SPECTRUM Enterprise Manager
Device Management

SmartSTACK Token Ring Switches

Supports Management Module SM-CSI1095
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Introduction

This section introduces the SPECTRUM Device Management documentation for SmartSTACK Token Ring switches.

This introduction to the Device Management documentation for SmartSTACK Token Ring switches contains the following information:

- Purpose and Scope
- Required Reading
- Supported Devices (Page 8)
- The SPECTRUM Model (Page 8)

Purpose and Scope

Use this documentation as a guide for managing SmartSTACK Token Ring switches with the SPECTRUM management module SM-CSI1095. The documentation describes the icons, menus, and views that enable you to remotely monitor, configure, and troubleshoot SmartSTACK Token Ring switches through software models in your SPECTRUM database.

Only information specific to the supported management module is included under this documentation topic. For general information about device management using SPECTRUM and for explanations of basic SPECTRUM functionality and navigation techniques, refer to the topics listed under Required Reading.

Required Reading

To use this documentation effectively, you must be familiar with the information covered by the other SPECTRUM online documentation topics listed below.

- Getting Started with SPECTRUM for Operators
- Getting Started with SPECTRUM for Administrators
- How To Manage Your Network with SPECTRUM
- SPECTRUM Views
- Software Release Notes
- SPECTRUM Menus
- SPECTRUM Icons
- Management Module SRN
Supported Devices

The SmartSTACK Token Ring Switch family (STS16-20xx) provides Token Ring Workgroups with backbone connectivity to ATM, High Speed Token Ring and Fast Ethernet via SmartSTACK Interface Modules (SSIMs). It complies with the IEEE 802.5r specification for Dedicated Token Ring (DTR). Its design is stackable, providing easy expansion and scalability. RMON management, Broadcast reduction and advanced filtering features increase network performance and ease backbone congestion in client-server networks. The SPECTRUM management module SM-CS11095 currently allows you to model four types of SmartSTACK Token Ring switches as described below.

**STS16-20RM.** This switch has 20 ports (RJ-45), and two SSIM slots for supporting high speed uplinks to corporate backbones.

**STS16-20R.** This switch is similar to the aforementioned, but without the SSIM slots. It is designed to be stacked easily to the STS16-20RM via the stack interface on the rear of the switches to increase the port density. Up to 8 switches are supported per stack via a switch stacker unit.

**STS16-20D.** Designed for the desktop, this switch with 16 ports supporting one station per port, and four ports which can provide full network connectivity. This unit can be used to replace older shared hub ports while providing increased performance and reliability. This unit can also be stacked to the workgroup segmentation switches as well.

**STS16-20FRM.** For applications requiring fiber optic cabling connectivity, this switch supports 20 ports of Multimode fiber cabling via VF-45 connections, making fiber connections as easy to use as RJ-45 UTP cable connections.

The SPECTRUM Model

SPECTRUM uses a single device model type, **STS16**, for modeling any of the supported SmartSTACK Token Ring switches. STS16 models are represented in SpectroGRAPH views by Device icons.

*Figure 1* (Page 9) shows the Device icon varies slightly depending on the kind of view it appears in.
**Introduction**

The SPECTRUM Model

**Figure 1: Device Icons**

Small Device icon appears in Topology, Application, and Container views.

Large Device icon appears in Device Topology, Lost and Found, Location, and Interface Device views.

**Figure 2** shows a portion of a Topology view in which the Device icon representing the STS16 model appears surrounded by icons representing the network entities which the device connects—in this case two Token Ring LANs and an ATM LAN.

**Figure 2: STS16 Device Icon in Topology View**
Device icons provide access to the views, subviews, tables, and dialogs that let you manage the modeled device by performance. Figure 3 lists the model-specific portion of the **Icon Subviews** menu for an STS16 Device icon in a Topology view.

**Figure 3: Device Icon Subviews Menu Options**

The views listed below are accessible directly from this menu and are described individually in subsequent sections of this documentation.

- Device Views (Page 13)
- Device Topology Views (Page 22)
- Application Views (Page 24)
- Performance Views (Page 53)
- Configuration Views (Page 64)
- Model Information Views (Page 119)
Tasks

This section identifies various management and troubleshooting tasks that can be performed for the SmartSTACK Token Ring switches using the views, icons and labels referenced within this document.

Administrative Status (configure/examine)
- Interface Status Label (Page 14)
- Administrative Status (Page 16)

Alarms, Traps (configure)
- Performance Views (Page 53)
- Generate Redundancy Alarms? (Page 74)
- Trap Receiver Information View (Page 96)
- TrBRF Traps On (Page 97)

Analyze Packet and Error Counts (examine)
- Fast Ethernet Uplink DS21143 View (Page 49)
- HSTR ThunderLAN Diagnostics Table (Page 50)
- Performance Views (Page 53)
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- Application Icons (Page 25)
- Supported Applications (Page 25)
- Common Applications (Page 26)

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- Bandwidth (Page 65)
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- Chassis Device View (Page 18)
- Chassis Device Topology View (Page 23)

Configure the Device (configure)
- Configuration Views (Page 64)

Configure Switch Ports (configure)
- Interface Configuration View (Page 64)
- Port Configuration View (Page 101)
- Switch Port Table Entry (Page 115)

Device Performance (monitor)
- Interface Device View (Page 13)
- Chassis Device View (Page 18)
- Performance Views (Page 53)
Tasks

Enable/Disable Ports (modify)
• Interface Status View (Page 16)

Interface Mask and Address (modify)
• Interface Address Translation Table (Page 17)
• Secondary Address Panel (Page 17)

Model Information (examine)
• Model Information Views (Page 119)

Model Redundancy (configure)
• Redundancy and Model Reconfiguration Options (Page 74)

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• SPAN Mon (Page 98)
• TrCRFs SPAN Monitored (Page 99)
• Mon. Port (Page 104)

Performing a Download (modify)
• Download Switch (Page 94)
• Download Status (Page 94)

Port Configuration (examine/modify)
• Interface Icons (Page 14)
• Device Topology Views (Page 22)
• Interface Configuration View (Page 64)
• Port Configuration View (Page 101)

• Switch Port Table Entry (Page 115)

Port Statistics (monitor)
• Port Labels (Page 20)
• Performance Views (Page 53)
• Port Performance View (Page 60)
• Protocol Filter Table (Page 109)

Security (configure)
• Security (Page 103)

Setting Thresholds (examine/modify)
• Port Configuration View (Page 101)
• Switch Port Table Entry (Page 115)

Topology (check)
• Interface Device Topology View (Page 22)
• Chassis Device Topology View (Page 23)
Device Views

This section describes the Device views and subviews available for models of the SmartSTACK Token Ring switches in SPECTRUM.

Device views use icons and labels to represent the modeled device and its components, such as modules, ports, and applications. There are two types of Device views for STS16 models:

- **Interface Device View**
- **Chassis Device View** (Page 18)

**Interface Device View**

This view provides dynamic configuration and performance information for each of the device’s serial/network I/O ports, which are represented by Interface icons in the bottom panel of the view, as shown in Figure 4. The middle panel of the view also displays a Device icon, which allows you to monitor the device operation and access other device-specific views.

![Figure 4: Interface Device View](image-url)
Interface Icons

Figure 5 shows a close-up of an Interface icon from an Interface Device view. Most of the informational labels on the icon also provide double-click access to other views, as explained in the following label descriptions.

Figure 5: Interface Icon

- **Interface Number Label**
  This label displays the interface number.

- **Interface Status Label**
  This label displays the current Operational Status of the interface (see Table 1). Note that the background color of the label also depends on the interface’s current Administrative Status, which is set by the user in the Interface Status View (Page 16). This view can be accessed by double-clicking the label.

  Table 1: Interface Status Label Colors

<table>
<thead>
<tr>
<th>Color</th>
<th>Operational Status</th>
<th>Administrative Status</th>
<th>Label Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>Blue</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Yellow</td>
<td>OFF</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>Red</td>
<td>Testing</td>
<td>Test</td>
<td>Test</td>
</tr>
</tbody>
</table>

- **Device/Interface Number Label**
  This label displays a number correlating to the physical location of the device in a stack, and to the interface within that device. Double-click this label to access the TrBRF Configuration View (Page 107).

  Table 1: Interface Status Label Colors

<table>
<thead>
<tr>
<th>Color</th>
<th>Operational Status</th>
<th>Administrative Status</th>
<th>Label Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>Blue</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Yellow</td>
<td>OFF</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>Red</td>
<td>Testing</td>
<td>Test</td>
<td>Test</td>
</tr>
</tbody>
</table>

- **Interface Type Label**
- **Interface Description Label**
- **Physical Address Label**
- **IP Address Label**
- **Gauge Label**
**Interface Type Label**
This label identifies the type of interface—e.g., Token Ring, Ethernet, FDDI, etc. Double-click this label to access the Interface Configuration View (Page 64).

**Interface Description Label**
This label identifies the type of network to which this interface is connected. Double-click the label to open the Generic Interface Model Information View for the interface.

**Physical Address Label**
This label displays the physical (MAC) address of the interface. Double-click the label to open the Interface Address Translation Table (Page 17), which cross-references network addresses (IP addresses) to physical (MAC) addresses for selected nodes between networks. Double-clicking on any column entry opens an address-specific Address Translation Table Information view. This view provides the same information as the corresponding row for the Interface Address Translation Table (Page 17), but allows you to modify field values.

**IP Address Label**
This label displays the IP address for the interface. Double-click the label to open the Secondary Address Panel (Page 17), which allows you to change the address and mask for this interface.

**Gauge Label**
This label displays the performance statistic that has been selected in the Gauge Control panel for this device’s interfaces (see the SPECTRUM Views documentation for more information). Double-click this label to open the Fast Ethernet Uplink Performance View (Page 57).

### Interface Icon Subviews Menu

Table 2 lists the Icon Subviews menu options available for the Interface icon.

<table>
<thead>
<tr>
<th>Option</th>
<th>Opens the . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detail</td>
<td>Interface Detail View (Page 16) displays Packet, Error, and Discard Breakdown pie charts.</td>
</tr>
<tr>
<td>Sub-Interfaces</td>
<td>This is only valid when an interface model has sub-interfaces associated with it. For example ATM Frame and Relay interfaces. For more information, see the SPECTRUM Views document.</td>
</tr>
<tr>
<td>IF Status</td>
<td>Interface Status View (Page 16) displays the operational status of the interface.</td>
</tr>
</tbody>
</table>
Device Views

Interface Device View

The Interface Device view contains statistics on packet breakdown, error breakdown and discard breakdown. For information on this view please refer to SPECTRUM Views.

Sub-Interfaces

This is only enabled when an interface model has sub-interfaces associated with it. For example ATM Frame and Relay interfaces. For information on this view, please refer to SPECTRUM Views.

Interface Status View

This view provides information on the operational status of the interface and allows you to enable or disable the port.

**Operational Status**

The current state of the interface (UP, DOWN, or Testing).

**Administrative Status**

This button allows you to select the desired operational state of the interface (ON, OFF, or Testing).

Interface Configuration View

See Interface Configuration View (Page 64).

<table>
<thead>
<tr>
<th>Option</th>
<th>Opens the . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>IF Configuration</td>
<td>Interface Configuration View (Page 64) provides information about the selected interface.</td>
</tr>
<tr>
<td>Model Information</td>
<td>Model Information Views (Page 119) shows the information for this IF model.</td>
</tr>
<tr>
<td>IF Address Translation Table</td>
<td>Interface Address Translation Table (Page 17) shows the Physical and Network address for each interface.</td>
</tr>
<tr>
<td>Secondary Address Panel</td>
<td>Secondary Address Panel (Page 17) displays IP Addresses from the Address Translation table.</td>
</tr>
<tr>
<td>Thresholds</td>
<td>Interface Threshold View (Page 17) allows you to set the on/off alarm thresholds for: load, packet rate, error rate, and % discarded.</td>
</tr>
<tr>
<td>Port Configuration</td>
<td>Switch Port Table Entry (Page 115) provides current configuration and statistical information for a selected port.</td>
</tr>
</tbody>
</table>

**Table 2: Interface Icon Subviews Menu**

Interface Detail View

The Interface Device view contains statistics on packet breakdown, error breakdown and discard breakdown. For information on this view please refer to SPECTRUM Views.

Device Management

16

SmartSTACK Token Ring Switches
Model Information View
See *Model Information Views* (Page 119).

Interface Address Translation Table
This table provides the physical and network addresses associated with the interface index.

- **Interface Index**
  The value that coincides with the interface.

- **Physical Address**
  The MAC address of the interface.

- **Network Address**
  The IP Address of the interface.

Secondary Address Panel
This panel provides a table of IP addresses and masks obtained from the Address Translation Table within the device’s firmware. You can change the current address displayed in the *IP Address* field by selecting an entry from the table in this panel and clicking the *Update* button.

Interface Threshold View
This view allow you to set the on/off alarm thresholds for the following:

- Load
- Packet Rate
- Error Rate
- % Discarded

Switch Port Table Entry View
See *Switch Port Table Entry* (Page 115).
Chassis Device View

The STS16 models appear in the Chassis Device view as module icons (see Figure 6).

Individual ports within each module are represented by smaller icons that dynamically display current interface information.

Module Icon

Figure 7 shows a close-up of a Module icon from the STS16 Chassis Device view. Note that there are two types of labels on the icon: those labels that apply to the module as a whole, and those that apply to individual ports.

Figure 7: Module Icon
Module Labels
The following labels are located on each Module icon:

- **Switch/Module Number** - The switch number, as determined by the port number the switch, is connected in a matrix, or as determined by the Stack Management software, when two switches are connected back to back. The Module number identifies the specific module in the switch. This label also provides double-click access to the Module Notes view (see Table 3).

- **Module Type** - The type of module plugged into the slot. Module types OC8600 (1) and OC860x (860x) represent the motherboard or Base Module.

Module Icon Subviews Menu
Table 3 lists the Icon Subviews menu options for module labels in the Chassis Device view.

<table>
<thead>
<tr>
<th>Option</th>
<th>Opens the . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module Notes</td>
<td>Notes view, which allows you to make, revise, save, retrieve, and mail annotations about the selected module.</td>
</tr>
<tr>
<td>Module Configuration</td>
<td>Switch Module Table Entry, which provides more detailed configuration information about the selected module.</td>
</tr>
</tbody>
</table>

Switch Module Table Entry

*Access:* From the Icon Subviews menu from the Switch/Module Number, select **Module Configuration**.

This view displays detailed configuration information about the selected module.

**Switch Number**
The number of the switch selected.

**Module Number**
The number of the module selected.

**Module State**
The state of the module. Values include: enable, disable, faulty, and other.

**Module Type**
The type of module plugged into the slot. Module types OC8600 (1) and OC860x (860x) represent
Device Views

the motherboard or Base Module. **Table 26, Module Type Values** (Page 100) displays the different types of modules.

**Module Revision**
The current module version.

**Firmware Version**
The current firmware version.

**Number of Ports**
The number of ports on this module.

**Uptime**
The time the module has been up and running.

**Max MTU Size**
The maximum transmission unit. This is the maximum frames of octets that can be transmitted.

**Port Labels**

As shown on the right side of **Figure 7**, each selectable port icon on a Module icon comprises four smaller labels. Right clicking anywhere on the port icon lets you access the Icon Subview menu options listed in **Table 4**.

- **Port Number** - Identifies a port. Double-click this label to access the **Switch Port Table Entry** (Page 115).

- **Interface Number** - Identifies the interface associated with this port. The color of the label indicates the operating condition of the interface (green=up, red=down or test mode).

- **IF Status** - The status for this interface and the corresponding color for the status (green if the interface is on, orange if the interface is off). Double-click this label to access the **Interface Status View** (Page 16).

- **Port Performance Statistic** - Displays whichever performance statistic has been selected in the Gauge Control panel for the interfaces. Double-click this label to access the **Fast Ethernet Uplink Performance View** (Page 57).

**Port Icon Subviews Menu**

**Table 4** lists the Icon Subviews menu options for port labels within the Chassis Device view.

Device Management

20

SmartSTACK Token Ring Switches
<table>
<thead>
<tr>
<th>Option</th>
<th>Opens the...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detail</td>
<td>Interface Detail View, which displays statistics on packet, error and discard breakdown. This is described in the SPECTRUM Views document.</td>
</tr>
<tr>
<td>IF Status</td>
<td><em>Interface Status View</em> (Page 16) displays the operational status of the interface.</td>
</tr>
<tr>
<td>IF Configuration</td>
<td><em>Interface Configuration Table</em> (Page 75) provides information about the selected interface.</td>
</tr>
<tr>
<td>IF Address Translation Table</td>
<td><em>Interface Address Translation Table</em> (Page 17) shows the physical and network address for each interface.</td>
</tr>
<tr>
<td>Thresholds</td>
<td><em>Interface Threshold View</em> (Page 17) allows you to set on/off alarm thresholds for load, packet rate, error rate and % discarded.</td>
</tr>
<tr>
<td>Port Configuration</td>
<td><em>Switch Port Table Entry</em> (Page 115) provides current configuration and statistical information for a selected port.</td>
</tr>
<tr>
<td>Model Information</td>
<td><em>Model Information Views</em> (Page 119) shows the information for this interface.</td>
</tr>
</tbody>
</table>
Device Topology Views

This section provides brief descriptions of the Device Topology views available for models of SmartSTACK Token Ring switches in SPECTRUM.

Device Topology views show the connections between a modeled device and other network entities. There are two kinds of Device Topology views available for STS16 models:

- **Interface Device Topology View**
- **Chassis Device Topology View** (Page 23)

### Interface Device Topology View

**Access:** From the **Icon Subviews** menu for the Device icon, select **DevTop > Interface**.

The lower panel of the Interface Device Topology view (Figure 8) uses interface icons to represent the device’s serial/network I/O ports. These icons provide the same information and menu options as those in the **Interface Device View** (Page 13). If there is a device connected to a particular interface, a device icon appears on the vertical bar above the interface icon with an icon representing the network group that contains the device. For more information, refer to the **SPECTRUM Views** documentation.

**Figure 8:** Interface Device Topology View
Chassis Device Topology View

Access: From the Icon Subviews menu for the Device icon, select DevTop > Chassis.

Figure 9 shows an example of the Chassis Device Topology view. The lower panel of the view uses Interface icons to represent the device’s serial/network I/O ports. The port labels in this view provide the same information and menu options as those described under the Interface Icons (Page 14).

For further information on Device Topology views, refer to the SPECTRUM Views documentation.
This section describes the Application views and the associated application-specific subviews available for models of SmartSTACK Token Ring switches in SPECTRUM.

**Access:** From the **Icon Subviews** menu for the STS16 Device icon, select **Application**.

When a device model is created, SPECTRUM automatically creates models for each of the major and minor applications supported by the device. The Application view identifies all of these application models, shows their current condition status, and provides access to application-specific subviews.

**Figure 10** shows an Application view in its default view mode (icon) where each of the application models is represented by an Application icon (see **Figure 11** on Page 25 for a close-up). The Application icons are arranged hierarchically under the STS16 Device icon, with major applications in the top row and their respective minor applications stacked directly below.

If you prefer to see applications displayed by name only, in a single vertical list, select **View > Mode > List**.
Application Icons

When the Application view is in Icon mode, each of the application models is represented by an Application icon (Figure 11). Double-clicking the Model Name label (a) at the top of the icon opens the associated Model Information view—see Model Information Views (Page 119). For some applications, the Model Type label (c) at the bottom of the icon is also a double-click zone, which opens an application-specific view. Any views accessible through these double-click zones are also accessible from the Application icon’s Icon Subviews menu.

Figure 11: Application Icon

- Model Name Label / Model Information View
- Condition Status Label
- Model Type Label / Application-Specific View

Supported Applications

SmartSTACK Token Ring switches support both common and device-specific applications.

Applications that are common to many of the different types of devices managed by SPECTRUM are listed in Table 5 along with their corresponding documentation subtopics.

The views and subviews available for SmartSTACK Token Ring Switch device-specific applications are described in the rest of this section, grouped by major application with views listed below them, as follows:

- Cisco VTP Applications (Page 26)
  - Cisco VTP Management Domain View (Page 26)
  - Cisco VTP VLAN Information View (Page 27)
  - Cisco VTP VLAN Editing View (Page 28)
  - Cisco Trunk Port Information View (Page 30)
- DTR Concentrator Application (Page 32)
  - Concentrator Relay Function View (Page 32)
  - Spanning Tree Information View (Page 34)
  - Static/Dynamic Filtering View (Page 35)
  - (Page 40)
- STS16 Applications (Page 41)
  - ATM Uplink Application (Page 42)
Application Views

- Fast Ethernet Uplink Configuration (Page 76)
- HSTR ThunderLAN Diagnostics Table (Page 50)
  - DTR Mac MIB Applications (Page 51)
    - dot5 Statistics Information (Page 51)
    - 802.5 Information for Interface Number (Page 52)

Table 5: Common Applications

<table>
<thead>
<tr>
<th>Application</th>
<th>For more info, see...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridging (Gen_Bridge_App)</td>
<td>Bridging Applications</td>
</tr>
<tr>
<td>MIB-II (SNMP2_Agent)</td>
<td>MIB-II Applications</td>
</tr>
</tbody>
</table>

Cisco VTP Applications

This major application (model type CiscoVTPApp) provides the following application-specific views:

- Cisco VTP Management Domain View
- Cisco VTP VLAN Information View (Page 27)
- Cisco VTP VLAN Editing View (Page 28)
- Cisco Trunk Port Information View (Page 30)

Cisco VTP Management Domain View

Access: From the Icon Subviews menu for the CiscoVTPApp Application icon, select Management Domain.

This view displays the Management Domain Table. It provides the following information:

Index
The unique integer identifier of the management domain.

Name
The name of the domain.

Local Mode
Indicates whether the system is acting as a VTP Client or as a VTP Server. A third option is transparent which indicates the device is not supporting VTP for this domain.

Rev No
The current Configuration Revision Number.

Last Updater
The IP address of the VTP Server which last updated the Configuration Revision Number.

Last Updated
The time at which the Configuration Revision Number was last increased to its current value.
**Row Status**
Displays whether the row is **active** or **inactive**.

**TFTP Server**
The IP address of a TFTP Server from which VTP VLAN information for this domain is to be stored.

**TFTP Pathname**
The complete pathname of the file at the TFTP Server identified by the value of management domain from which VTP VLAN information is to be stored.

**Prune State**
Indicates whether VTP pruning is enabled or disabled.

**Vers In Use**
Displays version currently in use.

The **Add Entry** button accesses the **Add Domain Management Table Entry**.

### Add Domain Management Table Entry

**Access:** From the Cisco VTP Management Domain view, click the Add Entry button.

From within this view, you can add new entries to the **Cisco VTP Management Domain View** (Page 26). Fields in this view correspond to the column headings in the Cisco VTP Management Domain view.

### Cisco VTP VLAN Information View

**Access:** From the **Icon Subviews** menu for the CiscoVTPApp Application icon, select **VLAN Information**.

Virtual LAN Information includes the following:

**Index**
Number identifying the particular VLAN.

**VLAN State**
The current state of VLAN. Possible values are: operational, suspended, mtuTooBigForDevice, and mtuTooBigForTrunk.

**VLAN Type**
The type of this VLAN. Possible types are: ethernet, fddi, tokenRing, fddiNET, trNet, and vlandeprecated.

**Name**
The name of this VLAN.

**Trans VLAN1**
A VLAN to which this VLAN would be translational-bridged.

**Trans VLAN2**
A VLAN, other than VLAN1, to which this VLAN would be translational-bridged.
**MTU Size**
The MTU size on this VLAN, defined as the size of largest MAC layer.

**SAID**
The value of the 802.10 SAID field which would be used for this VLAN.

**Ring No.**
The ring number for this VLAN.

**Bridge No.**
The bridge number of the VTP-capable switches which would be used for this VLAN.

**Stp Type**
The type of Spanning Tree Protocol which would be running on this VLAN.

**Parent**
The index of the VLAN which would be the parent for this VLAN.

**Bridge**
The type of bridging mode in use on this VLAN.

**Are Hop Count**
Displays the maximum number of routing descriptors allowed in All Routes Explorer (ARE) Frames on this VLAN.

**Ste Hop Count**
The maximum number of routing descriptors allowed in Spanning Tree Explorer (STE) frames on this VLAN.

The two fields at the bottom of the view are described as follows:

**VTP Version**
The current version of VTP on the local system.

**VLAN Max Storage**
An estimate of the maximum number of VLANs from which the local system can recover all VTP information after reboot. If the number of VLANs is greater than this value, then the system cannot act as a VTP server. For a device which cannot estimate this number, the value is 1.

**Cisco VTP VLAN Editing View**

*Access:* From the Icon Subviews menu for the CiscoVTPApp Application icon, select VTP VLAN Editing.

Virtual Trunk Port VLAN Editing view contains two tables, VLAN Editing Control Table and VLAN Edit Buffer Table (Page 29).

**VLAN Editing Control Table**
This table provides the means to control the editing of the VLANs for a particular management domain.
**Operation**
This has the value `none` until given a command. Copy creates rows in the Edit Table to correspond to the current global VLAN information. If the Edit Buffer is not currently empty, a copy operation fails. A successful copy operation starts the deadman-timer. Apply performs a check on the modified information contained in the Edit Buffer, and if consistent, it tries to instantiate the modified information as the new global VLAN information. An empty Edit Buffer would always result in an inconsistency since the default VLANs are required to be present. Release flushes the Edit Buffer, clears the Owner information, and aborts the deadman-timer. A release generates automatically when the deadman-timer expires. `restartTimer` restarts the deadman-timer.

**Apply Status**
The current status of an “apply” operation to instantiate the Edit Buffer as the new global VLAN information. If no apply is currently active, the status represented is that of the most recently completed apply. The possible values are: `inProgress`, `succeeded`, `configNumberError`, `inconsistentEdit`, `tooBig`, `localNVStoreFail`, `editBufferEmpty`, and `someOtherError`.

**Buffer Owner**
The management station which is currently using the Edit Buffer for this management domain.

**Revision No.**
The Configuration Revision Number to be used for the next apply operation.

**VLAN Edit Buffer Table**
This Buffer Table provides information concerning the current state of VLAN and statistics.

**Index**
Number identifying particular VLAN.

**VLAN State**
The current state of VLAN. Possible values are: `operational`, `suspended`, `mtuTooBigForDevice`, and `mtuTooBigForTrunk`.

**VLAN Type**
The type of this VLAN. Possible values are: `ethernet`, `fddi`, `tokenRing`, `fddiNET`, `trNet`, and `vlandeprecated`.

**Name**
The name of this VLAN.

**Trans VLAN1**
A VLAN to which this VLAN would be translational-bridged.
**Application Views**

**Trans VLAN2**
A VLAN, other than VLAN1, to which this VLAN would be translational-bridged.

**MTU Size**
The MTU size on this VLAN, defined as the size of largest MAC layer.

**SAID**
The value of the 802.10 SAID field which would be used for this VLAN.

**Ring No.**
The ring number for this VLAN.

**Bridge No.**
The bridge number of the VTP-capable switches which would be used for this VLAN.

**Stp Type**
The type of the Spanning Tree Protocol (STP) which would be running on this VLAN.

**Parent**
The index of the VLAN which would be the parent for this VLAN.

**Bridge**
The type of bridging mode in use on this VLAN.

**Are Hop Count**
Displays the maximum number of routing descriptors allowed in All Routes Explorer (ARE) Frames on this VLAN.

**Ste Hop Count**
The maximum number of routing descriptors allowed in Spanning Tree Explorer (STE) frames on this VLAN.

**Row Status**
Displays whether row is active or inactive.

The field at the bottom of the view is described as follows:

**Notifications Enabled**
Valid options are: True, and False.

**Cisco Trunk Port Information View**

Access: From the Icon Subviews menu for the CiscoVTPApp Application icon, select Trunk Port Information.

This table contains information on the local system’s VLAN trunk ports. It displays the following information:

**Index**
The management domain index on this trunk port.
**Man Domain**
The value of the management domain index on this trunk port.

**Encapsulation**
The type of VLAN encapsulation used on this trunk port.

**Native Vlan**
The Vlan Index of the VLAN which is represented by native frames on this trunk port. For trunk ports not supporting the sending and receiving of native frames, this value should be set to zero.

**Row Status**
The status of this row. In some circumstances, the creation of a row is needed to enable the appropriate trunking/tagging protocol on the port, to enable the use of VTP and to assign the port to the appropriate management domain. Frequently, rows in this table will be created as a by-product of other operations.

**In Joins**
The number of VTP Join messages sent on this trunk port.

**Out Joins**
The number of VTP Out Join messages sent on this trunk port.

**Out Adverts**
The number of VTP Advertisement messages which indicated the sender does not support VLAN-pruning received on this trunk port.

**Dynamic**
For devices that allow dynamic determination of whether a line between two (or more) switches should be a trunk or not, this object allows the operator to mandate the behavior of that dynamic mechanism. **On** dictates that the interface will always be a trunk. This is the value for static entries (those that show no dynamic behavior). **Off** allows an operator to specify that the interface is never to be trunk, regardless of any dynamic mechanisms to the contrary. This value is useful for overriding the default behavior of some switches. **Desirable** is used to indicate that it is desirable for the interface to become a trunk. The device will initiate any negotiation necessary to become a trunk but will not become a trunk unless it receives confirmation from other participants on the link. **Auto** is used to indicate that the interface is capable and willing to become a trunk but will not initiate trunking negotiations. Other participants on the link are required to either start negotiations or start sending encapsulated packets, on which event the specified interface will become a trunk. Devices
that do not support dynamic determination need only support the on and off values.

**Status**
Indicates whether or not the interface is acting as a trunk.

**VTP Enabled**
Some trunk interface modules allow VTP to be enabled/disabled separately from that of the central device. In such an instance this object provides management a way to remotely enable VTP on that module. If a module does not support a separate VTP enabled state then this object.

**DTR Concentrator Application**
This major application (model type DTRConcApp) provides the following application-specific views:

- **Concentrator Relay Function View**
- **Spanning Tree Information View** (Page 34)
- **Static/Dynamic Filtering View** (Page 35)
- **Port Mask Information View** (Page 40)

---

**Concentrator Relay Function View**

**Access:** From the **Icon Subviews** menu for the DTRConcApp Application icon, select **Concentrator**.

This view contains information for each Concentrator Relay Function (CRF) in the Dedicated Token Ring (DTR) Concentrator. The view contains the Concentrator Relay Table described below, as well as three fields, described after the table:

**Index**
The CRF number identifying this instance of CRF.

**No. Ports**
The number of CRF Ports controlled by this CRF.

**Port Mask**
The set of ports that are associated with this instance of a CRF. Each octet within the value of this object specifies a set of 8 ports, with the first octet specifying ports 1 through 8, the second octet specifying ports 9 through 16, and so on. Within each octet, the most significant bit represents the lowest numbered port, and the least significant bit represents the highest numbered port. Writing this variable will modify the CRF configuration and update the value contained in the **No. Ports** column.
**Name**
The textual name of the CRF. The value of this object is the name of the CRF as assigned by the DTR Concentrator, and is suitable for use in commands entered at the DTR Concentrator console.

**Max. Info**
The maximum size of the INFO field the CRF can transmit/receive.

**MAC Address**
The MAC address used with the **Priority** (Page 35) to form the CRF Identifier used in the spanning tree protocol. This address must be unique and it is recommended this address be the specific MAC address of the lowest numbered C-port.

**Lan ID**
This is the value of the local Lan ID used by the CRF. This value may be assigned or may be learned by the CRF learning process. Valid values range from 0 to 4095. The value of 65535 indicates that the Lan ID value has not been assigned or learned.

**Admin Lan ID**
Write to this object to assign the value of the local Lan ID used by the CRF. Valid values range from 0 to 4095. The value of 65535 indicates that the Lan ID value has not been assigned.

**Aging Time**
The time out period in seconds for aging out dynamic entries from the Filtering Database. Recommended default is 300 seconds.

**MRI Enable**
This object enables or disables the MRI function in the CRF.

**Learned Discards**
The total number of CRF Filtering Database entries, which have been or would have been learned, but have been discarded due to a lack of storage space in the Filtering Database.

The three fields at the bottom of the view are described as follows:

**Concentrator Address**
MAC address used by DTR Concentrator for uniqueness.

**No. of Conc. Relay Functions**
Number of CRFs within the DTR Concentrator. Writing this object sets the number of CRFs within the DTR Concentrator. The minimum value is 1.

**No. of Bridge Relays**
Number of Bridge Relay Functions within the DTR Concentrator. Valid values are: 0 and 1.
Spanning Tree Information View

**Access:** From the **Icon Subviews** menu for the DTRConcApp Application icon, select **Spanning Tree**.

This view consists of seven fields which are described below, and the *Spanning Tree Table* (Page 35).

**Spanning Tree Hold Time**
The minimum time period, in seconds, elapsing between the transmission of Configuration PDUs through a given port (CRF or internal bridge). This is a fixed parameter of the DTR Concentrator used by all member CRF and bridge entities. Value specified by 802.1d is 1 second.

**Protocol Specification**
The version of Spanning Tree Protocol being run on the DTR Concentrator.

**Time Since Last Change**
The time (in 1/100ths of a second) since the last topology change was detected by the CRF or bridge entities within the DTR Concentrator.

**No. of Topology Changes**
The total number of topology changes detected by this concentrator since the management entity was last reset or initialized.

**Bridge Forward Delay**
The value that all spanning tree protocol entities (CRF or Bridge) use for Forward Delay when this spanning tree protocol entity is acting as the root. The range for this parameter is related to the value of *Maximum Age* (Page 35). The granularity of this timer is specified to be 1 second. An agent may return a “badValue” error if a set is attempted to a value which is not a whole number of seconds.

**Bridge Hello Time**
The value that all spanning tree protocol entities (CRF or Bridge) use for Hello Time when this spanning tree protocol entity is acting as the root. The granularity of this timer is specified to be 1 second. An agent may return a “badValue” error if a set is attempted to a value which is not a whole number of seconds.

**Bridge Hello Max. Age**
The value that all spanning tree protocol entities (CRF or Bridge) use for Maximum Age when this spanning tree protocol entity is acting as the root. The range for this parameter is related to the value of *Bridge Hello Time*. The granularity of this timer is specified to be 1 second. An agent may return a “badValue” error if a set is attempted to a value which is not a whole number of seconds.
Application Views

**Spanning Tree Table**
This table contains the spanning tree information for each CRF.

**Index**
The CRF number identifying the instance.

**Priority**
The value of the writable portion of the CRF Identifier, which are the first two octets of the CRF Identifier. The last 6 octets of the CRF ID are given by the value of the MAC Address (Page 33).

**Designated Root**
The bridge identifier of the root of the spanning tree as determined by the Spanning Tree Protocol executed at this node.

**Root Cost**
The cost of the path to the root as seen from this CRF.

**Root Port**
The CRF Port number of the CRF Port which offers the lowest cost path from this CRF to the root.

**Maximum Age**
The maximum age of Spanning Tree Protocol information learned from the network on any port (CRF or bridge within the DTR Concentrator) before it is discarded. Units are in 1/100th of a second. This is the value currently in use.

**Hello Time**
The amount of time between transmission of Configuration bridge PDUs used by a CRF that is attempting to become the Root or is the Root. This is the value currently in use.

**Forward Delay**
The time value, measured in 1/100th of a second, is used to control the amount of time spent in the Listening state when moving from the Blocking state to the Listening state and the amount of time in the Learning state when moving from the Learning state to the Forwarding state. This time value is used for aging dynamic entries in the Filtering Database while the Topology Change flag is set in protocol messages received from the root. This is the value the CRF is currently using.

**Static/Dynamic Filtering View**

*Access:* From the **Icon Subviews** menu for the **DTRConcApp Application icon**, select **Filtering**.

This view contains two tables; **Dynamic MAC Table** (Page 36) and **Dynamic Route Table** (Page 36).
Dynamic MAC Table

This table contains information about specific dynamic MAC address entries in the CRF Filtering Database.

**Index.Station**
The Index is a CRF number identifying this instance of CRF. The Station is a unicast MAC address for which the CRF has forwarding information. This object is updated by the Learning Process in the CRF.

**Port No.**
The CRF Port number of the CRF Port that a frame with an address matching Station Address (see Index.Station) has been seen. A value of zero is assigned when Station Address is known, but the CRF Port number has not been learned.

**Status**
Status of this entry. See Table 6:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>other</td>
<td>Indicates some other MIB object (not the corresponding instance of the Port No., nor an entry in the Static Address Table) is being used to determine if and how frames addressed to the value of the corresponding instance of Station Address are forwarded.</td>
</tr>
<tr>
<td>invalid</td>
<td>Indicates this entry is no longer valid, but has not been flushed from the table.</td>
</tr>
<tr>
<td>learned</td>
<td>Indicates the Port No. for this entry was learned, and is being used.</td>
</tr>
<tr>
<td>self</td>
<td>Indicates this instance of Station Address represents one of the CRF Addresses. The corresponding instance of the Port No's. indicates which CRF Port has this address.</td>
</tr>
<tr>
<td>mgmt</td>
<td>Indicates the corresponding instance of Station Address is also a value of an existing Station Address.</td>
</tr>
</tbody>
</table>

Dynamic Route Table

This table contains information about a specific dynamic route descriptor entry in the CRF Filtering Database.
**Index.Route**
The **Index** is the CRF number identifying this instance of CRF. The **Route** is a Destination Route Descriptor (DRD) for which the CRF has forwarding information. The DRD consists of 2 parts; a 4 bit Bridge Number and a 12 bit LAN ID. This identifies a bridge (BN) which has a port on the local LAN and a port connected to the indicated LAN ID. This object consists of 3 octets so that it can be easily compared with the RI fields of frames with routing information. The first octet contains the BN in the 4 least significant bits. The second octet contains the most significant octet of the LAN ID and the final octet contains the least significant 4 bits of the LAN ID in the 4 most significant bits of the octet.

**Port No.**
The CRF Port number of the CRF Port on which a frame with a DRD matching DRD Route (see Index.Route) has been seen. A value of zero is assigned when DRD Route is known, but the CRF Port number has not been learned.

**Status**
Status of this entry. See Table 7:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>other</td>
<td>This includes the case where some other MIB object is being used to determine how/if a frame containing this DRD is forwarded.</td>
</tr>
<tr>
<td>invalid</td>
<td>Indicates this entry is no longer valid, but has not been flushed from the table.</td>
</tr>
<tr>
<td>learned</td>
<td>Indicates the Port No. for this entry was learned.</td>
</tr>
<tr>
<td>internal Bridge Relay Function</td>
<td>Indicates DRD Route represents a relay across the Bridge Relay Function of this DTR Concentrator.</td>
</tr>
<tr>
<td>mgmt</td>
<td>Indicates DRD Route is also a value of an existing Static RD Route in the dtrFdbStaticRDTable.</td>
</tr>
</tbody>
</table>

**Static Filtering**
This button accesses the Static/Dynamic Table (Page 38). This view contains static and dynamic MAC address entries.
**Static/Dynamic Table**

*Access:* Select the Static Filtering button from the Static/Dynamic Filtering view.

This view contains two tables, _Static MAC_ and _Static Route Table_ (Page 39).

**Static MAC**

This table contains information about specific static MAC address entries in the CRF Filtering Database.

**Index.Station**

The _Index_ is the CRF number identifying this instance of CRF. The _Station_ is the destination MAC address in a frame to which this entry’s filtering information applies. This object can take the value of a group or broadcast address.

**Row Status**

Allows creation and deletion of static entries. Values are: active, notInService, notReady, createAndGo, createAndWait, and destroy.

**Addr In Mask**

The set of CRF Ports receiving frames with a destination address matching the address specified by the Station Address (see Index.Station) in this entry which may forward this frame to any output CRF Port indicated by the Addr Out Mask. Each octet within the value of this object specifies a set of eight ports, with the first octet specifying CRF Ports 1 through 8, the second octet specifying CRF Ports 9 through 16 and so on. Within each octet, the most significant bit represents the lowest numbered port, and the least significant bit represents the highest numbered port. The default value of this object is a string of ones of appropriate length.

**Addr Out Mask**

The set of CRF Ports to which frames with a destination address matching the address specified by the Station Address in this entry may be forwarded. Each octet within the value of this object specifies a set of eight ports, with the first octet specifying CRF Ports 1 through 8, the second octet specifying CRF Ports 9 through 16 and so on. Within each octet, the most significant bit represents the lowest numbered port, and the least significant bit represents the highest numbered port. The default value of this object is a string of ones of appropriate length.

**Addr Status**

Status of this entry. Values are: other, invalid, permanent, and deleteOnReset. See Table 8:
**Table 8: Status of Static MAC Table Entries**

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>other</td>
<td>Indicates this entry is currently in use under conditions different from the available status definitions that follow.</td>
</tr>
<tr>
<td>invalid</td>
<td>Indicates this entry is no longer valid, but has not been flushed from the table. Writing this value to the object removes the entry.</td>
</tr>
<tr>
<td>permanent</td>
<td>Indicates this entry is currently in use and will remain so after the next reset.</td>
</tr>
<tr>
<td>deleteOnReset</td>
<td>Indicates the entry is currently in use and will remain so until the next reset.</td>
</tr>
</tbody>
</table>

**Static Route Table**

A table containing information about specific static route descriptor entries in the CRF Filtering Database.

**Index.Route**

The Index is the CRF number identifying this instance of CRF. The Route refers to Static Entries containing DRD information for internal Bridge Ports. These entries are added as part of the initialization of the DTR Concentrator when an internal Bridge Relay Function is enabled (No. of Bridge Relays =1). The Destination Route Descriptor (DRD) consists of 2 parts; a 4 bit Bridge Number and a 12 bit LAN ID. This identifies a bridge (BN) that has a port on the local LAN and a port connected to the indicated LAN ID. This object consists of 3 octets so that it can be easily compared with the RI fields of frames with routing information. The first octet contains the BN in the 4 least significant bits. The second octet contains the most significant octet of the LAN ID and the final octet contains the least significant 4 bits of the LAN ID in the 4 most significant bits of the octet.

**Row Status**

Allows creation and deletion of static entries. Values are: active, notInService, notReady, createAndGo, createAndWait, and destroy.

**Port No**

The CRF Port on which a frame with a DRD matching route status description (Table 9) in this status is forwarded.

**Route Status**

Status of this entry. See Table 9:
**Add Entry**

The **Add Entry** button allows you to add new entries to the *Static/Dynamic Table* (Page 38). Fields in this view correspond to the column headings in the Static/Dynamic Table.

### Table 9: Route Status in Static Route Table

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>other</td>
<td>Indicates this entry is currently in use under conditions different from the available status definitions that follow.</td>
</tr>
<tr>
<td>invalid</td>
<td>Indicates this entry is no longer valid, but has not been flushed from the table.</td>
</tr>
<tr>
<td>permanent</td>
<td>Indicates the entry is currently in use and will remain so after the next reset.</td>
</tr>
<tr>
<td>deleteOnReset</td>
<td>Indicates the entry is currently in use and will remain so until the next reset.</td>
</tr>
</tbody>
</table>

**Port Mask Information View**

**Access:** From the *Icon Subviews* menu for the DTRConcApp Application icon, select **Port Mask**.

This table contains information about the CRF port out mask for specific management functions.

**Index.Type**

The **Index** refers to the CRF number identifying this instance of CRF. The **Type** identifies the function class for this entry. The MRI forwards frames with a destination class equal to Index.Type using the corresponding mask entry. When the destination class is 0 and the source class is not 0, the destination address in the MAC frame is used to forward the frame. MAC frames with a destination class not found in this table are not forwarded by the MRI.

**Port Out Mask**

The set of CRF Ports to which frames with a destination class matching the function class specified by the **Index.Type** in this entry may be forwarded to. Each octet within the value of this object specifies a set of eight ports, with the first octet specifying CRF Ports 1 through 8, the second octet specifying CRF Ports 9 through 16 and so on. Within each octet, the most significant bit represents the lowest numbered port, and the least significant bit represents the highest numbered port.
STS16 Applications

This major application (model type STS16App) provides access to the following application-specific subviews via the Icon Subviews menu:

- Power Supply Information View
- STS16 Stack Configuration View (Page 94)
- Probe/Crosslink Configuration View (Page 104)
- TrCRF Configuration View (Page 105)
- TrBRF Configuration View (Page 107)
- Filter Configuration View (Page 108)

The STS16App is the major application to these three minor applications which will be covered following descriptions of the above icon subviews.

- ATM Uplink Application (Page 42)
- Fast Ethernet Uplink Application (Page 49)
- High Speed Token Ring Uplink Application (Page 50)

Power Supply Information View

Access: From the Icon Subviews menu for the STS16App Application icon, select Power Supply.

This view provides statistical information regarding power supply performance. The table has standard Sort, Find, Update, and Print buttons (see SPECTRUM Views), as well as the following column headings:

- Switch
  Switch number as determined by the port number that the switch is connected to in a Matrix or as determined by the Stack Management software when two switches are connected back to back.

- Power Supply
  The power supply number. For an OC-8600; 1 is the internal PSU, 2 is the external PSU.

- State
  The state indicates the current operational state of the selected power supply. Values are: not-present, operational, failed, ac-Failure, and dc-Failure.

- Number Changes
  The number of times the power supply changed state since reset.

- Time Since Last Change
  Time ticks since the power supply entered this state.
ATM Uplink Application

The STS16App provides access to the ATMULApp minor application with the following icon views:

- **Permanent Virtual Connections View**
- **Traffic Profiles View** (Page 43)
- **VCC Status Information** (Page 46)
- **ATM Uplink Configuration View** (Page 65)
- **Signaling Configuration View** (Page 92)

Permanent Virtual Connections View

*Access:* From the **Icon Subviews** menu for the ATMULApp Application icon, select **PVC Config**.

This view accesses a table for setting up Permanent Virtual Connections (PVCs). The Permanent Virtual Connections Table has standard **Sort**, **Find**, **Update**, **Print** and **Add Entry** buttons (see **SPECTRUM Views**). Column headings are described below.

**Index.VPI.VCI**
This field specifies Virtual Path Identifier (VPI) and Virtual Channel Identifier (VCI). The null VCC (0/0) is reserved for sending unassigned cells.

**Note:** Specifying pvcVpi/pvcVci as 0/0 is not allowed.

ATM Address
Specifies the target ATM address. Specifying the **ATM Address** as all zeros is not allowed.

**Type**
Specifies the type of configured PVC.

**Traffic Profile**
Values 0..63 selects a traffic profile for this PVC from the **Traffic Profiles View** (Page 43). The value (-1) selects the default hardware traffic profile.

**VAP Index**
Specifies the VAP to which this PVC belongs.

**Row Status**
Used to control creation and deletion of new rows in the table. When a VAP/LEC is deleted (e.g. by writing **destroy** to Row Status, PVCs belonging to this VAP/LEC are automatically deleted. Values are: active, notInService, notReady, createAndGo, createAndWait, and destroy.

**Add Entry**
Opens the **Add PVC Table Entry** view.
Add PVC Table Entry

Access: From the Permanent Virtual Connections View, click on the Add Entry button.

From within this view, you can add entries into the Permanent Virtual Connections View (Page 42). Fields in this view correspond to the column headings in the Permanent Virtual Connections View.

Traffic Profiles View

Access: From the Icon Subviews menu for the ATMULApp Application icon, select Traffic Profile.

This view accesses the Traffic Profiles Table, which defines up to 64 traffic profiles that are usable by all VAPs on a particular AUM. By default, 10 traffic profiles will be defined for each AUM. These default traffic profiles have the characteristics listed in Table 10:

<table>
<thead>
<tr>
<th>Index</th>
<th>Type</th>
<th>Descr Param1</th>
<th>Descr Param2</th>
<th>Qos Class</th>
<th>Row Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>bestEffort(9)</td>
<td>353208 (~155 Mbps)</td>
<td>5 = N/A</td>
<td>qosNone(5)</td>
<td>active(1)</td>
</tr>
<tr>
<td>1</td>
<td>bestEffort(9)</td>
<td>235849 (~100 Mbps)</td>
<td>5 = N/A</td>
<td>qosNone(5)</td>
<td>active(1)</td>
</tr>
<tr>
<td>2</td>
<td>bestEffort(9)</td>
<td>96000 (~43 Mbps)</td>
<td>5 = N/A</td>
<td>qosNone(5)</td>
<td>active(1)</td>
</tr>
<tr>
<td>3</td>
<td>bestEffort(9)</td>
<td>81056 (~34 Mbps)</td>
<td>5 = N/A</td>
<td>qosNone(5)</td>
<td>active(1)</td>
</tr>
<tr>
<td>4</td>
<td>bestEffort(9)</td>
<td>59259 (~25 Mbps)</td>
<td>5 = N/A</td>
<td>qosNone(5)</td>
<td>active(1)</td>
</tr>
<tr>
<td>5</td>
<td>bestEffort(9)</td>
<td>23585 (~10 Mbps)</td>
<td>5 = N/A</td>
<td>qosNone(5)</td>
<td>active(1)</td>
</tr>
<tr>
<td>6</td>
<td>bestEffort(9)</td>
<td>2358 (~1 Mbps)</td>
<td>5 = N/A</td>
<td>qosNone(5)</td>
<td>active(1)</td>
</tr>
<tr>
<td>7</td>
<td>bestEffort(9)</td>
<td>1208 (~512 Kbps)</td>
<td>5 = N/A</td>
<td>qosNone(5)</td>
<td>active(1)</td>
</tr>
<tr>
<td>8</td>
<td>bestEffort(9)</td>
<td>604 (~256 Kbps)</td>
<td>5 = N/A</td>
<td>qosNone(5)</td>
<td>active(1)</td>
</tr>
<tr>
<td>9</td>
<td>bestEffort(9)</td>
<td>353 (~150 Kbps)</td>
<td>5 = N/A</td>
<td>qosNone(5)</td>
<td>active(1)</td>
</tr>
</tbody>
</table>
**Index.Profile**  
Identifies a particular traffic profile.

**Type**  
Specifies the traffic descriptor type. These types are combined with a five element parameter vector to describe a Traffic Descriptor. Traffic Descriptors along with a Best Effort Indicator are used to indicate a Conformance Definition. The **Type** textual convention defines combinations of the ILMI (cf. ATM Forum / af-ilmi-0065.000) Traffic Descriptor Type and Best Effort Indicator values for use with traffic profiles in SSIM-A2-02 and SSIM-A8-02 ATM SmartStack Interface Modules. Values are: **atmfNoClpNoScr**, **atmfNoClpScr**, **atmfClpNoTaggingScr**, **atmfClpTaggingScr**, **bestEffort**, and **atmClpABR**.

**Descr Param1 through Param5**  
All of these parameters have the same description. Traffic descriptor dependent parameter; its semantics are dependent on the value in the **Type** column. Please, refer to the description of the different Traffic Descriptor Types (**Type**) which describes these changing semantics in detail.

**Qos Class**  
Quality Of Service Class for this traffic profile. The **QosClass** textual convention is defined to identify the four service classes specified in the ATM Forum UNI Specification (see **Table 11**):

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Class A</td>
<td>Constant bit rate video and Circuit emulation.</td>
</tr>
<tr>
<td>Service Class B</td>
<td>Variable bit rate video/audio.</td>
</tr>
<tr>
<td>Service Class C</td>
<td>Connection-oriented data.</td>
</tr>
<tr>
<td>Service Class D</td>
<td>Connectionless data.</td>
</tr>
</tbody>
</table>

Four QoS classes named **qos1**, **qos2**, **qos3**, and **qos4** have been specified with the aim to support service classes A, B, C, and D respectively. An unspecified QoS Class named **qosNone** is used for best effort traffic.

**Row Status**  
Used to control creation and deletion of new rows in the table. Values are: **active**, **notInService**, **notReady**, **createAndGo**, **createAndWait**, and **destroy**.

Opens the **Add Traffic Profiles Entry** (Page 45) view.
Add Traffic Profiles Entry

**Access:** From the Traffic Profiles View, click on the Add Entry button.

From within this view, you can add entries into the Traffic Profiles View (Page 43). Fields in this view correspond to the column headings in the Traffic Profiles View.

Profile Mapping

Click this button to access the VAP Traffic Profile Mapping View. This view maps select traffic profiles to select traffic profiles for outgoing connections.

VAP Traffic Profile Mapping View

This view shows the Traffic Profile Mapping Table. This table contains up to 10 traffic profile mappings for each VAP in the system. These mappings are used to select traffic profiles for outgoing connections. They are tried one at a time (starting with Index.VAP.Map 0) until a matching profile is found. Refer to the description of ATM Address (Page 46) for more on matching traffic profiles. When a VAP is created, one default traffic profile mapping (Index.VAP.Map = 0) will be created for this VAP. This mapping has the following characteristics (see Table 12):

<table>
<thead>
<tr>
<th>Column Heading</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index.VAP.Map</td>
<td>0</td>
</tr>
<tr>
<td>ATM Address</td>
<td>all 0’s</td>
</tr>
<tr>
<td>Address Mask</td>
<td>all 0’s</td>
</tr>
<tr>
<td>Type</td>
<td>anyType(6)</td>
</tr>
<tr>
<td>Prof0</td>
<td>0</td>
</tr>
<tr>
<td>Prof1</td>
<td>1</td>
</tr>
<tr>
<td>Prof2</td>
<td>2</td>
</tr>
<tr>
<td>Prof3</td>
<td>3</td>
</tr>
<tr>
<td>Prof4</td>
<td>4</td>
</tr>
<tr>
<td>Prof5</td>
<td>5</td>
</tr>
<tr>
<td>Prof6</td>
<td>6</td>
</tr>
<tr>
<td>Prof7</td>
<td>7</td>
</tr>
<tr>
<td>Prof8</td>
<td>8</td>
</tr>
<tr>
<td>Prof9</td>
<td>9</td>
</tr>
<tr>
<td>Row Status</td>
<td>active(1)</td>
</tr>
</tbody>
</table>

**Index.VAP.Map**

Selects one of up to 10 VAP specific mappings.
**ATM Address**

After the Address Mask has been applied (logical AND) to the destination ATM address, the result of this operation is compared to ATM Address. If the two match exactly and the Type matches that of the outgoing connection, the traffic profile specified by Prof0 through Prof9 is tried. If this call is rejected with cause "User cell rate not available", the traffic profile specified by Prof1 is tried and so on. If no match is found in this mapping, the next mapping is tried. This goes on until all mappings for this VAP have been tried. After this the Profile (Page 69) in the Specific VAP Configuration (Page 68) is tried.

**Address Mask**

An ATM address mask that is applied (logical AND) to the destination ATM address before it is compared to ATM Address of this traffic profile mapping.

**Type**

Specifies VCC type of this mapping. Values are: dataDirectVcc, controlDirectVcc, controlDistributeVcc, multicastSendVcc, multicastForwardVcc, and anyType.

**Prof0 through Prof9**

All of these columns have the same description: Prof"x" corresponds to a NULL pointer. 0..63 selects a particular entry in the Index.Profile (Page 44).

**Row Status**

Used to control creation and deletion of new rows in the table. When a VAP/LEC is deleted (e.g. by writing destroy to lecRowStatus), traffic profile maps belonging to this VAP/LEC are automatically deleted. Values are: active, notInService, notReady, createAndGo, createAndWait, and destroy.

**Add Mapping Table Entry**

Opens the Add Mapping Table Entry view.

**Add Mapping Table Entry**

Access: From the VAP Traffic Profile Mapping View, click on the Add Entry button.

From within this view, you can add entries into the VAP Traffic Profile Mapping View (Page 45). Fields in this view correspond to the column headings in the VAP Traffic Profile Mapping View.

**VCC Status Information**

Access: From the Icon Subviews menu for the ATMULApp Application icon, select VCC Config.

This table contains status information about all open VCCs on an ATM Uplink Module.
**Index.VPI.VCI**
This field specifies the Virtual Path Identifier (VPI) and Virtual Channel Identifier (VCI) of the VCC in question.

**Usage**
Use of the VCC. Values are described in Table 13:

<table>
<thead>
<tr>
<th>Usage</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>sscop</td>
<td>1</td>
</tr>
<tr>
<td>ilmi</td>
<td>2</td>
</tr>
<tr>
<td>oam</td>
<td>3</td>
</tr>
<tr>
<td>laneConfig</td>
<td>4</td>
</tr>
<tr>
<td>laneControlDirect</td>
<td>5</td>
</tr>
<tr>
<td>laneControlDistribute</td>
<td>6</td>
</tr>
<tr>
<td>laneMulticastSend</td>
<td>7</td>
</tr>
<tr>
<td>laneMulticastForward</td>
<td>8</td>
</tr>
<tr>
<td>laneDataDirect</td>
<td>9</td>
</tr>
</tbody>
</table>

**Create Means**
Means by which VCC was created. See Table 14.

<table>
<thead>
<tr>
<th>VCC Creation</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>system</td>
<td>1</td>
</tr>
<tr>
<td>pvc</td>
<td>2</td>
</tr>
<tr>
<td>incomingPoint2PointSvc</td>
<td>3</td>
</tr>
<tr>
<td>outgoingPoint2PointSvc</td>
<td>4</td>
</tr>
<tr>
<td>incomingPoint2MultipointSvc</td>
<td>5</td>
</tr>
<tr>
<td>outgoingPoint2MultipointSvc</td>
<td>6</td>
</tr>
</tbody>
</table>

**TxTrafficDescType**
Traffic descriptor type of VCC. Information about possible values and their semantics is listed in Table 15.

**Instnc**
When **Usage** has one of the lane values, Instance holds the number of the corresponding VAP. Instance is not valid for other values of **Usage**.
**Application Views**

**Supported Applications**

**Device Management 4 8 SmartSTACK Token Ring Switches**

---

**Table 15: Traffic Descriptor Values**

<table>
<thead>
<tr>
<th>Traffic Descriptor</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>atmNoClpNoScr</td>
<td>3</td>
</tr>
<tr>
<td>atmNoClpScr</td>
<td>6</td>
</tr>
<tr>
<td>atmClpNoTaggingScr</td>
<td>7</td>
</tr>
<tr>
<td>atmClpTaggingScr</td>
<td>8</td>
</tr>
<tr>
<td>bestEffort</td>
<td>9</td>
</tr>
<tr>
<td>atmClpABR</td>
<td>10</td>
</tr>
</tbody>
</table>

---

**Tx Param1 through Param5**
Traffic descriptor type dependent parameter. Semantics are dependent on the value of Tx Traffic Descriptor Type.

**Qos CIs**
Quality Of Service Class for the VCC. Values are: qos1, qos2, qos3, qos4, and qosNone.

**TxF Disc**
Shows whether the ATM switch is allowed (true = allowed, false = not allowed) to discard entire (AAL5) frames after having discarded one cell from such a frame. Values are: true, or false.

**VCC Service Cat**
Service category of VCC. Values are: other (1), cbr, rtVbr, nrtVbr, abr, and ubr.

**ATM Address**
When Usage has the laneDataDirect value, ATM Address holds the ATM Address of the remote end station or proxy client. ATM Address is not valid for other values of Usage.

**Tx Frames**
Number of (AAL5) frames transmitted on this VCC.

**TxHiByte**
Together TxHiByte and TxLoByte implement a virtual 64 bit Tx Bytes counter counting number of bytes transmitted on this VCC. TxHiByte contains the most significant 32 bits and TxLoByte the least significant 32 bits of this virtual counter.

**Rx Frames**
Number of (AAL5) frames received on this VCC.

**RxHiByte**
Together RxHiByte and RxLoByte implement a virtual 64 bit Rx Bytes counter counting number bytes received on this VCC. RxHiByte contains
the most significant 32 bits and RxLoByte the least significant 32 bits of this virtual counter.

**RxLoByte**
See description for **RxHiByte**.

**Fast Ethernet Uplink Application**

The FEULApp provides access to this minor application with the following icon subviews:

- **Fast Ethernet Uplink DS21143 View**
- **Fast Ethernet Uplink Configuration (Page 76)**
- **Model Information Views (Page 119)**

**Fast Ethernet Uplink DS21143 View**

*Access:* From the **Icon Subviews** menu, select **DS21143 Diagnostics**.

This table contains diagnostics counters corresponding to registers in the Digital Semiconductors 21143 chip used on the TB uplink module. The counters are mainly for diagnostics purposes.

**Index.Port**
Index to identify port on module. Port 1 is the port to the left and port 2 is the port to the right.

**Last Reset**
Time since Last Reset/Creation.

<table>
<thead>
<tr>
<th>Bytes Rcv</th>
<th>The number of bytes received.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bytes Sent</td>
<td>The number of bytes sent.</td>
</tr>
<tr>
<td>Frames Rcv</td>
<td>The number of frames received.</td>
</tr>
<tr>
<td>Frames Sent</td>
<td>The number of frames sent.</td>
</tr>
<tr>
<td>MCast Bytes Rx</td>
<td>The number of multicast bytes received.</td>
</tr>
<tr>
<td>Mcast Frames Rx</td>
<td>The number of multicast frames received.</td>
</tr>
<tr>
<td>Frms Tx Deferred</td>
<td>The number of transmitted frames that have been deferred.</td>
</tr>
<tr>
<td>Frms Tx Sngl Col</td>
<td>The number of transmitted frames which had a single collision.</td>
</tr>
<tr>
<td>Frms Tx Mltpl Col</td>
<td>The number of transmitted frames which had multiple collisions.</td>
</tr>
<tr>
<td>Tx Failed Col</td>
<td>The number of transmitted frames which had failed collisions due to CSMA/CD.</td>
</tr>
</tbody>
</table>
**Application Views**

**High Speed Token Ring Uplink Application**

The HSTRULApp provides access to this minor application with the following icon subviews:

- HSTR ThunderLAN Diagnostics Table
- HSTR Uplink Configuration Table (Page 86)
- Model Information Views (Page 119)

**HSTR ThunderLAN Diagnostics Table**

*Access: From the Icon Subviews menu for the HSTRULApp, select ThunderLAN.*

This table contains diagnostics counters corresponding to registers in the Texas Instruments ThunderLAN chip used on the HSTR uplink module.

**Index**

The module index selects the appropriate User Expansion Module (UEM, in this case a HSTR Uplink Module) in the switch stack. See Table 22, HSTR Uplink Module Indices (Page 86).

The following counters are mainly for diagnostics purposes:

- Tx Good
- Tx Underrun
- Tx Deferred

**Supported Applications**

**Device Management**

**Tx Fail Carr Fail**
The number of carrier signals that failed.

**Tx Fail Shrt Circ**
The number of transmitted failed due to short circuiting.

**Tx Fail Open Circuit**
The number of transmitted failed due to open circuits.

**Tx Fail RmtRx**
The number of transmitted failures from remote receiver.

**Fail Blk Err**
The number of failed bulk errors.

**Rx Fail Framing Err**
The number of failed framing errors that have been received.

**Rx Fail Frm Long**
The number of failed long frames that have been received.

**Rx Fail Frm Longrm Dest**
The number of frames longrm destinations that have been received.

**Data Overrun**
Signifies that the packet contained too much information.
Application Views

- Tx Single Coll
- Tx Multi Coll
- Tx Exces Coll
- Tx Late Coll
- Rx Good
- Rx Overrun
- Rx Crc Error
- Rx Code Error
- Rx Carrier Loss

Last Reset
Writing an INTEGER value to this object, causes all statistical counters in this table row to be reset.

DTR Mac MIB Applications

This major application (model type dtrMacApp) provides access to the following application-specific subview via the Icon Subviews menu:

- dot5 Statistics Information

The dtrMacApp is the following two minor applications are described:

- 802.5 Information for Interface Number (Page 52)
- dot5 Statistics Information

Supported Applications

dot5 Statistics Information

Access: From the Icon Subviews menu for the dtrMacMIBApp Application icon, select dot5 Statistics.

This view contains the following statistics:

Isolating Soft Errors
- Line
- Burst
- A/C
- Total

Non-Isolating Soft Errors
- Lost Frames
- Congestions
- Frame Copied
- Recoveries
- Token
- Total

Hard Errors
- Abort Trans
- Internal
- Signal Loss
- Lobe Wire
- Frequency
- Total
802.5 Information for Interface Number
This view will contain the same fields for all the interfaces.

Access: From the Icon Subviews menu for the dtrIfApp Application icon, select Configuration.

Commands
Values are: None, Open, Reset, and Close.

dtr Mode Select
Values are: Port, and Station.

Ring Speed
Values are: Unknown, 1-Megabit, 4-Megabits, and 16-Megabits.

Active Monitor Process
Values are: Participate, and DoNotParticipate.

Functional Address Bitmask
The bit mask of all Token Ring functional addresses for which this port will accept frames.

Ring State
The current port state with respect to entering or leaving the ring. Values are: Opened, Closed, Opening, and Closing.

Ring Open-Status
This field indicates the success or reason for failure of the station’s most recent attempt to enter the ring. Values are: No Open, Lobe Failed, Signal Loss, Insertion Timeout, Ring Failed, Beaconing, Duplicate MAC Address, Request Failed, Remove Received, and Open.

Stream Neighbor
The MAC address of the upstream neighbor in the ring.

Ring Status
The current status of the ring. This table displays the following fields which can be checked:

- RingRecovery
- SingleStation
- RemoveReceived
- Auto-RemovalError
- LobeWireFault
- TransmitBeacon
- SoftError
- HardError
- SignalLoss
Performance Views

This section provides brief descriptions of the Performance views available for models of SmartSTACK Token Ring switches in SPECTRUM.

Performance views provide statistical information about the operation of the device and packet frame information for the device and its ports. The following performance views are described in this section:

- **ATM Uplink Performance View**
  - VAP LANE and Outbound Performance View (Page 55)
  - ATM Diagnostics Table (Page 55)
- **DTR Concentrator Application Performance View** (Page 56)
- **Fast Ethernet Uplink Performance View** (Page 57)
  - Virtual Port Statistics Table (Page 57)
  - Fast Ethernet Virtual Port In Discards View (Page 58)
  - Fast Ethernet Virtual Port Out Discards View (Page 58)
- **Gen Bridge App** (Page 58)
- **HSTR Uplink Performance View** (Page 59)
  - HSTR Virtual Port Performance View (Page 60)
- **MAC Mib Performance View** (Page 60)
- **Switch Performance View** (Page 62)
  - Switch Port Performance View (Page 62)
- **Configuration Views** (Page 64)

For more information on Performance views, refer to the SPECTRUM Views documentation.

**ATM Uplink Performance View**

*Access:* From the Icon Subviews for the ATM Application Device icon, select **Performance**.

*Figure 12* (Page 54) shows an example of a Performance View. Other performance views described in this section contain different statistics and some may contain graphs.
Performance Views

This view provides the following performance statistics about the packets being passed through the device:

- Index.VAP
- Invld Rts
- Ring Mismatch
- Dup Ring
- Too Large
- Long Rte Descr
- Blckd MAC Filt
- Blckd SAP Filt
- CRF Mismatch
- EXP Overflow
- UF Non Src Rted
- UF Spec Rted
- UF STE Frame
- UF ARE Frame
- BF Non Src Rted
- BF Spec Rted
- BF STE Frame
- BF ARE Frame
- MF Non Src Rted
- MF Spec Rted
- MF STE Frame
- MF ARE Frame
- Rcv High Bytes
- Rcv Low Bytes
- FF Non Src Rted
- FF Spec Rted
- FF STE Frames
- FF ARE Frame
- Fwd High Bytes
- Fwd Low Bytes

Device Management
VAP LANE and Outbound Performance View

**Access:** From the ATM Uplink Performance View, select the VAP LANE/Outbound Statistics button.

This view provides the following performance statistics about the packets being passed through the device. It contains two tables, VAP Lane Statistics Table and Outbound Statistics Table.

**VAP Lane Statistics Table**

- Index.VAP
- VCC Discon Events
- VCC Fnd Events
- Last Reset

**Outbound Statistics Table**

- Index.VAP
- Bad Channels
- Invalid Tags
- Last Reset

**VAP LANE and Outbound Performance View - ATM Diagnostics Table**

**Access:** From the ATM Uplink Performance View, select the ATM Diagnostics button.

This view provides the following performance statistics about the packets being passed through the device:

- Index
- Dropped Pckts
- Crc Errors
- Overflow
- Too Long
- Too Short
- Unknown VCC
- Rcv High Byte
- Rcv Low Byte
- Tx High Byte
- Tx Low Byte
- Last Reset
Ctron ATM App

Access: From the Icon Subviews menu for the Ctron ATM App Application Device icon, select Performance.

This view provides the following performance statistics about the packets being passed through the device:

- In Load
- In Cell Rate
- Error Rate
- Out Load
- Out Cell Rate
- % Discard

Cisco VTP Application Performance View

Access: From the Icon Subviews menu for the Cisco VTP App Application Device icon, select Performance.

This view provides the following performance statistics about the packets being passed through the device:

- Index
- Summary
- In Subset
- In Requests

- Out Summary
- Out Subset
- Out Requests
- Rev. No. Errors
- Digest Errors

DTR Concentrator Application Performance View

Access: From the Icon Subviews menu for the DTR Concentrator Application Device icon, select Performance.

This view provides the following performance statistics about the packets being passed through the device:

- Index.Port
- IN ARE Frames
- Out ARE Frames
- In Frames
- Out Frames
- In SRF Frames
- Out SRF Frames
- In STE Frames
- Out STE Frames
- Invalid RI
- In Misdirected
- In Discard
Fast Ethernet Uplink Performance View

**Access:** From the Icon Subviews menu for the FEULApp Application icon, select **Performance**.

Physical port statistics counting LLC frames.

- Invld VLANs
- Invld Rtes
- Invld VLAN Tag
- IDF Too Lar
- IDF Block Mac Addr
- IDF Block SAP
- IDF CRF Mismatch
- IDF Blckd VPorts
- IDF Not Rec
- UF Non Src Rtd
- BF Non Src Rtd
- MF Non Src Rtd
- RX High Bytes
- RX Low Bytes
- FF Non Src Rtd
- FF Non Spec Rtd
- FF STE
- FF ARE
- Fwd High Byte
- Fwd Low Byte

Virtual Port Statistics Table

**Access:** From the Fast Ethernet Uplink Performance View, select the **Virtual Port Statistics** button.

This view provides the following performance statistics about the packets being passed through the device:

- Rx Frames
- Fwd Frames
- Tx Frames
- Last Reset
Fast Ethernet Virtual Port In Discards View

*Access:* From the **Virtual Port Statistics Table**, select the **Inbound Discards** button.

This view provides the following performance statistics about the packets being passed through the device:

- IP No Trans
- IP Trans Err
- IP Frag Err
- IPX No Trans
- IPX Trans Err
- Net Bios No Tran
- Net Bios Tran Err
- SNA No Trans
- SNA Trans Err
- SNAP No Trans
- SNAP Trans Err
- Gen No Trans
- Gen Trans Err

Fast Ethernet Virtual Port Out Discards View

*Access:* From the **Virtual Port Statistics Table**, select the **Outbound Discards** button.

This view provides the following performance statistics about the packets being passed through the device:

- Rx Frames
- Fwd Frames
- Tx Frames
- Last Reset

Gen Bridge App

*Access:* From the **Icon Subviews** menu for the Gen Bridge App Application Device icon, select **Performance**.

This view provides the following performance statistics about the packets being passed through the device:

- Received Rate
- % Filtered
- % Forwarded
- Transmitted Rate
HSTR Uplink Performance View

Access: From the Icon Subviews menu for the HSTRULApp Application icon, select Performance.

Physical port statistics counting LLC frames.

- Invld VLAN
- Invld Rtes
- Invld VLAN Tag
- Ring No Mis
- Dup Ring No
- IDF Too Lar
- IDF Long Rte Descr
- IDF Block MAC Addr
- IDF Block SAP
- IDF CRF Mismatch
- IDF Exp Overflows
- IDF Blkd VPorts
- UF Non Src Rtd
- UF Spec Rtd
- UF STE
- UF ARE
- BF Non Src Rtd
- BF Spec Rtd
- BF STE
- BF ARE
- MF Non Src Rtd
- MF STE
- MF ARE
- Rx High Byte
- Rx Low Byte
- FF Non Src Rtd
- FF Spec Rtd
- FF STE
- FF ARE
- Fwd High Byte
- Fwd Low Byte
- Invld Hdr Tag
- Unknown ring
- Inactive VP
- ODF Block SAP
- ODF Too Large
- TF Non Src Rtd
- TF Spec Rtd
- TF STE
- TF ARE
- Tx high Byte
- Tx Low Byte
- MAC Rx
- MAC Tx
- Last Reset
- ODF Inv Rte
HSTR Virtual Port Performance View

Access: From the HSTR Uplink Performance view, click the Virtual Port button.

This view provides the following performance statistics about the packets being passed through the device:

• RX Frames
• Fwd Frames
• Tx Frames
• Last Reset

MAC Mib Performance View

Access: From the Icon Subviews menu for the MAC Mib Application Device icon, select Performance.

This view provides the following performance statistics about the packets being passed through the device:

• Load
• Frame Rate
• % Error

MIB-II Performance View

Access: From the Icon Subviews menu for the MIB-II Application Device icon, select Performance.

This view provides the following performance statistics about the packets being passed through the device:

• Frame Rate
• % Received
• % Transmitted
• % Error
• % Discarded

Port Performance View

Access: From the Icon Subviews menu for a selected port label in either the Chassis Device view or the Chassis Device Topology view, select Port Performance.

This view provides the following statistical information about packet traffic through the selected port:

• Load
• Packet Rate
• % Error
• % Discarded
SNMP Agent Detail View

Access: From the MIB-II Performance View, select the Detail button.

This view provides the following performance statistics about the packets being passed through the device:

Packet Break Down
- Received
- Transmitted
- Errors
- Discarded
- Total

Errors in Breakdown
- ASN Parse Errs
- Too Big
- No Such Name
- Bad Values
- Gen Errs
- Total

Errors Out Breakdown
- Too Big
- No Such Name
- Bad Values
- Gen Errs
- Total

Discard Breakdown
- Bad Versions
- Bad Comm Name
- Bad Comm Uses
- Total

Receive Breakdown
- Get Requests
- Get Nexts
- Set Requests
- Total

Transmit Breakdown
- Get Responses
- Out Traps
- Total
**Switch Performance View**

*Access:* From the **Icon Subviews** menu for the STS16App Application Device icon, select **Performance**.

This view provides the following performance statistics about the packets being passed through the device:

- Switch
- Xmit Frames
- Rcvd Frames
- Rcvd Errors
- Lost Frames
- Pending Send
- Xmit Errors
- Active Stns
- Largest Stns
- Max Address
- Addr Tbl Full

**Switch Port Performance View**

*Access:* From the **Switch Performance View**, select the **Port Statistics** button.

This view provides the following performance statistics about the packets being passed through the device:

- Switch.Port
- Mod
- IF Index
- Rce Frames
- Fwd Frames
- Stats Station
- SW Handled
- Local Stns
- Remote Stns
- Unknown Frms
- Reset Timer
- In Frames
- Out Frames
- Long Frames
- Short Frames
- In Buf Overflow
- Out Buf Overflow
- Rcv BCasts
- Rcv MCasts
- Switched Frm
Performance Views

- Pkts In Err
- Addr Chain Over
- Config Loss
- Cfg Loss RC
- Auto Disable RC

Switch Performance View
Configuration Views

This section describes the various Configuration views and subviews available for models of SmartSTACK Token Ring switches in SPECTRUM.

Configuration views allow you to view and modify current settings for the modeled device and its interfaces, ports, and applications. The following Configuration views are available for models of STS16 devices:

- **Interface Configuration View**
- **ATM Uplink Configuration View** (Page 65)
- **Interface Configuration Table** (Page 75)
- **Fast Ethernet Uplink Configuration** (Page 76)
- **HSTR Uplink Configuration Table** (Page 86)
- **Signaling Configuration View** (Page 92)
- **STS16 Stack Configuration View** (Page 94)
- **Probe/Crosslink Configuration View** (Page 104)
- **TrCRF Configuration View** (Page 105)
- **TrBRF Configuration View** (Page 107)
- **Switch Port Table Entry** (Page 115)

**Interface Configuration View**

**Access:** From the **Icon Subviews** menu for a selected Interface icon in the Interface Device view, select **Interface Configuration**.

Figure 13 shows the Interface Configuration View. Other configuration views are described in this section, but contain different fields.
This view provides the following information for the selected interface:

**Operation Status**
The current operational state of the interface (Up, Down, or Testing).

**Admin. Status**
The desired operational state of the interface (Up, Down, or Testing).

**Last Change**
The System UpTime value when the interface entered its current operational state.

**IP Address/Network Mask**
This window provides a list of the user-defined names and IP addresses for the interface.

**Physical Address**
The Ethernet (MAC) address of the interface.

**Bandwidth**
The estimated bandwidth of the interface, measured in bits per second. For interfaces that do not vary in bandwidth, or no accurate estimate can be made, a nominal bandwidth is provided.

**Packet Size**
The largest packet that can be transmitted or received by the port, displayed in octets.

**Queue Length**
The length of the outbound packet queue, in packets.

**Func Addr**
Enables the IEEE Spanning Tree Protocol at the TrBRF level to use the IBM bridge functional.

---

**ATM Uplink Configuration View**

*Access:* From the Icon Subviews menu for the ATMULApp Application icon, select Configuration.

This view contains the ATM Uplink Info Table. It provides information about hardware and software version numbers. The buttons at the bottom of the view are described after the ATM Uplink Info Table.

**Index**
The module index selects the appropriate ATM Uplink Module (AUM) in the switch stack. The module’s indices are assigned in Table 16 (Page 66). The index field in certain views associated with this view correlates back to this Index description:
HW Product ID
A string containing the hardware product ID.

HW Version
A string containing the hardware version.

HW ECO Level
A string containing the ECO update level.

HW Serial No.
A string containing the hardware serial number.

SW Product ID
A string containing the software product ID.

SW Version
A string containing the software version.

SW ECO Level
A string containing the ECO update level.

Boot Prom
A string containing the Bootprom version number.

VAP Configuration
This button accesses the Common VAP Configuration View (Page 67), which contains configuration variables common to all Virtual ATM Ports (VAPs) of a given AUM.

Port Hardware
This button accesses the Port Hardware Setup View (Page 72). This view contains configuration variables that control different properties of the physical ATM port.

Message Log
This button accesses the Message Logs View (Page 72). This view implements a buffer containing the last 10 log messages generated by the ATM Uplink.

### Table 16: ATM Uplink Module Indices

<table>
<thead>
<tr>
<th>ATM Uplink Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>atmUplinkModuleIndex 1</td>
<td>Leftmost AUM in switch number 1</td>
</tr>
<tr>
<td>atmUplinkModuleIndex 2</td>
<td>Rightmost AUM in switch number 1</td>
</tr>
<tr>
<td>atmUplinkModuleIndex 3</td>
<td>Leftmost AUM in switch number 2</td>
</tr>
<tr>
<td>atmUplinkModuleIndex 4</td>
<td>Rightmost AUM in switch number 2</td>
</tr>
<tr>
<td>atmUplinkModuleIndex 16</td>
<td>Rightmost AUM in switch number 8</td>
</tr>
</tbody>
</table>
This button access the LED Status Table (Page 73). This view shows the state of the front panel LEDs of each AUM.

Common VAP Configuration View

Access: In the ATM Uplink Configuration view, click the VAP Configuration button.

This view contains the Common VAP Info Table which provides configuration variables common to all VAPs of a given AUM. In addition to the columns described below, there are two buttons at the bottom of the view. These buttons access information about configuration variables and MAC address connections.

Index
The module index selects the appropriate ATM Uplink Module (AUM) in the switch stack. The module's indices are assigned in Table 16 (Page 66).

Svc Support
Specifies whether SVCs are supported by the ATM switch to which the AUM is connected. Values are: yes, and no.

Addr Reg Support
Administrative status of ILMI address registration. Values are: supported, and unsupported.

Number VCC
Controls the total number of VCCs available to all VAPs on the AUL.

No. Destination
Controls the total number of destinations available to all VAPs on the AUL.

UNI Version
Controls the UNI version to be used. Default value is version3point1.

Max Line Rate
Controls the maximum total peak-rate of the physical link between the AUL and the ATM switch.

Reset Ctrs
Writing an INTEGER value to this object, resets statistics counters in this AUL.

Module State
The module state provides a finer granularity of information on the operational state of the AUL than what can otherwise be read from ifOperStatus. The states have the following semantics—see Table 17 (Page 68):
Configuration Views

Table 17: Module States

<table>
<thead>
<tr>
<th>Module State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>unknown</td>
<td>The module state is unknown.</td>
</tr>
<tr>
<td>disabled</td>
<td>The module is administratively disabled.</td>
</tr>
<tr>
<td>booting</td>
<td>The module is coming up. The module will normally enter the &quot;down&quot; state once booting completes.</td>
</tr>
<tr>
<td>down</td>
<td>The module has booted successfully and may now be configured. Once configured, it can be brought to the operational state up(6).</td>
</tr>
<tr>
<td>goingUp</td>
<td>The module is coming into the operational state up.</td>
</tr>
<tr>
<td>up</td>
<td>The module is operational and VAPs can now be brought into their operational state thereby enabling traffic across the AUM. This state maps to an operational state “up”. All other values of Module State maps to an operation state “down”.</td>
</tr>
<tr>
<td>goingDown</td>
<td>The module is being taken out of the operational state.</td>
</tr>
<tr>
<td>failing</td>
<td>The module has failed. Rebooting will normally be required to bring it out of this state.</td>
</tr>
</tbody>
</table>

ATM Uplink Configuration View

Specific VAP

Accesses the Specific VAP Info Table, which contains configuration variables specific to each VAP. This table is described in the Specific VAP Configuration below.

Address Conn

Accesses the MAC Address Connections (Page 71)
For each VAP, this view maps MAC addresses to VPI/VCI pairs.

Specific VAP Configuration

Access: From the Common VAP Configuration table, select the Specific VAP button.

This view contains configuration variables specific to each Virtual ATM Port (VAP).

Index VAP

Identifies a VAP within a switch stack.

LEC Index

This variable holds the LEC MIB lecIndex corresponding to this VAP.

Addr Assign

Controls assignment of the VAP/LEC ATM address. When set to manual, an ATM address must be specified in ATM Address, otherwise,
when automatic, the ATM address is generated automatically.

**ATM Address**
When **Addr Assign** is set to manual, **ATM Address** must specify an ATM address for the VAP/LEC. An ATM address of all zeros is not allowed.

**LEC ATM Address**
Specifies an ATM address to use when attempting to connect to the LAN Emulation Configuration Server (LECS) to be used for the VAP/LEC. Defaults to an ATM address of all zeros indicating that **LEC ATM Address** is not configured. Setting **LEC ATM Address** to all zeros effectively removes any earlier user-specified LECS ATM Address for the VAP/LEC.

**LEC Vpi**
Setting **LEC Vpi**/**LEC Vci** to 0/0 effectively removes any earlier user-specified LECS PVC (vapLecsVpi/vapLecsVci) for the VAP/LEC in question. Regarding the semantics of this object, please see the reference in the description **LEC ATM Address**.

**LEC Vci**
See description of **LEC Vpi**.

**Guar VCC**
All VAPs on a particular AUM allocate VCCs from a common pool. **Guar VCC** specifies the number

VCCs that the VAP will be guaranteed from this pool.

**Note:** The sum of **Guar VCC** from all VAPs on a particular AUM must not exceed **Number VCC** for this AUM.

**Guar Dest**
All VAPs on a particular ATM Uplink Module allocate destination STEVs from a common pool. **Guar Dest** specifies the number destination STEVs that the VAP will be guaranteed from this pool.

**Note:** The sum of **Guar Dest** from all VAPs on a particular AUM must not exceed **No. Destination** for this ATM Uplink Module.

**Profile**
The traffic profile to be used if no traffic profile mapping matches the VCC to be opened. Values of 0..63 selects a profile from the **Traffic Profiles View** (Page 43); -1 selects the hardware default traffic profile.
Rx Rate Diff
This is the maximum difference (in cells/s) there can be between the requested receive rate of an incoming call (called the forward rate) and the line rate (353208 cells/s) before a call is rejected with the cause "User cell rate not available."

Note: The default value of this parameter (max value) effectively disables the checking on the requested receive rate.

This is done to ensure interoperability with equipment, which does not handle call-rejection (with cause "User cell rate not available") according to the ATM Forum LANE 1.0 specification.

Tx Rate Diff
This is the maximum difference (in cells/s) there can be between the requested transmit rate of an incoming call (called the backward rate) and the line rate (353208 cells/s) before a call is rejected with the cause "User cell rate not available."

Note: The default value of this parameter (max value) effectively disables the checking on the requested transmit rate.

This is done to ensure interoperability with equipment, which does not handle call-rejection (with cause "User cell rate not available") according to the ATM Forum LANE 1.0 specification.

Trace Mask
This is essentially a 32 bit mask controlling log message output. Log messages are collected in the Message Logs View (Page 72) defined in the status section below.

Reset Ctr
Writing an INTEGER value to this object, resets all counters specific to this VAP.

Reset Addr
Writing an INTEGER value to this object, clears address table entries pertaining to this VAP.

Explorer Rate
Explorer frame forwarding rate per second throttle. A value of (-1) disables explorer frame throttling for this VAP.

Spanning Mode
Used when configuring manual spanning tree. Setting this object to forwarding or blocking overrides the spanning tree algorithm for this VAP. Setting this object to auto turns the spanning tree algorithm on for this VAP. Setting
this object to unknown is not allowed. Values are: auto, forwarding, blocking, and unknown.

**State**
The State provides a finer granularity of information on the operational state of the VAP than what can otherwise be read from ifOperStatus. The states have the following semantics—see Table 18:

<table>
<thead>
<tr>
<th>VAP State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>unknown</td>
<td>The VAP state is unknown.</td>
</tr>
<tr>
<td>disabled</td>
<td>The VAP is administratively disabled. Normally, State will be adminDown when the VAP is administratively disabled, however, in situations where the VAP is not assigned to a VLAN, it will show up as disabled instead.</td>
</tr>
<tr>
<td>goingUp</td>
<td>The VAP is coming into one of its operational states.</td>
</tr>
<tr>
<td>up</td>
<td>The VAP is in operational state, but due to the spanning tree algorithm it is not forwarding frames, i.e. the VAP is up but not forwarding. forwarding is the &quot;real&quot; operational state.</td>
</tr>
</tbody>
</table>

Table 18: VAP States (Continued)

<table>
<thead>
<tr>
<th>VAP State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>goingAdminDown</td>
<td>The VAP has been administratively disabled but has not reached the stable adminDown state yet.</td>
</tr>
<tr>
<td>adminDown</td>
<td>The VAP is administratively disabled.</td>
</tr>
<tr>
<td>failed</td>
<td>The VAP has failed. The Message Log Table should hold information about the cause of the failure.</td>
</tr>
<tr>
<td>waitingForModuleUp</td>
<td>The VAP is waiting for the module to come up.</td>
</tr>
<tr>
<td>forwarding</td>
<td>The VAP is in operational state, capable of forwarding frames.</td>
</tr>
</tbody>
</table>

Max Transmit
MTU size of this virtual port.

MAC Address Connections
**Access:** From the Common VAP Configuration table, select the Address Conn button.

For each VAP, the MAC Address Connections table maps MAC addresses to VPI/VCI pairs.

Index.VAP.MAC
Identifies the VAP MAC address.
VPI
Virtual Path Identifier (VPI) of VCC connecting the AUM to the destination identified by the MAC Address.

VCI
Virtual Channel Identifier (VCI) of VCC connecting the AUM to the destination identified by the MAC Address.

Port Hardware Setup View

Access: In the ATM Uplink Configuration view, click the Port Hardware button.

This view shows the Port Hardware Table which contains configuration variables that control different properties of the physical ATM port. The four column headings in this table are described below.

Index
The module index selects the appropriate ATM Uplink Module (AUM) in the switch stack. The module's indices are assigned in Table 16 (Page 66).

Master Timing
Controls the source of the ATM transmitter timing. Values are: network which makes the transmitter synchronize with the incoming traffic on the receiver; and local which makes the transmitter generate its own timing.

Framing Mode
Controls the TC framing mode. Values are: sdh, and sonet.

Empty Cells
Controls whether the ATM frame emits idle or unassigned cells when there is no data to send.

Message Logs View

Access: This view can be accessed from three different places: ATM Uplink Configuration, Fast Ethernet Uplink Configuration, or HSTR Uplink Configuration. From all three views, click the Message Log button.

The Log Message Table implements a buffer containing the last 10 log messages generated by the ATM Uplink. The buffer is written cyclically which means that the message with index 1 is not necessarily the oldest. A time stamp Message Time is recorded for each log message; it contains the value of MIB-II’s sysUpTime object at the time of the log message occurrence. Log message output may be controlled using Trace Mask (Page 70) in the Specific VAP Configuration (Page 68).

Index.Log
Index into cyclical buffer.
**LED Status Table**

*Access:* In the ATM Uplink Configuration view, click the LED Status button.

This view shows a simple table illustrating the state of the front panel LEDs of each AUM. The five column headings are described below.

- **Index**
  The module index selects the appropriate ATM Uplink Module (AUM) in the switch stack. The module’s indices are assigned in Table 16 (Page 66).

- **Diagnostic**
  Diagnostics LED state. Values are: on and off.

- **Error**
  Error LED state. Values are: on and off.

- **Signal Loss**
  The loss of the transmission signal. Values are: on and off.

- **Receive Sync**
  The receive synchronization signal. Values are: on and off.

**STS16 Configuration View**

*Access:* From the Device Topology Interface view, select Configuration from the Icon Subviews menu.

The STS Configuration contains the following fields and buttons, and the Interface Configuration Table. Descriptions are as follows:

- **Contact Status**
  The contact status of the model.

- **Number of Interfaces**
  The number of interfaces on the model.

  - **Redundancy and Model Reconfiguration Options**
    Opens the Redundancy and Model Reconfiguration Options (Page 74), which allows you to configure and model redundancy.

  - **Interface Address Translation**
    Open the Interface Address Translation Table (Page 75), which displays the MAC and IP addresses for the interface.
Redundancy and Model Reconfiguration Options

Access: From the STS Configuration View, click on the Redundancy and Model Reconfiguration Options button.

Displays buttons allowing you to configure the model and redundancy.

Redundancy Administrative Status?
Enabling Redundancy will cause Spectrum to update this model when the Primary Address is not accessible and a list of redundant preferred addresses exist.

Generate Redundancy Alarms?
Having this option set to true will cause Spectrum to generate alarms when Redundancy intelligence updates the Network Address.

Automatically Reconfigure Interfaces?
This button determines if Spectrum should monitor for changes in the number of interfaces. Setting this option to false will prevent Spectrum from detecting any such changes.

Create Sub-Interfaces?
If this device supports RFC1573, this button determines whether Spectrum should model its sub-interfaces or not. If true, these models will be displayed in the Sub-Interface view of the Physical Interface model.

Reconfigure due to LINK UP/DOWN events?
Setting this option to true will cause Spectrum to remodel this device's interfaces whenever the device sends out a LINK UP or LINK DOWN event.

Device Discovery after Reconfiguration?
This button determines if Spectrum should update its knowledge of connections off a model's interfaces, after a model reconfiguration occurs.

Topologically Relocate Model?
Having this button set to true allows Spectrum to relocate the model to a different topological locations as part of the AutoDiscovery process.

Reconfigure Model

This button forces Spectrum to re-evaluate all interface models. It will also force a Device Discovery if that option is enabled.

Discover LANs

This button forces a Device Discovery to discover the model's connection.
Configuration Views

Interface Address Translation Table

Access: From the STS Configuration View, click on the Interface Address Translation button.

Interface Index
A pointer to the entry in the Interface Table corresponding to this port.

Physical Address
The Ethernet (MAC) address of the interface.

Network Address
The IP Address of the interface.

Interface Configuration Table

Access: From the Device Topology Interface view, select IF Configuration from the Icon Subviews menu.

Index
The interface index number for this table.

Description
Contains the name of the device and the hardware revision number.

Type
The type of module plugged into the slot. Module types OC8600 and OC860x(860x) represent the motherboard with the CPU and system memory.

Module state none represents a slot with no modules plugged in. Values are listed in Figure 10, STS16 Application View (Page 24).

Bandwidth
The estimated bandwidth of the interface, measured in bits per second. For interfaces that do not vary in bandwidth, or no accurate estimate can be made, a nominal bandwidth is provided.

Physical Address
The Ethernet (MAC) address of the interface.

Operation Status
The current operational state of the interface (Up, Down, or Testing).

Admin. Status
The desired operational state of the interface (Up, Down, or Testing).

Last Change
The System UpTime value when the interface entered its current operational state.

Queue Length
The length of the outbound packet queue, in packets.

Packet Size
The largest packet that can be transmitted or received by the port, displayed in octets.
Fast Ethernet Uplink Configuration

Access: From the Icon Subviews menu for the FEULApp Application icon, select Configuration.

This table contains information about hardware and software version numbers. The column headings and the five buttons at the bottom of the screen are described below:

Index
The module index selects the appropriate User Expansion Module (UEM, in this case a TB Uplink Module) in the switch stack.

HW Product ID
A string containing the hardware product identification code.

HW Version
A string containing the hardware version.

HW ECO Level
A string containing the ECO update level.

HW Serial No.
A string containing the hardware serial number.

SW Product ID
A string containing the software product identification code.

SW Version
A string containing the software version.

SW ECO Level
A string containing the ECO update level.

Boot Prom
A string containing the Bootprom version number.

Port Configuration
Opens the Fast Ethernet Port Configuration (Page 77), which contains information on the port configuration.

Virtual Port
Opens the Fast Ethernet Virtual Port Configuration Table (Page 79), which contains information on this virtual port.

Message Log
Opens the Message Logs View (Page 72). This view implements a buffer containing the last 10 log messages generated by the ATM Uplink.

LED Status
Opens the Led Status Table (Page 85), which shows the state of the front panel LEDs.
Fast Ethernet Port Configuration

**Access:** From the Fast Ethernet Uplink Configuration table, select the Port Configuration button.

Contains information on the port configuration.

**Index.Port**
Index to identify port on module. Port 1 is the port to the left and port 2 is the port to the right.

**IF Index**
A pointer to the entry in the Interface Table corresponding to this port.

**Tag Protocol**
Protocol type for use in IEEE 802.1Q SNAP header.

**Act Port Mode**
The actual port operation mode. If the port is in auto mode, this object will return the mode in which the port opened. Values are: fdx-10, fdx-100, hdx-10, hdx-100, and unknown.

**Cfg Loss Thr**
Number of configuration loss events during the sample period which, if exceeded, should cause the port to be disabled. If the port is disabled by this function the port must be manually re-enabled. When writing to Cfg Loss Thr or Cfg Loss, the configuration loss statistics, Cfg Loss E and Cfg Loss Last RC, will be reset.

**Cfg Loss**
The sampling period, in minutes, for which the port monitors to determine if the configuration loss threshold has been exceeded. When writing to Cfg Loss Thr or Cfg Loss, the configuration loss statistics, Cfg Loss E and Cfg Loss Last RC, will be reset.

**Cfg Loss E**
Number of events, as described in Cfg Loss Last RC, after the port has completed the join process and then lost communication. The configuration loss statistics will be reset, when writing to any of the two configuration variables.

**Cfg Loss Last RC**
Reason code describing the cause of the latest configuration loss. A value of no-cfg-loss will be returned when there has not been a configuration loss. The configuration loss statistics will be reset, when writing to any of the two configuration variables:
Aging Lvl
Threshold to demand age the port address table containing address entries for all virtual ports on this physical port. All numbers refer to percentage of the address table. The only values accepted by the agent are 50, 60, 70, 80, 90 and 0. Setting the value to 0 disables demand aging.

Trace Mask
A 32 bit mask controlling log message output. Log messages are collected in the Message Log Table.

State
Provides a finer granularity of information on the operational state of the port than what can otherwise be read from ifOperStatus. The states have the following semantics:

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>unknown</td>
<td>The port state is unknown.</td>
</tr>
<tr>
<td>disabled</td>
<td>The port is administratively disabled.</td>
</tr>
<tr>
<td>down</td>
<td>The port may now be configured. Once configured, it can be brought to the</td>
</tr>
<tr>
<td></td>
<td>operational state up.</td>
</tr>
<tr>
<td>goingUp</td>
<td>The port is coming into the operational state up.</td>
</tr>
<tr>
<td>up</td>
<td>The port is operational and VPs can now be brought into their operational</td>
</tr>
<tr>
<td></td>
<td>state thereby enabling traffic across the TB Uplink Module. This state maps</td>
</tr>
<tr>
<td></td>
<td>to ifOperStatus &quot;up&quot;. All other values of State map to ifOperStatus &quot;down&quot;.</td>
</tr>
<tr>
<td>goingDown</td>
<td>The port is being taken out of the operational state.</td>
</tr>
<tr>
<td>failing</td>
<td>The port has failed. The message log may be inspected to find the cause of</td>
</tr>
<tr>
<td></td>
<td>the failure.</td>
</tr>
</tbody>
</table>

### Table 19: Reason Codes

<table>
<thead>
<tr>
<th>Reason Code</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>wire-fault</td>
<td>1</td>
</tr>
<tr>
<td>lobe-test-fail</td>
<td>2</td>
</tr>
<tr>
<td>tkp-mac-frame-rcv-in-txi-mode</td>
<td>3</td>
</tr>
<tr>
<td>heart-beat-fail</td>
<td>4</td>
</tr>
<tr>
<td>txi-new-station</td>
<td>5</td>
</tr>
<tr>
<td>txi-protocol-error</td>
<td>6</td>
</tr>
<tr>
<td>no-cfg-loss</td>
<td>7</td>
</tr>
</tbody>
</table>

### Table 20: Port Configuration States
Port Mapping
Opens the Port Mapping Information Table (Page 84). This table maps the IF Index values of 100 Mbit TB interfaces to the Module and Port values of the corresponding TB ports.

Fast Ethernet Virtual Port Configuration Table

**Access:** From the Fast Ethernet Uplink Configuration table, select the Virtual Port button.

Contains configuration information on this virtual port, and three buttons at the bottom of the screen.

**Index.Port.VP**
Identifies a specific virtual port.

**IF Index**
A pointer to the entry in the ifTable corresponding to this virtual port.

**Modify FC**
Controls whether FC modification is enabled for this virtual port. Values are: disabled, and enabled.

**Tagging Mode**
Controls whether this virtual port uses VLAN tagging. Values are: tagged, and untagged.

**Transmit**
MTU size of this virtual port. Only MTU=1500 is allowed.

**Max BCast**
Broadcast frame forwarding rate per second throttle. A value of (-1) disables broadcast frame throttling.

**Spanning**
Used when configuring manual spanning tree. Setting this object to forwarding or blocking overrides the spanning tree algorithm for this virtual port. Setting this object to auto turns the spanning tree algorithm on for this virtual port. Setting this object to unknown is not allowed.

**Aging Time**
Address aging time in minutes. Setting this object to zero disables address aging.

**Security Mode**
There is currently no support for security mode, a value of zero will always be returned. Virtual port security mode may be used to disable address learning at a port where an allow-source or allow-destination MAC address filter is configured. A value of normal indicates that the virtual port is not configured for security. A value of secure-src-addrs indicates that learning for source addresses is disabled. A value of secure-dest-
addrs indicates that learning for destination addresses is disabled. A value of secure-src-and-dest-addrs indicates that learning is disabled for both source and destination addresses.

**State**

 Provides more information on the operational state of the virtual port (VP) than what can otherwise be read from ifOperStatus. The states have the following semantics:

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>unknown</td>
<td>The VP state is unknown.</td>
</tr>
<tr>
<td>down</td>
<td>The VP is administratively disabled. It may now be configured. Once configured, it can be brought into one of its operational states.</td>
</tr>
<tr>
<td>up</td>
<td>The VP is in operational state, but due to the spanning tree algorithm it is not forwarding frames, i.e. the VP is up but not forwarding. Forwarding is the &quot;real&quot; operational state.</td>
</tr>
<tr>
<td>forwarding</td>
<td>The VP is in operational state, capable of forwarding frames.</td>
</tr>
<tr>
<td>dormant</td>
<td>The VP is administratively enabled, but the physical port is not open (up).</td>
</tr>
</tbody>
</table>

**Table 21: FE Port Operational States**

**Row Status**

 Used to control creation and deletion of new rows in the table. Values are: active, notInService, notReady, createAndGo, createAndWait, and destroy.

**Rif Aging**

 Routing Information Field (RIF) aging time in minutes. Setting this object to zero disables RIF aging.

**Rif Not Learn**

 RIF not learn interval in seconds. Zero means disabled.

**Protocol Bridging**

 Opens the *Fast Ethernet Virtual Port Protocols Table* (Page 81), which contains information on TCP/IP Translational Bridging.

**Dual Home**

 Opens the *Dual Home Address Table* (Page 84). This view allows you to set up a back up connection.

**Port Mapping**

 Opens the *Port Mapping Information Table* (Page 84). This table maps the IF Index values of
100 Mbit TB interfaces to the Module and Port values of the corresponding TB ports.

**Fast Ethernet Virtual Port Protocols Table**

**Access:** From the Fast Ethernet Virtual Port Configuration table, click on the Protocol Bridging button.

This view contains the TCP/IP Translational Bridging Table, and four buttons at the bottom of the screen.

**Index.Port.V**
Identifies a specific virtual port.

**TR Conversion**
Conversion types available on Token Ring. Values are: ieee802-3-SNAP, and ethernetII.

**Eth Conversion**
Conversion types available on Ethernet. Values are: ieee802-3-SNAP, and ethernetII.

**Enable Cur Conv**
Enables/disables current conversion. Values are: disabled, and enabled.

**Src Routing**
Allows/disallows frames to be sent with Source Routing. Values are: sr, and nosr.

**Explorer Type**
Sets STE or ARE explorer type frames. Values are: ste, and are.

**IP Frag**
Enables/disables IP fragmentation on this virtual port.

**Mcast MAC Addr**
TR MAC address for IP multicasts.

- **Novell**
 Opens the Fast Ethernet Virtual Port Novell Protocol Table (Page 82).

- **Net Bios**
 Opens the NetBios Translational Bridging Table (Page 82).

- **SNA**
 Opens the SNA Translational Bridging Table (Page 83).

- **Other Protocols**
 Opens the Fast Ethernet Virtual Port Other Protocol Table (Page 83).
**Fast Ethernet Virtual Port Novell Protocol Table**

*Access:* From the Fast Ethernet Virtual Port Protocols table, click on the Novell button.

**Index.Port.V**
Identifies a specific virtual port.

**TR Conversion**
Conversion types available on Token Ring. Values are: ieee802-5, and ieee802-5-SNAP.

**Eth Conversion**
Conversion types available on Ethernet. Values are: ieee802-3, novell-802-3, ieee802-3-SNAP, and ethernetII.

**Enable Cur Conv**
Enables/disables current conversion.

**Src Routing**
Allows/disallows frames to be sent with Source Routing. Values are: sr, and nosr.

**Explorer Type**
Sets STE or ARE explorer type frames. Default value is STE.

**Bit Reversing**
Enables/disables bit reversing. Values are: rvrs, or norvrs.

---

**NetBios Translational Bridging Table**

*Access:* From the Fast Ethernet Virtual Port Protocols table, click on the Net Bios button.

**Index.Port.V**
Identifies a specific virtual port.

**TR Conversion**
Conversion type available on Token Ring—ieee802-5.

**Eth Conversion**
Conversion types available on Ethernet. Values are: ieee802-3, and ethernetII.

**Enable Cur Conv**
Enables/disables current conversion.

**Src Routing**
Allows/disallows frames to be sent with Source Routing. Values are: sr, and nosr.

**Explorer Type**
Sets STE or ARE explorer type frames. Default value is STE.

**TR Func Addr**
TR Functional Address for NetBios conversion.

**Eth Group Addr**
Ethernet Group Address for NetBios conversion.
SNA Translational Bridging Table

**Access:** From the Fast Ethernet Virtual Port Protocols table, click on the **SNA** button.

**Index.Port.V**
Identifies a specific virtual port.

**TR Conversion**
Conversion type available on Token Ring—ieee802-5.

**Eth Conversion**
Conversion types available on Ethernet. Values are: ieee802-3, and ethernetII.

**Enable Cur Conv**
Enables/disables current conversion.

**Src Routing**
Allows/disallows frames to be sent with Source Routing. Values are: sr, and nosr.

**Explorer Type**
Sets STE or ARE explorer type frames. Default value is STE.

Fast Ethernet Virtual Port Other Protocol Table

**Access:** From the Fast Ethernet Virtual Port Protocols table, click on the **Other Protocols** button.

This view contains two tables, Fast Ethernet Virtual Port SNA Protocol Table (w/ SNAP) and Fast Ethernet Virtual Port SNA Protocol Table (w/o SNAP) (Page 84).

Fast Ethernet Virtual Port SNA Protocol Table (w/ SNAP)

**Index.Port.V**
Identifies a specific virtual port.

**TR Conversion**
Conversion type available on Token Ring—ieee802-5-SNAP.

**Eth Conversion**
Conversion types available on Ethernet. Values are: ieee802-3-SNAP, and ethernetII.

**Enable Cur Conv**
Enables/disables current conversion.

**Src Routing**
Allows/disallows frames to be sent with Source Routing. Values are: sr, and nosr.
Explorer Type
Sets STE or ARE explorer type frames. Default value is STE.

Fast Ethernet Virtual Port SNA Protocol Table (w/o SNAP)
Index.Port.V
Identifies a specific virtual port.

TR Conversion
Conversion type available on Token Ring—ieee802-5(1).

Eth Conversion
Conversion type available on Ethernet—ieee802-3.

Enable Cur Conv
Enables/disables current conversion.

Src Routing
Allows/disallows frames to be sent with Source Routing. Values are: sr, and nosr.

Explorer Type
Sets STE or ARE explorer type frames. Default value is STE.

Dual Home Address Table
Access: From the Fast Ethernet Virtual Port Configuration table, click on the Dual Home button.
The Dual Home Address Table allows you to set a backup connection.

FEP Address
Dual home FEP address.

Port Mapping Information Table
Access: From either the Fast Ethernet Port Configuration or the Fast Ethernet Virtual Port Configuration table, click on the Port Mapping button.
The Port Mapping Information Table contains two tables: Port Mapping and Virtual Port Mapping (Page 89).

Port Mapping
This table maps the IF Index values of 100 Mbit TB interfaces to the Module and Port values of the corresponding TB ports.

IF Index
The interface index for this port.

Module
The uplink module containing the physical port implementing the specified interface.
Port
The port index 1 or 2 for the specified interface.

Virtual Port Mapping Table
A table mapping the IF Index values of virtual port interfaces to the Virtual Port values of the corresponding virtual ports.

IF Index
The interface index for this virtual port.

Module
The module of the virtual port implementing the specified interface.

Port
The port implementing the specified interface.

Virtual Port
The virtual port implementing the specified interface.

Led Status Table
Access: From the Fast Ethernet Uplink Configuration table, click on the LED Status button.

This table shows the state of the front panel LEDs for each TB Uplink Module.

Index
The index for this module.

Diagnostic
Diagnostics LED state. Values are: on, and off.

Error
Error LED state. Values are: on, and off.

Left Port
Left port Link LED state. Values are: flash, and off.

Right Port
Right port Link LED state. Values are: flash, and off.

100MB Left
Left port 100Mbits LED state. Values are: on, and off.

100MB Right
Right port 100Mbits LED state. Values are: on, and off.

Left Activity
Left port Activity LED state. Values are: on, off, and flash.

Right Activity
Right port Activity LED state. Values are: on, off, and flash.
**HSTR Uplink Configuration Table**

**Access:** From the **Icon Subviews** menu, select **Configuration**.

This table contains information about hardware and software version numbers.

**Index**
The module index selects the appropriate User Expansion Module (UEM, in this case a HSTR Uplink Module) in the switch stack. The module indices are assigned as follows:

**Table 22: HSTR Uplink Module Indices**

<table>
<thead>
<tr>
<th>Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>hstrUplinkModuleIndex 1</td>
<td>Leftmost UEM in switch number 1</td>
</tr>
<tr>
<td>hstrUplinkModuleIndex 2</td>
<td>Rightmost UEM in switch number 1</td>
</tr>
<tr>
<td>hstrUplinkModuleIndex 3</td>
<td>Leftmost UEM in switch number 2</td>
</tr>
<tr>
<td>hstrUplinkModuleIndex 4</td>
<td>Rightmost UEM in switch number 2</td>
</tr>
<tr>
<td>hstrUplinkModuleIndex 16</td>
<td>Rightmost UEM in switch number 8</td>
</tr>
</tbody>
</table>

**Product ID**
A string containing the hardware product id.

**HW Version**
A string containing the hardware version.

**HW ECO Level**
A string containing the ECO update level.

**HW Serial No.**
A string containing the hardware serial number.

**SW Product ID**
A string containing the software product id.

**SW Version**
A string containing the software version.

**SW ECO Level**
A string containing the ECO update level.

**Boot Prom**
A string containing the Bootprom version number.

**Port Configuration**
Opens the **HSTR Port Configuration Table** (Page 87).
Configuration Views

Opens the **HSTR Virtual Port Configuration Table** (Page 89).

Opens the **Message Logs View** (Page 72). This view implements a buffer containing the last 10 log messages generated by the ATM Uplink.

Opens the **Led Status Table** (Page 85). This view shows the state of the front panel LEDs of each AUM.

### HSTR Port Configuration Table

**Access:** From the **HSTR Uplink Configuration table**, click on the **Port Configuration button**.

**Index.Port**
Index to identify port on module. Port 1 is the port to the left and port 2 is the port to the right.

**IF Index**
A pointer to the entry in the Interface Table corresponding to this port.

**Tag Protocol**
Protocol type for use in IEEE 802.1Q SNAP header.

**Port Mode**
Port operation mode. Values are: auto, fdx Port, and fdx-Station.

**Act Port Mode**
The actual port operation mode. If the port is in auto mode, this object will return the mode that the port opened in. Values are: fdx-Port, fdx-Station, and unknown.

**Cfg Loss Thr**
Number of configuration loss events during the sample period. If exceeded, the port will become disabled. If the port is disabled by this function the port must be manually re-enabled. When writing to **Cfg Loss Thr** or **Cfg Loss**, the configuration loss statistics, **Cfg Loss E** and **Cfg Loss Last RC**, will be reset.

**Cfg Loss**
The sampling period, in minutes, for the port monitors to determine if the configuration loss threshold has been exceeded. When writing to **Cfg Loss Thr** or **Cfg Loss», the configuration loss statistics, **Cfg Loss E** and **Cfg Loss Last RC** will be reset.
Cnf Loss E
Number of events, as described in Cnf Loss Last RC, after the port has completed the join process and then lost communication. The configuration loss statistics will be reset, when writing to any of the two configuration variables.

Cnf Loss Last RC
Reason code describing the cause of the latest configuration loss. A value of no-cfg-loss will be returned when there has not been a configuration loss. The configuration loss statistics will be reset, when writing to either of the two configuration variables. See Table 19, Reason Codes (Page 78).

Aging Lvl
Threshold to demand age the port address table containing address entries for all virtual ports on this physical port. All numbers refer to percentage of the address table. The only values accepted by the agent are 50, 60, 70, 80, 90 and 0. Setting the value to 0 disables demand aging.

Trace Mask
A 32 bit mask controlling log message output. Log messages are collected in the Message Log Table defined in the status section below.

State
Provides more information on the operational state of the HSTR port than what can otherwise be read from ifOperStatus. The states have the following semantics:

Table 23: HSTR Port Configuration State

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>unknown</td>
<td>The port state is unknown.</td>
</tr>
<tr>
<td>disabled</td>
<td>The port is administratively disabled.</td>
</tr>
<tr>
<td>down</td>
<td>The port may now be configured. Once configured, it can be brought to the</td>
</tr>
<tr>
<td></td>
<td>operational state up.</td>
</tr>
<tr>
<td>goingUp</td>
<td>The port is coming into the operational state up.</td>
</tr>
<tr>
<td>up</td>
<td>The port is operational and VPs can now be brought into their operational</td>
</tr>
<tr>
<td></td>
<td>state thereby enabling traffic across the HSTR Uplink Module. This state</td>
</tr>
<tr>
<td></td>
<td>maps to ifOperStatus &quot;up&quot;. All other values of State map to ifOperStatus &quot;down&quot;.</td>
</tr>
<tr>
<td>goingDown</td>
<td>The port is being taken out of the operational state.</td>
</tr>
<tr>
<td>failing</td>
<td>The port has failed. The message log may be inspected to find the cause of</td>
</tr>
<tr>
<td></td>
<td>the failure.</td>
</tr>
</tbody>
</table>
Configuration Views

Port Mapping Information

Access: From either the HSTR Port Configuration table or the HSTR Virtual Port Configuration table, click on the Port Mapping button.

This view contains two tables, Port Mapping and Virtual Port Mapping, described below.

Port Mapping

A table mapping the IF Index values of 100 Mbit HSTR interfaces to the Module and Port values of the corresponding HSTR ports.

IF Index
A pointer to the entry in the ifTable corresponding to this virtual port.

Module
The uplink module containing the physical port implementing the specified interface.

Port
The port number of the specified interface.

Virtual Port Mapping

A table mapping the IF Index values of virtual port interfaces to the Module, Port, and Virtual Port values of the corresponding virtual ports.

IF Index
A pointer to the entry in the ifTable corresponding to this virtual port.

Module
The Module of the virtual port implementing the specified interface.

Port
The port of the virtual port implementing the specified interface.

Virtual Port
The index of the virtual port implementing the specified interface.

HSTR Virtual Port Configuration Table

Access: From the HSTR Uplink Configuration table, click on the Virtual Port button.

Index.Port.VP
Identifies a specific virtual port.
**IF Index**
A pointer to the entry in the Interface Table corresponding to this virtual port.

**Modify FC**
Controls whether FC modification is enabled for this virtual port. Values are: disabled, and enabled.

**Tagging Mode**
Controls whether this virtual port uses VLAN tagging. Values are: tagged, and untagged.

**Transmit**
MTU size of this virtual port. Values are: mtu1500, mtu4472, mtu8144, mtu17800, and useBRF.

**Max Explore**
Explorer frame forwarding rate per second throttle. A value of (-1) disables explorer frame throttling.

**Spanning**
Used when configuring manual spanning tree. Setting this object to forwarding or blocking overrides the spanning tree algorithm for this virtual port. Setting this object to auto turns the spanning tree algorithm on for this virtual port. Setting this object to unknown is not allowed.

**Aging Time**
Address aging time in minutes. Setting this object to zero disables address aging.

**Security Mode**
Virtual port security mode is used to disable address learning at a port where an allow-source or allow-destination MAC address filter is configured.

<table>
<thead>
<tr>
<th>A value of:</th>
<th>Indicates that...</th>
</tr>
</thead>
<tbody>
<tr>
<td>normal</td>
<td>The virtual port is not configured for security.</td>
</tr>
<tr>
<td>secure-src-addrs</td>
<td>Learning for source addresses is disabled.</td>
</tr>
<tr>
<td>secure-dest-addrs</td>
<td>Learning for destination addresses is disabled.</td>
</tr>
<tr>
<td>secure-src-and-dest-addrs</td>
<td>Learning is disabled for both source and destination addresses.</td>
</tr>
</tbody>
</table>

**State**
The operational state of the virtual port (VP). The states have the following options:
Configuration Views

HSTR Uplink Configuration Table

Table 25: HSTR Port Operational State

<table>
<thead>
<tr>
<th>A value of:</th>
<th>Indicates that...</th>
</tr>
</thead>
<tbody>
<tr>
<td>unknown</td>
<td>The VP state is unknown; the user should never see this.</td>
</tr>
<tr>
<td>down</td>
<td>The VP is administratively disabled. It may now be configured. Once configured, it can be brought into one of its operational states.</td>
</tr>
<tr>
<td>up</td>
<td>The VP is in operational state, but due to the spanning tree algorithm it is not forwarding frames, i.e. the VP is up but not forwarding. Forwarding is the &quot;real&quot; operational state.</td>
</tr>
<tr>
<td>forwarding</td>
<td>The VP is in operational state, capable of forwarding frames.</td>
</tr>
<tr>
<td>dormant</td>
<td>The VP is administratively enabled, but the physical port is not open (up).</td>
</tr>
</tbody>
</table>

Add Entry Virtual Port Entry

Access: From the HSTR Virtual Port Configuration Table, click on the Add Entry button.

From within this view, you can add entries into the HSTR Virtual Port Configuration Table (Page 89). Fields in this view correspond to the column headings in the HSTR Uplink Configuration Table.

Port Mapping

Opens the Port Mapping Information (Page 89) table. This table maps the IF Index values of 100 Mbit TB interfaces to the Module and Port values of the corresponding TB ports.

LED Status Table

Access: From the Virtual Port Configuration Table, click on the LED Status button.

Shows the state of the front panel LEDs of each HSTR Uplink Module. The status of the port activity LEDs are not shown though.

Row Status

Used to control creation and deletion of new rows in the table. Values are: active, notInService, notReady, createAndGo, createAndWait, and destroy.
Configuration Views

Index
The module index selects the appropriate User Expansion Module (UEM, in this case a HSTR Uplink Module) in the switch stack. See Table 22, HSTR Uplink Module Indices (Page 86).

Diagnostic
Diagnostics LED state. Values are: on, and off.

Error
Error LED state. Values are: on, and off.

Left Port
Left port Link LED state. Values are: on, off, and flash.

Right Port
Right port Link LED state. Values are: on, off, and flash.

Signaling Configuration View

Access: From the Icon Subviews menu for the ATMULApp Application icon, select Signaling.

This table contains configuration variables that control different properties of the physical ATM port.

Index
The module index selects the appropriate ATM Uplink Module (AUM) in the switch stack. The module's indices are assigned in Table 16 (Page 66).

Max SVC
The maximum number of SVC calls/connections setup or clear operations that can be processed concurrently in the uplink.

T301 (CONNECT)
The maximum time (in seconds) to wait for CONNECT after receiving ALERTING. Should be at least 3 minutes (180 seconds).

T303 (SETUP)
The maximum time (in seconds) to wait for response to SETUP (i.e. CALL_PROCEEDING, ALERTING or CONNECT).

T308 (RELEASE)
The maximum time to wait for a response to RELEASE. Default value is 30.

T309 (SAAL)
The maximum time (in seconds) allowing SAAL (SSCOP) connection loss. If SSCOP experiences connection loss for longer than this time for a signalling connection, the signalling instance will clear all its calls—active calls, as well as calls under establishment.
**T310 (SETUP)**
The maximum time (in seconds) to wait for response to SETUP (i.e. ALERTING or CONNECT) after receiving CALL PROCEEDING.

**T313 (CONNECT)**
The maximum time (in seconds) to wait for response to CONNECT.

**T316 (RESTART)**
The maximum time (in seconds) to wait for response to RESTART.

**T317 (RESTART)**
The maximum time (in seconds) to act on RESTART. This value should be less than T316 (RESTART).

**T322 (STATUS)**
The maximum time (in seconds) to wait for response to STATUS ENQUIRY.

### SSCOP Configuration View

**Access:** From the Signaling Configuration view, select the SSCOP Configuration button.

This view contains the following fields:

**Index**
The module index selects the appropriate ATM Uplink Module (AUM) in the switch stack. The module’s indices are assigned in Table 16 (Page 66).

**Max Rcv Win**
The maximum window size.

**Max Con Ctl**
The maximum SSCOP Connection control state variable value.

**Max Poll Data**
The maximum number of data transmissions between polls.

**Max Stat**
The maximum number of list elements placed in a SSCOP stat PDU.

**Timer Poll**
The time (in seconds) between polling intervals.

**Timer No Res**
The time (in seconds) that it takes for one stat PDU to be received.
**Timer Keep Alive**
The time (in seconds) of the next polling.

**Timer Idle**
The time (in seconds) that the network is idle.

**Timer CC**
Defines the maximum time (in units of 100 milliseconds) to wait for response, during outgoing link establish, release, resynch and recovery. Should be somewhat greater than a round-trip delay. Default is 1.

**Max Sdu**
The maximum SSCOP SDU size (SAAL Service Data Unit size) in bytes. Default is 4096.

**Max Uu**
The maximum SSCOP UU size (User-to-User data size) in bytes. Default is 4096.

---

**STS16 Stack Configuration View**

**Access:** From the Icon Subviews menu for the STS16App Application icon, select Configuration.

This view presents descriptive information regarding SmartSTACK configuration. The view provides access to a series of Read/Write and Read Only fields, in addition to four buttons at the bottom of the panel. Field descriptions are as follows:

**IP Address**
The IP address of the current TrBRF.

**Subnet Mask**
The subnet mask of the current TrBRF.

**Default Gateway**
IP default gateway of the current TrBRF.

**TFTP Server IP**
TFTP server's IP address.

**BRF Server Conn.**
TrBRF to which the server is connected.

**TFTP File Loc.**
Path and filename of the binary file on the server.

**Download Switch**
Setting this to any number between 1 and 8 starts a TFTP download for that box. Setting this to 9 starts a TFTP download for all boxes in a stack.

**Download Status**
Reading complete from this object means the write to flash has succeeded and the switch is ready to be rebooted. Values are: writing, complete, and other.
Switch Config
The stack configuration of the system. A system can exist in three possible configurations.

1 Stand alone mode where the system has only one switch and is not connected to any other switches.
2 Back to Back mode in which a pair of switches are connected back to back through Stack Port.
3 Matrix mode in which the stack has up to eight switches connected to a Matrix through the Stack Port.

Stack Status
Stack status indicates if the stack is going through the Stack Management Update protocol. Management stations should check this status if they receive a genErr on a SET request for any of the stack wide attributes. Values are running and updating.

Number Switches
Total number of switches in the stack.

SysLog Deamon IP
Syslog daemon's IP address.

BRF Deamon Conn.
TrBRF to which the syslog daemon is connected.

SysLog Facility
Facility code to be sent to syslog daemon.

SysLog Mask
Mask defining the types of messages which should be sent to syslog daemon.

Number Matrix Mod
Number of Matrix modules in the stack. This object is set to zero if the switch is not connected to a Matrix.

Matrix Status
Status of the Active Matrix module in the stack. This object is set to none if the switch is not connected to a Matrix. Values are: primary, secondary, none, and failed.

Max MTU Size
Max MTU size currently supported by the stack. Either mtu4472 or mtu17800 will be returned. Other values are: mtu1500, mtu8144, and useBRF.

RMON State Conf
This object reflects the configured RMON state. Values are: enabled and disabled.

RMON State Actual
This object reflects the actual RMON state. Values are: enabled and disabled.
Configuration Views

**SNMP Capabilities**
This object reflects the SNMP capabilities of the switch.

**Current Time**
Current time of the switch. To set the time use the format yyyy mm dd hh mm ss. All fields are required. Setting this object will set the time in all the switches in the stack to the new value.

The following four buttons are located at the bottom of the STS Stack Configuration view:

- **Trap Receiver**
  This button accesses the Trap Receiver Information View, which provides information for each trap received.
- **Stack Info**
  This button accesses the Switch Stack Configuration View (Page 97), providing the current configuration of the stack. It also provides a mapping of Switch Numbers to their addresses. The Management Application is required to retrieve this table and verify its own view of the stack periodically and/or when it receives a trap indicating a change in the stack configuration.

**Module Info**
This button accesses the Switch Module Information View (Page 99), which displays the module configuration information for each switch, and each module.

**Port Info**
This button provides access to a table displaying configuration information about each port. See Port Configuration View (Page 101).

**Trap Receiver Information View**

Access: In the STS16 Stack Configuration view, click the Trap Receiver button.

The following column headings and button appear in the Trap Receiver Information View:

- **Index**
  Trap receiver index for each entry.
- **Status**
  Values are: other - none of the following, valid - a valid entry, invalid - an invalid entry, and create - create row. Setting the value to invalid deletes the row from the table. The value, invalid, should never be returned on a GET. Setting this value to create causes a new row to
be created if the row does not already exist. To create a new row, set the **Status** to `create` and the **Index** to any valid index which does not already exist. The value returned on GETs should be `valid` or `other`, which is used to indicate any other condition.

**IP Address**
IP address for an SNMP manager that is to receive the trap.

**Community Name**
Community string to use in outgoing traps.

**TrBRF Traps On**
TrBRFs on which traps are sent to this target. Each octet within the value of this object specifies a set of eight TrBRFs, with the first octet specifying TrBRFs 1 through 8, the second octet specifying TrBRFs 9 through 16, etc. Within each octet, the most significant bit represents the lowest numbered TrBRF, and the least significant bit represents the highest numbered TrBRF. Thus, each TrBRF of the stack is represented by a single bit within the value of this object. If that bit has a value of `1`, then that TrBRF is included in the set of TrBRFs sending traps. The TrBRF is not included if its bit has a value of `0`. The default is all zeros. Reading all of the entries in the Switch Stack Table will give the possible valid bits that can be set. A value of all FF's will enable traps on all configured TrBRFs.

At the bottom of the Trap Receiver Information view, is the following button:

![Add Entry](View-AddEntry.png)

The **Add Entry** button accesses the *Add Trap Receiver Table Entry View*.

### Add Trap Receiver Table Entry View

**Access:** From the *Trap Receiver Information* view, click the **Add Entry** button.

From within this view, you can add new entries to the *Trap Receiver Information View* (Page 96). Fields in this view correspond to the column headings in the Trap Receiver Information View.

### Switch Stack Configuration View

**Access:** In the *STS16 Stack Configuration* view, click the **Stack Info** button.

This view displays standard **Sort**, **Find**, **Update** and **Print** buttons (see *SPECTRUM Views*) and column headings with the following application-specific configuration information:
Switch
Switch number as determined by the port number that the switch is connected to in a Matrix or as determined by the Stack Management software when two switches are connected back to back.

Burnt MAC Address
The burned in MAC address of the switch.

Switch MAC Address
The locally administered MAC address of the switch. After writing to this object, you must reset the switch.

Firmware
Firmware version number running on the switch.

Hardware
Hardware version number for the switch.

Up Time
Time ticks since the switch was last reset.

Status
Operational status of the box. Setting this value to either coldReset or warmReset will cause cold start or warm start to occur after a predefined time delay. Values are: running, coldReset, and warmReset.

Temp
Temperature of each switch reported in degrees Celsius.

Memory
Installed memory on the switch in MB.

SPAN Port
Port number to be used for the Switch Port Analyzer. Setting this object to zero turns off the SPAN function.

SPAN Mon
Port monitored by the SPAN function.

Features
This object indicates whether the switch is enabled to support enhanced features.

Feature Key
Feature key to enable enhanced features.

Port Mask
A bit mask representing all the ports present in this switch. Each octet within the value of this object specifies a set of eight ports, with the first octet specifying ports 1 through 8, the second octet specifying ports 9 through 16, etc. Within each octet, the most significant bit represents the lowest numbered port, and the least significant bit represents the highest numbered port. Thus, each port of the switch is represented by a single
bit within the value of this object. If that bit has a value of 1, then that port is included in the set of ports in this switch; the port is not included in this switch if its bit has a value of 0.

**Aging**
Aging time in minutes for the master address table entries on this switch.

**Age Level**
Threshold to demand age the master address table. All numbers refer to percentage of the address table. The only values accepted by the agent are 50, 60, 70, 80, 90 and 0. Setting the value to 0 disables demand aging.

**Object ID**
The object ID used to uniquely identify the type of token ring switch.

**Error LED**
The state of the error LED. Values are: on, off, and flash.

**Diag LED**
The state of the diagnostic LED. Values are: on, off, and flash.

**TrCRFs SPAN Monitored**
TrCRFs for which traffic on the port specified by SPAN Monitored port should be monitored. Individual TrCRFs can be selected for monitoring only on trunk ports. Each octet within the value of this object specifies a set of eight TrCRFs, with the first octet specifying TrCRFs 1 through 8, the second octet specifying TrCRFs 9 through 16, etc. Within each octet, the most significant bit represents the lowest numbered TrCRF, and the least significant bit represents the highest numbered TrCRF. Thus, each TrCRF of the stack is represented by a single bit within the value of this object. If that bit has a value of 1, then that TrCRF is included in the set of TrCRFs for which traffic should be monitored; the TrCRF is not included if its bit has a value of 0. The default is all zeros. Get requests for this object will return all zeros if the SPAN monitored port specifies a non-trunk port. Set requests for this object will be rejected with a "badValue" error if the SPAN monitored port specifies a non-trunk port.

**Switch Module Information View**

_Access:_ In the STS16 Stack Configuration view, click the Module Info button.

The Module Number Table in the Switch Module Information view displays the following column headings:

**Switch**
Switch number as determined by the port number that the switch is connected to in a
Matrix or as determined by the Stack Management software when two switches are connected back to back.

**Module**
The module number.

**State**
The current operational state of the module. Values are: nomodule, running, and faulty.

**Type**
The type of module plugged into the slot. Module types OC8600(1) and OC860x(860x) represent the motherboard with the CPU and system memory. Module state none represents a slot with no modules plugged in (shown in the State column). Values are listed in Figure 10:

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oc8600(1)</td>
<td>Base module</td>
</tr>
<tr>
<td>oc863X(2)</td>
<td>Stack Port Module</td>
</tr>
<tr>
<td>oc8610(3)</td>
<td>4 port expansion</td>
</tr>
<tr>
<td>oc8611(4)</td>
<td>4 port fiber</td>
</tr>
<tr>
<td>proPortISL-FX(5)</td>
<td>FX ISL uplink module</td>
</tr>
<tr>
<td>proPortISL-TX(6)</td>
<td>TX ISL uplink module</td>
</tr>
<tr>
<td>oc8321(8)</td>
<td>ATM Module - Fiber</td>
</tr>
</tbody>
</table>

**Revision**
The module revision number.

**Firmware**
The module’s firmware version.

**Num Ports**
Total number of ports in the module.

**Uptime**
Time ticks since the module was last reset.

**Max MTU Size**
Maximum MTU size supported by the module. Either mtu4472 or mtu17800 will be returned. Values are: mtu1500, mtu4472, mtu8144, mtu17800, and useBRF.
Port Configuration View

Access: In the STS16 Stack Configuration view, click the Port Info button.

The Port Configuration Table in the Port Configuration view displays standard Sort, Find, Update and Print buttons (see SPECTRUM Views) and the following column headings:

Switch.Port
A unique value for each port entry. The value corresponds to the port number.

Module
Number of the module that contains this port.

If Index
A pointer to the entry in the Interface Table corresponding to this port.

Reset Ctrs
Setting this object to reset causes all traffic counters for this port to be set to zero. Also the value of Port Statistics Reset Timer is set to zero. Values are: other - none of the following, running - port is functioning, and reset - clear address table and reset port counters.

Addr Ageing
Port level address aging time in minutes. Setting this object to zero disables address aging.

Demand Ageing
Threshold to demand age the port address table. All numbers refer to percentage of the address table. The only values accepted by the agent are 50, 60, 70, 80, 90 and 0. Setting the value to 0 disables demand aging.

Low Error Thres
Lower error rate threshold which causes the port to transition from store and forward mode to cut-through mode.

High Error Thres
Upper error rate threshold which causes the port to transition from cut-through mode to store and forward mode.

Error Sampling
Error sampling interval in minutes.

Max Transmit
MTU size of this port. Values are: mtu1500, mtu4472, mtu8144, and mtu17800.
Max Explorer
Explorer frame forwarding rate per second throttle. A value of \((-1)\) disables explorer frame throttling.

Set AC Bits
Specifies if the AC bits shall be set unconditionally when a port forwards certain LLC frames. Values are: enabled, and disabled.

Early Tkn Rls
Early token release operation. Values are: enabled, and disabled.

Forwarding Mode
Operational frame switching mode for the port. When in auto mode the port uses the Direct Cut algorithm to place the port in either cutthru or storeandforward mode. Values are: auto, storeandforward, cutthru, and unknown.

Actual Fwd Mode
Actual operational frame switching mode for the port. Values are: storeandforward, cutthru, and unknown.

Module
Number of the module that contains this port.

Priority Thres
The highest token-ring frame priority that shall go to the low-priority transmit queue.

Xmit Priority
The minimum token priority that will be used for transmit.

Cfg Loss Thres
Number of configuration loss events during the sample period which, if exceeded, should cause the port to be disabled. If the port is disabled by this function the port must be manually re-enabled.

CFG Loss Int
The sampling period, in minutes, for the port monitors to determine if the configuration loss threshold has been exceeded.

Bcast Supp
The number of broadcast frames per second allowed to be forwarded by this port. Any broadcast frames exceeding this watermark will not be forwarded by the port. Setting this object to \(0\) turns broadcast suppression off.

Time to Live
The advertised time-to-live parameter on all CDP messages generated by the switch on this port.

Spanning Tree
Used when configuring a manual spanning tree. Setting this object to forwarding or blocking overrides the TrCRF's spanning tree's algorithm
for this port. Values are: auto, forwarding, blocking, and unknown.

Security
Port security mode is used to disable address learning at a port where an allow-source or allow-destination MAC address filter is configured. A value of normal indicates that the port is not configured for security. A value of secure-src-addrs indicates that learning for source addresses is disabled. A value of secure-dest-addrs indicates that learning for destination addresses is disabled. A value of secure-src-and-dest-addrs indicates that learning is disabled for both source and destination addresses.

LED
The state of the Link LED. Values are: on, off, and flash.

Operation Mode
Port operational mode. Values are: auto, port, station, ri-ro, passive-probe, and unknown.

Actual Oper
The actual port operational mode. If the port is in "auto mode," this object will return the mode in which the port opened. Values are: port, station, ri-ro, passive-probe, and unknown.

Duplex
Duplex mode. The port could either be auto detected or forced to HDX or FDX. Values are: auto, hdx, fdx, none, and unknown.

Actual Duplex
The actual port duplex mode. If the port is in auto mode, this object will return the mode in which the port opened. Values are: hdx, fdx, none, and unknown.

RPS Oper
Ring Parameter Server (RPS) operation. Values are: enabled, and disabled.

Name
Logical port name.

Passive-probe mode can not be set with this object. The passive-probe mode is set automatically when a passive probe is defined in the Passive Probe Table.
Probe/Crosslink Configuration View

Access: From the Icon Subviews menu for the STS16App Application icon, select Probe/Crosslink.

The Probe/Crosslink Configuration view displays two tables: Passive Probe Table and Crosslink Table (Page 105). Both tables have standard Sort, Find, Update and Print buttons (see SPECTRUM Views).

Passive Probe Table

This table allows you to view and configure passive probe ports.

Switch.Index
Index into the Passive Probe Table. Table 12 describes the configuration options for the Passive Probe Table. The Port Mode column represents the operational mode of the Mon. Port. Set the objects in this table according to how you want to monitor the traffic.

<table>
<thead>
<tr>
<th>Index</th>
<th>Port Mode</th>
<th>Probe Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HDX</td>
<td>both</td>
</tr>
<tr>
<td>1</td>
<td>FDX</td>
<td>receive</td>
</tr>
<tr>
<td>2</td>
<td>HDX</td>
<td>both</td>
</tr>
<tr>
<td>2</td>
<td>FDX</td>
<td>transmit</td>
</tr>
</tbody>
</table>

Port
The port that is configured to mirror traffic from another port in the switch. This is the port to which you can connect an RMON probe. Setting this object to zero turns off the passive probe.

Mon. Port
The port that will have its traffic mirrored onto the probe port. Set this object to a non-zero value to have that port's traffic copied to the monitoring port. The default value is 0.

Direction
Direction of traffic flow that is being monitored. Values are: transmit - FDX ports only, receive - FDX ports only, both - HDX ports only, and unknown.
Crosslink Table
This table allows you to view which ports are active in a particular crosslink.

Switch
Switch number determined by the port number that the switch is connected to in a matrix or as determined by the Stack Management software when two switches are connected back to back.

Number
The unique identifier for this row. Corresponds to the crosslink number.

Crosslink Ports
A read-write field which defines the set of ports in this switch which are active in this crosslink. Each octet within the value of this object specifies a set of eight ports, with the first octet specifying ports 1 through 8, the second octet specifying ports 9 through 16, etc. Within each octet, the most significant bit represents the lowest numbered port, and the least significant bit represents the highest numbered port. Thus, each port of the switch is represented by a single bit within the value of this object. If that bit has a value of "1" then that port is included in the set of ports; the port is not included if its bit has a value of "0." Set requests containing "1" values in one or more bit positions which do not have a "1" value in the corresponding position in the Port Mask (Page 32) column will fail with a badValue error. The maximum number of ports in a CrossLink and therefore the maximum number of bits in this object containing "1" values is 8.

TrCRF Configuration View
Access: From the Icon Subviews menu for the STS16App Application icon, select CRF Configuration.

This view supports dynamic configuration of Token Ring Concentrator Relay Functions (TrCRFs). There are eight column headings in the TrCRF Configuration Table. Double-click any value beneath a column heading to access the TrCRF Configuration Table Entry (Page 107) view, in which you can enter new configuration information.

TrCRF Configuration Table
From within this table, you can choose a spanning tree protocol, select parameters for forwarding delay, hello time and max age, and configure manual spanning tree.

CRF No.
Unique identifier for this entry in the TrCRF table. Corresponds to the TrCRF number.
**Name**  
User defined name of the TrCRF.

**Protocol**  
The Spanning Tree Protocol to run on this TrCRF. Values are: none, cisco, and ieee.

**Fwd Delay**  
The value used as the Forwarding Delay in this TrCRF. The range for this parameter is 400 to 3000 and is related to the value of Bridge Hello Max. Age (Page 34). The granularity of this timer is specified to be 1/100 of a second. This agent will return a “badValue” error if a set is attempted to a value which is not a whole number of seconds.

**Hello Time**  
The value to be used as the Hello Time in this TrCRF. The range for this parameter is 100 to 1000. The granularity of this timer is specified to be 1/100 of a second. This agent will return a "badValue" error if a set is attempted to a value which is not a whole number of seconds.

**Max Ag**  
The value to be used as the Max Age in this TrCRF. The range for this parameter is 600 to 4000 and is related to the value of Bridge Hello Time (Page 34). The granularity of this timer is specified to be 1/100 of a second. This agent will return a "badValue" error if a set is attempted to a value which is not a whole number of seconds.

**Port Mode**  
Used when configuring manual spanning tree. Setting this object to forwarding or blocking overrides the spanning tree’s algorithm for TrCRF’s logical internal port that connects it to the TrBRF. Values are: auto, forwarding, and blocking.

**Domain No.**  
Internal unique identifier for this entry in the TrCRF table.

Beneath the TrCRF Configuration Table, there are two fields:

**TrCRF Configuration**  
A string of octets containing one bit per TrCRF in the management domain. The first octet corresponds to TrCRFs with CRF No. 1 through 8; the second octet to TrCRFs 9 through 16; etc. The most significant bit of each octet corresponds to the lowest value CRF No. in that octet. If the bit corresponding to a TrCRF is set to "1," then the TrCRF is a transited configured TrCRF on the local device. (Default TrCRFs which must transit the local device are always considered to be "transited configured TrCRFs".) Any attempt to set a bit string which: (a) has more bits set than the local device can transit; (b) does not have all
bits set corresponding to default TrCRFs which must transit the device; or (c) corresponds to non-existent TrCRFs (TrCRFs whose IDs are not defined in the management domain), will be rejected with a "badValue" error.

**TrCRFs in Domain**
A string of octets containing one bit per TrCRF in the management domain. The first octet corresponds to TrCRFs with CRF No. 1 through 8; the second octet to TrCRFs 9 through 16; etc. The most significant bit of each octet corresponds to the lowest value CRF No. in that octet. If the bit corresponding to a TrCRF is set to "1," then the TrCRF transits the local device either because it was configured to or because it was selected to automatically by the selection algorithm.

**TrCRF Configuration Table Entry**
The fields in this table correspond to those in the TrCRF Configuration View (Page 105). Field names may differ slightly from column headings (i.e.: Port Mode = Internal Mode, Domain No. = Identifier), but the attributes remain the same.

**TrBRF Configuration View**

*Access:* From the Icon Subviews menu for the STS16App Application icon, select **BRF Configuration**.

**BRF No.**
Unique identifier for this entry in the TrBRF table. Corresponds to the TrBRF number.

**Name**
User defined name of the TrBRF.

**IP State**
IP configuration for this TrBRF. Values are: ip-disabled, bootp-when-needed, and bootp-always.

**IP Address**
IP Address assigned to this TrBRF. Changes to the IP Address of the TrBRF to which the management station belongs causes loss of connectivity until the management station updates its information about the IP Address.

**Subnet Mask**
The subnet mask for this TrBRF.

**Dflt Gateway**
The IP Address of the default gateway for this TrBRF.
**STP Mode**
This object is used to enable or disable the Spanning Tree Protocol for this TrBRF. Values are: enable or disable.

**Func Addr**
Enables the IEEE Spanning Tree Protocol at the TrBRF level to use the IBM bridge functional address instead of the default IEEE functional address. Values are: no, and yes.

**802.1 VLAN**
The VLAN ID as defined in 802.1Q.

**MAC Address**
The locally administered MAC address of the TrBRF.

Beneath the TrCRF Configuration Table, there are two fields:

**TrBRF Configuration**
A string of octets containing one bit per TrBRF in the management domain. The first octet corresponds to TrBRFs with BRF No. 1 through 8; the second octet to TrBRFs 9 through 16; etc. The most significant bit of each octet corresponds to the lowest value BRF No. in that octet. If the bit is set to 1, then the TrBRF is a transited configured TrBRF on the local device. (Default TrBRFs which must transit the local device are always considered to be "transited configured TrBRFs".) Any attempt to set a bit string which: (a) has more bits set than the local device can transit, (b) does not have all bits set corresponding to default TrBRFs which must transit the device, or (c) corresponds to non-existent TrBRFs (TrBRFs whose IDs are not defined in the management domain), will be rejected with a "badValue" error.

**TrBRFs in Domain**
A string of octets containing one bit per TrBRF in the management domain. The first octet corresponds to TrBRFs with BRF No. 1 through 8; the second octet to TrBRFs 9 through 16; etc. The most significant bit of each octet corresponds to the lowest value BRF No. in that octet. If the bit corresponding to a TrBRF is set to 1, then the TrBRF transits the local device either because it was configured to, or because it was selected to automatically by the selection algorithm.

**Filter Configuration View**

**Access:** From the Icon Subviews menu for the STS16App Application icon, select Filtering.

The Filter Configuration view contains two tables, Class Filter Table (Page 109) and Protocol Filter Table (Page 109), and three buttons, all of which are described below. Both tables have standard Sort, Find, Update and Print buttons (see SPECTRUM Views).
Class Filter Table
DSAP and SNAP Filter Class table. This table is global for the entire stack.

Index
Protocol class table index.

Ether Type
This is the two byte ether-type for this protocol class. Only one ether type may be set per protocol class. Setting an illegal ether type will result in a "badValue" error. Only 8 ether types can be configured. This object is only configurable for the first 8 protocol class objects.

Filter DSAPs
This is the list of DSAPs associated with a protocol class. Up to sixteen DSAPs may be specified per protocol class. If any DSAP is an illegal value the entire object will be rejected.

Protocol Filter Table
DSAP and SNAP Filter table. This table allows you to assign protocol classes and settings for each port.

Switch.Port.Index
This is the port in the switch to which this table entry corresponds.

Blocking Mode
This determines the frame types that will be blocked for this protocol class on this port. Setting the value causes the following: all - causes all frames in this class to be blocked, sr - causes source route frames in this class to be blocked, nsr - causes non source routed frames in this class to be blocked, none - allow all frames in this protocol class. None is the default value.

Transport Mode
If this port is in a SRT configured TrCRF, then setting this object will allow transparent bridging of frames in this protocol class. Setting this object to disable disallows transparent bridging of frames in this protocol class. The default value is enable. Values are: enable, and disable.

Destination MAC
Accesses a table of destination filters set up in the switch. New filters are created by adding entries to this table.

Note:
Values for all of the relevant objects for a particular type of filter must be specified in a single SNMP set operation on creation of a filter.
Set operations which do not contain all of the required objects for a given filter type will fail with an error-status of "genErr". The objects required for each filter type are described in the Table 28 table:

<table>
<thead>
<tr>
<th>MAC Destination Filter Types</th>
<th>Required Objects for Creation</th>
</tr>
</thead>
<tbody>
<tr>
<td>block-dest</td>
<td>sts16MACDestFilterPorts</td>
</tr>
<tr>
<td>allow-dest</td>
<td>sts16MACDestFilterPorts</td>
</tr>
<tr>
<td>limited-multicast</td>
<td>sts16MACDestFilterPorts, sts16MACDestFilterExitMask</td>
</tr>
<tr>
<td>force-dest</td>
<td>sts16MACDestFilterPorts, sts16MACDestFilterRemoteBox, sts16MACDestFilterRemotePort</td>
</tr>
</tbody>
</table>

Since the indices for the MAC Destination Table are switch number, MAC address, and filter type, the instance information for a given object specifies which filter is being created.

This button accesses the Destination MAC Filter (Page 111) view.

A table of source filters set up in the switch. New filters are created by adding entries to this table.

Set operations which do not contain all of the required objects for a given filter type will fail with an error-status of "genErr". The objects required for each filter type are as follows:

<table>
<thead>
<tr>
<th>Source Filter Types</th>
<th>Required Objects for Creation</th>
</tr>
</thead>
<tbody>
<tr>
<td>block-src</td>
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</tr>
<tr>
<td>allow-src</td>
<td>sts16MACSourceFilterPorts</td>
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Since the indices for the Source MAC Filter table are switch number, MAC address, and filter type, the instance information for a given object specifies which filter is being created.

This button accesses the Source MAC Filter (Page 112) view.
duplicate MAC addresses and allows you to assign protocol classes and settings for each trunk port.

**Destination MAC Filter**

*Access:* From the Filter Configuration view, select the Destination MAC button.

This table provides destination filters set up in the switch. New filters are created by adding entries to this table. This view contains the MAC Destination Table which has standard Sort, Find, Update, Print and Add Entry buttons (see SPECTRUM Views), as well as the following column headings:

**Switch**
The port number to which the switch is connected in a Matrix, or as determined by the Stack Management software when two switches are connected back to back.

**Dest MAC Address**
The destination MAC address in a frame to which this entry’s filtering information applies.

**Type**
There are four types of destination MAC address filters (see Destination Filters (Page 110)):

1. **Block destination address at specific ports**-block-dest. This filter indicates that the specified ports must not send frames to the specified destination station address.

2. **Allow destination address at specific ports**-allow-dest. This filter indicates that the specified ports must send frames to the specified destination stations only.

3. **Limited Multicast of address on filtered port(s)**
to specified exit mask of ports- limited-multicast.

4. **Force destination address to specific ports**-force-dest. This filter may be used for two purposes: to allow forwarding to a unicast address that has not been learned, or to limit forwarding of a multicast address to certain ports.

**Port List**
The set of ports to which this filter is applied. Each octet within the value of this object specifies a set of eight ports, with the first octet specifying ports 1 through 8, the second octet specifying

---

**Note:**

The Force Destination filter will only be applied to NSR frames.
ports 9 through 16, etc. Within each octet, the most significant bit represents the lowest numbered port, and the least significant bit represents the highest numbered port. Thus, each port of the switch is represented by a single bit within the value of this object. If that bit has a value of 1, then that port is included in the set of ports; the port is not included if its bit has a value of 0.

Exit Mask
The set of output ports to which a limited multicast filter is applied. This object only has a value for Limited Multicast filters. Each octet within the value of this object specifies a set of eight ports, with the first octet specifying ports 1 through 8, the second octet specifying ports 9 through 16, etc. Within each octet, the most significant bit represents the lowest numbered port, and the least significant bit represents the highest numbered port. Thus, each port of the switch is represented by a single bit within the value of this object. If that bit has a value of 1, then that port is included in the set of ports; the port is not included if its bit has a value of 0.

Remote Port
The remote port to be used for a force destination filter.

Status
A get request always returns valid. Set this object to invalid to delete an entry.

Add Destination MAC Table Entry
Opens the Add Destination MAC Table Entry view.

Source MAC Filter
Access: From the Filter Configuration View, click on the Source MAC.

This table contains source filters set up in the switch. New filters are created by adding entries to this table. This view provides access to the MAC Source Table which has standard Sort.

Remote Box
The remote switch to be used for a force destination filter.
Find, Update, Print and Add Entry buttons (see SPECTRUM Views), as well as the following column headings:

Switch
Switch number determined by the port number that the switch is connected to in a Matrix or as determined by the Stack Management software when two switches are connected back to back.

Source MAC Address
The destination MAC address in a frame to which this entry’s filtering information applies.

Type
There are two types of source address filters: (1) Block source address at specific ports. Indicates that the specific source addresses must not send frames from specified ports. (2) Allow source address at specific ports. Indicates that only the specified source addresses must send frames from the specified ports. Values are: block-source, and allow-source.

Port List
The set of ports to which this filter is applied. Each octet within the value of this object specifies a set of eight ports, with the first octet specifying ports 1 through 8, the second octet specifying ports 9 through 16, etc. Within each octet, the most significant bit represents the lowest numbered port, and the least significant bit represents the highest numbered port. Thus, each port of the switch is represented by a single bit within the value of this object. If that bit has a value of 1 then that port is included in the set of ports; the port is not included if its bit has a value of 0.

Status
A get request always returns valid. Set this object to invalid to delete an entry.

Add Source MAC Table Entry
Access: From the Source MAC Filter table, click on the Add Entry button.

From within this view, you can add entries into the Source MAC Filter (Page 112). Fields in this view correspond to the column headings in the Source MAC Filter.
Duplicate/Trunk Configuration

Access: From the Filter Configuration View, click on the Duplicate Address Trunk Protocol button.

This view provides access to two tables: Duplicate Address, and Trunk Protocol Table. Both tables have standard Sort, Find, Update, and Print buttons (see SPECTRUM Views), as well as the following column headings:

Duplicate Address
A table of MAC addresses that have been identified as duplicates within an address scope.

Switch
The port number to which the switch is connected in a Matrix or as determined by the Stack Management software when two switches are connected back to back.

MAC Address
The MAC address identified as being a duplicate. All frames having this MAC address as their source address are being discarded at the ports specified in the Port List.

Port List
A bit mask representing all the ports on which this duplicate MAC address is currently being filtered. Each octet within the value of this object specifies a set of eight ports, with the first octet specifying ports 1 through 8, the second octet specifying ports 9 through 16, etc. Within each octet, the most significant bit represents the lowest numbered port, and the least significant bit represents the highest numbered port. Thus, each port of the switch is represented by a single bit within the value of this object. If that bit has a value of 1 then that port is included in the set of ports in this switch; the port is not included in this switch if its bit has a value of 0.

Trunk Protocol Table
DSAP and SNAP Filter table for trunk ports which support protocol filters on a per-TrCRF basis. This table allows you to assign protocol classes and settings for each TrCRF on each trunk port.

Switch.Port.CRF.Class
The port in the switch to which this table entry corresponds.

Blocking Mode
This determines the frame types that will be blocked for this protocol class on this TrCRF on this port. Setting the values causes the following:

- all - causes all frames in this class to be blocked.
• sr - causes source route frames in this class to be blocked.
• nsr - causes non source routed frames in this class to be blocked.
• none - allows all frames in this protocol class. This is the default value.

**Transport Mode**
If this port is in a SRT configured TrCRF, then setting this object will allow transparent bridging of frames in this protocol class. Setting this object to disable disallows transparent bridging of frames in this protocol class. The default value is enable. Values are: enable, and disable.

**Switch Port Table Entry**

*Access:* From the Chassis Device view, highlight one of the icons and select Port Configuration from the Icon Subviews menu.

This view provides current configuration and statistical information for a selected port.

**Port**
A unique value for each port entry. The value corresponds to the port number.

**Module**
Module number of the module that contains this port.

**Interface Index**
A pointer to the entry in the Interface Table corresponding to this port.

**Reset Stats**
Setting this object to reset causes all traffic counters for this port to be set to zero. Also the value of Port Statistics Reset Timer is set to zero. Values are: other - none of the following, running - port is functioning, and reset - reset port counters.

**Reset Address Table**
Setting this object to reset clears all address table entries for this port as well as setting all port traffic counters to zero and setting Port Statistics Reset Timer to zero. Values are: other - none of the following, running - port is functioning, and reset - clear address table and reset port counters.

**Addr Ageing Time**
Port level address aging time in minutes. Setting this object to zero disables address aging.

**Demand Ageing Level**
Threshold to demand age the port address table. All numbers refer to percentage of the address table. The only values accepted by the agent are 50, 60, 70, 80, 90 and 0. Setting the value to 0 disables demand aging.
**Configuration Views**

**Switch Port Table Entry**

**Error Low Threshold**
Lower error rate threshold which causes the port to transition from store and forward mode to cut-through mode.

**Error High Thres**
Upper error rate threshold which causes the port to transition from cut-through mode to store and forward mode.

**Error Sampling**
Error sampling interval in minutes.

**Max Transmit Unit**
MTU size of this port. Values are: mtu1500, mtu4472, mtu8144, and mtu17800.

**Explorer Rate**
Explorer frame forwarding rate per second throttle. A value of (-1) disables explorer frame throttling.

**Set AC Bits**
Specifies if the AC bits shall be set unconditionally when a port forwards certain LLC frames. Values are: enabled(1), and disabled(2).

**Early Token Release**
Early token release operation. Values are: enabled, and disabled.

**Forwarding Mode**
Operational frame switching mode for the port. When in auto mode the port uses the Direct Cut algorithm to place the port in either cutthru or storeandforward mode. Other values include: auto, and unknown.

**Actual Fwding Mode**
Actual operational frame switching mode for the port. Values are: storeandforward, cutthru, and unknown.

**Priority Threshold**
The highest token-ring frame priority that shall go to the low-priority transmit queue.

**Min Xmit Priority**
The minimum token priority that will be used for transmit.

**Config Loss Thres**
Number of configuration loss events during the sample period which, if exceeded, should cause the port to be disabled. If the port is disabled by this function the port must be manually re-enabled.

**Config Loss Inter**
The sampling period, in minutes, for the port monitors to determine if the configuration loss threshold has been exceeded.
**Bcast Suppression**
The number of broadcast frames per second allowed to be forwarded by this port. Any broadcast frames exceeding this watermark will not be forwarded by the port. Setting this object to 0 turns broadcast suppression off.

**Time to Live**
The advertised time-to-live parameter on all CDP messages generated by the switch on this port.

**Spanning Tree Mode**
Used when configuring manual spanning tree. Setting this object to forwarding or blocking overrides the TrCRF’s spanning tree’s algorithm for this port. Other values include: auto, and unknown.

**Security Mode**
Port security mode is used to disable address learning at a port where an allow-source or allow-destination MAC address filter is configured. A value of normal indicates that the port is not configured for security. A value of secure-src-addrs indicates that learning for source addresses is disabled. A value of secure-dest-addrs indicates that learning for destination addresses is disabled. A value of secure-src-and-dest-addrs indicates that learning is disabled for both source and destination addresses.

**LED State**
The state of the Link LED. Values are: on, off, and flash.

**Operational Mode**
Port operational mode. Values are: auto, port, station, ri-ro, passive-probe, and unknown.

**Actual Operation**
The actual port operation mode. If the port is in "auto mode," this object will return the mode in which the port opened. Values are: port, station, ri-ro, passive-probe, and unknown.

**Duplex Mode**
Duplex mode. The port could either be auto detected or forced to HDX or FDX. Values are: auto, hdx, fdx, none, and unknown.

**Note:**
Passive-probe mode can not be set with this object. The passive-probe mode is set automatically when a passive probe is defined in the Passive Probe Table.

**Note:**
In Operation Mode, ri-ro is only valid for ports 19, 20, and ports on a fiber module.
**Actual Duplex Mode**
The actual port duplex mode. If the port is in auto mode, this object will return the mode in which the port opened. Values are: hdx, fdx, none, and unknown.

**RPS Operation**
Ring Parameter Server (RPS) operation. Values are: enabled, and disabled.

**Port Name**
Logical port name.

**Matrix Box Number**
Box number as determined by the port number that the switch is connected to in a matrix or as determined by the Stack Management software when two switches are connected back to back.
Model Information Views

This section provides a brief description of the Model Information views available for models of SmartSTACK Token Ring switches in SPECTRUM.

Model Information views provide descriptive and configuration information about SPECTRUM models of individual devices, interfaces, and applications. Figure 14 shows an example of the Model Information view accessed from the Icon Subviews menu for the STS16 model’s Device icon. Model Information views are also available for each of the Interface icons in the Interface Device and Interface Device Topology views, and for each of the Application icons in the Application view. Although these views may vary slightly depending on the particular entity being modeled, their basic layout and content are similar for most SPECTRUM management modules. Therefore these views are described in more detail in the SPECTRUM Views documentation.
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