Diagnostics and Troubleshooting with the Multicast Manager Tool

This chapter covers:

Managing Diagnostics

The **Diagnostics** tool gives you a global view and a router-specific view of your network. The following sections describe global diagnostics:

The following section describes router-specific diagnostics:

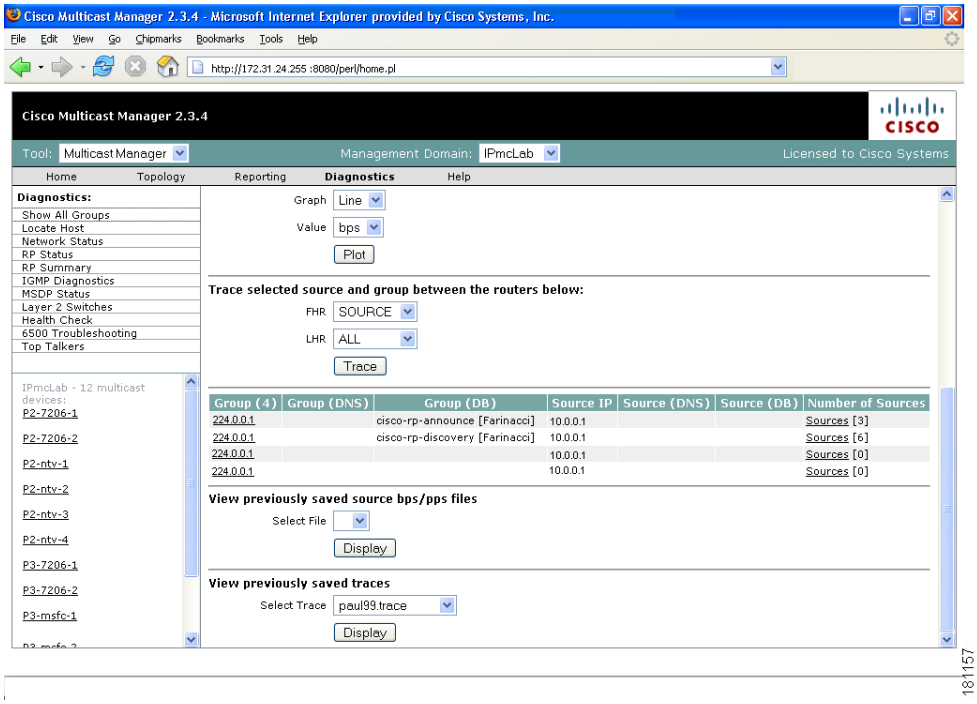
Show All Groups

With the **Show All Groups** page, you can:

1. View all the active sources and groups in the network in tabular format. Groups are listed in numerical order, and the number of sources for each group appears in the last column. If there is more than one source for a group, select **Sources** to view them all.

2. Draw complete graphical trees by clicking on a group.
3. Draw filtered graphical trees by selecting the **Source**, **Group**, **FHR** and **LHR**.
4. Plot the pps/bps for a particular source and group.

Figure 4-1 Multicast Diagnostics



(Optional) If you are using S,G caching, the cache contents appear. Click **Refresh Cache** to refresh the table of sources and groups.

If there are a lot of sources and groups present, you can filter the display to show only those you are interested in:

- **Source—**Enter or select the IP address of the source to monitor.
- **Filter Groups—**Filters the output to contain only the relevant groups.
- **Group—**Enter or select the IP address of the group to monitor.
- **Filter Sources—**Filters the output to contain only the relevant sources.
- **Reset SG Lists—**Clears any entries and refreshes the source and group lists.

To ensure a source is sending data, you can plot traffic over a period of time:

- **Select Router—**Select the router to take the sample from.
- **Samples—**Enter the number of samples (1-50).

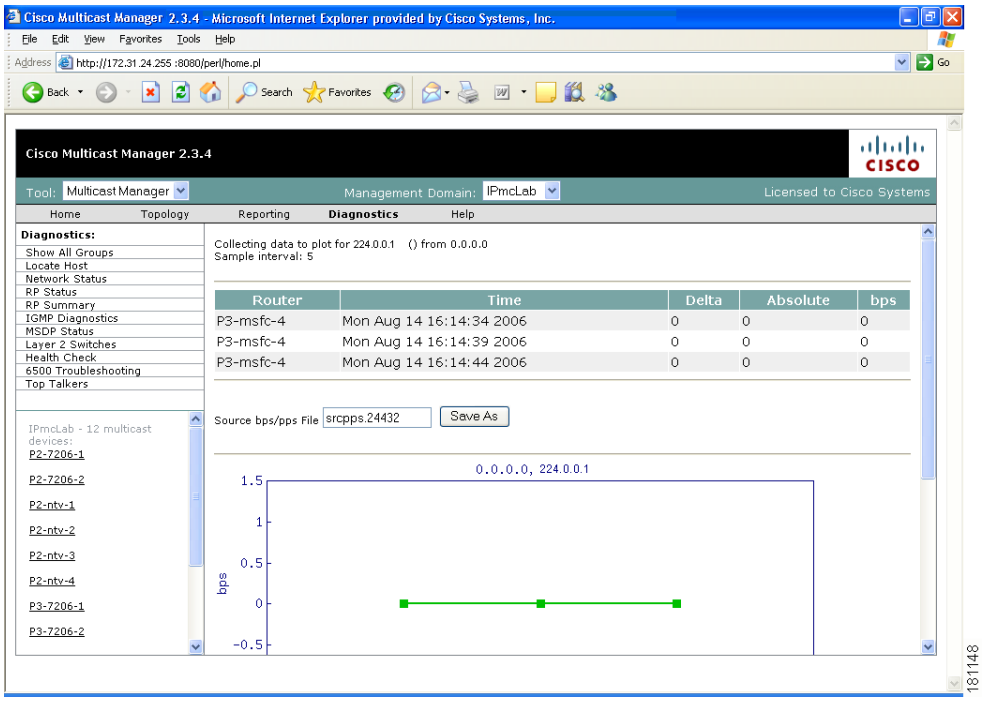
Note If the device is a 6500, you may need to adjust the sampling period in order to generate useful data.

- **Interval—**Enter the interval between samples (1-90s).
- **Graph—**Select the type of graph, line or bar.

- **Value—**Select the value, bps or pps.
- Click **Plot**. This produces a graph for the currently selected S,G on the selected router. You can also save this graph on the server.

Note This option is not meant for long term polling, but rather as an immediate troubleshooting tool. For long term polling of PPS data, the S,G should be configured under S,G Threshold polling.

Figure 4-2 Multicast Diagnostics—Plotting Traffic



To draw a graphical tree between two particular routers:

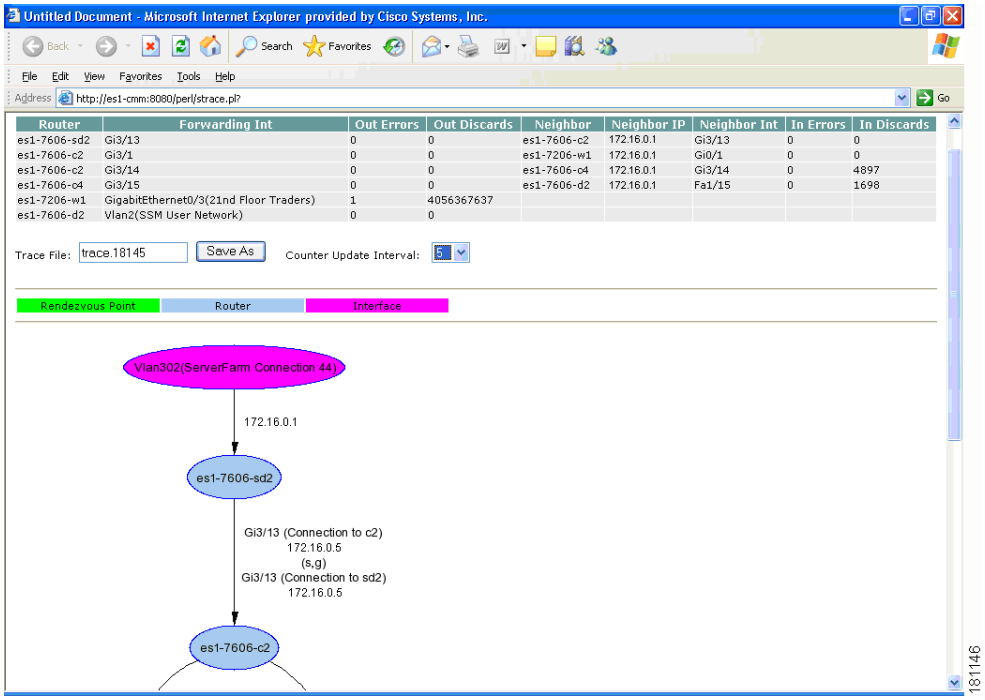
- **FHR—**Select the first hop router that the trace should start under.
- **LHR—**Select the last hop router that the trace should end under.
- Click **Trace**. The CMM draws a tree of the source and group selected from the router in FHR to the router in LHR.

To list all of the active sources and groups, within the Show All Groups page, simply scroll down to see all entries.

To draw a multicast tree, select a **Group**. A new page appears with the multicast tree in tabular and graphical format. Routers known as RPs to the source router appear green.

Note If there is more than one source for the group, select **Sources** under **Number of Sources** and select the source you want to draw the tree from.

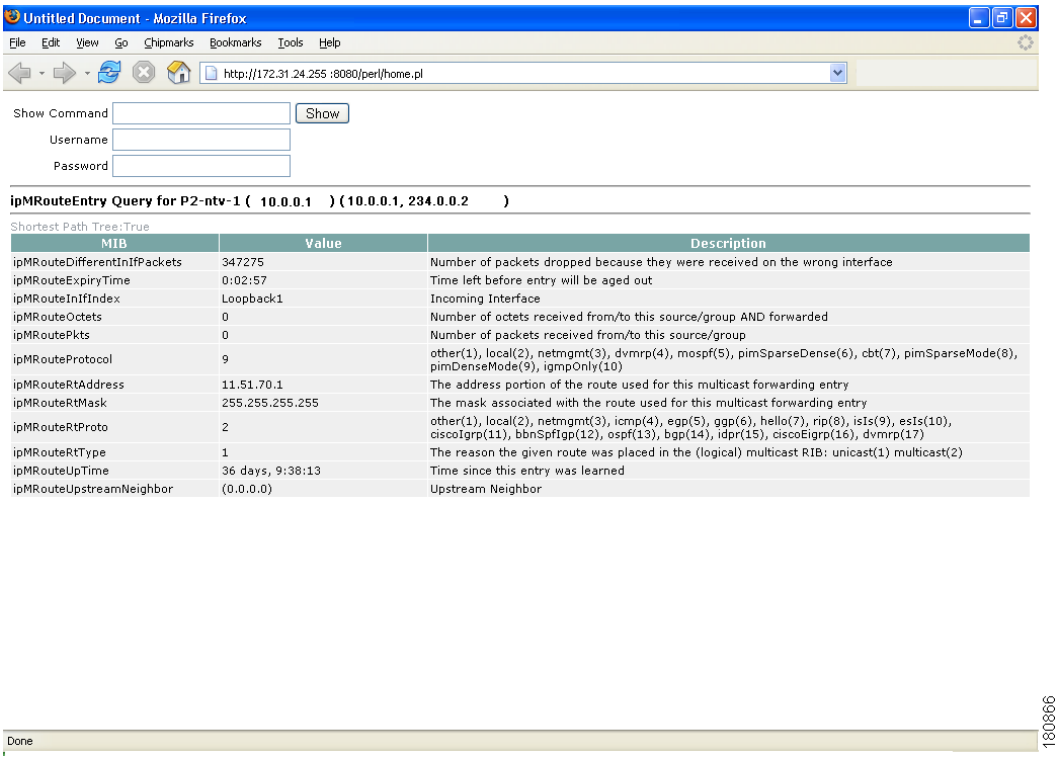
Figure 4-3 Drawing a Multicast Tree (Baseline)



- To display packet error counters, select a **Counter Update Interval**. These counters are updated each period.
- To save the multicast tree as a baseline, enter a name within **Trace File**, and click **Save As**. The window closes. You can use the saved baseline for tree polling (see Tree Polling, page 2-28).

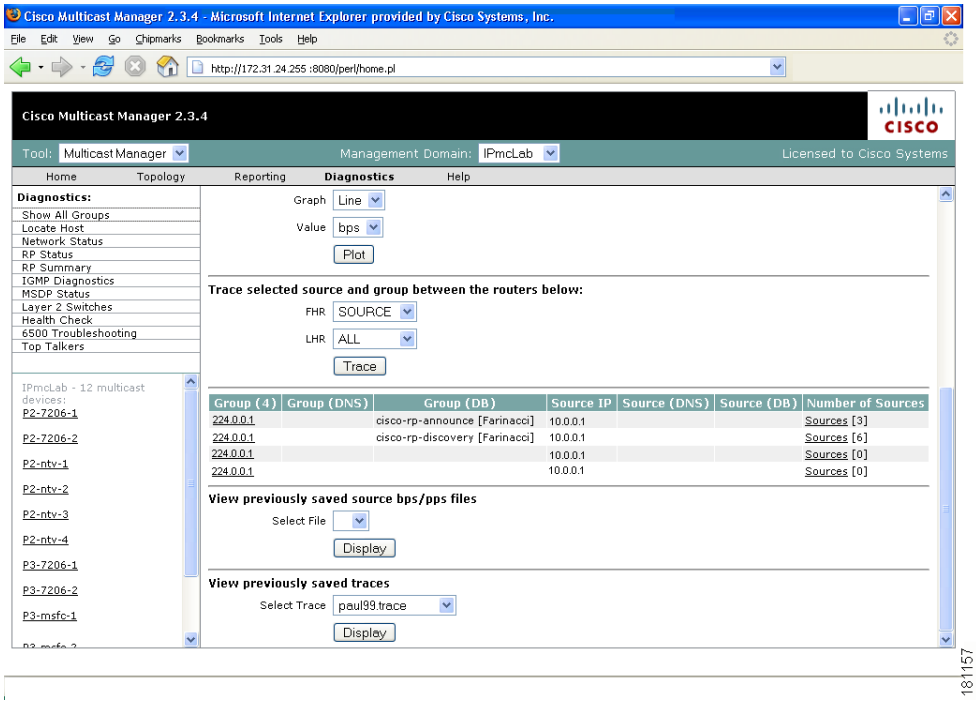
Note You can also save the tree as a .jpeg, .bmp, or .png file by right-clicking it.

Figure 4-4 Viewing IP Multicast Routing Information



- (Optional) Clicking on a router in the multicast tree opens another page that contains IP multicast routing information for the S,G that has been traced:
  - **Show Command**—Enter any show commands on the router. A new window opens that contains multicast route information for the selected router.
  - **Username**—Enter your username.
  - **Password**—Enter your password.
  - **MIB**
  - **Value**
  - **Description**

Figure 4-5 Multicast Diagnostics



- **Group (DNS)—**Name given to this group in DNS.
- **Group (DB)—**Name given to this group in the address database.
- **Source IP—**IP address of the source.
- **Source (DNS)—**Name given to this source in DNS.

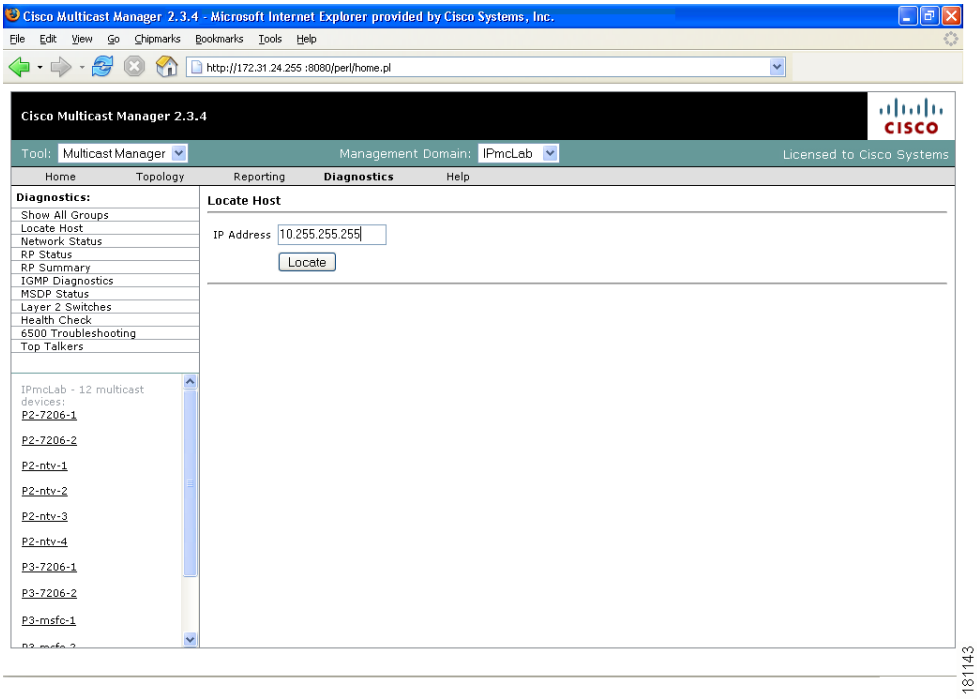
Note The Source (DNS) field is populated only if DNS is configured, and if **Resolve Sources** is selected on the Device Configuration page. It should be noted that resolving thousands of addresses via DNS can be extremely slow.

- **Source (DB)—**Name given to this source in the address database.
- **Number of Sources—**Number of sources in this group.
- To view previously saved source bps/pps files, select the file, and click **Display**.
- To view previously saved traces, select the trace, and click **Display**.

Locate Host

Using the Locate Host page, you can find sources and receivers in the network. Enter the **IP Address** or hostname (if DNS is configured) and click **Locate**.

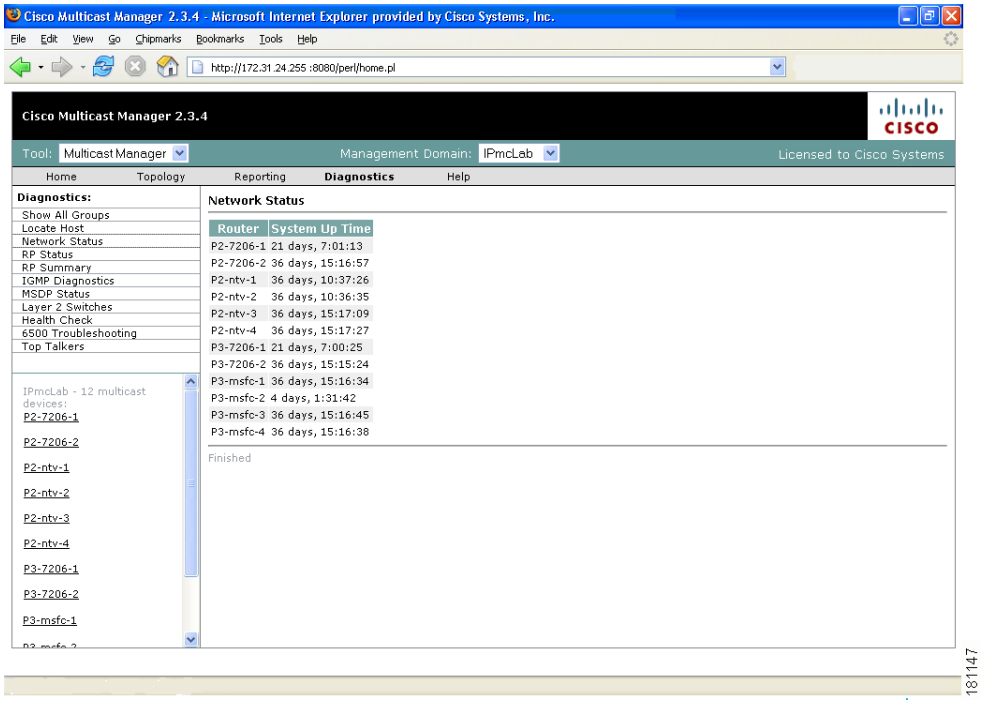
Figure 4-6 Locate Host



Network Status

Using the Network Status page, you can view the status of all devices in the current multicast domain. The System Up Time appears for all devices that are up. Devices that are down or unreachable appear in red.

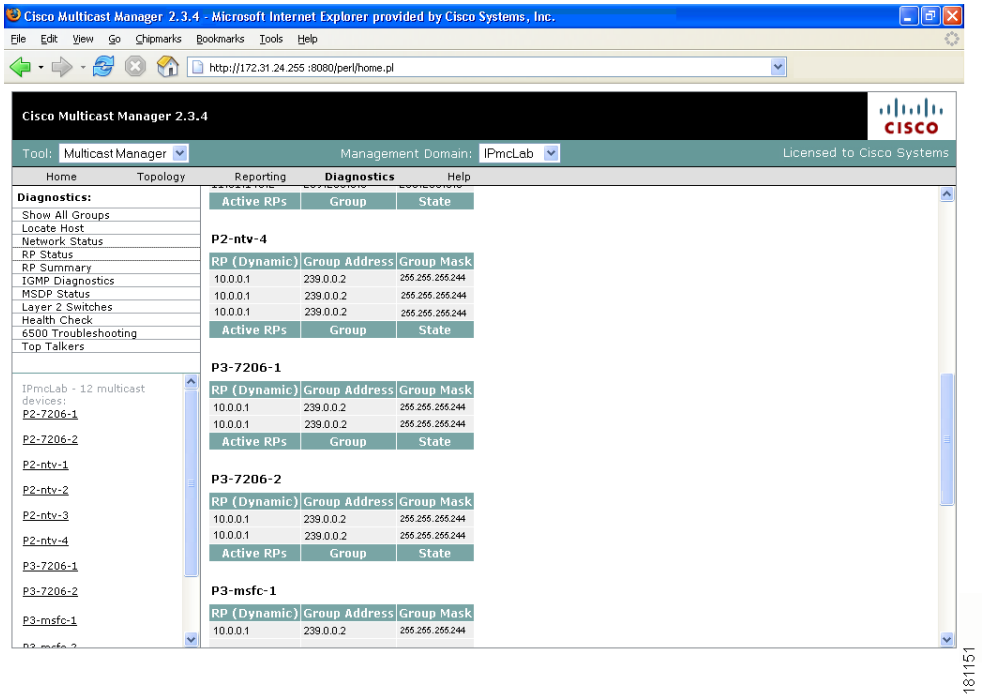
Figure 4-7 Network Status



RP Status

Using the RP Status page, you can view all routers in the database, their RPs, and the active groups. In a large network with, many S,Gs, it may take some time for this data to appear, because each router in the multicast domain is queried.

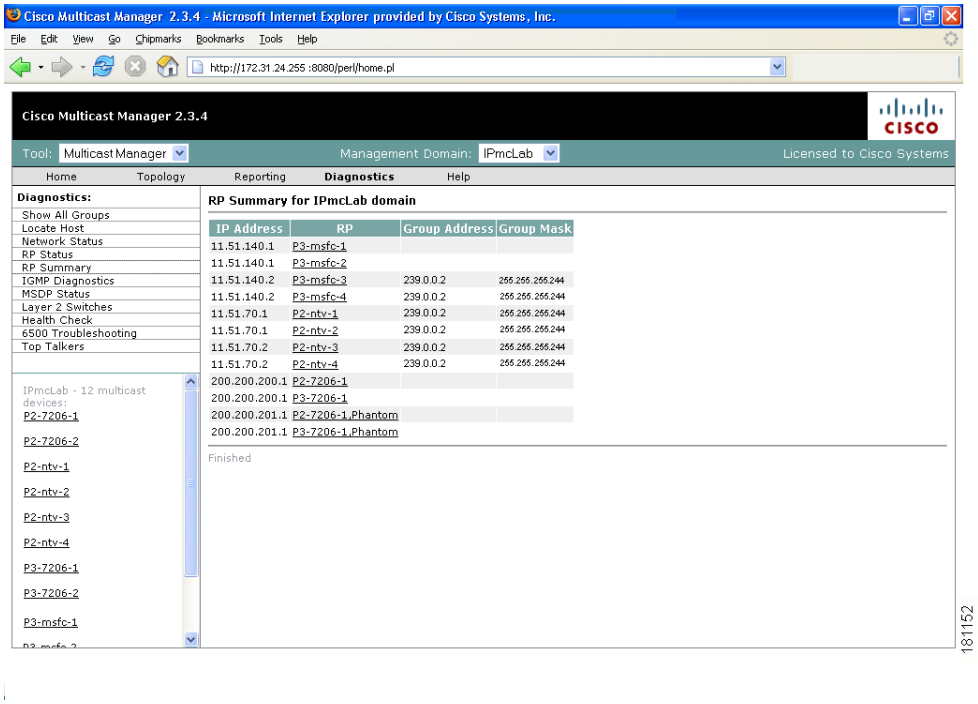
Figure 4-8 RP Status



RP Summary

Using the RP Summary, you can view all the RPs that the CMM is aware of, based upon the discovery.

Figure 4-9 RP Summary



For details on clicking on an RP, see Viewing Topology, page 3-2.

IGMP Diagnostics

Note IGMP Diagnostics does not work for IOS 12.0S devices.

Using the IGMP Diagnostics page, you can see the interfaces that have joined onto a particular group:

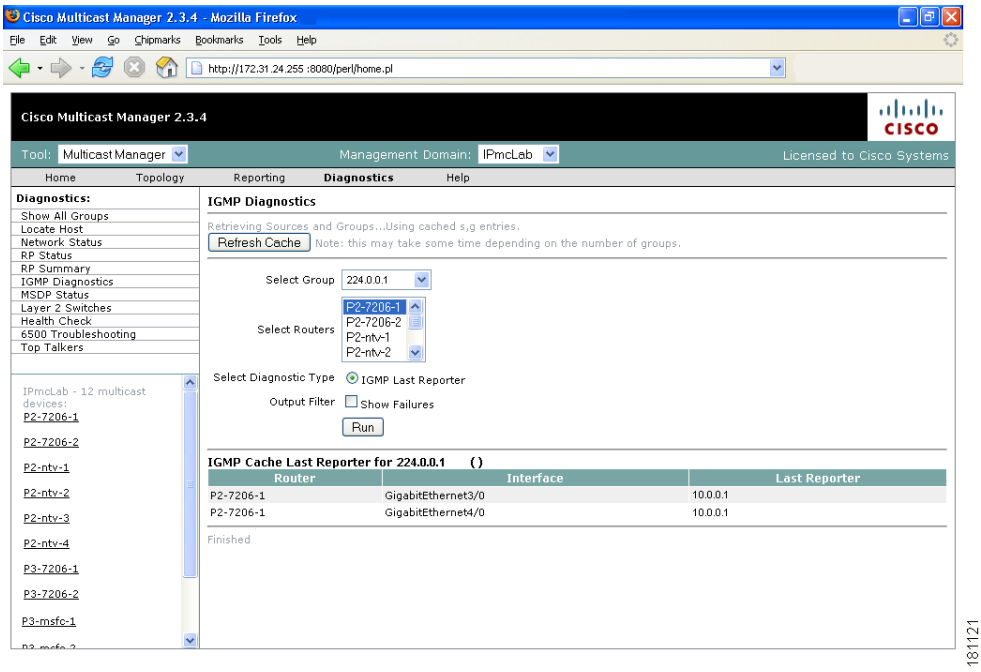
Step 1 Select the router(s) you want to query.

Step 2 **Select Diagnostic Type** is alays set to **IGMP Last Reporter**.

Step 3 Select **Show Failures** to display all interfaces on the router.

Step 4 Click **Run**.

Figure 4-10 IGMP Diagnostics



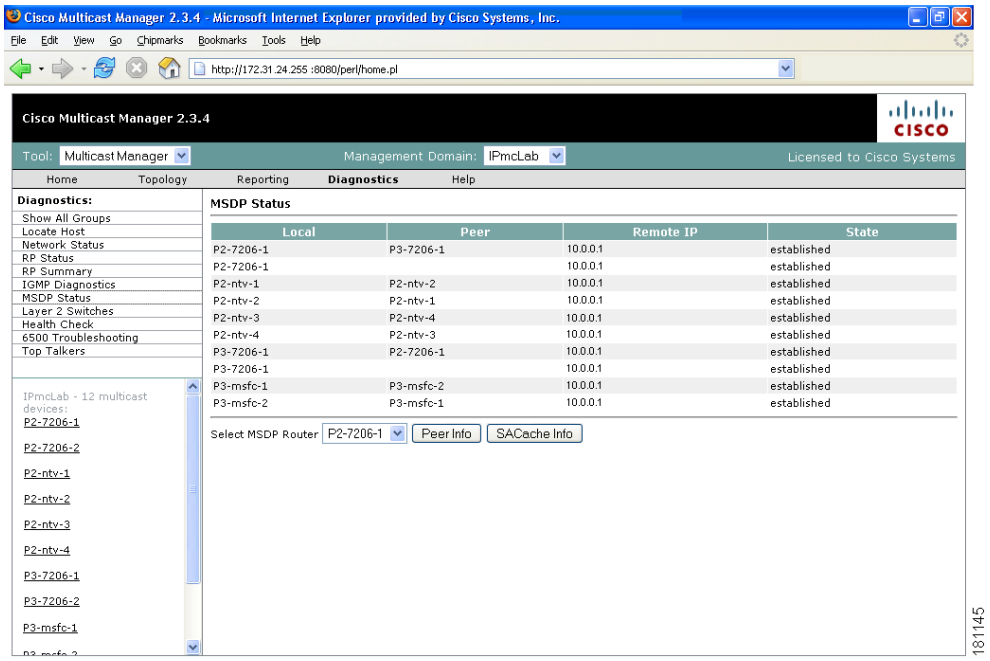
MSDP Status

Using the MSPD Status page, you can view all routers running MSDP and their peering connectivity. You can also view details for a specific router, such as peering information and the SA cache.

Note The MSDP MIB is supported only in IOS releases 12.0S, 12.1T (12.2) and 12.3. Version 12.1(x) does not support this MIB. Therefore, any RP running 12.1(x) with MSDP configured does not appear on this table.

To view peer information or SA cache information, select a router from the list and click the corresponding button.

Figure 4-11 MSDP Status



Layer 2 Switches

Using the Layer 2 Switches pages, you can view:

- Layer 2 Multicast Information
- Layer 2 Host IPs

Note These queries require the VTY password, or a TACACS username/password. The table that is generated, shows, from a Layer 2 perspective, which multicast groups are being forwarded out which interfaces.

To view Layer 2 multicast information or host IPs:

Step 1 Enter your username.

Step 2 Enter your password.

Step 3 Select the switch(es) you want to view.

Step 4 Click **Query**.

The possible IP addresses that can be mapped to the MAC address are also shown.

Figure 4-12 Layer 2 Multicast Information

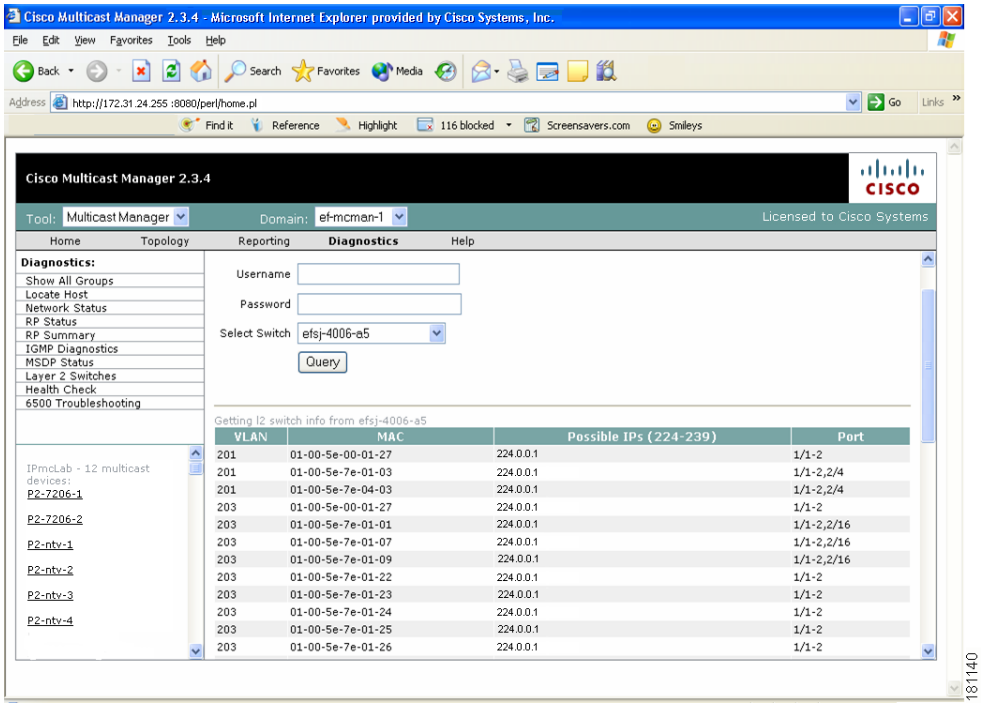
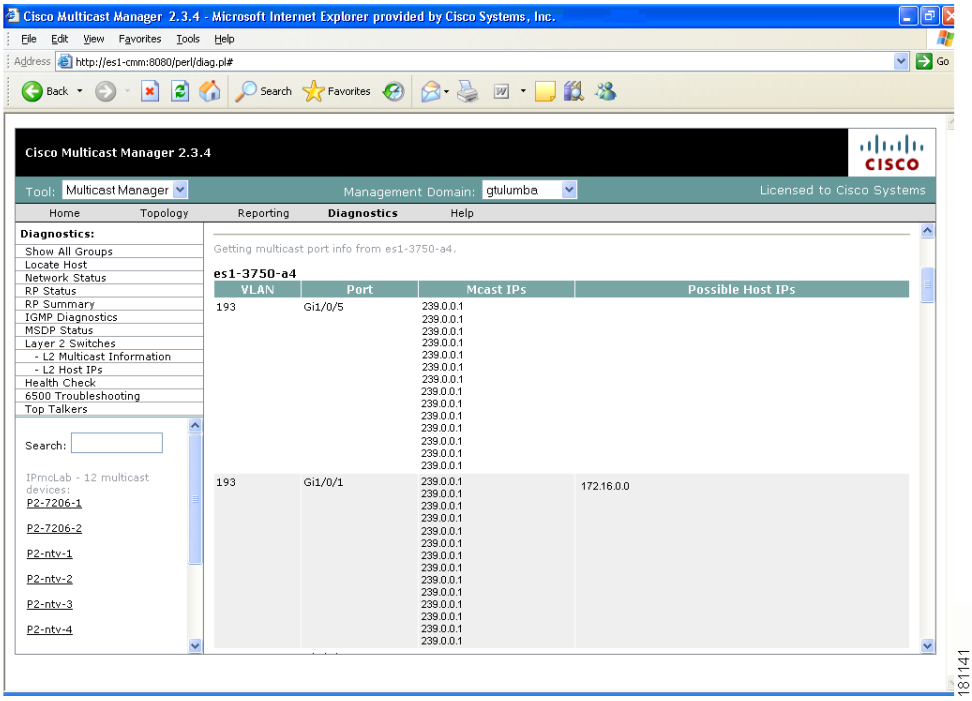


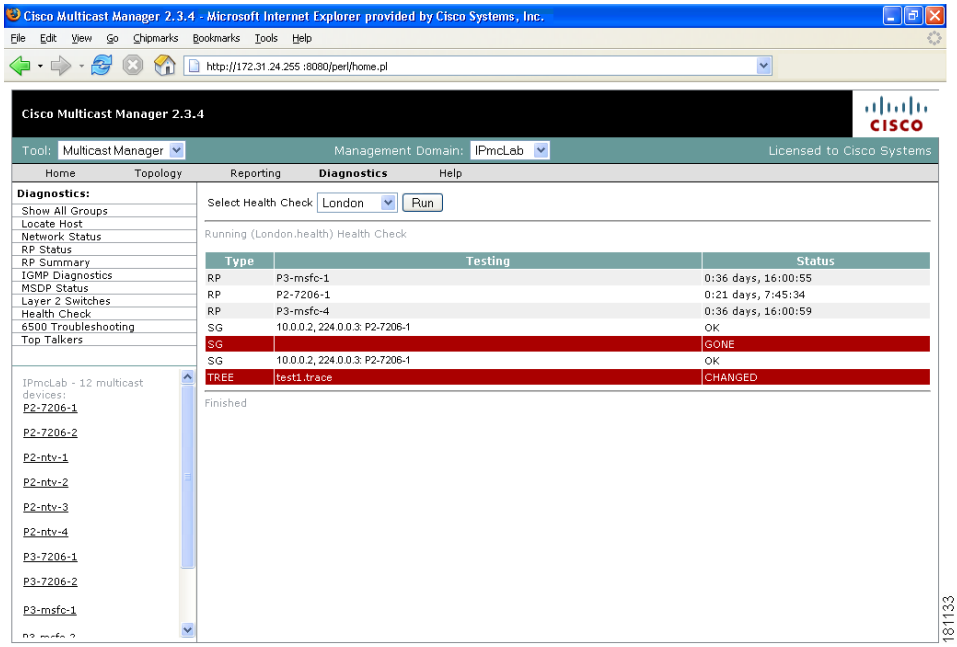
Figure 4-13 Layer 2 Host IPs



Health Check

Using the Health Check page, you can run a health check on a domain. To run a health check, select it from the list, and click **Run**.

Figure 4-14 Health Check



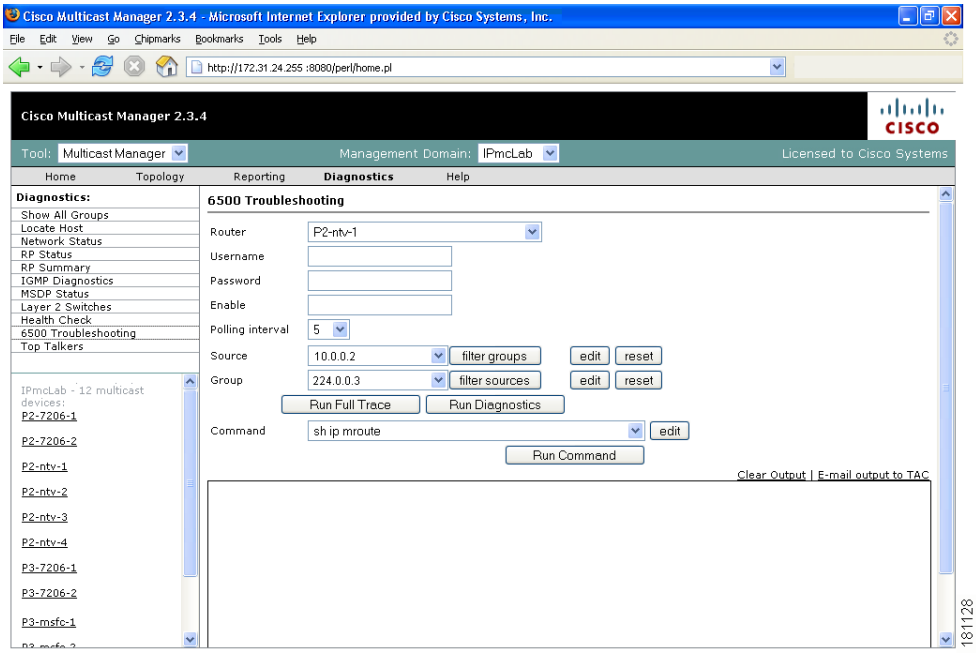
- Gray = normal
- White = normal
- Red = error condition

6500 Troubleshooting

Using the 6500 Troubleshooting page, you can enable the CMM to gather accurate packet forwarding statistics and other information in a timely manner. This option initiates a remote login session into the PFC. A persistent Telnet session issues show commands and displays live statistics. These sessions are terminated when the windows are closed.

Tip All important sources and groups should be proactively monitored. Use the 6500 Troubleshooting tool to investigate a current problem.

Figure 4-15 6500 Troubleshooting



Fields and Buttons	Description
Router	Select a 6500 or 7600 router.
Username	Enter your username.
Password	Enter the MSFC password.
Enable	Enter the enable password.
Polling Interval	Interval at which the statistics are updated.
Source	IP address of the source.
Group	IP address of the group.
Edit	Lets you manually type in a group or source address.
Reset	Populates the source and group lists again.
Run Full Trace	Starts the tree at the source instead of the selected router. For details, see Show All Groups, page 4-1.
Run Diagnostics	Draws a graphical tree of the source and group selected, starting at the router selected. Live traffic statistics also appear for this source and group at this router. You can click any other router in the picture to see live packets statistics for them (see Show All Groups, page 4-1). Ensure pop-up blockers are disabled.
Command	Provides a list of show commands.

Fields and Buttons	Description
Edit	Add your own command by clicking **Edit**, typing in your command, then click **Run Command**.
Run Command	Runs the selected show command. Output appears in the text box below.
Clear Output	Clears the output.
E-mail output to TAC	Emails the output to the Cisco TAC. **Note** Your server must have email set up.

When troubleshooting a problem, you can keep a record of the command output:

Step 1 Right-click in the output.

Step 2 Choose **Select All**.

Step 3 Copy and paste the content.

Top Talkers

Using the Top Talkers page, you can view the top 20 talkers, sorted by long term. The top 20 talkers are dynamically updated at every polling interval.

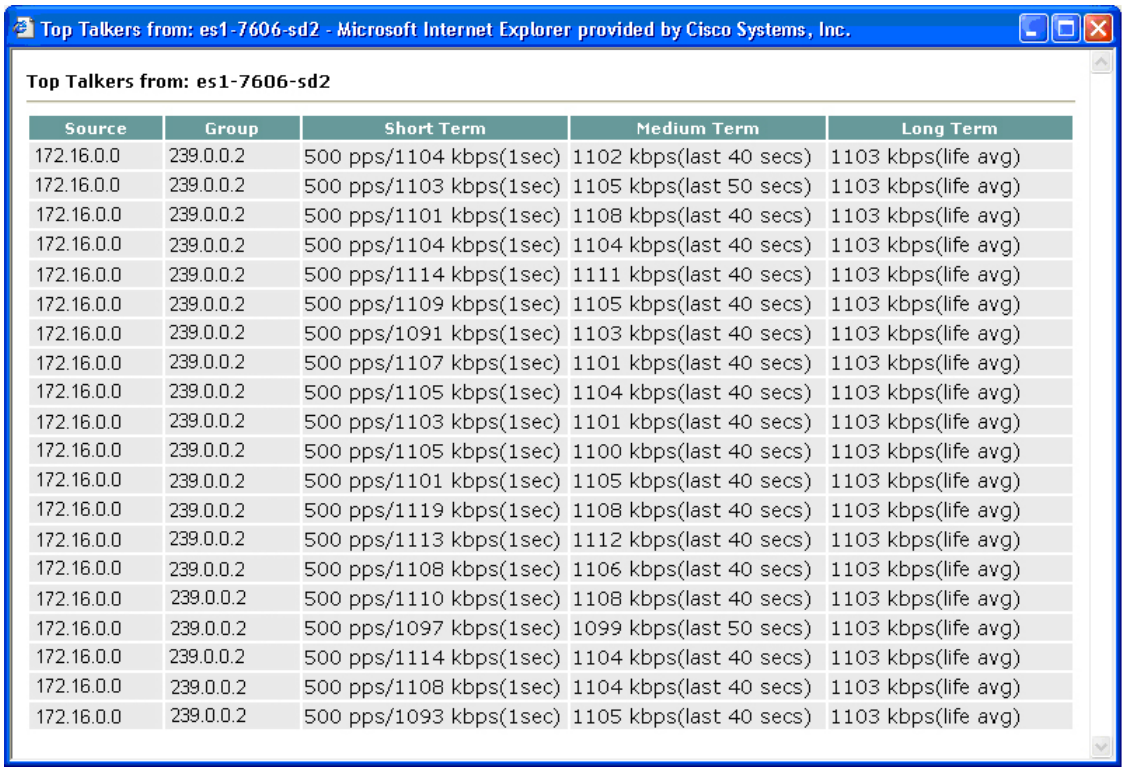
Step 1 Select a router to monitor.

Step 2 Enter your username and password.

Step 3 Select a polling interval, indicating the period (in seconds) for the window to update.

Step 4 Click **Top Talkers**.

Figure 4-16 Top Talkers

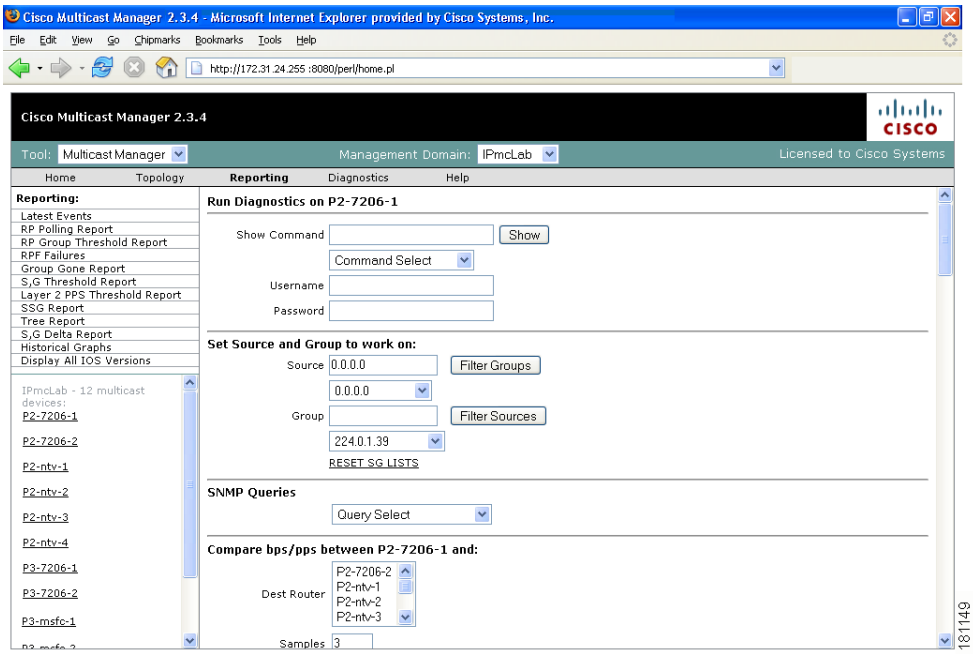


Source	Group	Short Term	Medium Term	Long Term
172.16.0.0	239.0.0.2	500 pps/1104 kbps(1sec)	1102 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1103 kbps(1sec)	1105 kbps(last 50 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1101 kbps(1sec)	1108 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1104 kbps(1sec)	1104 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1114 kbps(1sec)	1111 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1109 kbps(1sec)	1105 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1091 kbps(1sec)	1103 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1107 kbps(1sec)	1101 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1105 kbps(1sec)	1104 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1103 kbps(1sec)	1101 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1105 kbps(1sec)	1100 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1101 kbps(1sec)	1105 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1119 kbps(1sec)	1108 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1113 kbps(1sec)	1112 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1108 kbps(1sec)	1106 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1110 kbps(1sec)	1108 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1097 kbps(1sec)	1099 kbps(last 50 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1114 kbps(1sec)	1104 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1108 kbps(1sec)	1104 kbps(last 40 secs)	1103 kbps(life avg)
172.16.0.0	239.0.0.2	500 pps/1093 kbps(1sec)	1105 kbps(last 40 secs)	1103 kbps(life avg)

Managing Router Diagnostics

You can view specific multicast diagnostics on a router by clicking the router in the lower left pane.

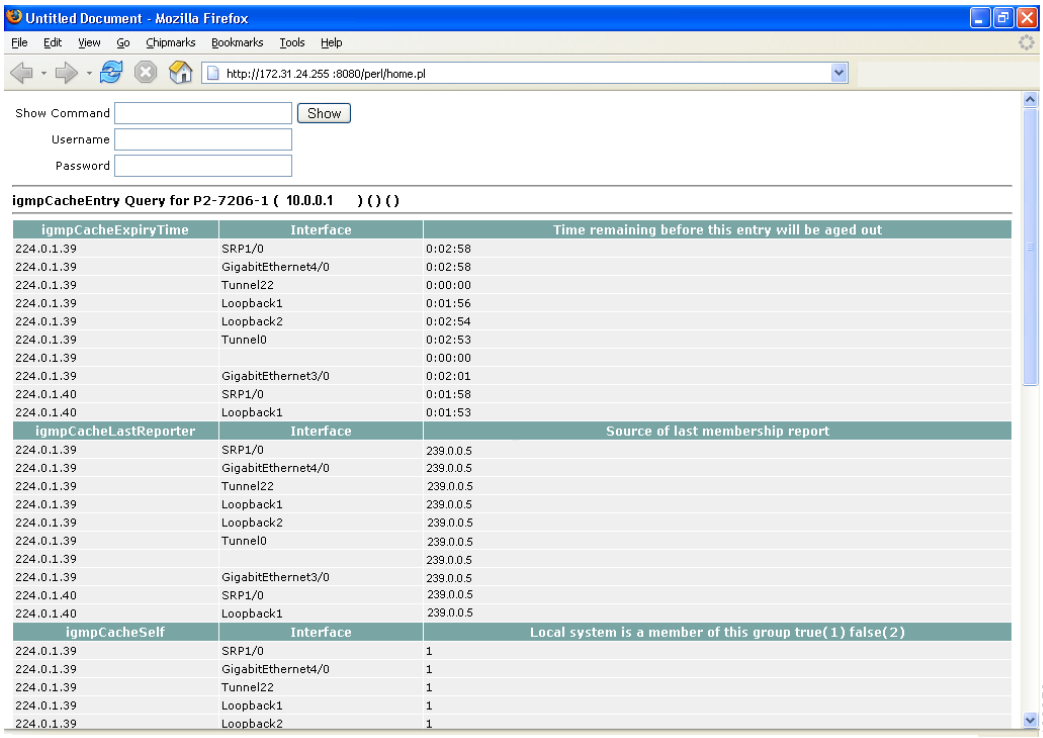
Figure 4-17 Router Diagnostics



The Router Diagnostics page is similar to the Multicast Diagnostics page (under Show All Groups), except data is for the selected router only.

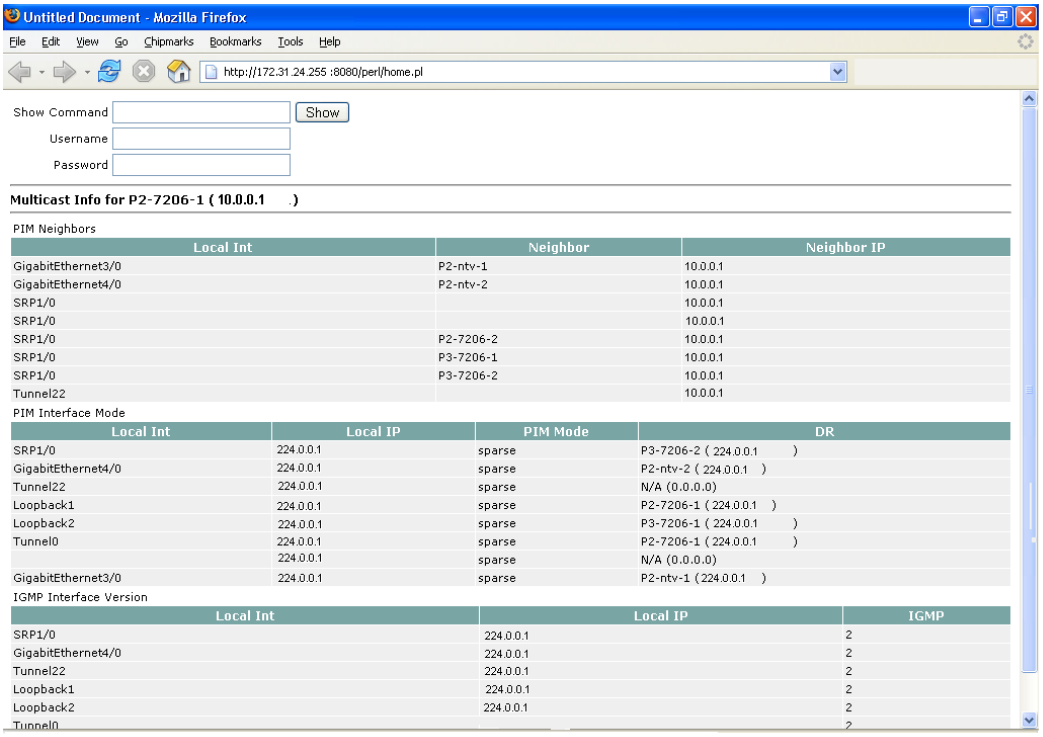
- From the **Show Command** field, you can issue a show, ping, trace, or mtrace command. Scroll down to see all the sources and groups active on this router.
- From the SNMP Queries pane, for a selected router, you can view:
  - **IGMP Cache Entries—**Shows IGMP cache information.

Figure 4-18 IGMP Cache Entries



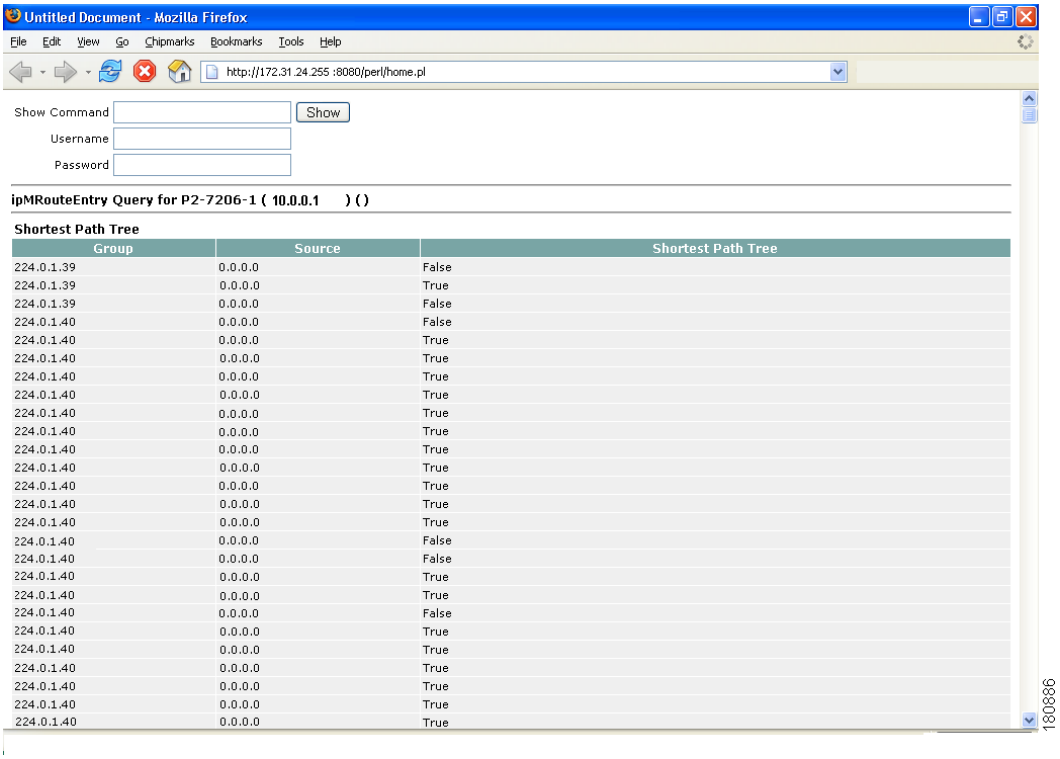
– **Multicast Information**—Shows multicast topology information.

Figure 4-19 Multicast Information



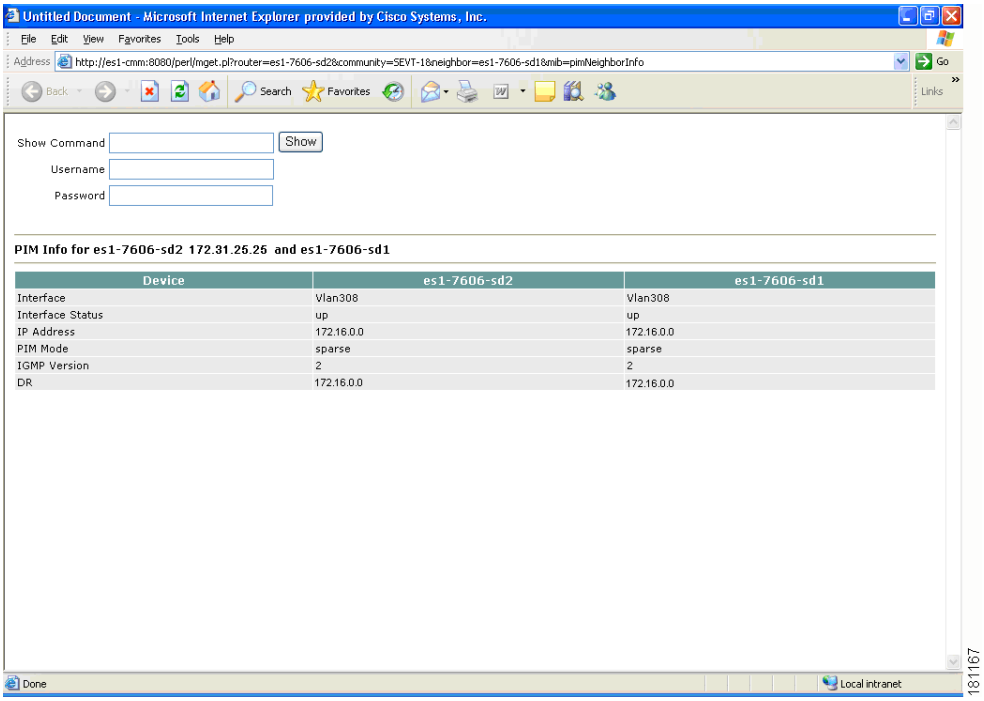
– **Multicast Routing Table**—Shows the multicast routing table.

Figure 4-20 Multicast Routing Table



– **PIM Neighbor Information**—Check that a PIM neighbor exists and compare a router's PIM neighbor information. Select the PIM neighbor you want to query.

Figure 4-21 PIM Neighbor Information



Viewing User Guide Help

You can view the Cisco Multicast Manager 2.3.4 User Guide PDF by selecting **Help**.