Managing ITP Networks Using SGM

This chapter provides details on using SGM to discover and manage your ITP networks. It includes the following sections:

Becoming the Root User (Solaris Only)

Some SGM procedures require you to be logged in as the root user.

Caution As the root user, you can adversely affect your operating environment if you are unaware of the effects of the commands you use. If you are a relatively inexperienced UNIX user, limit your activities as the root user to the tasks described in this manual.

If you are not logged in, log in as the root user:

> login: root

> Password: *root-password*

If you are already logged in, but not as the root user, use the **su** command to change your login to root:

 # su

 # Password: *root-password*

Configuring SNMP

If SGM User-Based Access is disabled, or if it is enabled and you are a Network Administrator or System Administrator, SGM enables you to view and change some SNMP settings. (For more information about user authorization levels in SGM, see the "Configuring SGM User Authentication Levels (Solaris Only)" section on page 4-6.)

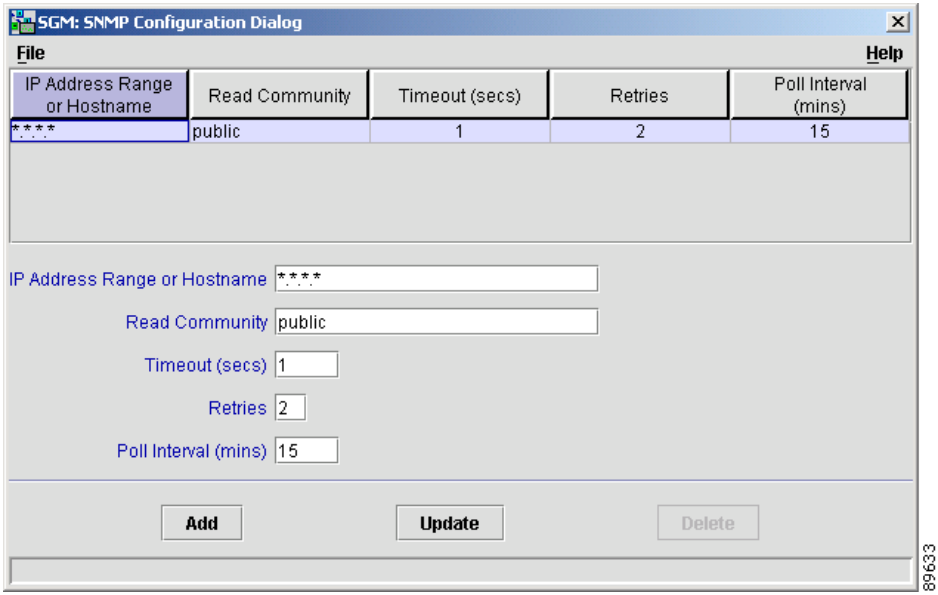
Note If you want to change SNMP settings, do so *before* running Discovery.

To change SNMP settings in SGM:

Step 1 Start the SGM client, as described in the "Starting SGM" section on page 2-2.

Step 2 Select **Edit > SNMP Configuration** from the SGM Main Menu. (If you have implemented SGM User-Based Access, this option is available to users with authentication level Network Administrator [Level 4] and higher.) SGM displays the SNMP Configuration Dialog (Figure 3-1).

Figure 3-1 SNMP Configuration Dialog



The SNMP settings table displays SNMP information for nodes in SGM.

Step 3 (Optional) To delete a node, select it and click **Delete**.

Step 4 (Optional) To change the IP address or DNS name of a node, select the node and enter the new address or name in the **IP Address Range or Hostname** field.

- IP addresses use the format *x.x.x.x*, where each *x* has one of the following values:
  - An integer in the range 0 through 255.
  - A range of integers separated by a dash (-), such as 10-60.
  - An asterisk (*), which is equivalent to specifying 0-255.
- Unlike IP addresses, you cannot specify a range of node names or use wildcards in node names. Each node name corresponds to a single node in the network.

The default value for this field is the IP address *.*.*.*, which SGM uses for all nodes not covered by other IP address ranges or names.

Click **Update** to apply the new IP address to the selected node.

Step 5 (Optional) Nodes use SNMP community names for read access to the information maintained by the SNMP agent on the ITP. To change the SNMP community name for a node, select the node and enter the new name in the **Read Community** field. This name must match the name used by the node. The default name is **public**.

Click **Update** to apply the new SNMP community name to the selected node.

For information about exporting SNMP community names from CiscoWorks2000 Resource Manager Essentials (RME), see the "Importing SNMP Community Names from CiscoWorks2000 (Solaris Only)" section on page 5-2.

Step 6 (Optional) If you determine that SGM waits too long for a response from a node, or does not wait long enough, you can change the timeout value. To change the time, in seconds, that SGM waits for a response from a node, select the node and enter the new timeout value in the **Timeout (secs)** field. The valid range is 1 to 60 seconds. The default value is 1 second.

Click **Update** to apply the new timeout to the selected node.

Step 7 (Optional) If you determine that SGM retries a node too many times, or not enough times, you can change the number of retries. To change the number of times SGM attempts to connect to a node, select the node and enter the new number in the **Retries** field. The valid range is 0 to 99. The default value is 2 retries.

Click **Update** to apply the new retries value to the selected node.

Step 8 (Optional) If you determine that SGM polls a node too often, or not often enough, you can change the poll interval. To change the time, in minutes, between polls for a node, select the node and enter the new interval in the **Poll Interval (mins)** field. The valid range is 5 to 1440. The default value is 15 minutes.

Click **Update** to apply the new poll interval to the selected node.

Step 9 (Optional) To add a new node or range of nodes, enter the SNMP information in the appropriate fields and click **Add**. The new SNMP settings are added to the SGM database.

When you are satisfied with all of your changes to the SNMP settings, select the **File > Save** menu option. SGM saves the changes, updates the SNMP information on the SGM server in real time, and closes the SNMP Configuration Dialog.

Note If another user modifies and saves the SNMP configuration before you save your changes, SGM asks if you want to overwrite that user's changes. If you choose to do so, the other user's changes are overwritten and lost. If you choose not to do so, your changes are lost.

For more information about SNMP, refer to "Configuring SNMP Support" in the Cisco IOS Release 12.2 *Configuration Fundamentals Configuration Guide*, Part 3, Cisco IOS System Management.

SGM also provides the following SNMP-related commands:

- To set a new default SNMP read community name, use the **sgm snmpcomm** command.
- To change the file used for SNMP parameters, such as community names, timeouts, and retries, use the **sgm snmpconf** command.
- To query a host using SNMP GetRequests, use the **sgm snmpget** command.
- To query a host using SNMP GetNextRequests, use the **sgm snmpnext** command.
- To query a host, using SNMP GetNextRequests to "walk" through the MIB, use the **sgm snmpwalk** command.

For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Discovering the Network

SGM uses a Discovery process to populate the SGM database, discovering the nodes, signaling points, linksets, and links in your network.

You can run Discovery if SGM User-Based Access is disabled, or if it is enabled and you are a Network Administrator or System Administrator. (For more information about user authorization levels in SGM, see the "Configuring SGM User Authentication Levels (Solaris Only)" section on page 4-6.)

Related Topics:

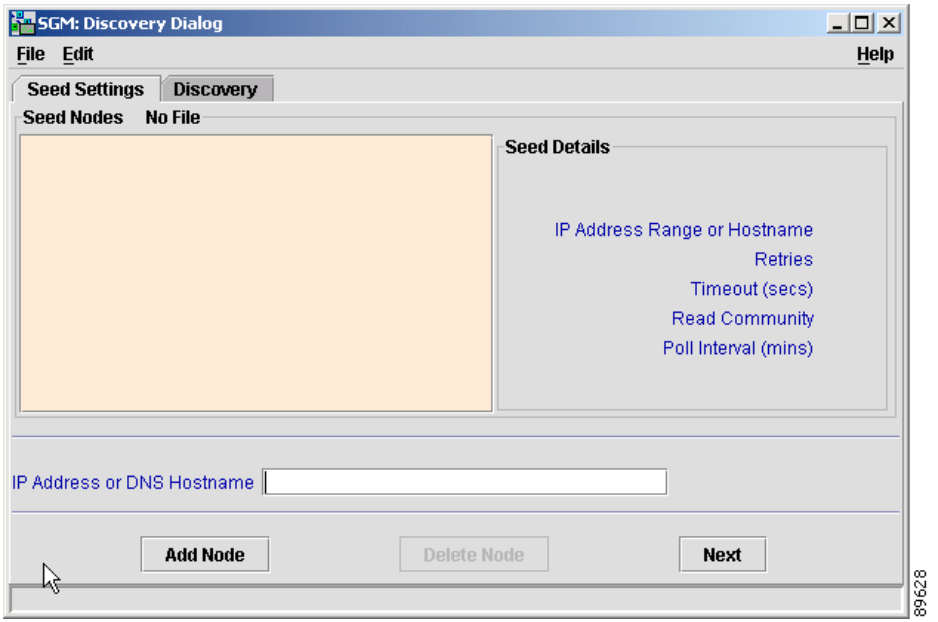
- Backing Up or Restoring SGM Files (Solaris Only), page 5-47
- Configuring Seed Files, page 3-20
- Investigating Data Problems, page 6-2
- Verifying Discovery, page 6-1

To discover the network in SGM:

Step 1 Start the SGM client, as described in the "Starting SGM" section on page 2-2.

Step 2 Select **Edit > Network Discovery** from the SGM Main Menu. SGM displays the Discovery Dialog (Figure 3-2).

Figure 3-2 Discovery Dialog



If you start the SGM client and the SGM database is empty (including the very first time you start the SGM client), SGM automatically opens the Discovery Dialog so you can run Discovery and populate the database.

Step 3 Select the **Seed Settings** tab, if it is not already selected. SGM displays the Seed Settings panel, which enables you to create, save, load, and delete SGM seed files. Seed files are lists of seed nodes, which SGM uses to discover the nodes, signaling points, linksets, and links in your network.

Step 4 Load one or more seed nodes, using one of the following procedures:

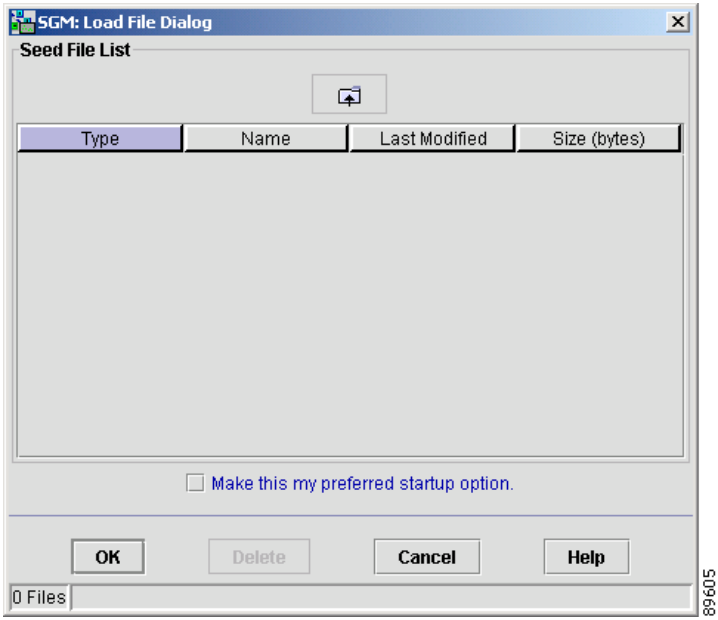
- Enter the name or IP address of a seed node in the **IP Address or DNS Hostname** field, and click **Add Node**.

  SGM displays details of the SNMP settings for the seed nodes in the right pane of the window.

  Continue adding seed nodes until you are certain that SGM will be able to discover the entire network.

- If you have already created and saved a seed file, select **File > Load Seeds** from the Discovery Dialog menu. SGM displays the Load File Dialog: Seed File List dialog (Figure 3-3).

Figure 3-3 Load File Dialog: Seed File List Dialog



The Load File Dialog: Seed File List dialog contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the seed file or folder.
- **Last Modified**—Date and time the seed file or folder was last modified.

- **Size (bytes)**—Size of the seed file or folder, in bytes.
- **Make this my preferred start option**—Specifies whether the selected seed file is to be loaded automatically whenever this SGM client is started or the Discovery Dialog is opened. By default, this checkbox is cleared for all seed files. That is, no seed file is loaded automatically when the SGM client is started or the Discovery Dialog is opened.
- **Number of Files**—Total number of seed files and folders (displayed in bottom left corner).

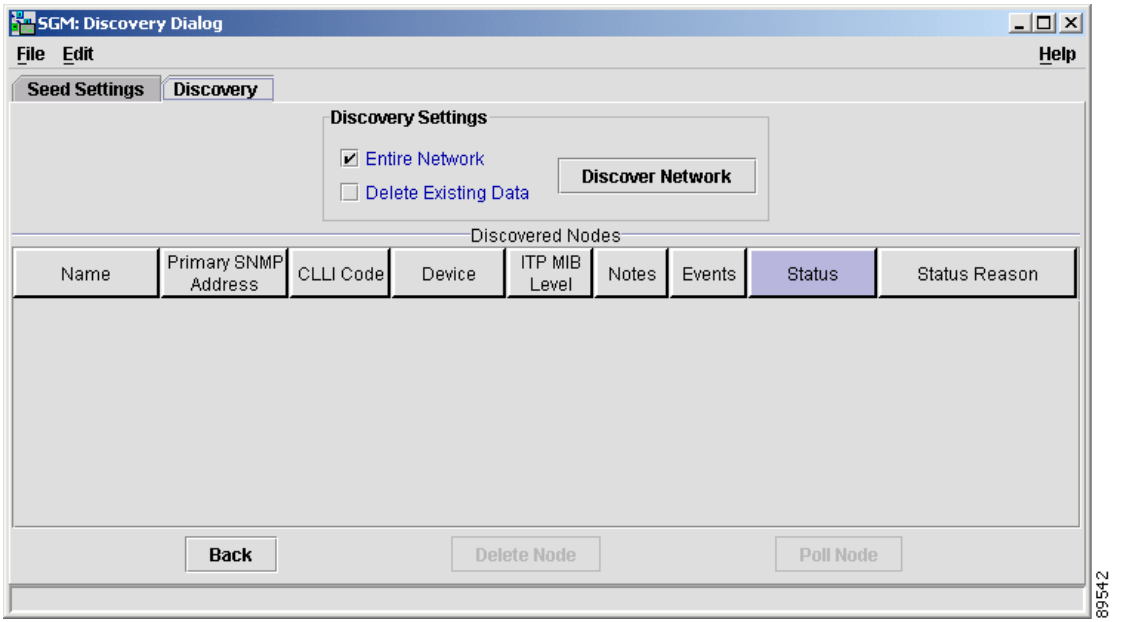
To load a seed file, select the seed file in the list and click **OK**.

SGM closes the Load File Dialog: Seed File List dialog, loads the seed file, and returns to the Discovery Dialog. SGM lists all of the seed nodes in the seed file in the left pane of the window, and displays details of the SNMP settings for the seed nodes in the right pane.

To close the Load File Dialog: Seed File List dialog without loading a seed file, click **Cancel**.

Step 5 Select the **Discovery** tab, or click **Next**. SGM displays the Discovery panel (Figure 3-4), which enables you to discover the nodes, signaling points, linksets, and links in your network. (If you enter a seed node IP address or name in the **IP Address or DNS Hostname** field, then click **Next**, SGM automatically adds the seed node before displaying the Discovery panel.)

Figure 3-4 Discovery Panel



Step 6 (Optional) Specify the extent of the network discovery.

- To discover the entire network, select the **Entire Network** checkbox. This is called *recursive discovery*, and it is the default setting. Select this checkbox when you run Discovery for the very first time.

  With this checkbox selected, SGM discovers all seed nodes and attempts to manage them; then attempts to discover and manage all ITP nodes that are adjacent to those seed nodes (unless the nodes are connected by serial links only); then attempts to discover and manage all ITP nodes that are adjacent to *those* nodes; and so on, until SGM has discovered the entire network.

- To rediscover only seed nodes, clear the **Entire Network** checkbox. This is called *nonrecursive discovery*.

  With this checkbox cleared, SGM discovers all seed nodes and attempts to manage them, then labels all nodes that are adjacent to those seed nodes **Unmanaged**.

If you run Discovery with **Entire Network** cleared, then you run Discovery with **Entire Network** selected, any **Unmanaged** nodes in the first Discovery are not rediscovered by the second Discovery.

To recover from this situation and generate a new, complete, and reliable SGM database, you **must** perform one of the following procedures:

a. Run Discovery again, with both **Entire Network** and **Delete Existing Data** selected.

b. Change the Unmanaged nodes to managed status. See the "Unmanaging and Managing a Node" section on page 3-133 for more information.

c. Poll the nodes that were **Unmanaged** in the first Discovery. See the "Polling a Node" section on page 3-134 for more information.

Step 7 (Optional) Specify whether SGM is to keep or delete the existing database when discovering the network:

- To keep all existing network data in the SGM database before rediscovering the network, clear the **Delete Existing Data** checkbox. This is the default setting. Clear this checkbox when you run Discovery for the very first time.
- To delete all existing network data from the SGM database before rediscovering the network, select the **Delete Existing Data** checkbox. Choose this option if you know that network elements have been deleted from your network since the last Discovery.

Note If you discover the network with **Delete Existing Data** selected, SGM stops any real-time polls that are running and issues appropriate messages.

Step 8 Click **Discover Network** to begin Discovery.

When Discovery begins:

- The **Discover Network** button is grayed-out.
- The "Discovery In Progress" message is displayed at the bottom of the Discovery Dialog.
- The "Discovery In Progress" message is displayed in the title bar of all SGM client windows.

Discovery progresses in bursts. You might see a number of updates, followed by a pause, followed by more updates. The information displayed in SGM windows is not fully updated until Discovery is complete.

By default, Discovery times out after 600 seconds (10 minutes). To change the Discovery timeout, change the value of the DISCOVERY_TIMELIMIT entry in the *Server.properties* file:

- If you installed SGM in the default directory, */opt*, then the location of the *Server.properties* file is */opt/CSCOsgm/properties/Server.properties*.
- If you installed SGM in a different directory, then the *Server.properties* file is located in that directory.

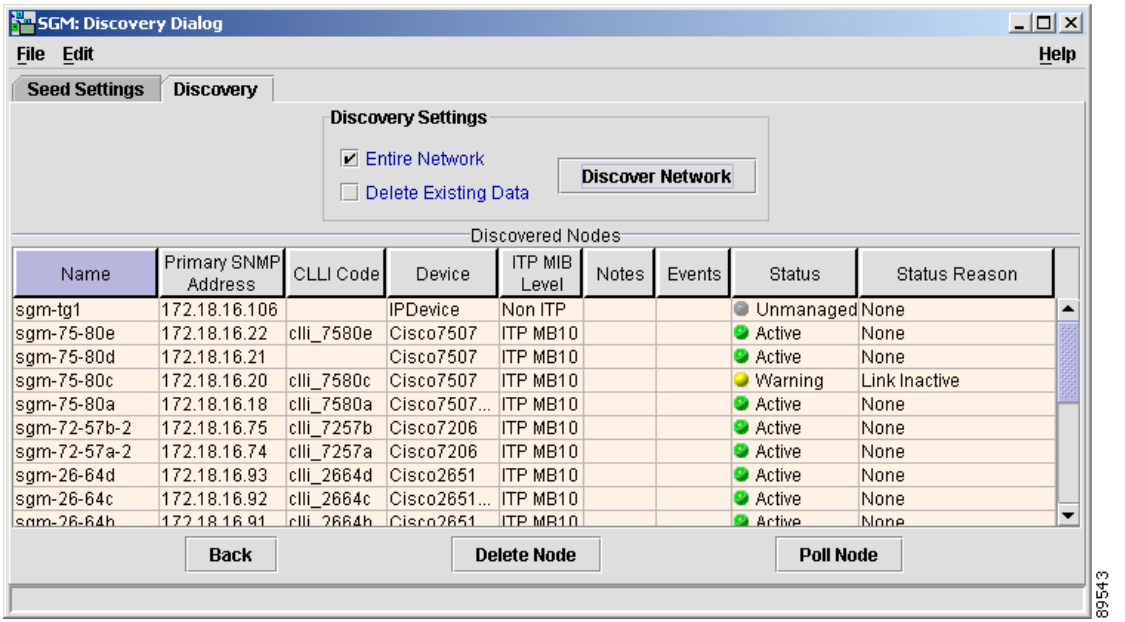
Because SGM is an asynchronous system, with the SGM server contacting clients one at a time, and because clients might run at different speeds, the information displayed by SGM clients during Discovery might not always be synchronized.

Step 9 (Optional) To stop the Discovery process at any time, click **Stop Discovery**. For example, if you click **Discover Network**, then you realize that you loaded a seed node that you did not intend to load, you can click **Stop Discovery** to stop the Discovery process.

Note If you stop the Discovery process, the information in the SGM database is incomplete and unreliable. To generate a new, complete, and reliable SGM database, you **must** run Discovery again, with **Delete Existing Data** selected.

Step 10 When the "Discovery In Progress" message disappears, Discovery is complete. The Discovered Nodes section of the Discovery panel (Figure 3-5) lists all nodes that were discovered by SGM. By default, this table is sorted by **Status**.

Figure 3-5 Discovery Panel with Discovered Nodes



By default, SGM displays all of the columns in the Discovered Nodes section except **Internal ID**, **ITP Uptime**, **Reboot Reason**, and **Last Status Change**. To display these columns, or to hide other columns, see the procedures in the "Modifying Node Table Column Settings" section on page 5-16.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

The Discovered Nodes section displays the following information for each discovered node:

- **Internal ID—**Internal ID of the event. The internal ID is a unique ID for every event, link, linkset, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Name**—Name or IP address of the discovered node.
- **Primary SNMP Address**—IP address of the node, used by SNMP to poll the node. (There might be other IP addresses on the node that are not the primary SNMP address.)
- **CLLI Code—**COMMON LANGUAGE Location Identification Code for the node. A CLLI code is a standardized 11-character identifier that uniquely identifies the geographic location of the node. If the node has no CLLI code configured, this field is blank.
- **Device Type**—Device type of the node. Possible values are:
  - **Cisco2650**—Cisco 2650 series router
  - **Cisco2650XM**—Cisco 2650XM series router
  - **Cisco2651**—Cisco 2651 series router
  - **Cisco2651XM**—Cisco 2651XM series router
  - **Cisco7204**—Cisco 7204 series router
  - **Cisco7204VXR**—Cisco 7204VXR series router
  - **Cisco7206**—Cisco 7206 series router
  - **Cisco7206VXR**—Cisco 7206VXR series router
  - **Cisco7507**—Cisco 7507 series router
  - **Cisco7507mx**—Cisco 7507mx series router
  - **Cisco7507z**—Cisco 7507z series router
  - **Cisco7513**—Cisco 7513 series router
  - **Cisco7513mx**—Cisco 7513mx series router
  - **Cisco7513z**—Cisco 7513z series router
  - **IPDevice**—IP device, other than those listed above. You can assign this icon to an unknown node if you know that it is an IP device.
  - **Unknown**—SGM is unable to determine the device type.

- **ITP MIB Level—**MIB conformance level used by the ITP, such as **ITP MB5**.
- **ITP Uptime—**Time the ITP has been up, in weeks, days, hours, minutes, and seconds.
- **Reboot Reason—**Reason for the last reboot of the ITP.
- **Notes**—Indicates whether there is a note associated with the node.
- **Events**—Indicates whether there is a recent event associated with the node.

  During Discovery, SGM might flag most nodes with an event icon. If the event icons are too distracting, select **Edit > Clear All Events** from the SGM Main Menu to remove them.
- **Last Status Change**—Date and time that the status of the node last changed.
- **Status**—Current status of the node. Possible values are:
  - **Active (green ball)**—The node is currently fully functional.
  - **Discovering (gray ball)**—The node is being discovered, and SNMP queries have been sent to the device.
  - **Polling (gray ball)**—The node is being polled.
  - **Unknown (red ball)**—The node failed to respond to an SNMP request. SGM sets all associated signaling points, linksets, and links to **Unknown**.
  - **Unmanaged (gray ball)**—One of the following situations exists:

    – The node is known indirectly by SGM. In other words, SGM knows the device exists but there is no known SNMP stack on the device for SGM to query.

    – An SGM user has set the node to **Unmanaged** status, to prevent SGM from polling the node.

    If the associated signaling points are referenced via linksets to other signaling points, SGM automatically sets all associated signaling points to **Unmanaged**, and deletes all associated linksets and links, as well as all linksets and links that reference the node as an adjacent node.

    If the associated signaling points are not referenced to other signaling points, SGM automatically deletes the signaling points, all associated linksets and links, and all linksets and links that reference the node as an adjacent node.

  - **Waiting (gray ball)**—The node is in the Discovery queue but is not currently being discovered.
  - **Warning (yellow ball)**—The node is active, but one or more associated signaling points, linksets, or links is in **Failed**, **Unavailable**, **Unknown**, or **Warning** status and is not **Ignored**.

- **Status Reason**—Reason for the current status of the node. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**
  - **Not Configured for ITP**
  - **MIB Data Error**
  - **SNMP Exception**
  - **SignalingPoint Inactive**
  - **Linkset Inactive**
  - **Link Congested**
  - **Link Send Utilization Threshold Exceeded**
  - **Link Receive Utilization Threshold Exceeded**
  - **Link Local Interface Inactive**
  - **Link Remote Interface Inactive**
  - **Link Inactive**

  If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

  The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

The "Viewing Detailed Information for a Link" section on page 3-175 displays additional information about the causes of link failures.

The "Viewing Detailed Information for a Linkset" section on page 3-42 displays additional information about the causes of linkset failures.

All discovered nodes are placed in a DEFAULT configuration view, which is stored on the SGM server and shared by all SGM clients. Initially, all clients use the DEFAULT view. Clients can then create their own views, which are subsets of the DEFAULT view, to meet their individual needs. However, the DEFAULT view stored on the SGM server cannot be modified by the clients. It is always available, for users who need to view the entire network.

All other SGM windows (Node, Signaling Point, Linkset, Topology, and so on) are also populated with the newly discovered network data.

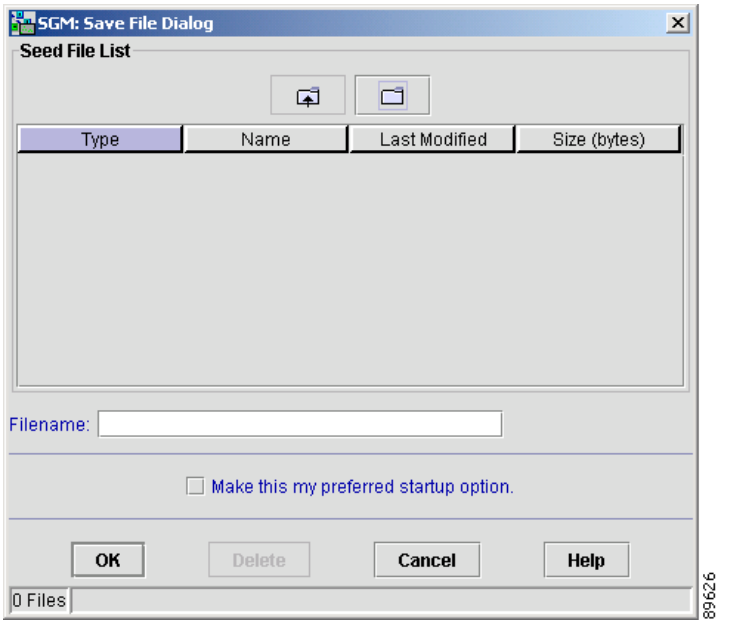
Step 11 (Optional) To delete a node or nodes from the Discovery database, select the nodes and click **Delete Node**. SGM deletes the nodes without asking for confirmation.

Step 12 (Optional) Examine the Discovered Nodes table to verify that SGM discovered all of the nodes in the network. If you suspect that SGM did not discover all of the nodes, see the "Verifying Discovery" section on page 6-1 for troubleshooting information. You might need to add more seed nodes and run Discovery again.

Step 13 When you are satisfied that SGM discovered all of the nodes in the network, save the list of seed nodes in a seed file, using one of the following procedures:

- To save the changes you have made to the seed file without changing the name of the file, select **File > Save** from the Discovery Dialog menu.
- To save the changes you have made to the seed file with a new name, select **File > Save As** from the Discovery Dialog menu. SGM displays the Save File Dialog: Seed File List dialog (Figure 3-6).

Figure 3-6 Save File Dialog: Seed File List Dialog



The Save File Dialog: Seed File List dialog contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the seed file or folder.
- **Last Modified**—Date and time the seed file or folder was last modified.
- **Size (bytes)**—Size of the seed file or folder, in bytes.
- **Filename**—Name by which you want to save the seed file.

  If you create a new seed file name, you can use any letters, numbers, or characters in the name that are allowed by your operating system. However, if you include any spaces in the new name, SGM converts those spaces to dashes. For example, SGM saves file “a b c” as “a-b-c”.

- **Make this my preferred start option**—Specifies whether the selected seed file is to be loaded automatically whenever this SGM client is started or the Discovery Dialog is opened. By default, this checkbox is cleared for all seed files. That is, no seed file is loaded automatically when the SGM client is started or the Discovery Dialog is opened.
- **Number of Files**—Total number of seed files and folders (displayed in bottom left corner).

To save the seed file with a new name, use one of the following procedures:

- To save the file with a completely new name, enter the new name and click **OK**.
- To save the file with an existing name, overwriting an old seed file, select the name in the list and click **OK**.

SGM saves the seed file with the new name, closes the Save File Dialog: Seed File List dialog, and returns to the Discovery Dialog.

Note If another user modifies and saves the seed file before you save your changes, SGM asks if you want to overwrite that user's changes. If you choose to do so, the other user's changes are overwritten and lost. If you choose not to do so, your changes are lost, unless you save the seed file to a different filename.

SGM stores the seed file in the seed file directory on the SGM server:

- If you installed SGM in the default directory, */opt*, then the SGM seed file directory is */opt/CSCOsgm/seeds*.
- If you installed SGM in a different directory, then the SGM seed file directory is located in that directory.

To delete a seed file from the seed file list, select a file and click **Delete**. SGM issues an informational message containing the name and location of the deleted file.

To save any changes you made to the list of files, click **OK**. SGM saves the changes and closes the Save File Dialog: Seed File List dialog.

To close the Save File Dialog: Seed File List dialog without saving the seed file or saving any changes to the seed file list, click **Cancel**.

You can run Discovery multiple times to attempt to discover additional nodes based on the IP address defined in the Stream Control Transmission Protocol (SCTP) linksets. If you are using a separate management VLAN to manage your nodes, but private or unreachable IP addresses for your SCTP connectivity, clear the **Entire Network** checkbox in the Discovery Dialog. Otherwise, Discovery attempts to reach those nodes continuously. Instead, enter all nodes to be discovered directly into the seed list and do a nonrecursive Discovery.

Configuring Seed Files

SGM enables you to create, save, load, and delete SGM seed files.

This section includes the following information:

- Creating a New Seed File, page 3-20
- Modifying an Existing Seed File, page 3-22
- Creating and Modifying Seed Files Using a Text Editor, page 3-24

Related Topics:

- Discovering the Network, page 3-6

Creating a New Seed File

To create a new seed file in SGM:

Step 1 Select **Edit > Network Discovery** from the SGM Main Menu. SGM displays the Discovery Dialog (Figure 3-2).

Step 2 Select the **Seed Settings** tab, if it is not already selected. SGM displays the Seed Settings panel.

Step 3 Enter the name or IP address of a seed node in the **IP Address or DNS Hostname** field, and click **Add Node**. SGM displays details of the SNMP settings for the seed node in the right pane of the window.

Continue to add as many seed nodes as necessary.

Step 4 When you are ready to save the list of seed nodes in a new seed file, select **File > Save As** from the Discovery Dialog menu. SGM displays the Save File Dialog: Seed File List dialog (Figure 3-6).

The Save File Dialog: Seed File List dialog contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the seed file or folder.
- **Last Modified**—Date and time the seed file or folder was last modified.
- **Size (bytes)**—Size of the seed file or folder, in bytes.
- **Filename**—Name by which you want to save the seed file. You can use any letters, numbers, or characters in the name that are allowed by your operating system. However, if you include any spaces in the new name, SGM converts those spaces to dashes. For example, SGM saves file “a b c” as “a-b-c”.
- **Make this my preferred start option**—Specifies whether the selected seed file is to be loaded automatically whenever this SGM client is started or the Discovery Dialog is opened. By default, this checkbox is cleared for all seed files. That is, no seed file is loaded automatically when the SGM client is started or the Discovery Dialog is opened.
- **Number of Files**—Total number of seed files and folders (displayed in bottom left corner).

Enter the new name and click **OK**. SGM saves the seed file with the new name, closes the Save File Dialog: Seed File List dialog, and returns to the Discovery Dialog.

SGM stores the new seed file in the seed file directory on the SGM server:

- If you installed SGM in the default directory, */opt*, then the SGM seed file directory is */opt/CSCOsgm/seeds*.
- If you installed SGM in a different directory, then the SGM seed file directory is located in that directory.

Modifying an Existing Seed File

To modify an existing seed file in SGM:

Step 1 Select **Edit > Network Discovery** from the SGM Main Menu. SGM displays the Discovery Dialog (Figure 3-2).

Step 2 Select the **Seed Settings** tab, if it is not already selected. SGM displays the Seed Settings panel.

Step 3 Select **File > Load Seeds** from the Discovery Dialog menu. SGM displays the Load File Dialog: Seed File List dialog (Figure 3-3).

The Load File Dialog: Seed File List dialog contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the seed file or folder.
- **Last Modified**—Date and time the seed file or folder was last modified.
- **Size (bytes)**—Size of the seed file or folder, in bytes.
- **Make this my preferred start option**—Specifies whether the selected seed file is to be loaded automatically whenever this SGM client is started or the Discovery Dialog is opened. By default, this checkbox is cleared for all seed files. That is, no seed file is loaded automatically when the SGM client is started or the Discovery Dialog is opened.
- **Number of Files**—Total number of seed files and folders (displayed in bottom left corner).

To load a seed file, select the seed file in the list and click **OK**.

SGM closes the Load File Dialog: Seed File List dialog, loads the seed file, and returns to the Discovery Dialog. SGM lists all of the seed nodes in the seed file in the left pane of the window, and displays details of the SNMP settings for the seed nodes in the right pane.

To close the Load File Dialog: Seed File List dialog without loading a seed file, click **Cancel**.

Step 4 (Optional) To add another seed node to the seed file, enter the name or IP address of the seed node in the **IP Address or DNS Hostname** field, and click **Add Node**.

Step 5 (Optional) To delete a seed node from the seed file, select the seed node and click **Delete Node**.

Step 6 When you are ready to save the modified seed file, use one of the following procedures:

- To save the changes you have made to the seed file without changing the name of the file, select **File > Save** from the Discovery Dialog menu.
- To save the changes you have made to the seed file with a new name, select **File > Save As** from the Discovery Dialog menu. SGM displays the Save File Dialog: Seed File List dialog (Figure 3-6).

The Save File Dialog: Seed File List dialog contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the seed file or folder.
- **Last Modified**—Date and time the seed file or folder was last modified.
- **Size (bytes)**—Size of the seed file or folder, in bytes.
- **Filename**—Name by which you want to save the seed file.

  If you create a new seed file name, you can use any letters, numbers, or characters in the name that are allowed by your operating system. However, if you include any spaces in the new name, SGM converts those spaces to dashes. For example, SGM saves file “a b c” as “a-b-c”.
- **Make this my preferred start option**—Specifies whether the selected seed file is to be loaded automatically whenever this SGM client is started or the Discovery Dialog is opened. By default, this checkbox is cleared for all seed files. That is, no seed file is loaded automatically when the SGM client is started or the Discovery Dialog is opened.
- **Number of Files**—Total number of seed files and folders (displayed in bottom left corner).

To save the seed file with a new name, use one of the following procedures:

- To save the file with a completely new name, enter the new name and click **OK**.
- To save the file with an existing name, overwriting an old seed file, select the name in the list and click **OK**.

SGM saves the seed file with the new name, closes the Save File Dialog: Seed File List dialog, and returns to the Discovery Dialog.

Note If another user modifies and saves the seed file before you save your changes, SGM asks if you want to overwrite that user's changes. If you choose to do so, the other user's changes are overwritten and lost. If you choose not to do so, your changes are lost, unless you save the seed file to a different filename.

SGM stores the seed file in the seed file directory on the SGM server:

- If you installed SGM in the default directory, */opt*, then the SGM seed file directory is */opt/CSCOsgm/seeds*.
- If you installed SGM in a different directory, then the SGM seed file directory is located in that directory.

To delete a seed file from the seed file list, select a file and click **Delete**. SGM issues an informational message containing the name and location of the deleted file.

To save any changes you made to the list of files, click **OK**. SGM saves the changes and closes the Load File Dialog: Seed File List dialog.

To close the Save File Dialog: Seed File List dialog without saving the seed file or saving any changes to the seed file list, click **Cancel**.

Creating and Modifying Seed Files Using a Text Editor

A seed file is simply an unformatted list of seed node names. To create a seed file using a text editor, simply create a file and list the seed node names, one on each line, with no other formatting:

new-york-a

new-york-b

chicago-c

When you save and name the seed file, keep the following considerations in mind:

- You can use any letters, numbers, or characters in the name that are allowed by your operating system.
- SGM saves the seed file with a *.see* file extension.
- SGM saves the seed file in the SGM server's seed file directory, *seeds*:
  - If you installed SGM in the default directory, */opt*, then the seed file directory is */opt/CSCOsgm/seeds/*.
  - If you installed SGM in a different directory, then the seed file directory is located in that directory.

When SGM loads the seed file, it verifies the syntax of the file, deleting blank lines and extraneous leading and trailing spaces as needed. SGM also verifies that each seed node name resolves to a valid IP address. If a name does not resolve to a valid IP address, SGM logs the erroneous entry and ignores it.

For example, given the following seed file:

new-york-a<space>

<space>new-york-b

zzzzzzzzzzzz

<blank line>

<tab>chicago-c<tab>

SGM loads the following entries:

new-york-a

new-york-b

chicago-c

Working with Views

When SGM discovers your network, all discovered nodes, signaling points, linksets, and links are placed in a DEFAULT configuration view, which is stored on the SGM server and shared by all SGM clients. The DEFAULT view cannot be modified by the clients. It is always available, for users who need to view the entire network.

Initially, all clients use the DEFAULT view. However, SGM enables you to create your own, client-specific views, which are subsets of the DEFAULT view, to meet your individual needs.

You can choose the nodes you are interested in managing, remove all other nodes from your view, and modify the layout of the topology map in the Topology window. You can save all of this customized information in a view, set that view as the default view for the SGM client, and use the SGM client from then on to manage only the part of the network you are interested in, with the settings you prefer.

You can also create many different views on a given SGM client, with each view devoted to a different aspect of the network. You can then switch between views to manage different parts of the network, or switch to the DEFAULT view to see the entire network.

If a given SGM client is used by more than one person, each user can create his or her own personal view.

To help you keep track of which view you are currently using, most SGM windows display the following information:

- In the title bar, the name of the system on which the SGM server is running.
- In the bottom right corner:
  - The name of the current view.
  - The text **(New Nodes Exist)**, if there is at least one newly discovered node or signaling point in the network that has not been added to your current view. To add the node to your current view, see the "Viewing the Topology of the Network" section on page 3-259. To exclude the node from your current view, see Step 6 in this section.
  - The text **(Modified)**, if the view has been modified but not yet saved. You must save the view if you want to save your changes. See Step 10 in this section for more details.

If your personal default view has been deleted, then the next time you launch the client SGM informs you that your default view has been deleted and that your view has been reset to the DEFAULT view. To choose another view as your default view, use the Load File Dialog: View List. See the "Loading a Client-Specific View" section on page 3-35 for details.

This section includes the following information:

Related Topics:

- Discovering the Network, page 3-6
- Modifying Preference Settings, page 5-3
- Modifying the Message Display, page 5-20
- Viewing the Topology of the Network, page 3-259

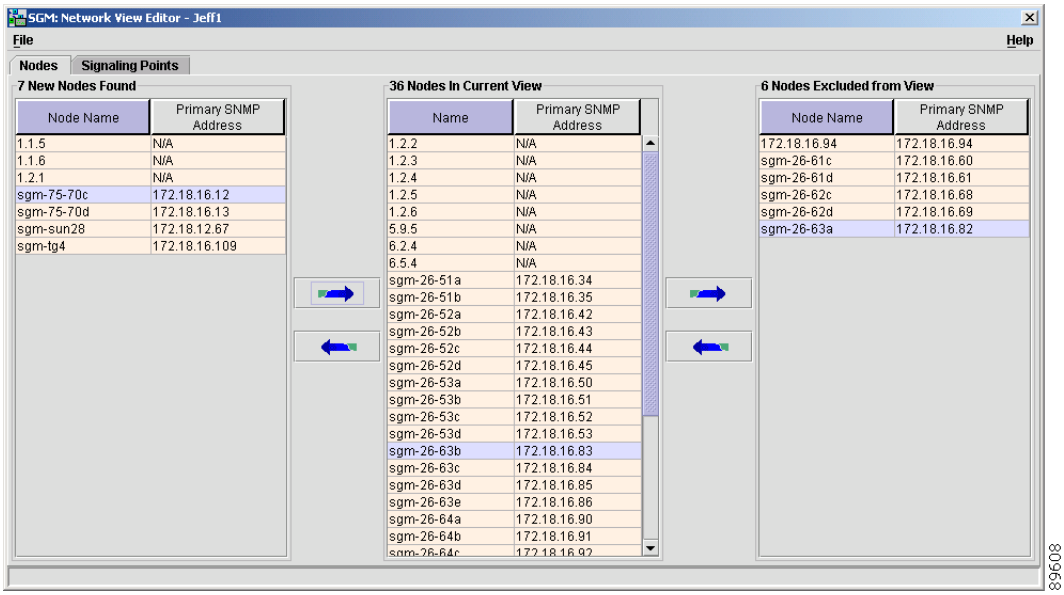
Creating a View

To create a client-specific network view:

Step 1 Before creating a client-specific network view, make sure that Discovery has been run at least once, and there is data in the server's SGM database. See the "Discovering the Network" section on page 3-6 for details.

Step 2 Select **Edit > Network Views** from the SGM Main Menu. SGM displays the Network View Editor window (Figure 3-7).

Figure 3-7 Network View Editor Window



The Nodes panel and Signaling Points panel display:

- New nodes and signaling points that have been found by SGM.
- All nodes and signaling points that are in the current view.
- All nodes and signaling points that have been excluded from the current view.

The Nodes panel and Signaling Points panel also enable you to move nodes and signaling points into and out of the current view. All changes made in these panels are reflected in topology tables and maps as soon as you make the changes.

To display the Nodes panel, select the **Nodes** tab.

To display the Signaling Points panel, select the **Signaling Points** tab.

Step 3 (Optional) If you have already saved a view and you want to modify it, select the **File > Load** menu option. SGM prompts you for the name of the view you want to load. Enter the name of the view, or accept the default view name, then click **OK** to load the view.

Step 4 (Optional) The Nodes In Current View table lists the nodes that are in the current view. If there are nodes listed in the Nodes In Current View table that you do *not* want to manage, you can remove them from the current view. To do so, select one or more nodes in the Nodes In Current View table, then click the right-arrow button to move the nodes to the Nodes Excluded from View table.

Note If you are using an SGM client with the DEFAULT view set, SGM automatically adds all newly discovered nodes to the Nodes In Current View table as soon as they are discovered.

If you delete a node, SGM removes it from the Nodes In Current View table. If SGM then discovers the node, SGM places it in the New Nodes Found table. To see this node again in your current view, you must move it into the Nodes In Current View table.

At times, you might want to make an existing node a new node. To do so, select one or more nodes in the Nodes In Current View table, then click the left-arrow button to move the nodes to the New Nodes Found table.

Step 5 (Optional) The Nodes Excluded from View table lists the nodes that have been excluded from the current view. To add these nodes to the current view, select them in the Nodes Excluded from View table and click the left-arrow button to move the node to the Nodes In Current View table.

At times, you might want to make an excluded node a new node. To do so, select one or more nodes in the Nodes Excluded From View table, click the left-arrow button to move the node to the Nodes In Current View table, then click the next left-arrow button to move the nodes to the New Nodes Found table.

Step 6 (Optional) The New Nodes Found table displays newly discovered nodes, based on the following criteria:

- If you are using an SGM client with the DEFAULT view set, this table never contains any nodes. In the DEFAULT view, SGM adds all newly discovered nodes to the Nodes In Current View table as soon as they are discovered.
- If you are using an SGM client with a custom view set, this table contains all nodes discovered since the Network View Editor window was opened in this session that have *not* been excluded in the Nodes Excluded from View table, or that are not in the current view.

When SGM discovers one or more new nodes in the network, SGM also takes the following actions:

- SGM broadcasts the discovery of the new nodes to all SGM clients.
- SGM displays the text **(New Nodes Exist)** in the bottom right corner of most SGM windows.
- SGM adds graphical elements for the newly discovered nodes to the topology new signaling point panel in the left pane of the Topology window. For more information, see the "Viewing the Topology of the Network" section on page 3-259.

To add a newly discovered node to the current view, select one or more nodes and click the right-arrow button to move them to the Nodes In Current View table.

To exclude a newly discovered node from the current view, select the node, click the right-arrow button to move the node to the Nodes In Current View table, then click the next right-arrow button to move the node to the Nodes Excluded From View table.

Step 7 (Optional) The Signaling Points In Current View table lists the signaling points that are in the current view. If there are signaling points listed in the Signaling Points In Current View table that you do *not* want to manage, you can remove them from the current view. To do so, select one or more signaling points in the Signaling Points In Current View table, then click the right-arrow button to move the signaling points to the Signaling Points Excluded from View table.

Note If you are using an SGM client with the DEFAULT view set, SGM automatically adds all newly discovered signaling points to the Signaling Points In Current View table as soon as they are discovered.

If you delete a signaling point, SGM removes it from the Signaling Points In Current View table. If SGM then discovers the signaling point, SGM places it in the New Signaling Points Found table. To see this signaling point again in your current view, you must move it into the Signaling Points In Current View table.

At times, you might want to make an existing signaling point a new signaling point. To do so, select one or more signaling points in the Signaling Points In Current View table, then click the left-arrow button to move the signaling points to the New Signaling Points Found table.

Step 8 (Optional) The Signaling Points Excluded from View table lists the signaling points that have been excluded from the current view. To add these signaling points to the current view, select them in the Signaling Points Excluded from View table and click the left-arrow button to move the signaling point to the Signaling Points In Current View table.

At times, you might want to make an excluded signaling point a new signaling point. To do so, select one or more signaling points in the Signaling Points Excluded From View table, click the left-arrow button to move the signaling point to the Signaling Points In Current View table, then click the next left-arrow button to move the signaling points to the New Signaling Points Found table.

Step 9 (Optional) The New Signaling Points Found table displays newly discovered signaling points, based on the following criteria:

- If you are using an SGM client with the DEFAULT view set, this table never contains any signaling points. In the DEFAULT view, SGM adds all newly discovered signaling points to the Signaling Points In Current View table as soon as they are discovered.
- If you are using an SGM client with a custom view set, this table contains all signaling points discovered since the Network View Editor window was opened in this session that have *not* been excluded in the Signaling Points Excluded from View table, or that are not in the current view.

When SGM discovers one or more new signaling points in the network, SGM also takes the following actions:

- SGM broadcasts the discovery of the new signaling points to all SGM clients.
- SGM displays the text **(New Signaling Points Exist)** in the bottom right corner of most SGM windows.
- SGM adds graphical elements for the newly discovered signaling points to the topology new signaling point panel in the left pane of the Topology window. For more information, see the "Viewing the Topology of the Network" section on page 3-259.

To add a newly discovered signaling point to the current view, select one or more signaling points and click the right-arrow button to move them to the Signaling Points In Current View table.

To exclude a newly discovered signaling point from the current view, select the signaling point, click the right-arrow button to move the signaling point to the Signaling Points In Current View table, then click the next right-arrow button to move the signaling point to the Signaling Points Excluded From View table.

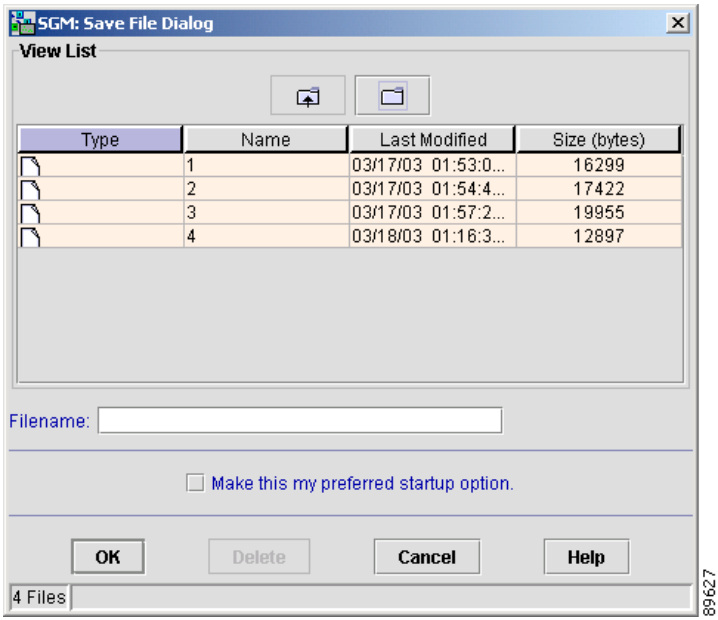
Step 10 When you are satisfied with the changes you have made to the view, use one of the following procedures to save the view:

- To save the changes you have made to the view without changing the name of the file, select **File > Save** from the Network View Editor menu.

Note You cannot save changes to the DEFAULT view. If you are currently using the DEFAULT view and you select **File > Save**, SGM displays the Save File Dialog: View List dialog (Figure 3-8).

- To save the changes you have made to the view with a new name, select **File > Save As** from the Discovery Dialog menu. SGM displays the Save File Dialog: View List dialog (Figure 3-8).

Figure 3-8 Save File Dialog: View List Dialog



The Save File Dialog: View List dialog contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the view file or folder.
- **Last Modified**—Date and time the view file or folder was last modified.
- **Size (bytes)**—Size of the view file or folder, in bytes.
- **Filename**—Name by which you want to save the view. You must specify a name other than DEFAULT. You cannot save changes to the DEFAULT view.

  If you create a new view name, you can use any letters, numbers, or characters in the name that are allowed by your operating system. However, if you include any spaces in the new name, SGM converts those spaces to dashes. For example, SGM saves file "a b c" as "a-b-c".
- **Make this my preferred start option**—Specifies whether the selected view is to be loaded automatically whenever the associated preferences file is loaded:

  - To load the selected view, select the view, then select this checkbox.

  - To load the last-used view, clear the checkbox. This is the default setting.
- **Number of Files**—Total number of view files and folders (displayed in bottom left corner).

To save the view with a new name, use one of the following procedures:

- To save the file with a completely new name, enter the new name and click **OK**.
- To save the file with an existing name, overwriting an old view, select the name in the list and click **OK**.

SGM saves the view with the new name, closes the Save File Dialog: View List dialog, and returns to the Discovery Dialog.

Note If another user modifies and saves the view before you save your changes, SGM asks if you want to overwrite that user's changes. If you choose to do so, the other user's changes are overwritten and lost. If you choose not to do so, your changes are lost, unless you save the view to a different filename.

SGM stores the view in the view file directory on the SGM server:

- If you installed SGM in the default directory, */opt*, then the SGM view file directory is */opt/CSCOsgm/views*.
- If you installed SGM in a different directory, then the SGM view file directory is located in that directory.

To delete a view from the view list, select a file and click **Delete**. SGM issues an informational message containing the name and location of the deleted file.

To save any changes you made to the list of files, click **OK**. SGM saves the changes and closes the Load File Dialog: View List dialog.

To close the Save File Dialog: View List dialog without saving the view or saving any changes to the view list, click **Cancel**.

Step 11 (Optional) To close the Network View Editor window at any time, click **File > Close**. If you have modified the view, SGM asks if you want to apply the changes before leaving the window:

- Click **Yes** to apply the changes to the current view. SGM applies the changes to all SGM windows immediately. SGM then asks if you want to make this the default view:
  - Click **Yes** to make this view the new default view. In the future, when this client is started, this will be the default view.
  - Click **No** to retain your old default view.

  SGM closes the Network View Editor window.
- Click **No** to keep the current view as-is, without applying any changes. SGM closes the Network View Editor window.
- Click **Cancel** to close the prompt window and return to the Network View Editor window without applying any changes to the current view.

If you are working in a custom view (that is, not in the DEFAULT view) and you exit the SGM client, SGM automatically saves any changes you made to the view.

Loading the DEFAULT View

To load the DEFAULT network view:

Step 1 Select **Edit > Network Views** from the SGM Main Menu. SGM displays the Network View Editor window (Figure 3-7).

Step 2 Select **File > Load DEFAULT View** from the Discovery Dialog menu. SGM loads the DEFAULY view.

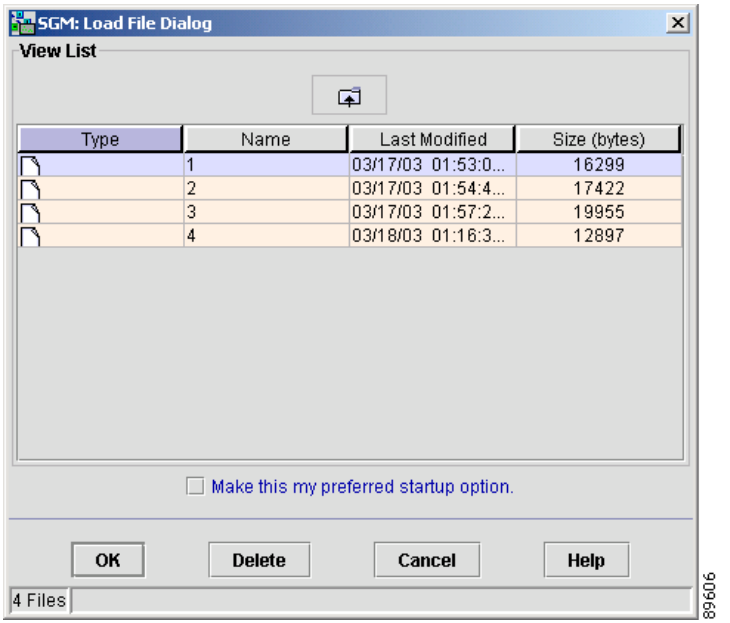
Loading a Client-Specific View

To load a client-specific network view:

Step 1 Select **Edit > Network Views** from the SGM Main Menu. SGM displays the Network View Editor window (Figure 3-7).

Step 2 Select **File > Load** from the Discovery Dialog menu. SGM displays the Load File Dialog: View List dialog (Figure 3-9).

Figure 3-9 Load File Dialog: View List Dialog



The Load File Dialog: View List dialog contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the view file or folder.
- **Last Modified**—Date and time the view file or folder was last modified.
- **Size (bytes)**—Size of the view file or folder, in bytes.
- **Make this my preferred start option**—Specifies whether the selected view is to be loaded automatically whenever the associated preferences file is loaded:
  - To load the selected view, select the view, then select this checkbox.
  - To load the last-used view, clear the checkbox. This is the default setting.
- **Number of Files**—Total number of view files and folders (displayed in bottom left corner).

To load a view, select the view in the list and click **OK**.

SGM closes the Load File Dialog: View List dialog, loads the view, and returns to the Network View Editor window.

To close the Load File Dialog: View List dialog without loading a view, click **Cancel**.

Working with Linksets

SGM enables you to view information about all discovered linksets, including their associated nodes, status, and other important information.

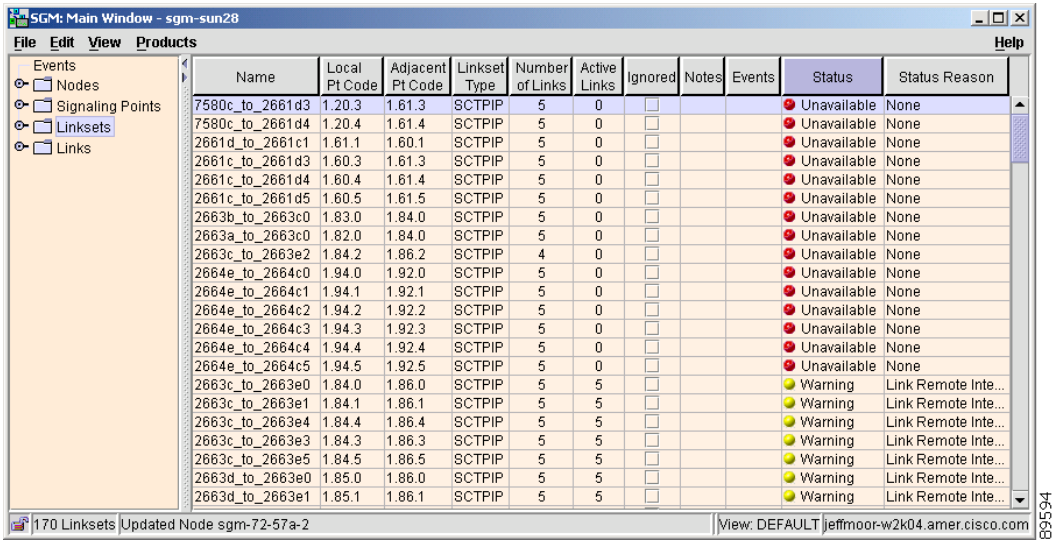
This section includes the following information:

Related Topics:

Viewing Basic Information for Linksets

To view basic information for linksets, select **Linksets** in the left pane of the SGM Main Window. SGM displays the Linkset Window (Figure 3-10).

Figure 3-10 Linkset Window



The Linkset Window displays information about the linksets that have been discovered by SGM.

Linksets that are associated with nodes that are excluded from the current view are not displayed in the Linkset Window. See the "Creating a View" section on page 3-27 for more information about excluding nodes.

By default, SGM displays all of the columns in the Linkset Window except **Internal ID**, **Name**, **Local Point Code**, **Adj Point Code**, and **Notes**. To display these columns, or to hide other columns, see the procedures in the "Modifying Linkset Table Column Settings" section on page 5-18.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

The Linkset Window displays the following information for each discovered linkset:

- **Internal ID**—The internal ID of the linkset. The internal ID is a unique ID for every event, link, linkset, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Name**—Name of the linkset.
- **Local Point Code**—Point code of the primary node for the linkset.
- **Adj Point Code**—Point code of the adjacent node for the linkset.
- **Linkset Type**—Type of linkset, which SGM determines by examining the links defined in the linkset. Possible linkset types are:
  - **HSL**—The links in this linkset use the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol.
  - **SCTPIP**—The links in this linkset use the Stream Control Transmission Protocol (SCTP) IP transport protocol.
  - **Serial**—The links in this linkset use the serial SS7 signaling protocol.
  - **Mixed**—The links in this linkset are of two or more types. (This arrangement is not recommended.)
  - **Virtual**—The links in this linkset are virtual links, which connect signaling point instances running on the same device. SGM does not poll virtual linksets, nor does it display real-time data or accounting statistics for virtual linksets.
  - **Other**—No links have been defined for this linkset.
- **Links**—Total number of links in the linkset.
- **Active Links**—Number of links in the linkset that are **Active**.
- **Congested Links**—Number of links in the linkset that are **Congested**.
- **Ignored**—Indicates whether the linkset is to be included when aggregating and displaying SGM status information.
- **Notes**— Indicates whether there is a note associated with the linkset.

- **Events**—Indicates whether there is a recent event associated with the linkset.
  - To delete the event icon from SGM displays for a specific linkset, for this SGM client only, select the linkset and click the icon.
  - To delete the event icon from SGM displays for all linksets, for this SGM client only, select **Edit > Clear All Events** from the SGM Main Menu.

  Note During Discovery, SGM might flag most linksets with an event icon. If the event icons are too distracting, use the **Edit > Clear All Events** menu option to remove them.

- **Last Status Change**—Date and time that the status of the linkset last changed.
- **Status**—Current status of the linkset. Possible values are:
  - **Active (green ball)**—The linkset is currently fully functional.
  - **Unavailable (red ball)**—An error is preventing traffic from flowing on this linkset.
  - **Shutdown (blue ball)**—An ITP administrator has set the linkset to prevent traffic from flowing. When a linkset is set to **Shutdown**, all its associated links are set to **Failed** by Cisco IOS.
  - **Unknown (red ball)**—Either the node associated with this linkset has failed to respond to an SNMP request, or SGM found that the linkset no longer exists.
  - **Warning (yellow ball)**—The linkset is active, but one or more links in the linkset is congested or is in **Failed**, **Unknown**, or **Warning** status, and is not **Ignored**. At least one link is available and can carry traffic.
- **Status Reason**—Reason for the current status of the linkset. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**

- **Not ITP Device**
- **Not Configured for ITP**
- **MIB Data Error**
- **SNMP Exception**
- **SignalingPoint Inactive**
- **Linkset Inactive**
- **Link Congested**
- **Link Send Utilization Threshold Exceeded**
- **Link Receive Utilization Threshold Exceeded**
- **Link Local Interface Inactive**
- **Link Remote Interface Inactive**
- **Link Inactive**

If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

The "Viewing Detailed Information for a Link" section on page 3-175 displays additional information about the causes of link failures.

The "Viewing Detailed Information for a Linkset" section on page 3-42 displays additional information about the causes of linkset failures.

Viewing Detailed Information for a Linkset

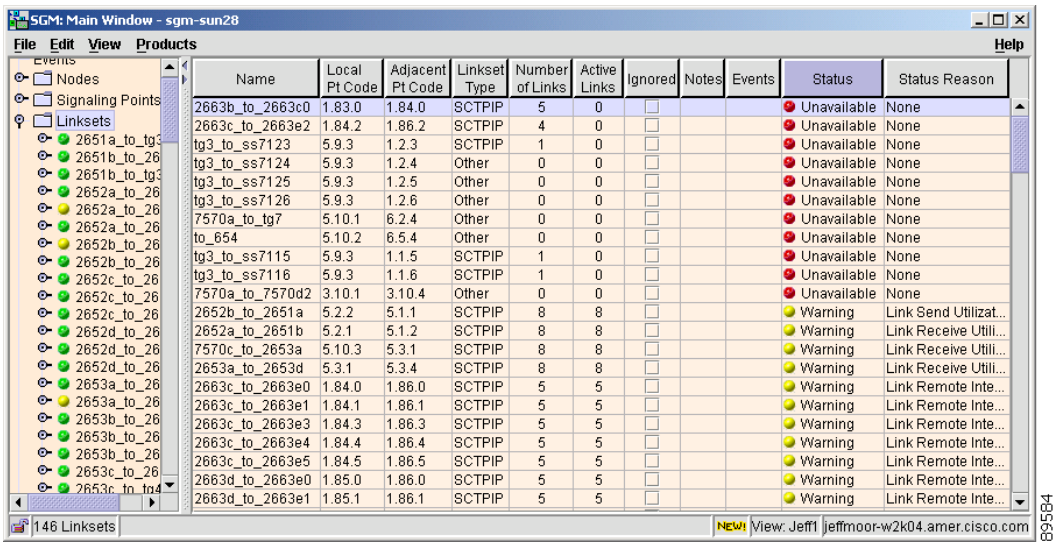
SGM can display detailed information about a selected linkset, including its associated links, status, and other information.

To display detailed information for a linkset, use one of the following procedures:

- Select **Linksets** in the left pane of the SGM Main Window, right-click a linkset in the right pane, then select **View > Configuration Details** in the right-click menu.
- Select the turner beside **Linksets** in the left pane of the SGM Main Window, then select a linkset.

SGM displays the Linkset Details Window (Figure 3-11).

Figure 3-11 Linkset Details Window



Detailed information for the selected linkset is displayed in the left column, and for the adjacent linkset in the right column.

Updates for the linkset that are received from the SGM server are reflected automatically in this window.

Changes you make in this pane might not be reflected throughout SGM until the next poll (by default, every 15 seconds). For information about changing the polling interval, see the "Viewing Detailed Information for a Link" section on page 3-175.

Note This window polls your network periodically. To prevent unnecessary traffic on your network, close this window when you no longer need to refer to it.

Links Tab

To view information about the links that are associated with the selected linkset, select the **Links** tab. SGM displays the linksets in the top table, and the links in the bottom table.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

By default, SGM displays all of the columns in the Link Table except **Internal ID**, **Congestion Level**, and **Last Status Change**. To display these columns, or to hide other columns, see the procedures in the "Modifying Linkset Table Column Settings" section on page 5-18.

The Link Table displays the following information about links that are associated with the selected linkset:

- **Internal ID—**Internal ID of the link. The internal ID is a unique ID for every event, linkset, link, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Node—**Name of the node associated with the link.
- **Signaling Point—**Name of the signaling point associated with the link.
- **Linkset—**Name of the linkset associated with the link.
- **SLC—**Signaling link code (SLC) ID for the link.

- **Type—**Type of link. Possible link types are:
  - **HSL**—The link uses the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol.
  - **SCTPIP**—The link uses the Stream Control Transmission Protocol (SCTP) IP transport protocol.
  - **Serial**—The link uses the serial SS7 signaling protocol.
  - **Virtual**—The link is a virtual link, which connects signaling point instances running on the same device. SGM does not poll virtual links, nor does it display real-time data or accounting statistics for virtual links.
- **Congestion Level—**Indicates whether there is congestion on the link. A link is congested if it has too many packets waiting to be sent. This condition could be caused by the failure of an element in your network.

  Possible values for the **Congestion Level** field are:
  - **None**—The link is not congested.
  - **Low**—The link is slightly congested.
  - **High**—The link is congested.
  - **Very High**—The link is very congested.

  Low, **High**, and **Very High** correspond roughly to equivalent ANSI, China standard, and ITU congestion levels.
- **Ignored—**Indicates whether the link is to be included when aggregating and displaying SGM status information:
  - Clear the checkbox to include the link. This is the default setting.
  - Select the checkbox to exclude the link.

  This field can be edited by users with authentication level Power User (Level 2) and higher.
- **Notes—**Indicates whether there is a note associated with the link.

- **Events—**Indicates whether there is a recent event associated with the link.
  - To delete the event icon from SGM displays for a specific link, select the link and click the icon.
  - To delete the event icon from SGM displays for all links, select **Edit > Clear All Events** from the SGM Main Menu.

Note During Discovery, SGM might flag most links with an event icon. If the event icons are too distracting, use the **Edit > Clear All Events** menu option to remove them.

- **Last Status Change—**Date and time that the status of the link last changed.
- **Status—**Current status of the link. Possible values are:
  - **Active (green ball)**—The link is currently fully functional.
  - **Blocked (red ball)**—Traffic on this link is disabled by protocol.
  - **Failed (red ball)**—An error is preventing traffic from flowing on this link, or the associated linkset has been set to **Shutdown** status.

    A link can be **Failed** from an MTP3 perspective, but control messages might still be sent or received on the link, resulting in changing packet/second and bit/second rates. The rates might also be different at each end of the link, depending on the reason for the failure and the timing related to each endpoint.
  - **InhibitLoc (blue ball)**—A local ITP administrator has set the link to prevent traffic from flowing.
  - **InhibitRem (blue ball)**—A remote ITP administrator has set the link to prevent traffic from flowing.
  - **Shutdown (blue ball)**—An ITP administrator has set the link to prevent traffic from flowing.

  - **Unknown (red ball)**—Either the node associated with this link has failed to respond to an SNMP request, or SGM found that the link no longer exists.

    When you physically delete a link, the **Status** field displays **Unknown** until you delete the link from the SGM database.

  - **Warning (yellow ball)**—The link is active and traffic is flowing, but one or more of the following situations has occurred:

    – The link is congested.

    – The link has exceeded the defined **Receive Utilization %** or **Send Utilization %**.

    – One or more of the local or remote IP addresses defined for SCTP is not active.

- **Status Reason—**Reason for the current status of the link. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**
  - **Not Configured for ITP**
  - **MIB Data Error**
  - **SNMP Exception**
  - **SignalingPoint Inactive**
  - **Linkset Inactive**
  - **Link Congested**
  - **Link Send Utilization Threshold Exceeded**
  - **Link Receive Utilization Threshold Exceeded**
  - **Link Local Interface Inactive**

- **Link Remote Interface Inactive**
- **Link Inactive**

If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Configuration Data Tab: Naming Information

To view naming information for the selected linkset, select the **Configuration Data** tab.

The Naming Information sub-section displays the following information for the selected linkset:

- **Name—**Name of the linkset.
- **Local Point Code—**Point code of the primary node for the linkset.
- **Adj Point Code—**Point code of the adjacent node for the linkset.
- **Last Status Change—**Date and time that the status of the linkset last changed.
- **Status—**Current status of the linkset. Possible values are:
  - **Active (green ball)**—The linkset is currently fully functional.
  - **Unavailable (red ball)**—An error is preventing traffic from flowing on this linkset.
  - **Shutdown (blue ball)**—An ITP administrator has set the linkset to prevent traffic from flowing. When a linkset is set to **Shutdown**, all its associated links are set to **Failed** by Cisco IOS.

  - **Unknown (red ball)**—Either the node associated with this linkset has failed to respond to an SNMP request, or SGM found that the linkset no longer exists.
  - **Warning (yellow ball)**—The linkset is active, but one or more links in the linkset is congested or is in **Failed**, **Unknown**, or **Warning** status, and is not **Ignored**. At least one link is available and can carry traffic.

- **Status Reason—**Reason for the current status of the linkset. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**
  - **Not Configured for ITP**
  - **MIB Data Error**
  - **SNMP Exception**
  - **SignalingPoint Inactive**
  - **Linkset Inactive**
  - **Link Congested**
  - **Link Send Utilization Threshold Exceeded**
  - **Link Receive Utilization Threshold Exceeded**
  - **Link Local Interface Inactive**
  - **Link Remote Interface Inactive**
  - **Link Inactive**

  If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

  The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Configuration Data Tab: Description

To view descriptive information for the selected linkset, select the **Configuration Data** tab.

The Description sub-section contains a description of the linkset. If the linkset has no description, this sub-section is blank.

Configuration Data Tab: General Information

To view general information for the selected linkset, select the **Configuration Data** tab.

The General Information sub-section displays the following information for the selected linkset:

- **Linkset Type—**Type of linkset, which SGM determines by examining the links defined in the linkset. Possible linkset types are:
  - **HSL**—The links in this linkset use the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol.
  - **SCTPIP**—The links in this linkset use the Stream Control Transmission Protocol (SCTP) IP transport protocol.
  - **Serial**—The links in this linkset use the serial SS7 signaling protocol.
  - **Mixed**—The links in this linkset are of two or more types. (This configuration is not recommended.)
  - **Virtual**—The links in this linkset are virtual links, which connect signaling point instances running on the same device. SGM does not poll virtual linksets, nor does it display real-time data or accounting statistics for virtual linksets.
  - **Other**—No links have been defined for this linkset.

- **Is Ignored—**Indicates whether the linkset is **Ignored** (that is, whether the linkset is to be included when aggregating and displaying SGM status information).
- **Inbound ACL—**Inbound IP access control list (ACL) number for the linkset. If there is no inbound ACL for the linkset, this field displays **0**.
- **Outbound ACL—**Outbound ACL number for the linkset. If there is no outbound ACL for the linkset, this field displays **0**.

Configuration Data Tab: Links Information

To view links information for the selected linkset, select the **Configuration Data** tab.

The Links Information sub-section displays the following information for the selected linkset:

- **Links—**Total number of links in the linkset.
- **Active Links—**Number of links in the linkset that are **Active**.
- **Congested Links—**Number of links in the linkset that are **Congested**.

Notes Tab

To view notes for the selected linkset, select the **Notes** tab.

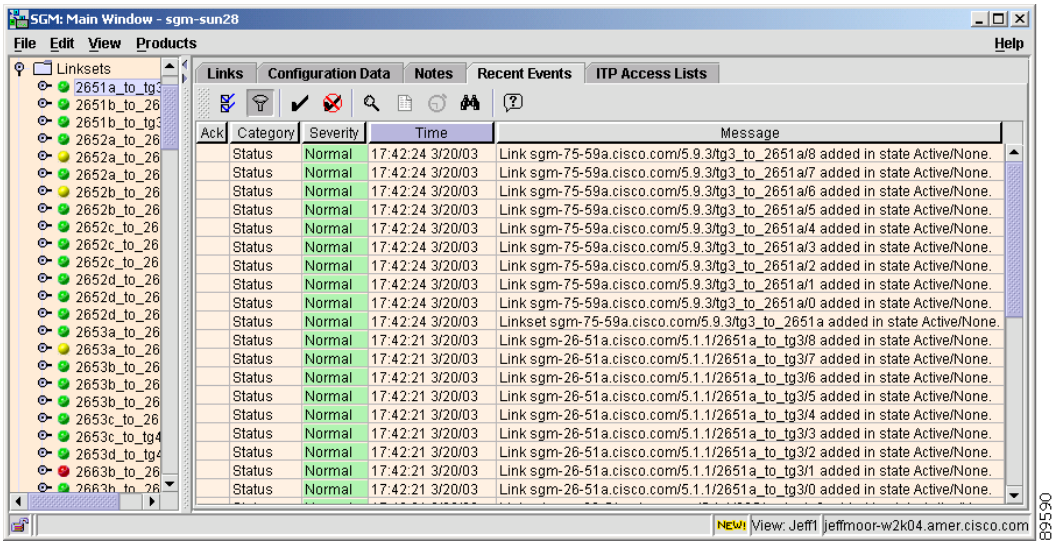
The Notes section displays:

- Notes associated with the selected linkset in the left column.
- Notes associated with the adjacent linkset in the right column.
- The date and time the notes associated with each linkset were last updated, or the phrase **Not Set** if there are no notes associated with the linkset.
- The phrase **No Notes** if there are no notes associated with the linkset.

Recent Events Tab

To view information about all recent events associated with the linkset, select the **Recent Events** tab. SGM displays the Recent Events table for the linkset (Figure 3-12).

Figure 3-12 Recent Events Table for a Linkset



By default, SGM displays all of the columns in the table except **Internal ID**, **Note**, **Ack By**, **Ack Time**, **Node**, **SP**, **Linkset**, and **Link**. To display these columns, or to hide other columns, see the procedures in the "Modifying Event Table Column Settings" section on page 5-19.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

The Recent Events table enables you to perform event-related tasks, such as setting filters and acknowledging events. For more information about these tasks, see the "Working with Events" section on page 3-235.

The Recent Events table displays the following information for the selected linkset:

- **Internal ID—**Internal ID of the event. The internal ID is a unique ID for every event, link, linkset, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Ack—**Indicates whether the event has been acknowledged:
  - To acknowledge an unacknowledged event, use the **Acknowledge** toolbar button.
  - To make a previously acknowledged event unacknowledged, use the **Unacknowledge** toolbar button.
- **Category—**Type of the event. Default values are:
  - **Create**—Creation event, such as the creation of a seed file.
  - **Delete**—Deletion event, such as the deletion of a node, signaling point, linkset, or file.
  - **Discover**—Discovery event, such as Discovery beginning.
  - **Edit**—Edit event. A user has edited a node, signaling point, linkset, or link.
  - **Ignore**—Ignore event. A user has **Ignored** a link or linkset.
  - **Login**—Login event. A user has logged in to SGM.
  - **LoginDisable**—LoginDisable event. SGM has disabled a user's User-Based Access authentication as a result of too many failed attempts to log in to SGM.
  - **LoginFail**—LoginFail event. An attempt by a user to log in to SGM has failed.
  - **OverWrite**—OverWrite event. An existing file, such as a seed file or route file, has been overwritten.
  - **Poll**—Poll event, such as an SNMP poll.
  - **Purge**—Purge event. A user has requested Discovery with **Delete Existing Data** selected, and SGM has deleted the existing SGM database.

  - **Status**—Status change message generated.
  - **Trap**—SNMP trap message generated.

    You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

- **Severity—**Severity of the event. Default values are:
  - **Admin**—The default color is cyan.
  - **Error**—The default color is coral.
  - **None**—The default color is white.
  - **Normal**—The default color is light green.
  - **Warning**—The default color is yellow.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.
- **Note—**Indicates whether there is a note associated with the event.
- **Time—**Date and time the event was logged.
- **Ack By—**If you have not implemented SGM User-Based Access, name of the device that last acknowledged the event.

  If you have implemented SGM User-Based Access, name of the user who last acknowledged the event.

  If no one has acknowledged the event, this field is blank.
- **Ack Time—**Date and time the event was last acknowledged or unacknowledged.
- **Node—**Name of the node associated with the event. If there is no node associated with the event, **None** is displayed.
- **SP—**Name of the signaling point associated with the event. If there is no signaling point associated with the event, **None** is displayed.
- **Linkset—**Name of the linkset associated with the event. If there is no linkset associated with the event, **None** is displayed.

- **Link—**Name of the link associated with the event. If there is no link associated with the event, **None** is displayed.
- **Message—**Text of the message.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

ITP Access Lists Tab

To view information about all access lists associated with the selected linkset and its adjacent linkset, select the **ITP Access Lists** tab.

For each linkset, the ITP Access Lists section displays the following information:

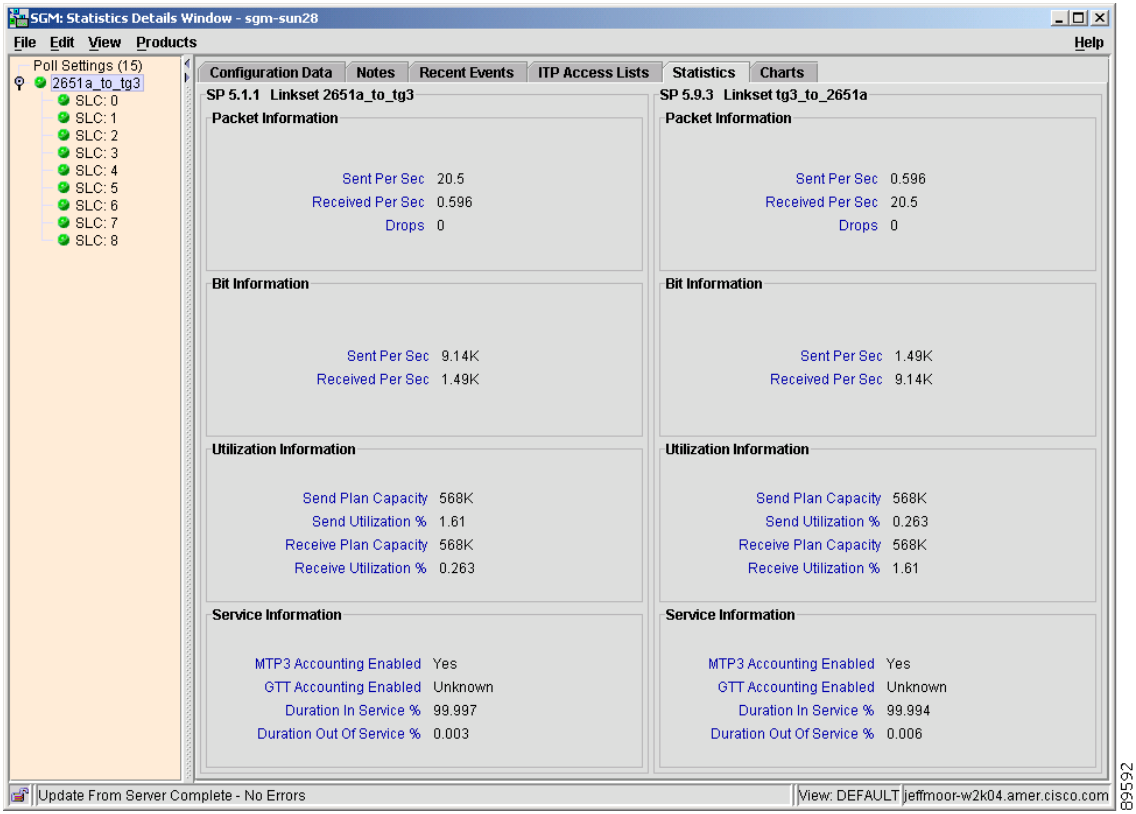
- **Current Poll Interval—**Poll interval used to collect data for the table.
- **Last Poll—**Time the last poll was run. This field initially displays the phrase **Polling device**. After the first polling cycle, SGM populates this field with the actual time of the last poll.
- **Linkset—**Name of the linkset for which access lists are being displayed.
- **In—**Inbound access lists for the linkset. If the linkset has no inbound access lists, this field displays **None**.
- **Out—**Outbound access lists for the linkset. If the linkset has no outbound access lists, this field displays **None**.
- **List #—**Access list number configured on the node and applied to the linkset. ITP uses access list numbers 2700 through 2799.
- **Access List—**List of commands in the access list.

Viewing Real-Time Data for a Linkset

SGM enables you to display detailed statistics for a selected linkset, including its associated links, status, and other information. Detailed information for the selected linkset is displayed in the left column, and for the adjacent linkset in the right column.

To display detailed statistics for a linkset, select **Linksets** in the left pane of the SGM Main Window, right-click a linkset in the right pane, then select **View > Real-Time Data and Charts** in the right-click menu. SGM displays the Statistics Details Window for a Linkset (Figure 3-13).

Figure 3-13 Statistics Details Window for a Linkset



Updates for the linksets that are received from the SGM server are reflected automatically in this window.

Changes you make in this window might not be reflected throughout SGM until the next poll (by default, every 15 seconds). For information about changing the polling interval, see the "Viewing Detailed Information for a Link" section on page 3-175.

Note This window polls your network periodically. To prevent unnecessary traffic on your network, close this window when you no longer need to refer to it.

Configuration Data Tab: Naming Information

To view naming information for the selected linkset, select the **Configuration Data** tab.

The Naming Information sub-section displays the following information for the selected linkset:

- **Name—**Name of the linkset.
- **Local Point Code—**Point code of the primary node for the linkset.
- **Adj Point Code—**Point code of the adjacent node for the linkset.
- **Last Status Change—**Date and time that the status of the linkset last changed.
- **Status—**Current status of the linkset. Possible values are:
  - **Active (green ball)**—The linkset is currently fully functional.
  - **Unavailable (red ball)**—An error is preventing traffic from flowing on this linkset.
  - **Shutdown (blue ball)**—An ITP administrator has set the linkset to prevent traffic from flowing. When a linkset is set to **Shutdown**, all its associated links are set to **Failed** by Cisco IOS.
  - **Unknown (red ball)**—Either the node associated with this linkset has failed to respond to an SNMP request, or SGM found that the linkset no longer exists.
  - **Warning (yellow ball)**—The linkset is active, but one or more links in the linkset is congested or is in **Failed**, **Unknown**, or **Warning** status, and is not **Ignored**. At least one link is available and can carry traffic.
- **Status Reason—**Reason for the current status of the linkset. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**

- **Not Configured for ITP**
- **MIB Data Error**
- **SNMP Exception**
- **SignalingPoint Inactive**
- **Linkset Inactive**
- **Link Congested**
- **Link Send Utilization Threshold Exceeded**
- **Link Receive Utilization Threshold Exceeded**
- **Link Local Interface Inactive**
- **Link Remote Interface Inactive**
- **Link Inactive**

If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Configuration Data Tab: Description

To view descriptive information for the selected linkset, select the **Configuration Data** tab.

The Description sub-section contains a description of the linkset. If the linkset has no description, this sub-section is blank.

Configuration Data Tab: General Information

To view general information for the selected linkset, select the **Configuration Data** tab.

The General Information sub-section displays the following information for the selected linkset:

- **Linkset Type—**Type of linkset, which SGM determines by examining the links defined in the linkset. Possible linkset types are:
  - **HSL**—The links in this linkset use the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol.
  - **SCTPIP**—The links in this linkset use the Stream Control Transmission Protocol (SCTP) IP transport protocol.
  - **Serial**—The links in this linkset use the serial SS7 signaling protocol.
  - **Mixed**—The links in this linkset are of two or more types. (This configuration is not recommended.)
  - **Virtual**—The links in this linkset are virtual links, which connect signaling point instances running on the same device. SGM does not poll virtual linksets, nor does it display real-time data or accounting statistics for virtual linksets.
  - **Other**—No links have been defined for this linkset.
- **Is Ignored—**Indicates whether the linkset is **Ignored** (that is, whether the linkset is to be included when aggregating and displaying SGM status information).
- **Inbound ACL—**Inbound IP access control list (ACL) number for the linkset. If there is no inbound ACL for the linkset, this field displays **0**.
- **Outbound ACL—**Outbound ACL number for the linkset. If there is no outbound ACL for the linkset, this field displays **0**.

Configuration Data Tab: Links Information

To view links information for the selected linkset, select the **Configuration Data** tab.

The Links Information sub-section displays the following information for the selected linkset:

- **Links—**Total number of links in the linkset.
- **Active Links—**Number of links in the linkset that are **Active**.
- **Congested Links—**Number of links in the linkset that are **Congested**.

Notes Tab

To view notes for the selected linkset, select the **Notes** tab.

The Notes section displays:

- Notes associated with the selected linkset in the left column.
- Notes associated with the adjacent linkset in the right column.
- The date and time the notes associated with each linkset were last updated, or the phrase **Not Set** if there are no notes associated with the linkset.
- The phrase **No Notes** if there are no notes associated with the linkset.

Recent Events Tab

To view information about all recent events associated with the linkset, select the **Recent Events** tab. SGM displays the Recent Events table for the linkset (Figure 3-12).

By default, SGM displays all of the columns in the table except **Internal ID**, **Note**, **Ack By**, **Ack Time**, **Node**, **SP**, **Linkset**, and **Link**. To display these columns, or to hide other columns, see the procedures in the "Modifying Event Table Column Settings" section on page 5-19.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

The Recent Events section enables you to perform event-related tasks, such as setting filters and acknowledging events. For more information about these tasks, see the "Working with Events" section on page 3-235.

The Recent Events table displays the following information for the selected linkset:

- **Internal ID—**Internal ID of the event. The internal ID is a unique ID for every event, link, linkset, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Ack—**Indicates whether the event has been acknowledged:
  - To acknowledge an unacknowledged event, use the **Acknowledge** toolbar button.
  - To make a previously acknowledged event unacknowledged, use the **Unacknowledge** toolbar button.
- **Category—**Type of the event. Default values are:
  - **Create**—Creation event, such as the creation of a seed file.
  - **Delete**—Deletion event, such as the deletion of a node, signaling point, linkset, or file.
  - **Discover**—Discovery event, such as Discovery beginning.
  - **Edit**—Edit event. A user has edited a node, signaling point, linkset, or link.
  - **Ignore**—Ignore event. A user has **Ignored** a link or linkset.
  - **Login**—Login event. A user has logged in to SGM.
  - **LoginDisable**—LoginDisable event. SGM has disabled a user's User-Based Access authentication as a result of too many failed attempts to log in to SGM.
  - **LoginFail**—LoginFail event. An attempt by a user to log in to SGM has failed.
  - **OverWrite**—OverWrite event. An existing file, such as a seed file or route file, has been overwritten.
  - **Poll**—Poll event, such as an SNMP poll.
  - **Purge**—Purge event. A user has requested Discovery with **Delete Existing Data** selected, and SGM has deleted the existing SGM database.

  - **Status**—Status change message generated.
  - **Trap**—SNMP trap message generated.

    You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

- **Severity—**Severity of the event. Default values are:
  - **Admin**—The default color is cyan.
  - **Error**—The default color is coral.
  - **None**—The default color is white.
  - **Normal**—The default color is light green.
  - **Warning**—The default color is yellow.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.
- **Note—**Indicates whether there is a note associated with the event.
- **Time—**Date and time the event was logged.
- **Ack By—**If you have not implemented SGM User-Based Access, name of the device that last acknowledged the event.

  If you have implemented SGM User-Based Access, name of the user who last acknowledged the event.

  If no one has acknowledged the event, this field is blank.
- **Ack Time—**Date and time the event was last acknowledged or unacknowledged.
- **Node—**Name of the node associated with the event. If there is no node associated with the event, **None** is displayed.
- **SP—**Name of the signaling point associated with the event. If there is no signaling point associated with the event, **None** is displayed.
- **Linkset—**Name of the linkset associated with the event. If there is no linkset associated with the event, **None** is displayed.

- **Link—**Name of the link associated with the event. If there is no link associated with the event, **None** is displayed.
- **Message—**Text of the message.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

ITP Access Lists Tab

To view information about all access lists associated with the selected linkset and its adjacent linkset, select the **ITP Access Lists** tab.

For each linkset, the ITP Access Lists section displays the following information:

- **Current Poll Interval—**Poll interval used to collect data for the table.
- **Last Poll—**Time the last poll was run. This field initially displays the phrase **Polling device**. After the first polling cycle, SGM populates this field with the actual time of the last poll.
- **Linkset—**Name of the linkset for which access lists are being displayed.
- **In—**Inbound access lists for the linkset. If the linkset has no inbound access lists, this field displays **None**.
- **Out—**Outbound access lists for the linkset. If the linkset has no outbound access lists, this field displays **None**.
- **List #—**Access list number configured on the node and applied to the linkset. ITP uses access list numbers 2700 through 2799.
- **Access List—**List of commands in the access list.

Statistics Tab: Packet Information

To view packet information for the selected link, select the **Statistics** tab.

The Packet Information sub-section displays the following information for the selected link:

- **Sent Per Sec—**Number of packets sent by the linkset per second. This field initially displays the phrase **Waiting for second poll**. After two polling cycles, SGM populates this field with actual calculated rates.
- **Received Per Sec—**Number of packets received by the linkset per second. This field initially displays the phrase **Waiting for second poll**. After two polling cycles, SGM populates this field with actual calculated rates.
- **Drops—**Total number of packets that have been dropped by the linkset.

Statistics Tab: Bit Information or Byte Information

To view bit information for the selected linkset (or byte information, if you cleared the **Show Details in Bits Instead of Bytes** checkbox in the Preferences Window), select the **Statistics** tab.

The Bit Information or Byte Information sub-section displays the following information for the selected linkset:

- **Sent Per Sec—**Number of bits or bytes (as set in the Preferences window) sent by the linkset per second. This field initially displays the phrase **Waiting for second poll**. After two polling cycles, SGM populates this field with actual calculated rates.
- **Received Per Sec—**Number of bits or bytes (as set in the Preferences window) received by the linkset per second. This field initially displays the phrase **Waiting for second poll**. After two polling cycles, SGM populates this field with actual calculated rates.

Statistics Tab: Utilization Information

To view utilization information for the selected linkset, select the **Statistics** tab.

The Utilization Information sub-section displays the following information for the selected linkset:

- **Send Plan Capacity—**Planned capacity of the linkset to send, in bits per second.
  - For a linkset of type **Serial** or **HSL**, available bandwidth for the linkset.
  - For a linkset of type **SCTPIP** or **Mixed**, set on the ITP using the **plan-capacity** CS7 linkset configuration command.

    If **Send Plan Capacity** is not set on the ITP for this linkset, this field displays the value **0**.
  - For a linkset of type **Other**, this field always displays the value **0**.
- **Send Utilization—**Amount of the linkset's send capacity being used, as a percentage or in Erlangs (as set in the Preferences window), calculated using the following formula:

  Send Utilization = (Bits Sent Per Sec)/Planned Capacity

  This field initially displays the phrase **Waiting for second poll**. After two polling cycles, SGM populates this field with actual calculated rates.
  - For a linkset of type **SCTPIP** or **Mixed**, if **Send Plan Capacity** is not set on the ITP for this linkset, this field displays the phrase **Set Plan Capacity on ITP**.
  - For a linkset of type **Other**, this field always displays the phrase **Set Plan Capacity on ITP**.
- **Receive Plan Capacity—**Planned capacity of the linkset to receive, in bits per second.
  - For a linkset of type **Serial** or **HSL**, available bandwidth for the linkset.
  - For a linkset of type **SCTPIP** or **Mixed**, set on the ITP using the **plan-capacity** CS7 linkset configuration command.

    If **Receive Plan Capacity** is not set on the ITP for this linkset, this field displays the value **0**.
  - For a linkset of type **Other**, this field always displays the value **0**.

- **Receive Utilization—**Amount of the linkset's receive capacity being used, as a percentage or in Erlangs (as set in the Preferences window), calculated using the following formula:

  Receive Utilization = (Bits Received Per Sec)/Receive Plan Capacity

  This field initially displays the phrase **Waiting for second poll**. After two polling cycles, SGM populates this field with actual calculated rates.

  - For a linkset of type **SCTPIP** or **Mixed**, if **Receive Plan Capacity** is not set on the ITP for this linkset, this field displays the phrase **Set Plan Capacity on ITP**.
  - For a linkset of type **Other**, this field always displays the phrase **Set Plan Capacity on ITP**.

Statistics Tab: Service Information

To view service information for the selected linkset, select the **Statistics** tab.

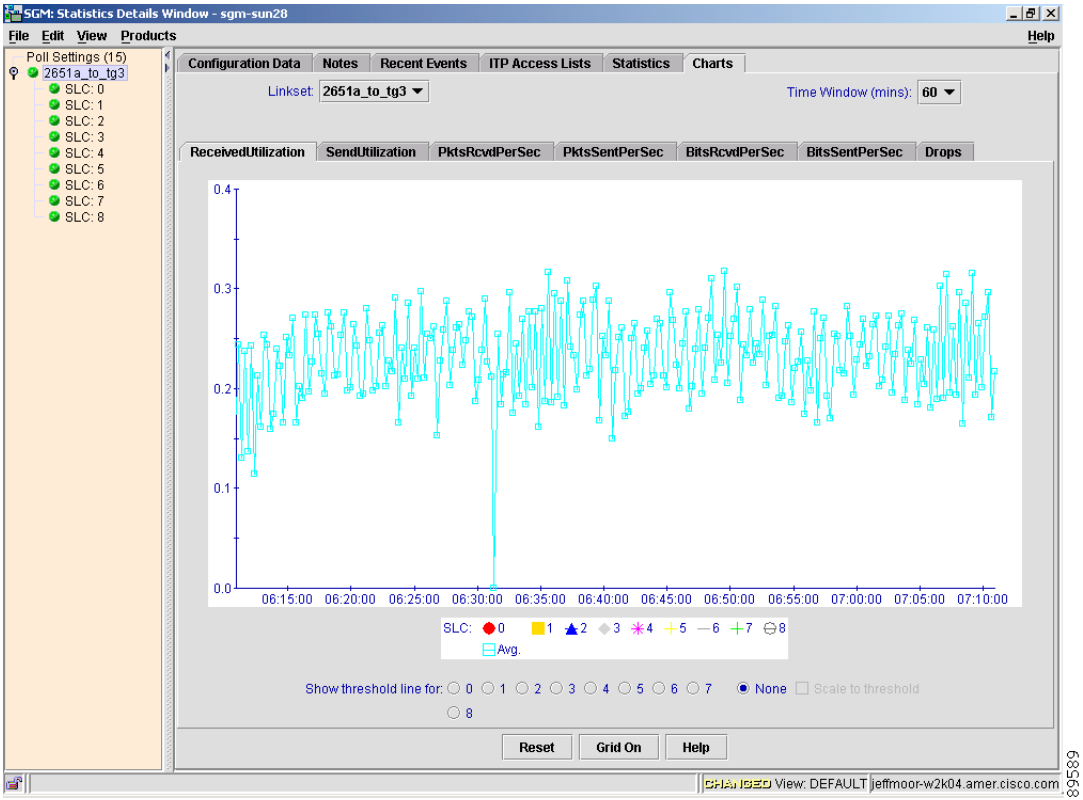
The Service Information sub-section displays the following information for the selected linkset:

- **MTP3 Accounting Enabled—**Indicates whether the collection of MTP3 accounting statistics is enabled for the linkset.
- **GTT Accounting Enabled—**Indicates whether the collection of GTT accounting statistics is enabled for the linkset. For Cisco IOS software releases prior to 12.2(4)MB10, this field displays **Unknown**.
- **Duration In Service %—**Percentage of time the linkset has been in service since the last reboot of the ITP, or since ITP last reset the counters.
- **Duration Out Of Service %—**Percentage of time the linkset has been out of service since the last reboot of the ITP, or since ITP last reset the counters.

Charts Tab: ReceivedUtilization

To view real-time ReceivedUtilization information for the selected linkset, select the **Charts** tab. SGM displays the ReceivedUtilization chart (Figure 3-14).

Figure 3-14 ReceivedUtilization Chart for a Linkset



The ReceivedUtilization chart displays the following information for the selected linkset:

- **Linkset**—Drop-down list box used to select the linkset from whose perspective data is to be displayed. By default, data is displayed from the perspective of the selected linkset. To display data from the perspective of the adjacent linkset, select it in this list box.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **Received Utilization Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.
- **Received Utilization Chart**—Displays the average **Receive Utilization %** for all links on the linkset as a function of time, and optionally the **Receive Utilization %** for up to 16 individual links on the linkset.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where:

  - *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds.
  - *dd*.*dd* is the receive utilization percentage for that data point.

  To remove the data for a link or for the average from the chart, click the icon in the **SLC** field. To return the data to the chart, click the icon again.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.

- **SLC**—Displays up to 17 color-coded icons:
  - One for each link (SLC) in the **Received Utilization Chart**, up to 16 total links.
  - One for the average of all SLCs.

  To remove the data for a link or for the average from the chart, click the icon in this field. To return the data to the chart, click the icon again.
- **Show threshold line for:**—Draws a horizontal line on the **Received Utilization Chart**, indicating the receive threshold for the selected link.

  If you do not want to draw a threshold line, select **None**. This is the default setting.
- **Scale to threshold**—Scales the **Received Utilization Chart** in order to draw the threshold selected in the **Show threshold line for** field:
  - To scale the chart, select this checkbox.
  - To remove the scaling from the chart, clear this checkbox. This is the default setting.

  The **Scale to threshold** checkbox is not available if the **Show threshold line for:** field is set to **None**.

To superimpose a graphic grid on the chart, which can make the data easier to read, click **Grid On**.

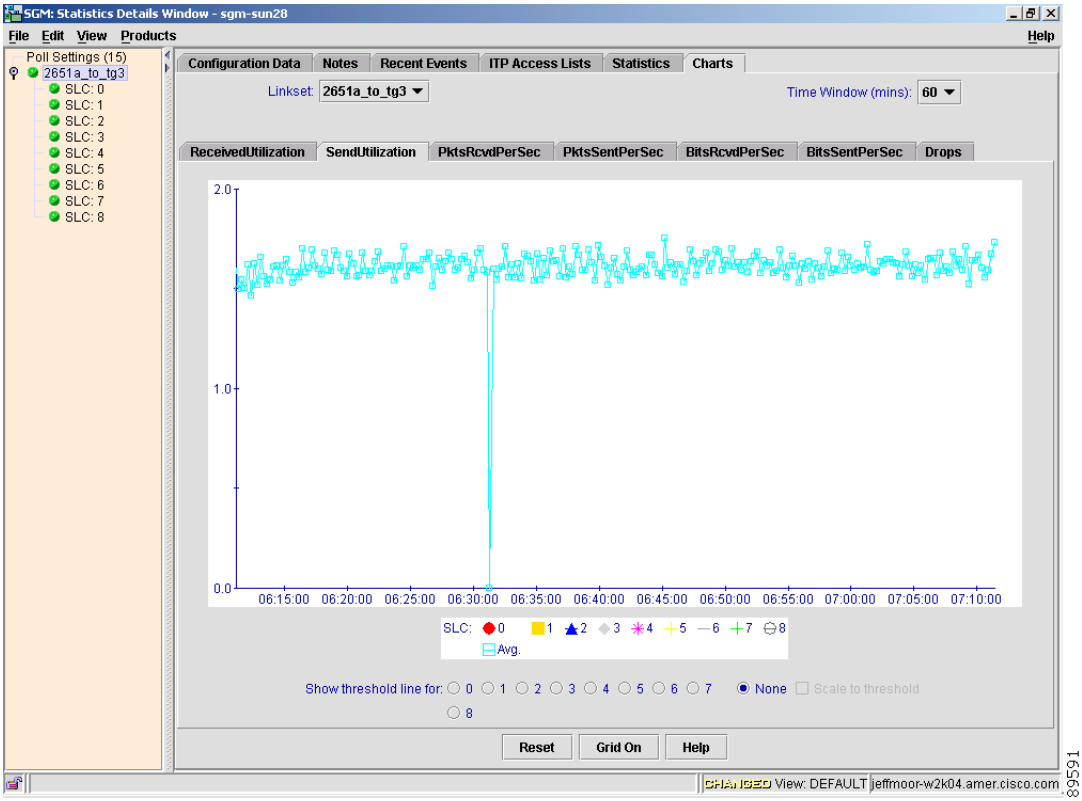
To remove the graphic grid from the chart, click **Grid Off**.

To display online help for the window, click **Help**.

Charts Tab: SendUtilization

To view real-time SendUtilization information for the selected linkset, select the **Charts** tab. SGM displays the SendUtilization chart (Figure 3-15).

Figure 3-15 SendUtilization Chart for a Linkset



The SendUtilization chart displays the following information for the selected linkset:

- **Linkset**—Drop-down list box used to select the linkset from whose perspective data is to be displayed. By default, data is displayed from the perspective of the selected linkset. To display data from the perspective of the adjacent linkset, select it in this list box.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **Send Utilization Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.
- **Send Utilization Chart**—Displays the average **Send Utilization %** for all links on the linkset as a function of time, and optionally the **Send Utilization %** for up to 16 individual links on the linkset.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where:

  - *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds.
  - *dd*.*dd* is the send utilization percentage for that data point.

  To remove the data for a link or for the average from the chart, click the icon in the **SLC** field. To return the data to the chart, click the icon again.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.

- **SLC**—Displays up to 17 color-coded icons:
  - One for each link (SLC) in the **Send Utilization Chart**, up to 16 total links.
  - One for the average of all SLCs.

  To remove the data for a link or for the average from the chart, click the icon in this field. To return the data to the chart, click the icon again.
- **Show threshold line for:**—Draws a horizontal line on the **Send Utilization Chart**, indicating the receive threshold for the selected link.

  If you do not want to draw a threshold line, select **None**. This is the default setting.
- **Scale to threshold**—Scales the **Send Utilization Chart** in order to draw the threshold selected in the **Show threshold line for** field:
  - To scale the chart, select this checkbox.
  - To remove the scaling from the chart, clear this checkbox. This is the default setting.

  The **Scale to threshold** checkbox is not available if the **Show threshold line for:** field is set to **None**.

To superimpose a graphic grid on the chart, which can make the data easier to read, click **Grid On**.

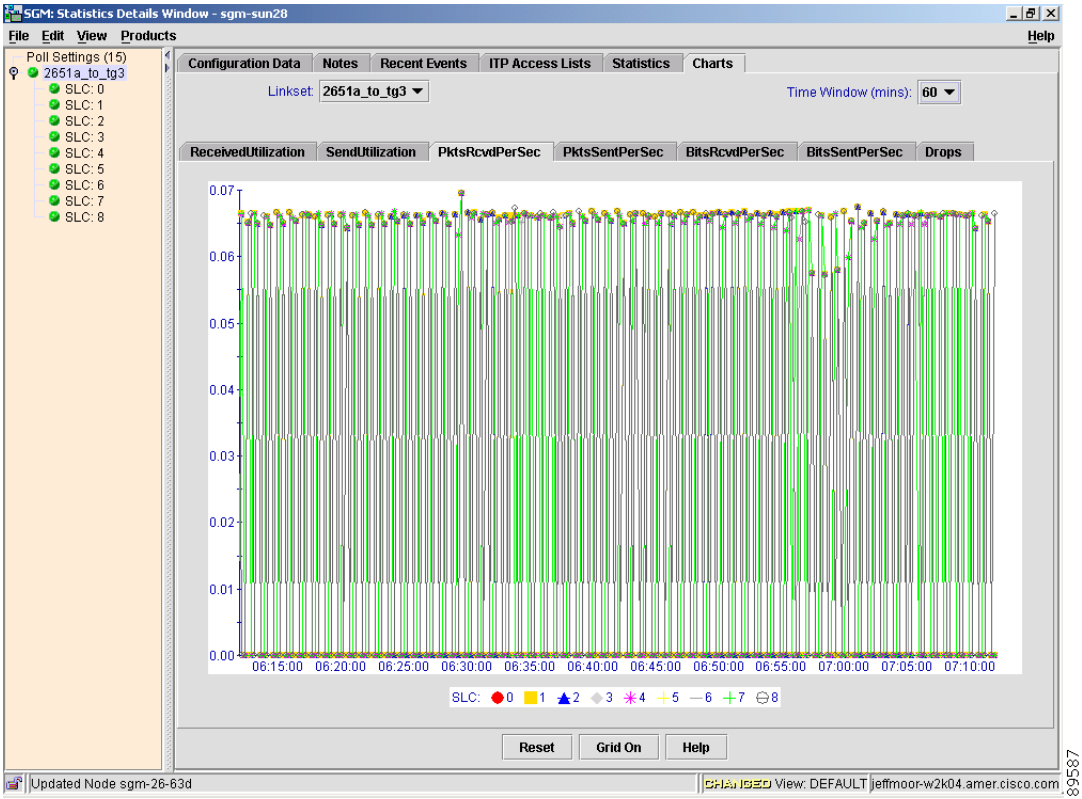
To remove the graphic grid from the chart, click **Grid Off**.

To display online help for the window, click **Help**.

Charts Tab: PktsRcvdPerSec

To view real-time packets-received-per-second information for the selected link, select the **Charts** tab. SGM displays the PktsRcvdPerSec chart (Figure 3-16).

Figure 3-16 PktsRcvdPerSec Chart for a Linkset



The PktsRcvdPerSec chart displays the following information for the selected link:

SGM displays the following information in the PktsRcvdPerSec chart:

- **Linkset**—Drop-down list box used to select the linkset from whose perspective data is to be displayed. By default, data is displayed from the perspective of the selected linkset. To display data from the perspective of the adjacent linkset, select it in this list box.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **Packets Received Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.
- **Packets Received Chart**—Displays the **Packets Received Per Sec** for the linkset as a function of time, including data for up to 16 links.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where:

  - *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds.
  - *dd*.*dd* is the number of packets received per second for that data point.

  To remove the data for a link from the chart, click the icon in the **SLC** field. To return the data to the chart, click the icon again.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.

- **SLC**—Displays up to 17 color-coded icons:
  - One for each link (SLC) in the **Packets Received Chart**, up to 16 total links.
  - One for the average of all SLCs.

  To remove the data for a link or for the average from the chart, click the icon in this field. To return the data to the chart, click the icon again.

To superimpose a graphic grid on the chart, which can make the data easier to read, click **Grid On**.

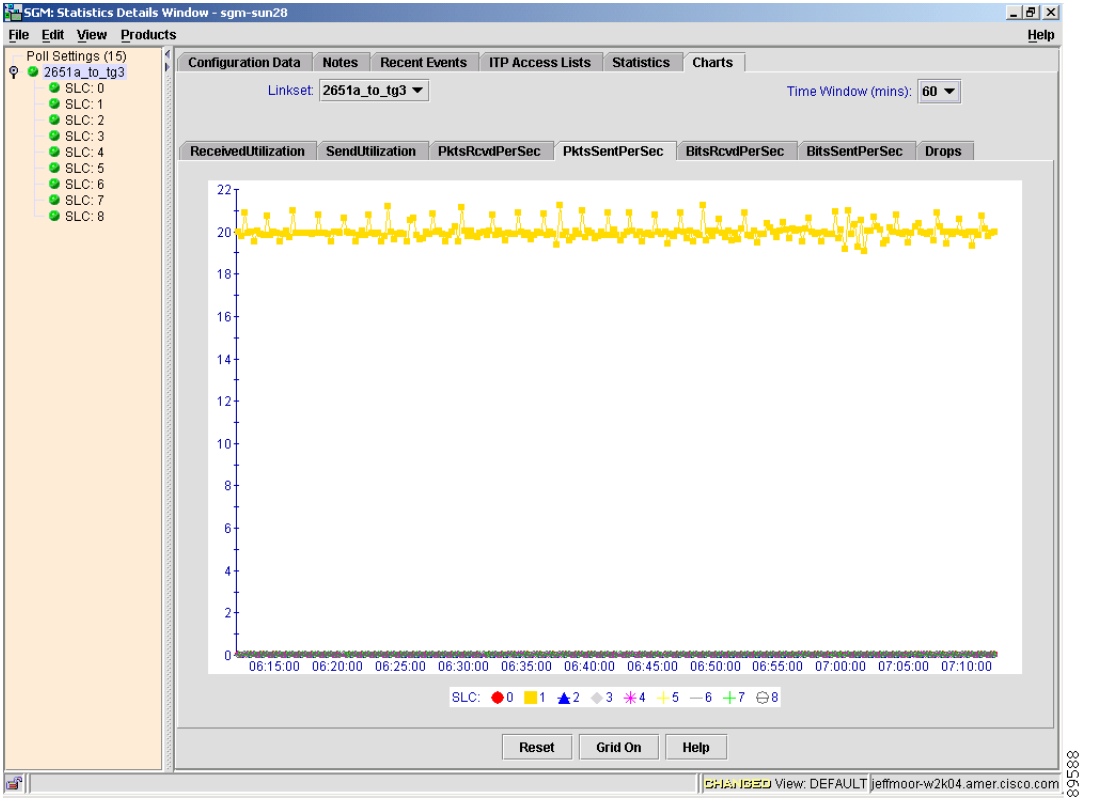
To remove the graphic grid from the chart, click **Grid Off**.

To display online help for the window, click **Help**.

Charts Tab: PktsSentPerSec

To view real-time packets-sent-per-second information for the selected link, select the **Charts** tab. SGM displays the PktsSentPerSec chart (Figure 3-17).

Figure 3-17 PktsSentPerSec Chart for a Linkset



The PktsSentPerSec chart displays the following information for the selected link:

SGM displays the following information in the PktsSentPerSec chart:

- **Linkset**—Drop-down list box used to select the linkset from whose perspective data is to be displayed. By default, data is displayed from the perspective of the selected linkset. To display data from the perspective of the adjacent linkset, select it in this list box.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **Packets Sent Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.

- **Packets Sent Chart**—Displays the **Packets Sent Per Sec** for the linkset as a function of time, including data for up to 16 links.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where:

  - *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds.
  - *dd*.*dd* is the number of packets sent per second for that data point.

  To remove the data for a link from the chart, click the icon in the **SLC** field. To return the data to the chart, click the icon again.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.

- **SLC**—Displays up to 17 color-coded icons:
  - One for each link (SLC) in the **Packets Sent Chart**, up to 16 total links.
  - One for the average of all SLCs.

  To remove the data for a link or for the average from the chart, click the icon in this field. To return the data to the chart, click the icon again.

To superimpose a graphic grid on the chart, which can make the data easier to read, click **Grid On**.

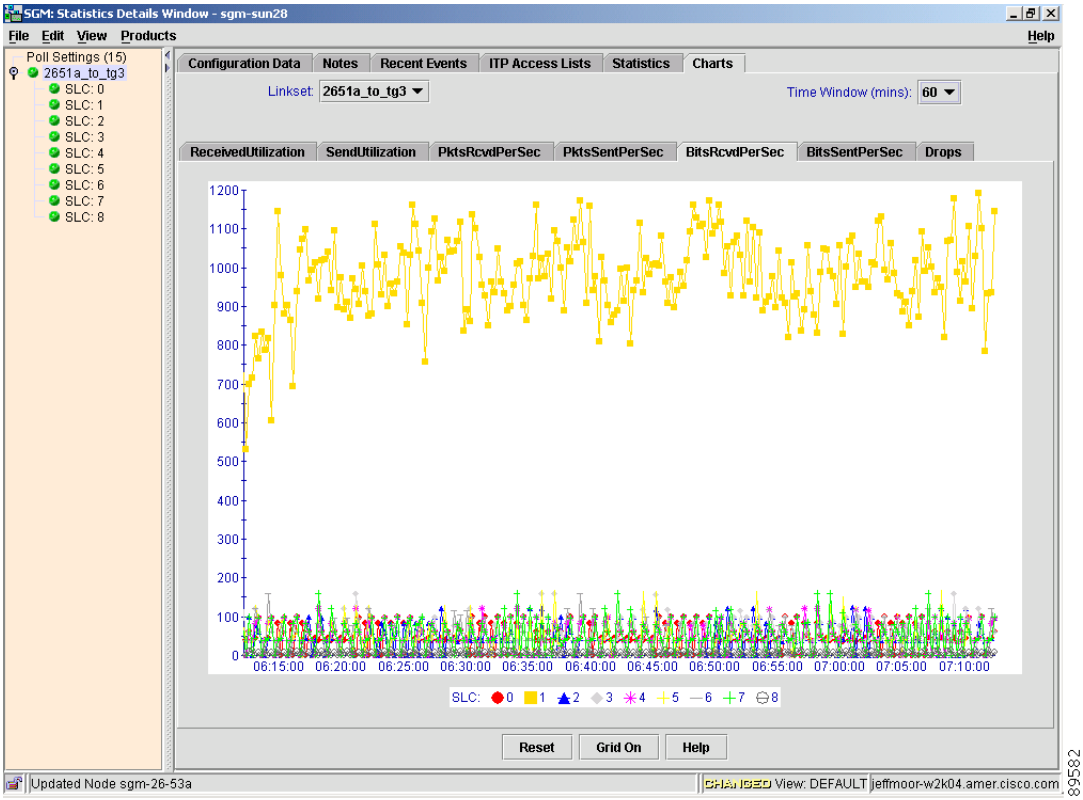
To remove the graphic grid from the chart, click **Grid Off**.

To display online help for the window, click **Help**.

Charts Tab: BitsRcvdPerSec

To view real-time bits-received-per-second information for the selected link (or bytes-received-per-second information, if you cleared the **Show Details in Bits Instead of Bytes** checkbox in the Preferences Window), select the **Charts** tab. SGM displays the BitsRcvdPerSec chart (Figure 3-18).

Figure 3-18 BitsRcvdPerSec Chart for a Linkset



The BitsRcvdPerSec chart displays the following information for the selected link:

- **Linkset**—Drop-down list box used to select the linkset from whose perspective data is to be displayed. By default, data is displayed from the perspective of the selected linkset. To display data from the perspective of the adjacent linkset, select it in this list box.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **Bits Received Chart** or **Bytes Received Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.
- **Bits Received Chart** or **Bytes Received Chart**—Displays the **Bits Received Per Sec** or **Bytes Received Per Sec** for the linkset as a function of time, including data for up to 16 links.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where:

  - *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds.
  - *dd*.*dd* is the number of bits or bytes (as set in the Preferences window) received per second for that data point.

  To remove the data for a link from the chart, click the icon in the **SLC** field. To return the data to the chart, click the icon again.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.

- **SLC**—Displays up to 17 color-coded icons:
  - One for each link (SLC) in the **Bits Received Chart** or **Bytes Received Chart**, up to 16 total links.
  - One for the average of all SLCs.

  To remove the data for a link or for the average from the chart, click the icon in this field. To return the data to the chart, click the icon again.

To superimpose a graphic grid on the chart, which can make the data easier to read, click **Grid On**.

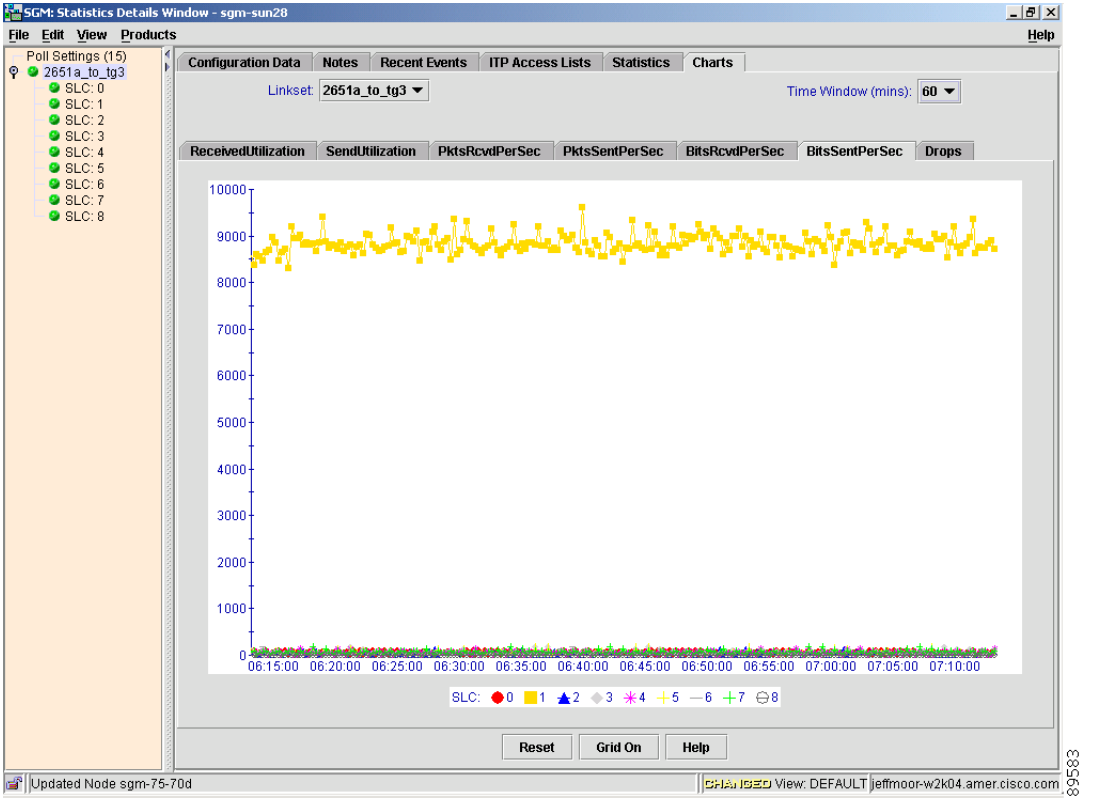
To remove the graphic grid from the chart, click **Grid Off**.

To display online help for the window, click **Help**.

Charts Tab: BitsSentPerSec

To view real-time bits-sent-per-second information for the selected link (or bytes-sent-per-second information, if you cleared the **Show Details in Bits Instead of Bytes** checkbox in the Preferences Window), select the **Charts** tab. SGM displays the BitsSentPerSec chart (Figure 3-19).

Figure 3-19 BitsSentPerSec Chart for a Linkset



The BitsSentPerSec chart displays the following information for the selected link:

SGM displays the following information in the BitsSentPerSec or BytesSentPerSec chart:

- **Linkset**—Drop-down list box used to select the linkset from whose perspective data is to be displayed. By default, data is displayed from the perspective of the selected linkset. To display data from the perspective of the adjacent linkset, select it in this list box.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **Bits Sent Chart** or **Bytes Sent Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.

- **Bits Sent Chart** or **Bytes Sent Chart**—Displays the **Bits Sent Per Sec** or **Bytes Sent Per Sec** for the linkset as a function of time, including data for up to 16 links.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where:

  - *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds.
  - *dd*.*dd* is the number of bits or bytes (as set in the Preferences window) sent per second for that data point.

  To remove the data for a link from the chart, click the icon in the **SLC** field. To return the data to the chart, click the icon again.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.

- **SLC**—Displays up to 17 color-coded icons:

  - One for each link (SLC) in the **Bits Sent Chart** or **Bytes Sent Chart**, up to 16 total links.
  - One for the average of all SLCs.

  To remove the data for a link or for the average from the chart, click the icon in this field. To return the data to the chart, click the icon again.

To superimpose a graphic grid on the chart, which can make the data easier to read, click **Grid On**.

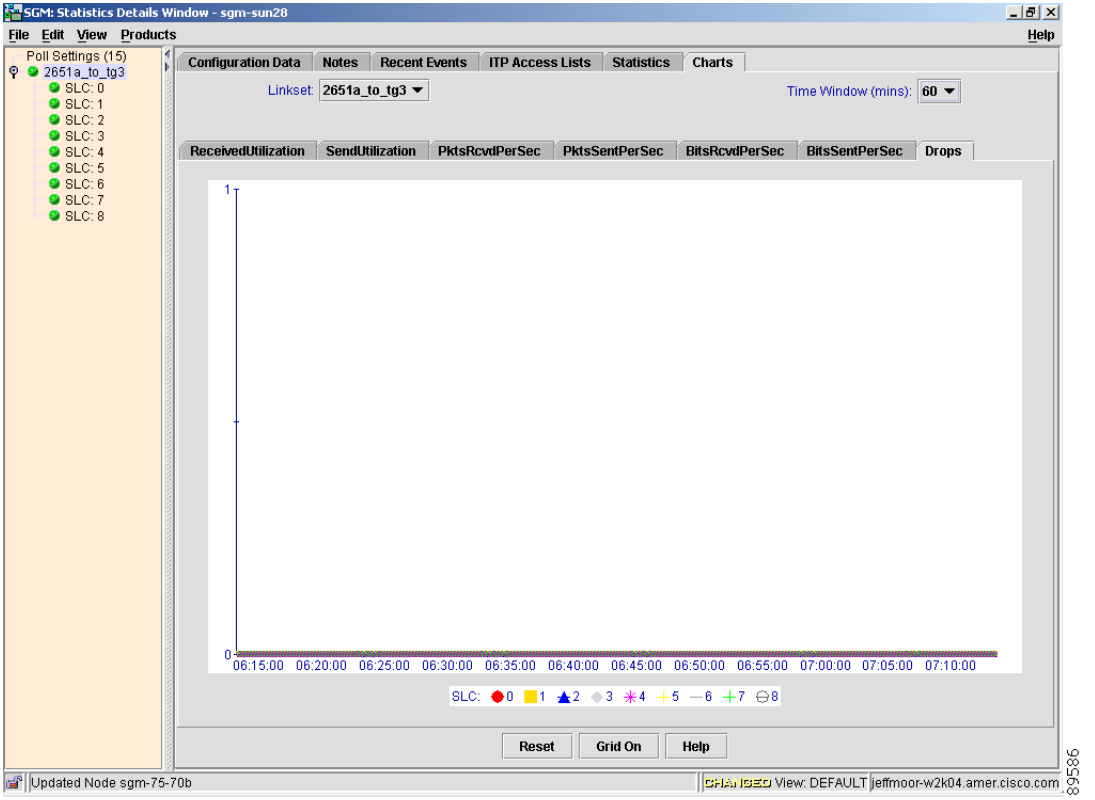
To remove the graphic grid from the chart, click **Grid Off**.

To display online help for the window, click **Help**.

Charts Tab: Drops

To view drops information for the selected link, select the **Charts** tab. SGM displays the Drops chart (Figure 3-20).

Figure 3-20 Drops Chart for a Linkset



The Drops chart displays the following information for the selected link:

- **Linkset**—Drop-down list box used to select the linkset from whose perspective data is to be displayed. By default, data is displayed from the perspective of the selected linkset. To display data from the perspective of the adjacent linkset, select it in this list box.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **Drops Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.
- **Drops Chart**—Displays the **Drops** for the linkset as a function of time, including data for up to 16 links.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where:

  - *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds.
  - *dd*.*dd* is the number of drops for that data point.

  To remove the data for a link from the chart, click the icon in the **SLC** field. To return the data to the chart, click the icon again.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.

- **SLC**—Displays up to 17 color-coded icons:
  - One for each link (SLC) in the **Drops Chart**, up to 16 total links.
  - One for the average of all SLCs.

  To remove the data for a link or for the average from the chart, click the icon in this field. To return the data to the chart, click the icon again.

To superimpose a graphic grid on the chart, which can make the data easier to read, click **Grid On**.

To remove the graphic grid from the chart, click **Grid Off**.

To display online help for the window, click **Help**.

Editing a Linkset

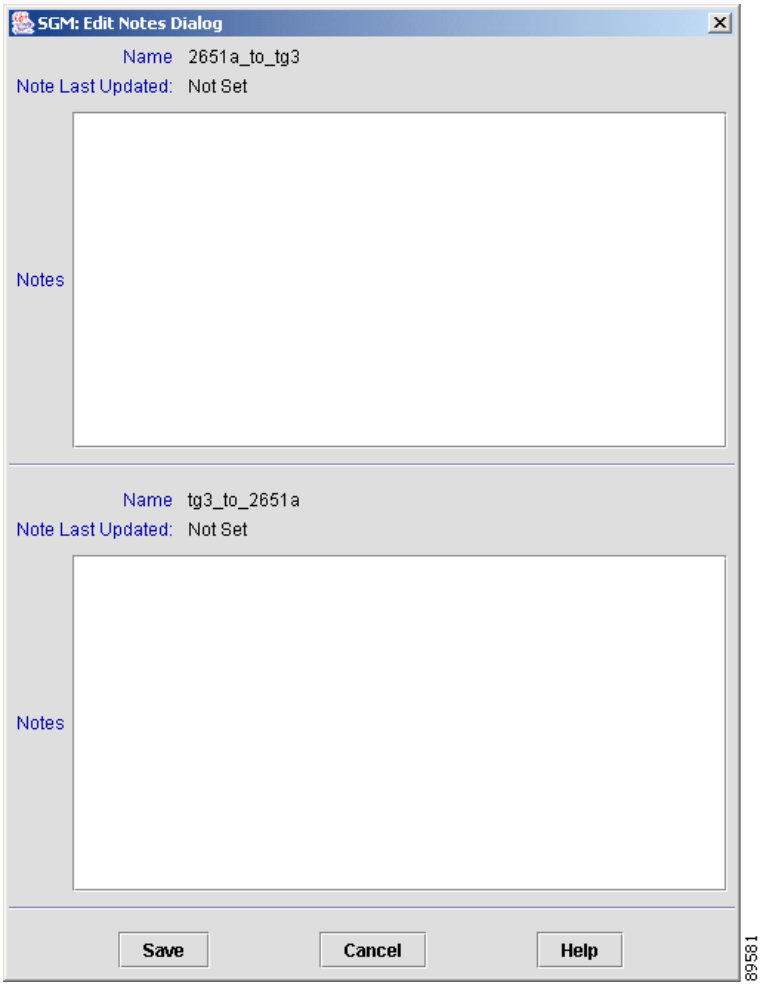
SGM enables you to annotate a linkset, attaching a descriptive string to the linkset.

To annotate a linkset:

Step 1 Right-click a linkset in a window.

Step 2 Select **Edit Notes** in the right-click menu. SGM displays the Edit Notes Dialog for a Linkset (Figure 3-21).

Figure 3-21 Edit Notes Dialog for a Linkset



If both ends of the linkset are known to SGM, one is displayed in the top half of the Edit Notes Dialog for a Linkset, the other in the bottom half. If only one end is known to SGM, only that end is displayed.

The Edit Notes Dialog for a Linkset displays the name of the linkset and the date and time the **Notes** field for the linkset was last updated. If there is no note currently associated with the linkset, the **Notes Last Updated** field displays the value **Not Set**.

Step 3 In the **Notes** field, enter any important information about the linkset, such as a detailed description, its location, its service history, and so on.

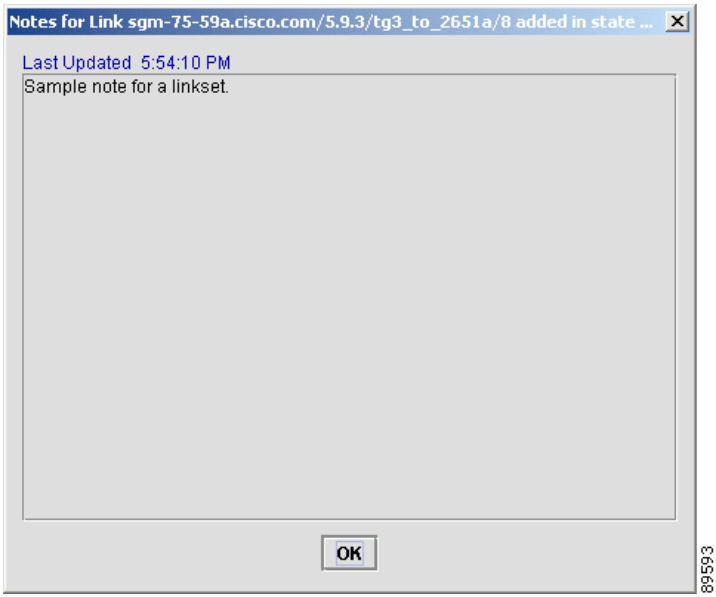
Step 4 Click **Save** to save the annotations and exit the Edit Notes Dialog for a Linkset.

Viewing Notes for a Linkset

SGM enables you to view the notes that have been attached to linksets.

To view a note, right-click a linkset in a window, then select **View>Notes** in the right-click menu. (The **Notes** option is grayed-out if there is no note associated with the selected linkset.) SGM displays the Linkset Notes dialog (Figure 3-22).

Figure 3-22 Linkset Notes Dialog



The Linkset Notes dialog displays the following information:

- **Name**—Name of the linkset.
- **Notes Last Updated**—Date and time the **Notes** field for the linkset was last updated.
- **Notes**—Notes associated with the linkset.

Click **OK** to close the Linkset Notes dialog.

Deleting a Linkset

After Discovery, the linksets in your network are known to SGM and added to the SGM database. Physically deleting linksets from your network is not the same as deleting them from the SGM database. The following sections describe the differences between deleting linksets from your network and from the SGM database, and the procedures for doing so:

- Deleting a Linkset from Your Network, page 3-88
- Deleting a Linkset from the SGM Database, page 3-88

Deleting a Linkset from Your Network

If you physically delete a known linkset from your network, it remains in the SGM database, SGM labels it **Unknown**, and it is the system administrator's responsibility to delete it from the SGM database, if you choose to do so. SGM labels all associated nodes **Warning** and all associated links **Unknown**.

When you redefine the linkset (that is, when you define a linkset with the same destination point code as the original linkset, but not necessarily with the same linkset name), SGM rediscovers the linkset and labels it with the appropriate status (such as **Active**).

Deleting a Linkset from the SGM Database

Typically, you delete a linkset in the SGM database for one of the following reasons:

- You have physically deleted the linkset from your network. This is the most common reason for deleting a linkset from the SGM database.
- The linkset is **Unknown** or **Unavailable**, you are aware of the reason, and you no longer want to see it in SGM displays. For example, the linkset might be associated with a node that was removed from the network, or it might be a previously discovered linkset associated with a test lab device.

If you have physically deleted a known linkset from your network, and you then delete it from SGM, it is no longer in the SGM database, it does not appear in SGM windows, and it is not discovered when you run Discovery.

If you have *not* physically deleted a known linkset from your network, and you delete it from SGM, SGM also automatically deletes all associated links from the SGM database. However, at the next poll SGM finds the linkset and associated links and adds them back to the SGM database, setting the status appropriately. If this happens, do not delete the linkset again. Instead, set it to **Ignored**. See the "Ignoring a Linkset" section on page 3-90 for more information.

Note If you delete a linkset from the SGM database, the linkset is deleted for *all* SGM clients and views connected to that SGM server.

If you delete all linksets to an **Unmanaged** node, SGM does not automatically delete the node. Instead, you must manually delete the node. See the "Deleting a Node" section on page 3-130 for more information.

To delete a linkset from the SGM database, use one of the following procedures:

- Select one or more linksets in a window, then select **Edit > Delete** from the SGM Main Menu.
- Right-click a linkset in a window, then select **Delete Item** in the right-click menu. (You cannot delete more than one linkset at a time from the right-click menu.)

SGM asks you to confirm the deletion:

- Select **Yes** to delete the selected linksets. SGM deletes the linksets and all associated links from the SGM database. However, if the linksets were not physically deleted from your network, then at the next poll SGM finds the linksets and their associated links and adds them back to the SGM database, setting the status appropriately.
- Select **No** to return to the window without deleting any linksets or links from the SGM database.

You can also use the **sgm delete linkset** command to delete one or more linksets from the SGM database. See the "SGM Commands and Descriptions" section on page B-2 for more information on the use of this command.

Ignoring a Linkset

You can instruct SGM to ignore a linkset when it aggregates and displays network data. Setting linksets to **Ignored** prevents known linkset problems from affecting SGM displays for associated nodes. In effect, you are preventing a known problem from distracting you from other, more urgent network problems.

For example, you can set a linkset to **Ignored** before shutting down the linkset for maintenance.

Note If you set a linkset to **Ignored**, the linkset is ignored for *all* SGM clients and views connected to that SGM server.

Also, if you set a linkset to **Ignored**, make a note of the change, and do not forget to reset the linkset when the problem is corrected or the maintenance is complete.

To set a linkset to **Ignored** in the Linkset Window, select the **Ignored** checkbox for the linkset you want SGM to ignore.

To set a linkset to **Ignored** in the Topology window, select a linkset in the topology map, then, in the left pane, select the **Ignored** checkbox for the linkset you want SGM to ignore.

Viewing Ignored Linksets

To display all linksets that are **Ignored**, display the Linkset Window and click the **Ignored** column header. SGM displays all ignored linksets at the top of the table.

Working with Nodes

SGM enables you to view information about all discovered nodes, including their IP addresses, status, and other important information.

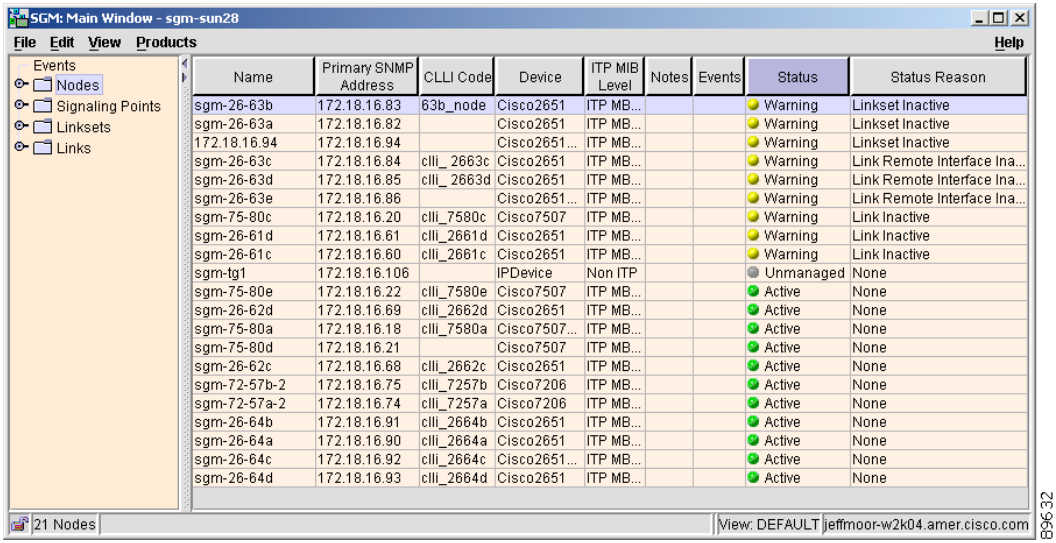
This section includes the following information:

Related Topics:

Viewing Basic Information for Nodes

To view basic information for nodes, select **Nodes** in the left pane of the SGM Main Window. SGM displays the Node Window (Figure 3-23).

Figure 3-23 Node Window



The Node Window displays information about the nodes that have been discovered by SGM.

By default, SGM displays all of the columns in the node table except **Internal ID**, **ITP Uptime**, **Reboot Reason**, and **Last Status Change**. To display these columns, or to hide other columns, see the procedures in the "Modifying Node Table Column Settings" section on page 5-16.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details. By default, this table is sorted by **Status**.

The Node Window displays the following information for each discovered node:

- **Internal ID**—Internal ID of the node. The internal ID is a unique ID for every event, link, linkset, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Name**—Name or IP address of the node.
- **Primary SNMP Address**—IP address of the node, used by SNMP to poll the node. (There might be other IP addresses on the node that are not the primary SNMP address.)
- **CLLI Code**—COMMON LANGUAGE Location Identification Code for the node. A CLLI code is a standardized 11-character identifier that uniquely identifies the geographic location of the node. If the node has no CLLI code configured, this field is blank.
- **Device Type**—Device type of the node. Possible values are:
  - **Cisco2650**—Cisco 2650 series router
  - **Cisco2650XM**—Cisco 2650XM series router
  - **Cisco2651**—Cisco 2651 series router
  - **Cisco2651XM**—Cisco 2651XM series router
  - **Cisco7204**—Cisco 7204 series router
  - **Cisco7204VXR**—Cisco 7204VXR series router
  - **Cisco7206**—Cisco 7206 series router
  - **Cisco7206VXR**—Cisco 7206VXR series router
  - **Cisco7507**—Cisco 7507 series router
  - **Cisco7507mx**—Cisco 7507mx series router
  - **Cisco7507z**—Cisco 7507z series router
  - **Cisco7513**—Cisco 7513 series router
  - **Cisco7513mx**—Cisco 7513mx series router
  - **Cisco7513z**—Cisco 7513z series router
  - **IPDevice**—IP device, other than those listed above. You can assign this icon to an unknown node if you know that it is an IP device.
  - **Unknown**—SGM is unable to determine the device type.
- **ITP MIB Level—**MIB conformance level used by the ITP, such as **ITP MB5**.

- **ITP Uptime—**Time the ITP has been up, in weeks, days, hours, minutes, and seconds.
- **Reboot Reason—**Reason for the last reboot of the ITP.
- **Notes**—Indicates whether there is a note associated with the node.
- **Events**—Indicates whether there is a recent event associated with the node.
  - To delete the event icon from SGM displays for a specific node, for this SGM client only, select the node and click the icon.
  - To delete the event icon from SGM displays for all nodes, for this SGM client only, select **Edit > Clear All Events** from the SGM Main Menu.

Note During Discovery, SGM might flag most nodes with an event icon. If the event icons are too distracting, use the **Edit > Clear All Events** menu option to remove them.

- **Last Status Change**—Date and time that the status of the node last changed.
- **Status**—Current status of the node. Possible values are:
  - **Active (green ball)**—The node is currently fully functional.
  - **Discovering (gray ball)**—The node is being discovered, and SNMP queries have been sent to the device.
  - **Polling (gray ball)**—The node is being polled.
  - **Unknown (red ball)**—The node failed to respond to an SNMP request. SGM sets all associated signaling points, linksets, and links to **Unknown**.
  - **Unmanaged (gray ball)**—One of the following situations exists:

    – The node is known indirectly by SGM. In other words, SGM knows the device exists but there is no known SNMP stack on the device for SGM to query.

    – An SGM user has set the node to **Unmanaged** status, to prevent SGM from polling the node.

    If the associated signaling points are referenced via linksets to other signaling points, SGM automatically sets all associated signaling points to **Unmanaged**, and deletes all associated linksets and links, as well as all linksets and links that reference the node as an adjacent node.

If the associated signaling points are not referenced to other signaling points, SGM automatically deletes the signaling points, all associated linksets and links, and all linksets and links that reference the node as an adjacent node.

- **Waiting (gray ball)**—The node is in the Discovery queue but is not currently being discovered.
- **Warning (yellow ball)**—The node is active, but one or more associated signaling points, linksets, or links is in **Failed**, **Unavailable**, **Unknown**, or **Warning** status and is not **Ignored**.

- **Status Reason**—Reason for the current status of the node. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**
  - **Not Configured for ITP**
  - **MIB Data Error**
  - **SNMP Exception**
  - **SignalingPoint Inactive**
  - **Linkset Inactive**
  - **Link Congested**
  - **Link Send Utilization Threshold Exceeded**
  - **Link Receive Utilization Threshold Exceeded**
  - **Link Local Interface Inactive**
  - **Link Remote Interface Inactive**
  - **Link Inactive**

  If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

The "Viewing Detailed Information for a Link" section on page 3-175 displays additional information about the causes of link failures.

The "Viewing Detailed Information for a Linkset" section on page 3-42 displays additional information about the causes of linkset failures.

Viewing Detailed Information for a Node

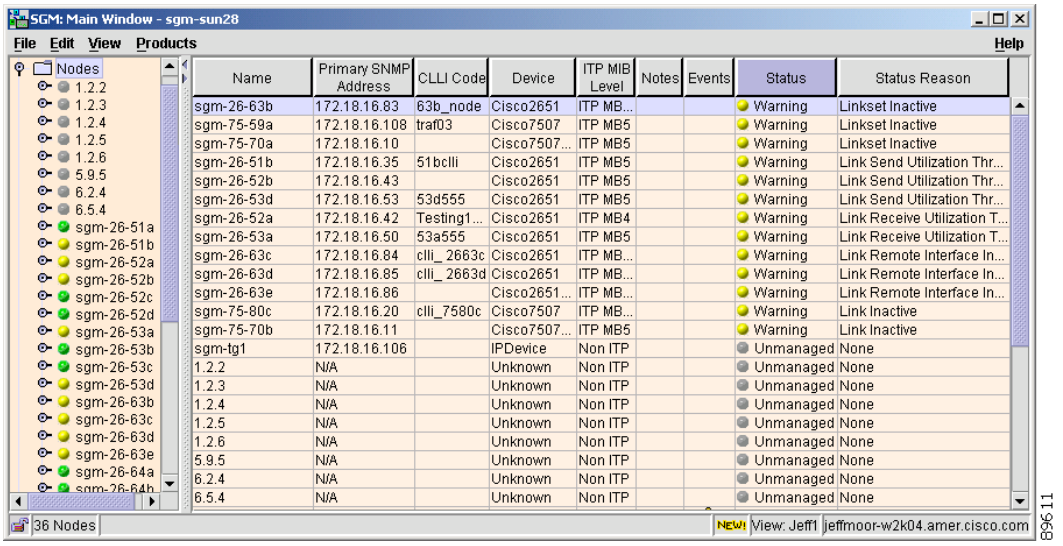
SGM can display detailed information about a selected node, including its CLLI code, point code, status, and other information.

To display detailed information for a node, use one of the following procedures:

- Select **Nodes** in the left pane of the SGM Main Window, right-click a node in the right pane, then select **View > Configuration Details** in the right-click menu.
- Select the turner beside **Nodes** in the left pane of the SGM Main Window, then select a node.

SGM displays the Node Details Window (Figure 3-24).

Figure 3-24 Node Details Window



Updates for the node that are received from the SGM server are reflected automatically in this window.

Changes you make in this window might not be reflected throughout SGM until the next poll (by default, every 15 seconds). For information about changing the polling interval, see the "Viewing Detailed Information for a Linkset" section on page 3-42.

Note This window polls your network periodically. To prevent unnecessary traffic on your network, close this window when you no longer need to refer to it.

Signaling Points Tab: Signaling Points

To view information about the signaling points that are associated with the selected node, select the **Signaling Points** tab. SGM displays the linksets in the top table, and the links in the bottom table.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

By default, SGM displays all of the columns in the Signaling Point Table except **Internal ID**, **Instance ID**, and **Last Status Change**. To display these columns, or to hide other columns, see the procedures in the "Modifying Node Table Column Settings" section on page 5-16.

The Signaling Point Table displays the following information about signaling points that are associated with the selected node:

- **Internal ID—**Internal ID of the signaling point. The internal ID is a unique ID for every event, link, linkset, node, and signaling point, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Name—**Name of the signaling point.
- **Node—**Name of the node associated with this signaling point.
- **Instance ID—**ID of the instance associated with the signaling point.
- **Instance Name—**Name of the instance associated with the signaling point.
- **Point Code—**Primary point code of the signaling point.
- **Variant—**SS7 protocol variant. Valid variants are:
  - **ANSI**
  - **China**
  - **ITU**
- **Network Indicator—**Determines the type of call that is being placed. Valid values are:
  - **National**—National-bound call. SGM routes national calls through the national network.
  - **NationalSpare**—National-bound call, used in countries in which more than one carrier can share a point code. In those countries, networks are differentiated by the **Network Indicator**.

  - **International**—International-bound call. SGM forwards international-bound calls to an STP pair that acts as an international gateway.
  - **InternationalSpare**—International-bound call, used in countries in which more than one carrier can share a point code. In those countries, networks are differentiated by the **Network Indicator**.
- **Notes—**Indicates whether there is a note associated with the signaling point.
- **Events—**Indicates whether there is a recent event associated with the signaling point. During Discovery, SGM might flag most signaling points with an event icon. If the event icons are too distracting, select **Edit > Clear All Events** from the SGM Main Menu to remove them.
- **Last Status Change—**Date and time that the status of the signaling point last changed.
- **Status—**Current status of the signaling point. Possible values are:
  - **Active (green ball)**—The signaling point is currently fully functional.
  - **Unknown (red ball)**—One of the following conditions occurred:

    – SGM cannot poll the node associated with the signaling point. SGM sets all signaling points, linksets, and links associated with the node to **Unknown**.

    – The signaling point has been unconfigured on the ITP, or the configuration is incomplete. At the next poll, SGM determines that the signaling point does not exist, and sets the signaling point and all associated linksets and links to **Unknown**.
  - **Unmanaged (gray ball)**—An SGM user has set the signaling point to **Unmanaged** status, to prevent SGM from polling the signaling point. SGM automatically deletes all associated links and linksets.
  - **Warning (yellow ball)**—The signaling point is active, but one or more associated links or linksets is in **Failed**, **Unavailable**, **Unknown**, or **Warning** status and is not flagged as **Ignored**.
- **Status Reason—**Reason for the current status of the signaling point. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**

- **Unconfigured**
- **SNMP Timeout**
- **Device is unreachable, possibly wrong community string**
- **Not ITP Device**
- **Not Configured for ITP**
- **MIB Data Error**
- **SNMP Exception**
- **SignalingPoint Inactive**
- **Linkset Inactive**
- **Link Congested**
- **Link Send Utilization Threshold Exceeded**
- **Link Receive Utilization Threshold Exceeded**
- **Link Local Interface Inactive**
- **Link Remote Interface Inactive**
- **Link Inactive**

If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Signaling Points Tab: Linksets

To view information about the linksets that are associated with the selected node, select the **Signaling Points** tab. SGM displays the linksets in the top table, and the links in the bottom table.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

Linksets that are associated with nodes that are excluded from the current view are not displayed in the Linkset Table. See the "Creating a View" section on page 3-27 for more information about excluding nodes.

By default, SGM displays all of the columns in the Linkset Table except **Internal ID**, **Congestion Links**, and **Last Status Change**. To display these columns, or to hide other columns, see the procedures in the "Modifying Linkset Table Column Settings" section on page 5-18.

The Linkset Table displays the following information about linksets that are associated with the selected node:

- **Internal ID—**Internal ID of the linkset. The internal ID is a unique ID for every event, link, linkset, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Name—**Name of the linkset.
- **Local Point Code—**Point code of the primary node for the linkset.
- **Adj Point Code—**Point code of the adjacent node for the linkset.
- **Linkset Type—**Type of linkset, which SGM determines by examining the links defined in the linkset. Possible linkset types are:
  - **HSL**—The links in this linkset use the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol.
  - **SCTPIP**—The links in this linkset use the Stream Control Transmission Protocol (SCTP) IP transport protocol.
  - **Serial**—The links in this linkset use the serial SS7 signaling protocol.
  - **Mixed**—The links in this linkset are of two or more types. (This configuration is not recommended.)

  - **Virtual**—The links in this linkset are virtual links, which connect signaling point instances running on the same device. SGM does not poll virtual linksets, nor does it display real-time data or accounting statistics for virtual linksets.
  - **Other**—No links have been defined for this linkset.
- **Links—**Total number of links in the linkset.
- **Active Links—**Number of links in the linkset that are **Active**.
- **Congested Links—**Number of links in the linkset that are **Congested**.
- **Ignored—**Indicates whether the linkset is to be included when aggregating and displaying SGM status information:
  - Clear the checkbox to include the linkset. This is the default setting.
  - Select the checkbox to exclude the linkset.

  This field can be edited by users with authentication level Power User (Level 2) and higher.
- **Notes—**Indicates whether there is a note associated with the linkset.
- **Events—**Indicates whether there is a recent event associated with the linkset.
  - To delete the event icon from SGM displays for a specific linkset, select the linkset and click the icon.
  - To delete the event icon from SGM displays for all linksets, select **Edit > Clear All Events** from the SGM Main Menu.

Note During Discovery, SGM might flag most linksets with an event icon. If the event icons are too distracting, use the **Edit > Clear All Events** menu option to remove them.

- **Last Status Change—**Date and time that the status of the linkset last changed.

- **Status—**Current status of the linkset. Possible values are:
  - **Active (green ball)**—The linkset is currently fully functional.
  - **Unavailable (red ball)**—An error is preventing traffic from flowing on this linkset.
  - **Shutdown (blue ball)**—An ITP administrator has set the linkset to prevent traffic from flowing. When a linkset is set to **Shutdown**, all its associated links are set to **Failed** by Cisco IOS.
  - **Unknown (red ball)**—Either the node associated with this linkset has failed to respond to an SNMP request, or SGM found that the linkset no longer exists.
  - **Warning (yellow ball)**—The linkset is active, but one or more links in the linkset is congested or is in **Failed**, **Unknown**, or **Warning** status, and is not **Ignored**. At least one link is available and can carry traffic.
- **Status Reason**—Reason for the current status of the linkset. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**
  - **Not Configured for ITP**
  - **MIB Data Error**
  - **SNMP Exception**
  - **SignalingPoint Inactive**
  - **Linkset Inactive**
  - **Link Congested**
  - **Link Send Utilization Threshold Exceeded**
  - **Link Receive Utilization Threshold Exceeded**
  - **Link Local Interface Inactive**

- **Link Remote Interface Inactive**
- **Link Inactive**

If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Signaling Points Tab: Links

To view information about the links that are associated with the selected node, select the **Signaling Points** tab. SGM displays the linksets in the top table, and the links in the bottom table.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

By default, SGM displays all of the columns in the Link Table except **Internal ID**, **Congestion Level**, and **Last Status Change**. To display these columns, or to hide other columns, see the procedures in the "Modifying Linkset Table Column Settings" section on page 5-18.

The Link Table displays the following information about links that are associated with the selected node:

- **Internal ID—**Internal ID of the link. The internal ID is a unique ID for every event, linkset, link, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Node—**Name of the node associated with the link.

- **Signaling Point—**Name of the signaling point associated with the link.
- **Linkset—**Name of the linkset associated with the link.
- **SLC—**Signaling link code (SLC) ID for the link.
- **Type—**Type of link. Possible link types are:
  - **HSL**—The link uses the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol.
  - **SCTPIP**—The link uses the Stream Control Transmission Protocol (SCTP) IP transport protocol.
  - **Serial**—The link uses the serial SS7 signaling protocol.
  - **Virtual**—The link is a virtual link, which connects signaling point instances running on the same device. SGM does not poll virtual links, nor does it display real-time data or accounting statistics for virtual links.
- **Congestion Level—**Indicates whether there is congestion on the link. A link is congested if it has too many packets waiting to be sent. This condition could be caused by the failure of an element in your network.

  Possible values for the **Congestion Level** field are:
  - **None**—The link is not congested.
  - **Low**—The link is slightly congested.
  - **High**—The link is congested.
  - **Very High**—The link is very congested.

  Low, **High**, and **Very High** correspond roughly to equivalent ANSI, China standard, and ITU congestion levels.
- **Ignored—**Indicates whether the link is to be included when aggregating and displaying SGM status information:
  - Clear the checkbox to include the link. This is the default setting.
  - Select the checkbox to exclude the link.

  This field can be edited by users with authentication level Power User (Level 2) and higher.
- **Notes—**Indicates whether there is a note associated with the link.

- **Events—**Indicates whether there is a recent event associated with the link.
  - To delete the event icon from SGM displays for a specific link, select the link and click the icon.
  - To delete the event icon from SGM displays for all links, select **Edit > Clear All Events** from the SGM Main Menu.

Note During Discovery, SGM might flag most links with an event icon. If the event icons are too distracting, use the **Edit > Clear All Events** menu option to remove them.

- **Last Status Change—**Date and time that the status of the link last changed.
- **Status—**Current status of the link. Possible values are:
  - **Active (green ball)**—The link is currently fully functional.
  - **Blocked (red ball)**—Traffic on this link is disabled by protocol.
  - **Failed (red ball)**—An error is preventing traffic from flowing on this link, or the associated linkset has been set to **Shutdown** status.

    A link can be **Failed** from an MTP3 perspective, but control messages might still be sent or received on the link, resulting in changing packet/second and bit/second rates. The rates might also be different at each end of the link, depending on the reason for the failure and the timing related to each endpoint.
  - **InhibitLoc (blue ball)**—A local ITP administrator has set the link to prevent traffic from flowing.
  - **InhibitRem (blue ball)**—A remote ITP administrator has set the link to prevent traffic from flowing.
  - **Shutdown (blue ball)**—An ITP administrator has set the link to prevent traffic from flowing.

  - **Unknown (red ball)**—Either the node associated with this link has failed to respond to an SNMP request, or SGM found that the link no longer exists.

    When you physically delete a link, the **Status** field displays **Unknown** until you delete the link from the SGM database.

  - **Warning (yellow ball)**—The link is active and traffic is flowing, but one or more of the following situations has occurred:

    – The link is congested.

    – The link has exceeded the defined **Receive Utilization %** or **Send Utilization %**.

    – One or more of the local or remote IP addresses defined for SCTP is not active.

- **Status Reason—**Reason for the current status of the link. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**
  - **Not Configured for ITP**
  - **MIB Data Error**
  - **SNMP Exception**
  - **SignalingPoint Inactive**
  - **Linkset Inactive**
  - **Link Congested**
  - **Link Send Utilization Threshold Exceeded**
  - **Link Receive Utilization Threshold Exceeded**
  - **Link Local Interface Inactive**

- **Link Remote Interface Inactive**
- **Link Inactive**

If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Configuration Data Tab: Naming Information

To view naming information for the selected node, select the **Configuration Data** tab.

The Naming Information sub-section displays the following information for the selected node:

- **Display Name—**Name of the node.
- **IP Address or DNS Hostname—**IP address or DNS name of the node, as discovered by SGM. However, if you modified your preferences to identify nodes by their IP addresses, then that is how the node is identified in this field. For more information, see the "Modifying Preference Settings" section on page 5-3.
- **CLLI Code—**COMMON LANGUAGE Location Identification Code for the node. A CLLI code is a standardized 11-character identifier that uniquely identifies the geographic location of the node. If the node has no CLLI code configured, this field is blank.
- **Icon Name—**Name of the graphic icon to assign to this node in topology maps. SGM automatically assigns an appropriate icon to each discovered Cisco ITP, and to **Unknown** nodes, but you can use this field to assign a different icon.

  When SGM discovers a single-instance node, it assigns the icon that corresponds to the node. When SGM discovers a multi-instance node, it assigns a separate icon for each unique signaling point instance.

Valid values are:

- **Cisco2600**—Cisco 2650, Cisco 2650XM, Cisco 2651, Cisco 2651XM
- **Cisco7204**—Cisco 7204, Cisco 7204VXR
- **Cisco7206**—Cisco 7206, Cisco 7206VXR
- **Cisco7507**—Cisco 7507, Cisco 7507mx, Cisco 7507z
- **Cisco7513**—Cisco 7513, Cisco 7513mx, Cisco 7513z
- **IPDevice**—IP device, other than those listed above. You can assign this icon to an unknown node if you know that it is an IP device.
- **MSC**—Mobile switching center. You can assign this icon to an unknown node if you know that it is an MSC.
- **SCP**—Service control point. You can assign this icon to an unknown node if you know that it is an SCP.
- **SSP**—Service switching point. You can assign this icon to an unknown node if you know that it is an SSP.
- **STP**—Signal transfer point. You can assign this icon to an unknown node if you know that it is an STP.
- **SignalingPoint**—An SCP, SSP, or STP, or an ITP instance.
- **Unknown**—SGM is unable to determine the node type.

- **Device Type—**Device type of the node. Possible values are:
  - **Cisco2650**—Cisco 2650 series router
  - **Cisco2650XM**—Cisco 2650XM series router
  - **Cisco2651**—Cisco 2651 series router
  - **Cisco2651XM**—Cisco 2651XM series router
  - **Cisco7204**—Cisco 7204 series router
  - **Cisco7204VXR**—Cisco 7204VXR series router
  - **Cisco7206**—Cisco 7206 series router
  - **Cisco7206VXR**—Cisco 7206VXR series router
  - **Cisco7507**—Cisco 7507 series router
  - **Cisco7507mx**—Cisco 7507mx series router
  - **Cisco7507z**—Cisco 7507z series router

  - **Cisco7513**—Cisco 7513 series router
  - **Cisco7513mx**—Cisco 7513mx series router
  - **Cisco7513z**—Cisco 7513z series router
  - **IPDevice**—IP device, other than those listed above. You can assign this icon to an unknown node if you know that it is an IP device.
  - **Unknown**—SGM is unable to determine the device type.
- **Last Status Change—**Date and time that the status of the node last changed.
- **Status—**Current status of the node. Possible values are:
  - **Active (green ball)**—The node is currently fully functional.
  - **Discovering (gray ball)**—The node is being discovered, and SNMP queries have been sent to the device.
  - **Polling (gray ball)**—The node is being polled.
  - **Unknown (red ball)**—The node failed to respond to an SNMP request. SGM sets all associated signaling points, linksets, and links to **Unknown**.
  - **Unmanaged (gray ball)**—One of the following situations exists:

    – The node is known indirectly by SGM. In other words, SGM knows the device exists but there is no known SNMP stack on the device for SGM to query.

    – An SGM user has set the node to **Unmanaged** status, to prevent SGM from polling the node.

    If the associated signaling points are referenced via linksets to other signaling points, SGM automatically sets all associated signaling points to **Unmanaged**, and deletes all associated linksets and links, as well as all linksets and links that reference the node as an adjacent node.

    If the associated signaling points are not referenced to other signaling points, SGM automatically deletes the signaling points, all associated linksets and links, and all linksets and links that reference the node as an adjacent node.

  - **Waiting (gray ball)**—The node is in the Discovery queue but is not currently being discovered.
  - **Warning (yellow ball)**—The node is active, but one or more associated signaling points, linksets, or links is in **Failed**, **Unavailable**, **Unknown**, or **Warning** status and is not **Ignored**.

- **Status Reason—**Reason for the current status of the node. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**
  - **Not Configured for ITP**
  - **MIB Data Error**
  - **SNMP Exception**
  - **SignalingPoint Inactive**
  - **Linkset Inactive**
  - **Link Congested**
  - **Link Send Utilization Threshold Exceeded**
  - **Link Receive Utilization Threshold Exceeded**
  - **Link Local Interface Inactive**
  - **Link Remote Interface Inactive**
  - **Link Inactive**

  If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

  The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Configuration Data Tab: Descriptive Information

To view descriptive information for the selected node, select the **Configuration Data** tab.

The Descriptive Information sub-section displays the following information for the selected node:

- **MIB Level—**MIB conformance level used by the ITP, such as **ITP MB5**.

Note **ITP Version** and **MIB Level** might not have a one-to-one correspondence, because multiple ITP versions can use the same MIB level if there are no changes to the MIBs between versions. For example, ITP versions **12.2(4)MB5** and **12.2(4)MB6** both use MIB level **ITP MB5**.

- **ITP Version—**Version of IOS that is installed on the ITP.

Configuration Data Tab: IP Addresses for SNMP

To view SNMP IP address information for the selected node, select the **Configuration Data** tab.

The IP Addresses for SNMP sub-section displays the following information for the selected node:

- **IP Address—**IP addresses associated with this node, including the primary SNMP address and all backup IP addresses, that are intended for SNMP.
- **Last Regular Poll Time—**Date and time of the last full poll of the node for ITP-related MIBs (as opposed to a demand poll for just one linkset's worth of data).

  If the IP address has never been polled, SGM displays the phrase **Never Polled**.

If there are no IP addresses defined for the node that are intended for SNMP, this field displays the phrase **There are no other IP addresses defined for this node**.

Configuration Data Tab: IP Addresses Not for SNMP

To view non-SNMP IP address information for the selected node, select the **Configuration Data** tab.

The IP Addresses Not for SNMP sub-section displays the following information for the selected node:

- **IP Address—**IP addresses associated with this node that are *not* intended for SNMP.

If there are no IP addresses defined for the node that are not intended for SNMP, this field displays the phrase **There are no other IP addresses defined for this node**.

Configuration Data Tab: ITP Uptime Information

To view ITP uptime information for the selected node, select the **Configuration Data** tab.

The ITP Uptime Information sub-section displays the following information for the selected node:

- **ITP Uptime—**Time the ITP has been up, in weeks, days, hours, minutes, and seconds.
- **Reboot Reason—**Reason for the last reboot of the ITP.

Configuration Data Tab: Polling Information

To view polling information for the selected node, select the **Configuration Data** tab.

The Polling Information sub-section displays the following information for the selected node:

- **First Discovered—**Date and time that the node was first discovered by SGM.
- **Last Poll IP Address—**Last IP address that was polled for this node. For a non-ITP node, this field is left blank.
- **Last Full Poll Time—**Date and time of the last full poll of the node for ITP-related MIBs (as opposed to a demand poll for just one linkset's worth of data). For a non-ITP node, this field is left blank.

- **Last SGM Poll Response (secs)—**Time, in seconds, taken by this node to respond to the last SGM poll request. For a non-ITP node, this field is left blank.
- **Avg. SGM Poll Response (secs)—**Average time, in seconds, taken by this node to respond to SGM poll requests. For a non-ITP node, this field is left blank.

Notes Tab

To view notes for the selected node, select the **Notes** tab.

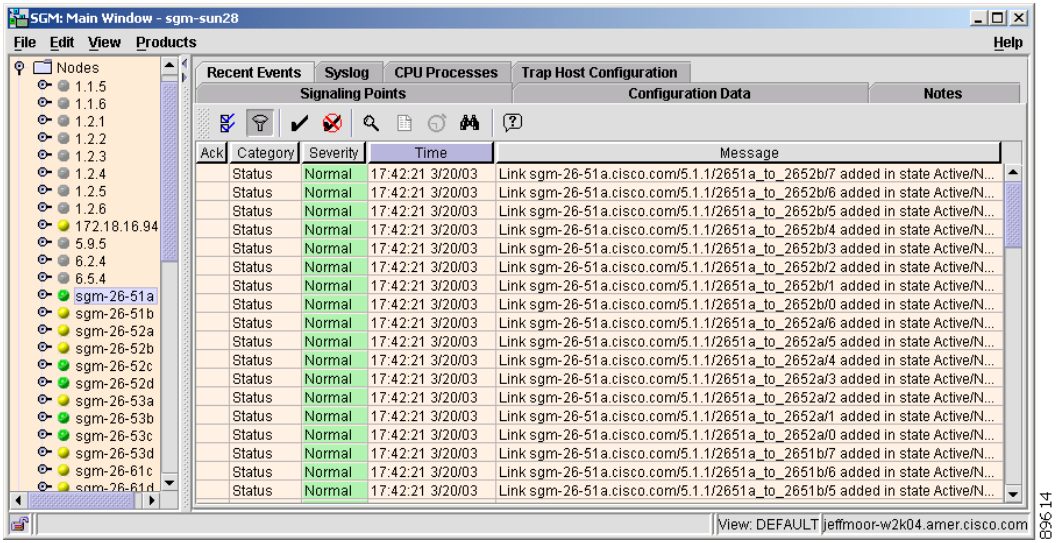
The Notes section displays:

- Notes associated with the node.
- The date and time the notes associated with the node were last updated, or the phrase **Not Set** if there are no notes associated with the node.
- The phrase **No Notes** if there are no notes associated with the node.

Recent Events Tab

To view information about all recent events associated with the node, select the **Recent Events** tab. SGM displays the Recent Events table for the node (Figure 3-25).

Figure 3-25 Recent Events Table for a Node



By default, SGM displays all of the columns in the table except **Internal ID**, **Note**, **Ack By**, **Ack Time**, **Node**, **SP**, **Linkset**, and **Link**. To display these columns, or to hide other columns, see the procedures in the "Modifying Event Table Column Settings" section on page 5-19.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

The Recent Events section enables you to perform event-related tasks, such as setting filters and acknowledging events. For more information about these tasks, see the "Working with Events" section on page 3-235.

The Recent Events table displays the following information for the selected node:

- **Internal ID—**Internal ID of the event. The internal ID is a unique ID for every event, link, linkset, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Ack—**Indicates whether the event has been acknowledged:
  - To acknowledge an unacknowledged event, use the **Acknowledge** toolbar button.
  - To make a previously acknowledged event unacknowledged, use the **Unacknowledge** toolbar button.
- **Category—**Type of the event. Default values are:
  - **Create**—Creation event, such as the creation of a seed file.
  - **Delete**—Deletion event, such as the deletion of a node, signaling point, linkset, or file.
  - **Discover**—Discovery event, such as Discovery beginning.
  - **Edit**—Edit event. A user has edited a node, signaling point, linkset, or link.
  - **Ignore**—Ignore event. A user has **Ignored** a link or linkset.
  - **Login**—Login event. A user has logged in to SGM.
  - **LoginDisable**—LoginDisable event. SGM has disabled a user's User-Based Access authentication as a result of too many failed attempts to log in to SGM.
  - **LoginFail**—LoginFail event. An attempt by a user to log in to SGM has failed.
  - **OverWrite**—OverWrite event. An existing file, such as a seed file or route file, has been overwritten.
  - **Poll**—Poll event, such as an SNMP poll.
  - **Purge**—Purge event. A user has requested Discovery with **Delete Existing Data** selected, and SGM has deleted the existing SGM database.

  - **Status**—Status change message generated.
  - **Trap**—SNMP trap message generated.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

- **Severity—**Severity of the event. Default values are:
  - **Admin**—The default color is cyan.
  - **Error**—The default color is coral.
  - **None**—The default color is white.
  - **Normal**—The default color is light green.
  - **Warning**—The default color is yellow.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.
- **Note—**Indicates whether there is a note associated with the event.
- **Time—**Date and time the event was logged.
- **Ack By—**If you have not implemented SGM User-Based Access, name of the device that last acknowledged the event.

  If you have implemented SGM User-Based Access, name of the user who last acknowledged the event.

  If no one has acknowledged the event, this field is blank.
- **Ack Time—**Date and time the event was last acknowledged or unacknowledged.
- **Node—**Name of the node associated with the event. If there is no node associated with the event, **None** is displayed.
- **SP—**Name of the signaling point associated with the event. If there is no signaling point associated with the event, **None** is displayed.
- **Linkset—**Name of the linkset associated with the event. If there is no linkset associated with the event, **None** is displayed.

- **Link—**Name of the link associated with the event. If there is no link associated with the event, **None** is displayed.
- **Message—**Text of the message.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

Syslog Tab

To view all messages in the ITP system log for the selected node, select the **Syslog** tab.

The Syslog table displays the following information for the selected node:

- **Current Poll Interval—**Poll interval used to collect data for the table.
- **Last Poll—**Time the last poll was run. This field initially displays the phrase **Polling device**. After the first polling cycle, SGM populates this field with the actual time of the last poll.
- **Timestamp—**Date and time of the syslog message from the ITP.
- **Severity—**Severity of the syslog message. Possible values are:
  - **Alert**—Messages that require immediate action.
  - **Critical**—Critical conditions.
  - **Debug**—Debug messages, log FTP commands, and WWW URLs.
  - **Emergency**—System unusable messages.
  - **Error**—Error messages.
  - **Info**—Information messages.
  - **Notice**—Normal but significant conditions.
  - **Warning**—Warning messages.
- **Facility—**Name of the facility that generated the syslog message, such as SYS, SNMP, CS7MTP3, or CS7PING.
- **Name—**Short text identifier for the message type. A facility name in conjunction with a message name uniquely identifies a syslog message type.
- **Message—**Text of the syslog message.

CPU Processes Tab

To view CPU utilization information for the selected node, select the **CPU Processes** tab.

The CPU Processes table is not available if the node is in **Discovery**, **Polling**, **Unknown**, or **Unmanaged** status.

The CPU Processes table displays one CPU Utilization Percentage table for each active Route Switch Processor (RSP) CPU.

The CPU Utilization Processes table displays the following information for the selected node:

- **Current Poll Interval—**Poll interval used to collect data for the table.
- **Last Poll—**Time the last poll was run. This field initially displays the phrase **Polling device**. After the first polling cycle, SGM populates this field with the actual time of the last poll.
- **PID—**Process identifier.
- **Name—**Name of the process.
- **Time Created—**Total time since the process was created.
- **Total Runtime—**CPU time the process has used.
- **Times Invoked—**Number of times the process has been invoked.
- **Average Runtime—**Average CPU time for each process invocation.
- **5 Sec %—**Average CPU utilization percentage for the node over the last 5 seconds.
- **1 Min %—**Average CPU utilization percentage for the node over the last minute.
- **5 Min %—**Average CPU utilization percentage for the node over the last 5 minutes.
- **Priority—**Process queue priority. Possible values are:
  - **Low**
  - **Normal**
  - **High**
  - **Critical**

Trap Host Configuration

To view all trap settings for the selected node, as well as all hosts and port numbers to which the node sends traps, select the **Trap Host Configuration** tab.

If you have implemented SGM User-Based Access, this option is available to users with authentication level System Administrator (Level 5) and higher.

The Trap Host Configuration table displays the following information for the selected node:

- **Current Poll Interval—**Poll interval used to collect data for the table.
- **Last Poll—**Time the last poll was run. This field initially displays the phrase **Polling device**. After the first polling cycle, SGM populates this field with the actual time of the last poll.
- **Release 2 Trap Settings—**Indicates whether the following ITP release 12.2(4)MB4 trap settings are enabled:
  - **SCTP Remote Address Change**
  - Linkset State Change
  - Link State Change
  - Link Congestion State Change
  - Link Receive Utilization Change
  - Link Send Utilization Change
  - Route State Change
  - GTT MAP State Change
- **Release 3 Trap Settings—**Indicates whether the following ITP release 12.2(4)MB5 through 12.2(4)MB9a trap settings are enabled:
  - ASP State Change
  - AS State Change
  - SGMP State Change

  This column might not be displayed if the ITP does not support ITP release 12.2(4)MB5 through 12.2(4)MB9a traps.

- **Release 4 Trap Settings—**Indicates whether the following ITP release 12.2(4)MB10 trap settings are enabled:
  - Linkset State Change
  - Link State Change
  - Link Congestion State Change
  - Link Receive Utilization Change
  - Link Send Utilization Change
  - Route Destination State Change
  - Route Mgmt. State Change
  - Route Table Load
  - GTT MAP State Change
  - GTT Table Load
  - ASP Congestion Change
  - SGMP Congestion Change

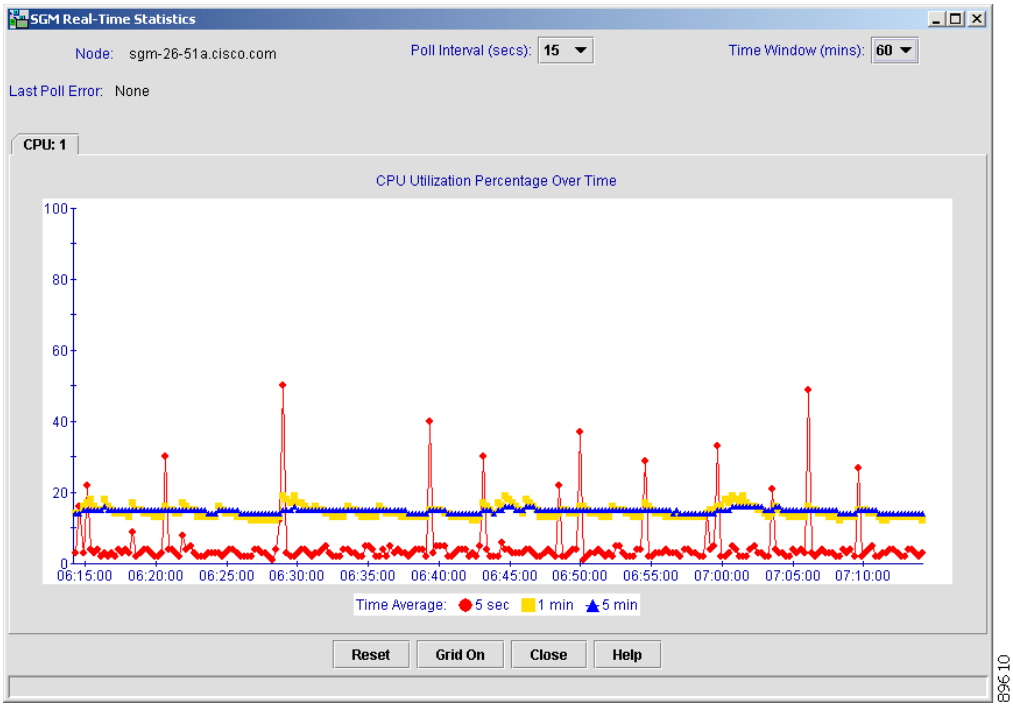
  This column might not be displayed if the ITP does not support ITP release 12.2(4)MB10 traps.
- **IP Address—**IP address of a host to which the node sends traps.
- **Port—**Port to which the node sends traps.
- **Trap Version—**Trap version sent to this IP address and port.
- **Community String—**SNMP community name used by the node for read access to the information maintained by the SNMP agent on the ITP.

Viewing CPU Statistics for a Node

SGM enables you to display the CPU utilization percentage for a node as a function of time. SGM displays one CPU Utilization Percentage chart for each active Route Switch Processor (RSP) CPU.

To display CPU Utilization Percentage charts for a node, right-click a node in a window, then select **View> Real-Time Data and Charts** from the right-click menu. (This option is available only if SGM can poll the node.) SGM displays the SGM Real-Time Statistics: CPU Statistics window (Figure 3-26).

Figure 3-26 SGM Real-Time Statistics: CPU Statistics Window



The SGM Real-Time Statistics: CPU Statistics window displays the following information for the selected node:

- **Node**—Name of the node for which CPU statistics are being displayed. To see detailed information for the node, click the node name.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **CPU Utilization Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.
- **Last Poll Error**—Date and time the last polling error message was received by the node. If there have been no polling errors, SGM displays **None**.

- **CPU Utilization Chart**—Displays the CPU utilization percentage for the node as a function of time.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where:

  - *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds.
  - *dd*.*dd* is the CPU utilization percentage for that data point.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.

- **Time Average**—Displays three color-coded icons, one for each average calculation: 5 seconds, 1 minute, and 5 minutes.

  To remove the data for a given average from the chart, click the icon in this field. To return the data to the chart, click the icon again.

- **Reset**—If you scrolled or zoomed the chart, resets the chart to the default view and scaling.
- **Grid On**—Superimposes a graphic grid on the chart. The grid can make the data easier to read.
- **Grid Off**—Removes the graphic grid from the chart.
- **Close**—Closes the SGM Real-Time Statistics: CPU Statistics window.
- **Help**—Displays online help for the current window.

Editing a Node

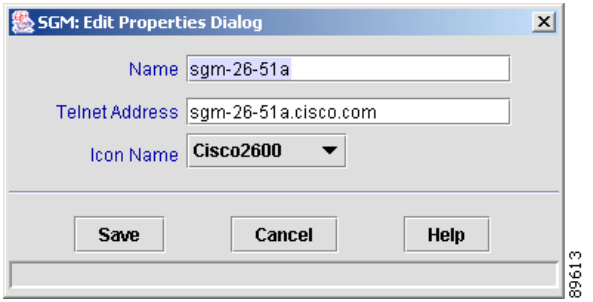
SGM enables you to edit the following aspects of a node:

- Editing Node Properties, page 3-124
- Attaching a Note to a Node, page 3-126
- Editing SNMP IP Addresses for a Node, page 3-127

Editing Node Properties

To edit a node's properties, such as its name, telnet address, or associated icon, right-click the node in a window, select **Edit > Properties** in the right-click menu. SGM displays the Edit Properties Dialog for a Node (Figure 3-27).

Figure 3-27 Edit Properties Dialog for a Node



By default, the **Name** field displays the node's DNS name, as discovered by SGM. However, if you modified your preferences to identify nodes by their IP addresses, then that is how the node is identified in this field. For more information, see the "Modifying Preference Settings" section on page 5-3.

You can also use the **Name** field to specify a new, more meaningful name for the node, keeping in mind the following considerations:

- You can change an ITP node's name to a new name or IP address.
- A new name can be from 1 to 30 characters, and can contain any letters, numbers, or special characters, **but no periods (.)**. If you enter a name that contains a period, SGM beeps and retains the current name.

- A new IP address must use the *x.x.x.x* format, where *x* is between 0 and 255, and must contain only numbers and periods, **but no letters or special characters**. If you enter an IP address that contains any letters or special characters, SGM beeps and retains the current name.
- If you leave the **Name** field blank, SGM reverts to the node's default name (the DNS name for an ITP node, the point code for a non-ITP node).
- The new node name *is* used when launching context-based applications, such as CiscoWorks2000. Therefore, if the new name you enter is not the node's DNS name, and the application knows the node by its DNS name, context links into the application for that node might not work.

You can use the **Telnet Address** field to specify a new Telnet IP address and optional port number, to pass to the Telnet command. If you specify a port number, separate the IP address from the port number with a space, such as: **sgm-sun8.cisco.com 2048**

The **Icon Name** drop-down list box displays the name of the graphic icon to assign to this node in topology maps. SGM automatically assigns an appropriate icon to each discovered Cisco ITP, and to **Unknown** nodes, but you can use this field to assign a different icon (for example, if you know that a given **Unknown** node is a mobile switching center).

When SGM discovers a single-instance node, it assigns the icon that corresponds to the node. When SGM discovers a multi-instance node, it assigns a separate icon for each unique signaling point instance.

Valid values are:

- **Cisco2600**—Cisco 2650, Cisco 2650XM, Cisco 2651, Cisco 2651XM
- **Cisco7204**—Cisco 7204, Cisco 7204VXR
- **Cisco7206**—Cisco 7206, Cisco 7206VXR
- **Cisco7507**—Cisco 7507, Cisco 7507mx, Cisco 7507z
- **Cisco7513**—Cisco 7513, Cisco 7513mx, Cisco 7513z
- **IPDevice**—IP device, other than those listed above. You can assign this icon to an unknown node if you know that it is an IP device.
- **MSC**—Mobile switching center. You can assign this icon to an unknown node if you know that it is an MSC.
- **SCP**—Service control point. You can assign this icon to an unknown node if you know that it is an SCP.

- **SSP**—Service switching point. You can assign this icon to an unknown node if you know that it is an SSP.
- **STP**—Signal transfer point. You can assign this icon to an unknown node if you know that it is an STP.
- **SignalingPoint**—An SCP, SSP, or STP, or an ITP instance.
- **Unknown**—SGM is unable to determine the node type.

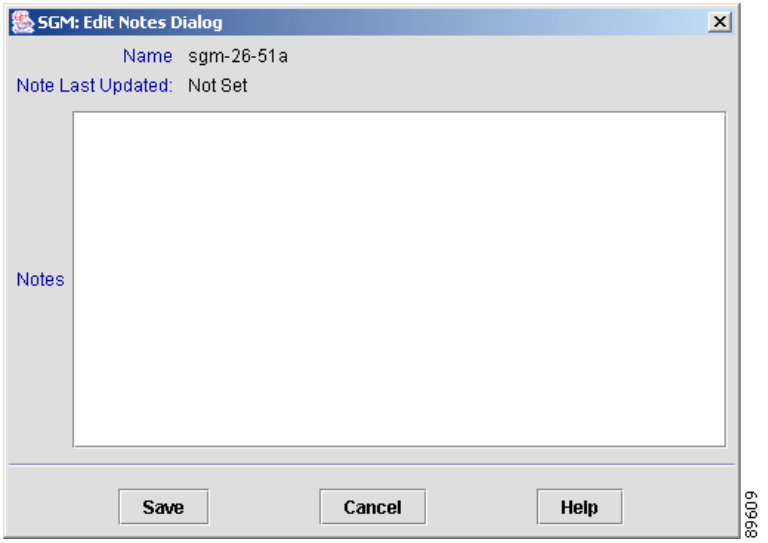
At any time, you can click **Cancel** to exit the dialog without saving any changes.

When you are satisfied with your changes, click **Save**. SGM saves your changes and updates all SGM windows to reflect your changes.

Attaching a Note to a Node

To attach a note to a node, right-click the node in a window, then select **Edit>Notes** in the right-click menu. SGM displays the Edit Notes Dialog for a Node (Figure 3-28).

Figure 3-28 Edit Notes Dialog for a Node



The **Note Last Updated** field displays the date and time the **Notes** field for this node was last updated. If there is no note currently associated with this node, this field displays the value **Not Set**.

In the **Notes** field, enter any important information about the node, such as a detailed description, its location, its service history, and so on. When you annotate a node, the topology map in the Topology window displays a note icon in the upper left corner of the node element.

At any time, you can click **Cancel** to exit the dialog without saving any changes.

When you are satisfied with your changes, click **Save**. SGM saves your changes and updates all SGM windows to reflect your changes.

Editing SNMP IP Addresses for a Node

SGM enables you to determine which IP addresses are to be used for SNMP polling.

To edit a node's SNMP IP addresses, right-click an ITP node in a window, select **Edit>SNMP IP Addresses** in the right-click menu. SGM displays the Edit SNMP IP Addresses Dialog.

The **IP Addresses for SNMP** field lists all IP addresses associated with this ITP node that SGM can use for SNMP polling:

- By default, SGM places *all* discovered IP addresses in this list, in the order in which they are discovered. SGM uses the IP address at the top of the list as the primary SNMP address for the node.

  During SNMP polling of the node (both status polling and demand polling), SGM first tries the primary SNMP address. If the primary is unavailable, SGM tries the other IP addresses, one-by-one, in descending order.

- To assign a new primary SNMP address, or to change the order of the secondary IP addresses, use the **Raise Priority** and **Lower Priority** buttons to move the IP addresses up and down in the list.

- You can also select IP addresses that you do not want SGM to use for SNMP polling. This is useful, for example, to separate management traffic from SMS traffic. To remove an IP address from the list, click **Remove**. The IP address is removed from the **IP Addresses for SNMP** list and appears in the **Available ITP IP Addresses** list, and is no longer used by SGM for SNMP polling. The **Available ITP IP Addresses** field lists all P addresses associated with this ITP node that you do not want SGM to use for SNMP polling. SGM does not send SNMP queries to IP addresses in this list.

  To enable an IP address for SNMP polling again, select the address in the **Available ITP IP Addresses** list and click **Add**. The IP address moves back into the **IP Addresses for SNMP** list and is again available for SNMP polling.

  If you remove all IP addresses from the **IP Addresses for SNMP** list, the node is effectively removed from the network, and SGM automatically labels the node **Unmanaged** in all SGM windows.

At any time, you can click **Cancel** to exit the dialog without saving any changes.

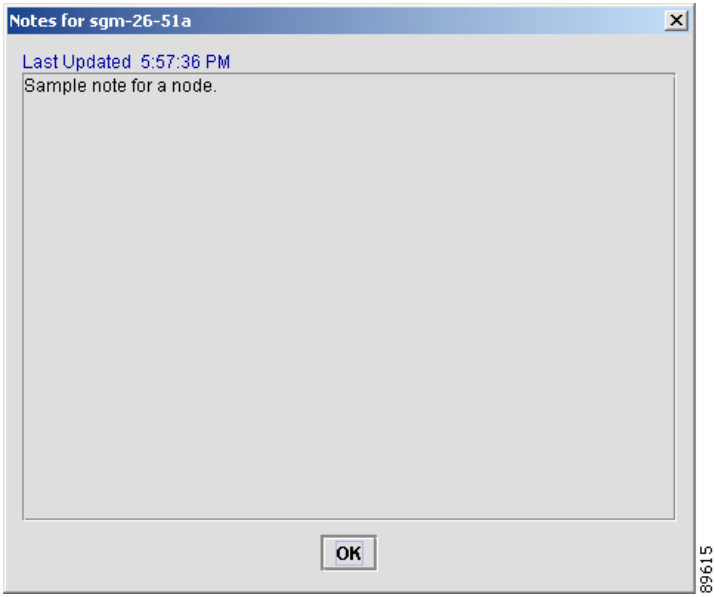
When you are satisfied with your changes, click **Save**. SGM saves your changes and updates all SGM windows to reflect your changes.

Viewing Notes for a Node

SGM enables you to view the notes that have been attached to nodes.

To view a note, right-click a node in a window, then select **View>Notes** in the right-click menu. (The **Notes** option is grayed-out if there is no note associated with the selected node.) SGM displays the Notes for Node dialog (Figure 3-29).

Figure 3-29 Notes for Node Dialog



The Notes for Node dialog displays the following information:

- The name of the node is displayed in the title of the window (for example, **Notes for sgm-2600a**.)
- **Last Updated**—Date and time the **Notes** field for the node was last updated.
- **Notes**—Notes associated with the node.

Click **OK** to close the Notes for Node dialog.

Deleting a Node

After Discovery, the nodes in your network are known to SGM and added to the SGM database. Physically deleting nodes from your network is not the same as deleting them from the SGM database. The following sections describe the differences between deleting nodes from your network, from the SGM database, and from the SGM Discovery database, and the procedures for doing so:

- Deleting a Node from Your Network, page 3-130
- Deleting a Node from the SGM Database, page 3-130
- Deleting a Node from the SGM Discovery Database, page 3-132

Deleting a Node from Your Network

If you physically delete a known node from your network (for example, by powering down an ITP), it remains in the SGM database, SGM labels it **Unknown**, and it is the system administrator's responsibility to delete it from the SGM database, if you choose to do so. SGM also labels all associated linksets and links **Unknown** because SGM attempts to poll the node and gets no response.

Deleting a Node from the SGM Database

Typically, you delete a node from the SGM database for one of the following reasons:

- You have physically deleted the node from your network. This is the most common reason for deleting a node from the SGM database.
- The node is **Unknown** or **Unmanaged**, you are aware of the reason, and you no longer want to see it in SGM displays. For example, the node might be a test lab device.
- If you delete all linksets to an **Unmanaged** node, SGM does not automatically delete the node. Instead, you must manually delete the node.

If you have physically deleted a known node from your network, and you then delete it from SGM, it is no longer in the SGM database, it does not appear in SGM windows, and it is not discovered when you run Discovery.

Be aware of the following special situations:

- If you have *not* physically deleted a known node from your network, and you delete it from SGM, SGM removes the node from the poll list, and at the next poll SGM returns the node to the DEFAULT view, and labels the node as a new node if you are using a custom view.
- If a node has at least one adjacent node in **Active**, **Discovering**, **Waiting**, or **Warning** state, you cannot delete the node. If you try to do so, SGM cancels the deletion.

If either of these situations occurs, do not delete the node again. Instead, perform one of the following actions:

- Label the node **Unmanaged**. See the "Unmanaging and Managing a Node" section on page 3-133 for more details.
- Remove the node from your view. See the "Working with Views" section on page 3-26 for more details.

Note If you delete a node from the SGM database, the node is deleted for *all* SGM clients and views connected to that SGM server.

To delete a node from the SGM database, use one of the following procedures:

- Select one or more nodes in a window, then select **Edit > Delete** from the SGM Main Menu.
- Right-click a node in a window, then select **Delete Item** in the right-click menu. (You cannot delete more than one node at a time from the right-click menu.)

SGM asks you to confirm the deletion:

- Select **Yes** to delete the selected nodes. SGM deletes the nodes from the SGM database.
- Select **No** to return to the window without deleting any nodes from the SGM database.

You can also use the **sgm delete node** command to delete one or more nodes from the SGM database. See the "SGM Commands and Descriptions" section on page B-2 for more information on the use of this command.

Note If you delete a node, SGM removes it from the Nodes In Current View table of the Network View Editor window. If SGM then rediscovers the node, SGM places it in the New Nodes Found table of the Network View Editor window. To restore the node to your current view, you must move it into the Nodes In Current View table. For more information, see the "Working with Views" section on page 3-26.

Deleting a Node from the SGM Discovery Database

If you want to completely eliminate a given node from the SGM database, you can delete it from the SGM Discovery database, ensuring that it is never even discovered by SGM.

Note If you delete a node from the SGM Discovery database, the node is deleted for *all* SGM clients and views connected to that SGM server.

To delete a node from the SGM Discovery database:

Step 1 Select **Edit > Network Discovery** from the SGM Main Menu. SGM displays the Discovery Dialog (Figure 3-2).

Step 2 Select the **Discovery** tab. SGM displays the Discovery panel (Figure 3-4).

Step 3 In the Discovered Nodes table, select the node or nodes you want to delete.

Step 4 Click **Delete Node**. SGM deletes the nodes from the Discovery database, without asking for confirmation. The nodes will no longer be discovered by SGM.

Unmanaging and Managing a Node

SGM enables you to label a node **Unmanaged**, and to remove the **Unmanaged** status from a node.

In some situations, you might not want to see a given node or nodes in SGM displays, but you might be unable to delete it from the SGM database. For example:

- If you have *not* physically deleted a known node from your network, and you delete it from SGM, SGM removes the node from the poll list, and at the next poll SGM returns the node to the DEFAULT view, and labels the node as a new node if you are using a custom view.
- If a node has at least one adjacent node in **Active**, **Discovering**, **Waiting**, or **Warning** state, you cannot delete the node. If you try to do so, SGM cancels the deletion.

If these situations, you can label the node **Unmanaged**. When you label a node **Unmanaged**, SGM removes the node from the poll list.

Note If you label a node **Unmanaged**, the node is **Unmanaged** for *all* SGM clients and views connected to that SGM server.

To label a node **Unmanaged**:

Step 1 Select a node in a window.

You cannot label a node **Unmanaged** if it has a **Device Type** of **Unknown**:

- If you select a node with a **Device Type** of **Unknown**, then this menu option is grayed-out and cannot be selected.
- If you select more than one node, and at least one of them has a **Device Type** of **Unknown**, then this menu option is grayed-out and cannot be selected.

Step 2 Select **Edit > Unmanage** from the SGM Main Menu, or **Unmanage** from the right-click menu. SGM labels the selected node **Unmanaged** and removes it from the poll list.

You can also remove the **Unmanaged** status from a node, when you are ready to return the node to the SGM poll list. To remove the **Unmanaged** status from a node:

Step 1 Select a node in a window.

You cannot remove the **Unmanaged** status from a node with a **Device Type** of **Unknown**:

- If you select a node with a **Device Type** of **Unknown**, then this menu option is grayed-out and cannot be selected.
- If you select more than one node, and at least one of them has a **Device Type** of **Unknown**, then this menu option is grayed-out and cannot be selected.

Step 2 Select **Edit > Manage** from the SGM Main Menu, or **Manage** from the right-click menu. SGM removes the **Unmanaged** status from the selected node, returns it to the poll list, and polls it immediately.

Polling a Node

SGM automatically polls nodes at specified intervals. However, you can also request an immediate poll for a node.

To poll a node from the Discovery Dialog, use the following procedure:

Step 1 Select **Edit > Network Discovery** from the SGM Main Menu. SGM displays the Discovery Dialog (Figure 3-2).

Step 2 Select the **Discovery** tab. SGM displays the Discovery panel (Figure 3-5). The Discovered Nodes section of the Discovery panel lists all discovered nodes.

Step 3 Select one or more nodes. You cannot poll a node with a **Primary SNMP Address** of **N/A**:

- If you select a node with a **Primary SNMP Address** of **N/A**, then the **Poll Node** button is grayed-out and cannot be selected.
- If you select more than one node, and even one of them has a **Primary SNMP Address** of **N/A**, then the **Poll Node** button is grayed-out and cannot be selected.

Step 4 Click **Poll Node**. SGM begins a poll of the selected nodes. During polling, the **Poll Node** button is grayed-out, the "Selected nodes are being polled" message is displayed at the bottom of the Discovery Dialog, and individual nodes might display the **Polling** status.

- If the node has only one IP address for SGM to poll, and the poll fails or times out, SGM issues an error message.
- If the node has more than one IP address for SGM to poll, and the polls of one or more IP addresses fail or time out, SGM issues warning messages. If all polls fail or time out, SGM issues an error message.

Step 5 When the "Selected nodes are being polled" message disappears and no nodes are in **Polling** status, polling is complete. The SGM database immediately reflects any new or changed data for the selected nodes.

To poll one or more nodes, retaining all currently known linksets in the SGM database, use one of the following procedures:

- Select one or more nodes in a window, then select **Edit > Poll Nodes > Normal Poll** in the SGM Main Menu. SGM polls all selected ITP nodes.
- Select one or more linksets in a window, then select **Edit > Poll Nodes > Normal Poll** in the SGM Main Menu. SGM polls all primary and adjacent ITP nodes associated with the selected linksets.
- Select an ITP node or adjacent node in the Details Window, then select **Edit > Poll Nodes > Normal Poll** in the SGM Main Menu. SGM polls that node.
- Select a linkset or link in the Details Window, then select **Edit > Poll Nodes > Normal Poll** in the SGM Main Menu. SGM polls the ITP node and adjacent node associated with the linkset or link.
- Right-click an ITP node in a window, then select **Poll Node > Normal Poll** in the right-click menu. SGM polls the node.

Normal Poll retains all linksets associated with polled nodes, even linksets that have been deleted and are therefore in **Unknown** status.

To poll one or more nodes, removing and then rediscovering all associated linksets, use one of the following procedures:

- Select one or more nodes in a window, then select **Edit > Poll Nodes > Clean Poll** in the SGM Main Menu. SGM polls all selected ITP nodes.
- Select one or more linksets in a window, then select **Edit > Poll Nodes > Clean Poll** in the SGM Main Menu. SGM polls all primary and adjacent ITP nodes associated with the selected linksets.
- Select an ITP node or adjacent node in the Details Window, then select **Edit > Poll Nodes > Clean Poll** in the SGM Main Menu. SGM polls that node.
- Select a linkset or link in the Details Window, then select **Edit > Poll Nodes > Clean Poll** in the SGM Main Menu. SGM polls the ITP node and adjacent node associated with the linkset or link.
- Right-click an ITP node in a window, then select **Poll Node > Clean Poll** in the right-click menu. SGM polls the node.

Clean Poll removes all associated linksets before polling the nodes.

Excluding a Node from a View

To exclude a node from the current view, right-click the node in a window, then select **Exclude from View** in the right-click menu. SGM excludes the node from the current view. See the "Creating a View" section on page 3-27 for more information about excluding nodes from views.

Working with Signaling Points

SGM enables you to view information about all discovered signaling points, including their associated nodes, status, and other important information.

Note In a multi-instance network, the signaling point name has the format *pointcode*:*instanceName*.

In a multi-instance network, SGM does not display signaling points that are only partly configured (that is, the variant and network name are configured, but not the primary point code).

This section includes the following information:

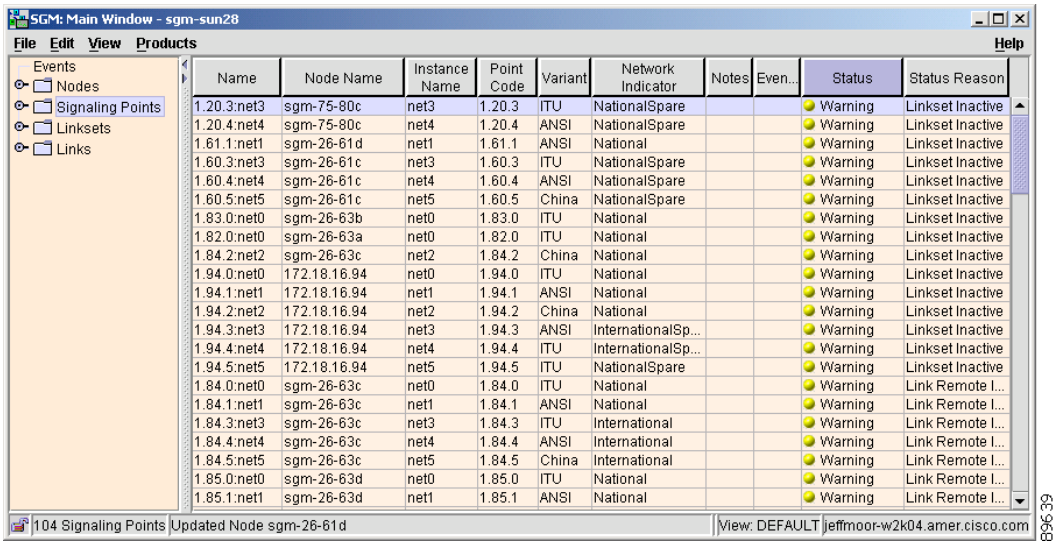
Related Topics:

- Modifying Preference Settings, page 5-3
- Resizing, Sorting, and Hiding Table Columns, page 3-279
- Viewing the Topology of the Network, page 3-259
- Working with Links, page 3-170
- Working with Linksets, page 3-37
- Working with Nodes, page 3-91

Viewing Basic Information for Signaling Points

To view basic information for signaling points, select **Signaling Points** in the left pane of the SGM Main Window. SGM displays the Signaling Point Window (Figure 3-30).

Figure 3-30 Signaling Point Window



The Signaling Point Window displays information about the signaling points that have been discovered by SGM.

By default, SGM displays all of the columns in the Signaling Point Window except **Internal ID**, **Instance ID**, and **Last Status Change**. To display these columns, or to hide other columns, see the procedures in the "Modifying Linkset Table Column Settings" section on page 5-18.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

The Signaling Point Window displays the following information for all discovered signaling points:

- **Internal ID—**Internal ID of the signaling point. The internal ID is a unique ID for every event, link, linkset, node, and signaling point, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Name—**Name of the signaling point.
- **Node—**Name of the node associated with this signaling point.
- **Instance ID—**ID of the instance associated with the signaling point.
- **Instance Name—**Name of the instance associated with the signaling point.
- **Point Code—**Primary point code of the signaling point.
- **Variant—**SS7 protocol variant. Valid variants are:
  - **ANSI**
  - **China**
  - **ITU**
- **Network Indicator—**Determines the type of call that is being placed. Valid values are:
  - **National**—National-bound call. SGM routes national calls through the national network.
  - **NationalSpare**—National-bound call, used in countries in which more than one carrier can share a point code. In those countries, networks are differentiated by the **Network Indicator**.
  - **International**—International-bound call. SGM forwards international-bound calls to an STP pair that acts as an international gateway.
  - **InternationalSpare**—International-bound call, used in countries in which more than one carrier can share a point code. In those countries, networks are differentiated by the **Network Indicator**.
- **Notes—**Indicates whether there is a note associated with the signaling point.

- **Events—**Indicates whether there is a recent event associated with the signaling point.

  During Discovery, SGM might flag most signaling points with an event icon. If the event icons are too distracting, select **Edit > Clear All Events** from the SGM Main Menu to remove them.

- **Last Status Change—**Date and time that the status of the signaling point last changed.

- **Status—**Current status of the signaling point. Possible values are:
  - **Active (green ball)**—The signaling point is currently fully functional.
  - **Unknown (red ball)**—One of the following conditions occurred:

    – SGM cannot poll the node associated with the signaling point. SGM sets all signaling points, linksets, and links associated with the node to **Unknown**.

    – The signaling point has been unconfigured on the ITP, or the configuration is incomplete. At the next poll, SGM determines that the signaling point does not exist, and sets the signaling point and all associated linksets and links to **Unknown**.
  - **Unmanaged (gray ball)**—An SGM user has set the signaling point to **Unmanaged** status, to prevent SGM from polling the signaling point. SGM automatically deletes all associated links and linksets.
  - **Warning (yellow ball)**—The signaling point is active, but one or more associated links or linksets is in **Failed**, **Unavailable**, **Unknown**, or **Warning** status and is not flagged as **Ignored**.

- **Status Reason**—Reason for the current status of the signaling point. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**
  - **Not Configured for ITP**

- **MIB Data Error**
- **SNMP Exception**
- **SignalingPoint Inactive**
- **Linkset Inactive**
- **Link Congested**
- **Link Send Utilization Threshold Exceeded**
- **Link Receive Utilization Threshold Exceeded**
- **Link Local Interface Inactive**
- **Link Remote Interface Inactive**
- **Link Inactive**

If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Viewing Detailed Information for a Signaling Point

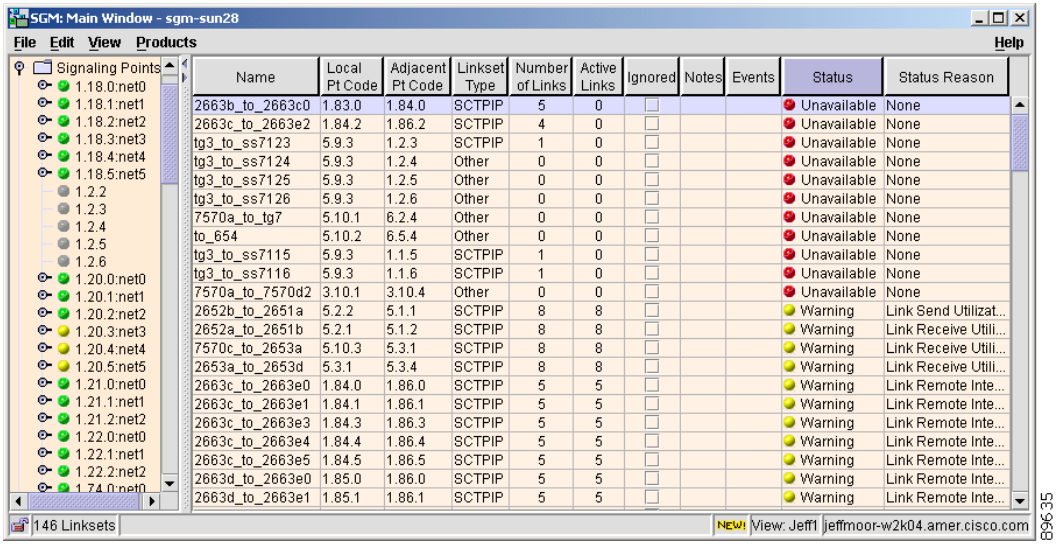
SGM can display detailed information about a selected signaling point, including its associated linksets, links, status, and other information.

To display detailed information for a signaling point, use one of the following procedures:

- Select **Signaling Points** in the left pane of the SGM Main Window, right-click a signaling point in the right pane, then select **View > Configuration Details** in the right-click menu.
- Select the turner beside **Signaling Points** in the left pane of the SGM Main Window, then select a signaling point.

SGM displays the Signaling Point Details Window (Figure 3-31).

Figure 3-31 Signaling Point Details Window



Updates for the signaling point that are received from the SGM server are reflected automatically in this window.

Changes you make in this window might not be reflected throughout SGM until the next poll (by default, every 15 seconds). For information about changing the polling interval, see the "Viewing Detailed Information for a Linkset" section on page 3-42.

Note This window polls your network periodically. To prevent unnecessary traffic on your network, close this window when you no longer need to refer to it.

Linksets Tab: Linksets

To view information about the linksets that are associated with the selected signaling point, select the **Linksets** tab. SGM displays the linksets in the top table, and the links in the bottom table.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

Linksets that are associated with nodes that are excluded from the current view are not displayed in the Linkset Table. See the "Creating a View" section on page 3-27 for more information about excluding nodes.

By default, SGM displays all of the columns in the Linkset Table except **Internal ID**, **Congestion Links**, and **Last Status Change**. To display these columns, or to hide other columns, see the procedures in the "Modifying Linkset Table Column Settings" section on page 5-18.

The Linkset Table displays the following information about linksets that are associated with the selected signaling point:

- **Internal ID—**Internal ID of the linkset. The internal ID is a unique ID for every event, link, linkset, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Name—**Name of the linkset.
- **Local Point Code—**Point code of the primary node for the linkset.
- **Adj Point Code—**Point code of the adjacent node for the linkset.
- **Linkset Type—**Type of linkset, which SGM determines by examining the links defined in the linkset. Possible linkset types are:
  - **HSL**—The links in this linkset use the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol.
  - **SCTPIP**—The links in this linkset use the Stream Control Transmission Protocol (SCTP) IP transport protocol.
  - **Serial**—The links in this linkset use the serial SS7 signaling protocol.
  - **Mixed**—The links in this linkset are of two or more types. (This configuration is not recommended.)

  - **Virtual**—The links in this linkset are virtual links, which connect signaling point instances running on the same device. SGM does not poll virtual linksets, nor does it display real-time data or accounting statistics for virtual linksets.
  - **Other**—No links have been defined for this linkset.
- **Links—**Total number of links in the linkset.
- **Active Links—**Number of links in the linkset that are **Active**.
- **Congested Links—**Number of links in the linkset that are **Congested**.
- **Ignored—**Indicates whether the linkset is to be included when aggregating and displaying SGM status information:
  - Clear the checkbox to include the linkset. This is the default setting.
  - Select the checkbox to exclude the linkset.

  This field can be edited by users with authentication level Power User (Level 2) and higher.
- **Notes—**Indicates whether there is a note associated with the linkset.
- **Events—**Indicates whether there is a recent event associated with the linkset.
  - To delete the event icon from SGM displays for a specific linkset, select the linkset and click the icon.
  - To delete the event icon from SGM displays for all linksets, select **Edit > Clear All Events** from the SGM Main Menu.

Note During Discovery, SGM might flag most linksets with an event icon. If the event icons are too distracting, use the **Edit > Clear All Events** menu option to remove them.

- **Last Status Change—**Date and time that the status of the linkset last changed.
- **Status—**Current status of the linkset. Possible values are:
  - **Active (green ball)**—The linkset is currently fully functional.
  - **Unavailable (red ball)**—An error is preventing traffic from flowing on this linkset.

  - **Shutdown (blue ball)**—An ITP administrator has set the linkset to prevent traffic from flowing. When a linkset is set to **Shutdown**, all its associated links are set to **Failed** by Cisco IOS.
  - **Unknown (red ball)**—Either the node associated with this linkset has failed to respond to an SNMP request, or SGM found that the linkset no longer exists.
  - **Warning (yellow ball)**—The linkset is active, but one or more links in the linkset is congested or is in **Failed**, **Unknown**, or **Warning** status, and is not **Ignored**. At least one link is available and can carry traffic.

- **Status Reason**—Reason for the current status of the linkset. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**
  - **Not Configured for ITP**
  - **MIB Data Error**
  - **SNMP Exception**
  - **SignalingPoint Inactive**
  - **Linkset Inactive**
  - **Link Congested**
  - **Link Send Utilization Threshold Exceeded**
  - **Link Receive Utilization Threshold Exceeded**
  - **Link Local Interface Inactive**
  - **Link Remote Interface Inactive**
  - **Link Inactive**

  If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Linksets Tab: Links

To view information about the links that are associated with the selected signaling point, select the **Linksets** tab. SGM displays the linksets in the top table, and the links in the bottom table.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

By default, SGM displays all of the columns in the Link Table except **Internal ID**, **Congestion Level**, and **Last Status Change**. To display these columns, or to hide other columns, see the procedures in the "Modifying Linkset Table Column Settings" section on page 5-18.

The Link Table displays the following information about links that are associated with the selected signaling point:

- **Internal ID—**Internal ID of the link. The internal ID is a unique ID for every event, linkset, link, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Node—**Name of the node associated with the link.
- **Signaling Point—**Name of the signaling point associated with the link.
- **Linkset—**Name of the linkset associated with the link.
- **SLC—**Signaling link code (SLC) ID for the link.

- **Type—**Type of link. Possible link types are:
  - **HSL**—The link uses the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol.
  - **SCTPIP**—The link uses the Stream Control Transmission Protocol (SCTP) IP transport protocol.
  - **Serial**—The link uses the serial SS7 signaling protocol.
  - **Virtual**—The link is a virtual link, which connects signaling point instances running on the same device. SGM does not poll virtual links, nor does it display real-time data or accounting statistics for virtual links.
- **Congestion Level—**Indicates whether there is congestion on the link. A link is congested if it has too many packets waiting to be sent. This condition could be caused by the failure of an element in your network.

  Possible values for the **Congestion Level** field are:
  - **None**—The link is not congested.
  - **Low**—The link is slightly congested.
  - **High**—The link is congested.
  - **Very High**—The link is very congested.

  Low, **High**, and **Very High** correspond roughly to equivalent ANSI, China standard, and ITU congestion levels.
- **Ignored—**Indicates whether the link is to be included when aggregating and displaying SGM status information:
  - Clear the checkbox to include the link. This is the default setting.
  - Select the checkbox to exclude the link.

  This field can be edited by users with authentication level Power User (Level 2) and higher.
- **Notes—**Indicates whether there is a note associated with the link.

- **Events—**Indicates whether there is a recent event associated with the link.
  - To delete the event icon from SGM displays for a specific link, select the link and click the icon.
  - To delete the event icon from SGM displays for all links, select **Edit > Clear All Events** from the SGM Main Menu.

Note During Discovery, SGM might flag most links with an event icon. If the event icons are too distracting, use the **Edit > Clear All Events** menu option to remove them.

- **Last Status Change—**Date and time that the status of the link last changed.
- **Status—**Current status of the link. Possible values are:
  - **Active (green ball)**—The link is currently fully functional.
  - **Blocked (red ball)**—Traffic on this link is disabled by protocol.
  - **Failed (red ball)**—An error is preventing traffic from flowing on this link, or the associated linkset has been set to **Shutdown** status.

    A link can be **Failed** from an MTP3 perspective, but control messages might still be sent or received on the link, resulting in changing packet/second and bit/second rates. The rates might also be different at each end of the link, depending on the reason for the failure and the timing related to each endpoint.
  - **InhibitLoc (blue ball)**—A local ITP administrator has set the link to prevent traffic from flowing.
  - **InhibitRem (blue ball)**—A remote ITP administrator has set the link to prevent traffic from flowing.
  - **Shutdown (blue ball)**—An ITP administrator has set the link to prevent traffic from flowing.

  - **Unknown (red ball)**—Either the node associated with this link has failed to respond to an SNMP request, or SGM found that the link no longer exists.

    When you physically delete a link, the **Status** field displays **Unknown** until you delete the link from the SGM database.

  - **Warning (yellow ball)**—The link is active and traffic is flowing, but one or more of the following situations has occurred:

    – The link is congested.

    – The link has exceeded the defined **Receive Utilization %** or **Send Utilization %**.

    – One or more of the local or remote IP addresses defined for SCTP is not active.

- **Status Reason—**Reason for the current status of the link. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**
  - **Not Configured for ITP**
  - **MIB Data Error**
  - **SNMP Exception**
  - **SignalingPoint Inactive**
  - **Linkset Inactive**
  - **Link Congested**
  - **Link Send Utilization Threshold Exceeded**
  - **Link Receive Utilization Threshold Exceeded**
  - **Link Local Interface Inactive**

- **Link Remote Interface Inactive**
- **Link Inactive**

If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Configuration Data Tab: Naming Information

To view naming information for the selected signaling point, select the **Configuration Data** tab.

The Naming Information sub-section displays the following information for the selected signaling point:

- **Name—**Name of the signaling point.
- **Instance Name—**Name of the instance associated with the signaling point.
- **Instance ID—**ID of the instance associated with the signaling point.
- **Icon Name—**Name of the graphic icon to assign to this signaling point in topology maps. SGM automatically assigns an appropriate icon to each discovered Cisco ITP, and to **Unknown** nodes, but you can use this field to assign a different icon.

  When SGM discovers a single-instance node, it assigns the icon that corresponds to the node. When SGM discovers a multi-instance node, it assigns a separate icon for each unique signaling point instance.

  Valid values are:

  - **Cisco2600**—Cisco 2650, Cisco 2650XM, Cisco 2651, Cisco 2651XM
  - **Cisco7204**—Cisco 7204, Cisco 7204VXR
  - **Cisco7206**—Cisco 7206, Cisco 7206VXR
  - **Cisco7507**—Cisco 7507, Cisco 7507mx, Cisco 7507z

  - **Cisco7513**—Cisco 7513, Cisco 7513mx, Cisco 7513z
  - **IPDevice**—IP device, other than those listed above. You can assign this icon to an unknown node if you know that it is an IP device.
  - **MSC**—Mobile switching center. You can assign this icon to an unknown node if you know that it is an MSC.
  - **SCP**—Service control point. You can assign this icon to an unknown node if you know that it is an SCP.
  - **SSP**—Service switching point. You can assign this icon to an unknown node if you know that it is an SSP.
  - **STP**—Signal transfer point. You can assign this icon to an unknown node if you know that it is an STP.
  - **SignalingPoint**—An SCP, SSP, or STP, or an ITP instance.
  - **Unknown**—SGM is unable to determine the node type.
- **Last Status Change—**Date and time that the status of the signaling point last changed.
- **Status—**Current status of the signaling point. Possible values are:
  - **Active (green ball)**—The signaling point is currently fully functional.
  - **Unknown (red ball)**—One of the following conditions occurred:

    – SGM cannot poll the node associated with the signaling point. SGM sets all signaling points, linksets, and links associated with the node to **Unknown**.

    – The signaling point has been unconfigured on the ITP, or the configuration is incomplete. At the next poll, SGM determines that the signaling point does not exist, and sets the signaling point and all associated linksets and links to **Unknown**.
  - **Unmanaged (gray ball)**—An SGM user has set the signaling point to **Unmanaged** status, to prevent SGM from polling the signaling point. SGM automatically deletes all associated links and linksets.
  - **Warning (yellow ball)**—The signaling point is active, but one or more associated links or linksets is in **Failed**, **Unavailable**, **Unknown**, or **Warning** status and is not flagged as **Ignored**.

- **Status Reason—**Reason for the current status of the signaling point. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**
  - **Not Configured for ITP**
  - **MIB Data Error**
  - **SNMP Exception**
  - **SignalingPoint Inactive**
  - **Linkset Inactive**
  - **Link Congested**
  - **Link Send Utilization Threshold Exceeded**
  - **Link Receive Utilization Threshold Exceeded**
  - **Link Local Interface Inactive**
  - **Link Remote Interface Inactive**
  - **Link Inactive**

  If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

  The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

  If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Configuration Data Tab: Description

To view descriptive information for the selected signaling point, select the **Configuration Data** tab.

The Description sub-section contains a description of the signaling point. If the signaling point has no description, this sub-section is blank.

Configuration Data Tab: Point Code

To view point code information for the selected signaling point, select the **Configuration Data** tab.

The Point Code sub-section displays the following information for the selected signaling point:

- **Point Code—**Primary point code of the signaling point.
- **Variant—**SS7 protocol variant. Valid variants are:
  - **ANSI**
  - **China**
  - **ITU**
- **Network Indicator—**Determines the type of call that is being placed. Valid values are:
  - **National**—National-bound call. SGM routes national calls through the national network.
  - **NationalSpare**—National-bound call, used in countries in which more than one carrier can share a point code. In those countries, networks are differentiated by the **Network Indicator**.
  - **International**—International-bound call. SGM forwards international-bound calls to an STP pair that acts as an international gateway.
  - **InternationalSpare**—International-bound call, used in countries in which more than one carrier can share a point code. In those countries, networks are differentiated by the **Network Indicator**.
- **Network Name—**Name of the network associated with the signaling point.

Configuration Data Tab: Capability Point Code

To view capability point code information for the selected signaling point, select the **Configuration Data** tab.

The Capability Point Code sub-section displays the following information for the selected signaling point:

- **Point Code—**Capability point code of the signaling point.
- **Variant—**SS7 protocol variant. Valid variants are:
  - **ANSI**
  - **China**
  - **ITU**
- **Network Indicator—**Determines the type of call that is being placed. Valid values are:
  - **National**—National-bound call. SGM routes national calls through the national network.
  - **NationalSpare**—National-bound call, used in countries in which more than one carrier can share a point code. In those countries, networks are differentiated by the **Network Indicator**.
  - **International**—International-bound call. SGM forwards international-bound calls to an STP pair that acts as an international gateway.
  - **InternationalSpare**—International-bound call, used in countries in which more than one carrier can share a point code. In those countries, networks are differentiated by the **Network Indicator**.
- **Network Name—**Name of the network associated with the signaling point.

Configuration Data Tab: QoS Information

To view quality of service (QoS) information for the selected signaling point, select the **Configuration Data** tab.

The QoS Information sub-section displays the following information for the selected signaling point:

- **QoS—**Quality of service (QoS) class of the signaling point. Valid QoS classes range from **1** through **7**. **ALL** indicates that the signaling point accepts all QoS classes.
- **ToS—**Type of service (ToS) of the signaling point.
- **DSCP—**IP differentiated-services-code-point (DSCP) of the signaling point.

Notes Tab

To view notes for the selected signaling point, select the **Notes** tab.

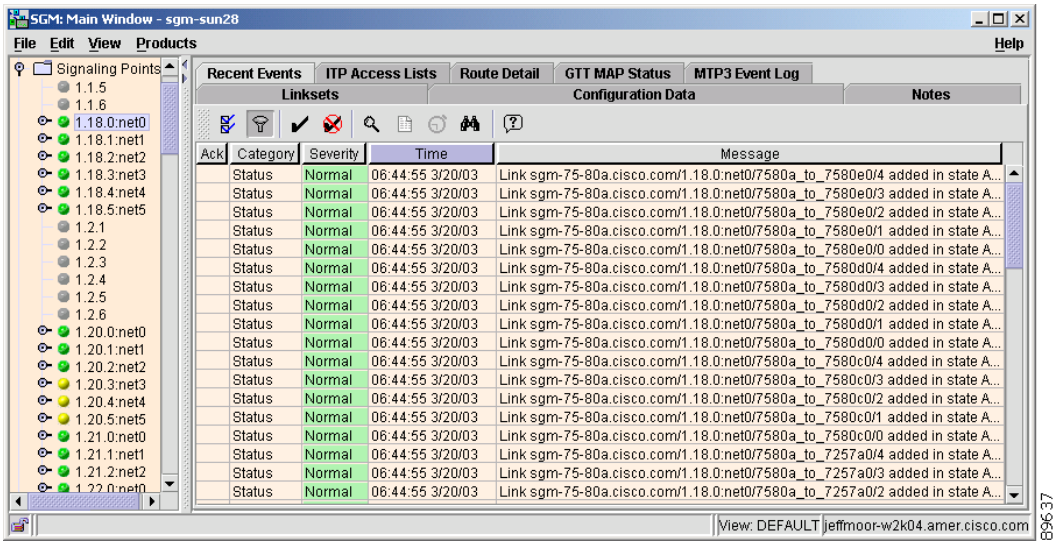
The Notes section displays:

- Notes associated with the signaling point.
- The date and time the notes associated with the signaling point were last updated, or the phrase **Not Set** if there are no notes associated with the signaling point.
- The phrase **No Notes** if there are no notes associated with the signaling point.

Recent Events Tab

To view information about all recent events associated with the signaling point, select the **Recent Events** tab. SGM displays the Recent Events table for the signaling point (Figure 3-32).

Figure 3-32 Recent Events Table for a Signaling Point



By default, SGM displays all of the columns in the table except **Internal ID**, **Note**, **Ack By**, **Ack Time**, **Node**, **SP**, **Linkset**, and **Link**. To display these columns, or to hide other columns, see the procedures in the "Modifying Event Table Column Settings" section on page 5-19.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

The Recent Events section enables you to perform event-related tasks, such as setting filters and acknowledging events. For more information about these tasks, see the "Working with Events" section on page 3-235.

The Recent Events table displays the following information for the selected signaling point:

- **Internal ID—**Internal ID of the event. The internal ID is a unique ID for every event, link, linkset, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Ack—**Indicates whether the event has been acknowledged:
  - To acknowledge an unacknowledged event, use the **Acknowledge** toolbar button.
  - To make a previously acknowledged event unacknowledged, use the **Unacknowledge** toolbar button.
- **Category—**Type of the event. Default values are:
  - **Create**—Creation event, such as the creation of a seed file.
  - **Delete**—Deletion event, such as the deletion of a node, signaling point, linkset, or file.
  - **Discover**—Discovery event, such as Discovery beginning.
  - **Edit**—Edit event. A user has edited a node, signaling point, linkset, or link.
  - **Ignore**—Ignore event. A user has **Ignored** a link or linkset.
  - **Login**—Login event. A user has logged in to SGM.
  - **LoginDisable**—LoginDisable event. SGM has disabled a user's User-Based Access authentication as a result of too many failed attempts to log in to SGM.
  - **LoginFail**—LoginFail event. An attempt by a user to log in to SGM has failed.
  - **OverWrite**—OverWrite event. An existing file, such as a seed file or route file, has been overwritten.
  - **Poll**—Poll event, such as an SNMP poll.
  - **Purge**—Purge event. A user has requested Discovery with **Delete Existing Data** selected, and SGM has deleted the existing SGM database.

  - **Status**—Status change message generated.
  - **Trap**—SNMP trap message generated.

    You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

- **Severity—**Severity of the event. Default values are:
  - **Admin**—The default color is cyan.
  - **Error**—The default color is coral.
  - **None**—The default color is white.
  - **Normal**—The default color is light green.
  - **Warning**—The default color is yellow.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.
- **Note—**Indicates whether there is a note associated with the event.
- **Time—**Date and time the event was logged.
- **Ack By—**If you have not implemented SGM User-Based Access, name of the device that last acknowledged the event.

  If you have implemented SGM User-Based Access, name of the user who last acknowledged the event.

  If no one has acknowledged the event, this field is blank.
- **Ack Time—**Date and time the event was last acknowledged or unacknowledged.
- **Node—**Name of the node associated with the event. If there is no node associated with the event, **None** is displayed.
- **SP—**Name of the signaling point associated with the event. If there is no signaling point associated with the event, **None** is displayed.
- **Linkset—**Name of the linkset associated with the event. If there is no linkset associated with the event, **None** is displayed.

- **Link—**Name of the link associated with the event. If there is no link associated with the event, **None** is displayed.
- **Message—**Text of the message.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

ITP Access Lists Tab

To view information about all access lists associated with the selected signaling point, select the **ITP Access Lists** tab.

For each linkset associated with the selected signaling point, the ITP Access Lists section displays the following information:

- **Current Poll Interval—**Poll interval used to collect data for the table.
- **Last Poll—**Time the last poll was run. This field initially displays the phrase **Polling device**. After the first polling cycle, SGM populates this field with the actual time of the last poll.
- **Linkset—**Name of the linkset for which access lists are being displayed.
- **In—**Inbound access lists for the linkset. If the linkset has no inbound access lists, this field displays **None**.
- **Out—**Outbound access lists for the linkset. If the linkset has no outbound access lists, this field displays **None**.
- **List #—**Access list number configured on the node and applied to the linkset. ITP uses access list numbers 2700 through 2799.
- **Access List—**List of commands in the access list.

Route Detail Tab

To view detailed information about routes associated with the selected signaling point, including dynamic and shadow routes, select the **Route Detail** tab.

The Route Detail table displays the following information for the selected signaling point:

- **Current Poll Interval—**Poll interval used to collect data for the table.
- **Last Poll—**Time the last poll was run. This field initially displays the phrase **Polling device**. After the first polling cycle, SGM populates this field with the actual time of the last poll.

- **Destination Point Code—**Destination point code for packets on the selected signaling point. The destination point code is the point code to which a given packet is routed.
- **Mask—**Mask length for packets on the selected signaling point. The mask length is the number of significant leading bits in the point code. The mask length is always 14 for ITU and 24 for ANSI.
- **Cost—**Cost of the route to the destination, relative to other routes. The valid costs range from **1** (lowest cost and highest priority) through **9** (highest cost and lowest priority).
- **Destination Linkset—**Destination linkset associated with the destination point code. The destination linkset is also known as the output linkset.
- **QoS—**Quality of service (QoS) class of the route, as configured by the network administrator. Valid QoS classes range from **1** through **7**; **ALL** indicates that the route accepts all QoS classes.
- **Access—**Status of the destination. Possible values are:
  - **Accessible**
  - **Inaccessible**
  - **Restricted**
  - **Unknown**
- **Management Status—**Accessibility of the destination from the adjacent point code at the remote end of the signaling point. Possible values are:
  - **Allowed**—Traffic is allowed on the route without restriction.
  - **Prohibited**—Traffic is prohibited on the route.
  - **Restricted**—Traffic is restricted on the route.
  - **Unknown**—Accessibility cannot be determined.
- **Route Status—**Status of the route. Possible values are:
  - **Available**
  - **Restricted**
  - **Unavailable**

GTT MAP Status Tab

To view detailed information about all GTT MAPs associated with the selected signaling point, select the **GTT MAP Status** tab.

The GTT MAP Status table displays the following information for the selected signaling point:

- **Current Poll Interval—**Poll interval used to collect data for the table.
- **Last Poll—**Time the last poll was run. This field initially displays the phrase **Polling device**. After the first polling cycle, SGM populates this field with the actual time of the last poll.
- **Point Code—**Primary point code for the GTT MAP.
- **Subsystem Number—**Primary subsystem number (SSN) for the GTT MAP.
- **Point Code Status—**Status of the primary point code. Possible values are:
  - **Allowed**
  - **Prohibited**—Either the point code cannot be reached, or the point code is labeled **Prohibited** by the SCCP protocol.
- **Subsystem Number Status—**Status of the primary SSN. Possible values are:
  - **Allowed**
  - **Prohibited**—Either the remote subsystem cannot be reached, or the subsystem is labeled **Prohibited** by the SCCP protocol.
- **Congestion Level—**MTP3 congestion level for the primary point code. Possible values are:
  - **No congestion**—Corresponds to **None**. The link is not congested.
  - **Congestion level 1**—Corresponds to **Low**. The link is slightly congested.
  - **Congestion level 2**—Corresponds to **High**. The link is congested.
  - **Congestion level 3**—Corresponds to **Very High**. The link is very congested.

  Low, **High**, and **Very High** correspond roughly to equivalent ANSI, China standard, and ITU congestion levels.

MTP3 Event Log Tab

To view the most recent MTP3 events associated with the selected signaling point, select the **MTP3 Event Log** tab.

The MTP3 Event Log table displays the following information for the selected signaling point:

- **Current Poll Interval—**Poll interval used to collect data for the table.
- **Last Poll—**Time the last poll was run. This field initially displays the phrase **Polling device**. After the first polling cycle, SGM populates this field with the actual time of the last poll.
- **Logged Events—**Total number of MTP3 events that have been logged for this signaling point.
- **Dropped Events—**Total number of MTP3 events that have been dropped for this signaling point.
- **Max Events—**Maximum number of events that the event history can contain. When event history table is full, the oldest entries are deleted as new entries are added.
- **Allowed Events—**ITP parameter that specifies the absolute maximum for the **Max Events** field. That is, for this ITP device, the **Max Events** field can range from 0 to the value specified by the **Allowed Events** field.
- **Index—**Event number, assigned to the event by SGM.
- **Message—**Message text for the event.

Editing a Signaling Point

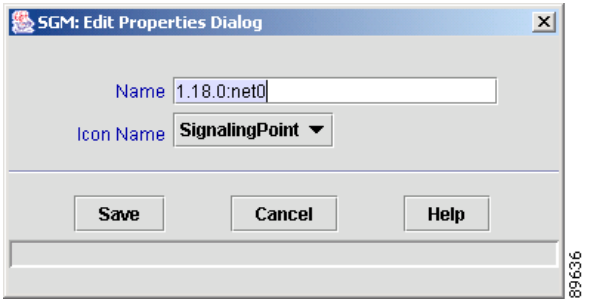
SGM enables you to edit the following aspects of a signaling point:

- Editing Signaling Point Properties, page 3-163
- Attaching a Note to a Signaling Point, page 3-165

Editing Signaling Point Properties

To edit a signaling point's properties, such as its name or associated icon, right-click the signaling point in a window, select **Edit>Properties** in the right-click menu. SGM displays the Edit Properties Dialog for a Signaling Point (Figure 3-33).

Figure 3-33 Edit Properties Dialog for a Signaling Point



By default, the **Name** field displays the signaling point's point code and network name, as discovered by SGM (for example, **1.22.0:net0**). However, you can use this field to specify a new, more meaningful name for the signaling point, keeping in mind the following considerations:

- The new name can be from 1 to 30 characters, and can contain any letters, numbers, or special characters. If you enter a name that is longer than 30 characters, SGM beeps and retains the current name.
- If you leave the **Name** field blank, SGM reverts to the signaling point's point code, without the network name.

The **Icon Name** drop-down list box displays the name of the graphic icon to assign to this signaling point in topology maps. SGM automatically assigns an appropriate icon to each discovered Cisco ITP, and to **Unknown** signaling points, but you can use this field to assign a different icon (for example, if you know that a given **Unknown** signaling point is a mobile switching center).

When SGM discovers a single-instance node, it assigns the icon that corresponds to the node. When SGM discovers a multi-instance node, it assigns a separate icon for each unique signaling point instance.

Valid values are:

- **Cisco2600**—Cisco 2650, Cisco 2650XM, Cisco 2651, Cisco 2651XM
- **Cisco7204**—Cisco 7204, Cisco 7204VXR
- **Cisco7206**—Cisco 7206, Cisco 7206VXR
- **Cisco7507**—Cisco 7507, Cisco 7507mx, Cisco 7507z
- **Cisco7513**—Cisco 7513, Cisco 7513mx, Cisco 7513z
- **IPDevice**—IP device, other than those listed above. You can assign this icon to an unknown signaling point if you know that it is an IP device.
- **MSC**—Mobile switching center. You can assign this icon to an unknown signaling point if you know that it is an MSC.
- **SCP**—Service control point. You can assign this icon to an unknown signaling point if you know that it is an SCP.
- **SSP**—Service switching point. You can assign this icon to an unknown signaling point if you know that it is an SSP.
- **STP**—Signal transfer point. You can assign this icon to an unknown signaling point if you know that it is an STP.
- **SignalingPoint**—An SCP, SSP, or STP, or an ITP instance.
- **Unknown**—SGM is unable to determine the signaling point type.

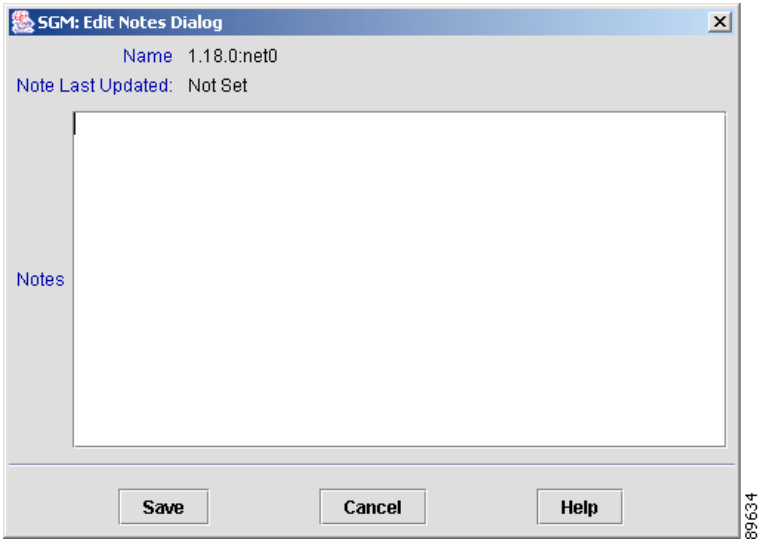
At any time, you can click **Cancel** to exit the dialog without saving any changes.

When you are satisfied with your changes, click **Save**. SGM saves your changes and updates all SGM windows to reflect your changes.

Attaching a Note to a Signaling Point

To attach a note to a signaling point, right-click the signaling point in a window, then select **Edit>Notes** in the right-click menu. SGM displays the Edit Notes Dialog for a Signaling Point (Figure 3-34).

Figure 3-34 Edit Notes Dialog for a Signaling Point



The **Note Last Updated** field displays the date and time the **Notes** field for this signaling point was last updated. If there is no note currently associated with this signaling point, this field displays the value **Not Set**.

In the **Notes** field, enter any important information about the signaling point, such as a detailed description, its location, its service history, and so on. When you annotate a signaling point, the topology map in the Topology window displays a note icon in the upper left corner of the signaling point element.

At any time, you can click **Cancel** to exit the dialog without saving any changes.

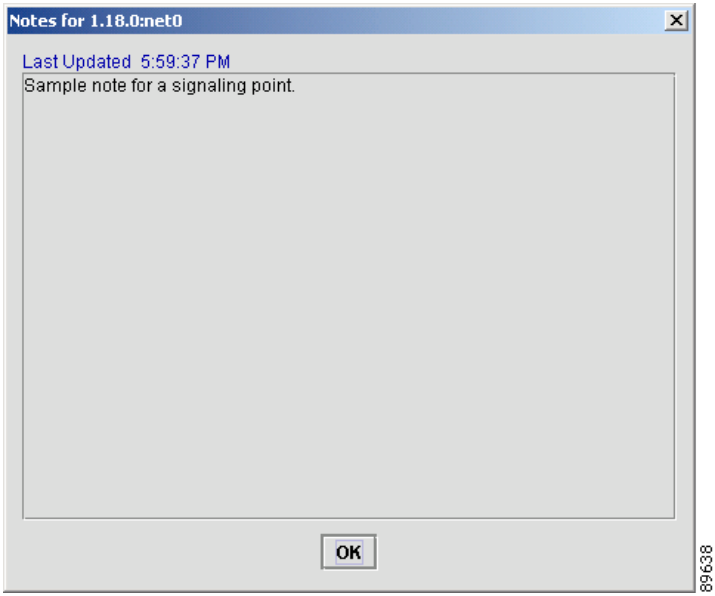
When you are satisfied with your changes, click **Save**. SGM saves your changes and updates all SGM windows to reflect your changes.

Viewing Notes for a Signaling Point

SGM enables you to view the notes that have been attached to signaling points.

To view a note, right-click a signaling point in a window, then select **View > Notes** in the right-click menu. (The **Notes** option is grayed-out if there is no note associated with the selected signaling point.) SGM displays the Notes for Signaling Point dialog (Figure 3-35).

Figure 3-35 Notes for Signaling Point Dialog



The Notes for Signaling Point dialog displays the following information:

- The name of the signaling point is displayed in the title of the window (for example, **Notes for 1.60.2:net2**.)
- **Last Updated**—Date and time the **Notes** field for the signaling point was last updated.
- **Notes**—Notes associated with the signaling point.

Click **OK** to close the Notes for Signaling Point dialog.

Deleting a Signaling Point

After Discovery, the signaling points in your network are known to SGM and added to the SGM database. Physically deleting signaling points from your network is not the same as deleting them from the SGM database. The following sections describe the differences between deleting signaling points from your network and from the SGM database, and the procedures for doing so:

- Deleting a Signaling Point from Your Network, page 3-167
- Deleting a Signaling Point from the SGM Database, page 3-167

Deleting a Signaling Point from Your Network

If you physically delete a known signaling point from your network, it remains in the SGM database, SGM labels it **Unknown**, and it is the system administrator's responsibility to delete it from the SGM database, if you choose to do so. SGM also labels all associated linksets and links **Unknown** because SGM attempts to poll the signaling point and gets no response.

Deleting a Signaling Point from the SGM Database

Typically, you delete a signaling point from the SGM database for one of the following reasons:

- You have physically deleted the signaling point from your network. This is the most common reason for deleting a signaling point from the SGM database.
- The signaling point is **Unknown** or **Unmanaged**, you are aware of the reason, and you no longer want to see it in SGM displays. For example, the signaling point might be a test lab device.
- If you delete all linksets to an **Unmanaged** signaling point, SGM does not automatically delete the signaling point. Instead, you must manually delete the signaling point.

If you have physically deleted a known signaling point from your network, and you then delete it from SGM, it is no longer in the SGM database, it does not appear in SGM windows, and it is not discovered when you run Discovery.

Be aware of the following special situations:

- If you have *not* physically deleted a known signaling point from your network, and you delete it from SGM, SGM removes the signaling point from the poll list, and at the next poll SGM returns the signaling point to the DEFAULT view, and labels the signaling point as a new signaling point if you are using a custom view.
- If a signaling point has at least one adjacent signaling point in **Active**, **Discovering**, **Waiting**, or **Warning** state, you cannot delete the signaling point. If you try to do so, SGM cancels the deletion.

If either of these situations occurs, do not delete the signaling point again. Instead, perform one of the following actions:

- Label the signaling point **Unmanaged**. See the "Unmanaging and Managing a Signaling Point" section on page 3-169 for more details.
- Remove the signaling point from your view. See the "Working with Views" section on page 3-26 for more details.

Note If you delete a signaling point from the SGM database, the signaling point is deleted for *all* SGM clients and views connected to that SGM server.

To delete a signaling point from the SGM database, use one of the following procedures:

- Select one or more signaling points in a window, then select **Edit > Delete** from the SGM Main Menu.
- Right-click a signaling point in a window, then select **Delete Item** in the right-click menu. (You cannot delete more than one signaling point at a time from the right-click menu.)

SGM asks you to confirm the deletion:

- Select **Yes** to delete the selected signaling points. SGM deletes the signaling points from the SGM database.
- Select **No** to return to the window without deleting any signaling points from the SGM database.

You can also use the **sgm delete sp** command to delete one or more signaling points from the SGM database. See the "SGM Commands and Descriptions" section on page B-2 for more information on the use of this command.

Note If you delete a signaling point, SGM removes it from the Signaling Points In Current View table of the Network View Editor window. If SGM then rediscovers the signaling point, SGM places it in the New Signaling Points Found table of the Network View Editor window. To restore the signaling point to your current view, you must move it into the Signaling Points In Current View table. For more information, see the "Working with Views" section on page 3-26.

Unmanaging and Managing a Signaling Point

SGM enables you to label a signaling point **Unmanaged**, and to remove the **Unmanaged** status from a signaling point.

In some situations, you might not want to see a given signaling point in SGM displays, but you might be unable to delete it from the SGM database. For example:

- If you have *not* physically deleted a known signaling point from your network, and you delete it from SGM, SGM removes the signaling point from the poll list, and at the next poll SGM returns the signaling point to the DEFAULT view, and labels the signaling point as a new signaling point if you are using a custom view.
- If a signaling point has at least one adjacent signaling point in **Active** or **Warning** state, you cannot delete the signaling point. If you try to do so, SGM cancels the deletion.

If these situations, you can label the signaling point **Unmanaged**. When you label a signaling point **Unmanaged**, SGM removes the signaling point from the poll list.

Note If you label a signaling point **Unmanaged**, the signaling point is **Unmanaged** for *all* SGM clients and views connected to that SGM server.

To label a signaling point **Unmanaged**, right-click a signaling point in a window, then select **Unmanage** from the right-click menu. SGM labels the selected signaling point **Unmanaged** and removes it from the poll list.

You can also remove the **Unmanaged** status from a signaling point, when you are ready to return the signaling point to the SGM poll list. To remove the **Unmanaged** status from a signaling point, right-click a signaling point in a window, then select **Manage** from the right-click menu. SGM removes the **Unmanaged** status from the selected signaling point, returns it to the poll list, and polls it immediately.

Excluding a Signaling Point from a View

To exclude a signaling point from the current view, right-click the signaling point in a window, then select **Exclude from View** in the right-click menu. SGM excludes the signaling point from the current view. See the "Creating a View" section on page 3-27 for more information about excluding signaling points from views.

Working with Links

SGM enables you to view detailed information about all discovered links, including their associated nodes, status, events, and other information.

This section includes the following information:

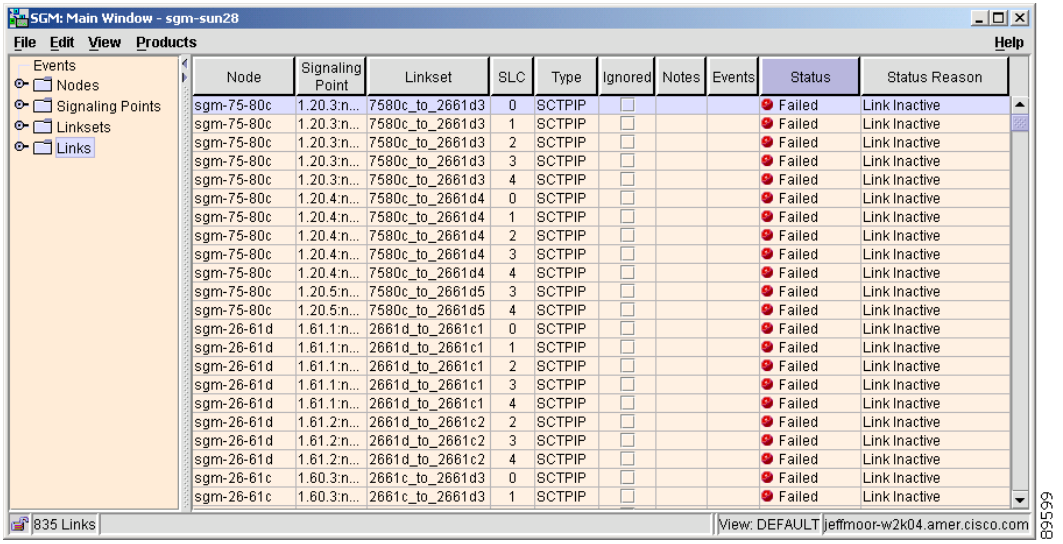
Related Topics:

- Working with Signaling Points, page 3-136
- Viewing the Topology of the Network, page 3-259
- Modifying Preference Settings, page 5-3

Viewing Basic Information for Links

To view basic information for links, select **Links** in the left pane of the SGM Main Window. SGM displays the Link Window (Figure 3-36).

Figure 3-36 Link Window



The Link Window displays information about the links that have been discovered by SGM.

By default, SGM displays all of the columns in the link table except **Internal ID**, **Congestion Level**, and **Last Status Change**. To display these columns, or to hide other columns, see the procedures in the "Modifying Linkset Table Column Settings" section on page 5-18.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

The Link Window displays the following information:

- **Internal ID—**Internal ID of the link. The internal ID is a unique ID for every event, linkset, link, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Node—**Name of the node associated with the link.
- **Signaling Point—**Name of the signaling point associated with the link.
- **Linkset—**Name of the linkset associated with the link.
- **SLC—**Signaling link code (SLC) ID for the link.
- **Type—**Type of link. Possible link types are:
  - **HSL**—The link uses the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol.
  - **SCTPIP**—The link uses the Stream Control Transmission Protocol (SCTP) IP transport protocol.
  - **Serial**—The link uses the serial SS7 signaling protocol.
  - **Virtual**—The link is a virtual link, which connects signaling point instances running on the same device. SGM does not poll virtual links, nor does it display real-time data or accounting statistics for virtual links.
- **Congestion Level—**Indicates whether there is congestion on the link. A link is congested if it has too many packets waiting to be sent. This condition could be caused by the failure of an element in your network.

  Possible values for the **Congestion Level** field are:
  - **None**—The link is not congested.
  - **Low**—The link is slightly congested.
  - **High**—The link is congested.
  - **Very High**—The link is very congested.

  Low, **High**, and **Very High** correspond roughly to equivalent ANSI, China standard, and ITU congestion levels.

- **Ignored—**Indicates whether the link is to be included when aggregating and displaying SGM status information:
  - Clear the checkbox to include the link. This is the default setting.
  - Select the checkbox to exclude the link.

  This field can be edited by users with authentication level Power User (Level 2) and higher.
- **Notes—**Indicates whether there is a note associated with the link.
- **Events—**Indicates whether there is a recent event associated with the link.
  - To delete the event icon from SGM displays for a specific link, select the link and click the icon.
  - To delete the event icon from SGM displays for all links, select **Edit > Clear All Events** from the SGM Main Menu.

Note During Discovery, SGM might flag most links with an event icon. If the event icons are too distracting, use the **Edit > Clear All Events** menu option to remove them.

- **Last Status Change—**Date and time that the status of the link last changed.
- **Status—**Current status of the link. Possible values are:
  - **Active (green ball)**—The link is currently fully functional.
  - **Blocked (red ball)**—Traffic on this link is disabled by protocol.
  - **Failed (red ball)**—An error is preventing traffic from flowing on this link, or the associated linkset has been set to **Shutdown** status.

    A link can be **Failed** from an MTP3 perspective, but control messages might still be sent or received on the link, resulting in changing packet/second and bit/second rates. The rates might also be different at each end of the link, depending on the reason for the failure and the timing related to each endpoint.
  - **InhibitLoc (blue ball)**—A local ITP administrator has set the link to prevent traffic from flowing.
  - **InhibitRem (blue ball)**—A remote ITP administrator has set the link to prevent traffic from flowing.

  - **Shutdown (blue ball)**—An ITP administrator has set the link to prevent traffic from flowing.
  - **Unknown (red ball)**—Either the node associated with this link has failed to respond to an SNMP request, or SGM found that the link no longer exists.

    When you physically delete a link, the **Status** field displays **Unknown** until you delete the link from the SGM database.
  - **Warning (yellow ball)**—The link is active and traffic is flowing, but one or more of the following situations has occurred:

    – The link is congested.

    – The link has exceeded the defined **Receive Utilization %** or **Send Utilization %**.

    – One or more of the local or remote IP addresses defined for SCTP is not active.

- **Status Reason—**Reason for the current status of the link. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**
  - **Not Configured for ITP**
  - **MIB Data Error**
  - **SNMP Exception**
  - **SignalingPoint Inactive**
  - **Linkset Inactive**
  - **Link Congested**
  - **Link Send Utilization Threshold Exceeded**
  - **Link Receive Utilization Threshold Exceeded**
  - **Link Local Interface Inactive**

- **Link Remote Interface Inactive**
- **Link Inactive**

If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Viewing Detailed Information for a Link

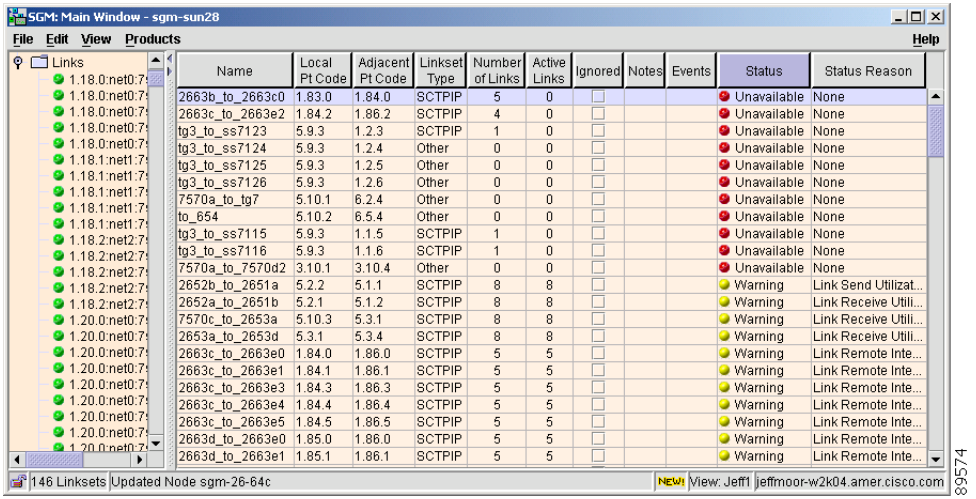
SGM can display detailed information about a selected link, including its associated node, status, and other information.

To display detailed information for a link, use one of the following procedures:

- Select **Links** in the left pane of the SGM Main Window, right-click a link in the right pane, then select **View > Configuration Details** in the right-click menu.
- Select the turner beside **Links** in the left pane of the SGM Main Window, then select a link.

SGM displays the Link Details Window (Figure 3-37).

Figure 3-37 Link Details Window



Detailed information for links associated with the selected linkset is displayed in the left column, and for links associated with the adjacent linkset in the right column.

Updates for the links that are received from the SGM server are reflected automatically in this window.

Changes you make in this pane might not be reflected throughout SGM until the next poll (by default, every 15 seconds). For information about changing the polling interval, see the "Viewing Detailed Information for a Link" section on page 3-175.

Note This window polls your network periodically. To prevent unnecessary traffic on your network, close this window when you no longer need to refer to it.

Configuration Data Tab: General Information

To view general information for the selected link, select the **Configuration Data** tab.

The General Information sub-section displays the following information for the selected link:

- **Type—**Type of link. Possible link types are:
  - **HSL**—The link uses the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol.
  - **SCTPIP**—The link uses the Stream Control Transmission Protocol (SCTP) IP transport protocol.
  - **Serial**—The link uses the serial SS7 signaling protocol.
  - **Virtual**—The link is a virtual link, which connects signaling point instances running on the same device. SGM does not poll virtual links, nor does it display real-time data or accounting statistics for virtual links.
- **Is Ignored—**Indicates whether the link is **Ignored** (that is, whether the link is to be included when aggregating and displaying SGM status information).
- **Association ID—**For a link of type **HSL**, **Serial**, or **Virtual**, this field has a value of 0. For a link of type **SCTP**, the index into the SNMP SCTP association table.

Configuration Data Tab: Interface Information

To view interface information for the selected link, select the **Configuration Data** tab.

The Interface Information sub-section displays the following information for the selected link:

- **QoS—**(SCTP links only) Quality of service (QoS) class of the link.
- **Local Port—**(SCTP links only) Local port for the link.
- **Remote Port—**(SCTP links only) Remote port for the link.
- **Interface Name—**(HSL, Serial, and Virtual links only) Name of the interface.
- **Interface Index—**(HSL, Serial, and Virtual links only) Index into the SNMP interface table.

Configuration Data Tab: Local IP Address Information (SCTP Links Only)

To view local IP address information for the selected SCTP link, select the **Configuration Data** tab.

The Local IP Address Information sub-section displays the following information for the selected link:

- **IP Address—**Local IP address associated with the link.
- **Status—**Current status of the IP address. Possible values are:
  - **Active (green ball)**—The IP address is currently fully functional.
  - **Inactive (red ball)**—The IP address is not currently functional.

Configuration Data Tab: Remote IP Address Information (SCTP Links Only)

To view remote IP address information for the selected SCTP link, select the **Configuration Data** tab.

The Remote IP Address Information sub-section displays the following information for the selected link:

- **IP Address—**Remote IP address associated with the link.
- **Type—**Indicates the designated primary IP address for the link (**Primary**) and the IP address currently being used by the link (**Effective**).

  Usually, the same IP address is both **Primary** and **Effective**. However, if the primary IP address is down for some reason, a different IP address is used by the link and is labeled **Effective**.
- **Status—**Current status of the IP address. Possible values are:
  - **Active (green ball)**—The IP address is currently fully functional.
  - **Inactive (red ball)**—The IP address is not currently functional.

Configuration Data Tab: Configured Local IP Address Information (SCTP Links Only)

To view configured local IP address information for the selected SCTP link, select the **Configuration Data** tab.

The Configured Local IP Address Information sub-section displays the following information for the selected link:

- **IP Address—**Configured local IP address associated with the link.
- **Interface Name—**Primary IP address and interface name of the link. The primary IP address is the first CS7 local IP address configured in the ITP. For example, if the following IP addresses are configured in the ITP:

  ```
  cs7 local-peer 4180
    local-ip 128.3.0.77
    local-ip 128.3.0.254
  ```

  Then SGM uses **128.3.0.77** as the primary IP address. If at any time that IP address is deleted from the ITP configuration, or if a new IP address is added to the beginning of the list, SGM detects the change and automatically updates this field to reflect the new primary IP address.

  If the link has no interface name, this field is blank.

Status Summary Tab: Status Information

To view status information for the selected link, select the **Status Summary** tab.

The Status Information sub-section displays the following information for the selected link:

- **Last Status Change—**Date and time that the status of the link last changed.
- **Status—**Current status of the link. Possible values are:
  - **Active (green ball)**—The link is currently fully functional.
  - **Blocked (red ball)**—Traffic on this link is disabled by protocol.
  - **Failed (red ball)**—An error is preventing traffic from flowing on this link, or the associated linkset has been set to **Shutdown** status.

    A link can be **Failed** from an MTP3 perspective, but control messages might still be sent or received on the link, resulting in changing packet/second and bit/second rates. The rates might also be different at each end of the link, depending on the reason for the failure and the timing related to each endpoint.

  - **InhibitLoc (blue ball)**—A local ITP administrator has set the link to prevent traffic from flowing.
  - **InhibitRem (blue ball)**—A remote ITP administrator has set the link to prevent traffic from flowing.
  - **Shutdown (blue ball)**—An ITP administrator has set the link to prevent traffic from flowing.
  - **Unknown (red ball)**—Either the node associated with this link has failed to respond to an SNMP request, or SGM found that the link no longer exists.

    When you physically delete a link, the **Status** field displays **Unknown** until you delete the link from the SGM database.
  - **Warning (yellow ball)**—The link is active and traffic is flowing, but one or more of the following situations has occurred:

    – The link is congested.

    – The link has exceeded the defined **Receive Utilization %** or **Send Utilization %**.

    – One or more of the local or remote IP addresses defined for SCTP is not active.

- **Congestion Level—**Indicates whether there is congestion on the link. A link is congested if it has too many packets waiting to be sent. This condition could be caused by the failure of an element in your network.

  Possible values for the **Congestion Level** field are:

  - **None**—The link is not congested.
  - **Low**—The link is slightly congested.
  - **High**—The link is congested.
  - **Very High**—The link is very congested.

  Low, **High**, and **Very High** correspond roughly to equivalent ANSI, China standard, and ITU congestion levels.

- **Receive Utilization—**Indicates whether, on average, the link is under its configured receive utilization threshold (**UnderThreshold**) or over the threshold (**OverThreshold**).

- **Send Utilization—**Indicates whether, on average, the link is under its configured send utilization threshold (**UnderThreshold**) or over the threshold (**OverThreshold**).
- **Status Reason—**Reason for the current status of the link. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**
  - **Not Configured for ITP**
  - **MIB Data Error**
  - **SNMP Exception**
  - **SignalingPoint Inactive**
  - **Linkset Inactive**
  - **Link Congested**
  - **Link Send Utilization Threshold Exceeded**
  - **Link Receive Utilization Threshold Exceeded**
  - **Link Local Interface Inactive**
  - **Link Remote Interface Inactive**
  - **Link Inactive**

  If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

  The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Status Summary Tab: Local IP Address Information (SCTP Links Only)

To view local IP address information for the selected SCTP link, select the **Status Summary** tab.

The Local IP Address Information sub-section displays the following information for the selected link:

- **IP Address—**Local IP address associated with the link.
- **Status—**Current status of the IP address. Possible values are:
  - **Active (green ball)**—The IP address is currently fully functional.
  - **Inactive (red ball)**—The IP address is not currently functional.

Status Summary Tab: Remote IP Address Information (SCTP Links Only)

To view remote IP address information for the selected SCTP link, select the **Status Summary** tab.

The Remote IP Address Information sub-section displays the following information for the selected link:

- **IP Address—**Remote IP address associated with the link.
- **Type—**Indicates the designated primary IP address for the link (**Primary**) and the IP address currently being used by the link (**Effective**).

  Usually, the same IP address is both **Primary** and **Effective**. However, if the primary IP address is down for some reason, a different IP address is used by the link and is labeled **Effective**.
- **Status—**Current status of the IP address. Possible values are:
  - **Active (green ball)**—The IP address is currently fully functional.
  - **Inactive (red ball)**—The IP address is not currently functional.

Notes Tab

To view notes for the selected link, select the **Notes** tab.

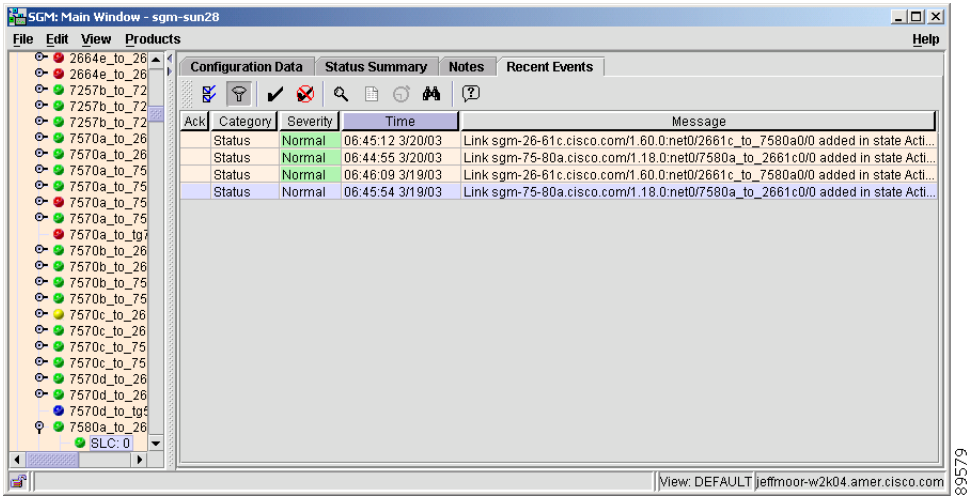
The Notes section displays:

- Notes associated with the selected link in the left column.
- Notes associated with the adjacent link in the right column.
- The date and time the notes associated with each link were last updated, or the phrase **Not Set** if there are no notes associated with the link.
- The phrase **No Notes** if there are no notes associated with the link.

Recent Events Tab

To view information about all recent events associated with the link, select the **Recent Events** tab. SGM displays the Recent Events table for the link (Figure 3-38).

Figure 3-38 Recent Events Table for a Link



By default, SGM displays all of the columns in the table except **Internal ID**, **Note**, **Ack By**, **Ack Time**, **Node**, **SP**, **Linkset**, and **Link**. To display these columns, or to hide other columns, see the procedures in the "Modifying Event Table Column Settings" section on page 5-19.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

The Recent Events section enables you to perform event-related tasks, such as setting filters and acknowledging events. For more information about these tasks, see the "Working with Events" section on page 3-235.

The Recent Events table displays the following information for the selected link:

- **Internal ID—**Internal ID of the event. The internal ID is a unique ID for every event, link, linkset, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Ack—**Indicates whether the event has been acknowledged:
  - To acknowledge an unacknowledged event, use the **Acknowledge** toolbar button.
  - To make a previously acknowledged event unacknowledged, use the **Unacknowledge** toolbar button.
- **Category—**Type of the event. Default values are:
  - **Create**—Creation event, such as the creation of a seed file.
  - **Delete**—Deletion event, such as the deletion of a node, signaling point, linkset, or file.
  - **Discover**—Discovery event, such as Discovery beginning.
  - **Edit**—Edit event. A user has edited a node, signaling point, linkset, or link.
  - **Ignore**—Ignore event. A user has **Ignored** a link or linkset.
  - **Login**—Login event. A user has logged in to SGM.
  - **LoginDisable**—LoginDisable event. SGM has disabled a user's User-Based Access authentication as a result of too many failed attempts to log in to SGM.
  - **LoginFail**—LoginFail event. An attempt by a user to log in to SGM has failed.

  - **OverWrite**—OverWrite event. An existing file, such as a seed file or route file, has been overwritten.
  - **Poll**—Poll event, such as an SNMP poll.
  - **Purge**—Purge event. A user has requested Discovery with **Delete Existing Data** selected, and SGM has deleted the existing SGM database.
  - **Status**—Status change message generated.
  - **Trap**—SNMP trap message generated.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

- **Severity—**Severity of the event. Default values are:
  - **Admin**—The default color is cyan.
  - **Error**—The default color is coral.
  - **None**—The default color is white.
  - **Normal**—The default color is light green.
  - **Warning**—The default color is yellow.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.
- **Note—**Indicates whether there is a note associated with the event.
- **Time—**Date and time the event was logged.
- **Ack By—**If you have not implemented SGM User-Based Access, name of the device that last acknowledged the event.

  If you have implemented SGM User-Based Access, name of the user who last acknowledged the event.

  If no one has acknowledged the event, this field is blank.
- **Ack Time—**Date and time the event was last acknowledged or unacknowledged.
- **Node—**Name of the node associated with the event. If there is no node associated with the event, **None** is displayed.

- **SP—**Name of the signaling point associated with the event. If there is no signaling point associated with the event, **None** is displayed.
- **Linkset—**Name of the linkset associated with the event. If there is no linkset associated with the event, **None** is displayed.
- **Link—**Name of the link associated with the event. If there is no link associated with the event, **None** is displayed.
- **Message—**Text of the message.

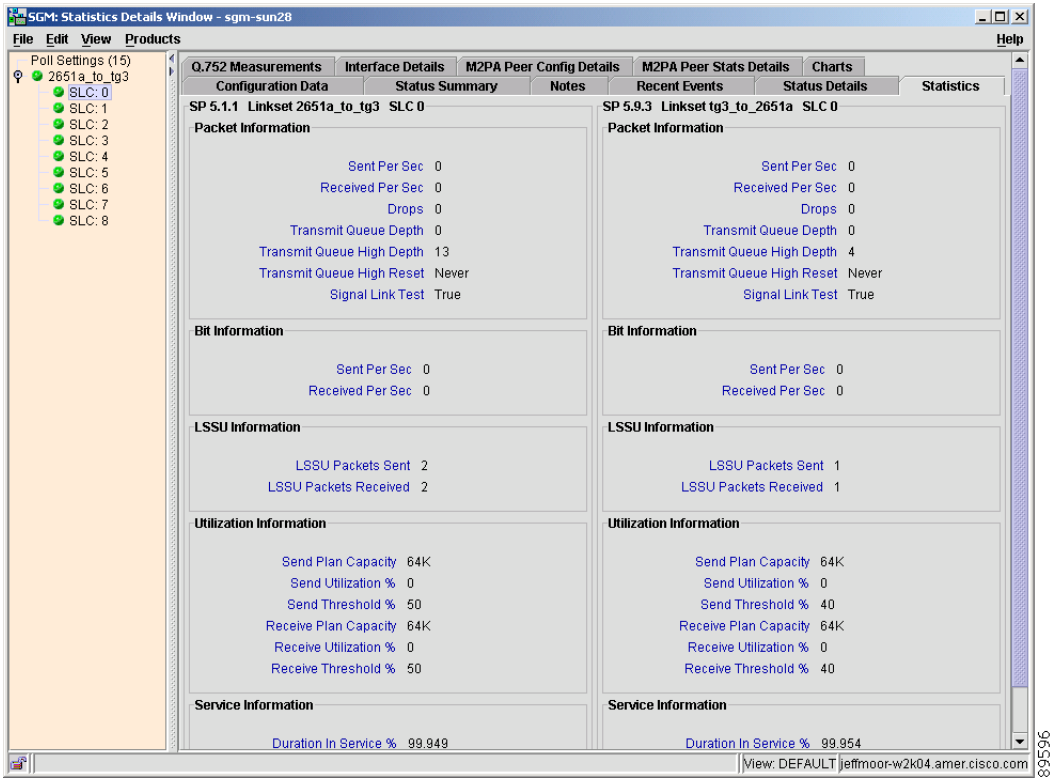
  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

Viewing Real-Time Data for a Link

SGM enables you to display detailed statistics for a selected link. Detailed information for links associated with the selected linkset is displayed in the left column, and for links associated with the adjacent linkset in the right column.

To display detailed statistics for a link, select **Links** in the left pane of the SGM Main Window, right-click a link in the right pane, then select **View > Real-Time Data and Charts** in the right-click menu. SGM displays the Statistics Details Window for a Link (Figure 3-39).

Figure 3-39 Statistics Details Window for a Link



Updates for the links that are received from the SGM server are reflected automatically in this window.

Changes you make in this window might not be reflected throughout SGM until the next poll (by default, every 15 seconds). For information about changing the polling interval, see the "Viewing Detailed Information for a Link" section on page 3-175.

Note Each link is identified by its signaling link code ID (SLC). An asterisk indicates that a link is not configured, or that a poll could not get data for the link. For example, **SLC (*)3** means there is no link associated with the selected linkset for SLC 3, and **SLC 3(*)** means there is no link associated with the adjacent linkset for SLC 3.

Select one of the SLCs. SGM displays the Statistics Details Window for a Link for that link.

Note This window polls your network periodically. To prevent unnecessary traffic on your network, close this window when you no longer need to refer to it.

Configuration Data Tab: General Information

To view general information for the selected link, select the **Configuration Data** tab.

The General Information sub-section displays the following information for the selected link:

- **Type—**Type of link. Possible link types are:
  - **HSL**—The link uses the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol.
  - **SCTPIP**—The link uses the Stream Control Transmission Protocol (SCTP) IP transport protocol.
  - **Serial**—The link uses the serial SS7 signaling protocol.
  - **Virtual**—The link is a virtual link, which connects signaling point instances running on the same device. SGM does not poll virtual links, nor does it display real-time data or accounting statistics for virtual links.
- **Is Ignored—**Indicates whether the link is **Ignored** (that is, whether the link is to be included when aggregating and displaying SGM status information).
- **Association ID—**For a link of type **HSL**, **Serial**, or **Virtual**, this field has a value of 0. For a link of type **SCTP**, the index into the SNMP SCTP association table.

Configuration Data Tab: Interface Information

To view interface information for the selected link, select the **Configuration Data** tab.

The Interface Information sub-section displays the following information for the selected link:

- **QoS—**(SCTP links only) Quality of service (QoS) class of the link.
- **Local Port—**(SCTP links only) Local port for the link.
- **Remote Port—**(SCTP links only) Remote port for the link.
- **Interface Name—**(HSL, Serial, and Virtual links only) Name of the interface.
- **Interface Index—**(HSL, Serial, and Virtual links only) Index into the SNMP interface table.

Configuration Data Tab: Local IP Address Information (SCTP Links Only)

To view local IP address information for the selected SCTP link, select the **Configuration Data** tab.

The Local IP Address Information sub-section displays the following information for the selected link:

- **IP Address—**Local IP address associated with the link.
- **Status—**Current status of the IP address. Possible values are:
  - **Active (green ball)**—The IP address is currently fully functional.
  - **Inactive (red ball)**—The IP address is not currently functional.

Configuration Data Tab: Remote IP Address Information (SCTP Links Only)

To view remote IP address information for the selected SCTP link, select the **Configuration Data** tab.

The Remote IP Address Information sub-section displays the following information for the selected link:

- **IP Address—**Remote IP address associated with the link.
- **Type—**Indicates the designated primary IP address for the link (**Primary**) and the IP address currently being used by the link (**Effective**).

  Usually, the same IP address is both **Primary** and **Effective**. However, if the primary IP address is down for some reason, a different IP address is used by the link and is labeled **Effective**.
- **Status—**Current status of the IP address. Possible values are:
  - **Active (green ball)**—The IP address is currently fully functional.
  - **Inactive (red ball)**—The IP address is not currently functional.

Configuration Data Tab: Configured Local IP Address Information (SCTP Links Only)

To view configured local IP address information for the selected SCTP link, select the **Configuration Data** tab.

The Configured Local IP Address Information sub-section displays the following information for the selected link:

- **IP Address—**Configured local IP address associated with the link.
- **Interface Name—**Primary IP address and interface name of the link. The primary IP address is the first CS7 local IP address configured in the ITP. For example, if the following IP addresses are configured in the ITP:

  ```
  cs7 local-peer 4180
    local-ip 128.3.0.77
    local-ip 128.3.0.254
  ```

  Then SGM uses **128.3.0.77** as the primary IP address. If at any time that IP address is deleted from the ITP configuration, or if a new IP address is added to the beginning of the list, SGM detects the change and automatically updates this field to reflect the new primary IP address.

  If the link has no interface name, this field is blank.

Status Summary Tab: Status Information

To view status information for the selected link, select the **Status Summary** tab.

The Status Information sub-section displays the following information for the selected link:

- **Last Status Change—**Date and time that the status of the link last changed.
- **Status—**Current status of the link. Possible values are:
  - **Active (green ball)**—The link is currently fully functional.
  - **Blocked (red ball)**—Traffic on this link is disabled by protocol.
  - **Failed (red ball)**—An error is preventing traffic from flowing on this link, or the associated linkset has been set to **Shutdown** status.

    A link can be **Failed** from an MTP3 perspective, but control messages might still be sent or received on the link, resulting in changing packet/second and bit/second rates. The rates might also be different at each end of the link, depending on the reason for the failure and the timing related to each endpoint.
  - **InhibitLoc (blue ball)**—A local ITP administrator has set the link to prevent traffic from flowing.
  - **InhibitRem (blue ball)**—A remote ITP administrator has set the link to prevent traffic from flowing.
  - **Shutdown (blue ball)**—An ITP administrator has set the link to prevent traffic from flowing.
  - **Unknown (red ball)**—Either the node associated with this link has failed to respond to an SNMP request, or SGM found that the link no longer exists.

    When you physically delete a link, the **Status** field displays **Unknown** until you delete the link from the SGM database.
  - **Warning (yellow ball)**—The link is active and traffic is flowing, but one or more of the following situations has occurred:

    – The link is congested.

    – The link has exceeded the defined **Receive Utilization %** or **Send Utilization %**.

    – One or more of the local or remote IP addresses defined for SCTP is not active.

- **Congestion Level—**Indicates whether there is congestion on the link. A link is congested if it has too many packets waiting to be sent. This condition could be caused by the failure of an element in your network.

  Possible values for the **Congestion Level** field are:

  - **None**—The link is not congested.
  - **Low**—The link is slightly congested.
  - **High**—The link is congested.
  - **Very High**—The link is very congested.

  Low, **High**, and **Very High** correspond roughly to equivalent ANSI, China standard, and ITU congestion levels.

- **Receive Utilization—**Indicates whether, on average, the link is under its configured receive utilization threshold (**UnderThreshold**) or over the threshold (**OverThreshold**).
- **Send Utilization—**Indicates whether, on average, the link is under its configured send utilization threshold (**UnderThreshold**) or over the threshold (**OverThreshold**).
- **Status Reason—**Reason for the current status of the link. Possible values are:
  - **None**
  - **SGM Restart**
  - **Unsupported Configuration**
  - **Unconfigured**
  - **SNMP Timeout**
  - **Device is unreachable, possibly wrong community string**
  - **Not ITP Device**
  - **Not Configured for ITP**
  - **MIB Data Error**
  - **SNMP Exception**
  - **SignalingPoint Inactive**
  - **Linkset Inactive**
  - **Link Congested**
  - **Link Send Utilization Threshold Exceeded**

- **Link Receive Utilization Threshold Exceeded**
- **Link Local Interface Inactive**
- **Link Remote Interface Inactive**
- **Link Inactive**

If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup.

The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed.

If the status reason is **Unsupported Configuration**, correct the configuration and enter the **sgm cleandiscover** command to delete all current network data and begin a clean discovery of the ITP network. If the status reason is still **Unsupported Configuration**, enter the **sgm clean** command to restore the SGM server to a "clean" state, such as would exist after a new installation of SGM. For more information on the use of these commands, see the "SGM Commands and Descriptions" section on page B-2.

Status Summary Tab: Local IP Address Information (SCTP Links Only)

To view local IP address information for the selected SCTP link, select the **Status Summary** tab.

The Local IP Address Information sub-section displays the following information for the selected link:

- **IP Address—**Local IP address associated with the link.
- **Status—**Current status of the IP address. Possible values are:
  - **Active (green ball)**—The IP address is currently fully functional.
  - **Inactive (red ball)**—The IP address is not currently functional.

Status Summary Tab: Remote IP Address Information (SCTP Links Only)

To view remote IP address information for the selected SCTP link, select the **Status Summary** tab.

The Remote IP Address Information sub-section displays the following information for the selected link:

- **IP Address—**Remote IP address associated with the link.
- **Type—**Indicates the designated primary IP address for the link (**Primary**) and the IP address currently being used by the link (**Effective**).

  Usually, the same IP address is both **Primary** and **Effective**. However, if the primary IP address is down for some reason, a different IP address is used by the link and is labeled **Effective**.
- **Status—**Current status of the IP address. Possible values are:
  - **Active (green ball)**—The IP address is currently fully functional.
  - **Inactive (red ball)**—The IP address is not currently functional.

Notes Tab

To view notes for the selected link, select the **Notes** tab.

The Notes section displays:

- Notes associated with the selected link in the left column.
- Notes associated with the adjacent link in the right column.
- The date and time the notes associated with each link were last updated, or the phrase **Not Set** if there are no notes associated with the link.
- The phrase **No Notes** if there are no notes associated with the link.

Recent Events Tab

To view information about all recent events associated with the link, select the **Recent Events** tab. SGM displays the Recent Events table for the link (Figure 3-38).

By default, SGM displays all of the columns in the table except **Internal ID**, **Note**, **Ack By**, **Ack Time**, **Node**, **SP**, **Linkset**, and **Link**. To display these columns, or to hide other columns, see the procedures in the "Modifying Event Table Column Settings" section on page 5-19.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

The Recent Events section enables you to perform event-related tasks, such as setting filters and acknowledging events. For more information about these tasks, see the "Working with Events" section on page 3-235.

The Recent Events table displays the following information for the selected link:

- **Internal ID—**Internal ID of the event. The internal ID is a unique ID for every event, link, linkset, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Ack—**Indicates whether the event has been acknowledged:
  - To acknowledge an unacknowledged event, use the **Acknowledge** toolbar button.
  - To make a previously acknowledged event unacknowledged, use the **Unacknowledge** toolbar button.
- **Category—**Type of the event. Default values are:
  - **Create**—Creation event, such as the creation of a seed file.
  - **Delete**—Deletion event, such as the deletion of a node, signaling point, linkset, or file.
  - **Discover**—Discovery event, such as Discovery beginning.
  - **Edit**—Edit event. A user has edited a node, signaling point, linkset, or link.
  - **Ignore**—Ignore event. A user has **Ignored** a link or linkset.
  - **Login**—Login event. A user has logged in to SGM.
  - **LoginDisable**—LoginDisable event. SGM has disabled a user's User-Based Access authentication as a result of too many failed attempts to log in to SGM.
  - **LoginFail**—LoginFail event. An attempt by a user to log in to SGM has failed.
  - **OverWrite**—OverWrite event. An existing file, such as a seed file or route file, has been overwritten.

  - **Poll**—Poll event, such as an SNMP poll.
  - **Purge**—Purge event. A user has requested Discovery with **Delete Existing Data** selected, and SGM has deleted the existing SGM database.
  - **Status**—Status change message generated.
  - **Trap**—SNMP trap message generated.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

- **Severity—**Severity of the event. Default values are:
  - **Admin**—The default color is cyan.
  - **Error**—The default color is coral.
  - **None**—The default color is white.
  - **Normal**—The default color is light green.
  - **Warning**—The default color is yellow.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.
- **Note—**Indicates whether there is a note associated with the event.
- **Time—**Date and time the event was logged.
- **Ack By—**If you have not implemented SGM User-Based Access, name of the device that last acknowledged the event.

  If you have implemented SGM User-Based Access, name of the user who last acknowledged the event.

  If no one has acknowledged the event, this field is blank.
- **Ack Time—**Date and time the event was last acknowledged or unacknowledged.
- **Node—**Name of the node associated with the event. If there is no node associated with the event, **None** is displayed.
- **SP—**Name of the signaling point associated with the event. If there is no signaling point associated with the event, **None** is displayed.

- **Linkset—**Name of the linkset associated with the event. If there is no linkset associated with the event, **None** is displayed.
- **Link—**Name of the link associated with the event. If there is no link associated with the event, **None** is displayed.
- **Message—**Text of the message.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

Status Details Tab

To view detailed status information for the selected link, select the **Status Details** tab.

The Status Details section displays the following information for the selected link:

- **Protocol State Details—**Detailed information about the state of the protocol for this link. Possible values are:
  - Changeback control(TCBC): Changeback control is buffering data on this link
  - Changeover control(TCOC): Changeover control is buffering data on this link
  - Link availability control(TLAC): Adjacent Signalling point is restarting
  - Link availability control(TLAC): Emergency changeover is in progress on this link
  - Link availability control(TLAC): Changeback is in progress on this link
  - Link availability control(TLAC): Changeover is in progress on this link
  - Link availability control(TLAC): The last changeover operation failed on this link
  - Link availability control(TLAC): Inhibit command will be retried
  - Link availability control(TLAC): Management request in progress for this link
  - Link availability control(TLAC): Signalling point is in the process of a restart
  - Signalling routing control(TSRC): Changeover request is complete

  - Signalling routing control(TSRC): Adjacent Signalling Point is restarting
  - Link availability control(TLAC): Link has been inhibited by a local management operation
  - Link availability control(TLAC): LInk has been inhibited by a remote management operation
  - Link availability control(TLAC): Link is blocked because of a local processor outage
  - Link availability control(TLAC): Link is blocked because of a remote processor outage

- **Link Test Results—**Indicates the results of the link test. Possible results are:
  - **No Errors**—The link did not detect any errors.
  - **Undefined OPC (Origination Point Code)**—A signaling link test message was received with an undefined OPC. This can occur when a serial link is connected incorrectly, or when an SCTP link is configured incorrectly. This differs from **Incorrect OPC** because the signaling point is unaware of the point code in question. The point code is not defined for any linkset on this ITP.
  - **Incorrect OPC (Origination Point Code)**—A signaling link test message was received with an incorrect OPC. This can occur when a serial link is connected incorrectly, or when an SCTP link is configured incorrectly. This differs from **Undefined OPC** because the signaling point is aware of the point code in question, and the point code is defined for a linkset on this ITP, but the point code is not correct for the current linkset.
  - **Undefined SLC (Signaling Link Code)**—A signaling link test message was received with an undefined SLC. This can occur when a serial link is connected incorrectly, or when an SCTP link is configured incorrectly. The link is connected to the correct linkset, but the linkset does not have a definition for the SLC in question.
  - **Incorrect SLC (Signaling Link Code)**—A signaling link test message was received with an incorrect SLC. This can occur when a serial link is connected incorrectly, or when an SCTP link is configured incorrectly. The link is connected to the correct linkset, but to the wrong link within that linkset. That is, the signaling test receives the test packet on the wrong link.

  - **Incorrect NI (Network Indicator)**—A signaling link test message was received with an incorrect NI. This can occur when links are connected to the correct linkset and link, but the NIs of the two adjacent point codes are not the same.
  - **Bad Pattern**—A signaling link test message was received with an incorrect test pattern. This error occurs because the test pattern is corrupt. This usually indicates a hardware or configuration issue related to the physical format of the data on the links, caused by a variant mismatch or incorrect definitions on the physical link.
  - **Non Adjacent**—Received a signaling link test message from a non-adjacent node.
  - **Failed**—Unable to run the test, or no response was received within the specified interval.
- **Link Fail Reason—**If the link failed the link test, indicates the reason for the failure. Possible reasons are:
  - **None**—No additional reason available.
  - **Changeover in progress**—Changeover is in progress. This message is used to divert traffic away from a failed link.
  - **Management disconnect request**—An MTP3 sent a request to stop the link.
  - **Link alignment lost**—Link alignment is lost.

    A link is in alignment when signal units are received in sequence, and with the proper number of octets. The signal unit must be a total length of eight-bit multiples. If the signal unit is not of eight-bit multiples, or if the signaling information field (SIF) exceeds the 272-octet capacity, the signaling unit is considered to be in error. If excessive errors are encountered on a link, it is considered to be out of alignment.

    For M2PA links, this state reason is generated when the M2PA alignment timer T1 expires. This could indicate that the remote link is shutdown, or that there are intermittent IP connectivity problems.
  - **Link connection lost**—Link connection is lost.
  - **Local Disconnect**—A request to disconnect the link has been received, but the link is already disconnected.
  - **Remote Disconnect**—A remote disconnect request has been received.

- **Signal unit error rate monitor failure**—The signal unit error rate monitor has failed.
- **T1 timeout no FISU received**—A T1 timeout no FISU has been received. This timer avoids message mis-sequencing during changeover.
- **T2 timeout no SIO received**—A T2 timeout no SIO has been received. This timer waits for a changeover acknowledgment.
- **T3 timeout no SIN received**—A T3 timeout no SIN has been received. This timer controls diversion-delay to avoid mis-sequencing on changeback.
- **T6 timeout excessive congestion**—A T6 timeout excessive congestion has been received. This timer avoids message mis-sequencing on controlled rerouting.
- **T7 timeout excessive acknowledgement delay**—A T7 timeout excessive acknowledgment delay has been received. The T7 timer prevents a signaling point from waiting too long for a positive or negative acknowledgment. Usually, an acknowledgment is sent when a signaling point becomes idle and does not have any more traffic to transmit. When congestion occurs at a signaling point, or an extreme amount of traffic is present, it is possible that T7 could time out and force retransmission of messages.
- **Link proving failure**—A link proving failure occurred.
- **Abnormal BSN received**—An abnormal Backward Sequence Number (BSN) has been received.
- **Abnormal FIB received**—An abnormal Forward Indicator Bit (FIB) has been received.
- **Abnormal SIB received**—An abnormal Status Indicator Busy (SIB) has been received.
- **Abnormal LSSU received**—An abnormal Link Status Signal Unit (LSSU) has been received.
- **Peer not ready**—An MTP3 tried to bring up a link that is still cleaning up after being stopped. In some cases, the MTP3 does not changeover after a link failure, so the M2PA/SCTP waits for an event that will not occur. When an MTP3 tries to bring up the link again, the previous control structures have to be cleaned up first. If M2PA gets a start request from an MTP3, and the previous structures are still being held, M2PA

cleans them up and sends a “PEER NOT READY” to the MTP3. A subsequent request to start the link from the MTP3 will then cause the link to come up.

- **Communication lost**—M2PA/SCTP has determined that the remote end signaling point is no longer reachable. Possible reasons include:

  – The maximum number of consecutive retries of a packet has been reached.

  – In the absence of data, SGM failed to receive heartbeat ACKs in response to heartbeats, for the maximum number of retries.

- **No Listen posted**—An MTP3 tried to start a link, but the local-peer port associated with the link is not available, probably because of a bad configuration.
- **Unable to allocate buffer**—M2PA/SCTP cannot get buffers for sending or receiving packets. Buffer problems can be temporary or permanent. Temporary buffer problems will generally clear with little side effects. Permanent buffer problems can lead to failed linksets or links.
- **Link card removed**—A link card has been removed.
- **Link card inserted**—A link card has been inserted.
- **False link congestion**—A false link congestion indication has been received.
- **Configuration downloading**—The configuration is downloading.

Statistics Tab: Packet Information

To view packet information for the selected link, select the **Statistics** tab.

The Packet Information sub-section displays the following information for the selected link:

- **Sent Per Sec—**Number of packets sent by the link per second. This field initially displays the phrase **Waiting for second poll**. After two polling cycles, SGM populates this field with actual calculated rates.
- **Received Per Sec—**Number of packets received by the link per second. This field initially displays the phrase **Waiting for second poll**. After two polling cycles, SGM populates this field with actual calculated rates.
- **Drops—**Total number of packets that have been dropped by the link.

- **Transmit Queue Depth—**Number of packets waiting to be sent on by the link.
- **Transmit Queue High Depth—**Highest level reached by the transmit queue since the last reboot of the ITP, or since ITP last reset the averages as a result of bad data.
- **Transmit Queue High Reset—**Level at which the link is to reset the transmit queue. If the link is never to reset the transmit queue, this field displays **Never**.
- **Signal Link Test—**Indicates whether test packets are being sent on the link. Valid values are:
  - **true (1)**—Test packets are being sent.
  - **false (2)**—Test packets are not being sent.

Statistics Tab: Bit Information or Byte Information

To view bit information for the selected link (or byte information, if you cleared the **Show Details in Bits Instead of Bytes** checkbox in the Preferences Window), select the **Statistics** tab.

The Bit Information or Byte Information sub-section displays the following information for the selected link:

- **Sent Per Sec—**Number of bits or bytes (as set in the Preferences window) sent by the link per second. This field initially displays the phrase **Waiting for second poll**. After two polling cycles, SGM populates this field with actual calculated rates.
- **Received Per Sec—**Number of bits or bytes (as set in the Preferences window) received by the link per second. This field initially displays the phrase **Waiting for second poll**. After two polling cycles, SGM populates this field with actual calculated rates.

Statistics Tab: LSSU Information

To view Links Status Signal Unit (LSSU) information for the selected link, select the **Statistics** tab.

The LSSU Information sub-section displays the following information for the selected link:

- **LSSU Packets Sent—**Total number of LSSU packets sent by the link.
- **LSSU Packets Received—**Total number of SS7 Message Transfer Part Layer 2 (MTP2) LSSU packets received by the link.

Statistics Tab: Utilization Information

To view utilization information for the selected link, select the **Statistics** tab.

The Utilization Information sub-section displays the following information for the selected link:

- **Send Plan Capacity—**Planned capacity of the link to send, in bits per second.
  - For a link of type **Serial** or **HSL**, available bandwidth for the link.
  - For a link of type **SCTPIP**, set on the ITP using the **plan-capacity** CS7 link configuration command.

    If **Send Plan Capacity** is not set on the ITP for this link, this field displays the value **0**.
  - For a link of type **Other**, this field always displays the value **0**.
- **Send Utilization—**Amount of the link's send capacity being used, as a percentage or in Erlangs (as set in the Preferences window), calculated using the following formula:

  Send Utilization = (Bits Sent Per Sec)/Planned Capacity

  This field initially displays the phrase **Waiting for second poll**. After two polling cycles, SGM populates this field with actual calculated rates.
  - For a link of type **SCTPIP** or **Mixed**, if **Send Plan Capacity** is not set on the ITP for this link, this field displays the phrase **Set Plan Capacity on ITP**.
  - For a link of type **Other**, this field always displays the phrase **Set Plan Capacity on ITP**.

- **Send Threshold %—**Indicates when a cItpSpLinkSentUtilChange is to be generated for the link, as a percent of its total send capacity. For example, if Send Plan **Capacity** is **64000** bits per second, and Send Threshold % is **50**, then a cItpSpLinkSentUtilChange notification is generated when the link reaches 50% of 64000, or 32000 bits per second.
- **Receive Plan Capacity—**Planned capacity of the link to receive, in bits per second.
  - For a link of type **Serial** or **HSL**, available bandwidth for the link.
  - For a link of type **SCTPIP**, set on the ITP using the **plan-capacity** CS7 link configuration command.

    If **Receive Plan Capacity** is not set on the ITP for this link, this field displays the value **0**.
  - For a link of type **Other**, this field always displays the value **0**.
- **Receive Utilization—**Amount of the link's receive capacity being used, as a percentage or in Erlangs (as set in the Preferences window), calculated using the following formula:

  Receive Utilization = (Bits Received Per Sec)/Receive Plan Capacity

  This field initially displays the phrase **Waiting for second poll**. After two polling cycles, SGM populates this field with actual calculated rates.
  - For a link of type **SCTPIP** or **Mixed**, if **Receive Plan Capacity** is not set on the ITP for this link, this field displays the phrase **Set Plan Capacity on ITP**.
  - For a link of type **Other**, this field always displays the phrase **Set Plan Capacity on ITP**.
- **Receive Threshold %—**Indicates when a cItpSpLinkRcvdUtilChange is to be generated for the link, as a percent of its total receive capacity. For example, if Receive Plan **Capacity** is **64000** bits per second, and Receive Threshold % is **50**, then a cItpSpLinkRcvdUtilChange notification is generated when the link reaches 50% of 64000, or 32000 bits per second.

Statistics Tab: Service Information

To view service information for the selected link, select the **Statistics** tab.

The Service Information sub-section displays the following information for the selected link:

- **Duration In Service %—**Percentage of time the link has been in service since the last reboot of the ITP, or since ITP last reset the counters.
- **Duration Out Of Service %—**Percentage of time the link has been out of service since the last reboot of the ITP, or since ITP last reset the counters.

Q.752 Measurements Tab: Error Information

To view Q.752 error information for the selected link, select the **Q.752 Measurements** tab.

The Error Information sub-section displays the following information for the selected link:

- **Link Failure Count—**Number of times the link was unavailable for signaling.
- **Alignment Error Count—**Number of errors detected during link alignment. Link alignment takes place at start up, or when trying to bring up a failed link.
- **Negative ACKs Count—**Number of errors detected during link acknowledgement.

Q.752 Measurements Tab: Inhibited Information

To view Q.752 inhibited information for the selected link, select the **Q.752 Measurements** tab.

The Inhibited Information sub-section displays the following information for the selected link:

- **Local Inhibit Onset—**Number of times a local ITP administrator has inhibited the link (that is, set the link to prevent traffic from flowing).
- **Local Inhibit Duration—**Total time the link has been locally inhibited.
- **Remote Inhibit Onset—**Number of times a remote ITP administrator has inhibited the link.
- **Remote Inhibit Duration—**Total time the link has been remotely inhibited.

Q.752 Measurements Tab: Retransmitted Information

To view Q.752 retransmitted information for the selected link, select the **Q.752 Measurements** tab.

The Retransmitted Information sub-section displays the following information for the selected link:

- **Packet Retransmitted Count—**Number of packets retransmitted by the link.
- **Byte Retransmitted Count—**Number of bytes retransmitted by the link.

Q.752 Measurements Tab: Congested Information

To view Q.752 congested information for the selected link, select the **Q.752 Measurements** tab.

The Congested Information sub-section displays the following information for the selected link:

- **Congestion Occurrences—**Number of times congestion has occurred on the link.
- **Congestion Duration—**Total time the link has been congested.
- **Congestion Level—**Level of congestion: 1, 2, or 3.
- **Packets Lost—**Number of packets lost by the link as a result of congestion at each level.
- **Times At Level With Packet Loss—**Number of times the link has been congested and has lost packets at each level.

Interface Details Tab: Configuration Information

To view detailed interface configuration information for the selected link, select the **Interface Details** tab.

The Configuration Information sub-section displays the following information for the selected link:

- **Type—**Type of interface, such as Ethernet.
- **MTU—**Size, in bytes, of the largest datagram that can be sent or received on the interface.
- **Speed (Bits/Sec)—**Estimate, in bits per second, of the interface's current bandwidth. If the interface does not vary in bandwidth, or if no accurate estimate can be made, this field displays the nominal bandwidth.

- **IP Address—**(SCTP links only) IP address corresponding to the media-dependent "physical" address. If the interface does not have such an address (for example, a serial line), this field displays **N/A**.
- **IP Mask—**(SCTP links only) Subnet mask corresponding to the media-dependent "physical" address. If the interface does not have such an address (for example, a serial line), this field displays **N/A**.
- **Physical Address—**(SCTP links only) Address of the interface at the protocol layer immediately "below" the network layer in the protocol stack. If the interface does not have such an address (for example, a serial line), this field displays **N/A**.

Interface Details Tab: Status Information

To view detailed interface status information for the selected link, select the **Interface Details** tab.

The Status Information sub-section displays the following information for the selected link:

- **ITP Uptime—**Time the link has been up, in weeks, days, hours, minutes, and seconds.
- **Admin Status—**Desired state of the interface. Possible values are:
  - **Up**
  - **Down**
  - **Testing**
- **Operational Status—**Current operational state of the interface. Possible values are:
  - **Up**
  - **Down**
  - **Testing**
  - **Unknown**
  - **Dormant**

- **Line Protocol Status—**Current state of the line protocol. Possible values are:
  - **Up**—Software processes that handle the line protocol consider the line to be usable (that is, keepalives are successful).
  - **Down—**Software processes that handle the line protocol consider the line to be unusable.

  You can use the **Line Protocol** together with **Operational Status** to troubleshoot interface connection problems. For example, if **Operational Status** is **Up**, but **Line Protocol** is **Down**, the interface has detected a carrier on the physical layer, but there might be clocking or framing problems.

Interface Details Tab: Statistics Information

To view detailed interface statistics information for the selected link, select the **Interface Details** tab.

The Statistics Information sub-section displays the following information for the selected link:

- **Bytes In per Sec—**Number of bytes received on the interface per second, including framing characters.
- **Bytes Out per Sec—**Number of bytes sent on the interface per second, including framing characters.
- **Packets In per Sec—**Number of packets delivered per second to a higher-layer protocol.
- **Packets Out per Sec—**Total number of packets that higher-level protocols requested to be sent to the network per second, including those that were discarded or not sent.

Interface Details Tab: Errors Information

To view detailed interface errors information for the selected link, select the **Interface Details** tab.

The Errors Information sub-section displays the following information for the selected link:

- **In Discards—**Number of inbound packets that were discarded, even though no errors were detected to prevent their delivery to a higher-layer protocol. For example, a packet might be discarded to free buffer space.
- **Out Discards—**Number of outbound packets that were discarded, even though no errors were detected to prevent their delivery to a higher-layer protocol. For example, a packet might be discarded to free buffer space.
- **In Errors—**Number of inbound packets that contained errors that prevented their delivery to a higher-layer protocol.
- **Out Errors—**Number of outbound packets that were not sent because of errors.

M2PA Peer Config Details Tab: Configuration Information (SCTP Links Only)

To view detailed M2PA peer configuration information for the selected SCTP link, select the **M2PA Peer Config Details** tab.

The Configuration Information sub-section displays the following information for the selected link:

- **Status—**Current status of the SCTP association. Possible values are:
  - **Closed**
  - **CookieWait**
  - **CookieEchoed**
  - **DeleteTCB**
  - **Established**
  - **ShutdownAckSent**
  - **ShutdownPending**
  - **ShutdownReceived**
  - **ShutdownSent**

  For detailed information about each status, refer to RFC 2960, Stream Control Transmission Protocol.

- **Uptime—**Time the link has been up, in weeks, days, hours, minutes, and seconds.
- **Remote Port—**Remote port number for the SCTP association.
- **Local Port—**Local port number for the SCTP association.
- **Primary IP Address—**Designated primary IP address for the SCTP association.
- **Effective IP Address—**IP address currently being used by the SCTP association.

M2PA Peer Config Details Tab: Local IP Address Information (SCTP Links Only)

To view detailed M2PA peer local IP address information for the selected SCTP link, select the **M2PA Peer Config Details** tab.

The Local IP Address Information sub-section displays the following information for the selected link:

- **IP Address**—Local IP addresses associated with the link.
- **Uptime**—Time each local IP address associated with the link has been up, in weeks, days, hours, minutes, and seconds.

M2PA Peer Config Details Tab: Remote IP Address Information (SCTP Links Only)

To view detailed M2PA peer remote IP address information for the selected SCTP link, select the **M2PA Peer Config Details** tab.

The Remote IP Address Information sub-section displays the following information for the selected link:

- **IP Address**—Remote IP addresses associated with the link.
- **Uptime**—Time each remote IP address associated with the link has been up, in weeks, days, hours, minutes, and seconds.
- **Retry Timeout (msecs)**—Time, in milliseconds, that SGM waits between attempts to connect to the remote IP address.
- **Maximum Retries**—Maximum number of times SGM will attempt to connect to the remote IP address.
- **Retries**—Number of times SGM has attempted to connect to the remote IP address.

M2PA Peer Config Details Tab: Transmission Configuration Information

To view detailed M2PA peer transmission configuration information for the selected link, select the **M2PA Peer Config Details** tab.

The Transmission Configuration Information sub-section displays the following information for the selected link:

- **MTU—**Maximum transmission unit (MTU) size to be used by this SCTP association. This is the smallest MTU size supported by any of the IP addresses used by the SCTP association.
- **In Streams—**Inbound streams as negotiated when the SCTP association was started.
- **Out Streams—**Outbound streams as negotiated when the SCTP association was started.
- **Maximum Retries—**Maximum number of data retransmissions in the SCTP association context.
- **Local Receive Window Size—**Current local receive window size for this SCTP association.
- **Remote Receive Window Size—**Current local send window size for this SCTP association.
- **Initial Retry Timeout (msecs)—**Initial timeout value, in milliseconds, permitted by the SCTP implementation for the retry timeout.
- **Minimum Retry Timeout (msecs)—**Minimum timeout value, in milliseconds, permitted by the SCTP implementation for the retry timeout.
- **Maximum Retry Timeout (msecs)—**Maximum timeout value, in milliseconds, permitted by the SCTP implementation for the retry timeout.
- **Bundle Chunks—**Indicates whether the SCTP protocol allows chunks to be bundled into a single datagram. Valid values are:
  - **true (1)**—Chunks are bundled.
  - **false (2)**—Chunks are not bundled.
- **Bundle Timeout (msecs)—**Time, in milliseconds, to wait to allow data chunks to accumulate so that they can be transmitted in the same datagram.

M2PA Peer Stats Details Tab: Remote IP Address Information (SCTP Links Only)

To view detailed M2PA peer remote IP address statistics information for the selected SCTP link, select the **M2PA Peer Stats Details** tab.

The Remote IP Address Information sub-section displays the following information for the selected link:

- **IP Address**—Remote IP addresses associated with the link.
- **Smoothed Round Trip Time (msecs)**—Average, in milliseconds, of all round-trip times between the local and remote systems on an IP network.
- **Failure Count**—Number of times the remote IP address was marked as failed.
- **Heartbeat Status**—Current status of the heartbeat associated with the remote IP address. Valid values are **Active** and **Inactive**.
- **IP Status**—Current status of the remote IP address. Valid values are **Active** and **Inactive**.

M2PA Peer Stats Details Tab: Statistics Information (per sec) Rates

To view detailed M2PA peer statistics information for the selected link, select the **M2PA Peer Stats Details** tab.

The Statistics Information (per sec) Rates sub-section displays the following information for the selected link:

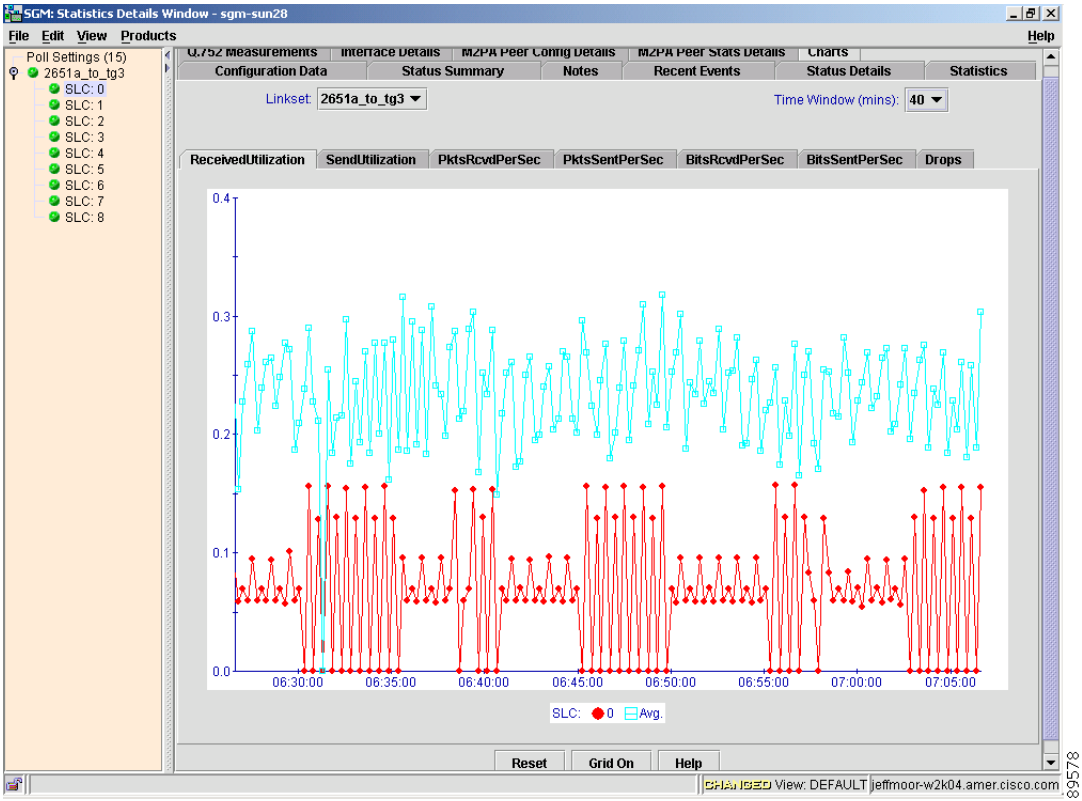
- **Packets Sent—**Number of IP datagrams sent per second by this SCTP association.
- **Packets Received—**Number of IP datagrams received per second by this SCTP association.
- **Control Chunks Sent—**Number of control chunks sent per second by this SCTP association.
- **Control Chunks Received—**Number of control chunks received per second by this SCTP association.
- **Ordered Chunks Sent—**Number of ordered chunks sent per second by this SCTP association.
- **Ordered Chunks Received—**Number of ordered chunks received per second by this SCTP association.
- **Unordered Chunks Sent—**Number of unordered chunks sent per second by this SCTP association.

- **Unordered Chunks Received—**Number of unordered chunks received per second by this SCTP association.
- **Retransmitted Chunks—**Number of chunks retransmitted per second by this SCTP association.
- **Retransmitted Fast Chunks—**Number of fast chunks retransmitted per second by this SCTP association.

Charts Tab: ReceivedUtilization

To view real-time ReceivedUtilization information for the selected link, select the **Charts** tab. SGM displays the ReceivedUtilization chart (Figure 3-40).

Figure 3-40 ReceivedUtilization Chart for a Link



The ReceivedUtilization chart displays the following information for the selected link:

- **Linkset**—Drop-down list box used to select the linkset from whose perspective data is to be displayed. By default, data is displayed from the perspective of the selected linkset. To display data from the perspective of the adjacent linkset, select it in this list box.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **Received Utilization Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.
- **Received Utilization Chart**—Displays the **Receive Utilization %** for the link as a function of time, as well as the average **Receive Utilization %** for all links on the linkset.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh***:***mm***:***ss***,** *dd***.***dd*), where:

  - *hh***:***mm***:***ss* is the time for that data point in hours, minutes, and seconds.
  - *dd***.***dd* is the receive utilization percentage for that data point.

  To remove the data for a link or for the average from the chart, click the icon in the **SLC** field. To return the data to the chart, click the icon again.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.

- **SLC**—Displays up to 17 color-coded icons:
  - One for each link (SLC) in the **Received Utilization Chart**, up to 16 total links.
  - One for the average of all SLCs.

  To remove the data for a link or for the average from the chart, click the icon in this field. To return the data to the chart, click the icon again.

To superimpose a graphic grid on the chart, which can make the data easier to read, click **Grid On**.

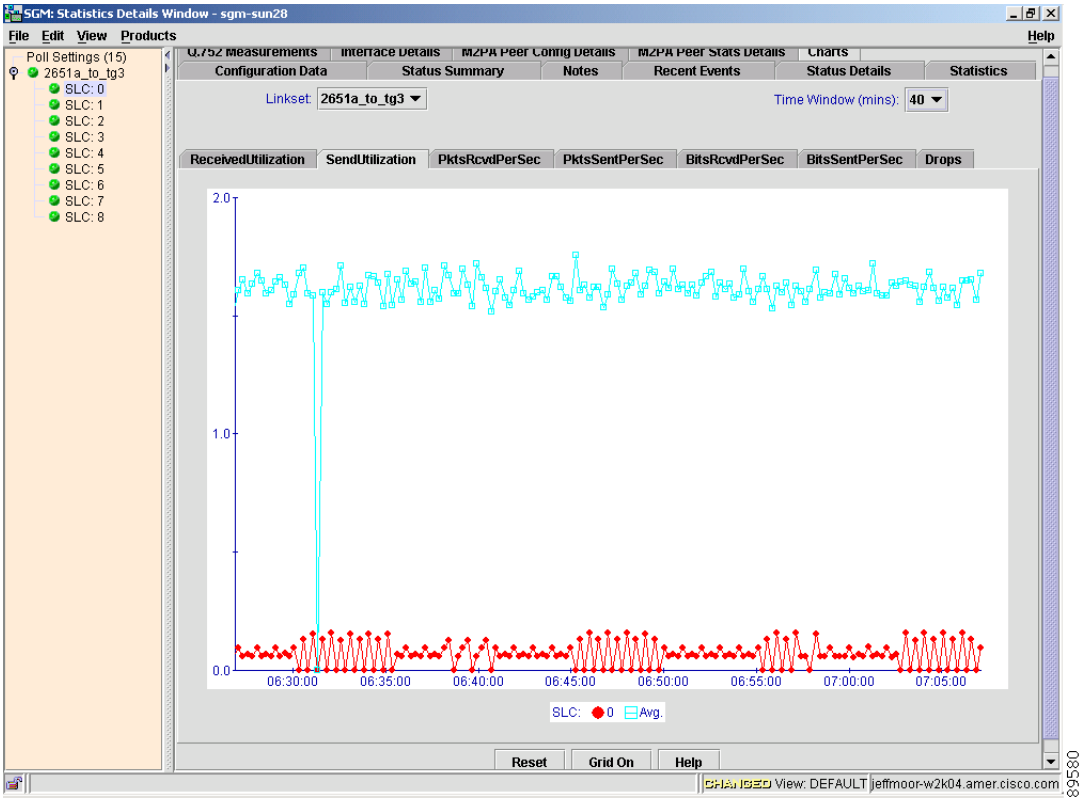
To remove the graphic grid from the chart, click **Grid Off**.

To display online help for the window, click **Help**.

Charts Tab: SendUtilization

To view real-time SendUtilization information for the selected link, select the **Charts** tab. SGM displays the SendUtilization chart (Figure 3-41).

Figure 3-41 SendUtilization Chart for a Link



The SendUtilization chart displays the following information for the selected link:

- **Linkset**—Drop-down list box used to select the linkset from whose perspective data is to be displayed. By default, data is displayed from the perspective of the selected linkset. To display data from the perspective of the adjacent linkset, select it in this list box.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **Send Utilization Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.
- **Send Utilization Chart**—Displays the **Send Utilization %** for the link as a function of time, as well as the average **Send Utilization %** for all links on the linkset.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where:

  - *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds.
  - *dd*.*dd* is the send utilization percentage for that data point.

  To remove the data for a link or for the average from the chart, click the icon in the **SLC** field. To return the data to the chart, click the icon again.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.

- **SLC**—Displays up to 17 color-coded icons:
  - One for each link (SLC) in the **Send Utilization Chart**, up to 16 total links.
  - One for the average of all SLCs.

  To remove the data for a link or for the average from the chart, click the icon in this field. To return the data to the chart, click the icon again.

To superimpose a graphic grid on the chart, which can make the data easier to read, click **Grid On**.

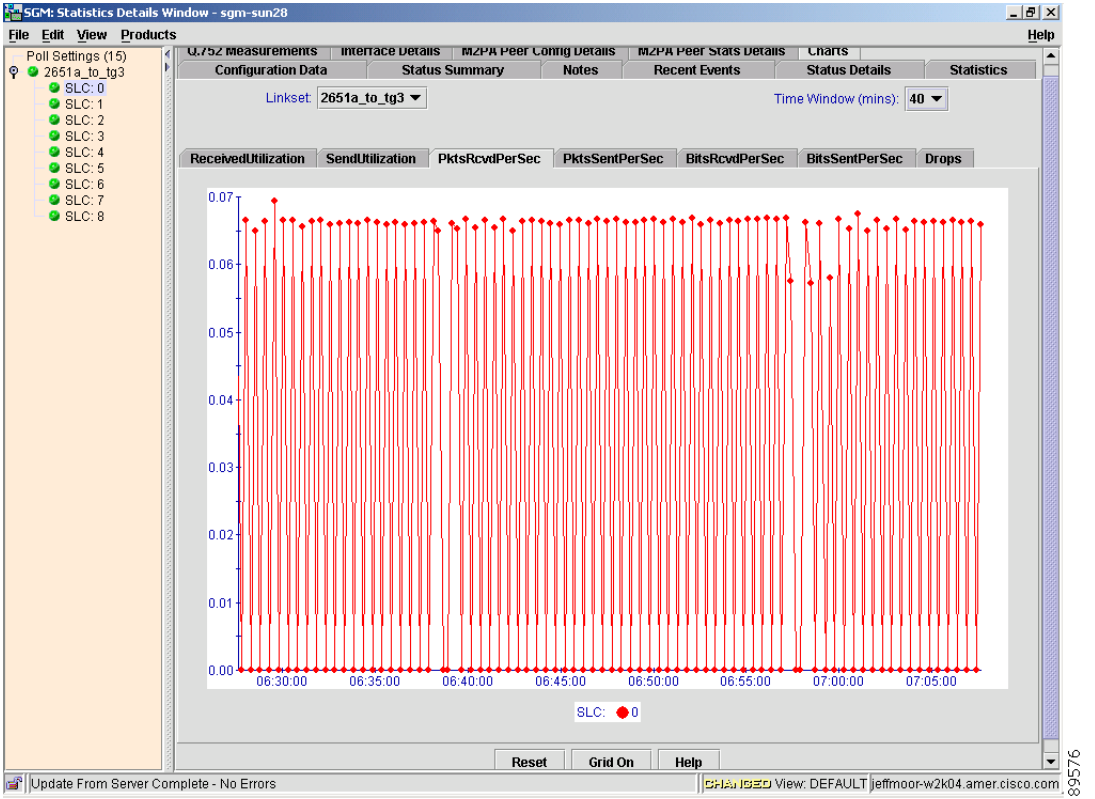
To remove the graphic grid from the chart, click **Grid Off**.

To display online help for the window, click **Help**.

Charts Tab: PktsRcvdPerSec

To view real-time packets-received-per-second information for the selected link, select the **Charts** tab. SGM displays the PktsRcvdPerSec chart (Figure 3-42).

Figure 3-42 PktsRcvdPerSec Chart for a Link



The PktsRcvdPerSec chart displays the following information for the selected link:

SGM displays the following information in the PktsRcvdPerSec chart:

- **Linkset**—Drop-down list box used to select the linkset from whose perspective data is to be displayed. By default, data is displayed from the perspective of the selected linkset. To display data from the perspective of the adjacent linkset, select it in this list box.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **Packets Received Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.

- **Packets Received Chart**—Displays the **Packets Received Per Sec** for the link as a function of time.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where:

  - *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds.
  - *dd*.*dd* is the number of packets received per second for that data point.

  To remove the data for a link from the chart, click the icon in the **SLC** field. To return the data to the chart, click the icon again.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.

- **SLC**—Displays up to 16 color-coded icons, one for each link (SLC) in the **Packets Received Chart**. To remove the data for a link from the chart, click the icon in this field. To return the data to the chart, click the icon again.

To superimpose a graphic grid on the chart, which can make the data easier to read, click **Grid On**.

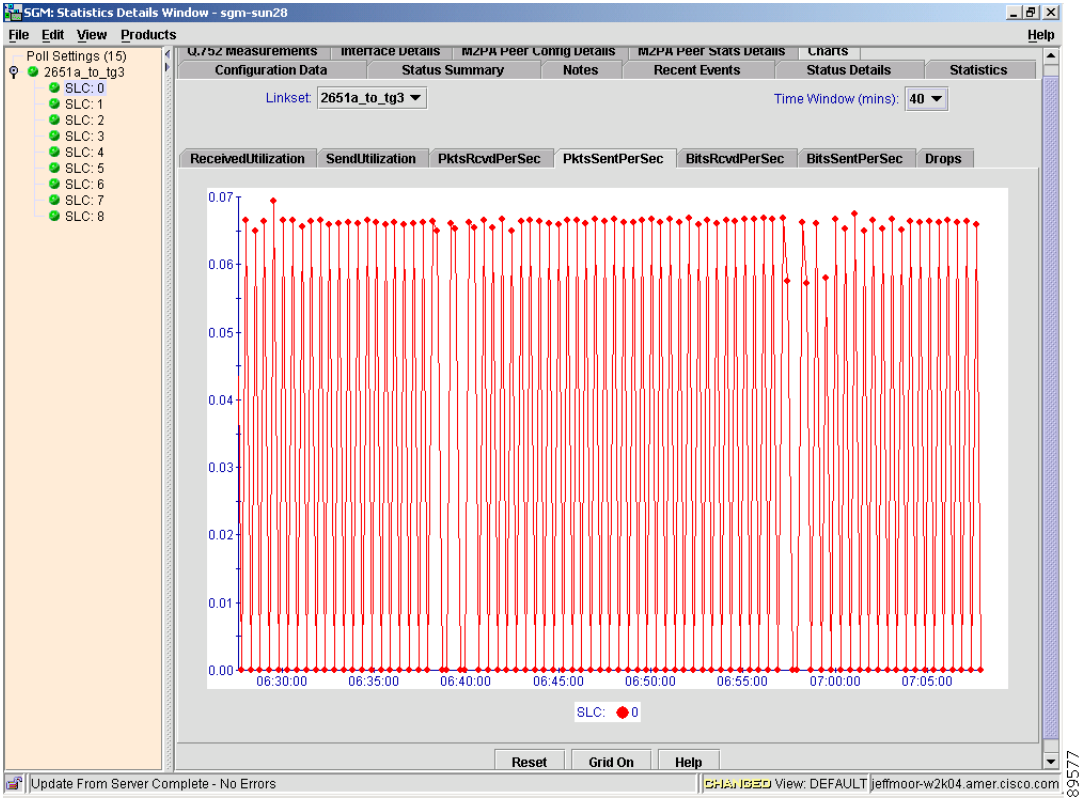
To remove the graphic grid from the chart, click **Grid Off**.

To display online help for the window, click **Help**.

Charts Tab: PktsSentPerSec

To view real-time packets-sent-per-second information for the selected link, select the **Charts** tab. SGM displays the PktsSentPerSec chart (Figure 3-43).

Figure 3-43 PktsSentPerSec Chart for a Link



The PktsSentPerSec chart displays the following information for the selected link:

SGM displays the following information in the PktsSentPerSec chart:

- **Linkset**—Drop-down list box used to select the linkset from whose perspective data is to be displayed. By default, data is displayed from the perspective of the selected linkset. To display data from the perspective of the adjacent linkset, select it in this list box.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **Packets Sent Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.

- **Packets Sent Chart**—Displays the **Packets Sent Per Sec** for the link as a function of time.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where:

  - *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds.
  - *dd*.*dd* is the number of packets sent per second for that data point.

  To remove the data for a link from the chart, click the icon in the **SLC** field. To return the data to the chart, click the icon again.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.

- **SLC**—Displays up to 16 color-coded icons, one for each link (SLC) in the **Packets Sent Chart**. To remove the data for a link from the chart, click the icon in this field. To return the data to the chart, click the icon again.

To superimpose a graphic grid on the chart, which can make the data easier to read, click **Grid On**.

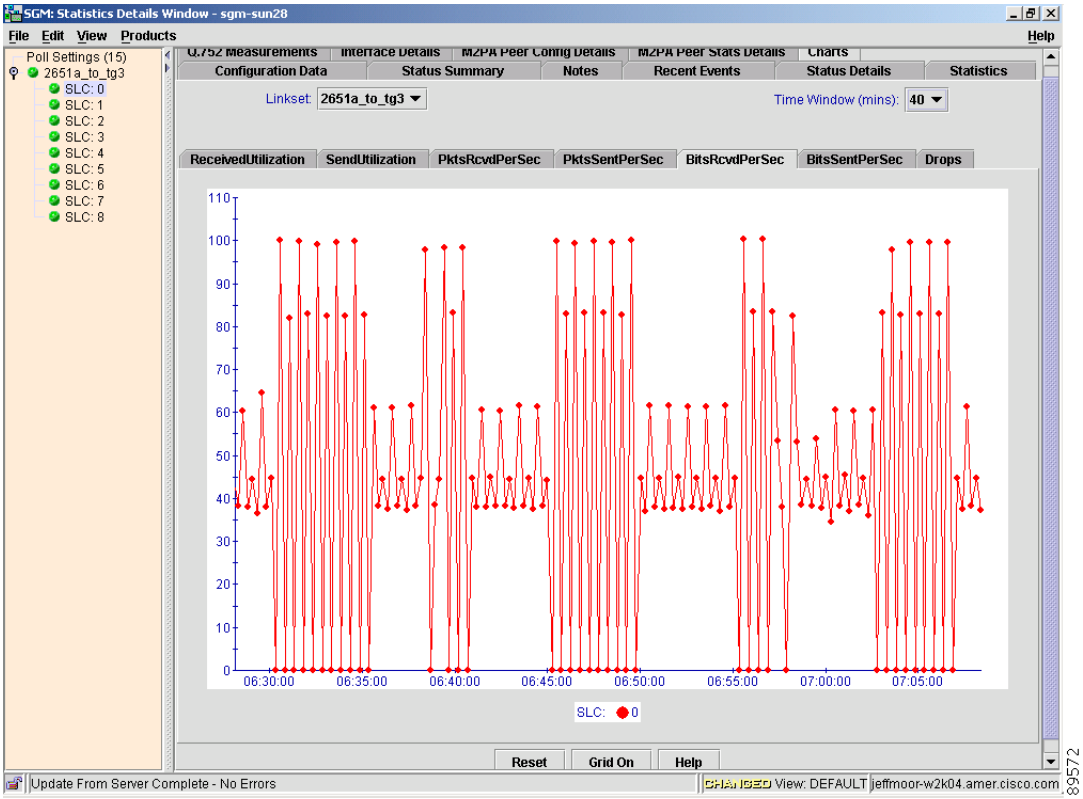
To remove the graphic grid from the chart, click **Grid Off**.

To display online help for the window, click **Help**.

Charts Tab: BitsRcvdPerSec

To view real-time bits-received-per-second information for the selected link (or bytes-received-per-second information, if you cleared the **Show Details in Bits Instead of Bytes** checkbox in the Preferences Window), select the **Charts** tab. SGM displays the BitsRcvdPerSec chart (Figure 3-44).

Figure 3-44 BitsRcvdPerSec Chart for a Link



The BitsRcvdPerSec chart displays the following information for the selected link:

- **Linkset**—Drop-down list box used to select the linkset from whose perspective data is to be displayed. By default, data is displayed from the perspective of the selected linkset. To display data from the perspective of the adjacent linkset, select it in this list box.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **Bits Received Chart** or **Bytes Received Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.
- **Bits Received Chart** or **Bytes Received Chart**—Displays the **Bits Received Per Sec** or **Bytes Received Per Sec** for the link as a function of time.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh***:***mm***:***ss***,** *dd***.***dd*), where:

  – *hh***:***mm***:***ss* is the time for that data point in hours, minutes, and seconds.

  – *dd***.***dd* is the number of bits or bytes (as set in the Preferences window) received per second for that data point.

  To remove the data for a link from the chart, click the icon in the **SLC** field. To return the data to the chart, click the icon again.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.

- **SLC**—Displays up to 16 color-coded icons, one for each link (SLC) in the **Bits Received Chart** or **Bytes Received Chart**. To remove the data for a link from the chart, click the icon in this field. To return the data to the chart, click the icon again.

To superimpose a graphic grid on the chart, which can make the data easier to read, click **Grid On**.

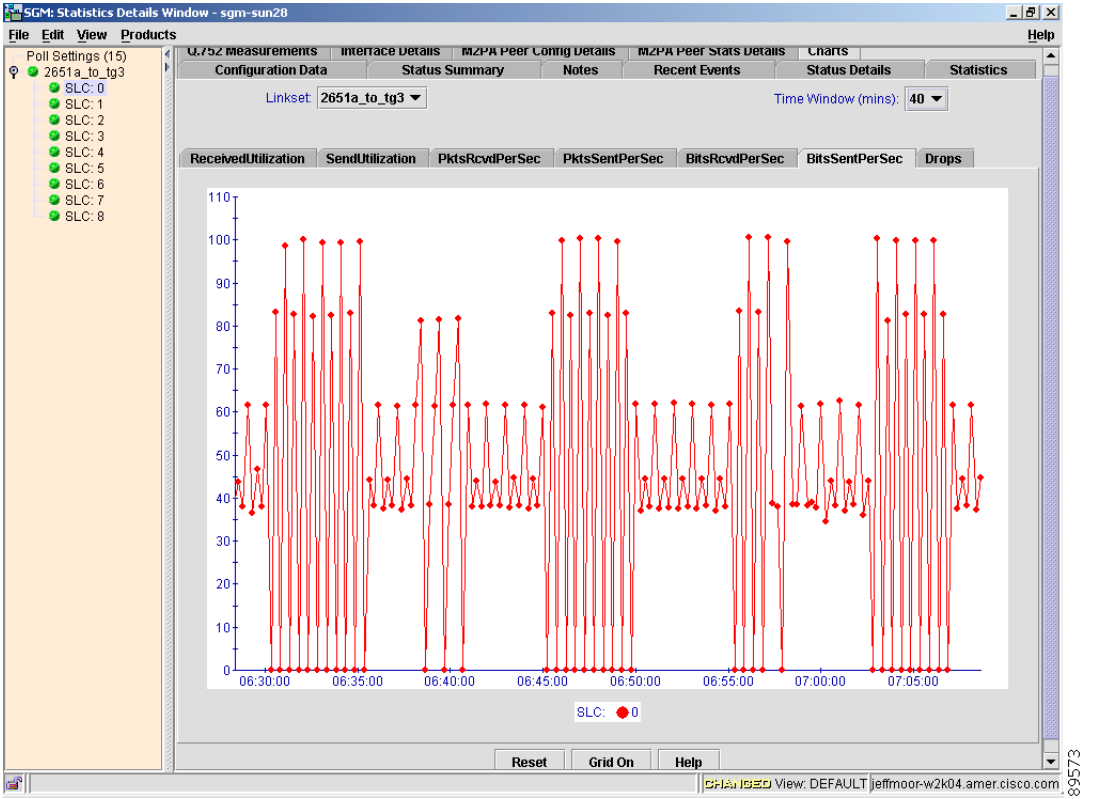
To remove the graphic grid from the chart, click **Grid Off**.

To display online help for the window, click **Help**.

Charts Tab: BitsSentPerSec

To view real-time bits-sent-per-second information for the selected link (or bytes-sent-per-second information, if you cleared the **Show Details in Bits Instead of Bytes** checkbox in the Preferences Window), select the **Charts** tab. SGM displays the BitsSentPerSec chart (Figure 3-45).

Figure 3-45 BitsSentPerSec Chart for a Link



The BitsSentPerSec chart displays the following information for the selected link:

SGM displays the following information in the BitsSentPerSec or BytesSentPerSec chart:

- **Linkset**—Drop-down list box used to select the linkset from whose perspective data is to be displayed. By default, data is displayed from the perspective of the selected linkset. To display data from the perspective of the adjacent linkset, select it in this list box.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **Bits Sent Chart** or **Bytes Sent Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.

- **Bits Sent Chart** or **Bytes Sent Chart**—Displays the **Bits Sent Per Sec** or **Bytes Sent Per Sec** for the link as a function of time.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where:

  - *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds.
  - *dd*.*dd* is the number of bits or bytes (as set in the Preferences window) sent per second for that data point.

  To remove the data for a link from the chart, click the icon in the **SLC** field. To return the data to the chart, click the icon again.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.

- **SLC**—Displays up to 16 color-coded icons, one for each link (SLC) in the **Bits Sent Chart** or **Bytes Sent Chart**. To remove the data for a link from the chart, click the icon in this field. To return the data to the chart, click the icon again.

To superimpose a graphic grid on the chart, which can make the data easier to read, click **Grid On**.

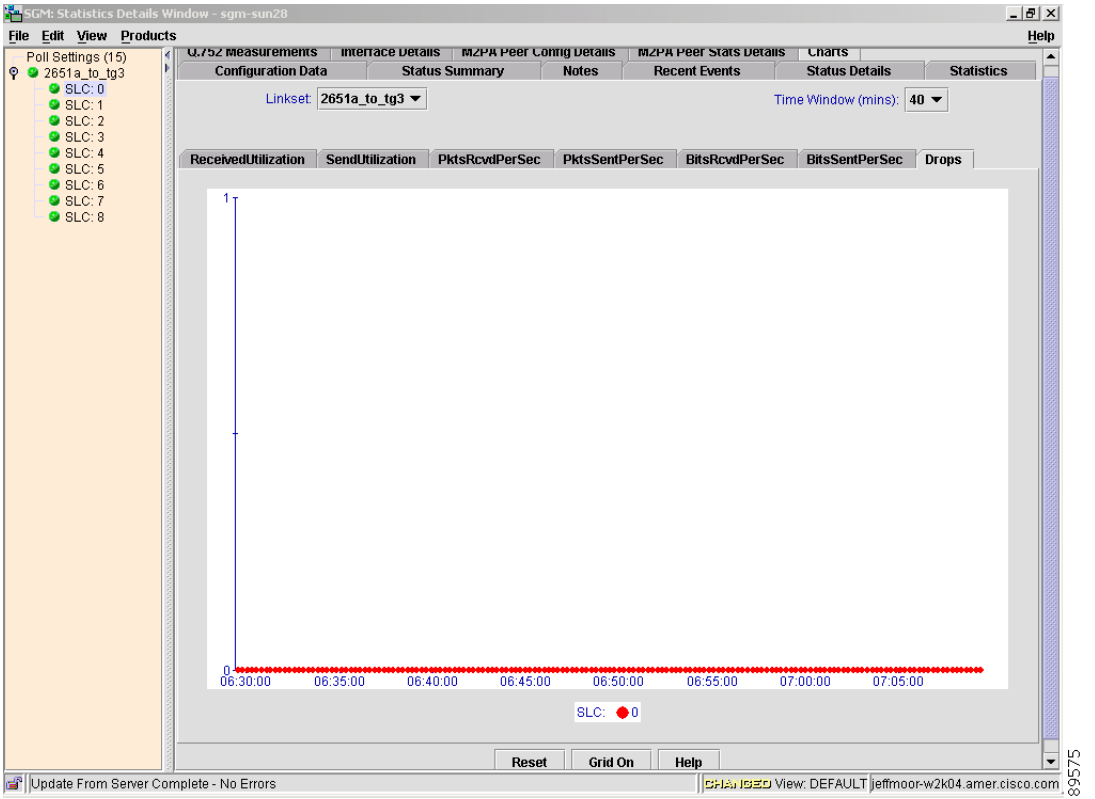
To remove the graphic grid from the chart, click **Grid Off**.

To display online help for the window, click **Help**.

Charts Tab: Drops

To view drops information for the selected link, select the **Charts** tab. SGM displays the Drops chart (Figure 3-46).

Figure 3-46 Drops Chart for a Link



The Drops chart displays the following information for the selected link:

- **Linkset**—Drop-down list box used to select the linkset from whose perspective data is to be displayed. By default, data is displayed from the perspective of the selected linkset. To display data from the perspective of the adjacent linkset, select it in this list box.
- **Time Window (mins)**—Drop-down list box used to specify the length of time displayed in the **Drops Chart**. Valid selections are 1, 2, 5, 10, 20, 40, or 60 minutes. The default selection is 5 minutes.
- **Drops Chart**—Displays the **Drops** for the link as a function of time.

  To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh***:***mm***:***ss***,** *dd***.***dd*), where:

  - *hh***:***mm***:***ss* is the time for that data point in hours, minutes, and seconds.
  - *dd***.***dd* is the number of drops for that data point.

  To remove the data for a link from the chart, click the icon in the **SLC** field. To return the data to the chart, click the icon again.

  The total time displayed in the chart is specified in the **Time Window (mins)** field.

  New data points are added to the right side of the chart. When the chart reaches the end of the time window (for example, after 5 minutes, if the **Time Window (mins)** field is set to 5), new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart.

  If a poll is missed (for example, as a result of an SNMP timeout), SGM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again.

  To scroll left, right, up, or down in the chart, drag the cursor while holding down **Ctrl** and the left mouse button.

  To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button.

  To reset the chart to the default view and scaling, click **Reset**.
- **SLC**—Displays up to 16 color-coded icons, one for each link (SLC) in the **Drops Chart**. To remove the data for a link from the chart, click the icon in this field. To return the data to the chart, click the icon again.

To superimpose a graphic grid on the chart, which can make the data easier to read, click **Grid On**.

To remove the graphic grid from the chart, click **Grid Off**.

To display online help for the window, click **Help**.

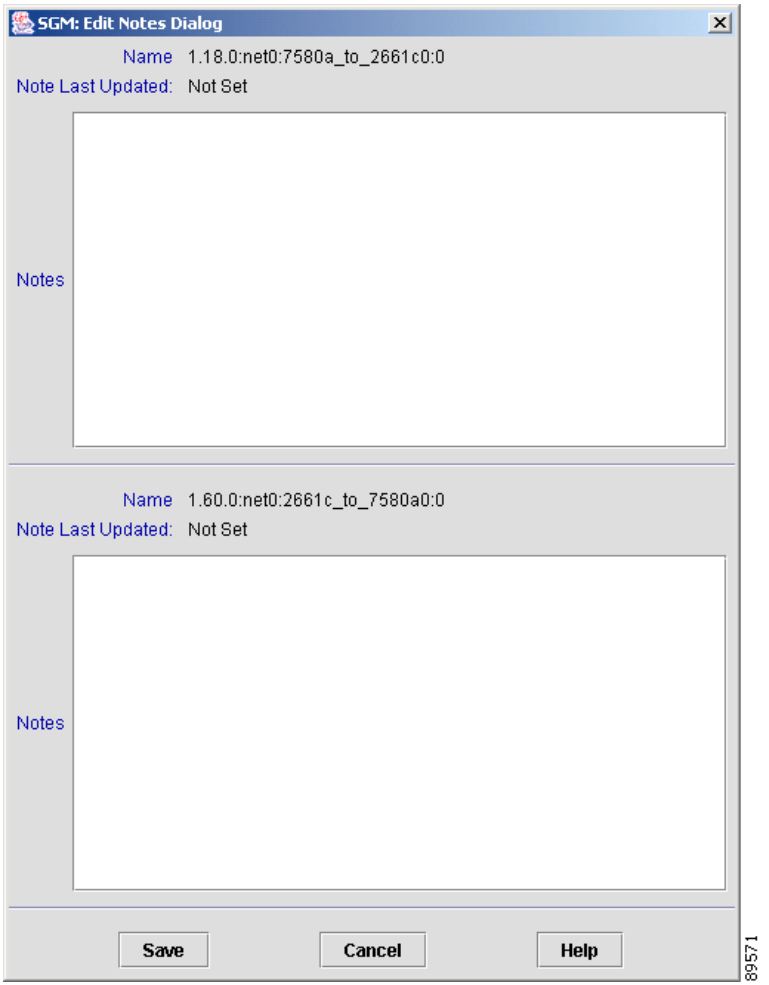
Editing a Link

SGM enables you to annotate a link, attaching a descriptive string to the link.

To annotate a link, right-click a link in a window, then select **Edit Notes** in the right-click menu.

SGM displays the Edit Notes Dialog for a Link (Figure 3-47).

Figure 3-47 Edit Notes Dialog for a Link



The Edit Notes Dialog for a Link displays the name of the link and the date and time the **Notes** field for the link was last updated. If there is no note currently associated with the link, the **Last Update** field displays the value **Not Set**.

In the **Notes** field, enter any important information about the link, such as a detailed description, its location, its service history, and so on.

Click **Save** to save the annotations and exit the Edit Notes Dialog for a Link.

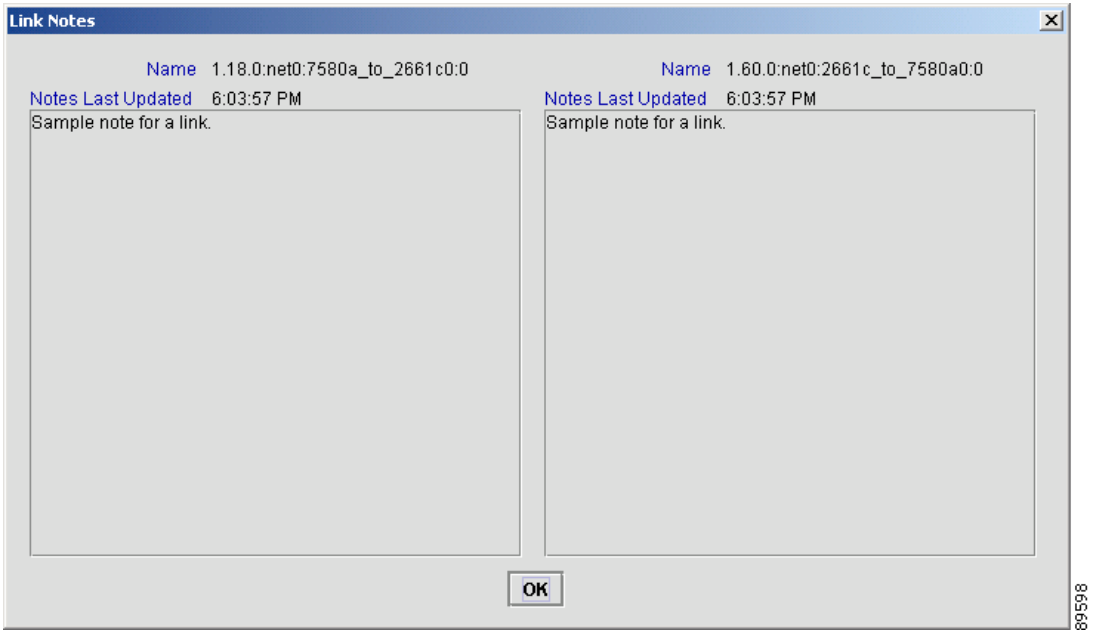
Viewing Notes for a Link

SGM enables you to view the notes that have been attached to links.

To view a note, right-click a link in a window, then select **View>Notes** in the right-click menu. (The **Notes** option is grayed-out if there is no note associated with the selected link.)

SGM displays the Link Notes dialog (Figure 3-48).

Figure 3-48 Link Notes Dialog



The Link Notes dialog displays the following information:

- **Name**—Name of the link.
- **Notes Last Updated**—Date and time the **Notes** field for the link was last updated.
- **Notes**—Notes associated with the link.

Click **OK** to close the Link Notes dialog.

Deleting a Link

After Discovery, the links in your network are known to SGM and added to the SGM database. Physically deleting links from your network is not the same as deleting them from the SGM database. The following sections describe the differences between deleting links from your network and from the SGM database, and the procedures for doing so:

- Deleting a Link from Your Network, page 3-233
- Deleting a Link from the SGM Database, page 3-234

Deleting a Link from Your Network

If you physically delete a known link from your network, it remains in the SGM database, and SGM labels it **Unknown**, and it is the system administrator's responsibility to delete it from the SGM database, if you choose to do so. The Link Details Window also displays **-1** in the **Xmit Queue** field. SGM labels all associated nodes, signaling points, and linksets **Warning**.

When you redefine the link (that is, when you define a link with the same signaling link code ID [SLC] as the original link), SGM rediscovers the link and labels it with the appropriate status (such as **Active**).

Deleting a Link from the SGM Database

Typically, you delete a link in the SGM database for one of the following reasons:

- You have physically deleted the link from your network. This is the most common reason for deleting a link from the SGM database.
- The link is **Blocked**, **Failed**, or **Unknown**, you are aware of the reason, and you no longer want to see it in SGM displays. For example, the link might be associated with a linkset that was removed from the network, or it might be a previously discovered link associated with a test lab device.

If you have physically deleted a known link from your network, and you then delete it from SGM, it is no longer in the SGM database, it does not appear in SGM windows, and it is not discovered when you run Discovery.

If you have *not* physically deleted a known link from your network, and you delete it from SGM, at the next poll SGM finds the link and adds it back to the SGM database, setting the status appropriately. If this happens, do not delete the link again. Instead, set it to **Ignored**. See the "Ignoring a Link" section on page 3-235 for more information.

Note If you delete a link from the SGM database, the link is deleted for *all* SGM clients and views connected to that SGM server.

To delete a link from the SGM database, use one of the following procedures:

- Select a link in the Link Details window (Figure 3-37), then select **Edit > Delete** from the SGM Main Menu.
- Right-click a link in the Link Details window, then select **Delete Link** from the right-click menu.

SGM asks you to confirm the deletion.

- Select **Yes** to delete the selected link. SGM deletes the link from the SGM database. However, if the link was not physically deleted from your network, then at the next poll SGM finds the link and adds it back to the SGM database, setting the status appropriately.
- Select **No** to return to the Link Details window without deleting the link from the SGM database.

Ignoring a Link

You can instruct SGM to ignore a link when it aggregates and displays network data. Setting links to **Ignored** prevents known link problems from affecting SGM displays for associated linksets and nodes. In effect, you are preventing a known problem from distracting you from other, more urgent network problems.

For example, you can set a link to **Ignored** before shutting down the link for maintenance.

Note If you set a link to **Ignored**, the link is ignored for *all* SGM clients and views connected to that SGM server.

Also, if you set a link to **Ignored**, make a note of the change, and do not forget to reset the link when the problem is corrected or the maintenance is complete.

To set a link to **Ignored**, right-click the link in the Link Details window (Figure 3-37), then select **Ignore** from the right-click menu.

Viewing Ignored Links

To display all links that are **Ignored**, display the Link Window and click the **Ignored** column header. SGM displays all ignored links at the top of the table.

Working with Events

SGM enables you to view detailed information about all discovered events, including their associated nodes, signaling points, linksets, links, and other information.

This section includes the following information:

- Setting an Event Filter, page 3-244
- Viewing Event Properties, page 3-253
- Attaching a Note to an Event, page 3-256
- Viewing Notes for an Event, page 3-258

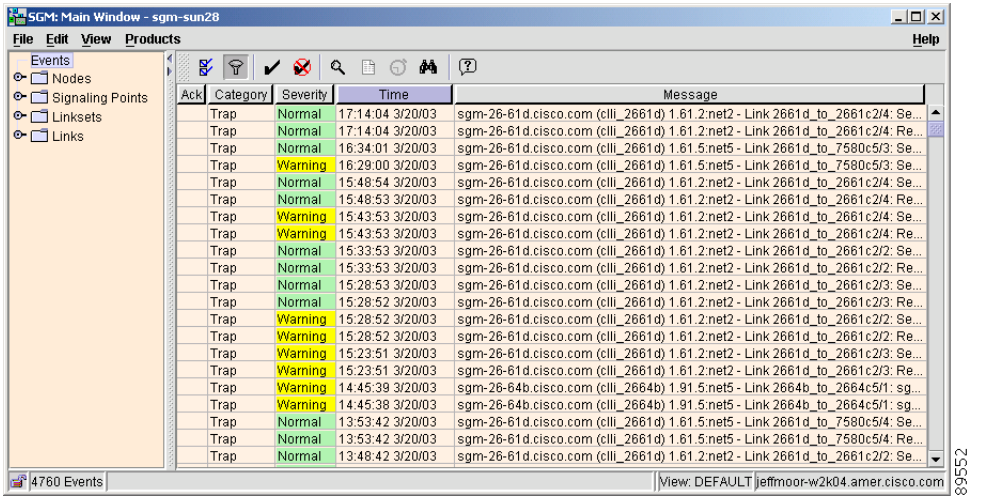
Related Topics:

- Modifying the SGM Event Configuration File (Solaris Only), page 5-26
- Modifying Preference Settings, page 5-3
- Setting Sounds for Events at an SGM Client, page 5-40
- Viewing the Topology of the Network, page 3-259
- Working with Links, page 3-170
- Working with Linksets, page 3-37
- Working with Nodes, page 3-91

Viewing Basic Information for All Events

To view basic information for all events, select **Events** in the left pane of the SGM Main Window. SGM displays the Event Window (Figure 3-49).

Figure 3-49 Event Window



The Event Window displays information about the events delivered by the SGM event logger and event processor for all nodes, signaling points, linksets, and links in the current network view.

Note You can display more than one Event Window at one time. This enables you to view multiple Event Windows at the same time, with different event filtering in each window or dialog.

By default, SGM displays all of the columns in the table except **Internal ID**, **Note**, **Ack By**, **Ack Time**, **Node**, and **Linkset**. To display these columns, or to hide other columns, see the procedures in the "Modifying Event Table Column Settings" section on page 5-19.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

The Event Window provides the following toolbar buttons:

- **Set Filter—**Opens the Event Filter dialog.
- **Apply Filter—**Activates and deactivates the event filter specified in the Event Filter dialog:
  - If the filter is activated, SGM displays only those events that pass the filter.
  - If the filter is deactivated, SGM displays all events.
- **Acknowledge—**Makes s the selected event or events acknowledged.
- **Unacknowledge—**Makes the selected event or events unacknowledged.
- **Event Properties—**Opens the Event Properties window.
- **Edit Notes—**Opens the Edit Event Dialog.
- **Time Difference—**Displays the difference in days, minutes, hours, and seconds between two events.
- **Find—**Finds a specific event.
- **Help for Event—**Displays context-sensitive help for the selected event in a separate Web browser.

The Event Window displays the following information for each event:

- **Internal ID**—Internal ID of the event. The internal ID is a unique ID for every event, link, linkset, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Ack**—Indicates whether the event has been acknowledged:
  - To acknowledge an unacknowledged event, use the **Acknowledge** toolbar button.
  - To make a previously acknowledged event unacknowledged, use the **Unacknowledge** toolbar button.
- **Category**—Type of the event. Default values are:
  - **Create**—Creation event, such as the creation of a seed file.
  - **Delete**—Deletion event, such as the deletion of a node, signaling point, linkset, or file.
  - **Discover**—Discovery event, such as Discovery beginning.

  - **Edit**—Edit event. A user has edited a node, signaling point, linkset, or link.
  - **Ignore**—Ignore event. A user has **Ignored** a link or linkset.
  - **Login**—Login event. A user has logged in to SGM.
  - **LoginDisable**—LoginDisable event. SGM has disabled a user's User-Based Access authentication as a result of too many failed attempts to log in to SGM.
  - **LoginFail**—LoginFail event. An attempt by a user to log in to SGM has failed.
  - **OverWrite**—OverWrite event. An existing file, such as a seed file or route file, has been overwritten.
  - **Poll**—Poll event, such as an SNMP poll.
  - **Purge**—Purge event. A user has requested Discovery with **Delete Existing Data** selected, and SGM has deleted the existing SGM database.
  - **Status**—Status change message generated.
  - **Trap**—SNMP trap message generated.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

- **Severity**—Severity of the event. Default values are:
  - **Admin**—The default color is cyan.
  - **Error**—The default color is coral.
  - **None**—The default color is white.
  - **Normal**—The default color is light green.
  - **Warning**—The default color is yellow.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.
- **Note**—Indicates whether there is a note associated with the event.
- **Time**—Date and time the event was logged.

- **Ack By**—If you have not implemented SGM User-Based Access, name of the device that last acknowledged the event.

  If you have implemented SGM User-Based Access, name of the user who last acknowledged the event.

  If no one has acknowledged the event, this field is blank.
- **Ack Time**—Date and time the event was last acknowledged or unacknowledged.
- **Node**—Name of the node associated with the event. If there is no node associated with the event, **None** is displayed.
- **SP**—Name of the signaling point associated with the event. If there is no signaling point associated with the event, **None** is displayed.
- **Linkset**—Name of the linkset associated with the event. If there is no linkset associated with the event, **None** is displayed.
- **Link**—Name of the link associated with the event. If there is no link associated with the event, **None** is displayed.
- **Message**—Message associated with the event.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

Viewing Events for a Specific Object

To display the Recent Events panel, with events displayed for only the selected node, signaling point, linkset, or link, right-click a node, signaling point, linkset, or link in a window, then select **View>Events** from the right-click menu.

- If you right-clicked a node, SGM displays the Recent Events panel for the node (Figure 3-25). For more information, see the "Viewing Detailed Information for a Node" section on page 3-96.
- If you right-clicked a signaling point, SGM displays the Recent Events panel for the signaling point (Figure 3-32).
- If you right-clicked a linkset, SGM displays the Recent Events panel for the linkset (Figure 3-12).
- If you right-clicked a link, SGM displays the Recent Events panel for the link (Figure 3-38).

By default, SGM displays all of the columns in the Recent Events panel except **Internal ID**, **Note**, **Ack By**, **Ack Time**, **Node**, **SP**, **Linkset**, and **Link**. To display these columns, or to hide other columns, see the procedures in the "Modifying Event Table Column Settings" section on page 5-19.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

The Recent Events panel enables you to perform event-related tasks, such as setting filters and acknowledging events. For more information about these tasks, see the "Working with Events" section on page 3-235.

The Recent Events panel displays the following information for the selected node:

- **Internal ID—**Internal ID of the event. The internal ID is a unique ID for every event, link, linkset, signaling point, and node, assigned by SGM for its own internal use. It can also be useful when the TAC is debugging problems.
- **Ack—**Indicates whether the event has been acknowledged:
  - To acknowledge an unacknowledged event, use the **Acknowledge** toolbar button.
  - To make a previously acknowledged event unacknowledged, use the **Unacknowledge** toolbar button.
- **Category—**Type of the event. Default values are:
  - **Create**—Creation event, such as the creation of a seed file.
  - **Delete**—Deletion event, such as the deletion of a node, signaling point, linkset, or file.
  - **Discover**—Discovery event, such as Discovery beginning.
  - **Edit**—Edit event. A user has edited a node, signaling point, linkset, or link.
  - **Ignore**—Ignore event. A user has **Ignored** a link or linkset.
  - **Login**—Login event. A user has logged in to SGM.

  - **LoginDisable**—LoginDisable event. SGM has disabled a user's User-Based Access authentication as a result of too many failed attempts to log in to SGM.
  - **LoginFail**—LoginFail event. An attempt by a user to log in to SGM has failed.
  - **OverWrite**—OverWrite event. An existing file, such as a seed file or route file, has been overwritten.
  - **Poll**—Poll event, such as an SNMP poll.
  - **Purge**—Purge event. A user has requested Discovery with **Delete Existing Data** selected, and SGM has deleted the existing SGM database.
  - **Status**—Status change message generated.
  - **Trap**—SNMP trap message generated.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

- **Severity—**Severity of the event. Default values are:
  - **Admin**—The default color is cyan.
  - **Error**—The default color is coral.
  - **None**—The default color is white.
  - **Normal**—The default color is light green.
  - **Warning**—The default color is yellow.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.
- **Note—**Indicates whether there is a note associated with the event.
- **Time—**Date and time the event was logged.
- **Ack By—**If you have not implemented SGM User-Based Access, name of the device that last acknowledged the event.

  If you have implemented SGM User-Based Access, name of the user who last acknowledged the event.

  If no one has acknowledged the event, this field is blank.

- **Ack Time—**Date and time the event was last acknowledged or unacknowledged.
- **Node—**Name of the node associated with the event. If there is no node associated with the event, **None** is displayed.
- **SP—**Name of the signaling point associated with the event. If there is no signaling point associated with the event, **None** is displayed.
- **Linkset—**Name of the linkset associated with the event. If there is no linkset associated with the event, **None** is displayed.
- **Link—**Name of the link associated with the event. If there is no link associated with the event, **None** is displayed.
- **Message—**Text of the message.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

Viewing Detailed Information for an Event

SGM enables you to display detailed configuration information for the node, signaling point, linkset, or link associated with a specific event.

To display detailed information for an event, select **Events** in the left pane of the SGM Main Window, right-click an event in a window, then select **View > Configuration Details** in the right-click menu.

- If the event is associated with a node, SGM displays the Configuration Data tab of the Node Details Window (Figure 3-24). For more information, see the "Viewing Detailed Information for a Node" section on page 3-96.
- If the event is associated with a signaling point, SGM displays the Configuration Data tab of the Signaling Point Details Window (Figure 3-31). For more information, see the "Viewing Detailed Information for a Signaling Point" section on page 3-141.
- If the event is associated with a linkset, SGM displays the Configuration Data tab of the Linkset Details Window (Figure 3-11). For more information, see the "Viewing Detailed Information for a Linkset" section on page 3-42.

- If the event is associated with a link, SGM displays the Configuration Data tab of the Link Details Window (Figure 3-37). For more information, see the "Viewing Detailed Information for a Link" section on page 3-175.

Viewing Real-Time Data for an Event

SGM enables you to display detailed statistics for the node, linkset, or link associated with a specific event.

To display detailed statistics for an event, select **Events** in the left pane of the SGM Main Window, right-click an event in the right pane, then select **View > Real-Time Data and Charts** in the right-click menu.

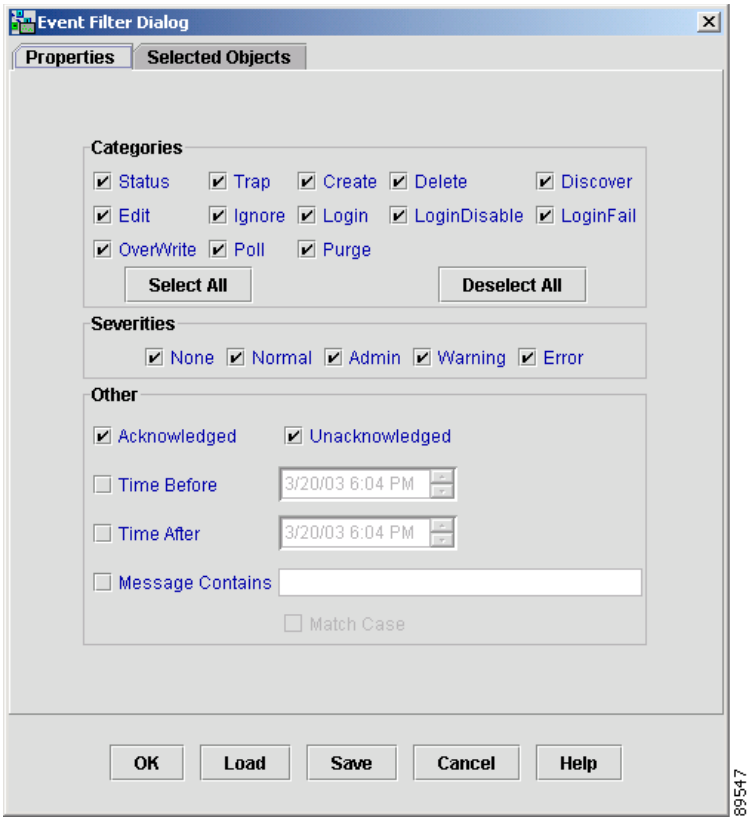
- If the event is associated with a node, SGM displays the SGM Real-Time Statistics: CPU Statistics window (Figure 3-26). For more information, see the "Viewing CPU Statistics for a Node" section on page 3-121.
- If the event is associated with a linkset, SGM displays the Statistics Details Window for a Linkset (Figure 3-13). For more information, see the "Viewing Real-Time Data for a Linkset" section on page 3-54.
- If the event is associated with a link, SGM displays the Statistics Details Window for a Link (Figure 3-37). For more information, see the "Viewing Real-Time Data for a Link" section on page 3-186.

Setting an Event Filter

To modify the way SGM presents event information, use the following procedure:

Step 1 Select **Event Tools > Set Filter** from the SGM Main Menu. SGM displays the Event Filter dialog with the **Properties** tab selected (Figure 3-50).

Figure 3-50 Event Filter Dialog, Showing Event Properties



Step 2 (Optional) To specify which event categories you want to display in the Event Window, select the **Properties** tab and modify the following settings:

- **Status**—Checkbox used to indicate whether Status events are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **Edit**—Checkbox used to indicate whether Edit events are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **OverWrite**—Checkbox used to indicate whether OverWrite events are to be displayed in the Event Window. The default setting for this checkbox is selected.

- **Trap**—Checkbox used to indicate whether Trap events are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **Ignore**—Checkbox used to indicate whether Ignore events are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **Poll**—Checkbox used to indicate whether Poll events are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **Create**—Checkbox used to indicate whether Create events are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **Login**—Checkbox used to indicate whether Login events are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **Purge**—Checkbox used to indicate whether Purge events are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **Delete**—Checkbox used to indicate whether Delete events are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **LoginDisable**—Checkbox used to indicate whether LoginDisable events are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **Discover**—Checkbox used to indicate whether Discover events are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **LoginFail**—Checkbox used to indicate whether LoginFail events are to be displayed in the Event Window. The default setting for this checkbox is selected.

To select all event category checkboxes. click **Select All**.

To clear all event category checkboxes, click **Deselect All**.

Note These are the default categories; there might be additional categories, as defined by the SGM system administrator. For information about custom categories, see the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26.

Step 3 (Optional) To specify which event severities you want to display in the Event Window, select the **Properties** tab and modify the following settings:

- **None**—Checkbox used to indicate whether events of severity None are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **Normal**—Checkbox used to indicate whether events of severity Normal are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **Admin**—Checkbox used to indicate whether events of severity Admin are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **Warning**—Checkbox used to indicate whether events of severity Warning are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **Error**—Checkbox used to indicate whether events of severity Error are to be displayed in the Event Window. The default setting for this checkbox is selected.

Note There might be additional custom severities, as defined by your SGM System Administrator. For information, see the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26.

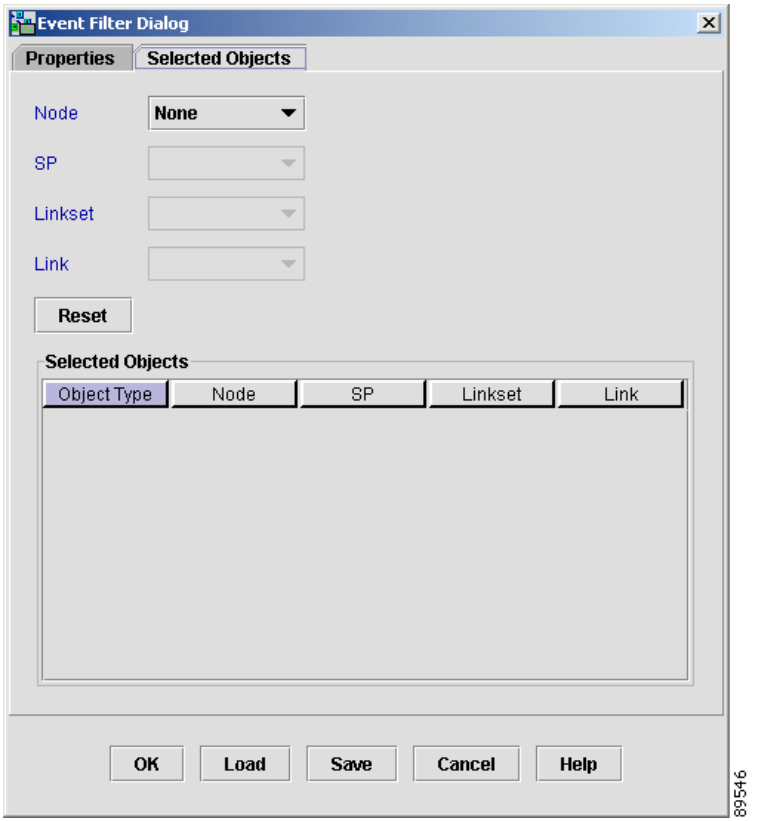
Step 4 (Optional) To further define the event filter for the Event Window, select the **Properties** tab and modify the following settings:

- **Acknowledged**—Checkbox used to indicate whether only acknowledged events are to be displayed in the Event Window. The default setting for this checkbox is cleared.
- **Unacknowledged**—Checkbox used to indicate whether only unacknowledged events are to be displayed in the Event Window. The default setting for this checkbox is selected.
- **Time Before**—Checkbox used to indicate whether only events logged by SGM prior to a specified date and time are to be displayed in the Event Window. The default setting for this checkbox is cleared.
- **Time Before Field**—Specifies the date and time prior to which events logged by SGM are to be displayed in the Event Window. This field is grayed-out unless the **Time Before** checkbox is selected.
- **Time After**—Checkbox used to indicate whether only events logged by SGM after a specified date and time are to be displayed in the Event Window. The default setting for this checkbox is cleared.
- **Time After Field**—Specifies the date and time after which events logged by SGM are to be displayed in the Event Window. This field is grayed-out unless the **Time After** checkbox is selected.
- **Message Contains**—Checkbox used to indicate whether only events that contain the specified message text are to be displayed in the Event Window. The default setting for this checkbox is cleared.
- **Match Case**—Checkbox used to indicate whether only events that match the case of the text in the **Message Contains** field are to be displayed in the Event Window. This field is grayed-out unless the **Message Contains** checkbox is selected. If the **Message Contains** checkbox is selected, the default setting for this checkbox is cleared.

These settings are applied to all event displays in the current view.

Step 5 (Optional) To specify the node, signaling point, linkset, and link for which SGM is to display events in the Event Window, select the **Selected Objects** tab. SGM displays the Event Filter dialog with the **Selected Objects** tab highlighted (Figure 3-51).

Figure 3-51 Event Filter Dialog, Showing Event Selected Objects

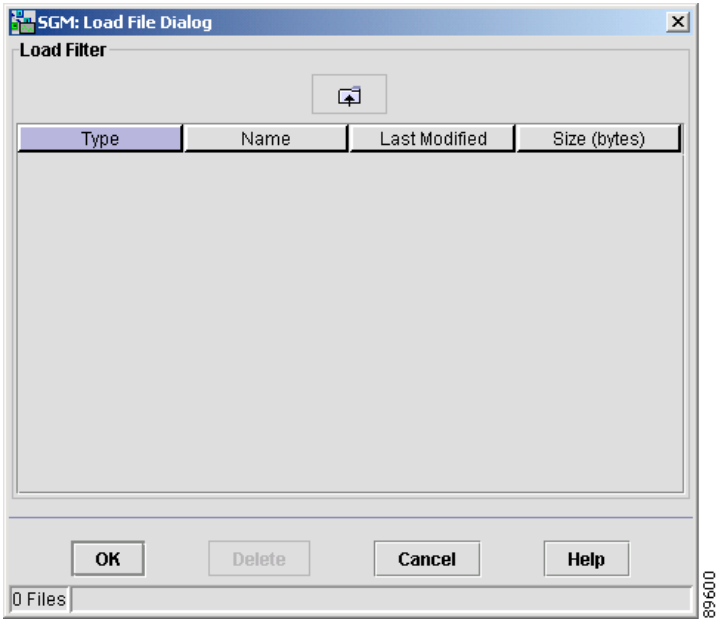


You can modify the following settings:

- **Node—**Drop-down list box of all nodes that have been discovered by SGM:
  - If you want to filter events based on a node, select a node from the drop-down list box.
  - If you do not want to filter events based on a node, select **None**. SGM grays-out the **SP**, **Linkset**, and **Link** fields. This is the default setting.
- **SP—**Drop-down list box of all signaling points associated with the selected node:
  - If you want to filter events based on a signaling point, select a signaling point from the drop-down list box.
  - If you do not want to filter events based on a signaling point, select **None**. SGM grays-out the **Linkset** and **Link** fields. This is the default setting.
- **Linkset—**Drop-down list box of all linksets associated with the selected signaling point:
  - If you want to filter events based on a linkset, select a linkset from the drop-down list box.
  - If you do not want to filter events based on a linkset, select **None**. SGM grays-out the **Link** field. This is the default setting.
- **Link—**Drop-down list box of all links that have been discovered by SGM:
  - If you want to filter events based on a link, select a link from the drop-down list box.
  - If you do not want to filter events based on a link, select **None**. This is the default setting.
- To restore **Node** to **None**, grays-out **SP**, **Linkset**, and **Link**, click **Reset**.

Step 6 (Optional) To load an existing event filter, click **Load** in the Event Filter dialog. SGM displays the Load File Dialog: Load Filter dialog (Figure 3-52).

Figure 3-52 Load File Dialog: Load Filter Dialog



The Load File Dialog: Load Filter dialog contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the event filter file or folder.
- **Last Modified**—Date and time the event filter file or folder was last modified.
- **Size (bytes)**—Size of the event filter file or folder, in bytes.
- **Number of Files**—Total number of event filter files and folders (displayed in bottom left corner).

To load an event filter file, enter the name of the file or select it in the list and click **OK**. SGM loads the event filter file, closes the Load File Dialog: Load Filter dialog, and returns to the Event Filter dialog.

To delete an event filter file from the event filter file list, select a file and click **Delete**. SGM issues an informational message containing the name and location of the deleted file.

To save any changes you made to the list of files, click **OK**. SGM saves the changes and closes the Load File Dialog: Load Filter dialog.

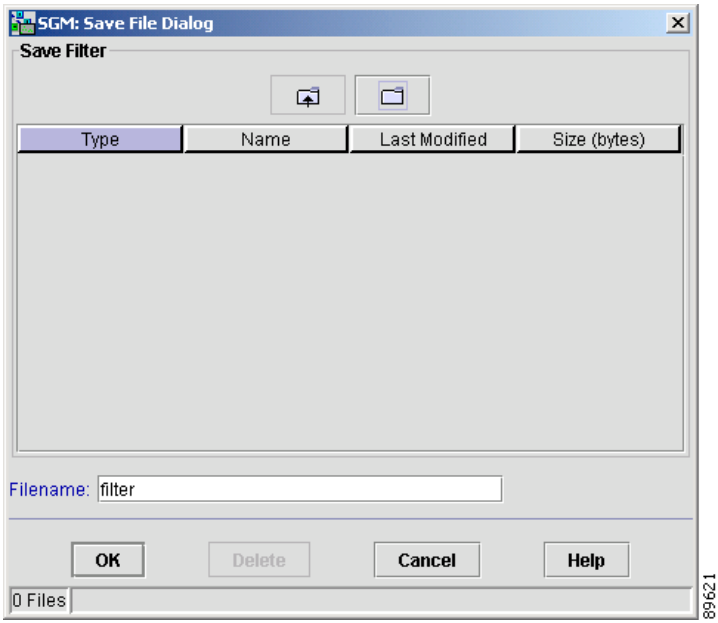
To close the Load File Dialog: Load Filter dialog without loading an event filter file or saving any changes to the event filter file list, click **Cancel**.

Step 7 (Optional) To apply any changes you made to the event filter without closing the Event Filter dialog, click **Apply**.

Step 8 (Optional) To close the Event Filter dialog without saving any changes to the event filter file or event filter file list, click **Cancel**.

Step 9 When you are satisfied with the filter settings, click **Save**. SGM displays the Save File Dialog: Save Filter dialog (Figure 3-53).

Figure 3-53 Save File Dialog: Save Filter Dialog



The Save File Dialog: Save Filter dialog contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the event filter file or folder.

- **Last Modified**—Date and time the event filter file or folder was last modified.
- **Size (bytes)**—Size of the event filter file or folder, in bytes.
- **Filename**—Name by which you want to save the event filter file.

  If you create a new event filter file name, you can use any letters, numbers, or characters in the name that are allowed by your operating system. However, if you include any spaces in the new name, SGM converts those spaces to dashes. For example, SGM saves file “a b c” as “a-b-c”.
- **Number of Files**—Total number of event filter files and folders (displayed in bottom left corner).

To save the event filter file with a new name, use one of the following procedures:

- To save the file with a completely new name, enter the new name and click **OK**.
- To save the file with an existing name, overwriting an old event filter file, select the name in the list and click **OK**.

SGM saves the event filter file with the new name, closes the Save File Dialog: Save Filter dialog, and returns to the Event Filter dialog.

To delete an event filter file from the event filter file list, select a file and click **Delete**. SGM issues an informational message containing the name and location of the deleted file.

To save any changes you made to the list of files, click **OK**. SGM saves the changes and closes the Load File Dialog: Save Filter dialog.

To close the Save File Dialog: Save Filter dialog without saving the event filter file or saving any changes to the event filter file list, click **Cancel**.

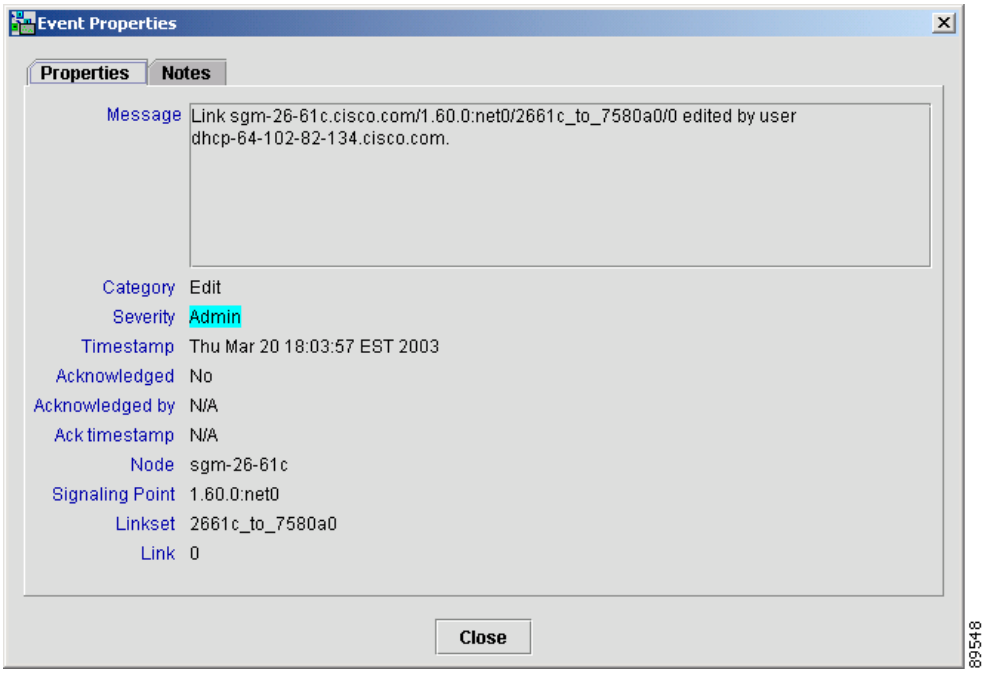
Viewing Event Properties

SGM enables you to view detailed information about a selected event, including its associated node, signaling point, linkset, status, and other information.

To view detailed information about an event, right-click the event in a window, then select **Event Properties** in the right-click menu.

SGM displays the Event Properties Dialog (Figure 3-54).

Figure 3-54 Event Properties Dialog



The Event Properties dialog provides the following information for the selected event:

- **Properties Tab—**Displays detailed information about the selected event.
- **Message—**Message text for the event.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.
- **Category—**Type of the event. Default values are:
  - **Create**—Creation event, such as the creation of a seed file.
  - **Delete**—Deletion event, such as the deletion of a node, signaling point, linkset, or file.
  - **Discover**—Discovery event, such as Discovery beginning.

  - **Edit**—Edit event. A user has edited a node, signaling point, linkset, or link.
  - **Ignore**—Ignore event. A user has **Ignored** a link or linkset.
  - **Login**—Login event. A user has logged in to SGM.
  - **LoginDisable**—LoginDisable event. SGM has disabled a user's User-Based Access authentication as a result of too many failed attempts to log in to SGM.
  - **LoginFail**—LoginFail event. An attempt by a user to log in to SGM has failed.
  - **OverWrite**—OverWrite event. An existing file, such as a seed file or route file, has been overwritten.
  - **Poll**—Poll event, such as an SNMP poll.
  - **Purge**—Purge event. A user has requested Discovery with **Delete Existing Data** selected, and SGM has deleted the existing SGM database.
  - **Status**—Status change message generated.
  - **Trap**—SNMP trap message generated.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.

- **Severity—**Severity of the event. Default values are:
  - **Admin**—The default color is cyan.
  - **Error**—The default color is coral.
  - **None**—The default color is white.
  - **Normal**—The default color is light green.
  - **Warning**—The default color is yellow.

  You can customize this field. See the "Modifying the SGM Event Configuration File (Solaris Only)" section on page 5-26 for more information.
- **Timestamp—**Date and time the event was logged.
- **Acknowledged—**Indicates whether the event has been acknowledged.

- **Acknowledged By—**Name of the device that last acknowledged the event. If no one has acknowledged the event, this field is blank.
- **Ack Timestamp—**Date and time the event was last acknowledged or unacknowledged.
- **Node—**Name of the node associated with the event. If there is no node associated with the event, **None** is displayed.
- **Signaling Point—**Name of the signaling point associated with the event. If there is no signaling point associated with the event, **None** is displayed.
- **Linkset—**Name of the linkset associated with the event. If there is no linkset associated with the event, **None** is displayed.
- **Link—**Name of the link associated with the event. If there is no link associated with the event, **None** is displayed.
- **Notes Tab—**Displays notes associated with this event.
- **Last Update—**Date and time the **Notes** field for this event was last updated. If there is no note currently associated with this event, this field displays the value **Not Set**.
- **Notes—**Notes associated with this event. If there is no note currently associated with this event, this field displays the value **No Notes**.

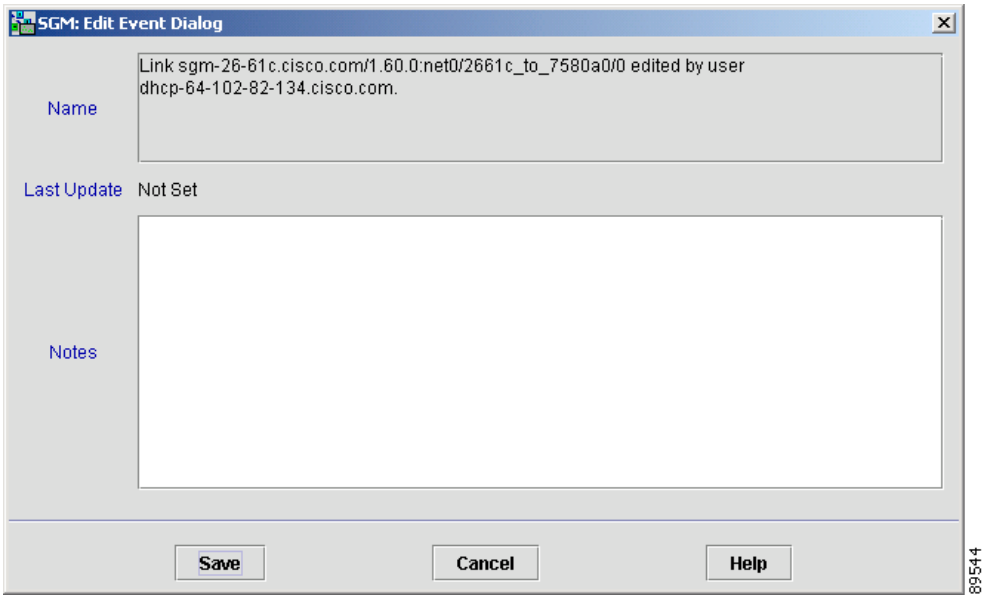
Attaching a Note to an Event

SGM enables you to annotate an event, attaching a descriptive string to the event.

To annotate an event, right-click an event in the Event Window, then select **Edit Notes** in the right-click menu.

SGM displays the Edit Event Dialog (Figure 3-55).

Figure 3-55 Edit Event Dialog



The Edit Event Dialog displays the message text of the event and the date and time the **Notes** field for the event was last updated. If there is no note currently associated with the event, the **Last Update** field displays the value **Not Set**.

In the **Notes** field, enter any important information about the event, such as its associated node, signaling point, or linkset, what triggered the event, how often it has occurred, and so on.

Click **Save** to save the annotations and exit the Edit Event Dialog.

Viewing Notes for an Event

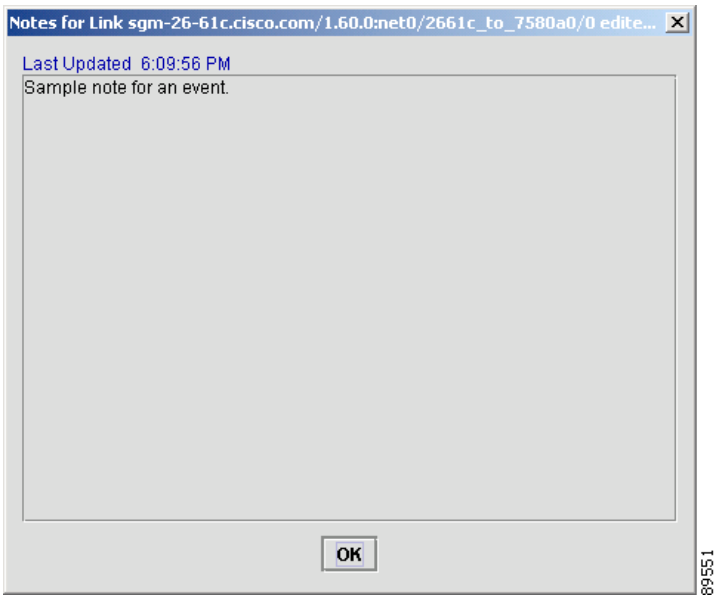
SGM enables you to view the notes that have been attached to events.

To view a note, use one of the following procedures:

- Select an event in a window, then select **View > Notes** from the SGM Main Menu.
- Right-click an event in the Event Window, then select **View > Notes** in the right-click menu.

If the event has an attached note, SGM displays the Event Notes dialog (Figure 3-56). (If the event does not have an attached note, SGM displays the message, “The event does not have any notes.”)

Figure 3-56 Event Notes Dialog



The Event Notes dialog displays the following information:

- **Name**—Message text of the event.
- **Last Updated**—Date and time the **Notes** field for the event was last updated.
- **Notes**—Notes associated with the event.

Click **OK** to close the Event Notes dialog.

Viewing the Topology of the Network

In addition to tabular (text) views of your network, SGM provides a topology (graphical) view of the signaling points and linksets in your network, including adjacent legacy SS7 devices, and enables you to customize the view to meet your needs.

Related Topics:

- Modifying Preference Settings, page 5-3
- Working with Links, page 3-170
- Working with Linksets, page 3-37
- Working with Nodes, page 3-91
- Working with Views, page 3-26

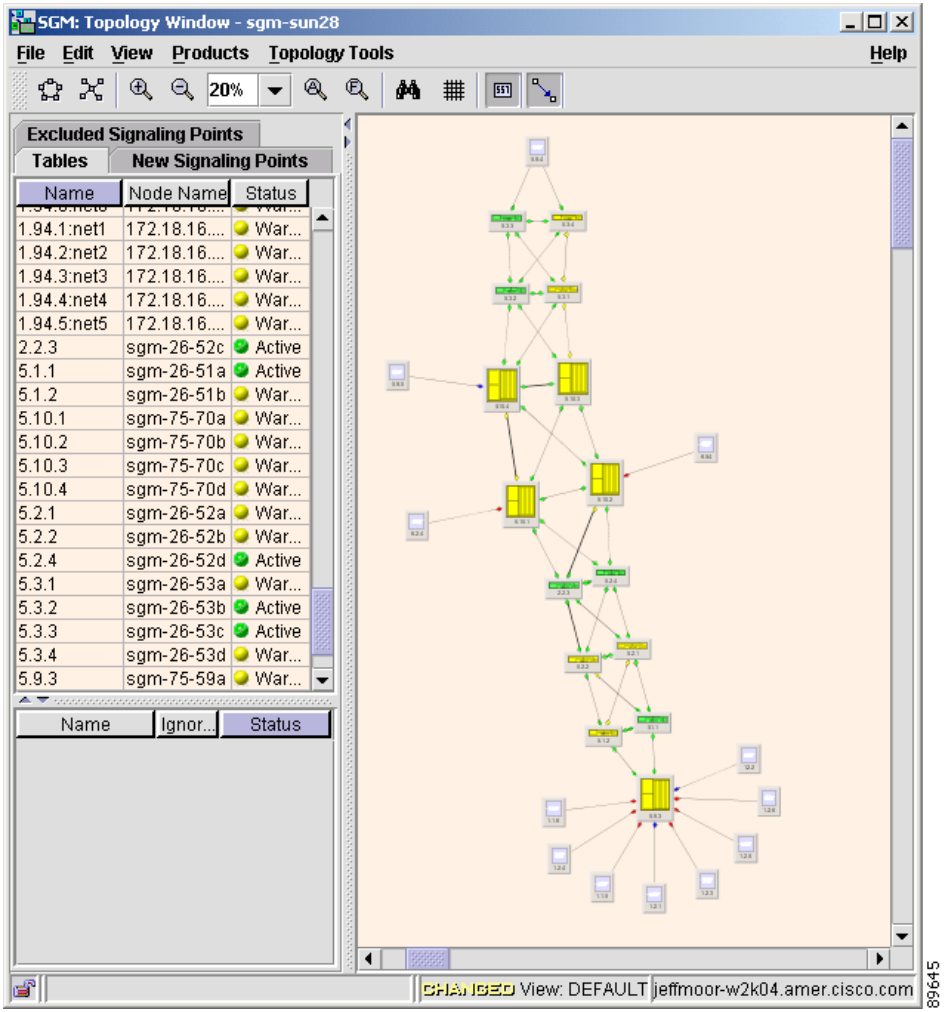
To view the topology of your network:

Step 1 Use one of the following procedures:

- Select **View > Show Topology** from the SGM Main Menu.
- Right-click a signaling point, linkset, link, or event, then select **View > Center in Topo** in the right-click menu.

SGM displays the Topology window (Figure 3-57).

Figure 3-57 Topology Window



The Topology Window displays tabular information about signaling points and linksets in the left pane and the graphical topology map in the right pane.

Linksets that are associated with signaling points that are excluded from the current view are not displayed in the topology map. See the "Creating a View" section on page 3-27 for more information about excluding signaling points.

SGM automatically assigns the following node elements:

- Cisco 2650 series router
- Cisco 2650XM series router
- Cisco 2651 series router
- Cisco 2651XM series router
- Cisco 7204 series router
- Cisco 7204VXR series router
- Cisco 7206 series router
- Cisco 7206VXR series router
- Cisco 7507 series router
- Cisco 7507mx series router
- Cisco 7507z series router
- Cisco 7513 series router
- Cisco 7513mx series router
- Cisco 7513z series router
- IP device, other than other than those listed above (if assigned by a user; see the "Editing a Node" section on page 3-124 for more details)
- Signaling point—An SCP, SSP, or STP, or an ITP instance.
- SS7—SGM is unable to determine the node type.

In addition, users can assign the following node elements (see the "Editing a Node" section on page 3-124 for more details):

- MSC—Mobile switching center
- SCP—Service control point
- SSP—Service switching point
- STP—Signal transfer point

A line indicates a single logical connection configured between two nodes:

- A line that ends in a diamond or circle indicates that the connection has a configured linkset, associated with that node.
- A line that does not end in a diamond or circle indicates that the linkset is not configured on that ITP or cannot be displayed because SGM is not managing that node.
- A heavy line indicates that there are two or more linksets configured between two signaling points.

The color of a graphical element indicates its current status.

- For nodes, the possible colors are:
  - **Green**—The node is currently in **Active** status.
  - **Yellow**—The node is currently in **Warning** status.
  - **Gray**—The node is currently in **Discovering**, **Polling**, **Unmanaged**, or **Waiting** status.
  - **Red**—The node is currently in **Unknown** status.
- For linksets (diamonds or circles), the possible colors are:
  - **Green**—The linkset is in **Active** status.
  - **Blue**—The linkset is in **Shutdown** status.
  - **Yellow**—The linkset is in **Warning** status.
  - **Red**—The linkset is in either **Unavailable** or **Unknown** status.

Note If there is more than one linkset configured on the connection, the status color is an aggregation of the status of every linkset on that connection.

A note icon in the upper left corner of a node element means the node has been annotated. That is, a user has attached a descriptive string to the node. A dot in the diamond or circle at the end of the line means a note has been attached to the linkset.

An event icon (orange triangle) in the upper right corner of a node element means there is a recent event associated with the node.

The topology map also provide right-click menus for linksets and signaling points.

Step 2 The topology signaling point table in the left pane of the Topology window displays the name and status of the signaling points that are currently displayed in the topology map. To display the topology signaling point table, select the **Tables** tab in the left pane. By default, this table is sorted by **Status**.

To redraw the topology map centered on a specific signaling point, double-click on the signaling point in this table.

You cannot select more than one signaling point at a time in this table.

Step 3 The topology linkset table in the left pane of the Topology window displays the name and status of the linksets that are displayed in the topology map. To display the topology linkset table, select the **Tables** tab in the left pane of the Topology Window, then select a signaling point in the topology signaling point table, or a signaling point in the topology map. The topology linkset table is displayed below the topology signaling point table.

To redraw the topology map centered on a specific linkset, double-click on the linkset in this table.

You cannot select more than one linkset at a time in this table.

Step 4 (Optional) In the topology linkset table, you can select the **Ignored** checkbox to ignore a linkset when displaying SGM data, or clear the checkbox to include the linkset. For more information, see the "Ignoring a Linkset" section on page 3-90.

Step 5 (Optional) To highlight an element in the topology signaling point table or topology linkset table in the left pane, click it in the topology map:

- Click a signaling point to highlight the signaling point in the topology signaling point table, and to display any associated linksets in the topology linkset table.
- Click a single line, a heavy line, a diamond, or a circle, to display the following information:
  - Highlight the closest associated node in the topology signaling point table. For example, if there is a line connecting node **sgm-2600a** and node **sgm-2600b**, and you click the line closer to node **sgm-2600a**, then that node is highlighted in the topology signaling point table.
  - Display all linksets (if any) associated with that node in the topology linkset table.
  - Highlight the clicked linkset (if it is configured) in the topology linkset table.

Step 6 To see mouse over help popup in the topology map, place the cursor over a signaling point or linkset. When you place the cursor over a linkset, the mouse over help popup is displayed from the perspective of the closest signaling point.

Note You can turn off mouse over help. For details, see Step 5 in the "Modifying Overall Preference Settings" section on page 5-5.

Step 7 (Optional) To make the topology map twice as large, click the **Zoom the map by a factor of 200%** button, or select **Topology Tools > Zoom > In** from the SGM Main Menu.

Step 8 (Optional) To make the topology map half as large, click the **Zoom the map by a factor of 50%** button, or select **Topology Tools > Zoom > Out** from the SGM Main Menu.

Step 9 (Optional) To zoom the topology map by a selected percentage, click the **Select a map viewing factor** button, then either select a percentage from the drop-down list box, or enter a percentage and click **Enter**. Valid values are integers in the range 5 through 400.

Step 10 (Optional) To zoom in on a selected area of the topology map, click the **Zoom in on an area** button, or select **Topology Tools > Zoom > Area** from the SGM Main Menu, then click in the topology map and drag a rectangle around the area you want to zoom in on. SGM expands the selected area to fill the topology map.

Step 11 (Optional) To adjust the size of the topology map to fit in the window, click the **Zoom to fit window** button, or select **Topology Tools > Zoom > Fit** from the SGM Main Menu. This is the default setting the first time the map is displayed.

Step 12 (Optional) To display the topology map in a circular layout, click the **Circular layout** button, or select **Topology Tools > Layout > Circular** from the SGM Main Menu.

Step 13 (Optional) To display the topology map in a spring layout, click the **Spring layout** button, or select **Topology Tools > Layout > Spring** In a spring layout, nodes with the most links are drawn closer to the center of the map, while nodes with fewer links are drawn farther away. This is the default setting the first time the map is displayed.

Note You can modify how far apart nodes are spaced when SGM draws the spring layout. For details, see Step 5 in the "Modifying Overall Preference Settings" section on page 5-5.

Step 14 (Optional) To create a custom layout for the topology map, move the signaling points around, grouping them or isolating them to meet your needs.

To move a single signaling point, click the left mouse button to select the signaling point in the map and, while holding down the left mouse button, move the mouse to move the signaling point to its new position.

To move more than one signaling point at the same time, use the following procedure:

a. Press and hold down the **Shift** key on your keyboard.

b. Still holding down **Shift**, click the left mouse button to select the signaling points you want to move in the map.

c. Still holding down **Shift**, select one of the signaling points you want to move and hold down the left mouse button.

d. Still holding down both **Shift** and the left mouse button, move the mouse to move the signaling points to their new position. The moved signaling points keep their positions relative to each other.

e. Release both **Shift** and the left mouse button.

When you are satisfied with the new topology map layout, select **File > Save View** from the SGM Main Menu. SGM saves the changes you have made to the network view, including any changes you have made to the topology map layout.

Step 15 (Optional) To restore the topology map to the way it looked in the last saved view, select **Topology Tools > Restore Positions** from the SGM Main Menu. SGM restores the view.

Step 16 (Optional) Some topology maps are so large and complex that it can be difficult to find a specific signaling point or linkset.

If the signaling point or linkset is listed in the tables in the left pane of the Topology Window, simply select the signaling point or linkset, and SGM highlights it in the topology map.

If the signaling point or linkset is *not* listed in the tables, use the following procedure:

a. Click the **Find signaling points or linksets** (binoculars) button in the Topology Window, or select **Edit > Find** from the SGM Main Menu. SGM displays the Find Signaling Points or Linksets dialog, which enables you to find and highlight a signaling point or linkset in the Topology Window

b. In the **Search string** field, enter a character string for which SGM is to search.

c. To search for a linkset, select the **Linksets** checkbox. To search for a signaling point, select the **Signaling Points** checkbox, then select or clear the **Name** and **Point Code** checkboxes, to further widen or refine the search.

d. Click **OK** to launch the search.

   If no matching signaling point or linkset is found, SGM displays an appropriate message.

   If exactly one signaling point or linkset is found that matches the **Search string**, SGM highlights the signaling point or linkset in the Tables panel of the Topology window, and zooms in on the selected signaling point or linkset in the topology map.

   If more than one signaling point or linkset is found that matches the **Search string**, SGM displays the Choose dialog, enabling you to select from a list of the found objects. SGM then highlights the selected signaling point or linkset in the Tables panel of the Topology window, and zooms in on the selected signaling point or linkset in the topology map.

Step 17 (Optional) To scroll around in the topology map, click anywhere in the map, then click the arrow, **Page Up**, and **Page Down** keys.

Step 18 (Optional) To redraw the topology map centered on a specific signaling point or linkset, double-click on the signaling point or linkset in the topology signaling point table in the left pane of the window.

Step 19 (Optional) To display detailed information about an element in the map, double-click it, then respond to SGM's prompts:

- Double-click a signaling point to display the Details Window for that signaling point.
- Double-click a single line, or a diamond or circle at the end of a single line, to display the Linkset Details Window for that linkset.
- Double-click a heavy line, or a diamond or circle at the end of a heavy line, to display the Selection Dialog. Then select one of the linksets to display the Linkset Details Window for that linkset.

Step 20 (Optional) To display the topology new signaling point panel, select the **New Signaling Points** tab in the left pane. The topology new signaling point panel displays graphical elements for newly discovered signaling points, based on the following criteria:

- If you are using an SGM client with the DEFAULT view set, this panel never contains any signaling points. In the DEFAULT view, SGM adds all newly discovered signaling points to the topology map as soon as they are discovered.
- If you are using an SGM client with a custom view set, this panel contains all signaling points discovered since the Topology window was opened in this session that have *not* been excluded in the Signaling Points Excluded from View table of the Network View Editor window, or that are not in the current view.

a. (Optional) To add a newly discovered signaling point to the topology map, select one or more signaling points in the topology new signaling point panel and drag them to the map while holding down the left mouse button.

b. (Optional) To exclude a newly discovered signaling point from the topology new signaling point panel, see the "Working with Views" section on page 3-26.

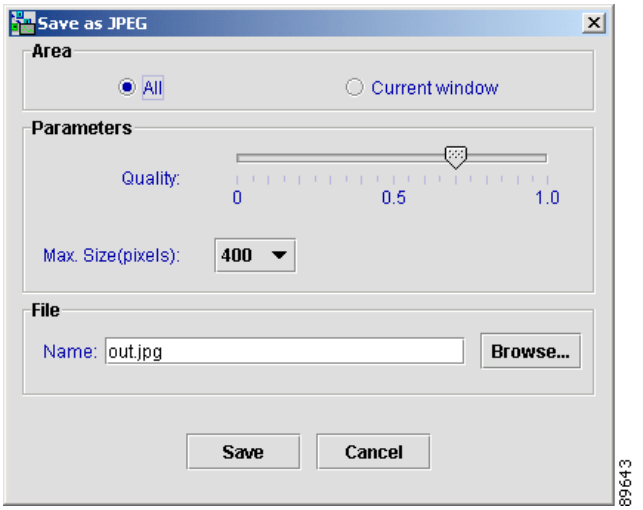
Step 21 (Optional) To display the topology excluded signaling point panel, select the **Excluded Signaling Points** tab in the left pane. The topology new signaling point panel displays graphical elements for excluded signaling points. Excluded signaling points are signaling points that you have chosen not to manage, that you have moved to the Signaling Points Excluded from View table of the Network View Editor window. (See the "Creating a View" section on page 3-27 for more information about excluding signaling points from views.)

To add an excluded signaling point to the topology map, select the signaling point and drag it to the map while holding down the left mouse button. When you do so, the signaling point is no longer an excluded node, and it is removed from the Signaling Points Excluded from View table of the Network View Editor window.

Step 22 (Optional) To print the topology map, see the "Printing SGM Windows" section on page 3-398.

Step 23 (Optional) To save the topology map as a JPEG file, select **Topology Tools > Save as JPEG** from the SGM Main Menu. SGM displays the Save as JPEG dialog (Figure 3-58).

Figure 3-58 Save as JPEG Dialog



The Save as JPEG dialog provides the following options:

- To save the entire topology map as a JPEG file, select **All**.
- To save just the portion of the topology map displayed in the current window as a JPEG file, select **Current Window**.
- To specify the quality of the JPEG file, select a **Quality** level, from 0 (lowest quality) to 1.0 (highest quality). The default setting is 0.7, which is sufficient for most JPEG files.
- To specify the size of the JPEG file, in pixels, choose a value from the **Max. Size** drop-down list box. The valid range is 400 pixels to 2400 pixels. The default value is 400 pixels, which is sufficient for most JPEG files.
- To specify a name for the JPEG file, enter the name in the **Name** field, or accept the default filename, *out.jpg*.

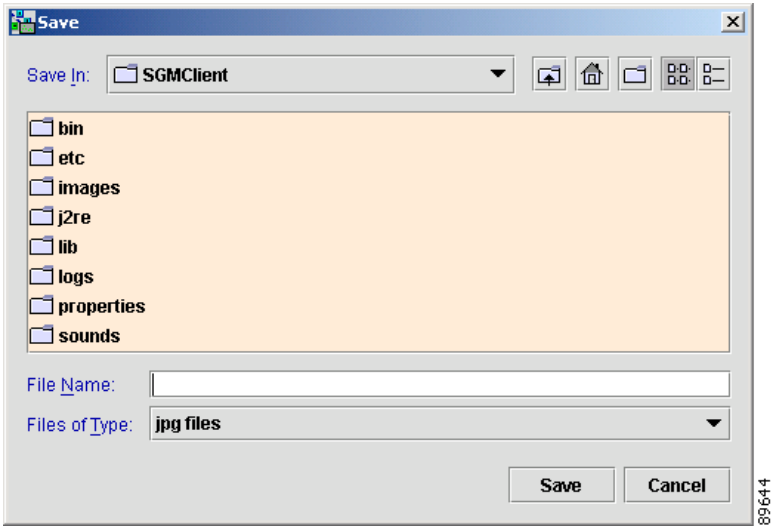
  The default directory for the JPEG file is the directory in which you installed the SGM client:

  - In Solaris, the default installation directory for the SGM client is */opt/CSCOsgmClient*.
  - In Windows, the default installation directory for the SGM client is *C:\Program Files\SGMClient*.
  - If you installed the SGM client in a different directory, then the installation directory is located in that directory.

  To save the JPEG file in the default directory, click **Save**. SGM saves the JPEG file and closes the Save as JPEG dialog. Continue with Step 24.

  If you do not want to save the JPEG file to the default directory, click **Browse** to select a different directory. SGM displays the Save dialog for a topology map (Figure 3-59).

Figure 3-59 Save Dialog for a Topology Map



The Save dialog for a topology map provides the following options:

- To select the directory in which you want to save the topology map JPEG file, either accept the default directory displayed in the **Save In** field, or select a new directory from the drop-down list box.
- To display the sub-folders and files that are in the folder that is up one level from the currently displayed folder, click the **Up One Level** button.
- To display the sub-folders and files that are on your workstation desktop, click the **Desktop** button.
- To create a new sub-folder in the displayed folder, click the **Create New Folder** button.
- To display only icons for sub-folders and files, click the **List** button.
- To display detailed information for sub-folders and files, including their size, type, date they were last modified, and so on, click the **Details** button.

- To specify a name for the JPEG file, enter the name in the **File Name** field, or select a file from those listed in the **Save In** field.
- To specify the type of file to save, and to display all files of that type in the selected directory, select a file type from the **Files of Type** drop-down list box:

  – All files—Displays all files in the selected directory, and saves the topology map file as a JPEG file.

  – jpg files—Displays only JPEG files in the selected directory, and saves the topology map file as a JPEG file.

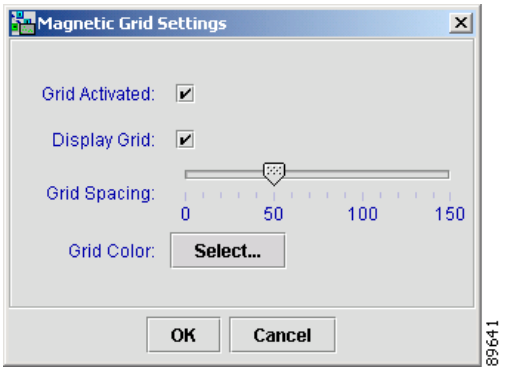
When you are satisfied with the settings, click **Save**. SGM closes the Save dialog for a topology map and populates the **Name** field in the Save as JPEG dialog with the new name and directory.

To save the JPEG file in the new directory, click **Save**. SGM saves the JPEG file and closes the Save as JPEG dialog.

Step 24 (Optional) You can activate a magnetic grid on the topology map. With the grid activated, objects "snap" to align with the grid when you move them.

To activate or modify the magnetic topology grid, select **Topology Tools > Magnetic Grid** from the SGM Main Menu. SGM displays the Magnetic Grid Settings dialog (Figure 3-60).

Figure 3-60 Magnetic Grid Settings Dialog



The Magnetic Grid Settings dialog provides the following options:

- To activate the grid, select the **Grid Activated** checkbox.

  To deactivate the grid, clear the **Grid Activated** checkbox.

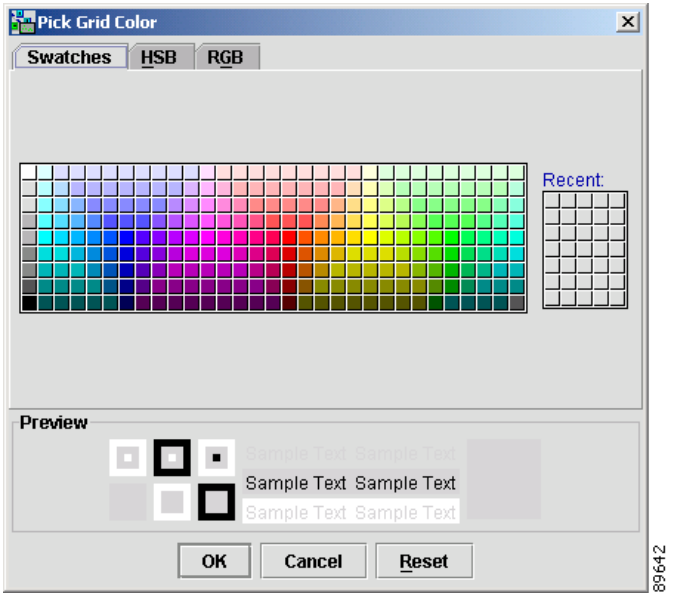
- To display the grid on the topology map, select the **Grid Activated** checkbox, then select the **Display Grid** checkbox.

  To hide the grid on the topology map, clear the **Display Grid** checkbox.

- To specify the spacing between lines on the grid, in pixels, select the **Grid Activated** checkbox, then select a **Grid Spacing** level. The valid range is 0 pixels to 150 pixels. The default setting is 50 pixels, which is sufficient for most topology maps.

- To specify a color for the grid, select the **Grid Activated** checkbox, then click **Select** in the **Grid Color** field. SGM opens the Pick Grid Color dialog (Figure 3-61).

Figure 3-61 Pick Grid Color Dialog



The Pick Grid Color dialog provides the following options:

- To select a grid color from a set of color swatches (the recommended method), click the **Swatches** tab and select a swatch.
- To select a grid color based on color hue, saturation, and brightness (HSB), click the **HSB** tab, then use one of the following procedures:
  - Select a color range on the vertical color bar, then select a specific color by moving the cursor around on the color square.
  - Enter specific values in the hue (**H**), saturation (**S**), and brightness (**B**) fields.
- To select a grid color based on the red, green, and blue (RGB) content of the color, click the **RGB** tab, then select values for the **Red**, **Green**, and **Blue** fields.
- To reset the grid color to its initial setting, click **Reset**.

Whichever method you choose, the selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**. SGM saves the grid color setting and closes the Pick Grid Color dialog.

When you are satisfied with the magnetic grid settings, click **OK**. SGM saves the new grid settings and closes the Magnetic Grid Settings dialog

Note Magnetic grid settings, including the grid color, are *not* saved when you save the view.

To close the Magnetic Grid Settings dialog without changing any settings, click **Cancel**.

Step 25 (Optional) To hide all non-ITP nodes and linksets on the topology map (the default setting), click the **Hide/Show Non-ITP Devices** button. (The hidden signaling points and linksets are still shown in the left pane.) To display all hidden nodes and linksets on the topology map, click the **Hide/Show Non-ITP Devices** button again. This setting, with non-ITP nodes and linksets either hidden or shown, is saved when you save the view.

Step 26 (Optional) To have SGM hide linkset lines as you drag an object around the topology map, then draw the linkset lines when you drop the object in its final position, click the **Node Dragging Optimizer** button to turn it on. This is the default setting.

To have SGM continually redraw linkset lines as you drag an object around the topology map, click the **Node Dragging Optimizer** button to turn it off.

This setting, with the Node Dragging Optimizer on or off, is saved when you save the view.

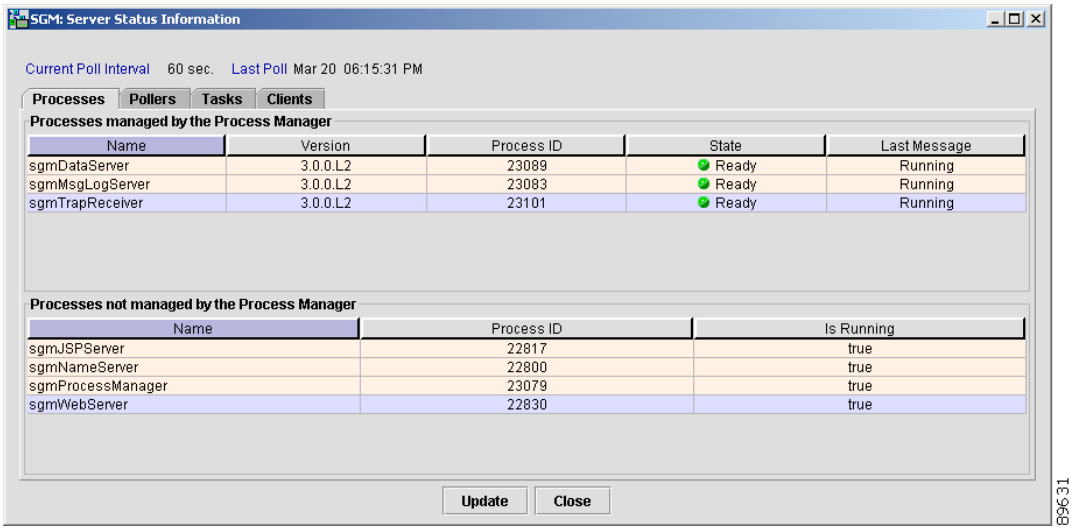
Step 27 When you are ready to close the Topology Window, select **File > Save View** from the SGM Main Menu. SGM prompts you to save any changes you made to the network view, including any changes you have made to the topology map layout, and closes the window.

Viewing Server Status Information

SGM can display detailed information about the processes, pollers, tasks, and clients for the server to which you are connected, and which is currently running the SGM server.

To display server status information, select **View>Server>Status Information** in the SGM Main Menu. SGM displays the Server Status Information window (Figure 3-62).

Figure 3-62 Server Status Information Window



The Server Status Information window displays the following information about polling:

- **Current Poll Interval—**Poll interval used to collect data for the table.
- **Last Poll—**Time the last poll was run. This field initially displays the phrase **Polling device**. After the first polling cycle, SGM populates this field with the actual time of the last poll.

To force an immediate poll at any time, and to refresh the Server Status Information window with the latest data, click **Update**.

To close the Server Status Information window at any time, click **Close**.

The Processes section displays the following information about the processes that are managed by the SGM serve Process Manager:

- **Name—**Name of the process, such as **sgmDataServer**.
- **Version—**Version number of the process application, such as **3.0.0.L1**.
- **Process ID—**Number to uniquely identify the process.

- **State—**Current state of the process. Valid values are:
  - **Initial (yellow ball)**—Process is being initialized.
  - **Starting (yellow ball)**—Process has been started but is not yet in **Ready** state.
  - **Ready (green ball)**—Process has been started and is currently running.
  - **Stopping (red ball)**—Process is being stopped.
  - **Stopped (red ball)**—Process has been stopped.
- **Last Message—**Status message that reflects the current state of the process, such as **Running**.

The Processes section displays the following information about the processes that are not managed by the SGM serve Process Manager:

- **Name—**Name of the process, such as **sgmNameServer**.
- **Process ID—**Number to uniquely identify the process.
- **Is Running—**Indicates whether the process is running (**true**) or not (**false**).

The Pollers table displays the following information about the detail and demand pollers that are currently being processed by the SGM server:

- **Poller ID—**Number to uniquely identify each SGM detail poller that is currently active. SGM detail pollers collect detailed data (such as real-time data, statistics, route detail, GTT MAP status, and so on) that is not collected by the regular SGM poller.
- **Client Host—**Name of the SGM client that started the detail poller.
- **Interval—**Poll interval for the detail poller, in hours, minutes, and seconds.
- **Iteration—**Number of times the detail poller is to poll. If this field displays **Forever**, the detail poller will never stop polling, until requested to stop by the SGM client.
- **Next Poll—**Time until the next poll, in hours, minutes, and seconds.
- **Description—**Description of the detail poller.

The Tasks table displays the following information about the long-running services being performed by the SGM server:

- **Task ID—**Number to uniquely identify the task.
- **Interval—**Time between runs for the task, in hours, minutes, and seconds.
- **Iteration—**Number of times the task is to run. If this field displays **Forever**, the task will never stop polling.
- **Next Execution—**Time until the next run for the task, in hours, minutes, and seconds.
- **State—**Current state of the task. Valid values are:
  - **None**—Task is stopped.
  - **Waiting**—Task is waiting to transition to **Ready** or **Running** state.
  - **Ready**—Task is ready to execute but is not yet in **Running** state.
  - **Running**—Task has been started and is currently executing.
  - **Pending**—Task was in **Ready** state when it was canceled by a user. The task is pending final removal from the scheduler.
  - **Error**—Task encountered an error.
  - **Dying**—Task was in **Running** state when it was canceled by a user. The task continues to run in **Dying** state until it completes, then it is removed from the scheduler.
- **Description—**Description of the task.

The Tasks table displays the following information about the SGM clients that are currently connected to the SGM server:

- **Process Name—**Name of an SGM client that is currently connected to the server.
- **User Name—**Name of an SGM client user who is currently logged in and connected to the server.
- **Is Sleeping—**Indicates whether the thread that is responsible for delivering messages is sleeping (**true**) or not (**false**).
- **Sleep Time—**Time in seconds the thread that is responsible for delivering messages has been sleeping.
- **Queue Size—**Number of messages waiting to be sent to the SGM client.

Finding Information in a Window

Sometimes it can be difficult to find a specific piece of information, such as a node name or event text, in a window. SGM enables you to search for a character string in the Node, Signaling Point, Linkset, and Event Windows.

Note To find a specific signaling point or linkset in the Topology Window, see Step 16 in the "Viewing the Topology of the Network" section on page 3-259.

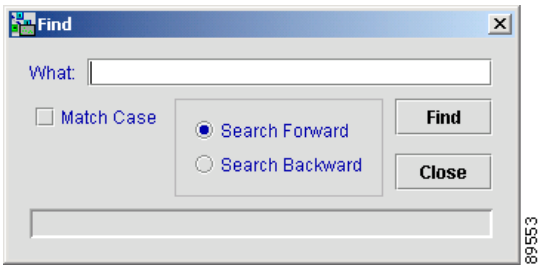
Related Topics:

- Working with Events, page 3-235
- Working with Linksets, page 3-37
- Working with Nodes, page 3-91

To find a character string in a window:

Step 1 In the Node, Signaling Point, Linkset, or Event Window, select **Edit > Find** from the SGM Main Menu. SGM displays the Find dialog (Figure 3-63).

Figure 3-63 Find Dialog



Step 2 In the **What** field, enter the character string for which you want SGM to search. This can be any character string: all or part of a node name, linkset name, point code, event text, status, and so on.

Step 3 (Optional) If you want SGM to search for only character strings that match the case of the text in the **What** field, select the **Match Case** checkbox. If you do not care about case-matching, clear the checkbox. (This is the default setting.)

Step 4 (Optional) If you want SGM to search forward (down and to the right) in the window, select the **Search Forward** radio button. This is the default setting.

If you want SGM to search backward (up and to the left) in the window, select the **Search Backward** radio button.

The **Search Forward** and **Search Backward** radio buttons are mutually exclusive.

Step 5 Click **Find**. SGM launches the search:

- If a matching character string is found in the window, SGM highlights the first line that contains the string.

  To find the next occurrence of the string, click **Find** again.

  You can continue to click **Find** until there are no more matches in the window. At that time, SGM displays an appropriate message in the dialog, such as **Bottom of table reached**.

- If no matching character string is found, SGM displays an appropriate message in the dialog, such as **Bottom of table reached**.

Step 6 When you are done searching, click **Close**. SGM closes the Find dialog.

Resizing, Sorting, and Hiding Table Columns

The columns in some tables in SGM can be resized, sorted, or hidden to meet your specific needs. SGM automatically saves your new settings and, thereafter, launches the client with the new settings.

- To make a column wider or narrower, click the column divider in the header and move the divider to the right or left while holding down the left or right mouse button.

  Depending on your system, as well as other factors, SGM windows can sometimes display so small that text is illegible, and columns and text entry fields are very narrow and unusable. If this happens, resize the window and widen the individual columns until the information is again legible and the columns and text entry fields are usable.

- To sort a table based on the data in a column, left-click in the column header. The table is sorted alphanumerically from top to bottom, based on the data in the selected column. To sort the table in reverse order, left-click in the column header a second time. If two entries in the selected column are identical, SGM sorts those rows based on the data in the remaining table columns, moving left to right.
- To sort a route table, click **Sort Table**. SGM sorts the entries in the route table field-by-field, beginning with **Dest. Point Code**, then **Mask**, **Cost**, **Dest.Linkset**, and finally **QoS**.
- To delete a column altogether, see the "Modifying Preference Settings" section on page 5-3.

Related Topics:

- Viewing the Topology of the Network, page 3-259
- Working with Links, page 3-170
- Working with Linksets, page 3-37
- Working with Nodes, page 3-91

Viewing Online Help

SGM provides the following online help options in the SGM Main Menu:

- To display the table of contents for the SGM online help in a Web browser, select **Help > Topics**.
- To display online help for the current window in a Web browser, click **Help > Window**.
- To display build date, version, SSL support, and copyright information about the SGM application in a Web browser, click **Help > About**.

Related Topics:

- Viewing the SGM Technical Documentation, page 7-122

Editing an ITP Route Table File

ITP uses a route table to select the appropriate signaling path for each message, or signal unit, that it must forward. The route table provides the destination point code of the packet and the linkset name that can be used to forward the packet.

SGM enables you to edit ITP route table files for an ITP.

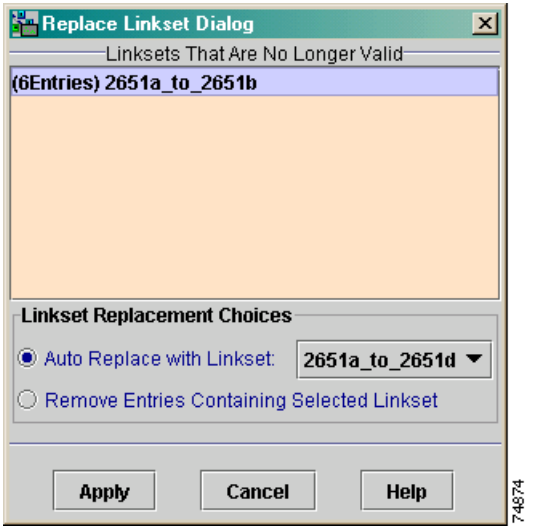
To edit a route table file using SGM:

Step 1 Open the route table file, using one of the following procedures:

- To open a route table file from a file, select **Edit > Route Table > From File** from the SGM Main Menu, select the name of a route table file, then click **OK**.

  If the selected route table file contains incorrect linkset entries (for example, if your network configuration changed since the last time the route table file was saved), SGM displays the Replace Linkset Dialog (Figure 3-64).

Figure 3-64 Replace Linkset Dialog



The Replace Linkset Dialog enables you to quickly replace incorrect linkset entries in route table files:

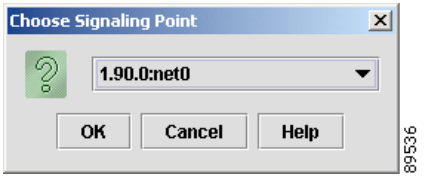
- To replace an incorrect linkset with a correct linkset, select an incorrect linkset in the **Linksets That Are No Longer Valid** table, then select a correct linkset from the **Auto Replace with Linkset** drop-down list box, then click **Apply**. SGM automatically replaces the incorrect linkset with the selected correct linkset in all affected entries in the route table file.
- To remove all entries that contain an incorrect linkset from the route table fie, select an incorrect linkset in the **Linksets That Are No Longer Valid** table, then select the **Remove Entries Containing Selected Linkset** checkbox, then click **Apply**. SGM automatically removes all entries that contain the incorrect linkset from the route table file.
- When you have corrected all incorrect linksets in the route table file, click **Done**. SGM displays the Route Table Dialog (Figure 3-66).

If the selected route table file does not contain any incorrect linkset entries, SGM displays the Route Table Dialog (Figure 3-66).

- To open a route table file from an ITP, use one of the following procedures:
  - Select a node, signaling point, or linkset on a window, then select **Edit > Route Table > From ITP** from the SGM Main Menu. (If you select an **Unmanaged** node, this option is grayed-out and cannot be selected.)
  - Right-click a signaling point on a window, then select **Edit Route Table** from the right-click menu. (If you select an **Unmanaged** signaling point, this option is grayed-out and cannot be selected.)

  SGM displays the Choose Signaling Point dialog (Figure 3-65), which enables you to select the signaling point whose route table you want to edit.

Figure 3-65 Choose Signaling Point Dialog

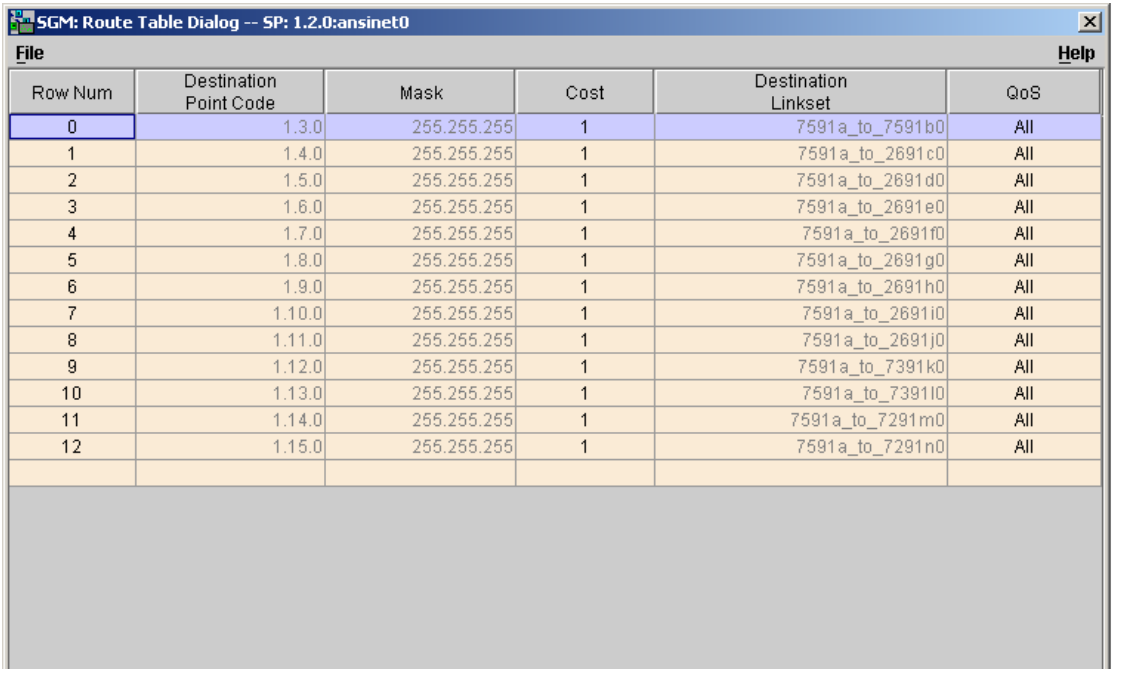


From the drop-down list box of signaling points, select the signaling point with the point code, variant, and network name that matches the route table file you want to edit.

- If you select a signaling point that has the wrong variant, SGM displays the message, "Point code out of range."
- If you select a signaling point that has the correct variant but the wrong instance, SGM displays the Replace Linkset Dialog, prompting you to replace or remove most or all of the linksets.

SGM reads the active route table from the ITP and displays it in the Route Table Dialog (Figure 3-66).

Figure 3-66 Route Table Dialog



Row Num	Destination Point Code	Mask	Cost	Destination Linkset	QoS
0	1.3.0	255.255.255	1	7591a_to_7591b0	All
1	1.4.0	255.255.255	1	7591a_to_2691c0	All
2	1.5.0	255.255.255	1	7591a_to_2691d0	All
3	1.6.0	255.255.255	1	7591a_to_2691e0	All
4	1.7.0	255.255.255	1	7591a_to_2691f0	All
5	1.8.0	255.255.255	1	7591a_to_2691g0	All
6	1.9.0	255.255.255	1	7591a_to_2691h0	All
7	1.10.0	255.255.255	1	7591a_to_2691i0	All
8	1.11.0	255.255.255	1	7591a_to_2691j0	All
9	1.12.0	255.255.255	1	7591a_to_7391k0	All
10	1.13.0	255.255.255	1	7591a_to_7391l0	All
11	1.14.0	255.255.255	1	7591a_to_7291m0	All
12	1.15.0	255.255.255	1	7591a_to_7291n0	All

The route table lists destination point codes and associated destination linkset names, as well as other important information used to route packets on a node.

Press **Enter** to move down to the next row in the route table; press **Tab** to move to the next field.

You can resize each column in the route table, but you cannot sort the table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.

Step 2 The **Row Num** field displays a unique number for each entry in the route table. You cannot edit this field, but the number might change as you add entries to or delete entries from the route table.

Step 3 The **Destination Point Code** field displays the destination point code for packets on the selected node. The destination point code is the point code to which a given packet is routed. To edit the destination point code, enter the new code in this field.

If you enter a new destination point code that is less restrictive than the mask, SGM displays a message to that effect at the bottom of the Route Table Dialog, and performs one of the following actions:

- If you modified an existing point code, SGM restores the previous point code.
- If you entered an entirely new point code, SGM leaves this field blank.

For example, a destination point code of **7.7.7**, which specifies 14 bits, is less restrictive than a mask of **7.255.0**, which specifies only 11 bits. SGM ignores the extra bits in the last digit of the destination point code and converts it to **7.7.0**.

Step 4 The **Mask** field specifies the significant bits of the point code:

- For ANSI and China standard networks using the default 24-bit point code format, the default mask is **255.255.255**.
- For ITU networks using the default 14-bit point code format, the default mask is **7.255.7**.

To edit the mask, make the changes in this field.

If you enter a new mask, the binary conversion of the mask cannot contain ones (1) to the right of zeros (0). For example:

- **7.255.7** is a valid mask because it converts to binary **111.11111111.111.**
- **7.255.1** is *not* a valid mask because it converts to binary **111.11111111.001**.

If you enter an invalid mask, such as **7.255.1**, SGM displays a message to that effect at the bottom of the Route Table Dialog, and performs one of the following actions:

- If you modified an existing mask, SGM restores the previous mask.
- If you entered an entirely new mask, SGM leaves this field blank.

If you enter a new mask that is more restrictive than the destination point code, SGM asks if you want to adjust the point code automatically based on the new mask:

- Click **Yes** if you want to adjust the point code. For example, if the point code is **7.7.7**, and you enter the new mask **7.255.0**, SGM automatically adjusts the point code to **7.7.0**.
- Click **No** if you do not want to adjust the point code:
  - If you modified an existing mask, SGM restores the previous mask.
  - If you entered an entirely new mask, SGM leaves this field blank.

Step 5 The **Cost** field displays the cost of the route to the destination, relative to other routes. To edit the cost, select a cost from the drop-down list box in this field. The valid costs range from 1 (lowest cost and highest priority) through 9 (highest cost and lowest priority).

Note If you configure two routes to the same device and do not specify a cost for one of them, then the cost for that device defaults automatically to **5**. The default cost appears here in the **Cost** column, and in the output of the **show cs7 route** command.

Similarly, if you add a new line to this table and leave the **Cost** column blank, SGM automatically enters a default cost of **5**.

Linksets with the same cost form a combined linkset. Do not specify more than two linksets with the same cost, under the same destination point code and mask.

Step 6 The **Destination Linkset** field displays the destination linkset associated with the destination point code. The destination linkset is also known as the output linkset. To edit the destination linkset, select a destination linkset from the drop-down list box in this field.

Step 7 (Optional) The **QoS** field displays the quality of service (QoS) class of the route, as configured by the network administrator. To edit the QoS class of the route, select a QoS class from the drop-down list box in this field.

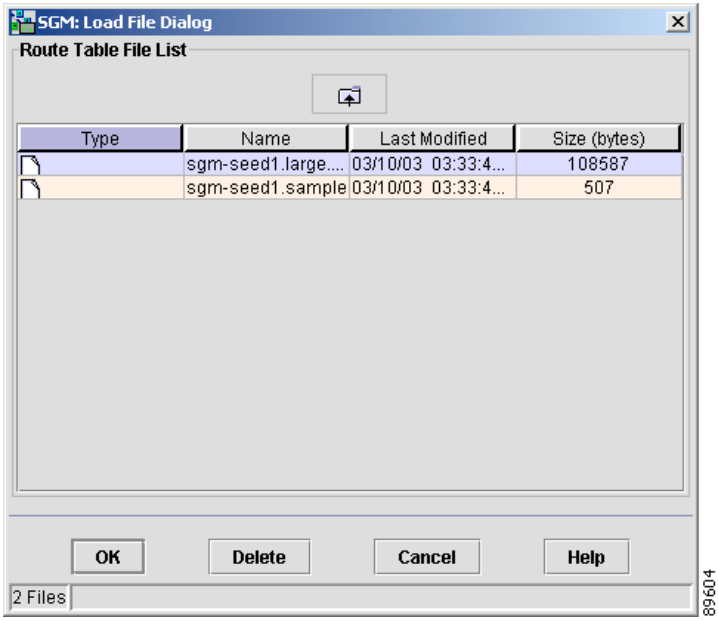
When you change the QoS class for a route, SGM automatically changes the QoS classes for the all other routes in that route set (that is, all other routes with the same **Destination Point Code**) to the new class.

Step 8 (Optional) To add a new route to the route table, select the **Dest. Point Code** field in a blank row, then fill in the fields with values for the new route.

Step 9 (Optional) To delete an existing route from the route table, select one or more routes and click **Delete**. SGM removes the selected route or routes from the route table, without asking for confirmation.

Step 10 (Optional) To load an existing route table file, or to modify the list of route table files, select **File > Load** from the route table menu. SGM displays the Load File Dialog: Route Table File List (Figure 3-67).

Figure 3-67 Load File Dialog: Route Table File List



The Load File Dialog: Route Table File List contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the route table file or folder.
- **Last Modified**—Date and time the route table file or folder was last modified.

- **Size (bytes)**—Size of the route table file or folder, in bytes.
- **Number of Files**—Total number of route table files and folders (displayed in bottom left corner).

To load a route table file, enter the name of the file or select it in the list and click **OK**. SGM loads the route table file, closes the Load File Dialog: Route Table File List, and returns to the Route Table Dialog.

To delete a route table file from the route table file list, select a file and click **Delete**. SGM issues an informational message containing the name and location of the deleted file.

To save any changes you made to the list of files, click **OK**. SGM saves the changes and closes the Load File Dialog: Route Table File List.

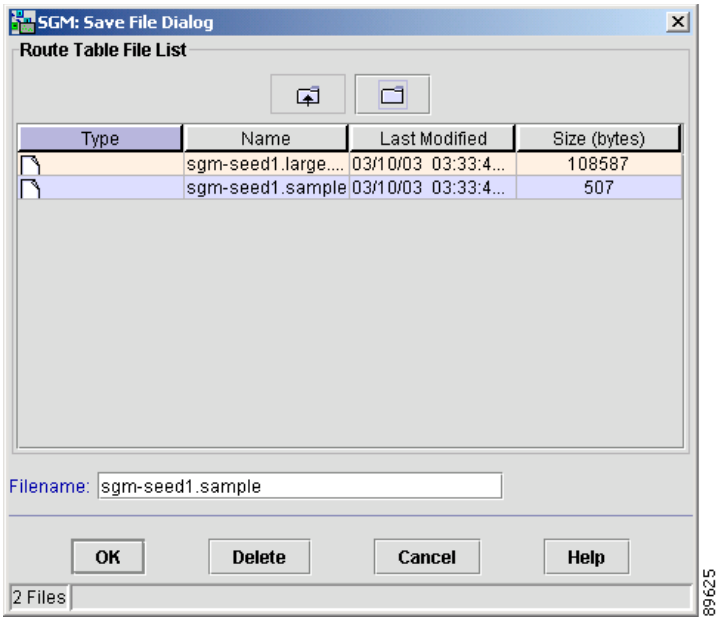
To close the Load File Dialog: Route Table File List without loading a route table file or saving any changes to the route table file list, click **Cancel**.

Step 11 (Optional) To revert to the last saved version of the route table file, select **File>Revert** from the route table menu. SGM displays the last saved version of the file.

Step 12 (Optional) To save the changes you have made to the route table file, or to modify the list of route table files, use one of the following procedures:

- To save the changes you have made to the route table file without changing the name of the file, select **File > Save** from the route table menu.
- To save the changes you have made to the route table file with a new name, select **File > Save As** from the route table menu. SGM displays the Save File Dialog: Route Table File List dialog (Figure 3-68).

Figure 3-68 Save File Dialog: Route Table File List Dialog



The Save File Dialog: Route Table File List dialog contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the route table file or folder.
- **Last Modified**—Date and time the route table file or folder was last modified.
- **Size (bytes)**—Size of the route table file or folder, in bytes.
- **Filename**—Name by which you want to save the route table file.

  If you create a new route table file name, you can use any letters, numbers, or characters in the name that are allowed by your operating system. However, if you include any spaces in the new name, SGM converts those spaces to dashes. For example, SGM saves file “a b c” as “a-b-c”.
- **Number of Files**—Total number of route table files and folders (displayed in bottom left corner).

To save the route table file with a new name, use one of the following procedures:

- To save the file with a completely new name, enter the new name and click **OK**.
- To save the file with an existing name, overwriting an old route table file, select the name in the list and click **OK**.

SGM saves the route table file with the new name, closes the Save File Dialog: Route Table File List dialog, and returns to the Route Table Dialog.

Note If another user modifies and saves the route table file before you save your changes, SGM asks if you want to overwrite that user's changes. If you choose to do so, the other user's changes are overwritten and lost. If you choose not to do so, your changes are lost, unless you save the route table file to a different filename.

SGM stores the modified route table file in the route table file directory on the SGM server:

- If you installed SGM in the default directory, */opt*, then the SGM route table file directory is */opt/CSCOsgm/routes*.
- If you installed SGM in a different directory, then the SGM route table file directory is located in that directory.

You can use the **sgm routedir** command to change the directory in which SGM stores ITP route table files. See the "SGM Commands and Descriptions" section on page B-2 for information about the use of this command.

To delete a route table file from the route table file list, select a file and click **Delete**. SGM issues an informational message containing the name and location of the deleted file.

To save any changes you made to the list of files, click **OK**. SGM saves the changes and closes the Load File Dialog: Route Table File List dialog.

To close the Save File Dialog: Route Table File List dialog without saving the route table file or saving any changes to the route table file list, click **Cancel**.

Step 13 (Optional) To exit the Route Table Dialog without saving any changes, click **Cancel**.

Step 14 Copy the modified route table file from the SGM *routes* directory to a location that the ITP can reach via TFTP.

Step 15 TFTP the modified route table file back to the ITP.

Editing a Global Title Translation Table

SGM enables you to configure Global Title Translation (GTT) entries using the SGM GUI.

A global title is an application address, such as an 800 number, calling card number, or mobile subscriber identification number. GTT is the process by which the Signaling Connection Control Part (SCCP) translates a global title into the point code and subsystem number (SSN) of the destination service switching point (SSP) where higher layer protocol processing occurs. GTT entries are stored in GTT files, which are comma-separated value (CSV) text files with point codes written in hexadecimal notation.

Note SGM 3.0 supports only GTT files with file format versions 2.0, 3.0, 3.1, or 4.0. You can load GTT files that use lower or higher file format versions, but fields or features that are unique to the lower or higher version are not displayed, they are removed from the GTT file the next time it is saved, and the file is saved as a version 2.0, 3.0, 3.1, or 4.0 file.

For more detailed information about GTT, including configuration procedures and scenarios, see the *IP Transfer Point (ITP)* feature module for Cisco IOS software release 12.2(4)MB4 or later.

To edit a GTT file using SGM:

Step 1 Launch the SGM GTT client, using one of the following procedures:

- Select **Products > Global Title Configurator** from the SGM Main Menu.
- Select **Start > Programs > Cisco SGM Client > Launch SGM GTT Client** in Windows.
- Enter the **sgm gttclient** command. See the "SGM Commands and Descriptions" section on page B-2 for more information on the use of this command.

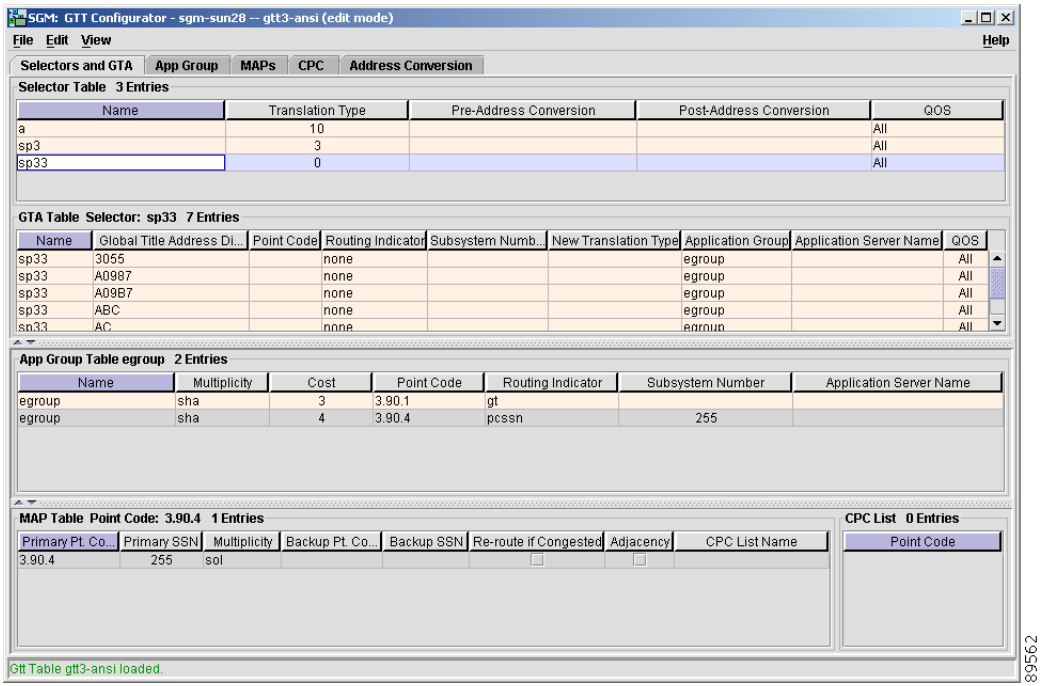
Note The GTT Configurator runs as a separate application in SGM, so it requires a separate login, just like the SGM client.

Step 2 SGM displays the Startup Options dialog, which enables you to load a specific GTT file, or to create a new GTT file.

- If you choose to load an existing GTT file, SGM displays the Load File Dialog: GTT File List. See Step 22 for more information. Select a GTT file to load.
- If you choose to create a new GTT file, SGM displays the Create New Table Dialog. See Step 21 for more information. Create the new GTT file.

SGM displays the GTT Configurator window, with the **Selectors and GTA** tab selected (Figure 3-69).

Figure 3-69 GTT Configurator, Showing Selectors and GTA Tab



The GTT Configurator window provides a set of tabs, each of which launches a specific GTT panel. Each panel is composed of a series of tables that contain GTT data. Some of the tables might be blank at first, while others are populated with rows of data.

You can edit the values in each row in each table, either by typing over the current value, or by selecting a new value from a drop-down list box.

To reset a cell to its previous value, press **Esc**. (If you have edited more than one cell in a row, pressing **Esc** resets all cells in the row.) To commit your changes, click outside the row. Once you have committed your changes, pressing **Esc** does not reset the cells in the row.

Step 3 (Optional) SGM enables you to modify the following aspects of the GTT Configurator window to meet your needs:

- Size and location of the main GTT Configurator window
- Variant and version of the last saved GTT file

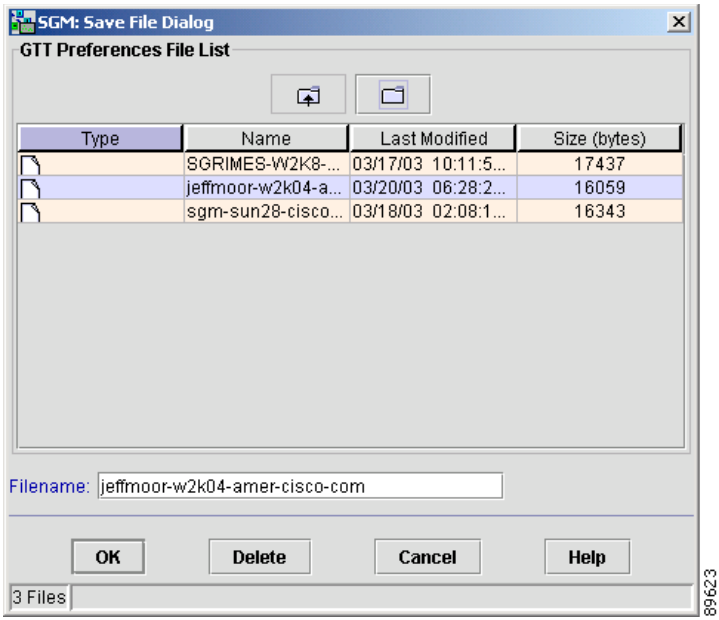
- Current selected tab (**Selectors and GTA**, **App Group**, **MAPs**, **CPC**, or **Address Conversion**)
- For each panel, the location of tables on that panel
- For each table:
  - Column widths
  - Sort-by column, and whether the sort is ascending or descending

SGM also enables you to save your modifications in a GTT preferences file, load an existing GTT preferences file, and modify the list of GTT preferences files.

To save your current preferences, or to modify the list of GTT preferences files, use one of the following procedures:

- To save the changes you have made to the GTT preferences file without changing the name of the file, select **Edit > Preferences > Save** from the GTT menu.
- To save the changes you have made to the GTT preferences file with a new name, select **Edit > Preferences > Save As** from the GTT menu. SGM displays the Save File Dialog: GTT Preferences File List (Figure 3-70).

Figure 3-70 Save File Dialog: GTT Preferences File List



The Save File Dialog: GTT Preferences File List contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the GTT preferences file or folder.
- **Last Modified**—Date and time the GTT preferences file or folder was last modified.
- **Size (bytes)**—Size of the GTT preferences file or folder, in bytes.
- **Filename**—Name by which you want to save the GTT preferences file. If you create a new GTT preferences file name, you can use any letters, numbers, or characters in the name that are allowed by your operating system.
- **Number of Files**—Total number of GTT preferences files and folders (displayed in bottom left corner).

To save the GTT preferences file with a new name, use one of the following procedures:

- To save the file with a completely new name, enter the new name and click **OK**.
- To save the file with an existing name, overwriting an old GTT preferences file, select the name in the list and click **OK**.

SGM saves the GTT file with the new name, closes the Save File Dialog: GTT Preferences File List, and returns to the GTT Configuration window.

Note If another user modifies and saves the GTT preferences file before you save your changes, SGM asks if you want to overwrite that user's changes. If you choose to do so, the other user's changes are overwritten and lost. If you choose not to do so, your changes are lost, unless you save the GTT preferences file to a different filename.

When you save a GTT file or GTT preferences file, SGM makes note of your preferences on the SGM client and server, including the variant and version of GTT being used. SGM saves the user's preferences to the SGM server when the GTT client exits successfully.

Thereafter, whenever you launch the GTT client, SGM searches for your GTT preferences. If SGM finds your preferences on the SGM server, SGM launches the GTT client with those preferences. Otherwise, SGM launches the GTT client with the default GTT preferences file (ITU variant and version 1.0).

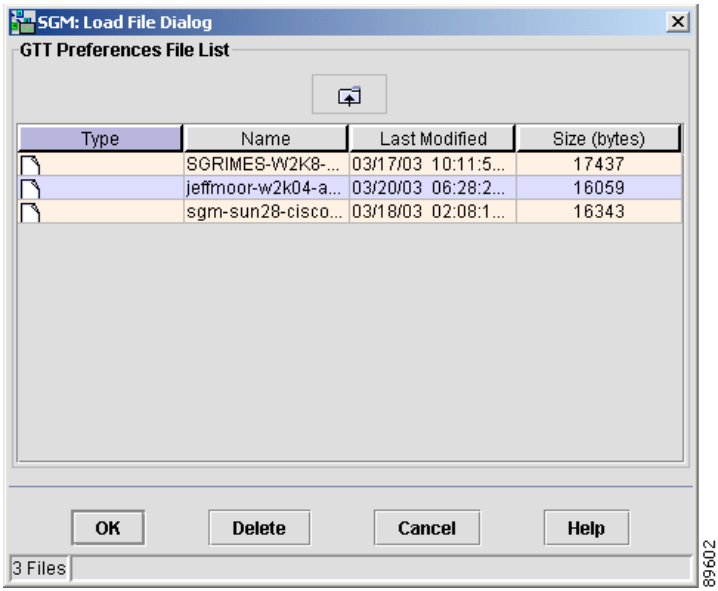
To delete a GTT preferences file from the GTT preferences file list, select a file and click **Delete**. SGM issues an informational message containing the name and location of the deleted file.

To save any changes you made to the list of files, click **OK**. SGM saves the changes and closes the Load File Dialog: GTT Preferences File List.

To close the Save File Dialog: GTT Preferences File List without saving the GTT preferences file or saving any changes to the GTT preferences file list, click **Cancel**.

Step 4 (Optional) To load an existing GTT preferences file, select **Edit > Preferences > Load** from the GTT menu. SGM displays the Load File Dialog: GTT Preferences File List (Figure 3-71).

Figure 3-71 Load File Dialog: GTT Preferences File List



The Load File Dialog: GTT Preferences File List contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the GTT preferences file or folder.
- **Last Modified**—Date and time the GTT preferences file or folder was last modified.
- **Size (bytes)**—Size of the GTT preferences file or folder, in bytes.
- **Number of Files**—Total number of GTT preferences files and folders (displayed in bottom left corner).

To load a GTT preferences file, enter the name of the file or select it in the list and click **OK**. SGM loads the GTT preferences file, closes the Load File Dialog: GTT Preferences File List, and returns to the GTT Configuration window.

To delete a GTT preferences file from the GTT file list, select a file and click **Delete**. SGM issues an informational message containing the name and location of the deleted file.

To save any changes you made to the list of files, click **OK**. SGM saves the changes and closes the Load File Dialog: GTT Preferences File List.

To close the Load File Dialog: GTT Preferences File List without loading a GTT preferences file or saving any changes to the GTT preferences file list, click **Cancel**.

Step 5 (Optional) To revert to the last saved version of the GTT file, select **File > Revert** from the route table menu. SGM displays the last saved version of the file.

Step 6 Select the **Selectors and GTA** tab if you are primarily interested in displaying data for a specific GTT selector, and seeing the GTA entries for that selector. SGM displays the Selectors and GTA panel.

A GTT selector defines the parameters that select the translation table used to translate an SCCP message to its next or final destination.

A Global Title Address (GTA) entry is associated with a selector and defines the result of a translation for a particular address mask. The result of a GTA entry can be either a final translation or an intermediate translation

When you launch the Selectors and GTA panel, the Selector Table and the other tables might or might not be populated with data.

- To populate the Selector Table, right-click within the table and select **Add** from the right-click menu.

  See Step 12 for more information about adding entries to the Selector Table.

- To populate the GTA Table, select a row in the Selector Table. The GTA Table is populated with all associated GTA entries. If the GTA Table remains blank, the selected row has no associated GTA entries.

  If the GTA Table remains blank, the selected row has no associated GTA entries. You can also add entries to the GTA Table, by right-clicking within the table and selecting **Add** from the right-click menu. See Step 13 for more information about adding entries to the GTA Table.

- To populate the App Group Table, select a row in the GTA Table that has an associated **Application Group**. The App Group Table is populated with all application group entries for that application group name.

  You can also add entries to the App Group Table, by right-clicking within the table and selecting **Add** from the right-click menu. See Step 15 for more information about adding entries to the App Group Table.

- To populate the MAP Table, select a row in the GTA Table that does not have an associated **Application Group**. The MAP Table is populated with all MAP entries that match the selected row's point code-SSN combination.

  You can also add entries to the MAP Table, by right-clicking within the table and selecting **Add** from the right-click menu. See Step 16 for more information about adding entries to the MAP Table.

- To populate the CPC List, select a row in the MAP Table that has an associated **CPC List Name**. The CPC List is populated with all point codes in that CPC list.

  You can also add entries to the CPC List, by right-clicking within the list and selecting **Add** from the right-click menu. See Step 17 for more information about adding entries to the CPC List.

The Selector Table displays the following information:

- **Name**—Name of the selector.
- **Translation Type**—Translation type used by the selector. Valid values are integers in the range **0** through **255**.
- **Global Title Indicator**—Global title indicator for the selector. Valid values are integers in the range **2** and **4**.
- **Numbering Plan**—(China and ITU only) Numbering plan for the selector. Valid values are integers in the range **0** through **15**.
- **Nature of Address Indicator**—(China and ITU only) Nature of address indicator for the selector. Valid values are integers in the range **0** through **127**.
- **Pre-Address Conversion**—GTT address conversion table to apply prior to performing local GTT translation.

  If there is an address conversion table name in this field, the referenced table must exist, and it must contain at least one address conversion entry.

  If this field is blank, no address conversion is needed.

- **Post-Address Conversion**—GTT address conversion table to apply after performing local GTT translation.

  If there is an address conversion table name in this field, the referenced table must exist, and it must contain at least one address conversion entry.

  If this field is blank, no address conversion is needed.

- **QoS**—Quality of service (QoS) class of the selector. Valid QoS classes range from **1** through **7**. **ALL** indicates that the selector accepts all QoS classes.

The GTA Table displays the following information:

- **Name**—Name of the selector associated with this GTA.
- **Global Title Address Digits**—Address digits for the GTA.
- **Point Code**—Destination point code for the GTA.
- **Routing Indicator**—Routing indicator for the GTA. Valid values are:
  - **none**—No routing indicator.
  - **gt**—Route on the global title.
  - **pcssn**—Route on the point code and SSN.

  This field is grayed-out if **Configure By App Group** is selected.
- **Subsystem Number**—Destination SSN for the GTA. Valid values are integers in the range **2** through **255**.
- **New Translation Type**—Translation type to be used by the GTA. Valid values are integers in the range **0** through **255**.
- **Application Group**—Name of the application group that is to provide the point code, routing indicator, and SSN to be used by the GTA.
- **Application Server Name**—Name of the application server that is to provide the point code, routing indicator, and SSN to be used by the GTA.

  For ITPs with multiple-instances enabled, do not use the same application group name in two or more different instances. For example, if you use application group name **appgrp1** in instance 1, then do not use **appgrp1** in instance 0, or any other instance.
- **QoS**—Quality of service (QoS) class of the GTA. Valid QoS classes range from **1** through **7**. **ALL** indicates that the GTA accepts all QoS classes.

The App Group Table displays the following information:

- **Name**—Name of the application group.
- **Multiplicity**—Multiplicity setting for the application group. Valid values are:
  - **sha**—Share equally between all destinations.
  - **cos**—Use the destination with the least cost, if available.
  - **cgp**—Use SCCP calling party address (CGPA) load sharing, if available.

- **Cost**—Relative cost of the application group. Valid values are integers in the range **1** through **8**.
- **Point Code**—Destination point code for the application group.
- **Routing Indicator**—Routing indicator for the application group. Valid values are:
  - **none**—No routing indicator.
  - **gt**—Route on the global title. This is the default routing indicator.
  - **pcssn**—Route on the point code and SSN.
- **Subsystem Number**—Destination SSN for the application group. Valid values are integers in the range **2** through **255**.
- **Application Server Name**—Name of the application server.

The MAP Table displays the following information:

- **Primary Pt. Code**—Primary point code for the MAP.
- **Primary SSN**—Primary SSN for the MAP. Valid values are integers in the range **2** through **255**.
- **Multiplicity**—Multiplicity setting for the MAP. Valid values are:
  - **dom**—Dominant. Always translate to the primary point code-SSN combination if it is available. Translate to the backup point code-SSN combination only if the primary combination is not available.
  - **sha**—Share equally between the primary point code-SSN combination and the backup point code-SSN combination.
  - **sol**—Solitary MAP. There is no alternate if the point code or SSN is not available.
- **Backup Pt. Code**—Backup point code for the MAP.
- **Backup SSN**—Backup SSN for the MAP. Valid values are integers in the range **2** through **255**.
- **Re-route if Congested**—Indicates whether the MAP is to be routed to the backup point code-SSN combination if the primary combination is congested:
  - If the checkbox is selected, the MAP is routed to the backup combination when the primary combination is congested.
  - If the checkbox is cleared, the MAP is not routed to the backup.

- **Adjacency**—Indicates whether a point code-SSN combination is to be considered adjacent to the local node for SCCP management:
  - If the checkbox is selected, the point code-SSN combination is considered adjacent to the local node.
  - If the checkbox is cleared, the point code-SSN combination is not considered adjacent to the local node.
- **CPC List Name**—Name of the CPC list associated with this MAP.

The CPC List displays the following information:

- **Point Code**—Point codes in the selected CPC list.

Step 7 Select the **App Group** tab if you are primarily interested in displaying data for application groups. SGM displays the App Group panel.

An application group is an alternative result for the explicit point code and SSN in a GTA entry. You can use an application group entry for intermediate translation, for load-sharing across more than two destinations, or for load-sharing of intermediate translation.

When you launch the App Group panel, the App Group Table and Selector Table might or might not be populated with data.

- To add entries to the App Group Table, right-click within the table and select **Add** from the right-click menu. See Step 15 for more information about adding entries to the App Group Table.
- To add entries to the Selector Table, right-click within the table and select **Add** from the right-click menu. See Step 12 for more information about adding entries to the Selector Table.
- To populate the MAP Table, select a row in the App Group Table. The MAP Table is populated with all MAP entries that match the selected row's point code-SSN combination.

  You can also add entries to the MAP Table, by right-clicking within the table and selecting **Add** from the right-click menu. See Step 16 for more information about adding entries to the MAP Table.

- To populate the CPC List, select a row in the MAP Table that has an associated **CPC List Name**. The CPC List is populated with all point codes in that CPC list.

  You can also add entries to the CPC List, by right-clicking within the list and selecting **Add** from the right-click menu. See Step 17 for more information about adding entries to the CPC List.

- To populate the GTA Table, select a row in the Selector Table. The GTA Table is populated with all associated GTA entries.

  If the GTA Table remains blank, the selected row has no associated GTA entries. You can also add entries to the GTA Table, by right-clicking within the table and selecting **Add** from the right-click menu. See Step 13 for more information about adding entries to the GTA Table.

The App Group panel displays the same information as the Selectors and GTA panel, but from the perspective of the application groups.

Step 8 Select the **MAPs** tab if you are primarily interested in displaying data for MAPs. SGM displays the MAPs panel.

A mated application (MAP) entry has two main purposes:

- MAP entries are used internally by the SCCP application to track point code states and SSN states, such as congestion and availability.
- MAP entries are used to define backups or alternates for point code-SSN combination.

When you launch the MAPs panel, the MAP Table and Selector Table might or might not be populated with data.

- To add entries to the MAP Table, right-click within the table and select **Add** from the right-click menu. See Step 16 for more information about adding entries to the MAP Table.
- To add entries to the Selector Table, right-click within the table and select **Add** from the right-click menu. See Step 12 for more information about adding entries to the Selector Table.
- To populate the CPC List, select a row in the MAP Table that has an associated **CPC List Name**. The CPC List is populated with all point codes in that CPC list.

  You can also add entries to the CPC List, by right-clicking within the list and selecting **Add** from the right-click menu. See Step 17 for more information about adding entries to the CPC List.

- To populate the App Group Table and GTA Table, select a row in the MAP Table. The App Group Table and GTA Table are populated with all application group and GTA entries that match the selected row's point code-SSN combination.

  If the App Group Table or GTA Table remains blank, the selected row has no associated application group or GTA entries.

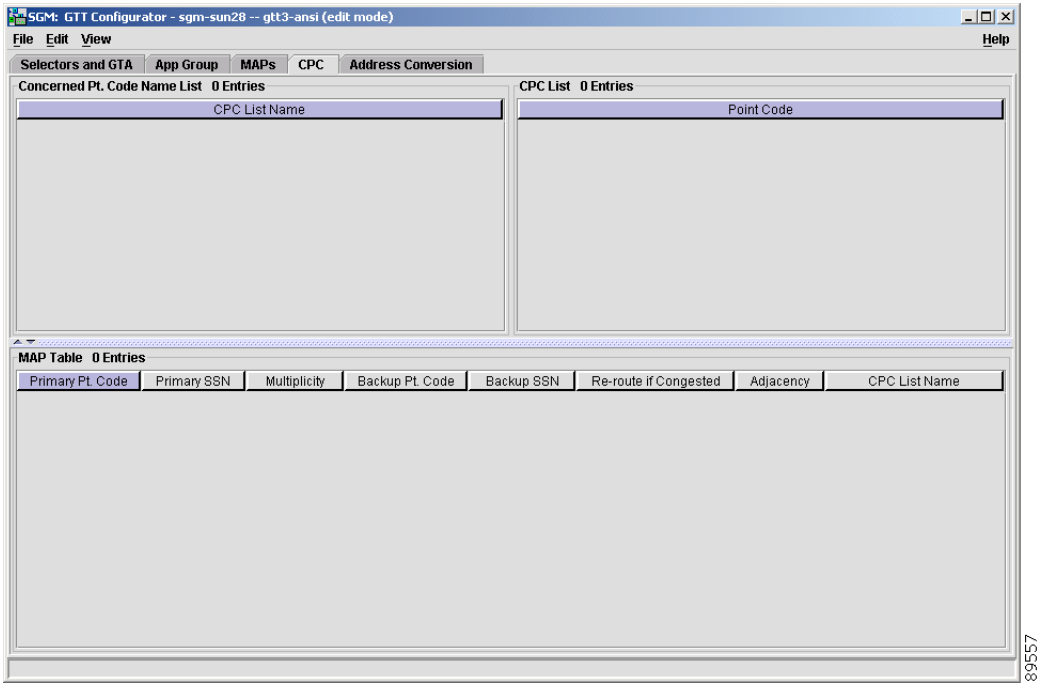
  You can add entries to the App Group Table, by right-clicking within the table and selecting **Add** from the right-click menu. See Step 15 for more information about adding entries to the App Group Table.

  You can add entries to the GTA Table, by right-clicking within the table and selecting **Add** from the right-click menu. See Step 13 for more information about adding entries to the GTA Table.

The MAPs panel displays the same information as the Selectors and GTA panel, but from the perspective of the MAPs.

Step 9 Select the **CPC** tab if you are primarily interested in displaying data for concerned point code names. SGM displays the CPC panel (Figure 3-72).

Figure 3-72 GTT Configurator, Showing CPC Tab



A concerned point code (CPC) is a node that is to be notified when the status of the associated SSN changes.

When you launch the CPC panel, the Concerned Pt. Code Name List is populated with data. To populate the CPC List and MAP Table, select a row in the Concerned Pt. Code Name List. The CPC List and MAP Table are populated with all point codes and MAP entries that match that concerned point code name.

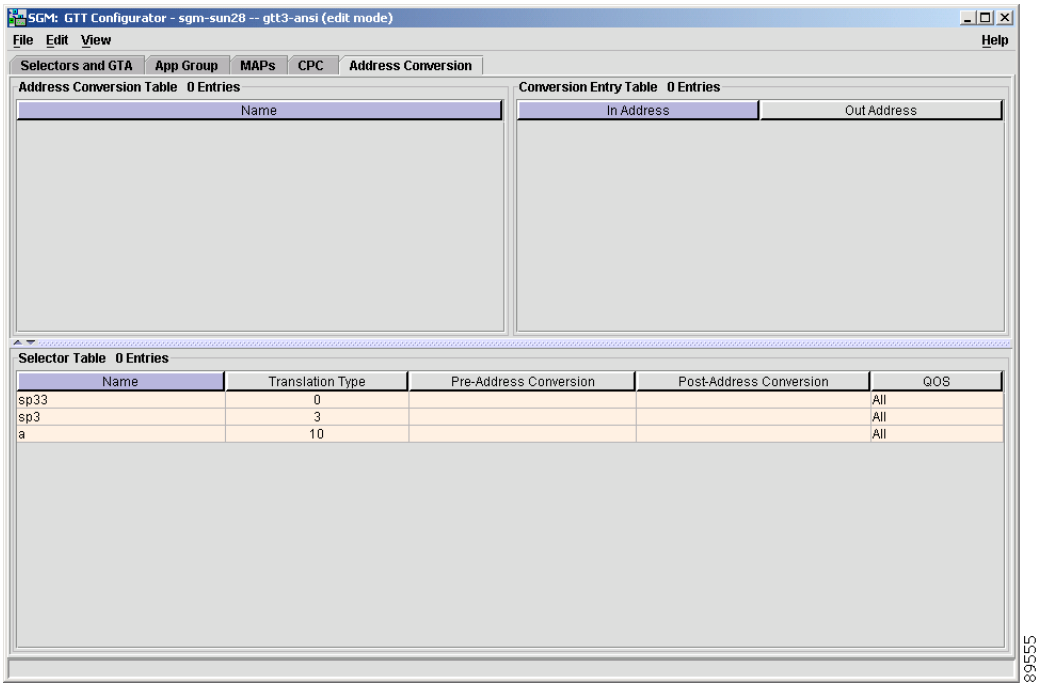
The CPC panel displays the CPC List and MAP Table, as well as the Concerned Pt. Code Name List. The Concerned Pt. Code Name List displays the **CPC List Name**, which is the name of the CPC list to be added. Enter 1-to-12-character alphanumeric string.

To copy one or more point codes from one CPC list to another, select a CPC list in the **CPC List Name** column. SGM displays the point codes associated with that CPC list in the **Point Code** column. Select one or more of the point codes and drag them to the new CPC list while holding down the left mouse button.

Note SGM *copies* the point codes to the new CPC list; it does not *move* them from the old CPC list. If you want to move the point codes, you must copy them to the new CPC list, then delete them from the old CPC list.

Step 10 Select the **Address Conversion** tab if you are primarily interested in displaying GTT address conversion tables. SGM displays the Address Conversion panel (Figure 3-73).

Figure 3-73 GTT Configurator, Showing Address Conversion Tab



The Address Conversion Table displays the following information:

- **Name—**Name of the GTT address conversion table. Enter a 1-to-12 character name.
- **Numbering Plan—**(China and ITU only) Numbering plan associated with the address conversion table. For all addresses that are converted, the numbering plan is converted to the value of this field. The valid range is 0 to 15.
- **Nature of Address Indicator—**(China and ITU only) Nature of address indicator associated with the address conversion table. For all addresses that are converted, the nature of address indicator is converted to the value of this field. The valid range is 0 to 127.

The Conversion Entry Table displays the following information:

- **In Address—**Input SCCP address entry. Enter an address as a 1 to 15 digit hexadecimal string.
- **Out Address—**Output SCCP address entry. Enter an address as a 1 to 15 digit hexadecimal string.
- **Numbering Plan—**(China and ITU only) Numbering plan associated with this entry in the address conversion table. If specified, the value of this field overrides the value of the **Numbering Plan** field in the Address Conversion Table, for this entry. The valid range is 0 to 15.
- **Nature of Address Indicator—**(China and ITU only) Nature of address indicator associated with this entry in the address conversion table. If specified, the value of this field overrides the value of the **Nature of Address Indicator** field in the Address Conversion Table, for this entry. The valid range is 0 to 127.

The Selector Table for Address Conversion displays the following information:

- **Name—**Name of the selector.
- **Translation Type—**Translation type used by the selector. Valid values are integers in the range **0** through **255**.
- **Global Title Indicator—**Global title indicator for the selector. Valid values are integers in the range **2** and **4**.
- **Numbering Plan—**(China and ITU only) Numbering plan for the selector. Valid values are integers in the range **0** through **15**.

- **Nature of Address Indicator—**(China and ITU only) Nature of address indicator for the selector. Valid values are integers in the range **0** through **127**.
- **Pre-Address Conversion—**GTT address conversion table to apply prior to performing local GTT translation.

  If there is an address conversion table name in this field, the referenced table must exist, and it must contain at least one address conversion entry.

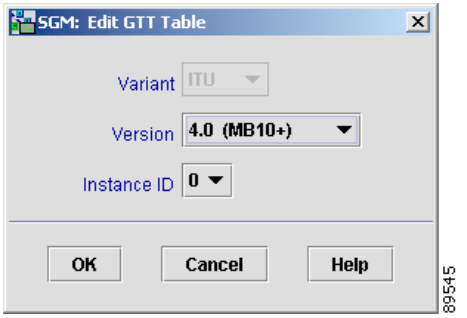
  If this field is blank, no address conversion is needed.
- **Post-Address Conversion—**GTT address conversion table to apply after performing local GTT translation.

  If there is an address conversion table name in this field, the referenced table must exist, and it must contain at least one address conversion entry.

  If this field is blank, no address conversion is needed.
- **QoS—**Quality of service (QoS) class of the selector. Valid QoS classes range from **1** through **7**. **ALL** indicates that the selector accepts all QoS classes.

Step 11 (Optional) To change the variant and instance ID associated with a GTT file select **Edit > Version and Instance** from the GTT menu. SGM displays the Edit GTT Table dialog (Figure 3-74).

Figure 3-74 Edit GTT Table Dialog



The Edit GTT Table dialog contains the following fields and buttons:

- **Variant—**SS7 protocol variant. You cannot edit this field.
- **Version—**Version of the file format to be used by the GTT. Valid versions are:
  - **2.0 (MB5, MB6)**—Corresponds to ITP software releases 12.2(4)MB5 and 12.2(4)MB6. Allows GTT translation to an application server.
  - **3.0 (MB7, MB8)**—Corresponds to ITP software releases 12.2(4)MB7 and 12.2(4)MB8. Allows local point codes in GTT tables.
  - **3.1 (MB9, MB9a)**—Corresponds to ITP software releases 12.2(4)MB9 and 12.2(4)MB9a. Two or more entries in the same application group can have the same cost. This is the default version in SGM.
  - **4.0 (MB10+)**—Corresponds to ITP software release 12.2(4)MB10 or greater. Supports multiple instances on a single node.

  SGM 3.0 does not support version 1.0, which corresponds to ITP software release 12.2(4)MB4. You can load a version 1.0 file into SGM, but fields or features that are unique to version 1.0 are not displayed, they are removed from the GTT file the next time it is saved, and the file is saved as a version 2.0 file.
- **Instance ID—**ID of the instance used by the GTT. Valid IDs are **0** to **7**. The default instance ID is **0**. This list box is available only if Version **4.0** or later is selected.

Enter or select values for the new variant and instance ID, then click **OK**. SGM saves your changes to the GTT file.

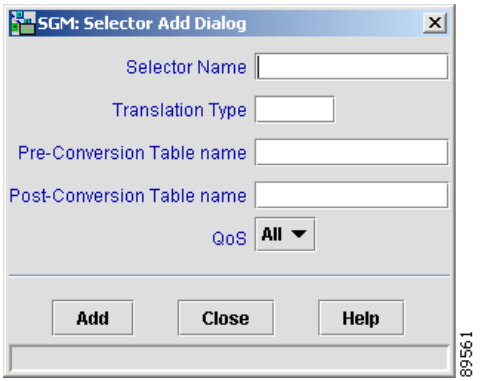
To close the Edit GTT Table dialog at any time without saving any changes to the GTT file, click **Cancel**.

Step 12 (Optional) To add a new selector to a Selector Table, select a Selector Table, then use one of the following procedures:

- Select **Edit > Add** from the GTT menu.
- Select **Add** from the right-click menu.

SGM displays the Selector Add Dialog (Figure 3-75).

Figure 3-75 Selector Add Dialog



The Selector Add Dialog contains the following fields:

- **Selector Name**—Name of the selector to be added. Enter 1-to-12-character alphanumeric string.
- **Translation Type**—Translation type to be used by the selector. Enter an integer in the range **0** through **255**.
- **Global Title Indicator**—Global title indicator for the selector. Select a value from the drop-down list box. Valid values are:
  - **2**
  - **4**—This is the default value.
- **Numbering Plan**—(China and ITU only) Numbering plan for the selector. Enter an integer in the range **0** through **15**. This field is grayed-out if **Global Title Indicator** is set to **2**.
- **Nature of Addr. Indicator**—(China and ITU only) Nature of address indicator for the selector. Enter an integer in the range **0** through **127**. This field is grayed-out if **Global Title Indicator** is set to **2**.
- **Pre-Conversion Table name**—GTT address conversion table to apply prior to performing local GTT translation.

  If there is an address conversion table name in this field, the referenced table must exist, and it must contain at least one address conversion entry.

  If this field is blank, no address conversion is needed.

- **Post-Conversion Table name**—GTT address conversion table to apply after performing local GTT translation.

  If there is an address conversion table name in this field, the referenced table must exist, and it must contain at least one address conversion entry.

  If this field is blank, no address conversion is needed.

- **QoS**—Quality of service (QoS) class of the selector. Select a value from the drop-down list box. Valid QoS classes range from **1** through **7**. Select **ALL** if you want the selector to accept all QoS classes. The default value is **ALL**.

Enter or select values for the new selector, then click **Add**. SGM adds the selector to the Selector Table.

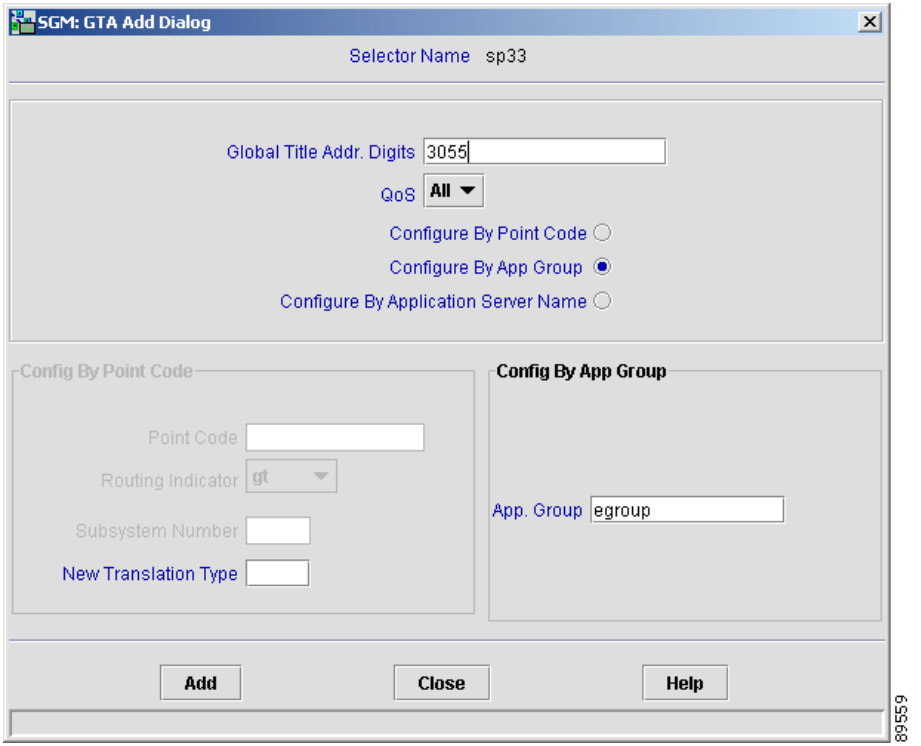
When you are done adding selectors, click **Close** to close the Selector Add Dialog.

Step 13 (Optional) To add a new GTA entry to a GTA Table, select a GTA Table, then use one of the following procedures:

- Select **Edit > Add** from the GTT menu.
- Select **Add** from the right-click menu.

SGM displays the Selector Add Dialog (Figure 3-76).

Figure 3-76 GTA Add Dialog



The GTA Add Dialog contains the following fields:

- **Selector Name**—Name of the selector associated with this GTA. You cannot edit this field.
- **Global Title Addr. Digits**—Address digits for the GTA. Enter a 1 to 15 digit hexadecimal string.
- **QoS**—Quality of service (QoS) class of the GTA. Select a value from the drop-down list box. Valid QoS classes range from **1** through **7**. Select **ALL** if you want the GTA to accept all QoS classes. The default value is **ALL**.

- **Configure By Point Code—**Indicates whether to configure the GTA by point code. To configure the GTA by point code, select this radio button.

  SGM makes the **Config By Point Code** fields available, and grays-out the **Config By App Group** fields. This is the default setting.

- **Configure By App Group—**Indicates whether to configure the GTA by application group. To configure the GTA by application group, select this radio button.

  SGM makes the **Config By App Group** fields available, and grays-out the **Config By Point Code** fields.

- **Configure By Application Server Name—**Indicates whether to configure the GTA by application server name. To configure the GTA by application server name, select this radio button.

  SGM replaces the **Config By Point Code** fields with the **Config By Application Server name** fields, and grays-out the **Config By App Group** fields.

- **Point Code**—Destination point code for the GTA. Enter a point code. This field is available only if **Configure By Point Code** is selected.

- **Routing Indicator**—Routing indicator for the GTA. Select a value from the drop-down list box. Valid values are:

  - **gt**—Route on the global title. This is the default routing indicator.
  - **pcssn**—Route on the point code and SSN.

  This field is available only if **Configure By Point Code** or **Configure By Application Server Name** is selected.

- **Subsystem Number**—Destination SSN for the GTA. Enter an integer in the range **2** through **255**. This field is mutually exclusive with the **New Translation Type** field. This field is available only if **Configure By Point Code** or **Configure By Application Server Name** is selected.

- **New Translation Type**—Translation type to be used by the GTA. Enter an integer in the range **0** through **255**. This field is mutually exclusive with the **Subsystem Number** field. This field is available only if **Configure By Point Code** or **Configure By Application Server Name** is selected.

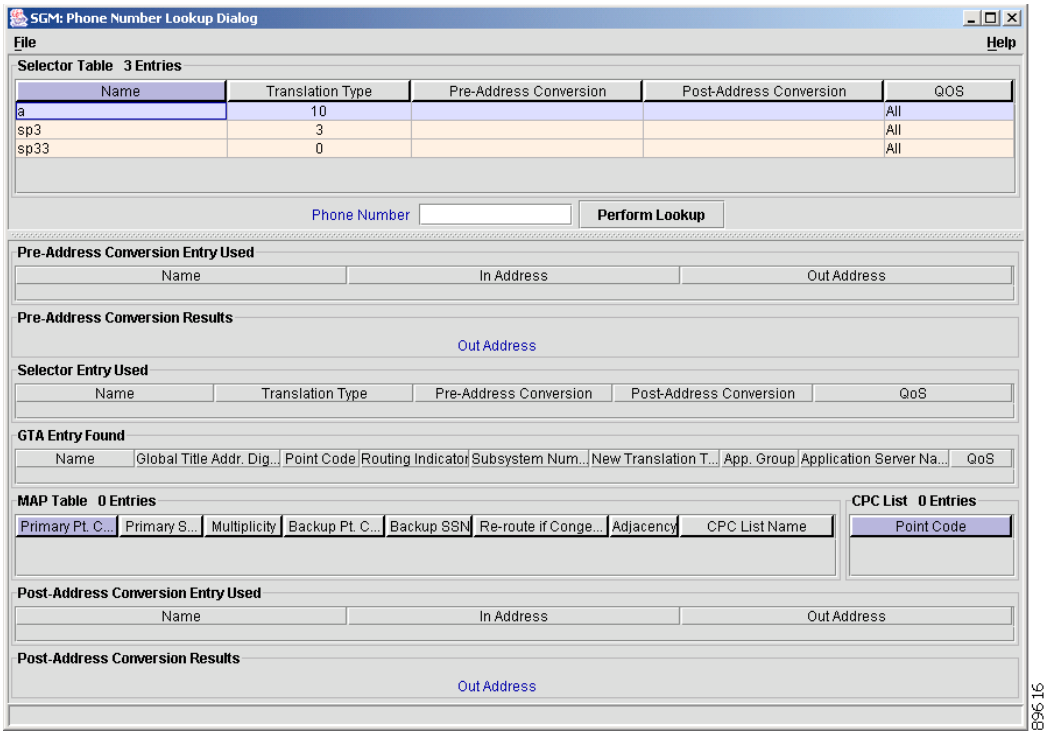
- **App. Group**—Name of the application group that is to provide the point code, routing indicator, and SSN to be used by the GTA. Enter the name of an application group. This field is available only if **Configure By App Group** is selected.
- **Application Server Name**—Name of the application server that is to provide the point code, routing indicator, and SSN to be used by the GTA. Enter the name of an application server. This field is available only if **Configure By Application Server Name** is selected.

Enter or select values for the new GTA entry, then click **Add**. SGM adds the GTA entry to the GTA Table.

When you are done adding GTA entries, click **Close** to close the GTA Add Dialog.

Step 14 (Optional) To search the GTA Table for the Global Title Address Digits for a specific selector, select the **Selectors and GTA** tab, then select **View > Phone Number Config** from the GTT menu. SGM displays the The Phone Number Lookup Dialog (Figure 3-77).

Figure 3-77 Phone Number Lookup Dialog



The Phone Number Lookup Dialog contains the following tables, field, and buttons:

- **Selector Table—**Selector Table associated with the GTA Table to be searched. Select one or more Selector Tables. For descriptions of the fields in this table, and the other tables in the Phone Number Lookup Dialog, see Step 6.
- **Phone Number—**GTA digits to be searched for in the GTA Table.
- **Perform Lookup—**Launches the search for the GTA digits.

- **Pre-Address Conversion Entry Used—**Entry in the GTT address conversion table used for pre-address conversion, if the Selector Table being searched performs pre-address conversion.

  For China and ITU variants, pre-address conversion might result in a numbering plan or nature of address indicator that is different from the selected Selector Table. If this occurs, SGM searches for a selector in the Selector Table that matches the new numbering plan and nature of address indicator:

  - If SGM finds a matching selector, SGM uses that selector to complete the search.
  - If SGM does not find a matching selector, the search fails.

- **Pre-Address Conversion Results—**Results of the pre-address conversion (converted address, numbering plan, and nature of address indicator), if the Selector Table being searched performs pre-address conversion.
- **Selector Entry Used—**Selector Entry that was searched.
- **GTA Entry Found—**GTA Table in which the GTA digits were found.
- **MAP Table—**MAP Table, if any, associated with the GTA Table in which the GTA digits were found.
- **CPC List—**CPC List, if any, associated with the GTA Table in which the GTA digits were found.
- **Post-Address Conversion Entry Used—**Entry in the GTT address conversion table used for post-address conversion, if the Selector Table being searched performs post-address conversion.
- **Post-Address Conversion Results—**Results of the post-address conversion (converted address, numbering plan, and nature of address indicator), if the Selector Table being searched performs post-address conversion.

To search for Global Title Address Digits, select a Selector Table and enter a telephone number or prefix as a 1 to 15 digit hexadecimal string. For example, to search for a specific telephone number, such as 919-555-6384, enter **9195556384**. To search for all entries that begin with the 919-555 telephone prefix, enter **919555**.

Click **Perform Lookup** to launch the search:

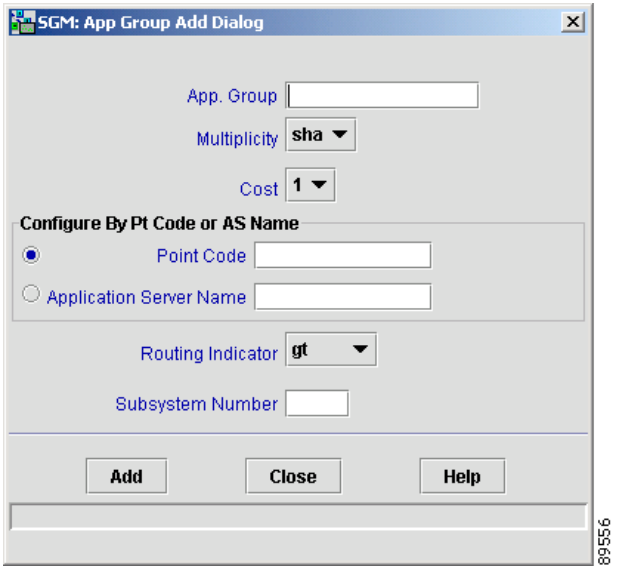
- If one or more matching entries are found, displays the entries that contained the GTA digits in the GTA Table.
- If the Selector Table being searched performs pre-address conversion, the converted address, numbering plan, and nature of address indicator are displayed in the **Pre-Address Conversion Results** field.
- If the Selector Table being searched performs post-address conversion, the converted address, numbering plan, and nature of address indicator are displayed in the **Post-Address Conversion Results** field.
- If no matching entries are found, or if the Selector Table has no associated GTA Table, displays **Could not find GTA for selector and phone number** at the bottom of the window.

Step 15 (Optional) To add a new application group entry to an App Group Table, select an App Group Table, then use one of the following procedures:

- Select **Edit > Add** from the GTT menu.
- Select **Add** from the right-click menu.

SGM displays the App Group Add Dialog (Figure 3-78).

Figure 3-78 App Group Add Dialog



The App Group Add Dialog contains the following fields:

- **App. Group**—Name of the application group to be added. Enter 1-to-12-character alphanumeric string.
- **Multiplicity**—Multiplicity setting for the application group. Select a value from the drop-down list box. Valid values are:
  - **sha**—Share equally between all destinations. This is the default value.
  - **cos**—Use the destination with the least cost, if available.
  - **cgp**—Use SCCP calling party address (CGPA) load sharing, if available.
- **Cost**—Relative cost of the application group. Select a relative cost, **1** through **8**, from the drop-down list box. The default value is **1**.
- **Point Code**—Destination point code for the application group. Select this radio button and enter a point code. This field is mutually exclusive with **Application Server Name**.
- **Application Server Name—**Name of the application server. Select this radio button and enter an application server name. This field is mutually exclusive with **Point Code**.

- **Routing Indicator**—Routing indicator for the application group. Select a value from the drop-down list box. Valid values are:
  - **gt**—Route on the global title. This is the default routing indicator.
  - **pcssn**—Route on the point code and SSN.
- **Subsystem Number**—Destination SSN for the application group. Enter an integer in the range **2** through **255**.

Enter or select values for the new application group entry, then click **Add**. SGM adds the application group entry to the App Group Table.

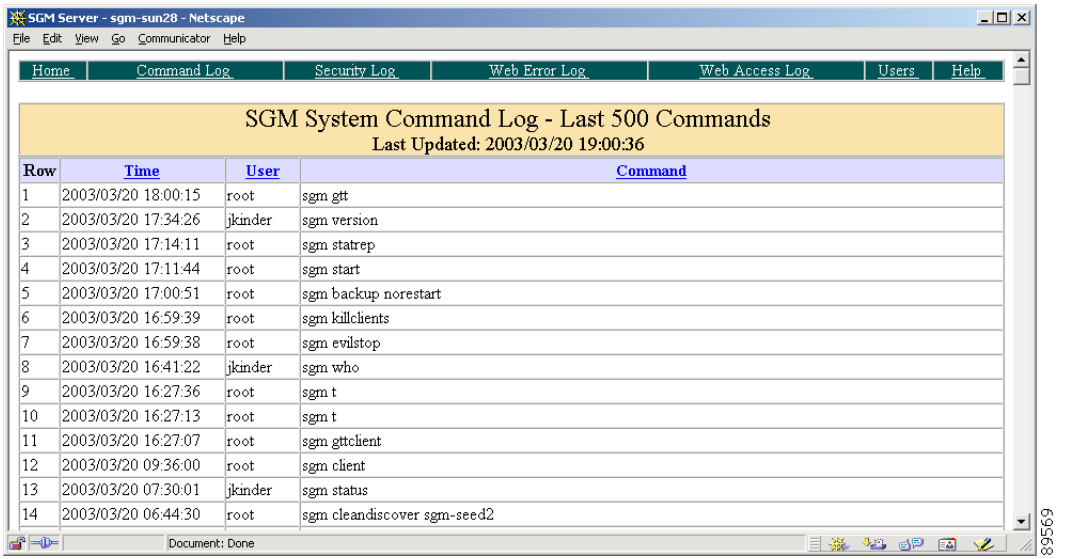
When you are done adding application group entries, click **Close** to close the App Group Add Dialog.

Step 16 (Optional) To add a new MAP entry to a MAP Table, select a MAP Table, then use one of the following procedures:

- Select **Edit > Add** from the GTT menu.
- Select **Add** from the right-click menu.

SGM displays the MAP Add Dialog (Figure 3-79).

Figure 3-79 MAP Add Dialog



The MAP Add Dialog contains the following fields:

- **Primary Pt. Code**—Primary point code for the MAP. Enter a point code.
- **Primary SSN**—Primary SSN for the MAP. Enter an integer in the range **2** through **255**.
- **Multiplicity**—Multiplicity setting for the MAP. Select a value from the drop-down list box. Valid values are:
  - **dom**—Dominant. Always translate to the primary point code-SSN combination if it is available. Translate to the backup point code-SSN combination only if the primary combination is not available.
  - **sha**—Share equally between the primary point code-SSN combination and the backup point code-SSN combination. This is the default value.
  - **sol**—Solitary MAP. There is no alternate if the point code or SSN is not available.
- **Backup Pt. Code**—Backup point code for the MAP. Enter a point code.
- **Backup SSN**—Backup SSN for the MAP. Enter an integer in the range **2** through **255**.

- **CPC List Name**—Name of the CPC list to be associated with this MAP. Enter a CPC list name.
- **Re-route if Congested**—Indicates whether the MAP is to be routed to the backup point code-SSN combination if the primary combination is congested:
  - If you want to route the MAP to the backup combination when the primary combination is congested, select the checkbox.
  - If you do not want to route the MAP to the backup, clear the checkbox. This is the default setting.
- **Adjacency**—Indicates whether a point code-SSN combination is to be considered adjacent to the local node for SCCP management:
  - If you want the point code-SSN combination be considered adjacent to the local node, select the checkbox.
  - If you do not want the point code-SSN combination be considered adjacent to the local node, clear the checkbox. This is the default setting.

Enter or select values for the new MAP entry, then click **Add**. SGM adds the MAP entry to the MAP Table.

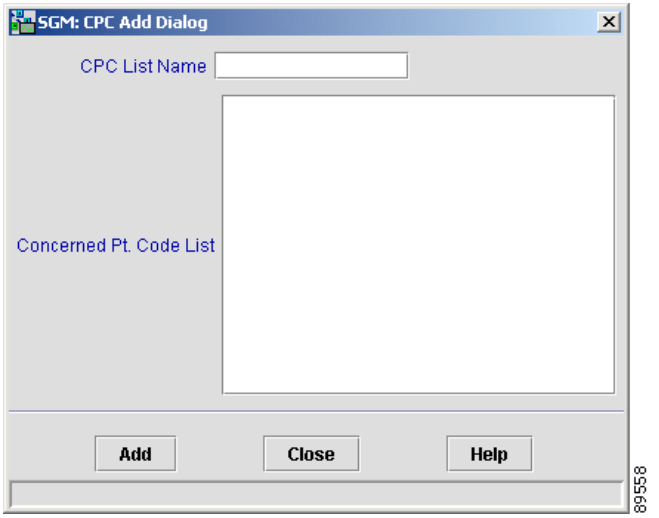
When you are done adding MAP entries, click **Close** to close the MAP Add Dialog.

Step 17 (Optional) To add a new CPC list to a CPC Table, select a Concerned Pt. Code Name List or a CPC List, then use one of the following procedures:

- Select **Edit > Add** from the GTT menu.
- Select **Add** from the right-click menu.

SGM displays the CPC Add Dialog (Figure 3-80).

Figure 3-80 CPC Add Dialog



The CPC Add Dialog contains the following fields:

- **CPC List Name**—Name of the CPC list to be added. Enter 1-to-12-character alphanumeric string.
- **Concerned Pt. Code List**—One or more CPCs to be added to the new CPC list. Enter one or more CPCs, separated by spaces.

Enter or select values for the new CPC list, then click **Add**. SGM adds the CPC list to the MAP Table.

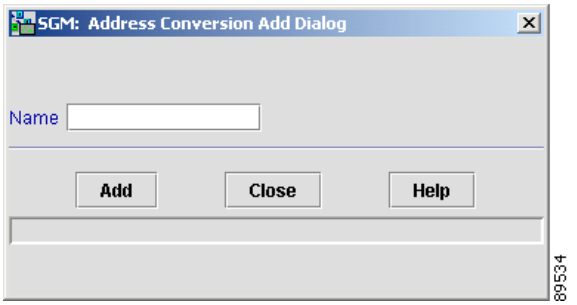
When you are done adding CPC lists, click **Close** to close the CPC Add Dialog.

Step 18 (Optional) To add a new Address Conversion Table, select an Address Conversion Table, then use one of the following procedures:

- Select **Edit>Add** from the GTT menu.
- Select **Add** from the right-click menu.

SGM displays the Address Conversion Add Dialog for a Table (Figure 3-81).

Figure 3-81 Address Conversion Add Dialog for a Table



The Address Conversion Add Dialog for a Table contains the following fields:

- **Name—**Name of the GTT address conversion table. Enter a 1-to-12 character name.
- **Numbering Plan—**(China and ITU only) Numbering plan associated with the address conversion table. For all addresses that are converted, the numbering plan is converted to the value of this field. The valid range is 0 to 15.
- **Nature of Address Indicator—**(China and ITU only) Nature of address indicator associated with the address conversion table. For all addresses that are converted, the nature of address indicator is converted to the value of this field. The valid range is 0 to 127.

Enter or select values for the new Address Conversion Table, then click **Add**. SGM adds the Address Conversion Table to the GTT file.

When you are done adding Address Conversion Tables, click **Close** to close the Address Conversion Add Dialog for a Table.

Step 19 (Optional) To add a new entry to a Conversion Entry Table, select a Conversion Entry Table, then use one of the following procedures:

- Select **Edit>Add** from the GTT menu.
- Select **Add** from the right-click menu.

SGM displays the Address Conversion Add Dialog for an Entry (Figure 3-82).

Figure 3-82 Address Conversion Add Dialog for an Entry

The Address Conversion Add Dialog for an Entry contains the following fields:

- **Name—**Name of the GTT address conversion table. Enter a 1-to-12 character name. If the table name does not already exist, SGM creates a new address conversion table with this name.
- **Numbering Plan—**(China and ITU only) Numbering plan associated with the address conversion table. For all addresses that are converted, the numbering plan is converted to the value of this field. The valid range is 0 to 15.
- **Nature of Address Indicator—**(China and ITU only) Nature of address indicator associated with the address conversion table. For all addresses that are converted, the nature of address indicator is converted to the value of this field. The valid range is 0 to 127.

- **In Address—**Input SCCP address entry. Enter an address as a 1 to 15 digit hexadecimal string.
- **Out Address—**Output SCCP address entry. Enter an address as a 1 to 15 digit hexadecimal string.
- **Numbering Plan—**(China and ITU only) Numbering plan associated with this entry in the address conversion table. If specified, the value of this field overrides the value of the **Numbering Plan** field in the Address Conversion Table, for this entry. The valid range is 0 to 15.
- **Nature of Address Indicator—**(China and ITU only) Nature of address indicator associated with this entry in the address conversion table. If specified, the value of this field overrides the value of the **Nature of Address Indicator** field in the Address Conversion Table, for this entry. The valid range is 0 to 127.

Enter or select values for the new entry, then click **Add**. SGM adds the entry to the Conversion Entry Table.

When you are done adding entries, click **Close** to close the Address Conversion Add Dialog for an Entry.

Step 20 (Optional) To delete one or more rows from a table, select the rows, then select **Edit > Delete** from the GTT menu or **Delete** from the right-click menu. SGM displays the Confirm Delete Dialog to confirm the deletion:

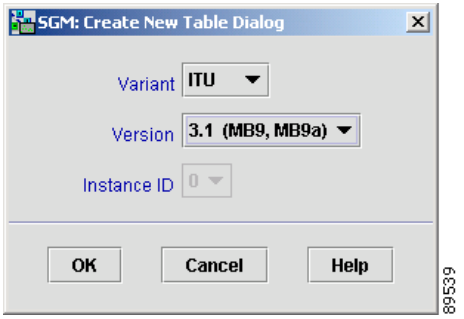
- To delete the selected rows, click **Yes**. The rows are deleted from the table and the Confirm Delete Dialog is closed.
- To retain the selected rows, click **No**. The rows are kept in the table and the Confirm Delete Dialog is closed.

You can select more than one row to delete, but all selected rows must be in the same table. For example, you cannot delete rows from both the Selector Table and the MAP Table at the same time.

If deleting a row from a table “orphans” one or more rows in the table, such that no remaining entries reference the orphaned rows, SGM displays the number of orphaned rows and asks whether you want to also delete the orphaned rows. (SGM displays the number of rows and not the rows themselves, because there could be thousands of orphaned rows.)

Step 21 (Optional) To create a new GTT file, select **File > New Table** from the GTT menu. SGM displays the Create New Table Dialog (Figure 3-83).

Figure 3-83 Create New Table Dialog



The Create New Table Dialog contains the following fields:

- **Variant**—SS7 p[rotocol variant. Valid variants are:
  - **ANSI**
  - **China**
  - **ITU**
- **Version**—Version of the file format to be used by the GTT. Valid versions are:
  - **2.0 (MB5, MB6)**—Corresponds to ITP software releases 12.2(4)MB5 and 12.2(4)MB6. Allows GTT translation to an application server.
  - **3.0 (MB7, MB8)**—Corresponds to ITP software releases 12.2(4)MB7 and 12.2(4)MB8. Allows local point codes in GTT tables.
  - **3.1 (MB9, MB9a)**—Corresponds to ITP software releases 12.2(4)MB9 and 12.2(4)MB9a. Two or more entries in the same application group can have the same cost. This is the default version in SGM.
  - **4.0 (MB10+)**—Corresponds to ITP software release 12.2(4)MB10 or greater. Supports multiple instances on a single node.

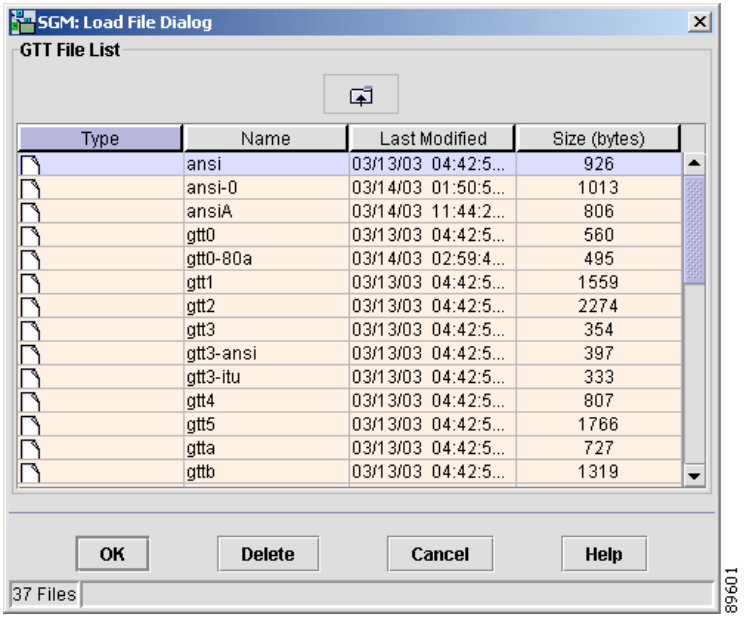
  SGM 3.0 does not support version 1.0, which corresponds to ITP software release 12.2(4)MB4. You can load a version 1.0 file into SGM, but fields or features that are unique to version 1.0 are not displayed, they are removed from the GTT file the next time it is saved, and the file is saved as a version 2.0 file.
- **Instance ID**—ID of the instance to be used by the GTT. Valid IDs are **0** to **7**. The default instance ID is **0**. This list box is available only if Version **4.0** or later is selected.

Select a variant, version, and instance for the new GTT file, then click **OK**. SGM creates the new GTT file and closes the Create New Table Dialog.

To close the Create New Table Dialog without creating a new GTT file, click **Cancel**.

Step 22 (Optional) To load an existing GTT file, or to modify the list of GTT files, select **File > Load** from the GTT menu. SGM displays the Load File Dialog: GTT File List (Figure 3-84).

Figure 3-84 Load File Dialog: GTT File List



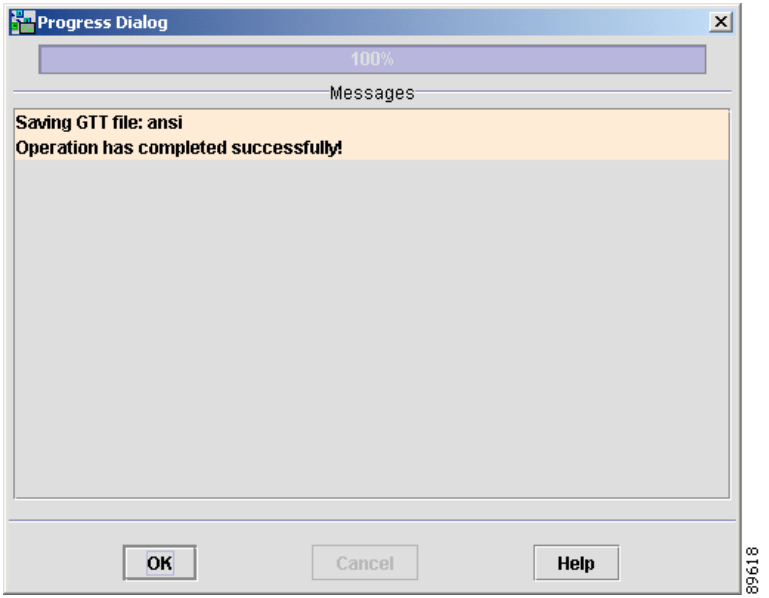
The Load File Dialog: GTT File List contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the GTT file or folder.
- **Last Modified**—Date and time the GTT file or folder was last modified.

- **Size (bytes)**—Size of the GTT file or folder, in bytes.
- **Number of Files**—Total number of GTT files and folders (displayed in bottom left corner).

To load a GTT file, enter the name of the file or select it in the list and click **OK**. SGM closes the Load File Dialog: GTT File List and displays the Progress Dialog (Figure 3-85).

Figure 3-85 Progress Dialog



The Progress Dialog displays the progress of the GTT file load, as well as any messages generated while loading the file.

To stop loading the file, click **Cancel**.

When the file has been loaded, click **OK**. SGM closes the Progress Dialog, loads the GTT file, and returns to the GTT Configuration window.

When you load a GTT file, the name of the server associated with the GTT client and the filename are displayed in the window name:

SGM: GTT Configurator -- sgm-sun8 -- GTT.File.1

If you have not yet loaded or saved a GTT file, SGM displays **No File Loaded** in place of the GTT file name.

To delete a GTT file from the GTT file list, select a file and click **Delete**. SGM issues an informational message containing the name and location of the deleted file.

To save any changes you made to the list of files, click **OK**. SGM saves the changes and closes the Load File Dialog: GTT File List.

To close the Load File Dialog: GTT File List without loading a GTT file or saving any changes to the GTT file list, click **Cancel**.

Step 23 SGM strongly recommends that you to check the semantics of a GTT file against a specific ITP, validating the following data in the GTT file:

- **ITP Point Code**—For version 2.0 GTT files, the point code in the GTT file cannot be the same as the ITP's primary, secondary, or capability point code. If it is the same, SGM generates an **Error**.

  This is not a restriction for GTT files of version 3.0 or later.

- **Route Table**—The ITP's route table must contain all point codes in the GTT file, other than the ITP's primary, secondary, or capability point code. If the route table does not contain the point codes, SGM generates an **Error**.

- **Route Status**—All route entries for point codes in the GTT file, other than the ITP's primary, secondary, or capability point code, must be available. If they are not, SGM generates a **Warning**.

- **GTA and Application Group**—If either the GTA or the application group is configured by an application server, then that application server must exist on the ITP. If it does not exist, SGM generates an **Error**.

  If the application server exists on the ITP, but it is not available, SGM generates a **Warning**.

For example, ITP limits XUA configuration to instance 0. The SGM semantic check verifies that XUA is not configured on any other instance.

To check the semantics of a GTT file, select **File > Semantic Check** from the GTT menu. SGM displays the Semantic Check GTT dialog (Figure 3-86).

Figure 3-86 Semantic Check GTT Dialog

The Semantic Check GTT dialog contains the following fields:

- **ITP Name or IP Address**—Name or IP address of the ITP against which to check the GTT file.

Enter the name or IP address of an ITP and click **OK**. SGM closes the Semantic Check GTT dialog and opens the Progress Dialog (Figure 3-85).

The Progress Dialog displays the progress of the semantic check for the GTT file, as well as any messages generated while checking the file.

To cancel the check, click **Cancel**.

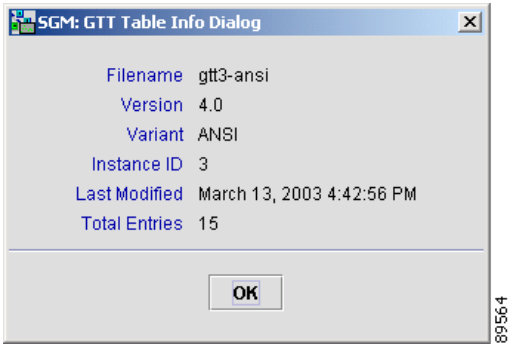
When the check is complete, click **OK**. SGM closes the Progress Dialog and returns to the Semantic Check GTT dialog.

To close the Semantic Check GTT dialog without checking the semantics of the GTT file, click **Cancel**.

Note You can also use the **sgm gttcheck** command to semantics of a GTT file. For more information on the use of this command, see the "SGM Commands and Descriptions" section on page B-2.

Step 24 (Optional) To display basic information about the currently displayed GTT file, select **View > GTT Table Info** from the GTT menu. SGM displays the GTT Table Info Dialog (Figure 3-87).

Figure 3-87 GTT Table Info Dialog



The GTT Table Info Dialog contains the following fields:

- **Filename**—Name of the GTT file.
- **Version**—Version of the file format to be used by the GTT. Valid versions are:
  - **2.0 (MB5, MB6)**—Corresponds to ITP software releases 12.2(4)MB5 and 12.2(4)MB6. Allows GTT translation to an application server.
  - **3.0 (MB7, MB8)**—Corresponds to ITP software releases 12.2(4)MB7 and 12.2(4)MB8. Allows local point codes in GTT tables.
  - **3.1 (MB9, MB9a)**—Corresponds to ITP software releases 12.2(4)MB9 and 12.2(4)MB9a. Two or more entries in the same application group can have the same cost. This is the default version in SGM.
  - **4.0 (MB10+)**—Corresponds to ITP software release 12.2(4)MB10 or greater. Supports multiple instances on a single node.

  SGM 3.0 does not support version 1.0, which corresponds to ITP software release 12.2(4)MB4. You can load a version 1.0 file into SGM, but fields or features that are unique to version 1.0 are not displayed, they are removed from the GTT file the next time it is saved, and the file is saved as a version 2.0 file.
- **Variant**—SS7 p[rotocol variant. Valid variants are:
  - **ANSI**
  - **China**
  - **ITU**

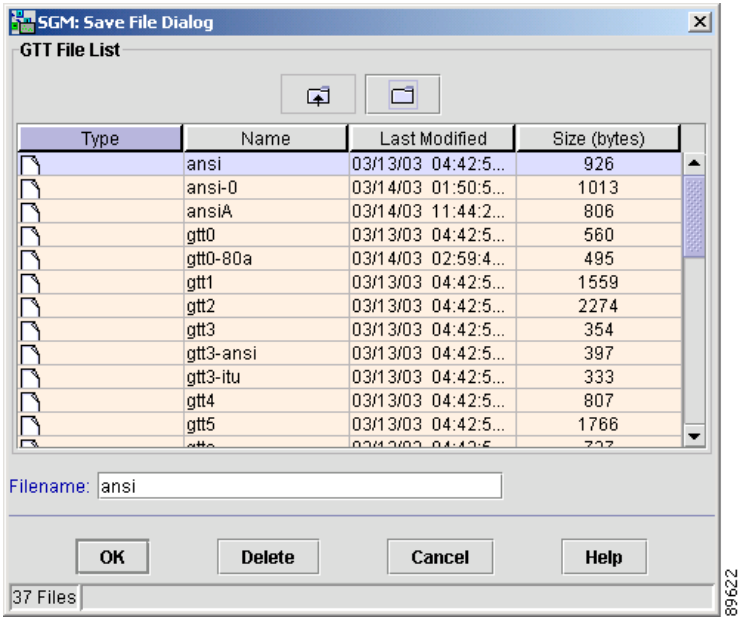
- **Instance ID**—ID of the instance used by the GTT. Valid IDs are **0** to **7**. The default instance ID is **0**. If there is no instance associated with the GTT, this field displays **N/A**.
- **Last Modified**—Date and time the GTT file was last modified.
- **Total Entries**—Total number of entries in the GTT file.

Click **OK** to close the GTT Table Info Dialog.

Step 25 (Optional) To save the changes you have made to the GTT file, or to modify the list of GTT files, use one of the following procedures:

- To save the changes you have made to the GTT file without changing the name of the file, select **File > Save** from the GTT menu.
- To save the changes you have made to the GTT file with a new name, select **File > Save As** from the GTT menu. SGM displays the Save File Dialog: GTT File List (Figure 3-88).

Figure 3-88 Save File Dialog: GTT File List



The Save File Dialog: GTT File List contains the following fields:

- **Type**—Icon indicating whether the item in the table is a file or a folder.
- **Name**—Name of the GTT file or folder.
- **Last Modified**—Date and time the GTT file or folder was last modified.
- **Size (bytes)**—Size of the GTT file or folder, in bytes.
- **Filename**—Name by which you want to save the GTT file.

  If you create a new GTT file name, you can use any letters, numbers, or characters in the name that are allowed by your operating system. However, if you include any spaces in the new name, SGM converts those spaces to dashes. For example, SGM saves file “a b c” as “a-b-c”.
- **Number of Files**—Total number of GTT files and folders (displayed in bottom left corner).

To save the GTT file with a new name, use one of the following procedures:

- To save the file with a completely new name, enter the new name and click **OK**.
- To save the file with an existing name, overwriting an old GTT file, select the name in the list and click **OK**.

SGM closes the Save File Dialog: GTT File List and displays the Progress Dialog (Figure 3-85).

The Progress Dialog displays the progress of the GTT file save, as well as any messages generated while saving the file.

To stop saving the file, click **Cancel**.

When the file has been saved, click **OK**. SGM closes the Progress Dialog, saves the GTT file with the new name, and returns to the GTT Configuration window.

Note If another user modifies and saves the GTT file before you save your changes, SGM asks if you want to overwrite that user’s changes. If you choose to do so, the other user’s changes are overwritten and lost. If you choose not to do so, your changes are lost, unless you save the GTT file to a different filename.

To delete a GTT file from the GTT file list, select a file and click **Delete**. SGM issues an informational message containing the name and location of the deleted file.

To save any changes you made to the list of files, click **OK**. SGM saves the changes and closes the Load File Dialog: GTT File List.

To close the Save File Dialog: GTT File List without saving the GTT file or saving any changes to the GTT file list, click **Cancel**.

Step 26 When you are ready to exit the GTT Configurator window, select **File > Exit** from the GTT menu.

If you have made any changes to the GTT file, SGM asks if you want to save the changes before leaving the window:

- Click **Yes** to save the changes.

  SGM opens the Save File Dialog: GTT File List, which enables you to save the GTT file with a new name, or overwrite an existing GTT file.

  SGM then opens the Save File Dialog: GTT Preferences File List, which enables you to save the GTT preferences file with a new name, or overwrite an existing GTT preferences file.

- Click **No** to close the prompt window.

  SGM automatically saves your GTT preferences, then closes the GTT Configurator window without saving any changes to the GTT file.

By default, GTT files and GTT preferences files are located in the SGM installation directory:

- If you installed SGM in the default directory, */opt*, then the default directory is */opt/CSCOsgm/gtt*.
- If you installed SGM in a different directory, then the default directory is located in that directory.

To change the directory in which SGM stores GTT files, use the **sgm gttdir** command. See the "SGM Commands and Descriptions" section on page B-2 form more information on the use of this command.

Working with SGM Statistics Reports

Once every hour, SGM gathers critical information from all known nodes, signaling points, linksets, and links. SGM then uses that information to calculate statistics, and generates reports based on those statistics.

SGM enables you to:

- View and export detailed network link and linkset statistics summary reports.
- View and export detailed accounting statistics reports.
- Create, view, and export custom statistics reports.
- View and export point code inventory reports.
- Modify the way SGM displays information in reports.

By default, SGM stores all reports in the report files directory, */reports*:

- If you installed SGM in the default directory, */opt*, then the default report files directory is */opt/CSCOsgm/reports*.
- If you installed SGM in a different directory, then the default report files directory is located in that directory.

The */reports* directory contains the following subdirectories:

- */daily*—Contains all daily report files, stored in .Z format.
- */exportdaily*—Contains all daily report files, edited and formatted for export, stored as Zip files.
- */hourly*—Contains all hourly report files, stored in .Z format.
- */exporthourly*—Contains all hourly report files, edited and formatted for export, stored as Zip files.
- */exportrolling*—Contains all rolling report files, edited and formatted for export, stored as Zip files. SGM rebuilds the files in this subdirectory every hour.

- */custom*—Contains all custom report files. These are the report files generated using the **sgm accstats** and **sgm linkstats** commands.

  Each file is identified with a unique ID tag, specified when the **sgm accstats** or **sgm linkstats** command was entered. If the user did not specify an ID tag, SGM uses the process ID of the **sgm accstats** or **sgm linkstats** command.

- */etc*—Contains additional files used by the SGM reporting scripts and Web pages, including the *nodes.include*, *linksets.include*, *nodes.exclude*, and *linksets.exclude* files, if they exist.

This section includes the following information:

Modifying the Way SGM Handles Statistics Reports (Solaris Only)

SGM enables you to modify the following aspects of statistics reports:

- To specify whether SGM is to generate network statistics reports, enter the **sgm statreps** [**disable** | **enable**] command:
  - To generate network statistics reports, enter **sgm statreps enable**. This is the default setting.
  - To not generate network statistics reports, enter **sgm statreps disable**.

- To specify whether SGM is to generate network statistics reports in export format, enter the **sgm statreps** [**export | noexport**] command:
  - To generate network statistics reports in export format, enter **sgm statreps export**. This is the default setting.
  - To not generate network statistics reports in export format, enter **sgm statreps noexport**.
- To specify whether SGM is to generate accounting statistics reports, enter the **sgm statreps** [**acct | noacct**] command:
  - To generate accounting statistics reports, enter **sgm statreps acct**. Accounting must be enabled on the links in order for SGM to generate accounting statistics.
  - To not generate accounting statistics reports, enter **sgm statreps noacct**. This is the default setting.
- To specify whether SGM is to include links that use the Stream Control Transmission Protocol (SCTP) IP transport protocol in network statistics reports, enter the **sgm statreps** [**iplinks | noiplinks**] command:
  - To include SCTPIP links, enter **sgm statreps iplinks**. This is the default setting.
  - To not include SCTPIP links, enter **sgm statreps noiplinks**.
- To specify whether SGM is to include links that do not have planned send and receive capacities in network statistics reports, enter the **sgm statreps** [**nullcaps | nonullcaps**] command:
  - To include links that do not have planned send and receive capacities, enter **sgm statreps nullcaps**. This is the default setting.
  - To not include links that do not have planned send and receive capacities, enter **sgm statreps nonullcaps**.
- To set the time mode for dates in network statistics reports, enter the **sgm statreps timemode** [**12 | 24**] command:
  - To use 24-hour time, also called military time, enter **sgm statreps timemode 24**. 1:00 in the afternoon is 13:00. This is the default setting.
  - To use 12-hour time, with AM and PM, enter **sgm statreps timemode 12**. 1:00 in the afternoon is 1:00 PM.

- To specify whether SGM is to verify that a disk has at least 10 MB of space remaining before generating network statistics reports, enter the **sgm statreps** [**diskcheck** | **nodiskcheck**] command:
  - To verify the disk space, enter **sgm statreps diskcheck**. This is the default setting.
  - To not verify the disk space, enter **sgm statreps nodiskcheck**.
- To specify whether SGM is to display a gray background in the Send Utilization or Receive Utilization cell in a network statistics report, if the following condition is met:

  Current Utilization > *factor* *** Long-Term Utilization**

  enter the **sgm statreps utilratio** command. The default value for *factor* is **1.5**.
- To specify whether SGM is to display a gray background in the InSrv cell in a network statistics report, if the following condition is met:

  Current In-Service < *factor* *** Long-Term In-Service**

  enter the **sgm statreps servratio** command. The default value for *factor* is **0.95**.
- To set the maximum number of days SGM is to archive hourly network statistics reports, enter the **sgm statreps hourlyage** or **sgm rephourlyage** command. The default setting is **31** days.
- To set the maximum number of days SGM is to archive daily network statistics reports, enter the **sgm statreps dailyage** or **sgm repdailyage** command. The default setting is **90** days.
- To set the maximum number of days SGM is to archive custom network statistics reports, enter the **sgm repcustage** command. The default setting is **10** days.
- To specify whether SGM is to show real node names or display names in Web pages, enter the **sgm webnames** command:
  - To show the real DNS names of nodes, as discovered by SGM, enter **sgm webnames real**. This is the default setting.
  - To show display names, enter **sgm webnames display**. Display names are new names that you specify for nodes. For more information about display names, see the "Editing a Node" section on page 3-124.

- To specify whether SGM is to display send and receive utilization for linksets and links as percentages or in Erlangs in Web pages, enter the **sgm webutil** command:
  - To display utilization as a percentage, enter **sgm webutil percent**. This is the default setting.
  - To show display utilization in Erlangs, enter **sgm webutil erlangs**.

  See the "Working with SGM Statistics Reports" section on page 3-334 for more information on send and receive utilization for linksets and links.
- To display the current status of all SGM network statistics report parameters, enter the **sgm statreps status** command.
- To display the timer file for SGM network statistics reports, enter the **sgm statreps timer** command. The timer file is useful for identifying how much time SGM spends gathering report data and generating reports.
- To include only specific nodes or signaling points in reports, create the user-defined *nodes.include* file and list the nodes and signaling points in the file. Only those nodes and signaling points will be included in automatically generated SGM accounting statistics and network statistics reports, as well as in custom reports that were generated with the **default** keyword (or no *node-list* keyword at all) on the **sgm accstats** or **sgm linkstats** command.

  Keep in mind the following considerations:
  - If you installed SGM in the default directory, */opt*, then the *nodes.include* file is located at */opt/CSCOsgm/reports/etc/nodes.include*.

    If you installed SGM in a different directory, or if you moved the report files directory using the **sgm repdir** command, then the */reports/etc/nodes.include* file is located in that directory.
  - Each line in the *nodes.include* file must contain a single node name, or node name and signaling point name, that matches exactly the real, fully qualified node name of the node, and each line must end with a colon (**:**). For example:

    sgm-75-59a.cisco.com:

    sgm-26-51a.cisco.com:

To include a specific signaling point, specify the node name and signaling point:

sgm-75-59a.cisco.com;net0:

sgm-26-51a.cisco.com;net1:

- Wildcard matching is not supported.
- If a node or signaling point appears in both the *nodes.include* file and the *nodes.exclude* file, it is excluded. That is, excluding a node or signaling point overrides including the same node or signaling point.
- If you specify a special include file on the **sgm accstats** or **sgm linkstats** command, SGM ignores the *nodes.include* file. See the "Including Specific Nodes in Custom Reports" section on page 3-374 for more information on the special include file.

- To include only specific linksets in reports, create the user-defined *linksets.include* file and list the linksets in the file. Only those linksets will be included in automatically generated SGM accounting statistics and network statistics reports, as well as in custom reports that were generated with the **default** keyword (or no *node-list* keyword at all) on the **sgm accstats** or **sgm linkstats** command.

  Keep in mind the following considerations:

  - If you installed SGM in the default directory, */opt*, then the *linksets.include* file is located at */opt/CSCOsgm/reports/etc/linksets.include*.

    If you installed SGM in a different directory, or if you moved the report files directory using the **sgm repdir** command, then the */reports/etc/linksets.include* file is located in that directory.
  - Each line in the *linksets.include* file must contain a single linkset name that matches exactly the real, fully qualified linkset name of the linkset, including the node name and signaling point name. For example:

    sgm-75-59a.cisco.com;net0:linkset2

    sgm-26-51a.cisco.com;net1:linkset1

  - Wildcard matching is not supported.

  - If a linkset appears in both the *linksets.include* file and the *linksets.exclude* file, it is excluded. That is, excluding a linkset overrides including the same linkset.
  - If you specify a special include file on the **sgm accstats** or **sgm linkstats** command, SGM ignores the *linksets.include* file. See the "Including Specific Nodes in Custom Reports" section on page 3-374 for more information on the special include file.

- To exclude specific nodes or signaling points from reports, create the user-defined *nodes.exclude* file and list the nodes and signaling points in the file. Those nodes and signaling points will be excluded from automatically generated SGM accounting statistics and network statistics reports, as well as from custom reports that were generated with the **default** keyword (or no *node-list* keyword at all) on the **sgm accstats** or **sgm linkstats** command.

  Keep in mind the following considerations:

  - If you installed SGM in the default directory, */opt*, then the *nodes.exclude* file is located at */opt/CSCOsgm/reports/etc/nodes.exclude*.

    If you installed SGM in a different directory, or if you moved the report files directory using the **sgm repdir** command, then the */reports/etc/nodes.exclude* file is located in that directory.

  - Each line in the *nodes.exclude* file must contain a single node name, or node name and signaling point name, that matches exactly the real, fully qualified node name of the node, and each line must end with a colon (**:**). For example:

    sgm-75-59a.cisco.com:

    sgm-26-51a.cisco.com:

    To exclude a specific signaling point, specify the node name and signaling point:

    sgm-75-59a.cisco.com;net0:

    sgm-26-51a.cisco.com;net1:

  - Wildcard matching is not supported.

  - If a node or signaling point appears in both the *nodes.include* file and the *nodes.exclude* file, it is excluded. That is, excluding a node or signaling point overrides including the same node or signaling point.
  - If you specify a special include file on the **sgm accstats** or **sgm linkstats** command, SGM ignores the *nodes.exclude* file. See the "Including Specific Nodes in Custom Reports" section on page 3-374 for more information on the special include file.

- To exclude specific linksets from reports, create the user-defined *linksets.exclude* file and list the linksets in the file. Those linksets will be excluded from automatically generated SGM accounting statistics and network statistics reports, as well as from custom reports that were generated with the **default** keyword (or no *node-list* keyword at all) on the **sgm accstats** or **sgm linkstats** command.

  Keep in mind the following considerations:

  - If you installed SGM in the default directory, */opt*, then the *linksets.exclude* file is located at */opt/CSCOsgm/reports/etc/linksets.exclude*.

    If you installed SGM in a different directory, or if you moved the report files directory using the **sgm repdir** command, then the */reports/etc/linksets.exclude* file is located in that directory.
  - Each line in the *linksets.exclude* file must contain a single linkset name that matches exactly the real, fully qualified linkset name of the linkset, including the node name and signaling point name. For example:

    sgm-75-59a.cisco.com;net0:linkset2

    sgm-26-51a.cisco.com;net1:linkset1

  - Wildcard matching is not supported.
  - If a linkset appears in both the *linksets.include* file and the *linksets.exclude* file, it is excluded. That is, excluding a linkset overrides including the same linkset.
  - If you specify a special include file on the **sgm accstats** or **sgm linkstats** command, SGM ignores the *linksets.exclude* file. See the "Including Specific Nodes in Custom Reports" section on page 3-374 for more information on the special include file.

- To use PAGER to display the contents of the system reports log, enter the **sgm replog** command. The reports log lists all messages related to the creation and maintenance of SGM reports.

  To clear the log and restart the server, enter **sgm replog clear**.

  To display the contents of the log in reverse order, with the most recent commands at the beginning of the log, enter **sgm replog -r**.

  For more information about the reports log, see the "Viewing the SGM System Reports Log" section on page 3-394.

- To remove all data from SGM network statistics reports, restoring the reports to a "clean" state, enter the **sgm statreps clean** command.
- To remove all data from one or more SGM custom statistics reports, restoring the reports to a "clean" state, enter the **sgm statreps cleancustom** command.
  - To clean all custom reports, enter **sgm statreps cleancustom**.
  - To clean a single custom report, enter **sgm statreps cleancustom** *tag*, where *tag* is the ID tag of the custom report you want to clean.

For more information about each of these commands, including valid ranges and default settings, see the "SGM Commands and Descriptions" section on page B-2.

Each of these commands requires you to be logged 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.

Changing the SGM Reports Directory (Solaris Only)

You can change the directory in which SGM stores reports.

To change the SGM report files directory, 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, and enter the following commands:

 # cd /opt/CSCOsgm/bin

 # ./sgm repdir *directory*

where *directory* is the new directory.

Note This command copies all files in the current directory to the new directory. If you are logged in as the super user, and you do not own the new directory, you might not be able to copy the files. If that is the case, you must specify a directory that you own, or you must log in as the root user.

Viewing SGM Network Statistics Reports

SGM enables you to view hourly and daily statistics summary reports for links and linksets. You can also export the reports.

SGM enables you to view the following network statistics reports for linksets:

- Viewing the Linkset Statistics Hourly Reports, page 3-344
- Viewing the Linkset Statistics Daily Summary Reports, page 3-346

SGM enables you to view the following network statistics reports for links:

- Viewing the Link Statistics Hourly Reports, page 3-349
- Viewing the Link Statistics Daily Summary Reports, page 3-354
- Viewing the Five Day Link Utilization Report, page 3-359

SGM enables you to view the following network statistics reports export files:

- Viewing the Hourly Network Statistics Export Files, page 3-361
- Viewing the Daily Network Statistics Export Files, page 3-362
- Viewing the Rolling Network Statistics Export Files, page 3-363

Viewing the Linkset Statistics Hourly Reports

SGM enables you to view hourly summaries of statistics for all linksets known to SGM on the specified date and hour.

To view hourly summaries of statistics, select **Linkset Hourly** from the menu bar of any SGM Network Statistics or Accounting Statistics Web page. SGM displays the Linkset Statistics: Hourly Reports page, which displays hourly linkset statistics summary reports, archived by date, and by hour:

- To view an archived report showing all hourly linkset statistics summary reports for an entire day, click a date. SGM displays the Linkset Statistics: Daily All Hours Report page for that date.
- To view an archived report showing all hourly linkset statistics summary reports for a specific date and hour, click an hour. SGM displays the Linkset Statistics: Hourly Report page for that date and hour.

The Linkset Statistics: Daily All Hours Report and Linkset Statistics: Hourly Report pages both display the following information:

- **Number and Sort Order (in header)**—Displays the number of records in the table, the column by which the table is sorted, and whether the sort is in ascending or descending order.
- **ID**—Internal ID, assigned by SGM, of the selected hourly linkset statistics summary report.

  To see the entire detailed report, click the ID. SGM displays the Linkset Data Record page for that linkset, date, and hour, in text format. The Linkset Data Record can be useful when the TAC is debugging problems.
- **Hour**—(Linkset Statistics: Daily All Hours Report page only) Hour for which the link statistics summary report was created, for the specified date.
- **Node**—Name of node for the linkset. To see statistics for only a selected node, click the node name.
- **Inst Name—**Name of instance for the linkset.
- **Sig Point—**Name of signaling point for the linkset. To see statistics for only a selected signaling point, click the signaling point.
- **Linkset Name**—Name of the linkset. To see statistics for only a selected linkset, click the linkset name.

- **Hourly InSrv**—Percentage of time the linkset was in service on the specified date and hour.
- **Long Term InSrv**—Average percentage of time the linkset was in service since SGM polling began for the linkset, or since SGM last reset the averages as a result of bad data.

If a statistics calculation results in an impossible value, such as a number divided by zero, or a number that is impossible based on the configuration, SGM displays **MathError** in the field.

SGM enables you to modify the way information is presented in the Linkset Statistics: Daily All Hours Report and Linkset Statistics: Hourly Report pages:

- You can sort the pages based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.
- To display only the top 10 or bottom 10 records, based on the column by which the table is sorted, click the **Top 10** menu option:
  - If the column is sorted in descending order, displays only the top 10 records.
  - If the column is sorted in ascending order, displays only the bottom 10 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 20 or bottom 20 records, based on the column by which the table is sorted, click the **Top 20** menu option:
  - If the column is sorted in descending order, displays only the top 20 records.
  - If the column is sorted in ascending order, displays only the bottom 20 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 50 or bottom 50 records, based on the column by which the table is sorted, click the **Top 50** menu option:
  - If the column is sorted in descending order, displays only the top 50 records.
  - If the column is sorted in ascending order, displays only the bottom 50 records.
  - To switch between the two displays, left-click the column header.

- To display only the top 100 or bottom 100 records, based on the column by which the table is sorted, click the **Top 100** menu option:
  - If the column is sorted in descending order, displays only the top 100 records.
  - If the column is sorted in ascending order, displays only the bottom 100 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 300 or bottom 300 records, based on the column by which the table is sorted, click the **Top 300** menu option:
  - If the column is sorted in descending order, displays only the top 300 records.
  - If the column is sorted in ascending order, displays only the bottom 300 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 500 or bottom 500 records, based on the column by which the table is sorted, click the **Top 500** menu option:
  - If the column is sorted in descending order, displays only the top 500 records.
  - If the column is sorted in ascending order, displays only the bottom 500 records.
  - To switch between the two displays, left-click the column header.
- To display up to 15,000 records in the table, click the **Max** menu option.
- To reset the **Top** preferences for this Web page to the default settings for the SGM server, click the **DefPrefs** menu option.

Viewing the Linkset Statistics Daily Summary Reports

SGM enables you to view a daily summary of statistics for all linksets known to SGM on a specified date.

To view a daily summary of statistics, select **Linkset Daily** from the menu bar of any SGM Network Statistics or Accounting Statistics Web page. SGM displays the Linkset Statistics: Daily Summary Reports page, which displays daily linkset statistics summary reports, archived by date. Each archived file contains a daily summary of statistics for all linksets known to SGM on a specified date.

To view an archived linkset statistic summary report, click a date. SGM displays the Linkset Statistics: Daily Summary Report page for that date.

The Linkset Statistics: Daily Summary Report table displays the following information:

- **Number and Sort Order (in header)**—Displays the number of records in the table, the column by which the table is sorted, and whether the sort is in ascending or descending order.
- **Node**—Name of node for the linkset. To see statistics for only a selected node, click the node name.
- **Inst Name—**Name of instance for the linkset.
- **Sig Point—**Name of signaling point for the linkset. To see statistics for only a selected signaling point, click the signaling point.
- **Linkset Name**—Name of the linkset. To see statistics for only a selected linkset, click the linkset name.
- **Daily InSrv**—Average percentage of time the linkset was in service on the specified date.
- **Long Term InSrv**—Average percentage of time the linkset was in service since SGM polling began for the linkset, or since SGM last reset the averages as a result of bad data.
- **Daily Low InSrv**—Lowest hourly in-service percentage for the linkset, for the specified date.
- **Low Srv Hour**—Hour in which the lowest in-service percentage occurred, for the specified date.

If a statistics calculation results in an impossible value, such as a number divided by zero, or a number that is impossible based on the configuration, SGM displays **MathError** in the field.

SGM enables you to modify the way information is presented in the Linkset Statistics: Daily Summary Report page:

- You can sort the Linkset Statistics: Daily Summary Report page based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.
- To display only the top 10 or bottom 10 records, based on the column by which the table is sorted, click the **Top 10** menu option:
  - If the column is sorted in descending order, displays only the top 10 records.
  - If the column is sorted in ascending order, displays only the bottom 10 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 20 or bottom 20 records, based on the column by which the table is sorted, click the **Top 20** menu option:
  - If the column is sorted in descending order, displays only the top 20 records.
  - If the column is sorted in ascending order, displays only the bottom 20 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 50 or bottom 50 records, based on the column by which the table is sorted, click the **Top 50** menu option:
  - If the column is sorted in descending order, displays only the top 50 records.
  - If the column is sorted in ascending order, displays only the bottom 50 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 100 or bottom 100 records, based on the column by which the table is sorted, click the **Top 100** menu option:
  - If the column is sorted in descending order, displays only the top 100 records.
  - If the column is sorted in ascending order, displays only the bottom 100 records.
  - To switch between the two displays, left-click the column header.

- To display only the top 300 or bottom 300 records, based on the column by which the table is sorted, click the **Top 300** menu option:
  - If the column is sorted in descending order, displays only the top 300 records.
  - If the column is sorted in ascending order, displays only the bottom 300 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 500 or bottom 500 records, based on the column by which the table is sorted, click the **Top 500** menu option:
  - If the column is sorted in descending order, displays only the top 500 records.
  - If the column is sorted in ascending order, displays only the bottom 500 records.
  - To switch between the two displays, left-click the column header.
- To display up to 15,000 records in the table, click the **Max** menu option.
- To reset the **Top** preferences for this Web page to the default settings for the SGM server, click the **DefPrefs** menu option.

Viewing the Link Statistics Hourly Reports

SGM enables you to view hourly link statistics summary reports for an entire day, or for a specific date and hour.

To view hourly link statistics summary reports, select **Link Hourly** from the menu bar of any SGM Network Statistics or Accounting Statistics Web page. SGM displays the Link Statistics: Hourly Reports page, which displays hourly link statistics summary reports, archived by date, and by hour:

- To view an archived report showing all hourly link statistics summary reports for an entire day, click a date. SGM displays the Link Statistics: Daily All Hours Report page for that date.
- To view an archived report showing all hourly link statistics summary reports for a specific date and hour, click an hour. SGM displays the Link Statistics: Hourly Report page for that date and hour.

The Link Statistics: Daily All Hours Report and Link Statistics: Hourly Report pages both display the following information:

- **Number and Sort Order (in header)**—Displays the number of records in the table, the column by which the table is sorted, and whether the sort is in ascending or descending order.
- **ID**—Internal ID, assigned by SGM, of the selected hourly link statistics summary report.

  To see the entire detailed report, click the ID. SGM displays the Link Data Record page for that link, date, and hour, in text format. The Link Data Record can be useful when the TAC is debugging problems.
- **Hour**—(Link Statistics: Daily All Hours Report page only) Hour for which the link statistics summary report was created, for the specified date.
- **Node**—Name of node for the link. To see statistics for only a selected node, click the node name.
- **Inst Name—**Name of instance for the link.
- **Sig Point—**Name of signaling point for the link. To see statistics for only a selected signaling point, click the signaling point.
- **Link Name**—Name of the link. To see statistics for only a selected link, click the link name.
- **Type**—Type of link. Possible link types are:
  - **HSL**—The link uses the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol.
  - **SCTP**—The link uses the Stream Control Transmission Protocol (SCTP) IP transport protocol.
  - **Serial**—The link uses the serial SS7 signaling protocol.
  - **Virtual**—The link is a virtual link, which connects signaling point instances running on the same device. SGM does not poll virtual links, nor does it display real-time data or accounting statistics for virtual links.
- **Send Util** or **Send Erls**—Average Send Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), for the specified date and hour.

  If the planned send capacity is not set for the link, this field displays **NoCap**.

- **L Term Send Util** or **L Term Send Erls**—Long-term average Send Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), since SGM polling began for the link, or since SGM last reset the averages as a result of bad data.

  If the planned send capacity is not set for the link, this field displays **NoCap**.

- **Recv Util** or **Recv Erls**—Average Receive Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), for the specified date and hour.

  If the planned receive capacity is not set for the link, this field displays **NoCap**.

- **L Term Recv Util** or **L Term Recv Erls**—Long-term average Receive Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), since SGM polling began for the link, or since SGM last reset the averages as a result of bad data.

  If the planned receive capacity is not set for the link, this field displays **NoCap**.

- **Send MSUs**—Total number of MTP3 MSUs sent on the specified date and hour.

- **Recv MSUs**—Total number of MTP3 MSUs received on the specified date and hour.

- **Drop**—Total number of drops on the specified date and hour.

- **Hourly InSrv**—Percentage of time the link was in service on the specified date and hour.

- **Long Term InSrv**—Average percentage of time the link was in service since SGM polling began for the link, or since SGM last reset the averages as a result of bad data.

If a statistics calculation results in an impossible value, such as a number divided by zero, or a number that is impossible based on the configuration, SGM displays **MathError** in the field.

SGM enables you to modify the way information is presented in the Link Statistics: Daily All Hours Report and Link Statistics: Hourly Report pages:

- You can sort the pages based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.
- To display only the top 10 or bottom 10 records, based on the column by which the table is sorted, click the **Top 10** menu option:
  - If the column is sorted in descending order, displays only the top 10 records.
  - If the column is sorted in ascending order, displays only the bottom 10 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 20 or bottom 20 records, based on the column by which the table is sorted, click the **Top 20** menu option:
  - If the column is sorted in descending order, displays only the top 20 records.
  - If the column is sorted in ascending order, displays only the bottom 20 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 50 or bottom 50 records, based on the column by which the table is sorted, click the **Top 50** menu option:
  - If the column is sorted in descending order, displays only the top 50 records.
  - If the column is sorted in ascending order, displays only the bottom 50 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 100 or bottom 100 records, based on the column by which the table is sorted, click the **Top 100** menu option:
  - If the column is sorted in descending order, displays only the top 100 records.
  - If the column is sorted in ascending order, displays only the bottom 100 records.
  - To switch between the two displays, left-click the column header.

- To display only the top 300 or bottom 300 records, based on the column by which the table is sorted, click the **Top 300** menu option:
  - If the column is sorted in descending order, displays only the top 300 records.
  - If the column is sorted in ascending order, displays only the bottom 300 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 500 or bottom 500 records, based on the column by which the table is sorted, click the **Top 500** menu option:
  - If the column is sorted in descending order, displays only the top 500 records.
  - If the column is sorted in ascending order, displays only the bottom 500 records.
  - To switch between the two displays, left-click the column header.
- To display up to 15,000 records in the table, click the **Max** menu option.
- To display only records for links that are not of type **SCTP**, click the **NoSCTP** menu option.

  To display all records, including those for links that are of type **SCTP**, click the **YesSCTP** menu option. This is the default setting.
- To display all records, including those for links that do not have planned send and receive capacities, click the **YesNullCaps** menu option.

  To display only records for links that have planned send and receive capacities, click the **NoNullCaps** menu option. This is the default setting.
- To reset the **Top**, **SCTP**, and **NullCaps** preferences for this Web page to the default settings for the SGM server, click the **DefPrefs** menu option.

Viewing the Link Statistics Daily Summary Reports

SGM enables you to view a daily summary of statistics for all links known to SGM on a specified date.

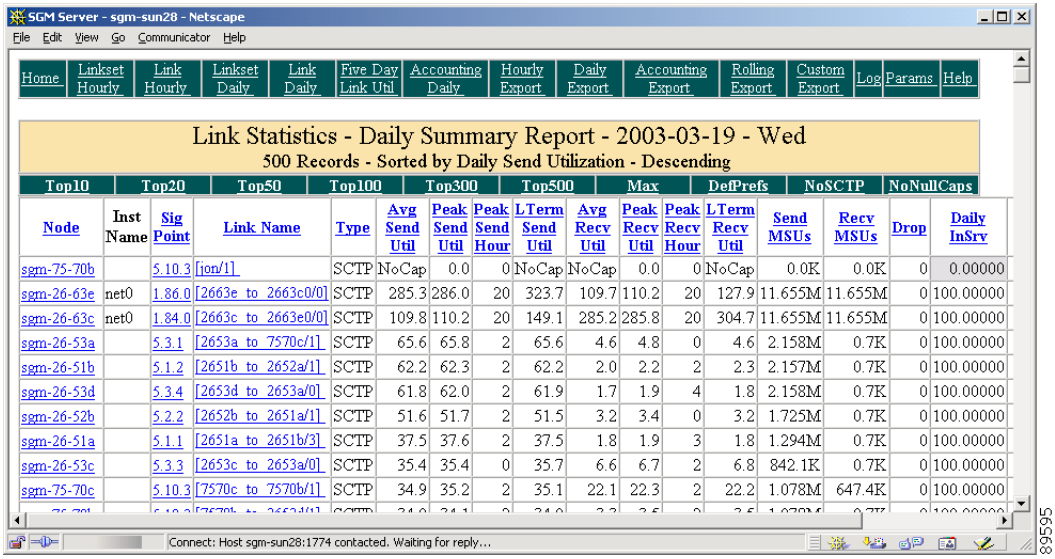
To view a daily summary of statistics, use one of the following procedures:

- Select **View> Reports > Network Statistics** from the SGM Main Menu.
- Select **Network Statistics Reports** from the SGM Server Home Page.
- Select **Link Daily** from the menu bar of any SGM Network Statistics or Accounting Statistics Web page.

SGM displays the Link Statistics: Daily Summary Reports page, which displays daily link statistics summary reports are archived by date. Each archived file contains a daily summary of statistics for all links known to SGM on a specified date.

To view an archived link statistic summary report, click a date. SGM displays the Link Statistics: Daily Summary Report page for that date (Figure 3-89).

Figure 3-89 Link Statistics: Daily Summary Report Page



The Link Statistics: Daily Summary Report page displays the following information:

- **Number and Sort Order (in header)**—Displays the number of records in the table, the column by which the table is sorted, and whether the sort is in ascending or descending order.
- **Node**—Name of node for the link. To see statistics for only a selected node, click the node name.
- **Inst Name—**Name of instance for the link.
- **Sig Point—**Name of signaling point for the link. To see statistics for only a selected signaling point, click the signaling point.
- **Link Name**—Name of the link. To see statistics for only a selected link, click the link name.
- **Type**—Type of link. Possible link types are:
  - **HSL**—The link uses the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol.
  - **SCTP**—The link uses the Stream Control Transmission Protocol (SCTP) IP transport protocol.
  - **Serial**—The link uses the serial SS7 signaling protocol.
  - **Virtual**—The link is a virtual link, which connects signaling point instances running on the same device. SGM does not poll virtual links, nor does it display real-time data or accounting statistics for virtual links.
- **Avg Send Util** or **Avg Send Erls**—Average Send Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), for the specified date.

  If the planned send capacity is not set for the link, this field displays **NoCap**.
- **Peak Send Util** or **Peak Send Erls**—Highest hourly Average Send Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), for the specified date.
- **Peak Send Hour**—Hour in which the Peak Send Utilization for the link occurred, for the specified date.

- **L Term Send Util** or **L Term Send Erls**—Long-term average Send Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), since SGM polling began for the link, or since SGM last reset the averages as a result of bad data.

  If the planned send capacity is not set for the link, this field displays **NoCap**.

- **Avg Recv Util** or **Avg Recv Erls**—Average Receive Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), for the specified date.

  If the planned receive capacity is not set for the link, this field displays **NoCap**.

- **Peak Recv Util** or **Peak Recv Erls**—Highest hourly Average Receive Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), for the specified date.

- **Peak Recv Hour**—Hour in which the Peak Receive Utilization for the link occurred, for the specified date.

- **L Term Recv Util** or **L Term Recv Erls**—Long-term average Receive Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), since SGM polling began for the link, or since SGM last reset the averages as a result of bad data.

  If the planned receive capacity is not set for the link, this field displays **NoCap**.

- **Send MSUs**—Total number of MTP3 MSUs sent on the specified date.

- **Recv MSUs**—Total number of MTP3 MSUs received on the specified date.

- **Drop**—Total number of drops on the specified date.

- **Daily InSrv**—Average percentage of time the link was in service on the specified date.

- **Long Term InSrv**—Average percentage of time the link was in service since SGM polling began for the link, or since SGM last reset the averages as a result of bad data.

- **Daily Low InSrv**—Lowest hourly in-service percentage for the link, for the specified date.

- **Low Srv Hour**—Hour in which the lowest in-service percentage occurred, for the specified date.

If a statistics calculation results in an impossible value, such as a number divided by zero, or a number that is impossible based on the configuration, SGM displays **MathError** in the field.

SGM enables you to modify the way information is presented in the Link Statistics: Daily Summary Report page:

- You can sort the Link Statistics: Daily Summary Report page based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.
- To display only the top 10 or bottom 10 records, based on the column by which the table is sorted, click the **Top 10** menu option:
  - If the column is sorted in descending order, displays only the top 10 records.
  - If the column is sorted in ascending order, displays only the bottom 10 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 20 or bottom 20 records, based on the column by which the table is sorted, click the **Top 20** menu option:
  - If the column is sorted in descending order, displays only the top 20 records.
  - If the column is sorted in ascending order, displays only the bottom 20 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 50 or bottom 50 records, based on the column by which the table is sorted, click the **Top 50** menu option:
  - If the column is sorted in descending order, displays only the top 50 records.
  - If the column is sorted in ascending order, displays only the bottom 50 records.
  - To switch between the two displays, left-click the column header.

- To display only the top 100 or bottom 100 records, based on the column by which the table is sorted, click the **Top 100** menu option:
  - If the column is sorted in descending order, displays only the top 100 records.
  - If the column is sorted in ascending order, displays only the bottom 100 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 300 or bottom 300 records, based on the column by which the table is sorted, click the **Top 300** menu option:
  - If the column is sorted in descending order, displays only the top 300 records.
  - If the column is sorted in ascending order, displays only the bottom 300 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 500 or bottom 500 records, based on the column by which the table is sorted, click the **Top 500** menu option:
  - If the column is sorted in descending order, displays only the top 500 records.
  - If the column is sorted in ascending order, displays only the bottom 500 records.
  - To switch between the two displays, left-click the column header.
- To display up to 15,000 records in the table, click the **Max** menu option.
- To display only records for links that are not of type **SCTP**, click the **NoSCTP** menu option.

  To display all records, including those for links that are of type **SCTP**, click the **YesSCTP** menu option. This is the default setting.
- To display all records, including those for links that do not have planned send and receive capacities, click the **YesNullCaps** menu option.

  To display only records for links that have planned send and receive capacities, click the **NoNullCaps** menu option. This is the default setting.
- To reset the **Top**, **SCTP**, and **NullCaps** preferences for this Web page to the default settings for the SGM server, click the **DefPrefs** menu option.

Viewing the Five Day Link Utilization Report

The Five Day Link Utilization Report page displays send and receive utilization percentages for all links for the last five (5) days.

To access the Five Day Link Utilization Report page, select **Five Day Link Util** from the menu bar of any SGM Network Statistics or Accounting Statistics Web page. SGM displays the five day utilization report for the specified link.

The Five Day Link Utilization Report page displays the following information:

- **Number and Sort Order (in header)**—Displays the number of records in the table, the column by which the table is sorted, and whether the sort is in ascending or descending order.

  The default sort order is day one, Send Utilization for the link, descending.

- **Node**—Name of node for the link. To see statistics for only a selected node, click the node name.
- **Inst Name—**Name of instance for the link.
- **Sig Point—**Name of signaling point for the link. To see statistics for only a selected signaling point, click the signaling point.
- **Link Name**—Name of the link. To see statistics for only a selected link, click the link name.
- **Send Util** or **Send Erls**—Send Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), for each of the last five days. If the planned send capacity is not set for the link, this field displays **NoCap**.
- **Recv Util** or **Recv Erls**—Receive Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), for each of the last five days. If the planned receive capacity is not set for the link, this field displays **NoCap**.

If a statistics calculation results in an impossible value, such as a number divided by zero, or a number that is impossible based on the configuration, SGM displays **MathError** in the field.

SGM enables you to modify the way information is presented in the Five Day Link Utilization Report page:

- You can sort the Five Day Link Utilization Report page based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.
- To display only the top 10 or bottom 10 records, based on the column by which the table is sorted, click the **Top 10** menu option:
  - If the column is sorted in descending order, displays only the top 10 records.
  - If the column is sorted in ascending order, displays only the bottom 10 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 20 or bottom 20 records, based on the column by which the table is sorted, click the **Top 20** menu option:
  - If the column is sorted in descending order, displays only the top 20 records.
  - If the column is sorted in ascending order, displays only the bottom 20 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 50 or bottom 50 records, based on the column by which the table is sorted, click the **Top 50** menu option:
  - If the column is sorted in descending order, displays only the top 50 records.
  - If the column is sorted in ascending order, displays only the bottom 50 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 100 or bottom 100 records, based on the column by which the table is sorted, click the **Top 100** menu option:
  - If the column is sorted in descending order, displays only the top 100 records.
  - If the column is sorted in ascending order, displays only the bottom 100 records.
  - To switch between the two displays, left-click the column header.

- To display only the top 300 or bottom 300 records, based on the column by which the table is sorted, click the **Top 300** menu option:
  - If the column is sorted in descending order, displays only the top 300 records.
  - If the column is sorted in ascending order, displays only the bottom 300 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 500 or bottom 500 records, based on the column by which the table is sorted, click the **Top 500** menu option:
  - If the column is sorted in descending order, displays only the top 500 records.
  - If the column is sorted in ascending order, displays only the bottom 500 records.
  - To switch between the two displays, left-click the column header.
- To display up to 15,000 records in the table, click the **Max** menu option.
- To display only records for links that are not of type **SCTP**, click the **NoSCTP** menu option.

  To display all records, including those for links that are of type **SCTP**, click the **YesSCTP** menu option. This is the default setting.
- To display all records, including those for links that do not have planned send and receive capacities, click the **YesNullCaps** menu option.

  To display only records for links that have planned send and receive capacities, click the **NoNullCaps** menu option. This is the default setting.
- To reset the **Top**, **SCTP**, and **NullCaps** preferences for this Web page to the default settings for the SGM server, click the **DefPrefs** menu option.

Viewing the Hourly Network Statistics Export Files

The Hourly Network Statistics Export Files page displays all archived SGM hourly network statistics summary reports, for all links and linksets known to SGM, for the server to which you are connected, stored as downloadable Zip files.

To access the Hourly Network Statistics Export Files page, select **Hourly Export** from the menu bar of any SGM Network Statistics or Accounting Statistics Web page.

On the Hourly Network Statistics Export Files page, the Zip files are archived by type (linkset or link), date, and hour. For example, **sgmLinksetStats.2002-10-15-08.csv.zip** is the Zip file that contains the hourly linkset statistics summary report for the 8th hour on October 15, 2002.

Each archived Zip file contains a comma-separated value (CSV) text file with an hourly network statistics summary report for all links or linksets that were known to SGM on that date and hour. You can download the Zip files and unzip them.

To download a Zip file, click a filename, then save the file to a location of your choice.

See the "SGM Link Statistics Hourly Export File Format" section on page F-4 for detailed information about the format of hourly link statistics export files.

See the "SGM Linkset Statistics Hourly Export File Format" section on page F-6 for detailed information about the format of hourly link and linkset statistics export files.

Viewing the Daily Network Statistics Export Files

The Daily Network Statistics Export Files page displays all archived SGM daily network statistics summary reports, for all links and linksets known to SGM, for the server to which you are connected, stored as downloadable Zip files.

To access the Daily Network Statistics Export Files page, select **Daily Export** from the menu bar of any SGM Network Statistics or Accounting Statistics Web page.

On the Daily Network Statistics Export Files page, the Zip files are archived by type (linkset or link) and date. For example, **sgmLinksetStats.DailySum.2002-10-15.csv.zip** is the Zip file that contains the daily linkset statistics summary report for October 15, 2002.

Each archived Zip file contains a comma-separated value (CSV) text file with a daily network statistics summary report for all links or linksets that were known to SGM on that date and hour. You can download the Zip files and unzip them.

To download a Zip file, click a filename, then save the file to a location of your choice.

See the "SGM Link Statistics Daily Export File Format" section on page F-3 for detailed information about the format of daily link statistics export files.

See the "SGM Linkset Statistics Daily Export File Format" section on page F-5 for detailed information about the format of daily link and linkset statistics export files.

Viewing the Rolling Network Statistics Export Files

The Rolling Network Statistics Export Files page displays concatenated SGM hourly and daily network statistics summary reports, for all links and linksets known to SGM, for the server to which you are connected, stored as downloadable Zip files.

To access the Rolling Network Statistics Export Files page, select **Rolling Export** from the menu bar of any SGM Network Statistics or Accounting Statistics Web page.

On the Rolling Network Statistics Export Files page, the Zip files are archived by type (linkset or link) and number of days (7 or 30). For example:

- **sgmLinksetStats.RollingSevenDayAllHours.csv.zip** is the Zip file that contains the hourly linkset statistics summary reports for the last seven (7) days, concatenated into one comma-separated value (CSV) text file.
- **sgmLinksetStats.Rolling30DayAllDays.csv.zip** is the Zip file that contains the daily linkset statistics summary reports for the last 30 days, concatenated into one comma-separated value (CSV) text file.
- **sgmLinkStats.RollingSevenDayAllHours.csv.zip** is the Zip file that contains the hourly link statistics summary reports for the last seven (7) days, concatenated into one comma-separated value (CSV) text file.
- **sgmLinkStats.Rolling30DayAllDays.csv.zip** is the Zip file that contains the daily link statistics summary reports for the last 30 days, concatenated into one comma-separated value (CSV) text file.

SGM creates a new set of files every hour.

You can download the Zip files and unzip them.

To download a Zip file, click a filename, then save the file to a location of your choice.

See the "SGM Rolling Network Statistics Export File Formats" section on page F-7 for detailed information about the format of rolling statistics export files.

Viewing SGM Accounting Statistics Reports

SGM enables you to view accounting statistics reports. You can also export the reports.

SGM enables you to view the following accounting statistics reports:

- Viewing the Accounting Statistics Daily Detail Reports, page 3-364
- Viewing the Daily Accounting Statistics Export Files, page 3-368

Viewing the Accounting Statistics Daily Detail Reports

SGM enables you to view a daily summary of accounting statistics for SGM on a specified date. Accounting statistics are displayed based on the node, signaling point, linkset, originating point code (OPC), the destination point code (DPC), the type of SS7 traffic (such as ISUP or SCCP), and whether the traffic passed or failed the Gateway Screening test at the ITP.

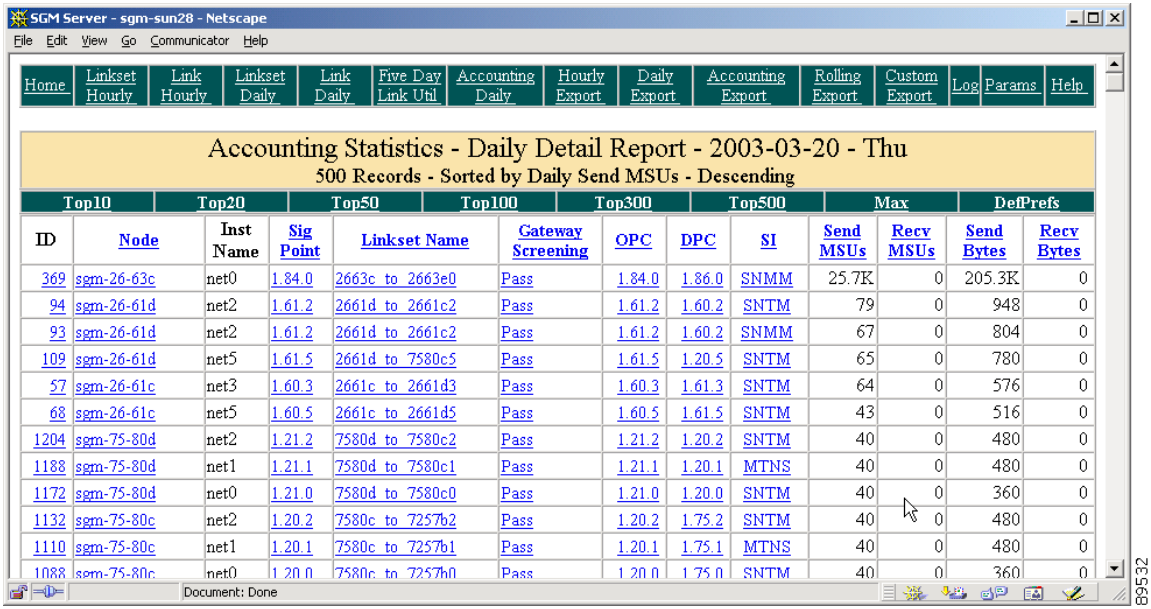
To view a daily summary of accounting statistics, use one of the following procedures:

- Select **View> Reports > Accounting Statistics** from the SGM Main Menu.
- Select **Accounting Statistics Reports** from the SGM Server Home Page.
- Select **Accounting Daily** from the menu bar of any SGM Network Statistics or Accounting Statistics Web page.

SGM displays the Accounting Statistics: Daily Detail Reports page, which displays daily accounting statistics reports, archived by date. Each archived file contains a daily summary of accounting statistics for SGM on a specified date.

To view an archived accounting statistic report, click a date. SGM displays the Accounting Statistics: Daily Detail Report page for that date (Figure 3-90).

Figure 3-90 Accounting Statistics: Daily Detail Report Page



The Accounting Statistics: Daily Detail Report page displays the following information:

- **Number and Sort Order (in header)**—Displays the number of records in the table, the column by which the table is sorted, and whether the sort is in ascending or descending order.
- **ID**—Internal ID, assigned by SGM, of the selected hourly accounting statistics report.

  To see the entire detailed report, click the ID. SGM displays the Accounting Data Record # X for Date for that date and hour. The Accounting Data Record # X for Date can be useful when the TAC is debugging problems.
- **Node**—Name of node for the linkset. To see statistics for only a selected node, click the node name.
- **Inst Name—**Name of instance for the linkset.
- **Sig Point—**Name of signaling point for the linkset. To see statistics for only a selected signaling point, click the signaling point.

- **Linkset**—Name of the linkset. To see statistics for only a selected linkset, click the linkset name.
- **Gateway Screening**—Indicates whether the traffic passed or failed the Gateway Screening test at the ITP. To see only statistics that passed or failed for a specific linkset, select a linkset and click **Pass** or **Fail**.
- **OPC**—Originating point code of the traffic, which is a unique identifier for each set of statistics. To see only statistics that match a specific OPC for a given linkset, find the linkset and click the point code.
- **DPC**—Destination point code of the traffic. To see only statistics that match a specific DPC for a given linkset, find the linkset and click the point code.
- **SI**—Service indicator, which indicates the type of SS7 traffic, such as **ISUP** or **SCCP**. To see only detailed information for a specific type of SI, click the SI type.
- **Send MSUs**—Total number of MTP3 MSUs sent on the specified date.
- **Recv MSUs**—Total number of MTP3 MSUs received on the specified date.
- **Send Bytes**—Total number of bytes sent on the specified date.
- **Recv Bytes**—Total number of bytes received on the specified date.

If a statistics calculation results in an impossible value, such as a number divided by zero, or a number that is impossible based on the configuration, SGM displays **MathError** in the field.

SGM enables you to modify the way information is presented in the Accounting Statistics: Daily Detail Report page:

- You can sort the Accounting Statistics: Daily Detail Report page based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.
- To display only the top 10 or bottom 10 records, based on the column by which the table is sorted, click the **Top 10** menu option:
  - If the column is sorted in descending order, displays only the top 10 records.
  - If the column is sorted in ascending order, displays only the bottom 10 records.
  - To switch between the two displays, left-click the column header.

- To display only the top 20 or bottom 20 records, based on the column by which the table is sorted, click the **Top 20** menu option:
  - If the column is sorted in descending order, displays only the top 20 records.
  - If the column is sorted in ascending order, displays only the bottom 20 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 50 or bottom 50 records, based on the column by which the table is sorted, click the **Top 50** menu option:
  - If the column is sorted in descending order, displays only the top 50 records.
  - If the column is sorted in ascending order, displays only the bottom 50 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 100 or bottom 100 records, based on the column by which the table is sorted, click the **Top 100** menu option:
  - If the column is sorted in descending order, displays only the top 100 records.
  - If the column is sorted in ascending order, displays only the bottom 100 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 300 or bottom 300 records, based on the column by which the table is sorted, click the **Top 300** menu option:
  - If the column is sorted in descending order, displays only the top 300 records.
  - If the column is sorted in ascending order, displays only the bottom 300 records.
  - To switch between the two displays, left-click the column header.

- To display only the top 500 or bottom 500 records, based on the column by which the table is sorted, click the **Top 500** menu option:
  - If the column is sorted in descending order, displays only the top 500 records.
  - If the column is sorted in ascending order, displays only the bottom 500 records.
  - To switch between the two displays, left-click the column header.
- To display up to 15,000 records in the table, click the **Max** menu option.
- To reset the **Top** preferences for this Web page to the default settings for the SGM server, click the **DefPrefs** menu option.

Viewing the Daily Accounting Statistics Export Files

The Daily Accounting Statistics Export Files page displays all archived SGM daily accounting statistics reports for the server to which you are connected, stored as downloadable Zip files.

To access the Daily Accounting Statistics Export Files page, select **Accounting Export** from the menu bar of any SGM Network Statistics or Accounting Statistics Web page.

On the Daily Accounting Statistics Export Files page, the Zip files are archived by date. For example, **sgmAccStats.DailyDetail.2002-10-15.csv.zip** is the Zip file that contains the daily accounting statistics report for October 15, 2002.

Each archived Zip file contains a comma-separated value (CSV) text file with a daily accounting statistics report for that date. You can download the Zip files and unzip them.

To download a Zip file, click a filename, then save the file to a location of your choice.

See the "SGM Daily and Hourly Accounting Statistics Export File Format" section on page F-2 for detailed information about the format of accounting statistics export files.

Generating and Viewing Custom SGM Statistics Reports

SGM enables you to create custom link and linkset statistics summary reports, and custom accounting reports. You can also export the reports.

This section contains the following information:

Generating a Custom Network Statistics Report

To create a custom link and linkset statistics summary report for SGM, use the following procedure:

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 linkstats [*node-list* [*id-tag*]] [*sort-option*] [**quiet**]

- (Optional) To include or exclude specific nodes or linksets in the report, use the *node-list* argument. See the following sections for more information:
  - Including Specific Nodes in Custom Reports, page 3-374
  - Including Specific Linksets in Custom Reports, page 3-376
  - Excluding Specific Nodes from Custom Reports, page 3-377
  - Excluding Specific Linksets from Custom Reports, page 3-378
- (Optional) If you specify a *node-list*, you can also specify an *id-tag* to identify the report. The *id-tag* can be any meaningful character string, but it cannot contain any spaces. The default value for *id-tag* is the process ID of the **sgm linkstats** command.
- (Optional) To specify a sort order for the report, specify one of the following keywords for the *sort-option* argument:
  - **-sis**—Sort based on average in-service percentage for each link (**Daily InSrv**), in descending order.
  - **-sls**—Sort based on the linkset name, in ascending order.
  - **-sos**—Sort based on the average out-of-service percentage for each link, in descending order.
  - **-sru**—Sort based on the average Receive Utilization for each link (**Avg Receive Util** or **Avg Receive Erls**), in descending order.
  - **-ssu**—Sort based on the average Send Utilization for each link (**Avg Send Util** or **Avg Send Erls**), in descending order. This is the default setting.
- (Optional) To disable automatic output to the terminal when running this command in a script, specify the **quiet** keyword. SGM generates the report in export format, which you can view using the SGM Web interface.

For example, to generate a custom link and linkset statistics summary report, that includes only links and linksets associated with node **sgm-2600a.cisco.com**, sorted in ascending order based on the linkset name, and identified by ID tag **test1**, enter the following command:

```
# ./sgm linkstats sgm-2600a.cisco.com test1 -sls
```

Step 3 (Optional) If this is the first time you are using the **sgm linkstats** command to generate a report, you must enter the command two more times:

- The first entry gets the first set of raw data.
- The second entry calculates begins calculating useful link and linkset statistics.
- The third entry continues to calculate statistics, calculates long-term averages, and, if the data being collected appears valid, begins generating the report.

Thereafter, you need only enter this command once to generate the report.

Step 4 SGM generates the custom link and linkset statistics summary report and stores it in the */custom* directory, identified by its ID tag.

For example, if you entered the command:

 # ./sgm linkstats sgm-2600a.cisco.com test1 -sls

SGM generates the following reports:

sgmLinkStats.custom.test1.2002-10-27.csv.zip

sgmLinksetStats.custom.test1.2002-10-27.csv.zip

If you installed SGM in the default directory, */opt*, then the */custom* directory is located at */opt/CSCOsgm/reports/custom*.

If you installed SGM in a different directory, or if you moved the report files directory using the **sgm repdir** command, then the */custom* directory is located in that directory.

Step 5 For information on viewing the report, see the "Viewing the Custom Network Statistics Export Files" section on page 3-379.

Generating a Custom Accounting Statistics Report

To create a custom accounting statistics report for SGM, use the following procedure:

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 accstats [*node-list* [*id-tag*]] [*sort-option*] [**quiet**]

- (Optional) To include or exclude specific nodes or linksets in the report, use the *node-list* argument. See the following sections for more information:
  - Including Specific Nodes in Custom Reports, page 3-374
  - Including Specific Linksets in Custom Reports, page 3-376
  - Excluding Specific Nodes from Custom Reports, page 3-377
  - Excluding Specific Linksets from Custom Reports, page 3-378
- (Optional) If you specify a *node-list*, you can also specify an *id-tag* to identify the report. The *id-tag* can be any meaningful character string, but it cannot contain any spaces. The default value for *id-tag* is the process ID of the **sgm accstats** command.
- (Optional) To specify a sort order for the report, specify one of the following keywords for the *sort-option* argument:
  - **-sdp**—Sort based on the destination point code (DPC) of the node, in descending order.
  - **-sno**—Sort based on the node name, in ascending order.
  - **-sop**—Sort based on the originating point code (OPC) of the node, in descending order.
  - **-srb**—Sort based on number of bytes received, in descending order.
  - **-srm**—Sort based on number of MTP3 MSUs received, in descending order.
  - **-ssb**—Sort based on number of bytes sent, in descending order.

  - **-ssi**—Sort numerically based on service indicator (SI), in ascending order.
  - **-ssm**—Sort based on number of MTP3 MSUs sent, in descending order.
- (Optional) To disable automatic output to the terminal when running this command in a script, specify the **quiet** keyword. SGM generates the report in export format, which you can view using the SGM Web interface.

For example, to generate a custom accounting statistics report, that includes only information for node **sgm-2600a.cisco.com**, sorted in ascending order based on the node name, and identified by ID tag **test1**, enter the following command:

```
# ./sgm accstats sgm-2600a.cisco.com test1 -sno
```

Step 3 (Optional) If this is the first time you are using the **sgm accstats** command to generate a report, you must enter the command two more times:

- The first entry gets the first set of raw data.
- The second entry calculates begins calculating useful accounting statistics.
- The third entry continues to calculate statistics, calculates long-term averages, and, if the data being collected appears valid, begins generating the report.

Thereafter, you need only enter this command once to generate the report.

Step 4 SGM generates the custom accounting statistics report and stores it in the */custom* directory, identified by its ID tag.

For example, if you entered the command:

```
# ./sgm accstats sgm-2600a.cisco.com test1 -sno
```

SGM generates the following reports:

sgmAccStats.custom.test1.2002-10-27.csv.zip

sgmAccStats.custom.test1.2002-10-27.csv.zip

If you installed SGM in the default directory, */opt*, then the */custom* directory is located at */opt/CSCOsgm/reports/custom*.

If you installed SGM in a different directory, or if you moved the report files directory using the **sgm repdir** command, then the */custom* directory is located in that directory.

Step 5 For information on viewing the report, see the "Viewing the Custom Network Statistics Export Files" section on page 3-379.

Including Specific Nodes in Custom Reports

When you generate a custom accounting statistics or network statistics report, SGM enables you to limit the report to one or more specific nodes.

- To generate a report that includes all nodes known to SGM, specify **all** in place of the *node-list* argument in the **sgm accstats** or **sgm linkstats** command. For example, the following command generates an accounting statistics report for all nodes:

  ./sgm accstats all

- To generate a report for a single node, specify the node name in place of the *node-list* argument in the **sgm accstats** or **sgm linkstats** command. The node name must match exactly the node name as discovered by SGM, including the domain name. For example, the following command generates an accounting statistics report for node **sgm-2600a.cisco.com**:

  ./sgm accstats sgm-2600a.cisco.com

- To generate a report that includes only the nodes and signaling points listed in the user-defined *nodes.include* file, create the file, then specify **default** in place of the *node-list* argument in the **sgm accstats** or **sgm linkstats** command. This is also the default setting for this command, if you do not specify a *node-list* keyword.

  For example, the following command generates an accounting statistics report that includes only the nodes and signaling points specified in the *nodes.include* file:

  ./sgm accstats default

Keep in mind the following considerations:

- If you installed SGM in the default directory, */opt*, then the *nodes.include* file is located at */opt/CSCOsgm/reports/etc/nodes.include*.

  If you installed SGM in a different directory, or if you moved the report files directory using the **sgm repdir** command, then the */reports/etc/nodes.include* file is located in that directory.

- Each line in the *nodes.include* file must contain a single node name, or node name and signaling point name, that matches exactly the real, fully qualified node name of the node, and each line must end with a colon (**:**). For example:

  sgm-75-59a.cisco.com:

  sgm-26-51a.cisco.com:

  To include a specific signaling point, specify the node name and signaling point:

  sgm-75-59a.cisco.com;net0:

  sgm-26-51a.cisco.com;net1:

- Wildcard matching is not supported.
- If a node or signaling point appears in both the *nodes.include* file and the *nodes.exclude* file, it is excluded. That is, excluding a node or signaling point overrides including the same node or signaling point.
- If you specify a special include file on the **sgm accstats** or **sgm linkstats** command, SGM ignores the *nodes.include* file.

- To generate a report that includes only a group of nodes or signaling points other than the nodes and signaling points listed in the *nodes.include* file, create a file that contains the list of nodes and signaling points to be included and specify the full path and name of the file in place of the *node-list* argument in the **sgm accstats** or **sgm linkstats** command.

  For example, the following command generates an accounting statistics report that includes only the nodes and signaling points specified in the */opt/CSCOsgm/reports/etc/specialnodes.include* file:

  ./sgm accstats /opt/CSCOsgm/reports/etc/specialnodes.include

Keep in mind the following considerations:

- Each line in the special include file must contain a single node name, or node name and signaling point name, that matches exactly the real, fully qualified node name of the node, and each line must end with a colon (**:**). For example:

  sgm-75-59a.cisco.com:

  sgm-26-51a.cisco.com:

  To include a specific signaling point, specify the node name and signaling point:

  sgm-75-59a.cisco.com;net0:

  sgm-26-51a.cisco.com;net1:

- Wildcard matching is not supported.
- If you specify a special include file on the **sgm accstats** or **sgm linkstats** command, SGM ignores the *nodes.include*, *linksets.include*, *nodes.exclude*, and *linksets.exclude* files, if they exist.

Including Specific Linksets in Custom Reports

When you generate a custom accounting statistics or network statistics report, SGM enables you to limit the report to one or more specific linksets.

To generate a report that includes only the linksets listed in the user-defined *linksets.include* file, create the file, then specify **default** in place of the *node-list* argument in the **sgm accstats** or **sgm linkstats** command.

For example, the following command generates an accounting statistics report that includes only the linksets specified in the *linksets.include* file:

./sgm accstats default

Keep in mind the following considerations:

- If you installed SGM in the default directory, */opt*, then the *linksets.include* file is located at */opt/CSCOsgm/reports/etc/linksets.include*.

  If you installed SGM in a different directory, or if you moved the report files directory using the **sgm repdir** command, then the */reports/etc/linksets.include* file is located in that directory.

- Each line in the *linksets.include* file must contain a single linkset name that matches exactly the real, fully qualified linkset name of the linkset, including the node name and signaling point name. For example:

  sgm-75-59a.cisco.com;net0:linkset2

  sgm-26-51a.cisco.com;net1:linkset1

- Wildcard matching is not supported.
- If a linkset appears in both the *linksets.include* file and the *linksets.exclude* file, it is excluded. That is, excluding a linkset overrides including the same linkset.
- If you specify a special include file on the **sgm accstats** or **sgm linkstats** command, SGM ignores the *linksets.include* file.

Excluding Specific Nodes from Custom Reports

When you generate a custom accounting statistics or network statistics report, SGM enables you to exclude one or more specific nodes or signaling points from the report.

To generate a report that excludes the nodes and signaling points listed in the user-defined *nodes.exclude* file, create the file, then specify **default** in place of the *node-list* argument in the **sgm accstats** or **sgm linkstats** command.

For example, the following command generates an accounting statistics report that excludes the nodes and signaling points specified in the *nodes.exclude* file:

./sgm accstats default

Keep in mind the following considerations:

- If you installed SGM in the default directory, */opt*, then the*nodes.exclude* file is located at */opt/CSCOsgm/reports/etc/nodes.exclude*.

  If you installed SGM in a different directory, or if you moved the report files directory using the **sgm repdir** command, then the*/reports/etc/nodes.exclude* file is located in that directory.

- Each line in the *nodes.exclude* file must contain a single node name, or node name and signaling point name, that matches exactly the real, fully qualified node name of the node, and each line must end with a colon (**:**). For example:

  sgm-75-59a.cisco.com:

  sgm-26-51a.cisco.com:

  To exclude a specific signaling point, specify the node name and signaling point:

  sgm-75-59a.cisco.com;net0:

  sgm-26-51a.cisco.com;net1:

- Wildcard matching is not supported.
- If a node or signaling point appears in both the *nodes.include* file and the *nodes.exclude* file, it is excluded. That is, excluding a node or signaling point overrides including the same node or signaling point.
- If you specify a special include file on the **sgm accstats** or **sgm linkstats** command, SGM ignores the *nodes.exclude* file.

Excluding Specific Linksets from Custom Reports

When you generate a custom accounting statistics or network statistics report, SGM enables you to exclude one or more specific linksets from the report.

To generate a report that excludes the linksets listed in the user-defined *linksets.exclude* file, create the file, then specify **default** in place of the *node-list* argument in the **sgm accstats** or **sgm linkstats** command.

For example, the following command generates an accounting statistics report that excludes the linksets specified in the *linksets.exclude* file:

./sgm accstats default

Keep in mind the following considerations:

- If you installed SGM in the default directory, */opt*, then the *linksets.exclude* file is located at */opt/CSCOsgm/reports/etc/linksets.exclude*.

  If you installed SGM in a different directory, or if you moved the report files directory using the **sgm repdir** command, then the */reports/etc/linksets.exclude* file is located in that directory.

- Each line in the *linksets.exclude* file must contain a single linkset name that matches exactly the real, fully qualified linkset name of the linkset, including the node name and signaling point name. For example:

  sgm-75-59a.cisco.com;net0:linkset2

  sgm-26-51a.cisco.com;net1:linkset1

- Wildcard matching is not supported.
- If a linkset appears in both the *linksets.include* file and the *linksets.exclude* file, it is excluded. That is, excluding a linkset overrides including the same linkset.
- If you specify a special include file on the **sgm accstats** or **sgm linkstats** command, SGM ignores the *linksets.exclude* file.

Viewing the Custom Network Statistics Export Files

The Custom Network Statistics Export Files page displays all archived SGM custom network and accounting statistics reports for the server to which you are connected, stored as downloadable Zip files. Custom statistics reports are those that are generated using the **sgm accstats** and **sgm linkstats** commands.

To access the Custom Network Statistics Export Files page, select **Custom Export** from the menu bar of any SGM Network Statistics or Accounting Statistics Web page.

The Custom Network Statistics Export Files page displays the following information:

- **Export File**—Name of the custom statistics export ZIP file, archived by type (linkset or link), date, and hour. For example, **sgmLinksetStats.custom.20867.2002-10-15-16.csv.zip** is the Zip file that contains the custom linkset statistics summary report with ID tag 20867 for the 16th hour on October 15, 2002.

  Each archived Zip file contains a comma-separated value (CSV) text file with a daily statistics report for that date. You can download the Zip files and unzip them.

  To download a Zip file, click a filename, then save the file to a location of your choice.

  See the "SGM Custom Network Statistics Export File Formats" section on page F-2 for detailed information about the format of custom statistics export files.

- **ID Tag**—Identifier for the custom report, specified when you entered the **sgm accstats** or **sgm linkstats** command. If you did not specify an ID tag, this field displays the process ID of the command that generated the report.
- **Start**—Date and time the custom report began.
- **Finish**—Date and time the custom report ended.
- **View**—Enables you to view the custom report in HTML or ASCII.

  For more information about viewing custom reports, see the following sections:

  - Viewing a Custom Accounting Statistics Report, page 3-380
  - Viewing a Custom Link Statistics Summary Report, page 3-383
  - Viewing a Custom Linkset Statistics Summary Report, page 3-387

Viewing a Custom Accounting Statistics Report

The Accounting Statistics: Custom Detail Report page displays a custom summary of accounting statistics for SGM. Accounting statistics are displayed based on the node, signaling point, linkset, originating point code (OPC), the destination point code (DPC), the type of SS7 traffic (such as ISUP or SCCP), and whether the traffic passed or failed the Gateway Screening test at the ITP.

To access the Accounting Statistics: Custom Detail Report page, click **HTML** in the **View** column beside a custom accounting statistics report on the Custom Network Statistics Export Files page. SGM displays the custom accounting statistics report.

The Accounting Statistics: Custom Detail Report page displays the following information:

- **Number and Sort Order (in header)**—Displays the number of records in the table, the column by which the table is sorted, and whether the sort is in ascending or descending order.
- **ID**—Internal ID, assigned by SGM, of the selected hourly accounting statistics report.

  To see the entire detailed report, click the ID. SGM displays the Accounting Data Record # X for Date for that date and hour, in text format. The Accounting Data Record # X for Date can be useful when the TAC is debugging problems.
- **Node**—Name of node for the linkset. To see statistics for only a selected node, click the node name.
- **Inst Name—**Name of instance for the linkset.
- **Sig Point—**Name of signaling point for the linkset. To see statistics for only a selected signaling point, click the signaling point.
- **Linkset**—Name of the linkset. To see statistics for only a selected linkset, click the linkset name.
- **Gateway Screening**—Indicates whether the traffic passed or failed the Gateway Screening test at the ITP. To see only statistics that passed or failed for a specific linkset, select a linkset and click **Pass** or **Fail**.
- **OPC**—Originating point code of the traffic, which is a unique identifier for each set of statistics. To see only statistics that match a specific OPC for a given linkset, find the linkset and click the point code.
- **DPC**—Destination point code of the traffic. To see only statistics that match a specific DPC for a given linkset, find the linkset and click the point code.
- **SI**—Service indicator, which indicates the type of SS7 traffic, such as **ISUP** or **SCCP**. To see only detailed information for a specific type of SI, click the SI type.
- **Send MSUs**—Total number of MTP3 MSUs sent on the specified date.

- **Recv MSUs**—Total number of MTP3 MSUs received on the specified date.
- **Send Bytes**—Total number of bytes sent on the specified date.
- **Recv Bytes**—Total number of bytes received on the specified date.

If a statistics calculation results in an impossible value, such as a number divided by zero, or a number that is impossible based on the configuration, SGM displays **MathError** in the field.

SGM enables you to modify the way information is presented in the Accounting Statistics: Custom Detail Report page:

- You can sort the Accounting Statistics: Custom Detail Report page based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.
- To display only the top 10 or bottom 10 records, based on the column by which the table is sorted, click the **Top 10** menu option:
  - If the column is sorted in descending order, displays only the top 10 records.
  - If the column is sorted in ascending order, displays only the bottom 10 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 20 or bottom 20 records, based on the column by which the table is sorted, click the **Top 20** menu option:
  - If the column is sorted in descending order, displays only the top 20 records.
  - If the column is sorted in ascending order, displays only the bottom 20 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 50 or bottom 50 records, based on the column by which the table is sorted, click the **Top 50** menu option:
  - If the column is sorted in descending order, displays only the top 50 records.
  - If the column is sorted in ascending order, displays only the bottom 50 records.
  - To switch between the two displays, left-click the column header.

- To display only the top 100 or bottom 100 records, based on the column by which the table is sorted, click the **Top 100** menu option:
  - If the column is sorted in descending order, displays only the top 100 records.
  - If the column is sorted in ascending order, displays only the bottom 100 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 300 or bottom 300 records, based on the column by which the table is sorted, click the **Top 300** menu option:
  - If the column is sorted in descending order, displays only the top 300 records.
  - If the column is sorted in ascending order, displays only the bottom 300 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 500 or bottom 500 records, based on the column by which the table is sorted, click the **Top 500** menu option:
  - If the column is sorted in descending order, displays only the top 500 records.
  - If the column is sorted in ascending order, displays only the bottom 500 records.
  - To switch between the two displays, left-click the column header.
- To display up to 15,000 records in the table, click the **Max** menu option.
- To reset the **Top** preferences for this Web page to the default settings for the SGM server, click the **DefPrefs** menu option.

Viewing a Custom Link Statistics Summary Report

SGM enables you to view custom link statistics summary reports.

To view a custom link statistics summary report, click **HTML** in the **View** column beside a custom link statistics summary report on the Custom Network Statistics Export Files page. SGM displays the custom link statistics summary report, which is a custom summary of statistics for all links known to SGM when the report was generated.

The Link Statistics: Custom Detail Report page displays the following information:

- **Number and Sort Order (in header)**—Displays the number of records in the table, the column by which the table is sorted, and whether the sort is in ascending or descending order.
- **ID**—Internal ID, assigned by SGM, of the selected hourly link statistics summary report.

  To see the entire detailed report, click the ID. SGM displays the Link Data Record page for that link, date, and hour, in text format. The Link Data Record can be useful when the TAC is debugging problems.
- **Hour**—Hour for which the link statistics summary report was created, for the specified date.
- **Node**—Name of node for the link. To see statistics for only a selected node, click the node name.
- **Inst Name—**Name of instance for the link.
- **Sig Point—**Name of signaling point for the link. To see statistics for only a selected signaling point, click the signaling point.
- **Link Name**—Name of the link. To see statistics for only a selected link, click the link name.
- **Type**—Type of link. Possible link types are:
  - **HSL**—The link uses the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol.
  - **SCTP**—The link uses the Stream Control Transmission Protocol (SCTP) IP transport protocol.
  - **Serial**—The link uses the serial SS7 signaling protocol.
  - **Virtual**—The link is a virtual link, which connects signaling point instances running on the same device. SGM does not poll virtual links, nor does it display real-time data or accounting statistics for virtual links.
- **Send Util** or **Send Erls**—Average Send Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), for the specified date and hour.

  If the planned send capacity is not set for the link, this field displays **NoCap**.

- **L Term Send Util** or **L Term Send Erls**—Long-term average Send Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), since SGM polling began for the link, or since SGM last reset the averages as a result of bad data.

  If the planned send capacity is not set for the link, this field displays **NoCap**.

- **Recv Util** or **Recv Erls**—Average Receive Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), for the specified date and hour.

  If the planned receive capacity is not set for the link, this field displays **NoCap**.

- **L Term Recv Util** or **L Term Recv Erls**—Long-term average Receive Utilization for the link, expressed as either a utilization percentage or a number of Erlangs (as set in the Preferences window), since SGM polling began for the link, or since SGM last reset the averages as a result of bad data.

  If the planned receive capacity is not set for the link, this field displays **NoCap**.

- **Send MSUs**—Total number of MTP3 MSUs sent on the specified date and hour.

- **Recv MSUs**—Total number of MTP3 MSUs received on the specified date and hour.

- **Drop**—Total number of drops on the specified date and hour.

- **Hourly InSrv**—Percentage of time the link was in service on the specified date and hour.

- **Long Term InSrv**—Average percentage of time the link was in service since SGM polling began for the link, or since SGM last reset the averages as a result of bad data.

If a statistics calculation results in an impossible value, such as a number divided by zero, or a number that is impossible based on the configuration, SGM displays **MathError** in the field.

SGM enables you to modify the way information is presented in the Link Statistics: Custom Detail Report page:

- You can sort the pages based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.
- To display only the top 10 or bottom 10 records, based on the column by which the table is sorted, click the **Top 10** menu option:
  - If the column is sorted in descending order, displays only the top 10 records.
  - If the column is sorted in ascending order, displays only the bottom 10 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 20 or bottom 20 records, based on the column by which the table is sorted, click the **Top 20** menu option:
  - If the column is sorted in descending order, displays only the top 20 records.
  - If the column is sorted in ascending order, displays only the bottom 20 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 50 or bottom 50 records, based on the column by which the table is sorted, click the **Top 50** menu option:
  - If the column is sorted in descending order, displays only the top 50 records.
  - If the column is sorted in ascending order, displays only the bottom 50 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 100 or bottom 100 records, based on the column by which the table is sorted, click the **Top 100** menu option:
  - If the column is sorted in descending order, displays only the top 100 records.
  - If the column is sorted in ascending order, displays only the bottom 100 records.
  - To switch between the two displays, left-click the column header.

- To display only the top 300 or bottom 300 records, based on the column by which the table is sorted, click the **Top 300** menu option:
  - If the column is sorted in descending order, displays only the top 300 records.
  - If the column is sorted in ascending order, displays only the bottom 300 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 500 or bottom 500 records, based on the column by which the table is sorted, click the **Top 500** menu option:
  - If the column is sorted in descending order, displays only the top 500 records.
  - If the column is sorted in ascending order, displays only the bottom 500 records.
  - To switch between the two displays, left-click the column header.
- To display up to 15,000 records in the table, click the **Max** menu option.
- To display only records for links that are not of type **SCTP**, click the **NoSCTP** menu option.

  To display all records, including those for links that are of type **SCTP**, click the **YesSCTP** menu option. This is the default setting.
- To display all records, including those for links that do not have planned send and receive capacities, click the **YesNullCaps** menu option.

  To display only records for links that have planned send and receive capacities, click the **NoNullCaps** menu option. This is the default setting.
- To reset the **Top**, **SCTP**, and **NullCaps** preferences for this Web page to the default settings for the SGM server, click the **DefPrefs** menu option.

Viewing a Custom Linkset Statistics Summary Report

SGM enables you to view custom linkset statistics summary reports.

To view a custom linkset statistics summary report, click **HTML** in the **View** column beside a custom linkset statistics summary report on the Custom Network Statistics Export Files page. SGM displays the custom linkset statistics summary report, which is a custom summary of statistics for all linksets known to SGM when the report was generated.

The Linkset Statistics: Custom Detail Report page displays the following information:

- **Number and Sort Order (in header)**—Displays the number of records in the table, the column by which the table is sorted, and whether the sort is in ascending or descending order.
- **ID**—Internal ID, assigned by SGM, of the selected hourly linkset statistics summary report.

  To see the entire detailed report, click the ID. SGM displays the Linkset Data Record page for that linkset, date, and hour, in text format. The Linkset Data Record can be useful when the TAC is debugging problems.
- **Hour**—Hour for which the link statistics summary report was created, for the specified date.
- **Node**—Name of node for the linkset. To see statistics for only a selected node, click the node name.
- **Inst Name—**Name of instance for the linkset.
- **Sig Point—**Name of signaling point for the linkset. To see statistics for only a selected signaling point, click the signaling point.
- **Linkset Name**—Name of the linkset. To see statistics for only a selected linkset, click the linkset name.
- **Hourly InSrv**—Percentage of time the linkset was in service on the specified date and hour.
- **Long Term InSrv**—Average percentage of time the linkset was in service since SGM polling began for the linkset, or since SGM last reset the averages as a result of bad data.

If a statistics calculation results in an impossible value, such as a number divided by zero, or a number that is impossible based on the configuration, SGM displays **MathError** in the field.

SGM enables you to modify the way information is presented in the Linkset Statistics: Custom Detail Report page:

- You can sort the pages based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-279 for more details.
- To display only the top 10 or bottom 10 records, based on the column by which the table is sorted, click the **Top 10** menu option:
  - If the column is sorted in descending order, displays only the top 10 records.
  - If the column is sorted in ascending order, displays only the bottom 10 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 20 or bottom 20 records, based on the column by which the table is sorted, click the **Top 20** menu option:
  - If the column is sorted in descending order, displays only the top 20 records.
  - If the column is sorted in ascending order, displays only the bottom 20 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 50 or bottom 50 records, based on the column by which the table is sorted, click the **Top 50** menu option:
  - If the column is sorted in descending order, displays only the top 50 records.
  - If the column is sorted in ascending order, displays only the bottom 50 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 100 or bottom 100 records, based on the column by which the table is sorted, click the **Top 100** menu option:
  - If the column is sorted in descending order, displays only the top 100 records.
  - If the column is sorted in ascending order, displays only the bottom 100 records.
  - To switch between the two displays, left-click the column header.

- To display only the top 300 or bottom 300 records, based on the column by which the table is sorted, click the **Top 300** menu option:
  - If the column is sorted in descending order, displays only the top 300 records.
  - If the column is sorted in ascending order, displays only the bottom 300 records.
  - To switch between the two displays, left-click the column header.
- To display only the top 500 or bottom 500 records, based on the column by which the table is sorted, click the **Top 500** menu option:
  - If the column is sorted in descending order, displays only the top 500 records.
  - If the column is sorted in ascending order, displays only the bottom 500 records.
  - To switch between the two displays, left-click the column header.
- To display up to 15,000 records in the table, click the **Max** menu option.
- To reset the **Top** preferences for this Web page to the default settings for the SGM server, click the **DefPrefs** menu option.

Viewing SGM Point Code Inventory Reports

SGM enables you to view current and daily point code inventory reports. You can also export the reports.

SGM enables you to view the following point code inventory reports:

- Viewing the Current Point Code Inventory, page 3-391
- Viewing the Daily Point Code Inventory Daily Reports, page 3-392
- Viewing the Daily Point Code Inventory Export Files, page 3-394

Viewing the Current Point Code Inventory

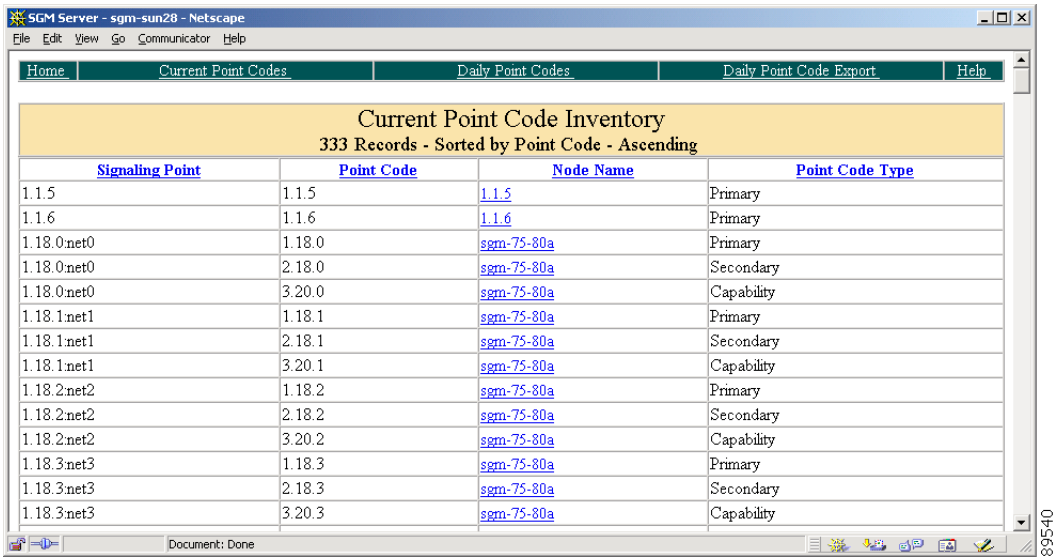
The Current Point Code Inventory page displays all point codes that are currently being used by all nodes that are known to SGM.

To access the Current Point Code Inventory page, use one of the following procedures:

- Select **View > Reports > Point Code Inventory** from the SGM Main Menu.
- Select **Point Code Inventory Reports** from the SGM Server Home Page.
- Select **Current Point Codes** from the menu bar of any SGM Point Code Inventory Web page.

SGM displays the Current Point Code Inventory page (Figure 3-91).

Figure 3-91 Current Point Code Inventory Page



The Current Point Code Inventory page displays the following information:

- **Number and Sort Order (in header)**—Displays the number of point codes in the table, the column by which the table is sorted, and whether the sort is in ascending or descending order.
- **Signaling Point**—Signaling point that is currently being used by a node.

  To sort the point codes by signaling point in descending order, click the **Signaling Points** header.

  Click again to sort the point codes in ascending order.
- **Point Code**—Point code that is currently being used by a node.

  To sort the point codes by point code in ascending order, click the **Point Codes** header. This is the default display.

  Click again to sort the point codes in descending order.
- **Node Name**—Name or IP address of the node.

  To see detailed information for the node, click the node name.

  To sort the point codes by node in descending order, click the **Node Name** header.

  Click again to sort the point codes in ascending order.
- **Point Code Type**—Type of point code:
  - **Primary**—Main point code used by a node.
  - **Secondary**—Alternate or backup point code used by a node.
  - **Capability**—Shared by more than one node, each of which is also assigned a "real" point code. Also called an alias point code.

  To sort the point codes by type in ascending order, click the **Point Code Type** header.

  Click again to sort the point codes in descending order.

Viewing the Daily Point Code Inventory Daily Reports

The Point Code Inventory: Daily Reports page displays all archived SGM daily point code inventory reports for the server to which you are connected.

To access the Point Code Inventory: Daily Reports page, select **Daily Point Codes** from the menu bar of any SGM Point Code Inventory Web page.

On the Point Code Inventory: Daily Reports page, point code inventory reports are archived by date. Each archived file contains a list of all point codes that were being used by all nodes that were known to SGM on that date.

To view an archived point code inventory report, click a date. SGM displays the Point Code Inventory: Date page, which displays the archived list of point codes for that date, including the following information:

- **Number and Sort Order (in header)**—Displays the number of point codes in the table, the column by which the table is sorted, and whether the sort is in ascending or descending order.
- **Signaling Point Name**—Name of the signaling point.

  To sort the point codes by signaling point in descending order, click the **Signaling Point Name** header.

  Click again to sort the point codes in ascending order.
- **Point Code**—Point code that was being used by a node on the specified date.

  To sort the point codes by point code in ascending order, click the **Point Codes** header. This is the default display.

  Click again to sort the point codes in descending order.
- **Node Name**—Name or IP address of the node.

  To see detailed information for the node, click the node name.

  To sort the point codes by node in descending order, click the **Node Name** header.

  Click again to sort the point codes in ascending order.
- **Point Code Type**—Type of point code:
  - **Primary**—Main point code used by a node.
  - **Secondary**—Alternate or backup point code used by a node.
  - **Capability**—Shared by more than one node, each of which is also assigned a “real” point code. Also called an alias point code.

  To sort the point codes by type in ascending order, click the **Point Code Type** header.

  Click again to sort the point codes in descending order.

Viewing the Daily Point Code Inventory Export Files

The Daily Point Code Inventory Export Files page displays all archived SGM daily point code inventory reports for the server to which you are connected, stored as downloadable Zip files.

To access the Daily Point Code Inventory Export Files page, select **Daily Point Code Export** from the menu bar of any SGM Point Code Inventory Web page.

On the Daily Point Code Inventory Export Files page, the Zip files are archived by date. For example, **sgmPointCodes.DailyInv.2002-10-15.csv.zip** is the Zip file that contains the daily point code inventory report for October 15, 2002.

Each archived Zip file contains a comma-separated value (CSV) text file with a list of all point codes that were being used by all nodes that were known to SGM on that date. You can download the Zip files and unzip them.

To download a Zip file, click a filename, then save the file to a location of your choice.

See the "SGM Point Code Inventory Export File Format" section on page F-7 for detailed information about the format of point code inventory export files.

Viewing SGM Statistics Reports Logs

SGM enables you to view a log that contains all messages pertaining to SGM reports, and a display of the current values of SGM report parameters and timers.

This section contains the following information:

Viewing the SGM System Reports Log

The SGM System Reports Log: Last X Messages page displays the message log for SGM reports for the server to which you are connected, and which is currently running the SGM server.

To access the SGM System Reports Log: Last X Messages page, use one of the following procedures:

- Select **System Report Log** from the SGM Server Home Page.
- Select **Log** from the menu bar of any SGM Network Statistics or Accounting Statistics Web page.
- Enter the **sgm replog** command. See the "SGM Commands and Descriptions" section on page B-2 for more information on the use of this command.

The SGM System Reports Log: Last X Messages page displays the following information:

- **Last Update (in header)**—Date and time the information on the page was last updated by SGM.
- **Row**—Message number, assigned to the message by SGM.
- **Time**—Date and time the message was logged.
- **Type**—Type of message. Possible types are:
  - **Error**
  - **Info**
- **Message**—Text of the message.

Viewing the SGM System Report Parameters and Timers

The SGM System Report Parameters and Timers page displays the current values of report parameters and timers for the server to which you are connected, and which is currently running the SGM server.

To access the SGM System Report Parameters and Timers page, select **System Report Parameters** from the SGM Server Home Page, or select **Params** from the menu bar of any SGM Network Statistics or Accounting Statistics Web page.

The SGM System Report Parameters and Timers page displays the following information:

- **Server Name (in header)**—Name of the SGM server for which report parameter and timer settings are being displayed.
- **Report Dir**—Path and name of the directory in which SGM stores reports. The default reports directory is */opt/CSCOsgm/reports*, but you can change the reports directory using the **sgm repdir** command. For more information, see the description of the **sgm repdir** command in the "SGM Commands and Descriptions" section on page B-2.
- **Status**—Indicates whether SGM is to generate network statistics reports. For more information, see the description of the **sgm statreps** [**disable | enable**] command in the "SGM Commands and Descriptions" section on page B-2.
- **ExportReports**—Indicates whether SGM is to generate network statistics reports in export format. For more information, see the description of the **sgm statreps** [**export | noexport**] command in the "SGM Commands and Descriptions" section on page B-2.
- **AcctReports**—Indicates whether SGM is to generate accounting statistics reports. For more information, see the description of the **sgm statreps** [**acct | noacct**] command in the "SGM Commands and Descriptions" section on page B-2.
- **IPLinks**—Indicates whether SGM is to include links that use the Stream Control Transmission Protocol (SCTP) IP transport protocol in network statistics reports. For more information, see the description of the **sgm statreps** [**iplinks | noiplinks**] command in the "SGM Commands and Descriptions" section on page B-2.
- **NullCaps**—Indicates whether SGM is to include links that do not have planned send and receive capacities in network statistics reports. For more information, see the description of the **sgm statreps** [**nullcaps | nonullcaps**] command in the "SGM Commands and Descriptions" section on page B-2.
- **TimeMode**—Indicates the time mode for dates in network statistics reports. For more information, see the description of the **sgm statreps timemode** [**12 | 24**] command in the "SGM Commands and Descriptions" section on page B-2.

- **DiskCheck**—Indicates whether SGM is to verify that a disk has at least 10 MB of space remaining before generating network statistics reports. For more information, see the description of the **sgm statreps** [**diskcheck** | **nodiskcheck**] command in the "SGM Commands and Descriptions" section on page B-2.
- **UtilRatio**—Indicates whether SGM is to display a gray background in the Send Utilization or Receive Utilization cell in a network statistics report, if the following condition is met:

  Current Utilization > *factor* *** Long-Term Utilization**

  For more information, see the description of the **sgm statreps utilratio** command in the "SGM Commands and Descriptions" section on page B-2.
- **ServRatio**—Indicates whether SGM is to display a gray background in the InSrv cell in a network statistics report, if the following condition is met:

  Current In-Service < *factor* *** Long-Term In-Service**

  For more information, see the description of the **sgm statreps** [**disable** | **enable**] command in the "SGM Commands and Descriptions" section on page B-2.
- **HourlyAge**—Indicates the maximum number of days SGM is to archive hourly network statistics reports. For more information, see the description of the **sgm statreps hourlyage** and **sgm rephourlyage** commands in the "SGM Commands and Descriptions" section on page B-2.
- **DailyAge**—Indicates the maximum number of days SGM is to archive daily network statistics reports. For more information, see the description of the **sgm statreps dailyage** and **sgm repdailyage** commands in the "SGM Commands and Descriptions" section on page B-2.
- **CustomAge**—Indicates the maximum number of days SGM is to archive custom network statistics reports. For more information, see the description of the **sgm repcustage** command in the "SGM Commands and Descriptions" section on page B-2.
- **WebNames**—Indicates whether SGM is to show real node names or display names in Web pages. For more information, see the description of the **sgm webnames** [**display** | **real**] command in the "SGM Commands and Descriptions" section on page B-2.

- **WebUtil**—Indicates whether SGM is to display send and receive utilization for linksets and links as percentages or in Erlangs, in Web pages. For more information, see the description of the **sgm webutil** [**percent** | **erlangs**] command in the "SGM Commands and Descriptions" section on page B-2.
- **Timer file for last report run**—Indicates timer activities during the last report run by SGM. The timer file is useful for identifying how much time SGM spends gathering report data and generating reports.

Printing SGM Windows

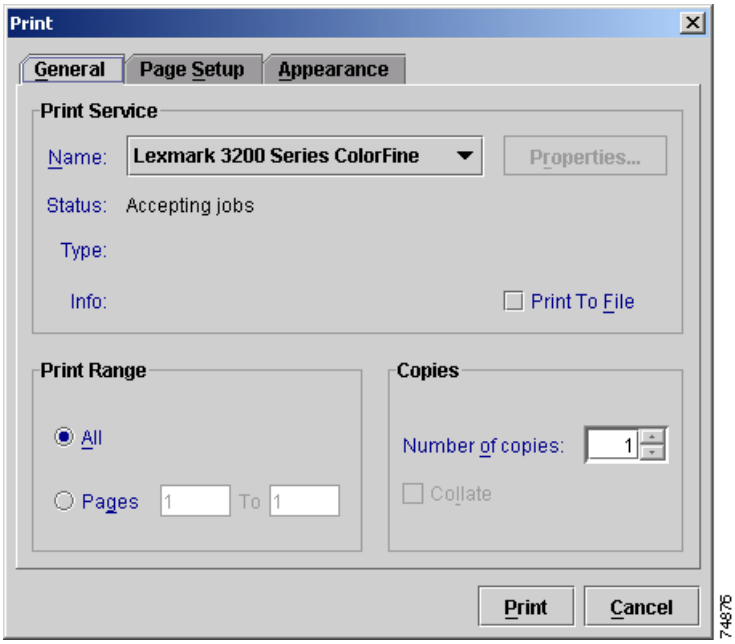
You can print most SGM windows, as well as the topology map, for those times when you need hardcopy.

To print an SGM window, use one of the following procedures:

- From most SGM windows, select **File > Print** from the SGM Main Menu.
- From the Topology Window, select **File > Print > All** from the SGM Main Menu, if you want to print the map of your entire network, not just the part that is visible in the current topology map view.
- From the Topology Window, select **File > Print > Display** from the SGM Main Menu, if you want to print just the part of your network that is visible in the current topology map, not the map of your entire network.

SGM displays the Print dialog (Figure 3-92).

Figure 3-92 Print Dialog



The Print dialog enables you to specify print settings, such as which printer to print to, whether to send output to a file (the default location for the print file is your home directory), and whether to print duplex.

When you are satisfied with your print settings, click **Print**. SGM prints the map.

To exit the Print dialog at any time without printing, click **Cancel**.

Connecting to a New Server

SGM enables you to connect the client to a new SGM server. For example, you can monitor two or more networks from the same SGM client, simply by switching servers. Or, if you have two SGM servers monitoring the same network, and one server fails, the SGM client automatically switches to the secondary server.

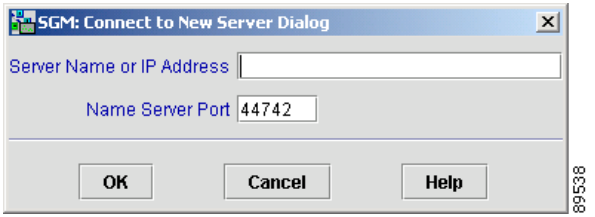
To connect the client to a new server:

Step 1 (Optional) If you want to determine the default host name before you connect to the new server, it is contained in the SERVER_NAME entry in the *System.properties* file:

- If you installed SGM in the default directory, */opt*, then the location of the *System.properties* file is */opt/CSCOsgm/properties/System.properties*.
- If you installed SGM in a different directory, then the *System.properties* file is located in that directory.

Step 2 Select **File > Connect to New Server** from the SGM Main Menu. SGM displays the Connect to New Server Dialog (Figure 3-93).

Figure 3-93 Connect to New Server Dialog



Step 3 Enter the name of the new server, or its IP address, in the **Server Name or IP Address** field.

Step 4 Enter the SGM Naming Server UDP port number for the new server in the **Name Server Port** field. The default value is 44742.

Step 5 Click **OK**. SGM stops the SGM client, then restarts the client connected to the new server.

Integrating SGM with Other Products

SGM does not require either CiscoWorks2000 or HP OpenView, but SGM does integrate with those products to provide added value. See the following sections for more information:

- Integrating SGM with HP OpenView, page 3-401
- Integrating SGM with CiscoWorks2000, page 3-402

Integrating SGM with HP OpenView

SGM can integrate with HP OpenView during installation, registering to receive forwarded traps. See the "Installing SGM on Solaris" chapter of the *Cisco Signaling Gateway Manager Installation Guide* for more information.

You can also integrate SGM with HP OpenView after installation, using the **sgm trapsetup** command. See the "SGM Command Reference" section on page B-1 for more information.

If you select HP OpenView as the source of traps in SGM, keep the following considerations in mind:

- If HP OpenView is *not* running when you start the SGM servers, SGM's sgmTrapReceiver process cannot start and is labeled **Stopped**.
- If HP OpenView *is* running when you start the SGM servers, but ovtrapd (HP OpenView's trap receiver process) is *not* running, sgmTrapReceiver starts and is reported as **Running**, but it cannot receive traps.
- If you start the SGM servers, then start HP OpenView, sgmTrapReceiver does *not* start automatically. You must start sgmTrapReceiver using the Process Manager.
- If sgmTrapReceiver is running and HP OpenView is stopped using the **ovstop** command, sgmTrapReceiver stops itself, and does *not* start automatically when HP OpenView is restarted. You must start sgmTrapReceiver using the Process Manager.
- If sgmTrapReceiver is running and ovtrapd stops running for any reason, sgmTrapReceiver *cannot* detect that ovtrapd is no longer running. sgmTrapReceiver continues running but cannot receive traps until ovtrapd is restarted. When ovtrapd is restarted, sgmTrapReceiver begins receiving traps again automatically.

Integrating SGM with CiscoWorks2000

SGM can integrate with CiscoWorks2000 during installation, registering with CiscoWorks2000 as an installed application. See the "Installing SGM on Solaris" and "Installing SGM on Windows" chapters of the *Cisco Signaling Gateway Manager Installation Guide* for more information.

You can also integrate SGM with CiscoWorks2000 after installation, using the **sgm cw2ksetup** command. See the "SGM Command Reference" section on page B-1 for more information.

When SGM is integrated with CiscoWorks2000, you can launch the CiscoWorks2000 Device Center and CiscoView from the SGM Main Menu. See the following sections for more information:

- Launching the CiscoWorks2000 Device Center, page 3-402
- Launching CiscoView, page 3-403

Launching the CiscoWorks2000 Device Center

The CiscoWorks2000 Device Center provides a number of useful Web-based device-monitoring functions, including reachability trends, response time trends, interface status, Syslog browsing, and a detailed inventory.

To link SGM to the Device Center:

Step 1 Make sure CiscoWorks2000 is installed in the network.

Step 2 Select a node that you know CiscoWorks2000 is monitoring, or an associated linkset, in a window. If you select a non-ITP node, or a node with a status of **Unmanaged** or a **Device Type** of **Unknown**, the **CiscoWorks2000** menu option is grayed-out.

Step 3 Select **Products > CiscoWorks2000 > Device Center** from the SGM Main Menu.

Step 4 At the prompt, enter a CiscoWorks2000 user ID and password. SGM links to CiscoWorks2000 Device Center dashboard.

Launching CiscoView

CiscoView provides a real-time, color-coded, graphical representation of Cisco ITPs. You can use CiscoView to quickly identify an incorrect status on a port or interface. If you are running CiscoWorks2000 on UNIX or Windows, you can access CiscoView through the link to the Web version of CiscoWorks2000.

To link SGM to CiscoView:

Step 1 Select a node that you know CiscoWorks2000 is monitoring, or an associated linkset, in a window. If you select a non-ITP node, or a node with a status of **Unmanaged** or a **Device Type** of **Unknown**, the **CiscoWorks2000** menu option is grayed-out.

Step 2 Select **Products > CiscoWorks2000 >CiscoView** from the SGM Main Menu.

Step 3 At the prompt, enter a CiscoWorks2000 user ID and password. SGM links to CiscoView.

Using the Windows Start Menu

This section includes the following information:

Launching the SGM Client

To launch the SGM Client, use one of the following procedures:

- Double-click the SGM icon on the desktop.
- Select **Start > Programs > Cisco SGM Client > Launch SGM Client** from the Windows Start menu.

SGM launches the SGM Client.

Launching the SGM GTT Client

To launch the SGM GTT Client, select **Start > Programs > Cisco SGM Client > Launch SGM GTT Client** from the Windows Start menu.

SGM launches the SGM GTT Client.

Changing the Default SGM Server Name

If there is a failure of the IP address or host name to which your SGM client is bound, you can change the default SGM server name from the Windows Start menu.

To change the default SGM server name, use the following procedure:

Step 1 Close all open SGM windows.

Step 2 Select **Start > Programs > Cisco SGM Client > Modify Default SGM Server Name**. SGM opens a DOS window, and asks you to enter the name of the new default SGM server.

Step 3 Type the name of the new default SGM server, and press **Enter**. SGM sets the default server to the new name you entered.

See the "Connecting to a New Server" section on page 3-399 for more information about changing the default SGM server name.

Changing the Default SGM Telnet Path

SGM provides a default Telnet interface for Telnet sessions, but you can also specify a path to a different Telnet application, if you prefer.

To specify the path to the new Telnet application, use the following procedure:

Step 1 Select **Start > Programs > Cisco SGM Client > Modify Default SGM Telnet Path**. SGM opens a DOS window, and asks you to enter the full Telnet executable pathname.

Step 2 Type the new pathname, and press **Enter**. If you do not enter a new pathname, SGM uses the system default Telnet executable. SGM asks you to enter any special parameters you want to pass to the new Telnet application. The default is **n**, for no special parameters.

Step 3 Type the special parameters you want to pass to the new Telnet application, and press **Enter**. SGM uses the new Telnet application for all Telnet sessions on the SGM client, such as when you select **View > Telnet to > ITP**.

Step 4 Close the DOS window.

Launching the SGM DOS Prompt

To launch a DOS prompt for SGM from the Windows Start menu, select **Start > Programs > Cisco SGM Client > SGM DOS Prompt**. SGM opens a DOS window, starting in the *bin* directory:

- If you installed the SGM client in the default directory, *C:\Program Files*, then the DOS prompt starts at *C:\Program Files\SGMClient\bin*.
- If you installed the SGM client in a different directory, then the *bin* directory is located in that directory.

Launching the SGM SSL Certificate Tool

To launch the SGM SSL Certificate Tool from the Windows Start menu, select **Start > Programs > Cisco SGM Client > SGM SSL Certificate Tool**.

Uninstalling SGM

You can uninstall SGM from the Windows Start menu. For details, see the "Uninstalling SGM" section of the *Cisco Signaling Gateway Manager Installation Guide*.

Viewing the SGM README File

The SGM README file contains late-breaking information about SGM that might not be found in the other product documentation. To open the SGM README file from the Windows Start menu, select **Start > Programs > Cisco SGM Client > View README**.