLD message. When the value is zero, no COMPLD message is sent.

3. In the End Of Text text box, enter any hex code from 1 to 9F or 0.
   Zero indicates no additional terminating character.

4. In the **Echo** drop-down box, select INH to not echo received characters or ALW to echo received characters. It is recommended that Echo be turned off (set to INH) for the port currently used.

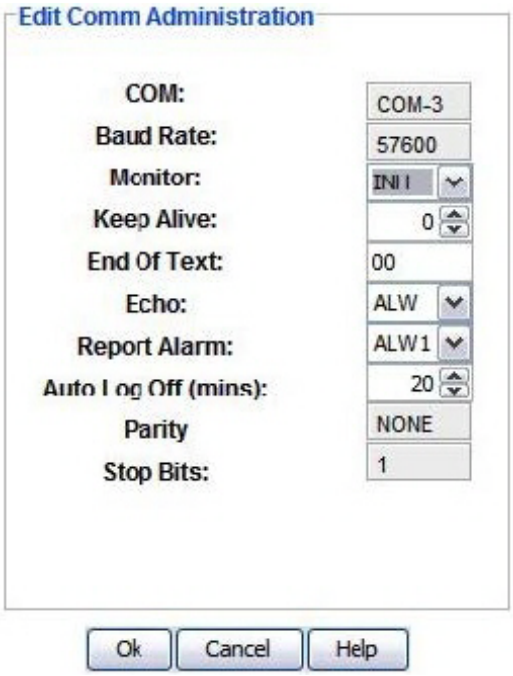
5. In the **Report Alarm** drop-down box, select INH to close the connection and keeps the port from use or ALW0, ALW1, or ALW2 to configure the port as follows:

- ALW0 - normal communication, no autonomous messages
- ALW1 - normal communication, autonomous messages

- ALW2 - autonomous messages received, logged on or not

6. In the **Auto Log Off (mins)** selection box, click the up or down arrow buttons to enter the number of minutes (from 1 to 255) to control the time limit before the communication port disconnects through in-activity. When the value is zero, auto-log off is disabled.

7. Click **OK** to accept changes and return to the Comm Administration screen, or click **Cancel** to not saving the changes and return to the Comm Administration screen.



IP Administration

Ports 5001, 5002, 5003, and 5004 are configured to act as though a serial-port communication terminal were connected to them. These ports communicate TL1 commands, responses, and autonomous messages.

Port 5551 communicates with Element Managers, which may have NMS, TimePictra, or similar software. An Element Manager establishes a connection with port 5551 for TL1 commands and responses.

Click **Edit** to change the configuration. The table below provides a description of each attribute.

IP Administration

IP:	IP-5551	IP-5001	IP-5002	IP-5003	IP-5004
Monitor:	INH	INH	INH	INH	INH
Keep Alive:	0	0	0	0	0
End Of Text:	00	00	00	00	00
Echo:	INH	ALW	ALW	ALW	ALW
Report Alarm:	ALW0	ALW1	ALW1	ALW1	ALW1
Auto Log Off (mins):	20	20	20	20	20
Software Flow Control	INH	INH	INH	INH	INH

Edit

Item	Description
Monitor	Controls the viewing of communication port messages selections are INH to not view communication port messages and ALW to view communication port messages
Keep Alive	Controls the sending of the COMPLD message in minutes **Note:** When the value is zero, no COMPLD message is sent. When the value is between 1 and 255, the COMPLD message is sent accordingly.
End Of Text	Numeric value of the ASCII character to be used as an additional terminating character Zero indicates no additional terminating character **Note:** The End of Text must be set to zero, `00', for the port currently used.
Echo	Controls the ability of the port to echo received characters selections are INH to not echo received characters and ALW to echo received characters **Note:** Echo should be turned off (set to INH) for the port currently used.

Report Alarm	Sets the communication port capabilities as follows: ■ ALW0 - normal communication, no autonomous messages ■ ALW1 - normal communication, autonomous messages ■ ALW2 - autonomous messages received, logged on or not ■ INH - closes the connection and keeps the port from use (command must go to another port) (if the port is in use, this logs off the user) **Note:** Report Alarm should be turned on (set to ALWx) for the port currently used.
Auto-Log Off (mins)	Sets the number of minutes before the communication port disconnects through in-activity **Note:** Zero indicates auto-log off is disabled. Setting the auto-log off, between 1 and 255 minutes enables the attribute.
Software Flow Control	Controls whether the port uses software flow control selections are INH to not use software flow control and ALW to use software flow control

Edit IP Administration

The Edit IP Administration screen allows you to configure ports 5551, 5001, 5002, 5003, and 5004. Use the following procedure to edit the IP administration configuration for each port.

1. In the **Monitor** drop-down box, select INH to not view port messages or ALW to view port messages.

2. In the **Keep Alive** selection box, click the up or down arrow buttons to select the number of minutes (from 1 to 255) to control the delay in sending the COMPLD message. When the value is zero, no COMPLD message is sent.

3. In the **Echo** drop-down box, select INH to not echo received characters or ALW to echo received characters. It is recommended that Echo be turned off (set to INH) for the port currently used.

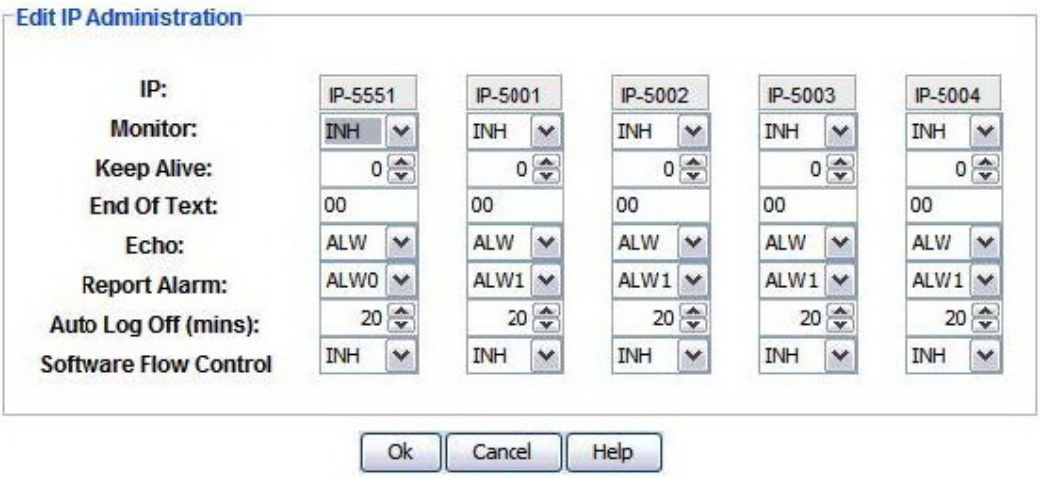
4. In the **Report Alarm** drop-down box, select INH to close the connection and keep the port from use or ALW0, ALW1, or ALW2 to configure the port as follows:

- ALW0 - normal communication, no autonomous messages
- ALW1 - normal communication, autonomous messages
- ALW2 - autonomous messages received, logged on or not

5. In the **Auto Log Off (mins)** selection box, click the up or down arrow buttons to enter the number of minutes (from 1 to 255) to control the time limit before the communication port disconnects through in-activity. When the value is zero, auto-log off is disabled.

6. In the **Software Flow Control** drop-down box, select INH to set the port to not use software flow control or ALW to set the port to use software flow control.

7. Click **OK** to accept changes and return to the IP Administration screen, or click **Cancel** to not saving the changes and return to the IP Administration screen.



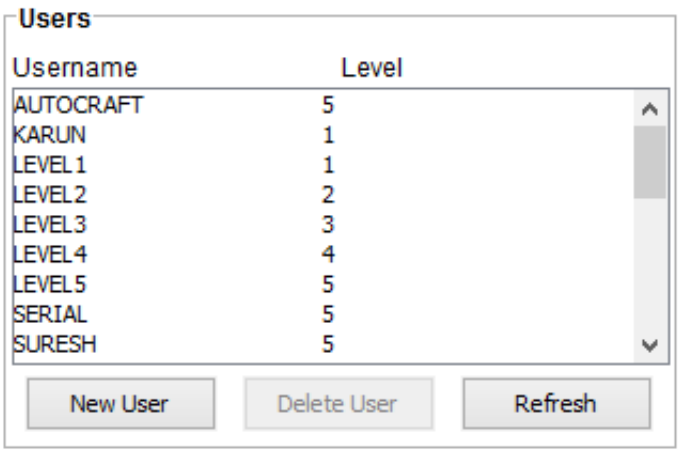
Security Administration

Security Administration

The Security Administration screen allows an administrator with level 5 access to associate one of five access security levels with each username. Each security access level grants the privileges of all lower levels plus additional privileges.

- Click **New User** to Add a user
- Click **Delete User** to delete the selected user. An "Are you sure?" dialog box appears before removing the user from the list.
- Click **Refresh** to update the user list.

Note: TimeSource 3x50 does not have an option to edit a user. To make changes to an existing user, you must delete the user and then add the user again.



Add a User

Use the following procedure to create a new user and refer to the table below for a description of each item:

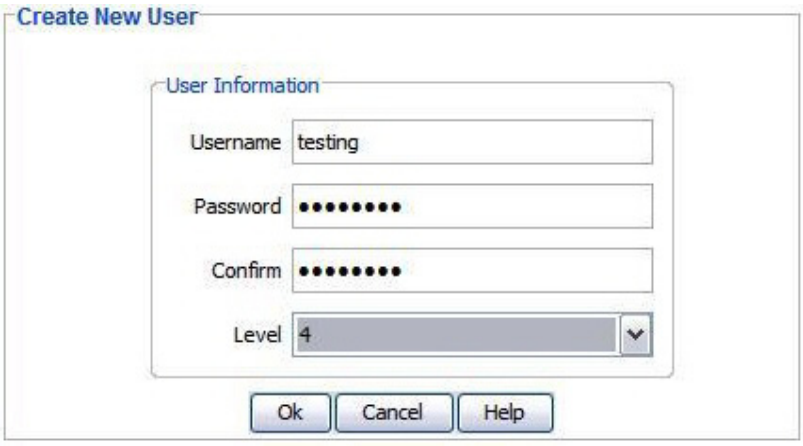
1. Enter a name in the **Username** text box.

2. Enter a password in the **Password** text box. Acceptable characters include the "printable" ASCII characters from 32 to 127 (0x20 to 0x7F).

3. Enter the same password again in the **Confirm** text box (Password and Confirm must match to create the user).

4. Select a level in the Level drop-down box.

5. Click **OK** to accept changes and return to the Security Administration screen, or **Cancel** to return to the Security Administration screen without saving changes.

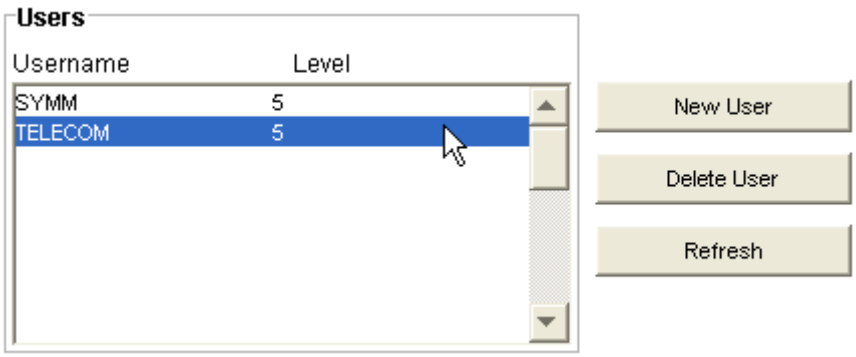


Item	Description
Username	Must start with an alpha character and have a maximum of 10 characters
Password	A minimum of 8 characters and a maximum of 10 characters Must contain at least one letter, one numeral, and one special character from the following: ! " $ % & ' ( ) * + - . / < > ? @ Password cannot be the same as Username even if extra characters are appended to password at the end
Access Level (1 - 5)	User access level used by a system administrator to assign a given level of access to system users. User access levels range from 1 to 5, with 1 being the lowest access level, and 5 being the highest access level. Level 5 allows users to enter or delete users.

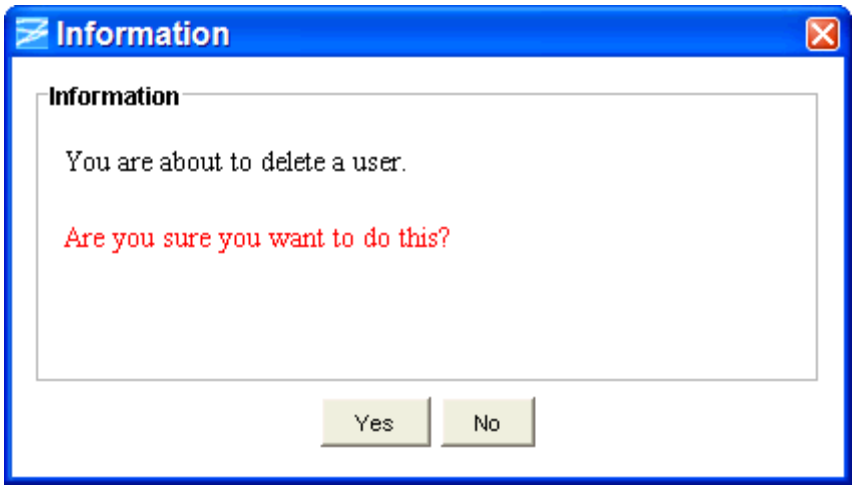
Delete a User

Use the following procedure to delete a user:

1. Select the Username in the list of users to be deleted.



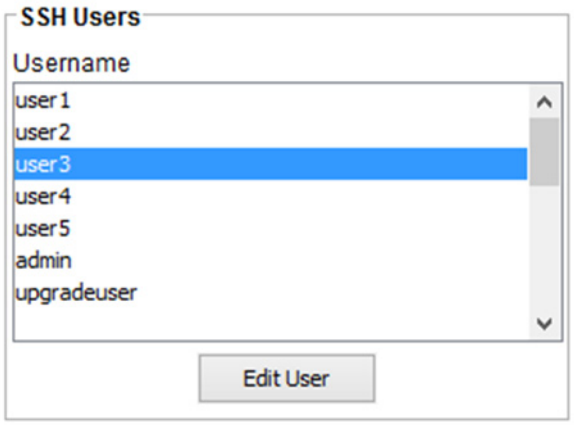
2. Click **Delete User**. The following screen appears.



3. If you want to delete the user, click **Yes**, or if you do not want to delete the user, click **No** to return to the Security Administration screen.

SSH User

The SSH User allows user to modify password of a selected SSH user. By default all SSH users will be listed and Edit User button will be disabled.



Note: Password of logged in SSH User can't be modified, Edit User button will be disabled.

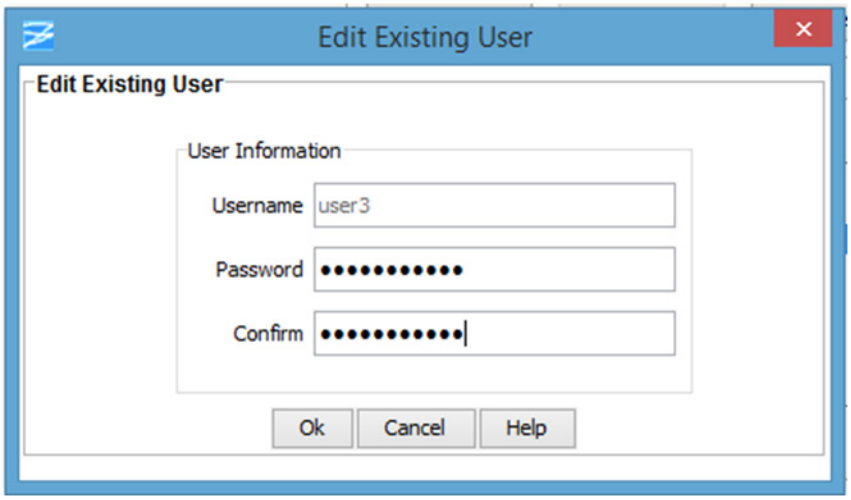
Edit User

Use the following procedure to edit a user and refer to the table below for description of each item:

1. Enter a password in the Password text box. Acceptable characters include the "printable" ASCII characters from 32 to 127 (0x20 to 0x7F)

2. Enter the same password again the Confirm text box (Password and Confirm must match)

3. Click OK to accept changes and return to the Security Administration screen, or Cancel to return to the Security Administration screen without saving changes



Item	Description
Password	A minimum of 8 characters and a maximum of 10 characters Must contain at least one letter, one numeral, and one special character from the following: - _ . ? ~ * Password cannot be the same as Username even if extra characters are appended to password at the end

Note: In some systems with older system software version (1.0 or previous versions), the SSH Users details will not be shown to user.

Ethernet Administration

Ethernet Administration

The Ethernet Administration screen displays the following information:

Ethernet Administration Description

Inactivity Timer - Time selection that a disconnect from the Element Manager occurs if an autonomous message is not developed during this number of 100-ms units of inactivity (0 to 10,000, where 0 deactivates the timer).

Network Element IP - Network Element IP address for the TimeSource.

Default Gateway IP - Gateway IP address for the TimeSource.

Subnetwork Element IP - Subnetwork Element IP address for the TimeSource.

Click **Edit** to change the Ethernet Administration configuration.

Element Manager Description

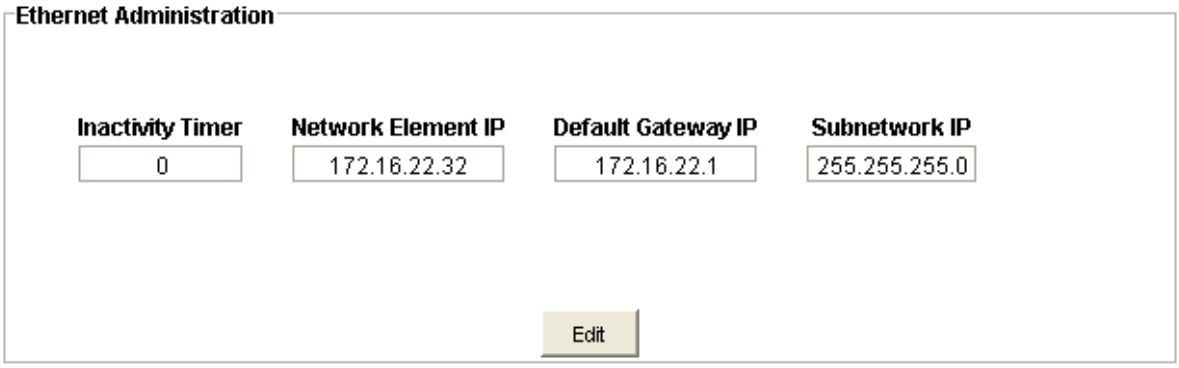
Primary IP Address - Primary Element IP address for the TimeSource.

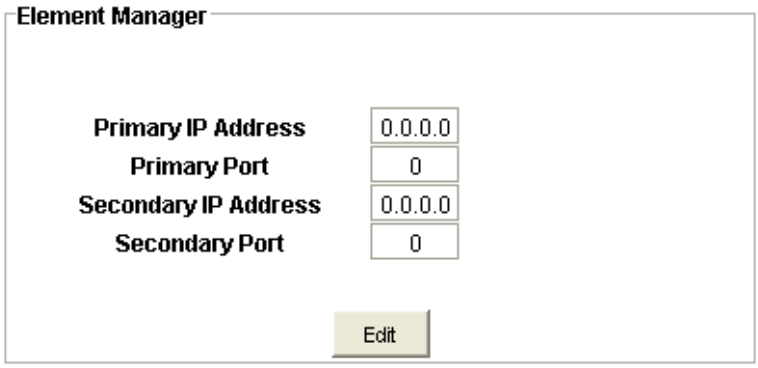
Primary Port - Port address for the primary element IP address for the TimeSource.

Secondary IP Address - Secondary Element IP address for the TimeSource.

Secondary Port - Port address for the secondary element IP address for the TimeSource.

Click **Edit** to change the Element Manager configuration.





Edit Ethernet Administration

Use the following procedure to change the Ethernet Administration configuration:

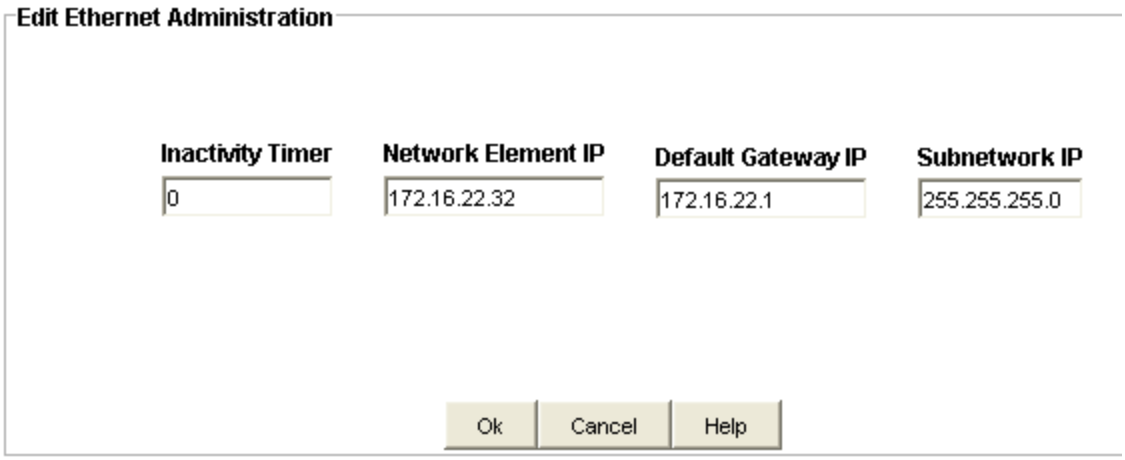
1. Enter a number from 0 to 10,000 in the **Inactivity Timer** entry box. This number multiplied by 100-ms equals the inactivity time. Zero deactivates the timer.

2. Enter the dotted decimal IP address in the **Network Element IP** entry box.

3. Enter the dotted decimal IP address in the **Default Gateway IP** entry box.

4. Enter the dotted decimal IP address in the **Subnetwork IP** entry box.

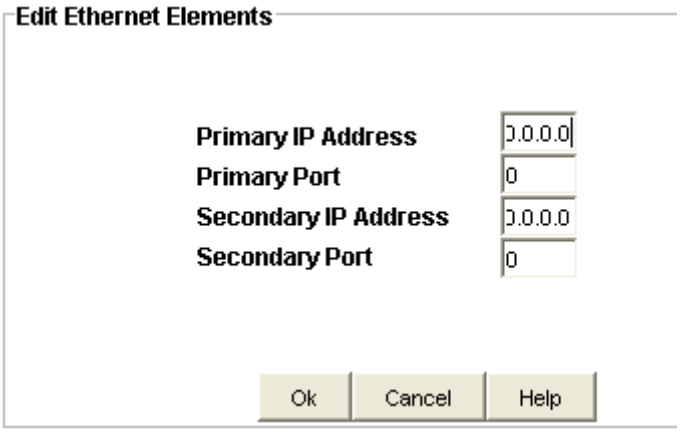
5. Click **OK** to accept the configuration changes and return to the Ethernet Administration screen, or **Cancel** to return to the Ethernet Administration screen without saving the configuration changes.



Edit Ethernet Elements

Use the following procedure to change the Ethernet Elements configuration:

1. Enter the dotted decimal IP address in the **Primary IP Address** entry box.
2. Enter the port number into the **Primary Port** entry box.
3. Enter the dotted decimal IP address in the **Secondary IP Address** entry box.
4. Enter the port number into the **Secondary Port** entry box.
5. Click **OK** to accept the configuration changes and return to the Element Manager screen, or **Cancel** to return to the Element Manager screen without saving the configuration changes.



System View

System View Screen

The System View screen shows the system status with the LEDs displaying in real-time to indicate changes on the TimeSource 3x50. The LED color code is described in the table below.

Click **Refresh** to update the System view.

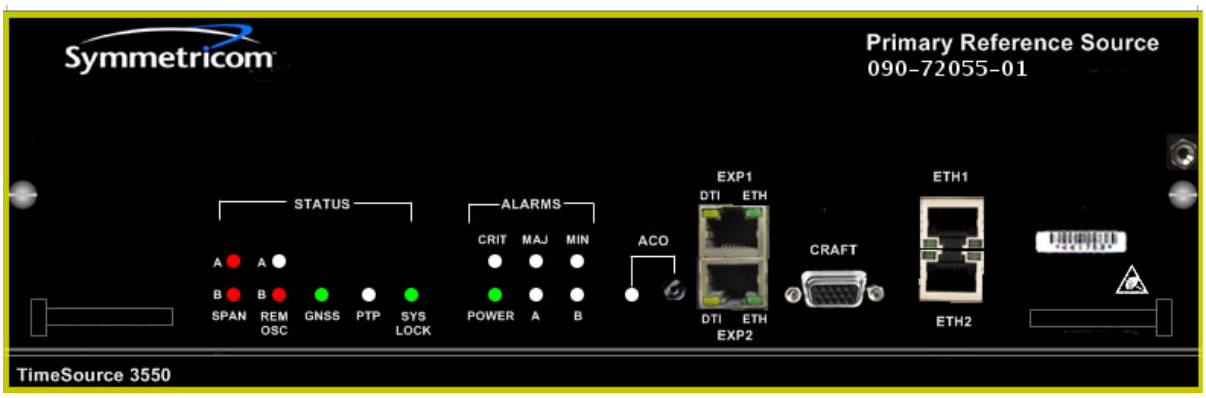


Table 6-1. LED Descriptions

Name	State	Description	Action
Status SPAN	Off	This input has not been entered via the ENT-EQPT command, so it is disabled.	Enable the input with the ENT-EQPT command.
	Green	This input has been entered via the ENT-EQPT command, qualified as a valid reference, and is the selected frequency reference.	None required.
	Blinking Green	This input has been entered via the ENT-EQPT command, qualified as a valid reference, but is not the selected frequency reference.	None required.
	Amber	This input has been entered via the ENT-EQPT command, is physically good, but is not qualified as a valid reference.	None required.
	Red	This input has been entered via the ENT-EQPT command, but it has been disqualified.	Troubleshoot the specified input SPAN (check the source).
Status REM OSC	Off	This input has not been entered via the ENT-EQPT command, so it is disabled.	Enable the input with the ENT-EQPT command.
	Green	This input has been entered via the ENT-EQPT command, qualified as a valid reference, and is the selected frequency reference.	None required.
	Blinking Green	This input has been entered via the ENT-EQPT command, qualified as a valid reference, but is not the selected frequency reference.	None required.
	Amber	This input has been entered via the ENT-EQPT command, is physically good, but is not qualified as a valid reference.	None required.
	Red	This input has been entered via the ENT-EQPT command.	Troubleshoot the specified remote oscillator input (check the source).

Table 6-1. LED Descriptions (Continued)

Name	State	Description	Action
Status GNSS	Off	Input is disabled.	If in warm-up, none required. If there is no power, apply power.
	Green	Input is the selected reference.	None required.
	Blinking Green	Input is qualified but not selected.	None required.
	Amber	Input is disqualified because UTC time is not valid	None required.
	Red	TWT antenna not present or antenna has alarm(s)	Refer to "Troubleshooting with Error Messages" in the user's guide to determine which type and combination of antenna alarms exist, and the recommended action.
Status SYS	Off	System is in warm-up mode or is not powered.	If in warm-up, none required. If there is no power, apply power.
	Green	The output signal is PRS.	None required.
	Red	The system has been in holdover per the user alarm setting, or there is a hardware fault.	Refer to "Troubleshooting with Error Messages" in the user's guide to determine which type and combination of alarms exist, and the recommended action.
Status PTP	Off	Not implemented in this release	N/A
Alarms CRIT	Off	There is no critical alarm.	None required.
	Red	A critical alarm has occurred because of a hardware failure.	Replace the plug-in card.
Alarms MAJ	Off	There is no major alarm.	None required.
	Red	The system has been in holdover per the user alarm setting.	Refer to "Troubleshooting with Error Messages" in the user's guide to determine which type and combination of antenna alarms exist, and the recommended action.

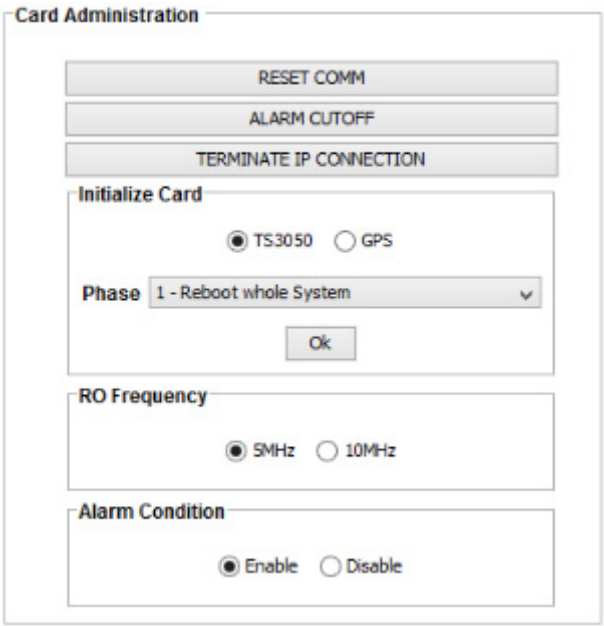
Table 6-1. LED Descriptions (Continued)

Name	State	Description	Action
Alarms MIN	Off		N/A
	Amber	One of the following four alarms has occurred.	
		A minor alarm has occurred because Battery A or B has failed.	Troubleshoot and repair the specified -48 V battery input
		A minor alarm has occurred because a software download is required.	Refer to "Troubleshooting with Error Messages" in the user's guide to determine which software needs to be downloaded and the recommended action.
		A minor alarm has occurred because an event (GPS error, temperature error, or span input problem) has escalated to a minor alarm.	Refer to "Troubleshooting with Error Messages" in the user's guide to determine which event occurred and the recommended action.
		A minor alarm has occurred because the antenna failed.	Refer to "Troubleshooting with Error Messages" in the user's guide to determine whether the minor alarm is due to antenna failure and the recommended action.
ACO (Lamp)	Off	The alarm cutoff function has not been activated.	None required. Press the ACO pushbutton to silence all audible alarms.
	Green	The alarm cutoff function has been activated.	None required.

Card Administration

Clicking the functions on the Card Administration screen allows you to perform the functions described in the following table:

Function	Description
INITIALIZE CARD	Resets the TimeSource card or GNSS to its default factory-set values. ■ Phase 1: Reboot whole system (both main board and GNSS Two Way Timing (TWT) antenna system ■ Phase 2: Reboot main board ■ Phase 3: Reboot GNSS-TWT antenna system ■ Phase 4: Restore Default configuration and then reboot ■ Phase 5: Restore Factory configuration and then reboot
ALARM CUTOFF	Disables alarms
RESET COMM	Resets the TL1 interfaces
TERMINATE IP CONNECTION	Terminates the IP session. A Confirmation window displays a warning that data may change if you precede. Click **OK** to terminate the session or click **Cancel** to close the window without terminating the session.
RO Frequency	Allows you to select the remote oscillator frequency either 5 MHZ or 10 MHz.
Alarm Condition	Select to Enable or Disable the alarm condition.



Note: In some systems with older system software version (1.0 or previous versions), the RESET COMM button will not be shown to user.

Logical View

Logical View Screen

The Logical View shows the status of the TimeSource received external inputs, the generated outputs, the active synchronization path, and depicts the current status.

The TimeSource 3x50 accepts the following inputs:

- GPS
- Span-A
- Span-B
- Remote Oscillator A
- Remote Oscillator B

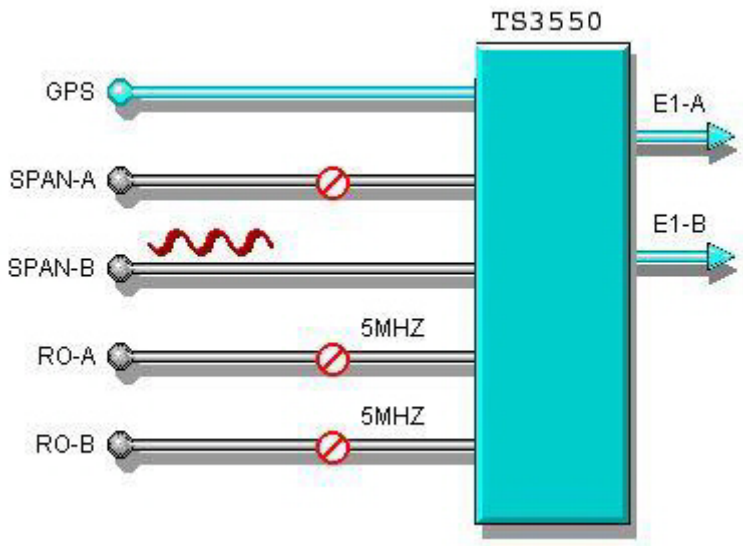
Note: The TS3050 does not accept Remote Oscillator inputs.

See inputs for an explanation of the input graphics shown in the following figure.

The TimeSource 3x50 provides two equipment outputs: either T1 or E1 depending on the system.

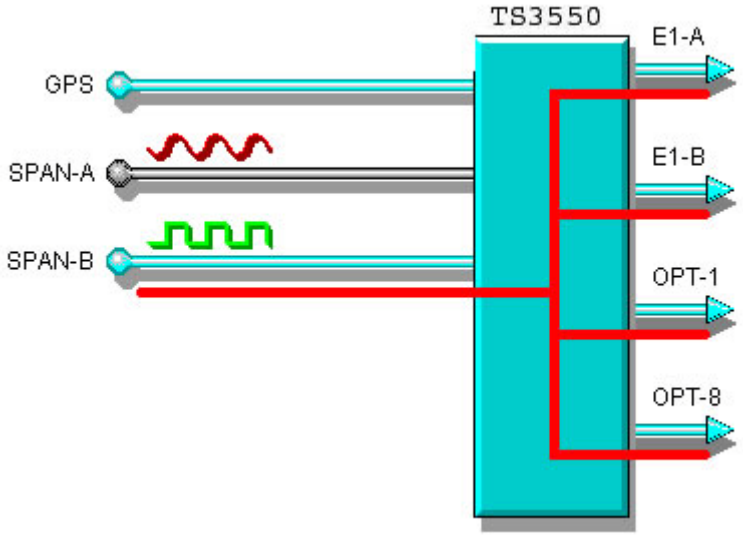
See outputs for an explanation of the output graphics shown in the following figure.

The TimeSource 3x50 may also have eight optional outputs (see the corresponding user's guide for details).



Synchronization Path

The logical view shows the active synchronization trail through the element. As shown below highlighted in red, the active input sync in this example is on the SPAN-B input. This path is updated in real time when changes occur.

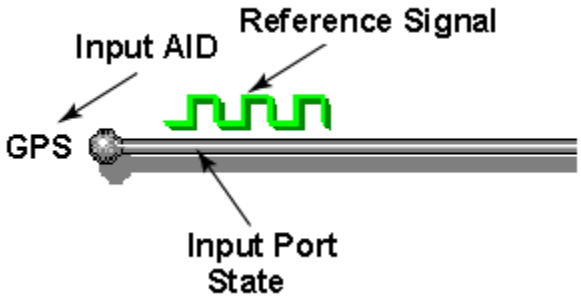


Input

Each Input is made up of four elements:

- Input AID
- Reference Signal

- Input Port Priority
- Reference Description



These elements illustrate the state of the input and are updated in real time. The following tables describe each element.

Input AID	Explanation
GPS, SPAN-A, SPAN-B, Remote Oscillator A, and Remote Oscillator B.	The AID of the input. **Note:** The TS3050 accepts only the GPS, SPAN-A, and SPAN-B inputs.

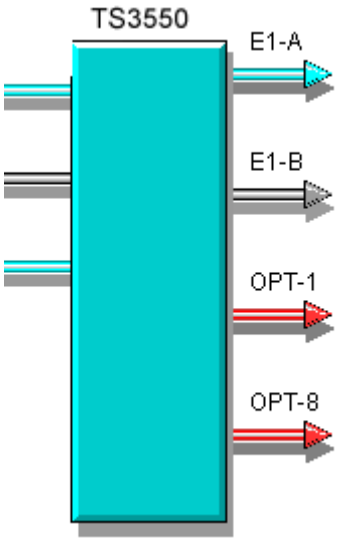
Outputs

The TimeSource 3x50 provides two equipment outputs: either T1 or E1 depending on the system.

The TimeSource 3x50 may also have eight optional outputs (see the corresponding user's guide for details).

The outputs are color coded as follows:

- Green indicates ENABLED (providing an output signal)
- Grey indicates DISABLED (not providing an output signal)
- Red indicates alarm state

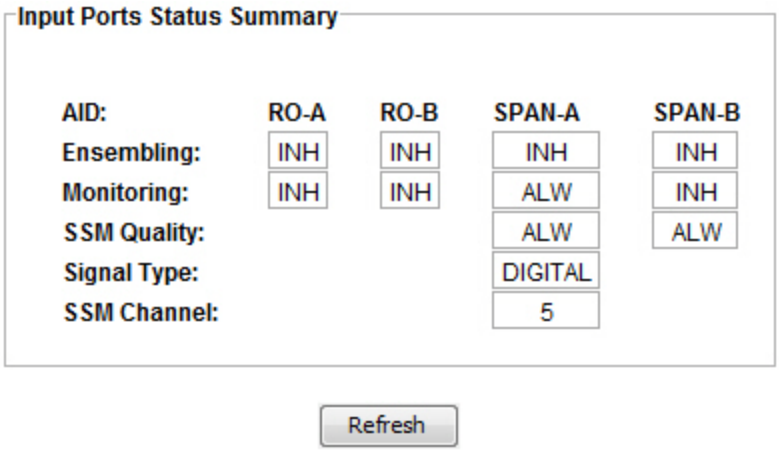


Inputs

Input Ports Status Summary

The Input Port Status Summary screen displays the SPAN-A and SPAN-B port configuration as follows:

- **AID:** - Access identifier for the object.
- **Ensembling:** - ALW indicates the input is ensembled. INH indicates the input is not ensembled.
- **Monitoring:** - ALW indicates the input is monitored. INH indicates the input is not monitored.
- **SSM Quality:** - ALW indicates the SSM message is used to qualify input. INH indicates the SSM message is not used to qualify input.
- **Signal Type:** - ANALOG indicates an analog input signal of 2.048 MHz and DIGITAL indicates a digital input signal of 2.048 Mb/s.
- **SSM Channel:** - Indicates the SSM Channel setting of 4, 5, 6, 7, or 8. For example, 5 uses the Sa5 bit.
- **Refresh** - Click **Refresh** to update the display.

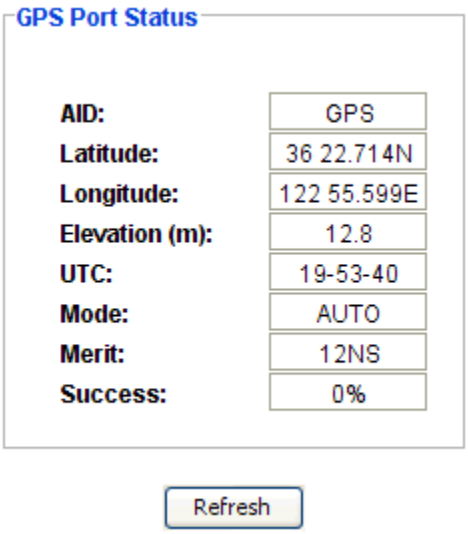


GPS

GPS Ports Status

The GPS Port Status screen displays the port configuration as follows:

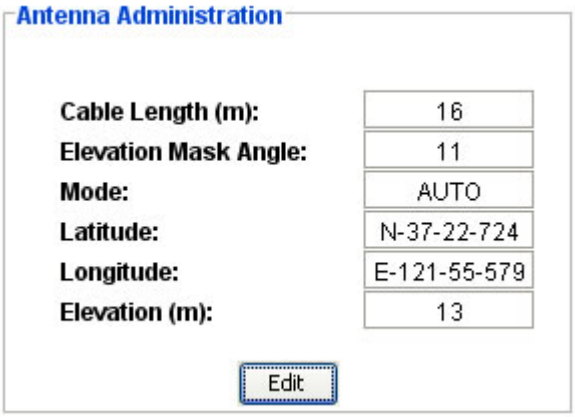
- **AID:** - Access identifier for the object.
- **Latitude:** - Current latitude (north or south) in degrees, minutes, and decimal-fractions of a minute.
- **Longitude:** - Current longitude (east or west) in degrees, minutes, and decimal-fractions of a minute.
- **Elevation (m):** - Altitude in meters to the thousandth of a meter, referenced to mean sea level.
- **UTC:** - Universal Coordinated Time in hours (00 to 23), minutes (00 to 59), and seconds (00 to 59).
- **Mode:** - AUTO indicates automatic survey-in mode, MANUAL indicates manual survey-in mode.
- **Merit:** - Timing error estimate in nanoseconds.
- **Success:** - Percentage of time satellites are visible.
- **Refresh:** - Click **Refresh** to update the display.



Antenna Administration

The Antenna Administration screen shows the antenna configuration as described in the table below.

Click **Edit** to change the configuration.



Item	Description
Cable Length:	Antenna cable length in meters (0 to 300)
Elevation Mask Angle:	Antenna elevation mask angle in degrees (0 to 45)
Mode:	AUTO indicates automatic survey-in mode MANUAL indicates manual survey-in mode. Only use Auto mode with roof antenna configuration. Only use Manual mode with wall antenna configuration.

Latitude:	Current latitude of antenna ■ Direction: North or South ■ Degrees: 0 to 179 ■ Minutes: 0 to 59 ■ Digital Seconds: 0 to 999
Longitude:	Current longitude of antenna ■ Direction: East or West ■ Degrees: 0 to 179 ■ Minutes: 0 to 59 ■ Digital Seconds: 0 to 999
Elevation:	Height of antenna above sea level in meters (0 to 8000).

Edit Antenna Administration

Use the following procedure to change the Antenna configuration. The table below describes the configuration settings.

1. In the **Cable Length:** selection box, enter a number from 0 to 300 or click the up or down arrow buttons to select the antenna cable length in meters.

2. In the **Elevation Mask Angle:** selection box, enter a number from 0 to 45 or click the up or down arrow buttons to select a number.

3. In the **Mode:** selection box, select Auto or Manual.

4. In the **Latitude:** selection box, select N or S.

   – For **Degrees:** enter a number from 0 to 179 or click the up or down arrow buttons to select a number.

   – For **Minutes:** enter a number from 0 to 59 or click the up or down arrow buttons to select a number.

   – For **Digital Seconds**: enter a number from 0 to 999 or click the up or down arrow buttons to select a number.

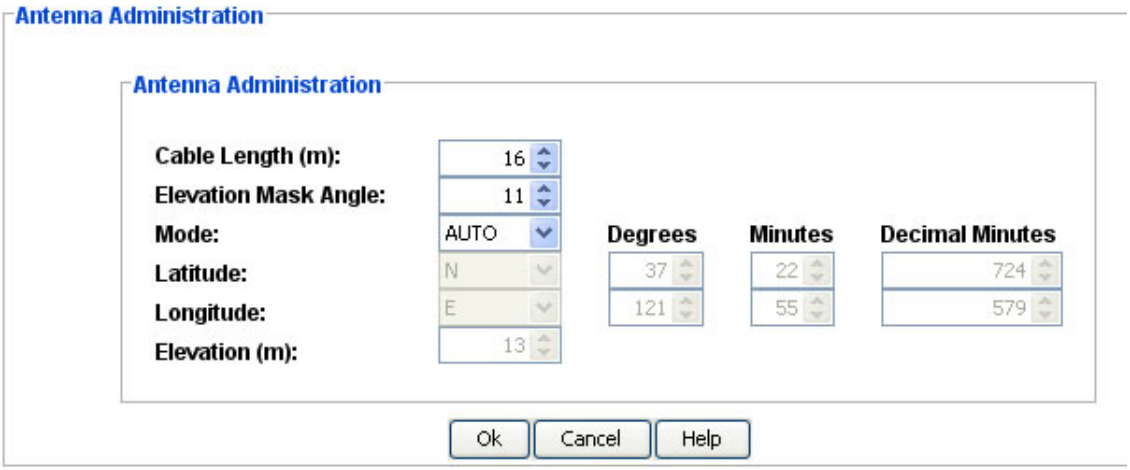
5. In the **Longitude:** selection box, select E or W.

   – For **Degrees:** enter a number from 0 to 179 or click the up or down arrow buttons to select a number.

   – For **Minutes:** enter a number from 0 to 59 or click the up or down arrow buttons to select a number.

   – For **Digital Seconds**: enter a number from 0 to 999 or click the up or down arrow buttons to select a number.

6. In the **Elevation (m):** selection box, enter a number from 0 to 8000 or click the up or down arrow buttons to select a number.

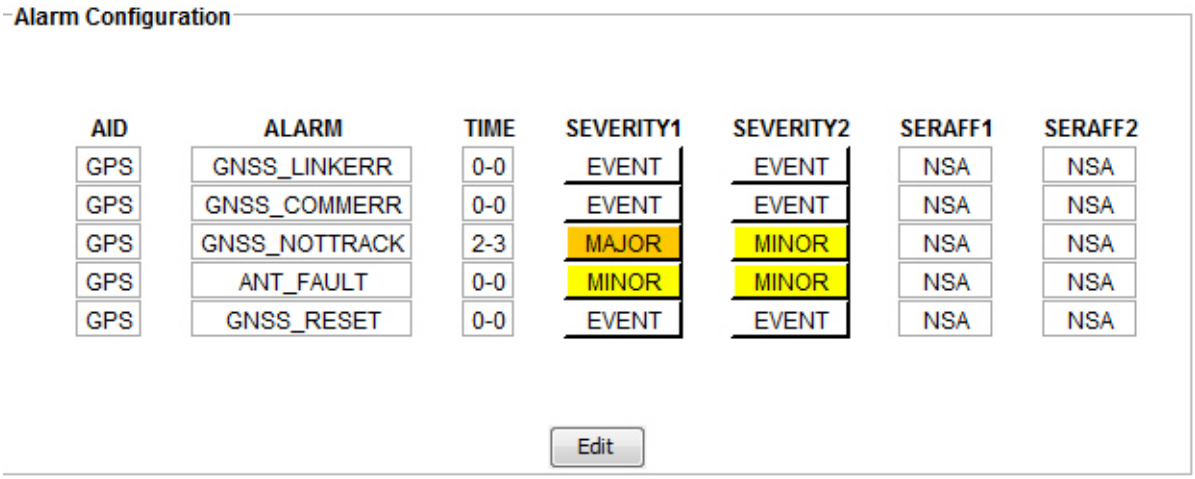


GPS Alarm Configuration

The Alarm Configuration screen provides a view of the configuration settings for GPS.

You can set the parameters for TIME, SEVERITY1, and SERAFF1, which initially come into effect when the condition is detected, and you can set the parameters for SEVERITY2 and SERAFF2, which come into effect after a specified time.

Click **Edit** to change the settings.



Edit Alarm GPS Configuration

Use the following procedure to set the alarm GPS configuration:

1. In the HRS drop-down box, select the number of hours (from 0 to 999) before the alarm is escalated.

2. In the MINS drop-down box, select the number of minutes (from 0 to 59) in addition to the hours set in step 1 before the alarm is escalated.

3. In the SEVERITY1 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

4. In the SEVERITY2 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

5. In the SERAFF1 drop-down box, select SA or NSA.

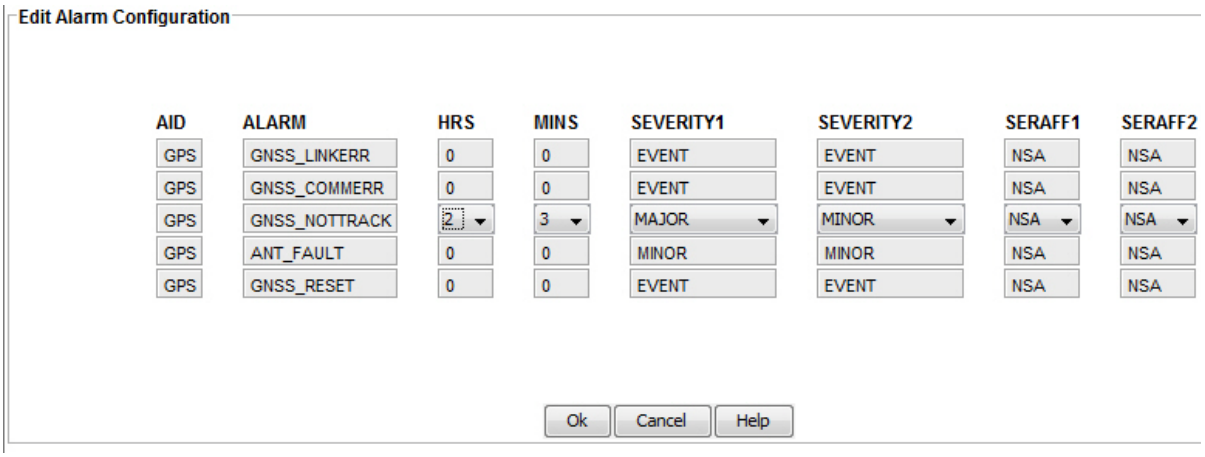
6. In the SERAFF2 drop-down box, select SA or NSA.

7. Click **OK** to accept the configuration changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving the configuration changes.

EVENT is a state that does not cause an alarm

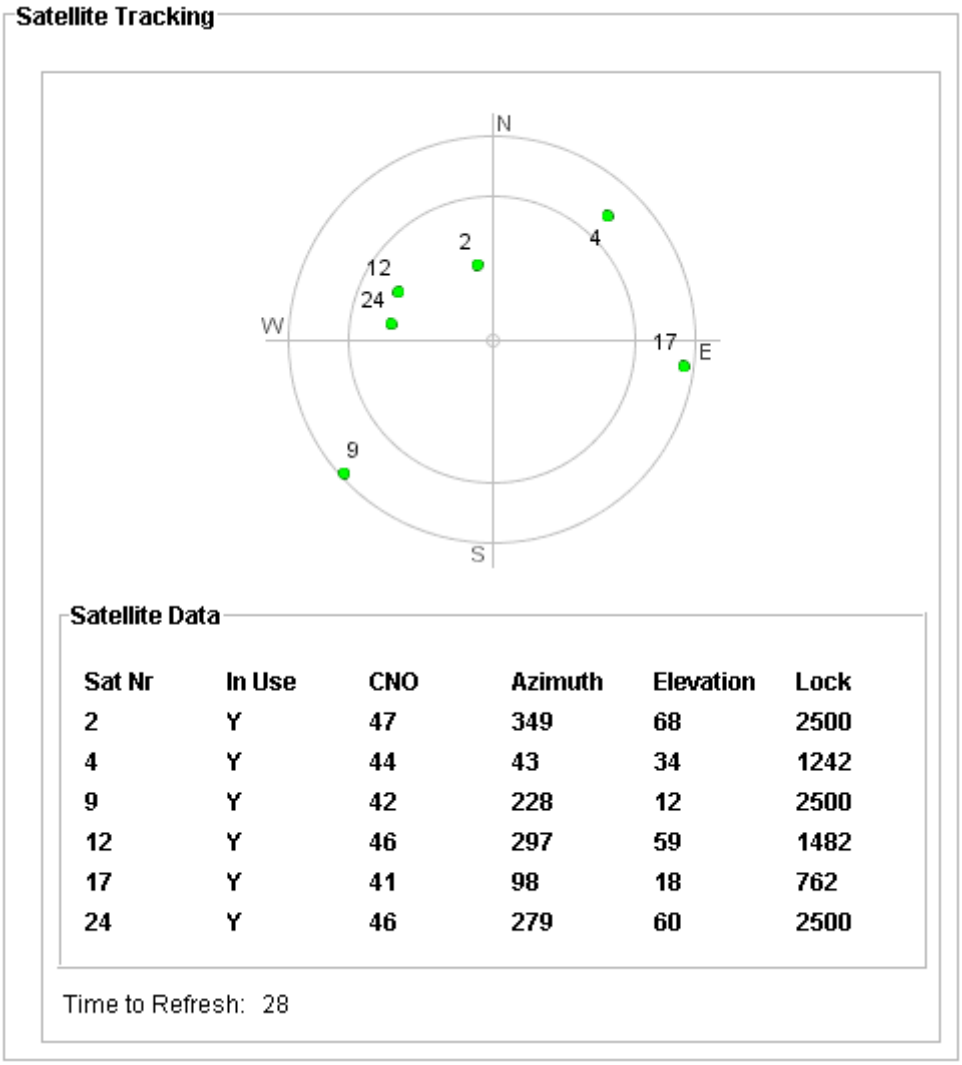
SA indicates a Service-Affecting alarm

NSA indicates a Non-Service-Affecting alarm



Satellite Tracking

The Satellite Tracking screen provides a graphical view of the satellites being tracked. Satellite data is described in the table below.



Item	Description
Sat Nr	Satellite identification number
In Use	Satellite in use
CNO	Satellite carrier-to-noise ratio
Azimuth	Satellite azimuth in degrees
Elevation	Satellite elevation in degrees
Lock	Number of seconds (1 to 2500) since the receiver locked to the satellite carrier

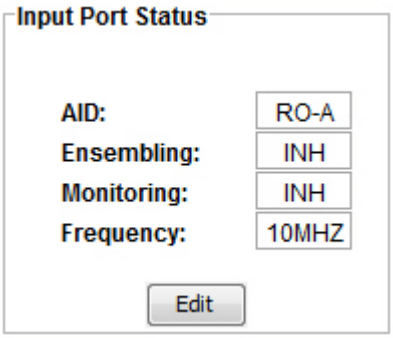
RO-A

RO-A Input Port Status

The Input Port Status screen for RO-A displays the RO-Aport configuration as follows:

- **AID:** - Access identifier for the object.
- **Ensembling:** - ALW indicates the input is ensembled. INH indicates the input is not ensembled.
- **Monitoring:** - ALW indicates the input is monitored. INH indicates the input is not monitored.
- **Frequency:** - Indicates the selected frequency, either 5 MHz or 10 MHz.

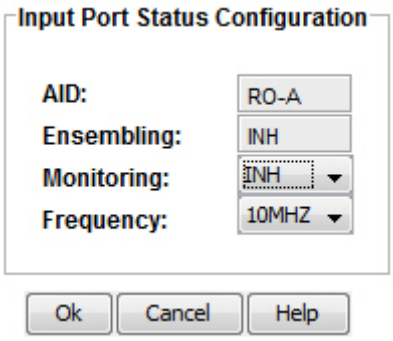
Click **Edit** to change the port set up.



Edit RO-A Input Port Status

Use the following steps to change the RO-A input port configuration. The configuration settings are described in the table below.

1. Select ALW or INH in the **Monitoring:** drop-down box.
2. Select 5MHZ or 10 MHZ in the **Frequency:** drop-down box.
3. Click **OK** to accept changes and return to the Input Port Status screen, or **Cancel** to return to the Input Port Status screen without saving changes.



Item	Description
AID:	Access identifier for the object
Ensembling:	ALW indicates the input is ensembled. INH indicates the input is not ensembled. This cannot be edited.
Monitoring:	ALW indicates the input is monitored. INH indicates the input is not monitored
Frequency:	Selects either 5 MHz or 10 MHz input frequency

RO-A Alarm Configuration

The Alarm Configuration screen for RO-A provides a view of the configuration settings for LOS and Error alarms.

You can set the parameters for SEVERITY1 and SERAFF1 which initially come into effect when the condition is detected, and you can set the parameters for SEVERITY2 and SERAFF2 which come into effect after a specified time.

Click **Edit** to change the settings.

Edit RO-A LOS and Error Alarm Configuration

Use the following procedure to set the LOS and Error alarm configuration for RO-A:

1. In the HRS drop-down box, select the number of hours (0 to 999) after a condition is initially detected that a major alarm with a service affecting flag is generated.

2. In the MINS drop-down box, select the number of minutes (0 to 59) in addition to the number of hours set in step 1 after a condition is initially detected that a major alarm with a service affecting flag is generated.

3. In the SEVERITY1 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

4. In the SEVERITY2 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

5. In the SERAFF1 drop-down box, select SA or NSA.

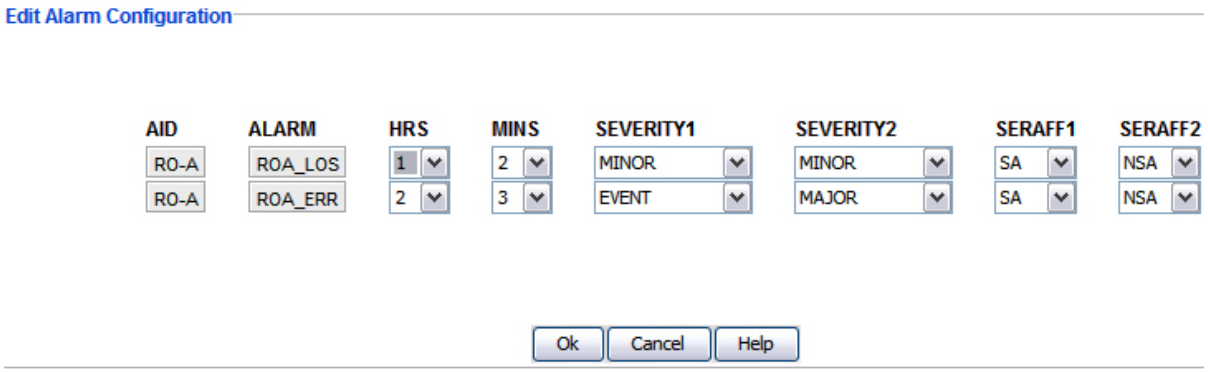
6. In the SERAFF2 drop-down box, select SA or NSA.

7. Click **OK** to accept the configuration changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving the configuration changes.

EVENT is a state that does not cause an alarm

SA indicates a Service-Affecting alarm

NSA indicates a Non-Service-Affecting alarm



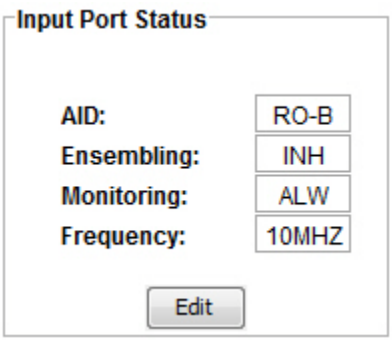
RO-B

RO-B Input Port Status

The Input Port Status screen for RO-B displays the RO-B port configuration as follows:

- **AID:** - Access identifier for the object.
- **Ensembling:** - ALW indicates the input is ensembled. INH indicates the input is not ensembled.
- **Monitoring:** - ALW indicates the input is monitored. INH indicates the input is not monitored.
- **Frequency:** - Indicates the selected frequency, either 5 MHz or 10 MHz.

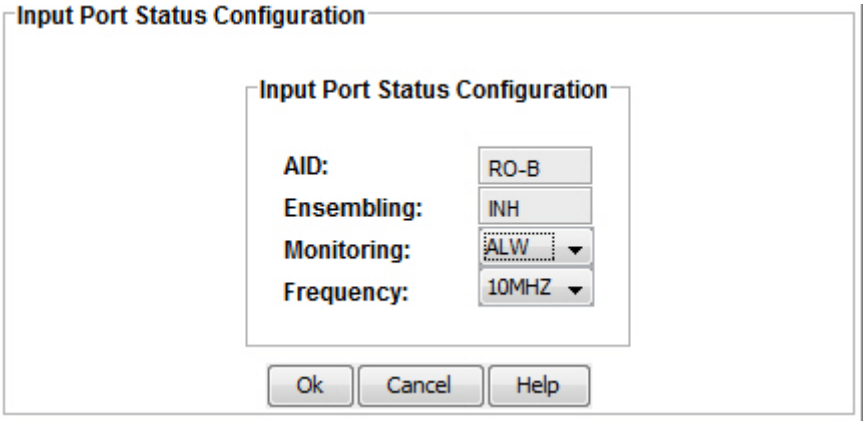
Click **Edit** to change the port set up.



Edit RO-B Input Port Status

Use the following steps to change the RO-B input port configuration. The configuration settings are described in the table below.

1. Select ALW or INH in the **Monitoring:** drop-down box.
2. Select 5MHZ or 10 MHZ in the **Frequency:** drop-down box.
3. Click **OK** to accept changes and return to the Input Port Status screen, or **Cancel** to return to the Input Port Status screen without saving changes.



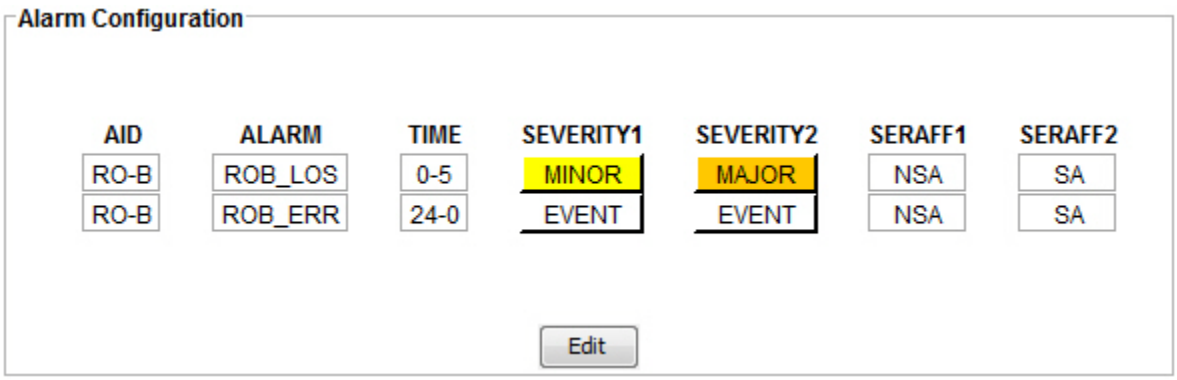
Item	Description
AID:	Access identifier for the object
Ensembling:	ALW indicates the input is ensembled. INH indicates the input is not ensembled. This cannot be edited.
Monitoring:	ALW indicates the input is monitored. INH indicates the input is not monitored
Frequency:	Selects either 5 MHz or 10 MHz input frequency

RO-B Alarm Configuration

The Alarm Configuration screen for RO-B provides a view of the configuration settings for LOS and Error alarms.

You can set the parameters for SEVERITY1 and SERAFF1 which initially come into effect when the condition is detected, and you can set the parameters for SEVERITY2 and SERAFF2 which come into effect after a specified time.

Click **Edit** to change the settings.



Edit RO-B LOS and Error Alarm Configuration

Use the following procedure to set the LOS and Error alarm configuration for RO-B:

1. In the HRS drop-down box, select the number of hours (0 to 999) after a condition is initially detected that a major alarm with a service affecting flag is generated.

2. In the MINS drop-down box, select the number of minutes (0 to 59) in addition to the number of hours set in step 1 after a condition is initially detected that a major alarm with a service affecting flag is generated.

3. In the SEVERITY1 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

4. In the SEVERITY2 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

5. In the SERAFF1 drop-down box, select SA or NSA.

6. In the SERAFF2 drop-down box, select SA or NSA.

7. Click **OK** to accept the configuration changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving the configuration changes.

EVENT is a state that does not cause an alarm

SA indicates a Service-Affecting alarm

NSA indicates a Non-Service-Affecting alarm

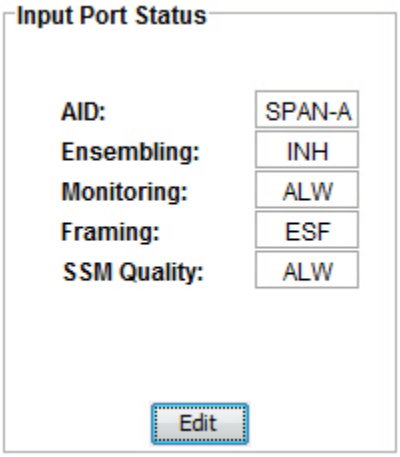
SPAN A

Input Port Status

The Input Port Status screen displays the SPAN-A port configuration as follows:

- **AID:** - Access identifier for the object.
- **Ensembling:** - ALW indicates the input is ensembled. INH indicates the input is not ensembled.
- **Monitoring:** - ALW indicates the input is monitored. INH indicates the input is not monitored.
- **Framing:** - Framing format of input signal. ESF and D4 are for T1 input. CAS, CAS4, CCS, CCS4, and NONE are for E1 input.
- **SSM Quality:** - ALW indicates the SSM message is used to qualify input. INH indicates the SSM message is not used to qualify input.

Click **Edit** to change the port set up.

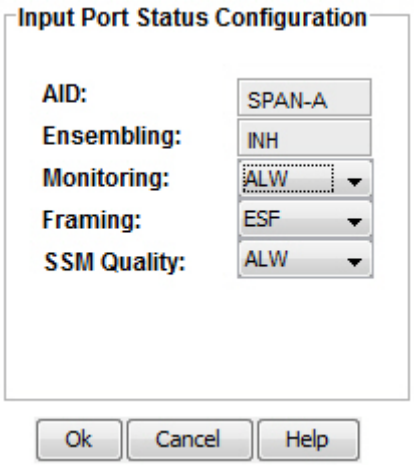


Edit Input Port Status

Use the following steps to change the SPAN-A input port configuration. The configuration settings are described in the table below.

Note: The **Monitoring:** configuration must be set to ALW before you can configure **SSM Quality:**.

1. Select ALW or INH in the **Monitoring:** drop-down box.
2. Select ESF, D4, CAS, CAS4, CCS, CCS4, or NONE in the **Framing:** drop-down box.
3. Select ALW or INH in the **SSM Quality:** drop-down box.
4. Click **OK** to accept changes and return to the Input Port Status screen, or **Cancel** to return to the Input Port Status screen without saving changes.



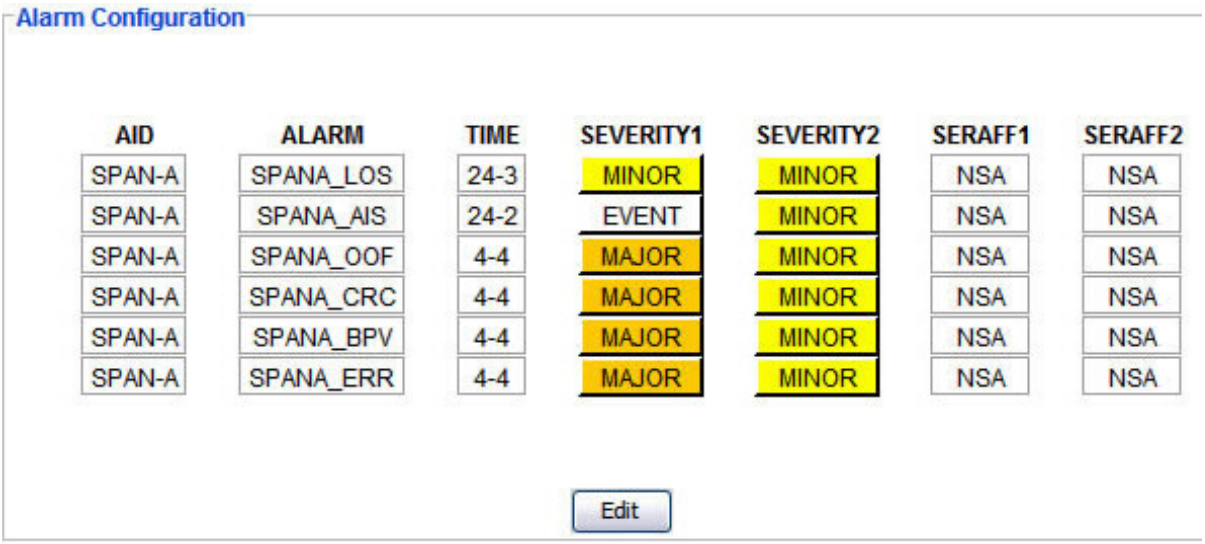
Item	Description
AID:	Access identifier for the object
Ensembling:	ALW indicates input is ensembled. INH indicates input is not ensembled. This cannot be edited.
Monitoring:	ALW indicates the input is monitored. INH indicates the input is not monitored
Framing:	ESF or D4 for T1. CAS, CAS4, CCS, CCS4, or NONE for E1
SSM Quality:	ALW indicates the SSM message is used to qualify input. INH indicates the SSM message is not used to qualify input

SPAN-A Alarm Configuration

The SPAN-A Alarm Configuration screens provide a view of the configuration settings for LOS, AIS, OOF, CRC, BPV, and Error alarms.

You can set the parameters for SEVERITY1 and SERAFF1 which initially come into effect when the condition is detected, and you can set the parameters for SEVERITY2 and SERAFF2 which come into effect after a specified time.

Click **Edit** to change the settings.



Edit SPAN-A Alarms Configuration

Use the following procedure to set the configuration for LOS, AIS, OOF, CRC, BPV, and Error alarms:

1. In the HRS drop-down box, select the number of hours (0 to 999) after a condition is initially detected that a major alarm with a service affecting flag is generated.

2. In the MINS drop-down box, select the number of minutes (0 to 59) in addition to the number of hours set in step 1 after a condition is initially detected that a major alarm with a service affecting flag is generated.

3. In the SEVERITY1 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

4. In the SEVERITY2 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

5. In the SERAFF1 drop-down box, select SA or NSA.

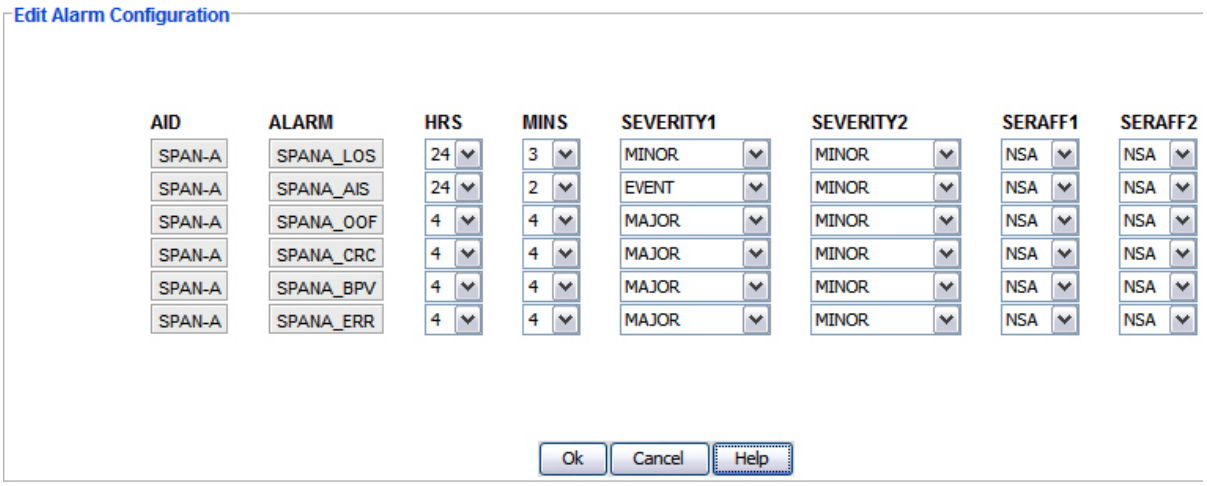
6. In the SERAFF2 drop-down box, select SA or NSA.

7. Click **OK** to accept the configuration changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving the configuration changes.

EVENT is a state that does not cause an alarm

SA indicates a Service-Affecting alarm

NSA indicates a Non-Service-Affecting alarm



SPAN B

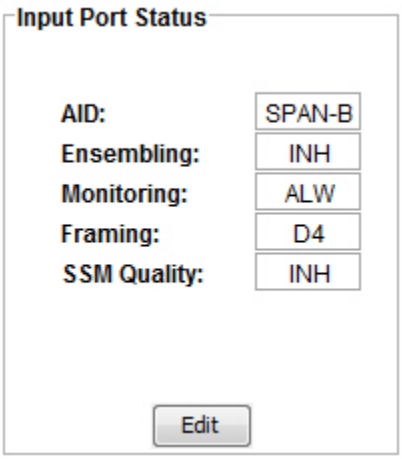
Input Port Status

The Input Port Status screen displays the SPAN-B port configuration as follows:

- **AID:** - Access identifier for the object.

- **Ensembling:** - ALW indicates the input is ensembled. INH indicates the input is not ensembled.
- **Monitoring:** - ALW indicates the input is monitored. INH indicates the input is not monitored.
- **Framing:** - Framing format of input signal. ESF and D4 are for T1 input. CAS, CAS4, CCS, CCS4, and NONE are for E1 input.
- **SSM Quality:** - ALW indicates the SSM message is used to qualify input. INH indicates the SSM message is not used to qualify input.

Click **Edit** to change the port set up.

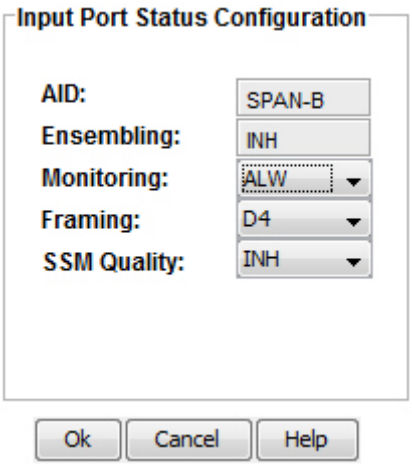


Edit Input Port Status

Use the following steps to change the SPAN-B input port configuration. The configuration settings are described in the table below.

Note: The **Monitoring:** configuration must be set to ALW before you can configure **SSM Quality:**.

1. Select ALW or INH in the **Monitoring:** drop-down box.
2. Select ESF, D4, CAS, CAS4, CCS, CCS4, or NONE in the **Framing:** drop-down box.
3. Select ALW or INH in the **SSM Quality:** drop-down box.
4. Click **OK** to accept changes and return to the Input Port Status screen, or **Cancel** to return to the Input Port Status screen without saving changes.



Item	Description
AID:	Access identifier for the object
Ensembling:	ALW indicates input is ensembled. INH indicates input is not ensembled. This cannot be edited.
Monitoring:	ALW indicates the input is monitored. INH indicates the input is not monitored
Framing:	ESF or D4 for T1. CAS, CAS4, CCS, CCS4, or NONE for E1
SSM Quality:	ALW indicates the SSM message is used to qualify input. INH indicates the SSM message is not used to qualify input

SPAN-B Alarm Configuration

The SPAN-B Alarm Configuration screens provide a view of the configuration settings for LOS, AIS, OOF, CRC, BPV, and Error alarms.

You can set the parameters for SEVERITY1 and SERAFF1 which initially come into effect when the condition is detected, and you can set the parameters for SEVERITY2 and SERAFF2 which come into effect after a specified time.

Click **Edit** to change the settings.

Alarm Configuration

AID	ALARM	TIME	SEVERITY1	SEVERITY2	SERAFF1	SERAFF2
SPAN-B	SPANB_LOS	19-1	EVENT	EVENT	NSA	SA
SPAN-B	SPANB_AIS	18-2	EVENT	EVENT	NSA	NSA
SPAN-B	SPANB_OOF	24-6	EVENT	EVENT	NSA	SA
SPAN-B	SPANB_CRC	24-6	EVENT	EVENT	NSA	SA
SPAN-B	SPANB_BPV	24-6	EVENT	EVENT	NSA	SA
SPAN-B	SPANB_ERR	24-6	EVENT	EVENT	NSA	SA

Edit

Edit SPAN-B Alarms Configuration

Use the following procedure to set the configuration for LOS, AIS, OOF, CRC, BPV, and Error alarms:

1. In the HRS drop-down box, select the number of hours (0 to 999) after a condition is initially detected that a major alarm with a service affecting flag is generated.

2. In the MINS drop-down box, select the number of minutes (0 to 59) in addition to the number of hours set in step 1 after a condition is initially detected that a major alarm with a service affecting flag is generated.

3. In the SEVERITY1 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

4. In the SEVERITY2 drop-down box, select CRITICAL, MAJOR, MINOR, EVENT, or NOT ALARMED.

5. In the SERAFF1 drop-down box, select SA or NSA.

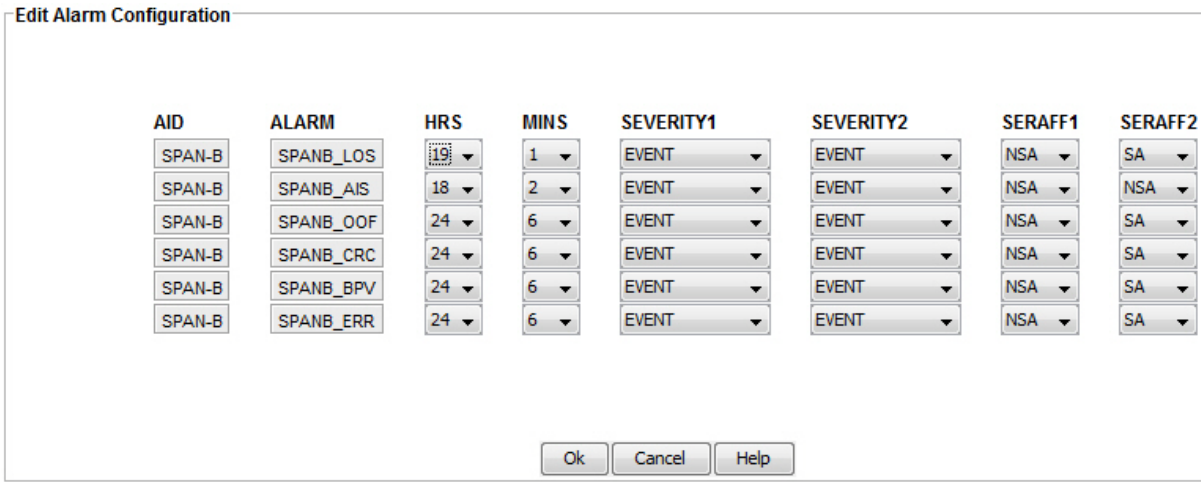
6. In the SERAFF2 drop-down box, select SA or NSA.

7. Click **OK** to accept the configuration changes and return to the Alarm Configuration screen, or **Cancel** to return to the Alarm Configuration screen without saving the configuration changes.

EVENT is a state that does not cause an alarm

SA indicates a Service-Affecting alarm

NSA indicates a Non-Service-Affecting alarm



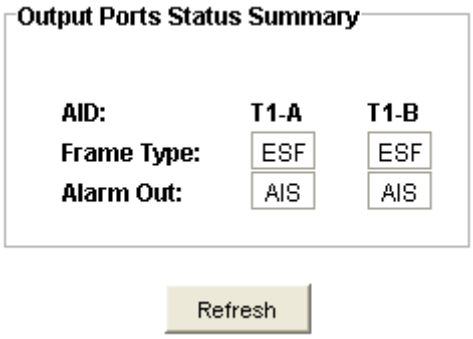
Outputs

Output Port Status Summary

The Output Port Status Summary screen shows the output port configuration as follows:

- **AID:** - Access identifier for the object.
- **Frame Type:** - ESF or D4 for T1 outputs and CAS, CAS4, CCS, CCS4, and NONE for E1 outputs.
- **Alarm Out:** - AIS, SQUELCH, or SSM.
- **Refresh** - Click **Refresh** to update the display.

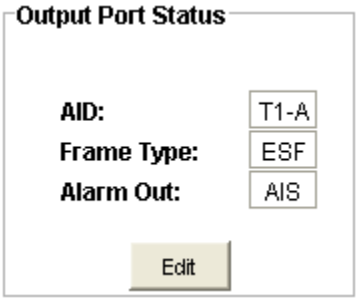
Note: For SSM, framing format must be ESF.



Output Port Status

The Output Port Status screen shows the output port configuration as follows:

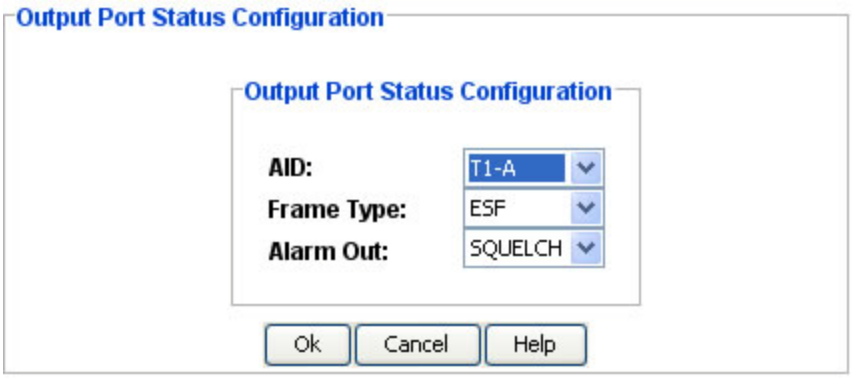
- **AID:** - Access identifier for the object.
- **Frame Type:** - ESF or D4 for T1 outputs and CAS, CAS4, CCS, CCS4, and NONE for E1 outputs.
- **Alarm Out:** - AIS, SQUELCH, or SSM.



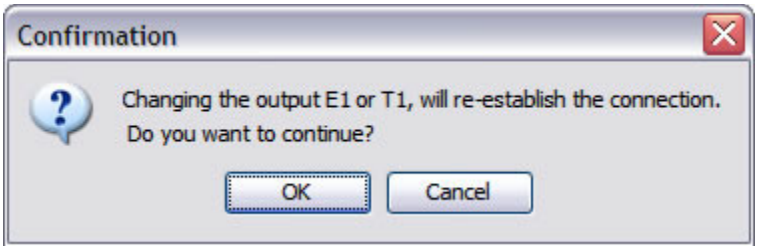
Edit Output Port Status Configuration

Use the following steps to edit the Output Port Status Configuration screen:

1. In the **AID:** drop down box, select T1-A or E1-A to change the card type.
2. In the **Frame Type:** drop-down box, select ESF or D4 for T1 outputs and CAS, CAS4, CCS, CCS4, and NONE for E1 outputs.
3. In the **Alarm Out:** drop-down box, select AIS, SQUELCH, or SSM.
4. Click **OK** to accept the configuration changes and return to the Output Port Status screen, or **Cancel** to return to the Output Port Status screen without saving the configuration changes.



On changing the Aid in the **Aid** drop-down box, the following confirmation dialog pops up.



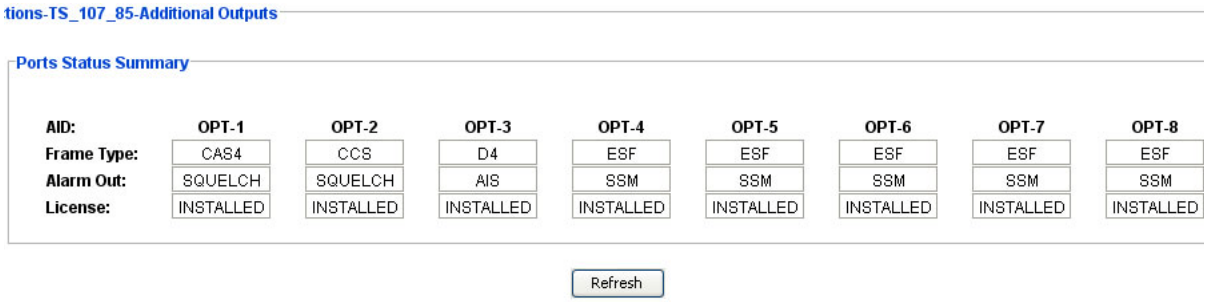
Click on **OK** to continue or **Cancel** to abort.

Additional Outputs

Additional Output Ports Status Summary

The Additional Output Ports Status Summary screen displays the configuration settings for all additional outputs as follows:

- **AID:** - Access identifier for the object.
- **Frame Type:** - ESF or D4 for T1 outputs, and CAS, CAS4, CCS, CCS4, or NONE for E1 outputs, and CCK.
- **Alarm Out:** - AIS, SQUELCH, or SSM.
- **License:** - Optional License INSTALLED / NOT-INSTALLED.
- **Refresh** - Click **Refresh** to update the display.



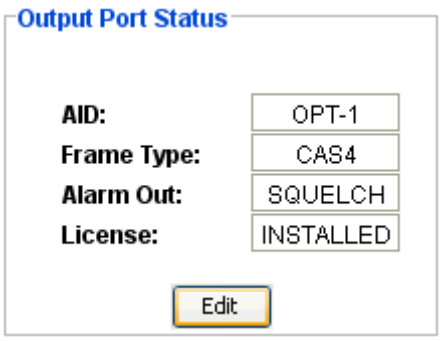
Additional Output Port Status

The Additional Output Ports Status screen displays the configuration settings for the selected additional output as follows:

- **AID:** - Access identifier for the object.

- **Frame Type:** - ESF or D4 for T1 outputs, and CAS, CAS4, CCS, CCS4, or NONE for E1 outputs, and CCK.
- **Alarm Out:** - AIS, SQUELCH, or SSM.
- **License:** - Optional License INSTALLED / NOT-INSTALLED.

Click **Edit** to change the configuration.

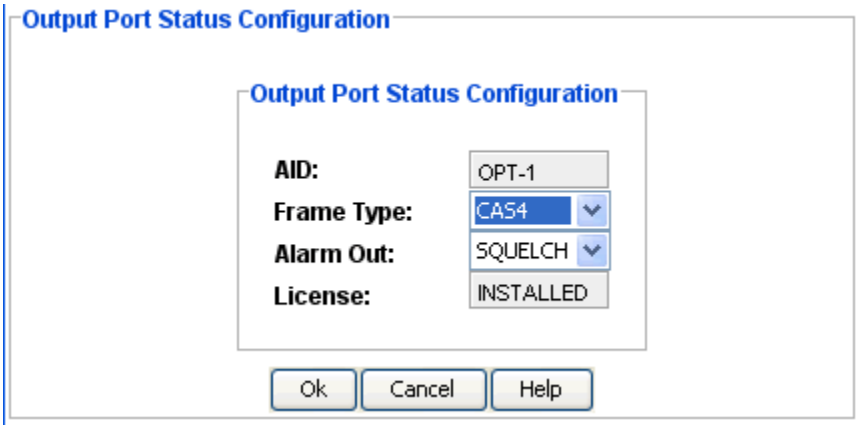


Edit Additional Output Port Status

Use the following steps to edit the Additional Output Port Status Configuration screen:

1. In the **Frame Type:** drop-down box, select ESF or D4 for T1 outputs, and CAS, CAS4, CCS, CCS4, or NONE for E1 outputs, and CCIn the **Alarm Out:** drop-down box, select AIS, SQUELCH, or SSM.

2. Click **OK** to accept the configuration changes and return to the Additional Output Port Status screen, or **Cancel** to return to the Additional Output Port Status screen without saving the configuration changes.



Chapter 7 Error Messages

This chapter lists all TimeCraft error messages in numerical order. Each message description has a table with the error message text that is displayed, a cause for the error, a possible solution, and any notes that apply.

In This Chapter

Error Messages

Error Message 001

Condition: Alphabetizing the list of connections before displaying the firmware upload dialog

Error Message	Cause	Possible Solution	Notes
Internal error sorting connections: {0}	An internal error occurred	Ensure the connections are correct and retry	Applies to OT-21

Error Message 002

Condition: Can occur anytime an operation references an AID

Error Message	Cause	Possible Solution	Notes
AID: {0} is not in the correct format	Invalid data received from the SSU-2000 or an internal error occurred	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The format of the AID is SxAyy where x is the shelf number 1 - 5 and yy is the slot number 00 - 16 (two digits). Applies to SSU-2000 only.

Error Message 003

Condition: Can occur anytime alarm data is received from the SSU-2000

Error Message	Cause	Possible Solution	Notes
Alarm number is not numeric: {0}	Invalid data received from the SSU-2000 or an internal error occurred	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The Alarm number is a value from 0 to 31. Applies to SSU-2000 only.

Error Message 004

Condition: Occurs processing the Satellite tracking information from the network element

Error Message	Cause	Possible Solution	Notes
GPS Channel number is not numeric: {0}	Invalid data received from the network element or an internal error occurred	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The Channel number is a value from 0 to 8. Applies to SSU-2000.

Error Message 005

Condition: Occurs changing the date and time on the network element

Error Message	Cause	Possible Solution	Notes
The date and time from the network element are invalid. Date: {1} Time: {2}	Invalid data received from the network element or an internal error occurred	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The Date should be in a format of YY-MM-DD and the time should be HH-MM-SS. The system date and time are retrieved from the TL1 header response to the RTRV-NETYPE command. Applies to all network elements.

Error Message 006

Condition: Can occur during open connection

Error Message	Cause	Possible Solution	Notes
The module: {0} with software part {1} and software revision {2} is not recognized. The software revision may not be supported.	Module is too old, module is new, invalid data received from the network element, or an internal error has occurred	Either upgrade the firmware for the specified module or obtain an updated version of TimeCraft	The module is not recognized by TimeCraft. It may be too old to be recognized by TimeCraft or it may be new. If the module is too old then the firmware can be upgraded to the latest level to correct the problem. If the module is new then a new version of TimeCraft will be required. Applies to all network elements.

Error Message 007

Condition: Occurs processing the SNMP data received from the network element

Error Message	Cause	Possible Solution	Notes
The SNMP level {0} is not numeric for read community {1}	Invalid data received from the SSU-2000 or an internal error occurred	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The Level number is a value from 1 to 4

Error Message 008

Condition: Occurs process the name information for an output card

Error Message	Cause	Possible Solution	Notes
Port number is not numeric: {0}	Invalid data received from the SSU-2000 or an internal error occurred	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The Port number is a value from 01 to 20. This only occurs while processing the names of the output ports. Applies to SSU-2000 only.

Error Message 009

Condition: Occurs during a firmware upload operation

Error Message	Cause	Possible Solution	Notes
The OT-21 has sent an invalid port IP address to the local FTP Server: {0}	The OT-21 has sent an invalid port IP address to the local FTP Server	Try again. If the problem continues, retrieve the log files and contact Microsemi.	This IP address and port are used during the file transfer process. Applies to OT-21 only.

Error Message 010

Condition: Occurs during a firmware upload operation

Error Message	Cause	Possible Solution	Notes
The OT-21 has sent an invalid port address to the local FTP Server: {0}	The OT-21 has sent an invalid port address to the local FTP Server	Try again. If the problem continues, retrieve the log files and contact Microsemi.	This IP address and port are used during the file transfer process. Applies to OT-21 only.

Error Message 011

Condition: Occurs processing PQL data received from the network element

Error Message	Cause	Possible Solution	Notes
The PQL number: {0} is not numeric	The OT-21 has sent invalid data	Try again. If the problem continues, retrieve the log files and contact Microsemi.	Applies to OT-21 only

Error Message 012

Condition: Occurs processing inventory data sent by the SSU-2000

Error Message	Cause	Possible Solution	Notes
Number format exception converting shelf number: {0}	Invalid data received from the SSU-2000 or an internal error occurred	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The Shelf number is a value from 1 to 5 on the response to the RTRV-INV TL1 command. Applies to SSU-2000 only.

Error Message 013

Condition: Occurs processing communications parameters

Error Message	Cause	Possible Solution	Notes
The AID on the TL1 command {0} is not a known value, AID: {1}	Invalid data received from the SSU-2000, internal error	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The format of the AID is SxAyy where x is the shelf number 1 - 5 and yy is the slot number 00 - 16 (two digits). Applies to SSU-2000 only.

Error Message 014

Condition: Can occur anytime

Error Message	Cause	Possible Solution	Notes
An internal error occurred on the OT-21. The error was Cannot Create Semaphore in CGlobal Constructor	This is an event message sent by the OT-21 indicating an internal problem within the OT-21	Restart the OT-21	Applies to OT-21 only

Error Message 015

Condition: Occurs during the firmware upload operation

Error Message	Cause	Possible Solution	Notes
The local FTP server cannot connect to the IP address and port that the OT-21 sent in order to send the file	The OT-21 may be experiencing network problems	Check the network between TimeCraft and the OT-21 and try again	Applies to OT-21 only

Error Message 016

Condition: Occurs during the firmware upload operation

Error Message	Cause	Possible Solution	Notes
The local FTP server cannot read the specified OT-21 firmware file: {0}	The specified file cannot be read	Correct the file or select another and retry.	Applies to OT-21 only

Error Message 017

Condition: Occurs during an open connection operation or a upload operation to determine the type of network element

Error Message	Cause	Possible Solution	Notes
TimeCraft could not determine the Network Element type: {0}	The connection could not be opened, the TL1 command failed, or the network element is not the expected type	If the problem is related to the connection, then correct the connection problem and try again. If the network element was the wrong type, correct the connection file and try again.	This message will occur if two users are already connected to the network element. Applies to all network elements.

Error Message 018

Condition: Occurs when closing a connection

Error Message	Cause	Possible Solution	Notes
Connection close failed with message: {0}	See message, network problems	This may not affect TimeCraft. Closing and restarting TimeCraft may correct the problem if necessary.	Connections are closed automatically when upload operations are started. Applies to all network elements.

Error Message 019

Condition: A TL1 command has been sent to the network element

Error Message	Cause	Possible Solution	Notes
CommandFailure=The command: {0} failed with a status: {1} and errorcode: {2}	Invalid data input to the system, internal error in TimeCraft, or an internal error in the SSU-2000 occurred	Check appropriate configuration information and try again. If the problem continues, retrieve the log files and contact Microsemi.	The TL1 command was denied by the network element.

Error Message 020

Condition: Occurs when creating a new connection

Error Message	Cause	Possible Solution	Notes
New Connection file {0} can not be created, message: {1}	The connections directory does not exist or a file system error	Check the file system, try again, if the problem continues retrieve the log files and contact Microsemi	Applies to all network elements

Error Message 021

Condition: Occurs when editing a connection

Error Message	Cause	Possible Solution	Notes
Edit Connection file: {0} was not found	File does not exist or an internal error occurred	Check the file system, try again, if the problem continues retrieve the log files and contact Microsemi	The file transfer to the network element failed

Error Message 022

Condition: Occurs when saving an edited connection.

Error Message	Cause	Possible Solution	Notes
Connection file can not be replaced: {0}	The file is read only	Check the file system and ensure that the file is not read only. Try again. If the problem continues, retrieve the log files and contact Microsemi.	File is found but can not be written to. Applies to all network elements.

Error Message 023

Condition: Occurs opening a connection to the SSU-2000

Error Message	Cause	Possible Solution	Notes
The Communications Card has a software part number and revision that is not supported. TimeCraft requires a minimum software revision of C.00 for software part 14113012-000-0 and a revision of A.00 for software part 14113012-001-0.	The Communications card is too old to support the RTRV-INV TL1 command	Upgrade the firmware on the communications card and try again	The RTRV-INV TL1 command is a required command for TimeCraft. It does not exist in the previous versions of the Communications card firmware. Applies to SSU-2000 only.

Error Message 024

Condition: The factory defaults have been reset

Error Message	Cause	Possible Solution	Notes
The factory defaults have been restored for AID: {0}	User action	None	The factory defaults have been restored by the user or restored remotely. Applies to SSU-2000 only.

Error Message 025

Condition: Occurs closing connection file

Error Message	Cause	Possible Solution	Notes
Connection file close failed: {0}	File system error	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The connection file could not be closed for the reason specified. Applies to all network elements.

Error Message 026

Condition: Occurs when creating a new connection

Error Message	Cause	Possible Solution	Notes
The file: {0} already exists, use "Edit" to change values	File has already been created	Delete the current file, edit the file instead of creating it, or use another name	The user requested to create a connection file that already exists. Applies to all network elements.

Error Message 027

Condition: Occurs while retrieving the list of connections

Error Message	Cause	Possible Solution	Notes
Connection file open failed: {0}	File system error	Try again. If the problem continues, retrieve the log files and contact Microsemi.	Connection file could not be opened. Applies to all network elements.

Error Message 028

Condition: Occurs during a firmware upload operation

Error Message	Cause	Possible Solution	Notes
The firmware file was not closed for reason: {0}	File system error	Try again. If the problem continues, retrieve the log files and contact Microsemi.	Firmware file could not be closed for the reason specified. Applies to SSU-2000 only.

Error Message 029

Condition: Occurs during a firmware upload operation

Error Message	Cause	Possible Solution	Notes
The firmware file {0} failed to open with reason: {1}	File system error	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The firmware file could not be opened. Applies to SSU-2000 only.

Error Message 030

Condition: Occurs during a firmware upload operation

Error Message	Cause	Possible Solution	Notes
Reading the firmware failed with reason: {0}	File system error	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The firmware file may be open, but the read failed. Applies to the SSU-2000 only.

Error Message 031

Condition: Occurs during a firmware upload operation

Error Message	Cause	Possible Solution	Notes
Transferring the firmware file to the SSU-2000 failed with reason: {0}	A read failure on the firmware file, a write failure to the SSU-2000, or network problems	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The file transfer to the SSU-2000 failed. Applies to SSU-2000 only.

Error Message 032

Condition: Occurs during the logon for the firmware upload

Error Message	Cause	Possible Solution	Notes
The logon for the firmware upload failed for user: {0}. Both TL1 sessions may be in use. Please try again.	Invalid user name, invalid user password, both TL1 sessions in use, or a network problem	Check the logon parameters and the sessions on the SSU-2000 and try again. If the problem continues, retrieve the log files and contact Microsemi.	The logon was either denied or there was a network problem. Applies to SSU-2000 only.

Error Message 033

Condition: Occurs at the beginning of the firmware upload operation

Error Message	Cause	Possible Solution	Notes
The network element type must be specified in the connection in order to upload firmware. The connection currently has a value of {0}.	The network element is not the expected type	Correct the connection file or choose a different connection	The network element type must be specified for a upload operation. Applies to all network elements.

Error Message 034

Context: Occurs opening the connection for the upload operation

Error Message	Cause	Possible Solution	Notes
The serial connection to the {0} could not be completed for reason: {1}	Serial configuration parameters are incompatible with the SSU-2000, or a connection problem	Check the serial connection configuration parameters and try again. If the problem continues, retrieve the log files and contact Microsemi.	An exception occurred during the opening of the serial connection. Applies to SSU-2000 only.

Error Message 035

Context: Occurs opening the connection for the upload operation

Error Message	Cause	Possible Solution	Notes
The TCP/IP connection to the {0} could not be completed for reason: {1}.	Network problems	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The TCP/IP socket could not be opened. Applies to SSU-2000 only.

Error Message 036

Condition: Occurs using the local firmware upload

Error Message	Cause	Possible Solution	Notes
The local FTP Server failed for reason: {0}	The local FTP server was not able to complete the connection with the OT-21. Possible network problems.	Correct any network problems and retry	Applies to OT-21 only

Error Message 037

Condition: Occurs during a firmware upload operation

Error Message	Cause	Possible Solution	Notes
An exception occurred on the local FTP server sending the file to the OT-21: {0}	Network problems or the firmware file is not found	Correct any network problems and ensure the firmware file is correct	Applies to OT-21 only

Error Message 038

Context: This error can occur anytime

Error Message	Cause	Possible Solution	Notes
An exception has occurred within TimeCraft. Exception: {0}	Network problems, the firmware file is not found, or an internal error occurred.	Correct any network problems and ensure the firmware file is correct. Try again. If the problem continues, retrieve the log files and contact Microsemi.	Applies to all network elements.

Error Message 039

Condition: Occurs starting TimeCraft

Error Message	Cause	Possible Solution	Notes
The argument {0} is not valid. The valid arguments are nothing, P, U, T, R, S. The system will exit.	Wrong or invalid format of an argument	Correct the argument and try again	An invalid argument was submitted to TimeCraft during application start. Applies to all network elements.

Error Message 040

Condition: Occurs when starting TimeCraft

Error Message	Cause	Possible Solution	Notes
An IO exception occurred creating the temporary file: {0}. Error Message: {1}.	The temporary file could not be created.	Ensure the file system is OK and the directory has write authority.	A temporary file is created by TimeCraft to indicate running status. Applies to all network elements.

Error Message 041

Condition: Occurs when attempting to view the TL1 log file

Error Message	Cause	Possible Solution	Notes
TL1 Log file {0} failed with message: {1}	The TL1 log file could not be found	Ensure the log file exists	The TL1 log file is not created until a connection is opened. If this is the first time to open a connection the TL1 log file will not exist. Applies to all network elements.

Error Message 042

Condition: Occurs when opening a connection to the network element

Error Message	Cause	Possible Solution	Notes
Logon failed for user: {0}. The logon was denied by the {1}.	The user may not be defined to the network element or the password may be incorrect	Correct the logon parameters and try again	The logon for the connection failed for the specified user. Applies to all network elements except PRR-10.

Error Message 043

Condition: Occurs when opening a connection to the network element

Error Message	Cause	Possible Solution	Notes
Logon Failed for user: {0}. Both TL1 sessions may be in use. Try again.	Both TL1 sessions may be in use or the network element did not respond. If the connection is a serial connection, the configured baud rate may not match the network element.	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The logon for the connection failed for the specified user. Applies to all network elements except PRR-10.

Error Message 044

Condition: Occurs opening a connection with a modem

Error Message	Cause	Possible Solution	Notes
The modem was unable to connect to the network element.	The modems are incorrectly configured	Configure the modems correctly	Refer to the modem configuration suggestions for assistance. Applies to all network elements.

Error Message 045

Condition: Occurs opening a connection with a modem

Error Message	Cause	Possible Solution	Notes
Modem message: {0}.	General status message relating to the modem	None	These are messages generated by the modem. Applies to all network elements.

Error Message 046

Condition: Occurs when TimeCraft is connected to a SSU-2000 and a new module is inserted

Error Message	Cause	Possible Solution	Notes
A new module has been inserted at AID: {0}	User action	None	A new module has been inserted into the SSU-2000 rack. Applies to SSU-2000 only.

Error Message 047

Condition: Occurs using the local option of the firmware upload

Error Message	Cause	Possible Solution	Notes
The local machine does not have a host address	The local system was not able to determine the local IP address.	Configure the local machine with an IP address or use the remote option	Applies to OT-21 only

Error Message 048

Condition: Occurs when a TL1 command is sent to the network element

Error Message	Cause	Possible Solution	Notes
No response received for TL1 command: {0}	The SSU-2000 was too busy, network problems, or an internal error in the network element occurred	Try again. If the problem continues, retrieve the log files and contact Microsemi.	A TL1 command was sent to the network element, but the response was not received by TimeCraft. Applies to all network elements.

Error Message 049

Condition: Occurs opening a connection to an OT-21 with no users defined

Error Message	Cause	Possible Solution	Notes
No users are defined on this system. The logon was successful.	No users are defined on the OT-21	None	If no users are defined on the OT-21 then the user is connected as the default user and has administrator privileges. Applies to all network elements except PRR-10.

Error Message 050

Condition: Occurs when the TCP/IP port number is not numeric

Error Message	Cause	Possible Solution	Notes
The string {0} is not numeric	Internal error	Try again. If the problem continues, retrieve the log files and contact Microsemi.	A number associated with a connection is not numeric. Applies to all network elements.

Error Message 051

Condition: Occurs opening a connection

Error Message	Cause	Possible Solution	Notes
Connection open failed with message: {0}	Network problems, both TL1 sessions in use, or the IP address may be incorrect	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The connection could not be opened to the network element for the reason specified. Applies to all network elements.

Error Message 052

Condition: Can occur anytime

Error Message	Cause	Possible Solution	Notes
Protocol violation occurred processing message envelope: {0}	Program defect or unexpected data from the SSU-2000 or OT-21	Try again. If the problem continues, retrieve the log files and contact Microsemi.	This is a general indication of a problem within TimeCraft. This is probably not caused directly by the user. Applies to all network elements.

Error Message 053

Condition: Occurs while a connection is open

Error Message	Cause	Possible Solution	Notes
Reading data from the network element failed with message: {0}	Network problems or internal error	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The connection was successfully opened to the network element but a failure occurred later. Applies to all network elements.

Error Message 054

Condition: Occurs when the network element is reset

Error Message	Cause	Possible Solution	Notes
The network element has been restarted	The network element was reset	None	The network element could be reset by the user or a remote user. Applies to all network elements except PRR-10.

Error Message 055

Condition: Occurs when a TL1 command is sent to the network element

Error Message	Cause	Possible Solution	Notes
Sending data to the network element failed with message: {0}	Network problems or internal error	Try again. If the problem continues, retrieve the log files and contact Microsemi.	The connection was successfully opened to the network element but a failure occurred later. Applies to all network elements.

Error Message 056

Condition: Occurs during a local firmware upload operation.

Error Message	Cause	Possible Solution	Notes
Starting the local FTP Server failed with message: {0}	Network problems or the local machine already has a FTP server defined	Use the remote upload option	Applies to OT-21 only

Error Message 057

Condition: Occurs waiting for a response to a TL1 command

Error Message	Cause	Possible Solution	Notes
The response timer has expired for command: {0}	The SSU-2000 or OT-21 was too busy, network problems, or an internal error in the SSU-2000 or OT-21 occurred	Try again. If the problem continues, retrieve the log files and contact Microsemi.	Each TL1 command sent to the network element is expected to respond to TimeCraft within a specified time period. No response was received in the time period. Applies to all network elements.

Error Message 058

Condition: The network element has sent a TL1 comment as a response or part of a response to a TL1 command

Error Message	Cause	Possible Solution	Notes
The following TL1 comment was received from the network element: {0}. This message was received with command: {1}.	The SSU-2000 or OT-21 has additional information to provide	None. These are informational messages.	If the network element has additional information to send in response to a request it uses a TL1 comment. Applies to all network elements.

Error Message 059

Condition: Occurs during the firmware upload operation

Error Message	Cause	Possible Solution	Notes
An exception occurred during the firmware upload operation: {0}	TimeCraft could not connect to the OT-21 or a problem occurred with the TL1 load command	Correct any network problems and try again	Applies to OT-21 only

Error Message 060

Condition: Occurs when alarm data is received from the OT-21

Error Message	Cause	Possible Solution	Notes
The alarm {0} is not defined to TimeCraft	The alarm number is not known to the TimeCraft application	Upgrade to the latest version of TimeCraft	Applies to OT-21 only

Error Message 061

Condition: Occurs during the upload operation

Error Message	Cause	Possible Solution	Notes
Firmware transfer failed to connection {0} with file {1}	Internal error	Try again. If the problem continues, retrieve the log files and contact Microsemi.	This is a generic indication that the firmware upload did not succeed. More specific information should have been provided by the previous error messages. Applies to SSU-2000 only.

Error Message 062

Condition: Occurs during the upload operation

Error Message	Cause	Possible Solution	Notes
Firmware transfer failed with message from the OT-21: {0}	The load command was rejected by the OT-21	Retry the operation	Applies to OT-21 only

Error Message 063

Condition: Occurs when the user default configuration has been restored

Error Message	Cause	Possible Solution	Notes
The User Defaults have been restored for AID: {0}	User action	None	The user defaults have been restored by the user or restored remotely. Applies to SSU-2000 and TSG-3800 only.

Error Message 064

Condition: Occurs during a local upload operation

Error Message	Cause	Possible Solution	Notes
The OT-21 has sent an invalid command to the local FTP Server: {0}	The OT-21 has sent the wrong number of parameters as part of the FTP operation	Correct any network problems and try again or restart the OT-21	Using the remote upload option may not resolve this problem. Applies to OT-21 only.

Error Message 065

Condition: Occurs anytime a TL1 command response is received

Error Message	Cause	Possible Solution	Notes
The Source Identification code {0} received from the network element does not match the current Target Identification code: {1}	The name of the network element has been changed remotely or the physical connection has changed to a new network element	Reconnect to the network element	The Source Identification Code is the system name of the network element. Applies to all network elements.

Error Message 070

Condition: Occurs when a logon to the TimeHub Fails

Error Message	Cause	Possible Solution	Notes
Logon Failed for user: {0}. The logon was denied by the {1}.	The TimeHub denied your logon request, this could have many reasons including: Incorrect case of password. Incorrect password. Incorrect userid.	Check your details and reconnect to the network element	The TimeHub supports case sensitive passwords.

Error Message 071

Condition: Occurs when a logon to the TimeHub Fails

Error Message	Cause	Possible Solution	Notes
Logon Failed for user: {0}. No response was received from the {1}.	The communication channel to the TimeHub was opened successfully, either serial or TCP/IP, and the logon command sent but no reply was received.	Check your communications details and reconnect to the network element.	Telnet of hyper terminal should be used to verify the connection.

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