Monitoring and Analyzing Switch Operation

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Overview

The switch has several built-in tools for monitoring, analyzing, and troubleshooting switch and network operation:

- **Status**: Includes options for displaying general switch information, management address data, port status, port and trunk group statistics, MAC addresses detected on each port or VLAN, and STP, IGMP, and VLAN data (page B-4).

- **Counters**: Display details of traffic volume on individual ports (page B-10).

- **Event Log**: Lists switch operating events (“Using Logging To Identify Problem Sources” on page C-23).

- **Alert Log**: Lists network occurrences detected by the switch—in the Status | Overview screen of the web browser interface (page 5-6).

- **Configurable trap receivers**: Uses SNMP to enable management stations on your network to receive SNMP traps from the switch (“SNMP Notification and Traps” on page 13-18).

- **Port monitoring (mirroring)**: Copy all traffic from the specified ports to a designated monitoring port (page B-24).

**Note**

Link test and ping test—analysis tools in troubleshooting situations—are described in chapter 18, “Troubleshooting”. See page C-35.
Status and Counters Data

This section describes the status and counters screens available through the switch console interface and/or the web browser interface.

**Note**

You can access all console screens from the web browser interface via Telnet to the console. Telnet access to the switch is available in the Device View window under the **Configuration** tab.

<table>
<thead>
<tr>
<th>Status or Counters Type</th>
<th>Interface</th>
<th>Purpose</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menu Access to Status and Counters</td>
<td>Menu</td>
<td>Access menu interface for status and counter data.</td>
<td>B-5</td>
</tr>
<tr>
<td>General System Information</td>
<td>Menu, CLI</td>
<td>Lists switch-level operating information.</td>
<td>B-6</td>
</tr>
<tr>
<td>Management Address Information</td>
<td>Menu, CLI</td>
<td>Lists the MAC address, IP address, and IPX network number for each VLAN or, if no VLANs are configured, for the switch.</td>
<td>B-7</td>
</tr>
<tr>
<td>Module Information</td>
<td>Menu, CLI</td>
<td>Lists the module type and description for each slot in which a module is installed.</td>
<td>B-8</td>
</tr>
<tr>
<td>Port Status</td>
<td>Menu, CLI, Web</td>
<td>Displays the operational status of each port.</td>
<td>B-9</td>
</tr>
<tr>
<td>Port and Trunk Statistics and Flow Control Status</td>
<td>Menu, CLI, Web</td>
<td>Summarizes port activity and lists per-port flow control status.</td>
<td>B-10</td>
</tr>
<tr>
<td>VLAN Address Table</td>
<td>Menu, CLI</td>
<td>Lists the MAC addresses of nodes the switch has detected on specific VLANs, with the corresponding switch port.</td>
<td>B-13</td>
</tr>
<tr>
<td>Port Address Table</td>
<td>Menu, CLI</td>
<td>Lists the MAC addresses that the switch has learned from the selected port.</td>
<td>B-13</td>
</tr>
<tr>
<td>STP Information</td>
<td>Menu, CLI</td>
<td>Lists Spanning Tree Protocol data for the switch and for individual ports. If VLANs are configured, reports on a per-VLAN basis.</td>
<td>B-18</td>
</tr>
<tr>
<td>IGMP Status</td>
<td>Menu, CLI</td>
<td>Lists IGMP groups, reports, queries, and port on which querier is located.</td>
<td>B-20</td>
</tr>
<tr>
<td>VLAN Information</td>
<td>Menu, CLI</td>
<td>For each VLAN configured in the switch, lists 802.1Q VLAN ID and up/down status.</td>
<td>B-21</td>
</tr>
<tr>
<td>Port Status Overview and Port Counters</td>
<td>Web</td>
<td>Shows port utilization and counters, and the Alert Log.</td>
<td>B-23</td>
</tr>
</tbody>
</table>
Menu Access To Status and Counters

Beginning at the Main Menu, display the Status and Counters menu by selecting:

1. Status and Counters

![Status and Counters Menu](image)

Figure B-1. The Status and Counters Menu

Each of the above menu items accesses the read-only screens described on the following pages. Refer to the online help for a description of the entries displayed in these screens.
General System Information

Menu Access

From the console Main Menu, select:

1. Status and Counters
   1. General System Information

---

System Contact:
System Location:
Firmware revision: 0.05.03
ROM Version: 0.05.00
Serial Number: c0600017609
Up Time: 2 hours

Memory:
   - Total: 24,580,126
   - Free: 19,620,560

IF Mgmt:
   - PKts Rx: 0
   - PKts Tx: 0

Packet:
   - Total: 831

Buffer:
   - Free: 769
   - Missed: 0

Actions:
   - Back
   - Help

---

Figure B-2. Example of General Switch Information

This screen dynamically indicates how individual switch resources are being used. See the online Help for details.

CLI Access

Syntax: show system-information
Switch Management Address Information

Menu Access

From the Main Menu, select:

1 Status and Counters . . .

2. Switch Management Address Information

This screen displays addresses that are important for management of the switch. If multiple VLANs are *not* configured, this screen displays a single IP address for the entire switch. See the online Help for details.

CLI Access

**Syntax:** show management
Module Information

Use this feature to determine which slots have modules installed and which type(s) of modules are installed.

Menu: Displaying Port Status

From the Main Menu, select:

1. Status and Counters . . .
   3. Module Information

---

```
=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*=*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Figure B-4. Example of Module Information in the Menu Interface

--

CLI Access

Syntax: show module
Port Status

The web browser interface and the console interface show the same port status data.

Menu: Displaying Port Status

From the Main Menu, select:

1. Status and Counters . . .
2. Port Status

Figure B-5. Example of Port Status on the Menu Interface

CLI Access

Syntax: show interfaces brief

Web Access

1. Click on the Status tab.
2. Click on Port Status.
Monitoring and Analyzing Switch Operation
Status and Counters Data

Viewing Port and Trunk Group Statistics and Flow Control Status

<table>
<thead>
<tr>
<th>Feature</th>
<th>Default</th>
<th>Menu</th>
<th>CLI</th>
<th>Web</th>
</tr>
</thead>
<tbody>
<tr>
<td>viewing port and trunk statistics for all ports, and flow control status</td>
<td>n/a</td>
<td>page B-11</td>
<td>page B-12</td>
<td>page B-12</td>
</tr>
<tr>
<td>viewing a detailed summary for a particular port or trunk</td>
<td>n/a</td>
<td>page B-11</td>
<td>page B-12</td>
<td>page B-12</td>
</tr>
<tr>
<td>resetting counters</td>
<td>n/a</td>
<td>page B-11</td>
<td>page B-12</td>
<td>page B-12</td>
</tr>
</tbody>
</table>

These features enable you to determine the traffic patterns for each port since the last reboot or reset of the switch. You can display:

- A general report of traffic on all LAN ports and trunk groups in the switch, along with the per-port flow control status (On or Off).
- A detailed summary of traffic on a selected port or trunk group.

You can also reset the counters for a specific port.

The menu interface and the web browser interface provide a dynamic display of counters summarizing the traffic on each port. The CLI lets you see a static “snapshot” of port or trunk group statistics at a particular moment.

As mentioned above, rebooting or resetting the switch resets the counters to zero. You can also reset the counters to zero for the current session. This is useful for troubleshooting. See the “Note On Reset”, below.

**Note on Reset**

The Reset action resets the counter display to zero for the current session, but does not affect the cumulative values in the actual hardware counters. (In compliance with the SNMP standard, the values in the hardware counters are not reset to zero unless you reboot the switch.) Thus, using the Reset action resets the displayed counters to zero for the current session only. Exiting from the console session and starting a new session restores the counter displays to the accumulated values in the hardware counters.
Menu Access to Port and Trunk Statistics

To access this screen from the Main Menu, select:

1. Status and Counters . . .

4. Port Counters

---

**Figure B-6. Example of Port Counters on the Menu Interface**

To view details about the traffic on a particular port, use the `v` key to highlight that port number, then select **Show Details**. For example, selecting port A2 displays a screen similar to figure B-7, below.

---

**Figure B-7. Example of the Display for Show details on a Selected Port**

This screen also includes the **Reset** action for the current session. (See the “Note on Reset” on page B-10.)
CLI Access To Port and Trunk Group Statistics

**To Display the Port Counter Summary Report.** This command provides an overview of port activity for all ports on the switch.

**Syntax:**
```
show interfaces
```

**To Display a Detailed Traffic Summary for Specific Ports.** This command provides traffic details for the port(s) you specify.

**Syntax:**
```
show interfaces [ethernet] < port-list >
```

**To Reset the Port Counters for a Specific Port.** This command resets the counters for the specified ports to zero for the current session. (See the “Note on Reset” on page B-10.)

**Syntax:**
```
clear statistics [ethernet] port-list
```

Web Browser Access To View Port and Trunk Group Statistics

1. Click on the **Status** tab.
2. Click on **Port Counters**.
3. To reset the counters for a specific port, click anywhere in the row for that port, then click on **Refresh**.
### Viewing the Switch’s MAC Address Tables

<table>
<thead>
<tr>
<th>Feature</th>
<th>Default</th>
<th>Menu</th>
<th>CLI</th>
<th>Web</th>
</tr>
</thead>
<tbody>
<tr>
<td>viewing MAC addresses on all ports on a specific VLAN</td>
<td>n/a</td>
<td>page B-14</td>
<td>page B-16</td>
<td>—</td>
</tr>
<tr>
<td>viewing MAC addresses on a specific port</td>
<td>n/a</td>
<td>page B-15</td>
<td>page B-16</td>
<td>—</td>
</tr>
<tr>
<td>searching for a MAC address</td>
<td>n/a</td>
<td>page B-15</td>
<td>page B-17</td>
<td>—</td>
</tr>
</tbody>
</table>

These features help you to view:

- The MAC addresses that the switch has learned from network devices attached to the switch
- The port on which each MAC address was learned
Monitoring and Analyzing Switch Operation
Status and Counters Data

Menu Access to the MAC Address Views and Searches

**Per-VLAN MAC-Address Viewing and Searching.** This feature lets you determine which switch port on a selected VLAN is being used to communicate with a specific device on the network. The per-VLAN listing includes:

- The MAC addresses that the switch has learned from network devices attached to the switch
- The port on which each MAC address was learned

1. From the Main Menu, select:
   1. Status and Counters
   5. VLAN Address Table

2. The switch then prompts you to select a VLAN.

3. Use the Space bar to select the VLAN you want, then press [Enter]. The switch then displays the MAC address table for that VLAN:

   ![Figure B-8. Example of the Address Table](image)

   **Figure B-8. Example of the Address Table**

   To page through the listing, use Next page and Prev page.
Finding the Port Connection for a Specific Device on a VLAN. This feature uses a device’s MAC address that you enter to identify the port used by that device.

1. Proceeding from figure B-8, press [S] (for Search), to display the following prompt:
   
   Enter MAC address: _

2. Type the MAC address you want to locate and press [Enter]. The address and port number are highlighted if found. If the switch does not find the MAC address on the currently selected VLAN, it leaves the MAC address listing empty.

   Figure B-9. Example of Menu Indicating Located MAC Address

3. Press [P] (for Prev page) to return to the full address table listing.

Port-Level MAC Address Viewing and Searching. This feature displays and searches for MAC addresses on the specified port instead of for all ports on the switch.

1. From the Main Menu, select:

   1. Status and Counters
   7. Port Address Table
Monitoring and Analyzing Switch Operation
Status and Counters Data

--- Figure B-10. Listing MAC Addresses for a Specific Port ---

2. Use the Space bar to select the port you want to list or search for MAC addresses, then press [Enter] to list the MAC addresses detected on that port.

Determining Whether a Specific Device Is Connected to the Selected Port. Proceeding from step 2, above:

1. Press [S] (for Search), to display the following prompt:
   
   Enter MAC address: _

2. Type the MAC address you want to locate and press [Enter]. The address is highlighted if found. If the switch does not find the address, it leaves the MAC address listing empty.

3. Press [P] (for Prev page) to return to the previous per-port listing.

CLI Access for MAC Address Views and Searches

**Syntax:**

```
show mac-address
[vlan <vlan-id>]
[ethernet]<port-list>]
[<mac-addr>]
```

To List All Learned MAC Addresses on the Switch, with The Port Number on Which Each MAC Address Was Learned.

ProCurve> show mac-address

To List All Learned MAC Addresses on one or more ports, with Their
Corresponding Port Numbers. For example, to list the learned MAC address on ports A1 through A4 and port A6:

ProCurve> show mac-address a1-a4,a6

To List All Learned MAC Addresses on a VLAN, with Their Port Numbers. This command lists the MAC addresses associated with the ports for a given VLAN. For example:

ProCurve> show mac-address vlan 100

Note

The switch operates with a multiple forwarding database architecture. For more on this topic, refer to “Duplicate MAC Addresses Across VLANs” on page C-21

To Find the Port On Which the Switch Learned a Specific MAC Address. For example, to find the port on which the switch learns a MAC address of 080009-21ae84:

ProCurve# show mac-address 080009-21ae84
Status and Counters - Address Table - 080009-21ae84
MAC Address : 080009-21ae84
Located on Port : A2

Figure B-11. List the Port on which the Switch Deleted a MAC Address
Monitoring and Analyzing Switch Operation
Status and Counters Data

Spanning Tree Protocol (STP) Information

Menu Access to STP Data

From the Main Menu, select:

1. Status and Counters . . .
   8. Spanning Tree Information

STP must be enabled on the switch to display the following data:

```
                   ---------------------------------  CONSOLE - MANAGED MODE  ---------------------------------
                   Status and Counters - Spanning Tree Information

                  STP Enabled : Yes
                  Switch Priority : 32,768
                  Hello Time : 2
                  Max Age : 30
                  Forward Delay : 15
                  Topology Change Count : 3
                  Time Since Last Change : 4 mins
                  Root MAC Address : 0030c1-7f0c40
                  Root Path Cost : 0
                  Root Port : This switch is root
                  Root Priority : 32768

                  Actions-->
                  Back  Show ports  Help

Return to previous screen.
Use arrow keys to change action selection and <Enter> to execute action.
```

Figure B-12. Example of Spanning Tree Information

Use this screen to determine current switch-level STP parameter settings and statistics.

You can use the **Show ports** action at the bottom of the screen to display port-level information and parameter settings for each port in the switch (including port type, cost, priority, operating state, and designated bridge) as shown in figure B-13.
Monitoring and Analyzing Switch Operation
Status and Counters Data

Figure B-13. Example of STP Port Information

CLI Access to STP Data

This option lists the STP configuration, root data, and per-port data (cost, priority, state, and designated bridge).

**Syntax:**

```
show spanning-tree
```

ProCurve> show spanning-tree

```
Internet Group Management Protocol (IGMP) Status

The switch uses the CLI to display the following IGMP status on a per-VLAN basis:

<table>
<thead>
<tr>
<th>Show Command</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>show ip igmp</td>
<td>Global command listing IGMP status for all VLANs configured in the switch:</td>
</tr>
<tr>
<td></td>
<td>• VLAN ID (VID) and name</td>
</tr>
<tr>
<td></td>
<td>• Active group addresses per VLAN</td>
</tr>
<tr>
<td></td>
<td>• Number of report and query packets per group</td>
</tr>
<tr>
<td></td>
<td>• Querier access port per VLAN</td>
</tr>
<tr>
<td>show ip igmp &lt;vlan-id&gt;</td>
<td>Per-VLAN command listing above IGMP status for specified VLAN (VID)</td>
</tr>
<tr>
<td>show ip igmp group &lt;ip-addr&gt;</td>
<td>Lists the ports currently participating in the specified group, with port type, Access type, Age Timer data and Leave Timer data.</td>
</tr>
</tbody>
</table>

For example, suppose that `show ip igmp` listed an IGMP group address of 224.0.1.22. You could get additional data on that group by executing the following:

```
ProCurve> show ip igmp group 224.0.1.22

IGMP ports for group 224.0.1.22

<table>
<thead>
<tr>
<th>Port</th>
<th>Type</th>
<th>Access</th>
<th>Age Timer</th>
<th>Leave Timer</th>
</tr>
</thead>
<tbody>
<tr>
<td>A3</td>
<td>10/100TX</td>
<td>host</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
```

Figure B-14. Example of IGMP Group Data
VLAN Information

The switch uses the CLI to display the following VLAN status:

**Syntax:** show vlan

*Lists:*
- Maximum number of VLANs to support
- Existing VLANs
- Status (static or dynamic)
- Primary VLAN

**Syntax:** show vlan < vlan-id >

For the specified VLAN, lists:
- Name, VID, and status (static/dynamic)
- Per-Port mode (tagged, untagged, forbid, no/auto)
- "Unknown VLAN" setting (Learn, Block, Disable)
- Port status (up/down)

For example, suppose that your switch has the following VLANs:

<table>
<thead>
<tr>
<th>Ports</th>
<th>VLAN</th>
<th>VID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 12</td>
<td>DEFAULT_VLAN</td>
<td>1</td>
</tr>
<tr>
<td>1, 2</td>
<td>VLAN-33</td>
<td>33</td>
</tr>
<tr>
<td>3, 4</td>
<td>VLAN-44</td>
<td>44</td>
</tr>
</tbody>
</table>

The next three figures show how you could list data on the above VLANs.
Listing the VLAN ID (VID) and Status for ALL VLANs in the Switch.

```
ProCurve> show vlan
Status and Counters - VLAN Information
  VLAN support : Yes
  Maximum VLANs to support : 9
  Primary VLAN: DEFAULT_VLAN

  802.1Q VLAN ID  Name           Status
    ---------  ----------  -------
     1         DEFAULT_VLAN    Static
     33        VLAN-33         Static
     44        VLAN-44         Static
```

Figure B-15. Example of VLAN Listing for the Entire Switch

Listing the VLAN ID (VID) and Status for Specific Ports.

```
ProCurve> show vlan ports A1-A2
Status and Counters - VLAN Information - for ports A1,A2

  802.1Q VLAN ID  Name           Status
    ---------  ----------  -------
     1         DEFAULT_VLAN    Static
     33        VLAN-33         Static
```

Figure B-16. Example of VLAN Listing for Specific Ports

Listing Individual VLAN Status.

```
ProCurve> show vlan 1
Status and Counters - VLAN Information - Ports - VLAN 1

  802.1Q VLAN ID : 1
  Name         : DEFAULT_VLAN
  Status       : Static

          Port Information  Mode    Unknown VLAN Status
    ------------      --------  ---------------------
     A1            Untagged Learn  Up
     A2            Tagged            Up
     A3            Untagged Learn    Up
     A4            Untagged Learn    Down
     A5            Untagged Learn    Down
     .             .                  .
     .             .                  .
     .             .                  .
```

Figure B-17. Example of Port Listing for an Individual VLAN

Because ports A1 and A2 are not members of VLAN-44, it does not appear in this listing.
Web Browser Interface Status Information

The “home” screen for the web browser interface is the Status Overview screen, as shown below. As the title implies, it provides an overview of the status of the switch, including summary graphs indicating the network utilization on each of the switch ports, symbolic port status indicators, and the Alert Log, which informs you of any problems that may have occurred on the switch.

For more information on this screen, see chapter 5, ‘Using the Web Browser Interface’.

Figure B-18. Example of a Web Browser Interface Status Overview Screen
Port and Static Trunk Monitoring Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Default</th>
<th>Menu</th>
<th>CLI</th>
<th>Web</th>
</tr>
</thead>
<tbody>
<tr>
<td>display monitoring configuration</td>
<td>disabled</td>
<td>page B-25</td>
<td>page B-27</td>
<td>page B-29</td>
</tr>
<tr>
<td>configure the monitor port(s)</td>
<td>ports: none</td>
<td>page B-25</td>
<td>page B-27</td>
<td>page B-29</td>
</tr>
<tr>
<td>selecting or removing ports</td>
<td>none selected</td>
<td>page B-25</td>
<td>page B-28</td>
<td>page B-29</td>
</tr>
</tbody>
</table>

Switch 6108 and Series 4100gl Switches

You can designate a port for monitoring inbound (ingress) traffic of other ports and of static trunks on the switch. The switch monitors the network activity by copying all traffic inbound on the specified interfaces to the designated monitoring port, to which a network analyzer can be attached.

Series 2600, 2600-PWR, and 2800 Switches

You can designate a port for monitoring inbound (ingress) and outbound (egress) traffic of other ports and of static trunks on the switch. The switch monitors the network activity by copying all inbound and outbound traffic on the specified interfaces to the designated monitoring port, to which a network analyzer can be attached.

All 2600 Series models will support inbound and outbound port monitoring. However, the 2650 and 2650-PWR require that the “mirror port” be within the same grouping as the monitored ports. On the 2650/2650-PWR switches, ports are grouped as follows: 1-24 + 49, and 25-48 + 50. These groupings represent the connections of ports to NetSwitch ASICs within the models.

The instructions below apply to all of the switches covered in this manual.

**Note**

Port trunks cannot be used as a monitoring port.

It is possible, when monitoring multiple interfaces in networks with high traffic levels, to copy more traffic to a monitor port than the link can support. In this case, some packets may not be copied to the monitor port.
Menu: Configuring Port and Static Trunk Monitoring

This procedure describes configuring the switch for monitoring when monitoring is disabled. (If monitoring has already been enabled, the screens will appear differently than shown in this procedure.)

1. From the Console Main Menu, Select:

   2. Switch Configuration...
      3. Network Monitoring Port


![Console - Manager Mode Screen]

---

**Figure B-19. The Default Network Monitoring Configuration Screen**

2. In the Actions menu, press [E] (for Edit).

3. If monitoring is currently disabled (the default) then enable it by pressing the Space bar (or [Y]) to select Yes.

4. Press the down arrow key to display a screen similar to the following and move the cursor to the Monitoring Port parameter.
5. Use the Space bar to select the port to use for monitoring.

6. Use the down arrow key to move the cursor to the Action column for the individual ports and position the cursor at a port you want to monitor.

7. Press the Space bar to select Monitor for each port and trunk that you want monitored. (Use the down arrow key to move from one interface to the next in the Action column.)

8. When you finish selecting ports to monitor, press [Enter], then press [S] (for Save) to save your changes and exit from the screen.

9. Return to the Main Menu.
CLI: Configuring Port and Static Trunk Monitoring

Port and Static Trunk Monitoring Commands Used in This Section

<table>
<thead>
<tr>
<th>Command</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>show monitor</td>
<td>B-27</td>
</tr>
<tr>
<td>mirror-port</td>
<td>B-27</td>
</tr>
<tr>
<td>monitor</td>
<td>B-28</td>
</tr>
</tbody>
</table>

You must use the following configuration sequence to configure port and static trunk monitoring in the CLI:

1. Assign a monitoring (mirror) port.
2. Designate the port(s) and static trunk(s) to monitor.

Displaying the Monitoring Configuration. This command lists the port assigned to receive monitored traffic and the ports and/or trunks being monitored.

**Syntax:**
```
show monitor
```

For example, if you assign port A6 as the monitoring port and configure the switch to monitor ports A1 - A3, `show monitor` displays the following:

```plaintext
ProCurve(config)# show monitor
Network Monitoring Port

Mirror Port: A6 → Port receiving monitored traffic.

Monitored sources
---
A1
A2
A3

Monitored Ports
```

**Figure B-21. Example of Monitored Port Listing**

Configuring the Monitor Port. This command assigns or removes a monitoring port, and must be executed from the global configuration level. Removing the monitor port disables port monitoring and resets the monitoring parameters to their factory-default settings.

**Syntax:**
```
[no] mirror-port [<port-num>]
```

For example, to assign port A6 as the monitoring port:

```
ProCurve(config)# mirror-port a6
```
To turn off monitoring:

ProCurve(config)# no mirror-port

Selecting or Removing Ports and Static Trunks As Monitoring Sources. After you configure a monitor port you can use either the global configuration level or the interface context level to select ports and static trunks as monitoring sources. You can also use either level to remove monitoring sources.

**Syntax:**

\[ \text{[no]} \text{ interface ethernet } < \text{monitor-list} > \text{ monitor} \]

*where: <monitor-list> includes port numbers and static trunk names such as a4, c7, b5-b8, and trk1.*

Elements in the monitor list can include port numbers and static trunk names at the same time.

For example, with a port such as port A6 configured as the monitoring (mirror) port, you would use either of the following commands to select these ports and static trunks for monitoring:

- A1 through A3, and A5
- Trunks 1 and 2

```
ProCurve(config)# int e a1-a3,a5, trk1, trk2 monitor
ProCurve(config)# int e a1-a3,a5, trk1, trk2
ProCurve(eth-A1-A3,A5,Trk1-Trk2)# monitor
```

From the global config level, selects ports and trunks for monitoring sources.

Selects the interface context level, then selects the ports as monitoring sources.

**Figure B-22. Examples of Selecting Ports and Static Trunks as Monitoring Sources**

```
ProCurve(eth-A1-A3,A5)# no int e a5 monitor
ProCurve(eth-A1-A3,A5)# no monitor
ProCurve(config)# no int e a5 monitor
ProCurve(config)# no int e a1-a3,a5 monitor
```

These two commands show how to disable monitoring at the interface context level for a single port or all ports in an interface context level.

These two commands show how to disable monitoring at the global config level for a single port or a group of ports.

**Figure B-23. Examples of Removing Ports as Monitoring Sources**
Web: Configuring Port Monitoring

To enable port monitoring:

1. Click on the **Configuration** tab.
2. Click on **Monitor Port**.
3. To monitor one or more ports.
   a. Click on the radio button for **Monitor Selected Ports**.
   b. Select the port(s) to monitor.
4. Click on **Apply Changes**.

To remove port monitoring:

1. Click on the **Monitoring Off** radio button.
2. Click on **Apply Changes**.

For web-based Help on how to use the web browser interface screen, click on the [?] button provided on the web browser screen.
Monitoring and Analyzing Switch Operation
Port and Static Trunk Monitoring Features

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