Troubleshooting SGM and the Network

This chapter provides the following information for troubleshooting basic SGM and network problems:

Verifying Discovery

After you discover the network (see the "Discovering the Network" section on page 3-6), examine the Discovered Nodes table to verify that SGM discovered all of the ITP nodes in the network. If you suspect that SGM did not discover all of the ITP nodes, verify the following conditions:

- Verify that no nodes are excluded from your current view.
- Verify that the SGM server can ping the nodes.
- Verify that the nodes are running images that are compatible with the SGM server.

- Verify that the SNMP is enabled on the nodes.
- Verify that SGM is configured with the correct SNMP community name. See the "Configuring SNMP" section on page 3-2 for details.
- Verify that the missing nodes are connected to the seed nodes by SCTP connections, not just serial connections. If they are not connected by SCTP connections, you must add the missing nodes to the seed file as seed nodes. See the "Configuring Seed Files" section on page 3-20 for more information.
- Verify that you selected **Entire Network** when you ran Discovery. If you suspect that you did not, run Discovery again with **Entire Network** selected.

Clearing a Locked-Up SGM Display

In SGM, events might cause message popups to remain in the background of your display, preventing you from interacting with other windows. If you suspect that your display has locked up, perform the following tasks:

- Make sure you are running SGM on a supporrted operating system. Refer to the "Solaris Software Requirements" and "Windows Software Requirements" sections of the *Cisco Signaling Gateway Manager Installation Guide* for more information about supported operating systems.
- Minimize windows and look for an SGM message popup in the background.

Investigating Data Problems

If you suspect that there are problems with the data that SGM is displaying, perform the following tasks:

- Enter equivalent **show** commands on the ITP. Is the data the same as that displayed by SGM?
- Send SNMP queries to the nodes. Do all queries complete?

The results of these tasks can help you distinguish between an ITP problem and an SGM problem.

Viewing the SGM Troubleshooting Log

SGM stores troubleshooting information in the */opt/CSCOsgm/tmp/cisco_sgm_tshoot.log* file on the SGM server. This log, which is updated each time the SGM Server Troubleshooting page is accessed or the **sgm tac** command is run, contains information that might be requested by Cisco customer support personnel.

If you want to view the SGM troubleshooting log, Cisco strongly recommends that you do so in a Web browser. To view the log in a Web browser, select **System Troubleshooting** from the SGM Server Home Page.

You can also view the log from the command line, but this method displays the entire log, which can contain thousands of lines of output, line-by-line on your workstation screen. Therefore, Cisco strongly recommends that you view the log from the Web, as indicated above, or redirect the output from this command to a separate file, using the redirection symbol (**>**).

To view the log from the command line:

Step 1 Log in as the root user, as described in the "Becoming the Root User (Solaris Only)" section on page 3-2, or as a super user, as described in the "Specifying a Super User (Solaris Only)" section on page 4-22.

Step 2 Enter the following commands:

 # cd /opt/CSCOsgm/bin

 # ./sgm tac

This command might take a minute or more to complete. When it completes, SGM displays the following message and prompt:

Output is in /opt/CSCOsgm/tmp/cisco_sgm_tshoot.log

Would you like to view it? [y]

Step 3 Press **Enter**. SGM displays the contents of the */opt/CSCOsgm/tmp/cisco_sgm_tshoot.log* file.

Viewing SGM Data on the Web

SGM provides an enormous amount of Web-based troubleshooting information. From the SGM Server Home Page, you can access many Web pages containing SGM data, including server status, network status, installation logs, message logs, product documentation, and other important troubleshooting information about SGM. For full details, see the "Accessing SGM Data from a Web Browser" section on page 7-1.

Viewing Detailed Troubleshooting Instructions for Events

SGM provides extensive type-specific help and troubleshooting instructions for events. To see help and troubleshooting instructions for an event, right-click the event in the Event Window and select **Help for Event**.

You can also provide your own enterprise-specific instructions to operators in the event help. For more information, see the "Modifying Help for Events" section on page 5-37.

Diagnosing a Typical Network Problem

When you use SGM to diagnose a problem in an ITP network, follow these basic steps:

1. Monitor the network using the Link, Linkset, Signaling Point, Node, and Topology windows. For example, an object in the topology map that changes color from green to yellow or red indicates a problem in the network.
2. Use SGM windows, especially the Details window, to begin investigating the problem.
3. As you identify the source of the problem, examine the messages logged by SGM for more detailed information about the sequence of events that led to the problem.
4. Telnet to the problematic ITP, if necessary.

The following real-life example provides detailed information about using SGM to diagnose a problem in an ITP network:

Step 1 A network operator (we'll call him Joe) is using SGM to monitor an ITP network. Joe has customized his view, limiting it to only those nodes for which he is responsible.

(For more information about customizing views, see the "Working with Views" section on page 3-26.)

Step 2 In the topology map, Joe notices a signaling point that has changed color from green to yellow. Yellow indicates a status of **Warning**, which means that one or more links or linksets associated with that signaling point is in **Unknown** or **Warning** status and is not flagged as **Ignored**.

(For more information about signaling point status, see the "Working with Signaling Points" section on page 3-136.)

Step 3 Joe single-clicks the signaling point in the topology map.

SGM highlights the signaling point in the topology map, and in the topology signaling point table, in the left pane of the Topology window. With the signaling point highlighted, Joe can easily see that the name of the signaling point is **sgm-7500j**.

SGM also displays all associated linksets in the topology linkset table.

Joe double-clicks the signaling point's name in the topology signaling point table.

SGM redraws the topology map, centered on **sgm-7500j**, making it easier for Joe to see the relevant portion of the map.

(For more information about the Topology window and how to use it, see the "Viewing the Topology of the Network" section on page 3-259.)

Step 4 Joe notices that one of **sgm-7500j**'s diamonds is red, indicating that the associated linkset is either **Unavailable** or **Unknown**. Joe single-clicks the red diamond.

SGM highlights the linkset in the topology map and in the topology linkset table. The table entry indicates that the linkset is **Unavailable**.

(For more information about linkset status, see the "Viewing Basic Information for Linksets" section on page 3-38.)

Step 5 Joe right-clicks the linkset in the topology map and selects **View > Configuration Details** in the right-click menu.

SGM opens the Details window, showing detailed information for the linkset.

In the Details window, detailed information for the selected linkset is displayed in the left column and for the adjacent linkset in the right column

Immediately, Joe sees that the left column is populated with SGM data, but the right column is not. The problem is in the adjacent signaling point-to-primary signaling point linkset.

(For more information about linkset details, see the "Viewing Detailed Information for a Linkset" section on page 3-42.)

Step 6 The turner beside **Linkset** in the left pane displays the list of links associated with the linkset, identified by their signaling link code IDs (SLCs). In this case, there is only one link listed, **SLC 0**, and it is red, meaning it is **Failed** and there is no traffic flowing on the link.

Joe selects **SLC 0**, and SGM displays detailed information for the link in the left column. Normally SGM also displays detailed information for links associated with the adjacent linkset in the right column, but in this case, that column is blank.

(For more information about linkset status, see the "Viewing Detailed Information for a Link" section on page 3-175.)

Step 7 Joe decides to investigate the adjacent signaling point, so he double-clicks the adjacent signaling point in the topology map.

The resulting display shows that the adjacent signaling point, **sgm-2600a**, is **Unmanaged**.

(For more information about signaling point details, see the "Viewing Detailed Information for a Signaling Point" section on page 3-141.)

Step 8 Joe closes the Details window and returns to the Topology window. He tries to find **sgm-2600a** in the topology map, but the map is too complex. So Joe lets SGM find the node for him:

a. He selects **Edit > Find** in the SGM Main Menu. SGM displays the Find dialog.

b. He enters **sgm-2600a** in the **Search string** field, selects the **Signaling Points** checkbox, and makes sure the **Name**, checkbox is selected.

c. He clicks **OK** to launch the search. Almost immediately, SGM finds the node and displays the Choose dialog, listing all found objects.

d. Joe selects **sgm-2600a**, and SGM automatically highlights **sgm-2600a** in the topology signaling point table and in the topology map, and redraws the map centered on **sgm-2600a**.

(For more information about finding objects in the topology map, see the "Viewing the Topology of the Network" section on page 3-259.)

Step 9 Joe wants to see recent events for **sgm-2600a**, so he clicks the node in the topology map and selects **View > Events** in the SGM Main Menu. SGM displays the Event Window, showing recent events for **sgm-2600a**.

(For more information about viewing events, see the "Working with Events" section on page 3-235.)

Step 10 Joe decides to see if SGM can manage the signaling point. He right-clicks **sgm-2600a** in the topology map and selects **Manage** in the right-click menu.

SGM changes the status of the signaling point from **Unmanaged** (red) to **Warning** (yellow), which means the signaling point is active, but one or more associated linksets or links has a status of **Failed**, **Unavailable**, **Unknown**, or **Warning** and is not flagged as **Ignored**.

(For more informations, see the "Unmanaging and Managing a Signaling Point" section on page 3-169.)

Step 11 Joe wants to see status change messages for **sgm-2600a**, so he right-clicks the signaling point again and selects **Event History > Status Change Messages** in the right-click menu. SGM displays recent status change messages for the signaling point in a Web browser.

Joe sees that many of the links and linksets associated with **sgm-2600a** have a status of **Unknown**.

(For more information about displaying messages on the Web, see the "Accessing SGM Data from a Web Browser" section on page 7-1.)

Step 12 At this point, Joe needs to determine why so many of the links and linksets are **Unknown**. He needs to verify that the SGM server can ping the node (see the "Telnetting to an ITP" section on page 5-52), and that SGM is configured with the correct SNMP community name for the node (see the "Configuring SNMP" section on page 3-2).

(For a list of some other actions Joe can take, see the "Verifying Discovery" section on page 6-1.)

Step 13 Finally, Joe can use another product, such as CiscoView, to further investigate the problem.

(For more information about integrating SGM with CiscoView and other products, see the "Integrating SGM with Other Products" section on page 3-401.)