

# SPECTRUM®

## **DEC GigaSwitch Management Module Guide**

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## What Is in This Guide

This manual serves as a reference guide to the DEC GigaSwitch management module software, providing the information necessary to create, configure, and monitor the DEC GigaSwitch in SPECTRUM.

## Who Should Read This Manual

You should read this manual if you are going to model and monitor a DEC GigaSwitch device through SPECTRUM.

Before reading this manual, you should be familiar with SPECTRUM's functionality. Familiarity with network management is helpful, as is an understanding of the device hardware and firmware described in the GigaSwitch's hardware manual.

## How This Manual Is Organized

This guide is organized as follows:

<b>Chapter</b>	<b>Description</b>
Chapter 1 <i>Introduction</i>	Describes the DEC GigaSwitch management module and model types.
Chapter 2 <i>Device Views</i>	Describes the Logical and Physical device views for the DEC GigaSwitch.
Chapter 3 <i>Configuration Views</i>	Describes the Device, Module, and Port Configuration Views for the DEC GigaSwitch.
Chapter 4 <i>Events and Alarms</i>	Describes the DECElan and DECGiga applications for the DEC GigaSwitch.
Chapter 5 <i>DEC-Specific Applications</i>	Describes the Event and Alarm messages and the corresponding Probable Cause messages specific to the DEC GigaSwitch.

## Conventions

In this manual the following conventions are used.

- Command names are printed in **bold**; for example, **Clear** or **Save & Close**.
- Menu selections to access a view are printed in **bold**; for example, **Configuration** or **Detail**.
- Buttons are represented by a shadowed box; for example, .

**Help**

## Related SPECTRUM Documentation

Refer to the following documentation for more information on using SPECTRUM:

*SPECTRUM Report Generator User's Guide*

*SPECTRUM AutoDiscovery User's Guide*

*Getting Started with SPECTRUM for Operators*

*Getting Started with SPECTRUM for Administrators*

*How to Manage Your Network with SPECTRUM*

## Other Related Documentation

*LAN Troubleshooting Handbook*, Mark Miller (1989, M&T Publishing, Inc.)

*Local Area Networks, Architectures and Implementations*, James Martin & Kathleen K. Chapman for the Arben Group, Inc. (1989, Prentice-Hall, Inc.)

*The Simple Book — An Introduction to Management of TCP/IP-based Internets*, Marshall T. Rose, Performance Systems International, Inc.

*Computer Networks*, Andrew S. Tanenbaum, Prentice-Hall, Inc.

*Internetworking Technology Overview*, Cisco Systems, Inc. (1993, Cisco Systems, Inc.)

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## Introduction

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### What Is in This Chapter

This chapter describes the SPECTRUM Management Module for the DEC GigaSwitch. It also provides the model type names assigned to the DEC GigaSwitch in SPECTRUM. The model type name refers to the template used to specify attributes, actions, and associations for device models in SPECTRUM.

### DEC GigaSwitch Management Module

The DEC GigaSwitch Management Module supports all DEC GigaSwitch device models managed through the SNMP advanced network management agent. SPECTRUM bases its management of these devices on the Management Information Base (MIB), which comes as part of the management module. The SPECTRUM model type name of the DEC GigaSwitch device is as follows:

**DECGigaSwitch:** A DEC GigaSwitch data switch. SPECTRUM supports the Fiber GIGAswitch/FDDI System Linecard, 2-port (FGL-2), Switch Control Processor (SCP), and Clock cards. The DEC GigaSwitch allows for 14 linecards to be installed into its back providing for a total of 32 simultaneous network connections.

SPECTRUM supports the following firmware revisions:

2.00, 2.10, 2.20.

Support is currently available only for the FDDI GigaSwitch hub, but support for the ATM hub will be available in a future release.



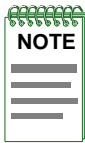
## **SPECTRUM and the DEC GigaSwitch**

The DEC GigaSwitch Management Module model will allow modeling of the DEC GigaSwitch device.

Supported Devices: GigaSwitch/FDDI

Supported Cards: FGL2, SCP, Clock card

Firmware Versions: 2.00, 2.10, 2.20



*If you are running a previous version of SPECTRUM, the following user interface aspects may differ from those in SPECTRUM version 4.0:*

- *Order and names of menu selections*
- *Navigational features (mouse button functionality)*

## **DEC GigaSwitch Applications**

The DEC GigaSwitch supports both common and device-specific applications. SPECTRUM management of the DEC GigaSwitch utilizes the following Management Information Bases (MIB's) which come as a part of the software module for the model type:

- Internet MIB-II (RFC 1213)
- IETF Bridge MIB (RFC 1286)
- RFC 1285 (FDDI)
- DEC Elan Vendor MIB (Version 2.7)
- DEC GigaSwitch MIB (Version 1.0)

The MIB-II, IETF Bridge MIB, and the FDDI applications are described in the Applications documentation. The DEC GigaApp and the DEC ElanApp are the GigaSwitch's device-specific applications and are detailed in Chapter 5, *DEC-Specific Applications*.

## Device View

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### What Is in This Chapter

This chapter describes the Gigaswitch's Logical, Interface and Physical Device views and how to utilize these views to manage and access information from the Gigaswitch module. The Logical Device view provides a logical representation of the Gigaswitch module and access to configuration and status information on the module itself, the Ring In and Ring Out ports, and the station ports.

The Interface Device view displays interface icons for each of the linecards installed in the GigaSwitch, allowing you to set and gather information about each of the interfaces.

The Physical Device view provides a physical representation of the Gigaswitch and allows access to configuration and status information for the Gigaswitch module.

### Logical Device View

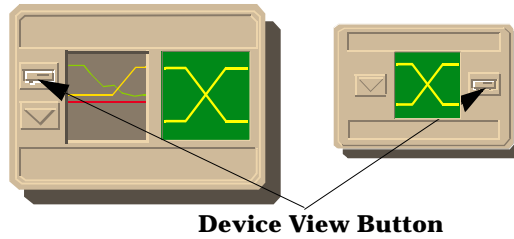
This section describes the information available from the Gigaswitch Logical Device view.

The following diagram illustrates how to access the Gigaswitch's Logical Device view and Figure 2-1 shows the module's Logical Device view. The Logical Device view provides access to detailed information about the Gigaswitch module. Figure 2-2 displays the Gigaswitch Logical Module and the menu selections available by double-clicking the left mouse button on each zone of the module.

## Accessing the Logical Device View

The Logical Device view is accessed using one of the following methods:

- Double-click on the Device view button of the Gigaswitch device icon. This will open the Device view that was opened last (i.e. Logical, Physical, or Interface).



- Highlight the DEC Gigaswitch device icon and select **Device -> Logical** from the Icon Subviews menu.

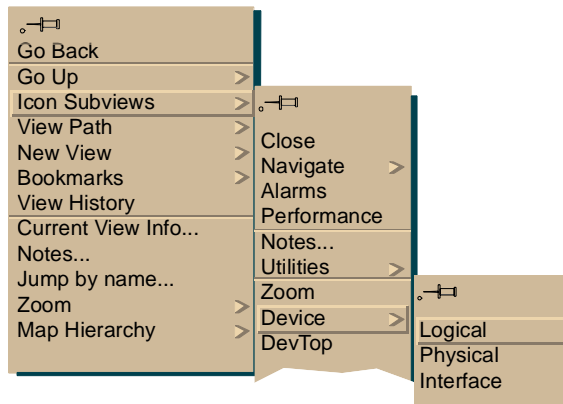
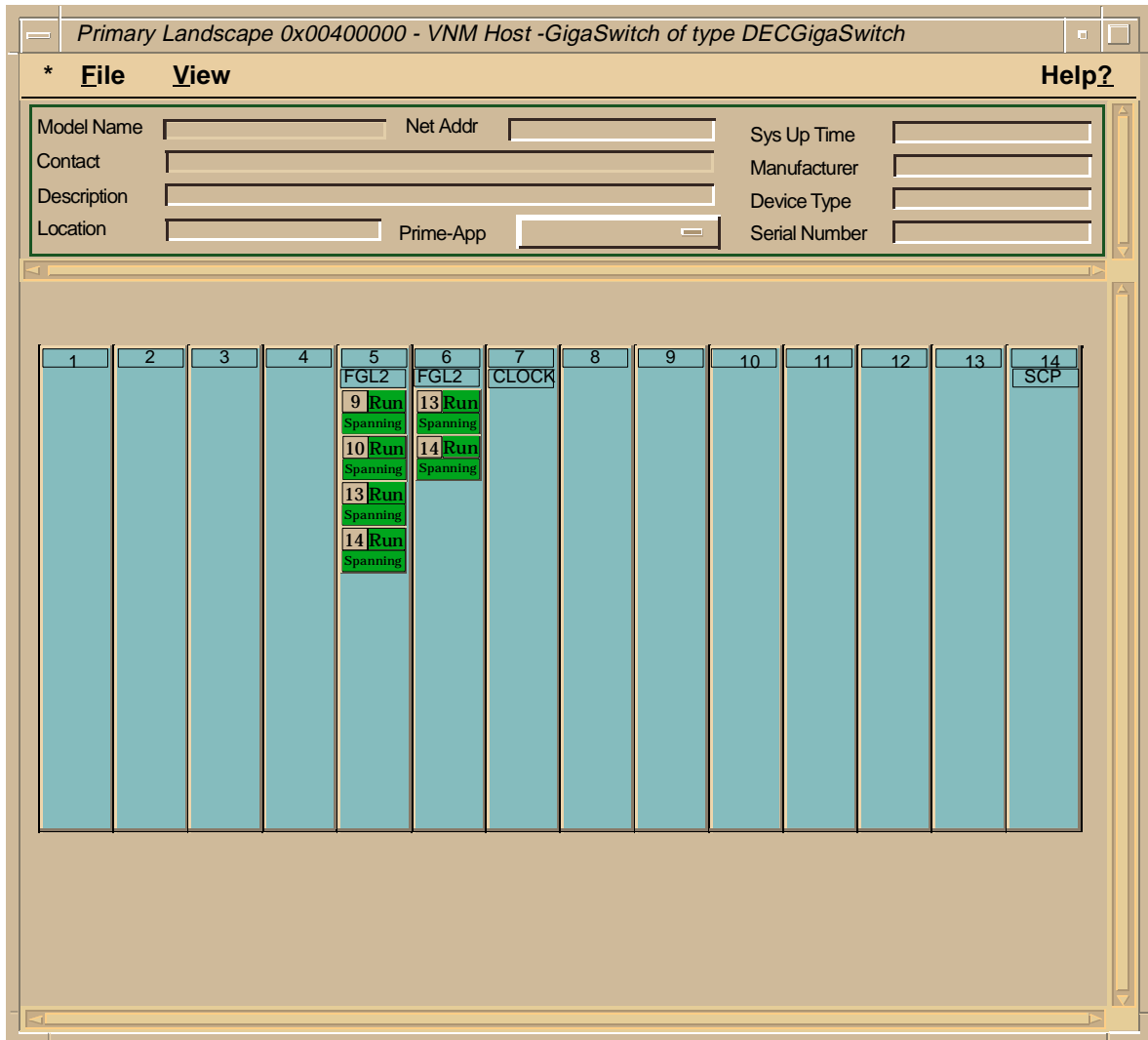
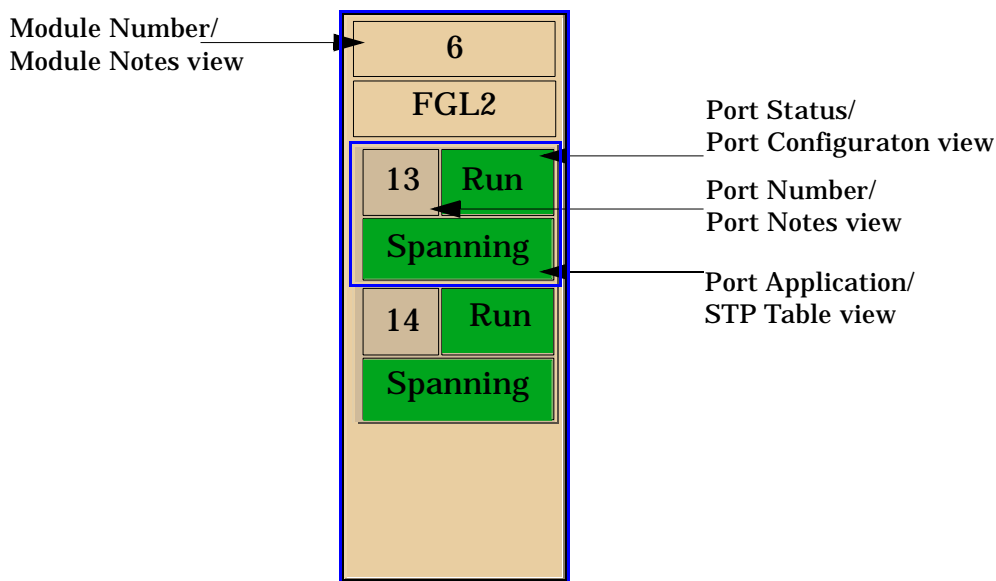


Figure 2-1. DEC Gigaswitch Logical Device View



**Figure 2-2. DEC Gigaswitch Logical Device View - Label and Double-Click Zones**



**Table 2-1. Module Menu Selections**

Menu Selection	Description
Module Notes	Opens the Module Notes view, allowing you to write, save, and email notes about the highlighted module.
Module Port Table	Opens the Module Port Table view, which displays the module's number, its ports, the MIB II Index and Bridge Ports.
Module Configuration	Opens the Board Table view, allowing you to change the DEC Gigaswitch's status. <b>NotPresent, PowerDown, PowerUp, PowerDownTheUp, Fault, RevMismatch, and SelfTestInProgress</b> are the status choices. For more information, refer to Chapter 3, <i>Configuration Views</i> .

Table 2-2 list the icon subviews available from a highlighted port in the Logical Device view.

**Table 2-2. Port Icon Subviews**

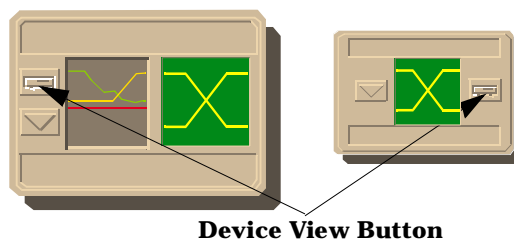
Menu Selection	Description
Port Notes	Opens the Port Notes view, allowing you to write, save and email notes about the highlighted port.
Port Configuration	Opens the FDDI MAC Table view, providing FDDI configuration information for the highlighted port. For more information about the FDDI MAC Table view and other configuration views, refer to Chapter 3, <i>Configuration Views</i> .
Spanning Tree	Opens the STP Table view, allowing you to <b>Enable</b> or <b>Disable</b> Spanning Tree capability for the highlighted port.

## Interface Device View

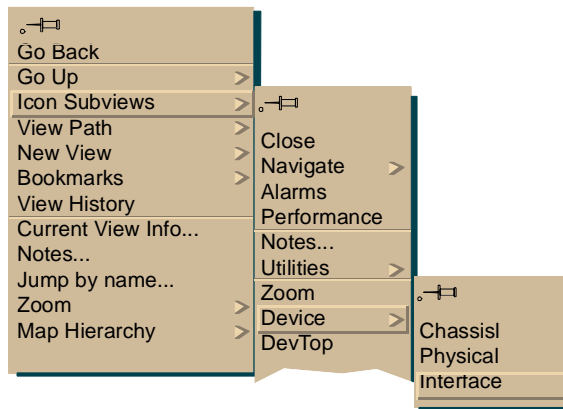
This section describes the module information available from the Interface Device view, which displays a Device Icon Panel, an Interface Options Panel, and a Logical Interface icon. Access the Interface Device view by selecting **Device** from the Icon Subviews Menu or double-click the Device view button.

Access the Interface Device View using one of the following methods:

- Double-click on the Device view button of the GigaSwitch device icon. This will open the Device view that was opened last (i.e. Chassis, Physical or Interface).

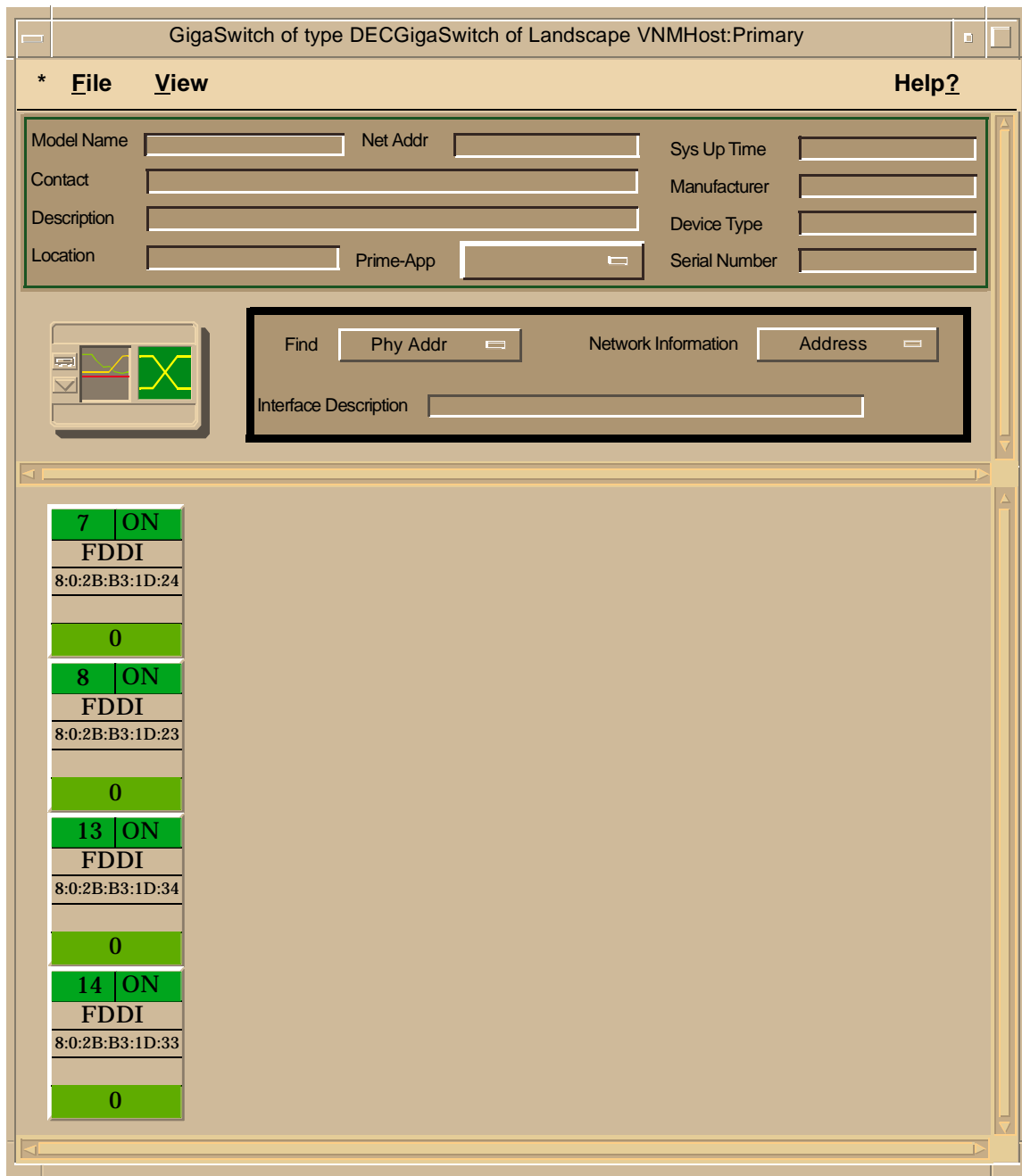


- Highlight the GigaSwitch device icon and select **Device -> Interface** from the Icon Subviews menu.



The Interface Device View includes three panels as well as the Device View Banner shown in Figure 2-3.

**Figure 2-3. Interface Device View**





## **Device Icon Panel**

The Device Icon Panel displays the GigaSwitch Location view Icon.

## **Interface Options Panel**

The Interface Option Panel area of the Device view allows you to modify the presentation of the Logical Interface Icon. It provides the fields described below as well as access to the Gauge Control Panel view.

### **Filter**

The Filter area of the Interface Options Panel is only implemented if the SPECTRUM Routing Services Management Module is loaded.

### **Network Information**

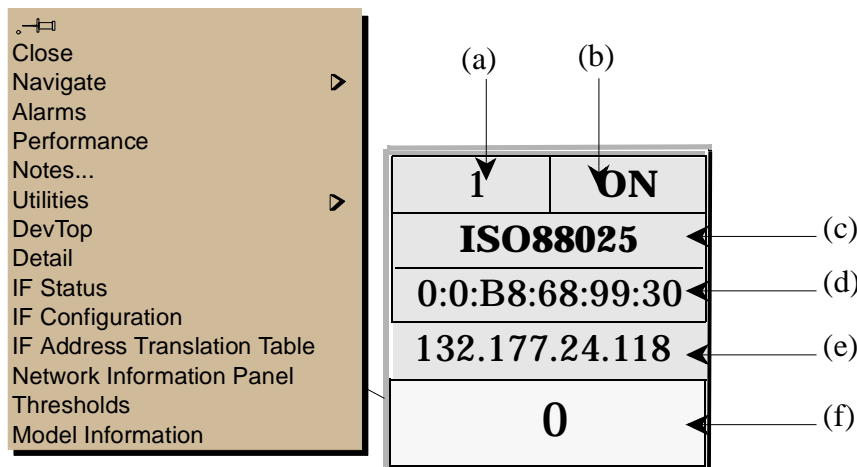
The Network Information area of the Interface Options Panel allows you to determine the interface information displayed in the Network Information Label zone of that interface's Logical Interface Icon. Possible selections are ADDRESS, NAME, or MASK.

### **Interface Description**

Selecting an Interface Icon displays the type of interface in the Interface Description area of the Interface Options Panel.

## Logical Interface Icon

The logical interface icon displays information about each of the interfaces on the line cards installed in the GigaSwitch



- a) DevTop view/Port Number Label
- b) Interface Status view/Interface Status Label
- c) Interface Configuration view/Interface Label
- d) Interface Address Translation Table/Physical Address Label
- e) Network Information Panel/Network Information Label
- f) CSI Interface Performance view/Logical Gauge

## Device Topology View/Interface Number Label

This label displays the number of this interface. Double-clicking on this label allows you to access the DECGigaSwitch Device Topology (DevTop) view.

## Interface Status View/Interface Status Label

The Interface Status Label displays a text label and an appropriate background color to represent the current status of the interface. Table 2-3 shows the possible interface statuses and their respective colors.

**Table 2-3. Interface Status Label Definitions**

Operational Status	Administrative Status	Text Display	Color
ON	ON	ON	Green
OFF	OFF	OFF	Blue
OFF	ON	OFF	Yellow
TESTING	TESTING	TEST	Red

The interface status label provides access to the status view specific to the port. Double-clicking on this label opens the Interface Status view. This view allows you to set the administrative status to ON or OFF.

## Interface Configuration View/Port Type Label

The Port Type Label displays the type of DECGigaSwitch interface. Possible interface types are shown in Table 2-4.

Double-clicking on the interface type label displays the Interface Configuration view. This view allows you to set the Administrative Status of the highlighted interface to **On**, **Off**, or **Testing**.

The Interface Configuration view also displays the interface's Operation Status, Physical Address, Bandwidth, Packet Size, Queue Length, Last Change information as read-only values.

**Table 2-4. Interface Types for the DECGigaSwitch**

Interface Type	Description
other	None of the following
regular1822	Regular 1822
hdh1822	HDLC Distant Host protocol
ddn-X25	Defense Data Network X.25
rfc877-x25	RFC877 X.25
ethernet-csmacd	Ethernet CSMA/CD
iso88023-csmacd	ISO CSMA/CD
iso88024-tokenRing	ISO token bus
iso88025-tokenRing	ISO token ring
iso88026-man	ISO man

**Table 2-4. Interface Types for the DECGigaSwitch (Continued)**

starLan	StarLAN IEEE 802.3
proteon-10Mbit	ProNET 10 Mbps
proteon-80Mbit	ProNET 80 Mbps
HyChan	Hyperchannel
fddi	Fiber Distributed Data Interface
lapb	X.25 Line Access Procedure, Balanced
sdlc	IBM Synchronous Data Link Control protocol
ds1	T1 link (USA and Japan)
CEPT	T1 link (Europe)
basicISDN	Basic Integrated Services Digital Network
primaryISDN	Proprietary Integrated Services Digital Network
propPointToPointSerial	Proprietary Point to Point Serial
ppp	Point to Point protocol
softwareLoopback	Software Loopback
eon/CLNPOverIP	Connectionless Network Protocol over IP
ethernet-3Mbit	Ethernet 3 Mbps
nsip/XNSoverIP	Xerox Network Service Protocol over IP
slip	Generic Serial Line IP
ultra	ULTRA Technologies
sip	Switched Multimegabit Data Service
frame-relay	T1 Frame relay

### Interface Address Translation Table/MAC Address Label

The MAC Address Label displays the physical address of each of the interfaces for the line cards installed in the DEC GigaSwitch. Double-clicking on this label accesses the Interface Address Translation Table.

The Interface Translation Table displays the Interface Index number, the Physical Address, and the Network Address for each interface.

## Network Information Panel/Network Information Label

The Network Information Label displays the name, address, or subnet mask of this interface, according to selections made in the Interface Options Panel, (see *Interface Options Panel* on page 2-8) .

Double-clicking on this label displays the Network Information Panel, displaying the name, address, and subnet mask of this interface.

## Interface Performance View/Logical Gauge Label

Double-clicking on this label of the Interface Icon allows you to access the Performance View for the interface. You can also access this view by highlighting the GigaSwitch icon and selecting **Performance** from the Icon Subviews menu. This area is also a Logical Gauge, which is described later in this chapter. The Performance view summarizes network traffic flow in packets for this interface, providing the following information:

### Multi-Attribute Line Graph

The Multi-Attribute Line Graph provides a general indication of network activity. The attributes are pre-selected and use colors to represent different statistics. For more information on the Multi-Attribute Line Graph, refer to **SPECTRUM Views**. Table 2-5 lists the color and statistical definitions for each attribute.

**Table 2-5. Color and Statistical Definitions for each Attribute**

Statistic	Color	Description
% Transmitted	White	The percentage of the total number of packets that have been transmitted, device-wide, during uptime.
% Discarded	Orange	The percentage of the total number of packets that have been discarded, device-wide, during uptime.
% Error	Red	The percentage of the total number of packets that have contained errors, device-wide, during uptime.
% Host Bound	Yellow	The percentage of the total number of packets that have been delivered to the local host from the port during uptime.
In Packet Rate	Light Blue	The total number of packets that have been received, device-wide, during uptime.
Out Packet Rate	Turquoise	The total number of packets that have been transmitted, device-wide, during uptime.
Total Packet Rate	Royal Blue	The total number of packets that have been transmitted and received, device-wide, during uptime.

**Table 2-5. Color and Statistical Definitions for each Attribute (Continued)**

<b>Statistic</b>	<b>Color</b>	<b>Description</b>
In Load	Green	The amount of bandwidth used per packets received during the port's uptime.
Out Load	Mustard Green	The amount of bandwidth used per packets transmitted during the port's uptime.
Total Load	Light Green	The amount of bandwidth used per packets received and transmitted during the port's uptime.

**Multi-Attribute Line Graph Buttons**

Buttons allow you to modify the statistical presentation of the Multi-Attribute Line Graph. The following buttons are provided:

**Lin/Log**

This button toggles between a linear or logarithmic scale presentation of the graph.

**Scroll to Date-Time**

This button allows you to set the viewing area of the graph to begin at a specified date and time. When pressed, this button also displays two other choices.

Choosing **Change Time Scale** allows you to set the time scale for the graph within the range of 1 to 100 hours.

Choosing **Data Logging** allows you to store the polled data in the database.

**Transmit**

Pressing this button brings up a multi-attribute line graph that only displays information about packets sent through the interface.

**Receive**

Pressing this button brings up a multi-attribute line graph that only displays information about packets received through the interface.

**Detail**

Pressing this button brings up the Interface Detail view for the highlighted interface. This view displays information about the Packet, Error, and Discard rates in three color-coded pie graphs.

**Config**

Pressing this button brings up the Interface Configuration view.  
(See *Interface Configuration View/Port Type Label* on page 2-10.)

### **Alarms**

Pressing this button brings up the Alarm Manger, listing the alarms, if any, for the interfaces.

### **Events**

Pressing this button brings up the Event Log for the GigaSwitch model.

### **Threshold**

Pressing this button brings up the Interface Threshold view, allowing you to set the Load, Packet Rate, Error Rate, and %Discarded thresholds for the interface.

## **Gauge Control Panel**

The Gauge Control Panel allows you to change the type of statistical information presented in the Logical Gauge area of the Logical Interface Icon. To access the Gauge Control Panel, either double-click on the Interface Options Panel or single-click on the panel to highlight it and then select **Gauge Control Panel** from the Icon Subviews menu.

### **Selected Attribute**

This area of the Gauge Control Panel allows you to select the statistical attribute displayed on the Logical Interface Icon's Gauge. The label changes color to reflect the attribute selected. Table 2-6 and Table 2-7 provide a list of the attributes and their corresponding colors.

### **Gauge Mode**

This area of the Gauge Control Panel allows you to select the mode presented by the Logical Gauge. Possible selections are Totals, Rates, or Percentages. The Percentages selection represents the percentage of the interface compared to the rest of the interfaces. Table 2-6 shows the displayed attributes and their color definitions if the Totals mode is selected. Table 2-7 shows the displayed attributes and their color definitions if the Rates mode is selected.

**Table 2-6. GaugeTotals Mode Attribute and Color Definitions**

<b>Selected Attribute</b>	<b>Color</b>
Errors	Orange
In Packets	Lt. Blue
Out Packets	Lt. Blue
In Octets	Green
Out Octets	Green
Discards	Tan
Forwarded	Lt. Purple
Host Bound	Yellow
Transmitted	White
Filtered	Gray

**Table 2-7. GaugeRates Mode Attribute and Color Definitions**

<b>Selected Attribute</b>	<b>Color</b>
Load	Green
Load In	Green
Load Out	Green
Packet Rate	Lt. Blue
In Packet Rate	Lt. Blue
Out Packet Rate	Lt. Blue
% Discard	Tan
% Filtered	Gray
% Forwarded	Lt. Violet
% Host Bound	Yellow
% Error	Orange
% Transmitted	White

## Gauge Type

This option allows you to select either a numeric or linear representation of the Logical Gauge.



## Gauge Control Panel Buttons

Several buttons allow you to control the way the Gauge Control Panel selections affect the logical interface icon. The Gauge control panel provides the following buttons:

### **Apply**

Apply the current selections to the Logical Gauge. The settings cannot be saved.

### **Keep Settings**

Save the current gauge settings while running SpectroGRAPH.

### **Reset**

Reset back to the last Keep Settings selections.

### **Close**

Close the Gauge Control Panel.

### **Default**

Reset back to the default attribute of Load.

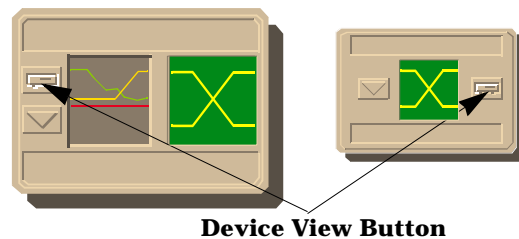
## Physical Device View

The Physical Device view provides a graphical representation of the DEC GigaSwitch and provides access to the Notes, Port Table, and Configuration views for each of the modules installed in the DEC GigaSwitch.

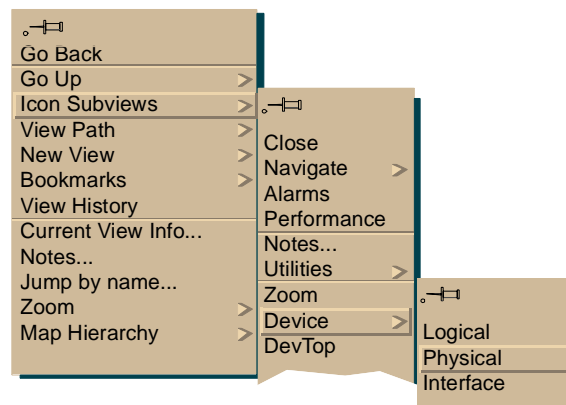
### Accessing the Physical Device View

The Physical Device view is accessed using one of the following methods:

- Double-click on the Device View button of the Gigaswitch device icon. This will open the Device view that was opened last (i.e. Logical or Physical).



- Highlight the Gigaswitch device icon and select **Device -> Physical** from the Icon Subviews menu.



**Figure 2-4. DEC GigaSwitch Physical Device View**

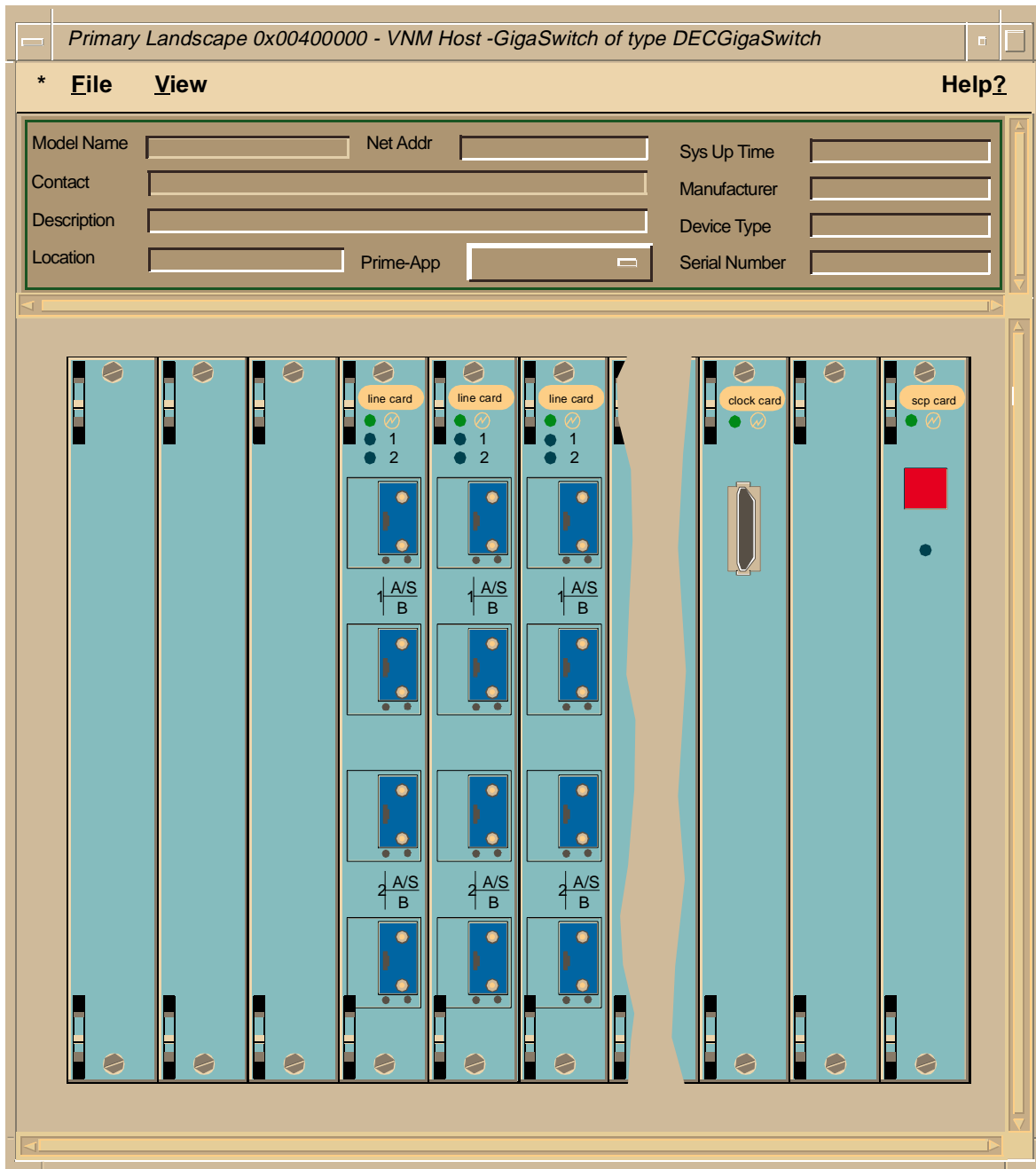


Table 2-8 describes the icon subviews accessible from the DEC GigaSwitch's Physical Device View.

**Table 2-8. DEC GigaSwitch I Physical Device View- Module Icon Subviews**

<b>Menu Selection</b>	<b>Description</b>
Module Notes	Opens the Module Notes View, allowing you to write, save, and email notes about the highlighted module.
Module Port Table	Opens the Module Port Table View, which displays the module's number, its ports, the MIB II Index and Bridge Ports.
Module Configuration	Opens the Board Table view, allowing you to change the DEC Gigaswitch's status. <b>NotPresent, PowerDown, PowerUp, PowerDownTheUp, Fault, RevMismatch, and SelfTestInProgress</b> are the status choices. For more information, refer to Chapter 3, <i>Configuration Views</i> .



## Configuration Views

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### What Is in This Chapter

This chapter describes the configuration views available for the DEC GigaSwitch module. These views allow you to access and change the configuration settings for the DEC GigaSwitch module, its Ring In and Ring Out Ports, and its station ports. The DEC GigaSwitch module supports the following the configuration views.

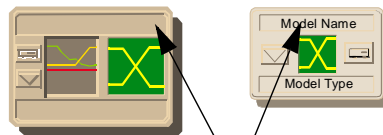
- Device
- Interface
- Module
- Port

### DEC GigaSwitch Device Configuration View

The Device Configuration View includes a device banner and the GigaSwitch's model name, contact status, and the number of interfaces attached to the module. The Device View also provides access to the Interface Configuration Table and the Interface Address Translation Table for the DEC GigaSwitch. You can access the Device Configuration View through the Icon Subviews Menu, or the icon double-click zones.

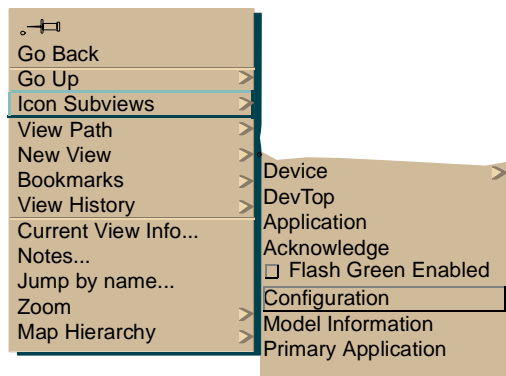
## Accessing the Device Configuration View

You can access the Device Configuration View through the Icon Subviews Menu, or the icon double-click zones.



Double-click Configuration Label

- Highlight the DECGigaSwitch device icon and select **Configuration** from the Icon Subviews menu.



The Device Configuration View provides the following information:

### Interface Address Translation Table

The Interface Address Translation Table lists the number, physical address, and network address for each interface installed in the GigaSwitch. Double-

clicking on one of the entries in the Interface Address Translation Table access the Address Translation Table Information View. This view allows you to enter information about a new interface to be included in the Interface Address Translation Table or to edit the information for an existing entry.

## Interface Configuration Table

The Interface Configuration Table displays information regarding the interfaces attached to the GigaSwitch. The table headings and their descriptions are Index, Description, Type, Bandwidth, Physical Address and Operation Status. Double-clicking on one of the entries in the Interface Configuration Table accesses the Interface Configuration View, which allows you to change the Administrative Status for the interface to **On**, **Off**, or **Testing**. The Interface Configuration view also includes a Device Banner for the GigaSwitch and the Operation Status, Last Change, Physical Address, Bandwidth, Packet Size and Queue Length for the selected interface.

## Module Configuration View

Access the Module Configuration View by doing the following:

1. Access the DEC GigaSwitch Logical Device View via the Icon Subviews menu.
2. Highlight the appropriate module.
3. Select **Module Configuration** for the Icon Subviews menu, which will call the Board Table View.

## Board Table View

The Board Table View allows you to change the status for the highlighted module. Possible configuration choices are **NotPresent**, **PowerDown**, **PowerUp**, **PowerDownThenUp**, **Fault**, **RevMismatch**, and **SelfTestInProgress**. The Board Table View also displays the Index number, Type, Hardware Rev, and Firmware Rev of the highlighted module.



## Port Configuration View

Access the Port Configuration View by following the steps below:

1. Access the DEC GigaSwitch Logical Device View via the Icon Subviews menu.
2. Highlight the appropriate port.
3. Select **Port Configuration** for the Icon Subviews menu.

## FDDI MAC Table View

To change the Purger Enable setting, do the following:

1. Click the Purger Enable button so that it displays the desired setting; either **True** or **False**.
2. Choose **Save All Changes** from the File menu and close out of the view.

To change the Restricted Token Timeout setting, do the following:

1. Enter the desired setting in the Restricted Token Timeout text box. The default is 12500000.
2. Choose **Save All Changes** from the File menu and close out of the view.

The FDDI MAC Table View also displays read-only information about the highlighted port's FDDI configuration information.



## Event and Alarm Messages

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### What Is in This Chapter

This chapter describes the types of events and alarms generated by the DEC GigaSwitch. Additionally, this appendix notes if an event is also mapped to an identical alarm message, and provides any probable cause messages corresponding to these alarms.

### DEC GigaSwitch Events and Alarms

SPECTRUM supports the following events for the DEC GigaSwitch. Table 4-1 lists the generic events and alarms for DEC GigaSwitch devices.

**Table 4-1. DEC GigaSwitch Events and Alarms**

<b>Event Message</b>	<b>Probable Cause Message</b>
Event00010306  {d "%w- %d %m-, %Y - %T"} - A(n) {t} device, named {m}, has been cold started. (event [{e}])	No Probable Cause message.
Event00010307  {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m} has been warm started. (event [{e}])	No Probable Cause message.

**Table 4-1. DEC GigaSwitch Events and Alarms (Continued)**

Event Message	Probable Cause Message
Event00010308  {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected a communication Link Down. (event {{e}})	Prob00010308  Communication link is down.
Event00010309  {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected a communication Link Up. (event {{e}})	No Probable Cause message.
Event0001030a  {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected an Authentication Failure. (event {{e}})	Prob0001030a  Authorization failure. Other user is trying to connect to device with an invalid community string.
Event0001030b  {d "%w- %d %m-, %Y - %T"} A(n) {t} device, named {m}, has detected an EGP Neighbor Loss. EGP Neighbor IP address is {O 1}. (event {{e}})	Prob0001030b  Lost contact with EGP neighbor.
Event01540003  {d "%w- %d %m-, %Y - %T"} - Board {I 1} reports a failure on device {m} ({t}). (event {{e}})	Prob01540003  The GigaSwitch recognizes a failure in one of the communications slot represented in the agent's configuration.



# DEC-Specific Applications

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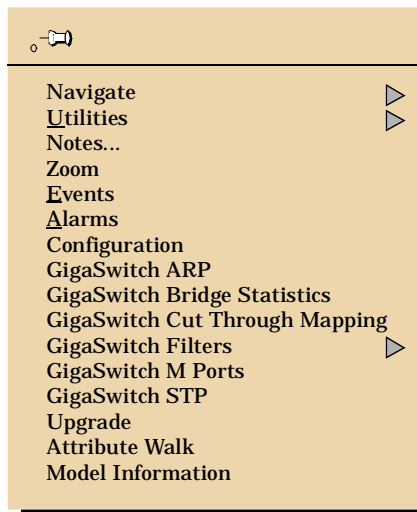
## What Is in This Chapter

This chapter describes the DecElanApp and the DecGigaApp accessible through the GigaSwitch's Applications View.

## DecGigaApp

The DecGigaApp allows the user to perform basic configuration processes for the GigaSwitch, to access bridge information for the switch, to configure filters, and to upgrade the firmware for specific cards. Figure 5-1 illustrates the Icon Subviews menu for the DecGigaApp.

**Figure 5-1. The DecGigaApp Icon Subviews menu**



These icon subviews allow the user to perform configuration tasks for the GigaSwitch or to view statistics relating to the GigaSwitch's performance.

## Configuration

The DecGigaApp Configuration View allows the user to specify the following settings for the DEC GigaSwitch:

### **Primary Application**

Dictates what application will be analyzed in the GigaSwitch's Performance View. The user can choose from a list of SPECTRUM and GigaSwitch applications.

### **Memory**

The user can specify Rewrite, Rewriting, or Other for the Memory setting.

### **Fan Speed**

The user can select either Maximum or Normal for the GigaSwitch's fan speed.

### **SNMP Duplicate Discard Interval**

The user can specify the interval (measured in 1/100 sec) at which a duplicate packet is discarded. The default setting is 50.

In addition to these configuration settings, three buttons provide access to tables detailing information on the boards within the GigaSwitch, the hardware and firmware specifications for the GigaSwitch, and the information on the GigaSwitch's power supply.

### **Boards**

This table provides information on individual boards in the GigaSwitch. Information is categorized by Index, Type, Status, Hardware Revision, and Firmware Revision. Double-clicking on an entry will access the Board Table View. The Board Table View allows the user to choose the status of a particular board. The following choices are available: NotPresent, PowerDown, PowerUp, PowerDownThenUp, Fault, RevMismatch, and SelfTestInProgress.

### **PSC Controller**

This table allows the user to choose to Heed or Ignore the temperature warning, should the GigaSwitch overheat as well as detailing information on the GigaSwitch hardware and firmware.

### **Power Supply**

This table shows the Status, Input Source, and Output information for the left and right power supply sources.

## **GigaSwitch ARP**

### **ARP Agent**

The user can specify whether the ARP Agent is on or off.

### **Timeout**

The user can specify the timeout setting in seconds.

### **Period Between**

The interval, measured in seconds, between the ARP Agent trying to resolve an IP and MAC address.

### **Retries**

The user can specify the number of times the ARP agent will try to reconcile an IP and MAC address.

The GigaSwitch ARP table details the **IF Index**, **Unicast Receive**, **Broadcast Receive**, **Replies trns**, **Frames Flood**, and **Frames Discarded** information for the GigaSwitch ARP.

## GigaSwitch Bridge Statistics

The GigaSwitch Bridge Statistics icon subview menu accesses the **GigaSwitch Flooding Table**.

### **Unknown Unicast Rate**

Maximum bytes-per-second bandwidth of packets multicast because the destination address was not yet learned by the the bridge.

### **Multicast Rate**

The maximum bytes-per-second bandwidth of packets multicast because the destination address is a multicast address.

The Flooding Table details the Qualifier, Class, Bytes Sent, Packets Sent, Geezers, Losers, and Hogs information for each of the active cards on the GigaSwitch.

## GigaSwitch Cut Through Mapping

The GigaSwitch Cut Through Mapping table allows the user to enable or disable the Inbound or Outbound Cut Through Mapping application for each of the GigaSwitch Bridge Ports. The Cut Through Mapping feature allows packets with known IP addresses to travel through the GigaSwitch with out being temporarily stored within the GigaSwitch. Packets without known IP addresses for their destination are temporarily delayed while the GigaSwitch learns the IP address.

The default setting for each of the Bridge Ports is Enabled for both the Inbound and Outbound Cut Through Mapping applications.

## Configuring Cut Through Mapping

1. Double-click on the appropriate **Bridge Port** number to generate the Cut Through Table View.
2. Click on the Inbound and Outbound buttons so that they display the appropriate settings, either **Enabled** or **Disabled**.
3. Choose **Save All Changes** from the File menu.
4. Click on the **Update** button in the Cut Through Mapping table to view your changes.

## GigaSwitch Filters

The GigaSwitch Filters icon subview allows the user to configure **Port Matrices**, **Destination Filters**, **SAP Filters**, **SNAP Filters**, and **Source Filters**. These port matrices and filters can be configured to restrict traffic from certain ports to a portion of the network, to isolate a device while troubleshooting or to improve performance between ports by establishing a path for the packets traveling between those ports.

### Port Matrices

The Port Matrices Table allows the user to edit or add a matrix for a port.

## Editing Existing Matrices

1. Double-click on the matrix setting to be changed to display the Port Matrix View.
2. Edit the **Name**, the **Matrix Value** (for the bridge), the **Matrix Value** (for the front panel), and the **Status** settings so that they display the desired values.
3. Choose **Save All Changes** from the File menu to close out of the Port Matrix View.

## Adding a Matrix to the Table

1. Click the Add an Entry button to display the Add a Port Matrix View.
2. Enter the name of the matrix in the **Name** text box.
3. Fill in the value for the matrix in the **Matrix** text box.
4. Click the Status button so that it displays the appropriate value (either **Permanent** or **Invalid**).
5. Choose **Save All Changes** from the File menu.
6. Click on the Add Entry button to save the matrix and place it in the table.



## Editing Destination Filters

The Destination Filter icon subview generates the GigaSwitch Port Filter-Destination Address Table. The user has the option of editing the settings for an existing filter or adding a new filter to the table.

1. Double-click on the setting you wish to change, displaying the Destination Filter View.
2. Edit the settings you would like to change.
3. Choose **Save All Changes** from the File menu and close out of the Destination Filter View.

## Adding Entries to the Destination Filters Table

1. Click the Add an Entry button to display the Add a Destination Filter View.
2. Enter the appropriate **Name** for the filter.
3. In the **Destination** text box, enter the MAC address of the device to be filtered.
4. In the **Matrix** text box, enter the matrix value for the filter.
5. Choose the disposition (**Filter**, **Always Filter**, or **Forward**) for the filter, using the Disposition button. Click on the Status button so that it displays the desired status (**Other**, **Invalid**, **Permanent**, **DeleteOnReset**, or **DeleteOnTimeOut**).
6. Choose **Save All Changes** from the File menu.
7. Click on the **Add Entry** button to save the matrix and place it in the table.

## SAP Filters

The SAP Filter icon subview generates the GigaSwitch Port Filter-SAP Table. The user has the option of editing the settings for an existing filter or adding a new filter to the table.

### **Editing the Settings for an Existing Filter**

1. Double-click on the setting you wish to change, which generates the **SAP Protocol Filter View**.
2. Edit the settings you would like to change.
3. Choose **Save All Changes** from the **File** menu and close out of the Destination Filter View.

### **Adding an Entry to the SAP Filter View**

1. Click the **Add an Entry** button to generate the **Add an SAP Filter View**.
2. Enter the appropriate **Name** for the filter.
3. In the Protocol text box, enter the SAP protocol to be filtered.
4. In the Matrix text box, enter the matrix value for the filter.
5. Choose the disposition (**Filter**, **Always Filter**, or **Forward**) for the filter, using the Disposition button in the view. Click on the Status button so that it displays the desired status (**Other**, **Invalid**, **Permanent**).
6. Choose **Save All Changes** from the File menu.
7. Click on the Add Entry button to add the new filter to the table.

## **SNAP Filters**

The SNAP Filter icon subview generates the GigaSwitch Port Filter-SNAP Protocol Table. The user has the option of editing the settings for an existing filter or adding a new filter to the table.

### **Editing an Existing SNAP Filter**

1. Double-click on the setting you wish to change, displaying the **SNAP Filter View**.
2. Edit the settings you would like to change.
3. Choose **Save All Changes** from the File menu and close out of the SNAP Filter View.

### **Adding a SNAP Filter to the Table**

1. Click the Add an Entry button to display the Add an SNAP Filter View.
2. Enter the appropriate **Name** for the filter.
3. In the Protocol text box, enter the SNAP protocol to be filtered.
4. In the Matrix text box, enter the matrix value for the filter.
5. Choose the disposition (**Filter**, **Always Filter**, or **Forward**) for the filter, using the Disposition button in the view. Click on the Status button so that it displays the desired status (**Other**, **Invalid**, **Permanent**).
6. Choose **Save All Changes** from the File menu.
7. Click on the Add Entry button to add the new filter to the table.

### **Source Filters**

The Source Filter icon subview generates the GigaSwitch Port Filter-Source Address Table. The user has the option of editing the settings for an existing filter or adding a new filter to the table.

### **Editing an Existing Source Filter**

1. Double-click on the setting you wish to change, displaying the Source Filter View.
2. Edit the settings you would like to change.
3. Choose **Save All Changes** from the File menu and close out of the Source Filter View.

### **Adding a Source Filter to the Table**

1. Click the Add an Entry button, displaying the Add a Source Filter View.
2. Enter the appropriate name for the filter.
3. In the Source text box, enter the MAC address of the source you would like to filter.
4. In the Matrix text box, enter the matrix value for the filter.

5. Choose the disposition (**Filter**, **Always Filter**, or **Forward**) for the filter, using the Disposition button in the view. Click on the Status button so that it displays the desired status (**Other**, **Invalid**, **Permanent**, **DeleteOnReset**, or **DeleteOnTimeOut**).
6. Choose **Save All Changes** from the File menu.
7. Click on the Add Entry button to add the new filter to the table.

## GigaSwitch M Ports

The GigaSwitch M Ports icon subview generates the GigaSwitch M Port Table.

### Enabling or Disabling a Particular M Port

1. Double-click on the Enable setting for the particular port to display the M Port Table View.
2. Click on the Enable button so that it displays the desired setting (**True** or **False**).
3. Choose **Save All Changes** from the **File** menu and close out of the M Port Table View.

## GigaSwitch STP

The GigaSwitch STP icon subview generates the **GigaSwitch STP Table**.

### Enabling or Disabling the Spanning Tree Application for a Particular Port

1. Double-click on the Enable setting for the particular port to display the M Port Table View.
2. Click on the Enable button so that it displays the desired setting (**True** or **False**).
3. Choose **Save All Changes** from the File menu and close out of the M Port Table View.

## Upgrade

The Upgrade icon subview allows the user to download new firmware for a particular card in the GigaSwitch.

### Upgrading Card Firmware

1. Click on the **Upgrade** icon subview.
2. Enter the TFTP (Trivial File Transfer Protocol) Destination address or the MOP (Maintenance Operation Protocol) Destination address in the TFTP Destination or MOP Destination text box.
3. In the File Name text box, enter the filename of the firmware revision you wish to download.
4. Click the Action button so that it displays either **DoMOP** or **DTFTP**.
5. Enter the card's slot number in the Slot to Upgrade text box.
6. Click the Upgrade Action button so that it displays **DoUpgrade**.
7. To cancel the file transfer, click the Delete Transfer button and choose the appropriate option.

### Model Information View

The model information icon subview provides the user with a list of SPECTRUM's settings for the GigaSwitch model. The Poll Interval used by many of the SPECTRUM applications must be set in the application's Model Information View.

### Setting the Poll Interval

1. Click on **Model Information** in the icon subviews menu.
2. Enter the desired poll interval in the Poll Interval text box.
3. Click on the Polling Status button so that it displays **True**.

# DecElanApp

This application for the GigaSwitch provides the user with more statistical tables, the ability to add or remove trap receivers, and the ability to add either Read-Only or Read-Write management stations.

To access the DecElanApp, click on the Applications subview for the DEC GigaSwitch icon. The DecElanApp allows the user access to the following views:

## Configuration

The DecElanApp Configuration View allows for the following settings to be edited by the user:

### Primary Application

The user may choose the application that they wish to be detailed in the Performance View.

### Update Switch

The user may specify whether the switch should be updated or not by clicking on the **Update Switch** button so that it shows the desired setting (True or False).

### Port Traps

The user may enable or disable port traps by clicking on the **Port Traps** button so that it shows the desired setting (Enable or Disable).

### Init Switch

The user may choose between **Other**, **Reset** or **ResetWithDefaults** for this setting.

### Gateway

The user may specify the gateway used for downloading firmware.

### FRU Configuration

This button accesses the FRU Configuration Table, which displays the **Slot**, **Description**, **Rev**, and **State** of the port's firmware.

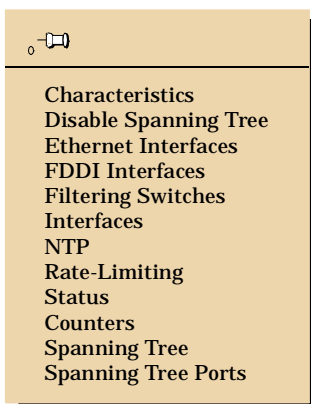
## Bridge Databases

The Bridge Databases icon subview accesses the 2-Port Address Table and the Multi-Port Address Table. These tables display the Address, Port Number, and Status of 2-Port and Multi-Port devices. In addition, the Multi-Port Address table displays the Receive Port and Allow to Go To information for each port.

## Extended Bridge

The Extended Bridge icon subview accesses another menu of subviews related to the bridging statistics of the GigaSwitch.

**Figure 5-2. The Extended Bridge Submenu**



The following Extended Bridge subviews allow the user to choose various settings.

### Characteristics

The Extended Bridge Characteristics subview allows the user to specify the following characteristics:

#### **Port Test Pass Thresh**

The threshold number of successful, consecutive self-tests before the GigaSwitch is considered operational.

#### **Port Test Interval(Sec)**

Upon a line break, the GigaSwitch will test the failed port. The Port Test Interval is the amount of time in seconds between the tests of a particular port.

#### **Manual Filter**

Click the Manual Filter button so that it displays the desired manual filter condition. (**True** or **False**)

### **Fragmentation**

Click the Fragmentation button so that it displays the desired fragmentation condition. (**True** or **False**)

### **Remove Mgmt Address**

The user can choose between Other and True. The initial setting is **Other**, but selecting **True** will remove the management address.

### **Remove Mgmt Protocol**

The user can choose between Other and True. The initial setting is **Other**, but selecting **True** will remove the management protocol.

## **Disable Spanning Tree**

To enable or disable the Spanning Tree function for an individual port:

1. Double-click on the port's number or status entry.
2. Click on the Status button so that it displays the desired status. (**Enabled** or **Disabled**)
3. Choose **Save All Changes** from the File menu and close out of the view.

## **NTP**

The Non-Translated Protocol Table allows the user to specify the IPX(Raw) To Snap condition as **True** or **False**. If the IPX(Raw) To Snap feature is enabled, IPX(Raw) packets will be converted into SNAP packets.

## **Rate-Limiting**

The Rate-Limiting subview allows the user to enable or disable the Rate-Limiting feature for a particular port and to set the Max Rate-Limit Frames Per Second.



## Spanning Tree

The Extended Bridge Spanning Tree view allows the user to specify the following Spanning Tree settings:

### **Short Aging Time(Secs)**

Enter the desired time (in seconds) in the text box. The default is 30.

### **Bad Hello Limit**

Enter the desired limit in the text box. The default is 15.

### **Bad Hello Reset Timer**

The number of seconds before a Bad Hello reset.

### **No Frame Interval(Secs)**

The length of time (in seconds) of inactivity before the GigaSwitch initiates a self test.

### **LB100 Poll Time(Secs)**

The length of time (in seconds) between the polling of the LAN bridge.

### **LB100 Response Timeout(Secs)**

The length of time (in seconds) the GigaSwitch waits for a response from the LAN bridge.

### **Spanning Tree Mode**

The user may specify the Spanning Tree Mode by clicking on the button so that it displays AutoSelect existing or IEEE802.

## Extended FDDI

The Extended FDDI icon subview accesses the Full-Duplex Links Table, MAC Table, Port Table, and SMT Table. The Full-Duplex Links Table and the MAC Table allow for user input.

### **Full-Duplex Links Table**

To disable or enable the Duplex feature:

1. Double-click on the desired port.
2. In the Full-Duplex Table View, click the Enable Duplex button so that it displays **True** or **False**.

### **MAC Table**

To edit the Purger settings for a GigaSwitch port:

1. Double-click on the desired port displayed in the MAC Table.
2. In the FDDI MAC Table View, click on the Purger Enable button so that it displays either **True** or **False**.
3. In the Restricted Token Timeout text box, enter the desired value. The default is 12500000.
4. In the Ring Latency text box enter the desired value (measured in nanoseconds).

## **Protocol Databases**

The Protocol Databases icon subview accesses the Ethernet Protocol, SAP Protocol, and SNAP Protocol databases. These views allow the user to specify whether the ports will forward or filter packets in each of these protocols.

To change the 2-Port setting for each of these protocol tables:

1. Choose the desired database from the Protocol Databases icon subview.
2. Click on the 2-Port Setting button so that it displays either **Forward** or **Filter**.
3. Choose **Save All Changes** from the File menu.

## **SNMP Authentication**

The SNMP Authentication icon subview allows the user access to the SNMP User Communities View and to the SNMP Trap User Table.

## SNMP User Communities Table

The SNMP User Communities Table provides the ability to add Read-Only management stations or management stations with Read-Write permissions. The SNMP User Communities View also allows the user to edit an existing station's mask and status.

To edit an existing station's settings:

1. Double-click on one of its settings in the **SNMP User Communities Table**.
2. In the Read-Only Station or Read/Write Station view, make the appropriate changes to the station's **Mask** and **Status**. The **Status** setting may be **Other** or **Invalid**.
3. Choose **Save All Changes** from the File menu.

To add a new Read-Only or Read/Write station:

1. Click on the **Add a Read-Only Entry** or **Add a Read/Write Entry** button.
2. In the Add a Station view, enter the station's **IP Address** and its **Mask**.
3. Choose **Save All Changes** from the File menu.
4. Click the **Add Entry** button.

## SNMP Trap User Table

The SNMP Trap User Table provides for the establishment of traps for devices in a particular community. To edit an existing trap for a device:

1. Double-click on one of the device's settings in the **SNMP Trap Users Table**, generating the **Trap Station View**.
2. Click on the **Status** button so that it displays the desired setting (**Other** or **Invalid**).
3. Choose **Save All Changes** from the File menu.

To create a new trap:

1. Enter the community string for the device in the **Trap Community** text box.
2. Enter the IP address for the device to be trapped in the **IP Address** text box.
3. Choose **Save All Changes** from the File menu.

## **Model Information View**

The model information view provides the user with a concise list of SPECTRUM's settings for the GigaSwitch model. The Poll Interval used by many of the SPECTRUM applications must be set in the application's Model Information View. To set the Poll Interval:

1. Click on **Model Information** in the icon subviews menu.
2. Enter the desired poll interval in the **Poll Interval** text box.
3. Click on the Polling Status button so that it displays **True**.



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