

Using the Cisco Multicast Manager

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System Requirements

Operating Systems:

- Solaris 8
- Solaris 9
- Red Hat Enterprise Linux AS Release 3 (Taroon Update 4)

Minimum Recommended Systems:

Sun Fire V100 with:

- Disk Space—300MB
- Memory—1GB
- Up to 150 devices
- Up to 1500 S,Gs

Sun Fire V210 with:

- Disk Space—300MB
- Memory—1GB
- Supports up to 300 devices
- Supports up to 3000 S,Gs

Sun Fire 280R with:

- Disk Space—300MB
- Memory-1GB
- Supports up to 500 devices
- Supports up to 5000 S,Gs



If the number of devices/S,Gs exceeds 500/5000, and/or other applications are installed on the system, then the requirements might be greater than shown here.

Intel PIII 1GHz (running RHEL AS 4) (Taroon Update 4) with:

- Disk Space—300MB
- Memory—512MB

Note

Disk space requirements will vary depending on the size of the network, the number of devices being polled for thresholds, and how often log files are rotated. The following log files are generated by CMM 2.3(3):

<INSTALLDIR>/mmtsys/sys/events.log <INSTALLDIR>/mmtsys/sys/rmspolld.log <INSTALLDIR>/httpd_perl/logs/error_log

Solaris Installation Instructions

To install the CMM for Solaris 2.8 or Solaris 2.9, log in as the root user and follow one of the approaches outlined below.



Approximately 300MB of disk space is required for installation.

1. Install the CMM in the following directory:

/opt/RMSMMT

If there is not enough room in the */opt* directory, create the *RMSMMT* directory on another partition and create a symbolic link to it from */opt*. For example:

- # mkdir /space/RMSMMT
- # cd /opt
- # ln -s /space/RMSMMT RMSMMT
- # chown -h mmtuser:mmtuser RMSMMT

If you symbolically link */opt/RMSMMT* to the actual installation directory as shown above, when installation is complete, you **must** cd to the actual installation directory, similar to:

```
# cd /space
```

and issue the following command:

chown -R mmtuser:mmtuser RMSMMT

Otherwise, the installation will create the directory and set the ownership for you.

- 2. If you are installing from the CDROM, enter:
 - # cd /cdrom/cdrom0
 - # ./setup.sh

(Optional) If for some reason vold is not running, you will have to manually mount the cdrom by entering:

```
# mount -rt hsfs /dev/sr0 /cdrom
or
# mount -rt hsfs /dev/dsk/c0t6d0s2 /cdrom
```

3. If you are installing from the tar file, create a tmp directory and place the tar file in the directory:

```
# cd /tmp
# mkdir rms
# cd rms
# gunzip -c mmt-sol-2.1-X-full.tar.gz | tar xvf -
# ./setup.sh
```

You should then be able to start and stop the server by entering:

/opt/RMSMMT/S98mmt

and

/opt/RMSMMT/K98mmt

The default login is admin/rmsmmt.

Note

The K98mmt script will stop the apache server and the polling daemon.

The S98mmt script will only start the apache server. You will have to manually start the polling daemon through the application if desired.

During installation, the K98mmt script is installed in the /etc/rc0.d directory.

This will ensure that the polling daemon shuts down properly upon system reboot.

The server is configured by default to run on port 8080. If you want to change the port, edit the following file:

/opt/RMSMMT/httpd_perl/conf/httpd.conf

Output from a sample installation:

```
#=====[ Sample Installation ]=====#
root@ganymede/export/home/mike/mmtinstall-> ./setup.sh
Installing Cisco Multicast Manager Version 2.1
Copyright (c) 2003-2004 Cisco Systems, Inc. All Rights Reserved.
The application installs in /opt/RMSMMT. Do you wish to continue? [y/n]: y
Creating mmtuser gid...
Creating mmtuser uid...
Locking mmtuser account...
Installing Apache...
Installing Perl...
Installing MIBS...
Installing support files...
Installing K98mmt to /etc/rc0.d to ensure proper shutdown of application...
Would you like the S98mmt script installed in /etc/rc3.d to start the application upon
system boot? [y/n]: y
Seeding IP Address database with reserved Multicast Addresses...
Modifying httpd.conf file for this system...
Installation Finished.
```

Linux Installation Instructions

To install the CMM for Red Hat Enterprise Linux AS Release 3 (Taroon Update 4), log in as the root user and follow one of the approaches outlined below.

Note

Approximately 300MB of disk space is required for installation.

1. Install the CMM in the following directory:

/usr/local/netman

If there is not enough room in the */usr/local* directory, create the *netman* directory on another partition and create a symbolic link to it from */usr/local*. For example:

```
# mkdir /space/netman
# cd /usr/local
# ln -s /space/netman netman
# chown -h mmtuser:mmtuser netman
```

If you symbolically link */usr/local/netman* to the actual installation directory as shown above, when installation is complete, you **must** cd to the actual installation directory, similar to:

cd /space

and issue the following command:

chown -R mmtuser:mmtuser netman

Otherwise, the installation will create the directory and set the ownership for you.

- 2. If you are installing from the CDROM, enter:
 - # cd /mnt/cdrom
 - # ./setup.sh

- 3. If you are installing from the tar file, create a tmp directory and place the tar file in the directory:
 - # cd /tmp
 # mkdir rms
 # cd rms
 # gunzip -c mmt-linux-2.1-X-full.tar.gz | tar xvf # ./setup.sh

You should then be able to start and stop the server by entering:

/usr/local/netman/S98mmt

and

/usr/local/netman/K98mmt

The default login is admin/rmsmmt.

Note

The K98mmt script will stop the apache server and the polling daemon.

The S98mmt script will only start the apache server. You will have to manually start the polling daemon through the application if desired.

During installation, the K98mmt script is installed in the */etc/rc0.d* directory.

This will ensure that the polling daemon shuts down properly upon system reboot.

The server is configured by default to run on port 8080. If you want to change the port, edit the following file:

/usr/local/netman/httpd_perl/conf/httpd.conf

Output from a sample installation:

#=====[Sample Installation]=====#

root@ganymede/export/home/mike/mmtinstall-> ./setup.sh Installing Cisco Multicast Manager Version 2.3 Copyright (c) 2003-2004 Cisco Systems, Inc. All Rights Reserved.

```
The application installs in /usr/local/netman. Do you wish to continue? [y/n]: y
Creating mmtuser gid...
Creating mmtuser uid...
Locking mmtuser account...
Installing Apache...
Installing Perl...
Installing MIBS...
Installing support files...
Installing K98mmt to /etc/rc0.d to ensure proper shutdown of application...
Would you like the S98mmt script installed in /etc/rc3.d to start the application upon
system boot? [y/n]: y
Seeding IP Address database with reserved Multicast Addresses...
Modifying httpd.conf file for this system...
Installation Finished.
```

Licensing

CMM 2.3.3 requires a license file. The application license is contained in the license.key file. This file should be placed in the following directory:

On Solaris:

/opt/RMSMMT/mmtsys/sys

On Linux:

/usr/local/netman/mmtsys/sys

The file should be owned by mmtuser (chown mmtuser:mmtuser license.key) and be set to read-only (chmod 0444 license.key). The license is tied to the IP address of the CMM server.

Starting and Stopping CMM

To start the application:

On Solaris:

From the CMM home directory (by default, /opt/RMSMMT) run the S98mmt script.

On Linux:

From the CMM home directory (by default, /usr/local/netman) run the S98mmt script.on Linux.

To stop the application, run the K98mmt script.

The S98mmt script also runs the S98mmtpolld script, which starts the polling daemon. The S98mmtpolld script can also be used as a watchdog script to ensure that the polling daemon is up and running. The root crontab configuration would be:

On Solaris:

0,5,10,15,20,25,30,35,40,45,50,55 * * * * /opt/RMSMMT/S98mmtpolld

On Linux:

*/5 * * * * /usr/local/netman/S98mmtpolld

These entries will run the script every 5 minutes.

Logging Into CMM

To access CMM, enter the IP address or the name of the server where the software is installed. For example: http://192.168.1.9:8080. The default port of 8080 can be changed as described in the installation instructions.

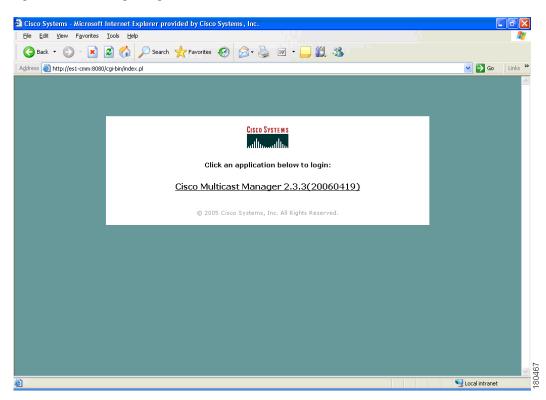


Figure 1-1 Login Page for CMM 2.3.3

To enter CMM, click on Cisco Multicast Manager 2.3.3. You are prompted for a username and a password. The default CMM username is *admin*, and the default CMM password is *rmsmmt*.

The Multicast Manager Home page appears.

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isco	Multicast Manager 2.3.3					CISCO SYSTEMS
ool:	Multicast Manager 🔽		Managemen	t Domain: IPmcLab 🔽	Lice	nsed to Cisco Systems
He	ome Topology	Reporting	Diagnostics	Help		
ates	t Events					
		Date		Туре	Device	Details
8	Wed Aug 9 23:15:03 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 23:15:03 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 23:00:02 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 23:00:02 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 22:45:02 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 22:45:02 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 22:30:03 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 22:30:03 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 22:15:02 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 22:15:02 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 22:00:03 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 22:00:03 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 21:45:02 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 21:45:02 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 21:30:03 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 21:30:03 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 21:15:02 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 21:15:02 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 21:00:03 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 21:00:03 2006			RP Timeout	P3-7206-1	
8	Wed Aug 9 20:45:02 2006			RP Timeout	P3-7206-1	
0	Wed Aug 9 20:45:02 2006			PD Timeout	P3_7206_1	

Figure 1-2	Multicast Manager Home Page
------------	-----------------------------

For detailed information on this window, see the "Using the Multicast Manager Tool" section on page 1-43.

CMM 2.3.3 has two main Tools:

- Administration—Perform configuration tasks
- Multicast Manager—View or monitor data

You can find these Tools listed at the top left of the CMM 2.3.3 Web interface.

Using the Administration Tool

System administrators can configure their network using the CMM Administration Tool, containing these web pages:

- Domain Management, page 1-9
- Discovery, page 1-11
- Admin Utilities, page 1-15
- System Security, page 1-17
- User Management, page 1-18
- Device Configuration, page 1-20
- Global Polling Configuration, page 1-23
- Address Management, page 1-27
- Multicast Manager, page 1-28

1-9

Domain Management

Using Domain Management, you can create and edit domains. A domain is a collection of multicast routers. Multiple domains may exist, and routers can belong to multiple domains.

The first step in using the CMM is to create a domain:

- **Step 1** From the Multicast Manager Home page, select the Administration tool.
- **Step 2** Click on Domain Management.

Step 3 Click on add a new domain. The System Configuration page appears.

Step 4 Complete the fields in the System Configuration page (see field descriptions below) and click **Save** to continue and create the new domain. Click **Cancel** to exit without creating a domain.

Field	Description
Management Domain	A management domain is defined as a contiguous group of PIM neighbors sharing the same SNMP community string.
Default Read Only	SNMP read-only community string.
Default Read Write	SNMP read-write community string. This is required for retrieving and validating device configurations.
SNMP Timeout	Retry period if node does not respond. Default value is 0.8.
SNMP Retries	Number of retries to contact a node before issuing a timeout. Default value is 2.
TFTP Server	TFTP server IP address. Default is the IP address of the CMM server.
VTY Password	The VTY password is required if you want to issue show commands from the application. Certain features, such as querying Layer 2 switches, also require this. If TACACS is being used, then a username and password can be supplied instead of the VTY password.
Enable Password	(Not currently used.)
TACACS/RADIUS Username	If you are using TACACS/RADIUS then you can enter a username here. See VTY Password above.
	Note If you enter a TACACS/RADIUS username and password here, the application will use these values regardless of who is currently logged in. Users can also enter their own username and password when issuing show commands.

The System Configuration page contains:

Field	Description		
TACACS/RADIUS Password	If you are using TACACS/RADIUS then you can enter a password here. See VTY Password above.		
	Note If you enter a TACACS/RADIUS username and password here, the application will use these values regardless of who is currently logged in. Users can also enter their own username and password when issuing show commands.		
Cache TACACS Info	If this box is checked, CMM will cache the TACACS username and password until the browser is closed. This eliminates having to enter the username and password each time you issue a router command from the application.		
Resolve Addresses	Performs DNS lookups on all sources found. The DNS name appears alongside the IP address on the "Show All Groups" screen. If the server is not configured for DNS, then DO NOT check the box. If the box is checked, you may receiver a slower response, due to the fact that the application is trying to resolve names. This option is not recommended if your network contains a large number of S,Gs.		
Use SG Cache	Some networks contain thousands of S,Gs. During discovery,CMM caches all the S,Gs found in the RPs. If this box is checked, CMM reads the SG cache when showing lists of sources and groups, rather then retrieving them again from the RPs in the network. The cache is automatically refreshed if RPs are being polled as described later in this document (see the "RP Polling" section on page 1-28). The cache can also be refreshed manually by clicking the Refresh Cache button in the Multicast Diagnostics window (see the "Show All Groups" section on page 1-61). This button only appears if you have the Use SG Cache option selected. It is highly recommended to use the SG cache option. If there are no RPs in the domain being discovered, then the SG cache is created by querying all the devices that have been discovered, as would be the case in a PIM Dense-Mode network. In this case, the SG cache is only updated when you click the Refresh Cache button.		

Discovery

Once you have created a domain, the second step in using the CMM is to discover your network using one of these choices, found within the **Discovery** menu:

- Add Router (not supported)
- Adding Layer 2 Switches to Discovery, page 1-11
- Performing Multicast Discovery, page 1-12
- Adding or Re-discovering a Single Device, page 1-14

The discovery process is multicast-specific and only finds devices that are PIM-enabled. CMM builds a database of all found devices. Discovery adds support for multiple community strings per domain, along with device-specific SNMP timeout and retries.

Note

If any new routers or interfaces are added to the network, run discovery again so that the database is consistent with the network topology.

A single router may also be added or rediscovered on the network. A router being added must have a connection to a device that already exists in the database. A router that is being re-discovered is initially removed from the database, along with any neighbors that exist in the database. The router, and its neighbors, are then added back into the database. This option would be used if a change on a device has caused a change in the SNMP ifIndexes.

Note

When possible, the snmp ifindex persist command should be used on all devices.

Adding Layer 2 Switches to Discovery

Layer 2 switches are not included in discovery and must be added manually. You can add switches individually, or you can import a list of switches in a csv file.

To add switches individually, enter the switch name or IP address and the community string, then click Add.

To import a list of switches:

Step 1 Create a text file by typing:

```
#import file format switch IP address or switch name
# this line will be skipped
switchA
192.168.1.1
switchC
10.10.10.1
```

Step 2 Save the file.

- **Step 3** Within the Administration too, click on **Discovery**.
- Step 4 Click Add L2 Switch. The Multicast Layer 2 Switch Configuration page appears.

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Cisco Tool Administration				CISCO SYSTEMS
Tool: Administration 💌		ement Domain: National-1	*	Licensed to Cisco Systems
Configuration:	Multicast Layer 2 Switch Co	nfiguration		
Domain Management Admin Utilities System Security User Management	Import From File		Browse Import	
- Add Router - Add L2 Switch	Name/IP Address	Add		
- Multicast Device Configuration Global Polling Configuration		Add		
Address Management Multicast Manager Route Manager				
National-1 - 0 multicast devices:				
Database currently locked by discovery, please wait until it completes.				
~				

Figure 1-3 Multicast Layer 2 Switch Configuration

- **Step 5** Click **Browse**. Open the file you created.
- Step 6 Click Import.

Note

Sometimes switches are deployed in a network using different SNMP community strings than those used on the routers. In this case, simply create another domain, with the appropriate SNMP community strings, and add the switches to this domain.

Performing Multicast Discovery

To perform a new multicast discovery:

- **Step 1** Within the Administration tool, click on **Discovery**.
- **Step 2** Click **Multicast**. The Multicast Discovery page appears.

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dress 🙆 http://es1-cmm:8080/perl/s	ys/home.pl#
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Tool: Administration 🛛 🎽	Management Domain: gtest2 Y Licensed to Cisco System:
onfiguration:	
Domain Management	- Multicast Discovery
Admin Utilities	(Discovery is Not Running)
System Security	Discover Multicast Domain
User Management	
Discovery	To discover the network enter the IP address of a seed router along with its read-only community string.
- Add Router	
- Add L2 Switch	Management Domain gtest2
- Multicast	Management Domain guestz
Device Configuration	Seed Router 6500-Core-44
Global Polling Configuration	
Address Management	entsol
Multicast Manager	Community Strings public Add 3666bbb The selected strings will be used during discovery
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es1-7206-w1	
	Start Discovery
es1-7206-w2	Start Discovery
es1-7606-c1	
	Add/Rediscover a Single Device
es1-7606-c2	
1 7/0/ 0	To add a new device or rediscover an existing one, enter its ip address and read-only community string.
es1-7606-c3	
es1-/606-o4	Management
<u></u>	Management Domain gtest2
es1-7606-d1	
<u></u>	Router
es1-7606-d2	
×	entsol

Figure 1-4 Multicast Discovery

- **Step 3** Next to **Management Domain**, select the domain you want to discover (only domains that are created from the System Configuration window appear here). If you select a different domain from the default, you must complete steps 1 and 2 again.
- **Step 4** Complete the fields in the **Discover Multicast Domain** pane (see field descriptions below) and click **Start Discovery** to continue. As routers are discovered, they appear in the browser window.
- **Step 5** (Optional) To view discovery progress as it is running, click **Refresh Status**.



• For details on adding or re-discovering a single device, see the "Adding or Re-discovering a Single Device" section on page 1-14.

The Discover Multicast Domain pane of the Multicast Discovery page contains:

Field	Description
Management Domain	(Read-only) Lists the selected management domain.
Seed Router	Enter the IP address of the seed router to initiate discovery from. If you enabled DNS when configuring the domain, enter a name.

Field	Description
Community Strings	You can add additional community strings if required.
• •	Number of PIM neighbors the CMM will discover from the seed router (similar to a hop count).

CMM discovers all routers in the network that are multicast enabled and have interfaces participating in multicast routing. If the discovery fails to find any routers, or if there are routers in the network that you expected to discover but did not, check the following:

- Connectivity to the routers
- SNMP community strings on the routers
- Discovery depth setting—is it sufficient
- SNMP ACLs on the routers

When discovery is complete, the browser window displays the time it took to discover the network, and the number of devices discovered:

Discovery took 15 seconds Discovered 5 routers

The amount of time the discovery takes depends on the number of routers, number of interfaces, and router types.

If the discovery seems to stop at a particular router, or seems to pause, check that particular router's connectivity to its PIM neighbors. Also, check the PIM neighbor to see if it supports the PIM and IPMROUTE MIBs. Again, because the discovery is multicast specific, unless these MIBs are supported, the device will not be included in the database. Issuing the **sh snmp mib** command on a router gives this information.

When discovery has finished, you can view the discovered routers in the lower left pane.

Adding or Re-discovering a Single Device

To add or re-discover a single device:

- **Step 1** Within the Administration tool, click on **Discovery**.
- **Step 2** Click **Multicast**. The Multicast Discovery page appears (see Figure 1-4).
- Step 3 Within the Add/Rediscover a Single Device pane, enter the
- **Step 4** Next to **Management Domain**, select the domain you want to discover or add to (only domains that are created from the System Configuration window appear here). If you select a different domain from the default, you must complete steps 1 and 2 again.
- Step 5 Complete the fields in the Add/Rediscover a Single Device pane (see field descriptions below) and click Add/Rediscover to continue. As devices are discovered, they appear in the browser window.

The Add/Rediscover a Single Device pane of the Multicast Discovery page contains:

Field	Description
Management Domain	(Read-only) Lists the selected management domain.
Router	Enter the IP address of the device you want to discover or add.
Community Strings	You can add additional community strings if required.
This device only	Rediscovers this device and updates the current database with the new information.
One hop from this device	Discovers this router and every router within one hop, and updates the current database with the new information.

Admin Utilities

The Administrative Utilities page provides maintenance tools for the system administrator.

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Cisco Tool Administration		Cisco Systems
Tool: Administration 💌	Management Domain: National-1 💌	Licensed to Cisco Systems
Configuration:	Administrator Utilities	
Domain Management Admin Utilities System Security User Management Discovery	Remove Domain Management Domain National V Delete Domain	
Device Configuration Global Polling Configuration Address Management Multicast Manager	Remove Router Router V Delete Router	
Route Manager	Remove Layer 2 Switch Switch Velete Switch	
National-1 - 0 multicast devices:	Remove Baseline Baselines V Delete Baseline	
Database currently locked by discovery, please wait until it completes.	Address Management Database Import From File Reinitialize Export	
	Error Log File Clear Show Discovery Show Polling Log	
×		

Figure 1-5 Administrative Utilities

The Administrative Utilities page contains:

Field	Description	
Remove Domain	Removes all data associated with a management domain.	
	Note Domains cannot be removed while the polling daemon is running.	
Remove Router	Removes a specific router from a management domain. However, if the device is being polled, you must remove it from the polling configuration first.	
Remove Layer 2 Switch	Removes Layer 2 switches from the management database.	
Remove Baseline	Removes a forwarding tree baseline, along with any associated tree change information.	
Address Management Database	Contains:	
	• Browse —Find a csv file to import.	
	• Import —You can import a csv file into the IP address database. The file should be in the following format:	
	<pre>#import file format #this line will be skipped 239.1.1.1,test group 192.168.1.1,sourceA</pre>	
	• Reinitialize —Restores all reserved multicast addresses to the IP address database.	
	• Export —Creates a file in <i>/tmp</i> called mmtIPdb.csv which contains the IP address database in csv format.	
Error Log File	Contains:	
	• Clear —Truncates the error_log file	
	• Show Discovery —Shows discovery-specific messages contained in the error_log file.	
	Note The error_log file should be rotated along with other system log files.	
	• Show Polling Log—Displays the contents of the polling log.	

System Security

The System Security page provides TACACS login support for the CMM.

To configure TACACS login, enter the IP address of the TACACS server within the **Primary TACACS** Server field.

If the keys are configured incorrectly, they will have to be manually changed in the */opt/RMSMMT/httpd_perl/conf/httpd.conf* file, as follows:

```
Tacacs_Pri_Key tac_plus_key
 Tacacs_Sec_Key tac_plus_key
<Sample AAA Server Config>
group = admins {
        service = connection {
               priv-lvl=15
}
group = netop {
        service = connection {}
}
user = mike {
       member = netop
        login = des mRm6KucrBaoHY
}
user = admin {
        member = admins
        login = cleartext "ciscocmm"
}
</Sample AAA Server Config>
```

Figure 1-6 System Security

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dress 🗃 http://es1-cmm:8080/perl	lsys/home.pl#	Links
Cisco Tool Administration	Cisco System	
Tool: Administration 🏼 😽	Management Domain: 📴 🚽 🚽 Licensed to Cisco System	5
onfiguration: Domain Management Admin Utilities	System Security	
igmin utilities System Security Iser Management Discovery	Primary TACACS server info must be configured. Secondary is optional.	
Device Configuration Slobal Polling Configuration Iddress Management	Primary TACACS Server	
1ulticast Manager	Primary TACACS Key Primary TACACS Port 49	
test2 - 10 multicast evices:	Secondary TACACS Server	
<u>s1-7206-w1</u> s1-7206-w2	Secondary TACACS Port 49	
<u>s1-7606-c1</u> s1-7606-c2	Enable	
s1-7606-c3	TACACS is now disabled	
s1-7606-o4		
es1-7606-d1		
es1-7606-d2		
	Second intranet	

User Management

The CMM provides two privilege levels: user and admin. You need an administrator account to configure multicast domains, run discovery, create users, create health checks, and use the **Admin Utilities** functions.

You can configure users and passwords using the User Management pages:

- Manage Users
- Change Password

Figure 1-7 Manage Users—User Configuration

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Cisco Tool Administration	Management Domain: IPmcLeb 🔍	CISCO SYSTEMS
Tool: Administration		Licensed to Cisco Systems
Domain Management Admin Utilities System Security User Management - Manage Users - Change Password Discovery Device Configuration Global Polling Configuration Address Management Multicast Manager IPmcLab - 12 multicast devices: P2-7206-1 P2-7206-2 P2-ntv-3 P2-ntv-3 P2-ntv-4 P3-7206-1 P3-7206-2 P3-7206-2	User Configuration User ID Description Priv Level Remove admin admin Delete Add User User ID Description Priv Level @user @admin Password Verify Add	
P3-msfc-1		
<u>P3-msfc-2</u> <u>P3-msfc-2</u> ▼		

To add a new user:

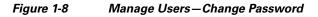
- **Step 1** Enter the user ID.
- **Step 2** (Optional) Enter a description.
- **Step 3** Choose the appropriate privilege level, **user** or **admin**.
- **Step 4** Enter the password into the **Password** and **Verify** boxes.
- Step 5 Click Add.

Clicking on the User ID link in the table allows you to edit the user's description. Click **Delete** to delete a user (only an administrator can delete users).



The admin user account cannot be deleted.

Users can change their password by clicking Change Password.



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Cisco Tool Administration		CISCO SYSTEMS
	Management Domain: IPmcLab 💌	Licensed to Cisco Systems
Configuration:	Change Password	
Domain Management		
Admin Utilities	User ID	
System Security		
User Management - Manage Users	Old Password	
- Manage Users - Change Password		
- Change Password Discovery	New Password Verify	
Discovery Device Configuration		
Global Polling Configuration	Change Password	
Address Management		
Multicast Manager		
Route Manager	-	
IPmcLab - 12 multicast		
devices:		
P2-7206-1		
P2-7206-2		
P2-ntv-1		
P2-ntv-2		
DO at a		
P2-ntv-3		
P2-ntv-4		
<u>F2-100-4</u>		
<u>P3-7206-1</u>		
P3-7206-2		
<u>P3-msfc-1</u>		
P3-msfc-2		
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To change your password:

- **Step 1** Enter your user ID.
- **Step 2** Enter your old password.

**Step 3** Enter your new password in the **Password** and **Verify** boxes.

Step 4 Click Change Password.

## **Device Configuration**

Using the Device Configuration page, you can change the SNMP read key of a single device. Select a **Router** or **Switch**, then click **Edit Parameters**.

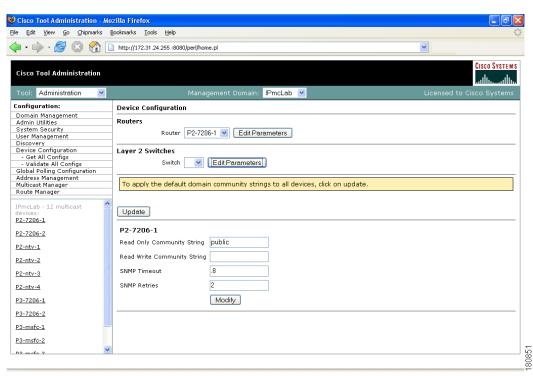


Figure 1-9 Device Configuration – Edit Parameters

### **Downloading Router Configurations**

You can download the router configuration for each router in the database to the CMM. Under the Device Configuration menu at left, click **Get All Configs**.

If you entered the SNMP write key for the router when you set up the domain, CMM can download and display configuration files for the router.



To use this option, TFTP must be enabled on the server, and the SNMP read-write community string must be supplied. See the *Installation Guide for the Cisco Multicast Manager*.

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Cisco Tool Administration		Cisco Systems tillutillu
Tool: Administration 💌	Management Domain: IPmcLab 💌	Licensed to Cisco Systems
Configuration:	Get All Configs	
Domain Management	Retrieving All Router Configurationsthis may take some time.	
Admin Utilities System Security	Receiving His result. Configurations may take some time.	
System Security User Management	Getting config from P2-7206-1 Display Config	
Discovery	Getting config from P2-7206-2 Display Config	
Device Configuration	Getting config from P2-ntv-1 <u>Display Config</u> Getting config from P2-ntv-2 Display Config	
- Get All Configs	Getting config from P2-ntv-2 <u>Display Config</u> Getting config from P2-ntv-3 Display Config	
- Validate All Configs	Getting config from P2-ntv-4 <u>Display Config</u>	
Global Polling Configuration	Getting config from P3-7206-1 Display Config	
Address Management	Getting config from P3-7206-2 Display Config	
Multicast Manager	Getting config from P3-msfc-1 Display Config	
Route Manager	Getting config from P3-msfc-2 <u>Display Config</u> Getting config from P3-msfc-3 <u>Display Config</u>	
Paralaha da andriana	Getting config from P3-msfc-4 Display Config	
IPmcLab - 12 multicast devices:	Finished	
P2-7206-1		
P2-7206-2		
P2-ntv-1		
P2-ntv-2		
<u>2-ntv-3</u>		
P2-ntv-4		
P3-7206-1		
P3-7206-2		
P3-msfc-1		
P3-msfc-2		

Figure 1-10 Get All Configs

This process may take some time, depending on the number of routers in the current domain.

### Validating Router Configurations

Using the CMM, you can verify if IOS commands exist on a router, either globally, or on a single interface. Router configurations for a domain are verified against a template. Several sample templates are included with the application, or you can create a user-defined template, which must be a text (.txt) file containing a list of IOS commands to check. For example, to check for global commands, start the text file with the word "global." To check interface commands as well, add the word "interface" and so on. You can check for global and interface at the same time, as in the example:

```
GLOBAL
service timestamps log datetime msec localtime show-timezone
service password-encryption
logging
no logging console
no ip source-route
ip subnet zero
ip classless
INTERFACE
ip pim-sparse-mode
```

To select a template and initiate validation:

Note

Before you can initiate validation, TFTP must be enabled on the server, and the SNMP read-write community string must be configured in the CMM.

- **Step 1** Under the **Device Configuration** menu, click **Validate All Configs**. The Configuration Check page opens.
- **Step 2** Ensure the correct Management Domain is selected.
- **Step 3** If you want to upload a user-defined template:
  - **a.** Click **Browse**. Open the text (.txt) file you created.
  - **b.** Click **Upload**. The user-defined text file appears in the list below.
- **Step 4** Select the template you want to use from the list.
- **Step 5** (Optional) Click **View** to see the contents of each template.
- Step 6 Click Check.

#### Figure 1-11 Configuration Check

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onfiguration:	Configuration Check	
Oomain Management Admin Utilities	Upload Configuration Template	
System Security	Browse	
Jser Management		
)iscovery	Upload	
evice Configuration		
- Get All Configs	Select/View Template For Config Verification	
- Validate All Configs	rcv.config 🔽 Check View	
lobal Polling Configuration		
ddress Management		
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mcLab - 12 multicast	•	
evices:		
2-7206-1		
2-7206-2		
2-ntv-1		
<u>z-ntv-1</u>		
2-ntv-2		
2-ntv-3		
0		
2-ntv-4		
3-7206-1		
<u></u>		
3-7206-2		
3-msfc-1		
3-msfc-2		
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The CMM checks each router in the database for the existence of the commands in the template you specified. Output looks similar to Figure 1-12.



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# **Global Polling Configuration**

You can configure each polling element to start and stop at specific times. Each element also has their own polling intervals. You can configure these values through the Global Polling Configuration page.



You must restart the polling daemon after making changes in this page.

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Domain Management		The polling daemor	n must be	restarte	d after m	naking c	hanges or	n this scr	een.				
Admin Utilities	- L												
System Security	- n	olling Intervals an											
Jser Management	P	oning intervals an		ies									
Discovery	۰.												_
Device Configuration	- 1									M			
Global Polling Configuration	- 1				Start Ti	me	Stop Tin	ne	Days	Max Threads	Max Davs	Max Reports	
- Domain Trap/Email Address Management	11									Inicaus	Days	Reports	
Address Management Multicast Manager	11	Default Run Times	Use De	efaults	00 🔽	: 00 🔽	23 🗸	: 59 🗸	M-F 😽				
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		DR Polling Interval	5	Min 🔽	00 🗸	: 00 🗸	23 🗸	59 🗸	M-F 😽				
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gtest2 - 10 multicast		1110011101											
devices:		RP/SG Cache Polling Interval	3	Min 🔽	00 🗸	. nn 🗸	23 🗸	59 🗸	M-F 😽	10 🗸			
<u>es1-7206-w1</u>				141111	00	: 00	23	: 33		10			
es1-7206-w2		RP Status Polling	<u> </u>	Min 🔽	00 🗸	. 🔟 🗸	23 🗸	59 🗸	M-F 🖌				
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es1-7606-c1		RPF Failure Polling Interval	-										
		Interval	3	Min 🎽	00 🚩	: 00 🚩	23 🌱	: 59 🌱	Everyday 🌱				
es1-7606-c2		Threshold Polling											
		Interval	1	Min 🎽	00 💙	; 00 💙	23 💙	; 59 💙	M-F 💙				
es1-7606-c3													
-1 7/0/ -1		Multicast Topology Rolling Interval	24	Hrs 🗸	04 🗸	. 00 🗸	07 🗸	. 00 🗸	M-F 🗸 🗸				
es1-7606-04													
es1-7606-d1		Tree Polling Interval	2	Min 🐱	00 🗸	. 00 🗸	23 🗸	59 🗸	M-F 💌				
		Interval	-	ann 🔝	00	: 00	E3 👔	: 00 🛃	Lot 1				
es1-7606-d2			Set										
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Figure 1-13 Global Polling Configuration

The Global Polling Configuration page contains:



Setting any one of these values to be less than 1 disables that specific polling feature.

Field or Button	Description
Refresh Status	The status line indicates how long the polling daemon has been running and how it was started. Click <b>Refresh Status</b> to update the status information.
Start	Starts the polling daemon globally.
Stop	Stops the polling daemon globally.
Restart	Restarts the polling daemon globally. Each time you change a polling interval, click <b>Restart</b> .
Default Run Times—Use Defaults	Selecting the Use Defaults checkbox sets all the start/stop times and days to the default values.
DR Polling Interval	Checks the status of all DRs in the network. If a user changes a DR, an SNMP trap is sent.
Layer 2 Polling Interval	Amount of time between polling of the Layer 2 ports.

Field or Button	Description
<b>RP/SG Cache Polling Interval</b>	For certain CMM data, such as the data within the Multicast Diagnostics page (see the "Show All Groups" section on page 1-61) the CMM queries each RP, collates a list of active sources, and groups and displays them. There are 2 ways the CMM can accomplish this: dynamically when the command is entered, or the CMM can build a cache of this information, and when the command is entered, the cache is queried. Caching is enabled on the System Configuration page (see the "Domain Management" section on page 1-9) and the RP/SG Cache Polling Interval is the time period that this cache is refreshed.
	Deciding whether caching should be turned on depends upon the number of RPs, sources, and groups. If the Multicast Diagnostics page takes a while to display all groups, you may want to turn caching on.
	The <b>Max Threads</b> value controls how many devices are queried simultaneously. Values can be 1-10. Queries used for RP/SG Cache Polling are SNMP getbulk queries that can potentially return large amounts of data. To address timeouts, you can reduce the number of Max Threads and/or adjust the SNMP timeout and retry values on the System Configuration page (see the "Domain Management" section on page 1-9).
<b>RP Status Polling Interval</b>	RP Status Polling queries the sysUpTime of the RPs configured on the RP Polling Configuration page (see the "RP Polling" section on page 1-28).
	The purpose of this query is to report availability of the RPs. If the RP responds, an <i>rpReachable</i> trap is sent. If the RP does not respond, an <i>rpUnreachable</i> trap is sent. Since at least one of these traps is sent at each polling interval, you can also use them to ensure that the polling daemon is up and running.
<b>RPF Failure Polling Interval</b>	Time interval that each router will be polled for each source and group configured to check the number of RPF failures.
Threshold Polling Interval	Time interval that each router will be polled for the existence of each source and group configured, and CMM will ensure that no thresholds are exceeded.

Field or Button	Description
Multicast Topology Polling Interval	Topology polling queries the sysUpTime of each router in the multicast domain to see if it has been reloaded. If it has, the polling daemon launches a Single Router Discovery of that device in the background, to ensure the SNMP <i>ifIndexes</i> have not changed.
Tree Polling Interval	Time interval that the monitored trees are drawn and compared with their baselines.
Set	Sets the values you enter.

You can enable or disable the continuous sending of PPS threshold traps using the **Enable Rising/Falling and Normalized Traps for Thresholds** section:

- If the **Rising/Falling** option is not checked (disabled), traps are sent whenever the PPS rate for a monitored S,G exceeds specified thresholds.
- If the **Rising/Falling** option is checked (enabled), a trap is sent only when the PPS rate initially exceeds the high or low threshold. Once the PPS rate returns to the specified range, a normalized threshold trap is sent.
- Since SNMP v1 traps are sent unreliably, you can set the **Trap-Repeat** option to allow the initial and normalized traps to be sent anywhere from 1 to 5 times when an event occurs.

You can add or remove trap receivers using the **Configure Global Default SNMP Trap Receivers** section. The SNMP trap receivers specified here are only used if domain-specific SNMP trap receivers are not specified. Domain-specific trap receivers are specified from the Trap Receiver/Email Polling Configuration page (see the "Configuring Domain-Specific Trap Receivers and Email Addresses" section on page 1-26).

You can add or remove Email addresses using the Configure Global Default Email Addresses for Event Notification section. Email addresses are notified of SSG exceptions and threshold and existence events. The Email addresses specified here are only used if domain-specific Email addresses are not specified. Domain-specific Email addresses are specified from the Trap Receiver/Email Polling Configuration page (see the "Configuring Domain-Specific Trap Receivers and Email Addresses" section on page 1-26).

### **Configuring Domain-Specific Trap Receivers and Email Addresses**

You can configure the CMM to send domain-specific SNMP trap receivers or emails. Under the **Global Polling Configuration** menu at left, click **Domain Trap/Email**. The Trap Receiver/Email Polling Configuration page appears.

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Cisco Tool Administration	Cisco Systems Management Domain: IPmcLab  Licensed to Cisco Systems
Configuration:	Trap Receiver/Email Polling Configuration for IPmcLab Domain
Domain Management Admin Utilities	(Polling Daemon is Running since Thu Aug 3 09:38:51 EDT 2006 by watchdog script ) Refresh Status
System Security	
User Management	Start Stop Restart
Discovery	
Device Configuration	The polling daemon must be restarted after making changes on this screen.
Global Polling Configuration	
- Domain Trap/Email Address Management	Configure Domain Specific SNMP Trap Receivers
Multicast Manager	Add Trap Receiver Configured Trap Receivers
Route Manager	
	Add Trap Receiver Remove Trap Receiver
IPmcLab - 12 multicast devices:	These values will override the global defaults.
<u>P2-7206-1</u>	Configure Domain Specific Email Addresses for Event Notification
. <u>P2-7206-2</u>	Add Email Address Configured Email Addresses
· <u>P2-ntv-1</u>	Add Email Address 🛛 🕙 Remove Email Address
· <u>P2-ntv-2</u>	
. <u>P2-ntv-3</u>	These values will override the global defaults.
· <u>P2-ntv-4</u>	The settings on this screen are domain specific. The values specified on this screen will override any trap
· <u>P3-7206-1</u>	receivers or email settings configured on the global polling configuration screen. If trap receivers and/or email addresses are not specified here, then the values from the global polling configuration will be used.
- <u>P3-7206-2</u>	
• <u>P3-msfc-1</u>	
P3-msfc-2	

#### Figure 1-14 Trap Receiver/Email Polling Configuration

You can add or remove trap receivers using the **Configure Domain Specific SNMP Trap Receivers** section. The SNMP trap receivers specified here are only used if global SNMP trap receivers are not specified. Global trap receivers are specified from the Configure Global Default SNMP Trap Receivers page (see the "Global Polling Configuration" section on page 1-23).

You can add or remove Email addresses using the **Configure Domain Specific Email Addresses for Event Notification** section. Email addresses are notified of SSG exceptions and threshold and existence events. The Email addresses specified here are only used if global Email addresses are not specified. Global Email addresses are specified from the Configure Global Default SNMP Trap Receivers page (see the "Global Polling Configuration" section on page 1-23).

## **Address Management**

Using the Address Management page, you can enter multicast group and source addresses into the database with a description. When the CMM displays these sources and groups, the descriptions will be added for easy recognition.

The database is pre-populated with all of the reserved address space.

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er Management	(from)		Mask Description	
scovery	(,			
vice Configuration				
obal Polling Configuration	_	Add Delete	Query Display Database Clear Field:	s
dress Management Iticast Manager				
ute Manager	-	Address	Description	
	1	224.0.0.0	Base Address (Reserved) [RFC1112,JBP]	
		224.0.0.1	All Systems on this Subnet [RFC1112,JBP]	
	-	224.0.0.10	IGRP Routers [Farinacci]	
ncLab - 12 multicast		224.0.0.101	cisco-nhap [Bakke]	
vices:		224.0.0.102	HSRP [Wilson]	
7200 1		224.0.0.103	MDAP [Deleu]	
-7206-2		224.0.0.104	Nokia MC CH [Kalhour]	
-ntv-1		224.0.0.105	ff-lr-address [Glanzer]	
-110-1		224.0.0.106-224.0.0.250	Unassigned [JBP]	
ntv-2		224.0.0.11	Mobile-Agents [Bill Simpson]	
atu 2		224.0.0.12	DHCP Server / Relay Agent [RFC1884]	
-ntv-3		224.0.0.13	All PIM Routers [Farinacci]	
-ntv-4		224.0.0.14	RSVP-ENCAPSULATION [Braden]	
		224.0.0.14	all-cbt-routers [Ballardie]	
<u>-7206-1</u>		224.0.0.15	designated-sbm [Baker]	
-7206-2				
_		224.0.0.17	all-sbms [Baker]	
-msfc-1		224.0.0.18	VRRP [Hinden]	
-msfc-2		224.0.0.19	IPAIIL1ISs [Przygienda]	
		224.0.0.2	All Routers on this Subnet [JBP]	

Figure 1-15 Address Management

## **Multicast Manager**

The Multicast Manager contains:

- RP Polling, page 1-28
- RPF Polling, page 1-32
- SG Polling—Main, page 1-33
- SG Polling—by Device, page 1-36
- L2 Polling, page 1-37
- Tree Polling, page 1-38
- Health Check, page 1-41

## **RP Polling**

Using the RP Polling Configuration page, you can enable the CMM to:

- 1. Monitor and report all leaves and joins
- 2. Set a threshold on the number of groups that can join an RP if this is exceeded, a trap is sent
- 3. Find out if a specific RP is available
- 4. Create a list of all acceptable sources and groups and send a trap if any rogue sources or groups appear on the RP

# Note

RP availability is configured within the Global Polling Configuration page (see the "Global Polling Configuration" section on page 1-23). A trap is sent if an RP becomes unavailable, and a report is generated within the RP Polling Report page (see the "RP Polling Report" section on page 1-49).

🕲 Cisco Tool Administration - Mozilla Firefox Eile Edit Yiew Go Chipmarks Bookmarks Iools Help • 🛶 - 🛃 区 🏠 🗋 http://172.31.24.255 :8080/perl/home.p ~ CISCO SYSTEMS Cisco Tool Administration ահր Tool: Administration Management Domain: IPmcLab 💌 Configuration: Domain Management Admin Utilities System Security User Management Discovery Device Configuration Global Polling Configuration Address Managern Hulticast Manager - RP Polling - RP Polling - SG Polling - Main - SG Polling - Main - SG Polling - by Device - L2 Polling - Tree Polling - Tree Polling - Tree Polling - Tree Polling Configuration: RP Polling Configuration for IPmcLab Domain olling Daemon is Running since Thu Aug 3 09:38:51 EDT 2006 by watchdog script ) Refresh Status Start Stop Restart The polling daemon must be restarted after making changes on this screen Enable RP Group Add Delete Traps Enable RP Add/Delete Traps Set **RP** Monitoring Select RP 💌 Group Limit -1 Monitor RP RPs Being Monitored RP Group Limit Accept-List Remove - Health Chec Route Manager P3-7206-1 -1 ncLab - 12 multicast Configure Delete Configure Configure P2-7206-1 100 Delete P2-7206-1 P2-ntv-4 -1 Delete P2-7206-2 P3-7206-1 -1 Configure Delete P3-msfc-1 -1 P3-msfc-2 -1 Configure Delete P2-ntv-1 Configure Delete <u>P2-ntv-2</u> P3-msfc-3 -1 Configure Delete P3-msfc-4 -1 Configure Delete P2-ntv-3 P2-ntv-2 50 Configure Delete P2-ntv-3 35 Configure Delete <u>P2-ntv-4</u> P2-ntv-1 22 Configure Delete P3-7206-1 Single S,G Monitoring <u>P3-7206-2</u> 80475

Figure 1-16 RP Polling Configuration

The RP Polling Configuration page contains:

Fields and Buttons	Description
Refresh Status	The status line indicates how long the polling daemon has been running and how it was started. Click <b>Refresh Status</b> to update the status information.
Start	Starts the polling daemon globally.
Stop	Stops the polling daemon globally.
Restart	Restarts the polling daemon globally. Each time you change a polling interval, click <b>Restart</b> .
Enable RP Group Add Delete Traps	Click the checkbox to monitor all leaves and joins, which are then reported within the RP Polling Report page (see the "RP Polling Report" section on page 1-49).

Fields and Buttons	Description
RP Monitoring	To monitor an RP, select the RP from the box.
	To monitor a specific number of groups, enter a number in the <b>Group Limit</b> box.
	Click Monitor RP.
	If the group limit is exceeded, a report is generated within the RP Group Threshold Report page (see the "RP Group Threshold Report" section on page 1-50).
<b>RPs Being Monitored</b>	Lists:
	• <b>RP</b> —The name of the RP being monitored
	• <b>Group Limit</b> —Number of groups being monitored for that RP.
	• Accept-List—Monitors the sources and groups active on the RP (see the "RP Accept List Configuration" section on page 1-31).
	• <b>Remove</b> —Deletes the RP.
Single S, G Monitoring	Enter the group IP address. If more than one source becomes active for this group, a report is generated.

### **RP Accept List Configuration**

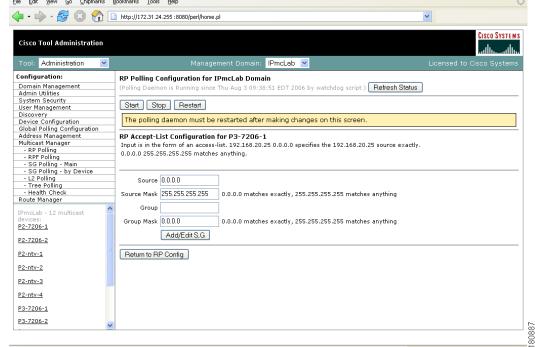
The RP Accept List Configuration section lets you monitor the active sources and groups on a specific RP.

🕲 Cisco Tool Administration - Mozilla Firefox Eile Edit Yiew Go Chipmarks Bookmarks Tools Help 🔶 • 🛶 - 🥰 💿 🏠 🗋 http://172.31.24.255 :8080/perl/home.pl ~ CISCO SYSTEMS Cisco Tool Administration лU Administration IPmcLab 🔽 Configuration: Configuration: Domain Management Admin Utilities System Security User Management Discovery Device Configuration Global Polling Configuration Address Manager - RPF Polling - RPF Polling - SG Polling - by Device - L2 Polling - Tree Polling - Heatth Check Route Manager RP Polling Configuration for IPmcLab Domain 8:51 EDT 2006 by watchdog script ) Refresh Status Start Stop Restart The polling daemon must be restarted after making changes on this screen. RP Accept-List Configuration for P3-7206-1 Input is in the form of an access-list. 192.168.20.25 0.0.0.0 specifies the 192.168.20.25 source exactly 0.0.0.0 255.255.255 matches anything. Source 0.0.0.0 Source Mask 255.255.255.255 0.0.0.0 matches exactly, 255.255.255.255 matches anything Group PmcLab - 12 multicast Group Mask 0.0.0.0 0.0.0.0 matches exactly, 255.255.255.255 matches anything P2-7206-1 Add/Edit S,G P2-7206-2 P2-ntv-1 Return to RP Config P2-ntv-2 P2-ntv-3 <u>P2-ntv-4</u> <u>P3-7206-1</u> P3-7206-2

Figure 1-17 **RP Accept List Configuration** 

The RP Accept List Configuration section contains:

Fields and Buttons	Description
Source	Enter the sources that are allowed to appear on this RP.
Source Mask	Enter the source mask.
Group	Enter the groups that are allowed to appear on this RP.
Group Mask	Enter the group mask.
Add/Edit S,G	Click to save your changes.
Return to RP Config	Click to return to the RP Polling Configuration page.



## **RPF** Polling

Using the CMM, you can monitor RPF failures for a particular source and group on any selected router.

If any monitored source and group begins to experience RPF failures that rise above the delta, then SNMP traps can be sent, and a report generated, which you can view under RPF Failures (see the "RPF Failures" section on page 1-51).

You can select the source and group from the list, or you can enter them manually. If there are a lot of sources and/or groups, you can use the filter option, to ensure you are selecting an S,G that actually exists in the network. The filter option displays only the sources for a selected group, or only the groups for a selected source. To reset the lists, click **Reset S,G Lists**.

Figure 1-18 RPF Failure Polling Configuration

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Cisco Tool Administration	Cisco Systems antifucantifuc
Tool: Administration 💌	Management Domain: IPmcLab 💌 Licensed to Cisco Systems
Configuration:	RPF Failure Polling Configuration for IPmcLab domain
Domain Management	(Polling Daemon is Running since Thu Aug 3 09:38:51 EDT 2006 by watchdog script ) Refresh Status
Admin Utilities	
System Security	
User Management	Start Stop Restart
Discovery	
Device Configuration	The polling daemon must be restarted after making changes on this screen.
Global Polling Configuration	
Address Management	Source/Group Selection
Multicast Manager	Source 0.0.0 Filter Groups
- RP Polling	Source 0.0.0. Filter Groups
- RPF Polling	0.0.0 👻
- SG Polling - Main	0.0.0
- SG Polling - by Device	Group Filter Sources
- L2 Polling	
- Tree Polling	224.0.1.39 🔽
- Health Check	
Route Manager	RESET SG LISTS
IPmcLab - 12 multicast devices:	Router P2-7206-1 💌
P2-7206-1	Delta
101200 1	
P2-7206-2	
	Apply Refresh Cache
P2-ntv-1	
	Display Filter Options
P2-ntv-2	Source Group Router
	Lisource Ligroup Likouter
P2-ntv-3	
	Display RPF Polling Config
P2-ntv-4	
D2 7306 1	
<u>P3-7206-1</u>	
P3-7206-2	
<u>P3-7206-2</u>	

The RP Failure Polling Configuration page contains:

Fields and Buttons	Description				
Refresh Status	The status line indicates how long the polling daemon has been running and how it was started. Click <b>Refresh Status</b> to update the status information.				
Start	Starts the polling daemon globally.				
Stop	Stops the polling daemon globally.				
Restart	Restarts the polling daemon globally. Each time you change a polling interval, click <b>Restart</b> .				

Fields and Buttons	Description			
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.			
Router	Enter the router name.			
Delta	Number of RPF failures per sampling period that trigger a report.			
Apply	Applies and saves the changes.			
Refresh Cache	Click <b>Refresh Cache</b> to refresh the table of sources and groups.			

### SG Polling—Main

Using the CMM, you can poll sources and groups with high and low thresholds.

You can select the source and group from the list, or you can enter them manually. If there are a lot of sources and/or groups, you can use the filter option, to ensure you are selecting an S,G that actually exists in the network. The filter option displays only the sources for a selected group, or only the groups for a selected source.

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Tool: Administration 💌	Management Domain: IPmcLab 💌 Licensed to Cisco Systems	
Configuration:           Domain Management           Admin Utilities           System Security           User Management           Discovery           Device Configuration           Global Polling Configuration           Address Management           Multicast Manager           - RPF Polling           - SG Polling - by Device           - SG Polling - by Device           - L2 Polling	SG Polling Configuration for IPmcLab domain         (Polling Daemon is Running since Thu Aug 3 09:38:51 EDT 2006 by watchdog script )         Refresh Status         Start         Stop         Restart         The polling daemon must be restarted after making changes on this screen.         Source/Group Thresholds         Source       0.0.0         Group       Filter Groups         Group       Filter Sources	
Health Check     Route Manager     Health Check     Route Manager     IPmcLab - 12 multicast     devices:     P2-7206-2     P2-ntv-1     P2-ntv-2     P2-ntv-3     P2-ntv-3     P2-ntv-4     P3-7206-1	224.0.1.39 ▼ RESET SO LISTS Select Routers P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2 P2-7206-2	
<u>P3-7206-2</u>	Display Filter Options	>00070

Figure 1-19 SG Polling Configuration

The SG Polling Configuration page contains:

Fields and Buttons	Description			
Refresh Status	The status line indicates how long the polling daemon has been running and how it was started. Click <b>Refresh Status</b> to update the status information.			
Start	Starts the polling daemon globally.			
Stop	Stops the polling daemon globally.			
Restart	Restarts the polling daemon globally. Each time you change a polling interval, click <b>Restart</b> .			
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.			
Select Routers	Enter the router name.			

Fields and Buttons	Description
Units	Select either packets per sampling period (pps) or bits per sampling period (bps).
High Threshold	Enter the high threshold that, if exceeded, generates a report.
Low Threshold	Enter the low threshold that, if exceeded, generates a report.
Apply	Applies and saves the changes.
Refresh Cache	If you are using S,G caching, the cache contents appear. Click <b>Refresh Cache</b> to refresh the table of sources and groups.
Display Filter Options	You can filter the list of monitored sources and groups by limiting to source, group, and/or router.
Display Configured SGs	Displays all the sources and groups you are currently monitoring (see the "Current Source/Group Polling Configuration" section on page 1-35).

## **Current Source/Group Polling Configuration**

The Current Source/Group Polling Configuration section displays all the sources and groups you are currently monitoring.

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Admin Utilities									
System Security		efresh Cache							
Jser Management	Apply	eiresri Cache							
Discovery	Display Filte	r Options							
Device Configuration Global Polling Configuration									
Address Management	Source	Group 🗖 Router							
fulticast Manager		<u> </u>							
- RP Polling	Display Cor	figured SGs							
- RPF Polling									
- SG Polling - Main		rce/Group Polli						-	
- SG Polling - by Device	<u>Source</u>	Group	Router			Units	,		
- L2 Polling - Tree Polling	0.0.0.0	239.0.0.1	P2-ntv-3	100	10	pps	Edit / Delete Time-based Thresho	<u>ilds</u>	
- Tree Polling - Health Check	0.0.0.0	239.0.0.1	P2-ntv-1	100	10	pps	Edit / Delete Time-based Thresho	ilds	
Route Manager	0.0.0	239.0.0.1	P2-ntv-2	100	10	pps	Edit / Delete Time-based Thresho	ilds	
	0.0.0.0	239.0.0.1	P2-ntv-3	1000	10	DDS	Edit / Delete Time-based Thresho	ilds	
PrncLab - 12 multicast	0.0.0.0	239.0.0.1	P2-ntv-1	1000	10	DDS	Edit / Delete Time-based Thresho	lds	
P2-7206-1	0.0.0.0	239.0.0.1	P2-ntv-2		10	DDS	Edit / Delete Time-based Thresho		
2 1 2 00 1							Edit / Delete Time-based Thresho		
2-7206-2	0.0.0.0	239.0.0.1	P2-ntv-2		2	pps			
	0.0.0.0	239.0.0.1	P3-msfc-4		10	pps	Edit / Delete Time-based Thresho		
2-ntv-1	0.0.0	239.0.0.1	P2-ntv-4		3	pps	Edit / Delete Time-based Thresho		
2-ntv-2	0.0.0	239.0.0.1	P3-msfc-4	100	10	pps	Edit / Delete Time-based Thresho	<u>lds</u>	
<u> 2 1107 2</u>	0.0.0.0	239.0.0.1	P3-msfc-3	100	10	pps	Edit / Delete Time-based Thresho	lds	
2-ntv-3	0.0.0.0	239.0.0.1	P2-ntv-2	10000	10	pps	Edit / Delete Time-based Thresho	lds	
	0.0.0.0	239.0.0.1	P3-msfc-3		2	DDS	Edit / Delete Time-based Thresho		
22-ntv-4	0.0.0.0	239.0.0.1	P2-ntv-4		-	DDS	Edit / Delete Time-based Thresho		
93-7206-1	0.0.0.0	239.0.0.1	P2-ntv-4				Edit / Delete Time-based Thresho		
-3-7200-1						pps			
P3-7206-2	0.0.0	239.0.0.1	P2-ntv-4		10	pps	Edit / Delete Time-based Thresho		
	0.0.0.0	239.0.0.1	P2-ntv-2	1000	10	pps	Edit / Delete Time-based Thresho	ilds	~

Figure 1-20 Current Source/Group Polling Configuration

The **Current Source/Group Polling Configuration** section shows you all monitored sources and groups in a tabular format.

- Under the **Modify** column, you can edit or delete a specific source and group.
- Under the **Time Threshold** column, click on **Time-Based Thresholds** to configure up to 50 different time of day high and low thresholds for each source and group. Click the **Set Thresholds** button to save your changes.

Each time a source and group exceeds a threshold, a trap is sent and a report is generated.

### SG Polling—by Device

You can select a particular router using the The Device SG Polling Configuration page, and you can configure which sources and routers to monitor on the specific device.

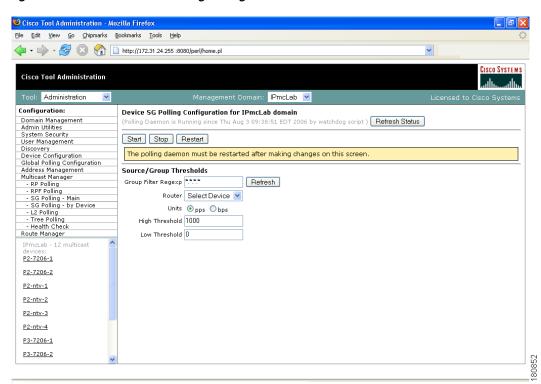


Figure 1-21 Device SG Polling Configuration

The Device SG Polling Configuration page contains:

Fields and Buttons	Description
Refresh Status	The status line indicates how long the polling daemon has been running and how it was started. Click <b>Refresh Status</b> to update the status information.
Start	Starts the polling daemon globally.
Stop	Stops the polling daemon globally.

Fields and Buttons	Description		
Restart	Restarts the polling daemon globally. Each time you change a polling interval, click <b>Restart</b> .		
Group Filter Regexp	Enter any part of the multicast address. Only those that match appear.		
Refresh	Clears the Group Filter Regexp previously entered.		
Router	Select the router name.		
Units	Select either packets per sampling period (pps) or bits per sampling period (bps).		
High Threshold	Enter the high threshold that, if exceeded, generates a report.		
Low Threshold	Enter the low threshold that, if exceeded, generates a report.		

### L2 Polling

You can add Layer 2 switches to the CMM individually, or you can import a list (see the "Adding Layer 2 Switches to Discovery" section on page 1-11). The CMM can monitor the total number of multicast packets inbound and/or outbound from any Layer 2 port.

You can also configure up to 50 different time of day thresholds for each port.

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	inch/liest ciminopoliticity/systemetry#
Cisco Tool Administration	Cisco Systems
Tool: Administration 💌	Management Domain: gtulumba 🗹 Licensed to Cisco Systems
Configuration:	L2 Polling Configuration for gtulumba domain
Domain Management	(Polling Deemon is Running since Mon Aug 14 11:06:49 2006) Refresh Status
Admin Utilities	
System Security	
User Management	Start Stop Restart
Discovery	
Device Configuration	The polling daemon must be restarted after making changes on this screen.
Global Polling Configuration	
Address Management	Laver 2 Switch Monitoring
Multicast Manager	
- RP Polling	Select Switch to Monitor Select Switch 💙
- RPF Polling	
- SG Polling - Main	Direction INBOUND 🗸
- SG Polling - by Device	
- L2 Polling	High PPS
- Interface Polling	
- Tree Polling	Low PPS
- Health Check	
	Select Port to Monitor
Search:	
gtulumba - 10 total	Add/Edit
device(s)	
es1-7206-w1	
	Import/Export
es1-7206-w2	Export Filename: Export
	Innert Filenand
es1-7606-c1	Import Filename: O Merge O Replace Import
es1-7606-c2	Current Layer 2 Switch Polling Configuration
	Switch Port Direction High Low Modify Time Threshold
es1-7606-c3	
	es1-3750-a4 Gi1/0/1 INBOUND 100 90 Edit / Delete Time-based Thresholds
es1-7606-c4	es1-3750-a4 Gi1/0/2 INBOUND 100 90 Edit / Delete Time-based Thresholds
	es1-3750-a4 Gi1/0/7 INBOUND 100 90 Edit / Delete Time-based Thresholds
es1-7606-d1	es1-3750-a4         Gi1/0/2         INBOUND         100         90         Edit / Delete         Time-based Thresholds           es1-3750-a4         Gi1/0/7         INBOUND         100         90         Edit / Delete         Time-based Thresholds
	1

#### Figure 1-22 L2 Polling Configuration

The L2 Polling Configuration page contains:

Fields and Buttons	Description		
Refresh Status	The status line indicates how long the polling daemon has been running and how it was started. Click <b>Refresh Status</b> to update the status information.		
Start	Starts the polling daemon globally.		
Stop	Stops the polling daemon globally.		
Restart	Restarts the polling daemon globally. Each time you change a polling interval, click <b>Restart</b> .		
Select Switch to Monitor	Select the name or IP address of the switch you want to monitor.		
Direction	Select either inbound packets received at this port, or outbound packets sent from this port.		
High PPS	Enter the high threshold that, if exceeded, generates a report.		
Low PPS	Enter the low threshold that, if exceeded, generates a report.		
Select Port to Monitor	Select the port to monitor. Ports appear in the following format: ifIndex:module/port.		
Add/Edit	Add the port you want to monitor, or from the list of ports, select edit to edit that entry.		

The **Current Layer 2 Switch Polling Configuration** section shows you all monitored switches and ports in a tabular format.

- Under the Modify column, you can edit or delete a specific switch and port.
- Under the **Time Threshold** column, click on **Time-Based Thresholds** to configure up to 50 different time of day high and low thresholds for each port. Click the **Set Thresholds** button to save your changes.

Each time a port exceeds a threshold, a trap is sent and a report is generated.

### **Tree Polling**

Before you can monitor a tree using the Tree Polling Configuration page, you must build a multicast tree and save it to the database as a baseline (see the "Show All Groups" section on page 1-61).

Once saved, the trees appear in the **Saved Trees** list of the Tree Polling Configuration page. To monitor a tree, select the tree name, and click Add. The tree is drawn in the background for every interval that you set up for tree polling (see the Global Polling Configuration, page 1-23). This tree is compared with the tree saved in the database. If it is different, a trap is sent, and a report generated.

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Configuration:	Tree Polling Config	uration for IPmcLab	domain					
Domain Management	(Polling Daemon is No	t Running) Refresh S	tatus					
Admin Utilities								
System Security	Start Stop F	estart						
User Management		(Column						
Discovery	The polling doomo	n must be restarted a	after making chap-	nes on this core	on			
Device Configuration	The poling daemo	in must be restarted a	arcer making chang	ges on ans sale	on.			
Global Polling Configuration Address Management	-							
Multicast Manager	Select Baseline							
- RP Polling	Saved Trees paul99.trace							
- RPF Polling	Javed nees paulos	Saved Trees paulos trace						
- SG Polling - Main	Add	Add						
- SG Polling - by Device								
- L2 Polling	Trees to be Polled							
- Tree Polling	Baseline	Source	Group	FHR	LHR	Monitor PPS	Remove	
- Health Check								
Route Manager	paul99.trace	10.0.1.1	224.0.1.39	SOURCE	ALL	<u>Configure</u>	<u>Delete</u>	
IPmcLab - 12 multicast devices: <u>P2-7206-1</u> <u>P2-7206-2</u> <u>P2-ntv-1</u>								
<u>P2-ntv-2</u>								
P2-ntv-3								
P2-ntv-4								
P3-7206-1								

#### Figure 1-23 Tree Polling Configuration

The Tree Polling Configuration page contains:

Fields and Buttons	Description
Refresh Status	The status line indicates how long the polling daemon has been running and how it was started. Click <b>Refresh Status</b> to update the status information.
Start	Starts the polling daemon globally.
Stop	Stops the polling daemon globally.
Restart	Restarts the polling daemon globally. Each time you change a polling interval, click <b>Restart</b> .
Saved Trees	Lists all the multicast tree baselines that have been saved.
Add	Adds the selected tree for monitoring.

#### **Trees to be Polled**

Using the Trees to be Polled table, you can:

- View tree details and topology by clicking on a tree name under **Baseline**
- Monitor for S,G (PPS) when a tree is polled, and generate SNMP traps for Max Delta deviations by clicking on **Configure** under **Monitor PPS**.

Figure 1-24 Tree Polling Configuration—Configure

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Tool: Administration 💌	Management Domain: IPmcLab 💌 Licensed to Cisco S	Systems
onfiguration: Domain Management Admin Utilities System Security User Management	Tree Polling Configuration for IPmcLab domain (Polling Daemon is Running since Tue Aug 15 07:45:57 2006) Refresh Status	
Discovery Discovery Global Polling Configuration Address Management Multicast Manager	Start Stop Restart	
- RP Polling - RPF Polling	The polling daemon must be restarted after making changes on this screen.	
- SG Polling - Main - SG Polling - by Device - L2 Polling - Tree Polling	Select Routers on Tree (1tree.trace) for S,G PPS Monitoring	_
- Health Check toute Manager	1372001	=
IPmcLab - 12 multicast devices: <u>P2-7206-1</u>	P3-mstc-2 P3-mstc-4	
<u>2-7206-2</u>	1 Specify Max Delta Between PPS Samples	
2 <u>-ntv-1</u>	Set Return to Main Config Remove	
2 <u>-ntv-2</u>		
2-ntv-3		
2-ntv-4	Routers selected here will be monitored for (S,G) PPS when the tree is polled. If the PPS rate on any router deviates by MAX Delta from the others, an SNMP trap will be generated.	
P3-7206-1		~

• Select a router(s) and specify a value in **Max Delta Between PPS Samples**, then click **Set**. To remove a router from monitoring, select the router and click **Remove**. You can also return to the main Tree Polling Configuration page.

۵. Note

You can select multiple routers by holding down the Ctrl key.

• Remove a tree by clicking on Delete under Remove

## **Health Check**

Health checks give you an immediate status update on several key multicast network indicators, including:

- Status of selected RPs
- MSDP status
- Existence of S,G entries on selected routers
- Status of multicast forwarding trees

You can create several health checks. Health checks run dynamically, meaning they must be user-initiated.

Figure 1-25 Health Check Configuration

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Cisco Tool Administration	Cisco Systems attitudes
Tool: Administration 💌	Management Domain: IPmcLab 💌 Licensed to Cisco Systems
Configuration:	Health Check Configuration for IPmcLab domain
Domain Management	
Admin Utilities	Create New Health Check Add
System Security	
User Management	Modify Existing Health Check IPmcLAB 🛛 Load Remove
Discovery	
Device Configuration	
Global Polling Configuration	
Address Management	
Multicast Manager	
- RP Polling	
- RPF Polling	
- SG Polling - Main	
- SG Polling - by Device	
- L2 Polling	-
- Tree Polling	-
- Health Check	-
Route Manager	4
IPmcLab - 12 multicast devices: <u>P2-7206-1</u>	
<u>P2-7206-2</u>	
<u>P2-ntv-1</u>	
<u>P2-ntv-2</u>	
P2-ntv-3	
<u>P2-ntv-4</u>	
<u>P3-7206-1</u>	
<u>P3-7206-2</u>	

The Health Check page contains:

Fields and Buttons	Description
Create New Health Check	Type a name for the health check.
Add	Adds a new named health check.
Modify Existing Health Check	Select the named health check you want to modify.

Fields and Buttons	Description		
Load	Loads an existing named health check for modification (see the "Modifying Health Checks" section on page 1-42).		
Remove	Deletes the health check selected in the <b>Modify</b> <b>Existing Health Check</b> box.		

#### **Modifying Health Checks**

The Health Check Configuration—Modification section lets you modify a selected health check.

Figure 1-26 Health Check Configuration—Modification

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Tool: Administration 💌	Management Domain:  PmcLab 🔽 Licensed to Cisco Systems
Configuration:	Health Check Configuration for IPmcLab domain
Domain Management Admin Utilities System Security User Management Discovery Device Configuration	Create New Health Check Add Modify Existing Health Check IPmcLAB CLoad Remove
Global Polling Configuration	(IPmcLAB.health) Health Check Configuration for IPmcLab domain
Address Management	(Phickab and an and a second an
Multicast Manager	Rendezvous Points
- RP Polling	Select RP to Check
- RPF Polling	
- SG Polling - Main - SG Polling - by Device	P2-7206-1 🖌 Add
- L2 Polling	RPs Being Checked
- Tree Polling	
- Health Check	RP MSDP Remove
Route Manager	P2-7206-1 Configure Delete
~	P2-ntv-1 Configure Delete
IPmcLab - 12 multicast devices:	
P2-7206-1	P3-7206-1 Configure Delete
1212001	P3-msfc-4 Configure Delete
<u>P2-7206-2</u>	Source/Group Thresholds
P2-ntv-1	Source 0.0.0.0 Filter Groups
<u>P2-ntv-2</u>	0.0.0
P2-ntv-3	Group Filter Sources
P2-ntv-4	224.0.1.39
<u>P3-7206-1</u>	RESET SG LISTS
<u>P3-7206-2</u>	RESET SG LISTS Router P2-7206-1

You can also check MSDP peering of the selected router by clicking **Configure** within the **RPs Being Checked** table.

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Cisco Tool Administration	Cisco Systems Attilization
Tool: Administration 💌	Management Domain: IPmcLab 🗹 Licensed to Cisco Systems
Configuration:	Health Check Configuration for IPmcLab domain
Domain Management Admin Utilities System Security User Management Discovery	Create New Health Check Add Modify Existing Health Check IPmcLAB  Load Remove
Device Configuration Global Polling Configuration	(IPmcLAB.health) P2-7206-1 MSDP Health Check Configuration
Address Management Multicast Manager - RP Polling - SG Polling - by Device - SG Polling - by Device - L2 Polling - Tree Polling - Tree Polling - Health Check Route Manager IPmcLab - 12 multicast devices; P2-7206-2 P2-7206-2 P2-ntv-2 P2-ntv-3 P2-ntv-4 P2-ntv-4	Select P2-7206-1 Peers to Check          :224.1.1.2         P3-7206-1:224.1.1.2         Set         Return to Main Config         Clear Selections
P3-7206-1 P3-7206-2	
	č

Figure 1-27 Health Check Configuration—Peers

Select the peers you want to check, then click **Set**. You are returned to the Health Check Configuration Modification page. Select the sources, groups and routers to check. To check the status of multicast trees, select the baseline under Forwarding Trees and click **Add**.

To run the actual health check, see the "Health Check" section on page 1-73.

# **Using the Multicast Manager Tool**

You can view or monitor data using the CMM Multicast Manager Tool, containing these web pages:

- Home, page 1-44
- Topology, page 1-44
- Reporting, page 1-48
- Diagnostics, page 1-60
- Help, page 1-79

# Home

The Home page shows the last 20 events (see the "Latest Events" section on page 1-49).

Figure 1-28 Multicast Manager Home Page

	lulticast Manager 2.3.3					<b>CISCO SYSTEMS</b>
ol: I				այրուսություն		
	Multicast Manager 🔽		Managemer	nt Domain: IPmcLab 🔽		sed to Cisco Systems
Hor	ne Topology	Reporting	Diagnostics	Help		
	<b>--</b>					
nest	Events	Date		Туре	Device	Details
3	Wed Aug 9 23:15:03 2006	Date		RP Timeout	P3-7206-1	
5	Wed Aug 9 23:15:03 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 23:00:02 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 23:00:02 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 22:45:02 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 22:45:02 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 22:30:03 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 22:30:03 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 22:15:02 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 22:15:02 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 22:00:03 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 22:00:03 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 21:45:02 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 21:45:02 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 21:30:03 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 21:30:03 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 21:15:02 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 21:15:02 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 21:00:03 2006			RP Timeout	P3-7206-1	
3	Wed Aug 9 21:00:03 2006			RP Timeout	P3-7206-1	
	Wed Aug 9 20:45:02 2006			RP Timeout	P3-7206-1	

# Topology

Using **Topology**, you can display routers and their multicast information in the database, on an individual basis, or by showing the complete database.

To see the complete database, click **Display All**. Router names appear at the top of each table.

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Cisco Multicast	Manager 2.3.	3								Cisco Sys	TEM S
Tool: Multicast	Manager 😽				nain: gtest2	>					ems
Home	Topology	Reporting	Diagnostics		Help						
Topology: Display All		Network Topology (F	PIM Neighbors)	using da		o.db (contains 10 dev - <b>7206-w1</b>	vices)				
		Local Int	Local IP	PIM Mode	IGMP Neighbor	Neighbor's Int	Neighbor IP	PIM Mode	IGMP	DR	
		GigabitEthernet0/1	172.31.24.255	sparse	es1-7606- c2	GigabitEthernet3/1	172.31.24.255	sparse		es1-7206-w 172.31.24.255	
		Serial4/1	172.31.24.255	sparse	es1-7206- w2	Serial4/1	172.31.24.255	sparse	2	N/A (0.0.0.0)	
		GigabitEthernet0/2	172.31.24.255	sparse	es1-7206- w2	GigabitEthernet0/1	172.31.24.255	sparse	2	es1-7206-w 172.31.24.255	
		Serial4/0	172.31.24.255	sparse	es1-7206- w2	Serial4/0	172.31.24.255	sparse	2	N/A (0.0.0.0)	
atest2 - 10 d	evices:				es 1	-7206-w2					
<u>es1-7206-w1</u>		Local Int	Local IP	PIM Mode	IGMP Neighbor	Neighbor's Int	Neighbor IP	PIM Mode	IGMP	DR	
<u>es1-7206-w2</u>		GigabitEthernet0/1	172.31.24.255	sparse	2 es1-7206- w1	GigabitEthernet0/2	172.31.24.255	sparse		es1-7206-w 172.31.24.255	
<u>es1-7606-c1</u>		Serial4/0	172.31.24.255	sparse	2 es1-7206- w1	Serial4/0	172.31.24.255	sparse		N/A (0.0.0.0)	
<u>es1-7606-c2</u>		Serial4/1	172.31.24.255	sparse	2 es1-7206- w1	Serial4/1	172.31.24.255	sparse		N/A (0.0.0.0)	
<u>es1-7606-c3</u>					es 1	-7606-c1					
<u>es1-7606-o4</u>		Local Int	Local IP	PIM Mode	IGMP Neighboi	· Neighbor's Int	Neighbor IP	PIM Mode	IGMP	DR	
<u>es1-7606-d1</u>	~	GigabitEthernet3/14	172.31.24.255	sparse	2 es1-7606- c3	GigabitEthernet3/14	172.31.24.255	sparse	2	es1-7606-c 172.31.24.255	~

Figure 1-29 Tope	ology Display A	II
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The Topology Display All page contains:

Field	Description
Local Int	Interfaces running multicast.
Local IP	IP address of the interfaces.
PIM Mode	PIM Mode, can be sparse or dense.
IGMP	IGMP version.
Neighbor	PIM neighbor name.
Neighbor's INT	PIM neighbor's interface.
Neighbor IP	PIM neighbor's IP address.
PIM Mode	PIM neighbor's mode, can be sparse or dense.
IGMP	IGMP version of PIM neighbor.
DR	DR information.

To see topology for an individual router, click a router from the list pane at lower left.

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Home Topology	Reporting	Diagnostics	Help					
ology:	Tanalanı Tafanını	ation for es1-7606-c2						^
play All		1000 TOP 851-7606-02	. when discovere	10				
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gtest2 - 10 devices:		Local Int GinabitEthernet3/42		ghbor	Neighb			
-		GigabitEthernet3/42	Nei es1-760 es1-760	ghbor 6-c3		5 GigabitEtherne	t3/42	
L-7206-w1			es1-760	ghbor 6-c3 6-sd1	Neighb 172.31.24.25	5 GigabitEtherne 5 GigabitEtherne	t3/42 t3/40	
L-7206-w1 L-7206-w2		GigabitEthernet3/42 GigabitEthernet3/40	es1-760 es1-760	ghbor 6-c3 6-sd1 6-c4	Neighb 172.31.24.25 172.31.24.25	5 GigabitEtherne 5 GigabitEtherne 55 GigabitEtherne	t3/42 t3/40 t3/14	
L-7206-w1 L-7206-w2		GigabitEthernet3/42 GigabitEthernet3/40 GigabitEthernet3/14 GigabitEthernet3/38 GigabitEthernet3/13	es1-760 es1-760 es1-760	ghbor 6-c3 6-sd1 6-c4 6-c1	Neighb 172.31.24.25 172.31.24.25 172.31.24.25	5 GigabitEtherne 5 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne	t3/42 t3/40 t3/14 t3/38	
<u>1-7206-w1</u> 1-7206-w2 1-7606-c <u>1</u>		GigabitEthernet3/42 GigabitEthernet3/40 GigabitEthernet3/14 GigabitEthernet3/38	es1-760 es1-760 es1-760 es1-760	ghbor 6-c3 6-sd1 6-c4 6-c1 6-sd2	Neighb 172.31.24.25 172.31.24.25 172.31.24.25 172.31.24.25 172.31.24.25	5 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne	t3/42 t3/40 t3/14 t3/38 t3/13	
<u>1-7206-w1</u> <u>1-7206-w2</u> <u>1-7606-c1</u> <u>1-7606-c2</u>		GigabitEthernet3/42 GigabitEthernet3/40 GigabitEthernet3/14 GigabitEthernet3/38 GigabitEthernet3/13	es1-760 es1-760 es1-760 es1-760 es1-760 es1-720	ghbor 6-c3 6-sd1 6-c4 6-c1 6-sd2 6-w1	Neighb 172.31.24.25 172.31.24.25 172.31.24.25 172.31.24.25 172.31.24.25 172.31.24.25	55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne	t3/42 t3/40 t3/14 t3/38 t3/13	
1 <u>-7206-w1</u> 1 <u>-7206-w2</u> 1 <u>-7606-c1</u> 1 <u>-7606-c2</u> 1 <u>-7606-c3</u>		GigabitEthernet3/42 GigabitEthernet3/40 GigabitEthernet3/14 GigabitEthernet3/38 GigabitEthernet3/13	es1-760 es1-760 es1-760 es1-760 es1-760 es1-720	ghbor 6-c3 6-sd1 6-c4 6-c1 6-sd2 6-w1 PIM Int	Neighb 172.31.24.25 172.31.24.25 172.31.24.25 172.31.24.25 172.31.24.25 172.31.24.25 172.31.24.25 erface Mode	55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne	t3/42 t3/40 t3/14 t3/38 t3/13	
1 <u>-7206-w1</u> 1 <u>-7206-w2</u> 1 <u>-7606-c1</u> 1 <u>-7606-c2</u> 1 <u>-7606-c3</u>		GigabitEthernet3/42 GigabitEthernet3/40 GigabitEthernet3/14 GigabitEthernet3/38 GigabitEthernet3/13 GigabitEthernet3/1	es1-760 es1-760 es1-760 es1-760 es1-760 es1-720	ghbor 6-c3 6-sd1 6-c4 6-c1 6-sd2 6-w1 PIM Int IP	Neighb 172.31.24.25 172.31.24.25 172.31.24.25 172.31.24.25 172.31.24.25 172.31.24.25	5 GigabitEtherne 5 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne	t3/42 t3/40 t3/14 t3/38 t3/13 t0/1	
gtest2 - 10 devices: 1-7206-w1 1-7206-w2 1-7606-c1 1-7606-c2 1-7606-c3 1-7606-c4 1-7606-c4 1-7606-c4		GigabitEthernet3/42 GigabitEthernet3/40 GigabitEthernet3/14 GigabitEthernet3/38 GigabitEthernet3/13 GigabitEthernet3/1 Local Int	es1-760 es1-760 es1-760 es1-760 es1-760 es1-720	ghbor 6-c3 6-sd1 6-c4 6-c1 6-sd2 6-w1 FIM Int IP 255 sp	Neighb           172.31.24.25           172.31.24.25           172.31.24.25           172.31.24.25           172.31.24.25           172.31.24.25           172.31.24.25           erface Mode           PIM Mode	5 GigabitEtherne 5 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne 55 GigabitEtherne	t3/42 t3/40 t3/14 t3/38 t3/13 t0/1	

Figure 1-30 Topology for an Individual Router

The Topology for an Individual Router page contains:

Field or Button	Description			
Username	Enter your username.			
Password	Enter your password.			
Show Command	Enter any show commands on the router.			
Show	Click <b>Show</b> to run the selected command.			
PIM Neighbors	PIM neighbor name.			



For details on the table columns within this window, see the descriptions for the Topology Display All window.

To see a topological display of the routers, click on PIM Neighbors.

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		GigabitEthe	ernet3/40			
atest2 - 10 devices:	▲ (es1-7606-c4)			es1-7	506-c3	
s1-7206-w1						
				SigabitEthernet3/42		
	Giga	ibitEthernet3/14 GigabitEthe				
s1-7206-w2	Giga	bitEthemet3/14 GigabitEthe	enneto/40			
s1-7206-w2	Giga					
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s1-7206-w2 s1-7606-c1 s1-7606-c2	Gige	GigabitEthernet3/14 es1-760	GigabitEtheme	13/42		
s1-7206-w2 s1-7606-c1 s1-7606-c2 s1-7606-c3 s1-7606-c4	Gige	GigabitEthernet3/14	GigabitEtherne	13/42		
s1-7206-w2 s1-7606-c1 s1-7606-c2 s1-7606-c3	Gige	GigabitEthernet3/14 es1-760	GigabitEtheme	13/42		
s1-7206-w2 s1-7606-c1 s1-7606-c2 s1-7606-c3 s1-7606-c4	Gigs	GigabitEthernet3/14 es1-760	GigabitEtheme	13/42		 

#### Figure 1-31 PIM Neighbors

On the PIM Neighbors page:

- Green = Router that was selected and its local interfaces
- Purple = PIM neighbor's interfaces of this router's PIM neighbors
- Blue = Names of the PIM neighbors of the selected router

# Reporting

With the **Reporting** tool, you can view:

- A record of the latest SNMP traps sent
- Historical graphs or trends
- Routers in the database IOS versions

The following options are available under reporting:

- Latest Events, page 1-49
- RP Polling Report, page 1-49
- RP Group Threshold Report, page 1-50
- RPF Failures, page 1-51
- Group Gone Report, page 1-52
- S,G Threshold Report, page 1-52
- Layer 2 PPS Threshold Report, page 1-53
- SSG Report, page 1-54
- Tree Report, page 1-55
- S,G Delta Report, page 1-57
- Historical Graphs, page 1-58
- Display All IOS Versions, page 1-60

Note

The information shown for each type of report, with the exception of Historical Graphs, only spans the previous 24 hours. There may be more information available in the log file. However, it is recommended that the events.log file be rotated every 24 to 48 hours, depending on event activity.

### Latest Events

Using the **Latest Events** page, you can set a configurable amount of the latest events generated by the CMM. Clicking **Report** lists the traps in time order.

Cisco Multicast Manager 2.3.3(20060419) - Microsoft Internet Explorer provided by Cisco Systems, Inc. File Edit View Favorites Tools Help -Ġ Back 🔹 💿 🕤 📓 🐔 🔎 Search 🤺 Favorites 🤣 🍰 🐷 👻 📮 🏭 🖏 Address 🕘 http://es1-cmm:8080/perl/report.pl# 🖌 🋃 Co Links × CISCO SYSTEMS Cisco Multicast Manager 2.3.3 ահես وبالليه Tool: Multicast Manager 🔽 Management Domain: SEVT-TEST ۷ Home Topology Reporting Diagnostics Help Reporting: Latest Events Latest Events RP Polling Report RP Group Threshold Report RPF Failures Group Gone Report S,G Threshold Report Layer 2 PPS Threshold Report Tree Report S,G Delta Report Historical Graphs Display All IOS Versions Latest Events Max Events 100 Report SEVT-TEST - 10 devices <u>es1-7206-w1</u> <u>es1-7206-w2</u> <u>es1-7606-c1</u> es1-7606-c2 <u>es1-7606-c3</u> <u>es1-7606-c4</u> <u>es1-7606-d1</u> 180489

#### Figure 1-32 Latest Events

#### **RP Polling Report**

Using the **RP Polling Report**, you can monitor:

- All leaves and joins for the selected RP (if the Enable RP Add/Delete Traps option is selected, see the "RP Polling" section on page 1-28).
- If the selected RP becomes unavailable
- Any rogue source or group that joins the selected RP

To generate an RP Polling report:

- **Step 1** Select an RP from the list.
- Step 2 You can specify the maximum number of events to display.
- **Step 3** Click **Report**. The report contains any events that have occurred in the last 24 hours.



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Tool: Multicast	Manager 🔽			: Domain: <mark>IPm</mark>	:Lab 🔽			
Home	Topology	Reporting	Diagnostics	Help				
Reporting:		RP Polling Repo	t for P2-7206-1					
Latest Events			Date		Router	Source	Group	State
RP Polling Report		Thu Aug 10 16:15:	00 2006	P2-7	206-1	10.255.255.255	239.0.0.1	removed
RP Group Thresh RPF Failures	old Report	Thu Aug 10 16:15	00 2006	P2-7	206-1	10.255.255.255	239.0.0.1	removed
Group Gone Repo	ort	Thu Aug 10 16:15		P2-7	206-1	10.255.255.255	239.0.0.1	removed
S,G Threshold Re		Thu Aug 10 16:15			206-1	10.255.255.255	239.0.0.1	removed
Layer 2 PPS Thre	shold Report	Thu Aug 10 16:15:			206-1		239.0.0.1	removed
SSG Report		-			206-1 206-1	10.255.255.255	239.0.0.1	removed
Tree Report S.G Delta Report		Thu Aug 10 16:15				10.255.255.255		
Historical Graphs		Thu Aug 10 16:15:			206-1	10.255.255.255	239.0.0.1	removed
Display All IOS V		Thu Aug 10 16:00			206-1	10.255.255.255	239.0.0.1	added
. ,		Thu Aug 10 16:00			206-1	10.255.255.255	239.0.0.1	added
IPmcLab - 12 mu	lticast 🚔	Thu Aug 10 16:00	00 2006	P2-7	206-1	10.255.255.255	239.0.0.1	added
devices:		Thu Aug 10 16:00	00 2006	P2-7	206-1	10.255.255.255	239.0.0.1	added
P2-7206-1		Thu Aug 10 16:00	00 2006	P2-7	206-1	10.255.255.255	239.0.0.1	added
P2-7206-2		Thu Aug 10 16:00:	00 2006	P2-7	206-1	10.255.255.255	239.0.0.1	added
12 7200 2		Thu Aug 10 16:00:	00 2006	P2-7	206-1	10.255.255.255	239.0.0.1	added
P2-ntv-1		-						
P2-ntv-2								
P2-ntv-3								
<u>P2-ntv-4</u>								
<u>P3-7206-1</u>								
<u>P3-7206-2</u>								
<u>P3-msfc-1</u>								
D2 moto 2	<b>*</b>							

Figure 1-33	RP Polling Report
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### **RP Group Threshold Report**

Using the **RP Group Threshold Report**, you can monitor a list of RPs that have exceeded their active number of groups limit.

To generate an RP Group Threshold report:

- **Step 1** Select an RP from the list.
- **Step 2** You can specify the maximum number of events to display.
- **Step 3** Click **Report**. The report contains any events that have occurred in the last 24 hours.

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atest Events	Date	Router	Count	Threshol	d
RP Polling Report Mon May	8 08:12:01 2006	es1-7606-sd1	66	50	
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	8 08:00:00 2006	es1-7606-sd1	66	50	
ree Report Mon May	8 07:57:01 2006	es1-7606-sd1	66	50	
S,G Delta Report Mon May	8 07:54:00 2006	es1-7606-sd1	66	50	
listorical diaplis	8 07:51:00 2006	es1-7606-sd1	66	50	
	8 07:48:00 2006	es1-7606-sd1	66	50	
	8 07:45:00 2006	es1-7606-sd1	66	50	
				50	
	8 07:42:00 2006	es1-7606-sd1	66		
ec1-7206-w2	8 07:39:00 2006	es1-7606-sd1	66	50	
Mon May	8 07:36:01 2006	es1-7606-sd1	66	50	
es1-7606-c1 Mon May	8 07:33:00 2006	es1-7606-sd1	66	50	
	8 07:30:01 2006	es1-7606-sd1	66	50	
es1-7606-c2 Mon May	8 07:27:00 2006	es1-7606-sd1	66	50	
Mon May	8 07:24:01 2006	es1-7606-sd1	66	50	
es1-7606-c3	8 07:21:00 2006	es1-7606-sd1	66	50	
	8 07:18:01 2006	es1-7606-sd1	65	50	
	8 07:15:00 2006	es1-7606-sd1	66	50	
oc1-7606-d1					
mon may	8 07:12:01 2006	es1-7606-sd1	66	50	~
Mon May	8.07-09-00.2006	es1-7606-sd1	66	50	

Figure 1-34	RP Group Threshold Polling Report
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### **RPF** Failures

Using the **RPF Failures Report**, you can monitor all routers that are experiencing RPF failures above the configured threshold for the configured sources and groups.

To generate an RPF Failures report:

- Step 1Select an RP from the list.Step 2You can specify the maximum number of events to display.
- **Step 3** Click **Report**. The report contains any events that have occurred in the last 24 hours.

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eporting:	RPF Failure Rep	ort for es1-760	16-sd1					-
atest Events P Polling Report	Da	ate	Router	Source	Group	RPF Failures	Threshold	1 💷
P Group Threshold Report	Mon May 8 08:21:	00 2006	es1-7606-sd1	10.25.0.1	224.0.0.1	34	5	· .
PF Failures	Mon May 8 08:21:		es1-7606-sd1	10.25.0.1	224.0.0.1	34	5	
roup Gone Report	Mon May 8 08:21:		es1-7606-sd1	10.25.0.1	224.0.0.1	34	5	
,G Threshold Report	Mon May 8 08:12:		es1-7606-sd1	10.25.0.1	224.0.0.1	19	5	
ayer 2 PPS Threshold Report SG Report	Mon May 8 08:12:		es1-7606-sd1	10.25.0.1	224.0.0.1	34	5	
ree Report	Mon May 8 08:12:		es1-7606-sd1	10.25.0.1	224.0.0.1	34	5	
,G Delta Report	,		es1-7606-sd1		224.0.0.1	34	5	
istorical Graphs	Mon May 8 08:09:			10.25.0.1 10.25.0.1	224.0.0.1		-	
isplay All IOS Versions	Mon May 8 08:09:		es1-7606-sd1			34	5	
	Mon May 8 08:09:		es1-7606-sd1	10.25.0.1	224.0.0.1	34	5	
SEVT-TEST - 10 devices:	Mon May 8 08:06:		es1-7606-sd1	10.25.0.1	224.0.0.1	12	5	
es1-7206-w1	Mon May 8 08:06:		es1-7606-sd1	10.25.0.1	224.0.0.1	34	5	
es1-7206-w2	Mon May 8 08:06:		es1-7606-sd1	10.25.0.1	224.0.0.1	15	5	
<u>, , , , , , , , , , , , , , , , , , , </u>	Mon May 8 08:03:		es1-7606-sd1	10.25.0.1	224.0.0.1	34	5	
s1-7606-c1	Mon May 8 08:03:		es1-7606-sd1	10.25.0.1	224.0.0.1	34	5	
	Mon May 8 08:03:	00 2006	es1-7606-sd1	10.25.0.1	224.0.0.1	22	5	
es1-7606-c2	Mon May 8 08:03:	00 2006	es1-7606-sd1	10.25.0.1	224.0.0.1	34	5	
es1-7606-c3	Mon May 8 08:00:	00 2006	es1-7606-sd1	10.25.0.1	224.0.0.1	19	5	
<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	Mon May 8 08:00:	00 2006	es1-7606-sd1	10.25.0.1	224.0.0.1	34	5	
s1-7606-c4	Mon May 8 08:00:	00 2006	es1-7606-sd1	10.25.0.1	224.0.0.1	34	5	
	Mon May 8 07:57:	00 2006	es1-7606-sd1	10.25.0.1	224.0.0.1	34	5	
<u>es1-7606-d1</u>	Mon May 8 07:57:	00 2006	es1-7606-sd1	10.25.0.1	224.0.0.1	34	5	
		01 2006	es1-7606-sd1			34		~

Figure 1-35 RPF Failures Report

#### **Group Gone Report**

The Group Gone Report is currently unsupported. Functionality in this page has moved to the S,G Polling Report.

#### S,G Threshold Report

Using the **S,G Threshold Report**, you can monitor every source and group that has exceeded its configured threshold.

To generate an S,G Threshold report:

- **Step 1** Select a Group from the list.
- Step 2 You can specify the maximum number of events to display.
- **Step 3** Click **Report**. The report contains any events that have occurred in the last 24 hours, and contains pps and bps.

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Group Gone Report			P3-msfc-2	304100	aroup		
S,G Threshold Report	Mon Aug 14 13:12					13 pps	900 pps
Layer 2 PPS Threshold Report	Mon Aug 14 13:12	:00 2006	P3-msfc-4			8 pps	900 pps
SSG Report	Mon Aug 14 13:09	:00 2006	P3-msfc-2			8 pps	900 pps
Tree Report	Mon Aug 14 13:09	:00 2006	P3-msfc-4			8 pps	900 pps
S,G Delta Report	Mon Aug 14 13:06	:00 2006	P3-msfc-2			8 pps	900 pps
Historical Graphs Display All IOS Versions	Mon Aug 14 13:06		P3-msfc-4			13 pps	900 pps
Display All 103 Versions	Mon Aug 14 13:03		P3-msfc-2			8 pps	900 pps
~							
IPmcLab - 12 devices:	Mon Aug 14 13:03		P3-msfc-4			8 pps	900 pps
P2-7206-1	Mon Aug 14 13:00		P3-msfc-2			13 pps	900 pps
	Mon Aug 14 13:00	:00 2006	P3-msfc-4			8 pps	900 pps
<u>P2-7206-2</u>	Mon Aug 14 12:57	:00 2006	P3-msfc-2			8 pps	900 pps
P2 shu 1	Mon Aug 14 12:57	:00 2006	P3-msfc-4			8 pps	900 pps
P2-ntv-1	Mon Aug 14 12:54		P3-msfc-2			8 pps	900 pps
P2-ntv-2	Mon Aug 14 12:54		P3-msfc-4			13 pps	900 pps
<u></u>							
P2-ntv-3	Mon Aug 14 12:51		P3-msfc-2			8 pps	900 pps
	Mon Aug 14 12:51		P3-msfc-4			8 pps	900 pps
P2-ntv-4	Mon Aug 14 12:48	:00 2006	P3-msfc-2			13 pps	900 pps
	Mon Aug 14 12:48	:00 2006	P3-msfc-4			8 pps	900 pps
	Mon Aug 14 12:45	:00 2006	P3-msfc-2			8 pps	900 pps
<u>P3-7206-1</u>			P3-msfc-4			8 pps	900 pps
<u>P3-7206-1</u> P3-7206-2	Mon Aug 14 12:45	:00 2006					

#### Figure 1-36 S,G Threshold Report

### **Layer 2 PPS Threshold Report**

Using the Layer 2 PPS Threshold Report, you can monitor all Layer 2 ports that have exceeded their configured thresholds.

To generate a Layer 2 PPS Threshold Report:

- **Step 1** Select a switch from the list.
- **Step 2** Select a port from the list.
- Step 3 Click Select. The report contains any events that have occurred in the last 24 hours.



The report is for inbound and outbound traffic on the port.

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iroup Gone Report	Mon Aug 14 09:58:44 2006	es1-3750-a3	Input	Gi1/0/1	45680	35000
,G Threshold Report	Mon Aug 14 09:58:42 2006	es1-3750-a3	Input	Gi1/0/1	45689	35000
ayer 2 PPS Threshold Report SG Report	-	es1-3750-a3		Gi1/0/1 Gi1/0/1	45677	35000
ree Report	Mon Aug 14 09:58:40 2006		Input			
.G Delta Report	Mon Aug 14 09:58:38 2006	es1-3750-a3	Input	Gi1/0/1	45680	35000
Iulticast Bandwidth Report	Mon Aug 14 09:58:36 2006	es1-3750-a3	Input	Gi1/0/1	45718	35000
listorical Graphs	Mon Aug 14 09:58:34 2006	es1-3750-a3	Input	Gi1/0/1	45674	35000
oisplay All IOS Versions	Mon Aug 14 09:58:32 2006	es1-3750-a3	Input	Gi1/0/1	45682	35000
	Mon Aug 14 09:58:30 2006	es1-3750-a3	Input	Gi1/0/1	45693	35000
earch:	Mon Aug 14 09:58:28 2006	es1-3750-a3	Input	Gi1/0/1	45681	35000
	Mon Aug 14 09:58:26 2006	es1-3750-a3	Input	Gi1/0/1	68519	35000
tulumba - 10 total device	Mon Aug 14 09:58:24 2006	es1-3750-a3	Input	Gi1/0/1	45681	35000
s)	Mon Aug 14 09:58:22 2006	es1-3750-a3	Input	Gi1/0/1	45682	35000
es1-7206-w1	Mon Aug 14 09:58:20 2006	es1-3750-a3	Input	Gi1/0/1	45682	35000
-1 7004	Mon Aug 14 09:58:18 2006	es1-3750-a3	Input	Gi1/0/1	45680	35000
es1-7206-w2	Mon Aug 14 09:58:16 2006	es1-3750-a3	Input	Gi1/0/1	45681	35000
es1-7606-c1	Mon Aug 14 09:58:16 2006	es1-3750-a3	Input	Gi1/0/1 Gi1/0/1	45690	35000
		es1-3750-a3		Gi1/0/1 Gi1/0/1	45690	35000
es1-7606-c2	Mon Aug 14 09:58:12 2006		Input			
	Mon Aug 14 09:58:10 2006	es1-3750-a3	Input	Gi1/0/1	45685	35000
es1-7606-c3	Mon Aug 14 09:58:08 2006	es1-3750-a3	Input	Gi1/0/1	45683	35000
	Mon Aug 14 09:58:06 2006	es1-3750-a3	Input	Gi1/0/1	45676	35000
es1-7606-c4				Gi1/0/1		

Figure 1-37	Layer 2 PPS Thresho	Id Report
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### **SSG Report**

Using the **SSG Report**, you can display information about groups that have more than one sender. To generate an SSG Report:

- **Step 1** Enter the multicast group address.
- **Step 2** Click **Report**. The report contains any events that have occurred in the last 24 hours. The count indicates the number of sources sending to the group.

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RPF Failures	Mon Aug 14 13:15						
Group Gone Report	Mon Aug 14 13:00				239.0.0.1		93
S,G Threshold Report	Mon Aug 14 12:45				239.0.0.1		93
Layer 2 PPS Threshold Report	Mon Aug 14 12:30	:03 2006			239.0.0.1		93
SSG Report	Mon Aug 14 12:15	:02 2006			239.0.0.1		94
Tree Report	Mon Aug 14 12:00	:02 2006			239.0.0.1		94
S,G Delta Report Historical Graphs	Mon Aug 14 11:45	:03 2006			239.0.0.1		94
Display All IOS Versions	Mon Aug 14 11:15	:03 2006			239.0.0.1		94
	Mon Aug 14 11:00				239.0.0.1		94
IPmcLab - 12 devices:	Mon Aug 14 10:45				239.0.0.1		94
P2-7206-1	-				239.0.0.1		94
<u>P2-7206-1</u>	Mon Aug 14 10:30						
<u>P2-7206-2</u>	Mon Aug 14 10:15	:03 2006			239.0.0.1		94
<u>P2-ntv-1</u>							
P2-ntv-2							
<u>P2-ntv-3</u>							
<u>P2-ntv-4</u>							
<u>P3-7206-1</u>							

#### Figure 1-38 SSG Report

### **Tree Report**

Using the **Multicast Tree Report**, you can draw and save multicast trees (called baselines). You can then set up the CMM to draw trees that have been saved in the background, and report any changes (only changes to Layer 3 devices are reported).



The drawing and saving of trees is covered in the "Show All Groups" section on page 1-61.

If a multicast tree you are monitoring changes, a trap is generated. You can then view the baseline and the changed tree. Changes are highlighted in the text and also in the drawing.

To generate a Multicast Tree Report:

- **Step 1** Select a baseline (multicast tree) from the list.
- **Step 2** You can specify the maximum number of events to display.
- Step 3 Click Select. The report contains any events that have occurred in the last 24 hours.

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Layer 2 PPS Thre		Mon Aug 14 11:25				paul99.trace	trchanged
SSG Report	control interport	Mon Aug 14 11:20	:04 2006			paul99.trace	trchanged
Tree Report		Mon Aug 14 10:20	:05 2006			paul99.trace	trchanged
S,G Delta Report		Mon Aug 14 10:10	:05 2006			paul99.trace	trchanged
Historical Graphs		Mon Aug 14 10:05	05 2006			paul99.trace	trchanged
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P2-ntv-2 P2-ntv-3							
P2-ntv-4							
P3-7206-1							
<u>P3-7206-2</u>	-	2					
<u>P3-msfc-1</u>							
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Figure 1-39 Tree Report

Clicking "trchanged" in the third column in the report will graphically show the baseline, along with the changed tree. Changes to the tree are highlighted in the table at the top as shown in the figure. The baseline and the current tree are also shown graphically.

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aul99.trace Mon A	Aug 14 14:40:10 2006: Traced multicast gro	up 224.0.0.1 (cisco-rp-anno	ounce [Farinacci]) from source 10	.0.0.1	
Router	Forwarding Int	Neighbor	Neighbor IP	Neighbor Int	
2-ntv-2	GigabitEthernet1/1	P2-7206-2	10.0.0.1	GigabitEthernet3/0	
'2-ntv-2	Port-channel204	P2-ntv-4	10.0.0.1	Port-channel204	
'2-ntv-2	Port-channel205	P2-ntv-3	10.0.0.1	Port-channel205	
2-7206-2	SRP1/0	P3-7206-2		SRP1/0	
3-7206-2	GigabitEthernet3/0	P3-msfc-2		Vlan2	
3-7206-2	GigabitEthernet4/0	P3-msfc-1		Vlan3	
23-msfc-2	Vlan4	P3-msfc-4		Vlan4	
3-msfc-2	Vlan5	P3-msfc-3		Vlan5	
2-ntv-1	GigabitEthernet1/1				
2-ntv-1	GigabitEthernet1/2				
2-ntv-1	Port-channel204				
2-ntv-1	Port-channel205				
2-ntv-1	Vlan210				
2-ntv-2	GigabitEthernet1/2				
2-ntv-2 2-ntv-2	Loopback0				
2-ntv-2 2-ntv-3	Loopback0				
2-ntv-3 2-ntv-3	Loopbacku Loopback1				
2-ntv-3	FastEthernet3/1				
2-ntv-4 2-ntv-4	Loopback0				
2-ntv-4	Loopback1				
2-ntv-4	Vlan2				
2-ntv-4	Vlan20				
2-mcr-4 93-msfc-1	Vlan5				
3-msfc-4	Loopback0				
3-msfc-4	Loopbacki				
3-msfc-4	Vlan30				
3-msfc-3	Loopback0				
3-msfc-3	Loopback1				
3-msfc-3	Vlan4				
2-ntv-2	GigabitEthernet1/2	P2-7206-1		GigabitEthernet4/0	
2-7206-1	SRP1/0	P3-7206-1		SRP1/0	
2-7206-2	SRP1/0				
3-7206-2	SRP1/0				
3-7206-2	GigabitEthernet3/0				

Figure 1-40 Tree Report Page – Trchanged

### S,G Delta Report

Using the **Multicast S,G Delta Report**, you can view information about PPS rate deviation on multicast trees.

To generate a Multicast S,G Delta Report:

- **Step 1** Select a baseline (multicast tree) from the list.
- **Step 2** You can specify the maximum number of events to display.
- Step 3 Click Select. The report contains any events that have occurred in the last 24 hours.

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atest Events			ate	Baseline	Source	Group	PPS Deviation	Threshold	
RP Polling Report		Wed Aug 16 03:37		41tree.trace	239.0.0.1	232.1.1.1	5	1	
LP Group Threshold Re LPF Failures	port								
Group Gone Report		Wed Aug 16 03:36		41tree.trace	239.0.0.1	232.1.1.1	5	1	
G Threshold Report		Wed Aug 16 03:35		41tree.trace	239.0.0.1	232.1.1.1	6	1	1
ayer 2 PPS Threshold	Report	Wed Aug 16 03:34	:01 2006	41tree.trace	239.0.0.1	232.1.1.1	6	1	
SG Report		Wed Aug 16 03:33	:01 2006	41tree.trace	239.0.0.1	232.1.1.1	2	1	
ree Report		Wed Aug 16 03:32	:01 2006	41tree.trace	239.0.0.1	232.1.1.1	5	1	
S,G Delta Report Aulticast Bandwidth Re	nort	Wed Aug 16 03:31	:01 2006	41tree.trace	239.0.0.1	232.1.1.1	5	1	
listorical Graphs	port	Wed Aug 16 03:30	:01 2006	41tree.trace	239.0.0.1	232.1.1.1	6	1	
Display All IOS Version	s	Wed Aug 16 03:29		41tree.trace	239.0.0.1	232.1.1.1	5	1	
	~	Wed Aug 16 03:28		41tree.trace	239.0.0.1	232.1.1.1	5	1	
Search:		Wed Aug 16 03:27		41tree.trace	239.0.0.1	232.1.1.1	2	1	
search.		Wed Aug 16 03:26		41tree.trace	239.0.0.1	232.1.1.1	6	1	
SEVT-1 - 11 total devic	o(a)	-		41tree.trace			-	1	
sevi-1 - 11 total devic es1-7206-w1	e(s)	Wed Aug 16 03:25			239.0.0.1	232.1.1.1	6	_	
031-7200-W1		Wed Aug 16 03:24		41tree.trace	239.0.0.1	232.1.1.1	5	1	
es1-7206-w2		Wed Aug 16 03:23		41tree.trace	239.0.0.1	232.1.1.1	6	1	
		Wed Aug 16 03:22		41tree.trace	239.0.0.1	232.1.1.1	5	1	
<u>es1-7606-c1</u>		Wed Aug 16 03:21		41tree.trace	239.0.0.1	232.1.1.1	6	1	
	_	Wed Aug 16 03:20	:02 2006	41tree.trace	239.0.0.1	232.1.1.1	5	1	
<u>es1-7606-c2</u>		Wed Aug 16 03:19	:01 2006	41tree.trace	239.0.0.1	232.1.1.1	5	1	
es1-7606-c3		Wed Aug 16 03:18	:00 2006	41tree.trace	239.0.0.1	232.1.1.1	2	1	
<u>est-/000-03</u>		Wed Aug 16 03:17		41tree.trace	239.0.0.1	232.1.1.1	3	1	
es1-7606-c4		Wed Aug 16 03:16		41tree.trace	239.0.0.1	232.1.1.1	3	1	
	~	Wed Aug 16 03:14		41tree.trace	239.0.0.1	232.1.1.1	6	1	~

Figure 1-41	Multicast S,G Delta Report
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### **Historical Graphs**

Using **Historical Graphs**, you can view historical data in a graph format. Historical data is collected when you start to monitor:

• Source and group activity in a router

or

• multicast packets inbound or outbound of a Layer 2 port

or

• source and group packet deviations on baseline multicast trees.

To view Historical Graphs:

**Step 1** Select a **Graph Type** from the list:

- SG Delta PPS
- SG PPS
- SG BPS
- Switch Port PPS

Step 2 Select a Time Range:

- User Specified
- Hour
- Day
- Week
- Month

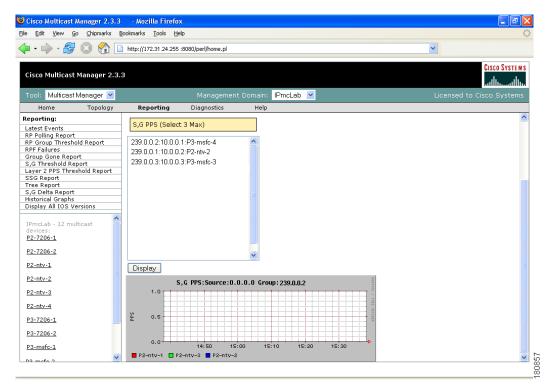
Then select a Start and End range.

**Step 3** A list of available reports appears. Highlight the appropriate report(s) and click **Display**. You can select up to 3 reports to display on the graph. Data stored for trending purposes is kept for up to 18 months.



Data must be collected to generate a report. If you have selected the correct Graph Type, and you do not see any entries, ensure that data is being collected (see the "Top Talkers" section on page 1-75).

#### Figure 1-42 Historical Graphs



### **Display All IOS Versions**

Using the IOS Version Info page, you can view the IOS version of all discovered routers in the current domain. You can sort the table by device, IP address, IOS version, or model by clicking on the corresponding column heading.

Figure 1-43 IOS Version Info

🍃 • 🕪 • 🔁	🗵 🏠 [	http://172.3	1.24.255 :80	080/perl/home.pl		▼	
Cisco Multicast	Manager 2.3.	3				Cisco Sys	
Tool: Multicast I	Manager 🔽				n: IPmcLab 💌		
Home	Topology	Repor	ting	Diagnostics Helj	p		
Reporting:		IOS Versi	ion Info				
Latest Events RP Polling Report RP Group Thresho	ld Report	Report Ger 12 Devices		ri Aug 11 15:51:20 2006			
RPF Failures Group Gone Repo	rt	DEVICE	IP	VERSION	MODEL		
S,G Threshold Rep		P2-7206-1		Version 12.4(3)	cisco7206VXR		
Layer 2 PPS Three		P2-7206-2		Version 12.4(3)	cisco7206VXR		
SSG Report		P2-7200-2		Version 12.4(3) Version 12.2(18)SXD5			
Tree Report							
S,G Delta Report Historical Graphs		P2-ntv-2		Version 12.2(18)SXD5			
Display All IOS Ve	rsions	P2-ntv-3		Version 12.2(18)SXF2			
Display All 103 Ve		P2-ntv-4	10.0.0.1	Version 12.2(18)SXF3	cat6506		
IPmcLab - 12 mul	ticast	P3-7206-1	10.0.0.1	Version 12.4(3)	cisco7206VXR		
devices:		P3-7206-2	10.0.0.1	Version 12.4(3)	cisco7206VXR		
P2-7206-1		P3-msfc-1	10.0.0.1	Version 12.2(17d)SXB6	catalyst6kSup720		
		P3-msfc-2		Version 12.2(17d)SXB6			
P2-7206-2		P3-msfc-3			catalyst6kMsfc2		
P2-ntv-1		P3-msfc-3 P3-msfc-4					
		Po-INSTC-4	10.0.0.1	Version 12.1(26)E2	catalyst6kMsfc2		
P2-ntv-2							
P2-ntv-3							
P2-ntv-4							
<u>P3-7206-1</u>							
<u>P3-7206-2</u>							
P3-msfc-1							

### **Diagnostics**

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

- Show All Groups, page 1-61
- Locate Host, page 1-66
- Network Status, page 1-67
- RP Status, page 1-68
- RP Summary, page 1-69
- IGMP Diagnostics, page 1-69
- MSDP Status, page 1-70
- Layer 2 Switches, page 1-71

- Health Check, page 1-73
- 6500 Troubleshooting, page 1-73
- Top Talkers, page 1-75

The following section describes router-specific diagnostics:

• Router Diagnostics, page 1-77

### **Show All Groups**

With the Show All Groups page, you can:

- 1. View all of 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, click **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 1-44 Multicast Diagnostics

Cisco Multicast M	Manager 2.3.	3				CISCO SYST	M S
Tool: Multicast M	/lanager 🔽		Managemer	nt Domain: IPmcLab	*	Licensed to Cisco Syste	ms
Home	Topology	Reporting	Diagnostics	Help			
Diagnostics:		Grap	h Line 🚩				-
Show All Groups							
Locate Host		Valu	e bps 🚩				
Network Status							
RP Status			Plot				
RP Summary IGMP Diagnostics							
MSDP Status		Trace selected sou	irce and group	between the routers	below:		
Layer 2 Switches							
Health Check		FH	R SOURCE N	r			
6500 Troubleshoot	ina						
Top Talkers		LH	R ALL 💊				
			Trace				
			TIALE				
IPmcLab - 12 mult	icast 🚆						
devices:		Group (4) Group	D(DNS)	Group (DB)	Source IP Source (DNS)	Source (DB) Number of Sources	
<u>P2-7206-1</u>		224.0.0.1	cisco-I	rp-announce [Farinacci]	10.0.0.1	Sources [3]	
P2-7206-2		224.0.0.1		rp-discovery [Farinacci]	10.0.0.1	Sources [6]	
<u>F2-7200-2</u>		224.0.0.1	01900		10.0.0.1	Sources [0]	
P2-ntv-1							
		<u>224.0.0.1</u>			10.0.0.1	Sources [0]	
<u>P2-ntv-2</u>		utana anantanala a		- / 61			
		View previously s	avea source bp	is/pps mes			
P2-ntv-3		Select Fil	e 🗸				
P2-ntv-4							
<u>12 nov 4</u>			Display				
P3-7206-1							
	_	View previously s	avod tracos				
<u>P3-7206-2</u>							
		Select Trac	e paul99.trace	*			
P3-msfc-1							
			Display				

(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.



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.

#### Cisco Multicast Manager 2.3.3 - Microsoft Internet Explorer provided by Cisco Systems, Inc Eile Edit View Favorites Tools Help 🗸 🄁 Go Address 🗿 http://172.31.24.255 :8080/perl/home.pl 🔇 Back 🔻 🚫 – 📓 🙆 🏠 🔎 Search 🤺 Favorites 🤣 😥 – چ 📝 🔹 🛄 🖏 CISCO SYSTEMS Cisco Multicast Manager 2.3.3 մին Tool: Multicast Manager 💌 Management Domain: IPmcLab 💙 Home Topology Reporting Diagnostics Help Collecting data to plot for 224.0.0.1 () from 0.0.0.0 Sample interval: 5 Diagnostics: Show All Groups ocate Hos Locate Host Network Status RP Status RP Summary IGMP Diagnostics MSDP Status Layer 2 Switches Health Check 6500 Troublashoe P3-msfc-4 Mon Aug 14 16:14:34 2006 0 0 0 P3-msfc-4 Mon Aug 14 16:14:39 2006 0 0 0 Mon Aug 14 16:14:44 2006 0 0 0 P3-msfc-4 6500 Troubleshooting Top Talkers Source bps/pps File srcpps.24432 Save As IPmcLab - 12 multicast P2-7206-1 0.0.0., 224.0.0.1 P2-7206-2 1.5 P2-ntv-1 1 P2-ntv-2 P2-ntv-3 0.5 bps P2-ntv-4 P3-7206-1 0 P3-7206-2 -0.5 8087

#### Figure 1-45 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.

View the list of active sources and groups:

• **Group**—Lists all active groups. To draw a multicast tree, click on 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.



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

Router         Forwarding Int           P2-ntv-2         Gil/1           P2-ntv-2         P0204           P2-ntv-2         P0204           P2-ntv-2         Gil/0           P3-7206-2         Gil/0           P3-7206-2         Gil/0           P3-7206-2         Gil/0           P3-7206-2         Gil/0           P3-7206-1         Gil/0           P3-7206-2         Gil/0           P3-7206-2         Gil/0           P3-7206-1         Gil/0           P3-7206-2         VIS           P2-ntv-1         Gil/0           P2-ntv-1         P3-0           P3-0         P3-0           P3-0         P3-0	Neighbor P2-7206-2 P2-ntv-4 P2-ntv-3 P3-7206-2 P3-msfc-2 P3-msfc-4 P3-msfc-4 P3-msfc-3	Neighbor IP 10.0.0.1 10.0.0.1 10.0.0.1 10.0.0.1 10.0.0.1 10.0.0.1 10.0.0.1	Neighbor Int           Gi3/0           Po204           Po205           SR1/0           VI2           VI3
92-ntv-2       Gi/1         92-ntv-2       Po204         92-ntv-2       Po205         92-ntv-2       SR1/0         93-7206-2       Gi/4/0         93-7206-2       Gi/4/0         93-7206-2       VI4         93-msfo-2       VI5         92-ntv-1       GigabitEthernet1/1         92-ntv-1       GigabitEthernet1/2	P2-7206-2 P2-ntv-4 P2-ntv-3 P3-7206-2 P3-msfc-2 P3-msfc-1 P3-msfc-4	100.0.1 10.0.0.1 10.0.0.1 10.0.0.1 10.0.0.1 10.0.0.1 10.0.0.1	Gi3/0 Po204 Po205 SR1/0 VI2
22-ntv-2       Gi/1         22-ntv-2       Po204         22-ntv-2       Po205         22-ntv-2       SR1/0         32-7206-2       SR1/0         33-7206-2       Gi/0         23-rsfo-2       VI4         23-rsfo-2       VI5         22-ntv-1       GigabitEthernet1/1         22-ntv-1       GigabitEthernet1/2	P2-7206-2 P2-ntv-4 P2-ntv-3 P3-7206-2 P3-msfc-2 P3-msfc-1 P3-msfc-4	100.0.1 10.0.0.1 10.0.0.1 10.0.0.1 10.0.0.1 10.0.0.1 10.0.0.1	Gi3/0 Po204 Po205 SR1/0 VI2
P22ntr-2         P2205           P27206-2         SR1/0           >>7206-2         Gi3/0           >>7206-2         Gi4/0           >>msfc-2         VI4           >>msfc-2         VI5           >2ntr-1         GigabitEthernet1/1           >2ntr-1         GigabitEthernet1/2	P2-ntv-3 P3-7206-2 P3-msfc-2 P3-msfc-1 P3-msfc-4	10.0.0.1 10.0.0.1 10.0.0.1 10.0.0.1 10.0.0.1	Po205 SR1/0 Vl2
2-7206-2 SR1/0 3-7206-2 Gi3/0 3-7206-2 Gi4/0 3-msfc-2 VI4 3-msfc-2 VI5 2-ntv-1 GigabitEthernet1/1 2-ntv-1 GigabitEthernet1/2	P3-7206-2 P3-msfc-2 P3-msfc-1 P3-msfc-4	10.0.0.1 10.0.0.1 10.0.0.1 10.0.0.1 10.0.0.1	Po205 SR1/0 Vl2
12-7206-2         SR1/0           3-7206-2         Gi3/0           3-7206-2         Gi4/0           3-msfc-2         VI4           3-msfc-2         VI5           2-ntv-1         GigabitEthernet1/1           2-ntv-1         GigabitEthernet1/2	P3-msfc-2 P3-msfc-1 P3-msfc-4	10.0.0.1 10.0.0.1 10.0.0.1	VI2
33-7206-2     Gi3/0       33-7206-2     Gi4/0       35-msfc-2     Vl4       36-msfc-2     Vl5       22-ntv-1     GigabitEthernet1/1       22-ntv-1     GigabitEthernet1/2	P3-msfc-2 P3-msfc-1 P3-msfc-4	10.0.0.1 10.0.0.1 10.0.0.1	VI2
3-7206-2     Gi4/0       3-msfc-2     Vl4       3-msfc-2     Vl5       2-ntv-1     GigabitEthernet1/1       2-ntv-1     GigabitEthernet1/2	P3-msfc-1 P3-msfc-4	10.0.0.1 10.0.0.1	
3-msfc-2 VI4 3-msfc-2 VI5 2-ntv-1 GigabitEthernet1/1 2-ntv-1 GigabitEthernet1/2	P3-msfc-4	10.0.0.1	
3-msfc-2 VIS 2-ntv-1 GigabitEthernet1/1 2-ntv-1 GigabitEthernet1/2			VI4
2-ntv-1 GigabitEthernet1/1 2-ntv-1 GigabitEthernet1/2		10.0.0.1	VIS
2-ntv-1 GigabitEthernet1/2			
2-ntv-1 Port-channel205			
2-ntv-1 Vlan210			
2-ntv-2 GigabitEthernet1/2			
'2-ntv-2 Loopback0(* Local address loopback *)			
22-ntv-2			
22-ntv-3 Loopback0			
22-ntv-3 Loopback1(** Campus RP Address, 239.255.0.0/16 **)			
22-ntv-4 FastEthernet3/1			
2-ntv-4 Loopback0			
22-ntv-4 Loopback1(** Campus RP Address, 239.255.0.0/16 **)			
2-ntv-4 Vlan2			
2-ntv-4 Vlan20			
3-msfc-1 Vlan5			
23-msfc-4 Loopback0(** Management **)			
23-msfc-4 Loopback1(** Campus RP Address, 239.255.0.0/16 **)			
23-msfc-4 Vlan30			
P3-msfc-3 Loopback0(** Management **)			
P3-msfc-3 Loopback1(** Campus RP Address, 239.255.0.0/16 **)			
P3-msfc-3 Vlan4			
race File trace.276 Save As			

Figure 1-46 Drawing a Multicast Tree (Baseline)

• 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 the "Tree Polling" section on page 1-38).



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

	Firefox	
∃ile Edit ⊻iew <u>G</u> o <u>C</u> hipmarks	<u>B</u> ookmarks <u>T</u> ools <u>H</u> elp	
🕼 • 🌳 • 🥰 😣 🐔	http://172.31.24.255 :8080/perl/h	home.pl
Show Command	Show	
Username		
Password		
	ntw 1 ( 40 0 0 4 ) (40 0 0	1 004 0 0 0 V
pMRouteEntry Query for P2	-ntv-1 ( 10.0.0.1 ) (10.0.0	).1, 234.0.0.2 )
Shortest Path Tree:True		
	Value	Description
pMRouteDifferentInIfPackets	347275	Number of packets dropped because they were received on the wrong interface
	347275 0:02:57	Number of packets dropped because they were received on the wrong interface Time left before entry will be aged out
ipMRouteExpiryTime		
ipMRouteExpiryTime ipMRouteInIfIndex	0:02:57	Time left before entry will be aged out
ipMRouteDifferentInIfPackets ipMRouteExpiryTime ipMRouteInIfIndex ipMRouteOctets ipMRoutePkts	0:02:57 Loopback1	Time left before entry will be aged out Incoming Interface
, pMRouteExpiryTime pMRouteInIfIndex ipMRouteOctets ipMRoutePkts	0:02:57 Loopback1 O	Time left before entry will be aged out Incoming Interface Number of actets received from/to this source/group AND forwarded Number of packets received from/to this source/group
pMRouteExpiryTime pMRouteInIfIndex pMRouteOctets pMRoutePkts pMRouteProtocol	0:02:57 Loopback1 0	Time left before entry will be aged out Incoming Interface Number of octets received from/to this source/group AND forwarded Number of packets received from/to this source/group other(1), local(2), netmgmt(3), dymmp(4), mospf(5), pimSparseDense(6), cbt(7), pimSparseMode(8),
pMRouteExpiryTime pMRouteInIfIndex pMRouteOctets pMRoutePkts pMRouteProtocol pMRouteRtAddress	0:02:57 Loopback1 0 0 9	Time left before entry will be aged out Incoming Interface Number of octets received from/to this source/group AND forwarded Number of packets received from/to this source/group other(1), local(2), netmgmt(3), dvmp(4), mospf(5), pimSparseDense(6), cbt(7), pimSparseMode(8), pimDenseMode(9), jampChy(10)
pMRouteExpiryTime ipMRouteInfIndex ipMRouteOctets ipMRouteProtocol ipMRouteProtocol ipMRouteRtAddress ipMRouteRtMask	0:02:57 Loopback1 0 0 9 11.51.70.1	Time left before entry will be aged out Incoming Interface Number of octets received from/to this source/group AND forwarded Number of packets received from/to this source/group other(1), local(2), netmgmt(3), dvmrp(4), mospf(5), pimSparseDense(6), cbt(7), pimSparseMode(8), pimDenseMode(9), igmpOnly(10) The address portion of the route used for this multicast forwarding entry
MRouteExpiryTime pMRouteInIfIndex pMRouteOctets pMRouteProtocol pMRouteProtocol pMRouteRtAddress pMRouteRtMask pMRouteRtProto	0:02:57 Loopback1 0 9 11.51.70.1 255.255.255.255	Time left before entry will be aged out Incoming Interface Number of actest received from/to this source/group AND forwarded Number of packets received from/to this source/group ather(1), local(2), netmgmt(3), dymrp(4), mospf(5), pimSparseDense(6), cbt(7), pimSparseMode(8), pimDenseMode(9), jimpOhy(10) The address portion of the route used for this multicast forwarding entry The mask associated with the route used for this multicast forwarding entry ather(1), local(2), netmgmt(3), aim(4), age(6), hell(0), nip(6), isis(9), esis(10),
ipMRouteExpiryTime ipMRouteInIfIndex ipMRouteOctets	0:02:57 Loopback1 0 9 11.51.70.1 255.255.255.255 2	Time left before entry will be aged out Incoming Interface Number of octets received from/to this source/group AND forwarded Number of packets received from/to this source/group other(1), local(2), netmgmt(3), dymrp(4), mospf(5), pimSparseDense(6), cbt(7), pimSparseMode(8), pimDenseMode(9), igmpOnly(10) The address portion of the route used for this multicast forwarding entry The mask associated with the route used for this multicast forwarding entry other(1), local(2), netmgmt(3), icmp(4), egp(5), egp(6), hello(7), rip(8), isIs(9), esIs(10), ciscolarp(11), bhSpf1gp(12), ospf(13), bap(14), idpr(15), ciscoEigrp(16), dymrp(17)

#### Figure 1-47 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

Done

- Value
- Description

e <u>E</u> dit ⊻iew <u>G</u> o	⊆hipmarks §	<u>B</u> ookmarks <u>T</u> ools	Help							
• 🔶 - 🋃 🔇	3 🏠 🚺	http://172.31.24	.255 :8080/perl/hom	e.pl				~		
									Cisco Sys	STEM
Cisco Multicast Ma	inager 2.3.	3								մի
Tool: Multicast Ma	nager 💌				IPmcLab	<b>~</b>			ensed to Cisco Syst	
Home	Topology	Reporting	Diagnost	ics Help						
iagnostics:			Graph Line 🔽	•						ļ
how All Groups				3						
ocate Host			Value bps 🚩							
etwork Status			Plot							
P Status P Summary			Plot							
GMP Diagnostics										-
ISDP Status		Trace select	ed source and g	proup between th	ne routers l	below:				
ayer 2 Switches			FHR SOUR							
ealth Check			THK SOUN							
500 Troubleshooting	g		LHR ALL	*						
op Talkers			and the second							
			Trace							
PmcLab - 12 multica	A A			_						_
evices:	150 -	Crown (4)	Group (DNS)	Group (D	νn.)	Course ID	Courses (DNC)	Course (DD)	Number of Sources	
2-7206-1					_,		Source (DNS)	Source (DB)		5
		<u>224.0.0.1</u>		cisco-rp-announce		10.0.0.1			Sources [3]	
2-7206-2		<u>224.0.0.1</u>		cisco-rp-discovery	[Farinacci]	10.0.0.1			Sources [6]	
2 1		<u>224.0.0.1</u>				10.0.0.1			Sources [0]	
2-ntv-1		<u>224.0.0.1</u>				10.0.0.1			Sources [0]	
2-ntv-2										-
		View previou	isly saved sour	ce bps/pps files						
2-ntv-3		Se	lect File 🛛 🔽							
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<u>~2-110-4</u>			Displa	ty .						
93-7206-1										_
	_	View previou	isly saved trac	es						
3-7206-2			-							
3-msfc-1		Selec	t Trace paul99	trace 💌						
			Displa							
'3-mstc-1	~									

Figure 1-48 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.



- 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.t5rrrrrrrrrrrrr7

### **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**.

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IPmcLab - 12 multicas devices:	τ 👘						
P2-7206-1							
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P2-ntv-4							
12 1107 4							
P3-7206-1							
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P3-7206-2							
P3-msfc-1							
5 HISTO 1	-						
D2 moto 2	~						

Figure 1-49 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 1-50 Network Status

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Home	Topology	Reporting	Diagnostics	Help		
Diagnostics:		Network Status				
Show All Groups						
Locate Host		Router System	n Up Time			
Network Status		P2-7206-1 21 day	s. 7:01:13			
RP Status		P2-7206-2 36 day				
RP Summary						
IGMP Diagnostic: MSDP Status	s	P2-ntv-1 36 day				
Layer 2 Switches	-	P2-ntv-2 36 day				
Health Check	,	P2-ntv-3 36 day	s, 15:17:09			
6500 Troublesho	otina	P2-ntv-4 36 day	s, 15:17:27			
Top Talkers	oung	P3-7206-1 21 day				
		P3-7206-2 36 day				
IPmcLab - 12 mu	ulticast	P3-msfc-1 36 day				
devices:	annoabe	P3-msfc-2 4 days				
P2-7206-1		P3-msfc-3 36 day	s, 15:16:45			
		P3-msfc-4 36 day	s. 15:16:38			
P2-7206-2		·	·			
P2-ntv-1		Finished				
P2-IIIV-1						
P2-ntv-2						
P2-ntv-3						
P2-ntv-4						
<u>P3-7206-1</u>						
<u>P3-7206-2</u>						
<u>P3-msfc-1</u>						
D2 moto 2	~					

### **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, since each router in the multicast domain is queried.

#### Figure 1-51 RP Status

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Diagnostics:		Active RPs	Group	State		^
Show All Groups						
Locate Host						
Network Status		P2-ntv-4				
RP Status		RP (Dynamic)	Group Address	Groun Mask		
RP Summary		10.0.0.1	239.0.0.2	255,255,255,244		
IGMP Diagnostics MSDP Status						
Laver 2 Switches		10.0.0.1	239.0.0.2	255.255.255.244		
Health Check		10.0.0.1	239.0.0.2	255.255.255.244		
6500 Troubleshoo	tina	Active RPs	Group	State		
Top Talkers						
		P3-7206-1				
IPmcLab - 12 mult	tionat 🔨	DD (Dur i)	Group Address	Current March		
devices:	ucast					
P2-7206-1		10.0.0.1	239.0.0.2	255.255.255.244		
		10.0.0.1	239.0.0.2	255.255.255.244		
<u>P2-7206-2</u>		Active RPs	Group	State		
P2-ntv-1						
P2-ntv-2		P3-7206-2				
P2-ntv-3			Group Address			2
12 109-3		10.0.0.1	239.0.0.2	255.255.255.244		
<u>P2-ntv-4</u>		10.0.0.1	239.0.0.2	255.255.255.244		
<u>P3-7206-1</u>		Active RPs	Group	State		
<u>P3-7206-2</u>	_	P3-msfc-1				
P3-msfc-1		RP (Dynamic) 10.0.01	Group Address 239.0.0.2	Group Mask 255,255,255,244		
	~	10.0.0.1	200.0.0.2	200.200.200.244		~

# RP Summary

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

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Home Topology	Reporting	Diagnostics	Help		
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Show All Groups					
Locate Host	IP Address	RP	Group Addre	ss Group Mask	
Network Status	11.51.140.1	P3-msfc-1			
RP Status RP Summary	11.51.140.1	P3-msfc-2			
IGMP Diagnostics	11.51.140.2	P3-msfc-3	239.0.0.2	255,255,255,244	
MSDP Status	11.51.140.2	P3-msfc-4	239.0.0.2	255,255,255,244	
Layer 2 Switches			239.0.0.2	255.255.255.244	
Health Check	11.51.70.1	<u>P2-ntv-1</u>			
6500 Troubleshooting	11.51.70.1	<u>P2-ntv-2</u>	239.0.0.2	255.255.255.244	
Top Talkers	11.51.70.2	P2-ntv-3	239.0.0.2	255.255.255.244	
	11.51.70.2	<u>P2-ntv-4</u>	239.0.0.2	255.255.255.244	
~	200.200.200.1	P2-7206-1			
IPmcLab - 12 multicast	200.200.200.1				
devices: P2-7206-1		P2-7206-1,Phantom			
<u>FE-7200-1</u>		P3-7206-1,Phantom			
<u>P2-7206-2</u>	200.200.201.1				
P2-ntv-1	Finished				
P2-ntv-2					
P2-ntv-3					
<u>P2-ntv-4</u>					
<u>P3-7206-1</u>	J				
<u>P3-7206-2</u>					
P3-msfc-1					
D2 meto 2					

Figure 1-52 RP Summary

For details on clicking on an RP, see the "Topology" section on page 1-44.

### **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.



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RP Status RP Summary IGMP Diagnostics MSDP Status	Select Grou				
Layer 2 Switches Health Check 6500 Troubleshooting Top Talkers	Select Router	P2-7206-1 P2-7206-2 P2-ntv-1 P2-ntv-2			
IPmcLab - 12 multicast devices: <u>P2-7206-1</u> P2-7206-2	Select Diagnostic Typ Output Filte				
	IGMP Cache Last Re	porter for 224.0.0.1 (	)		
P2-ntv-1	Router	porter for 224.0.0.1	Interface		Last Reporter
P2-ntv-2	P2-7206-1	GigabitEthernet3,		10.0.0.1	
P2-ntv-3	P2-7206-1	GigabitEthernet4,	/0	10.0.0.1	
P2-ntv-4	Finished				
<u>P3-7206-1</u>					
<u>P3-7206-2</u>					
P3-msfc-1					
D2 mefo 2					

#### Figure 1-53 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.



The MSDP MIB is only supported 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.

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)iagnostics:		MSDP Status			
Show All Groups					
Locate Host		Loca	l Peer	Remote	IP State
Network Status		P2-7206-1	P3-7206-1	10.0.0.1	established
RP Status		P2-7206-1		10.0.0.1	established
RP Summary IGMP Diagnostics		P2-ntv-1	P2-ntv-2	10.0.0.1	established
MSDP Status					
Layer 2 Switches		P2-ntv-2	P2-ntv-1	10.0.0.1	established
Health Check		P2-ntv-3	P2-ntv-4	10.0.0.1	established
6500 Troubleshooting		P2-ntv-4	P2-ntv-3	10.0.0.1	established
Top Talkers	-	P3-7206-1	P2-7206-1	10.0.0.1	established
		P3-7206-1		10.0.0.1	established
	~	P3-msfc-1	P3-msfc-2	10.0.0.1	established
IPmcLab - 12 multica	ast 🔗				
devices:		P3-msfc-2	P3-msfc-1	10.0.0.1	established
P2-7206-1					
		Select MSDP Route	r 🛛 P2-7206-1 🔽 🛛 Peer Info	SACache Info	
<u>P2-7206-2</u>					
P2-ntv-1					
12 1107 1					
P2-ntv-2					
P2-ntv-3					
P2-ntv-4					
P3-7206-1					
<u>P3-7206-2</u>					
<u>P3-msfc-1</u>					

#### Figure 1-54 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 y	our username.
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- **Step 2** Enter your password.
- **Step 3** Select the switch(es) you want to view.
- Step 4 Click Query.

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

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Ietwork Status IP Status IP Status IP Summary GMP Diagnostics GMP Diagnostics Ager 2 Switches teath Check S500 Troubleshooting IPmcLab - 12 multicest Ietwices: 22.7206-1 P2-7206-2 P2-ntv-1	Select Sw Getting I2 : VLAN 201 201 203 203 203 203	itch efsj-4006-a5 v Query switch info from efsj-4006-a5 MAC 01-00-5e-00-01-27 01-00-5e-7e-01-03 01-00-5e-7e-01-03 01-00-5e-7e-01-07 01-00-5e-7e-01-07 01-00-5e-7e-01-09	224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1	's (224-239)	1/1-2 1/1-2,2/4 1/1-2,2/4 1/1-2 1/1-2,2/16 1/1-2,2/16 1/1-2,2/16	
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letwork Status P Status P Status P Status OHP Diagnostics SDP Status ayer 2 Switches leath Check S00 Troubleshooting PmcLab - 12 multicast levices: 22-7206-1 22-7206-2 22-ntv-1 22-ntv-2	Select Sw Getting I2 : VLAN 201 203 203 203 203 203 203 203 203	itch efsj-4006-a5 Query switch info from efsj-4006-a5 MAC 01-00-5e-00-01-27 01-00-5e-7e-01-03 01-00-5e-7e-01-03 01-00-5e-7e-01-01 01-00-5e-7e-01-01 01-00-5e-7e-01-09 01-00-5e-7e-01-22 01-00-5e-7e-01-23	224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1	is (224-239)	1/1-2 1/1-2,2/4 1/1-2 1/1-2,2/16 1/1-2,2/16 1/1-2,2/16 1/1-2,2/16 1/1-2,2/16 1/1-2	
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Vetwork Status P Status RP Status GMP Diagnostics MSDP Status SSDP Status SSD Status SSD Status SSD Status SSD Troubleshooting	Select Sw Getting I2 : VLAN 201 203 203 203 203 203 203 203 203	itch efsj-4006-a5 Query switch info from efsj-4006-a5 MAC 01-00-5e-00-01-27 01-00-5e-7e-01-03 01-00-5e-7e-01-03 01-00-5e-7e-01-01 01-00-5e-7e-01-01 01-00-5e-7e-01-09 01-00-5e-7e-01-22 01-00-5e-7e-01-23	224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1 224 0.0.1	's (224-239)	1/1-2 1/1-2,2/4 1/1-2 1/1-2,2/16 1/1-2,2/16 1/1-2,2/16 1/1-2,2/16 1/1-2,2/16 1/1-2	

Figure 1-55 Layer 2 Multicast Information

Figure 1-56 Layer 2 Host IPs

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- L2 Multicast I	nformation	-		239.0.0.1				
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PricLab - 12 mi	ulticast	193	Gi1/0/1	239.0.0.1				
devices:		195	011/0/1	239.0.0.1		172.16.0.0		
<u>2-7206-1</u>				239.0.0.1				
				239.0.0.1				
P2-7206-2				239.0.0.1				
P2-ntv-1				239.0.0.1				
- <u></u>				239.0.0.1 239.0.0.1				
2-ntv-2				239.0.0.1				
				239.0.0.1				
P2-ntv-3				239.0.0.1				
				239.0.0.1				
P2-ntv-4				239.0.0.1				
	*			239.0.0.1				

Using the Cisco Multicast Manager

### **Health Check**

Chapter 1

L

Using the Health Check page, you can run a health check on a domain. To run a health check, select it from the drop-down box, and click Run.

🥹 Cisco Multicast Manager 2.3.3 💿 - Mozilla Firefox . 0 Eile Edit View Go Chipmarks Bookmarks Tools Help 🛛 🕶 🛶 🚽 区 🏫 🗋 http://172.31.24.255 :8080/perl/home.pl ~ CISCO SYSTEMS Cisco Multicast Manager 2.3.3 ովիս .մի. Tool: Multicast Manager 💌 Management Domain: IPmcLab 💌 Horne Topology Reporting Diagnostics Help Diagnostics: Diagnostics: Show All Groups Locate Host Network Status RP Status RP Summary IGMP Diagnostics IGMP Diagnostics MSDP Status Layer 2 Switches Health Check 6500 Troubleshooting Top Talkers Select Health Check London 🔽 🛛 Run . Running (London.health) Health Check Туре Testing RP P3-msfc-1 0:36 days, 16:00:55 RP P2-7206-1 0:21 days. 7:45:34 RP 0:36 days, 16:00:59 P3-msfc-4 OK GON SG 10.0.0.2, 224.0.0.3: P2-7206-1 SG 10.0.0.2, 224.0.0.3: P2-7206-1 SG TREE CHA IPmcLab - 12 multicast P2-7206-1 <u>P2-7206-2</u> <u>P2-ntv-1</u> <u>P2-ntv-2</u> P2-ntv-3 <u>P2-ntv-4</u> <u>P3-7206-1</u> P3-7206-2 180853 P3-msfc-1 no moto o

#### Health Check Figure 1-57

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

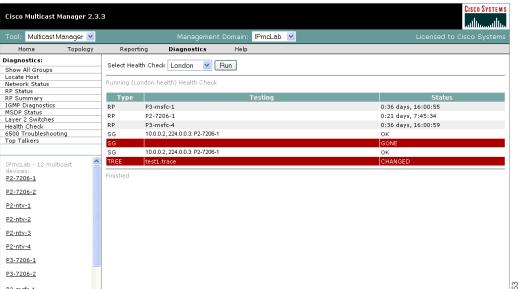
#### 6500 Troubleshooting

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 rlogin session into the PFC. A persistent telnet session issues show commands and displays live statistics. These sessions are terminated once the windows are closed.

 $\underline{P}$ 

All important sources and groups should be pro-actively monitored. Use the 6500 Troubleshooting tool to investigate a current problem.





Cisco Multicast Manager 2.3.3						<b>-</b> X	)
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Tool: Multicast Manager 🔽			nt Domain: IPmcLab 💊	•		ems	
Home Topology	Reporting	Diagnostics	Help				
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Show All Groups Locate Host Network Status RP Status RP Summary IGMP Diagnostics MSDP Status Layer 2 Switches Health Check 6500 Troubleshooting Top Talkers	Router Username Password Enable Polling interval Source Group	P2-ntv-1		edit reset		•	
<u>P2-7206-1</u> <u>P2-7206-2</u> <u>P2-ntv-1</u>	Command	sh ip mroute	Rur	edit			
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<u>P2-ntv-3</u>							
<u>P2-ntv-4</u>							
<u>P3-7206-1</u>							
<u>P3-7206-2</u>							
P3-msfc-1							80848
D2 meto 2							200

#### Figure 1-58 6500 Troubleshooting

The 6500 Troubleshooting page contains:

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	Re-populates the source and group lists.
Run Full Trace	Starts the tree at the source instead of the selected router. For details, see the "Show All Groups" section on page 1-61.

Fields and Buttons	Description
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 on any other router in the picture to see live packets statistics for them (see the "Show All Groups" section on page 1-61). Ensure pop-up blockers are disabled.
Command	Provides a drop-down list of show commands.
Edit	Add your own command by clicking on <b>Edit</b> , typing in your command, and click <b>Run</b> <b>Command</b> .
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 Cisco TAC.
	<b>Note</b> 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.

Top Talkers from: es1-7606-sd2 - Microsoft Internet Explorer provided by Cisco Systems, Inc.					
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)	

# **Router Diagnostics**

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

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Figure 1-60 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.

The following functions are not found on the Multicast Diagnostics page:

- 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.

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🗘 • 🔶 • 😂 😢 🏠	http://172.31.24.255 :8080/perl/	'home.pl	<b>~</b>	
Show Command	Show			^
Username				
Password				
gmpCacheEntry Query for P	2-7206-1 ( 10.0.0.1 ) ( )	0		-
igmpCacheExpiryTime	Interface		Time remaining before this entry will be aged out	i I
224.0.1.39	SRP1/0	0:02:58		
224.0.1.39	GigabitEthernet4/0	0:02:58		
224.0.1.39	Tunnel22	0:00:00		
224.0.1.39	Loopback1	0:01:56		
224.0.1.39	Loopback2	0:02:54		
224.0.1.39	Tunnel0	0:02:53		
224.0.1.39		0:00:00		
224.0.1.39	GigabitEthernet3/0	0:02:01		
224.0.1.40	SRP1/0	0:01:58		
224.0.1.40	Loopback1	0:01:53		
igmpCacheLastReporter	Interface		Source of last membership report	
224.0.1.39	SRP1/0	239.0.0.5		
224.0.1.39	GigabitEthernet4/0	239.0.0.5		
224.0.1.39	Tunnel22	239.0.0.5		
224.0.1.39	Loopback1	239.0.0.5		
224.0.1.39	Loopback2	239.0.0.5		
224.0.1.39	Tunnel0	239.0.0.5		
224.0.1.39		239.0.0.5		
224.0.1.39	GigabitEthernet3/0	239.0.0.5		
224.0.1.40	SRP1/0	239.0.0.5		
224.0.1.40	Loopback1	239.0.0.5		
igmpCacheSelf	Interface		Local system is a member of this group true(1) false(2)	
224.0.1.39	SRP1/0	1		
224.0.1.39	GigabitEthernet4/0	1		
224.0.1.39	Tunnel22	1		
224.0.1.39	Loopback1	1		
224.0.1.39	Loopback2	1		~

#### Figure 1-61 IGMP Cache Entries

- Multicast Information—Shows multicast topology information.

#### Figure 1-62 Multicast Information

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	http://172.31.24.255 :8080/perl/ht			~	
	ncp.//1/2.51.24.255.0000/pen/m	une.pi			
Show Command	Show				<u>^</u>
Username					
Password					
Aulticast Info for P2-7206-1 (	10.0.0.1 .)				
PIM Neighbors					
	al Int	Neighbo	r	Neighbor IP	
GigabitEthernet3/0		P2-ntv-1	10.0.0.1		
GigabitEthernet4/0		P2-ntv-2	10.0.0.1		
SRP1/0			10.0.0.1		
SRP1/0			10.0.0.1		
SRP1/0		P2-7206-2	10.0.0.1		
SRP1/0		P3-7206-1	10.0.0.1		
SRP1/0		P3-7206-2	10.0.0.1		
Funnel22			10.0.0.1		
PIM Interface Mode					
Local Int	Local I	P PIM Mod	-	DR	
SRP1/0	224.0.0.1	sparse	P3-7206-2 (224.0.0.1	)	
GigabitEthernet4/0	224.0.0.1	sparse	P2-ntv-2 (224.0.0.1)		
Funnel22	224.0.0.1	sparse	N/A (0.0.0.0)		
.oopback1	224.0.0.1	sparse	P2-7206-1 (224.0.0.1 )		
.oopback2	224.0.0.1	sparse	P3-7206-1 (224.0.0.1	)	
Funnel0	224.0.0.1	sparse	P2-7206-1 (224.0.0.1	)	
	224.0.0.1	sparse	N/A (0.0.0.0)		
GigabitEthernet3/0	224.0.0.1	sparse	P2-ntv-1 (224.0.0.1 )		
IGMP Interface Version					
	Local Int		Local IP	IGM	Þ
SRP1/0		224.0.0.1		2	
GigabitEthernet4/0		224.0.0.1		2	
unnel22		224.0.0.1		2	_
.oopback1		224.0.0.1		2	
.oopback2		224.0.0.1		2	

- Multicast Routing Table—Shows the multicast routing table.

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Show Command	Show	1		-
	310	J		
Username				
Password				
ipMRouteEntry Query	for P2-7206-1 ( 10.0.0.1	0		
Shortest Path Tree				
Group	Source		Shortest Path Tree	
224.0.1.39	0.0.0.0	False		
224.0.1.39	0.0.0	True		
224.0.1.39	0.0.0	False		
224.0.1.40	0.0.0	False		
224.0.1.40	0.0.0	True		
224.0.1.40	0.0.0.0	True		
224.0.1.40	0.0.0	True		
224.0.1.40	0.0.0	True		
224.0.1.40	0.0.0	True		
224.0.1.40	0.0.0	True		
224.0.1.40	0.0.0.0	True		
224.0.1.40	0.0.0.0	True		
224.0.1.40	0.0.0.0	True		
224.0.1.40	0.0.0.0	True		
224.0.1.40	0.0.0.0	True		
224.0.1.40	0.0.0	False		
224.0.1.40	0.0.0	False		
224.0.1.40	0.0.0	True		
224.0.1.40	0.0.0.0	True		
224.0.1.40	0.0.0	False		
224.0.1.40	0.0.0.0	True		
224.0.1.40	0.0.0.0	True		
224.0.1.40	0.0.0.0	True		
224.0.1.40	0.0.0.0	True		
224.0.1.40 224.0.1.40	0.0.0.0	True True		

Figure 1-63 Multicast Routing Table

# Help

You can view the Cisco Multicast Manager 2.3.3 User Guide PDF by clicking on Help.

# **Application Maintenance and Troubleshooting**

This section contains information concerning the underlying operation of CMM and will be of most interest to the System Administrator that supports the application.

# **Configuration Files**

Assuming the application is installed on Solaris, the directory location will be /opt/RMSMMT (on Linux it would be /usr/local/netman). Multicast domain configuration files are kept in /opt/RMSMMT/mmtsys/sys and named <domain>.mm.conf, where <domain> is the name of the multicast domain. The file is in the format of option=value. This file should not be edited manually. The polling daemon configuration files are also kept in this directory. The global polling configuration file is rmspoll.conf, and the domain specific files are rmspoll.<domain>.conf. Like the domain configuration files, these files should only be modified through the browser interface. The only time these files should be modified manually is with the assistance of RMS tech support.

# **Log Files**

The /opt/RMSMMT/mmtsys/sys directory also contains two log files: events.log and rmspolld.log.

#### events.log

The events.log file contains syslog type messages, shown below, that correspond to the SNMP traps sent by the polling daemon.

monlo:1082550198:172.16.1.9:1.3.6.1.2.1.31.1.1.1.2.10:0:10:631643:0:50

gone:1082550198:192.168.201.254:239.1.1.1:192.168.1.25:0:0:0:0

hi:1082550198:172.16.1.9:239.1.1.1:192.168.1.25:4116:92785:137:100

This file provides the information for the text-based reports provided by CMM. Depending on the polling interval, and number of objects being polled, this file may grow very quickly. It should be rotated along with all other syslog files on the server.

#### rmspolld.log

The rmspolld.log file contains log messages pertaining to the polling daemon. 04/23/2004 09:40:54 RMS Polling Agent v2.1(1) started successfully 04/23/2004 09:55:49 Exiting on SIGTERM

### **Apache Log Files**

The Apache log files are located in /opt/RMSMMT/httpd_perl/logs. When troubleshooting the application, tailing the error_log file (tail -f error_log) will provide useful information. Additional application information can be logged to the error_log file by adding the line debug=1 to the <domain>.mm.conf file mentioned above.

S, Note

Turning on this debug option will generate a large amount of data and should only be used for short periods in conjunction with working RMS tech support.

## Databases

The database files used by CMM are located in /opt/RMSMMT/mmtsys/db. The topology database created by running discovery is <domain>.topo.db. The S,G cache, also created during discovery is <domain>.sg.db. The cache file is recreated when the polling daemon is running and polling the RPs. The lock files associated with each db file should never be manually removed. Removing these files could corrupt the databases.

Each domain also has a /opt/RMSMMT/mmtsys/db/<domain> directory associated with it. This directory contains the IOS versions (iosver.db) for the domain. Multicast forwarding tree baselines are also saved in this directory.

The IP address database (ipaddr.db) is also located in opt/RMSMMT/mmtsys/db.

# **Device Configurations**

If TFTP is enabled on the server, and the SNMP read-write community string is supplied, then the application can download router configurations. The configurations are initially stored in the /tftpboot directory. If a configuration is saved from the "Display Router Config" screen, then a directory will be created (/opt/RMSMMT/configs/<device>) to hold the saved configurations.

### **Historical Data**

PPS data collected by the polling daemon for S,G threshold polling and Layer 2 switch port polling, are stored in RRD files in /opt/RMSMMT/mmtsys/data.

# **Standard Multicast MIBs**

Certain versions of IOS now support the standard based IPMROUTE and IGMP MIBs. The STDMIBS file in the /opt/RMSMMT/mmtsys/db controls which IOS versions the standard MIBs will be used for. The file currently contains the following entries:

 $\ensuremath{\texttt{\#}}$  This file contains versions of IOS that use the standard multicast MIBs.

12.3.*.* 12.2.*.T* 12.2.*.BC*

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# **Backups**

To backup application specific data, the following directories should be included in any system backups:

```
/opt/RMSMMT/mmtsys/data
/opt/RMSMMT/mmtsys/db
/opt/RMSMMT/mmtsys/sys
/opt/RMSMMT/configs
```

Prior to performing backups, the /opt/RMSMMT/K98mmt script should be run to ensure that files are being changed while the backup is being performed.



Running the K98mmt script will stop the Apache server along with the polling daemon. The S98mmt script will only start the Apache server. The polling daemon has to be started from the browser at this time.