CHAPTER 12

Managing Southbound and Northbound Interfaces

Cisco Prime Optical uses protocols such as CORBA, SNMP, and HTTP to provide southbound and northbound interfaces to communicate with NEs and operations support systems (OSSs).

This chapter contains the following information:

12.1 How Do I Manage Southbound Interfaces?

The Prime Optical server communicates with NEs through the data communications network (DCN) by using several protocols (CORBA, SNMP, HTTP, and so on).

You can access NEs in Prime Optical through:

- NE Explorer—Provides detailed rack, shelf, and card-level views of an NE. Detailed NE attributes and parameters are viewable and configurable.
- Craft Interface—Depending on the NE model, Prime Optical provides access to NE craft interfaces such as CTC, Cisco Edge Craft, web browsers, and the command line interface (CLI). Table 2-4 on page 2-8 lists the available craft interfaces by NE model.

Note A CLI session might not have a scroll bar, depending on the operating system you are using. To enable the scroll bar on Solaris, hold down the Ctrl key, click the middle button of your mouse, and choose **enable scroll bar**.

12.1.1 Southbound Port Details

This section explains the ports that Prime Optical uses to communicate with NEs.

- Inbound ports are for operations initiated by the node and then directed to the Prime Optical server.
- Outbound ports are for operations initiated by the Prime Optical server and then directed to the node.

The following table lists the ports that Prime Optical uses to communicate with ONS 15216 NEs.

Table 12-1 Port Information for the ONS 15216

Port	ONS 15216	Inbound or Outbound?
TL1 Telnet	3083	Outbound
CLI	23, 8023	Outbound
Prime Optical GateWay/SNMP set/trap **Note** Prime Optical GateWay/SNMP uses port 162 as an internal port.	161, 162	Outbound
TFTP	69	Inbound

The following table lists the ports that Prime Optical uses to communicate with ONS 15305 NEs.

Table 12-2 Port Information for the ONS 15305

Port	ONS 15305
CLI	23
Prime Optical GateWay/SNMP **Note** Prime Optical GateWay/SNMP uses port 162 as an internal port.	161

The following table lists the ports that Prime Optical and CTC use to communicate with CTC-based NEs.

Table 12-3 Port Information for CTC-Based NEs

Port	NE
CORBA listener port on the Timing Communications and Control Card (TCC+/TCC2) (NE)	Configurable with: • TCC+/TCC2 fixed (57790, outbound). • Standard Internet Inter-ORB Protocol (IIOP) port (683, outbound). • User-defined constant. **Note** Configure the port in the NE Explorer (Network > Address subtab). For more information, see 4.4.3 Viewing and Changing the Network Address—CTC-Based NEs, page 4-45.
CORBA listener port on Prime Optical server (callback)	Dynamic (current functionality). **Note** To make the port static, see 4.5.3.6 CTC IIOP Port Configuration, page 4-76.
HTTP	From any CTC or Prime Optical port to HTTP port 80 (outbound) on the NE.
HTTPS	Port 443, active if configured on the NE. This port is only available in NE release 6.0 and later. Prime Optical tries to communicate on this port regardless of whether the NE supports HTTPS. If this port is blocked, it could cause long NE initialization times.
TL1 port on TCC+/TCC2 (NE)	From any CTC or Prime Optical port to TCP port 3082, 2361 (outbound), or port 4083 (secure).

Table 12-3 Port Information for CTC-Based NEs (continued)

Port	NE
CTC launched from Prime Optical Domain Explorer	• From any CTC port to the IIOP port on the NE. • From any NE port to the IIOP port on CTC. • From any CTC port to HTTP port 80 (outbound) on the NE. • Either port is configurable in the CTC.INI (Windows) or .ctcrc (UNIX): – Dynamic (default). – Standard IIOP port (683, outbound). – User-defined constant.
L2 Service Resync and IOS CLI ports	From any port on Prime Optical to ports 20*xx* and 40xx on the NE, where *xx* is the ML-series card slot number. **Note** Ports 40xx are required only if shell access is set to Secure.
Prime Optical GateWay/SNMP **Note** Prime Optical GateWay/SNMP uses port 162 as an internal port.	From any NE port to SNMP trap port 162 (inbound) on the Prime Optical server.

The following table lists the ports that Prime Optical uses to communicate with ONS 155xx NEs.

Table 12-4 Port Information for the ONS 155xx

Port	ONS 155xx	Inbound or Outbound?
HTTP	80/81	Outbound
TL1	TCP 3082, 3083	Outbound
IOS CLI	TCP 23 (Telnet)	Outbound
Software download, backup, restore	69 (TFTP server)	Inbound
Prime Optical GateWay/SNMP requests **Note** Prime Optical GateWay/SNMP uses port 162 as an internal port.	UDP 161	Outbound
SNMP traps	UDP 162	Inbound

12.1.2 Using a Static CORBA Listener Port on the Prime Optical Server

See 4.5.3.6 CTC IIOP Port Configuration, page 4-76.

12.1.3 Client-Server Communication Protocols

Prime Optical uses the following protocols for client-server communication:

- Common Object Request Broker Architecture (CORBA)—Object Management Group's open, vendor-independent architecture and infrastructure that computer applications use to work together over networks.

- Java Management Object and Configuration Object (JMOCO)—Cisco proprietary TCP/IP-based request/response protocol.
- Telnet—A standard internet protocol that provides terminal emulation using the TCP/IP protocols.
- Java Database Connectivity (JDBC)—The industry standard for database-independent connectivity between Java programming languages and databases. The Prime Optical client uses JDBC to communicate directly with the Prime Optical database, independently from the Prime Optical server.

Note All ports from 1024 through 65536 must be open to ensure communication between the Prime Optical server and client. The use of firewalls between the Prime Optical server and client is not supported. Your Prime Optical client will not work correctly if you place a firewall between the Prime Optical server and client (blocking ports from 1024 through 65536).

- Inbound ports are for operations initiated by the Prime Optical client and then directed to the Prime Optical server.
- Outbound ports are for operations initiated by the Prime Optical server and then directed to the Prime Optical client.

The following table lists the ports used for communication between the Prime Optical server host and the Prime Optical client host.

Table 12-5 Prime Optical Server-to-Prime Optical Client Ports

Port	Inbound or Outbound	Protocol	Application Protocol	Service	Notes
8051 (configurable)	Inbound	TCP	HTTP	Web server	Apache HTTP port
27613 (configurable)	Inbound	TCP	Proprietary	Prime Optical server	JMOCO port
20000 (configurable)	Inbound	TCP	CORBA	CORBA ImR	CORBA Implementation Repository port
30000	Inbound	TCP	CORBA	SM service	Service Manager port
CORBA IIOP listener port	Inbound	TCP	CORBA	CTC-based network services	Dynamic: Ports are selected randomly
22	Inbound	TCP	SSH	Prime Optical server host	Standard SSH port for secure login
1521	Inbound	TCP	JDBC	Oracle listener	Database listener port
10023–10086	Inbound	TCP	Telnet	Telnet relay ports	Telnet port
3000–3200	Outbound	UDP	SNMP	ONS 1530x	ONS 1530x SNMP trap forwarding to CEC

The following table lists the ports used for communication between the Prime Optical server workstation and the OSS CORBA client workstation.

Table 12-6 Prime Optical Server-to-OSS CORBA Client Ports

Port	Inbound or Outbound	Protocol	Application Protocol	Service	Notes
Dynamic	Inbound/outbound	TCP	CORBA	Prime Optical GateWay/CORBA	CORBA notification: Ports are assigned randomly by the operating system; however, the notification service can be configured to specify a pool of ports
14005	Inbound	TCP	CORBA	Prime Optical GateWay/CORBA	CORBA naming service

The following table lists the ports used for communication between the Prime Optical server workstation and the NEs.

Table 12-7 Prime Optical Server-to-NE Ports

Port	Inbound or Outbound	Protocol	Application Protocol	Service	Notes
161	Outbound	UDP	SNMP	Base service	—
162	Inbound	UDP	SNMP	Base service	—
4500–4510	Inbound	TCP	Proprietary	ONS 15305 R3.0 (CTC-based)	—
12345	Outbound	TCP	Proprietary	ONS 15305 R3.0 (CTC-based)	—
17476	Inbound	TCP	Proprietary	ONS 15305 R3.0 (CTC-based)	—
80	Outbound	TCP	HTTP	ONS 15305 R3.0 (CTC-based)	—
23	Outbound	TCP	Telnet	ONS 15305	—
4500–4510	Inbound	TCP	Proprietary	ONS 15305	—
23	Outbound	TCP	Telnet	ONS 15305	—
161	Outbound	UDP	SNMP	ONS 15305 R3.0 (CTC-based)	—
161	Outbound	UDP	SNMP	ONS 15305	—
3083	Outbound	TCP	TL1	ONS 15216	—
23	Outbound	TCP	Telnet	ONS 15216	—
8023	Outbound	TCP	Telnet	ONS 15216	—
69	Inbound	TCP	TFTP	ONS 15216	—
161	Outbound	UDP	SNMP	ONS 15216	—
161	Outbound	UDP	SNMP	CTC-based	ML cards.
7200	Inbound	UDP	SNMP	CTC-based	ML cards.

Table 12-7 Prime Optical Server-to-NE Ports (continued)

Port	Inbound or Outbound	Protocol	Application Protocol	Service	Notes
7209	Outbound	UDP	SNMP	CTC-based	ML cards.
7210	Inbound	UDP	SNMP	CTC-based	ML cards.
CORBA listener port on the TCC+/TCC2 card (NE)	Outbound	TCP	CORBA	CTC-based	The port is configurable with: • TCC+/TCC2 fixed (57790, outbound). • Standard Internet Inter-ORB Protocol (IIOP) port (683, outbound). • User-defined constant.
CORBA listener port on the Prime Optical server (callback)	Inbound	TCP	CORBA	CTC-based	Dynamic.
80	Outbound	TCP	HTTP	CTC-based	—
3082	Outbound	TCP	TL1	CTC-based	TL1 port on TCC+/TCC2 (NE).
2361	Outbound	TCP	TL1	CTC-based	TL1 port on TCC+/TCC2 (NE).
4083	Outbound	TCP	TL1	CTC-based	TL1 port on TCC+/TCC2 (NE), secure.
20*xx*	Outbound	TCP	Telnet	CTC-based	ML cards: L2 Service Resync port. From any port on Prime Optical to port 20*xx* on the NE, where *xx* is the ML card slot number.
40xx	Outbound	TCP	Telnet	CTC-based	ML cards: L2 Service Resync port when the shell access is set to secure. From any port on Prime Optical to port 40xx on the NE, where xx is the ML card slot number.
3082, 3083	Outbound	TCP	TL1	ONS 155xx	—
161	Outbound	UDP	SNMP	ONS 155xx	—
80, 81	Outbound	TCP	HTTP	ONS 155xx	—
23	Outbound	TCP	Telnet	ONS 155xx	—
69	Inbound	TCP	TFTP	ONS 155xx	—

The following table lists the ports used for communication between the Prime Optical client workstation and the NEs.

Table 12-8 Prime Optical Client-to-NE Ports

Port	Inbound or Outbound	Protocol	Application Protocol	Cross-Launched Application	Notes
161	Outbound	UDP	SNMP	CEC	—
4500–4510	Inbound	TCP	Proprietary	CEC	—
161	Outbound	UDP	SNMP	CTC	—
4500–4510	Inbound	TCP	Proprietary	CTC	—
12345	Outbound	TCP	Proprietary	CTC	—
17476	Inbound	TCP	Proprietary	CTC	—
69	Inbound	UDP	TFTP	CTC	—
23	Outbound	TCP	Telnet	CTC	—
80	Outbound	TCP	HTTP	CTC	—
CORBA listener port on the TCC+/TCC2 card (NE)	Outbound	TCP	CORBA	CTC	The port is configurable with: • TCC+/TCC2 fixed (57790, outbound) • Standard Internet Inter-ORB Protocol (IIOP) port (683, outbound) • User-defined constant
CORBA listener port on the Prime Optical server (callback)	Inbound	TCP	CORBA	CTC	Dynamic: The port range can be configured
80	Outbound	TCP	HTTP	CTC	—

The following table lists the TCP ports to use in a SOCKS proxy server configuration. This information is helpful when setting up a firewall routing table.

Table 12-9 TCP Ports to Open in a SOCKS Proxy Server Configuration

Port	Inbound or Outbound	Protocol	Application Protocol	Notes
1080	Inbound on firewall/SOCKS proxy host	TCP	SOCKS v5	The port is configurable and is used for the connection between the Prime Optical client host and the firewall host.
10023–10086	Inbound (Prime Optical server host)	TCP	Telnet	Used for the connection between the Prime Optical client host and the Prime Optical server host.

Table 12-9 TCP Ports to Open in a SOCKS Proxy Server Configuration (continued)

Port	Inbound or Outbound	Protocol	Application Protocol	Notes
8051	Inbound (Prime Optical server host)	TCP	HTTP	Used for the connection between the Prime Optical client host and the Prime Optical server host.
All CTC ports, for CTC cross-launch	Inbound on the NE that CTC is connected to	TCP	—	Used for the connection between the Prime Optical client host and the subnetwork that contains the NE that CTC wants to reach.

12.1.4 Changing the Prime Optical Server Port

Normally, users do not change the Prime Optical server port. In cases where the Prime Optical server port is used for other applications, use the NE Service pane to change the TCP port number of the Prime Optical server. All Prime Optical clients use the JMOCO port to connect to the Prime Optical server. See Table 12-5 for information about the JMOCO port.

Step 1 In the Domain Explorer window, choose **Administration > Control Panel**.

Step 2 In the Control Panel window, click **NE Service** to open the NE Service pane. Click the **NE Poller** tab.

Step 3 In the Prime Optical Server Port field, change the server port. The server port in the Active column displays the current port. The server port in the After Restart column displays the port that is active after the server is restarted.

Step 4 Click **Save**. Changes to this parameter take effect only after the server is restarted.

12.1.5 Changing the HTTP Server Port

If other applications use the HTTP server port, you can change the default port. Complete the following steps:

Step 1 Open a shell on the Prime Optical server workstation and enter the following command to shut down the Prime Optical server:

```
opticalctl stop
```

Step 2 Enter the following commands to change directories to the HTTP server directory and create a copy of the configuration file:

```
cd /Apache/conf
cp httpd.conf httpd.conf.ori
```

Step 3 Locate the following lines in the httpd.conf file:

```
Listen IP-address:8051
Listen 127.0.0.1:8051
ServerName IP-address:8051
```

In each of these lines, replace the default port 8051 with the new HTTP server port.

Step 4 Enter the following command to start the Prime Optical server:

```
opticalctl start
```

Step 5 On each Prime Optical client, locate the following line in the *Prime Optical-client-installation-directory*/config/ems_client.cfg:

```
Apache_port=\:8051
```

Replace 8051 with the new HTTP server port.

Caution Be sure to repeat this change on each Prime Optical client.

Step 6 Launch the Prime Optical client. To verify that the HTTP services are working, choose **Help > Current Window** in the Domain Explorer.

12.2 How Do I Manage Northbound Interfaces?

Prime Optical GateWay is an architectural component that provides northbound EMS-to-NMS interface mediation. Prime Optical GateWay allows service providers to integrate Prime Optical with their OSSs by using open, standard interfaces.

Prime Optical supports three gateway modules that provide northbound EMS-to-NMS interface mediation. Not all NE types are supported by each module. Table 2-2 on page 2-3 shows the NE types supported by each gateway module. This section contains the following information:

12.2.1 Managing Prime Optical GateWay/SNMP

SNMP is a network management protocol used almost exclusively in TCP/IP networks. SNMP allows you to monitor and control network devices, manage configurations, collect statistics, check performance, and monitor security.

Prime Optical's GateWay/SNMP feature provides an SNMP trap forwarding service, where any trap generated or received by the server workstation will be forwarded to the set of defined trap destinations. Traps are autonomous notifications sent by an SNMP agent to an SNMP manager, such as HP Open View. Prime Optical GateWay/SNMP does not support southbound SNMP relaying (SNMP SET, GET, and GETNEXT).

The primary advantage of Prime Optical GateWay/SNMP is to limit the amount of traffic on the wide-area DCN. Imagine NEs deployed over a wide geographic area and a centralized network operations center where the management systems are located. If there are five OSs required to receive NE traps, instead of having each NE send five traps over the wide area to each OS, send a single trap to Prime Optical, which can then relay the trap locally in the NOC to the other OSs. NE configuration is also simpler because only one trap destination needs to be configured on each NE.

Prime Optical GateWay/SNMP supports SNMPv1, SNMPv2c, and SNMPv3 traps. SNMPv2c traps contain the Prime Optical host IP address in the source address of the IP packet.

SNMPv3 traps contain the OSS username, authentication protocol, authentication password, privacy protocol, and privacy password.

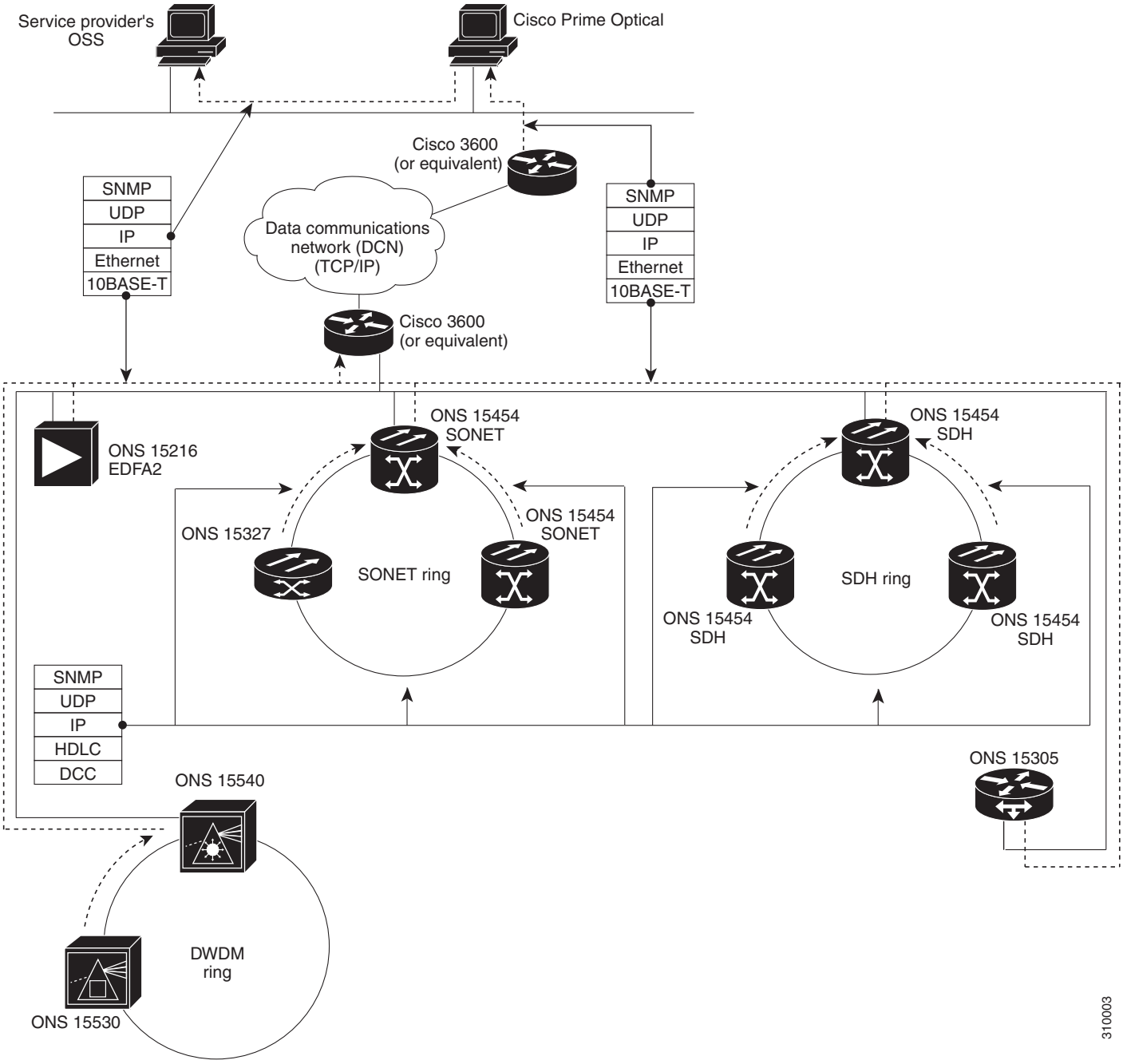
To enable the OS to determine which NE sent the trap, the trap must be defined with a variable binding that indicates the source NE.

Prime Optical GateWay/SNMP applies to any NE with an SNMP interface.

Note Table 2-2 on page 2-3 shows the NEs that support Prime Optical GateWay/SNMP.

The following figure shows the Prime Optical GateWay/SNMP communications architecture within a service provider's OSS environment.

Figure 12-1 Prime Optical GateWay/SNMP Communications Architecture



12.2.1.1 Starting and Stopping the Prime Optical GateWay/SNMP Service

Prime Optical GateWay/SNMP is a Prime Optical process that can be separately started and stopped through the Control Panel. NEs must be configured with the Prime Optical server IP address as a trap destination for traps to be sent from the NEs to Prime Optical.

Step 1 In the Domain Explorer window, choose **Administration > Control Panel**.

Step 2 In the Control Panel window, click **GateWay/SNMP Service**. Table 12-10 provides descriptions.

Step 3 In the Status area, click the **Start** button to start Prime Optical GateWay/SNMP. Notice that the service status toggles to *Active*.

Step 4 Click **Stop** to stop the service. The service status toggles to *Not Active*.

Note The Prime Optical GateWay/SNMP Service can take up to 60 seconds to initialize after the GUI status has changed to indicate that the service is up. The status is an indication of the successful initiation of the service startup, not successful initialization. To avoid problems with the service hanging, wait at least 60 seconds after starting or stopping the service before restarting it.

12.2.1.2 Adding and Removing a Prime Optical GateWay/SNMPv1 or Prime Optical GateWay/SNMPv2 Host

You can configure up to 16 SNMP trap destination hosts for Prime Optical GateWay/SNMP. Prime Optical enforces a duplication check error to ensure that you do not enter duplicate OSS IP addresses.

Step 1 In the Domain Explorer window, choose **Administration > Control Panel**.

Step 2 In the Control Panel window, click **GateWay/SNMP Service**. The following table provides descriptions.

Step 3 In the SNMP Hosts field, enter a valid IP address or hostname for the SNMP forwarding host; then, click **Add**. To remove an SNMP host, select the IP address or hostname of the host and click **Remove**.

Step 4 Repeat for each host to be added or removed; then, click **Save**.

Table 12-10 Field Descriptions for the GateWay/SNMP Service Pane

Field	Description
Service Status	Displays the current status of the service: Active or Not Active.
Service Action	Allows you to stop or start the Prime Optical GateWay/SNMP service. Notice that the Service Action button toggles between Stop or Start and the Service Status field changes accordingly.

Table 12-10 Field Descriptions for the GateWay/SNMP Service Pane (continued)

Field	Description
Engine ID	Displays the unique identifier for the given Prime Optical GateWay/SNMP application that Prime Optical is communicating with. The engine ID is used to configure the OSS application to receive traps from Prime Optical GateWay/SNMP. The engine ID is generated the first time you install the Prime Optical server.
SNMP Hosts	Displays the IP address or hostname of the host where each SNMP trap will be forwarded. You can enter up to 16 valid IP addresses or hostnames. Use the **Add** and **Remove** buttons to add or remove IP addresses or hostnames.

12.2.1.3 Configuring Northbound OSS SNMPv3 Users—Optical NEs

You can use the OSS SNMPv3 Users table to add, modify, or delete OSS SNMPv3 users.

This section contains the following procedures:

12.2.1.3.1 Viewing the OSS SNMPv3 Users Table

To view the OSS SNMPv3 Users table, choose **Administration > GateWay/SNMP Users** in the Domain Explorer window. The following table provides descriptions.

Table 12-11 Field Descriptions for the OSS SNMPv3 Users Table

Column Name	Description
Username	Name of the user who authenticates the SNMPv3 trap. The name must contain from 6 to 53 alphanumeric characters. The name cannot contain spaces or special characters.
Authentication Protocol	Type of encryption used to authenticate the SNMPv3 user.
IP Address	IP address to which to forward the SNMPv3 trap.
Privacy Protocol	Privacy protocol set for the SNMPv3 user.
SNMP Port	OSS destination port number. The default port number is 162.
SNMP Version	SNMP version number.
Engine ID	Unique identifier for the given Prime Optical GateWay/SNMP application that Prime Optical is communicating with. The engine ID is used to configure the OSS application to receive traps from Prime Optical GateWay/SNMP. The engine ID is generated the first time you install the Prime Optical server.

12.2.1.3.2 Adding an OSS SNMPv3 User

SNMPv3 user profiles are stored in the OSS SNMPv3 Users table.

Step 1 In the Domain Explorer window, choose **Administration > GateWay/SNMP Users**. The OSS SNMPv3 Users table opens.

Step 2 Choose **Edit > Add** (or click the **Create a New User** tool). The Add OSS SNMPv3 User dialog box opens. The following table provides descriptions.

Step 3 After providing the required information, click **OK**.

Table 12-12 Field Descriptions for the Add/Modify OSS SNMPv3 User Dialog Box

Field	Description
OSS IP Address	Enter the IP address to which to forward the SNMPv3 trap.
Username	Enter a unique name for the new user. The name must contain from 6 to 53 alphanumeric characters. The name cannot contain spaces or special characters.
SNMP Port	Enter the OSS destination port number.
Authentication Protocol	Authentication protocol for the OSS SNMPv3 user. Choose the authentication protocol to use for authenticating the user. Values are No Auth, MD5 (the default), or SHA.
Authentication Password	Enter the password used to authenticate the SNMPv3 user. The password must contain: • From 1 to 12 characters • At least one special character other than an apostrophe (') • At least two letters (A-Z, a-z), including at least one uppercase letter • At least one number (0-9) **Note** Regardless of the actual length of the password, the Password and Confirm Password fields display only a fixed-length string of 15 asterisks (*).
Confirm Authentication Password	Re-enter the password to confirm it.
Privacy Protocol	Select the privacy protocol set for the SNMPv3 user. You can choose one of the following: • NoPriv—No privacy protocol for the user. **Note** The Privacy Protocol can be set to No Priv only when the Authentication Protocol is set to No Auth. • DES—Use Data Encryption Standard (DES) for encryption.
Privacy Password	Enter the password used to decrypt the message payload.
Confirm Privacy Password	Re-enter the privacy password to confirm it.

12.2.1.3.3 Modifying an OSS SNMPv3 User

Step 1 In the Domain Explorer window, choose **Administration > GateWay/SNMP Users**. The OSS SNMPv3 Users table opens.

Step 2 Select the SNMPv3 user to modify; then, choose **Edit > View/Modify** (or click the **Modify User Properties** tool). The Modify OSS SNMPv3 User dialog box opens. Table 12-12 provides descriptions.

Step 3 Modify the fields described in Table 12-12.

Note The IP Address and Username fields are read-only.

Step 4 Click **OK**. The updated user profile is listed in the OSS SNMPv3 Users table.

12.2.1.3.4 Deleting an OSS SNMPv3 User

Step 1 In the Domain Explorer window, choose **Administration > GateWay/SNMP Users**. The OSS SNMPv3 Users table opens.

Step 2 Select the SNMPv3 user to delete; then, choose **Edit > Delete** (or click the **Delete User** tool).

Step 3 Click **OK** in the confirmation dialog box.

12.2.1.4 Configuring SNMP on Optical NEs

SNMP must be configured for each NE that uses Prime Optical GateWay/SNMP. This section contains the following procedures:

- 12.2.1.4.1 Configuring SNMP for the ONS 15216 EDFA2 and EDFA3, page 12-16
- 12.2.1.4.2 Configuring SNMP for the ONS 15305, page 12-16
- 12.2.1.4.3 Configuring SNMP for CTC-Based NEs, page 12-16
- 12.2.1.4.4 Configuring SNMP for the ONS 15530 and ONS 15540, page 12-17

For additional information, refer to the NE user documentation.

Note

- When configuring SNMP on NEs, make sure that no other SNMP daemon is running on the designated Prime Optical server host.
- If you enter the **opticalctl status** command after configuring SNMP, Prime Optical GateWay/SNMP is not shown. This is because the **opticalctl status** command shows all of the Prime Optical processes and Prime Optical GateWay/SNMP is not a separate process. Use the Service Monitor table to view the status of Prime Optical GateWay/SNMP.

12.2.1.4.1 Configuring SNMP for the ONS 15216 EDFA2 and EDFA3

For the ONS 15216 EDFA2 and EDFA3, SNMP trap entries are added automatically when the NE is added to Prime Optical. See 5.3.9 Using SNMP, page 5-15 for more information.

12.2.1.4.2 Configuring SNMP for the ONS 15305

For information on how to configure SNMP for the ONS 15305, see the *Cisco ONS 15305 Installation and Operations Guide.*

12.2.1.4.3 Configuring SNMP for CTC-Based NEs

Note This section details how to configure SNMP v1/v2 from the NE to the server. For information on configuring SNMPv3 for CTC-based NEs, see 8.4.6.2.4 SNMPv3 NE Trap Destinations Table, page 8-69.

Step 1 Select a CTC-based NE in the Domain Explorer tree and choose **Configuration > NE Explorer** (or click the **Open NE Explorer** tool).

Step 2 In the node properties pane, click the **Network** tab; then, click the **SNMP** subtab.

Step 3 (Not applicable to the ONS 15600) To allow SNMP proxy, check the **Allow SNMP Proxy** check box.

Step 4 (Not applicable to the ONS 15600) To use the SNMP management software with the NE, check the **Allow SNMP Set** check box.

Step 5 (Not applicable to the ONS 15600) Click **Apply**.

Step 6 Click **Create**. The Create SNMP Trap Destination dialog box opens. The following table provides descriptions.

Step 7 After making your selections, click **OK**.

Step 8 Click **Apply**.

Table 12-13 Field Descriptions for the Create SNMP Trap Destination Dialog Box

Field	Description
IP Address	Enter the IP address of your NMS.
Community Name	Enter the SNMP community name. For a description of SNMP community names, refer to the SNMP information in the NE reference guide. **Note** The community name is a form of authentication and access control. The community name assigned to the ONS 15600 is case-sensitive and must match the community name of the NMS.
UDP Port	Set the UDP port for SNMP. The default port is 162. Allowed UDP port values are 162, 391, and values between 1024 and 65535.

Table 12-13 Field Descriptions for the Create SNMP Trap Destination Dialog Box (continued)

Field	Description
Trap Version	Set the Trap Version field for either SNMPv1 or SNMPv2. See your NMS documentation to determine whether to use SNMPv1 or SNMPv2.
Max Traps per Second *(not applicable to the ONS 15600)*	Enter the maximum number of traps per second that will be sent to the SNMP manager. A zero value indicates that there is no maximum and all traps are sent to the SNMP manager.

12.2.1.4.4 Configuring SNMP for the ONS 15530 and ONS 15540

Configuring SNMP on ONS 15530 and ONS 15540 NEs is a prerequisite for adding an NE to Prime Optical. If SNMP is not configured on the NE, refer to the instructions in the relevant hardware configuration guide.

12.2.2 Managing Prime Optical GateWay/CORBA

Note This section provides a high-level overview of Prime Optical GateWay/CORBA. For detailed information about Prime Optical GateWay/CORBA, including how to enable username and password encryption, set the heartbeat event, and create OSS clients, refer to the *Cisco Prime Optical 9.6 GateWay/CORBA User Guide and Programmer Manual*.

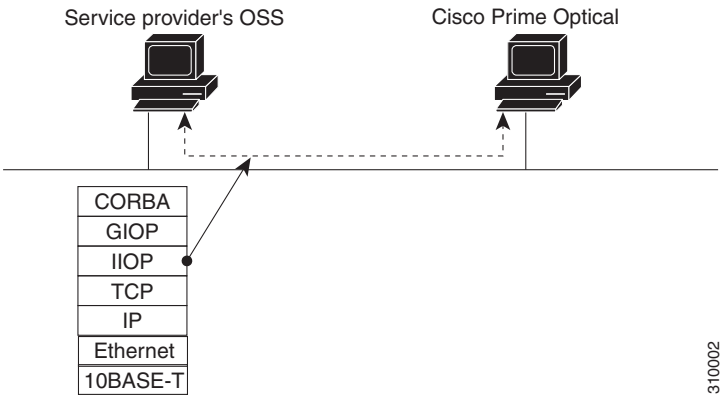
The Common Object Request Broker Architecture (CORBA) is a middleware platform defined by the Object Management Group (OMG). The Prime Optical GateWay/CORBA option is a CORBA-based interface that provides higher-layer management systems with fault, inventory, performance, configuration, Layer 1 circuit provisioning, and Layer 2 VLAN management information for NEs. The Prime Optical GateWay/CORBA option is based on the TeleManagement Forum (TMF) standards for the NMS-to-EMS interface.

Because it is CORBA-based, Prime Optical GateWay/CORBA is independent of the hardware that the integrated OSS is running. This independence allows service providers to easily add Prime Optical as a building block of their management environment.

Note Table 2-2 on page 2-3 shows the NEs that support Prime Optical GateWay/CORBA.

The following figure shows the Prime Optical GateWay/CORBA communications architecture within a service provider's OSS environment.

Figure 12-2 Prime Optical GateWay/CORBA Communications Architecture



Prime Optical GateWay/CORBA is based on the following TMF standards:

- TMF513 v3.0: Multi-Technology Network Management Business Agreement
- TMF608 v3.0: Multi-Technology Network Management Information Agreement
- TMF814 v3.0: Multi-Technology Network Management Solution Set

12.2.2.1 Configuring the CORBA Timeout

The CORBA timeout determines the number of seconds that the Prime Optical server has to process a CORBA call and return it to the Prime Optical client. If the Prime Optical server does not return a response in time, CORBA automatically times out.

Step 1 Open the ems-client.cfg file.

By default, the ems-client.cfg file is located in the following directory:

- Windows: C:\Cisco\TransportManagerClient\config
- Sun Solaris: /opt/CiscoTransportManagerClient/config

Step 2 Set the CORBA_Call_Timeout_Seconds parameter to the desired value. The default timeout is 120 seconds; the recommended range is from 120 to 300 seconds.

Note If the NE is busy or if the Prime Optical server is processing many requests, you might need to increase the CORBA timeout parameter accordingly.

Step 3 Save and close the ems-client.cfg file.

12.2.2.2 Starting or Stopping Prime Optical GateWay/CORBA

Step 1 In the Domain Explorer window, choose **Administration > Control Panel**.

Step 2 Click **GateWay/CORBA Service** to open the GateWay/CORBA Service pane.

Step 3 In the **Global** tab > **Status** area, click the **Start** button to start GateWay/CORBA or the **Stop** button to stop the service.

Note The Prime Optical GateWay/CORBA Service can take up to 60 seconds to initialize after the GUI status has changed to indicate that the service is up. The status is an indication of the successful initiation of the service startup, not successful initialization. To avoid problems with the service hanging, wait at least 60 seconds after starting or stopping the service before restarting it.

12.2.2.3 Viewing the Prime Optical GateWay/CORBA Service Pane

Use the Prime Optical GateWay/CORBA Service pane to start and stop the Prime Optical GateWay/CORBA service and configure CORBA ports and parameters. The following table provides descriptions.

Note In CTM R9.2, Prime Optical server ports can be configured from the Ports Configuration tab. Unless otherwise noted, all port configuration changes require a Prime Optical GateWay/CORBA restart.

Table 12-14 Field Descriptions for GateWay/CORBA Service Pane

Field	Description
Global Tab	
Service Status	Displays the current status of the service: Active, Not Active, or Not Installed.
Service Action	Allows you to stop or start a process. Notice that the Service Action button toggles between Stop and Start, and the Service Status field changes accordingly. This field is not available if the Service Status is Not Installed.
Enable Encryption for Username and Password	When checked, usernames and passwords are transmitted between the EMS server and the OSS in encrypted format. The maximum encryption length is 53 bytes. If this check box is unchecked, Prime Optical GateWay/CORBA usernames and passwords are transmitted without encryption. By default, encryption is disabled at installation.
Heartbeat for Notification Channel	Notifies the OSS if a failure in the notification service has occurred. The heartbeat is measured in minutes; the range is 0 to 999 minutes. A zero value implies that the heartbeat is disabled.
Maximum Number of Simultaneous Sessions	Specifies the number of Prime Optical GateWay/CORBA sessions that can be active at the same time. The range is from 4 to 25; the default is 4.

Table 12-14 Field Descriptions for GateWay/CORBA Service Pane (continued)

Field	Description
Maximum Events per Consumer	Sets the MaxEventsPerConsumer administrative quality of service (QoS) parameter on the notification channel. The notification server uses this property to bound the maximum number of events in a given channel allowed to queue at any one time. The default value is 0, meaning that the notification server does not limit the maximum number of events that can be queued. If no limits are imposed on the queue, the notification server might run out of memory, because the server must keep all events in memory until they are consumed by all registered consumers. ⚠ **Caution** Any change to this value should be done with extreme caution. If you set the value too low, the NMS cannot receive all notifications. If you set the value too high, the Prime Optical notification server runs out of memory. The current value can handle alarm bursts of 10,000 events per minute.
Notification Service Name	Defines the service name used by the resolve_initial_reference function to get a reference to the notification service. The Prime Optical GateWay/CORBA installation installs the notification service. However, if you want to use your own notification service, you can modify this parameter. **Note** You do not need to modify this parameter if you plan to use the notification service that is bundled with Prime Optical GateWay/CORBA.
Notification Service Naming Context	Defines the naming context of the notification service. This property is used when the resolve_initial_reference function fails to resolve the notification service. Prime Optical GateWay/CORBA contacts the naming service to resolve the name context defined in this property. The value of this property must match the value published by your notification server. **Note** You do not need to modify this parameter if you plan to use the notification service that is bundled with Prime Optical GateWay/CORBA.
Notification Service Factory IOR Filename	Enter the notification service factory Information Object Repository (IOR) filename located in the /opt/CiscoTransportManagerServer/openfusion/domains/OpenFusion/localhost/NotificationService/NotificationSingleton/NotificationService.ior directory. The FactoryIORFile property defines the path to a text file that contains the IOR of the notification service. This property is used only after the resolve_initial_reference function and the naming service both fail. Prime Optical GateWay/CORBA opens the file as defined by the URL format in this property and retrieves the IOR. This parameter allows you to run your notification service on a different host to improve performance. **Note** You do not need to modify this parameter if you plan to use the notification service that is bundled with Prime Optical GateWay/CORBA.
Name Service Server List	Defines where the name servers are running. Accepts a comma-separated list of hostnames.
Name Service Root IOR	Defines the path to find the naming service's IOR on each host defined on the server list. The complete path is constructed as <http://<item>_of_ServerList><RootIORLoc>.

Table 12-14 Field Descriptions for GateWay/CORBA Service Pane (continued)

Field	Description
Error Level	Defines the error level of messages to log. Error levels are: • Critical • Major • Minor • Informational • Debug • Trace
Port Configuration Tab	
Enable IMR checkbox	IMR is always disabled. This allows you to configure Prime Optical GateWay/CORBA to use static ports. This is a read-only option.
Name Service	Enter the port that the name service uses to listen for incoming requests. The default value is 14005. **Note** This option requires a server restart.
Notification Service	Enter the port that the notification service uses to listen for incoming requests. The default value is 20001.
EMS Session	Enter the EMS session port value. The default value is 20100.
Event Notification (min)	Enter the minimum Event Notification port value. The default value is 20001.
Event Notification (max)	Enter the maximum Event Notification port value. The default value is 20099.
Server-to-Client (min)	Enter the minimum Server-to-Client port value. The default value is 20101.
Server-to-Client (max)	Enter the maximum Server-to-Client port value. The default value is 20199.
Debug Tab	
Dump Cache button	Exports the cache (memory) information of the selected Prime Optical GateWay/CORBA service instance to a log file.
Overall Logging	Click the **Enable** radio button to enable overall debugging and to select debug modules for the PM service. Click the **Disable** radio button to disable overall debugging.
Debug Modules	If overall logging is enabled, lists the modules that can be used for debugging. Select a module from the Available list; then, click the **Add** button to add the module to the Selected list. Use the **Remove** button to return the module to the Available list. Debug logging will be performed on the modules in the Selected list.

12.2.2.4 Viewing the Prime Optical GateWay/CORBA Users Table

The Prime Optical GateWay/CORBA Users table displays information about OSS CORBA client properties. To launch the table, choose **Administration > GateWay/CORBA Users** in the Domain Explorer window. The following table provides descriptions. Use the toolbar icons to create, modify, or delete OSS client users.

Tip You can also launch the GateWay/CORBA Users table from the Control Panel. In the Domain Explorer window, choose **Administration > Control Panel**. In the Control Panel window, choose **Administration > GateWay/CORBA Users**.

Table 12-15 Field Descriptions for the GateWay/CORBA Users Table

Column Name	Description
OSS Profile Name	Displays the name of the selected OSS client.

12.2.2.5 Adding a Prime Optical GateWay/CORBA User

OSS client profiles are stored in the GateWay/CORBA Users table.

Step 1 In the Domain Explorer window, choose **Administration > GateWay/CORBA Users**. The GateWay/CORBA Users table opens.

Step 2 Choose **Edit > Add** (or click the **Create a New User** tool). The Add GateWay/CORBA User dialog box opens. The following table provides descriptions.

Step 3 After making your selections, click **OK**. The new profile is visible when the GateWay/CORBA Users table is refreshed.

Table 12-16 Field Descriptions for Add/Modify GateWay/CORBA User Dialog Box

Field	Description
OSS Profile Name	Enter a unique name for the new OSS profile. The name must contain from 6 to 53 alphanumeric characters. The name cannot contain spaces or special characters.
Password	Enter the password that the OSS client uses to log into the Prime Optical server. The password must contain: • From 1 to 12 characters • At least one special character other than an apostrophe (') • At least two letters (A-Z, a-z), including at least one uppercase letter • At least one number (0-9) **Note** Regardless of the actual length of the password, the Password and Confirm Password fields display only a fixed-length string of 15 asterisks (*).
Confirm Password	Re-enter the password to confirm it.

12.2.2.6 Modifying a Prime Optical GateWay/CORBA User's Properties

Step 1 In the Domain Explorer window, choose **Administration > GateWay/CORBA Users**. The GateWay/CORBA Users table opens.

Step 2 Select the CORBA user profile to modify; then, choose **Edit > View/Modify** (or click the **Modify User Properties** tool). The Modify GateWay/CORBA User dialog box opens. Table 12-16 provides descriptions.

Step 3 After making any necessary modifications, click **OK**. The updated profile is visible when the GateWay/CORBA Users table is refreshed.

12.2.2.7 Deleting a Prime Optical GateWay/CORBA User

Step 1 In the Domain Explorer window, choose **Administration > GateWay/CORBA Users**. The GateWay/CORBA Users table opens.

Step 2 Select the CORBA user profile to delete; then, choose **Edit > Delete** (or click the **Delete User** tool).

Step 3 Click **OK** in the confirmation dialog box.

Note Prime Optical GateWay/CORBA does not allow an OSS profile to be deleted if there are active users logged in using that OSS profile.

12.2.2.8 Viewing Logged-In Prime Optical GateWay/CORBA Users

Step 1 In the Domain Explorer window, choose **Administration > GateWay/CORBA Users**. The GateWay/CORBA Users table opens.

Step 2 Choose **Administration > Logged In GateWay CORBA Users** (or click the **Show Logged In GateWay CORBA Users** tool). The Active GateWay/CORBA Users table opens. The following table provides descriptions.

Table 12-17 Field Descriptions for Active GateWay/CORBA Users Table

Field	Description
OSS Profile Name	Name of the OSS profile. Each client has a unique alphanumeric name.
OSS IP Address	IP address of the OSS client that is authenticated by Prime Optical GateWay/CORBA during the initial connection request made by the OSS.
Login Time (*time zone*)	Time stamp when the CORBA user logged in.

12.2.2.9 Ending an Active GateWay/CORBA User Session

Step 1 In the Domain Explorer window, choose **Administration > GateWay/CORBA Users**. The GateWay/CORBA Users opens.

Step 2 Choose **Administration > Logged In GateWay CORBA Users** (or click the **Show Logged In GateWay CORBA Users** tool). The Active GateWay/CORBA Users table opens.

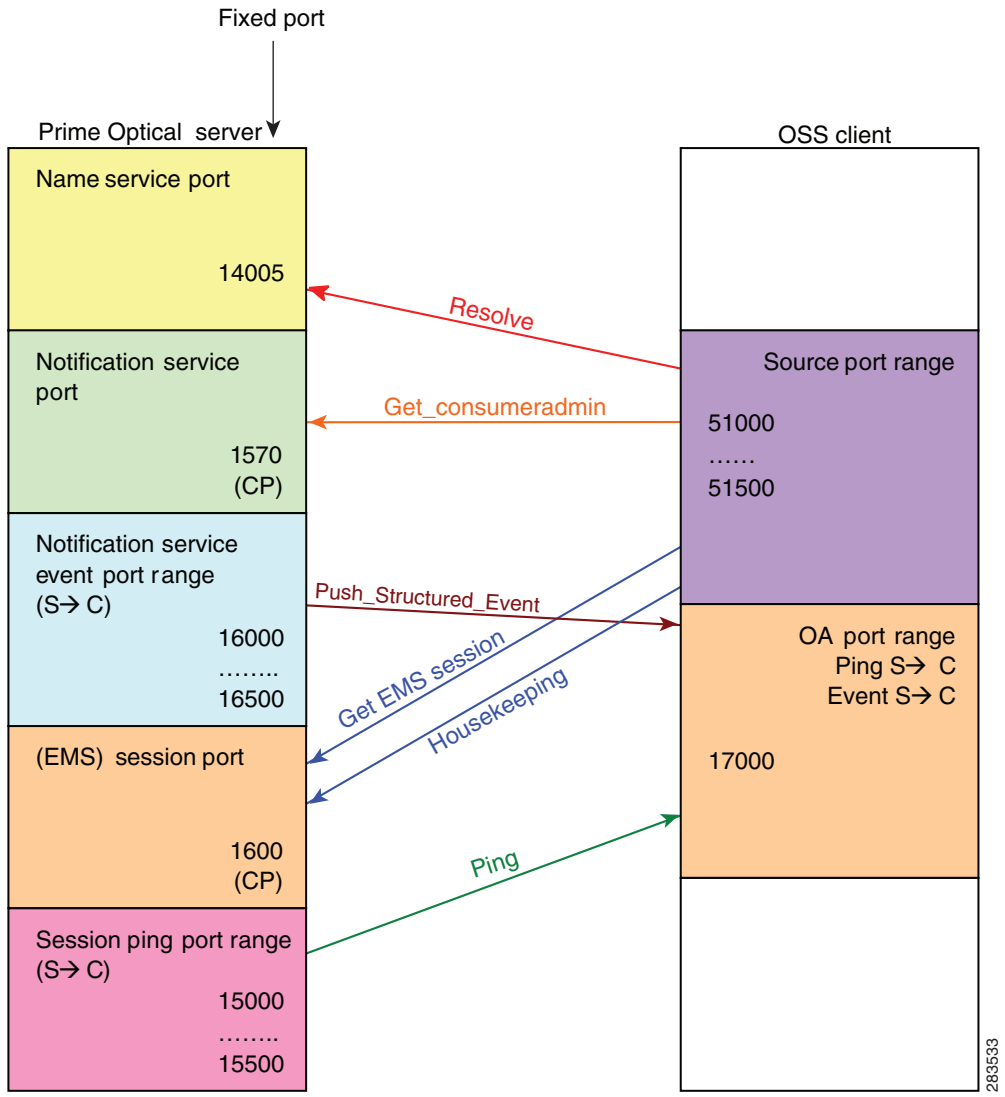
Step 3 In the Active GateWay/CORBA Users table, select the user whose session will be ended and choose **Administration > Log Out GateWay CORBA User** (or click the **Log Out GateWay CORBA User** tool).

12.2.2.10 Changing the Default Settings of Prime Optical Server and OSS CORBA Client Ports

For each connected OSS, JacORB uses several ports that have the following functions, as illustrated in Figure 12-3:

- Session port—The main channel used for handshakes between the OSS and the CORBA gateway. The CORBA gateway assigns this port to a random value between free ports in the system.
- Notification service port—The channel used to receive notifications from the CORBA gateway.
- Name service port—The port used to request a new session. The value is always fixed; the default port number is 14005.
- Session ping port—The channel used to establish a keep-alive handshake between the gateway and the OSS. The CORBA gateway assigns this port to a random value between free ports in the system.
- Notification service event port—A second port range used to push alarms or events from the CORBA gateway to the OSS. This port is a keep-alive channel like the previous association to the notification channel.

Figure 12-3 Sample CORBA Gateway Static Port Settings



CP : Settable through the Control Panel
S→ C: Server to client

Caution Errors resulting from changing the Prime Optical server ports or the OSS CORBA client ports can cause unpredictable system behavior.

Note

- It is recommended that you back up the current configuration files before changing the default settings.
- You can change the default settings only for OSS CORBA client ports that use JacORB.

You can change the default values of the following ports:

- OSS CORBA client ports:
  - 12.2.2.10.1 Object Adapter Port, page 12-26
  - 12.2.2.10.2 Source Port Range, page 12-27
  - 12.2.2.10.3 NAT Between the Prime Optical Server and OSS CORBA Client, page 12-27
- Prime Optical server ports:
  - 12.2.2.10.4 NameService Port, page 12-27
  - 12.2.2.10.5 NotificationService Port, page 12-27
  - 12.2.2.10.6 EMSSession Port, page 12-28
  - 12.2.2.10.7 Ping Server-to-Client Port Range, page 12-28
  - 12.2.2.10.8 Notification Event Port Range, page 12-29

Note You can also set Prime Optical server port values from the **Prime Optical GateWay/CORBA Service pane > Port Configuration tab**. For more information, see 12.2.2.3 Viewing the Prime Optical GateWay/CORBA Service Pane, page 12-19.

To set static values for CORBA gateway ports, it is strongly recommended that you follow these steps:

Step 1 With the Prime Optical server running, use the Control Panel to set the notification service port and the session port. See 12.2.2.10.5 NotificationService Port, page 12-27 and 12.2.2.10.6 EMSSession Port, page 12-28.

Step 2 Enter the following command to stop the Prime Optical server:

```
opticalctl stop
```

Step 3 Disable IMR. See 12.2.2.10.9 Disabling IMR, page 12-29.

Step 4 Set the session ping port range. See 12.2.2.10.7 Ping Server-to-Client Port Range, page 12-28.

Step 5 Set the name service port. See 12.2.2.10.4 NameService Port, page 12-27.

Step 6 Set the notification service event port range. See 12.2.2.10.8 Notification Event Port Range, page 12-29.

Step 7 Enter the following command to start the Prime Optical server:

```
opticalctl start
```

Step 8 Whenever you establish a new CORBA gateway session, use the **netstat** command to verify the actual ports in use and compare them to the newly added session.

12.2.2.10.1 Object Adapter Port

If you want to use a fixed port for the OSS CORBA client, change the value of the –DOAPort property. The –DOAPort property should be added to the file that launches the OSS CORBA client application. If there are two client instances running on the same machine, there should be two different port settings.

12.2.2.10.2 Source Port Range

Step 1 Open the jacorb.properties file from the OSS CORBA client directory.

Step 2 Change the value of the following properties:

```
jacorb.net.socket_factory=org.jacorb.orb.factory.PortRangeSocketFactory
jacorb.net.socket_factory.port.min=xxx
jacorb.net.socket_factory.port.max=yyy
```

12.2.2.10.3 NAT Between the Prime Optical Server and OSS CORBA Client

If Network Address Translation (NAT) exists between the Prime Optical server and OSS CORBA client, configure the jacorb.ior_proxy_host=*xxx.xx.xx.xxx* property from the jacorb.properties file to receive Prime Optical server callback messages and server-to-client pings. The *xxx.xx.xx.xxx* variable is the IP address of **NAT inside global address**.

12.2.2.10.4 NameService Port

Note You can also set the Name Service port value from the **Prime Optical GateWay/CORBA Service pane > Port Configuration tab**. For more information, see 12.2.2.3 Viewing the Prime Optical GateWay/CORBA Service Pane, page 12-19.

Step 1 Enter the following command to stop the Prime Optical server:

```
opticalctl stop
```

Step 2 Open the NameService.xml file from the /opt/*Prime Optical-server-directory*/openfusion/domains/localhost/NameService directory.

Step 3 Change the value of the *Port* property to the desired value. The default value is 14005.

Step 4 Enter the following command to stop the Prime Optical server:

```
opticalctl start
```

Step 5 Complete the following substeps to verify the new value of the port:

a. Enter the following command in the /opt/CiscoTransportManagerServer/openfusion/bin directory:

```
./manager
```

b. Choose **Domains > OpenFusion > localhost > NameService** in the Object Hierarchy tree.

c. Click the **CORBA** tab in the right pane. The Server Port property displays the new port value.

12.2.2.10.5 NotificationService Port

Note You can also set the Notification Service port value from the Prime Optical GateWay/CORBA Service pane > Port Configuration tab. For more information, see 12.2.2.3 Viewing the Prime Optical GateWay/CORBA Service Pane, page 12-19.

Step 1 Stop the Prime Optical GateWay/CORBA service. See 12.2.2.2 Starting or Stopping Prime Optical GateWay/CORBA, page 12-18 for instructions.

Step 2 Change the value of **Notification Service Listening Port Number** to the desired value.

Step 3 Restart the Prime Optical GateWay/CORBA service. See 12.2.2.2 Starting or Stopping Prime Optical GateWay/CORBA, page 12-18 for instructions.

Step 4 Complete the following substeps to verify the new value of the port:

a. Enter the following command in the /opt/CiscoTransportManagerServer/openfusion/bin directory:

```
./manager
```

b. Choose **Domains > OpenFusion > localhost > NotificationService** in the Object Hierarchy tree.

c. Click the **CORBA** tab in the right pane. The Server Port property displays the new port value.

12.2.2.10.6 EMSSession Port

Note You can also set the EMS Session port value from the **Prime Optical GateWay/CORBA Service pane > Port Configuration tab**. For more information, see 12.2.2.3 Viewing the Prime Optical GateWay/CORBA Service Pane, page 12-19.

Step 1 Stop the Prime Optical GateWay/CORBA service. See 12.2.2.2 Starting or Stopping Prime Optical GateWay/CORBA, page 12-18 for instructions.

Step 2 Change the value of **Session Port Number** to the desired value.

Step 3 Restart the Prime Optical GateWay/CORBA service. See 12.2.2.2 Starting or Stopping Prime Optical GateWay/CORBA, page 12-18 for instructions.

12.2.2.10.7 Ping Server-to-Client Port Range

Note You can also set the Server-to-Client port values from the **Prime Optical GateWay/CORBA Service pane > Port Configuration tab**. For more information, see 12.2.2.3 Viewing the Prime Optical GateWay/CORBA Service Pane, page 12-19.

Step 1 Stop the Prime Optical GateWay/CORBA service. See 12.2.2.2 Starting or Stopping Prime Optical GateWay/CORBA, page 12-18 for instructions.

Step 2 Open the jacorb.properties file from the /opt/*Prime Optical-server-directory*/openfusion/classes directory.

Step 3 Do the following in the **Socket Factories** section:

a. Uncomment the .jacorb.net.socket_factory=org.jacorb.orb.factory.PortRangeSocketFactory row.

b. Change the .jacorb.net.socket_factory.port.min value to the desired minimum range value.

c. Change the .jacorb.net.socket_factory.port.max value to the desired maximum range value.

Step 4 Restart the Prime Optical GateWay/CORBA service. See 12.2.2.2 Starting or Stopping Prime Optical GateWay/CORBA, page 12-18 for instructions.

12.2.2.10.8 Notification Event Port Range

Note You can also set the Notification Event port range from the **Prime Optical GateWay/CORBA Service pane > Port Configuration tab**. For more information, see 12.2.2.3 Viewing the Prime Optical GateWay/CORBA Service Pane, page 12-19.

Step 1 Stop the Prime Optical GateWay/CORBA service. See 12.2.2.2 Starting or Stopping Prime Optical GateWay/CORBA, page 12-18 for instructions.

Step 2 Open the NotificationService.xml file from the /opt/*Prime Optical-server-directory*/openfusion/domains/localhost/NotificationService directory.

Step 3 Change the value of the JVMFlags property to the following:

```
<PropertyValue>-Dosgi.parentClassloader=ext
-Djacorb.net.socket_factory=org.jacorb.orb.factory.PortRangeSocketFactory
-Djacorb.net.socket_factory.port.min=xxx
-Djacorb.net.socket_factory.port.max=yyy</PropertyValue>
```

Note Do not use carriage returns when entering the new value of the JVMFlags property. The new value must be entered on the existing row.

Step 4 Restart the Prime Optical GateWay/CORBA service. See 12.2.2.2 Starting or Stopping Prime Optical GateWay/CORBA, page 12-18 for instructions.

12.2.2.10.9 Disabling IMR

By default, IMR is disabled. To enable IMR, you must manually edit the jacorb.properties file.

Step 1 Make a backup copy of the jacorb.properties file located in the *Prime Optical-server-installation-directory*/openfusion/classes directory.

Step 2 In the jacorb.properties file, configure the following properties to “off”:

```
jacorb.use_imr=off
jacorb.use_imr_endpoint=off
```

12.2.2.11 Changing the Prime Optical GateWay/CORBA Client Ports

In CTM R9.0 and earlier releases, Prime Optical GateWay/CORBA was installed and configured to use random ports and did not support a firewall between the OSS client and the Prime Optical server. Starting from CTM R9.1, you can install and configure Prime Optical GateWay/CORBA to use static ports, which facilitates the use of a firewall between the OSS client and the Prime Optical server.

12.2.2.11.1 Installation

When you install Prime Optical GateWay/CORBA, all of the ports are configured with default fixed values. See Table 12-18 for the list of default fixed values.

Note To configure Prime Optical GateWay/CORBA to use static ports, you must disable IMR. See 12.2.2.11.2 Configuration, page 12-30.

Table 12-18 List of Parameters and Fixed Values

Parameters	Default Fixed Values
EMS Session Port	20100
Name Service Port	14005
Notification Service Port	20001
Session Ping Port range	20101–20199
Event Notification Port range	20002–20099
IMR	Off
Proxy Host Address	Not set

Note It is recommended that you change the default fixed values after the Prime Optical GateWay/CORBA installation is complete. If you change the values while installing Prime Optical GateWay/CORBA, the installation might fail.

12.2.2.11.2 Configuration

Note
- You can also configure Prime Optical server ports from the **Prime Optical GateWay/CORBA Service pane > Port Configuration tab**. For more information, see 12.2.2.3 Viewing the Prime Optical GateWay/CORBA Service Pane, page 12-19.
- Prime Optical GateWay/CORBA must be stopped in order to configure ports.

Step 1 Log into the Prime Optical server as the root user.

Step 2 Invoke the manageCTMCorbaPorts.sh file from the *Prime Optical-server-installation-directory*/bin directory.

Note If Prime Optical GateWay/CORBA is running, you only have the option to read port configuration settings.

The following appears:

```
-------------------------------------------------
 Manage CTM GateWay/CORBA Ports Utility
-------------------------------------------------
  1. Read Configuration Set
  2. Read Configuration Running
```

```
  3. Restore All Default Values
  4. Change All Settings
  5. Change Name Service Port
  6. Change Proxy Host Address
  7. Change Notification Service Port
  8. Change EMS Session Port
  9. Change S->C Ping Port Range
 10. Change Notification Event Port Range
  0. Exit
-------------------------------------------------
```

Step 3 Select an item from the menu.

For example, enter **1** to select Read Configuration Set.

For more information on these menu items, see the *Cisco Prime Optical 9.6 GateWay/CORBA User Guide and Programmer Manual*.

Note If you select a menu item that changes the configuration, you will be prompted to restart either Prime Optical GateWay/CORBA or the Prime Optical server. See 12.2.2.2 Starting or Stopping Prime Optical GateWay/CORBA, page 12-18 for instructions.