Carrier VoIP

Gateway Controller Configuration Management

NN10205-511

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Contents

Gateway Controller Configuration Management

New in this release

The following sections detail what's new in *Gateway Controller Configuration Management* (NN10205-511) for (I)SN09U:

Features

See the following sections for information about feature changes:

H323 RAS-less Provisioning (A00009576)

This feature provides the option to configure H.323 gateways and gatekeepers with the RAS-less functionality (no registration, admission, and status [RAS] messages are exchanged between a gateway and a GWC). The option is configured when associating an H.323 gateway with a GWC.

This feature modifies the following procedures in this NTP:

- "Change gateway attributes" (page 254)

Correct Exec Data Mismatch between GWC EM and Core (A00012974)

This feature provides the option to change the Exec Data settings for a selected GWC node, without having to delete and re-add the node.

This feature introduces or modifies the following procedures this NTP:

- "Change the Exec Data values for an existing GWC node" (page 233) (new)
- "Add and configure a GWC node" (page 111)
- "View characteristics of a GWC node" (page 215)

GWC Autonomous SWACT (A00011827)

This feature allows you to enable or disable the autonomous switch-of-activity (SWACT) functionality on any trunk- or large line-type Gateway Controllers (GWC). This functionality allows the GWC to automatically invoke a warm SWACT after losing communication with all associated media gateways.

This feature introduces or modifies the following procedures in this NTP:

- "Enable or disable GWC autonomous SWACT" (page 236) (new)
- "Modify the Pre-Swact Timer" (page 240) (new)
- "View characteristics of a GWC node" (page 215)

GWC EM Enhancements to Support SIREN (A00010742)

This feature removes the Gateway controller active IP address: field from the Add Gateway Controller dialog box. The IP addresses are determined internally by the hardware management software.

This feature modifies the following procedures in this NTP:

- "Add and configure a GWC node" (page 111)
- "View characteristics of a GWC node" (page 215)

Flex Large Line GWC prof (Ph1) - (A00013275)

This feature provides support for large line gateways supporting up to 2047 endpoints within a single virtual media gateway. Two new media gateway profiles are added to the GWC Manager: AUDIOCODES_6310_LINE (for Media Gateway 3500 using TP-6310 card and configured as a large line gateway) and AUDIOCODES_6310_TRUNK (for Media Gateway 3500 using TP-6310 card and configured as a trunk carrier gateway).

> ***Note:*** AUDIOCODES_6310_LINE profile is not supported in (I)SN09U release.

This feature modifies the following procedures in this NTP:

- "Associate a trunk media gateway" (page 123)
- "Associate a line media gateway (wireline market)" (page 143)
- "Add carriers to a GWC" (page 186)
- "Add a certificate file for a third-party gateway" (page 243)

Provisioning of 2 Port Voice Services Processor 4e for MG 15000 (A00013555)

This feature creates media gateway profile PVG_VSP4E to support a new Nortel Media Gateway 15000 called 2 Port VSP4e.

This feature modifies the following procedures in this NTP:

- "Associate a trunk media gateway" (page 123)
- "Add carriers to a GWC" (page 186)
- "Change gateway attributes" (page 254)

GWC and SESM Support for AAL2-G726-32 codec in IP Network (A00014049)

This feature removes the ILBC codec and adds the AAL2-G726-32 codec to the list of supported IP codecs. This feature also modifies provisioning rules for IP network profiles - each profile must consists of one to three valid IP codecs and it must include PCMU or PCMA.

This feature modifies the following procedures in this NTP:

- "Add a network codec profile" (page 31)
- "Change a network codec profile" (page 45)

Other changes

See the following sections for information about changes that are not feature-related:

- "References to the Core" (page 10)
- "New media gateway profiles: KEYMILE_UMUX and AUDCDSMG32LN" (page 10)
- "AFC media gateway profile removed from the GWC Manager GUI" (page 10)
- "Gateway naming conventions" (page 10)
- "ASPEN protocol" (page 10)
- "Table of media gateway profiles and characteristics" (page 10)

References to the Core

Throughout this NTP, all generic references to the Core apply to both implementations of Core functionality:

- XA-Core, in a CS 2000 configuration environment
- Compact Call Agent (CCA), in a CS 2000 - Compact configuration environment

New media gateway profiles: KEYMILE_UMUX and AUDCDSMG32LN

Updated the following procedures:

- "Associate a line media gateway (wireline market)" (page 143)
- "Add carriers to a GWC" (page 186)
- "Change gateway attributes" (page 254)

AFC media gateway profile removed from the GWC Manager GUI

Removed all references to the AFC profile.

Gateway naming conventions

Updated gateway naming conventions in all "Associate <media _gateway>" procedures.

ASPEN protocol

Removed all references to unsupported ASPEN protocol. _ASPEN media gateway profiles are still present in the GWC Manager GUI, but are not supported.

Table of media gateway profiles and characteristics

Removed "Table of media gateway profiles and characteristics" from the "Change gateway attributes" procedure. The table is available in *Gateway Controller Basics* (NN10189-111).

PVG naming

PVG naming - The following table lists the names used for certain gateways in Carrier Voice over IP (VoIP) documentation prior to (I)SN07 and provides the new brand names starting in (I)SN07.

The CS 2000 GWC Manager does not reflect these branding changes in (I)SN09U. As a result, the GWC customer documentation does not reflect these changes, as well. This table is being provided to map the names used in GWC documentation to other Carrier VoIP documentation.

Pre-(I)SN07 name	Brand name starting in (I)SN07
Passport Packet Voice Gateway (PVG)	Nortel Media Gateway 7480 or 15000
PVG 7400 or PVG 7K	Nortel Media Gateway 7480
PVG 15000 or PVG 15K	Nortel Media Gateway 15000

Configuration management strategy

Initial Gateway Controller (GWC) configuration is performed by Nortel installation personnel.

The following post installation capabilities are provided to customers:

- re-configuring GWCs (limited capability)
- increasing the GWC capacity in a network
- configuring packet network connections between the GWC and various gateway types

Tools and utilities

The CS 2000 SAM21 Manager graphical user interface (GUI) is used to provision the base parameters for GWC cards. The datafill specifies such values as the IP address, slot location, node definition, and card provisioning.

ATTENTION

The GWC Manager does not display provisioning data in real time. That is, when two users are changing provisioning data on the same GWC node at the same time, you must refresh your display to see the changes implemented by the other user. Use the Refresh button if available. Otherwise, you may have to select a different GWC node, then re-select again the node that you are updating. To view the provisioning data changes under any tab of the Network Devices or Network Configuration panel, click any other tab in the panel, then return to the tab that you are updating.

The CS 2000 GWC Manager, a Java-based GUI that runs in a web browser application, is used to configure GWCs and associate GWC nodes with media gateways. The CS 2000 GWC Manager is also used to provision endpoints that enable the GWC node to mediate the bearer path for a call.

Most of the procedures in this NTP are performed using the CS 2000 GWC Manager. You can perform most of the tasks associated with these procedures using either of the following tools:

- the CS 2000 GWC Manager
- the OSSGate application

For information about using the OSSGate application, and to see a list of commands supported using OSSGate, see *OSSGate User Guide* (NE10004-512).

For security purposes, the following login session time-outs are provisioned for the GWC Manager GUI:

- user inactivity time-out, which specifies the amount of time a client session can be inactive before the user is required to log in again
- user termination time-out, which specifies the amount of time a user has to log in again before the user is forced to exit the client session

Both time-outs have a default value of 10 minutes, which you can modify using procedure "Modifying login session timeouts on the CS 2000 Management Tools server" in the CS 2000 Management Tools section of the *Nortel ATM/IP Solution-level Administration and Security* (NN10402-600).

Integrated Element Management System

Many FCAPS activities may now be performed using the Integrated Element Management System (IEMS). In addition, access to the CS 2000 GWC Manager and the CS 2000 SAM21 Manager, is now provided using the IEMS.

To launch the CS 2000 GWC Manager or the CS 2000 SAM21 Manager, see the following procedures in *IEMS Overview* (NN10329-111):

- "Launching GWC Manager"
- "Launching SAM21 Manager"

General GWC configuration procedures

Each general procedure presented in this section refers to multiple individual procedures included in this NTP. The following table lists the general procedures included in this section.

General GWC configuration procedures
Procedures to configure generic functionality: • "Set up network services" (page 14) • "Add a new GWC node to the network" (page 15) • "Modify the base configuration of an installed GWC card" (page 17)

General GWC configuration procedures

- "Modify the operating configuration of an installed GWC node" (page 18)
- "Re-configure a GWC node in the network" (page 19)
- "Remove service from a GWC card or node" (page 21)

Procedures to configure specific items:

- "Add QoS collection service" (page 22)
- "Associate a media proxy or a media proxy group with a GWC" (page 22)
- "Add an IP-VPN(NAT) zone to the network" (page 24)
- "Configure an IP-VPN(NAT) zone to be shared with another CS 2000" (page 24)
- "Add an LBL zone to the network" (page 25)
- "Add a composite NAT and LBL zone to the network" (page 25)
- "Add a NAT-type network zone to a VPN" (page 26)
- "Add a PEP server to the network" (page 26)
- "Add an ALG to the network" (page 27)
- "Configure a destination for CICM location information and enable change reporting" (page 28)
- "Configure the Packet Media Anchor functionality on an audio controller GWC node" (page 28)
- "Activate Network VCAC on a GWC Manager" (page 30)
- "Enable or disable GWC autonomous SWACT" (page 236)
- Configure IP Security (IPSec). For all IPSec-related procedures, see *Gateway Controller Security and Administration* (NN10213-611).

The process of configuring a GWC node and associating the node with a media gateway is similar for all GWC service types and media gateways. Differences in configuration scenarios occur due to the type of gateway used, such as lines, trunks, or VRDN. Differences also occur when network address translator (NAT) devices, policy enforcement point (PEP) servers, application layer gateway (ALG), or limited bandwidth links (LBL) are required.

Use the following general steps to configure a GWC node:

1. Add a GWC node to the GWC database using the CS 2000 GWC Manager and CS 2000 SAM21 Manager.
2. Associate a media gateway to the GWC node (along with any additional devices, such as NAT zones).

When necessary, provision trunk tables in the Core using the MAP. For more information, see *CS 2000 Configuration Management* NTP for your solution.

Set up network services

When an existing system is expanded, additional GWC nodes may be added as well as other devices that provide network OAM&P services used by one or more GWC nodes. Some of these services include:

- dynamic quality of service (DQoS)
- PEP services using configured middlebox devices
- NAT services provided by NAT zones and media proxy services
- LBL services provided by LBL zones
- application layer gateway (ALG) service

The following list of procedures provides a summary of the services available to be configured, and the order in which these services can be set up in the network, following initial installation.

- "Add a network codec profile" (page 31)
- "Configure a recurring data integrity audit" (page 62)
- "Set or change network DQoS configuration parameters" (page 59)
- "Add or change default domain for the CS 2000 - required by RMGC" (page 65)
- "Provision advice of charge option" (page 57)
- "Set the call agent identifier" (page 69). This procedure is required prior to configuring PEP servers, ALGs, NAT, LBL, or composite NAT-LBL zones.
- "Add QoS collection service" (page 22); if applicable to your solution.
- "Add a PEP server to the network" (page 26); if applicable to your solution.
- "Add an application layer gateway to the network (cable market)" (page 393); if applicable to your solution.
- "Add a media proxy" (page 281) or, "Add a preferred media proxy group to the network" (page 299)or both; if applicable to your solution.
- "Add an IP-VPN (NAT) zone" (page 315); if applicable to your solution.
- "Add a NAT-type network zone to a VPN" (page 26); if applicable to your solution.
- "Add a virtual private network (VPN)" (page 360); if applicable to your solution.

- "Configure resource usage data for limited bandwidth links (LBL)" (page 323); if applicable to your solution.

  Resource usage data is used by LBLs. You must complete this procedure only when the Network VCAC status is set to OFF; that is, the virtual call admission control is performed by each GWC (network configuration without the Policy Controller).
- "Add a limited bandwidth link (LBL) zone" (page 330); if applicable to your solution.
- "Configure a destination for CICM location information" (page 77); if applicable to your solution.
- "Add the Policy Controller" (page 81); if applicable to your solution.
- "Change the Network VCAC status" (page 88); if applicable to your solution.
- "Review available network devices" (page 91)

Add a new GWC node to the network

When new GWC card sets are installed, use the CS 2000 SAM21 Manager to provision the base parameters for the two GWC cards to be defined as the node, then use the CS 2000 GWC Manager to add the GWC node to the GWC Manager database and to enable the call processing parameters and service types (that is, trunk, line, VRDN) on the new GWC node. Complete the following set of procedures, in the order given, to add and configure GWC cards, define GWC nodes, and associate gateways and endpoints.

Step	Action
	At the SAM21 shelf and the CS 2000 GWC Manager workstation
1	If adding new GWC hardware to the SAM21 shelf where GWC cards have not been previously installed, install new GWC cards into SAM21 shelf in pairs (two cards for each GWC node) using procedure "Install a GWC card" (page 93). or If adding new GWC hardware to the SAM21 shelf where GWC cards have previously been installed and you want to provision new services without the old provisioning information being assigned to the new GWC cards, perform procedure "Remove service from a GWC card" (page 108).
2	Use the CS 2000 SAM21 Manager to provision the GWC cards, define the GWC node, and assign service. Follow procedure "Assign service to a GWC card" (page 96).

3 Add and configure a GWC node in the CS 2000 GWC Manager database. Follow procedure "Add and configure a GWC node" (page 111).

4 Unlock the GWC cards in the node. Follow procedure "Unlock a GWC card" (page 469).

5 If necessary, manually return the GWC node to service (RTS) at the CS 2000 GWC Manager. Follow procedure "Manually return a GWC node to service" (page 472).

6 Associate a gateway type to a GWC node using an appropriate procedure from the following list:

- "Associate a trunk media gateway" (page 123).
- "Associate a Session Server virtual gateway for SIP Lines" (page 157).
- "Associate a small line media gateway (cable market)" (page 135).
- "Associate a line media gateway (wireline market)" (page 143).
- "Associate an H.323 media gateway" (page 164)
- "Associate an audio server media gateway" (page 180).

7 Add trunk endpoints or line endpoints to the gateway or add V5.2 carriers. Follow procedure "Add carriers to a GWC" (page 186).

8 If applicable, associate a media proxy to the GWC node. Follow procedure "Associate a media proxy with a GWC node" (page 291).

9 If applicable, associate a QoS collector to selected gateways assigned to the GWC node. Follow procedure "Associate a QoS collector with a GWC node" (page 371).

10 If applicable, associate a PEP server or an ALG to selected gateways assigned to the GWC node. Follow one of the following procedures:

- "Associate a PEP server with a media gateway" (page 383).
- "Associate an ALG with a media gateway" (page 398)

11 Review selected configuration and provisioning data for the GWC node using an appropriate procedure from the following list:

- "View carrier provisioning data for a GWC node" (page 210).
- "View gateway provisioning data for a GWC node" (page 219)
- "View lines provisioning data for a GWC node" (page 224).
- "View media proxies associated with a GWC node" (page 285)

- "View media proxy associations" (page 287)
- "View media proxy group associations" (page 308)
- "View network service zone configuration details" (page 354)
- "View VPN details" (page 364)
- "View QoS collector configuration data for a GWC node" (page 376).

—End—

Modify the base configuration of an installed GWC card

Use the CS 2000 SAM21 Manager and complete the following set of procedures in the order listed to re-configure base parameters for GWC cards in an existing node. Re-configuration can include the following parameters:

- IP address of the GWC cards that make up the node
- default_router/gateway_IP_address
- subnet mask
- firmware version of the GWC load
- CS 2000 Management Tools server host IP address
- IP address of the CS 2000 Core Manager or Core and Billing Manager (CBM)
- the path to the GWC software load on the CS 2000 Core Manager or CBM
- GWC software load name
- IP addresses of the available domain name servers

Step	Action
	At the CS 2000 GWC Manager workstation
1	Manually busy both GWC cards in the node using procedure "Busy a GWC node" (page 462).
2	"Manually re-provision GWC cards" (page 102).
3	Manually return the GWC node to service (RTS) at the CS 2000 GWC Manager using procedure "Manually return a GWC node to service" (page 472).

4 Review selected configuration and provisioning data for the GWC node using an appropriate procedure from the following list:

- "View carrier provisioning data for a GWC node" (page 210).
- "View gateway provisioning data for a GWC node" (page 219).
- "View lines provisioning data for a GWC node" (page 224).
- "View media proxies associated with a GWC node" (page 285)
- "View media proxy associations" (page 287)
- "View media proxy group associations" (page 308)
- "View QoS collector configuration data for a GWC node" (page 376).

—End—

Modify the operating configuration of an installed GWC node

Use the CS 2000 GWC Manager and complete the following set of procedures in the order listed to re-configure operating parameters for a previously configured GWC node. Re-configuration can include the following parameters:

- gateway IP discovery attribute
- PEP server attribute
- ALG attribute
- adjacent network zone attribute
- gateway capacity attribute
- gateway IP or port address
- gateway profile
- the Gateway Controller profile
- the network codec profile (limited to a new profile using same bearer network as the previous profile)
- the Exec Data settings

Step	Action
	At the CS 2000 GWC Manager workstation
1	Manually busy both GWC cards in the node using procedure "Busy a GWC node" (page 462).

2 If changing operating attributes, "Change gateway attributes" (page 254).

3 If applicable, "Change the service profile of a GWC node" (page 228).

4 If applicable, "Change the network codec profile for a GWC node" (page 270)

5 If applicable, "Change the Exec Data values for an existing GWC node" (page 233).

6 Manually return the GWC node to service (RTS) at the CS 2000 GWC Manager using the procedure "Manually return a GWC node to service" (page 472).

7 Review selected configuration and provisioning data for the GWC node using an appropriate procedure from the following list:

- "View carrier provisioning data for a GWC node" (page 210).
- "View gateway provisioning data for a GWC node" (page 219).
- "View lines provisioning data for a GWC node" (page 224).
- "View media proxies associated with a GWC node" (page 285)
- "View media proxy associations" (page 287)
- "View media proxy group associations" (page 308)
- "View QoS collector configuration data for a GWC node" (page 376).

—End—

Re-configure a GWC node in the network

Use the CS 2000 GWC Manager to complete the following set of procedures in the order listed to change the Gateway Controller service profile configured on a GWC node.

This procedure allows you to re-configure all aspects of a GWC node, including the Gateway Controller profile and all other relevant characteristics of a node.

Step	Action
	At the CS 2000 GWC Manager workstation
1	Manually busy both GWC cards in the node using procedure "Busy a GWC node" (page 462).

2 If applicable, see the *CS 2000 Configuration Management* NTP for your solution to remove line endpoints or V5.2 carriers from the GWC node.

3 Complete procedure "Disassociate a media gateway" (page 273) for all gateways associated with the node.

4 Lock the GWC cards in the node from the CS 2000 SAM21 Manager card view using procedure "Lock a GWC card" (page 466).

5 Complete procedure "Delete a GWC node" (page 276).

6 Add and configure a GWC node in the CS 2000 GWC Manager database using procedure "Add and configure a GWC node" (page 111).

7 Unlock the GWC cards in the node using procedure "Unlock a GWC card" (page 469).

8 If necessary, manually return the GWC node to service (RTS) at the CS 2000 GWC Manager using procedure "Manually return a GWC node to service" (page 472).

9 Associate a gateway type to a GWC node using an appropriate procedure from the following list:

- "Associate a trunk media gateway" (page 123).
- "Associate a Session Server virtual gateway for SIP Lines" (page 157); if required for your solution. "Associate a small line media gateway (cable market)" (page 135).
- "Associate a line media gateway (wireline market)" (page 143).
- "Associate an H.323 media gateway" (page 164)
- "Associate an audio server media gateway" (page 180).

10 Add trunk, line, or V5.2 endpoints to the gateway using procedure "Add carriers to a GWC" (page 186).

11 If applicable, "Associate a media proxy or a media proxy group with a GWC" (page 22).

12 If applicable, associate a QoS collector to selected gateways assigned to the GWC node using procedure "Associate a QoS collector with a GWC node" (page 371).

13 If applicable, associate a PEP server or an ALG to selected gateways assigned to the GWC node using one of the following procedures:

- "Associate a PEP server with a media gateway" (page 383).

- "Associate an ALG with a media gateway" (page 398)

14 Review selected configuration and provisioning data for the GWC node using an appropriate procedure from the following list:

- "View carrier provisioning data for a GWC node" (page 210).
- "View gateway provisioning data for a GWC node" (page 219).
- "View lines provisioning data for a GWC node" (page 224).
- "View media proxies associated with a GWC node" (page 285)
- "View media proxy associations" (page 287)
- "View media proxy group associations" (page 308)
- "View QoS collector configuration data for a GWC node" (page 376).

—End—

Remove service from a GWC card or node

Use the CS 2000 GWC Manager to complete the following set of procedures in the order listed to completely remove a GWC node from the database.

Step	Action

At the CS 2000 GWC Manager workstation

1 Manually busy both GWC cards in the node using procedure "Busy a GWC node" (page 462).

2 If applicable, see the *CS 2000 Configuration Management* NTP for your solution to remove line endpoints or V5.2 carriers from the GWC node.

3 Complete procedure "Disassociate a media gateway" (page 273) for all gateways associated with the node.

4 Lock the GWC cards in the node from the CS 2000 SAM21 Manager card view using procedure "Lock a GWC card" (page 466).

5 Complete procedure "Delete a GWC node" (page 276)

6 To completely remove the GWC cards from service, complete procedure "Remove service from a GWC card" (page 108).

—End—

Add QoS collection service

Use the following procedures to add a quality of service (QoS) collection device to the network running a QoS collection application, associate GWC nodes with QoS collectors, and enable QoS reporting for specific gateways.

Step	Action
	At the CS 2000 GWC Manager workstation
1	"Set or change network DQoS configuration parameters" (page 59).
2	"Add a quality of service (QoS) collector" (page 368).
3	"Associate a QoS collector with a GWC node" (page 371).
4	"Enable or disable QoS reporting for a GWC node" (page 374).
5	To correlate QoS reporting with billing records, you must enable QoS reporting through table AMAOPT in the Core. Complete procedure "Provisioning in support of QoS reporting" in the *CS 2000 Configuration Management* NTP applicable to your solution.
	—End—

Associate a media proxy or a media proxy group with a GWC

Use the following set of procedures to add media proxies to be made available to perform NAT traversal functions. A media proxy device is used as a real-time transport protocol (RTP) portal to allow a gateway in one domain to communicate with a gateway in another domain. A GWC will select and then set up the media proxy based on call flow.

There are two methods for media proxy selection:

- using media proxy preferred groups
- using GWC's default media proxies

A media proxy group represents a subset of media proxies to be used in a particular part of the network configuration by a set of gateways in the same location. Media proxy groups are assigned to network zones, which are linked to the gateways associated with a GWC. If a call requires a media proxy, the GWC finds the first available media proxy group in the zone hierarchy linked to the gateway, then selects the first available media proxy from that group. If no media proxy group is found or none of the media proxies included in any group is available, the GWC selects the first available default media proxy associated with that GWC.

The following sub-sections describe the two methods of associating media proxies with a GWC.

Associate a preferred media proxy group

Complete the following steps to associate a preferred media proxy group with a GWC.

Step	Action
	At the CS 2000 GWC Manager workstation
1	"Add a media proxy" (page 281).
2	"Add a preferred media proxy group to the network" (page 299)
3	Select the preferred media proxy group for a network zone. Complete this action when adding or changing a network zone. If required, see one of the following procedures: • "Add an IP-VPN (NAT) zone" (page 315) • "Add a composite IP-VPN (NAT) and LBL zone" (page 340) • "Add a limited bandwidth link (LBL) zone" (page 330) • "Change attributes of a network zone" (page 347)
4	Include the appropriate network zone (associated with the media proxy group that you wish to use) in the gateway's zone hierarchy when associating a media gateway with a GWC, or when modifying a media gateway already associated with a GWC. If required, see one of the following procedures: • "Associate a line media gateway (wireline market)" (page 143). • "Associate an H.323 media gateway" (page 164) • "Associate a trunk media gateway" (page 123) • "Change attributes of a network zone" (page 347) For gateways other than Centrex IP Client Manager (CICM), not all media proxy groups in a network hierarchy are sent to a GWC. When a media gateway is being associated with a GWC, the system searches the gateway's network zone tree and sends only the first media proxy group found in that tree. For CICM gateways, all media proxy groups in the root network zone hierarchy are sent to a GWC.
	—End—

Associate a default media proxy with a GWC

Complete the following steps to associate default media proxies with a selected GWC.

Step	Action
	At the CS 2000 GWC Manager workstation
1	"Add a media proxy" (page 281)
2	"Associate a media proxy with a GWC node" (page 291)
	—End—

Add an IP-VPN(NAT) zone to the network

Use the following procedures to add one or more NAT zones to the network.

Step	Action
	At the CS 2000 GWC Manager workstation
1	If the call agent ID for the CS 2000 is not set, complete procedure "Set the call agent identifier" (page 69).
2	Complete procedure "Add an IP-VPN (NAT) zone" (page 315).
3	If necessary, review network configuration data using procedure "Review available network devices" (page 91)
	—End—

Configure an IP-VPN(NAT) zone to be shared with another CS 2000

Use the following procedure to configure a NAT zone to be shared between more that one CS 2000.

A prerequisite to this procedure is procedure "Add an IP-VPN (NAT) zone" (page 315). This procedure assumes that a NAT zone has already been added on one CS 2000, and that you are adding the same NAT to a different CS 2000.

Step	Action
	At the CS 2000 GWC Manager workstation
1	Display the NAT zone ID for the NAT to be shared. Complete procedure "View network service zone configuration details" (page

354). Perform this procedure for the CS 2000 on which the NAT was originally configured.

2 If this is the second (or subsequent) CS 2000 on which this shared NAT is being added, complete procedure "Add an IP-VPN (NAT) zone" (page 315) for a next CS 2000 (different than in step 1). Follow the steps to configure a NAT zone to be shared between more than one CS 2000 devices. Use the NAT zone ID displayed in step 1 of this procedure.

3 Repeat step 2 for any other CS 2000s required to share the same NAT.

—End—

Add an LBL zone to the network

Use the following procedure to configure limited bandwidth links (LBL).

Step	Action
	At the CS 2000 GWC Manager workstation
1	If the call agent ID for the CS 2000 is not set, complete procedure "Set the call agent identifier" (page 69).
2	If applicable, create a resource usage profile for the LBL to use. Complete procedure "Configure resource usage data for limited bandwidth links (LBL)" (page 323). This step applies only when the Network VCAC is set to OFF and the virtual call admission control is performed by each GWC (network configuration without a Policy Controller).
3	Complete procedure "Add a limited bandwidth link (LBL) zone" (page 330)
4	If necessary, review network configuration data using procedure "Review available network devices" (page 91)

—End—

Add a composite NAT and LBL zone to the network

Use the following procedure to configure a composite network zone - a zone comprising the attributes of both NAT and LBL network zones. Use this option for network sites (zones) that include both NATs and LBLs.

Step	Action
	At the CS 2000 GWC Manager workstation
1	If the call agent ID for the CS 2000 is not set, complete procedure "Set the call agent identifier" (page 69).
2	Complete procedure "Add a composite IP-VPN (NAT) and LBL zone" (page 340).
3	If necessary, review network configuration data using procedure "Review available network devices" (page 91)
	—End—

Add a NAT-type network zone to a VPN

You can group IP-VPN (NAT) and IP-VPN (NAT) and LBL network zones into virtual private networks (VPN). A VPN can contain one or more network zones. The GWC uses the VPN IDs of the gateways involved in a call to determine if a media proxy is required. If two parties involved the call belong to different VPNs, the GWC inserts a media proxy.

Use the following procedure to create a VPN and to add a network zone to a VPN.

Step	Action
	At the CS 2000 GWC Manager workstation
1	"Add a virtual private network (VPN)" (page 360)
2	Assign a new or an existing NAT-type network zone to the VPN. Use one of the following procedures: • "Add an IP-VPN (NAT) zone" (page 315) • "Add a composite IP-VPN (NAT) and LBL zone" (page 340) • "Change attributes of a network zone" (page 347)
	—End—

Add a PEP server to the network

Use the following set of procedures to add one or more PEP servers to the network and to associate them to gateways.

Step	Action
	At the CS 2000 GWC Manager workstation
1	If the call agent ID for the CS 2000 is not set, complete procedure "Set the call agent identifier" (page 69).
2	To add a new PEP server to the network, complete procedure "Add a policy enforcement point (PEP) server" (page 381).
3	To change the IP address of a PEP server, complete procedure "Change the attributes of a PEP server" (page 386).
4	"Associate a PEP server with a media gateway" (page 383).
	—End—

Add an ALG to the network

Use the following set of procedures to add one or more application layer gateways (ALG) to the network and to associate them to gateways.

Step	Action
	At the CS 2000 GWC Manager workstation
1	If the call agent ID for the CS 2000 is not set, complete procedure "Set the call agent identifier" (page 69).
2	To add a new ALG to the network, complete procedure "Add an application layer gateway to the network (cable market)" (page 393).
3	To change the IP address of an ALG, complete procedure "Change the attributes of an ALG" (page 396).
4	"Associate an ALG with a media gateway" (page 398).
	—End—

Add V5.2 services to a GWC node

Use the following set of procedures to configure V5.2 trunk services on a GWC node.

Step	Action
	At the CS 2000 GWC Manager workstation

1 See the *CS 2000 Configuration Management* NTP applicable to your solution and complete the procedures for installing V5.2 services on the Core.

2 "Add V5.2 interfaces" (page 410)

3 "Add a V5 interface provisioning template" (page 406)

4 "Add a V5 ring template" (page 414)

5 "Add a V5 signaling template" (page 417)

—End—

Configure a destination for CICM location information and enable change reporting

Use the following procedures to configure a destination (recipient) for Centrex IP Client Manager (CICM) location information and to enable change reporting on a GWC node.

Step	Action
	At the CS 2000 GWC Manager workstation
1	"Configure a destination for CICM location information" (page 77). This procedure is performed at the network level for the CS 2000.
2	To enable change reporting on a GWC node, complete procedure "Enable or disable CICM location change reporting" (page 278).
3	Repeat step 2, as required, for other GWC nodes in your system.

—End—

Configure the Packet Media Anchor functionality on an audio controller GWC node

Use the following procedures to configure the Packet Media Anchor functionality on an audio controller GWC node.

For an overview of the Packet Media Anchor functionality, see *Gateway Controller Basics* (N10189-111)

Step	Action
	At the CS 2000 GWC Manager workstation
1	Make sure that the following data is appropriately configured: • in table SRVSINV, the maximum number of simultaneous calls to support • on the Media Server 2010 gateway, three BCT and one audio resource for each anchored call For more information, see the solution-level *Configuration Management* NTP applicable to your solution.
2	Verify that the selected audio controller GWC node uses either PCMU or PCMA encoding algorithm (codec). If required, see procedure "View characteristics of a GWC node" (page 215). The Packet Media Anchors only use PCMA or PCMU and ignore all other codecs and codec parameters, such as, RFC2833 or T.38. If the network codec profile associated with the selected GWC includes both PCMU and PCMA, then whichever is higher on the preferred list will be used.
3	If required, change the current network codec profile assigned to the selected GWC to a new profile that includes PCMU or PCMA codec. Follow procedure "Change the network codec profile for a GWC node" (page 270).
4	Associate the Media Server 2010 gateway, configured with the Packet Media Anchor functionality, to the selected audio controller GWC. Use the AMS gateway profile. Follow procedure "Associate an audio server media gateway" (page 180). If the Media Server 2010 gateway that you want to use for this functionality has the UAS profile currently assigned to it, you must complete the following steps: 1. Disassociate the gateway from the GWC using procedure "Disassociate a media gateway" (page 273). 2. Re-associate the gateway (using the AMS profile) to the audio controller GWC. Follow procedure "Associate an audio server media gateway" (page 180).
5	Invoke a cold SwAct (switch of activity) on the GWC node or re-initialize all the Media Server 2010 gateways. If required, see procedure "Invoke a cold manual protection switch (cold SWACT)" in *Gateway Controller Security and Administration* (NN10213-611).

6 At the MAPCI, use the LISTRES command to verify resource allocation. Investigate any discrepancies between the provisioned resources (MaxPorts) and in-service resources (InsvPorts). Differences may be caused by

- provisioning errors in the gateway manager
- provisioning errors in table SERVSINV
- gateways not being registered with the GWC

—End—

Activate Network VCAC on a GWC Manager

Use the following procedures to activate the Network VCAC (virtual call admissions control) functionality using the GWC Manager.

With the Network VCAC activated (Status: ON), the Policy Controller performs VCAC functions; that is, counts available resources across limited bandwidth links (LBL) and makes the connection admission decisions. Gateway Controllers (GWC) communicate with the Policy Controller to determine whether a call can be set up.

For a complete procedure about how to configure the Policy Controller and to implement network VCAC, see *Policy Controller Configuration Management* (N10432-511)

Step	Action
At the CS 2000 GWC Manager workstation	
1	"Add the Policy Controller" (page 81)
2	"Change the Network VCAC status" (page 88)

—End—

Add a network codec profile

Purpose of this procedure

Use this procedure to add a network codec profile using the CS 2000 GWC Manager.

You can configure and use network codec profiles with multiple bearer network fabric types on a CS 2000. You can configure individual codecs that use any of the following bearer network fabric types concurrently on a CS 2000:

- IP
- AAL1
- AAL2

Each GWC node in a CS 2000 must be configured to use one of the available network codec profiles. GWC nodes in a CS 2000 can use different codec profiles configured to operate over different bearer network fabrics. You can define multiple network codec profiles in the system, and then select the desired profile while adding a GWC node to the network.

When to use this procedure

Use this procedure when you need to add a new network codec profile to your CS 2000.

Prerequisites and guidelines

General guidelines

The following general guidelines apply to this procedure:

- The option to configure network codec profiles using multiple bearer network fabric types is available on the CS 2000 in the North American and international markets.
- If you are adding a profile with a bearer network type that is new to your CS 2000, you must modify the table BEARNETS on the Core to configure a network instance of the new network type. You must modify the BEARNETS table before you can add a GWC node and configure the node to use the new bearer network type.

  See procedure "Specifying the bearer networks served by the CS 2000" in *CS 2000 Configuration Management* NTP applicable to your solution.
- Each network codec profile can include one to three codecs. Each combination must include PCMA or PCMU.
- For Centrex IP Client Manager (CICM) gateway configured with an audio profile, the GWC codecs combination supersedes the gateway

codec configuration. The GWC controls the codec selection order of preference, based on the network codec profile assigned to the GWC node.

Example

If a CICM gateway profile defines G.729 as the primary codec and PCMU as secondary, but the GWC codec profile lists PCMU as primary and G.729 as secondary, the GWC node first attempts to communicate with a CICM gateway using the PCMU codec, then the G.729.

For more information, see section "CODEC negotiation rules" in *CICM Configuration Management* (NN10240-511).

GWC node guidelines

No matter which network bearer types (IP, AAL1, or AAL2) are configured for a CS 2000 using this procedure, only one bearer network type can be selected for any GWC node.

When selecting the T-38 fax option, make sure that the same option is selected for all GWCs in the network. If different options must be used, select either ON (Strict) or LOOSE option for all codec profiles.

Network codec profile default guidelines

Only one network codec profile can be set as the *network default*.

When a CS 2000 data integrity audit finds a configuration mismatch between the CS 2000 GWC Manager database and the Core, the audit process can use the network default codec profile to correct the problem.

Only one *default codec* can be set for each bearer network type (IP, AAL1, or AAL2) defined on your CS 2000. When adding a GWC node using procedure "Add and configure a GWC node" (page 111), the default codec appears as the default setting for field "GWC codec profile", based on the bearer network selected.

The following system behavior applies to adding or changing a network codec profile:

- You can enable the bearer type default setting for a profile when an existing profile using the same network type has the same setting already enabled. If you proceed, the bearer type default setting for the existing profile will be automatically disabled.
- You can enable the network default setting for a profile when an existing profile has the same setting already enabled. If you proceed, the network default setting for the existing profile will be automatically disabled.

Action

Step	Action

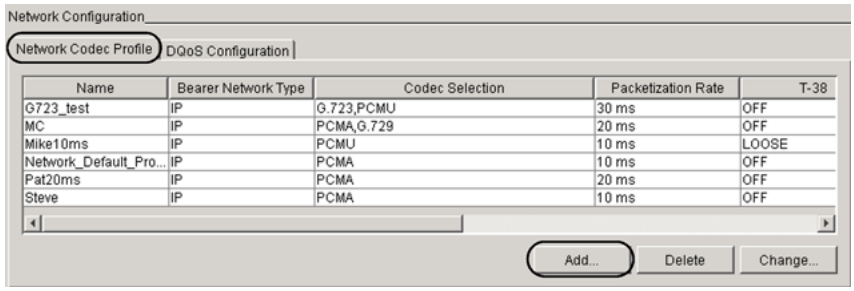
At CS 2000 GWC Manager client

1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

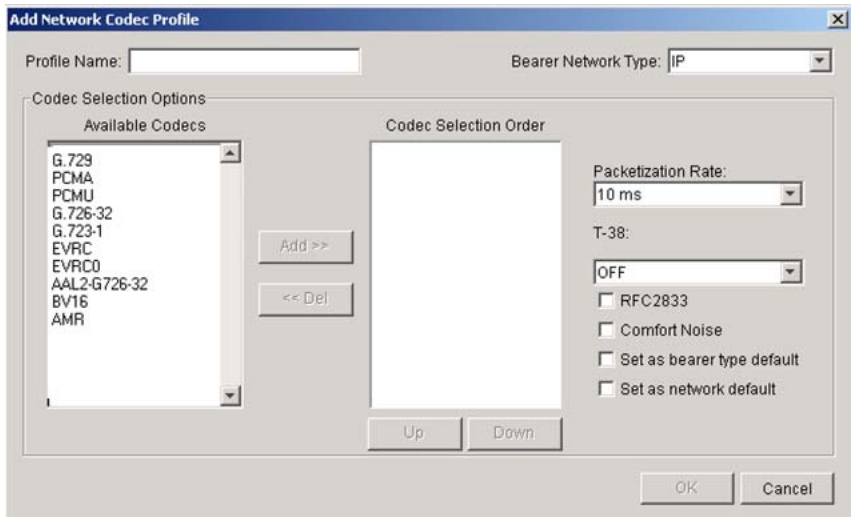
The Network Configuration panel is displayed to the right of the Device Types menu.

2 From the Network Configuration panel, click the **Network Codec Profile** tab to display the Network Codec Profile pane.

The **VCAC Resource Usage** tab is not displayed when the Network VCAC status is ON.



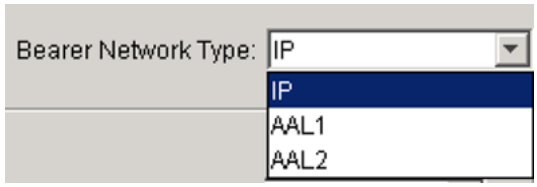
3 Click the **Add** button to display the Add Network Codec Profile dialog box.



4 In the Profile Name field, type a name for the new profile.

The profile name can include any combination of alphanumeric text (up to 32 characters).

5 Click the Bearer Network Type drop-down menu and select a bearer network type for the profile.



The options are:

- IP - Internet Protocol (default)
- AAL1 - ATM Adaptation Layer 1 (packet trunking over ATM for international markets)
- AAL2 - ATM Adaptation Layer 2 (packet trunking over ATM for North American markets)

When you select a bearer network type, the dialog box is automatically updated to reflect the options available for that network type. Available codecs and other options differ depending on whether you select an IP or ATM bearer network.

6 Select a combination of codecs for the new profile.

Each network codec profile can include one to three codecs. Each combination must include PCMA or PCMU.

The codecs are used in the order in which they are selected in Codec Selection Order list, from top to bottom.

See table "Valid codec combinations for bearer network types" (page 49) at the end of this step to view the valid codec combinations for each bearer network type.

The system applies the following criteria when choosing which codec to use:

- Any GWC node using a profile initially attempts to communicate with a media gateway using the *first* codec listed.
- If the first codec is not suitable, then the GWC node uses the *second* codec listed (if present).
- If the second codec is also not suitable, then the GWC node uses the *third* codec listed (if present).

Perform the following steps to select a codec combination:

a. Select a codec from the list of Available Codecs.

The codecs available depend on the bearer network type you selected previously.

b. Click the **Add >>** button to add the codec to the Codec Selection Order list.

   If your profile requires more than one codec, select the codecs in the order they will be used.

   You can remove a codec from the list by clicking the **<< Del** button.

c. If necessary, repeat the previous step until you have selected the codecs required for the profile.

d. If necessary, adjust the order of your codecs by selecting a codec in the Codec Selection Order list and clicking the **Up** or **Down** button.

e. Repeat the previous steps until you have selected a codec combination for your profile.

   The following table lists the valid codec combinations for bearer network types.

   Starting in (I)SN09, the PCMU codec name replaces the G.711-u law name and the PCMA codec name replaces the G.711-a law name.

Valid codec combinations for bearer network types

Bearer network type	Valid codec combinations (in order)		
	1st	2nd	3rd
IP	All one- to three-codec combinations. Each combination must include PCMU or PCMA. The following codecs are available: • G.729 • PCMA • PCMU • G.726-32 • G.723-1 • EVRC • EVRC0 • AAL2-G726-32 • BV16 • AMR		

Bearer network type	Valid codec combinations (in order)		
	1st	2nd	3rd
AAL1	PCMU		
AAL2	G.729	PCMA	
	G.729	PCMU	
	G.729	PCMA	PCMU
	G.729	PCMU	PCMA
	G.726-32	PCMA	PCMU
	G.726-32	PCMU	PCMA
	G.726-32	PCMA	
	G.726-32	PCMU	
	G.726-24	PCMA	PCMU
	G.726-24	PCMU	PCMA
	PCMA	PCMU	
	PCMU	PCMA	
	PCMA		
	PCMU		

7 Use the following table to determine your next step.

If you selected a bearer network type of	Do
IP	go to step 8
AAL1 or AAL2	go to step 12

8 Select a Packetization Rate for the new profile using the drop-down menu.

The options are:

- 10 ms (default)
- 20 ms
- 30 ms
- 40 ms

If you selected ILPC as one of the codecs for this profile, use the packetization rate of 20 ms or 30 ms.

9

ATTENTION

When enabling T.38 for the first time on some trunk gateways, the change is not immediate. Therefore, after enabling T.38 on the trunk gateway, you must change T.38 from ON to OFF, then back to ON in the Network Codec Profile. If required, see procedure "Change a network codec profile" (page 45).

ON refers to two options: ON (Strict) or LOOSE.

CAUTION

Possible service disruption

On some trunk gateways, changing T.38 from enabled to disabled, may cause a service disruption. To resolve it, change T.38 from ON to OFF, then back to ON in the Network Codec Profile, after disabling T.38 on the trunk gateway. If required, see procedure "Change a network codec profile" (page 45).

ON refers to two options: ON (Strict) or LOOSE.

From the T-38 drop-down menu, select one of the following options:

- ON (Strict) - if the new profile supports T-38 real-time facsimile (fax) capability

  This option results in the GWC node including T.38 in the list of requested media types to the associated media gateways during call setup. T.38 is the ITU-T standard for real-time transport of Group 3 fax over IP.

  Use this option if all gateways in your network support the T.38 codec.

- OFF - if the new profile does not support T-38 fax capability
- LOOSE - applies to packet cable solutions only

  Use this option only when there are gateways in the network that support the T.38 codec but do not advertise this support in the Session Description Protocol (SDP). In this mode, when the codec switch to T.38 is rejected by one of the gateways, the system attempts to preserve the call by switching back to G.711 (PCMA or PCMU) codec.

The default setting is OFF.

T-38, RFC 2833, and Comfort Noise are local control options in which a GWC sends messages to media gateways over NCS and MGCP protocols. In packet cable solutions, T-38 is also supported over TGCP protocol. Each of these options is available only on IP bearer network types.

10 Select the RFC2833 check box if the new profile supports transmission of Real-Time Protocol (RTP) payload for Dual-Tone Multifrequency (DTMF) digits, telephony tones and telephony signals over IP.

ATTENTION

RFC2833 is currently not supported on the CS 2000 for gateways using the NCS protocol. Any GWC node hosting NCS gateways must use a network codec profile that has RFC2833 disabled (check box not selected).

This option causes the GWC node to instruct a media gateway to attempt to negotiate use of RFC2833 for transporting mid-call DTMF tones. RFC2833 is an out-of-band tone signaling mechanism for DTMF digit relay across a packet network. Typically RFC2833 is enabled in a network which uses compressing Codecs (for example, G.729) in order to improve the integrity of mid-call tone signaling.

RFC2833 is not selected by default.

11 Select the Comfort Noise check box if the new profile supports this option.

The Comfort Noise option allows each GWC node that uses this codec profile to send comfort noise, a sound that is generated and played to the line when silence suppression is used (when no voice packets are being received). This is to reassure the user that the connection is still active.

Comfort Noise is not selected by default.

12 Select the Set as bearer type default check box if you want the new profile to be the default for the bearer network type (selected previously).

Only one default codec can be set for each bearer network type (IP, AAL1, or AAL2) defined on your CS 2000.

When adding a GWC node using procedure "Add and configure a GWC node" (page 111), the default codec appears as the default setting for field "GWC codec profile", based on the bearer network selected.

This option is not selected by default.

You can enable the bearer type default setting for a new profile when an existing profile using the same network type has the same setting already enabled. If you proceed, the bearer type default setting for the existing profile will be automatically disabled.

13 Select the Set as network default check box if you want the new profile to be the default for the entire network.

Only one network codec profile can be set as the network default. The network default setting is used when a CS 2000 data integrity audit finds a configuration mismatch between the CS 2000 GWC Manager database and the Core. The audit process can use the network default codec profile to correct the problem.

This option is not selected by default.

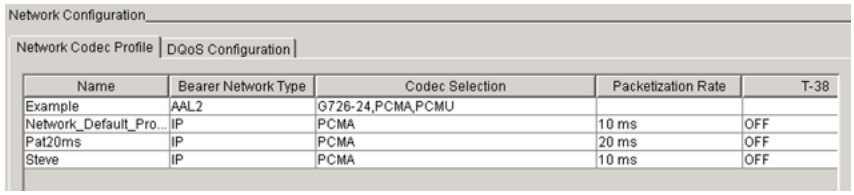
You can enable the network default setting for a new profile when an existing profile has the same setting already enabled. If you proceed, the network default setting for the existing profile will be automatically disabled.

14 Click **OK** when you have finished configuring the profile.

If any required settings are missing, the **OK** button will not be available. Ensure that you have selected a Profile Name and at least one codec.

If the codec combination you selected is invalid, the system displays an error message. For a list of valid codec combinations, see table "Valid codec combinations for bearer network types" (page 49)

15 Verify that the new profile appears on the list of network codec profiles.


Network Configuration

Network Codec Profile | DQoS Configuration

Name	Bearer Network Type	Codec Selection	Packetization Rate	T-38
Example	AAL2	G726-24,PCMA,PCMU		
Network_Default_Pro...	IP	PCMA	10 ms	OFF
Pat20ms	IP	PCMA	20 ms	OFF
Steve	IP	PCMA	10 ms	OFF

If you are adding a profile with a bearer network type that is new to your CS 2000, you must modify the table BEARNETS on the Core to configure a network instance of the new network type. You must modify the BEARNETS table before you can add a GWC node and configure the node to use the new bearer network type. For more information, see procedure "Specifying the bearer networks served by the CS 2000" in the *CS 2000 Configuration Management* NTP applicable to your solution.

16 If necessary, return to step 2 to add another profile.

17 The procedure is complete.

—End—

View a network codec profile

Purpose of this procedure

Use this procedure to verify the existing network codec profile configuration using the CS 2000 GWC Manager.

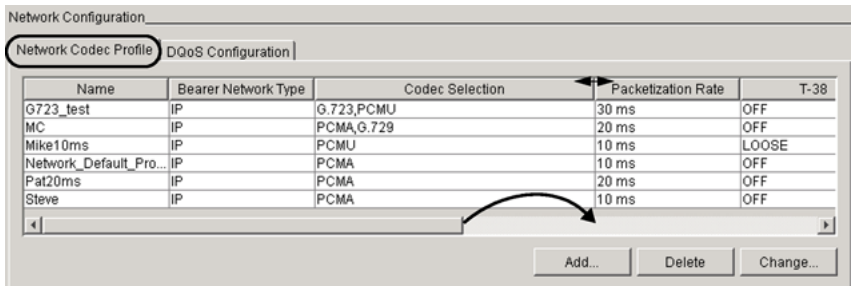
When to use this procedure

Use this procedure when you need to verify the existing network codec profile configuration.

Prerequisites and guidelines

The CS 2000 must be configured with at least one network codec profile.

Action

Step	Action
	At CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu. The Network Configuration panel is displayed to the right of the Device Types menu.
2	From the Network Configuration panel, click the **Network Codec Profile** tab to display the Network Codec Profile pane. Select the edge of any tab to adjust the display. To view any hidden information, slide the horizontal scroll bar near the bottom of the screen to the right. For information about each displayed field, see table "Description of network codec profiles" (page 42). The **VCAC Resource Usage** tab is not displayed when the Network VCAC status is ON. 
3	The procedure is complete.

—End—

The following table describes each field in the Network Codec Profile pane.

Description of network codec profiles

Field	Description
Name	User-defined alphanumeric text string to identify the profile.
Bearer Network Type	Identifies the bearer network fabric type for the profile. The options are: • IP - Internet Protocol (default) • AAL1 - ATM Adaptation Layer 1 • AAL2 - ATM Adaptation Layer 2
Codec Selection	Identifies the codec or codecs selected for the profile. If more than one codec is listed, the codecs appear in the following order in which they will be used: • Any GWC node using a profile will initially attempt to communicate with a media gateway using the *first* codec listed. • If the first codec is not suitable, then the GWC node will use the *second* codec listed (if present). • If the second codec is also not suitable, then the GWC node will use the *third* codec listed (if present).
Packetization Rate	Specifies the packetization rate used by the profile. The options are: • 10 ms (default) • 20 ms • 30 ms • 40 ms Packetization rate is applicable only to IP bearer networks.
T-38	Indicates whether the profile supports T-38 real-time facsimile (fax) capability. The options are: • ON (Strict) This option allows a GWC node to send T-38 messages to an associated media gateway during call setup. T-38 is an International Telephony Union (ITU) standard for the transport of group 3 fax calls over IP • OFF The option means that the selected profile does not support T-38 fax capability

Field	Description
	• LOOSE (applies to packet cable solutions only) Use this option only when there are gateways in the network that support the T.38 codec but do not advertise this support in the Session Description Protocol (SDP). In this mode, when the codec switch to T.38 is rejected by one of the gateways, the system attempts to preserve the call by switching back to G.711 (PCMA or PCMU) codec. T-38 is available only on IP bearer networks. T-38, RFC2833, and Comfort Noise are local control options in which a GWC sends messages to media gateways over NCS and MGCP protocols. In packet cable solutions, T-38 is also supported over TGCP protocol. Each of these options is available only on IP bearer networks.
RFC2833	Indicates whether the profile supports Real-Time Protocol (RTP) payload for Dual-Tone Multifrequency (DTMF) digits, telephony tones and telephony signals over IP. This parameter causes the GWC node to instruct a media gateway to attempt to negotiate use of RFC2833 for transporting mid-call DTMF tones. RFC2833 is an out-of-band tone signaling mechanism for DTMF digit relay across a packet network. Typically RFC2833 is enabled in a network which uses compressing Codecs (for example, G.729) in order to improve the integrity of mid-call tone signaling. This option is not selected by default. ***Note:*** RFC2833 is not currently supported on the CS 2000 for gateways using the NCS protocol. Any GWC node hosting NCS gateways must use a network codec profile that has RFC2833 disabled (check box de-selected).
Comfort Noise	Indicates whether the profile supports comfort noise. This parameter allows a GWC node to send comfort noise, a sound that is generated and played to the line when silence suppression is used (when no voice packets are being received). This is to reassure the user that the connection is still active. This option is not selected by default. Comfort noise is available only on IP bearer networks.

Field	Description
Bearer Type Default	Indicates whether the profile is the default for the bearer network type. Only one default codec can be set for each bearer network type (IP, AAL1, or AAL2) defined on your CS 2000. When adding a GWC node, the default codec appears as the default setting for field "GWC codec profile", based on the bearer network selected.
Network Default	Indicates whether the profile is the network default. Only one network codec profile can be set as the network default. The network default setting is used when a CS 2000 data integrity audit finds a configuration mismatch between the CS 2000 GWC Manager database and the Core, the audit process can use the network default codec profile to correct the problem.

Change a network codec profile

Purpose of this procedure

Use this procedure to change the parameters of an existing network codec profile using the CS 2000 GWC Manager.

When to use this procedure

Use this procedure when you need to make changes to an existing network codec profile.

Prerequisites and guidelines

Prerequisites

The CS 2000 must be configured with at least one network codec profile.

General guidelines

CAUTION

Possible service disruption

If you are changing the parameters of a network codec profile that is currently being used by GWC nodes in your network, there is a risk that calls in progress may be affected. This may include calls that are being set up, currently active or stable.

To reduce the risk of calls being affected, change these parameters during a low traffic period.

The following general guidelines apply to this procedure:

- You can change a network codec profile that is currently selected to be used by a GWC unit in your network. In this case, the change is propagated to any GWC units in service. If a unit is out of service, a warning message will appear, and the changes will be propagated when the card is rebooted.
- You cannot change the profile name or the bearer network type of an existing profile. If you need to do so, delete the profile and add a new profile with the settings you require.
- For Centrex IP Client Manager (CICM) gateway configured with an audio profile, the GWC codecs combination supersedes the gateway codec configuration. The GWC controls the codec selection order of preference, based on the network codec profile assigned to the GWC node.

  Example

If a CICM gateway profile defines G.729 as the primary codec and PCMU as secondary, but the GWC codec profile lists PCMU as primary and G.729 as secondary, the GWC node first attempts to communicate with a CICM gateway using the PCMU codec, then the G.729.

For more information, see section "CODEC negotiation rules" in *CICM Configuration Management* (NN10240-511).

GWC node guidelines

You can change the network codec profile assigned to a GWC node, provided the profile supports the network bearer type already selected for the node.

If you wish to change the bearer network type assigned to a GWC node, see the general procedure "Re-configure a GWC node in the network" (page 19).

Network codec profile default guidelines

Only one network codec profile can be set as the *network default*. When a CS 2000 data integrity audit finds a configuration mismatch between the CS 2000 GWC Manager database and the Core, the audit process can use the network default codec profile to correct the problem.

Only one *default codec* can be set for each bearer network type (IP, AAL1 or AAL2) defined on your CS 2000. When adding a GWC node, the default codec appears as the default setting for field "GWC codec profile", based on the bearer network selected.

The following system behavior applies to adding or changing a network codec profile:

- You can enable the bearer type default setting for a profile when an existing profile using the same network type has the same setting already enabled. If you proceed, the bearer type default setting for the existing profile will be automatically disabled.
- You can enable the network default setting for a profile when an existing profile has the same setting already enabled. If you proceed, the network default setting for the existing profile will be automatically disabled.

Action

CAUTION
Possible service disruption
If you are changing the parameters of a network codec profile that is currently being used by GWC nodes in your network, there is a risk that calls in progress may be affected. This may include calls that are being set up, currently active or stable.

To reduce the risk of calls being affected, change these parameters during a low traffic period.

Step	Action

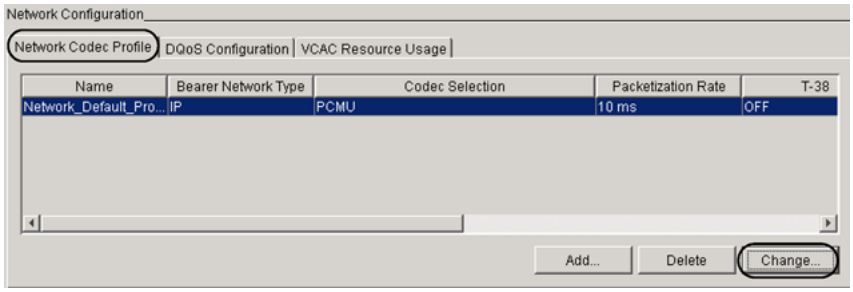
At CS 2000 GWC Manager client

1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

The Network Configuration panel is displayed to the right of the Device Types menu.

2 From the Network Configuration panel, click the **Network Codec Profile** tab.

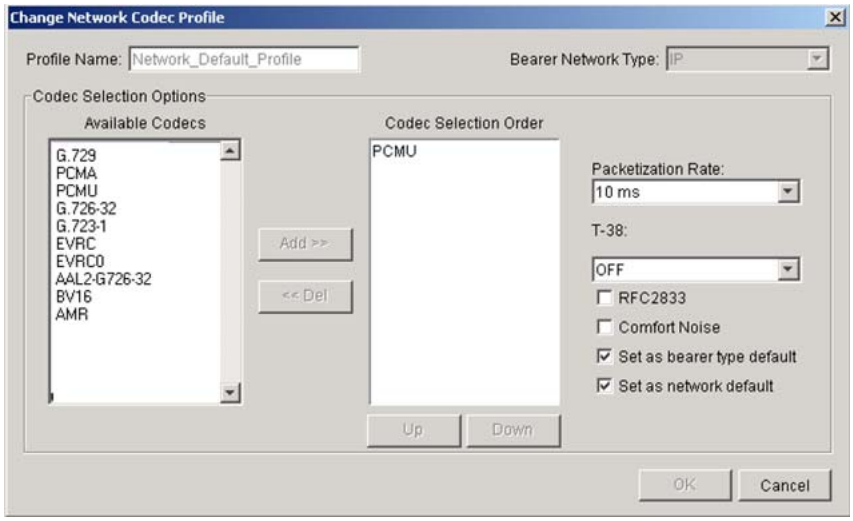
The **VCAC Resource Usage** tab is not displayed when the Network VCAC status is ON.



3 Select one of the existing profiles in the list.

Your selection is highlighted.

4 Click the **Change** button to display the Change Network Codec Profile dialog box.



You can change the codec combination or the codec order, or both, as well as any of the options on the right-hand side of the dialog box. You cannot change the profile name or the bearer network type.

5 If desired, change the codec combination for the selected profile.

Each network codec profile can include one to three codecs. Each combination must include PCMA or PCMU.

The codecs are used in the order in which they are selected in Codec Selection Order list, from top to bottom.

To view the valid codec combinations for each bearer network type, see table "Valid codec combinations for bearer network types" (page 49).

The system applies the following criteria when choosing which codec to use:

- Any GWC node using a profile will initially attempt to communicate with a media gateway using the *first* codec listed.
- If the first codec is not suitable, then the GWC node will use the *second* codec listed (if present).
- If the second codec is also not suitable, then the GWC node will use the *third* codec listed (if present).

Perform the following steps to select a codec combination:

a. Select a codec from the list of available codecs.

   The available codecs depend on the bearer network type you selected previously.

b. Click the **Add >>** button to add the codec to the Codec Selection Order list.

   If your profile requires more than one codec, select the codecs in the order they will be used.

   You can remove a codec from the list by clicking the **<< Del** button.

c. If necessary, repeat the previous step until you have selected the codecs required for the profile.

d. If necessary, adjust the order of your codecs by selecting a codec in the Codec Selection Order list and clicking the **Up** or **Down** button.

e. Repeat the previous steps until you have selected the codecs for your profile.

   The following table lists the supported codec combinations for each bearer network type.

   Starting in (I)SN09, the PCMU codec name replaces the G.711-u law name and the PCMA codec name replaces the G.711-a law name.

Valid codec combinations for bearer network types

Bearer network type	Valid codec combinations (in order) 1st 2nd 3rd
IP	All one- to three-codec combination. Each combination must include PCMU or PCMA. The following codecs are available: • G.729 • PCMA • PCMU • G.726-32 • G.723-1 • EVRC • EVRC0 • AAL2-G726-32 • BV16 • AMR
AAL1	PCMU

Bearer network type	Valid codec combinations (in order)		
	1st	2nd	3rd
AAL2	G.729	PCMA	
	G.729	PCMU	
	G.729	PCMA	PCMU
	G.729	PCMU	PCMA
	G.726-32	PCMA	PCMU
	G.726-32	PCMU	PCMA
	G.726-32	PCMA	
	G.726-32	PCMU	
	G.726-24	PCMA	PCMU
	G.726-24	PCMU	PCMA
	PCMA	PCMU	
	PCMU	PCMA	
	PCMA		
	PCMU		

6 Use the following table to determine your next step.

If the bearer network type for the selected profile is	Do
IP	go to step 7
AAL1 or AAL2	go to step 11

7 If desired, change the Packetization Rate for the profile using the drop-down menu.

The options are:

- 10 milliseconds (default)
- 20 milliseconds
- 30 ms
- 40 ms

If one of the selected codecs is ILPC, use the packetization rate of 20 ms or 30 ms.

ATTENTION

When enabling T.38 for the first time on some trunk gateways, the change is not immediate. Therefore, after enabling T.38 on the trunk gateway, you must change T.38 from ON to OFF, then back to ON in the Network Codec Profile, using this procedure.

ON refers to two options: ON (Strict) or LOOSE.

CAUTION

Possible service disruption

On some trunk gateways, changing T.38 from enabled to disabled, may cause a service disruption. To resolve it, change T.38 from ON to OFF, then back to ON in the Network Codec Profile, after disabling T.38 on the trunk gateway.

ON refers to two options: ON (Strict) or LOOSE.

8 If desired, change the T-38 option to indicate whether the profile supports T-38 real-time facsimile (fax) capability.

The options are:

- ON (Strict) - the new profile supports T-38 real-time facsimile (fax) capability

  This option results in the GWC node including T.38 in the list of requested media types to the associated media gateways during call setup. T.38 is the ITU-T standard for real-time transport of Group 3 fax over IP.

  Use this option if all gateways in your network support the T.38 codec.

- OFF - the new profile does not support T-38 fax capability
- LOOSE - applies to packet cable solutions only

  Use this option only when there are gateways in the network that support the T.38 codec but do not advertise this support in the Session Description Protocol (SDP). In this mode, when the codec switch to T.38 is rejected by one of the gateways, the system attempts to preserve the call by switching back to G.711 (PCMA or PCMU) codec.

The default setting is OFF.

T-38, RFC2833, and Comfort Noise are local control options in which a GWC sends messages to media gateways over NCS and MGCP protocols. In packet cable solutions, T-38 is also supported over TGCP protocol. Each of these options is available only on IP bearer network types.

9 If desired, select (or de-select) the RFC2833 check box to change whether the profile supports transmission of Real-Time Protocol (RTP) payload for Dual-Tone Multifrequency (DTMF) digits, telephony tones and telephony signals over IP.

ATTENTION

RFC2833 is not currently supported on the CS 2000 for gateways using the NCS protocol. Any GWC node hosting NCS gateways must use a network codec profile that has RFC2833 disabled (check box not selected).

This option causes the GWC node to instruct a media gateway to attempt to negotiate use of RFC2833 for transporting mid-call DTMF tones. RFC2833 is an out-of-band tone signaling mechanism for DTMF digit relay across a packet network. Typically RFC2833 is enabled in a network which uses compressing Codecs (for example, G.729) in order to improve the integrity of mid-call tone signaling.

RFC2833 is not selected by default.

10 If desired, select (or de-select) the Comfort Noise check box to change whether the profile supports this option.

This option allows each GWC node using the profile to send comfort noise, a sound that is generated and played to the line when silence suppression is used (when no voice packets are being received). This is to reassure the user that the connection is still active.

Comfort noise is not selected by default.

11 If desired, select (or de-select) the Set as bearer type default check box to change whether the profile is the default for the bearer network type (selected previously).

Only one default codec can be set for each bearer network type (IP, AAL1 or AAL2) defined on your CS 2000.

When adding a GWC node, the default codec appears as the default setting for field "GWC codec profile", based on the bearer network selected.

This option is not selected by default.

You can enable the bearer type default setting for a profile when an existing profile using the same network type has the same setting already enabled. If you proceed, the bearer type default setting for the existing profile will be automatically disabled.

12 If desired, select (or de-select) the Set as network default check box to change whether the profile is the default for the entire network.

Only one network codec profile can be set as the network default. When you perform a CS 2000 data integrity audit, the system uses this setting to identify and correct any network configuration mismatches between the GWC EM database and the Core.

This option is not selected by default.

You can enable the network default setting for a profile when an existing profile has the same setting already enabled. If you proceed, the network default setting for the existing profile will be automatically disabled.

13 Click **OK** when you have finished changing the profile.

If the profile is unchanged, or if any required settings are missing, the **OK** button is not available.

If you change the codec combination to an invalid setting, the system displays an error message.

The changes to the profile are propagated to any GWC units that are configured to use the profile. The changes are immediately propagated to GWC units in service. If any GWC units are out of service, the following warning message appears and the changes will be propagated when the card is rebooted.

This warning is an information message only. The change will appear in the list of network codec profiles.

Click the **Show Details** button to identify the GWC unit or units that must be rebooted. Click **OK** to close the message.

Reboot a unit using the following steps:

1. Busy the inactive unit. Follow procedure "Disable (Busy) GWC card services" in *Gateway Controller Security and Administration* (NN10213-611).
2. Lock the inactive unit. Follow procedure "Lock a GWC card" (page 466).
3. Unlock the inactive unit. Follow procedure "Unlock a GWC card" (page 469). The card is booted and provisioning data is downloaded following the unlock operation.

4. Return the inactive unit to service. Follow procedure "Enable (RTS) card GWC services" in *Gateway Controller Security and Administration* (NN10213-611).
5. If necessary, SWACT the GWC cards in the node. Follow procedure "Invoke a manual protection switch (warm SWACT)" in *Gateway Controller Security and Administration* (NN10213-611).
6. If necessary, busy, lock, unlock, and RTS the mate GWC unit (now inactive) in the node.

14 Verify that the change to the profile appears on the list of network codec profiles.

15 If necessary, return to step 2 to change the parameters of another profile.

16 The procedure is complete.

—End—

Delete a network codec profile

Purpose of this procedure

Use this procedure to delete a network codec profile using the CS 2000 GWC Manager.

When to use this procedure

Use this procedure when you need to delete an existing network codec profile.

You cannot change the profile name or the bearer network type of an existing profile. If you need to do so, use this procedure to delete the profile, then add a new profile with the settings that you require (follow procedure "Add a network codec profile" (page 31)).

Prerequisites and guidelines

Prerequisites

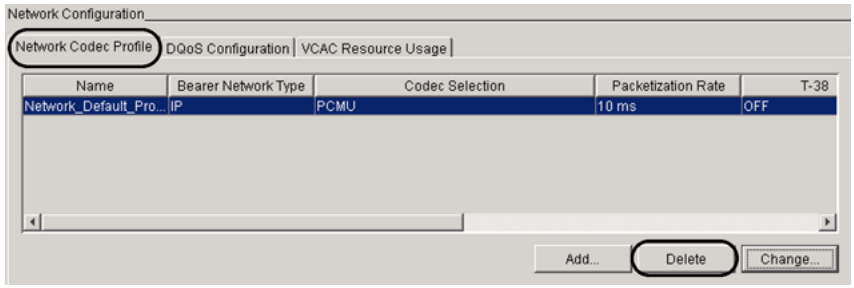
The CS 2000 must be configured with at least one network codec profile.

Guideline

You cannot delete a network codec profile that is currently selected to be used by a GWC unit in your network. You must first remove the profile from any GWC units that are currently using the profile.

Action

Step	Action
	At CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu. The Network Configuration panel is displayed to the right of the Device Types menu.
2	From the Network Configuration panel, click the **Network Codec Profile** tab to display the Network Codec Profile pane. The **VCAC Resource Usage** tab is not displayed when the Network VCAC status is ON.
3	Select one of the existing profiles in the list. Your selection is highlighted.



4 Click the **Delete** button to remove the profile.

5 At the prompt, click **Yes** to confirm the deletion.

If the selected profile is currently used on one or more GWC nodes, the system displays an error message. Remove the profile from any GWC units that are currently it, then repeat this procedure.

6 The procedure is complete.

—End—

Provision advice of charge option

Purpose of this procedure

Complete this procedure if you want GWCs to support advice of charge (AOC) functionality. The AOC option applies only to the international market. To provision such support, you must add the AOC option to the SERVTOPTS field in table SERVRINV in the Core.

When to use this procedure

Perform this procedure as required to add the AOC option.

Prerequisites and guidelines

The GWCs must have already been provisioned, using the CS 2000 GWC Manager. You must know the names of the GWCs for which you are going to provision the AOC option. The GWC names are specified during GWC provisioning.

Action

Step	Action
	At the MAP terminal
1	Start the table editor. At the user interface prompt on any MAP screen type **`>TABLE SERVRINV`** and press the **Enter** key. *Example of system response:* `TABLE: SERVRINV`
2	Use the POS command to move to the tuple that you want to edit. Type **`>POS <gwc-name>`** and press the **Enter** key. For example, if the name of the GWC is GWC 22, type **`>POS GWC 22`** and press the **Enter** key. *Example of system response:* `GWC 22 IP 172 16 0 112 (POTS POTSEX) (ABTRK DTCEX) $UK100 $`

3 Indicate that you intend to change the value of the SERVROPTS field in the tuple. Type

```
>CHA SERVROPTS
```

and press the **Enter** key.

Example of system response:

```
SERVROPTS:
```

4 Specify the AOC option. Type

```
>AOC
```

and press the **Enter** key.

Example of system response:

```
TUPLE TO BE CHANGED:
GWC 22 IP 172 16 0 112 (POTS POTSEX)
(ABTRK DTCEX) $UK100 AOC
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

5 Confirm the change. Type

```
>Y
```

and press the **Enter** key.

Example of system response:

```
TUPLE CHANGED:
```

6 Repeat steps 2 through 5 for every GWC card that requires the AOC option.

7 Exit from the table editor. Type

```
>QUIT
```

and press the **Enter** key.

8 Busy (disable) and switch call processing activity (SwAct) for each GWC card on which you have provisioned the AOC option.

For the applicable procedures, see *Gateway Controller Security and Administration* (N10213-611).

The Core sends the updated information to each affected GWC.

9 The procedure is complete.

—End—

Set or change network DQoS configuration parameters

Purpose of this procedure

Use this procedure to configure network-level dynamic quality of service (DQoS) for cable access networks.

DQoS is a mechanism by which cable gateways (modems and multimedia terminal adapters [MTA]) negotiate with the GWC to gain access to the cable access network. In the process, the cable gateways also specify how much bandwidth they need based on the type of connection requested (voice, video, data). The service is called dynamic QoS because the negotiation is done for each call or connection. This prevents some theft of service scenarios. It allows more efficient management of cable access bandwidth since bandwidth is allocated based on the type and requirements of the connection.

When to use this procedure

Use this procedure after you have performed initial network setup using procedure "Add a network codec profile" (page 31).

Prerequisites and guidelines

The following guidelines apply to this procedure:

- The DQoS configuration can be set or changed, but once set, it cannot be disabled.
- A policy enforcement point (PEP) server must be configured in the network. If required, follow procedure "Add a policy enforcement point (PEP) server" (page 381) to accomplish this task.

Factors that affect whether calls processed through a cable gateway are subject to DQoS processing include:

- policy information used by the PEP device
- the state of the DQoS capability on the media gateway

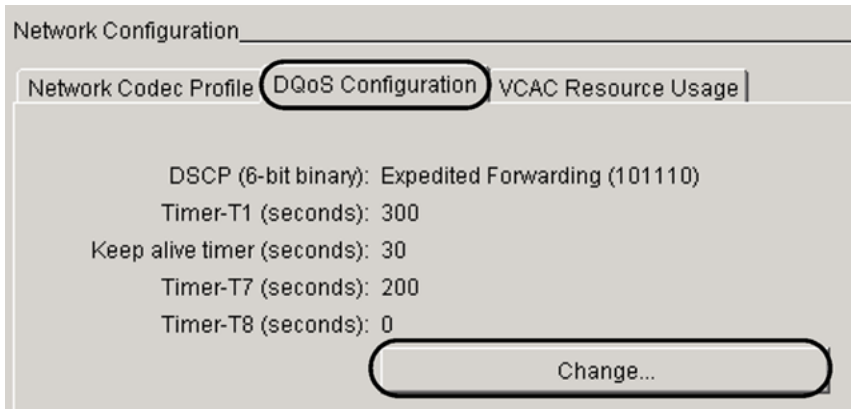
Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

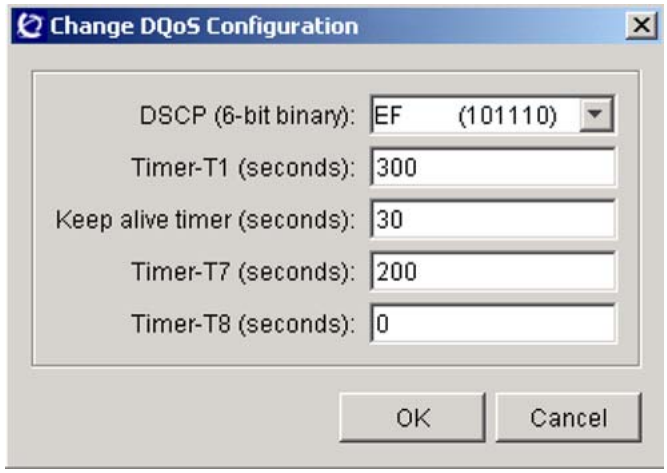
2 In the Network Configuration panel, click the **DQoS Configuration** tab to display the current DQoS configuration (if applicable).

The **VCAC Resource Usage** tab is not displayed when the Network VCAC status is ON.

3 Click the **Change** button to view the Change DQoS Configuration dialog box.



4 Enter or change information inside the appropriate field according to the values specified in the following table, then click **OK**.



Field	Values	Description
DSCP (6-bit binary):	<pre-defined IP Class of Service names> or 6-bit binary stream	From the pull-down menu, select one of the predefined values (IP Class of Service) for the DiffServ code point (DSCP). You can also configure a DSCP value that is not in the pull-down menu by entering a 6-bit binary stream.

Field	Values	Description
		DSCP is a 6-bit part of the 8-bit DS (DiffServ) field that the GWC sends to cable gateways through DQoS signaling.
Timer-T1 (seconds):	0 - 32,767	Described in the DQoS Specification. There is no default value. Suggested value: 315
Keep alive timer(seconds):	1 - 2,147,483,647	Specifies the maximum time interval over which Common Open Policy Service (COPS) message must be sent or received. A value of 0 implies infinity. There is no default value. Suggested value: 30
Timer-T7 (seconds):	0 - 32,767	Described in the DQoS Specification. There is no default value. Suggested value: 200
Timer-T8 (seconds):	0 - 32,767	Described in the DQoS Specification. There is no default value. Suggested value: 0

5 At the confirmation dialog box, click **OK** to continue. If one or more GWCs fail during the update, click the **Show Details** button to view the detailed results.

The subscriber information is displayed in the DQoS Configuration panel.

6 The procedure is complete

—End—

Configure a recurring data integrity audit

Purpose of this procedure

Use this procedure to configure data integrity audits to occur at specified times. You can schedule any of the following audits:

- line audit
- trunk audit
- V5.2 audit
- CS 2000 (CS2K) data integrity audits:
  - CS2K Call Server data integrity audit
  - CS 2000 Session Server (CS2KSS) Manager data integrity audit

For more information about each audit, see the appropriate procedure describing how to perform an on-demand audit. See these procedures in *Gateway Controller Fault Management* (NN10202-911).

When to use this procedure

Use this procedure to schedule audits as required.

If you are scheduling data integrity audits, remember that only one audit of any specific type can be in progress at one time. For example, an in-progress line data integrity audit blocks any attempt to run an on-demand line audit. Similarly, if you run an on-demand trunk audit, and if that audit is still in progress at the start time of a scheduled trunk audit, the scheduled audit will not occur.

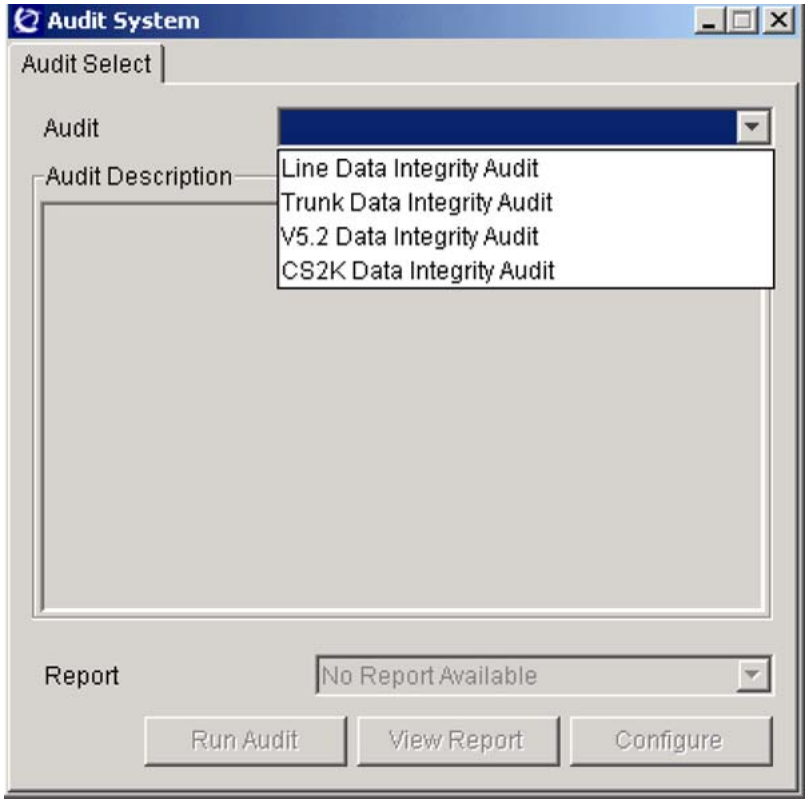
Prerequisites and guidelines

There are no prerequisites or guidelines for this procedure.

Action

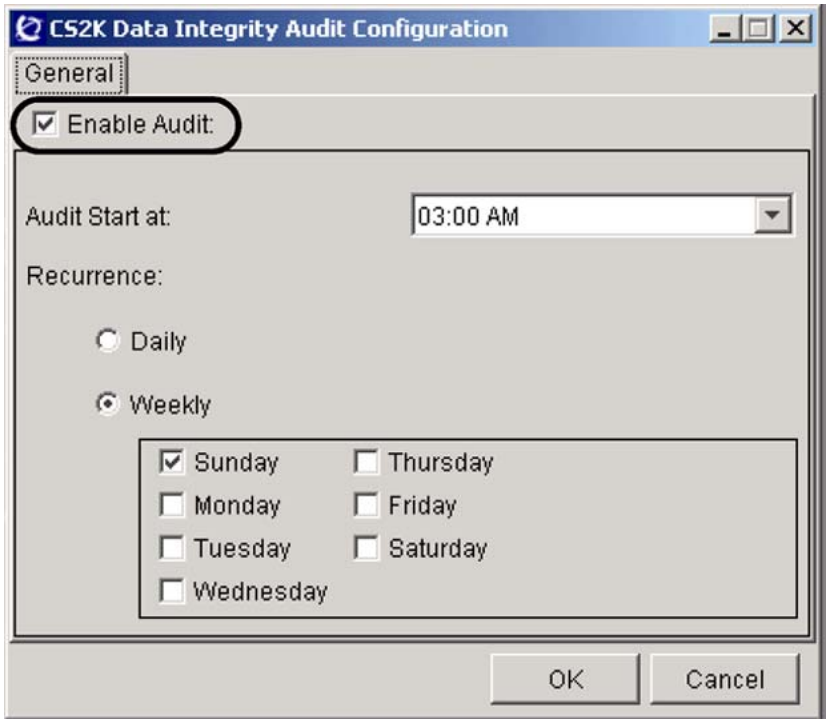
Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click on the **Maintenance** menu and select **Audit System**.

2 At the Audit System dialog box, select any one of the audits from list displayed in the drop-down menu.



3 Click the **Configure** button at the bottom of the dialog box.

4 In the Data Integrity Audit Configuration dialog box, specify the desired schedule, including the start time and recurrence details.



5 Ensure that the Enable Audit check box is selected.

6 Click **OK**.

7 The procedure is complete.

—End—

Add or change default domain for the CS 2000 - required by RMGC

Purpose of this procedure

This procedure explains how to add or change the default domain name for the CS 2000. This domain name is required by the redirecting media gateway controller (RMGC) used in a network. A network may have one or more RMGCs configured.

RMGC functionality allows small line gateways to be pre-configured to reference a default address for the CS 2000. The RMGC application is a registration agent that enables MGCP and NCS gateways to obtain the IP address or fully qualified domain name (FQDN) of their associated GWC from the RMGC, rather than having it pre-configured. The default domain name is used by NCS and MGCP gateways to obtain the IP address or FQDN of their associated media GWC from the RMGC.

When to use this procedure

Use this procedure when you are adding or changing the RMGC capability to your network and you wish to change the default domain name.

Domain name service (DNS) is required for configuring an HTTPS security certificate and for all RMGC implementations. You need to enter a default domain name for the CS 2000 only if you are using either of these features. With the RMGC application, the gateway uses DNS to resolve the IP address of the FQDN provided in the redirect replay. For information about configuring HTTPS, see the CS 2000 Management Tools information in *Nortel ATM/IP Solution-level Configuration* (NN10409-500).

Prerequisites and guidelines

The following guidelines apply to using the RMGC service:

- You must configure a GWC node in the CS 2000 with the GWC service profile AUDCNTL_RMGC or AUDCNTL_RMGCINTL. This node is referred to as an RMGC. Follow procedure "Add and configure a GWC node" (page 111).
- Only small line gateways are supported with the RMGC application.
- Each RMGC capacity is limited to 115,000 gateways.
- Only MGCP and NCS media gateway protocols are supported with the RMGC application.
- In order to use the RMGC application, the FQDNs of media GWCs must be in the following format: <gwcname>.<cmshortCLLI>.<domain-name>

Example:
GWC-101.FREDGENT.NORTEL.NET

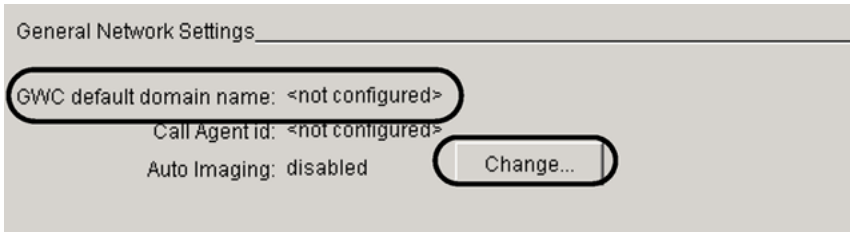
The <gwcname> can consists of up to seven characters and it is typically in the format of: GWC-XXX. All lines GWCs must be added to the DNS server.

The <cmshortCLLI> value is datafilled in table OFCENG as office parameter OFFICE-CLLI-NAME. It is also used to configure the CS 2000 Core Manager or Core and Billing Manager (CBM) and is used as the CM HOSTNAME when configuring the CS 2000 Management Tools Server. The value is made up of RFC2181-compliant characters. Entering invalid or non-RFC2181 compliant characters (such as the underscore character) while provisioning these tables could render the RMGC application unusable and would be very difficult to change later.

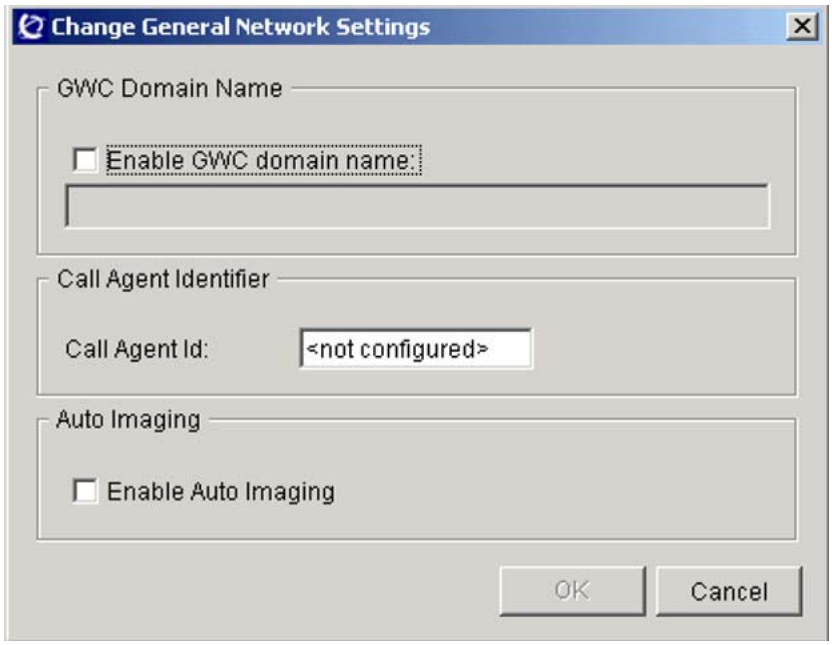
Typically only one RMGC is required for each CS 2000 network. If required, it is possible to configure multiple RMGCs. However, all RMGCs will use the same GWC default domain name.

The decision to use the RMGC capability depends on your deployment strategy for the small line gateways. If it is adequate to configure each small line gateway to reference the correct GWC, then the RMGC function may not be required. If it is difficult to configure the small line gateways to reference the correct GWC, then the RMGC capability would be desirable.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	Look at the current status of GWC default domain name: in the General Network Settings area at the bottom of the screen. The default setting is <not configured>. 
3	Click the **Change** button under General Network Settings at the bottom of the screen.

The Change General Network Settings dialog box is displayed.



CAUTION

Do not use invalid or non-RFC2181 compliant characters, such as the underscore character, while configuring GWC domain name for your site.

Check the cmshortCLLIname in the Core OFCENG table to determine if it uses any non-RFC-2181 characters. Correct this value before upgrading. For assistance with this task, see the applicable *Office Parameter Reference Manual* (97-8001-855 or 297-9051-855).

4 Select the Enable GWC domain name check box and enter a default domain name in the field below using the format shown in the following table.

Default domain naming convention
<domain-name> where **<domain-name>** is the IP domain name of the office site **Example:** nortel.net Ensure that your domain name uses only RFC2181 compliant characters. Consult with your site system administrator for assistance in determining the domain name for your site.

You can change or remove the default domain name for your site. To remove it, de-select the Enable GWC domain name check box and click **OK**. A check is then performed for RMGCs. If an RMGC is found, the system rejects the request to remove the domain name.

5 An information box is displayed. Note any errors described in the box, then click**OK**.

6 The procedure is complete.

—End—

Set the call agent identifier

Purpose of this procedure

This procedure allows you to set a unique call agent identifier (ID) for each Communication Server 2000 (CS 2000) in the network.

Setting the call agent ID for a CS 2000 distinguishes it from other CS 2000 devices in your network. It also permits the automatic assignment of a unique zone ID for each network address translator (NAT)-type network zone configured in your network. When configuring a NAT zone, the system generates a zone ID (previously referred to as middlebox ID). The call agent ID is incorporated in this automatically generated number. This ensures the uniqueness of all NAT zone IDs across more than one CS 2000.

ATTENTION

It is your responsibility to ensure that the call agent ID assigned to each CS 2000 in the network is unique.

The presence of unique IDs for each CS 2000 and for each NAT zone in the network allows inter-CS 2000 trunks to be configured as intra-domain SIP-T trunks. Therefore, NAT Virtual Private Network (VPN) information for both ends of the call can be communicated and compared. This enables the flow of information between gateways hosted on different CS 2000s through the insertion of media proxies, as required. NAT information can be compared even if the gateways reside in different VPNs.

In addition to NATs, the following IDs are also automatically generated using the CS 2000 call agent ID:

- zone IDs for limited bandwidth links (LBL) and composite NAT and LBL zones
- middlebox IDs for policy enforcement points (PEP) servers and application layer gateways (ALG)

This procedure also describes how to change a CS 2000 call agent ID.

Do not change the call agent ID after it has been set.

When to use this procedure

Use this procedure if you are installing a new CS 2000. Use the procedure upon initial installation of your system or if you are adding a new CS 2000 to an existing system. The call agent ID value must be set before you can configure any of the following network components:

- NATs; see procedure "Add an IP-VPN (NAT) zone" (page 315).

- PEP servers; see procedure "Add a policy enforcement point (PEP) server" (page 381).
- LBLs; see procedure "Add a limited bandwidth link (LBL) zone" (page 330).
- ALGs; see procedure"Add an application layer gateway to the network (cable market)" (page 393)
- composite NAT and LBL zones; see procedure "Add a composite IP-VPN (NAT) and LBL zone" (page 340)

You may also use this procedure if you need to change the call agent ID for a CS 2000. This should not be required for the normal operation of your network.

Do not change the call agent ID after it has been set.

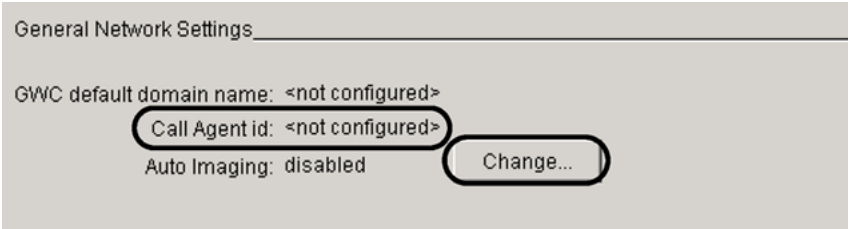
CAUTION
Possible downgrade problems
Changing the call agent ID will make it more difficult to rollback (downgrade) your GWC cards to an earlier software load.

Prerequisites and guidelines

There are no prerequisites or guidelines for this procedure.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu. Look at the current Call Agent id: status in the General Network Settings area at the bottom of the screen. Call Agent id: will have one of the following values: • <not configured> - default • a unique number between 1 and 255 inclusive

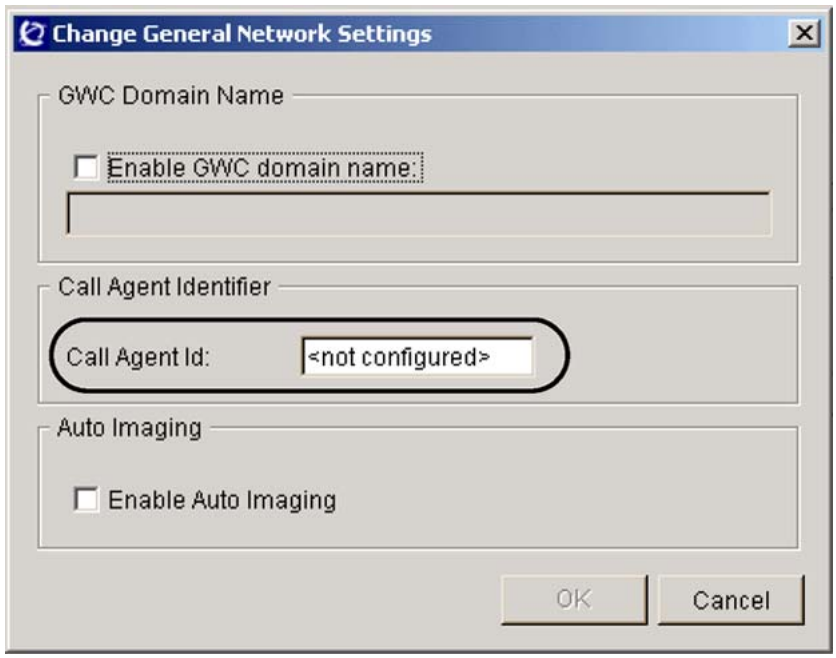


2 Determine your next step using the following table.

If you wish to	Do
set the call agent ID for the first time	go to step 3
change a call agent ID that has already been set	go to step 4

3 Perform the following steps to set the call agent ID for the first time.

a. Click the **Change** button at the bottom of the network screen to display the Change General Network Settings window.



b. Click in the Call Agent id field and assign a call agent ID value.

The range of valid values is between 1 and 255 inclusive. Contact your site system administrator to determine the call agent ID you must use.

If the value typed is invalid, the text field is outlined in red and the OK button is disabled. Type a valid value.

The system does not check for call agent IDs that are already used in your network. Make sure that the call agent ID you are assigning is not already used by another CS 2000.

c. Click **OK**.

The first time the Call Agent ID is set, the system automatically updates NAT zones that are already configured to incorporate the new call agent ID into the NAT zone IDs. GWC units that need to be synchronized to this new data are identified by having data synchronization alarms raised against them.

To resolve a data synchronization problem, busy (BSY) and return to service (RTS) the inactive unit. When the inactive is back in service, perform a warm swact of the units in the node. For supporting procedures, see *Gateway Controller Security and Administration* (NN10213-611).

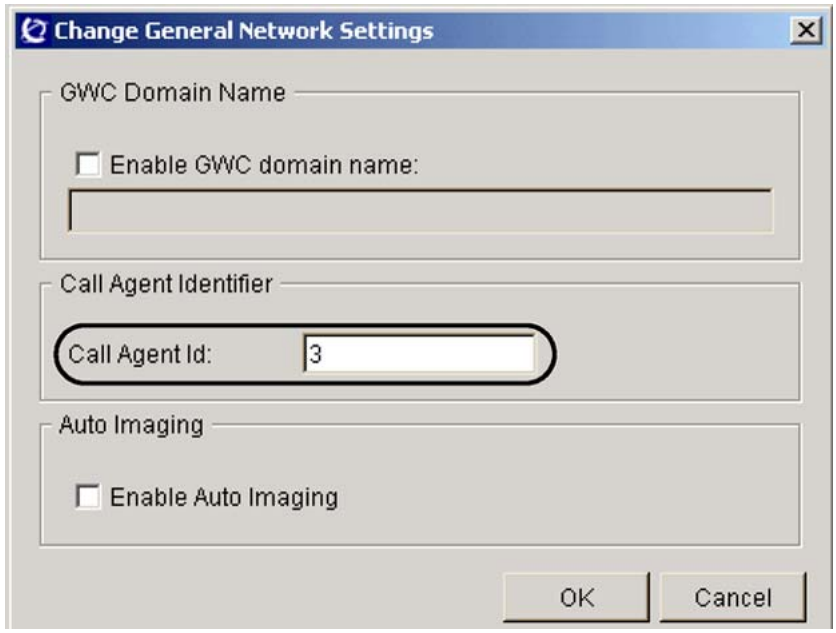
d. Go to step 5.

4

CAUTION
Possible downgrade problems
Changing the call agent ID makes it more difficult to rollback (downgrade) your GWC cards to an earlier software load.

Perform the following steps to change the call agent ID.

a. Click the **Change** button at the bottom of the network screen to display the Change General Network Settings window.



b. Click in the Call Agent id: field and assign a new call agent ID.

   The range of valid values is between 1 and 255 inclusive. Contact your site system administrator to determine the call agent ID you must use.

   If the value typed is invalid, the text field is outlined in red and the OK button is disabled. Type a valid value.

   The system does not check for call agent IDs that are already used in your network. Make sure that the call agent ID you are assigning is not already used by another CS 2000.

c. Click **OK**.

   When changing the call agent id for a CS 2000, the system displays the following message:

d. Click **Yes** to continue with the change.

The new call agent ID will only be used in the zone ID for NATs configured after the change has been made. The zone IDs of previously configured NATs are not modified. This ensures consistency, in case some NATs have been configured into more than one CS 2000.

5 The procedure is complete.

—End—

Enable or disable GWC software auto-imaging

Purpose of this procedure

Use this procedure to enable or disable the auto-imaging of a GWC software load. Auto-imaging provides a mechanism to automatically save an up-to-date image of GWC software loads once daily to the CS 2000 Core Manager or Core and Billing Manager (CBM).

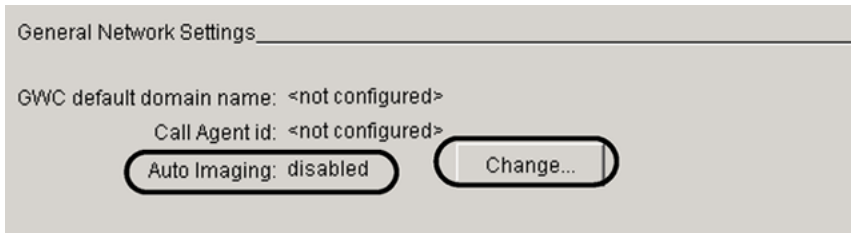
When to use this procedure

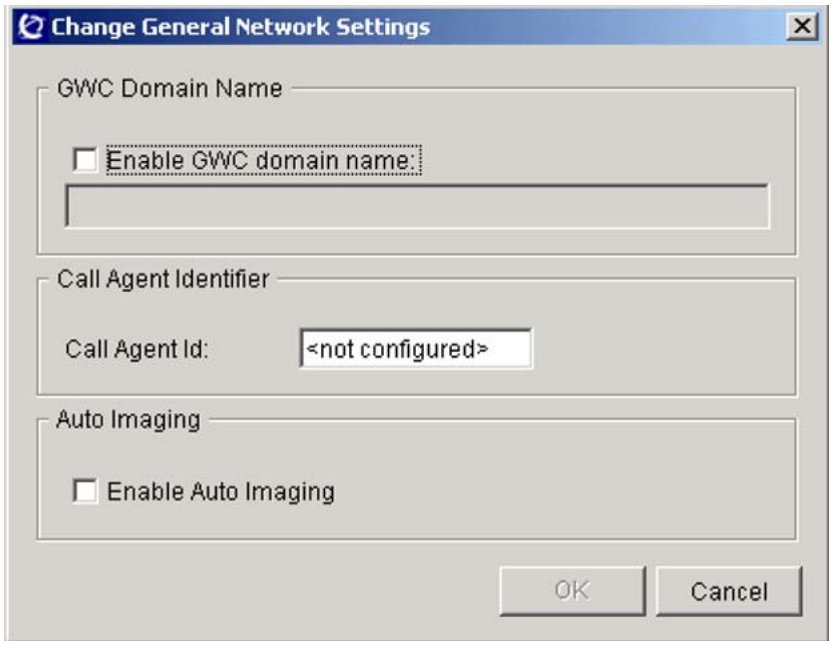
Use this procedure when you want to be certain that a new image of a GWC device is saved to the CS 2000 Core Manager or CBM after the device is patched. Auto-imaging is useful in an office where you apply and activate the same patches to all GWCs with the same load. The process is not designed for an office in which different patches are applied to GWCs using the same load.

Prerequisites and guidelines

There are no prerequisites or guidelines for this procedure.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	Select Gateway Controller from the Device Types menu. Look at the current status of Auto Imaging in the General Network Settings area at the bottom of the screen. The default setting is "disabled". 
2	Click the **Change** button display the Change General Network Settings dialog box.



3 Select the Enable Auto Imaging check box and click **OK**. An Auto Imaging Enabled message is displayed. Click **OK** to confirm the change.

4 If necessary, you can disable auto-imaging by clicking the **Change** button. At the Change Maintenance Settings dialog box, de-select the "Auto Image Enabled" check box and click **OK**. Click **OK** at the message to confirm the change.

5 The procedure is complete.

—End—

Configure a destination for CICM location information

Purpose of this procedure

Use this procedure to configure a destination (recipient) for the location identification information of Centrex IP Client Manager (CICM) telephony clients. Location information for CICM telephony clients is used for emergency call services.

Since the location of a CICM telephony client user is not fixed in an enterprise network, the Dynamic Host Configuration Protocol (DHCP) server provides location information to the CICM client. Once the location information is available, the CICM gateway can then request the information from the CICM client. A CICM gateway reports the location information of CICM telephony clients to the Gateway Controller (GWC) over H.248 protocol.

Location information is reported to the GWC in the following sequence:

1. A CICM user logs in.
2. CICM informs the GWC of the log in.
3. If location identification reporting is enabled on the GWC, then the GWC requests CICM for location information.
4. An application running on the GWC re-packages the information and reports it to a location recipient application or device.

When to use this procedure

Use this procedure when you need to identify a destination (location recipient application or device) for the location identification information of CICM telephony clients. You can also use this procedure to disable location identification reporting to GWCs in your installation.

Perform this procedure in one of the following situations:

- You already have CICM gateways in your network. Gateways provide location information to the GWC nodes which must be forwarded to a location recipient.
- You are adding CICM gateways in your network which will provide location information to GWC nodes and you need to forward this information to a location recipient.

You can use this procedure to do the following:

- Configure the parameters for location recipient for the first time. The initial default value for each parameter is <not configured>.
- Change the values of location information recipient parameters that are currently configured.

- Reset the parameters to <not configured>

Prerequisites and guidelines

The following prerequisite applies to this procedure:

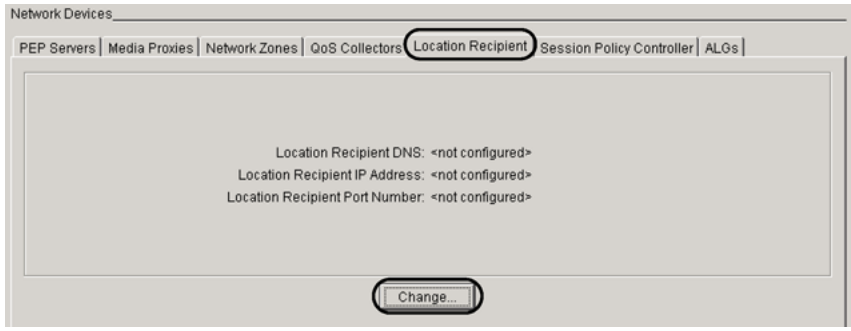
- In order for the location information to be available for forwarding to a recipient, you must have a CICM gateway in your network.
- If there are GWC nodes reporting location information, you must disable the reporting on all applicable GWC nodes before changing the values for location information recipient.

The following guidelines apply to this procedure:

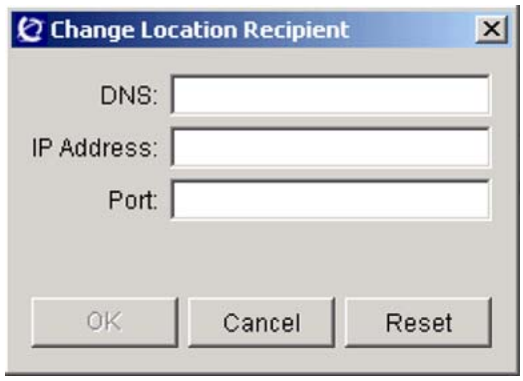
- The values for a location information recipient cannot be changed if location information reporting is currently enabled on a GWC node. If there are GWC nodes reporting location information, you need to disable the reporting on all applicable GWC nodes. You can then change the values for a location information recipient and re-enable reporting.
- If the location recipient parameters are set to <not configured>, do not enable location change reporting on a GWC node.
- The recipient of CICM client location information is configured at the network level for all GWC nodes in your installation.
- You can enable (or disable) location change reporting on each individual GWC node in your network. If required, see procedure "Enable or disable CICM location change reporting" (page 278).

Action

Step	Action
	At the CS 2000 GWC Manager client
1	Select Gateway Controller from the Device Types menu.
2	From the Network Devices panel, click the **Location Recipient** tab to display the current location recipient configuration. The current settings for the location recipient are provided. The default setting for each parameter is <not configured>.



3 Click the **Change** button to display the Change Location Recipient dialog box.



4 Determine your next step using the following table:

If you wish to	Do
change the current values for the CICM location information recipient	go to step 5
reset the current values for CICM location information recipient to <not configured>	go to step 8

5 Type new values in the following fields to specify the recipient of CICM location information.

Enter text in either the DNS or the IP Address field, but not both.

- In the DNS: field, type a character string representing a valid domain name server (DNS) for the location information recipient.
- In the IP Address: field, type an IP address for the location information recipient. Use the format <0-255>.<0-255>.<0-255>.<0-255>
- In the Port: field, type a port number for the location information recipient. Valid values are from 0 to 65535 inclusive.

6 Click **OK** to confirm changes to the location information recipient settings.

7 Go to step 10.

8 Click the **Reset** button to change the current settings for location recipient, including DNS, IP address and port, to <not configured>.

9 Click **OK** to confirm the changes to the location information recipient settings.

10 Confirm that the settings for location recipient have changed on the Network Devices panel.

11 The procedure is complete.

—End—

Add the Policy Controller

Purpose of this procedure

This procedure describes how to add the Policy Controller information into the CS 2000 system.

Policy Controller is a network component that provides the capability to apply policies during call processing. The information for this component must be added to the Gateway Controllers (GWC) to implement the Network VCAC (virtual call admissions control) functionality. With the Network VCAC activated, the Policy Controller, instead of each GWC, performs VCAC functions; that is, counts available resources across limited bandwidth links (LBL) and makes the connection admission decisions. GWCs communicate with the Policy Controller to determine whether a call can be set up.

For information about the Network VCAC and the Policy Controller configuration, see *Policy Controller Configuration Management* (NN10432-511).

For information about how to activate the Network VCAC functionality through the GWC Manager, see procedure "Change the Network VCAC status" (page 88).

When to use this procedure

Use this procedure when you need to add the Policy Controller information to the GWC nodes.

Prerequisites and guidelines

The following prerequisites and guidelines apply to this procedure:

- All network component must be upgraded to (I)SN09 or up.
- The Policy Controller must be commissioned and appropriately configured.

  For more information, see *Policy Controller Configuration Management* (NN10432-511).
- One Policy Controller can be added to each CS 2000.

Action

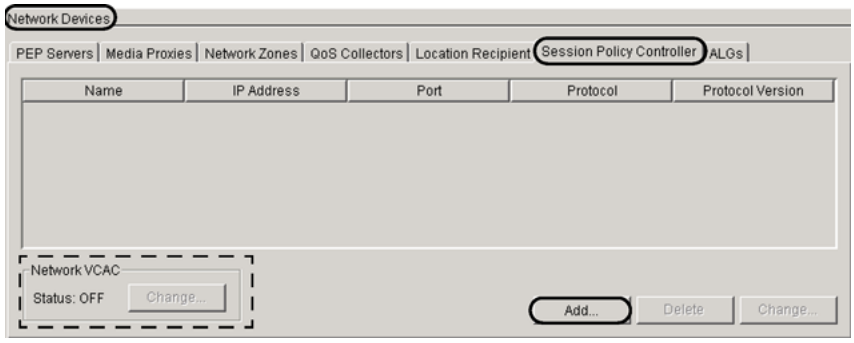
Step	Action
	At the CS 2000 GWC Manager client

1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

2 In the Network Devices area, click the **Session Policy Controller** tab.

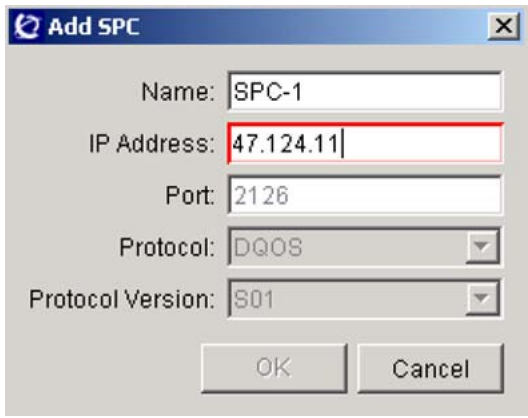
3 Click the **Add** button to display the Add SPC dialog box.

In the Network VCAC section, the status is OFF and the **Change** button is disabled. It will be enabled once you complete this procedure.



4 At the Add SPC dialog box, type the applicable configuration information as described in the following steps.

If you enter invalid data, the appropriate field is outlined in red and the **OK** button is disabled.



a. In the Name: field, type the network name of the Policy Controller, in a fully qualified domain name (FQDN) format.

Use a domain name in the form of an absolute domain name including the host name of the device, suitable for lookup using Domain Name Service (DNS).

b. In the IP Address: field, type the IP address of the Policy Controller in the format of:

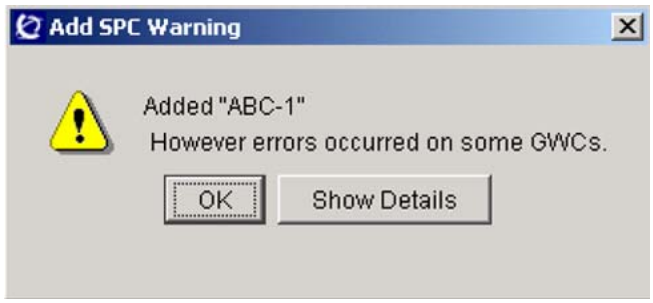
<0-255>.<0-255>.<0-255>.<0-255>

c. The Port: field is predefined with the default value of 2126. You cannot change this value.

d. The Protocol: and Protocol Version: fields are predefined. You cannot change these values.

5 Click **OK** to apply the configuration values.

If the Policy Controller is not successfully provisioned on all GWC units, the system displays the following warning.



Click the **Show Details** button and note all GWCs that had the error, then contact your next level of support.

6 Verify that the Policy Controller you added appears in the Session Policy Controller list.

Once the Policy Controller is added, the **Add** button becomes disabled. You cannot add more than one Policy Controller.

7 The procedure is complete.

—End—

Change the attributes of the Policy Controller

Purpose of this procedure

Use this procedure to change the following information for the Policy Controller configured on the Gateway Controllers (GWC):

- name
- IP address

When to use this procedure

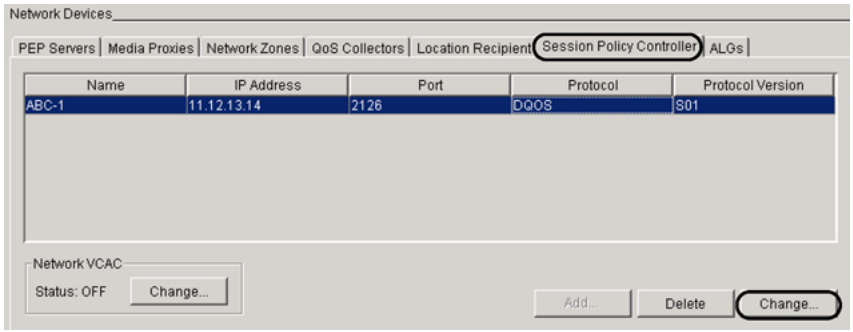
Use this procedure when you need to change the name or the IP address of the Policy Controller, or both.

Prerequisites and guidelines

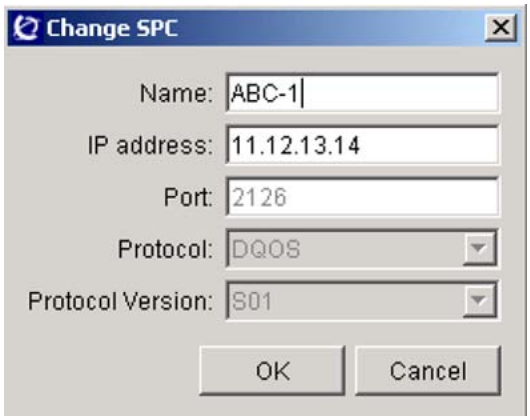
The Policy Controller must be installed and configured on the CS 2000 system.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	In the Network Devices section, click the **Session Policy Controller** tab, then click the entry in the Session Policy Controller table.



3	Click the **Change** button. The Change SPC dialog box is displayed.



4 At the Change dialog box, enter the new data in one or both of the following fields:

- In the Name: field, enter the new name, in a fully qualified domain name (FQDN) format.
- In the IP address: field, enter the new IP address of the Policy Controller, in the format of: <0-255>.<0-255>.<0-255>.<0-255>

5 Click **OK**.

6 The Session Policy Controller table entry is updated following a successful change. If the change has not been successful on any on the Gateway Controllers, the following warning message is displayed before the entry is updated.

Click the **Show Details** button and note all GWCs that had the error, then contact your next level of support.

7 The procedure is complete.

—End—

Delete the Policy Controller

Purpose of this procedure

This procedure describes how to delete the Policy Controller information from the CS 2000 system.

When to use this procedure

Use this procedure when you need to remove the Policy Controller information from the CS 2000 system.

Prerequisites and guidelines

The following prerequisites apply to this procedure:

- The Policy Controller must be installed and configured on the CS 2000 system.
- You must first change the Network VCAC status to OFF. Follow procedure "Change the Network VCAC status" (page 88).

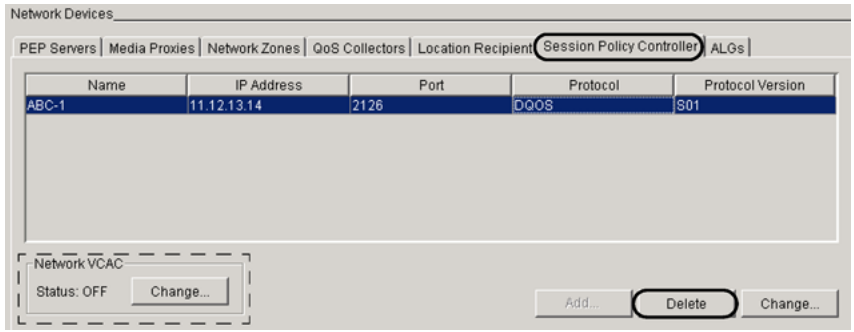
Action

Step	Action

At the CS 2000 GWC Manager client

1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

2 In the Network Devices section, click the **Session Policy Controller** tab and select the Policy Controller from the list.



3 Click the **Delete** button.

Make sure that the Network VCAC status if OFF. Otherwise, the **Delete** button is disabled. If required, see procedure "Change the Network VCAC status" (page 88).

4 When prompted, click **Yes** to confirm the delete operation.

If you wish to cancel the request, click **No**.

5 If the operation is successful, the Policy Controller is removed from the list. If the Policy Controller is not successfully deleted from all the GWC units, the following warning is displayed before the list is updated.

Click the **Show Details** button and note all GWCs that had the error, then contact your next level of support.

6 The procedure is complete.

—End—

Change the Network VCAC status

Purpose of this procedure

This procedure describes how to activate or de-activate the Network VCAC (virtual call admissions control) functionality.

With the Network VCAC activated (Status: ON), the Policy Controller performs VCAC functions; that is, counts available resources across limited bandwidth links (LBL) and makes the connection admission decisions. Gateway Controllers (GWC) communicate with the Policy Controller to determine whether a call can be set up.

When the Network VCAC status is OFF, basic VCAC functionality is active; that is, all VCAC functions are performed by each GWC.

For more information about the Policy Controller configuration and the migration from basic VCAC to Network VCAC, see *Policy Controller Configuration Management* (NN10432-511).

When to use this procedure

Use this procedure when you want to activate the Network VCAC, following the successful addition and configuration of the Policy Controller.

CAUTION
Possible service disruption
This procedure also describes how to de-activate Network VCAC. However, this operation does not guarantee that all basic VCAC functions will be restored properly.

Once the Network VCAC is ON, do not turn it OFF. If necessary, contact your next level of support before proceeding.

Prerequisites and guidelines

ATTENTION
To make sure that the Network VCAC functions correctly, all network zones must be configured identically; first on the CS 2000 system through the GWC Manager or the OSSGate, then on the Policy Controller.

The following additional prerequisites and guidelines apply to this procedure:

- All network component must be upgraded to the (I)SN09 or up load.
- The Policy Controller information must be added to the CS 2000 system.

  If required, see procedure "Add the Policy Controller" (page 81).

- Activating Network VCAC is network-wide. You cannot operate both Basic VCAC and Network VCAC on your CS 2000 network.
- Make sure that all connection links between GWCs and the Policy Controller are properly established and no alarms exist.
- Perform this procedure during slow traffic, when few calls are in progress.

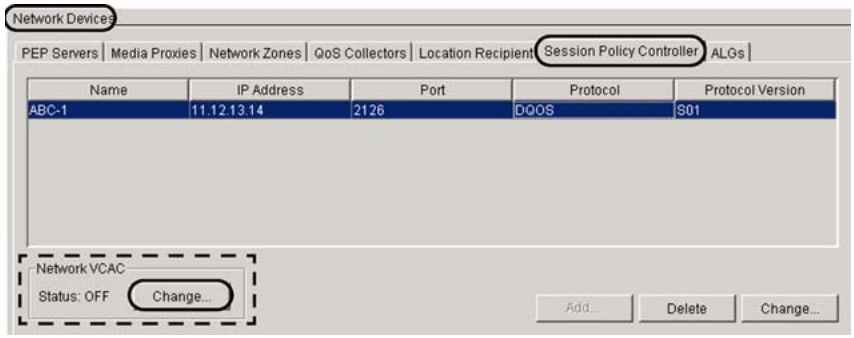
Action

Step	Action

At the CS 2000 GWC Manager client

1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

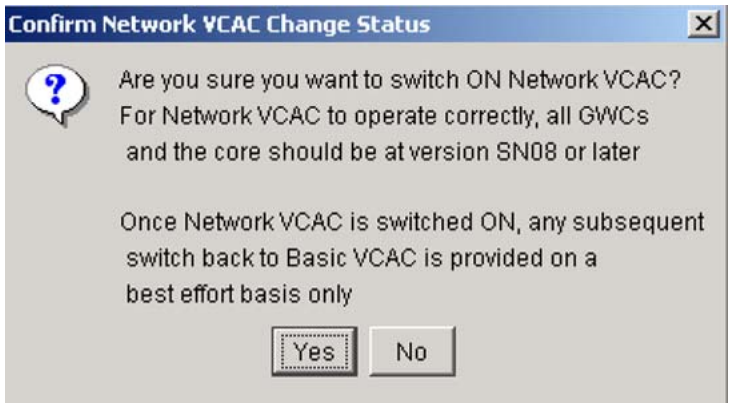
2 In the Network Devices area, click the **Session Policy Controller** tab. In the Network VCAC section, click the **Change** button.



Use the following table to determine your next step.

If you are changing the Network VCAC status to	Do
ON	go to step 3
OFF	go to step 4

3 The system displays the following confirmation message:



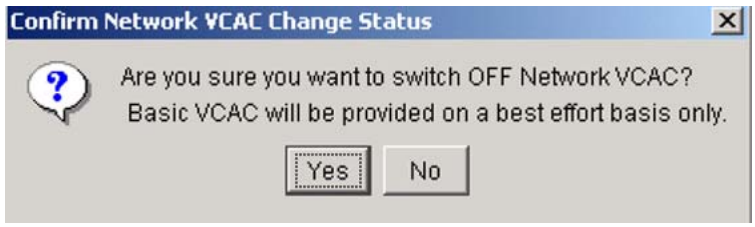
Click **Yes** to confirm the request and continue with step 5.

If you wish to cancel your request, click **No**.

CAUTION
Possible service disruption
Changing the status of the Network VCAC to OFF does not guarantee that all basic VCAC functions will be restored properly.

Contact your next level of support before proceeding.

4 The system displays the following confirmation message:



Click **Yes** to confirm the request.

If you wish to cancel your request, click **No**.

5 The Network VCAC Status: display is updated.

If the Network VCAC status does not successfully change on all GWCs, a warning message is presented before the display is updated. Click the **Show Details** button and note all GWCs that had the error, then contact your next level of support.

6 The procedure is complete.

—End—

Review available network devices

Purpose of this procedure

Use this procedure to view the status and availability of a network devices and resources in the CS 2000 GWC Manager database. All information available using this procedure is applicable to the entire network, rather than any specific GWC node.

You can view the following devices or resources:

- policy enforcement point (PEP) servers
- media proxies and media proxy groups
- network address translator (NAT) network zones
- limited bandwidth link (LBL) network zones
- composite NAT-LBL network zones
- virtual private networks (VPN)
- quality of service (QoS) collectors
- location recipient - for CICM client location ID information
- Policy Controller
- Network VCAC (virtual call admission control) status
- application layer gateway (ALG)

When to use this procedure

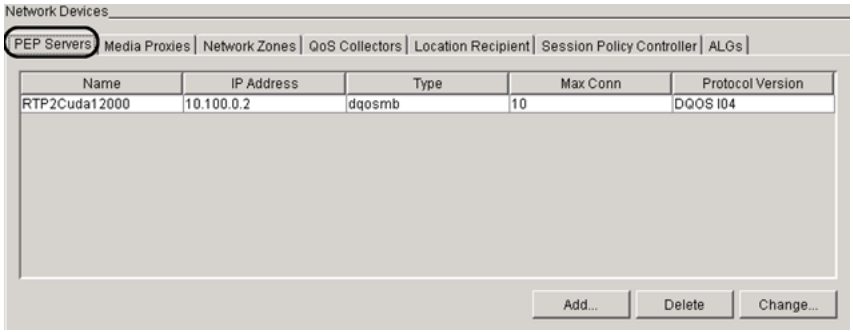
Use this procedure when you need information about a specific network resource.

Prerequisites and guidelines

There are no prerequisites or guidelines for this procedure.

Action

Step	Action
	At CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu. The Network Devices section is available in the middle of the main screen.



2 Click any one of the tabs to display the devices available for that network resource.

Example

To review any PEP servers configured in your system, click the PEP Servers tab.

To view NAT, LBL, or composite NAT and LBL zones, click the Network Zones tab, then click the IP-VPN(NAT) Zone, LBL Zone, or NAT&LBL Zone tab.

To view the Network VCAC status, click the Session Policy Controller tab. The Network VCAC section is located in the lower right corner of the display.

To view media proxy groups, click the Media Proxies tab, then click the Media Proxy Groups tab.

To view VPNs, click the Network Zones tab, then the IP-VPN(NAT) Zone or IP-VPN(NAT) & LBL Zone tab, then click the VPN button.

3 The procedure is complete.

—End—

Install a GWC card

Purpose of this procedure

Use this procedure to add a new Gateway Controller (GWC) card in the front slots of the SAM21 chassis.

To replace a GWC card, see procedure "Replace and re-provision a GWC card" in *Gateway Controller Fault Management* (NN10202-911).

When to use this procedure

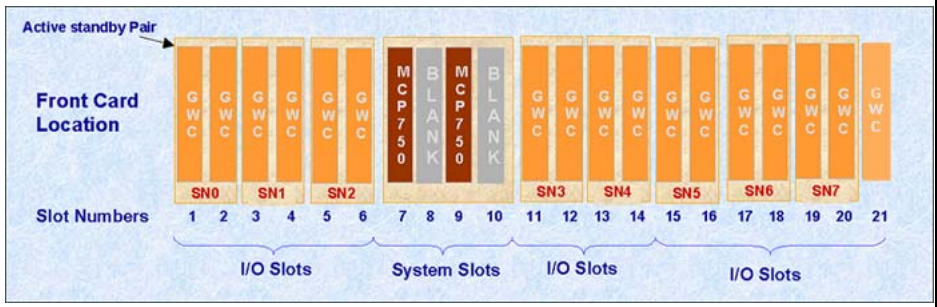
Use this procedure when you need to add a GWC card to your system.

Prerequisites and guidelines

The following guidelines apply to this procedure:

- Do not use this procedure to perform initial installation of GWC cards in a new SAM21 shelf. This activity is performed by Nortel installation personnel.
- GWC cards can be inserted while the power switch for the SAM21 chassis is ON.
- If installing additional GWC nodes, the recommended configuration is for a GWC card for each node to be installed in separate SAM21 or Call Agent shelves.
- The two cards that together form a GWC node do not need to be adjacent to each other in the SAM21 shelf. They can occupy any of the slots reserved for GWC cards. A GWC node comprises two cards, but it is not physically a twin-card unit.
- To help ensure carrier grade reliability, the cards may be housed in two different SAM21 shelves within the same frame.
- Add the GWC cards to the right of existing GWC cards. Do not install GWC cards in slots 7, 8, 9, and 10.

Possible GWC card locations at the front of the SAM21 shelf



- In the CS 2000 - Compact environment, the CS 2000 Compact Call Agent Shelf is used to house the GWC cards, although GWC card positioning may vary. For information about the GWC card positioning, see *Call Agent Configuration Management* (NN10109-511).

Action

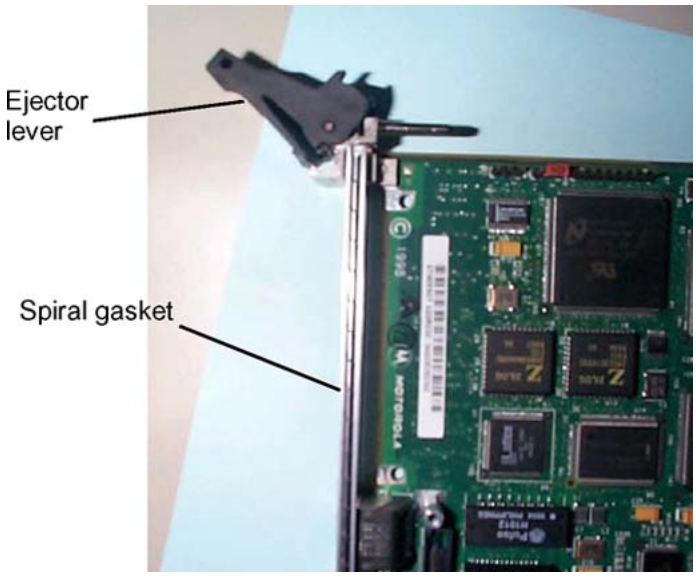
CAUTION
Possible service outage
Use care when inserting and removing cards from the SAM21 shelf. Ensure that the spiral gasket, located on the edge of the card faceplate, is not loose so that it can become caught on an adjacent card and pulled off. A loose spiral gasket has the potential to make contact with the backplane inside the chassis, possibly causing damage or service outage due to an electrical short circuit.

CAUTION
Static electricity damage
Wear an electrostatic discharge (ESD) grounding wrist strap connected to the SAM21 shelf cabinet when handling a GWC card. This protects the card against damage caused by static electricity.

Step	Action

At the front of a SAM21 shelf cabinet

1 Examine the circuit packs prior to inserting them in the SAM21 chassis to ensure that the spiral gasket is seated and not loose.



2 Install the GWC card using the following steps:

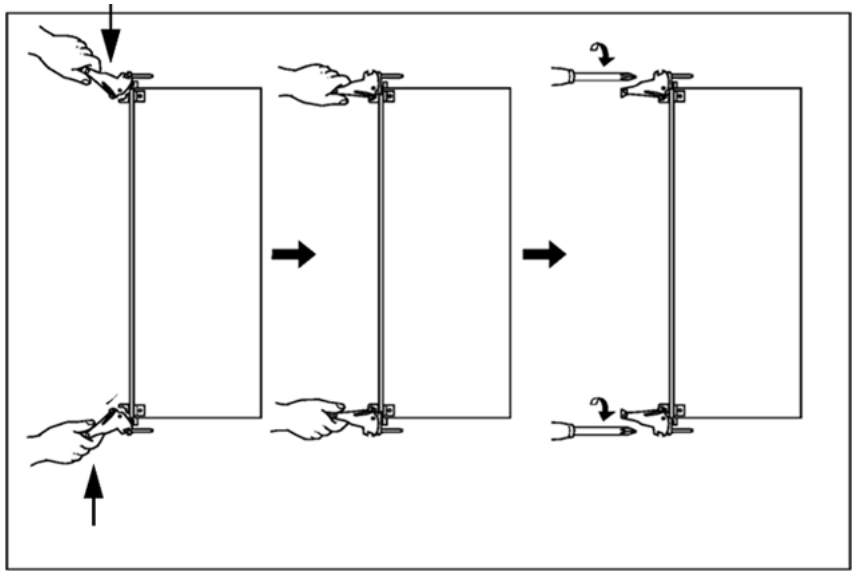
a. While holding the ejector levers, press and hold the levers outward.

Do not push on the faceplate of the card. Insert the card by holding the ejector levers.

b. Slide the card into the slot until the ejector levers contact the chassis rails.

c. Observe that a solid blue light on the card appears. Keep pushing the card into the slot until the blue light turns off.

d. Close the ejector levers inward as shown in the following figure.



3 If the GWC card does not power up, eject the card, return to step 2 and repeat the steps, or contact your next level of support.

4 Secure the card by tightening the captive screws at the top and bottom of the panel.

5 Repeat this procedure for other GWC cards you wish to install in the SAM21 shelf.

6 The procedure is complete.

—End—

Assign service to a GWC card

Purpose of this procedure

Use this procedure to introduce a new Gateway Controller (GWC) node into the SAM21 shelf. GWC cards are added to the SAM21 shelf in pairs. Each pair makes up a single GWC node.

When to use this procedure

Use this procedure after installing new GWC cards into the SAM21 shelf, into a slot that has not previously had a GWC card provisioned.

To replace a previously installed faulty GWC card using the same card provisioning information, see procedure "Replace and re-provision a GWC card" in *Gateway Controller Fault Management* (NN10202-911).

Prerequisites and guidelines

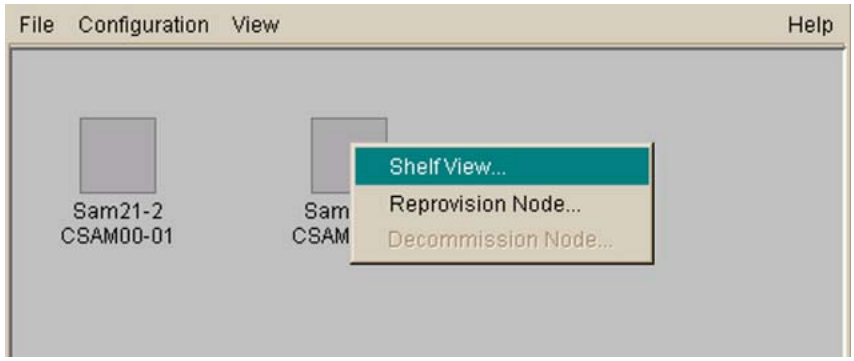
When adding a new GWC card pair for a new node, ensure that a block of four contiguous IP addresses is available for assignment to the card pair. If replacing an existing card, use the same IP addresses assigned to the card being replaced.

ATTENTION

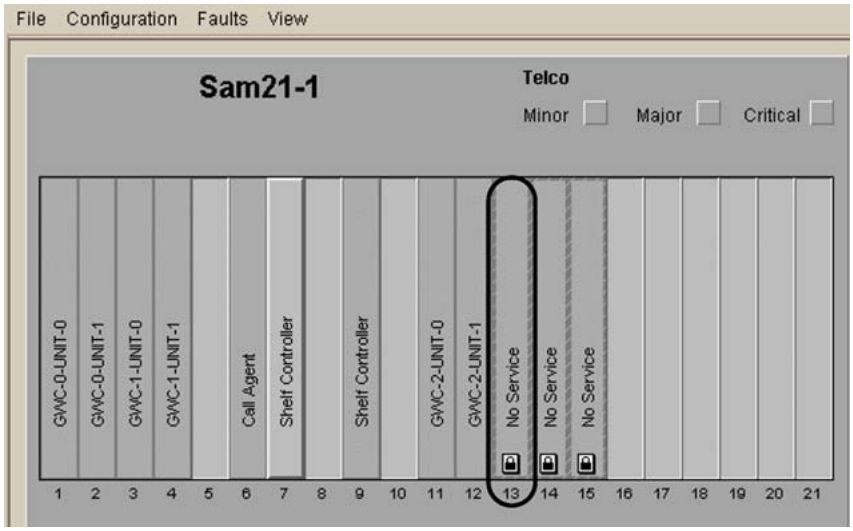
Each GWC card can be assigned its own unique load image file to boot from on the CS 2000 Core Manager or Core and Billing Manager (CBM).

Action

Step	Action
	At the CS 2000 SAM21 Manager client
1	Right-click the SAM21 shelf icon containing the Gateway Controller cards you wish to provision, and select **Shelf View** from the pop-up menu.

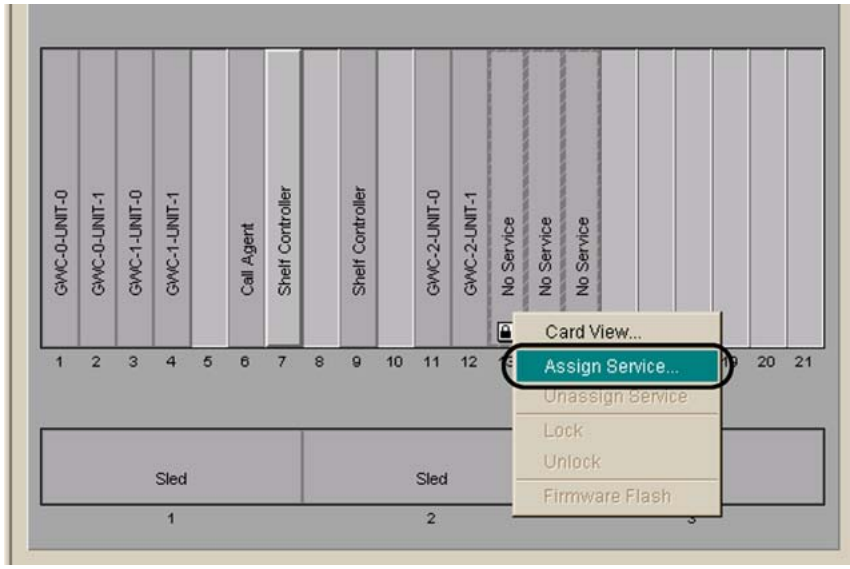


2 Locate the GWC card you wish to provision. Unprovisioned cards are labelled as having No Service, as shown in the following figure.

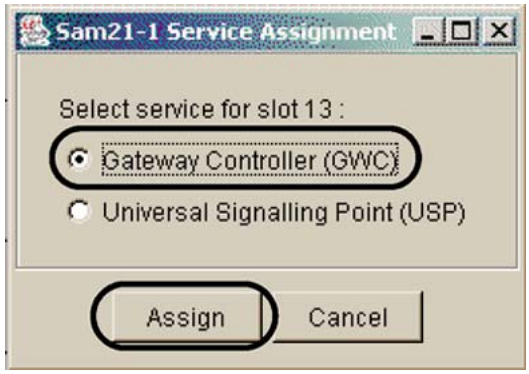


3 If the card is not already locked, follow procedure "Lock a GWC card" (page 466) to lock the card.

4 Right-click the unprovisioned card slot from the Shelf View window and select **Assign Service** from the pop-up menu.



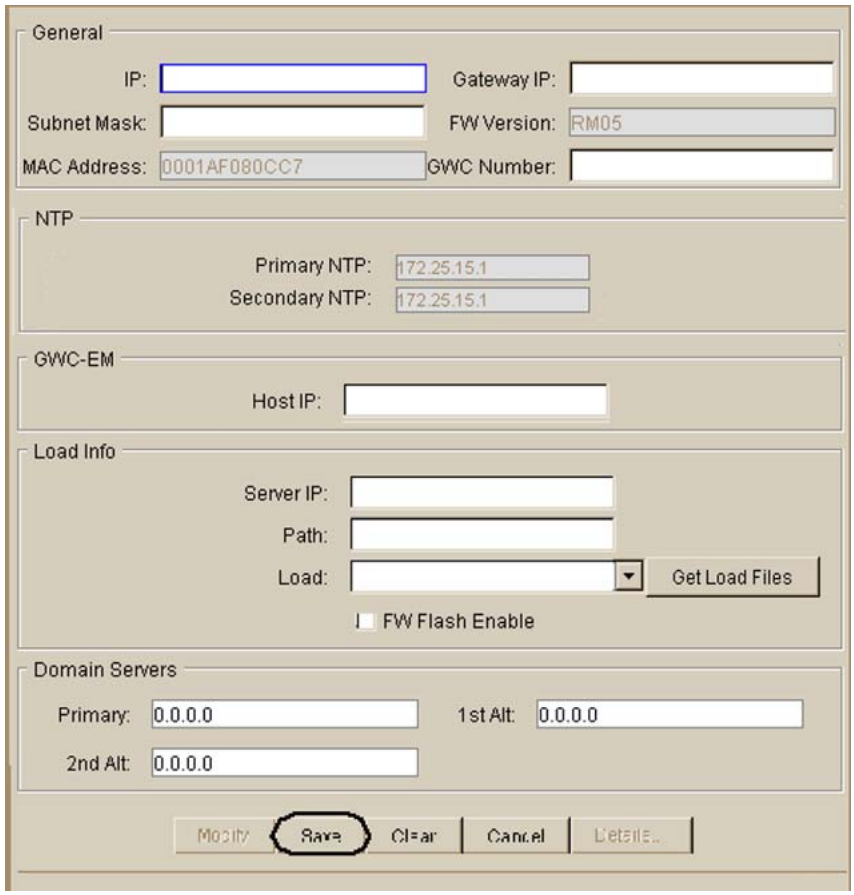
5 From the Service Assignment window, click the Gateway Controller (GWC) radio button, and then click the **Assign** button.



6

CAUTION
You must configure at least one Domain Server IP address if this GWC will be hosting small line gateways configured for DNS use (gateways provisioned with IP address of 0.0.0.0). Otherwise, the associated lines do not recover after GWC cold switch of activity (SWACT).

Enter the configuration data in the GWC Provisioning window or use the default values (if applicable).



In most cases, when provisioning a GWC, use the default values indicated; otherwise, obtain and enter the following values:

- IP: <GWC_unit_0_IP_address> or IP:<GWC_unit_1_IP_address>

  A contiguous block of four IP addresses is required. If the IP addresses for the GWC card and its mate are not contiguous and you save your settings, the system displays a warning message. The message explains that you must correct the IP addresses; otherwise, you will not be able to unlock the card. To correct these addresses, follow procedure "Manually re-provision GWC cards" (page 102).

  If any of the four IP addresses for the new card is already used by another card, the system displays an error message. Contact your site system administrator to identify the IP addresses you must use.

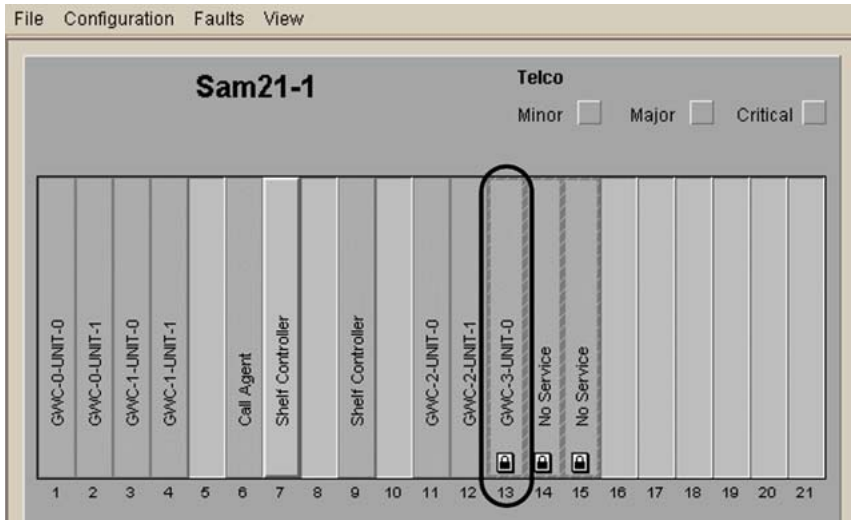
- Gateway IP: default_router or gateway_IP_address
- Subnet Mask: subnet mask

- GWC number: number assigned to the GWC card, from 0 to 255

  This field is used to label the GWC in the SAM21 shelf view pane. See the CS 2000 GWC Manager provisioning panel to determine what this value should be by comparing and matching the IP address fields.
- Host IP: CS 2000 Management Tools server IP address
- Server IP: IP address of the CS 2000 Core Manager or Core and Billing Manager (CBM)
- Path: /swd/gwc/ - this is the path where the GWC load image is stored on the CS 2000 Core Manager or CBM disk drives
- Load: the name of the GWC load image file
  example: pgc8xx.imag
  Click the **Get Load Files** button and select the required load from the drop-down list.
- Check the **FW Flash Enable** box if you wish to flash the card firmware with a new firmware version, if available.
- Primary Domain Server: server_IP_address
- 1st Alternate Domain Server: server_IP_address
- 2nd Alternate Domain Server: server_IP_address

7 When you are finished entering data, click the **Save** button.

8 Observe that once the card has been provisioned, the label No Service is replaced by the GWC number and unit number in the shelf view. The same label also appears in the card view.



9 Return to step 2 and repeat the procedure for each GWC card you need to provision.

10 Unlock the card. Reprovisioning does not take effect until the card is unlocked and rebooted. For instructions about how to unlock GWC cards using the CS 2000 SAM21 Manager, see procedure "Unlock a GWC card" (page 469).

11 The procedure is complete.

—End—

Manually re-provision GWC cards

Purpose of this procedure

Use this procedure to manually change the basic provisioning information for a set of Gateway Controller (GWC) cards, including IP addresses, port addresses, gateway addresses, and load paths.

When to use this procedure

Use this procedure when it is necessary to change GWC card-related provisioning information in the CS 2000 SAM21 Manager database.

Prerequisites and guidelines

This procedure does not provide instructions on how to make provisioning changes to GWC services in the CS 2000 GWC Manager database (such as changing a service profile for a GWC node).

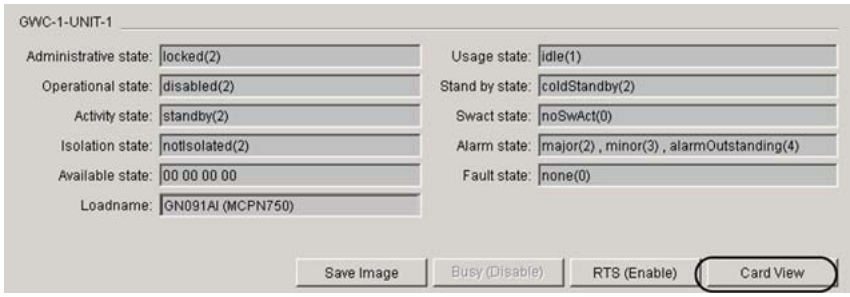
You must first busy the GWC node services using the CS 2000 GWC Manager before re-provisioning any cards in the node. Follow procedure "Busy a GWC node" (page 462).

When re-provisioning IP addresses for GWC cards, you must use a block of four contiguous IP addresses for each card pair (node).

CAUTION
Partial service disruption
Changes to the IP addresses or other configuration values of a GWC card can cause inconsistencies with the CS 2000 GWC Manager database.

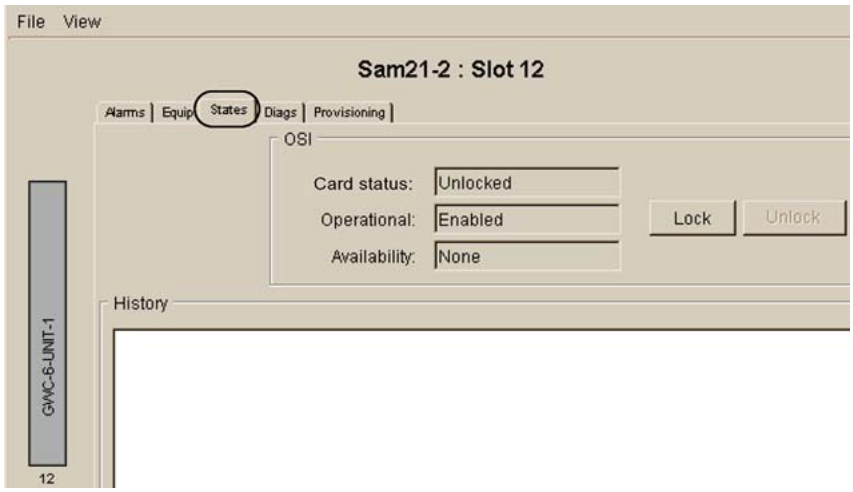
Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	Select or type the name of the GWC node to re-provision.
3	Complete the procedure "Busy a GWC node" (page 462) to make the card resources unavailable for call processing activities.
4	Click the **Card View** button for the card you busied in the preceding step. This action opens the CS 2000 SAM21 Manager.



At the CS 2000 SAM21 Manager

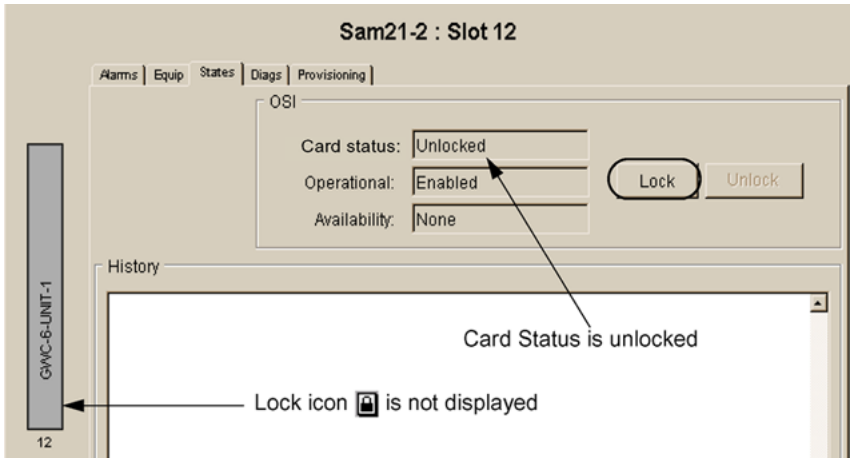
5 Select the **States** tab to view the states window.



6 If the card is already locked, go to the next step.

If the card is not locked, click the **Lock** button.

You can determine if the card is locked by looking at the card graphic at the left of the screen. If the lock icon is present, the card is locked. If the lock icon is not present, the card is not locked. The Card Status also indicates whether the card is locked.



System response:

```
Application locked Successfully.
```

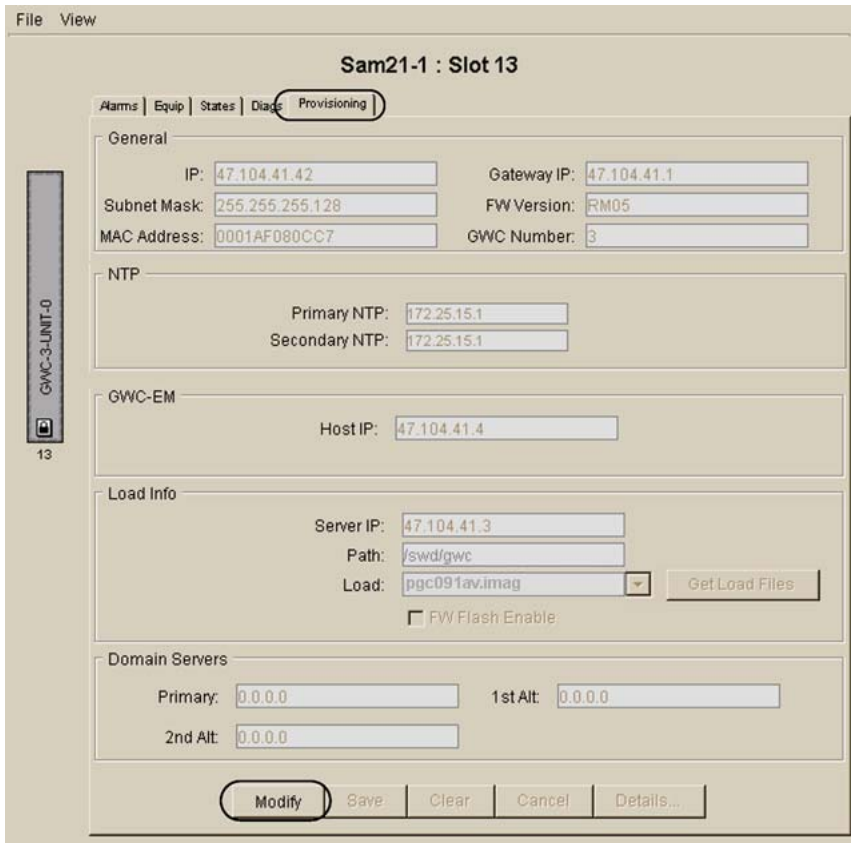
If you are denied your first attempt to lock the card, you can override the lock request denial and force the card to lock. Use the CS 2000 GWC Manager to interpret the various states of the card. Follow procedure "View and interpret the operational status of a GWC node" (page 476).

A card has accepted a lock request if it has the following states:

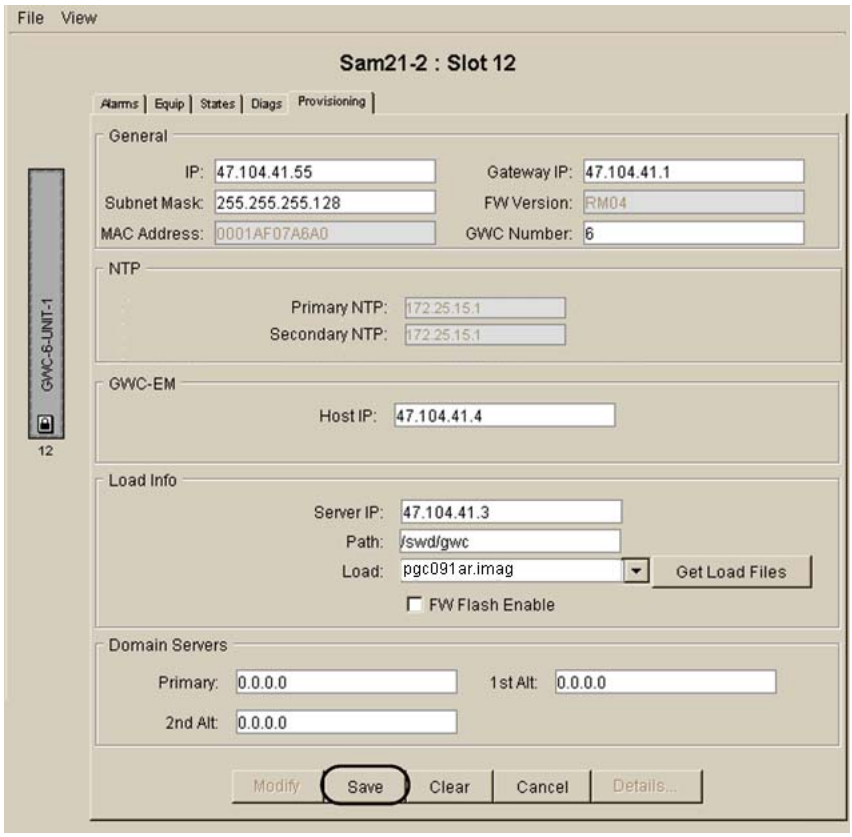
- Card Status: locked
- Operational state: disabled

7 Select the **Provisioning** tab.

8 Click the **Modify** button to make changes to the provisioning datafill.



9 Enter the new or changed provisioning data as described in the following list.



In most cases, when pre-provisioning a GWC, use the default values indicated. Otherwise, obtain and enter the following values:

- IP: <GWC_unit_0_IP_address> or

  IP: <GWC_unit_1_IP_address>

  A contiguous block of four IP addresses is required. If the IP addresses for the GWC card and its mate are not contiguous and you save your settings, the system displays a warning message. The message explains that you must correct the IP addresses; otherwise, you will not be able to unlock the card. If necessary, repeat this procedure to make sure that the IP addresses are contiguous.

  If any of the four IP addresses for the new card is already used by another card, the system displays an error message. Contact your site system administrator to identify the IP addresses you must use.

- Gateway IP: default_router or gateway_IP_address
- Subnet Mask: subnet_mask
- FW Version: firmware version of the GWC load

- Host IP: CS 2000 Management Tools_Server_IP_Address
- Server IP: IP address of the CS 2000 Core Manager or Core and Billing Manager (CBM)
- Path: /swd/gwc/ - on the CS 2000 Core Manager or CBM
- Load: name of the GWC load image file;
  example: pgc08bg.imag
  Click the **Get Load Files** button and select the required load from the drop-down list.
- If available, select the **FW Flash Enable** check box if you wish to flash the card firmware with a new firmware version
- Primary Domain Server: server_IP_address
- 1st Alternate Domain Server: server_IP_address
- 2nd Alternate Domain Server: server_IP_address

10 When you are finished entering changes, click the **Save** button.

11 Return to step 2 and repeat the steps for each GWC node you are re-provisioning.

12 Re-provisioning does not take effect until the card is unlocked and rebooted. For information about how to unlock GWC cards, see procedure "Unlock a GWC card" (page 469).

13 The procedure is complete.

—End—

Remove service from a GWC card

Purpose of this procedure

Use this procedure to remove all configuration information from the selected GWC card.

When to use this procedure

Use this procedure only when you wish to remove the card from service, or when a completely new service must be provisioned on the card.

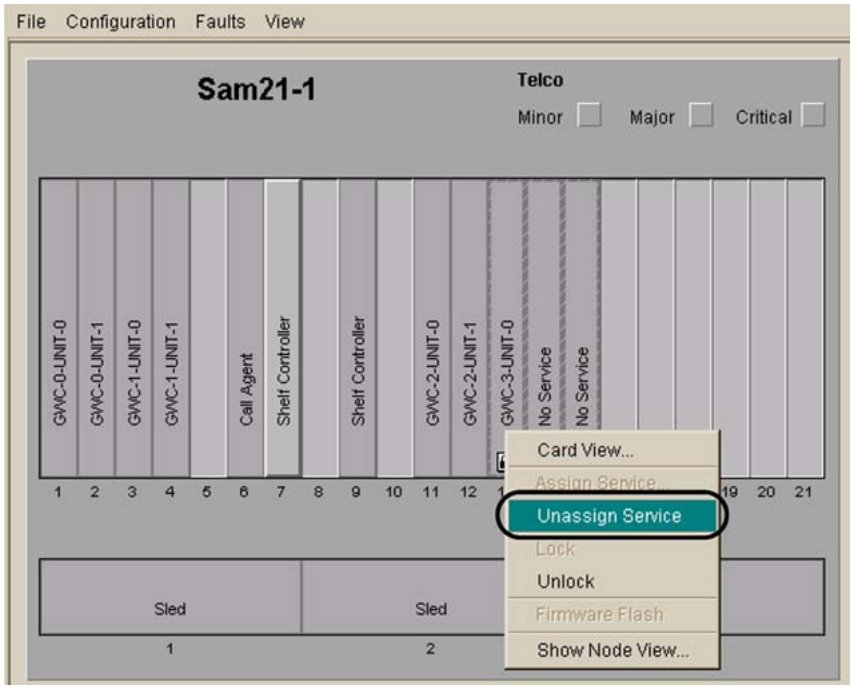
Prerequisites and guidelines

Before removing the GWC card from service, you must first lock the card. Follow procedure "Lock a GWC card" (page 466).

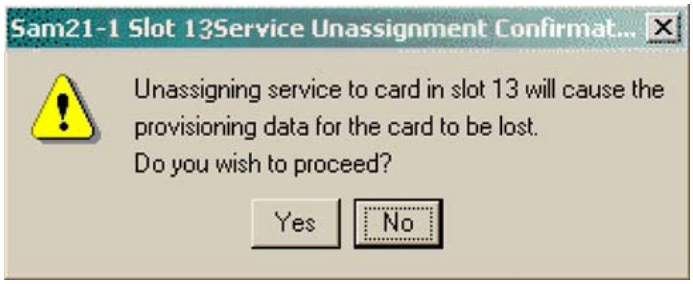
For additional information about GWC card states and diagnostics, see procedure "Interpret GWC card states" in *Gateway Controller Fault Management* (NN10202-911).

Action

Step	Action
	At the CS 2000 SAM21 Manager client
1	Ensure that the GWC card you are removing from service is locked.
2	From the Shelf View window, right-click the GWC card you wish to remove from service and select **Unassign Service** from the pop-up menu.



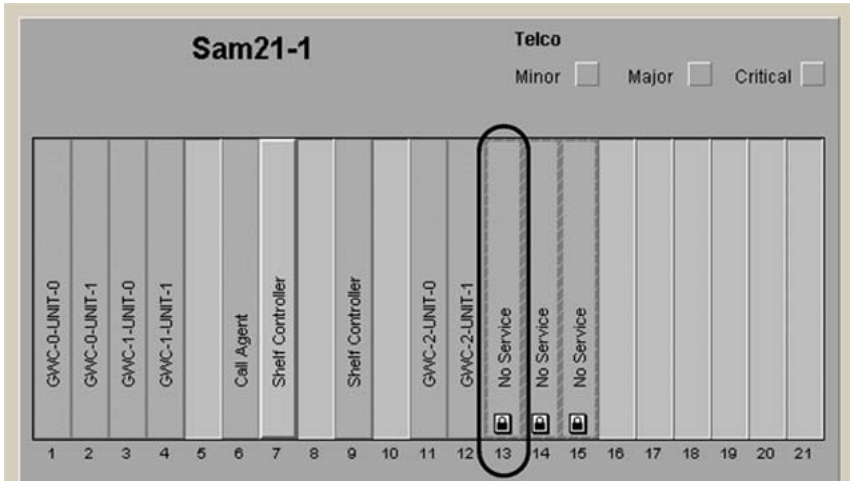
3 The shelf controller responds with the following warning:



CAUTION
Confirming the unassign removes all provisioning datafill from the selected GWC card. This operation cannot be reversed.

4 Click **Yes** to confirm that you wish to unassign service from the selected GWC card.

The selected GWC card status changes to No Service in the shelf view.



5 The procedure is complete.

—End—

Add and configure a GWC node

Purpose of this procedure

Use this procedure to configure Gateway Controller (GWC) call processing services on a selected GWC node.

When to use this procedure

Use this procedure when configuring a GWC node for a specific Gateway Controller service profile.

Prerequisites and guidelines

Prerequisites

The following prerequisites apply to this procedure:

- Before starting this procedure, you must first assign service to a GWC card using the SAM21 Manager. If required, see procedure "Assign service to a GWC card" (page 96).
- If you wish to add a GWC node and configure the node with a codec profile using a bearer network type that is new to your CS 2000, you must first modify table BEARNETS on the Core. In the BEARNETS table, you must create a network instance of the new bearer network type before you can add a GWC node and configure the node to use the new codec profile.

  To modify table BEARNETS on the Core, see procedure "Specifying the bearer networks served by the CS 2000" in *CS 2000 Configuration Management* NTP applicable to your solution.
- Determine the hardware (MCPN750 or MCPN905 cards) on which the selected GWC node operates. Some GWC service profiles are supported only on the MCPN905 hardware.

  The CS 2000 SAM21 Manager displays the card name (MCPN905 or MCPN750) in the Equip tab of the card view.
- If you are configuring a GWC to support Session Server for SIP Lines functionality, the following prerequisites apply:

  — The selected GWC node must operate on two MCPN905 cards.

  — All necessary site names used to identify the SIP logical groups (LGRP) must be added to the Core table SITE.

  For more information about the Session Server Lines configuration, see *Nortel Session Server Lines Fundamentals* (NN10437-111).

General guidelines

The following general guidelines apply to this procedure:

- To commission a GWC with an audio, SIP-T, or VRDN service profile, additional datafill on the Core is required after provisioning of the GWC is completed using the CS 2000 GWC Manager.
- To add a GWC that supports SIP Lines functionality, you must use one of the following profiles:
  - LARGE_LINENA_V2
  - LARGE_LINEINTL_V2
  - LINE_TRUNK_AUD_NA
  - LINE_TRUNK_AUD_INTL

  These profiles provide Exec Data: DPLEX and Term Type: DPL_TERM to support the dynamic packet line (DPL) agents on the GWC. The capability of DPL with a capacity of 1 is added to the compatibilities list.

  SIP line gateway defined by the SIPVOICE profile can co-exist on the GWC with the Centrex IP Client Manager (CICM), defined by the CICM profile.
- If you are adding an audio controller with redirecting media gateway controller (RMGC) service profile, follow these additional guidelines:
  - You must also complete procedure "Add or change default domain for the CS 2000 - required by RMGC" (page 65). The RMGC GWC requires that a valid default domain name for the CS 2000 is entered in the GWC Manager database.
  - Use either AUDNCNTL_RMGC or AUDCNTL_RMGCINTL service profile. These profiles combine the audio controller and RMGC capabilities. These capabilities are not inter-related. You can use a GWC node with this profile to perform the RMGC function, as well as an audio controller function.
- If you wish to change a GWC node from one service profile to another, complete one of the following steps:
  - "Change the service profile of a GWC node" (page 228); applicable only to some specific compatible profiles, listed in the referenced procedure.
  - Remove the old GWC from the CS 2000 GWC Manager database and re-add it. It must then be unlocked to allow it to reboot.

  Example

  To change a trunk or line GWC to a SIP-T GWC, you must lock both GWC cards on the node, delete the trunk or line GWC from the CS 2000

GWC Manager database, and then re-add it as a SIP-T GWC. For the list of procedures required for this activity, see the general procedure "Modify the operating configuration of an installed GWC node" (page 18).

- For cable solutions only, you can configure one gateway default domain name - common to all multimedia terminal adapter (MTA) gateways associated with the GWC. This default gateway domain name combined with the gateway host name creates the fully qualified domain name (FQDN) for MTAs associated with this GWC. Each FQDN can contain no more than 64 characters.

  This functionality is optional and it replaces the functionality provided by the DOMAIN_NAME "dummy" gateway in the (I)SN07 and (I)SN08 releases. Use this option if you have previously used the DOMAIN_NAME "dummy" gateway and you do not want to re-provision your system. Otherwise, leave the Gateway default domain name: field blank and configure the FQDN for each gateway through the Gateway Name: field, when associating a gateway with a GWC.

ATTENTION

For any cable gateways fully compliant with PacketCable specifications, do not use the gateway default domain name functionality. Instead, configure the 64-character FQDN when associating the gateway with a GWC.

CAUTION

Possible service disruption

Configure the Gateway default domain name: field only if the GWC that you are configuring uses one of the following service profiles:

- SMALL_LINENA or SMALL_LINENA_V2

- SMALL_LINEINTL or SMALL_LINEINTL_V2

Otherwise, leave this field blank. If you configure this field for any other profile, you will not be able to associate any gateways with that GWC.

ATTENTION

If you plan to configure the gateway default domain name, obtain the correct name before starting the procedure.

Make sure that you enter the value correctly. You cannot change the default domain name after the GWC is added to the network. To change the existing default domain name, you must re-configure the entire GWC node. If required, see section "Re-configure a GWC node in the network" (page 19).

Network codec profile guidelines

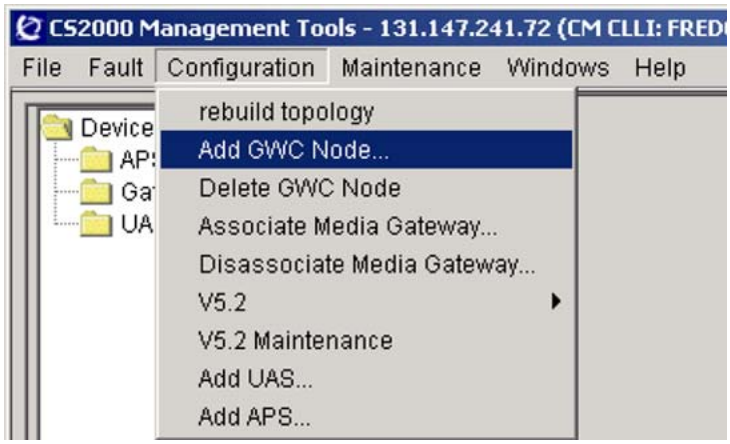
No matter which network bearer types (IP, AAL1 or AAL2) are configured for a CS 2000, only one bearer network instance can be selected for any GWC node. You must modify table BEARNETS on the Core to configure a network instance of a bearer network type.

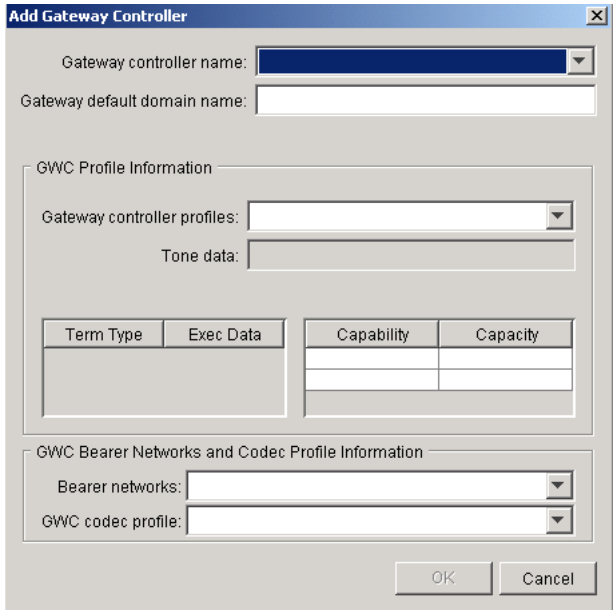
You can change the network codec profile assigned to a GWC node, provided the profile supports the network bearer type already selected for the node.

You cannot change the bearer network type assigned to a GWC node. You can change the specific network codec profile supported, but any new profile must use the same bearer network type as the codec you were using. If you wish to change the bearer network type assigned to a GWC node, see the general procedure "Re-configure a GWC node in the network" (page 19).

Action

Step	Action
	At the CS 2000 GWC Manager client
1	Lock the GWC cards using the procedure "Lock a GWC card" (page 466).
2	At the CS 2000 Management Tools main menu, click on the **Configuration** menu from the top menu bar and select **Add GWC Node...** to display the Add Gateway Controller dialog box.
3	At the Add Gateway Controller dialog box, enter or select the applicable node configuration information. For the description of each configuration field, see table "Add Gateway Controller configuration fields" (page 115).





Starting in (I)SN09U, you do not have to manually configure the GWC active IP address. Instead, the system determines the GWC IP addresses.

The following table describes each configuration field of the Add Gateway Controller dialog box.

Add Gateway Controller configuration fields

Field	Description
Gateway controller name:	Select the node name of the GWC card from the pull-down menu. Each name has a format of GWC-<n>; where n is a number from 0 to 255.
Gateway default domain name:	This field is optional and applies to cable solutions only. Configure this field only if the following conditions are met: • You have previously used the DOMAIN_NAME "dummy" gateway and you do not want to re-provision your system. • The GWC that you are configuring uses one of the following service profiles: — SMALL_LINENA or SMALL_LINENA_V2 — SMALL_LINEINTL or SMALL_LINEINTL_V2 • You do not plan to associate with this GWC any gateways fully compliant with PacketCable specifications. If these conditions are not met, leave this field blank.

Field	Description
	In this scenario, the GWC supports multiple gateway domain names. The Gateway Name: field in the Associate Media Gateway dialog box defines the 64-character free-format FQDN for each gateway. For more information, see the appropriate "Associate <a gateway>" procedure in this NTP. If you wish to configure the gateway default domain name (common to all MTAs associated with this GWC), enter up to 62-character text string. This name must follow the Domain Name Service (DNS) and RFC2181 naming rules. **Example** nortel.com **ATTENTION** Make sure that you enter this value correctly. You cannot change the gateway default domain name after the GWC is added to the network. To change the existing default gateway domain name, you must re-configure the entire GWC node. If required, see section "Re-configure a GWC node in the network" (page 19). The gateway default domain name combined with the gateway host name (configured when associating a gateway with a GWC) creates the fully qualified domain name (FQDN) for each MTA gateway associated with this GWC. Each FQDN can contain no more than 64 characters. For more information, see procedure "Associate a small line media gateway (cable market)" (page 135). If configured, the GWC default gateway domain name is displayed in the lower right corner of the **Controller** panel (under **Provisioning** tab). Otherwise, the system displays <None>.
Gateway controller profiles:	Select only one service profile. Only one service profile (for example, line, trunk, or audio) is supported for each GWC node. Gateway Controller service profiles appended with INTL are international market place installations, while service profiles appended with NA are for North American market place installations. If you attempt to associate a media gateway of one service profile to a GWC of another service profile, the addition of the media gateway will be rejected. ***Note:*** The APG functionality has been removed in the (I)SN07 release. All GWC service profiles that were required to support the APG functionality (all profiles with "APG" in their names) are obsolete. These profiles are still present in the GWC Manager GUI, but to ensure that resources are not allocated for obsolete functionality, do not use these profiles. The

Field	Description
	Packet Media Anchor device (supported by the audio controller GWCs) replaces the APG functionality in the IP network solutions. The RA server is now located and enabled by default on the audio controller GWC.
Select one of the following profiles: **AUDCNTL** or **AUDCNTLINTL** Use to add an audio server gateway for your applicable market. Use these profiles to add the Packet Media Anchor functionality supplied by the Media Server 2010 gateways (IP market solutions).	
AUDCNTL_RMGC or **AUDCNTL_RMGCINTL** Use to add an audio controller with a redirecting media gateway controller (RMGC). This option combines the audio controller and RMGC capabilities in one profile. These capabilities are not inter-related. You may use a Gateway Controller with this profile to perform the RMGC function, as well as an audio controller function. An RMGC enables initializing gateways to obtain the IP address of their GWC from a registration agent in the network. This profile is applicable only to cable and wireline solutions for either NA or International markets. Only small line media gateways are supported with the RMGC application. RMGC capacity is limited to 115,000 gateways. After adding an audio controller RMGC GWC, complete procedure "Add or change default domain for the CS 2000 - required by RMGC" (page 65) to ensure that a valid default domain name for the CS 2000 is datafilled in the GWC Manager database.	
BICC Use to add a GWC that will host inter-office DPT trunk calls using Bearer Independent Call Control (BICC) on an ATM network for the bearer path. If DPTs on a BICC GWC are used, then MG4000s are a required component in the solution.	
H.323_NA or **H.323_INTL** Use to add an H.323 GWC for your applicable market. H.323 gateways provides VPN and PSTN connectivity for multiple enterprises and sites.	
LARGE_LINENA or **LARGE_LINEINTL** Use to add a large line media gateway for your applicable market.	
LARGE_LINENA_V2 or **LARGE_LINEINTL_V2** Use to add large line media gateways for your applicable market, including SIP Lines. These are enhanced versions of the LARGE_LINENA and LARGE_LINEINTL profiles with the capacity increased to 12 800 lines. These profiles are only supported on the MCPN905 hardware. If you configure one of these profiles on an MCPN750-based GWC, the node will not come into service.	

Field	Description
LINE_TRUNK_AUD_NA or **LINE_TRUNK_AUD_INTL**	Use to add all gateway types and capabilities supported by the SMALL_LINE, LARGE_LINE, TRUNK, and AUDCNLT profiles (at capacities supported on the MCPN750 hardware). The combined profiles also support the SIP Lines functionality. These profiles are only supported on the MCPN905 hardware. If you attempt to configure one of these profiles on an MCPN750-based GWC, the node will not come into service. These combined profiles do not support DMS-250 PTS or DMS-250 PRI trunks, but do support DMS-250 ISUP trunks.
MTX_TRUNKNA or **MTX_TRUNKINTL**	Use to add a GWC that supports the packet serving mobile switching center (MSC) solution for mobile telephone exchange (MTX). In order to use either MTX profile, the CS 2000 Core must be upgraded to the (I)SN07 (or higher) MTX software load.
SIP-T or **SIP-TINTL**	Use to add SIP-T based trunk services for your applicable market.
SIP-T_APG or **SIP-T_APGINTL -** obsolete in the (I)SN07 release. Do not use this profile.	
SIP-T_APG or **SIP-T_APGINTL -** obsolete in the (I)SN07 release. Do not use this profile.	
SIP-T_APG_RA or **SIP-T_APG_RAINTL -** obsolete in the (I)SN07 release. Do not use this profile.	
SMALL_LINENA or **SMALL_LINEINTL**	Use to add a small line media gateway for your applicable market.

SMALL_LINENA_V2 or **SMALL_LINEINTL_V2**	Use to add small line media gateways for your applicable market. These are enhanced versions of the SMALL_LINENA and SMALL_LINEINTL profiles with the capacity increased to 25 600 lines and gateways (without IPSec) or to 12 800 lines and gateways (with IPSec supported)
	
	These profiles are only supported on the MCPN905 hardware. If you configure one of these profiles on an MCPN750-based GWC, the node will not come into service.
	
	For GWCs configured with these profiles, the 25 600 capacity is calculated based on the maximum capacity of a media gateway. Use the following formula to calculate the maximum number of media gateways that can be associated with a GWC configured with one of these profiles:
	`(1023 / maximum_capacity_of_a_media_gateway) x 27`
	
	Example
	
	If you want to associate TOUCHTONE_NN01_2 or MOTOROLAMTA_2 gateways with a SMALL_LINENA_V2 or SMALL_LINEINTL_V2 GWC, then the selected GWC can support 13 797 gateways, based on the following calculation:
	`(1023 / 2) x 27 = 13 797`
	
	The total number of reserved endpoints cannot exceed 25 600.

Field	Description
	CAUTION **Possible loss of service** To enable IPSec on a CS 2000 GWC after initial provisioning, the GWC node must be removed from service. This removal impacts service to the associated gateways. Deloading of the CS 2000 GWC may also be required to comply with the stated line limits with IPSec enabled.
TRUNKNA or **TRUNKINTL** Use to add a local exchange carrier (LEC) trunk media gateway for your applicable market. If you wish the new GWC node to support the Digital Private Network Signaling protocol (DPNSS), use the TRUNKINTL profile. The same GWC can be shared by DNPSS and other gateways.	
V52TRUNK Use to add a GWC that will host V5-based line services. (This service profile is used in international markets only.) A PVG can be configured as a V5.2 gateway rather than a trunk gateway. A PVG V5.2 gateway supports V5.2 interfaces connected to V5.2 Access Networks (AN) serving V5.2 PSTN lines, such as analog subscriber lines.	
VRDN or **VRDNINTL** Use to add a virtual router GWC for your applicable market.	
Unless otherwise specified, use the default values indicated for Tone Data, Term Type, and Exec Data.	
Tone data:	Auto-datafilled when the appropriate profile is selected.
Term Type:	Auto-datafilled when the appropriate profile is selected.
Exec Data:	Auto-datafilled when the appropriate profile is selected.
Capability:	Auto-datafilled when the appropriate profile is selected.
Capacity:	Auto-datafilled when the appropriate profile is selected.
Depending on the Gateway Controller profile selected, different options may be available in the Exec Data field for each Term Type. Click on the drop-down menu to view the options for each entry. **ATTENTION** **TGCP** GWCs associated with TGCP gateways that support Per Trunk Signaling (PTS) endpoints require the following settings: • Term Type: set to "ABTRK" • Exec_Data: set to "GWCEX" Without these settings, maintenance and call processing does not work on the GWC.	

Field	Description

ATTENTION

TRUNKNA

If you selected service profile TRUNKNA, the following configuration options exist for field Exec Data:

- for Term Type PRAB: DTCEX (default) or UTR250
- for Term Type ABTRK: GWCEX (default)
- for Term Type AB250: GWC250 (default) or GWCFX

Use the following guidelines to configure field Exec Data for each Term Type. All three Term Type - Exec Data pairs must be configured for the TRUNKNA profile.

- For DMS-100/200/250 *ISUP* trunks, use the default values.
- For DMS-100/200 *PRI* trunks, use the default values.
- For DMS-250 *PRI* trunks, for Term Type: PRAB - change the Exec Data from DTCEX to UTR250.
- For DMS-100/200/250 *PTS* (AB) trunks, use the default values.
- For FX *PTS* (AB) trunks, for Term Type: AB250 - change the Exec Data from GWC250 to GWCFX.

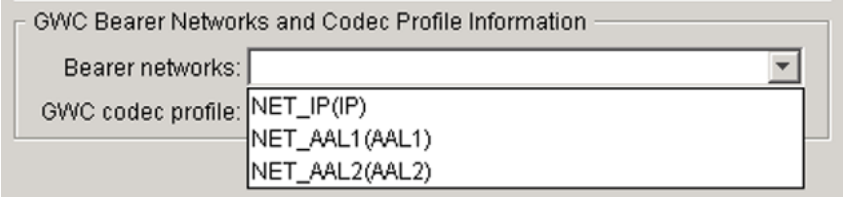
Once configured, you can change the Exec Data settings for a selected GWC node using procedure "Change the Exec Data values for an existing GWC node" (page 233).

Bearer networks:

Select the bearer network for this GWC node using the drop-down menu.

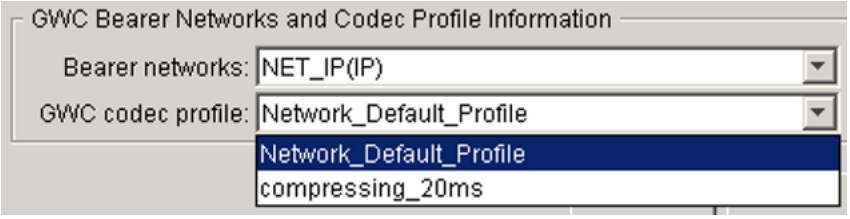
Network codec profiles using different bearer network types are defined using procedure "Add a network codec profile" (page 31).

Bearer network types must also be defined in the Core table BEARNETS.



You can select only one bearer network type for a GWC node.

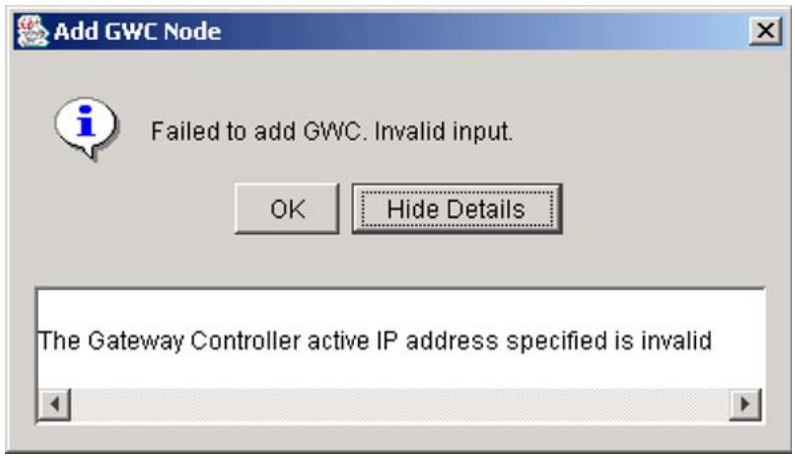
You cannot change the bearer network type assigned to a GWC node. You can change the specific network codec profile supported, but any new profile must use the same bearer network type as the codec you were using. If you wish to change the bearer network type assigned to a GWC node, see the general procedure "Re-configure a GWC node in the network" (page 19).

Field	Description
	Note: If the GWC node will be hosting lines using NCS protocol, you must select a network codec profile with RFC 2833 disabled (RFC2833 check box de-selected).
GWC codec profile:	Select a codec profile for this GWC node using the drop-down menu. The profiles available are based on the bearer network selected in the previous field. Network codec profiles for each bearer network type are configured using procedure "Add a network codec profile" (page 31). The default codec is the first one listed for a bearer network type. The default codec is defined when adding or changing a profile using procedure "Add a network codec profile" (page 31).  If you do not select the default codec for the bearer network type, it is selected automatically. You can change the specific network codec profile supported, but any new profile must use the same bearer network type as the codec you were using. If the GWC node will be hosting Media Server 2010 gateway configured with the Packet Media Anchor functionality, you must select a network codec profile that includes either PCMA or PCMU codec. If not available, add a new profile using procedure "Add a network codec profile" (page 31). The Packet Media Anchors only use PCMA or PCMU and ignore all other codecs and codec parameters, such as, RFC2833 or T.38.

4 After you have completed all required fields, click **OK**.

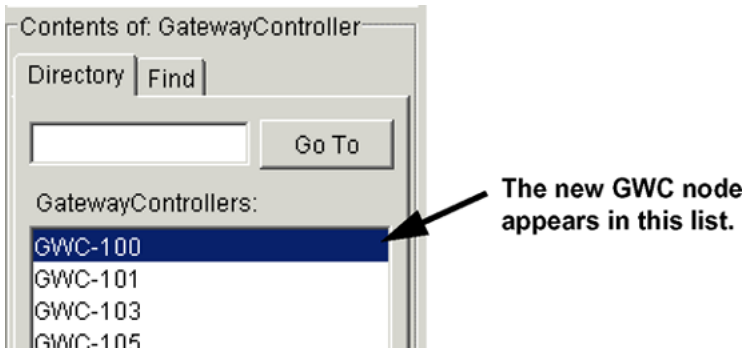
A "Processing..." window will be displayed for up to several minutes while the new GWC type is added to the system. A response dialog will be displayed when the operation is completed. If any error occurred during the transaction, click the **Show Details** button to show where the transaction failed. For more information about the failure, see the CS 2000 CS 2000 Management Tools server logs.

If the active IP address for the new card is already used by another card, the system displays the following error message. Contact your site network administrator to obtain the IP address that you can use.



When the new GWC node has been successfully added, its name will be displayed in the Contents of Gateway Controller view.

5 Observe that the new GWC node appears in the Contents of: Gateway Controller panel.



To verify that the Add GWC operation succeeded, click the GWC node you just added from the Contents of: Gateway Controller panel and review the data displayed in the Provisioning and Maintenance panels.

Once provisioned, the GWC information is added to the CS 2000 Core table SERVRINV.

6 Provisioning does not take effect until the card is unlocked and rebooted. For information about how to unlock GWC cards, see procedure "Unlock a GWC card" (page 469).

7 The procedure is complete.

—End—

Associate a trunk media gateway

Purpose of this procedure

Use this procedure to associate a trunk media gateway with a Gateway Controller (GWC) node. A network service zone may be included in the topology.

A gateway profile is a definition in the CS 2000 Management Tools database (CS 2000 GWC Manager database) that captures some of the characteristics and capabilities of a gateway device. A profile is chosen when the gateway is being associated to the GWC node. The information in the profile is then used to determine compatibility of the GWC node with which the gateway is being associated and to assess whether the node has the available endpoint capacity.

When to use this procedure

Use this procedure when you wish to associate a trunk media gateway with a GWC node.

Prerequisites and guidelines

ATTENTION

In (I)SN09, the PVG profiles with ASPEN protocol are obsolete. These profiles are still present in the GWC Manager GUI but are not supported. Do not use these profiles when associating a trunk media gateway.

General guidelines

The following guidelines apply when adding trunk media gateways:

- When you assign a media gateway name, the name must be unique within the CS 2000 domain. Duplicate media gateway names cannot exist, even if the media gateways are associated with different GWC nodes. Table "Trunk gateway naming conventions" (page 128) provides detail naming conventions for each gateway profile, including a list of illegal characters that the system rejects
- If you attempt to associate a large media gateway with a GWC that does not have adequate available capacity, the request will be rejected. While using this procedure to associate a large trunk gateway to a GWC node, you can adjust the port capacity of the individual media gateway to fit within the available port capacity of the GWC node by changing the default value in the Reserved Terminations: field.
- If you attempt to associate a media gateway with a GWC that has a different service type, the request will be rejected. For example, you cannot associate a trunk media gateway with a line GWC node.

- You may associate up to 24 media gateways with 1 trunk GWC.
- In international markets, use the Nortel Media Gateway 3200 (AUDIOCODES profile) that supports the Digital Private Network Signaling (DPNSS) User Adaptation (DUA) protocol to provide direct interconnection between Private Branch Exchange (PBX) gateways and a CS 2000 network. MG 3200 gateways can also be used for PRI and CAS R2 signaling in international markets.

  DPNSS and non-DPNSS gateways can be associated with the same GWC. For DPNSS, you can use the GWC which supports both PRI and DPNSS.

If you wish to verify the total number of endpoints currently reserved for the gateways associated with the selected GWC, click the Statistics button under the Controller tab of the Provisioning panel. If required, see procedure "View characteristics of a GWC node" (page 215).

Nortel Media Gateway 3200 and 3500 (AUDIOCODES and AUDIOCODES_6310_TRUNK) - additional guidelines

Network zones, including network address translator (NAT)-type and limited bandwidth links (LBL)-type service zones, must be configured before any media gateways that use the service zones can be associated with a GWC. To add a network zone to the GWC database, see one of the following procedures:

- "Add an IP-VPN (NAT) zone" (page 315).
- "Add a limited bandwidth link (LBL) zone" (page 330).
- "Add a composite IP-VPN (NAT) and LBL zone" (page 340).

If your network configuration does not include the Policy Controller (Network VCAC status is OFF), all gateways behind a given LBL must be controlled by the same GWC. This restriction does not apply, if the Network VCAC status is ON.

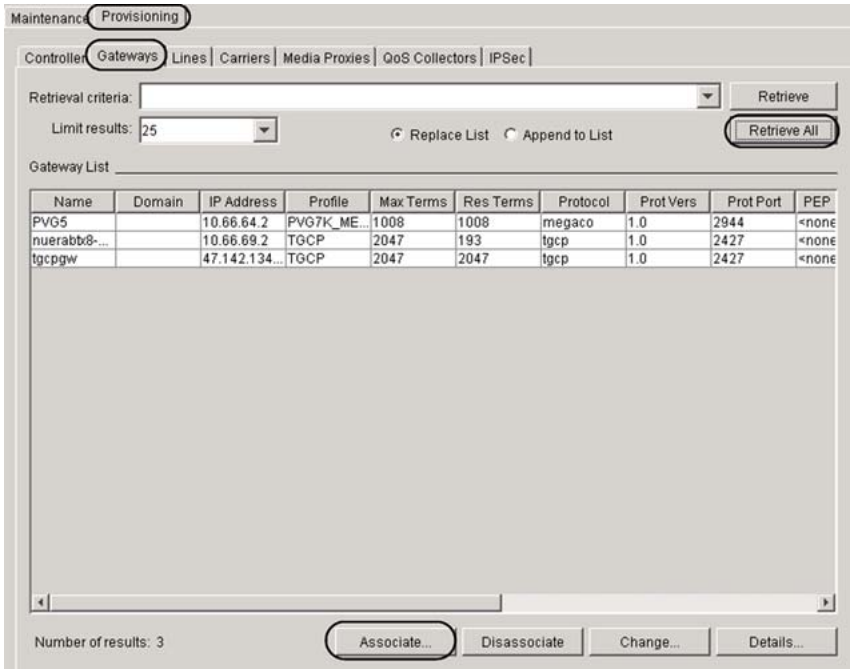
No more than eight media proxy groups can be associated with a GWC. If you are associating a media gateway that includes a media proxy group in its network zone hierarchy, and the GWC already has eight media proxy groups, the system rejects the request.

Not all media proxy groups in a network hierarchy are sent to a GWC when you associate a gateway with a GWC. The system searches the gateway's network zone tree and sends only the first media proxy group found in that tree.

A media gateway that does not have any media proxy group assigned through its network zone hierarchy will use the default media proxies associated with a GWC.

Action

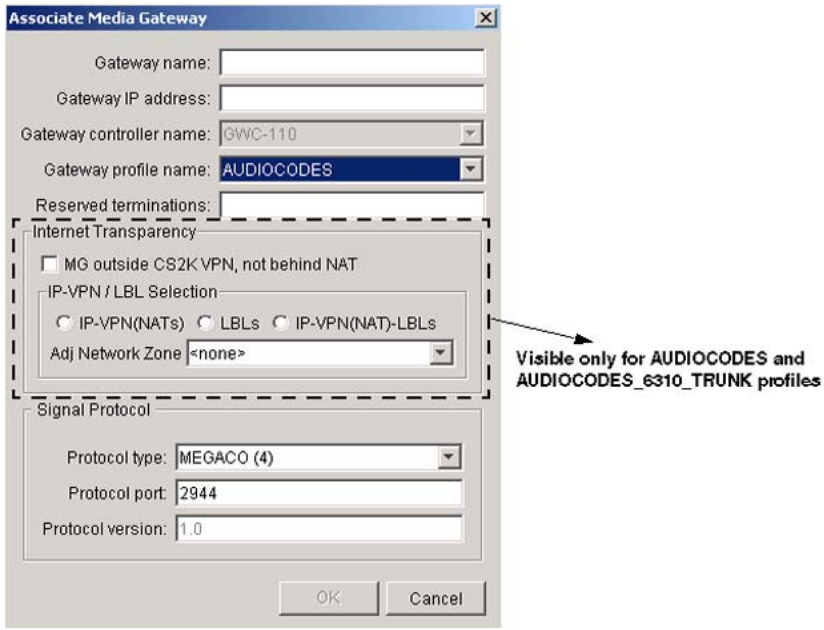
Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree in the far left frame.
2	From the Contents of: Gateway Controller frame, select the GWC node to which you wish to associate a media gateway.
3	Click the **Provisioning** tab.
4	Click the **Gateways** tab. If required, click the **Retrieve All** button to view information about all gateways associated with the selected GWC node. Any newly-created gateways are added to the end of the list.



5	Click the **Associate** button to display the Associate Media Gateway dialog box.

If Domain Name Service (DNS) is not activated on the CS 2000 Management Tools server, or if it is not working properly, you will experience a delay of approximately 1 minute before the Associate Media Gateway dialog box is fully displayed. For information about how to configure DNS on the CS 2000 Management Tools server, see *Nortel ATM/IP Solution-level Configuration* (NN10409-500).

6 At the Associate Media Gateway dialog box, datafill all of the attributes for the desired gateway as described in the following steps.



7 In the Gateway profile name: field, select the appropriate trunk gateway profile name from the list of profiles.

The following table lists the trunk media gateway profiles supported. Once a profile is selected, the data associated with the profile is displayed.

Ensure that the gateway is being added to the correct GWC node.

Newly supported gateways may be added to the list and they are not shown in this procedure. Not all gateways are supported for every solution and release. If necessary, contact your Nortel support for details on the gateways supported for each profile.

Trunk media gateway profiles

Gateway profile name	Gateway category	Signaling protocol type	Protocol version	Default protocol port	Service type	Max. port/ end point capacity
AUDIOCODES (Nortel Media Gateway 3200 and 3500)	Large	MEGACO	1.0	2944	Trunk	280
AUDIOCODES _6310_TRUNK (Nortel Media Gateway 3500 using TP-6310 card and configured as a trunk gateway)	Large	MEGACO	1.0	2944	Trunk	2016
CVX600_612	Large	DSM-CC	5.2	13818	Trunk	612
CVX1800_2688	Large	DSM-CC	5.2	13818	Trunk	2688
NUERA_BTX4K	Large	TGCP	1.0	2427	Trunk	4032
NUERA_GX_ MEGACO	Large	MEGACO	1.0	2944	Trunk	2108
PVG7K_ MEGACO	Large	MEGACO	1.0	2944	Trunk	1008
PVG15K_1000_ MEGACO	Large	MEGACO	1.0	2944	Trunk	1000
PVG15K_ MEGACO	Large	MEGACO	1.0	2944	Trunk	1120
PVG15K_ PARTIAL _MEGACO	Large	MEGACO	1.0	2944	Trunk	624
PVG_VSP3_ MEGACO	Large	MEGACO	1.0	2944	Trunk	2016
PVG_VSP4E	Large	MEGACO	1.0	2944	Trunk	4032
TGCP	Large	TGCP	1.0	2427	Trunk	4032

Starting in (I)SN09, all PVG_ASPEN and NUERA_GX_ASPEN profiles are obsolete. These profiles are still present in the GWC Manager GUI but are not supported. Do not use these profiles.

8 In the Gateway name: field, type a gateway name according to the gateway profile. Use the suggested gateway naming conventions shown in the following table.

The media gateway name must be unique within the CS 2000. Duplicate media gateway names cannot exist even if the media gateways are associated with different GWCs.

Trunk gateway naming conventions

Gateway profile	Suggested gateway naming conventions
Use a unique gateway name that represents the gateway FQDN, suitable for lookup using Domain Name Service (DNS). **ATTENTION** The following characters are not valid: " ‘’ <> = , ; In addition, the following characters are not valid for some specific gateway profiles: • [ ] (square brackets) - for all the following profiles, except AUDIOCODES, CVX600, CVX1800, NUERA_BTX4K, and TGCP • "_" (underscore) - for TGCP and NUERA_BTX4K Do not use these characters. Otherwise, the system rejects your request.	
AUDIOCODES (Nortel Media Gateway 3200 and 3500) CVX600_612 CVX1800_2688	1 to 32 alphanumeric characters. Do not use a dash (-). Example: abc3de
AUDIOCODES_6310_TRUNK (Nortel Media Gateway 3500 using TP-6310 card and configured as a trunk gateway) NUERA_GX_ PVG7K_ PVG15K_ PVG15K_1000_ PVG15K_PARTIAL_ PVG_VSP3_ PVG_VSP4E	1 to 32 alphanumeric characters. All alpha characters must be upper case. Do not include any of the following characters: " ‘’ <> = , ; [ ] Example: M2K003
NUERA_BTX4K	Any characters other than " ‘’ <> = , ; _ Example: GW1-BTX.nortel.com.cn
TGCP	1 to 64 characters, excluding " ‘’ <> = , ; _ Example: GW1-TGCP.nortel.com.cn

9 In the Gateway IP address: field, type the address of the gateway. Use the format: <0-255>.<0-255>.<0-255>.<0-255>

If you are associating an AUDIOCODES or AUDIOCODES_6310_TRUNK gateway, use the following guidelines:

- You can type an IP address of "0.0.0.0" in this field. If you type this address, the GWC will attempt to discover the IP address for the gateway.
- If the gateway is behind an IP-VPN (NAT)-type network zone, specify the IP address on the CallServer side (customer VPN side) of the NAT device.

ATTENTION

GWC auto-discovery is incompatible with DQoS, IPSec, and 64-character FQDN. If any GWCs in your network are configured for these services, you must select a GWC node to associate in this procedure; you must not leave the Gateway controller name: field blank.

10 If necessary, in the Gateway controller name: field, use the drop-down menu to select a GWC node with which the gateway is being associated.

If a GWC is not specified, the node provisioning application will automatically discover a GWC node with which to associate this gateway. The choice of GWC node is based on the service type of the media gateway (line, H.323, trunk, or audio) and the endpoint capacity of the gateway.

11 In the Reserved terminations: field, type the number of reserved terminations (endpoints or ports) to be reserved for this gateway.

If you do not assign a value in this field, the system will use the default, which is the maximum number of reserved terminations for the gateway selected.

The different capacities for trunk gateway appear in the "Trunk media gateway profiles" (page 127). The total number required cannot exceed the capacity of a GWC node, which has a maximum capacity of 4094 ports.

To calculate the correct number of the reserved terminations or endpoints on your gateway to match the available endpoints on the selected GWC node, see "Changing reserved terminations - examples" (page 132) for a worksheet along with some examples.

12 Use the following table to determine your next step.

If you are associating	Do
a Nortel Media Gateway 3200 or 3500 trunk gateway	go to step 13
any other trunk gateway	go to step 14

13 Configure internet transparency. For information about when a media proxy is inserted (depending on the location of the gateways involved in a call), see section "When a media proxy is used" (page 134).

In the Internet Transparency section of the dialog box, complete one of the following actions described in the following table (based on the specific conditions).

If the gateway is	Do
• outside the CS 2000 carrier network • outside the enterprise VPN • not behind a network zone: IP-VPN (NAT), LBL, or composite NAT-LBL	Select the check box "MG outside CS2K VPN, not behind NAT" and do not assign a zone.
The gateway is in the public network. In this case, the gateway network zone name is set to a value of "outside the telecom service provider domain". The Adj ITRANS MB column in the Gateway List appears as "outtsp" for any gateways in this category.	
• outside the CS 2000 carrier network • inside an enterprise VPN • behind a network zone: IP-VPN (NAT), LBL, or composite NAT-LBL	Do not select the check box "MG outside CS2K VPN, not behind NAT". Instead, select the name of an adjacent network zone in the Adj ITRANS Zone text field Complete the following steps: 1. Select the radio button for IP-VPN(NATs), LBLs, or IP-VPN(NAT)-LBLs to restrict your search. 2. Click in the Adj Network Zone field. 3. If desired, type text characters of a zone name in the field to fine tune your display. The system displays all network zones with a name that matches the characters you typed.

If the gateway is	Do
	4. Select adjacent network zone for the gateway from the list in the drop-down menu. You can only select network zone names that are datafilled and appear in the Network Zones view of the CS 2000 GWC Manager. If required, see procedure "Review available network devices" (page 91).
The gateway is in the residential or enterprise VPN. In this case, the gateway network zone name is set to the NAT-type or LBL-type zone name. The Adj ITRANS MB column in the Gateway List appears as <zone name> for any gateways in this category.	
• inside the CS 2000 carrier network	Do not select the check box "MG outside CS2K VPN, not behind a NAT" and do not assign a network zone.
The gateway is in the carrier VPN. In this case, the gateway network zone name is omitted (not used). The Adj ITRANS MB column in the Gateway List appears as "<none>"	

14 In the Protocol type: field, use the drop-down menu to select the appropriate gateway protocol type. To determine the appropriate settings for the gateway type you wish to configure, see "Trunk media gateway profiles" (page 127).

The system restricts the protocol type options to those compatible with the gateway profile name selected previously.

15 In the Protocol port: field, use the default value provided. Do not change this value.

The Protocol version: field displays the version of the protocol that is applicable to the gateway profile name and protocol type select previously.

16 Click **OK** to apply the data.

A response dialog box appears. The response dialog indicates whether the gateway association succeeded or failed. If the association failed, the response dialog indicates the reason why it failed.

17 Repeat this procedure as required for trunk gateways you wish to associate with this or other GWC nodes.

18 The procedure is complete.

—End—

Changing reserved terminations - examples

You must ensure that the total number of endpoint terminations required by all large media gateways associated to the same GWC node does not exceed 4094 ports. If it does, the last media gateway association activity will fail. Use the following method to allow multiple large media gateways to be associated with a single GWC node.

Calculating optimal reserved endpoint terminations

You can adjust the number of usable endpoints terminations (related to maximum port/endpoint capacity) required by the media gateway to a lower value. The formula used to calculate the value of the correct number of endpoint terminations varies according to the market in which your Carrier VoIP product is installed. Ports are allocated by trunk channel. In the North American market, trunks are based on increments of 24 channels or DS0s per endpoint group, while in the International market trunks are based on increments of 31 channels or DS0s per endpoint group. Only complete endpoint groups (24 or 31) can be provisioned against a trunk gateway. For more information about adding carrier endpoints, see procedure "Add carriers to a GWC" (page 186).

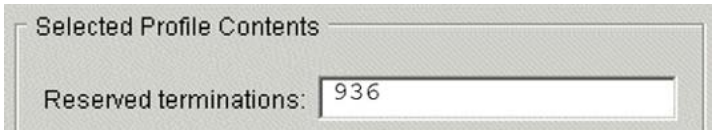
Calculating reserved terminations in the NA market - Example 1

You have a media gateway with a maximum reserved endpoints value of 1000 and the GWC node you want to associate with it has only 950 available endpoints. You must reduce the value in the Reserved Terminations: field so that it is less than or equal to the number of available ports on the GWC node, and so that it is also divisible by 24 (based on 24 ports per channel) with no remainder.

950 / 24 = 35 with a remainder of 14 (these are unused ports)

35 x 24 ports per channel = 936 used gateway ports

In this case, the closest you can get to using all 950 available ports on the GWC node is 936, based on allocating 24 ports per channel. This configuration will support 930 carrier endpoints managed by a single GWC node. You must change the endpoint value for that gateway to 936 in the Reserved Terminations: field.



Calculating reserved terminations in the NA market - Example 2

You want to associate four PVG15K media gateways on a single GWC by optimizing the reserved endpoints available for each Media Gateway 7480/15000 without exceeding the available endpoint capacity of the GWC node.

1 Media Gateway 7480/15000 w/1120 max. with reserved endpoints at 1056 (44 X 24)

3 Media Gateways 7480/15000 w/1120 max. with reserved endpoints at 1008 (42 X 24)

This configuration uses 4080 ports with 14 unused gateway ports.

Calculating reserved terminations in the Intl. market - Example 1

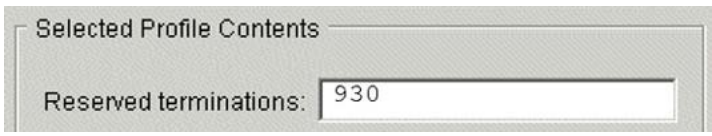
You have a media gateway with a maximum reserved endpoints value of 1000 and the GWC node you want to associate it with has only 950 available endpoints. You must reduce the value in the Reserved Terminations: field so that it is less than or equal to the number of available ports on the GWC node and so that it is also divisible by 31 (based on 31 ports per channel) with no remainder.

950 / 31 = 30 with a remainder of 20 (these are unused ports)

and

30 x 31 ports per channel = 930 used gateway ports

In this case, the closest you can get to using all 950 available ports on the GWC node is 930, based on allocating 31 ports per channel. This configuration will support 930 carrier endpoints managed by a single GWC node. You would change the endpoint value for that gateway to 930 in the Reserved Terminations: field.



Calculating reserved terminations in the Intl. market - Example 2

You want to associate four PVG15K media gateways on a single GWC by optimizing the reserved endpoints available for each Media Gateway 7480/15000 without exceeding the available endpoint capacity of the GWC node:

1 Media Gateway 7480/15000 w/1120 max. with reserved endpoints at 1116 (36 X 31)

3 Media Gateways 7480/15000 w/1120 max. with reserved endpoints at 992 (32 X 31)

This configuration uses 4092 ports with 12 unused gateway ports.

When a media proxy is used

A call involves two GWCs, one controlling the originating part of the call, and the other the terminating part. Both parts may be on the same GWC, but they are separate logical entities. The gateways controlled by each GWC can be located in the carrier network (the VoIP VPN), in the public network, or in an enterprise or residential VPN.

When a call is set up, the system inserts a media proxy whenever the two gateways involved in the call are on different VPNs. The following matrix indicates when a media proxy is used.

Matrix for media proxy usage

GATEWAY LOCATION	In Carrier VPN	In Public Network	In Enterprise or Residential VPN
In Carrier VPN	No MP	MP added: 1 private and 1 public interface	MP added: 1 private and 1 public interface
In Public Network	MP added: 1 private and 1 public interface	No MP	MP added: 2 public interfaces
In Enterprise or Residential VPN	MP added: 1 private and 1 public interface	MP added: 2 public interfaces	No MP if both gateways in same VPN; Otherwise MP added: 2 public interfaces

Associate a small line media gateway (cable market)

Purpose of this procedure

Use this procedure to associate a small line media gateway for the cable market with a specific Gateway Controller (GWC) node. In this case, a policy enforcement point (PEP) or an application layer gateway (ALG) may be included in the topology.

A gateway profile is a definition in the CS 2000 Management Tools database (CS 2000 GWC Manager database) that captures some of the characteristics and capabilities of a gateway device. A profile is chosen when the gateway is being provisioned. The information in the profile is then used to determine compatibility of the GWC node on which the gateway is being provisioned and to assess whether the node can support the added endpoint capacity.

When to use this procedure

Use this procedure when you wish to associate a small line media gateway with a GWC node (in the cable market).

Prerequisites and guidelines

The following guidelines apply to this procedure:

- If the selected GWC has the gateway default domain name configured, you can only associate small line cable gateways with this GWC. No other gateway types can be associated with this GWC. Note that provisioning GWC with the gateway default domain name does not comply to PacketCable Standards or specifications.

  If configured, the GWC default gateway domain name is displayed in the lower right corner of the **Controller** panel (under **Provisioning** tab). Otherwise, the system displays <None>. For more information, see procedure "View characteristics of a GWC node" (page 215).

- When you are configuring the Gateway name field:

  — The name that you enter [media gateway host name or the fully qualified domain name (FQDN)] must be unique within the CS 2000 domain. Duplicate media gateway names cannot exist, even if the media gateways are associated with different GWCs. Table "Line media gateway naming conventions" (page 139) provides detail naming conventions for each gateway profile, including a list of illegal characters that the system rejects.

  — If a gateway default domain name is configured on the GWC, the combined gateway host name and the default domain name cannot exceed 64 characters.

— If a gateway default domain name is not configured on the GWC, the entry in the Gateway name: field (FQDN) cannot exceed 64 characters.

If configured, the GWC default gateway domain name is displayed in the lower right corner of the **Controller** panel (under **Provisioning** tab). Otherwise, the system displays <None>. For more information, see procedure "View characteristics of a GWC node" (page 215).

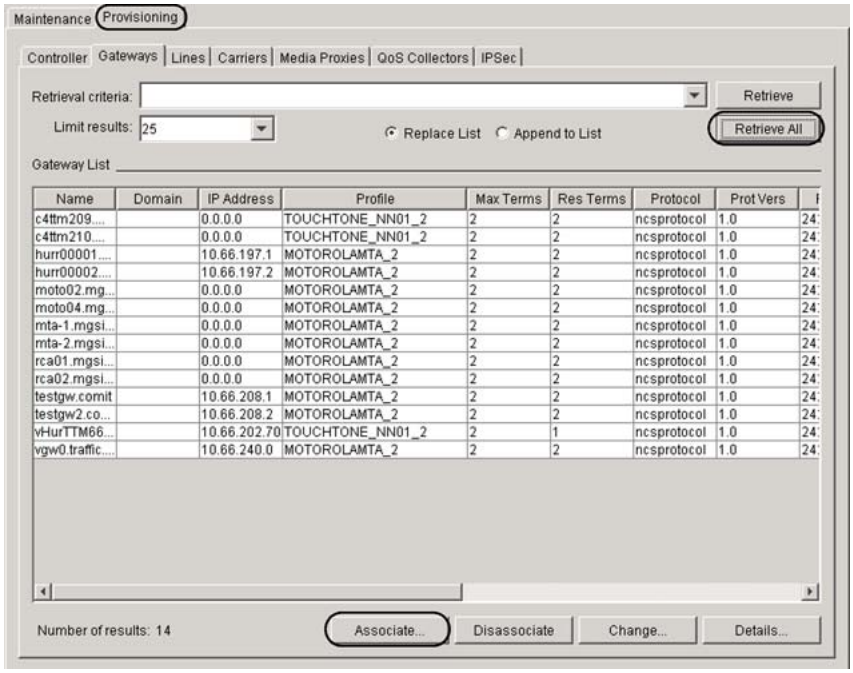
- If you attempt to associate a media gateway with a GWC that has a different service type, the request is rejected. For example, you cannot associate a small line media gateway with a trunk GWC.
- You must ensure that the total number of endpoint terminations required by all media gateways associated to the same GWC node do not exceed the maximum capacity of the GWC. If you attempt to associate a media gateway with a GWC that does not have adequate available capacity, the request is rejected.

  Example: You cannot associate a media gateway with a GWC if the gateway has a maximum-reserved-endpoints value of 4 and the GWC has only 3 available endpoints/TIDs.

  If you wish to verify the total number of endpoints currently reserved for the gateways associated with the selected GWC, click the **Statistics** button under the **Controller** tab of the **Provisioning** panel. If required, see procedure "View characteristics of a GWC node" (page 215).

Action

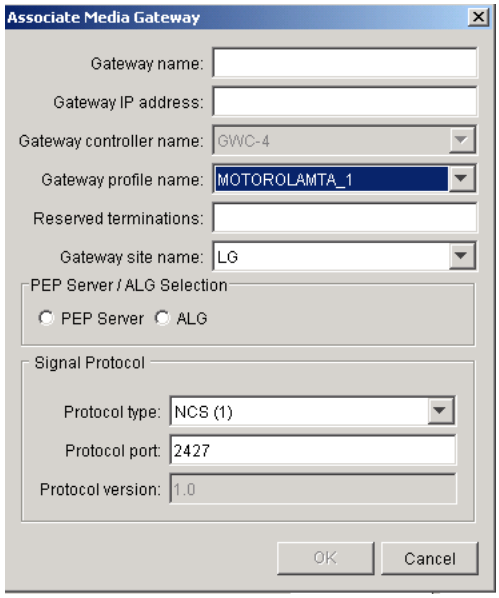
Step	Action
	At a CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree in the far left frame.
2	From the Contents of: Gateway Controller frame, select the GWC node with which you wish to associate a media gateway.
3	Click the **Provisioning** tab.
4	Click the **Gateways** tab. If required, click the **Retrieve All** button to view information about all gateways associated with the selected GWC node. Any newly-created gateways are added to the end of the list.



5 Click the **Associate** button to display the Associate Media Gateway dialog box.

If Domain Name Service (DNS) is not activated on the CS 2000 Management Tools server, or if it is not working properly, you will experience a delay of approximately 1 minute before the Associate Media Gateway dialog box is fully displayed. To configure DNS on the CS 2000 Management Tools server, see *Nortel ATM/IP Solution-level Configuration* (NN10409-500).

6 At the Associate Media Gateway dialog box, datafill all of the attributes for the desired gateway as described in the following steps.



7 In the Gateway profile name: field, select an appropriate line gateway profile name using the drop-down menu. See the following table for details about each small line media gateway profile.

Once a profile is selected, the configuration fields associated with the profile are listed for the user to view.

Ensure that the line gateway is being added to the correct GWC node.

Newly supported gateways may be added to the list and are not shown in this procedure. Not all gateways are supported for every solution and release.

The DOMAIN_NAME profile present in the GWC Manager GUI is not supported.

Small line media gateway profiles and associated attributes (cable market)

Gateway profile name	Gateway category	Signaling protocol type	Protocol version	Default protocol port	Service type	Max. port/ end point capacity
ARRIS_ TOUCHTONE _ NN01_4	small	NCS	1.0	2427	Line, DQoS	4
ARRIS_ TOUCHTONE _ NN02_4	small	NCS	1.0	2427	Line, DQoS	4
MOTOROLA	small	NCS	1.0	2427	Line,	1

Gateway profile name	Gateway category	Signaling protocol type	Protocol version	Default protocol port	Service type	Max. port/ end point capacity
MTA_1					DQoS	
MOTOROLA MTA_2	small	NCS	1.0	2427	Line, DQoS	2
MOTOROLA MTA_4	small	NCS	1.0	2427	Line, DQoS	4
TOUCHTONE_ NN01_1	small	NCS	1.0	2427	Line, DQoS	1
TOUCHTONE_ NN01_2	small	NCS	1.0	2427	Line, DQoS	2
TOUCHTONE_ NN01_3	small	NCS	1.0	2427	Line, DQoS	3
TOUCHTONE_ NN01_4	small	NCS	1.0	2427	Line, DQoS	4

8 In the Gateway name: field, type a name for the line gateway according to the suggested gateway naming conventions described in the following table.

The media gateway name must be unique within the CS 2000. Duplicate media gateway names cannot exist even if the media gateways are associated with different GWCs.

Line media gateway naming conventions

Gateway profile	Suggested gateway naming convention
For all MOTOROLA MTA, TOUCHTONE_NN and ARRIS_TOUCHTONE_NN profiles (except for gateways fully compliant with PacketCable specifications):	
If a default gateway domain name is configured on the selected GWC:	Enter a unique gateway name, which will constitute the <host> part of the fully qualified domain name (FQDN). Use a name suitable for lookup using Domain Name Service (DNS). This host name combined with the default gateway domain name will constitute the FQDN for the gateway (hostname.domain). The whole FQDN can have 1 to 32 segments separated by a "." (period). The required FQDN format is: <name_segment>[.<name_segment>.<name_segment>. ...]. For example: MyGate05.com.AA-BB-CC.a12345. Each segment can contain alphanumeric characters or a "-" (dash), but a dash cannot be the first or the last character.

Gateway profile	Suggested gateway naming convention
	The whole FQDN cannot exceed 64 ASCII characters. For example, if the default domain name contains 50 characters, enter a gateway host name that is no longer than 13 characters. Use only RFC2181-compliant characters. The following characters may not be used in the gateway name: " ‘’ <> = , ; **Example** If the default gateway domain name is nortel.com and the FQDN that you need to configure is gw1_xyz.nortel.com, enter the host name gw1_xyz in the Gateway name: field. The system downloads this entry to table LNENDPT on the Core and it is also used for QoS records. The GWC default gateway domain name is displayed in the lower right corner of the **Controller** panel (under **Provisioning** tab). For more information, see procedure "View characteristics of a GWC node" (page 215).
If a default gateway domain name is not configured on the selected GWC:	Enter a unique name that represents the FQDN for the gateway, suitable for lookup using DNS. The name must be no longer than 64 characters. The following characters may not be used in the gateway name: " ‘’ <> = , ; For all profiles, except ARRIS_TOUCHTONE_NN02_04, apply the following additional guidelines: The name can have 1 to 32 segments separated by a "." (period). The required FQDN format is: <name_segment>.[<name_segment>.<name_segment>. ...] For example: MyGate05.com.AA-BB-CC.a12345 Each segment can contain alphanumeric characters or a "-" (dash), but a dash cannot be the first or the last character. **Example** If the FQDN that you need to configure is gw1_xyz.nortel.com, enter the whole FQDN in the Gateway name: field. The system downloads this whole FQDN to table LNENDPT on the Core and the whole FQDN is used for QoS records.

9 Select the middlebox that you want to assign to the gateway:

- If you wish to assign a policy enforcement point (PEP) server, click the PEP Server radio button. In the newly displayed Gateway PEP server: field, type the name of a PEP server, or type **none** if no PEP server is available.

- If you wish to assign an application layer gateway (ALG), click the ALG radio button. In the newly displayed Gateway ALG: field, type the name of an ALG, or type **none** if no ALG is available.

CAUTION
Possible loss of service
If you want to use an IP address of 0.0.0.0 for the small line gateway that you are associating with the selected GWC, make sure that a Domain Server is configured for that GWC. Otherwise, the line will not recover after the GWC cold switch of activity (SwAct).

For information about how to verify and change basic GWC node configuration values, including Domain Servers IP addresses, see procedure "Manually re-provision GWC cards" (page 102).

10 In the Gateway IP address: field, enter the IP address of the gateway. Use the format: <0-255>.<0-255>.<0-255>.<0-255>

ATTENTION
For gateways in the "small" category, you can type an IP address of "0.0.0.0" in this field. If you type this address, the GWC will attempt to discover the IP address for the gateway, but the line or lines will not recover after a network outage if no Domain Server is configured for the GWC.

If you selected ALG in the previous step, leave this field blank. The system assigns the IP address of 0.0.0.0.

ATTENTION
GWC auto-discovery is incompatible with DQoS, IPSec, and 64-character FQDN. If any GWCs in your network are configured for these services, you must select a GWC node to associate in this procedure; you must not leave the Gateway controller name: field blank.

11 If necessary, in the Gateway controller name: field, select a GWC node with which the gateway is being associated.

If a GWC is not specified, the node provisioning applications automatically discovers a GWC node with which to associate this gateway, using the following criteria:

- The GWC must have the same service type as the media gateway (such as, line, trunk, or audio).
- The GWC must have enough "maximum reserved endpoints" (the potential size of the media gateway).

- The system first searches for a GWC with the default gateway domain name configured. If not found, the system selects a GWC without the default gateway domain name.

The system selects the first GWC that meets these criteria.

12 In the Reserved terminations: field, type the number of reserved terminations (endpoints or ports) to be supported on the gateway.

If you do not assign a value in this field, the system uses the default, which is the maximum number of reserved terminations for the gateway selected.

Table "Small line media gateway profiles and associated attributes (cable market)" (page 138) lists the different capacities for line gateways. The total number required cannot exceed the maximum capacity of a GWC node.

13 In the Gateway site name: field, select a site name from the drop-down list. LG is the default.

14 In the Protocol type: field, select the appropriate gateway protocol type using the drop-down menu.

15 In the Protocol port: field, use the default value provided. Do not change this value.

The Protocol version: field displays the version of the protocol that is applicable to the gateway profile name and the protocol type selected previously.

16 Click the **OK** button to apply the input.

A response dialog box appears indicating that the system is processing the requested change. It can take up to 5 minutes for the change to be processed. During this time a "Timed Out" window may appear. This requires no action. When processing is complete, the response dialog indicates whether the gateway association succeeded or failed. If the association failed, the response dialog indicates the reason why it failed.

17 Repeat this procedure as required for gateways you wish to associate to this or other GWC nodes.

18 The procedure is complete.

—End—

Associate a line media gateway (wireline market)

Purpose of this procedure

Use this procedure to associate a line media gateway for the wireline market with a specific Gateway Controller (GWC) node. In this case, a network service zone may be included in the topology.

A gateway profile is a definition in the CS 2000 Management Tools database (CS 2000 GWC Manager database) that captures some of the characteristics and capabilities of a gateway device. A profile is chosen when the gateway is being provisioned. The information in the profile is then used to determine compatibility of the GWC node on which the gateway is being provisioned and to assess whether the node can support the added endpoint capacity.

You can change some gateway attributes defined by a profile (such as, the maximum endpoint capacity) by changing the profile for the selected gateway. For more information, see procedure "Change gateway attributes" (page 254).

When to use this procedure

Use this procedure when you wish to associate a line media gateway for the wireline market with a GWC node.

Prerequisites and guidelines

The following rules and guidelines apply to this procedure.

Network zones configuration

Network zones, including network address translator (NAT)-type and limited bandwidth links (LBL)-type service zones, must be configured before any media gateways that use the service zones can be associated with a GWC. To add a network zone to the GWC database, follow one of the following procedures:

- "Add an IP-VPN (NAT) zone" (page 315).
- "Add a limited bandwidth link (LBL) zone" (page 330).
- "Add a composite IP-VPN (NAT) and LBL zone" (page 340).

If your network configuration does not include the Policy Controller (Network VCAC status is OFF), all gateways behind a given LBL must be controlled by the same GWC. This restriction does not apply, if the Network VCAC status is ON.

A GWC card provisioned to support small line gateways can accommodate up to 2000 network zones. A GWC card provisioned to support large line gateways can accommodate up to 150 network zones.

Service type

If you attempt to associate a media gateway with a GWC that has a different service type, the request is rejected. For example, you cannot associate a line media gateway with a trunk GWC.

Media gateway name

When you assign a media gateway name, the name must be unique within the CS 2000 domain. Duplicate media gateway names cannot exist, even if the media gateways are associated with different GWC. Table "Line media gateway naming conventions" (page 149) provides detailed naming conventions for each gateway profile, including a list of illegal characters that the system rejects.

Number of endpoint terminations

You must ensure that the total number of endpoint terminations required by all of the media gateways associated to the same GWC node do not exceed the maximum capacity of the GWC. If you attempt to associate a media gateway with a GWC that does not have adequate available capacity, the request is rejected.

Example: You cannot associate a media gateway with a GWC if the gateway has a maximum-reserved-endpoints value of 1000 and the GWC has only 950 available endpoints/TIDs.

If you wish to verify the total number of endpoints currently reserved for the gateways associated with the selected GWC, click the **Statistics** button under the **Controller** tab of the **Provisioning** panel. If required, see procedure "View characteristics of a GWC node" (page 215).

Large line gateways

When associating large line gateways, consider the number and size of associated logical groups (LGRP). Depending on the number of LGRPs and the LGRP size, the number of media gateways that you can associate with the selected GWC changes. The following rules apply:

- gateways with LGRPs size of 1024 - you can associate up to 26 large line gateways
- gateways with LGRPs size of 2048 - you can associate up to 13 large line gateways
- count each LGRP associated with a gateway as one gateway

  Example:

If a media gateway that you want to associate with a GWC has three LGRPs, count this gateway as three gateways.

The total number of provisionable large line gateways (between 13 and 26) depends on the combination of 1024- and 2048-size LGRPs.

Do not use profile AUDIOCODES_6310_LINE - it is not supported.

Media proxies associated with a GWC

No more than eight media proxy groups can be associated with a GWC. If you are associating a media gateway that includes a media proxy group in its network zone hierarchy, and the GWC already has eight media proxy groups, the system rejects the request.

Not all media proxy groups in a network hierarchy are sent to a GWC when you associate a gateway with a GWC. The system searches the gateway's network zone tree and sends only the first media proxy group found in that tree.

A media gateway that does not have any media proxy group assigned through its network zone hierarchy will use the default media proxies associated with a GWC.

Centrex IP Client Manager gateways

To ensure that Centrex IP Client Manager (CICM) gateways support virtual call admission control (VCAC), the procedure to associate a CICM gateway differs from the procedure supporting small line gateways. The CICM procedure is different for the following reasons:

- CICM gateways reside in the telephony service provider (TSP) domain. As a result, a CICM gateway is not ordinarily used in an environment with adjacent network zone.
- CICM endpoints are not fixed lines. CICM users can move from one area of an enterprise to another, from behind one network zone to another.

CICM gateways have a service type of ITRANS_ROAM.

The CICM procedure allows you to identify a set of root (top-level) network zones for CICM gateways. Once the root zones are identified, the CS 2000 GWC Manager will send data for all related zones in the hierarchy to the GWC. This ensures that when a CICM user logs onto the network, all relevant network zones will be available on the GWC.

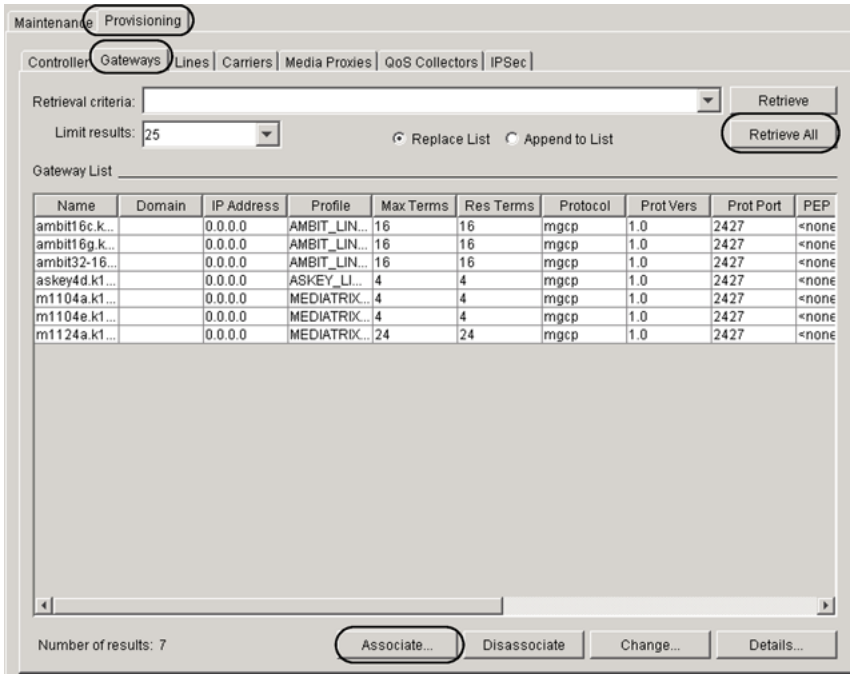
The CS 2000 GWC Manager notifies the GWC card about all zones from the top level zones identified, down through the children to the leaves of the zone tree. The single line of parent zones is also sent to the GWC.

The following guidelines apply to GWCs associated with CICM gateways:

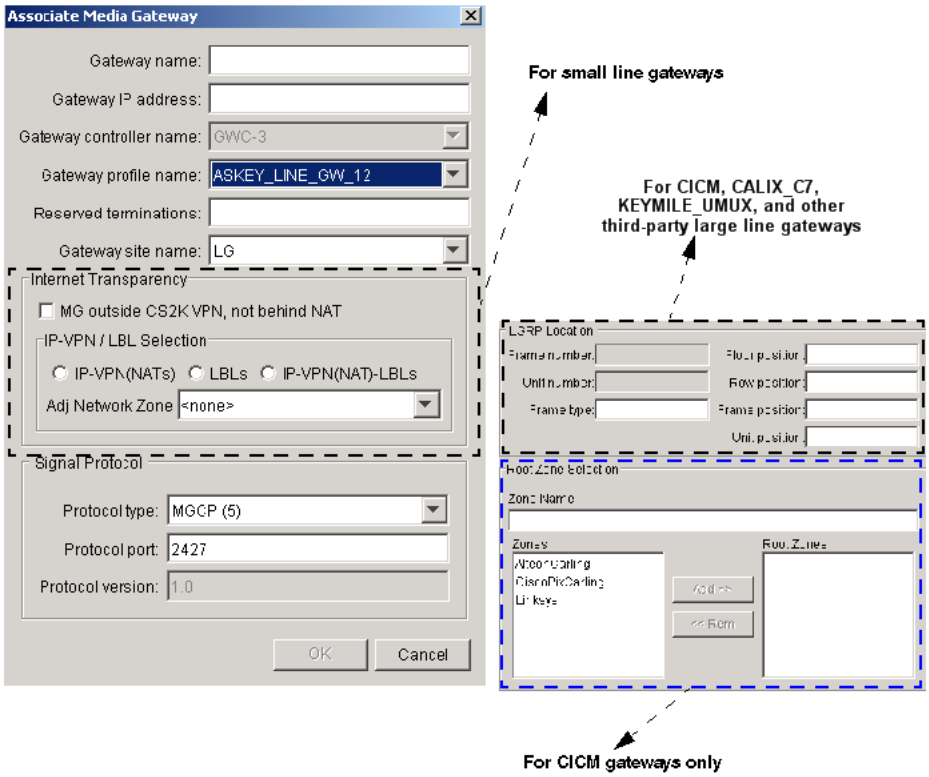
- A maximum of five root zones can be configured on a gateway.
- VCAC will not function if CICM telephony users roam outside the area provisioned with root zones.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree in the far left frame.
2	From the Contents of: Gateway Controller frame, select the GWC node with which you wish to associate a media gateway.
3	Click the **Provisioning** tab.
4	Click the **Gateways** tab. If required, click the **Retrieve All** button to view information about all gateways associated with the selected GWC node. Any newly-created gateways are added to the end of the list.
5	Click the **Associate** button to display the Associate Media Gateway dialog box. If Domain Name Service (DNS) is not activated on the CS 2000 Management Tools server, or if it is not working properly, you will experience a delay of approximately one minute before the Associate Media Gateway dialog box is fully displayed. To configure DNS on the CS 2000 Management Tools server, see *Nortel ATM/IP Solution-level Configuration* (NN10409-500).



6 At the displayed dialog box, datafill all of the attributes for the desired gateway as described in the following steps.



7 In the Gateway profile name: field, select the appropriate line gateway profile name using the drop-down menu.

See the following table for details about line gateway profiles supported by this procedure. Once a profile is selected, the data associated with the profile is displayed.

Ensure that the gateway is being added to the correct GWC node.

Newly supported gateways may be added to the list and are not shown in this procedure. Not all gateways are supported for every solution and release.

The following profiles are present in the GWC Manager GUI but are not supported: OLD_SN06_CICM, AUDIOCODES_6310_LINE.

Line media gateway profiles (wireline market)

Gateway profile name	Gateway category	Signaling protocol type	Protocol version	Default protocol port	Service type	Max. port/ end point capacity
AMBIT_LINE_ GW_16	small	MGCP	1.0	2427	Line, ITRANS	16
ASKEY_LINE_ GW_4	small	MGCP	1.0	2427	Line, ITRANS	4
ASKEY_LINE_ GW_12	small	MGCP	1.0	2427	Line, ITRANS	12
ASKEY_LINE_ GW_30	small	MGCP	1.0	2427	Line, ITRANS	30
AUDCDSMG32LN	large	MEGACO	1.0	2944	Line	384
CALIX_C7	large	MEGACO	1.0	2944	Line	74
CICM	large	MEGACO	1.0	2944	Line, ITRANS _ROAM	3069
KEYMILE_ UMUX	large	MEGACO	1.0	2944	Line	480
MEDIATRIX_ GW_4	small	MGCP	1.0	2427	Line, ITRANS	4
MEDIATRIX_ GW_24	small	MGCP	1.0	2427	Line, ITRANS	24

Gateway profile name	Gateway category	Signaling protocol type	Protocol version	Default protocol port	Service type	Max. port/ end point capacity
MGCP_IAD_40	small	MGCP	1.0	2427	Line, ITRANS	40
MGCP_LINE_ GW_1	small	MGCP	1.0	2427	Line, ITRANS	1

8 In the Gateway name: field, enter a gateway name according to the gateway profile. Use the suggested gateway naming conventions shown in the following table.

The media gateway name must be unique within the CS 2000. Duplicate media gateway names cannot exist even if the media gateways are associated with different GWCs.

Line media gateway naming conventions

Gateway profile	Suggested gateway naming conventions
Use a unique gateway name that represents the gateway FQDN, suitable for lookup using Domain Name Service (DNS). **ATTENTION** The following characters are not valid: " ‘’ <> = , ; Do not include any of these characters. Otherwise, the system rejects your request.	
AMBIT_LINE_GW_16 All ASKEY line gateways All MEDIATRIX line gateways MGCP line gateways	The name can have 1 to 32 fields separated by a "." (period). Each field can contain alphanumeric characters or a "-" (dash), but a dash cannot be the first or the last character. The name must be no longer than 64 characters. Example: gw1_xyz.nortel.com
CALIX_C7	The name must be no longer than 32 characters. It is recommended to use a name similar to the H.248 Interface Group name as it appears in the Calix provisioning interfaces, with the additional requirement to include the C7 network to which the gateway belongs. For example, if a new Calix C7 gateway is being provisioned in the fourth C7 network, the gateway name can be: NET4-N1-1-IG4. If required, contact your network administrator to obtain the correct name.

Gateway profile	Suggested gateway naming conventions
KEYMILE_UMUX AUDCDSMG32LN	The name must be no longer than 32 characters.
CICM	Use the recommended domain name of a Centrex IP Client Manger (CICM) gateway. See the CICM customer documentation to perform this task. The name includes two fields separated by a "-" (dash). The first field is CICM and the second field is a number between 000 to 511, with 0 padded. Example: CICM-005

9 In the Gateway IP address: field, enter the IP address of the gateway. Use the format: <0-255>.<0-255>.<0-255>.<0-255>

CAUTION
Possible loss of service
For gateways in the "small" category, if you want to use an IP address of 0.0.0.0, make sure that a Domain Name Server is configured for the GWC. Otherwise, the line will not recover after the GWC cold switch of activity (SWACT) of after a network outage.

For information about how to verify and change basic GWC node configuration values, including Domain Servers IP addresses, see procedure "Manually re-provision GWC cards" (page 102).

If the gateway is behind an IP-VPN (NAT)-type network zone, specify the IP address on the CallServer side (customer VPN side) of the NAT device.

10

ATTENTION
GWC auto-discovery is incompatible with DQoS, IPSec, and 64-character FQDN. If any GWCs in your network are configured for these services, you must select a GWC node to associate in this procedure; you must not leave the Gateway controller name: field blank.

If necessary, in the Gateway controller name: field, select a GWC node with which the gateway is being associated using the drop-down menu.

If a GWC is not specified, the node provisioning applications will automatically discover a GWC node with which to associate this gateway. The choice of GWC node is based on the service type of the media gateway (small or large line, trunk, or audio) and the endpoint capacity of the media gateway.

11 In the Reserved terminations: field, type the number of reserved terminations (endpoints or ports) to be supported on the gateway.

If you do not assign a value in this field, the system uses the default, which is the maximum number of reserved terminations for the gateway selected.

The different capacities for line gateway appear in the "Line media gateway profiles (wireline market)" (page 148). The total number required cannot exceed the maximum capacity of a GWC node. If more capacity is required, you must provision additional GWCs.

For CICM gateways, the only valid capacity values are: 1023, 2046, 3069.

To calculate the correct number of the reserved terminations or endpoints on your gateway to match the available endpoints on the selected GWC node, see "Changing reserved terminations - examples" (page 155) for a worksheet along with some examples.

12 If applicable, in the Gateway site name: field, select a site name from the pull-down list (LG is the default). This list of site names is from table SITE in Core. The site name can be from 1 to 4 alphanumeric characters, with the first character required to be an alpha character. Chosen site must be able to support manually configured logical groups (LGRP) applicable to the gateway that you are associating. A unique combination of site name, frame number, and unit number form an LGRP - a tuple in table LGRPINV.

Use the following table to determine your next step.

If you are associating a	Do
small line gateway	go to step 13
CICM, CALIX_C7, KEYMILE_UMUX, AUDCDSMG32LN, or another large line gateway that supports displaying physical location of the gateway	go to step 14

13 Configure internet transparency. For information about when a media proxy is inserted (depending on the location of the gateways involved in a call), see section "When a media proxy is used" (page 156).

In the Internet Transparency section of the dialog box, complete *one* of the following actions described in the following table (based on the specific conditions).

If the gateway is	Do
• outside the CS 2000 carrier network • outside the enterprise VPN • not behind a network zone: IP-VPN (NAT), LBL, or composite NAT-LBL	Select the check box "MG outside CS2K VPN, not behind NAT" and do not assign a zone.
The gateway is in the public network. In this case, the gateway network zone name is set to a value of "outside the telecom service provider domain". The Adj ITRANS MB column in the Gateway List appears as "outtsp" for any gateways in this category.	
• outside the CS 2000 carrier network • inside an enterprise VPN • behind a network zone: IP-VPN (NAT), LBL, or composite NAT-LBL	Do not select the check box "MG outside CS2K VPN, not behind NAT". Instead, select the name of an adjacent network zone in the Adj ITRANS Zone text field Complete the following steps: 1. Select the radio button for IP-VPN(NATs), LBLs, or IP-VPN(NAT)-LBLs to restrict your search. 2. Click in the Adj Network Zone field. 3. If desired, type text characters of a zone name in the field to fine tune your display. The system displays all network zones with a name that matches the characters you typed. 4. Select adjacent network zone for the gateway from the list in the drop-down menu. You can only select network zone names that are configured and appear in the Network Zones view of the CS 2000 GWC Manager. If required, see procedure "Review available network devices" (page 91).

If the gateway is	Do
The gateway is in the residential or enterprise VPN. In this case, the gateway network zone name is set to the NAT-type or LBL-type zone name. The Adj ITRANS MB column in the Gateway List appears as <zone name> for any gateways in this category.	
• inside the CS 2000 carrier network	Do not select the check box "MG outside CS2K VPN, not behind a NAT" and do not assign a network zone.
The gateway is in the carrier VPN. In this case, the gateway network zone name is omitted (not used). The Adj ITRANS MB column in the Gateway List appears as "<none>".	

Continue with step 16.

14 If you selected a profile that supports displaying physical location of the gateway, the Associate Media Gateway dialog box includes the LGRP Location section.

This option is only available for the gateway profiles appropriately defined in their certificate files. Currently, only CICM, CALIX_C7, and large line gateway profiles defined as third-party gateways (including KEYMILE_UMUX and AUDCDSMG32LN) support this option. For more information about creating gateway certificate files, see procedure "Add a certificate file for a third-party gateway" (page 243).

For CICM gateways, fields Frame number: and Unit number: are not available.

Enter the physical location data for the selected gateway, as described in the following table.

For all the fields described in the following table as Optional, you must either not datafill any of them, or datafill all of them. You cannot datafill some and leave the other blank.

Field	Values	Description
Frame number	0 to 511	Enter the logical frame number. Does not apply to CICM profile.
Unit number	0 to 9	Enter the logical unit number. Does not apply to CICM profile.

Field	Values	Description
Frame type	alphanumeric characters	Optional. Enter the unique frame type name. For MG9K gateways, the only valid entry is MG9F.
Floor position	0 to 99	Optional. Enter a number to identify the unique floor within a unique Site (generally a building).
Row position	A...Z, AA...ZZ	Optional. Enter a value (from A...Z to AA...ZZ) to identify the unique row within a floor.
Frame position	0 to 99	Optional. Enter a number to identify the unique frame position within a row.
Unit position	0 to 77	Optional. Enter a number to identify the unique shelf position within a specific frame.

If you are associating a CICM gateway, continue with step 15. Otherwise, go to step 16

15 Select root network zones. In the Root Zone Selection dialog box, complete the following steps:

a. From the Zones list, select a root network zone that interacts with the gateway.

   If desired, type text characters in the Zone Name: field to display a specific group of zones. The system displays all zones with a name that matches the characters you type.

b. Click the **Add >>** button to add your selection to the list of Root Zones.

c. Repeat the two previous steps until you have a complete list of root zones.

   A maximum of five root zones can be configured on a gateway.

d. If desired, you can remove a zone from the Root Zones list. Select a zone and click the **<< Rem** button.

   As a result of this configuration, the CS 2000 GWC Manager notifies the GWC card about all zones: from the top-level zones identified, down through the children to the leaves of the zone

tree. The single line of parent zones is also sent to the GWC. All media proxy groups associated with any zone in the zone tree are also sent to the GWC.

16 In the Protocol type: field, select the appropriate gateway protocol type using the drop-down menu.

17 In the Protocol port: field, use the default value provided. Do not change this value.

The Protocol version: field displays the version of the protocol that is applicable to the gateway profile name and protocol type selected previously.

18 Click **OK** to apply the input.

A response dialog box appears indicating that the system is processing the requested change. When processing is complete, the response dialog indicates whether the gateway association succeeded or failed. If the association failed, the response dialog indicates the reason why it failed.

19 Repeat this procedure as required for other line gateways you wish to associate to this or other GWC nodes.

20 The procedure is complete.

—End—

Changing reserved terminations - examples

You must ensure that the total number of endpoint terminations required by all of line media gateways associated to the same GWC node do not exceed the capacity of the GWC. If they do, the last media gateway association activity will fail.

When a gateway profile is selected, the value specified in the Maximum Reserved Endpoints window will change to indicate the maximum number of endpoints allowed for that profile. This number can be lowered if all of the endpoints are not being used, Otherwise, do not change this number.

If you are attempting to use the maximum number of available ports on your GWC node, you must perform the following calculations:

- Calculate the total number of ports allocated used by all gateways currently associated to the GWC node, then subtract that number from the maximum capacity number of the selected GWC node. The remainder value represents the maximum number of endpoints that can be reserved for the gateway you are associating.

- When you associate the gateway, reduce the value in the Reserved Terminations: field to the value calculated previously.

When a media proxy is used

A call involves two GWCs, one controlling the originating part of the call, and the other the terminating part. Both parts may be on the same GWC, but they are separate logical entities. The gateways controlled by each GWC can be located in the carrier network (the VoIP VPN), in the public network, or in an enterprise or residential VPN.

When a call is set up, the system inserts a media proxy whenever the two gateways involved in the call are on different VPNs. The following matrix indicates when a media proxy is used.

Media proxy is required whenever one of the endpoints is a SIP line.

Matrix for media proxy usage

GATEWAY LOCATION	In Carrier VPN	In Public Network	In Enterprise or Residential VPN
In Carrier VPN	No MP	MP added: 1 private and 1 public interface	MP added: 1 private and 1 public interface
In Public Network	MP added: 1 private and 1 public interface	No MP	MP added: 2 public interfaces
In Enterprise or Residential VPN	MP added: 1 private and 1 public interface	MP added: 2 public interfaces	No MP if both gateways in same VPN; Otherwise MP added: 2 public interfaces

Associate a Session Server virtual gateway for SIP Lines

Purpose of this procedure

Use this procedure to associate a CS 2000 Session Server Lines gateway (also referred to as Virtual Media Gateway - VMG) with a specific Gateway Controller (GWC) node. This procedure is part of the network configuration process to support the Session Server SIP Lines functionality.

Associating Session Server Lines (SSL) VMG with the GWC is necessary to establish a link between the SSL and the GWC for SIP Lines processing. For information about SIP Lines network configuration, see *Nortel Session Server Lines Fundamentals* (NN10437-111).

When to use this procedure

Use this procedure when you wish to associate a SSL VMG with a GWC node to be used for the SIP Lines service.

This gateway can co-exist on the GWC with the Centrex IP Client Manager (CICM), defined by the CICM profile.

Prerequisites and guidelines

The following prerequisites and guidelines apply to this procedure:

- The selected GWC controller must support the SIP Lines functionality, that is, it must be configured with one of the following service profiles:
  - LARGE_LINENA_V2
  - LARGE_LINEINTL_V2
  - LINE_TRUNK_AUD_NA
  - LINE_TRUNK_AUD_INTL
- You can associate more than one VMG with each GWC, but each VMG must refer to a different SSL Manager.
- For all GWCs, you can only provision one SIP VMG at a time. If you attempt to associate multiple SIP gateways with multiple GWCs at the same time, all provisioning sessions may fail.
- While associating a VMG, make sure that there are no OSSGate sessions running. Otherwise, these sessions may fail.
- For each VMG, you can configure up to 12 logical groups (LGRP) with 1023 endpoints each, for a maximum of 12 276 endpoints. However, if you associate more than one VMG with a selected GWC, these

endpoints must be distributed between all associated VMGs. Each GWC supports up to 12 276 lines, that is, 12 LGRPs.

- Site names used to identify LGRPs must first be defined in table SITE in the CS 2000 Core.
- You must ensure that the total number of endpoint terminations required by all of the media gateways associated to the same GWC node do not exceed the GWC capacity. If you attempt to associate a media gateway with a GWC that does not have adequate available capacity, the request is rejected.

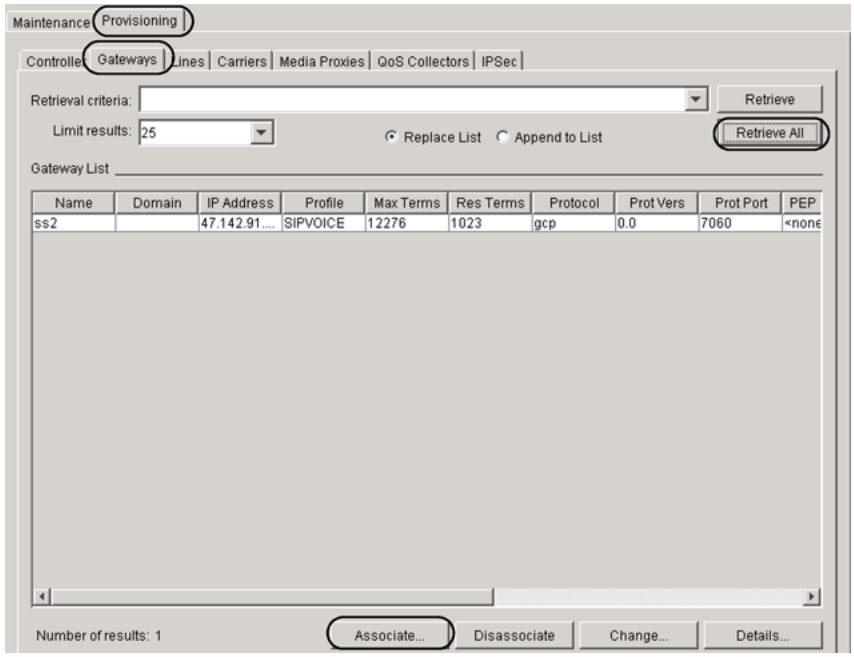
  Example: You cannot associate a media gateway with a GWC if the gateway has a maximum-reserved-endpoints value of 1000 and the GWC has only 950 available endpoints/TIDs.

  If you wish to verify the total number of endpoints currently reserved for the gateways associated with the selected GWC, click the **Statistics** button under the **Controller** tab of the **Provisioning** panel. If required, see procedure "View characteristics of a GWC node" (page 215).
- You must know the IP address of the SSL Manager.

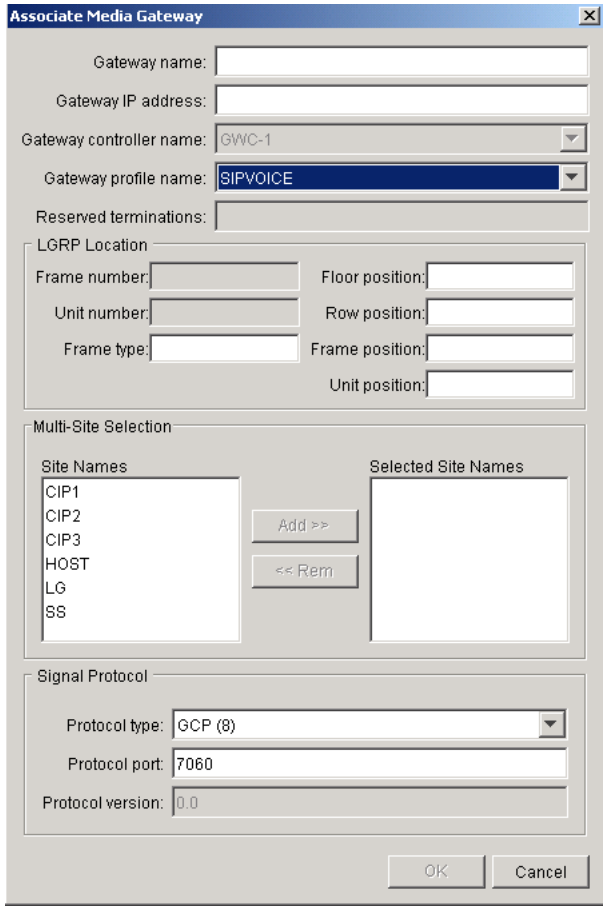
Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree in the far left frame.
2	From the Contents of: Gateway Controller frame, select the GWC node with which you wish to associate a media gateway.
3	Click the **Provisioning** tab.
4	Click the **Gateways** tab. If required, click the **Retrieve All** button to view information about all gateways currently associated with the selected GWC node. Any newly-created gateways are added to the end of the list.
5	Click the **Associate** button to display the Associate Media Gateway dialog box. If Domain Name Service (DNS) is not activated on the CS 2000 Management Tools server, or if it is not working properly, you will experience a delay of approximately one minute before the

Associate Media Gateway dialog box is fully displayed. To configure DNS on the CS 2000 Management Tools server, see *Nortel ATM/IP Solution-level Configuration* (NN10409-500).



6 At the Associate Media Gateway dialog box, click the Gateway profile name: field and from the drop-down list, select the SIPVOICE profile. The system displays additional fields associated with this profile.



7 Configure all remaining fields as described in the following table.

Associate Media Gateway configuration fields

Configuration field	Description
Gateway name:	Enter a unique gateway name that represents the gateway fully qualified domain name (FQDN), suitable for lookup using Domain Name Service (DNS). The name must be no longer than 32 characters and must not include any of the following characters: " ‘’ <> = , ; Use the same name when associating the VMG with the SSL Manager. For more information, see procedure "Integrating Gateway Controllers and Session Server Lines" in *Nortel Session Server Lines Fundamentals* (NN10437-111).
Gateway IP address:	Enter the IP address of the SSL Manager. Use the following format: <0-255>.<0-255>.<0-255>.<0-255>

Configuration field	Description
Gateway Controller name:	**ATTENTION** GWC auto-discovery is incompatible with DQoS, IPSec, and 64-character FQDN. If any GWCs in your network are configured for these services, you must select a GWC node to associate in this procedure; you must not leave the Gateway controller name: field blank. If not pre-selected, select a GWC node with which the gateway is being associated using the drop-down menu. If a GWC is not specified, the node provisioning applications automatically discovers a GWC node with which to associate this gateway. The choice of GWC node is based on the service type of the media gateway (line, trunk, or audio) and the endpoint capacity of the media gateway.
Reserved terminations:	This field displays the total number of reserved terminations (endpoints or ports) to be supported on the gateway. It is auto-datafilled based on the number of Selected Site Names, for a maximum of 12 276 endpoints (12 site names).
In the LGRP Location section:	
Use the enabled fields in this section to provide the physical equipment location of the gateway. These fields are optional but you must either not datafill any of them, or datafill all of them. You cannot datafill some and leave the others blank.	
Frame type:	Enter a unique frame type name (alphanumeric character string).
Floor position:	Enter a number (0 to 99) to identify the unique floor within a unique Site (generally a building).
Row position:	Enter a letter (from A...Z to AA...ZZ) to identify the unique row within a floor.
Frame position:	Enter a number (0 to 99) to identify the unique frame position within a row.
Unit position:	Enter a number (0 to 77) to identify the unique shelf position within a specific frame.
In the Multi-Site Selection section:	
Site Names	This field lists all the site names defined in table SITE in the CS 2000 Core.

Configuration field	Description
Selected Site Names	This field lists all the site names selected for SIP lines. Each site name represents one LGRP. Each LGRP is provisioned in table LGRPINV and represents 1023 endpoints. You can select up to 12 site names (LGRPs). You can choose all different names or use the same name more than once. If you plan to associate more than one VMG with the selected GWC, the endpoints must be distributed between all associated VMGs. Each GWC supports up to 12 276 lines, that is, 12 LGRPs. Complete the following steps to add LGRPs (sites) to the gateway: 1. Select a name from the Site Names list on the left. 2. Click the **Add** button. The name appears in the Selected Site Names list on the right and the Reserved terminations: field increments by 1023. 3. Repeat the two previous steps for each additional site that you want to add. If you wish to revert your choice, select the name in the Selected Site Names list and click the **Rem** button. This action removes the site from the list on the right and decrements the Reserved terminations field by 1023.
In the Signal Protocol section:	
Protocol type:	Use the default value provided. Do not change this value.
Protocol port:	Use the default value provided. Do not change this value.
Protocol version:	This field displays the version of the protocol that is applicable to the gateway profile name and protocol type.

8 Click **OK** to apply the input.

A response dialog box appears indicating that the system is processing the request. This operation can take up to 1 h depending on the number of selected LGRPs. When processing is complete, the response dialog indicates whether the gateway association succeeded or failed. If the association fails, the response dialog indicates the reason why it failed.

9 Verify the addition of the gateway to the database. If required, see procedure "View gateway provisioning data for a GWC node" (page 219).

10 The procedure is complete.

—End—

Associate an H.323 media gateway

Purpose of this procedure

Use this procedure to associate an H.323 media gateway or gatekeeper with a selected Gateway Controller (GWC) node, with or without a network zone in the configuration. H.323 gateways provide connectivity to multiple enterprise VPNs as well as gatekeeper functionality between a Carrier VoIP network and an external network using H.323 signaling protocol.

A GWC gateway profile is a definition in the CS 2000 GWC Manager database that captures some of the characteristics and capabilities of a gateway device. A profile is selected when the gateway is configured on the GWC node. The information in the profile is then used to determine compatibility with the GWC node on which the gateway is being configured and to assess whether the node can support the added endpoint capacity.

A CS 2000 H.323 gatekeeper in a carrier network is interoperable with H.323 gatekeepers in an external network. For more information, see "Configuration details for H.323 gatekeeper functionality" (page 176).

You can change some gateway attributes defined by a profile (such as, the maximum endpoint capacity) by changing the profile for the selected gateway. For more information, see procedure "Change gateway attributes" (page 254).

When to use this procedure

Use this procedure when you wish to associate a specific H.323 type media gateway or gatekeeper with a GWC node.

Prerequisites and guidelines

Prerequisites

Network zones must be configured before any media gateways that use these service zone are associated to a GWC. (This includes enterprise-side zones.) If required, add a network zone to the GWC database using one of the following procedures:

- "Add an IP-VPN (NAT) zone" (page 315).
- "Add a limited bandwidth link (LBL) zone" (page 330).
- "Add a composite IP-VPN (NAT) and LBL zone" (page 340).

Guidelines

The following guidelines apply to this procedure:

- If you attempt to associate a media gateway with a GWC that has a different service type, the request is rejected. For example, you cannot associate a line media gateway with a trunk GWC.
- A media gateway name must be unique within the CS 2000 domain. Duplicate media gateway names cannot exist, even if the media gateways are associated with different GWC.
- You must ensure that the total number of endpoint terminations required by all H.323 media gateways associated with the same GWC node does not exceed the following values:
  - 1024 ports - International installations
  - 1032 ports - North American installations
- If you attempt to associate a media gateway with a GWC that does not have adequate available capacity, the request is rejected. For information about calculating available GWC capacity, see section "Assigning reserved terminations" (page 175).

  If you wish to verify the total number of endpoints currently reserved for the gateways associated with the selected GWC, click the **Statistics** button under the **Controller** tab of the **Provisioning** panel. If required, see procedure "View characteristics of a GWC node" (page 215).
- Carriers (endpoint groups) for H.323 gateways are added manually to permit greater flexibility in carrier provisioning. For information about adding carriers to H.323 gateways, see procedure "Add carriers to a GWC" (page 186).
- After adding an H.323 gateway to the GWC database, you must also perform additional provisioning of endpoint groups in the Core database. For information about how to perform this task, see the *CS 2000 Configuration Management* NTP applicable to your solution.
- No more than eight media proxy groups can be associated with a GWC. If you are associating a media gateway that includes a media proxy group in its network zone hierarchy, and the GWC already has eight media proxy groups, the system rejects the request.

  Not all media proxy groups in a network hierarchy are sent to a GWC when you associate a gateway with a GWC. The system searches the gateway's network zone tree and sends only the first media proxy group found in that tree. A media gateway that does not have any media proxy group assigned through its network zone hierarchy will use the default media proxies associated with a GWC.

- For Carrier Hosted Services (CHS) solutions, you have an option to configure an H.323 gateway or a gatekeeper in a RAS-less mode - an operation mode in which no registration, admission, and status (RAS) messages are exchanged between a gateway and a GWC.

  The following limitations and restrictions apply to the RAS-less functionality:

  — The gateway profile H323_PROXY does not support the RAS-less functionality.

  — The RAS-less functionality is supported only for H.323 gateways that are not behind a NAT or are behind a NAT in a 1:1 (one-to-one) configuration. A 1:1 configuration means that a NAT is configured to translate an IP address only, and each gateway uses one and only one IP address.

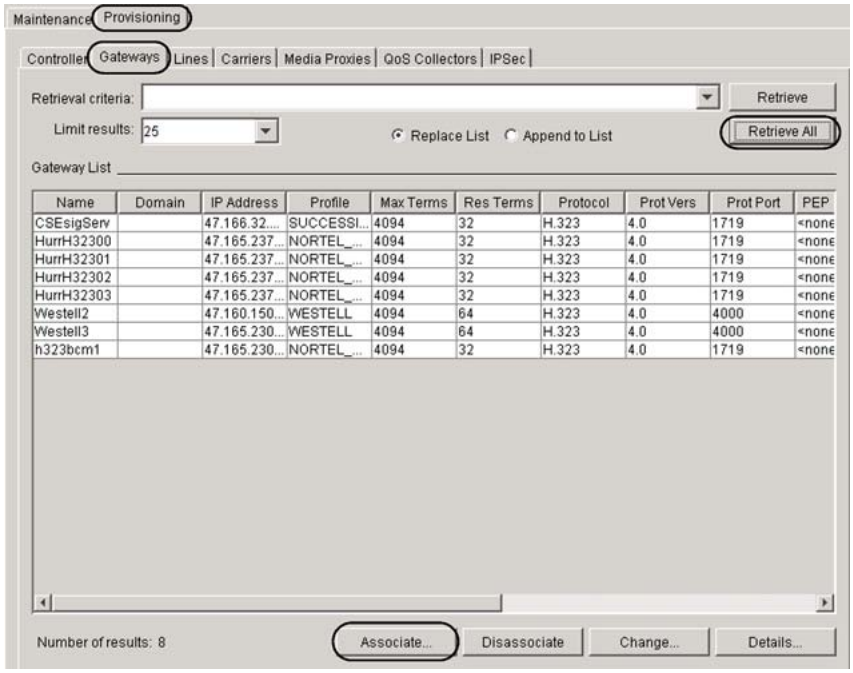
  — If you wish to configure an H.323 gateway or gatekeeper in a RAS-less mode without a NAT, the protocol port value defined during this procedure must match the call signaling (CS) port value configured on that gateway.

  — For a RAS-less H.323 gateway behind a NAT in a 1:1 configuration, you must configure the Protocol port field to a value other than 0 (zero). The non-zero port value configured during this procedure must be mapped through the NAT to the gateway's CS port value.

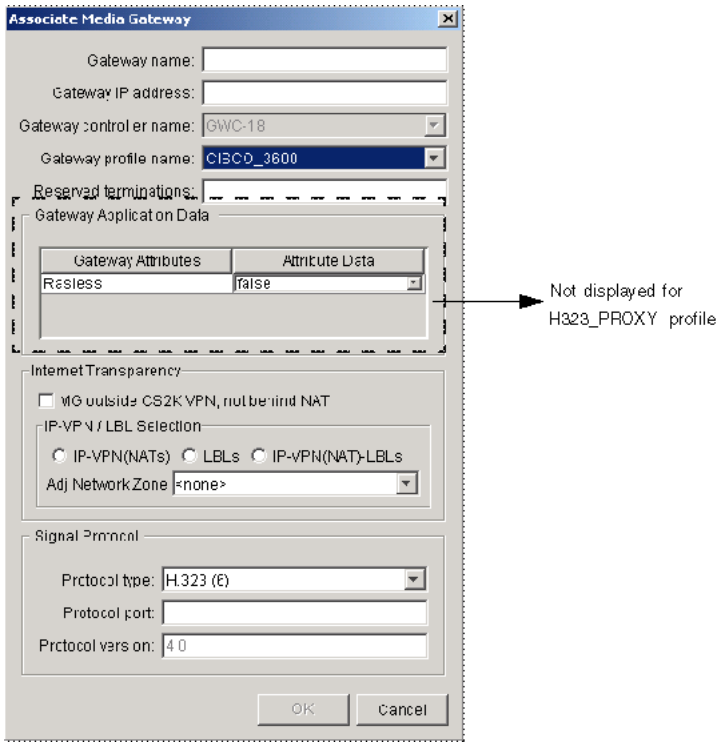
Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree.
2	From the Contents of: Gateway Controller frame, select the GWC node to which you wish to associate a media gateway.
3	Click the **Provisioning** tab, then the **Gateways** tab. If required, click the **Retrieve All** button to view information about all gateways associated with the selected GWC node. Any newly-created gateways are added to the end of the list.
4	Click the **Associate** button to display the Associate Media Gateway dialog box. If Domain Name Service (DNS) is not activated on the CS 2000 Management Tools server, or if it is not working properly, you will experience a delay of approximately 1 minute before the Associate

Media Gateway dialog box is fully displayed. To configure DNS on the CS 2000 Management Tools server, see *Nortel ATM/IP Solution-level Configuration* (NN10409-500).



5 At the Associate Media Gateway dialog box, datafill all of the attributes for the desired gateway as described in the following steps.



6 In the Gateway profile name: field, select the appropriate H.323 gateway profile name using the drop-down menu.

See the following table for details about H.323 gateway profiles supported by this procedure. Once a profile is selected, the data associated with the profile is displayed.

Ensure that the gateway is being added to the correct GWC node.

Newly supported gateways may be added to the list and are not shown in this procedure. Not all gateways are supported for every solution and release. Contact your Nortel account prime for details on the specific gateways supported for each profile.

The gateway profile H323_PROXY is used only for CS 2000 H.323 gatekeeper scenarios. For more information, see section "Configuration details for H.323 gatekeeper functionality" (page 176).

H.323 media gateway profiles

Gateway profile name	Gateway category	Signaling protocol	Protocol version	Protocol port	Service type	Max. port/ endpoint capacity
Use the following guidelines, when associating an H.323 gateway with a GWC: **Protocol port values** • Use a value of **0** for auto-discovery. This option enables the system to discover the protocol port when the gateway registers. Use this value for all CISCO profiles and for H.323_PROXY. or • Use the specific port value of the static bind that has been configured on the NAT for the H.323 gateway. Do not use the port value of 1719. • For gateways in RAS-less mode, use a non-zero value. This value must match the gateway's call signaling (CS) port value (for gateways without a NAT) or must be mapped through the NAT to the gateway's CS port value (for gateways behind a NAT in a 1:1 configuration). **Endpoint capacity values** For H.323 gateways, the endpoint capacity indicated is a recommended value based on the GWC capacity. The actual supported endpoint capacity depends on the details of your specific installation. For all H.323 profiles listed, see the corresponding product documentation to determine the recommended endpoint maximum supported on a specific gateway. For all H.323 gateway profiles, the recommended endpoint capacity values are: • 1032 (NA) • 1024 (Intl)						
CISCO_2600	large	H.323	4.0	0	H.323, ITRANS	See the preceding notes.
CISCO_3600	large	H.323	4.0	0	H.323, ITRANS	
CISCO_ AS5300	large	H.323	4.0	0	H.323, ITRANS	
CISCO_ H323_IOS	large	H.323	4.0	0	H.323, ITRANS	
H323_ PROXY	large	H.323	4.0	0	H.323, ITRANS	
NORTEL _BCM	large	H.323	4.0	1719	H.323, ITRANS	

Gateway profile name	Gateway category	Signaling protocol	Protocol version	Protocol port	Service type	Max. port/ endpoint capacity
SUCCESSION _1000	large	H.323	4.0	1719	H.323, ITRANS	
WESTELL	large	H.323	4.0	1719	H.323, ITRANS	

7 In the Gateway name: field, type up to 32 characters followed by a space. The following characters are not valid:
" ‘’ <> = , ;
Do not use any of these characters. Otherwise, the system rejects your request.

Example: custH323Gateway

The media gateway name must be unique within the CS 2000 domain. Duplicate media gateway names cannot exist even if the media gateways are associated with different GWCs.

8 In the Gateway IP address: field, type the IP address of the gateway. Use the following format:
<0-255>.<0-255>.<0-255>.<0-255>

If the gateway is behind a NAT-type network zone, specify the IP address on the CS 2000 side of the NAT device.

The H.323 gateways can share the same IP address. For CS 2000 H.323 gatekeeper to H.323 gatekeeper configuration using the H323_PROXY gateway profile, the IP address is shared and both gateways are configured with Protocol port 0. (See step 14 in this procedure.)

9

ATTENTION
GWC auto-discovery is incompatible with DQoS, IPSec, and 64-character FQDN. If any GWCs in your network are configured for these services, you must select a GWC node in this procedure; you must not leave the Gateway controller name: field blank.

If necessary, in the Gateway controller name: field, select a GWC node with which the gateway is being associated.

If a GWC is not specified, the node provisioning application will automatically discover a GWC node with which to associate this gateway. The choice of GWC node is based on the service type of the media gateway (line, H.323, trunk, or audio) and the endpoint capacity of the media gateway.

10 In the Reserved terminations: field, enter a value for the reserved terminations, up to the maximum indicated in the specific gateway manufacturer's documentation.

If you are configuring a GWC node as a CS 2000 H.323 gatekeeper, see section "Configuration details for H.323 gatekeeper functionality" (page 176) for information about how to configure reserved terminations for the following gateways:

- a carrier gateway
- an external gateway

Table "Configuration required for H.323 gatekeeper functionality" (page 178) contains configuring details for GWC H.323 gatekeeper scenarios.

The following guidelines apply to H.323 gateways:

- The range of valid reserved terminations for an H.323 gateway is (inclusive):
  - 4 to 1032: in North American market
  - 4 to 1024: in International market
- The value entered in the Reserved terminations: field must be equal to, or greater than, the total sum of values entered in the Number of ports: field of the Add Carrier dialog box for all carriers assigned to the gateway. See procedure "Add carriers to a GWC" (page 186).
- See "H.323 media gateway profiles" (page 169) for endpoint capacities of supported H.323 gateways. For H.323 gateways, the endpoint capacity indicated is a recommended value. The endpoint capacity supported depends on your specific installation.

Use the following table to determine your next step.

If you wish to configure the gateway	Do
in a RAS-less mode: no registration, admission, and status (RAS) messages are exchanged between a gateway and a GWC	go to step 11
in a mode where RAS messages are exchanged between a gateway and a GWC	go to step 12

11 In the Gateway Application Data section, under the Attribute Data heading, click the field beside the "Rasless" Gateway Attribute and select "true" from the drop-down menu.

The "true" value activates the RAS-less functionality for the gateway that you are associating.

The default setting is "false".

12 In the Internet Transparency section of the dialog box, complete one of the actions described in the following table (based on the specific conditions).

If you are configuring a GWC node as a CS 2000 H.323 gatekeeper, see section "Configuration details for H.323 gatekeeper functionality" (page 176). Table "Configuration required for H.323 gatekeeper functionality" (page 178) contains configuration details for GWC H.323 gatekeeper scenarios.

For information about when a media proxy is inserted (depending on the location of the gateways involved in a call), see section "When a media proxy is used" (page 179).

If the gateway is	Do
• outside the CS 2000 carrier network • outside the enterprise VPN • not behind a network zone: IP-VPN (NAT), LBL, or composite NAT-LBL	Select the check box "MG outside CS2K VPN, not behind a NAT" and do not assign a zone.

If the gateway is	Do
The gateway is in the public network. In this case, the gateway network zone name is set to a value of "outside the telecom service provider domain". The Adj ITRANS MB column in the Gateway List appears as "outtsp" for any gateways in this category. In this scenario, for gateways with the Rasless attribute set to "true", the protocol port value defined during this procedure must match the call signaling (CS) port value configured on that gateway.	
• outside the CS 2000 carrier network • inside an enterprise VPN • behind a network zone: IP-VPN (NAT), LBL, or composite NAT-LBL	Do not select the check box "MG outside CS2K VPN, not behind a NAT". Instead, select the name of an adjacent network zone in the Adj Network Zone text field. Complete the following steps: 1. Select the radio button for IP-VPN(NATs), LBLs, or IP-VPN(NAT)-LBLs to restrict your search. 2. Click in the Adj Network Zone field. 3. If desired, type text characters of a zone name in the field to fine tune your display. The system displays all zones with a name that matches the characters you typed. 4. Select adjacent network zone for the gateway from the list in the drop-down menu. You can only select network zone names that are datafilled and appear in the Network Zones view of the CS 2000 GWC Manager. If required, see procedure "Review available network devices" (page 91).
The gateway is in the enterprise or residential VPN. In this case, the gateway network zone name is set to the NAT-type, LBL-type, or composite NAT-LBL zone name. The Adj ITRANS MB column in the Gateway List appears as <zone name> for any gateways in this category.	

If the gateway is	Do
• inside the CS 2000 carrier network	Do not select the check box "MG outside CS2K VPN, not behind a NAT" and do not assign a network zone.
The gateway is in the carrier VPN. In this case, the gateway network zone name is omitted (not used). The Adj ITRANS MB column in the Gateway List appears as "<none>". In this scenario, for gateways with the Rasless attribute set to "true", the protocol port value defined during this procedure must match the call signaling (CS) port value configured on that gateway.	

13 In the Protocol type: field, select the appropriate gateway protocol type from the drop-down menu.

The system restricts the protocol type options to those compatible with the gateway profile name selected previously.

14

ATTENTION

All gateways that use the following gateway profiles must be configured with signaling protocol port 0:

- H323_PROXY
- CISCO_2600
- CISCO_3600
- CISCO_AS5300
- CISCO_H323_IOS

A protocol port value of 0 enables the system to discover the protocol port when the gateway registers.

For more information about gatekeeper configuration, see table "Configuration required for H.323 gatekeeper functionality" (page 178)

In the Protocol port: field, type the protocol port to be used by the gateway.

This field identifies the port number for the gateway's RAS protocol channel corresponding to the static bind at the enterprise NAT.

There is no default value for this field. You must type a value.

Assign a value in this field based on the following guidelines:

- Type a value of 0 for auto-discovery. This value enables the system to discover the protocol port when the gateway registers.

  or

- Type the specific port value of the static bind that has been configured on the NAT for the H.323 gateway. Do not use the port value of 1719.

For gateways with the Rasless attribute set to "true" (RAS-less mode), use the following guidelines - applicable only to H.323 gateways without NAT or with a NAT configuration of 1:1; in CSH solutions only:

- Use a non-zero value.
- For gateways without a NAT, this value must match the gateway's call signaling (CS) port value.
- For gateways behind a NAT in a 1:1 configuration, the gateway's CS port value must be statically mapped on the NAT to make the value public to the H.323 GWC. Use this public, statically mapped port value of the bind on the NAT to configure this field.

The Protocol version: field displays the version of the protocol that is applicable to the gateway profile name selected previously.

15 Click **OK** to apply the input.

A response dialog box appears indicating that the system is processing the requested change. It can take up to 5 minutes for the change to be processed. During this time a "Timed Out" window may appear. This requires no action. When processing is complete, the response dialog indicates whether the gateway association succeeded or failed. If the association failed, the response dialog indicates the reason why it failed.

16 Repeat this procedure as required for other H.323 gateways you wish to associate with this or other GWC nodes.

17 Verify the addition of the gateway to the database by referring to procedure "View gateway provisioning data for a GWC node" (page 219).

18 The procedure is complete.

—End—

Assigning reserved terminations

You must ensure that the total number of endpoint terminations required by all of the H.323 media gateways associated with the same GWC node does not exceed the following values:

- 1032 ports - North American market

- 1024 ports - International market

Any media gateway associations that exceed these limits will fail.

You must enter a value in the Reserved terminations: field when associating an H.323 media gateway with a GWC. The endpoint capacity indicated in "H.323 media gateway profiles" (page 169) is a recommended value. The endpoint capacity supported depends on your specific installation.

If you are attempting to use the maximum number of available ports on your GWC node, you must perform the following calculations:

1. Calculate the total number of ports used by all H.323 gateways currently associated with the GWC node. Then, subtract that number from

   - 1032 (NA)
   - 1024 (Intl)

   The remainder represents the maximum number of endpoints that can be allocated to an additional gateway.

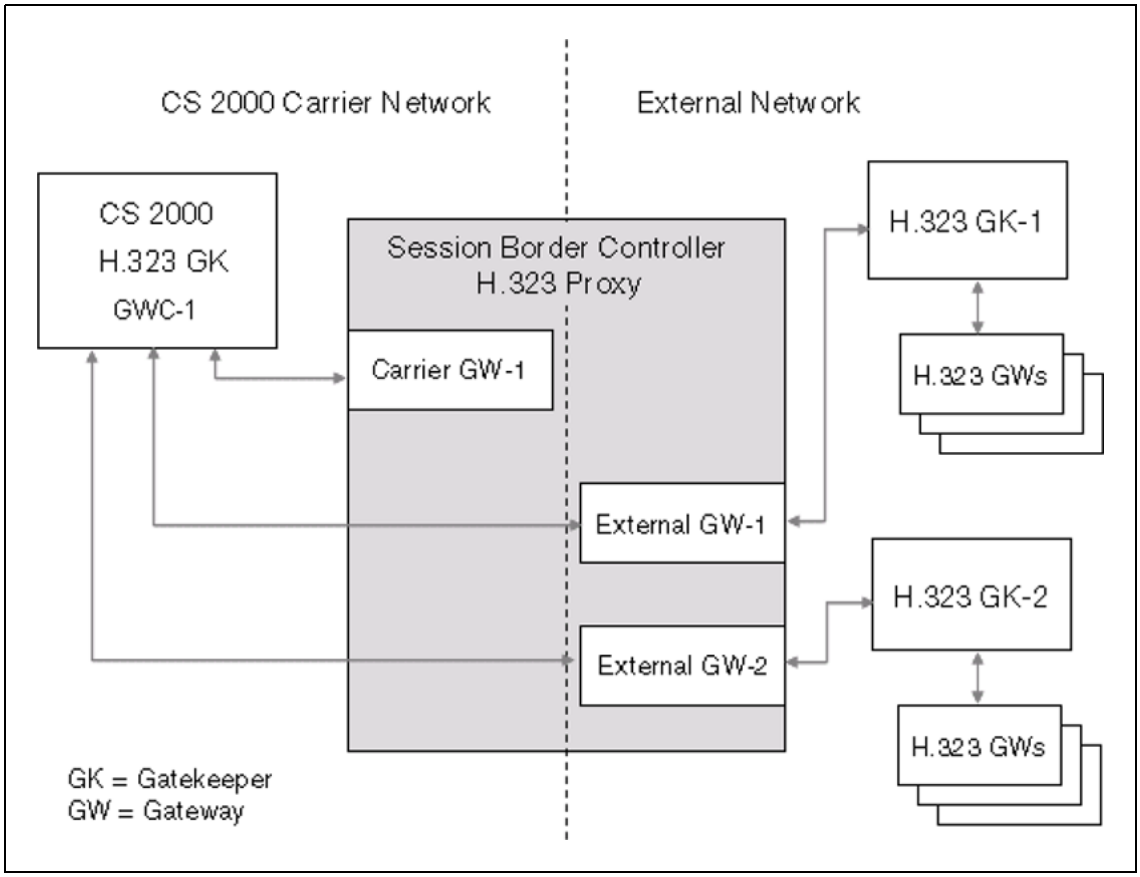
2. When you associate an additional gateway with the GWC node, provision the Reserved Terminations: field with the maximum number of endpoints calculated in the previous step.

   If you wish to assign the full capacity of a GWC to a single H.323 gateway, create only two H.323 carriers for the gateway.

Configuration details for H.323 gatekeeper functionality

A CS 2000 H.323 gatekeeper in a carrier network is interoperable with H.323 gatekeepers in an external (private, enterprise, or another carrier) network. A third party session border controller device acts as an H.323 signaling proxy between the two networks by registering virtual gateways in each network.

The following figure illustrates one example of H.323 gatekeeper functionality between a CS 2000 carrier network and an external network.



In this example

- Three virtual gateways reside within the session border controller, each representing a protocol stack on the device.
- Carrier GW-1 is associated with GWC -1 to provide an interface for H.323 maintenance and call signaling messages between external gateways and the GWC. The carrier gateway does not originate or terminate any calls and therefore requires no bearer channels.
- External GW-1 and External GW-2 are each associated with an external gatekeeper, as well as with GWC-1. Each external gateway represents an external gatekeeper to the CS 2000. For example, External GW-1 proxies all calls from gateways associated with H.323 GK-1 and the CS 2000.

In this scenario, the available endpoints (reserved terminations) on GWC-1 could be provisioned as described in the following table.

Example of GWC endpoint distribution in H.323 gatekeeper scenario

	Endpoint provisioning	
Gateway	**North America market**	**International market**
Carrier GW-1	4 (minimum)	4 (minimum)
External GW-1	514	510
External GW-2	514	510
Total on GWC-1	1032 (capacity)	1024 (capacity)

The gateway profile H323_PROXY supports the H.323 gatekeeper functionality.

The Carrier GW-1 and the two External GWs must be configured with H323_PROXY to permit the gatekeeper scenario using the CS 2000. For information about the values required to support H.323 gatekeeper functionality, see the following table.

Configuration required for H.323 gatekeeper functionality

	Associate Media Gateway dialog	
Field	**Carrier gateway**	**External gateway**
Gateway name	Name of carrier gateway Example: Carrier GW-1	Name of external gateway Example: External GW-1
Gateway IP address	IP address of carrier gateway	IP address of external gateway
Gateway profile name	H323_PROXY	H323_PROXY
Reserved terminations	4 Because the carrier gateway is used only for signaling between the CS 2000 GWC gatekeeper and the external gateways, provision the minimum reserved terminations (4) on this gateway.	Assign a value based on network requirements. See section "Assigning reserved terminations" (page 175).
Internet transparency (Adj Network Zone)	No NAT required	Add a NAT for the external network - where the gatekeeper resides
Protocol type	H.323	H.323
Protocol port	0	0

Associate Media Gateway dialog		
Field	**Carrier gateway**	**External gateway**
	You must configure all gateways using the profile H323_PROXY with signaling Protocol port 0. This value enables the system to discover the protocol port when the gateway registers.	
Protocol version	4.0	4.0

When a media proxy is used

A call involves two GWCs, one controlling the originating part of the call, and the other the terminating part. Both parts may be on the same GWC, but they are separate logical entities. The gateways controlled by each GWC can be located in the carrier network (the VoIP VPN), in the public network, or in an enterprise or residential VPN.

When a call is set up, the system inserts a media proxy whenever the two gateways involved in the call are on different VPNs. The following matrix indicates when a media proxy is used.

Media proxy is required whenever one of the endpoints is a SIP line.

Matrix for media proxy usage

GATEWAY LOCATION	In Carrier VPN	In Public Network	In Enterprise or Residential VPN
In Carrier VPN	No MP	MP added: 1 private and 1 public interface	MP added: 1 private and 1 public interface
In Public Network	MP added: 1 private and 1 public interface	No MP	MP added: 2 public interfaces
In Enterprise or Residential VPN	MP added: 1 private and 1 public interface	MP added: 2 public interfaces	No MP if both gateways in same VPN; Otherwise MP added: 2 public interfaces

Associate an audio server media gateway

Purpose of this procedure

This procedure describes how to associate an audio server gateways (including any Media Server 2000 Series gateways) with the selected Gateway Controller (GWC) node, using the UAS or AMS media gateway profile.

A gateway profile is a definition in the CS 2000 Management Tools database (CS 2000 GWC Manager database) that captures some of the characteristics and capabilities of a gateway device. A profile is chosen when the gateway is being configured. The information in the profile is then used to determine compatibility with the GWC node on which the gateway is being configured and to assess whether the node can support the added endpoint capacity.

You can change some gateway attributes defined by a profile (such as, the maximum endpoint capacity) by changing the profile for the selected gateway. For more information, see procedure "Change gateway attributes" (page 254).

Media Server 2010 gateways supply the Packet Media Anchor functionality. Use the AMS gateway profile to associate a Media Server 2010 gateway configured with the Packet Media Anchor functionality.

For an overview of the Packet Media Anchor functionality, see *Gateway Controller Basics* (NN10189-111).

For information about how to enable the Packet Media Anchor functionality on a GWC node, see procedure "Configure the Packet Media Anchor functionality on an audio controller GWC node" (page 28).

For an overall Packet Media Anchor configuration procedure, see the solution-level *Configuration Management* NTP applicable to your solution.

When to use this procedure

Use this procedure when you wish to associate an audio server (including any Media Server 2000 Series) media gateway with a GWC node.

Prerequisites and guidelines

ATTENTION

Do not associate UAS-based and AMS-based gateways with the same GWC node.

The following additional prerequisites and guidelines apply to this procedure:

- For the Packet Media Anchor functionality,
  - Use the AMS (Media Server 2000 Series) gateway profile to associate a Media Server 2010 gateway configured with the Packet Media Anchor functionality.
  - If the Media Server 2010 gateway that you want to use for this functionality has the UAS profile currently assigned to it, you must complete the following steps:
    - Disassociate the gateway from the GWC using procedure "Disassociate a media gateway" (page 273).
    - Complete this procedure to re-associate the gateway using the AMS profile.
  - You must first configure table SERVSINV to specify the maximum number of simultaneous calls to support.
  - On the Media Server 2010 gateway, configure three BCT and one audio resource for each anchored call.

  For more information, see the solution-level *Configuration Management* NTP applicable to your solution.
- The assigned media gateway name must be unique within the CS 2000 domain. Duplicate media gateway names cannot exist, even if the media gateways are associated with different GWCs. Table "Audio server media gateway naming conventions" (page 184) provides detailed naming conventions for each gateway profile, including a list of illegal characters that the system rejects.
- An attempt to associate a media gateway with a GWC that has a different service type will be rejected.

If you wish to verify the total number of endpoints currently reserved for the gateways associated with the selected GWC, click the **Statistics** button under the **Controller** tab of the **Provisioning** panel. If required, see procedure "View characteristics of a GWC node" (page 215).

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree in the far left frame.

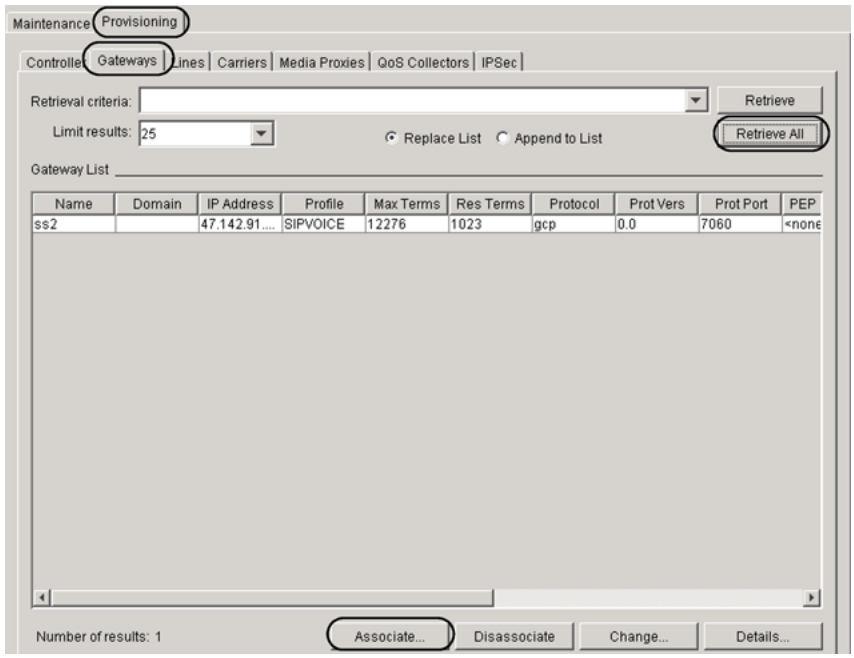
2 From the Contents of: Gateway Controller frame, select the GWC node with which you wish to associate a media gateway.

3 Click the **Provisioning** tab, then the **Gateways** tab.

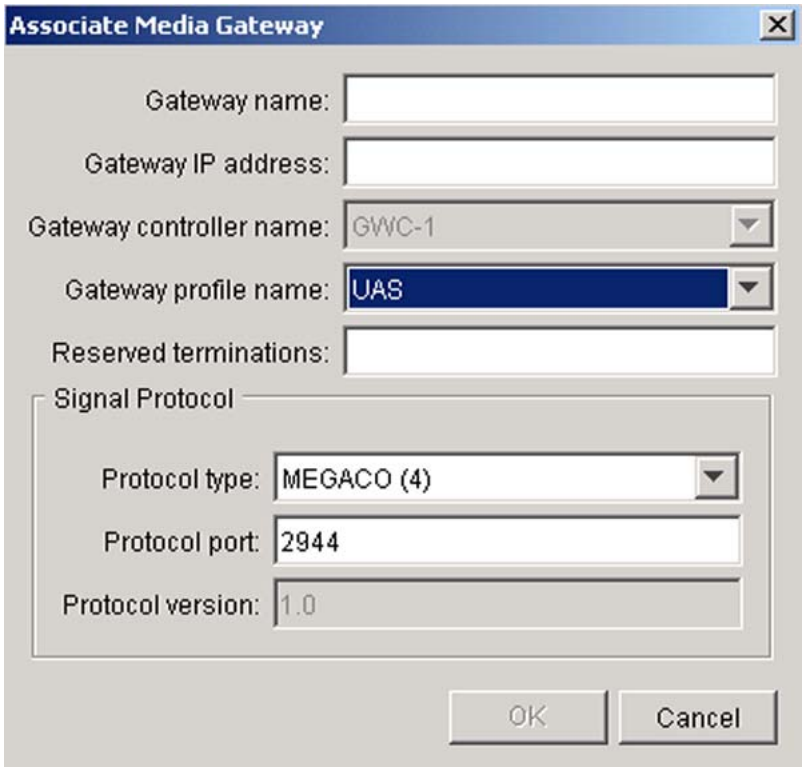
If required, click the **Retrieve All** button to view information about all gateways associated with the selected GWC node. Any newly-created gateways are added to the end of the list.

4 Click the **Associate** button to display the Associate Media Gateway dialog box.

If Domain Name Service (DNS) is not activated on the CS 2000 Management Tools server, or if it is not working properly, you will experience a delay of approximately 1 minute before the Associate Media Gateway dialog box is fully displayed. To configure DNS on the CS 2000 Management Tools server, see *Nortel ATM/IP Solution-level Configuration* (NN10409-500).



5 At the Associate Media Gateway dialog box, datafill all of the attributes for the desired gateway as described in the following steps.



6 In the Gateway profile name: field, select the appropriate audio server profile name from the list of profiles.

The following table lists details about supported audio server profiles. Once a profile is selected, the data associated with the profile is displayed.

Ensure that the gateway is being added to the correct GWC node.

Newly supported gateways may be added to the list and are not shown in this procedure. Not all gateways are supported for every solution and release. If necessary, contact your Nortel support for details on the gateways supported for each profile.

Audio server media gateway profiles

Gateway profile name	Gateway category	Signaling protocol	Protocol version	Default protocol port	Service type	Maximum port/ endpoint capacity
UAS	audio	MEGACO	1.0	2944	Audio	n/a
AMS	audio	MEGACO	1.0	2944	Audio	120
The following profiles support Media Server 2000 Series audio servers. Use the AMS profile to associate a Media Server 2010 gateway configured with the Packet Media Anchor functionality.						

7 In the Gateway name: field, enter a gateway name according to the gateway profile. Use the suggested gateway naming conventions shown in the following table.

The media gateway name must be unique within the CS 2000. Duplicate media gateway names cannot exist even if the media gateways are associated with different Gateway Controllers.

Audio server media gateway naming conventions

Audio gateway profile	Suggested gateway naming conventions
UAS AMS	Use a domain name of the media gateway in the form of an absolute domain name including the host_name of the device, suitable for lookup using Domain Name Service (DNS). The name must include a "." (period) and be no longer than 32 characters. The following characters are not valid: " ‘’ <> = , ; Do not use these characters. Otherwise, the system rejects your request. Example: uas1.ral5.vendor.net
The following naming conventions support Media Server 2000 Series audio servers.	

8 In the Gateway IP address: field, enter the IP address of the gateway. Use the format: <0-255>.<0-255>.<0-255>.<0-255>

9

ATTENTION

GWC auto-discovery is incompatible with DQoS, IPSec, and 64-character FQDN. If any GWCs in your network are configured for these services, you must select a GWC node to associate in this procedure; you must not leave the Gateway controller name: field blank.

If necessary, in the Gateway controller name: field, use the drop-down menu to select a GWC node with which the gateway is being associated.

If a GWC is not specified, the node provisioning application will automatically discover a GWC node with which to associate this gateway. The choice of GWC node is based on the service type of the media gateway (line, H.323, trunk, or audio) and the endpoint capacity of the gateway.

10 In the Reserved terminations: field, type a value of 0 for audio servers.

If you do not assign a value in this field, the system uses the default, which is the maximum number of reserved terminations for the gateway selected.

11 In the Protocol type: field, use the default value provided (MEGACO).

12 In the Protocol port: field, use the default value provided. Do not change this value.

The Protocol version: field displays the version of the protocol that is applicable to the gateway profile name and protocol type select previously.

13 Click **OK** to apply the input.

A response dialog box appears indicating that the system is processing the requested change. When processing is complete, the response dialog indicates whether the gateway association succeeded or failed. If the association failed, the response dialog indicates the reason why it failed.

14 Repeat this procedure as required for other audio server gateways you wish to associate with this or other GWC nodes.

15 The procedure is complete.

—End—

Add carriers to a GWC

Purpose of this procedure

Use this procedure to add carriers (endpoint groups) and their endpoints to a gateway associated with a GWC node.

Carrier endpoints are usually provisioned in groups representing E1 and DS1 levels allowing access to all timeslots for service provisioning. Services supported include ISUP trunking, PRI, DPNSS trunking.

The section "Carrier and endpoint naming" (page 191) contains a table of carrier formats to be used for different media gateway profiles.

Line carriers

Line endpoints are added automatically when you provision lines to a GWC. For information about how to provision lines, see the *CS 2000 Configuration Management* NTP for your solution.

In a Carrier VoIP environment, the allocation of line equipment numbers (LEN) for new lines is done by the system. This is because the LEN is no longer directly associated with physical hardware and its location as it was in legacy networks. In Carrier VoIP networks, LENs act as an internal map to a gateway endpoint pair. Use of LEN has been replaced with the implementation of the gateway endpoint to designate actual termination points in the network. This mapping is done by the system and is not intended to be determined manually at provisioning time. Since the data needs to reside in multiple locations and retain synchronization in the network, the line provisioning system acts as a single point of entry for this data to ensure it is named and assigned consistently across all network elements.

H.323 carriers

To permit greater flexibility in carrier provisioning, H.323 carriers are added manually using this procedure. Any new H.323 carriers assigned are added manually based on the naming convention for H.323 carriers.

For details related to H.323 carrier provisioning, see section "H.323 carrier provisioning" (page 205).

After an H.323 gateway is added to the CS 2000 GWC Manager database, additional provisioning of terminal identifiers (TID) that are mapped to endpoints must be manually added to the Core. For information about how to perform this task, see the *CS 2000 Configuration Management* NTP applicable to your solution.

DPNSS carriers (international market)

Starting in (I)SN09, international markets can use the Nortel Media Gateway 3200 (MG 3200) to provide direct interconnection between Private Branch Exchange (PBX) gateways and the CS 2000 network. The Digital Private Network Signaling System (DPNSS) protocol carried over E1 carrier is used to send messages between the MG3200 and the CS 2000.

When to use this procedure

Use this procedure after you have associated specific media gateways with a GWC node.

Prerequisites and guidelines

You must first associate a media gateway with a GWC node before you can add carriers (endpoint groups) to the gateway.

You need to be familiar with the names of the media gateways associated with the GWC node. If necessary, see procedure "View gateway provisioning data for a GWC node" (page 219).

To determine the naming convention for your gateway profile type, see "Carrier and endpoint names" (page 192).

Do not add V5.2 carriers using this procedure. See procedure "Add V5.2 interfaces" (page 410) .

After you have completed this procedure, see the *CS 2000 Configuration Management* NTP for your solution to specify the trunks to provision by adding tuple datafill to table TRKMEM.

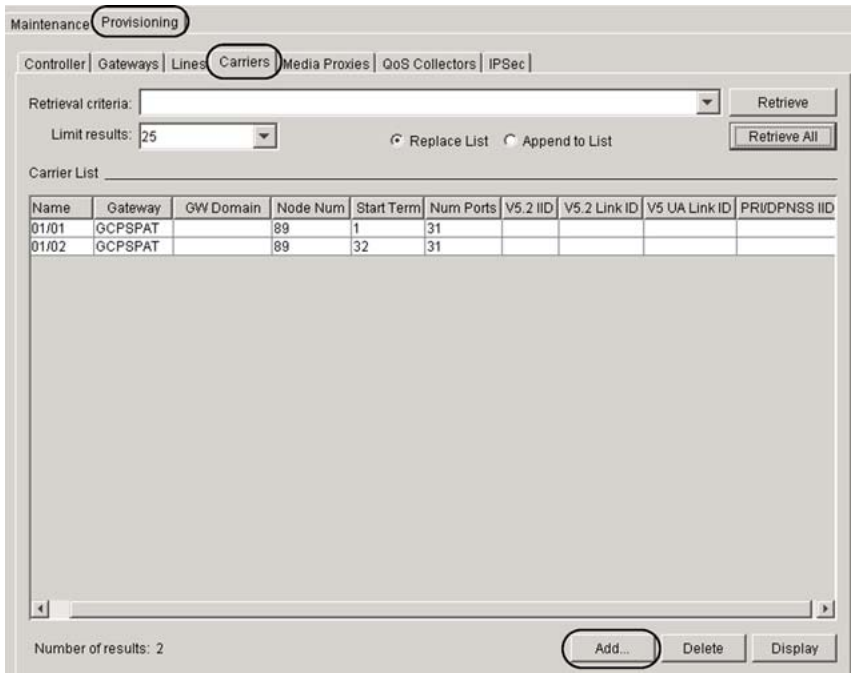
CAUTION
Possible partial service disruption
If you are adding carrier endpoints after having previously removed them from the same gateway, you will have terminal identifier (TID) mismatches. Contact your next level of support for instructions on how to avoid TID mismatches.

Action

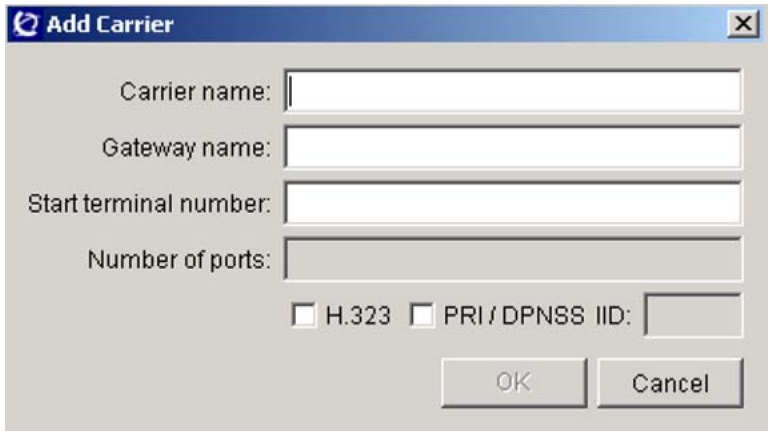
Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

2 From the Contents of: Gateway Controller frame, select the GWC node that you wish to view.

3 Click the **Provisioning** tab, then the **Carriers** tab



4 Click the **Add** button at the bottom of the screen to display the Add Carrier dialog box.



a. In the Carrier name: field, type the name (an alphanumeric character string) of the carrier that you want to add.

The carrier name is based on the media gateway type (the gateway profile name). For naming conventions applicable to specific media gateways, see "Carrier and endpoint names" (page 192).

For DPNSS carriers, this name must match the name configured for the Physical Name Pattern field when configuring the MG 3200 gateway using the Web Server Interface. For more information, see *Media Gateway 3200 H.248 User's Manual* (LTRT-72704).

b. In the Gateway name: field, type the name (an alphanumeric character string) of the gateway to which you are adding carriers.

The name of the gateway is selected when associating a media gateway with a GWC node.

c. If desired, in the Start terminal number: field, type a number representing the starting point of a contiguous block of endpoints or terminal identifiers (TID).

This field is optional. If you do not type a number in this field, the system will automatically define which TIDs are used and how they map to the carrier.

For any gateway other than an H.323 gateway, the contiguous block of endpoints will be either 24 (North American market) or 32 (International market). Note that 31 endpoints will be added for International PRI. The system automatically identifies the number of endpoints included in the block based on the configuration of the CS 2000 Management Tools server.

For gateways supporting H.323, the number of endpoints in the contiguous block is defined by the value in the Number of ports: field (see step f). If no value is entered in the Number of ports: field, then the default of 24 (NA market) or 32 (International market) endpoint will be used.

Ensure that a contiguous range of endpoints are available on your gateway to fulfill your requirements when you perform the following tasks:

- assign a value in the Start terminal number: field
- change the size of your carrier block

d. Determine your next step using the following table.

If you are adding carriers to	Do
an H.323 gateway	go to step e

If you are adding carriers to	Do
a non-H.323 gateway and PRI trunks are provisioned in the carrier group	go to step g
a non-H.323 gateway and PRI trunks are not provisioned in the carrier group	go to step i
a gateway to support DPNSS signaling (international market)	go to step h

e. If you are adding carriers to an H.323 gateway, select the H.323 check box.

The Number of ports: field is activated.

You must select the H.323 check box to add carriers to an H.323 gateway.

f. If desired, in the Number of ports: field, type a number defining the size of the H.323 virtual carrier block you are adding.

A range of 4 to 672 endpoints (inclusive) is supported.

For examples of how to take advantage of carrier block flexibility when provisioning H.323 gateways, see "H.323 carrier provisioning" (page 205).

The Number of ports: field is optional for H.323 gateways. If you do not type a number in this field, the system allocates the default block of endpoints for your system, either 24 (NA) or 32 (International).

The total sum of values entered in the Number of ports: field for all carriers assigned to an H.323 gateway must be less than, or equal to, the value entered in the Reserved terminations: field of the Associate Media Gateway dialog box. See procedure "Associate an H.323 media gateway" (page 164).

Continue with step i.

g. Select the PRI/DPNSS check box, if applicable, and enter a PRI Interface ID (IID) value within the range of 0 to 31 (inclusive).

The IID value is not used in international PRI. Therefore, for offices using international PRI, select the PRI check box and set the value to 0.

For PRI in the North American market, the IID value is used in the non-facility associated signaling (NFAS) configuration in which multiple DS1 trunks are controlled by one D-channel. In this case, the IID value must match the IID value provisioned at the far-end switch.

Do not select this check box if

- PRI trunks are not provisioned in the carrier group;
- you are adding carriers to a gateway supporting H.323.

Continue with step i.

h. For DPNSS carriers, select the PRI/DPNSS check box and enter an integer Interface ID (IID:) value within the range of 0 to 63.

This IID must be unique for each gateway and must match the value specified for this particular carrier when configuring the MG 3200 gateway. For more information, see the *Media Gateway 3200 H.248 User's Manual*, LTRT-72704.

i. Click **OK** to accept the input to the Add Carrier dialog box.

If the add carrier operation is successful, a dialog box is displayed. Click **OK** to continue.

If the add carrier operation fails, an error message will be displayed. Click the **Show Details** button for more information. An error message will also appear in the status bar at the bottom of the screen.

5 To verify your changes, click the **Retrieve All** or the **Retrieve** button to update the Carrier List.

6 Repeat this procedure as required for other carriers you wish to add to a media gateway.

7 See the *CS 2000 Configuration Management* NTP applicable to your solution to provision the trunks that correspond to the carriers.

8 The procedure is complete.

—End—

Carrier and endpoint naming

This section provides a table containing the naming conventions for carriers (endpoint groups) and endpoints. This table is organized based on the gateway profile name selected when associating a media gateway with a GWC node.

This table references the following signaling protocols:

- H.248/Megaco
- Media Gateway Control Protocol (MGCP)
- Trunk Gateway Control Protocol (TGCP)

- H.323

Carrier and endpoint names

Media gateway type (based on profile)	Carrier name and endpoint names or identifiers
AMBIT line gateways	**aaln/<n>** where `<n>` is a number: 1-16 depending on the model and market (specified when choosing the media gateway profile)
ARRIS_TOUCHTONE line gateways	**aaln/<n>** where `<n>` is a number: 1-4 depending on the MTA model and market (specified when choosing the media gateway profile)
ASKEY_LINE Integrated Access Devices (IAD) gateways	**aaln/<n>** where `<n>` is a number: 1-30 depending on the model and market (specified when choosing the media gateway profile)
AUDCDSMG32LN	**p/<nnn>** where `p` is lower case `<nnnn>` is an endpoint number: 1 to 384
AUDIOCODES (Nortel Media Gateway 3200 and 3500)	Carrier or gateway endpoints are provisioned in groups representing E1 and DS1 levels. Provisioning at this level gives access to all timeslots for service provisioning. Carrier names are case sensitive and must be entered in upper case. The following descriptions include both endpoint groups and individual endpoint descriptions. Services can be applied at the DS1/E1 timeslot level. **DS1** **DS1/<h2>/<g> (H.248/Megaco)** where `<h2>` is the DS1 (two digit) port or span number: 01-04 `<g>` is the channel number: 1-24 (no leading 0), assigned by the system **Example:** Carrier name: DS1/03 Carrier Endpoint name (timeslot): DS1/03/1

Media gateway type (based on profile)	Carrier name and endpoint names or identifiers
AUDIOCODES_6310_ TRUNK (Nortel Media Gateway 3500 using TP-6310 card and configured as trunk gateway)	Carrier or gateway endpoints are provisioned in groups representing E1 and DS1 levels. Carrier names are case sensitive and must be entered in upper case. The following descriptions include both endpoint groups and individual endpoint descriptions. Services can be applied at the DS1/E1 timeslot level. **DS1** **DS1/<h2>/<g_optional>** (H.248/Megaco) where `<h2>` is the DS1 (two digit) port or span number: 01-84 `<g>` is optional PRI IID: 0 to 31 (32 to 63 range is not supported). This value must be unique for each gateway. **Example:** Carrier name: DS1/03 Each DS1 carrier supports 24 terminations and the appropriate number of terminations must be reserved in advance. A fully equipped gateway with DS1 carriers requires 84 x 24=2016 terminations. **E1** **E1/<h2>/<g_optional>** (H.248/Megaco) where `<h2>` is a number: 1 to 63 `<g>` is optional PRI IID: 0 to 63 **Example:** Carrier name: E1/03 Each E1 carrier supports 31 terminations and the appropriate number of terminations must be reserved in advance. A fully equipped gateway with E1 carriers requires 63 x 31=1953 terminations.
CALIX_C7	**tp/<TT><tt>** where `tp` is lower case `<TT>` is a number: 00-10 `<tt>` is a number: 00-99 (except <TT> is 10, in which case <tt> is limited to the range 00-22); for a maximum of 1022 terminations allowed for each gateway **Example:** tp/1013

Media gateway type (based on profile)	Carrier name and endpoint names or identifiers
CICM	**tp/<vmg>/<nnnn>** where `tp` is lower case `<vmg>` is a number: 0 - 2 `<nnnn>` is a number: 0001 - 1022; always zero padded **Example:** tp/1/0002 Each endpoint appears as a virtual media gateway (VMG). For more information, see *CICM Basics* (NN10044-111).
CISCO_2600 CISCO_3600 CISCO_AS5300 CISCO_H323_IOS Supporting H.323 signaling protocol	**EPG_<n>** where `<n>` is a number: 000 - 999 The underscore character "_" is required and the number must include three digits (it must be zero-padded). Duplicate carrier names on different media gateways are permitted. **Example:** EPG_001
CVX-600 CVX-1800	**<gateway Name>.<E1 carrier>_<W0>.<Y1>.<Z1>** where `<W0>` is the slot number on the CVX chassis: 1-18 `<Y1>` is the E1 port number on the Digital Access Card: 0-99 `<Z1>` is the E1 timeslot/channel number: 0-31 **Example:** CVX1.E1_17.2.19 Provisioning of the endpoints is same for both RAS and VOIP setup.
H323_PROXY	**EPG_<n>** where `<n>` is a number: 000 - 999 The underscore character "_" is required and the number must include three digits (it must be zero-padded). Duplicate carrier names on different media gateways are permitted. **Example:** EPG_001

Media gateway type (based on profile)	Carrier name and endpoint names or identifiers
KEYMILE_UMUX	POTS table entry: **p/nnn** where `p` is lower case `<nnnn>` is an endpoint number: 1 to 480; not padded (no leading zeros for padding to three digits) This value should match the terminal number. **Example:** p/24 Third-party media gateways support flexible allocation of the LEN circuit number and the endpoint terminal number, independently of the endpoint name. The circuit number allocated for an endpoint must be unique and in the range of 1 to 480. This value identifies the LEN that the system creates. Nortel recommends that the circuit number is equal to: <nnn> - 1. For example, if the endpoint is p/1, the associated LEN is: <LGRP> 00 00. Nortel recommends that you create the endpoints as blocks of 30 contiguous endpoints to align with the configuration of the Keymile UMUX cards.
MEDIATRIX Integrated Access Device (IAD) gateways	**aaln/<n>** where `<n>` is a number: 1-4 or 1-24 depending on the model and market (specified when choosing the media gateway profile).
MGCP line gateway MGCP_IAD_40 line gateway	**aaln/<n>** where `<n>` is a number: 1-40 depending on the configuration of the gateway.
MOTOROLA MTA line gateways	**aaln/<n>** where `<n>` is a number: 1-4 depending on the MTA model and market (specified when choosing the media gateway profile)
NORTEL_BCM Supporting H.323 signaling protocol	**EPG_<n>** where `<n>` is a number: 000 - 999 The underscore character "_" is required and the number must include three digits (it must be zero-padded). Duplicate carrier names on different media gateways are permitted. **Example:** EPG_001

Media gateway type (based on profile)	Carrier name and endpoint names or identifiers
NUERA_BTX4K	The gateway profile name NUERA_BTX4K supports the Nuera BTX4K gateway, which allows provisioning of six DS3 interfaces. **DS3** (with channelized DS1 levels) There are 24 DS0 channels for each DS1 interface for a total of 4032 DS0 channels for each BTX4K gateway. **ds/ds3-<u1>/ds1-<u2>/<c>** where **<u1>** is a decimal value referring to the particular instance of ds3: 1-6 **<u2>** is a decimal value referring to the particular instance of ds1: 1-28 **<c>** is a decimal value indicating the channel number at the lowest level in the hierarchy: 1-24 **Example:** Carrier name: ds/ds3-2/ds1-3 Carrier Endpoint name (timeslot): ds/ds3-2/ds1-3/1
NUERA_GX	Carrier or gateway endpoints are provisioned in groups representing E1 and DS3 levels. Provisioning at this level gives access to all timeslots for service provisioning. Supported services include ISUP trunking and PRI trunking. Carrier names are case sensitive and must be entered in upper case. The following descriptions include both endpoint groups and individual endpoint descriptions. Services can be applied at the DS1/E3 timeslot level. **E1/<h1>/<h2>/<g>** (H.248/Megaco) where **<h1>** is the two-digit LP (logical processor) number (or slot) of the E1: 1-15 **<h2>** is the E1 (two digit) port number: 01-32 **<g>** is the channel number: 1-31 (no leading 0), assigned by the system **H.248/Megaco example:** Carrier name: E1/03/05 Carrier Endpoint name (timeslot): E1/05/05/1

Media gateway type (based on profile)	Carrier name and endpoint names or identifiers
	DS3/DS1 DS1 carriers are provisioned using the same endpoint naming as DS3. **DS3/<h1>/<h2>/<g>** (H.248/Megaco) where `<h1>` is the LP (logical processor) number or slot of the DS3: 1-15 (2-5 recommended) `<h2>` is the DS3 port number `<g>` is the channel number in the DS3: 1-24, assigned by the system **H.248/Megaco example:** Carrier name: DS3/03/05 Carrier Endpoint name (timeslot): DS3/05/05/1
PVG7K, PVG15K PVG15K_1000 PVG15K_PARTIAL	Carrier or gateway endpoints are provisioned in groups representing E1 and DS3 levels. Provisioning at this level gives access to all timeslots for service provisioning. Supported services include ISUP trunking and PRI trunking. Carrier names are case sensitive and must be entered in upper case. The following descriptions include both endpoint groups and individual endpoint descriptions. Services can be applied at the DS3/E1 timeslot level. **ATTENTION** Starting in (I)SN09, all PVG ASPEN profiles are obsolete. These profiles are still present in the GWC Manager GUI but are not supported. Do not use these profiles. Instead, use the PVG_MEGACO profiles.
	E1 **e1/<h1>/<h2>/<g>** (H.248/Megaco) where `<h1>` is the two-digit LP (logical processor) number or slot of the E1: 1-15 (no leading 0) `<h2>` is the E1 (two digit) port number: 01-32 `<g>` is the channel number: 1-31 (no leading 0), assigned by the system **H.248/Megaco example:** Carrier name: e1/03/05 Carrier Endpoint name (timeslot): e1/03/05/1

Media gateway type (based on profile)	Carrier name and endpoint names or identifiers
	DS3 **DS3/<h1>/<h2>/<g>** (H.248/Megaco) where **<b1>** is the LP (logical processor) number or slot of the DS3: 1-15 (2-5 recommended) **<b2>** is the DS3 (single digit) port number: 0-1 **<c>** is the DS3 number: 1-28 **<d>** is the channel number in the DS3: 1-24, assigned by the system **H.248/Megaco example:** Carrier name: DS3/03/05 Carrier Endpoint name (timeslot): DS3/05/05/1
	STM-1 **STM/<lp>/<p>/1/VC4VC12/1/<k>/<l>/<m>/<e>** (H.248/Megaco) where **<lp>** is the LP (logical processor) number or slot of the STM-1 interface: 2-15 (slots 2-5 are recommended) **<pp>** is the two-digit port number: 00-03 **<p>** is the one-digit port number: 0-3 **<k>** is the one-digit TUG-3 number within a VC4: 1-3 **<l>** is the one-digit TUG-2 number within a TUG-3: 1-7 **<m>** is the one-digit TU number within a TU: 1-3 **<e>** is the VC12 channel/timeslot: 1-31 (no leading 0) Hard-coded values 1/VC4VC12/1 (H.248) indicate the STM carrier type, multiplexing within the STM-1 frame, and the AUG within the STM-1 frame. **H.248/Megaco example:** Carrier name: STM/2/1/1/VC4VC12/1/3/6/1 Carrier Endpoint name (timeslot): STM/2/1/1/VC4VC12/1/3/6/1/1
	OC-3 **STS/<lp>/<p>/3/VT15/<t>/<l>/<m>/<e>** (H.248/Megaco) where **<lp>** is the LP (logical processor) number or slot of the OC-3 interface: 1-15 (recommended slots 2-5) **<pp>** is the (two digit) port number: 00-03 **<p>** is the (one digit) port number: 0-3 **<jj>** is the (two digit) STS-1 number within the STS-3: 01-03 **<l>** is the (one digit) VT group number within STS-1: 1-7 **<m>** is the (one digit) VT number within a VT: 1-4 **<t>** is the (one digit) STS-1 number within the STS-3: 0-3

Media gateway type (based on profile)	Carrier name and endpoint names or identifiers
	<e> is the VT1.5 channel/timeslot: 1-24 (no leading 0) Hardcoded value /3/VT15/ (H.248) indicates the STS carrier type and the multiplexing within the OC-3 carrier. **H.248/Megaco example:** Carrier name: STS/2/1/3/VT15/1/6/1 Carrier Endpoint name (timeslot): STS/2/1/3/VT15/1/6/1/1
PVG_VSP4E	**STM/<l>/<p>/1/VC4VC12/1/<t>/<u>/<v>** where <l> is the LP (logical processor) number or slot of the STM interface: 2-15 <p> is the one-digit port number: 0-3 <t> is the one-digit TUG-3 number within a VC4: 1-3 <u> is the one-digit TUG-2 number within a TUG-3: 1-7 <v> is the one-digit TU number within a TU: 1-3 The maximum capacity is 31 endpoints. Hard-coded value of 1/VC4VC12/1 indicates the STM carrier type, multiplexing within the STM-1 frame, and the AUG within the STM-1 frame. **Example:** Carrier name: STM/2/1/1/VC4VC12/1/3/6/1 Carrier Endpoint name (timeslot): STM/2/1/1/VC4VC12/1/3/6/1 **STS/<l>/<p>/3/VT15/<t>/<v>/<w>** where <l> is the LP (logical processor) number or slot of the STS interface: 1-15 <p> is the port number: 0-3 <t> is the STS-1 number: 1-3 <v> is the VT group number: 1-7 <w> is the VT number: 1-4 The maximum capacity is 24 endpoints. Hard-coded value of 3/VT15 indicates the STS carrier type. **Example:** Carrier name: STS/2/1/3/VT15/1/3/4 Carrier Endpoint name (timeslot): STS/2/1/3/VT15/1/3/4

Media gateway type (based on profile)	Carrier name and endpoint names or identifiers
SIPVOICE	**/<SITE>/<FFF>/<G>/<TT tt>** where `<SITE>` is a name defined in table SITE configured on the Core `<FFF>` is a frame number: 0 - 511 `<G>` is a group number: 0 - 9 `<TT tt>` is a terminal number: 00 00 - 1023 **Example:** /ABCD/10/9/01 20
SUCCESSION_1000 Supporting H.323 signaling protocol	**EPG_<n>** where `<n>` is a three-digit number: 000 - 999 The underscore character "_" is required and the number must include three digits (it must be zero-padded). Duplicate carrier names on different media gateways are permitted. **Example:** EPG_001
TGCP	GWCs support TGCP media gateways with • DS1 interfaces • DS1 interfaces within a logical processor or slot • OC3 interfaces with channelized DS3 and DS1 levels • OC3 interfaces with channelized DS3 and DS1 levels within a logical processor or slot • DS3 interfaces with a channelized DS1 level within a logical processor or slot DS3 interfaces without DS1 framing • DS3 interfaces with a channelized DS1 level • E1 interfaces The following abbreviations are used in TGCP carrier and endpoint formats: • u = unit number • c = channel number The gateway profile name TGCP supports third party media gateways using TGCP signaling protocol.

Media gateway type (based on profile)	Carrier name and endpoint names or identifiers
	DS1 **ds/ds1-<u>/<c>** where `<u>` is a decimal value referring to the particular instance of ds1: 1-68 `<c>` is a decimal value indicating the channel number at the lowest level in the hierarchy: 1-24 **Example:** Carrier name: ds/ds1-1 Carrier Endpoint name (timeslot): ds/ds1-1/1
	DS1 (within a logical processor or slot) **ds/s-<u1>/ds1-<u2>/<c>** where `<u1>` is a decimal value referring to the particular instance of s (slot): 1-28 `<u2>` is a decimal value referring to the particular instance of ds1: 1-28 `<c>` is a decimal value indicating the channel number at the lowest level in the hierarchy: 1-24 **Example:** Carrier name: ds/s-2/ds1-1 Carrier Endpoint name (timeslot): ds/s-2/ds1-1/1
	OC3 (with DS3 and DS1 levels) **ds/oc3-<u1>/ds3-<u2>/ds1-<u3>/<c>** where `<u1>` is a decimal value referring to the particular instance of oc3: 1-28 `<u2>` is a decimal value referring to the particular instance of ds3: 1-28 `<u3>` is a decimal value referring to the particular instance of ds1: 1-28 `<channel #>` is a decimal value indicating the channel number at the lowest level in the hierarchy: 1-24 **Example:** Carrier name: ds/oc3-2/ds3-3/ds1-1 Carrier Endpoint name (timeslot): ds/oc3-2/ds3-3/ds1-1/1

Media gateway type (based on profile)	Carrier name and endpoint names or identifiers
TGCP (continued)	**OC3** (with DS3 and DS1 levels within a logical processor or slot) **ds/s-<u1>/oc3-<u2>/ds3-<u3>/ds1-<u4>/<c>** where **<u1>** is a decimal value referring to the particular instance of s (slot): 1-28 **<u2>** is a decimal value referring to the particular instance of oc3: 1-28 **<u3>** is a decimal value referring to the particular instance of ds3: 1-28 **<u4>** is a decimal value referring to the particular instance of ds1: 1-28 **<c>** is a decimal value indicating the channel number at the lowest level in the hierarchy: 1-24 **Example:** Carrier name: ds/s-2/oc3-2/ds3-3/ds1-1 Carrier Endpoint name (timeslot): ds/s-2/oc3-2/ds3-3/ds1-1/1
	DS3 (with a DS1 level within a logical processor or slot) **ds/s-<u1>/ds3-<u2>/ds1-<u3>/<c>** where **<u1>** is a decimal value referring to the particular instance of s (slot): 1-28 **<u2>** is a decimal value referring to the particular instance of ds3: 1-28 **<u3>** is a decimal value referring to the particular instance of ds1: 1-28 **<c>** is a decimal value indicating the channel number at the lowest level in the hierarchy:1-24 **Example:** Carrier name: ds/s-2/ds3-3/ds1-1 Carrier Endpoint name (timeslot): ds/s-2/ds3-3/ds1-1/1

Media gateway type (based on profile)	Carrier name and endpoint names or identifiers
TGCP (continued)	**DS3** (without DS1 framing) **ds/s-<u1>/ds3-<u2>/<c>** where `<u1>` is a decimal value referring to the particular instance of s (slot): 1-28 `<u2>` is a decimal value referring to the particular instance of ds3: 1-28 `<c>` is a decimal value indicating the channel number at the lowest level in the hierarchy: 1-24 **Example:** Carrier name: ds/s-2/ds3-3/ Carrier Endpoint name (timeslot): ds/s-2/ds3-3/1
	DS3 (with channelized DS1 levels) **ds/ds3-<u1>/ds1-<u2>/<c>** where `<u1>` is a decimal value referring to the particular instance of ds3: 1-28 `<u2>` is a decimal value referring to the particular instance of ds1: 1-28 `<c>` is a decimal value indicating the channel number at the lowest level in the hierarchy:1-24 **Example:** Carrier name: ds/ds3-2/ds1-3 Carrier Endpoint name (timeslot): ds/ds3-2/ds1-3/1
TGCP (continued)	**E1** **ds/e1-<u1> /<c>** where `<u1>` is a decimal value referring to the particular instance of e1: 1-68 `<c>` is a decimal value indicating the channel number at the lowest level in the hierarchy: 1-31 **Example:** Carrier name: ds/e1-1 Carrier Endpoint name (timeslot): ds/e1-1/1

Media gateway type (based on profile)	Carrier name and endpoint names or identifiers
TOUCHTONE_NN line gateways	**aaln/<n>** where `<n>` is a number: 1-4 depending on the MTA model and market (specified when choosing the media gateway profile).
UAS Audio servers (including Nortel Media Server 2000 Series)	Endpoints are not specified during provisioning of audio servers.
UE9000MG (Media Gateway 9000)	*For non-ABI (access bridge interface) lines:* **tp/<slot>/<circuit>** where `tp` is lower case `<slot>` is a number: 2-9 `<circuit>` is a number: 14-21 **Example:** tp/2/14 Each endpoint appears as a virtual media gateway (VMG). The <slot> and <circuit> values constitute the SLOT and the CIRCUIT part of the line equipment number (LEN) for the gateway. *For MG 9000 ABI lines:* **tp/channel/<channelID>** where `tp` is lower case `<channelID>` is a number between 000 and 511
WESTELL Supporting H.323 signaling protocol	**EPG_<n>** where `<n>` is a three-digit number: 000 - 999 The underscore character "_" is required and the number must include three digits (it must be zero-padded). Duplicate carrier names on different media gateways are permitted. **Example:** EPG_001

H.323 carrier provisioning

This section compares the various limits associated with carrier provisioning of GWCs supporting H.323 signaling protocol between Carrier VoIP releases. This section also provides two examples of carrier provisioning on a GWC node supporting H.323. One example uses many small gateways, and the other uses one large gateway.

The following table describes the rules that apply to provisioning carriers on GWCs supporting H.323.

H.323 carrier provisioning limits and ranges

Parameter	Maximum
Number of endpoints supported on a GWC node	**1032** - NA **1024** - Intl
Number of endpoints supported on a media gateway	**1032** - NA **1024** - Intl (all supported gateways)
Number of media gateways supported on a GWC node	**254**
Number of endpoints in a carrier (size of a carrier block)	**4 - 672** (virtual carrier - user provisionable within this range)
More than one carrier (D-channel) can be supported on a single media gateway. Therefore, more than one trunk group on the Core can be mapped to the endpoints (TID) provisioned on the GWC.	
For a provisioning example of this feature, see "Example 2: One large gateway provisioned on a GWC node" (page 206)	

Example 1: Many gateways provisioned on a GWC node

This example demonstrates how to take advantage of the flexible carrier size for small gateways with relatively few endpoints on each gateway.

In this example, a GWC node supporting H.323 protocol is provisioned as follows:

- 254 NORTEL_BCM media gateways are associated with 1 GWC node.
- 253 of the gateways are provisioned with 1 carrier containing 4 endpoints each.
- One gateway is provisioned with 1 carrier containing 20 endpoints.

In this example, the total number of endpoints used on the GWC node is 1032.

Example 2: One large gateway provisioned on a GWC node

This example demonstrates how to take advantage of the fact that more than one carrier (or D-channel) can be mapped to a single gateway.

In this example, a GWC node supporting H.323 protocol is provisioned as follows:

- One SUCCESSION_1000 media gateway is associated with one GWC node.
- The gateway is provisioned with two carriers containing 515 endpoints each.

In this example, the total number of endpoints used on the GWC node is 1032. Each carrier group maps to a trunk group on the Core.

Delete carriers from a GWC

Purpose of this procedure

Use this procedure to delete (remove) carriers from a Gateway Controller (GWC) node.

When to use this procedure

Use this procedure when carriers must be removed or changed.

Line endpoints are removed automatically when lines are removed (de-provisioned) from a GWC. To de-provision lines, see the *CS 2000 Configuration Management* NTP supporting your solution.

Carriers for all other gateway types must also be removed manually.

Prerequisites and guidelines

All carriers on a gateway must be in one of the following states before they can be removed:

- INB (Installation Busy)
- UNKNOWN (core datafill is missing)

To place trunk groups on the Core in a state of INB, follow procedure "Performing trunk maintenance using the Trunk Maintenance Manager" in *Nortel ATM/IP Solution-level Fault Management* (NN10408-900).

Additional Core table datafill may need to be removed in order to remove all trunk and line endpoint data from all databases.

You must delete one carrier at a time.

Do not remove V5.2 carriers using this procedure. See procedure "Delete V5.2 interfaces" (page 453).

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to view.

3 Click the **Provisioning** tab.

4 Click the **Carriers** tab.

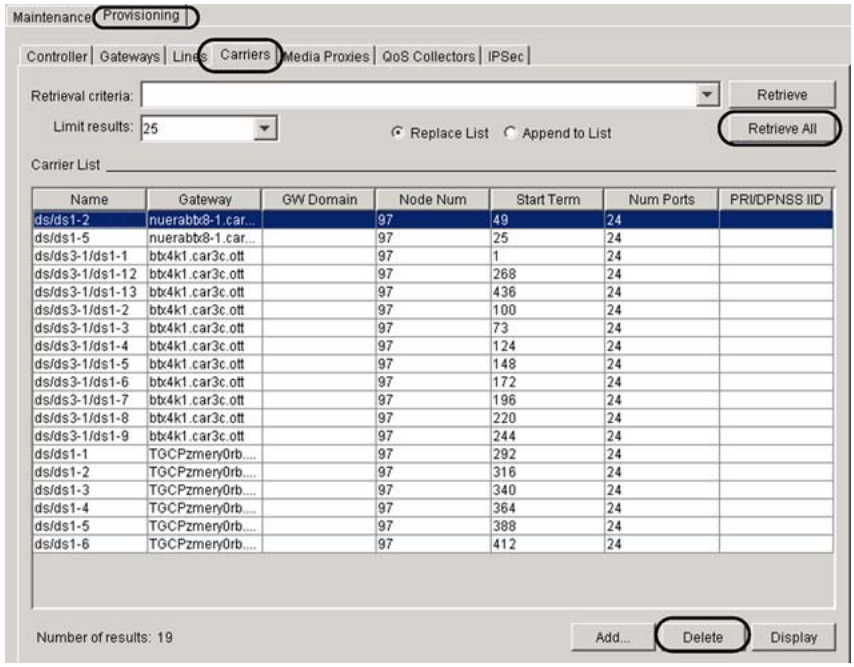
5 Click the **Retrieve All** button to retrieve all carriers on the specified GWC node.

6 From the Carrier List, select the carrier you wish to delete.

Your selection is highlighted.

You can delete only one carrier at a time.

7 Click the **Delete** button at the bottom screen.



CAUTION
Possible partial service disruption
If endpoints associated with a carrier are deleted from the GWC and not from the Core, you will encounter call processing problems. See the *CS 2000 Configuration Management* NTP for your solution to remove corresponding trunk data from the Core tables.

8 At the confirmation box, click **Yes** to confirm that you wish to delete the carrier.

The carrier list is automatically updated following a successful deletion.

9 Repeat this procedure for other carriers you wish to delete on this GWC node.

10 The procedure is complete.

—End—

View carrier provisioning data for a GWC node

Purpose of this procedure

Use this procedure to view carrier (endpoint group) provisioning data for a selected Gateway Controller (GWC) node.

When to use this procedure

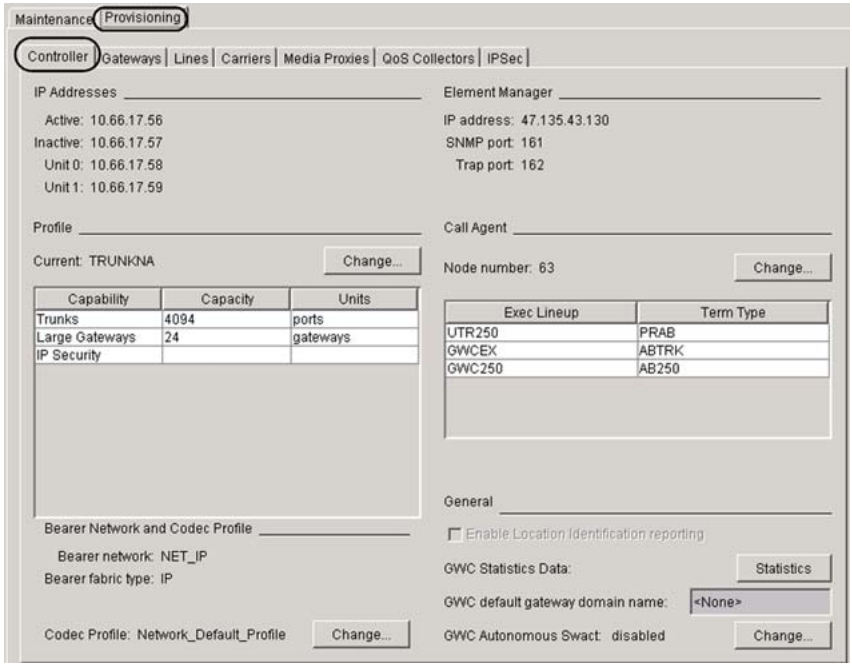
Use this procedure when you require specific provisioning information about carriers associated with a specific GWC node.

Prerequisites and guidelines

There are no prerequisites or guidelines for this procedure.

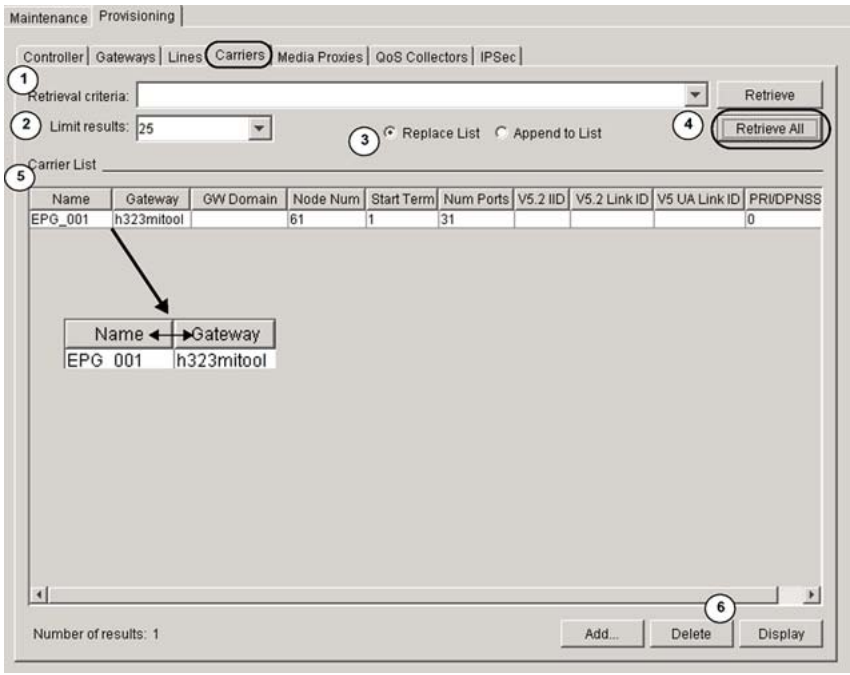
Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree in the far left frame.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to view.
3	Click the **Provisioning** tab, then the **Controller** tab to view general provisioning information for the GWC node selected.



4 Click the **Carriers** tab to view information related to carriers (endpoint groups) belonging to gateways associated with the GWC node selected previously.

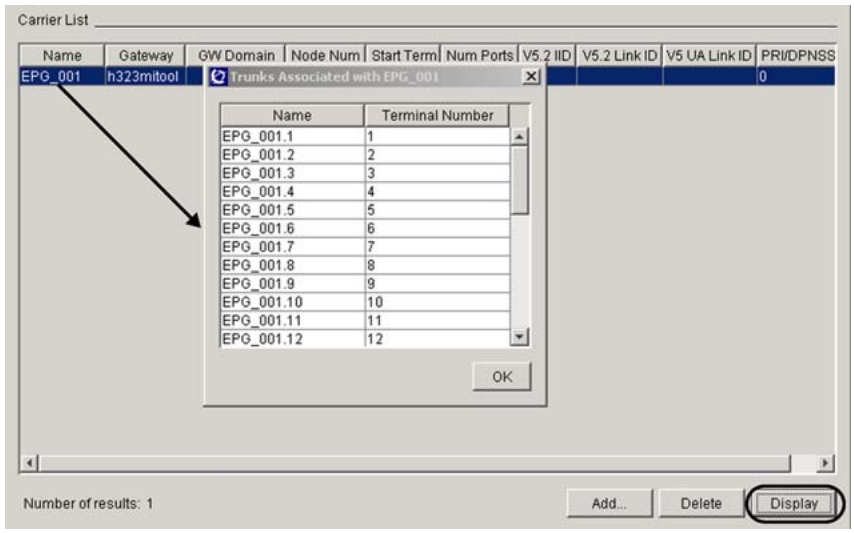
Select the edge of any tab to adjust the display.



5 Click the **Retrieve All** button to view carrier endpoint data.

Table Description of carrier endpoint search criteria functions contains information about the search functions (see the numbers in the preceding figure).

6 If you wish to view the trunk endpoints and terminal numbers associated with a specific carrier, click the carrier entry and click the **Display** button.



7 Repeat this procedure as required for carrier endpoints you wish to view on this or other GWC nodes.

8 The procedure is complete.

The following table describes the carrier endpoint search criteria functions.

—End—

Description of carrier endpoint search criteria functions

Step	Menu component	Description
(1)	Retrieval criteria: selection box and drop-down list	Enter a search criteria string in this field. Up to 20 search strings are saved during the session. Previous search strings can be recalled by selecting from the drop-down list. For more information about using search string, see table Examples of carrier search criteria at the end of this procedure.

Step	Menu component	Description
2	Limit results: selection box and drop-down list	Select a value from the drop-down list. This value limits the number of matching entries returned in response to the query. Valid values are as follows: 25, 50, 100, 250, 500, 1000, and "no limit". The "no limit" value is still itself limited by the maximum number of entries currently downloadable.
3	Replace List radio button	Deselect this option if you do not want the query results to replace previously existing data displayed in the table. The default selection is to replace the existing data.
	Append to List radio button	Select this option if you want the query results to be appended to the existing data displayed in the table.
4	Retrieve button	This selection retrieves data from the CS 2000 GWC Manager server database matching the specified search retrieval criteria. The data presented is a "snapshot" of the CS 2000 GWC Manager database based on the currently provisioned data. The view is not updated in real time. Newly added or deleted data will not be added to or deleted from the displayed table view except when there is a deletion of endpoints. If an carrier endpoint is selected from the table and deleted using the **Delete** button, then the endpoint will be removed from the table if deletion was successful. Endpoint deletion using this interface is limited to carrier endpoints only. Line endpoints are added automatically when you provision lines to a GWC. For information about how to add or delete lines, see the *CS 2000 Configuration Management* NTP applicable to your solution.
	Retrieve All button	This selection retrieves all the gateway or endpoint data. Values in the "Retrieval criteria" and "Limit results" are ignored.
5	Carrier List table	This is the tables where the search results are displayed. By clicking on a column header, you can sort the rows in ascending order, based on the values in that column. By clicking on the column header a second time, you can sort the rows in descending order.

Step	Menu component	Description
		The data is not preserved once another GWC node is selected; however, the retrieval criteria are maintained in the drop-down list so the same search can be re-executed.
6	Display	Highlight a carrier name and click this button if you wish to view the endpoints trunk and terminal numbers associated with a specific carrier.

Examples of carrier search criteria

Examples of carrier search criteria

The gateway and endpoint panels use the same search functionality. The functionality is similar to that available in web search engines.

- One or more strings can be entered in the Retrieval Criteria: box, separated by space(s).
- Each string in the criteria is compared with the value in each column. If a match is found in any column, the record will be returned.
- Each string in the criteria is automatically wildcard at the beginning and end of the string. (For example, the string "gate" will match "MYGATEWAY" and "GATEWAY1".)
- Two special characters are supported as modifiers: the plus "+" and minus "-" signs.

  The "+" plus character prefixed to the string (for example, "+gate") means the value must match. The "-" character prefixed to the string (for example,. "-gate") means the value must not match.

  The "+" character is assumed, and therefore is not typically used.
- The search is not case sensitive. A string using "gate" will return records where the following strings are found: "MYGATEWAY", "MyGateway", or "mygateway".

Example Retrieval Criteria: "DS3"

Expected Results: Returns all records where the string is found in any column.

View characteristics of a GWC node

Purpose of this procedure

Use this procedure to view the basic characteristics currently defined for a selected Gateway Controller (GWC) node.

When to use this procedure

Use this procedure when you require the following specific information about a GWC node:

- IP addresses applicable to the GWC node
- IP address of the CS 2000 GWC Manager and port numbers used for SNMP and traps
- GWC profile assigned to the node, and the capability, capacity and units associated with the profile
- node number assigned to the GWC by the Call Agent
- Exec Lineup and Term Type characteristics associated with the selected node
- bearer network and fabric type as well as the codec used by the node
- the number of endpoints reserved for the gateways currently associated with the selected GWC
- the gateway default domain name - common to all multimedia terminal adapters (MTA) gateways associated with the GWC (applicable to cable solutions only)

  Configuring the gateway default domain name is optional. If not configured, the system displays <None>.
- the status (enabled or disabled) of the GWC autonomous SWACT option and, if enabled, the pre-SWACT timer

If you wish to view the Core IP addresses, see the General Network Settings on the main GWC network panel.

Prerequisites and guidelines

There are no prerequisites for this procedure.

GWC nodes and IP addressing

Four consecutive IP addresses are used for each GWC node (redundant card pair):

- 1 physical address for unit (card) 0
- 1 physical address for unit (card) 1

- 1 logical address for the active unit
- 1 logical address for the inactive unit

The physical addresses are provisioned at the CS 2000 SAM21 Manager. The active and inactive IP addresses are determined automatically by the CS 2000 SAM21 Manager. The active unit IP address is required by other network elements, such as UAS nodes.

Logically, a GWC node is a single entity that can be accessed through a single IP address. Physically, however, a GWC node consists of two separate GWC cards, each of which has its own 10/100 BaseT Ethernet port. At a given moment, one of these cards is active and the other is inactive. The following list describes each type of address:

- Active unit - The IP address of the current active unit is used by other network entities. This address is used by the Call Agent, media gateways controlled by the GWC, and other GWCs for sending messages related to call-handling. This is the IP address specified when the GWC is datafilled in the Core table SERVRINV.

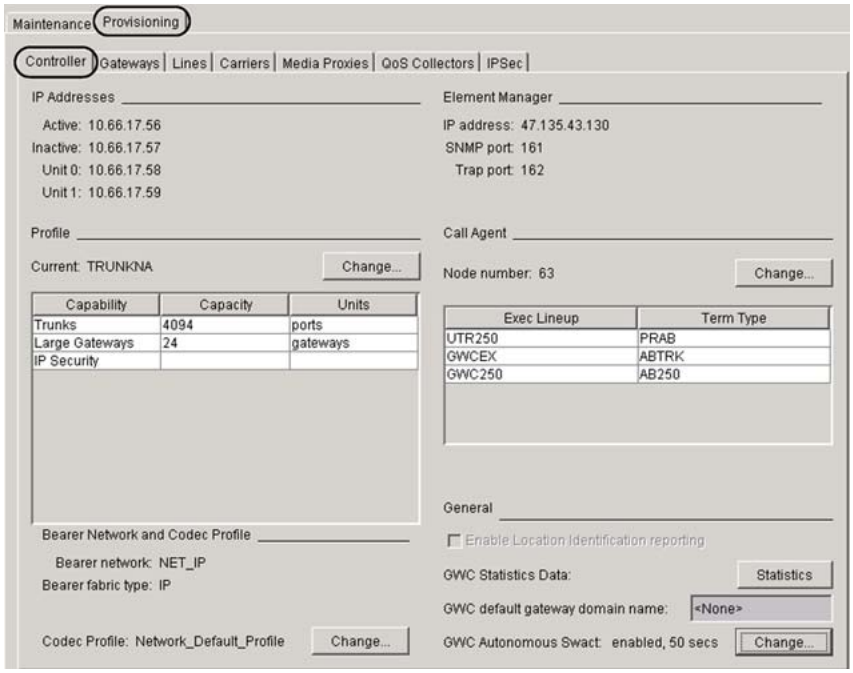
  The active unit IP address is a floating address - the address is always the same, but the underlying physical unit changes in the event of a SWACT.
- Inactive unit - The IP address of the current inactive unit is used only for synchronization and for heartbeat messaging to and from the corresponding active GWC unit.
- Physical IP addresses - These are the static addresses for OAM&P and physical access to each GWC card (unit 0 and unit 1). These addresses are mapped on to Layer 2 media access control (MAC) addresses, Ethernet physical addresses.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree in the far left frame.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to view.
3	Click the **Provisioning** tab and the **Controller** tab to view general node provisioning information for a selected GWC node.

This information includes the Gateway Controller service profile shown under the Profile heading.

For an explanation of the information provided on this screen, see the table at the end of this procedure.



4 Repeat this procedure as required for other GWC nodes.

5 The procedure is complete.

—End—

Description of GWC node characteristics

Screen area	Description
IP Addresses	This area lists the IP addresses for the GWC node, including the active and inactive card, as well as unit 0 and unit 1.
Element Manager	This area provides the IP address of the CS 2000 GWC Manager used for node provisioning. It also includes the port numbers for SNMP and the trap log.
Profile	This area indicates the Gateway Controller service profile assigned to the node. It also provides the capability, capacity and units associated with the profile.

Screen area	Description
Call Agent	This area indicates the number assigned to the GWC node by the Call Agent. It also provides the specific Exec Lineup and Term Type characteristics assigned to the Call Agent to support the GWC node.
Bearer Network and Codec Profile	This area indicates the bearer network, bearer network fabric type and the codec profile used by the GWC node.
GWC Statistics Data:	Click the **Statistics** button to display the total number of endpoints reserved for all gateways currently associated with the selected GWC.
GWC default gateway domain name:	This area displays the default gateway domain name - common to all MTAs gateways associated with this GWC (applicable to cable solutions only). If not configured, the system displays <None>. For information about how to configure the default gateway domain name, see procedure "Add and configure a GWC node" (page 111).
GWC Autonomous Swact:	This area displays the current status (enabled or disabled) of the GWC autonomous SWACT option. If the option is enabled, the current pre-SWACT timer is also displayed.

For information about the General Settings area, see procedure "Enable or disable CICM location change reporting" (page 278).

For information about using the Change buttons displayed on the screen, see to the following procedures:

- "Change the service profile of a GWC node" (page 228)
- "Change the network codec profile for a GWC node" (page 270)
- "Change the Exec Data values for an existing GWC node" (page 233)
- "Enable or disable GWC autonomous SWACT" (page 236)
- "Modify the Pre-Swact Timer" (page 240)

View gateway provisioning data for a GWC node

Purpose of this procedure

Use this procedure to view gateway data for a selected Gateway Controller (GWC) node.

When to use this procedure

Use this procedure when you require specific information about the gateways associated with a GWC node:

- gateways names
- gateways domain name (if configured on the GWC)
- IP addresses
- profiles used
- maximum and reserved terminations
- protocol used, including version and port
- PEP server or application layer gateways (ALG) used
- adjacent internet transparency zones
- root zones used (Centrex IP Client Manager gateways only)
- node name and number
- frame/unit/slot number
- logical group location (LGRPLOC)
- optional data, including Rasless attribute setting for H.323 gateways

Prerequisites and guidelines

There are no prerequisites or guidelines for this procedure.

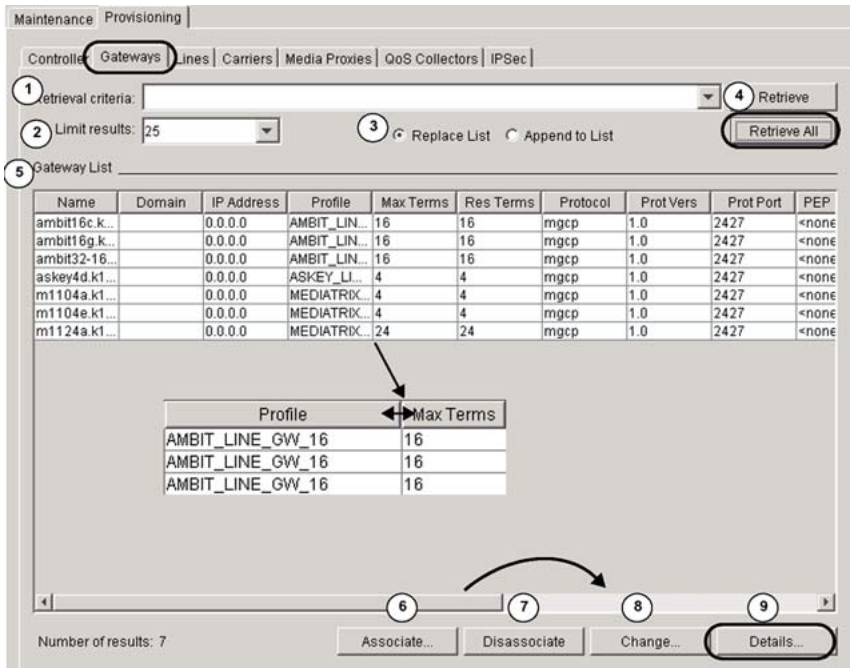
Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree in the far left frame.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to view.

3 Click the **Provisioning** tab, the **Gateways** tab, and then the **Retrieve All** button to view information about all gateways associated with the selected GWC node. Any newly-created gateways are added to the end of the list.

To review the search functions, see the table at the end of this procedure.

Select the edge of any tab to adjust the display. To view any hidden gateway information, slide the horizontal scroll bar near the bottom of the screen to the right.



The name UE9000MG may appear in the gateway list. This gateway is automatically entered in the list when a Media Gateway (MG) 9000 is provisioned in the system as a Virtual Media Gateway (VMG).

4 Use the **Details** button at the bottom of the screen to display the following additional information:

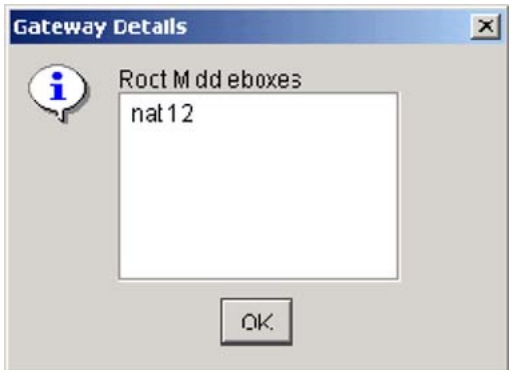
- for Centrex IP Client Manager (CICM) gateways only: any root middleboxes configured to interact with a gateway
- any optional application data defined for the selected gateway, including Rasless attribute setting for H.323 gateways

Perform the following steps:

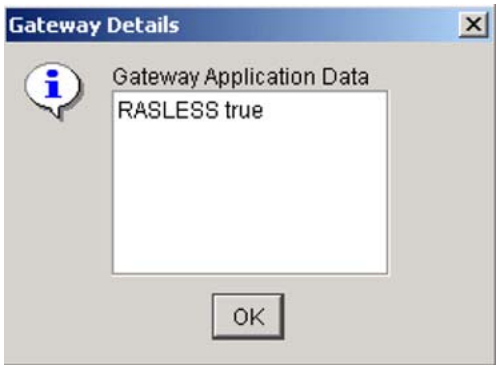
a. Select a gateway in the list.

b. Click the **Details** button at the bottom of the screen.

- If you selected a CICM gateway, any root middleboxes configured for this gateway are displayed in the Gateway Details information box.



- If you selected an H.323 gateway, the Rasless option setting ("true" or "false") is displayed in the Gateway Details information box.



- If the selected gateway does not have any optional data defined and there are no root middleboxes associated with it, the system displays the following message.

c. Click **OK** to close the information box.

5 Repeat this procedure as required for gateways you wish to view on other GWC nodes.

6 The procedure is complete.

—End—

The following table describes the gateway search criteria functions.

Gateway search criteria functions

	Menu component	Description
1	Retrieval criteria selection box and drop-down list	Enter a search criteria string in this field. Up to 20 search strings are saved during one session. Previous search strings can be recalled by selecting from the drop-down list. For more information about using search string, see table Examples of gateway search criteria.
2	Limit results selection box and drop-down list	Select a value from the drop-down list. This value limits the number of matching entries returned in response to the query. Valid values include: 25, 50, 100, 250, 500, 1000 and "no limit". The "no limit" value is still itself limited by the maximum number of entries currently downloadable.
3	Replace List radio button	Deselect this option if you do not want the query results to replace previously existing data displayed in the table. The default selection is to replace the existing data.
	Append to List radio button	Select this option if you want the query results to be appended to the existing data displayed in the table.
4	Retrieve button	This selection retrieves data from the CS 2000 GWC Manager server database matching the specified search retrieval criteria. The data presented is a "snapshot" of the CS 2000 GWC Manager database based on the currently provisioned data. The view is not updated in real time. Newly added or deleted data will not be added to or deleted from the displayed table view, except when there is a deletion of endpoints. If an carrier endpoint is selected from the table and deleted using the Delete button, then the endpoint will be removed from the table if deletion was successful.
	Retrieve All button	This selection retrieves all the gateways. Values in the "Retrieval criteria" and "Limit results" are ignored.

	Menu component	Description
5	Gateways table	These are the tables where the search results are displayed. By clicking on a column header, you can sort the rows in ascending order, based on the values in that column. By clicking on the column header a second time, you can sort the rows in descending order. The data is not preserved once another Gateway Controller node is selected; however, the retrieval criteria are maintained in the drop-down list so the same search can be re-executed.
6	Associate Button	Use this button to associate a line, trunk, UAS or gateway to the GWC.
7	Disassociate Button	Use this button to disassociate a gateway from this GWC node.
8	Change button	Use this button to change certain attributes of the gateway. For more information, see procedure "Change gateway attributes" (page 254).
9	Details button	Use this button to view any root middleboxes provisioned for a CICM gateway or RAS-less option setting provisioned for an H.323 gateway.

Examples of gateway search criteria

Examples of gateway search criteria

The gateway panels utilize the same search functionality. The functionality is similar to that available in web search engines.

- One or more strings can be entered in the Retrieval Criteria, separated by space(s).
- Each string in the criteria is compared with the value in each column. If a match is found in any column, the record will be returned.
- Each string in the criteria is automatically wildcarded at the beginning and end of the string. (For example, the string "gate" will match "MYGATEWAY" and "GATEWAY1".)
- Two special characters are supported as modifiers: the plus "+" and minus "-" signs.

  The "+" plus character prefixed to the string (e.g. "+gate") means the value must match. The "-" character prefixed to the string (e.g. "-gate") means the value must not match.

  The "+" character is assumed, and therefore is not typically used.
- The search is not case sensitive. A string using "gate" will return records where the following strings are found: "MYGATEWAY", "MyGateway", or "mygateway".

Example Retrieval Criteria: "gate"

Expected Results: Returns all records where the string is found in any column.

View lines provisioning data for a GWC node

Purpose of this procedure

Use this procedure to view lines provisioning data for a selected Gateway Controller node.

When to use this procedure

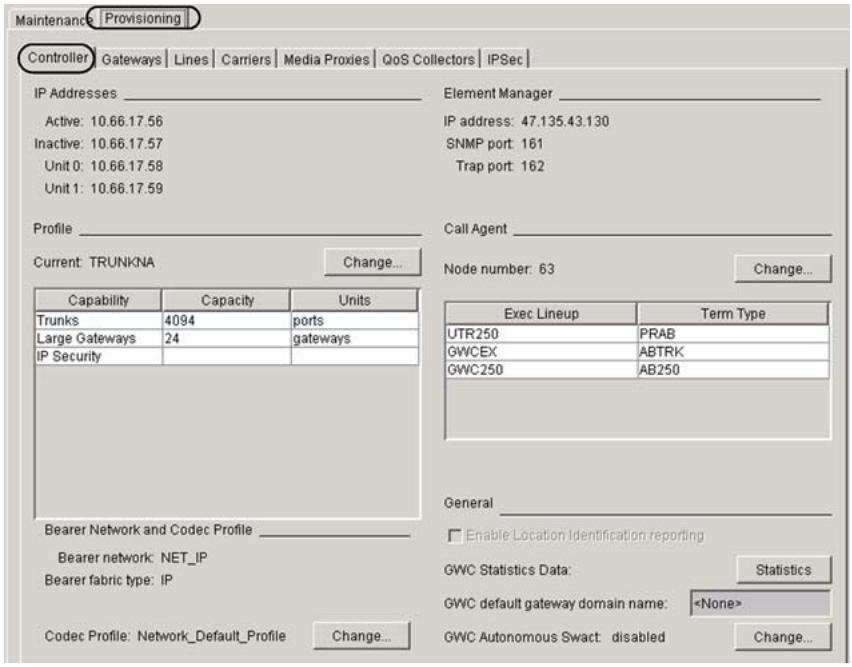
Use this procedure when you require specific lines provisioning information associated with a GWC node.

Prerequisites and guidelines

There are no prerequisites or guidelines for this procedure.

Action

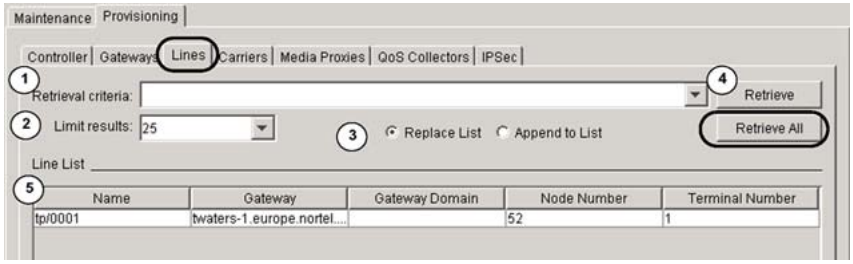
Step	Action
	At the CS 2000 GWC Manager client
1	At the CS2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree in the far left frame.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to view.
3	Click the **Provisioning** tab, then the **Controller** tab to view general node provisioning information for a selected GWC node.



4 Click the **Lines** tab.

5 Click the **Retrieve All** button tab to view all information related to line endpoints associated with the selected GWC node.

To review the search functions numbered in the following figure, see the table at the end of this procedure.



6 Repeat this procedure as required to view line endpoints on other GWC nodes.

7 The procedure is complete.

—End—

The following table describes the line endpoint search criteria functions.

Line endpoint search criteria functions

Step	Menu component	Description
1	Retrieval criteria selection box and drop-down list	Enter a search criteria string in this field. Up to 20 search strings are saved during one session. Previous search strings can be recalled by selecting from the drop-down list. For more information about using search strings, see table Line endpoint search criteria examples.
2	Limit results selection box and drop-down list	Select a value from the drop-down list. This value limits the number of matching entries returned in response to the query. Valid values include: 25, 50, 100, 250, 500, 1000 and "no limit". The "no limit" value is still itself limited by the maximum number of entries currently downloadable.
3	Replace List radio button	Deselect this option if you do not want the query results to replace the existing data displayed in the table. The default selection is to replace the existing data.
	Append to List radio button	Select this option if you want the query results to be appended to the existing data displayed in the table.
4	Retrieve button	This selection retrieves data from the CS 2000 GWC Manager server database matching the specified search retrieval criteria. The data presented is a "snapshot" of the CS 2000 GWC Manager database based on the currently provisioned data. The view is not updated in real time. Newly added or deleted data will not be added to or deleted from the displayed table view, except when there is a deletion of endpoints. If an carrier endpoint is selected from the table and deleted using the Delete button, then the endpoint will be removed from the table if deletion was successful.
	Retrieve All button	This selection retrieves all the gateway or endpoint data. Values in the "Retrieval criteria" and "Limit results" are ignored.
5	Lines table	These are the tables where the search results are displayed. By clicking on a column header, you can sort the rows in ascending order, based on the values in that column. By clicking on the column header a second time, you can sort the rows in descending order.

The data is not preserved once another Gateway Controller node is selected; however, the retrieval criteria are maintained in the drop-down list so the same search can be re-executed.

Line endpoint search criteria examples

The search functionality is similar to that available in web search engines.

- One or more strings can be entered in the Retrieval Criteria, separated by space(s).
- Each string in the criteria is compared with the value in each column. If a match is found in any column, the record will be returned.
- Each string in the criteria is automatically wildcarded at the beginning and end of the string. (For example, the string "gate" will match "MYGATEWAY" and "GATEWAY1".)
- Two special characters are supported as modifiers: the plus "+" and minus "-" signs.

  The "+" plus character prefixed to the string (e.g. "+gate") means the value must match. The "-" character prefixed to the string (e.g. "-gate") means the value must not match.

  The "+" character is assumed, and therefore is not typically used.
- The search is not case sensitive. A string using "gate" will return records where the following strings are found: "MYGATEWAY", "MyGateway", or "mygateway".

Example Retrieval Criteria: "gate"

Expected Results: Returns all records where the string is found in any column.

Example Retrieval Criteria: "ncs"

Expected Results. Returns all records where the string is found, in any column. A match for the example string could be found in the Protocol column.

Retrieval Criteria: "47.108.2 -ncs"

Expected Results: Returns all records where the string "47.108.2" is found in any column and the string "ncs" is not found. The search should return the records of gateways where the subnet equals "47.108.2" and the protocol is not "ncs".

Change the service profile of a GWC node

Purpose of this procedure

Use this procedure to display the Gateway Controller (GWC) service profile currently provisioned for a specific GWC node and change the node's service profile to a different profile without having to re-provision the node.

Only change options listed in table "Supported Gateway Controller profile changes" (page 229) are supported. No other GWC service profile changes can be made without re-provisioning the node.

When to use this procedure

Use this procedure when wish to do change a GWC profile without re-provisioning the node.

Prerequisites and guidelines

Prerequisites

You must first busy the GWC node services using the CS 2000 GWC Manager before changing the service profile of a GWC node. Follow procedure "Busy a GWC node" (page 462).

In addition, the following prerequisites apply to performing this procedure:

- If you are using this procedure to change an audio controller to one with an RMGC profile, before completing this procedure you must first complete procedure "Add or change default domain for the CS 2000 - required by RMGC" (page 65) to ensure that a valid default domain name is in the GWC Manager database.
- See your solution level documentation for other network requirements before completing this procedure.
- All steps in this procedure must be completed in order for the change profile process to be successful.
- Determine the hardware on which the selected GWC node operates. Some GWC service profiles are supported only on the MCPN905 hardware. The CS 2000 SAM21 Manager displays the card name (MCPN905 or MCPN750) in the Equip tab of the card view.

Supported change options

ATTENTION

The APG functionality has been removed in the (I)SN07 release. All GWC service profiles that were required to support the APG functionality (all profiles with "APG" in their names, such as, SIP_T_APG) are obsolete. These profiles are still present in the GWC Manager GUI, but to ensure that resources are not allocated for obsolete functionality, do not use these profiles. For more information, see *Gateway Controller Basics* (NN10189-111).

See the following table to determine which GWC profiles can be changed.

Supported Gateway Controller profile changes

Change from	Change to
AUDCNTL	AUDCNTL_RMGC
AUDCNTLINTL	AUDCNTL_RMGCINTL
AUDCNTL_RMGC	AUDCNTL
AUDCNTL_RMGCINTL	AUDCNTLINTL

ATTENTION

The following changes apply only to GWCs configured on MCPN905 cards and are not reversible. Once the following changes are applied, you cannot revert them to the previous configuration without re-provisioning the node.

SMALL_LINENA	SMALL_LINENA_V2 or LINE_TRUNK_AUD_NA
SMALL_LINEINTL	SMALL_LINEINTL_V2 or LINE_TRUNK_AUD_INTL
LARGE_LINENA	LARGE_LINENA_V2 or LINE_TRUNK_AUD_NA
LARGE_LINEINTL	LARGE_LINEINTL_V2 or LINE_TRUNK_AUD_INTL

CAUTION

Possible service disruption

The LINE_TRUNK_AUD profiles do not support DMS-250 PTS or DMS-250 PRI trunks, but do support DMS-250 ISUP trunks. DMS-250 PTS and DMS-250 PRI trunks will not operate properly after the change from TRUNK to LINE_TRUNK_AUD profiles.

TRUNK_NA	LINE_TRUNK_AUD_NA
TRUNK_INTL	LINE_TRUNK_AUD_INTL

Action

Step	Action

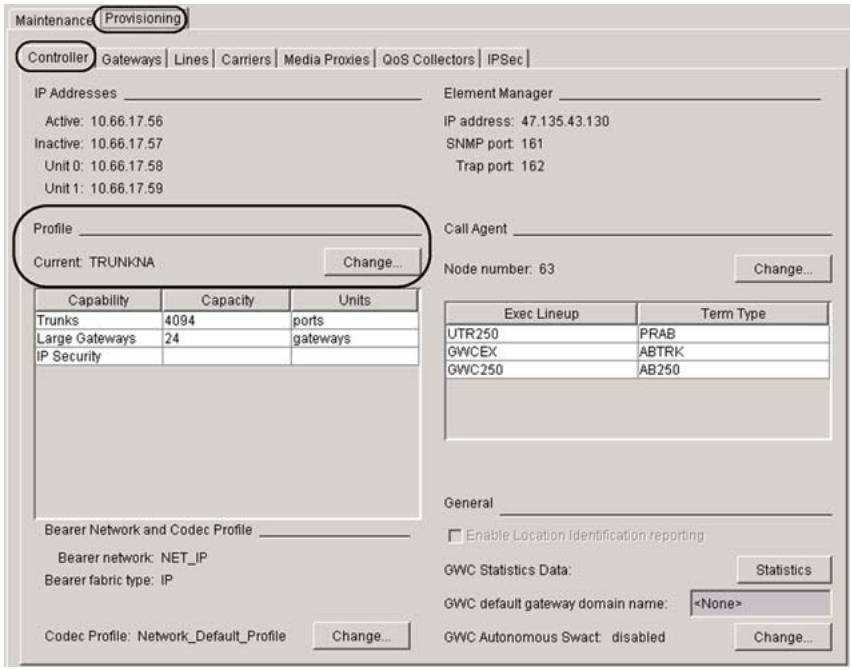
At the CS 2000 GWC Manager client

1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

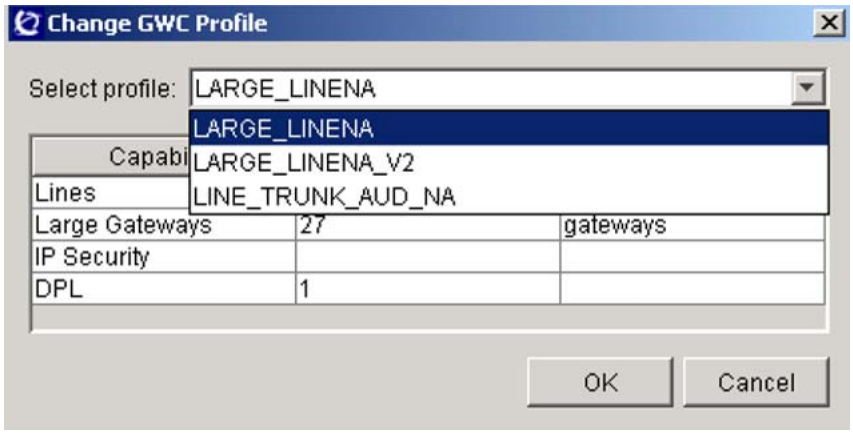
2 From the Contents of: Gateway Controller frame, select the GWC node that you wish to change a profile for.

3 Click the **Provisioning** tab, then click the **Controller** tab.

The **Profile** section displays the Gateway Controller profile for the node selected.



4 Click the **Change** button to display the Change GWC Profile dialog box.



5 Click the Select profile: field and select a new profile from the drop-down menu.

The set of capabilities associated with the new profile is displayed.

The system displays only profiles compatible with the current profile.

Table "Supported Gateway Controller profile changes" (page 229) lists the supported change options.

6 Click **OK** to initiate the change.

Following the successful change, a dialog box is displayed to inform you that the GWC must be reloaded to enable the change and the following major data mismatch alarm is generated for both GWC units:

EM indicates provisioned data mismatched in this unit.

If the change request fails, a dialog is displayed containing a description of the failure reason.

7 Perform the following steps to complete the profile change.

a. Busy the inactive unit. Follow procedure "Busy a GWC node" (page 462).

b. Lock the inactive unit. Follow procedure "Lock a GWC card" (page 466).

c. Unlock the inactive unit. Follow procedure "Unlock a GWC card" (page 469).

The card is booted and provisioned data is downloaded following the unlock operation. The major data mismatch alarm condition is cleared for this unit.

d. When the operational state of the inactive unit becomes enabled, switch activity (SWACT) of the GWC cards in the node. Follow

procedure "Invoke a manual protection switch (warm SWACT)" in *Gateway Controller Security and Administration* (NN10213-611).

The major data mismatch alarm condition is cleared and the following minor alarm is generated for the new inactive unit:

GWC Profile loaded into Flash will activate on next reload.

e. Busy the new inactive unit.

f. Lock and Unlock the associated card.

The card is booted and provisioned data is downloaded following the unlock operation. The minor flash alarm condition is cleared for this unit.

The operational state of the new inactive unit becomes enabled.

8 The procedure is complete.

—End—

Change the Exec Data values for an existing GWC node

Purpose of this procedure

This procedure describes how to change the Exec Data settings for a selected Gateway Controller (GWC) node, without having to delete and re-add the node.

In (I)SN09U, this functionality applies only to GWCs configured with the service profile TRUNKNA.

This procedure updates the GWC Exec Data values in the GWC Manager database and in the Core table SERVRINV.

When to use this procedure

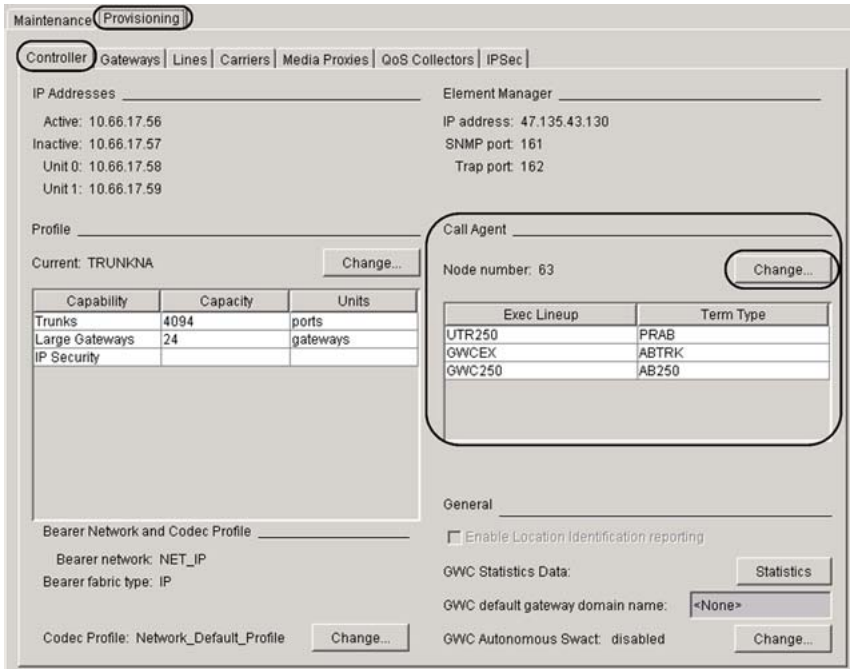
Use this procedure when you need to change the Exec Data settings for a selected GWC without deleting and re-adding the node.

Prerequisites and guidelines

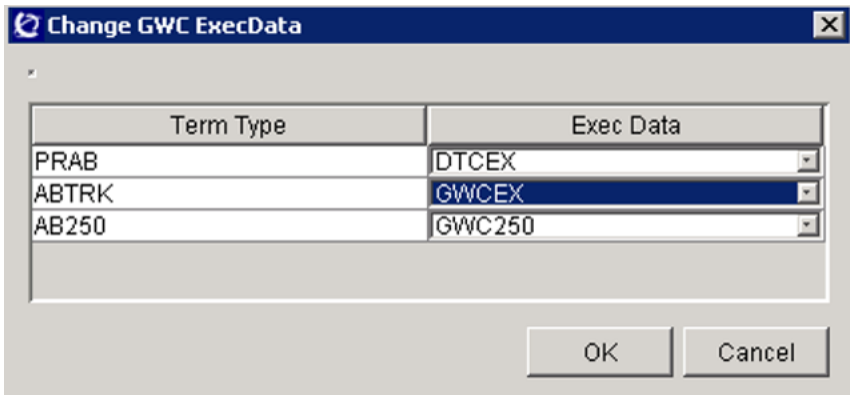
There are no prerequisites to this procedure.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node for which you wish to change the Exec Data settings.
3	Click the **Provisioning** tab and the **Controller** tab. The **Call Agent** section displays the current Exec Lineup and Term Type characteristics associated with the selected GWC.



4 Click the **Change** button to display the Change GWC ExecData dialog box.



5 Click the Exec Data field that you want to change and from the drop-down list, select a new value for that field.

6 Click **OK** to initiate the change.

Following the successful change, a dialog box is displayed to inform you that the GWC must be reloaded to enable the change. Until the GWC is reloaded, a GWC307 major alarm is raised.

If the change request fails, a message is displayed containing a description of the failure reason.

7 Perform the following steps to complete the change and clear the GWC307 major alarm.

a. Busy the inactive unit. Follow procedure "Busy a GWC node" (page 462).

b. Return the inactive unit to service. Follow procedure "Manually return a GWC node to service" (page 472).

c. Switch activity (SWACT) of the GWC cards in the node. Follow procedure "Invoke a manual protection switch (warm SWACT)" in *Gateway Controller Security and Administration* (NN10213-611).

d. Repeat step a through step b for the mate GWC unit (now inactive) in the node.

8 The procedure is complete.

—End—

Enable or disable GWC autonomous SWACT

Purpose of this procedure

This procedure describes how to enable or disable the autonomous switch-of-activity (SWACT) functionality on any trunk- or large line-type Gateway Controllers (GWC).

For new or newly upgraded to GWCs, the autonomous SWACT option is by default disabled.

This functionality allows the GWC to automatically invoke a warm SWACT after losing communication with all associated media gateways. Invoking an autonomous SWACT is an attempt to automatically recover lost communication, but it does not guarantee the recovery. A warm SWACT switches call processing activity from one GWC unit to the mate GWC unit within the GWC node.

For more information about warm SWACT, see procedure "Invoke a manual protection switch (warm SWACT)" in *Gateway Controller Security and Administration* (NN10213-611).

This procedure also allows you to configure the time (Pre-Swact Timer) that the GWC has to wait before performing a SWACT.

When to use this procedure

Use this procedure if you wish to enable or disable the autonomous SWACT option on a selected GWC.

If you only wish to change the Pre-Swact Timer for a GWC with the autonomous SWACT already enabled, see procedure "Modify the Pre-Swact Timer" (page 240).

Prerequisites and guidelines

The following guidelines apply to this procedure:

- The capability to enable the GWC autonomous SWACT is available for all GWCs, but the autonomous SWACT can only occur on GWCs hosting trunk and/or large line gateways, excluding GWCs hosting Access Bridging Interface (ABI) and/or SIP Line gateways.
- This functionality is not available for GWCs hosting audio servers or small line gateways.
- An autonomous SWACT of the GWC is an attempt to recover lost communication between the GWC and its associated media gateways, but it does not guarantee the recovery.

- When a GWC loses communication with all associated media gateways, GWC319 critical alarm is raised. When GWC initiates the autonomous SWACT, GWC318 critical alarms is raised.

  For more information about these alarms and associated log reports, see *Gateway Controller Fault Management* (NN10202-911).

- After an autonomous SWACT, the newly active unit does not attempt another autonomous SWACT until communication is restored to at least one gateway and the 10-min sanity timer expires.

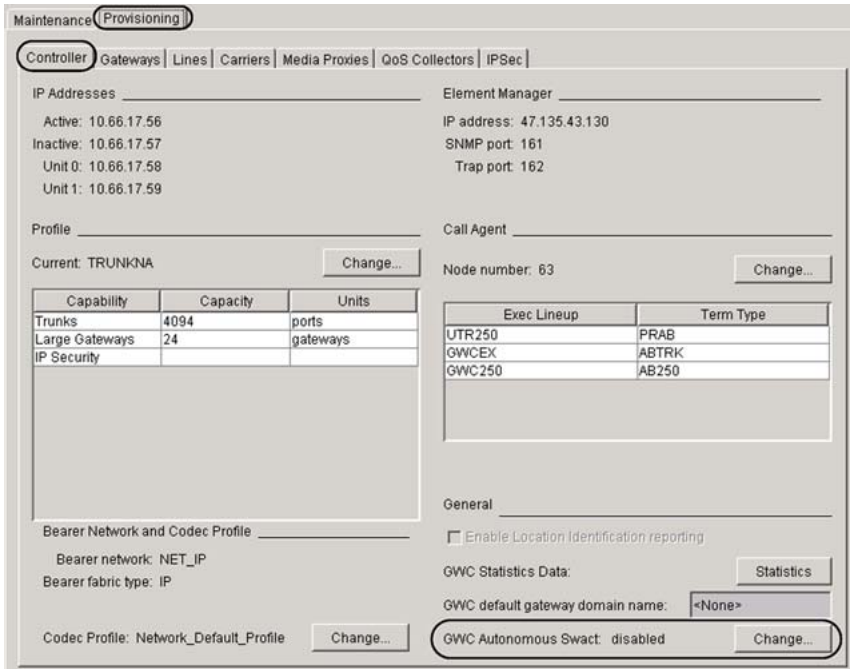
  If after 30 s, the newly active unit is unable to detect communication with any associated gateway, the GWC319 alarm is raised. You can continue waiting until the GWC detects communication with at least one gateway, or you can perform manual SWACT to clear the alarm and attempt to restore the communication.

  For information about invoking a manual SWACT, see procedure "Invoke a manual protection switch (warm SWACT)" in *Gateway Controller Security and Administration* (NN10213-611).

- The autonomous SWACT functionality does not affect any manual SWACT requests. When you request a manual SWACT, all pending autonomous SWACT requests are cancelled.

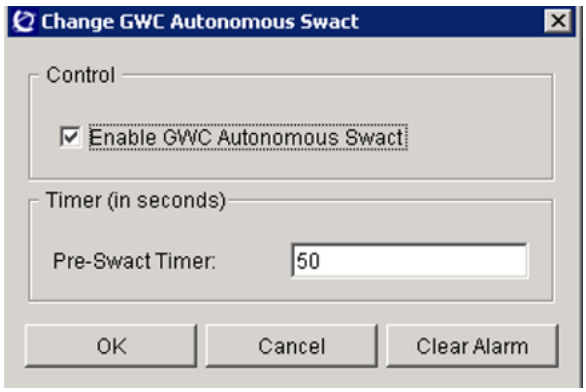
Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node for which you wish to enable or disable the autonomous SWACT option.
3	Click the **Provisioning** tab and the **Controller** tab.



4 Click the GWC Autonomous Swact: **Change** button.

5 At the displayed Change GWC Autonomous Swact dialog box, click the Enable GWC Autonomous Swact check box to enable or disable the autonomous SWACT option.



6 If you are enabling the autonomous SWACT option, specify the time that the GWC has to wait before performing a SWACT.

In the Pre-Swact Timer box, enter a value between 0 and 300, in 10-s intervals.

If required, you can modify this value after the GWC autonomous SWACT is enabled. See procedure "Modify the Pre-Swact Timer" (page 240) for details.

7 Click **OK** to change the status (enable or disable) of the autonomous SWACT option.

Click **Cancel** if you wish to cancel the operation.

After the autonomous SWACT occurs and the problem on the inactive unit is solved, you can use the **Clear Alarm** button to manually clear the GWC318 critical alarm, which is generated when the GWC performs the autonomous SWACT.

8 The procedure is complete.

—End—

Modify the Pre-Swact Timer

Purpose of this procedure

This procedure describes how to change the time (Pre-Swact Timer) that the GWC has to wait before performing an autonomous SWACT.

For information about the GWC autonomous SWACT option, see procedure "Enable or disable GWC autonomous SWACT" (page 236).

When to use this procedure

Use this procedure when you wish to change the Pre-Swact Timer for a GWC with the autonomous SWACT enabled.

Prerequisites and guidelines

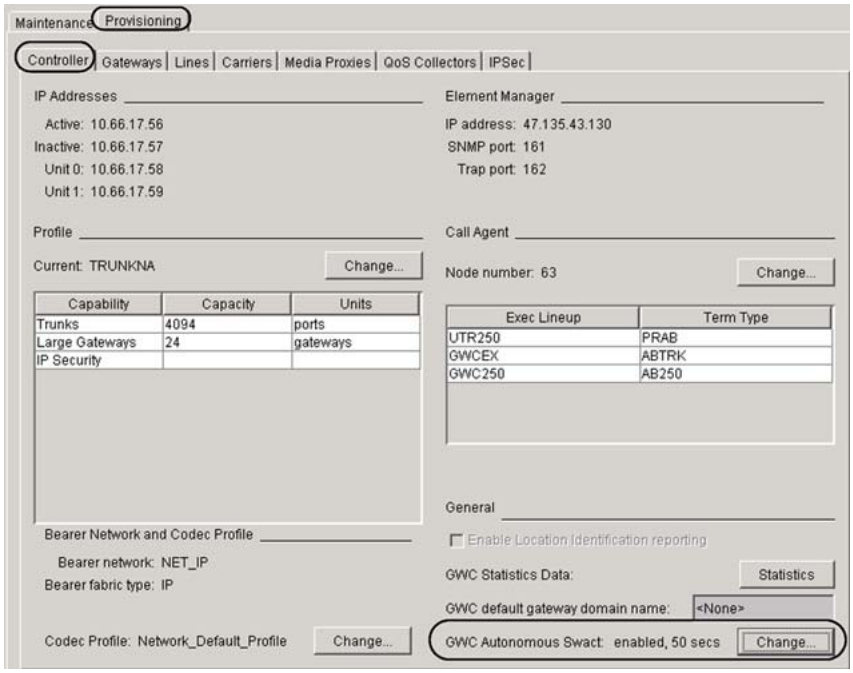
The following prerequisites and guidelines apply to this procedure:

- The autonomous SWACT functionality is only supported on trunk- and large line-type GWCs.
- The autonomous SWACT option must be already enabled on the selected GWC.

  The state of the GWC autonomous SWACT and the currently configured timer is displayed on the Controller panel for the selected GWC.

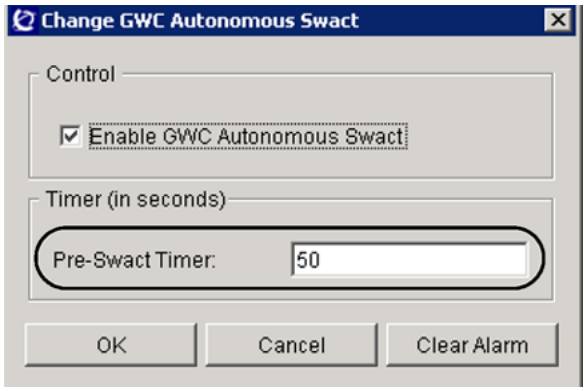
Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node for which you wish to enable or disable the autonomous SWACT option.
3	Click the **Provisioning** tab and the **Controller** tab.



4 Click the GWC Autonomous Swact: **Change** button. The Change GWC Autonomous Swact dialog box opens.

5 In the Pre-Swact Timer box, enter the new value between 0 and 300, in 10-s intervals. This value specifies the time that the GWC has to wait before performing an autonomous SWACT.



6 Click **OK** to confirm your change.

Click **Cancel** if you wish to cancel the operation.

After the autonomous SWACT occurs and the problem on the inactive unit is solved, you can use the **Clear Alarm** button to manually clear the GWC318 critical alarm, which is generated when the GWC performs the autonomous SWACT.

7 The procedure is complete.

—End—

Add a certificate file for a third-party gateway

Purpose of this procedure

This procedure describes how to create and add to the system a certificate file - an XML file that defines a profile for a new third-party gateway. You can also create a new certificate (profile) if you wish to change some attributes of an existing gateway. For more information, see procedure "Change gateway attributes" (page 254).

CAUTION
Possible service disruption
Introducing and using a new gateway profile may cause some service disruptions if the certificate created for that profile has not been properly tested. If required, contact your next level of support.

Once a certificate file is defined and placed in the /ThirdPartyCertificates directory, it becomes available to be transferred to the Gateway profile name: drop-down list at the Associate Media Gateway dialog box. Every 5 minutes, the system checks the directory for any changes and updates the gateway profile list.

If the system detects any problems related to a certificate file, a CMT301 minor alarm is raised and the new certificate is not placed on the gateway profile list. To clear the alarm, you must correct the problem described in the alarm, then place the corrected file in the directory. During the next directory check, the system detects the new certificate and transfers it to the gateway profile list.

For the description of the CMT301 alarm conditions, see log report CMT301 in *Carrier Voice over IP Fault Management Logs Reference* (NN10275-909).

This procedure also describes how to remove an obsolete certificate file.

When to use this procedure

Use this procedure when you need to create a certificate file to define a new profile for the following third-party gateways:

- a new gateway that you wish to associate with a Gateway Controller (GWC)
- an existing gateway, for which you want to change some attributes.

Prerequisites and guidelines

The following prerequisites and guidelines apply to this procedure:

- The CS 2000 Management Tools server, GWC cards, and Core must be upgraded to an (I)SN09 or higher load.
- Before starting this procedure, obtain the IP address of the CS 2000 Management Tools server.

  Note: Only the root user can perform this procedure.

- Make sure that you are familiar with all the fields in the certificate file. For the description of each field, see table "Certificate file configuration fields" (page 250). Obtain the correct value for each field before starting the procedure. If necessary, contact your next level of support to obtain these values.
- If you want to change the profile currently assigned to a gateway, do not modify the certificate file associated with the profile. Instead, add a new certificate (profile) that will include the new attribute values, then execute Change Profile option from the Change Gateway dialog box. For more information, see procedure "Change gateway attributes" (page 254).

  ATTENTION
  Changing a GW to a different profile is potentially a risky operation. Thorough interop testing must be performed before creating a certificate with the Compatible Profiles field set to a profile other than itself. While some error checking is performed, it is the responsibility of the certificate creator to make the final decisions whether one profile is truly compatible with another.

- If you want to remove a certificate, make sure that there are no gateways associated with the profile defined by this certificate.
- If the system detects any problems related to a certificate file (such as, incorrect format or an attempt to delete a certificate currently used by some gateways), a CMT301 minor alarm is raised. For more information, see the description of log report CMT301 in *Carrier Voice over IP Fault Management Logs Reference* (NN10275-909).

Action

Step	Action
	At your workstation
1	Telnet to the CS 2000 Management Tools server by typing `> telnet <server>` and pressing the Enter key.

where

server is the IP address or host name of the CS 2000 Management Tools server.

2 When prompted, enter your user ID and password.

3 Change to the root user by typing

```
$ su - root
```

and pressing the Enter key.

4 When prompted, enter the root password.

5 Access the certificates directory by typing

```
$ cd  /opt/nortel/NTsesm/properties/certificates/
```

and pressing the Enter key.

This directory contains the following sub-directories:

- /NortelCertificates
- /ThirdPartyCertificates

ATTENTION

Do not add, remove, or modify any files in the /NortelCertificates directory. However, you can use an existing file in the /NortelCertificates or /ThirdPartyCertificates directory as a template for your new certificate file.

6 If you wish to view the current list of certificates in one of the sub-directories, complete the following sub-steps. Otherwise, continue with step 7.

a. Access the directory that you want to view by typing

```
$ cd <sub-directory>
```

and pressing the Enter key.

where

sub-directory is NortelCertificates or ThirdPartyCertificates

b. List the existing certificates by typing

```
$ ls
```

and pressing the Enter key.

Example response:

Each file name (without the extension ".certificate") reflects the gateway profile name listed in the Gateway profile name: drop-down menu at the Associate Media Gateway dialog box.

c. Return to the previous directory by typing

$ cd ..

and pressing the Enter key.

7 Choose a certificate file most similar to the new one that you want to create and copy it (with a new name) to the /ThirdPartyCertificates directory. Implement the following rules:

- You must insert space after the <file_name>.
- Certificate names are not case sensitive, however, the recommendation is to use upper case (except for the extension). Once the certificate is imported into the system, it is listed in upper case. This is particularly important when registering a gateway using OSSGate application, when you must use the upper case name regardless of the certificate file name case.
- Certificate names must be unique (including the case) within both sub-directories. For example, if the ABC.certificate file exists in one of the certificate sub-directories, you cannot add a new ABC.certificate or abc.certificate file to the ThirdPartyCertificates sub-directory. If the system detects duplicate names, an alarm is generated. For more information, see the description of log report CMT301 in *Carrier Voice over IP Fault Management Logs Reference* (NN10275-909).

Type

$ cp ./<sub-directory>/<file_name> ./ThirdPartyCertificates/<new_file_name>

and press the Enter key.

where

sub-directory is NortelCertificates or ThirdPartyCertificates

file_name is an existing certificate file name that you are using as a template

new_file_name is the new certificate file name, consisting of the upper-case new profile name and the lower-case extension ".certificate". For example, ABC_40.certificate.

Example

$ cp ./NortelCertificates/ASKEY_LINE_GW_12.certificate ./ThirdPartyCertificates/MY_NEW.certificate

8 Access the ThirdPartyCertificates directory by typing

```
$ cd ThirdPartyCertificates
```

and pressing the Enter key.

9 Open the newly added file using an available text editor. If you are using UNIX vi tool, type

```
$ vi <new_file_name>
```

and pressing the Enter key.

where

new_file_name is the new certificate file name that you added in step 7

Example

Field names are listed in brackets (for example, <MaxEndpoints>) on both sides of the configuration value.

```
<certificate>

 <MaxEndpoints>30</MaxEndpoints>
 <Category>SMALL</Category>
 <EndpointType>managedLens</EndpointType>
 <GenerateLGRP>false</GenerateLGRP>
 <ResvTermMandatory>false</ResvTermMandatory>
 <ChangeIPAvailable>false</ChangeIPAvailable>
 <DispPhyLocation>false</DispPhyLocation>
 <InventoryType>Small Line Gateway</InventoryType>
 <InventoryRole>Media Gateway</InventoryRole>
 <SupportedProtocol>
  <protocolName>mgcp</protocolName>
  <version>1.0</version>
 </SupportedProtocol>
 <GWCProfileNumber>49</GWCProfileNumber>
 <EPIDGenDesc>manual</EPIDGenDesc>
 <ServiceTypeList>line</ServiceTypeList>
 <ServiceTypeList>ITRANS</ServiceTypeList>
 <CompatibleGWProfileList>ASKEY_LINE_GW_30</CompatibleGWProfileList>

 <GatewayNameFormatList>
  <nameFormat formatKey="GATEWAY.UE511" enabled="true">
     <delimiters>.</delimiters>
     <minLength>1</minLength>
     <maxLength>32</maxLength>
     <minTokens>1</minTokens>
     <maxTokens>16</maxTokens>
     <name>IAD Gateway</name>
```

10 Navigate your cursor to each field that you want to change for your new profile and replace the existing value with a new value.

For the description of each field, see table "Certificate file configuration fields" (page 250).

11 When all the changes are complete, save the file making sure that no hidden characters (such as, ^M) are included in the document.

Every 5 minutes, the system checks the ThirdPartyCertificate directory and updates the Gateway profile name: drop-down list at the Associate Media Gateway dialog box.

If the system detects any problems with the certificate, a minor alarm is generated. To clear the alarm, change the content of the certificate file as described in log CMT301. For more information, see the description of log report CMT301 in *Carrier Voice over IP Fault Management Logs Reference* (NN10275-909).

Use the following table to determine your next step.

If you	Do
need to change a certificate file currently not assigned to any gateway	repeat step 9 to step 11
need to change a certificate file currently assigned to a gateway, without creating a new certificate	contact your next level of support
need to remove a certificate file	go to step 12
do not need to make any further changes	the procedure is complete

12 Make sure that there are no gateways associated with the profile defined by this certificate. If necessary, complete one of the following steps:

- Remove all gateways that have the selected certificate (profile) assigned to them. If required, see procedure "Disassociate a media gateway" (page 273).
- Change the gateway profile to a different profile. Follow procedure "Change gateway attributes" (page 254).

13 Access the ThirdPartyCertificates directory by typing

```
$ cd /opt/nortel/NTsesm/properties/certificates
      /ThirdPartyCertificates
```

and pressing the Enter key.

14 Remove the required certificate file by typing

```
$ rm <file_name>
```

and pressing the Enter key.

file_name

is the certificate file name that you want to remove

15 The procedure is complete.

—End—

Certificate file configuration fields

The following table lists certificate fields and values that define a gateway profile.

Certificate file configuration fields

Field	Description
<MaxEndpoints>	Defines the maximum number of the endpoints that can be added to a gateway. This value must be lower or equal to the maximum number of endpoints that can be assigned to a GWC with which this gateway will be associated.
<Category>	Defines endpoint lookup algorithms used in the GWC device. There are four available values: • SMALL - for gateways with small capacities (31 endpoints or less) • LARGE - for gateways with large capacities (more than 31 endpoints) • AUDIO - special category used with audio gateways. These gateways use pools of endpoints. • APG - special category used for APG gateways.
<EndpointType>	Defines how endpoints are managed within Carrier Voice over IP products. This field affects the ability of a gateway to pre-provision endpoints and alters where and when endpoints are provisioned. Use one of the following values: • managedLens - line gateways with managed logical groups (LGRP) • ue9000Lens - UE9000 gateway unique processing • cicmLens - CICM gateway unique processing • carrierTrksGwcNN - trunk gateways, no LGRPs • carrierTrksSubNN - trunks gateways, no LGRPs • nocarrierTrkGwcNN - H.323 gateways • asynchronousBridg - ABI • thirdPartyLens - large line third-party gateway unique processing
<GenerateLGRP>	Indicates whether a new logical group (LGRP) is created when a gateway with this profile is associated. This field applies to line gateways that allow the system to manage TID allocation. Use one of the following values: • true - a gateway that is added will cause a new LGRP to be created. • false - the existing LGRPs that still have capacity will be used.
<LgrpType>	Indicates the type of LGRP to be generated at the CM. For third-party large line gateways, use one of the following values: • LL_3RDPTY: for 1024-size LGRPs • LL_3RDPTY_2K: for 2048-size LGRPs

Field	Description
<LgrpSize>value <LgrpSize>	Indicates the capacity of LGRPs. Use one of the following values: • 1024 - if the LgrpType is LL_3RDPTY • 2048 - if the LgrpType is LL_3RDPTY_2K Using the higher capacity of 2048 reduces the number of gateways that can be associated with a GWC. Specify this value only for large line gateways. Otherwise, a corrupt profile alarm will be raised and the certificate will not be loaded. If this field is not present, the system assumes the default value of 1024.
<ResvTerm Mandatory>	The value of "true" forces the user to specify a reserved terminations client value (at the Associate Media Gateway dialog box), instead of using the system default. Currently, only gateways that use the H.323 protocol need this restriction. For all other gateway types, this field is set to "false".
<ChangeIP Available>	Indicates whether the "Change gateway IP address" option is available at the Change Gateway dialog box. Currently, only H.323 gateways support this option. For all other gateways, this field is set to "false".
<DispPhyLocation>	Indicates whether additional fields describing the LGRP physical location should be datafilled when associating media gateway to a GWC. Currently, these fields apply to third-party large line and CICM profiles only. For all other gateways, this field should be set to "false".
<InventoryType>	Similar to the EndPoint Type field, defines how endpoints are provisioned. Unique behavior is associated with each available value. The following values are available: • Large Trunk Gateway • H.323 Gateway • Audio Server • Large Line Gateway • Small Line Gateway • CICM • UE9000MG • Third Party
<InventoryRole>	Defines the expected use of a gateway. Currently, the only available value is "Media Gateway".

<table>
<tr><th>Field</th><th>Description</th></tr>
<tr><td><SupportedProtocol></td><td>Defines protocol associated with the certificate (profile). Only one protocol can be associated with each certificate. If a gateway supports more than one protocol, a separate certificate must be created for each protocol. The following values are available for this field:
• NCS_PROTOCOL
• DSM-CC
• MEGACO
• MGCP
• TGCP
• H.323</td></tr>
<tr><td><GWCProfileNumber></td><td>This field is used in the GWC device and it dictates the behavior of the GWC. Contact your next level of support to determine which number you must use.</td></tr>
<tr><td><EPIDGenDesc></td><td>The EPID Generation field describes the behavior of endpoint groups that are expanded. It describes properties, such as using a "." (period) or "/" (slash) as naming delimiter. See the following table for the endpointDesc mappings.</td></tr>
<tr><td></td><td><table>
<tr><th>Element value</th><th>Delimiter</th><th>Channel start</th><th>Pad supported</th></tr>
<tr><td>manual</td><td></td><td>1</td><td>N</td></tr>
<tr><td>auto1</td><td>.</td><td>1</td><td>N</td></tr>
<tr><td>auto2</td><td>.</td><td>1</td><td>Y</td></tr>
<tr><td>auto3</td><td>/</td><td>1</td><td>N</td></tr>
<tr><td>auto4</td><td>/</td><td>1</td><td>Y</td></tr>
<tr><td>auto5</td><td>/</td><td>0</td><td>N</td></tr>
<tr><td>auto6</td><td>/</td><td>0</td><td>Y</td></tr>
<tr><td>auto7</td><td>.</td><td>0</td><td>N</td></tr>
<tr><td>auto8</td><td>.</td><td>0</td><td>Y</td></tr>
</table></td></tr>
<tr><td><ServiceTypeList></td><td>Defines the capabilities of the gateway. Some gateways can have multiple capabilities within the same list and have several values assigned to them. For example, a gateway can be a "line" type and have DQOS capability. The following values can be configured for this field:
• line
• trunk
• audio
• APG
• DQOS</td></tr>
</table>

Field	Description
	• ITRANS • H323 • ITRANS_ROAM
<CompatibleGW ProfileList>	Describes which profiles are compatible with the profile that you are defining. Enter the names of all profiles compatible with this profile (at minimum, the name of the profile being defined).
<GatewayName FormatList>	Defines the syntax for the name of the gateway associated with this certificate (profile). Gateways that do not conform to this definition cannot be associated with a GWC.
<EndpointName Format>	Defines the syntax for the name of the endpoints added to a gateway associated with this certificate (profile). The system does not allow to add any endpoints that do not conform to this definition.
<FQDN Supported>	Indicates whether the profile that you are defining supports the gateway default domain name configured on the GWC. Enter one of the following values: • trueWithDefaultDomain This value indicates that the profile supports the gateway default domain name. The gateway with this profile can be associated with a GWC that has or has not the gateway default domain name configured. In this scenario, the gateway name consists of two parts: the <host_name>configured when associating the gateway with the GWC, and the default gateway domain name, configured on the GWC. • false (or remove this field from the certificate) This value indicates that the profile does not support the gateway default domain name. The gateway with this profile cannot be associated with a GWC that has the gateway default domain name configured.

Change gateway attributes

Purpose of this procedure

Use this procedure to change attributes of a media gateway associated with a Gateway Controller (GWC) node. Some attributes can be changed without disassociating and reassociating gateways to a GWC node. The following attributes can be changed for one or more qualifying gateways:

- gateway IP discovery
- PEP (policy enforcement point) server
- application layer gateway (ALG)
- adjacent network zone
- root network zone
- gateway capacity
- gateway IP address and port number; applicable only to H.323 gateways that are behind an IP-VPN (NAT)-type network zone
- gateway profile

When to use this procedure

In general, use this procedure when you wish to change the attributes for a previously associated gateway without having to delete and re-add endpoints and disassociate and reassociate gateways. Specifically, use this procedure when you need to do the following tasks:

- Change the IP address or port number for a specific gateway (applicable only to H.323 gateways that are behind a NAT-type network zone).
- Decrease or increase a gateway's reserved port capacity.
- Insert a service zone in the network between the GWC and the gateway.
- Change the network service zone used by the GWC by changing the network address translator (NAT) device or limited bandwidth link (LBL) associated with the GWC.
- Change any of the root zones configured to interact with a Centrex IP Client Manager (CICM) gateway.
- Move a gateway to a different policy enforcement point (PEP) server in a cable network.
- Associate the gateway with a different ALG.
- Change the gateway profile assigned to the selected gateway.

Prerequisites and guidelines

You must first busy the GWC node services using the CS 2000 GWC Manager before changing gateway attributes. Follow procedure "Busy a GWC node" (page 462).

Only compatible gateway profiles support the change gateway profile option. All other attempts to change a profile are rejected by the system.

For any gateway that uses an associated middlebox or network zone, see *Nortel ATM/IP Solution-level Configuration* (NN10409-500), to determine if the middlebox or zone you are using has been configured with the appropriate bind, IP address and port to accommodate a change in IP or port addresses, or both.

When using this procedure to increase a gateway's endpoint capacity, observe the following guidelines. If required, see table "Media gateway profiles and characteristics" in *Gateway Controller Basics* (NN10189-111) for a complete list of all supported profiles and their characteristics.

- The gateway capacity cannot be changed to a value higher than the maximum capacity defined by the gateway profile. For example, if a gateway profile is defined to have a maximum capacity of 24, then the gateway capacity cannot be increased above this level (although it can be any number greater than 0 and less than or equal to this maximum).

  For CICM gateways, the only valid capacity values are: 1023, 2046, 3069.

  If you want to change the maximum capacity for the gateway, you must create a new profile (certificate), then perform the change gateway profile operation. For more information, see section "Change the gateway profile" (page 268).

- The capacity of the gateway cannot be changed to a value that results in overloading the total capacity of the GWC with which it is associated. Total GWC capacities can be viewed by clicking the **Provisioning** tab and then the **Controller** tab for a GWC and by reviewing the Profile section of this page. For example a change gateway capacity request is rejected if:

  — a GWC is defined with profile "SMALL_LINENA" having a Lines capacity of 6400 ports

  — the GWC already has enough gateways with reserved capacity that totals 6351, and the user attempts to increase an existing gateway's capacity by 50 lines or more.

Action

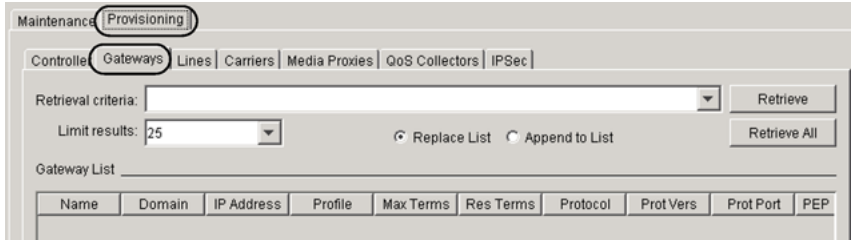
Step	Action

At the CS 2000 GWC Manager client

1 At the CS2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree.

2 From the Contents of: Gateway Controller frame, select a GWC node.

3 Click the **Provisioning** tab, the click the **Gateways** tab.



4 Use the following table to determine your next step:

If you wish to	Do
set gateways for IP discovery	go to step 5
perform *any other change* gateway operation	go to step 6

5 Perform the following set of steps to set gateway IP discovery for all gateways on the selected GWC node.

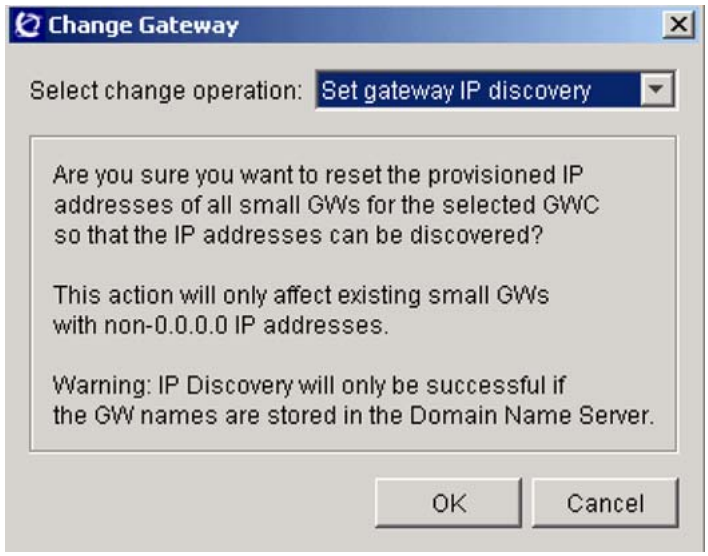
IP discovery operates across all gateways on the GWC and cannot be applied to a single gateway.

The IP discovery capability applies only to small gateways.

a. Click the **Change** button at the bottom of the screen to open the Change Gateway dialog box.

b. From the drop-down menu, select **Set gateway IP discovery** and click **OK**.

This process resets the IP addresses for all gateways associated with this GWC.

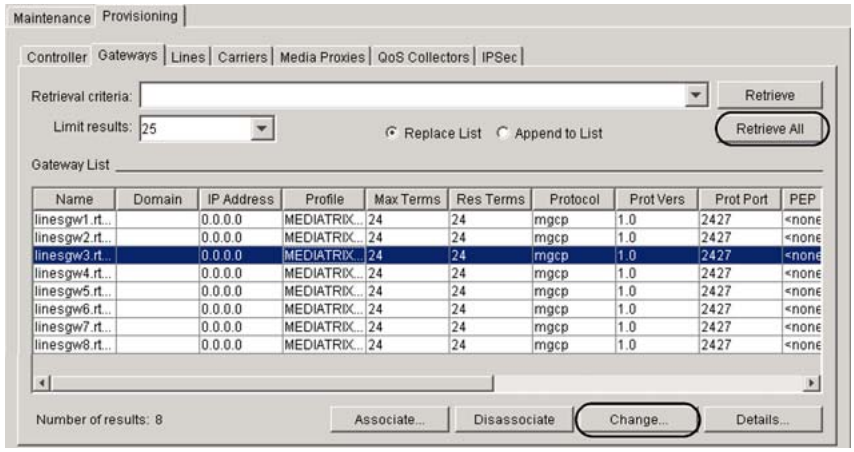


c. Read the Change Gateway prompt, and click **OK** to proceed with the change.

d. If prompted, click **OK** to confirm the change.

e. Go to step 12.

6 Click the **Retrieve All** button to view information about all gateways currently associated with the selected GWC node.



7 Select one or more gateways from the list.

To select multiple gateways, hold down the Shift key and select each gateway entry. Your selection is highlighted.

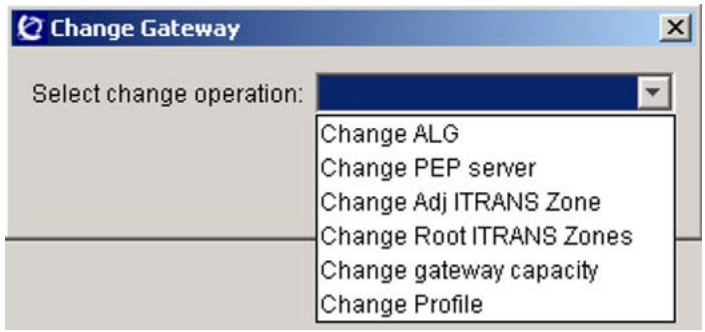
You cannot select multiple gateways if you wish to change the IP address of the gateways.

You cannot select multiple SIPVOICE gateways.

8 Click the **Change** button.

If there are no network zones configured on the GWC, the system displays the following message. Click **OK** to close this window.

9 At the Change Gateway dialog box, select the attribute you wish to change from the drop-down menu.



10 Use to the following table to determine your next step.

If you selected to change the	Do: go to section
ALG	"Change the ALG" (page 259)
PEP server	"Change the PEP server" (page 260)
adjacent network zone	"Change the adjacent network zone" (page 260)
root network zone for a CICM gateway	"Change the root network zones" (page 262)
gateway capacity	"Change the gateway capacity" (page 263)

If you selected to change the	Do: go to section
gateway IP address	"Change the gateway IP address" (page 266)
gateway profile	"Change the gateway profile" (page 268)

11 Click the **Retrieve All** button again and verify the attribute changes you made to the gateway or gateways are shown in the Gateway List.

12 Use the following table to determine your next step.

If you	Do
need to make additional attribute changes to the same gateway or other gateways associated with this GWC node	return to step 4
are finished making attribute changes	go to step 13

13 The procedure is complete.

—End—

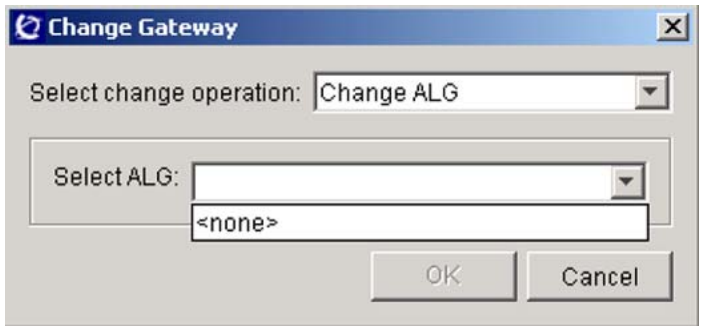
Change the ALG

Complete the following set of steps to change the application layer gateway (ALG) associated with the selected gateway or gateways.

Step	Action

At the Change Gateway dialog box

1 Select the new ALG from the Select ALG: drop-down menu or select **<none>**, then click **OK**.



2 If prompted, click **OK** to confirm the change.

3 Return to step step 11 in the main procedure.

—End—

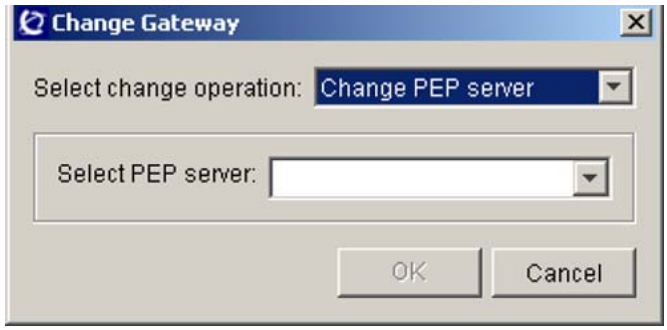
Change the PEP server

Complete the following set of steps to change the PEP server associated with the selected gateway or gateways.

Step	Action

At the Change Gateway dialog box

1 Select a PEP server from the drop-down menu or select **<none>**, then click the **OK** button.



2 If prompted, click **OK** to confirm the change.

3 Return to step 11 in the main procedure.

—End—

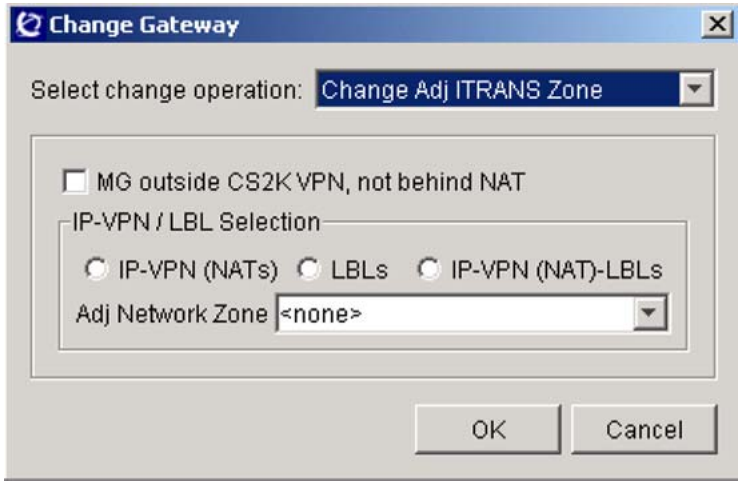
Change the adjacent network zone

Complete the following steps to change the adjacent network zone associated with the selected gateway or gateways.

Step	Action

At the Change Gateway dialog box

1 Use the following list to determine your selection.



- Select the check box provided if your gateway is outside the CS 2000 network (that is, the customer VPN).
- If the gateway is behind a network service zone in a private IP network or VPN, do not select the check box. Instead, select the name of a network zone in the Adj Network Zone text field.
  - Select the radio button for IP-VPN (NATs), LBLs, or IP-VPN (NAT)-LBLs to restrict your search.
  - Click in the Adj Network Zone field.
  - If desired, type text characters of a zone name in the field to fine tune your display. The system displays all zones with a name that matches the characters you typed.
  - Select adjacent network zone for the gateway from the list in the drop-down menu.

    You can only select the zone names that are datafilled and appear in the Network Zones panel of the CS 2000 GWC Manager. See procedure "Review available network devices" (page 91).

    For an H.323 or any small line gateway configured with IP address other than 0.0.0.0, you cannot remove an adjacent network zone if the zone, or any member of topology chain towards the CS 2000 network core, is a NAT device. You must remove and reconfigure the entire gateway instead.
  - If the gateway is not on the customer VPN and does not use a service zone, select the check box and leave the Adj Network Zone field empty.

— If no network service zone is being used and the gateway is on the customer VPN, then do not select the check box and do not select zone.

2 Click **OK** to confirm the changes.

3 Return to step 11 in the main procedure.

—End—

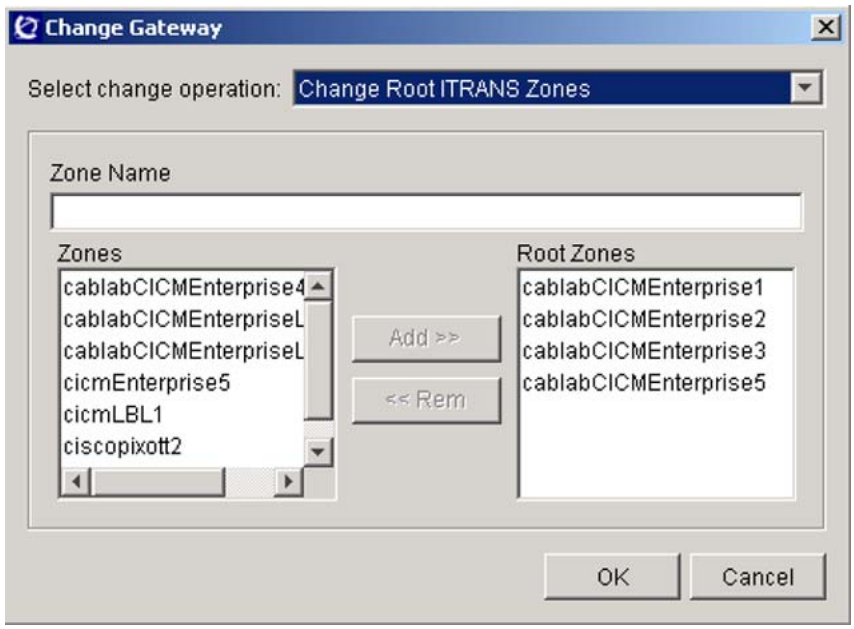
Change the root network zones

Complete the following steps to change any root network zones selected to interact with CICM gateways.

Step	Action

At the Change Gateway dialog box

1 Use the following list to determine your selection.



- If you want to remove a network service zone from the Root Zones list, select a zone and click the **<< Rem** button.
- You can select a root network zone to interact with the gateway from the list of Zones.

  If desired, type text characters in the Zone Name field to display a specific group of network zones. The system displays all zones with a name that matches the characters you type.

- Click the **Add >>** button to add your selection to the list of Root Zones.
- Repeat previous steps until you have completed your changes and have an updated list of root network zones.

  To remove all root zones associated with a gateway, ensure there are no names remaining under the heading Root Zones.

  A maximum of five root zones can be configured on a gateway.

2 Click **OK** to confirm the changes.

3 Return to step 11 in the main procedure.

—End—

Change the gateway capacity

Complete the following set of steps to increase or decrease the endpoint capacity of the gateway.

Changing the capacity of a gateway does not add carriers (endpoint groups) to the gateway or delete carriers from the gateway. Changing the capacity only affects the number of endpoints that can be provisioned on the gateway.

You cannot decrease the gateway capacity to a value lower than the number of endpoints currently allocated.

If you wish to change the capacity to a value that is less than the number of endpoints provisioned, first remove carriers to reduce endpoint demand, and then change capacity of the gateway using this procedure. Remove carriers using procedure "Delete carriers from a GWC" (page 207).

For CICM gateways, the only valid capacity values are: 1023, 2046, 3069.

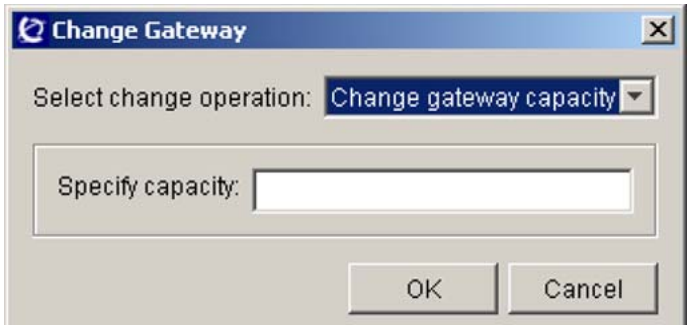
Step	Action

At the Change Gateway dialog box

1 Use the following table to determine your next step.

If the gateway that you selected is using	Do
SIPVOICE profile	go to step 5
any other profile	go to step 2

2 In the following dialog box, enter a new value for the gateway endpoint capacity and click **OK**.



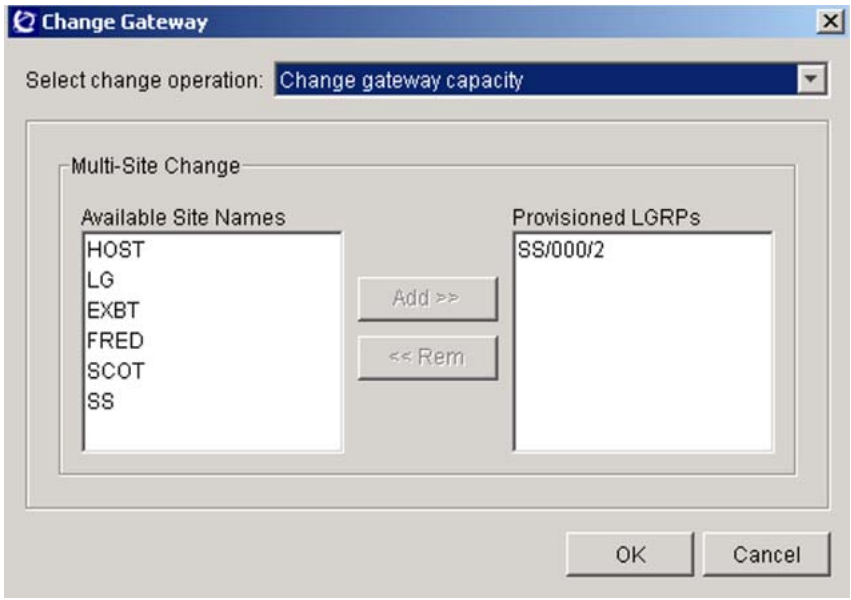
3 If prompted, click **OK** to confirm the change.

If you attempt to increase the endpoint capacity beyond what is available on the GWC, or beyond what is defined for the gateway profile, the request is rejected. If required, see table "Media gateway profiles and characteristics" in *Gateway Controller Basics* (NN10189-111) to determine the endpoint capacity defined for a particular gateway.

If you are increasing the capacity of the gateway, you can then add carriers using procedure "Add carriers to a GWC" (page 186)

4 Return to step 11 in the main procedure

5 At the displayed Change Gateway window, the Available Site Names box on the left lists all the site names defined in table SITE on the CS 2000 Core. The Provisioned LGRPs box on the right lists the site names currently used and assigned to the selected SIPVOICE gateway. These names include frame and group numbers, since the logical groups (LGRP) and the line equipment numbers (LEN) have been already assigned to them



Each site name represents one LGRP. Each LGRP represents 1023 endpoints. You can select up to 12 site names (LGRPs) for a total of 12 276 endpoints.

If there are more than one SIPVOICE gateway associated with the selected GWC, the endpoints must be distributed between all of them. Each GWC supports up to 12 276 lines, that is, 12 LGRPs.

Complete step 6 to increase the gateway capacity. Complete step 7 to decrease the gateway capacity.

You cannot add and remove site names during the same operation. Complete these steps one at a time.

6 If you wish to increase the number of reserved termination points for the SIPVOICE gateway, complete the following sub-steps:

a. Select a name from the Available Site Names list on the left.

b. Click the **Add** button.

The name appears in the Provisioned LGRPs list on the right - the capacity increases by 1023.

c. Click **OK**.

Note: Click **Cancel** if you wish to cancel the operation.

The system displays a status box indicating the expected time for the operation to complete. The report also displays other progress messages, including possible errors.

7 If you wish to decrease the number of reserved termination points for the SIPVOICE gateway, complete the following steps.

During this operation, all endpoints must have their services disabled. Otherwise, the operation will fail. If required, check table LNINV on the Core to make sure that the Line Equipment Numbers (LEN) availability status is HASU.

a. Select a name from the Provisioned LGRPs list on the right.

b. Click the **Rem** button.

The name disappears from the list and the capacity decreases by 1023.

c. Click **OK**.

Click **Cancel** if you wish to cancel the operation.

The system displays a status box indicating the expected time for the operation to complete. The report also displays other progress messages, including possible errors.

8 If prompted, click **OK** to confirm the change.

If you attempt to increase the endpoint capacity beyond what is available on the GWC, or beyond what is defined for the gateway profile, the request is rejected.

If you are increasing the capacity of the gateway, you can then add carriers using procedure "Add carriers to a GWC" (page 186)

9 Return to step 11 in the main procedure

—End—

Change the gateway IP address

CAUTION
Partial service disruption
Changing the IP address or port number of a gateway causes a temporary service outage on that gateway.

Only H.323 gateways that are behind an IP-VPN (NAT)-type network zone support the ability to change an IP address and/or port value using this option.

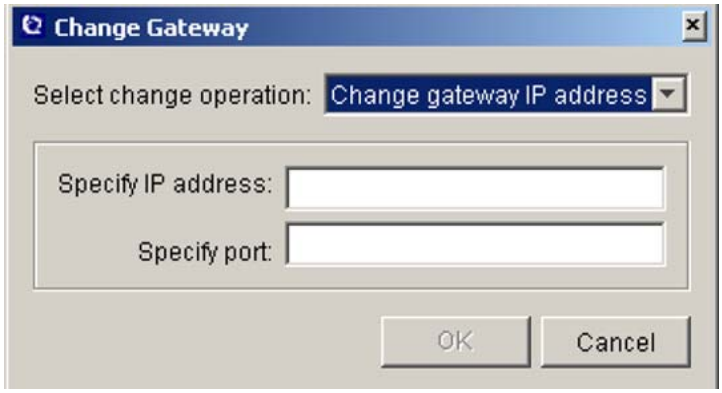
For any gateway that uses an associated NAT device, see the *Configuration Management* NTP applicable to your solution, to determine if the NAT device you are using has been configured with the appropriate bind, IP address and port to accommodate a change in IP and/or port addresses.

Complete the following steps to change a single gateway's IP address or port number, or both.

Step	Action

At the Change Gateway dialog box

1 Enter a new IP address or port number, or both and click **OK**.



If you intend to change only one of these values, you must type the current value (which you are not changing) in the other field.

Example
Your current IP address is 47.154.133.55 and your current port setting is 4721. To change the port setting to 4800, type 47.154.133.55 in the Specify IP address field and type 4800 in the Specify port field.

2 When prompted, click **Yes** to confirm the change.

If you enter the same IP and port address that is currently assigned to the gateway, an error message box will report the error and the change request will be ignored by the system.

3 Return to step 11 in the main procedure

—End—

Change the gateway profile

CAUTION
Possible service disruption
Changing profiles by introducing a new certificate, as described in this procedure, may cause some service disruptions if the new certificate has not been tested.

Changing a GW to a different profile is potentially a risky operation. Thorough interop testing must be performed before creating a certificate with the Compatible Profiles field set to a profile other than itself. While some error checking is performed, it is the responsibility of the certificate creator to make the final decisions whether one profile is truly compatible with another.

Complete the following steps to change a profile assigned to a gateway or gateways.

Use this functionality if you want to modify some of the gateway attributes defined by the currently assigned profile.

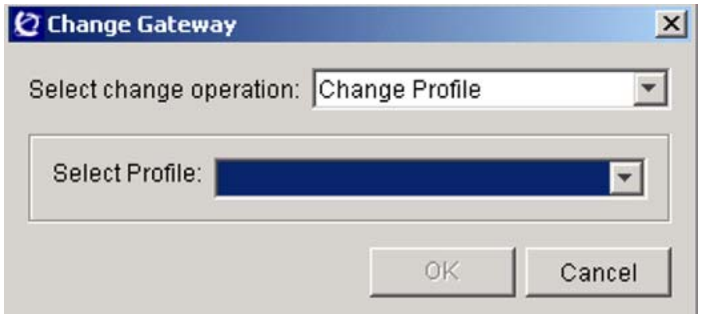
If a compatible profile with the appropriate attribute values does not exist, you can add a new profile by creating an appropriate certificate file, which will include the desired attribute values. You can change (with limitations) a profile assigned to a gateway with the following attributes having different values:

- a profile name
- the maximum number of endpoints
- endpoint name format
- supported protocol
- display physical location
- reserve terminal mandatory
- gateway name format
- compatible profiles

For information about how to create, add, and remove a certificate file, see procedure "Add a certificate file for a third-party gateway" (page 243). If you want to remove a certificate, make sure that there are no gateways still using the profile defined by this certificate.

Step	Action
	At the Change Gateway dialog box

1 From the Select Profile: drop-down menu, select the new profile that you want to associate with the selected gateway or gateways.



You can perform the change operation only between compatible profiles.

The following table shows the pairs of profiles currently defined as compatible.

Profile compatibility

NUERA_GX_ASPEN	NUERA_GX_MEGACO
PVG_7K_ASPEN	PVG_7K_MEGACO
PVG_15K_ASPEN	PVG_15K_MEGACO
PVG_15K_1000_ASPEN	PVG_15K_1000_MEGACO
PVG_15K_PARTIAL_ASPEN	PVG_15K_PARTIAL_MEGACO
PVG_VSP3_ASPEN	PVG_VSP3_MEGACO

Starting in (I)SN09, the PVG_ASPEN profiles are obsolete. These profiles are still present in the GWC Manager GUI but are not supported.

For information about how to define a compatible profile in a certificate file, see procedure "Add a certificate file for a third-party gateway" (page 243).

2 Click **OK**.

If you attempt to change the gateway to a non-compatible profile, the operation fails and the system displays an error message. If required, contact your next level of support.

3 Return to step 11 in the main procedure

—End—

Change the network codec profile for a GWC node

Purpose of this procedure

Use this procedure to change the network codec profile configured on a Gateway Controller (GWC) node.

When to use this procedure

Use this procedure when you need to change the codec profile assigned to a GWC node.

Prerequisites and guidelines

The following prerequisite applies to this procedure.

In order to change a network codec profile, you must have already configured more than one profile for a single bearer network type (IP, AAL1, or AAL2). .

The following guidelines apply to this procedure:

- You can change the specific network codec profile supported, but any new profile must use the same bearer network type as the codec you were using.

  Only one bearer network type can be selected for a GWC node.
- If you wish to change the bearer network type assigned to a GWC node, follow the general procedure "Re-configure a GWC node in the network" (page 19).
- If one card in the GWC node is out of service, you will need to reboot the card to load the new profile on that card. If both cards are out of service, you will need to reboot both cards in the node to load the new profile.

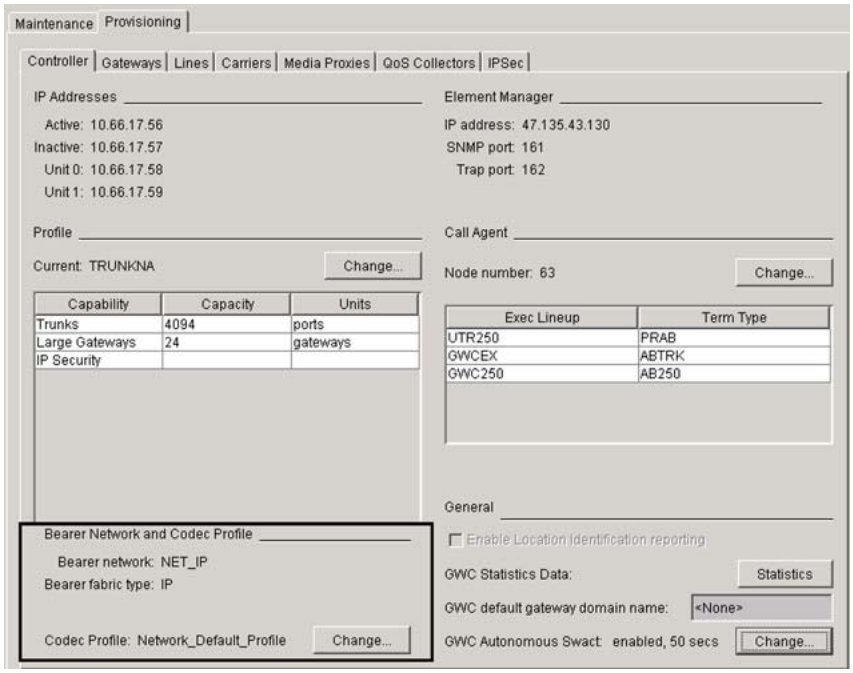
Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node for which you wish to change a codec profile.
3	Click the **Provisioning** tab.
4	Click the **Controller** tab (if necessary) to display provisioning information for the GWC node.

Locate the Bearer Network and Codec Profile pane at the bottom of the screen.

Note that the following items are displayed for the GWC node selected:

- Bearer network
- Bearer fabric type
- Codec profile



5 Click the **Change** button in the Bearer Network and Codec Profile pane.

The Change GWC Codec Profile dialog box is displayed.

6 Select a new codec profile using the drop-down menu.

Only the codec profiles for the network bearer type selected will be available. The profile currently selected will not appear in the list.

7 Click **OK** to make the change.

8 Click **Yes** at the Confirm Codec Profile Change prompt.

If both cards are in service, the new codec profile is changed on your GWC node. Observe that the new profile is displayed in the Bearer Network and Codec Profile pane.

9 If one card in the GWC node is out of service, or if both cards are out of service, the system displays a warning message.

Perform the following steps to ensure that both cards in the node load the new codec profile.

If only one card in the node is out of service, perform step a through step d (inclusive) on that card to load the new profile. You may omit the remaining steps.

a. Busy the inactive unit. Follow procedure "Disable (Busy) GWC card services" in *Gateway Controller Security and Administration* (NN10213-611).

b. Lock the inactive unit. Follow procedure "Lock a GWC card" (page 466).

A data mismatch alarm is raised for this unit by the CS 2000 GWC Manager alarm manager. No action is required.

c. Unlock the inactive unit. Follow procedure "Unlock a GWC card" (page 469). The card is booted and provisioning data is downloaded following the unlock operation.

The data mismatch alarm condition is cleared for this unit.

d. Return the inactive unit to service. Follow procedure "Enable (RTS) card GWC services" in *Gateway Controller Security and Administration* (NN10213-611).

e. Switch activity (SWACT) of the GWC cards in the node. Follow procedure "Invoke a manual protection switch (warm SWACT)" in *Gateway Controller Security and Administration* (NN10213-611).

f. Repeat step a through step d for the mate GWC unit (now inactive) in the node.

Both cards in the GWC node are now using the new codec profile.

10 The procedure is complete.

—End—

Disassociate a media gateway

Purpose of this procedure

Use this procedure to remove (disassociate) any type of gateway resource from a selected GWC node.

When to use this procedure

Use this procedure when it is necessary to reallocate gateway resources to a different GWC node or if you wish to re-configure the GWC node to use a different gateway type.

Prerequisites and guidelines

Ensure that you perform the following steps before disassociating a media gateway:

Step	Action
1	Place all endpoints on a gateway in a state of Installation Busy (INB): To place trunk groups on the Core in a state of INB, follow procedure "Performing trunk maintenance using the Trunk Maintenance Manager" in *Nortel ATM/IP Solution-level Fault Management* (NN10408-900). Endpoints may also be in a state of UNKNOWN (core datafill is missing).
2	Remove all carriers (endpoint groups) from the selected gateway. Follow procedure "Delete carriers from a GWC" (page 207).

ATTENTION

If you remove datafill for a gateway using the CS 2000 GWC Manager and you leave the corresponding datafill for the gateway on the Core, a mismatch occurs between the two databases. This mismatch may not be detected by a database audit.

—End—

To remove datafill for trunks in the Core, follow procedure "Deleting trunks" in the *CS 2000 Configuration Management* NTP for your solution.

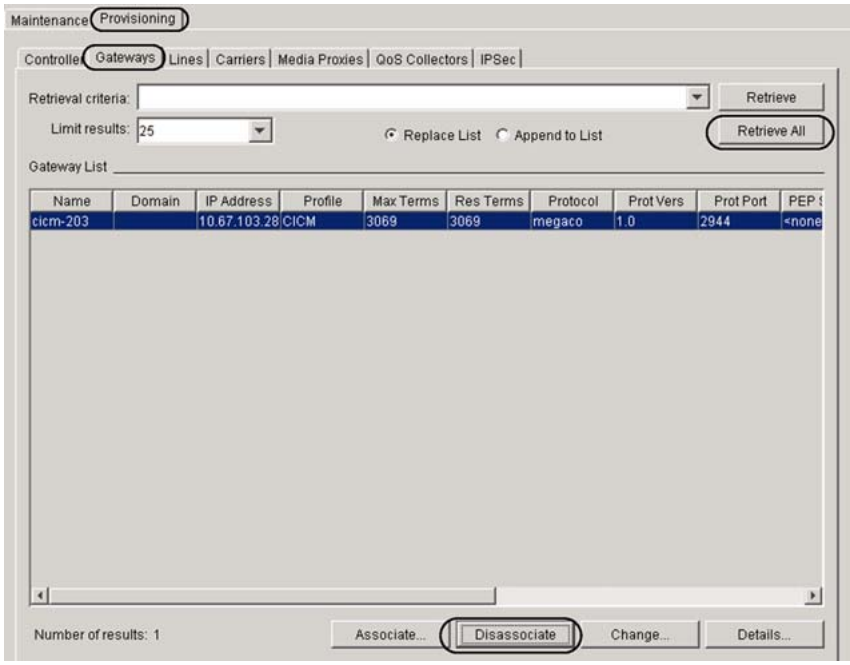
ATTENTION

Before deleting a gateway, verify that the gateway is not currently in use to avoid taking down active calls.

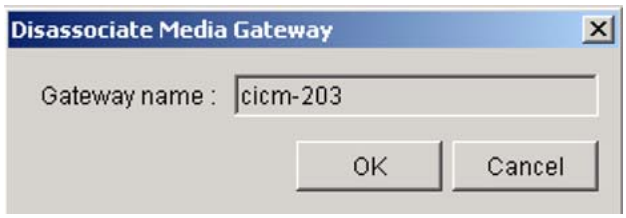
All associated trunks or lines must be in an installations busy (INB) state to ensure that no calls can originate during the deletion process. Otherwise, the system may deny the delete request.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to view.
3	Click the **Provisioning** tab.
4	Click the **Gateways** tab to view information about the gateways associated with the selected GWC.
5	Click the **Retrieve All** button to view a complete list of gateways associated with the GWC.
6	From the Gateway List, select the gateway you wish to disassociate. The gateway is highlighted. ***Note:*** You can only delete one gateway at a time.
7	Click the **Disassociate** button at the bottom of the screen.



8 The name of the gateway you wish to disassociate is displayed.



9 Click **OK** to confirm the deletion.

The system may take a few moments to process the request.

A dialog box indicates if the gateway deletion is successful.

If the deletion fails, click the **Show Details** button in the response dialog box to display the reason for the failure.

10 At the top of the screen, click the **Windows** menu and select **Refresh GWC Status** to update the Contents of Gateway Controller view to reflect any changes made.

11 If necessary, repeat this procedure to disassociate other gateways.

12 The procedure is complete.

—End—

Delete a GWC node

Purpose of this procedure

Use this procedure to remove a GWC node from the CS 2000 GWC Manager database.

When to use this procedure

Use this procedure when you need to remove a GWC node from the CS 2000 GWC Manager database. You can do this to permanently remove a GWC node or to re-provision the node.

Prerequisites and guidelines

The following activities must be completed before deleting a GWC node:

- Ensure that all endpoints have been removed for the selected gateways associated with the GWC node.

  For information about how to remove carrier endpoints from a gateway, see procedure "Delete carriers from a GWC" (page 207).

  For information about removing line endpoints from a gateway, see the *CS 2000 Configuration Management* NTP applicable to your solution.

- Ensure the GWC node you wish to delete has had both of its GWC cards locked.

  Follow procedure "Lock a GWC card" (page 466). Remember to lock both GWC cards for the GWC node being removed.

- If you are removing a UAS Gateway Controller, ensure that UAS datafill for tables SERVSINV, ANNMEMS, and CONF3PR has been properly removed prior to performing this procedure.

- If you are removing a SIP-T or VRDN Gateway Controller, ensure that datafill for table SERVSINV has been properly removed prior to performing this procedure.

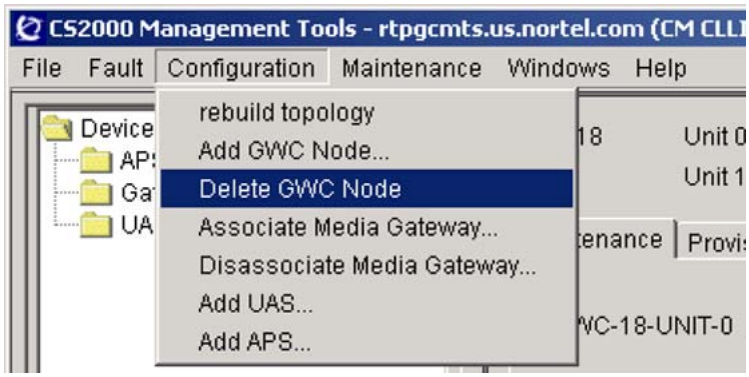
For information about removing datafill from Core tables, see the *CS 2000 Configuration Management* NTP applicable to your solution.

Action

Step	Action
	From the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

2 Locate the GWC node to delete from the list of provisioned GWC nodes displayed in the Contents of: Gateway Controller pane.

3 At the main CS 2000 GWC Manager window, click on the **Configuration** menu from the top menu bar and select **Delete GWC Node**.



ATTENTION

Before deleting a GWC node, make sure that both GWC cards are locked.

If required, complete procedure "Lock a GWC card" (page 466).

4 At the prompt, click **Yes** to confirm that you wish to delete the GWC node.

A response dialog is displayed when the operation is complete. If any error occurred during the deletion, click the **Show Details** button for information about where the transaction failed.

5 Verify that the GWC node has been removed from the Contents of: Gateway Controller frame.

6 The procedure is complete.

—End—

Enable or disable CICM location change reporting

Purpose of this procedure

Use this procedure to enable or disable location change reporting of Centrex IP Client Manager (CICM) telephony clients on a Gateway Controller (GWC) node.

When to use this procedure

Use this procedure when you need to enable or disable location change reporting of CICM telephony clients on a GWC node.

For example, you need to use this procedure if you are changing the platform of the location recipient, or if you are moving a gateway that provides location information to a different GWC node.

Prerequisites and guidelines

For location information to be sent to the location recipient you must first perform the network-level procedure "Configure a destination for CICM location information" (page 77).

If you try to perform this procedure without configuring a destination for CICM location information, the system displays an error message.

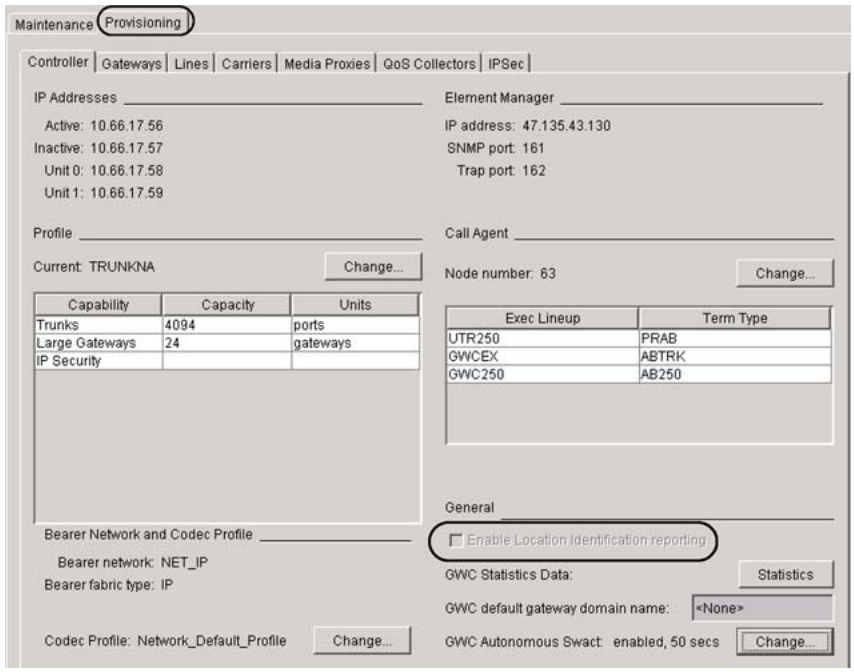
You can enable location change reporting only for GWC nodes provisioned with the following GWC service profiles:

- LARGE_LINEINTL
- LARGE_LINENA
- LARGE_LINEINTL_V2
- LARGE_LINENA_V2
- LINE_TRUNK_AUD_NA
- LINE_TRUNK_AUD_INTL

Action

Step	Action
	At the CS 2000 GWC Manager client
1	Select Gateway Controller from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to view.

3 Click the **Provisioning** tab.



4 To enable CICM location change reporting on the GWC node, select the Enable Location Identification reporting check box.

Confirm that the system accepts the check box selection.

You can only enable location change reporting for GWC nodes provisioned with the following Gateway Controller profiles:

- LARGE_LINEINTL
- LARGE_LINENA
- LARGE_LINEINTL_V2
- LARGE_LINENA_V2
- LINE_TRUNK_AUD_NA
- LINE_TRUNK_AUD_INTL

You can view the Gateway Controller service profile provisioned for the GWC node in the Profile section of this screen.

The Enable Location Identification reporting check box is not available to be used for GWC nodes provisioned with other profiles.

If you have not configured a destination for CICM location information, the system fails the operation and displays an error message. Complete the network-level procedure "Configure a destination for CICM location information" (page 77), then perform this procedure.

5 To disable CICM location change reporting on the GWC node, de-select the Enable Location Identification reporting check box.

Confirm that the system accepts the de-selection of the check box.

6 The procedure is complete.

—End—

Add a media proxy

Purpose of this procedure

Use this procedure to add one or more media proxies to perform network address translation (NAT) traversal. A media proxy device is used as an real-time internet protocol (RTP) portal to allow a gateway in one domain to communicate with another gateway in another domain. A pool of media proxies can be made available to perform the NAT traversal functions.

Once added, a media proxy can be used in any of the following ways:

- It can be associated with one or more Gateway Controllers (GWC) and not belong to any media proxy group. This media proxy becomes the GWC's default media proxy. For more information, see procedure "Associate a media proxy with a GWC node" (page 291).
- It can belong to one or more preferred media proxy groups and not be a default media proxy for any GWC. For more information, see procedure "Add a preferred media proxy group to the network" (page 299).
- It can be a default media proxy for one or more GWCs and be part of one or more preferred media proxy groups.

When to use this procedure

Use this procedure when you wish to add one or more media proxies to the network for use in performing NAT traversal.

There is no requirement to configure a media proxy for every GWC. Only those GWCs controlling endpoints outside the carrier's private network require media proxies. For example, only GWCs controlling MGCP integrated access devices (IAD), Centrex IP clients, H.323 GWs and SIP require a media proxy. GWCs controlling H.248 trunking gateways, MG 9000 gateways, universal audio servers (UAS) do not require a media proxy.

Prerequisites and guidelines

One or more physical NAT devices can be configured as a single logical NAT-type network zone for each media gateway.

The data for a NAT zone is sent down to GWC when the zone is associated to a media gateway.

The data for a media proxy is sent down to the GWC when

- the media proxy is associated with a GWC as a default media proxy, or
- the media proxy belongs to a preferred media proxy group selected for a network zone, and that zone is included in a network zone hierarchy for a gateway that is being associated with a GWC.

For gateways other than Centrex IP Client Manager (CICM), not all media proxy groups in a network hierarchy are sent to a GWC. When a media gateway is being associated with a GWC, the system searches the gateway's network zone tree and sends only the first media proxy group found in that tree.

For CICM gateways, all media proxy groups in the root network zone hierarchy are sent to a GWC.

Media proxies are configured using the Multimedia Communications System (MCS) Manager application. For more information, see the MCS documentation.

There is only one NAT exit point from a local network. If two gateways are behind the same NAT or belong to the same virtual private network (VPN), then they can set up a call without requiring a media proxy.

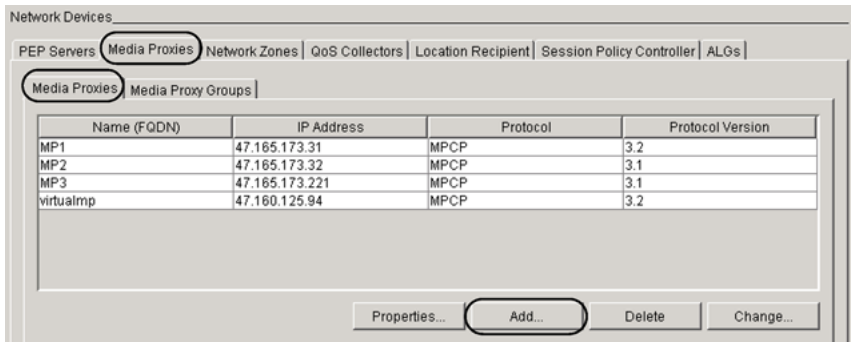
The Integrated Access Cable solution uses DQoS and PEP Servers while the Integrated Access Wireline solution uses internet transparency (ITRANS) and NAT-type network service zones as media proxies. These two solutions are mutually exclusive as defined in the gateway profile service type. In other words, DQOS and ITRANS cannot be defined together in a single GWC profile when associating media gateways to a GWC.

In the Carrier Centrex IP environment, a Border Control Point (BCP) acts as a media proxy to bridge the RTP paths between endpoints for RTP media NAT traversal. The CS 2000 inserts the BCP if the endpoints of the RTP media path are not in the same VPN. For example, calls between two enterprises, or calls from an enterprise H.323 gateway to a gateway on the carrier's packet network would require the insertion of a the BCP.

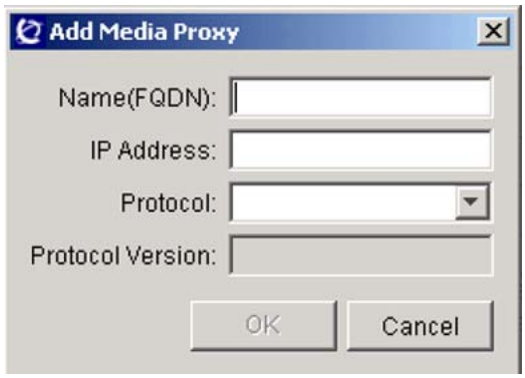
If there are no NATs in the CICM network, BCP is not required.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Network Devices panel click the **Media Proxies** tab, then click the newly displayed **Media Proxies** tab.
3	Click the **Add** button.



4 At the Add Media Proxy dialog box, enter the applicable configuration information.



- In the Name (FQDN): field, type the network name of the proxy device in a fully qualified domain name (FQDN) format.

  Use a domain name of the proxy device in the form of an absolute domain name including the host name of the device, suitable for lookup using Domain Name Service (DNS).
- In the IP Address: field, type the IP address associated with the proxy device.
- In the Protocol: field, select the connection control Protocol using the drop-down menu. MPCP versions 3.1 and 3.2 are supported.
- The Protocol Version: field, select version 3.1 or 3.2.

5 Click **OK**.

If you encounter errors in trying to add the proxy device, contact your site system administrator.

6 Verify that the new media proxy appears in the display.

7 The procedure is complete.

—End—

View media proxies associated with a GWC node

Purpose of this procedure

Use this procedure to view configuration data for media proxies currently associated with a selected Gateway Controller (GWC) node.

The same media proxies can also belong to preferred media proxy groups. To view the list of all media proxy groups and GWCs with which the selected media proxy is associated, see procedure "View media proxy associations" (page 287).

When to use this procedure

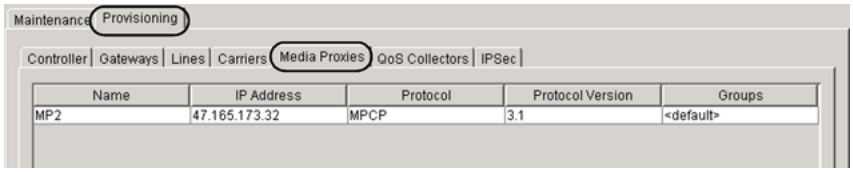
Use this procedure when you require specific configuration information about media proxies associated with a specific GWC node.

Prerequisites and guidelines

There are no prerequisites or guidelines for this procedure.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node that has a media proxy you wish to view.
3	Click the **Provisioning** tab in the GWC node view.
4	Click the **Media Proxies** tab. The displayed table lists the following information about media proxies currently associated with the selected GWC node: • the name • the IP address • the protocol and protocol version



- the groups associated with the selected GWC to which the selected media proxy belongs. The <default> entry means that the selected media proxy is one of the default media proxies for the selected GWC.

If you wish to view all GWCs and all media proxy groups with which a particular media proxy is currently associated, see procedure "View media proxy associations" (page 287).

5 The procedure is complete.

—End—

View media proxy associations

Purpose of this procedure

This procedure describes how to check all current associations of the selected media proxy. A media proxy can be associated as a default media proxy with one or more Gateway Controllers (GWC) or can belong to one or more preferred media proxy groups, or both.

When to use this procedure

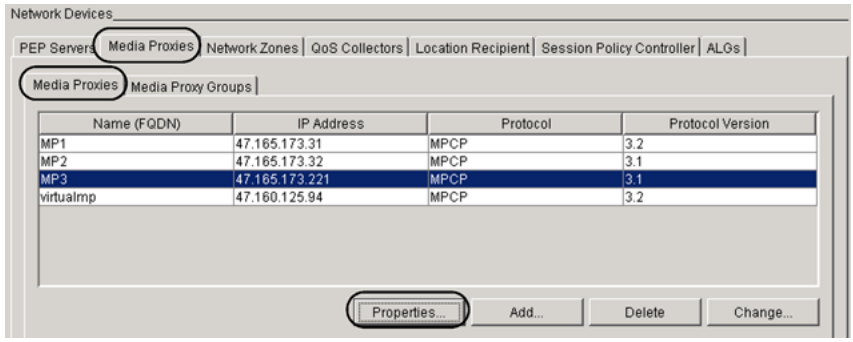
Use this procedure when you wish to view the list of all GWCs and all preferred media proxy groups with which the selected media proxy is currently associated.

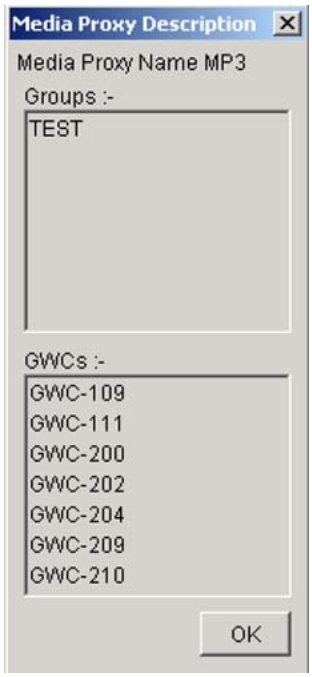
Prerequisites and guidelines

There are no prerequisites or guidelines for procedure.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Network Devices panel click the **Media Proxies** tab, then click the newly displayed **Media Proxies** tab.
3	Select the proxy you wish to view. Your selection is highlighted.
4	Click the **Properties** button. The Media Proxy Description dialog box displays all the preferred media proxy groups to which the selected media proxy belongs and all GWCs with which the proxy is associated.





5 Click **OK** to close the dialog box.

6 The procedure is complete.

—End—

Modify a media proxy

Purpose of this procedure

Use this procedure to change the IP address or the control protocol version of a media proxy device already defined in the network.

A media proxy device acts as an RTP portal to allow a gateway in one domain to communicate with another gateway in another domain.

When to use this procedure

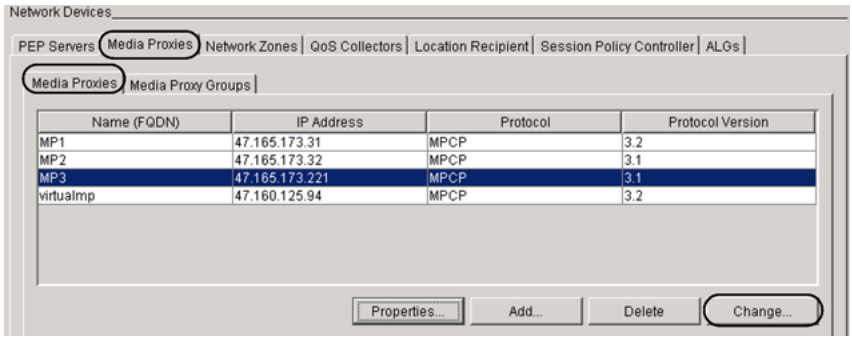
Use this procedure when you wish to change the IP address or the control protocol version of a media proxy in the network.

Prerequisites and guidelines

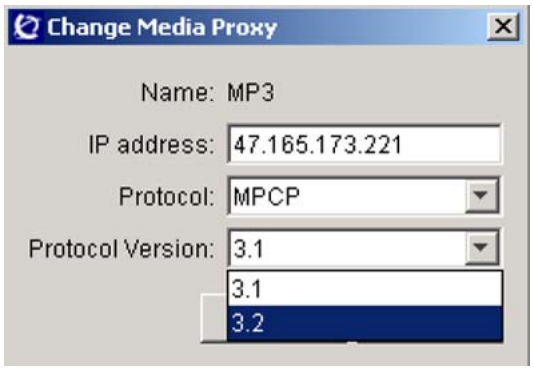
The media proxy you are changing must be configured with a valid IP address and control protocol.

Action

Step	Action
	At the CS 2000 GWC Manager client workstation
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Network Devices panel, click the **Media Proxies** tab, then click the newly displayed **Media Proxies** tab.



3	Select the media proxy you wish to modify. Your selection is highlighted.
4	Click the **Change** button to display the Change Media Proxy dialog box.



5 Enter the new data for one or both of the following fields:

- In the IP address: field, type the new IP address.

  Ensure that you are entering a valid IP address for the proxy device.

- In the Protocol Version: field, select a different version of the control protocol using the drop-down menu.

6 Click **OK**.

If you encounter errors while attempting to change the proxy device, contact your site system administrator.

7 Verify that the changes are reflected in the Media Proxies display.

8 The procedure is complete.

—End—

Associate a media proxy with a GWC node

Purpose of this procedure

Use this procedure to associate a media proxy device, including a Border Control Point (BCP), to a selected Gateway Controller (GWC) node. Associating a media proxy to a GWC node sends the datafill for the media proxy device to the GWC database.

Once a media proxy is associated with a selected GWC, it becomes this GWC's default media proxy. The same media proxy can also belong to one or more preferred media proxy groups. The GWC uses its default media proxy if there are no media proxy groups associated or available.

For more information about media proxy groups, see procedure "Add a preferred media proxy group to the network" (page 299).

In the Carrier Centrex IP environment, a BCP acts as a media proxy to bridge the real-time protocol (RTP) paths between endpoints for RTP media network address translation (NAT) traversal. The CS 2000 inserts the BCP if the endpoints of the RTP media path are not in the same virtual private network (VPN). For example, calls between two enterprises, or calls from an enterprise H.323 gateway to a gateway on the carrier's packet network would require the insertion of a the BCP.

If there are no NATs in the CICM network, BCP is not required.

When to use this procedure

Use the procedure when you need to associate a media proxy with a selected GWC node.

Prerequisites and guidelines

The following prerequisites apply to this procedure:

- You must first add the media proxy to the network using procedure "Add a media proxy" (page 281).
- Media proxies must be configured on the Multimedia Communications System (MCS) using the MCS Manager application before they are associated with the GWC. For more information, see the MCS documentation.

The following guidelines apply to this procedure:

- The same media proxy can be a default media proxy for one or more GWCs or be a part of one or more preferred media proxy groups, or both.

- The same media proxy cannot be associated (as a default media proxy or as a member of preferred media proxy groups) with more than 20 GWC nodes.

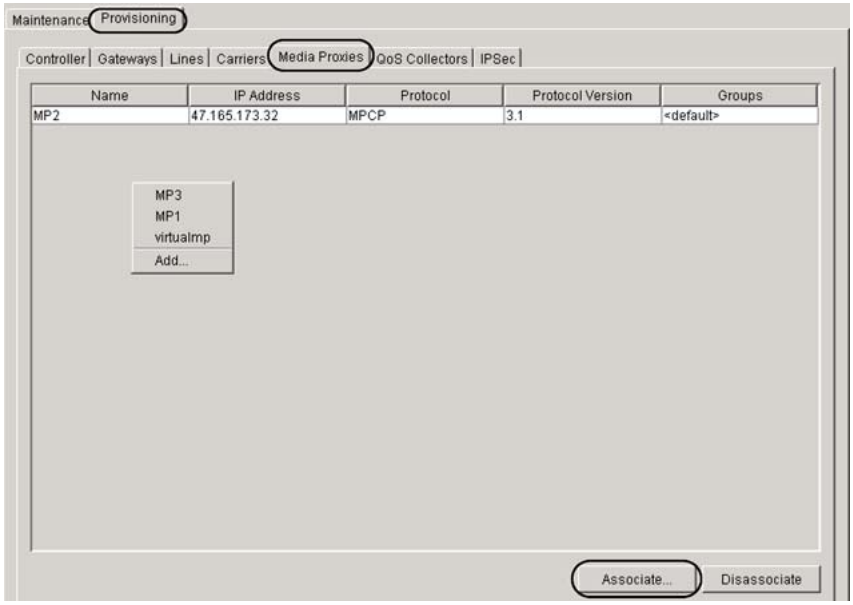
  A media proxy that has reached its limit of associations to GWC nodes will not be available on the CS 2000 GWC Manager when you attempt to associate it to another GWC node.

- Up to 20 media proxies can be associated (as default media proxies or as members of preferred media proxy groups) with a single GWC node.

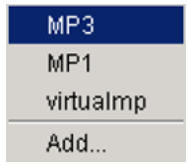
If you wish to verify all current associations for the selected media proxy, see procedure "View media proxy associations" (page 287).

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree in the far left frame.
2	From the Contents of: Gateway Controller frame, select the GWC node with which you wish to associate media proxy.
3	Click the **Provisioning** tab in the GWC node view, then click the **Media Proxies** tab.
4	Note the name of any media proxies currently associated with the selected GWC node as shown in the following panel. A maximum of 20 media proxies can be associated to a single GWC node (as a default media proxy or as a member of preferred media proxy groups).



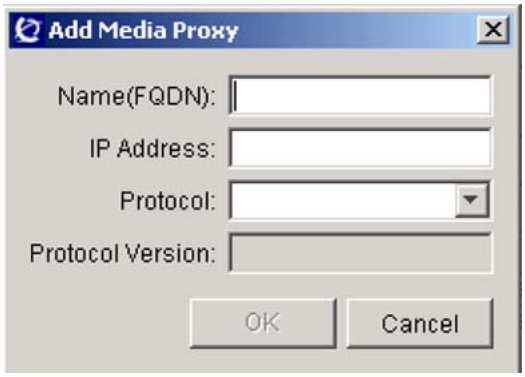
5 Click the **Associate** button and use the following table to determine your next step.

If the system indicates that	Do
you have no media proxies configured in your network: 	go to step 6
or if you wish to add a media proxy that is not yet configured in the network	
you do have media proxies configured in your network and you do not wish to add any new media proxy 	go to step 7

6 Add a new media proxy. Complete the following sub-steps:

a. Click the **Add** button at the prompt.

b. At the Add Media Proxy dialog box, enter the applicable configuration information.



- In the Name (FQDN): field, type the network name of the proxy device in a fully qualified domain name (FQDN) format.

  Use a domain name of the proxy device in the form of an absolute domain name including the host name of the device, suitable for lookup using Domain Name Service (DNS).
- In the IP Address: field, type the IP address associated with the proxy device.
- In the Protocol: field, select the connection control Protocol using the drop-down menu. MPCP versions 3.1 and 3.2 are supported.
- The Protocol Version: field, select version 3.1 or 3.2.

c. Click **OK**.

   If you encounter errors in trying to add the proxy device, contact your site system administrator.

d. Return to step 5 of this procedure and continue.

7 From the displayed list, select a media proxy that you wish to associate with the selected GWC.

8 Verify that the selected media proxy appears in the Media Proxies table.

9 The procedure is complete.

—End—

Disassociate a default media proxy from a GWC node

Purpose of this procedure

Use this procedure to disassociate a default media proxy from a selected Gateway Controller (GWC) node. This action removes the media proxy from a group of default media proxies associated with the selected GWC. However, the datafill for the selected media proxy can still remain on a GWC if the media proxy belongs to a preferred media proxy group currently associated with this GWC.

When to use this procedure

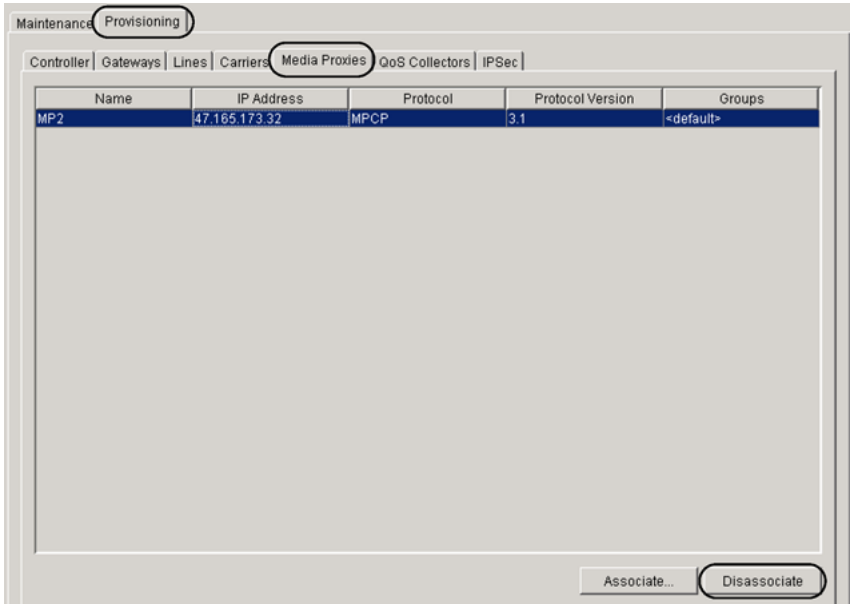
Use this procedure when you need to disassociate a default media proxy from a GWC node.

Prerequisites and guidelines

The media proxy must be associated with a GWC node before it can be disassociated.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree in the far left frame.
2	From the Contents of: GatewayController frame, select the GWC node from which you wish to disassociate a media proxy.
3	Click the **Provisioning** tab, then click the **Media Proxies** tab to display the list of media proxies currently associated with the selected GWC. The default media proxies have <default> displayed under the Groups heading.



4 Select the media proxy you wish to disassociate from the GWC node. Your selection is highlighted.

If you wish to disassociate more than one media proxies, you must repeat this procedure for each of them. You cannot select and disassociate more than one at a time.

5 Click the **Disassociate** button.

6 At the confirmation dialog box, click **Yes** to confirm that you wish to disassociate the selected default media proxy from the GWC node.

7 Verify that the media proxy is removed from the Media Proxies table.

8 The procedure is complete.

—End—

Delete a media proxy

Purpose of this procedure

Use this procedure to delete a media proxy from the network. A media proxy device acts as an RTP portal to allow a gateway in one domain to communicate with another gateway in another domain.

When to use this procedure

Use this procedure when you wish to remove one or more media proxies from your network.

Prerequisites and guidelines

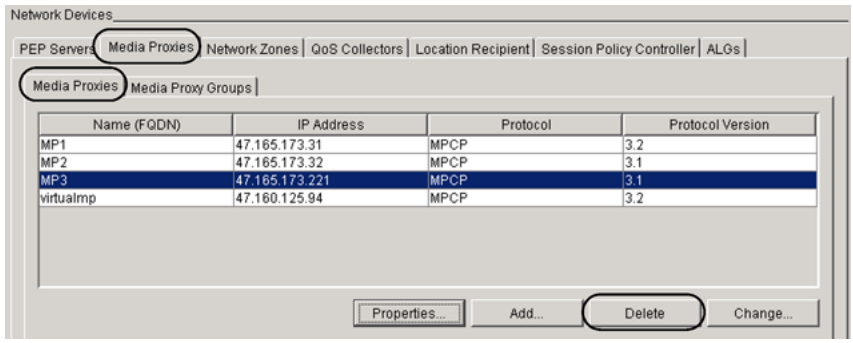
You cannot delete a media proxy if it is associated with any Gateway Controller (GWC) or if it belongs to any media proxy group.

Before deleting a media proxy, complete the following tasks:

- Verify all current associations for the selected media proxy. If required, see procedure "View media proxy associations" (page 287).
- Remove all existing associations. If required, see one or both of the following procedures:
  - "Disassociate a default media proxy from a GWC node" (page 295)
  - "Modify a preferred media proxy group" (page 303)

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	At the Network Devices panel, click the **Media Proxies** tab, then click the newly displayed **Media Proxies** tab.



3 Select the proxy you wish to remove. Your selection is highlighted.

4 Click the **Delete** button.

5 At the confirmation dialog box, click **Yes** to confirm that you want to delete the selected media proxy.

You cannot delete a media proxy device that is currently associated with a GWC node or that belongs to a media proxy group.

If you encounter errors attempting to remove the proxy device, contact your site system administrator.

6 Verify that the media proxy is removed from the Media Proxies table.

7 The procedure is complete.

—End—

Add a preferred media proxy group to the network

Purpose of this procedure

Use this procedure to add one or more media proxy groups to perform network address translation (NAT) traversal. A media proxy device is used as an real-time internet protocol (RTP) portal to allow a gateway in one domain to communicate with another gateway in another domain.

A media proxy can be associated as a default media proxy with one or more Gateway Controllers (GWC) or can belong to one or more preferred media proxy groups, or both.

A media proxy group represents a subset of media proxies to be used in a particular part of the network configuration by a set of gateways in the same location. Media proxy groups are assigned to network zones, which are linked to the gateways associated with a GWC. If a call requires a media proxy, the GWC finds the first media proxy group in the zone hierarchy linked to the gateway, then selects the first available media proxy from that group. If no media proxy group is found or none of the media proxies included in any group is available, the GWC selects the first available default media proxy associated with that GWC.

When to use this procedure

Use this procedure when you wish to add one or more preferred media proxy groups to the network for use in performing NAT traversal.

Prerequisites and guidelines

Media proxies must be configured and added to the network before you can start this procedure. Media proxies are configured using the Multimedia Communications System (MCS) Manager application. For more information, see the MCS documentation.

If you need to add more media proxies to the network, complete procedure "Add a media proxy" (page 281).

The following guidelines apply to this procedure:

- A media proxy group must include at least one but no more than five media proxies.

  The same media proxy can belong to more than one group and also be one of the GWC's default media proxies.

- You can configure up to 512 media proxy groups in the network.
- No more than eight media proxy groups can be associated with a GWC.

- To associate the new media proxy group with a GWC, you must complete the following additional steps:

  1. Assign the media proxy group to the appropriate network zone.

     You can assign a media proxy group only to an ITRANS-type network zone, that is: IP-VPN (NAT), LBL, or a composite IP-VPN (NAT) & LBL zone.

     You can complete this task when adding a new network zone or when modifying an existing network zone. If required, see one of the following procedures:

     - "Add <network_zone> zone", where <network_zone> is an IP-VPN (NAT), LBL, or composite IP-VPN (NAT) and LBL
     - "Change attributes of a network zone" (page 347)

     The same media proxy group can be associated with more than one network zone.

  2. Include this network zone in a network zone hierarchy for a media gateway associated with a GWC. If required, see one of the following procedures included in this NTP:

     - "Associate <gateway_type> media gateway", where <gateway_type> is line (wireline market), H.323, or trunk
     - "Change gateway attributes" (page 254)

     For an overview of a preferred media proxy group association process, see section "Associate a media proxy or a media proxy group with a GWC" (page 22).

- The Integrated Access Cable solution uses DQoS and PEP Servers while the Integrated Access Wireline solution uses internet transparency (ITRANS) and NAT-type network service zones as media proxies. These two solutions are mutually exclusive as defined in the gateway profile service type. In other words, DQOS and ITRANS cannot be defined together in a single GWC profile when associating media gateways to a GWC.
- In the Carrier Centrex IP environment, a Border Control Point (BCP) acts as a media proxy to bridge the RTP paths between endpoints for RTP media NAT traversal. The CS 2000 inserts the BCP if the endpoints of the RTP media path are not in the same virtual private network (VPN). For example, calls between two enterprises, or calls from an enterprise H.323 gateway to a gateway on the carrier's packet network would require the insertion of a BCP.

  If there are no NATs in the CICM network, BCP is not required.

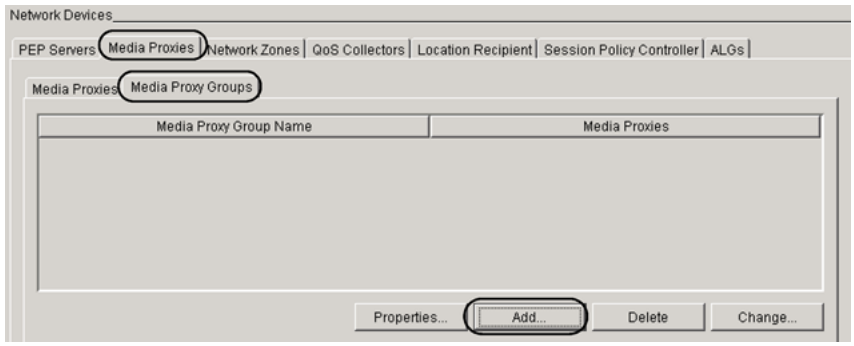
Action

Step	Action

At the CS 2000 GWC Manager client

1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

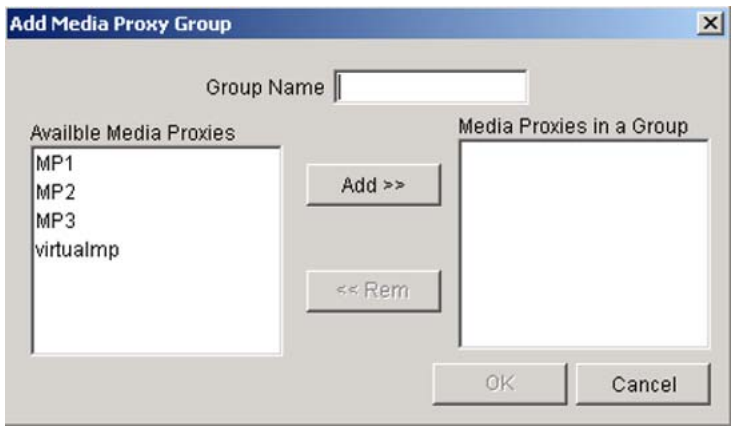
2 From the Network Devices panel, click the **Media Proxies** tab, then click the newly displayed **Media Proxy Groups** tab.



3 Click the **Add** button to display the Add Media Proxy Group dialog box.

If there are no media proxies configured on the network, the Available Media Proxies list on the left is empty. If necessary, use procedure "Add a media proxy" (page 281) to add the necessary media proxies.

4 In the Group Name field, type a unique name of the new media proxy group. The name must comply with the Domain Name Service (DNS) naming conventions and be no longer than 32 characters.



5 From the Available Media Proxies list on the left, select a media proxy that you want to include in the new group.

6 Click the **Add** button.

The selected name is moved to the Media Proxies in a Group list on the right.

7 Repeat steps 5 and 6 until your list of media proxies is complete.

You can include up to five media proxies in a group.

If you wish to remove any of the selected media proxies from the list, click the appropriate name in the Media Proxies in a Group box, then click the **Rem** button. Otherwise, continue the procedure.

8 Verify that the new group contains all the necessary media proxies (no more than five), then click **OK**.

9 Verify that the new media proxy group appears in the display.

If you encounter errors when attempting to add a media proxy group, contact your site system administrator.

10 The procedure is complete.

—End—

Modify a preferred media proxy group

Purpose of this procedure

This procedure describes how to modify the content of a preferred media proxy group. You can modify the list of media proxies included in the group by

- changing the number of media proxies - without exceeding the maximum number of five
- replacing some of the media proxies with others

You cannot change the name of a media proxy group.

When to use this procedure

Use this procedure when you wish modify an existing preferred media proxy group in your network.

Prerequisites and guidelines

Before starting this procedure, make sure that the media proxy group you wish to modify is not currently associated with any Gateway Controller (GWC). If required, see procedure "View media proxy group associations" (page 308).

CAUTION
Possible service disruption
Do not attempt to modify a media proxy group if it is associated with any GWC. You must first disassociate this media proxy group from all GWCs. This action will affect call processing - media proxies included in the group will not be available for selection during the change process. For information about how to disassociate a media proxy group from a GWC, see section "Disassociate a media proxy group from a GWC" (page 303).

Disassociate a media proxy group from a GWC

Use one of the following methods to disassociate the selected media proxy group from a GWC.

Method 1

For all network zones currently associated with the selected media proxy group, replace the group with a different group that includes the media proxies that you wish to use.

Complete the following steps:

1. Identify all network zones to which the selected media proxy group is assigned. If required, see procedure "View media proxy associations" (page 287).
2. For each identified network zone, assign a different media proxy group. Follow procedure "Change attributes of a network zone" (page 347).

Method 2

Remove the media proxy group from a network zone. Complete the following steps:

1. Identify all network zones to which the selected media proxy group is assigned. If required, see procedure "View media proxy group associations" (page 308).
2. For each identified network zone, change the media proxy group to <none>. Follow procedure "Change attributes of a network zone" (page 347).

Additional prerequisites and guidelines

The following additional prerequisites and guidelines apply to this procedure:

- Any additional media proxies that you want to add to the selected group must first be configured and added to the network.

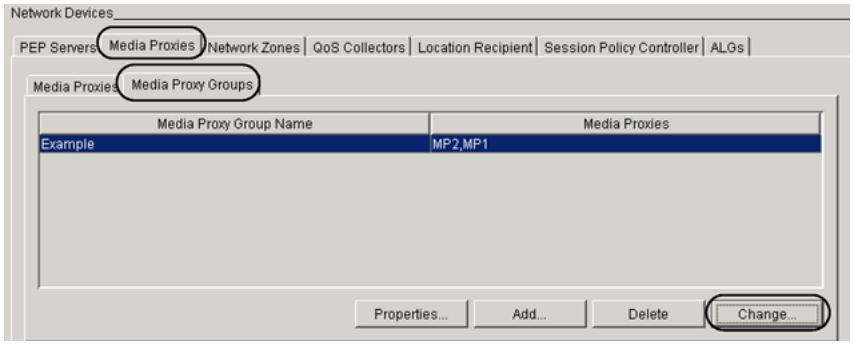
  Media proxy devices are configured using the Multimedia Communications System (MCS) Manager application. For more information, see the MCS documentation.

  If you need to add more media proxies to the network, use procedure "Add a media proxy" (page 281).
- A media proxy group can include up to five media proxies.

  The same media proxy can belong to more than one group and also be one of the GWC's default media proxies.
- You cannot change the name of a media proxy group.

Action

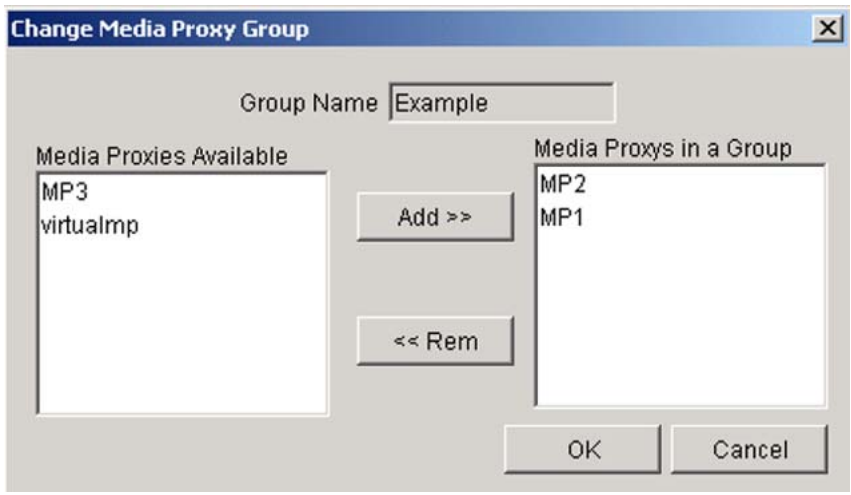
Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Network Devices panel, click the **Media Proxies** tab, then click the newly displayed **Media Proxy Groups** tab.



3 From the list of all media proxy groups currently configured in your network, select the group that you wish to modify. Your selection is highlighted.

4 Click the **Change** button to display the Change Media Proxy Group dialog box.

5 If you wish to remove one or more media proxies from the group, complete the following sub-steps. Otherwise, continue with step 6.



a. Select one or more media proxies from the Media Proxies in a Group list on the right.

   To select more than one media proxy at the same time, press and hold the Shift key while selecting the media proxy names.

b. Click the **Rem** button. The selected name or names are moved to the Media Proxies Available list on the left.

6 If you wish to add one or more media proxies to the group, complete the following sub-steps:

a. From the Available Media Proxies list on the left, select the media proxy that you want to add to the group.

   If there are no additional media proxies available, the list is empty. If you wish to add new media proxies to the network, complete procedure "Add a media proxy" (page 281).

   You cannot include more than five media proxies in a group. If the group already includes five media proxies, the **Add** button is disabled.

b. Click the **Add** button. The selected name or names are moved to the Media Proxies in a Group list on the right.

7 If you wish to replace any media proxy currently included in the group, first remove it from the group (complete step 5), then add a new media proxy to the group (complete step step 6).

8 Verify that the modified group contains all the necessary media proxies (no more than five), then click **OK**.

If the media proxy group that you are modifying was associated with a GWC and you have not disassociated it before starting this procedure, the operation fails and the system displays an appropriate error message.

If the operation fails, complete the following sub-steps. Otherwise, continue with step 9.

a. Click **OK**.

b. Disassociate the media proxy group from all GWCs using one of the methods described in section "Disassociate a media proxy group from a GWC" (page 303).

c. Repeat this procedure.

9 Verify that the changes appear in the Media Proxy Groups table, under Media Proxies heading.

10 If you need to associate the updated media proxy group back with a GWC, complete one of the tasks described in following table. Otherwise, the procedure is complete.

If you have disassociated this group by	Do
replacing it with a new group for a network zone ("Method 1" (page 303))	You don't need to associate the updated group back.
removing the media proxy group from a network zone ("Method 2" (page 304))	Re-select this media proxy group for each affected network zone. If required, see procedure "Change attributes of a network zone" (page 347)

11 The procedure is complete.

—End—

View media proxy group associations

Purpose of this procedure

This procedure describes how to check all current associations of the selected preferred media proxy group. A media proxy group represents a subset of media proxies to be used in a particular part of the network configuration by a set of gateways in the same location.

Each media proxy group can be associated with one or more ITRANS-type network zones and, through a media gateway associated with that zone, with one or more Gateway Controllers (GWC).

When to use this procedure

Use this procedure when you wish to view any of the following information:

- media proxies included in the group
- all network zones with which the selected media proxy group is currently associated
- all GWCs with which the selected media proxy group is currently associated - through gateways associated with network zones that use this media proxy group

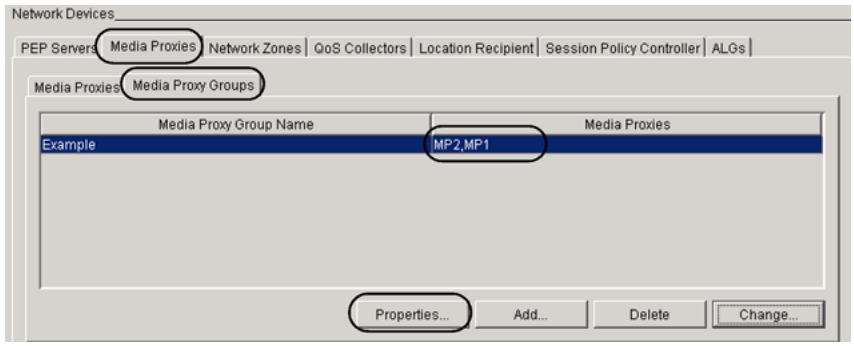
  For information about how the media proxy group data is associated with a GWC, see procedure "Add a preferred media proxy group to the network" (page 299).

Prerequisites and guidelines

There are no prerequisites or guidelines for this procedure.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Network Devices panel click the **Media Proxies** tab, then click the newly displayed **Media Proxy Groups** tab.

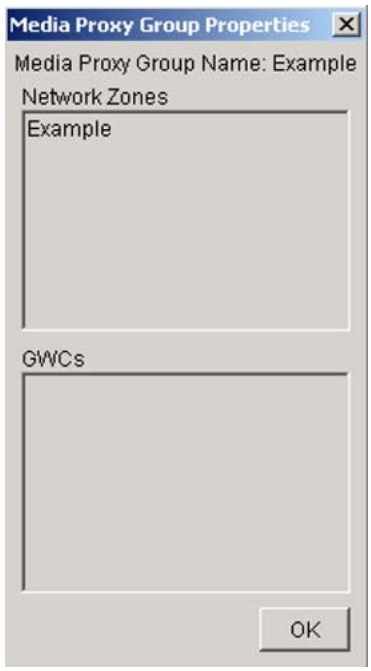


3 Select the media proxy group you wish to view. Your selection is highlighted.

The Media Proxies column on the right lists all media proxies included in the selected group.

4 Click the **Properties** button.

The Media Proxy Group Properties dialog box displays all the Network Zones and all GWCs with which the selected group is associated.



5 Click **OK** to close the dialog box.

6 The procedure is complete.

—End—

Delete a preferred media proxy group

Purpose of this procedure

Use this procedure to delete a preferred media proxy group from the network. A media proxy device acts as an RTP portal to allow a gateway in one domain to communicate with another gateway in another domain. A media proxy group represents a subset of media proxies to be used in a particular part of the network configuration by a set of gateways in the same location.

When to use this procedure

Use this procedure when you wish to remove one or more media proxy groups from your network.

Prerequisites and guidelines

CAUTION
Possible service disruption
You cannot delete a media proxy group if it is associated with any Gateway Controller (GWC). You must first disassociate the media proxy group from all GWCs. If required, see section "Disassociate a media proxy group from a GWC" (page 311).

Disassociate a media proxy group from a GWC

Use one of the following methods to disassociate the selected media proxy group from a GWC.

Method 1

Replace or remove the selected media proxy group from a network zone.

Use this method when the group that you wish to delete is assigned to a network zone that is currently associated with a GWC. For example, if the media proxy group that you wish to delete is assigned to eight network zones but only two of those zones are associated with a GWC, you need to change the group only for those two zones.

ATTENTION
Deleting a media proxy group affects all network zones configured with that group, including those that are not associated with any GWC. For all those network zones, the assigned media proxy group will automatically change to <none>.

Complete the following steps:

- Identify all network zones to which the selected media proxy group is assigned. If required, see one of the following procedures:

— "View media proxy group associations" (page 308) (if your network configuration includes many network zones)

— "View network service zone configuration details" (page 354) (if your network configuration includes few network zones; use the Media Proxy Group column under the appropriate network zone panel)

- For each identified zone, verify whether it is associated with any GWC. If required, see procedure "View network service zone configuration details" (page 354).

  If a network zone with the selected media proxy group is not currently associated with any GWC, you can delete the group without any prerequisites. The assigned group will automatically change to <none>.

- For each network zone identified as being associated with a GWC, assign a different media proxy group or change the group to <none>. See procedure "Change attributes of a network zone" (page 347).

  If you need to create a new group, complete procedure "Add a preferred media proxy group to the network" (page 299).

Method 2

Disassociate each media gateway associated with the selected media proxy group from all GWCs. Complete the following steps:

1. Identify all network zones to which the selected media proxy group is assigned. If required, see procedure "View media proxy group associations" (page 308).
2. Identify media gateways associated with each network zone identified in the previous step. If required, see procedure "View network service zone configuration details" (page 354).
3. Disassociate each media gateway identified in the previous step from all GWCs. If required, see procedure "Disassociate a media gateway" (page 273).

Method 3

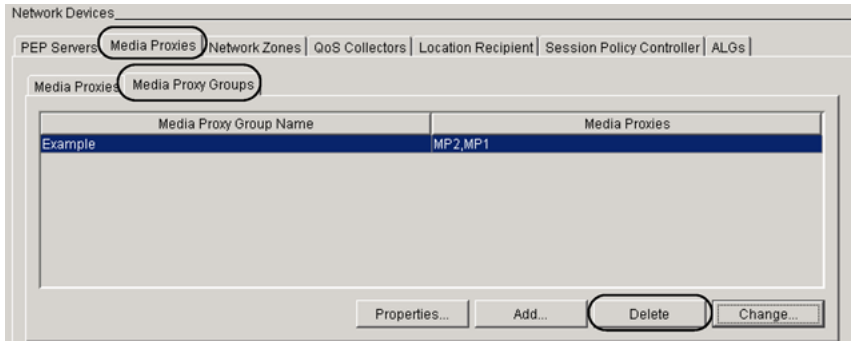
Remove the network zone associated with the selected media proxy group from a media gateway. Complete the following step:

1. Identify all network zones to which the selected media proxy group is assigned. If required, see procedure "View media proxy group associations" (page 308).
2. Identify media gateways associated with each network zone identified in the previous step. If required, see procedure "View network service zone configuration details" (page 354).

3. For each gateway identified in the previous step, change the Adj Network Zone to <none>. If required, see procedure "Change gateway attributes" (page 254).

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	At the Network Devices panel, click the **Media Proxies** tab, then click the newly displayed **Media Proxy Groups** tab.



3	Select the media proxy group you wish to remove. Your selection is highlighted.
4	Click the **Delete** button.
5	At the confirmation dialog box, click **Yes** to confirm that you want to delete the selected media proxy group. If the selected media proxy group is still associated with any GWC, the operation fails and the system displays an appropriate error message. If the operation fails, complete the following sub-steps. Otherwise, continue with step 6. a. Click **OK**. b. Disassociate the media proxy group from all GWCs using one of the methods described in section "Disassociate a media proxy group from a GWC" (page 311). c. Repeat this procedure.

6 Verify that the media proxy group is removed from the Media Proxy Groups table.

7 The procedure is complete.

—End—

Add an IP-VPN (NAT) zone

Purpose of this procedure

Use this procedure to define and add an IP-VPN network address translator (NAT)-type network service zone to the Gateway Controller (GWC) database.

ATTENTION

If your network configuration includes the Policy Controller, all network zones must be configured identically: first on the CS 2000 system through the GWC Manager or the OSSGate, then on the Policy Controller. Once you add a new IP-VPN (NAT) zone to the CS 2000 system, you must immediately add it to the Policy Controller. Otherwise, the Network VCAC may not function properly.

For information about how to configure a NAT-type zone on the Policy Controller, see *Policy Controller Configuration Management* (NN10432-511).

Due to the need to conserve IP addresses across enterprise networks, the CS 2000 is often located on one IP VPN and the gateways are located on different IP VPNs. Therefore, in order for the CS 2000 to communicate with the gateways, a NAT-type service zone is needed. A NAT zone provides the gateways with a temporary public IP address. A GWC will select and then setup a media proxy based on call flow. A pool of media proxies can be made available to perform NAT traversal functions by associating one or more proxy devices with a GWC. For more information, see section "Associate a media proxy or a media proxy group with a GWC" (page 22).

This procedure gives you an option you to select a media proxy group for the new network zone or to add this network zone to a virtual private network (VPN), or both. A VPN can contain one or more network zones. The Gateway Controller (GWC) uses the VPN IDs of the parties involved in a call to determine if a media proxy is required. If two parties involved in the call belong to different VPNs, the GWC inserts a media proxy.

The system automatically assigns the zone identifier (ID) of the NAT. This ID incorporate the call agent ID assigned to the CS 2000.

This procedure also allows you to specify a zone ID for the NAT, instead of allowing the system to automatically assign this ID. Manually configuring a zone ID allows two or more CS 2000s to share the same NAT service zone.

Note: You cannot change the zone ID after adding an IP-VPN(NAT) zone.

This procedure includes the option to select a parent zone in the network hierarchy for the zone you are configuring. A parent zone is defined as a network zone that is closer to the network core (CS 2000) than the zone you are adding. Therefore, the IP-VPN(NAT) zone would be closer to the gateways at the edge of the network. A parent zone can be an IP-VPN(NAT), an LBL, or a composite NAT-LBL zone.

When to use this procedure

Use this procedure when you need to add one or more IP-VPN(NAT) service zones to the network before associating gateways that use NAT-type zones with the GWC.

As part of this procedure, you have the option to manually configure the zone ID of a NAT. You can do this instead of allowing the system to automatically assign a zone ID. Use this capability when you wish to configure a NAT-type zone that is shared with another CS 2000. Manually configuring a zone ID allows two or more CS 2000s to share the same IP-VPN(NAT) zone.

Prerequisites and guidelines

The following prerequisites apply to this procedure:

- The call agent ID must be set for your CS 2000 before you add a NAT-type service zone. If the call agent ID is not set, complete procedure "Set the call agent identifier" (page 69).
- If you intend to configure an IP-VPN(NAT) service zone that is already configured on another CS 2000 (that is, a shared zone configuration), you need to determine the ID of the zone on the other CS 2000. For information about how to verify a network zone ID, see procedure "View network service zone configuration details" (page 354).
- The media proxy group that you want to assign to this service zone must be configured before this procedure. If required, see procedure "Add a preferred media proxy group to the network" (page 299).
- If you plan to add this network zone to a virtual private network (VPN), configure the VPN before completing this procedure. If required, see procedure "Add a virtual private network (VPN)" (page 360).

  You can also create a new VPN while completing this procedure.

The following guidelines apply to this procedure:

- NAT-type service zones must be configured before any media gateways that use NAT service are associated to a GWC. The data for an IP-VPN(NAT) zone will be sent down to the GWC when the zone is associated with a media gateway.
- Multiple NAT devices that all implement the same IP-VPN and share a single exit point should be configured as a single IP-VPN(NAT) zone.

- There is only one IP-VPN(NAT) exit point from a local network. If two gateways are behind the same IP-VPN(NAT) zone or belong to the same VPN, they can setup a call without requiring a media proxy.
- The Integrated Access Cable solution uses DQoS and PEP servers while the Integrated Access Wireline solution uses ITRANS (internet transparency) and NATs as media proxies. These two solutions are mutually exclusive as defined in the gateway profile service type. In other words, DQOS and ITRANS cannot be defined together in a single GWC profile when associating media gateways to a GWC.
- The maximum number of sequentially linked service zones in a network hierarchy is five.
- You can assign only one media proxy group to a network zone.

Media proxies are configured using the Multimedia Communications System (MCS) Manager application. For more information, see the MCS documentation.

If your network configuration includes the Session Server for SIP Lines, the following additional prerequisites and guidelines apply to this procedure:

- The Session Server Manager connectivity information must be configured on the CS 2000 Management Tools server.

  For more information, see procedure "Adding the Provisioning Manager to SESM" in *Nortel Session Server Lines Fundamentals* (NN10437-111).
- The VPN IDs in the GWC database and the Session Server Lines database must match to allow the correct insertion of media proxies. If there are IP-VPN(NAT) zones already configured in the GWC database, perform an audit for the Session Server Manager to ensure that the current data is synchronized. Complete procedure "Perform a CS 2000 data integrity audit" in the *Gateway Controller Fault Management* (NN10202-911), selecting the CS2KSS EM Data Integrity Audit component.
- Once you complete this procedure, perform the appropriate steps on the Session Server Lines to provision SIP lines that use the routability groups corresponding to the network zones added with this procedure. See *Nortel Session Server Lines Fundamentals* (NN10437-111).

The following table lists the distinct combinations of NAT-type service zones supported using this procedure.

Combination	Shared zone	Parent zone
1	Not shared	Does not have a parent zone
2	Not shared	Has a parent zone

Combination	Shared zone	Parent zone
3	Shared	Does not have a parent zone
4	Shared	Has a parent zone
A shared IP-VPN(NAT) service zone is defined as zone that is shared with another CS 2000. A parent zone is defined as a network zone that is closer to the network core (the CS 2000) than the IP-VPN(NAT) zone you are adding.		

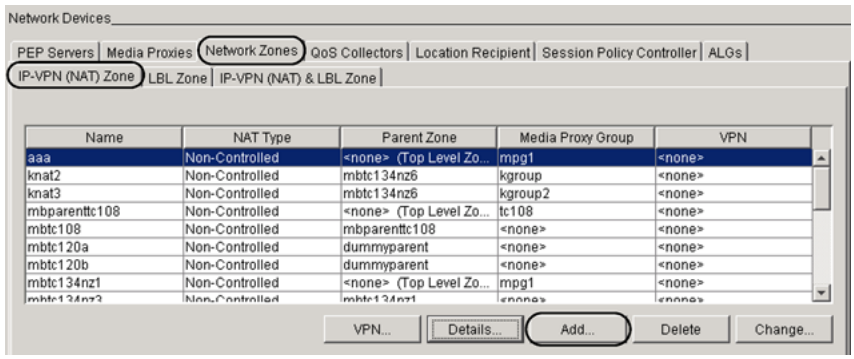
Action

Step	Action

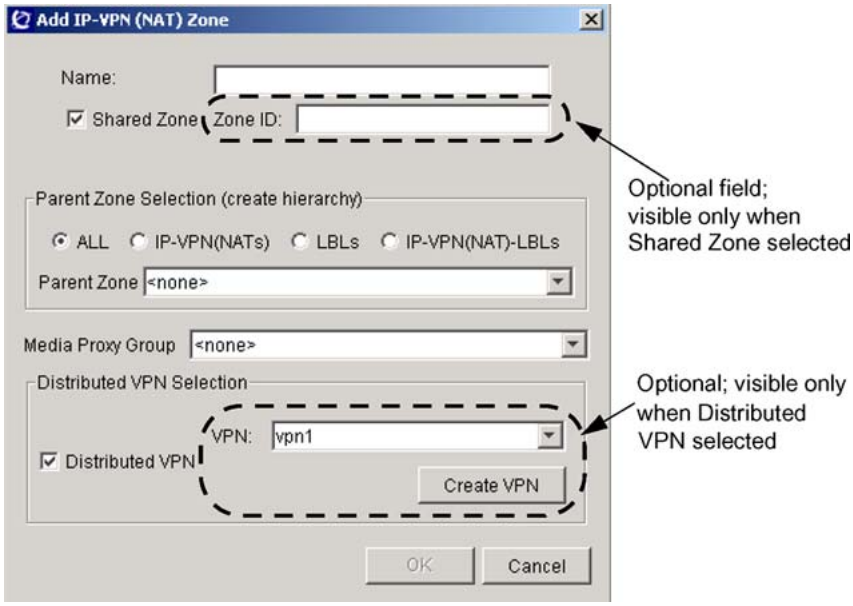
At CS 2000 GWC Manager client

1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

2 From the Network Devices panel, click the **Network Zones** tab, then click the **IP-VPN (NAT) Zone** tab to display the IP-VPN (NAT) Zone panel.



3 Click the **Add** button to display the Add IP-VPN (NAT) Zone dialog box.



4 Click in the Name: field and type a unique alphanumeric name for the IP-VPN(NAT) zone. If necessary, contact your site system administrator for assistance with this task.

If you intend to share this zone with another CS 2000, it is recommended that the name of the zone corresponds to the name used on the other CS 2000. However, this is not a requirement.

5 If you want the zone to be shared, complete the following sub-steps. Otherwise, continue with step 7.

The zone ID of the shared zone is required for this procedure. Access the GWC Manager for a CS 2000 that is already configured with the zone you intend to share. Display and record the zone ID for that zone. Follow procedure "View network service zone configuration details" (page 354).

If necessary, contact your site system administrator to identify the zone ID you must use.

a. Select the Shared Zone check box. The dialog box extends to include the Zone ID: field.

b. Assign the zone ID of the NAT device you intend to share with another CS 2000.

The zone ID must match the existing ID for the IP-VPN(NAT) zone already configured on another CS 2000.

The range of valid values is between 2 and 16777215 inclusive (1 is reserved). If necessary, contact your site system administrator to determine the zone ID you must use.

If the value entered is invalid, the text field is outlined in red and the OK button is disabled.

6 Use the following table to determine your next step.

If the new zone	Do
has a parent zone in the network	go to step 7
does not have a parent zone in the network	leave the Parent Zone: field blank or select <none>, then go to step 8.

7 Select a parent zone for the new zone using the following sub-steps.

A parent zone is a zone that is closer to the network core (the CS 2000) than the NAT-type zone you are adding.

a. In the Parent Zone Selection area, select one of the radio buttons to choose the scope of your zone selection. The options are:

- ALL - includes all zones
- IP-VPN(NATs) - restricts the selection to IP-VPN (NAT) zones
- LBLs - restricts the selection to LBL zones
- IP-VPN(NAT)-LBLs - restricts the selection to composite NAT-LBL zones

b. Click the Parent Zone: field and from the list in the drop-down menu, select a parent zone for the new NAT-type zone.

If desired, first type text characters of a zone name in the field to fine tune your display. The system displays all NAT, LBL, or composite NAT-LBL zones with a name that matches any of the characters you type.

8 Click the Media Proxy Group field and from the list of available groups, select a preferred media proxy group for this network zone.

If you do not wish to assign a media proxy group to this zone, leave this field at the default value of <none>.

To associate the selected media proxy group with a GWC, select this zone as an adjacent network zone when associating a gateway with a GWC. If this zone is not selected as an adjacent network zone but it belongs to a gateway's network zone tree, this selected media proxy group is sent to a GWC only if it is the first media proxy group found in the network zone hierarchy.

For CICM gateways, all media proxy groups in the root network zone hierarchy are sent to a GWC.

A media proxy group can be associated with more than one network zone.

9 If you wish to add this network zone to a virtual private network (VPN), complete the following sub-steps. Otherwise, continue with step 10.

A VPN can contain one or more NAT-type network zones. GWCs use the VPN IDs of the parties involved in a call to determine if a call is required. If two parties involved a call belong to different VPNs, the GWC inserts a media proxy.

a. In the Distributed VPN Selection section, click the Distributed VPN check box. The dialog box extends to include the VPN: field and the **Create VPN** button.

b. Click the VPN: field and from the list of configured VPNs, select the VPN to which you want to add this network zone.

c. If there are no VPNs configured or you wish to add a new VPN, click the **Create VPN** button, complete procedure "Add a virtual private network (VPN)" (page 360), then continue this procedure.

10 Click**OK** at the bottom of the dialog box to accept all the settings for the new NAT-type zone.

If you did not assign the Zone ID manually, the system automatically assigns it. This ID incorporates the call agent ID assigned to the CS 2000.

If the name or the shared ID assigned is already in use, the system displays an error message. If an error was made when adding the zone, delete it from the network using procedure "Delete a network service zone" (page 357). Then re-add the zone using this procedure.

If your network configuration includes the Session Server for SIP lines component, the system sends a request to the Session Server Lines to add a new Routability Group corresponding to the new network zone. If the Session Server Lines fails to add the new zone, the system displays an error message describing the cause.

11 Confirm that the new zone appears in the IP-VPN (NAT) Zone table.

If your network configuration includes the Policy Controller, you must now add this new zone to the Policy Controller using the same configuration values. If you did not assign the zone ID manually, obtain the ID assigned by the system using procedure "View network service zone configuration details" (page 354).

12 The procedure is complete.

—End—

Configure resource usage data for limited bandwidth links (LBL)

Purpose of this procedure

ATTENTION

This procedure does not apply if your network configuration includes the Policy Controller, and the Network VCAC (virtual call admission control) status is ON.

Use this procedure only if the Network VCAC status is set to OFF, that is, the virtual call admission control is performed by each Gateway Controller (GWC), instead of the Policy Controller.

Use this procedure to configure resource usage parameters to be used over limited bandwidth links (LBL) for virtual call admission control (VCAC).

When the Network VCAC status is OFF, an LBL is configured to support a maximum count value representing the call set-up capacity through the link. Call set-up through an LBL causes a running total of bandwidth capacity used to be incremented. Call take-down causes the running total to be decremented. If a call set-up would cause the running total of capacity used to exceed the maximum capacity of the LBL, then the call attempt is rejected and routed to NBLN (network blocking load normal) treatment.

For more information about the NBLN treatment datafill, see section "Additional information" (page 335) in procedure "Add a limited bandwidth link (LBL) zone" (page 330).

Each resource usage entry has a set of values representing the bandwidth used for each call. These values depend on the codec and packetization rate used on the call. The resource usage entry assigned to an LBL defines the specific amount incremented to (or decremented from) the running total of used bandwidth capacity when a call is set up (or terminated).

When to use this procedure

Use this procedure when you need to identify a resource usage profile to be available for LBLs in your network (only if your network configuration does not include the Policy Controller and the Network VCAC status is OFF).

Prerequisites and guidelines

A resource usage profile must be configured, before it can be used when configuring an LBL.

You cannot delete a resource usage profile that is used by an LBL. You can, however, change the parameters of a resource usage profile that is used by an LBL. The changes will be propagated to the GWC.

Action

Step	Action

At CS 2000 GWC Manager client

1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

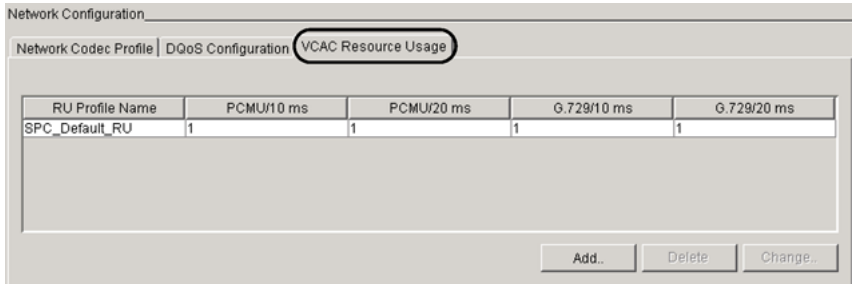
2 Determine your next step using the following table:

If you wish to	Do
view all resource usage (RU) profiles	step 3
add an RU profile	step 4
change an RU profile	step 5
delete an RU profile	step 6

3 Perform the following steps to view all RU profiles configured.

a. From the Network Configuration panel, click the **VCAC Resource Usage** tab to display the VCAC Resource Usage pane.

The **VCAC Resource Usage** tab is not displayed when the Network VCAC status is ON.



All existing resource usage (RU) profiles are displayed in the following columns:

- RU Profile Name
- PCMU/10 ms - Per-call bandwidth using PCMU codec at a packetization rate of 10 milliseconds.
- PCMU/20 ms - Per-call bandwidth using PCMU codec at a packetization rate of 20 milliseconds.

- G.729/10 ms - Per-call bandwidth using G.729 codec at a packetization rate of 10 milliseconds
- G.729/20 ms - Per-call bandwidth using G.729 codec at a packetization rate of 20 milliseconds.

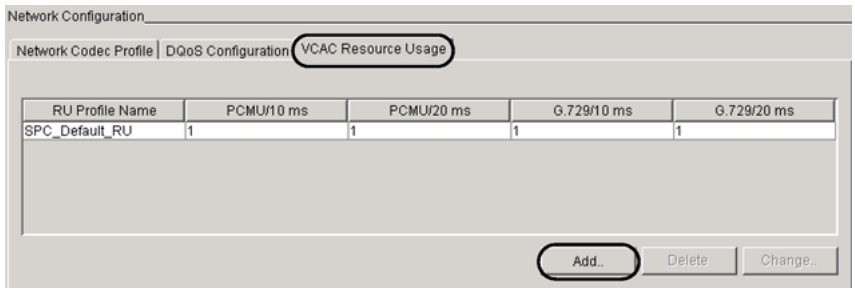
The per-call bandwidth values can be compared to the total bandwidth available through an LBL.

b. Go to step 7.

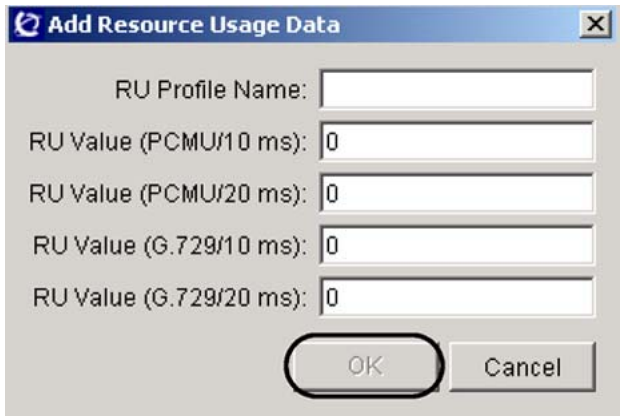
4 Perform the following steps to add an RU profile.

a. From the Network Configuration panel, click the **VCAC Resource Usage** tab to display the VCAC Resource Usage pane.

The **VCAC Resource Usage** tab is not displayed when the Network VCAC status is ON.



b. Click the **Add** button to display the Add Resource Usage Data dialog box.



Use the following guidelines when configuring the RU fields:

- RU values set in the following steps are required for every codec and packetization rate combination that has been created for your network. If a value is not required, leave the

default setting "0", which means that every call will use zero bandwidth (unlimited calls).

- The per-call RU values can be compared to the total bandwidth available through an LBL (referred to as Max Count).

  Example
  If you set the codec/packetization rate for an RU Profile Name to 5 and the Max Count for the same RU Profile Name to 10 (when adding an LBL), then there is enough bandwidth available for two calls. The third call is rejected since the Max Count has been exceeded.

- The per-call RU values set in the following steps are defined as part of network engineering.
- All RU values must be non-negative integers.

c. In the RU Profile Name: field, type a name for the new profile. Use a unique alphanumeric text string to identify the profile.

d. In the RU Value (PCMU/10 ms): field, type a per-call bandwidth value using PCMU codec at a packetization rate of 10 milliseconds.

e. In the RU Value (PCMU/20 ms): field, type a per-call bandwidth value using PCMU codec at a packetization rate of 20 milliseconds.

f. In the RU Value (G.729/10 ms): field, type a per-call bandwidth value using G.729 codec at a packetization rate of 10 milliseconds.

g. In the RU Value (G.729/20 ms): field, type a per-call bandwidth value using G.729 codec at a packetization rate of 20 milliseconds.

h. Click **OK** to add the RU profile.

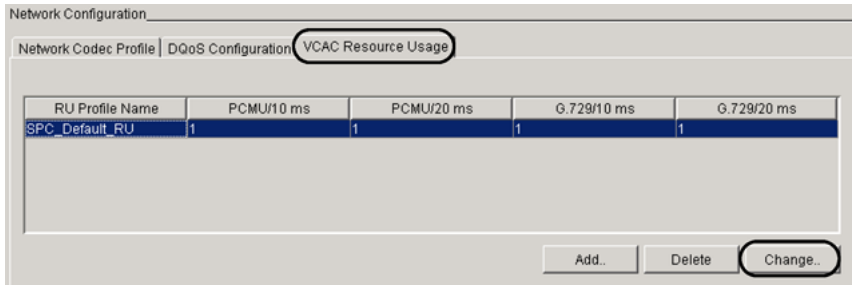
The new profile appears on the list of RU profiles and is available to be used on an LBL.

i. Go to step 7.

5 Perform the following steps to change the parameters of an existing RU profile.

a. From the Network Configuration panel, click the **VCAC Resource Usage** tab to display the VCAC Resource Usage pane.

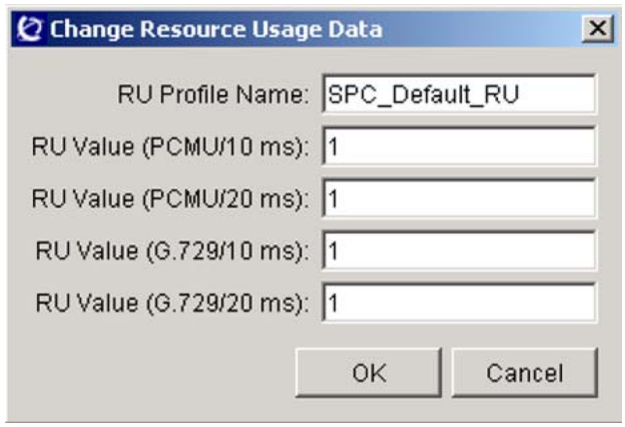
The **VCAC Resource Usage** tab is not displayed when the Network VCAC status is ON.



b. Select one of the existing RU profiles in the list.

   Your selection is highlighted.

c. Click the **Change** button to display the Change Resource Usage Data dialog box.



   You can change the RU profile name or any of the RU values displayed.

   Use the following guidelines when performing the following steps:

   - RU values set in the following steps are required for every codec and packetization rate combination that has been created for your network. If a value is not required, leave the default setting "0".
   - The per-call RU values can be compared to the total bandwidth available through an LBL (referred to as Max Count).
   - The per-call RU values set in the following steps are defined as part of network engineering.
   - All RU values must be non-negative integers.

d. If necessary, change the RU Profile Name. Use a unique alphanumeric text string to identify the profile.

e. If necessary, change the RU Value (PCMU/10 ms). This represents the per-call bandwidth value using PCMU codec at a packetization rate of 10 milliseconds.

f. If necessary, change the RU Value (PCMU/20 ms). This represents the per-call bandwidth value using PCMU codec at a packetization rate of 20 milliseconds.

g. If necessary, change the RU Value (G.729/10 ms). This represents the per-call bandwidth value using G.729 codec at a packetization rate of 10 milliseconds.

h. If necessary, change the RU Value (G.729/20 ms). This represents the per-call bandwidth value using G.729 codec at a packetization rate of 20 milliseconds.

i. Click **OK** to change the RU profile.

The changed profile is reflected on the list of RU profiles and is available to be used on an LBL.

If the RU profile is assigned to an LBL, the changes to the profile will be propagated to the LBL. If you change the name of an RU profile assigned to an LBL, simply re-select the **LBL Zone** tab to view the propagated change.

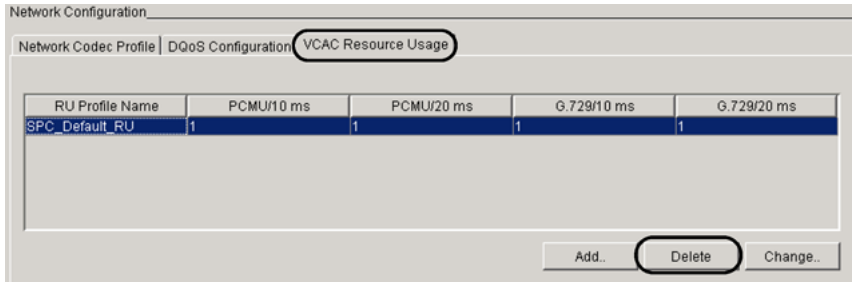
j. Go to step 7.

6 Perform the following steps to delete an existing RU profile.

a. From the Network Configuration panel click the **VCAC Resource Usage** tab to display the VCAC Resource Usage pane.

The **VCAC Resource Usage** tab is not displayed when the Network VCAC status is ON.

b. Select one of the existing RU profiles in the list.



c. Click the **Delete** button to remove the profile. At the confirmation window, click **Yes** to confirm the deletion.

If you try to delete an RU profile that is used by an LBL, the system displays an error message.

7 The procedure is complete.

—End—

Add a limited bandwidth link (LBL) zone

Purpose of this procedure

Use this procedure to define and add a limited bandwidth link (LBL) zone to the Gateway Controller (GWC) database. An LBL is a virtual representation of a link identified in the network that has restricted capacity and which warrants bandwidth management. An LBL zone is a type of a network service zone, like an IP-VPN network address translator (NAT) zone.

ATTENTION

If your network configuration includes the Policy Controller, all network zones must be configured identically: first on the CS 2000 system through the GWC Manager or the OSSGate, then on the Policy Controller. Once you add a new LBL zone to the CS 2000 system, you must immediately add it to the Policy Controller. Otherwise, the Network VCAC may not function properly.

For information about how to configure an LBL zone on the Policy Controller, see *Policy Controller Configuration Management* (NN10432-511).

If your network configuration does not include the Policy Controller (Network VCAC status is OFF), the following parameters must be defined:

- An LBL is configured to support a maximum count value representing the call set-up capacity through the link. Call set-up through an LBL causes a running total of bandwidth capacity used to be incremented. Call take-down causes the running total to be decremented. If a call set-up would cause the running total of capacity used to exceed the maximum capacity of the LBL, then the call attempt is rejected and routed to NBLN (network blocking load normal) treatment.

  For more information about VCAC and the NBLN treatment datafill, see section "Additional information" (page 335).

- You must select a resource usage profile to be used for each LBL. Each resource usage entry has a set of values representing the bandwidth used per-call. These values depend on the codec and packetization rate used on the call. The resource usage entry assigned to an LBL defines the specific amount incremented to (or decremented from) the running total of used bandwidth capacity when a call is set-up (or terminated). For more information, see procedure "Configure resource usage data for limited bandwidth links (LBL)" (page 323)

This procedure includes the option to select a parent zone in the network hierarchy for the LBL zone you are configuring. A parent zone is defined as a zone that is closer to the network core (CS 2000) than the LBL zone

you are adding. (Therefore, the LBL would be closer to the gateways at the edge of the network.) A parent zone can be an IP-VPN(NAT) zone, another LBL zone, or a composite NAT-LBL zone.

This procedure allows you to select a media proxy group for the new network zone. For more information about a media proxy groups, see section "Associate a media proxy or a media proxy group with a GWC" (page 22).

The system automatically assigns the zone identifier (ID) of an LBL. This ID incorporates the call agent ID assigned to the CS 2000.

This procedure also allows you to specify a zone ID for the LBL, instead of allowing the system to automatically assign the zone ID.

You cannot change the zone ID after adding an LBL zone.

When to use this procedure

Use this procedure when you need to add one or more LBLs to the network. An LBL zone must be configured before any media gateways that use the LBL can be associated with a GWC.

Prerequisites and guidelines

The following prerequisites apply to this procedure:

- The call agent ID must be set for your CS 2000 before you add an LBL-type or a NAT-type zone. If required, complete procedure "Set the call agent identifier" (page 69).
- If your network does not include the Policy Controller and the Network VCAC status is OFF, you must add a resource usage profile before adding an LBL. See procedure "Configure resource usage data for limited bandwidth links (LBL)" (page 323).
- If you need to select a parent zone for the LBL you are adding, then that zone must already be configured on the CS 2000. The parent zone can be an IP-VPN(NAT), an LBL, or a composite NAT-LBL zone.
- The media proxy group that you want to assign to this service zone must be configured before this procedure. If required, see procedure "Add a preferred media proxy group to the network" (page 299)

The following guidelines apply to this procedure:

- LBL zones must be configured before any media gateways (MG) that use the LBL are associated with a GWC. Information about any LBLs in the path of an MG is sent to the GWC when the MG is associated with the GWC.

- If two gateways are behind the same LBL, a call between the gateways does not use capacity over that LBL.
- The Integrated Access Cable solution uses DQoS and PEP Servers while the Integrated Access Wireline solution uses internet transparency (ITRANS) and NATs as media proxies. These two solutions are mutually exclusive as defined in the gateway profile service type. Therefore, DQoS and ITRANS cannot be defined together in a single GWC profile when associating a media gateway with a GWC.
- The maximum number of sequentially linked service zones in a network hierarchy is five.
- You can assign only one media proxy group to a network zone.

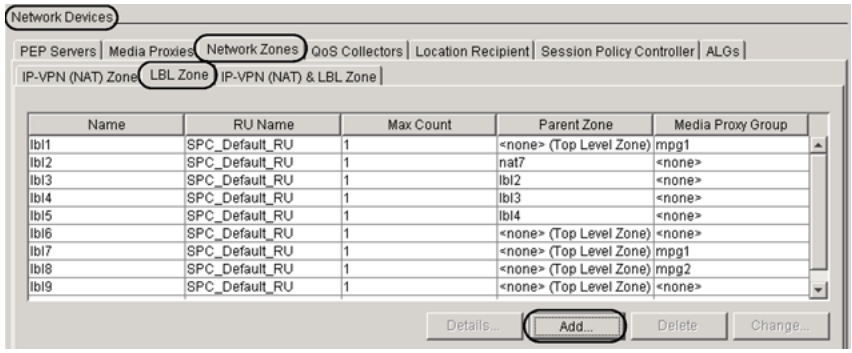
Action

Step	Action

At CS 2000 GWC Manager client

1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

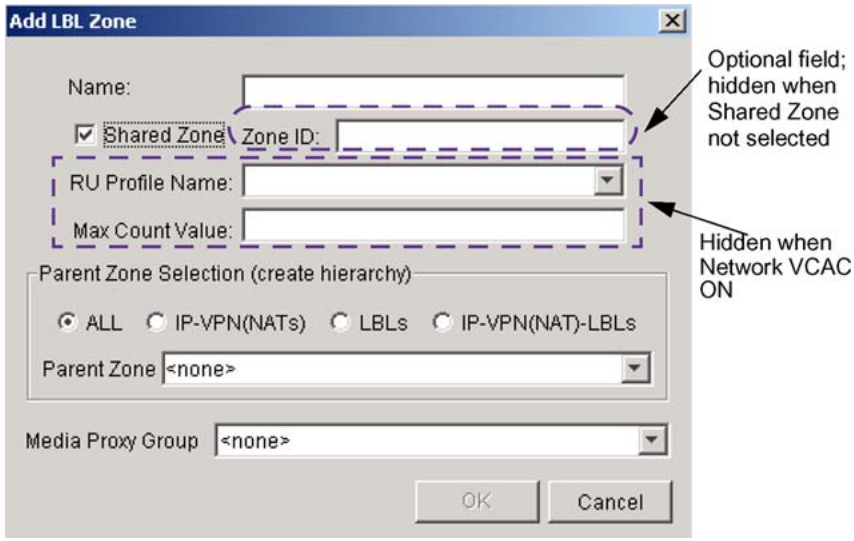
2 From the Network Devices panel, click the **Network Zones** tab, then click the **LBL Zone** tab to display the LBL pane.



3 Click the **Add** button to display the appropriate Add LBL Zone dialog box, depending on your network topology.

If your network configuration includes the Policy Controller (Network VCAC status: ON), the following fields are not displayed (hidden):

- RU Profile Name
- Max Count Value



4 At the Add LBL Zone dialog box, click in the Name: field and type a unique alphanumeric name for the LBL zone.

5 If you want the LBL zone to be shared, select the Shared Zone check box. Otherwise, continue with the next step.

When you select the Shared Zone check box, the dialog box extends to include the Zone ID: field. Assign the zone ID of the LBL.

The range of valid values is between 2 and 16777215 inclusive (1 is reserved). If necessary, contact your site system administrator to determine the zone ID you must use.

If the value entered is invalid, the text field is outlined in red and the OK button is disabled.

6 Use the following table to determine your next step.

If the Network VCAC status is	Do
OFF	go to step 7
ON	go to step 9

7 Click the RU Profile Name: drop-down menu to select a resource usage profile to be used for the new LBL.

Only the RU profiles already configured will appear in the drop-down list. To view the details of existing RU profiles, click the **VCAC Resource Usage** button under Network Configuration.

8 Click in the Max Count Value: field and type a non-negative integer value indicating the call set-up capacity through the link.

The call set-up capacity must be compared to the contents of the RU profile selected in the previous step.

9 Use the following table to determine your next step.

If the new LBL	Do
has a parent zone	go to step 10
does not have a parent zone	leave the Parent Zone: field blank or select <none>, and go to step 11

10 Select the parent zone for the new LBL using the following sub-steps.

A parent zone is a zone that is closer to the network core (the CS 2000) than the LBL zone you are adding.

a. In the Parent Zone Selection area, select one of the radio buttons to choose the scope of your zone selection. The options are:

- ALL - includes all zones
- IP-VPN(NATs) - restricts the selection to IP-VPN(NAT) zones
- LBLs - restricts the selection to LBL zones
- IP-VPN(NAT)-LBLs - restricts the selection to composite IP-VPN(NAT) & LBL zones

b. Click the Parent Zone: field and from the list in the drop-down menu, select a parent zone for the new LBL zone.

If desired, first type text characters of a zone name in the field to fine tune your display. The system displays all NAT, LBL, or composite NAT-LBL zones with a name that matches any of the characters you type.

11 Click the Media Proxy Group field and from the list of available groups, select a preferred media proxy group for this network zone.

If you do not wish to assign a media proxy group to this zone, leave this field at the default value of <none>.

To associate the selected media proxy group with a GWC, select this zone as an adjacent network zone when associating a gateway with a GWC. If this zone is not selected as an adjacent network zone but it belongs to a gateway's network zone tree, this selected media proxy group is sent to a GWC only if it is the first media proxy group found in the network zone hierarchy.

For CICM gateways, all media proxy groups in the root network zone hierarchy are sent to a GWC.

A media proxy group can be associated with more than one network zone.

12 Click **OK** at the bottom of the dialog box to accept all the settings for the new LBL zone.

If an error was made when adding the LBL zone, delete it from the network using procedure "Delete a network service zone" (page 357), then re-add the LBL zone using this procedure.

13 Confirm that the new LBL zone appears in list.

If your network configuration includes the Policy Controller, you must now add this new zone to the Policy Controller using the same zone name, ID, and parent selection. If you did not assign the zone ID manually, obtain the ID assigned by the system using procedure "View network service zone configuration details" (page 354).

14 The procedure is complete.

—End—

Additional information

VCAC can potentially affect any call. If there is insufficient resources for a call or call leg to complete then the call will be released, and the user is directed to a treatment.

VCAC can deny call admission whenever the speech path changes as in the following scenarios.

- Call Origination. After the digits have been dialed and the CS 2000 attempts to establish a speech path prior to ringing/ringback, VCAC can deny admission to the call. This is the main VCAC scenario.
- Call Hold. The bearer path is dropped for a call placed on hold, whether as a call hold service or as a step in another service such as 3WC or consultation transfer. If other calls have consumed the available resources then an attempt to retrieve the held call will fail.
- Call Transfer. The bearer path is changed after it has been set up. Services such as call transfer, CFNA, 3WC can cause this condition. IN services use call transfer by connecting a call to announcements before routing to other destinations. This procedure fails if there is an LBL in the new path without resources for the new call leg.
- Calls that ring before negotiating the speech path. Examples are non-pilot members for simring and pre-answer call waiting attempts. In these cases, the application only calculates the bandwidth on answer, so the call will be denied if there is not enough bandwidth.

On call denial, VCAC will clear down the call that would overload the LBL.

NBLN datafill

To enable Network Blocking Normal Traffic (NBLN) treatment for VCAC, the following tables must be datafilled:

- "Table Treatment Control (TMTCNTL)" (page 336)
- "Table Treatment to Cause Map (TMTMAP)" (page 337)
- "Table Flexible CAUSEMAP (FLXCMAP)" (page 337)

If a call fails because VCAC fails, you need to apply an NBLN treatment to the originating call agent of the node. If VCAC blocks an originating line or trunk, a LINE138 log report or TRK138 log report generates with treatment set to NBLN. The log reports identify the call originator and the dialed digits to help you determine the problem. For more information about these log reports, see *DMS-100 Family Log Reference Manual* (297-8021-840).

ATTENTION

The datafill examples in the following sections are examples only. There are regulatory requirements for the behavior of signaling links and each operating company can have different requirements for the mapping of release codes to treatments, and for the management of their signaling network.

Table Treatment Control (TMTCNTL)

CAUTION

The tuple in subtable TMTCNTL.TREAT must be set to **tone** instead of **announcements**. Otherwise, a treatment loop can result as there is insufficient bandwidth to play the announcement.

Table TMTCNTL consists of the Treatments Subtable (TMTCNTL.TREAT) that defines treatments assigned to lines. Datafill each treatment subtable with the following tuple:

```
NBLN  Y S <tone>
```

where

NBLN is the assigned treatment
Y indicates that the event must be logged
S indicates that the tone is defined by Common Language Location Identifier (CLLI)
<tone> is the preferred tone which is identified by the operating company and played to the call originator. Use a standard tone, or a custom tone defined through table TONES.

Table Treatment to Cause Map (TMTMAP)

CAUTION
The treatment MUST NOT be played locally (NOLOCAL in the TMTMAP datafill examples follow) if any of the trunks using this node are based on SIP or H323 protocol. This can cause a treatment loop as there is insufficient bandwidth to play the announcement.

CAUTION
The release cause MUST NOT allow immediate reattempts. If the terminating line/trunk is blocked, a reattempt will create a release loop as a different incoming trunk member will be attempted.

Table TMTMAP maps signalling protocols and treatments to call failure messages. Datafill this table to determine if the preceding exchange reports the treatment or if the switch applies the treatment locally. There is no dedicated VCAC release cause for protocols. However, each protocol does contain a number of release causes that are appropriate for VCAC. It is up to the operating company to identify a release cause that will map into their signaling network.

Examples of table TMTMAP datafill:

```
Q764 NBLN ALLBC ISUP NOLOCAL NORMUNSP LOCLNET Y

Q767 NBLN ALLBC ISUP NOLOCAL NORMUNSP LOCLNET Y
```

In these examples, Qxxx NBLN is the protocol pair, NOLOCAL indicates the treatment is not played locally, NORMUNSP is the release cause, and Y signals the treatment will be logged.

For more information about table TMTMAP, see *Carrier Voice over IP Operational Configuration: Data Schema Reference* (NN10324-509).

The preceding datafill examples sends the release cause Normal Unspecified to the originating node. The originator of the call hears a treatment specific to that release cause, and not the NBLN treatment used on the terminating node. It is up to the operating company to arrange the mappings from the line treatment to tone and release causes to tone if they require consistent tones for both line and trunk VCAC failures.

Table Flexible CAUSEMAP (FLXCMAP)

This table maps release causes to treatments. For example, if the release cause is NORMUNSP, then the datafill entry in table FLXCMAP would look like the following entry:

```
NORMUNSP CCITT_STANDARD RODR N
```

This example maps the NORMUNSP to the reorder (RODR) treatment. The RODR treatment is used to index into table TMTCNTL to identify what the user hears.

For more information about table FLXCMAP, see*Carrier Voice over IP Operational Configuration: Data Schema Reference* (NN10324-509).

In multi-node scenarios, the operating company is responsible for configuring the signaling to ensure the NBLN treatment can reach the originator. If any node does not support VCAC or does not have the SOC enabled, the NBLN treatment may be unavailable in this scenario. In this case, the originator receives a treatment based on the release cause that reaches the originating node instead.

If the originating gateway does not support the release cause or the audible signal (for example, MGCP or H.248) that it is mapped to, the originator may not hear any tone when the NBLN treatment is provided.

Service limitations and restrictions

There is a best effort approach to services with the following limitations and restrictions for the following services.

Emergency and other priority calls

There is no guarantee that emergency or priority calls will get through. These calls are subject to the same VCAC process as any other voice traffic. VCAC does not give extra precedence to these calls over other voice traffic.

Examples of service failure and behavior

If there is insufficient bandwidth then one or more call legs will fail and the service attempt will fail. The following examples are common service failures and their behavior when VCAC denies calls. This is not an exhaustive list of services or ways in which the service can fail.

- Three Way Call. Three Way Call can be blocked at a number of points - when retrieving someone from hold, on contacting the second party, and when connecting the three members to the conference bridge. If the second party cannot be reached, the controller hears the NBLN treatment and can flash back to the first party. If one party cannot reach the conference bridge due to bandwidth restrictions, then the controller receives three seconds of NBLN treatment to alert them to the problem before being connected to the other party.
- Call Waiting. Transfer to a waiting call only applies VCAC when the switch to the waiting call occurs. This transfer can fail if there is insufficient bandwidth for the two parties to reach each other. In this case, the waiting party hears ringing, then the NBLN treatment, and the

called party hears three seconds of BUSY before being reconnected to their original call.

- Call Hold. A party put on hold releases its bandwidth until a reconnect attempt is made. This re-connection can fail if other calls have consumed the bandwidth in the meantime. In this case, the party on hold drops to dial tone and the retrieving party hears the NBLN treatment.
- Call Forward No Answer. Call Forward No Answer can fail when the call is made to the first party or when the call is forwarded onto the second party. If the failure occurs on the connection to the second party then the originator will have heard several seconds of ringing before receiving the NBLN treatment.
- Music On Hold. Music on hold is played when a party is put on hold. If there is insufficient bandwidth for the on hold part to reach the audio server then the held party will drop out of the service and hear dial tone.
- SIMRING. SIMRING only reserves bandwidth to the pilot DN. If there is insufficient bandwidth to reach the pilot DN then ring splash is heard on the non-pilot DN. If there is enough bandwidth to reach the pilot DN, but the call is answered on a non-pilot DN without enough bandwidth, then the originator hears the NBLN treatment followed by DISC treatment, and the answering party drops back to dial tone.
- CICM EBS secondary DN services. The CICM secondary DN service can maintain two bearer channels. Some service failures will not occur because the speech path is maintained and the bandwidth is not released. However, holding multiple bearer channels will exhaust the bandwidth more quickly on links.
- Meet-Me Conference. The Meet-Me service applies a short ring tone to existing conferees when a party attempts to join, even if VCAC actually blocks that party. The denied party hears NBLN treatment but existing conferees hear no indication that the joining attempt failed. If the VCAC-denied party was first or second to dial into the Meet-Me bridge, the remaining party is disconnected as if the conference had ended normally. Calls to a Meet-Me bridge denied by VCAC are recorded as answered but with no elapsed time for billing purposes.

Add a composite IP-VPN (NAT) and LBL zone

Purpose of this procedure

ATTENTION

Use this procedure only when your network configuration includes the Policy Controller and the Network VCAC status is ON. All network topology data must be configured identically: first on the CS 2000 system through the GWC Manager or the OSSGate, then on the Policy Controller. Once you add a new network zone to the CS 2000 system, you must immediately add it to the Policy Controller. Otherwise, the Network VCAC may not function properly.

For information about how to configure a composite zone on the Policy Controller, see *Policy Controller Configuration Management* (NN10432-511).

This procedure describes how to define and add a composite IP-VPN (NAT) and LBL network zone to the GWC database. A composite zone comprises the attributes of the following network zones:

- IP-VPN network address translator (NAT) zone
- limited bandwidth link (LBL) zone

Use this type of a network zone for gateways operating behind NATs and LBLs, but only when the Network VCAC status is ON. In this scenario, resource usage profile or max count information is not sent to the GWC; so, for internal counting, this composite zone is treated as an IP-VPN (NAT)-type zone.

The system automatically assigns the zone identifier (ID) of the new zone. This ID incorporates the call agent ID assigned to the CS 2000.

This procedure also allows you to specify a zone ID for the new zone, instead of allowing the system to automatically assign it. Manually configuring a zone ID allows two or more CS 2000s to share the same zone.

You cannot change the zone ID after adding a new zone.

This procedure includes the option to select a parent zone in the network hierarchy for zone you are configuring. A parent zone is defined as a zone that is closer to the network core (CS 2000) than the zone you are adding. (Therefore, the zone would be closer to the gateways at the edge of the network.) A parent zone can be an IP-VPN (NAT), an LBL, or a composite IP-VPN (NAT) and LBL zone.

This procedure also gives you an option to select a media proxy group for the new network zone or to add this network zone to a virtual private network (VPN), or both. A VPN can contain one or more network zones. The Gateway Controller (GWC) uses the VPN IDs of the parties involved in a call to determine if a media proxy is required. If two parties involved in the call belong to different VPNs, the GWC inserts a media proxy.

When to use this procedure

Use this procedure when you need to add one or more composite IP-VPN (NAT) and LBL service zones to the network before associating gateways that use these zones with the GWC.

Prerequisites and guidelines

The following prerequisites apply to this procedure:

- The call agent ID must be set for your CS 2000 before you add a composite IP-VPN (NAT)-LBL zone. If required, complete procedure "Set the call agent identifier" (page 69).
- If you intend to configure a zone that is already configured on another CS 2000 (that is, a shared zone), you need to determine the zone ID of the zone on the other CS 2000. For information about how to verify a network zone ID, see procedure "View network service zone configuration details" (page 354).
- The media proxy group that you want to assign to this service zone must be configured before this procedure. If required, see procedure "Add a preferred media proxy group to the network" (page 299).
- If you plan to add this network zone to a virtual private network (VPN), configure the VPN before completing this procedure. If required, see procedure "Add a virtual private network (VPN)" (page 360).

  You can also create a new VPN while completing this procedure.

The following guidelines apply to this procedure:

- Network service zones must be configured before any media gateways that use these services are associated to a GWC. The data for a zone will be sent down to the GWC when the zone is associated with a media gateway.
- Multiple NAT devices that all implement the same IP-VPN and share a single exit point should be configured as a single IP-VPN (NAT) zone.
- There is only one IP-VPN (NAT) exit point from a local network. If two gateways are behind the same IP-VPN (NAT) zone or belong to the same VPN, they can setup a call without requiring a media proxy.
- The Integrated Access Cable solution uses DQoS and PEP servers while the Integrated Access Wireline solution uses ITRANS (internet

transparency) and NATs as media proxies. These two solutions are mutually exclusive as defined in the gateway profile service type. In other words, DQOS and ITRANS cannot be defined together in a single GWC profile when associating media gateways to a GWC.

- The maximum number of sequentially linked zones in a network hierarchy is five.
- You can assign only one media proxy group to a network zone.

  Media proxies are configured using the Multimedia Communications System (MCS) Manager application. For more information, see the MCS documentation.

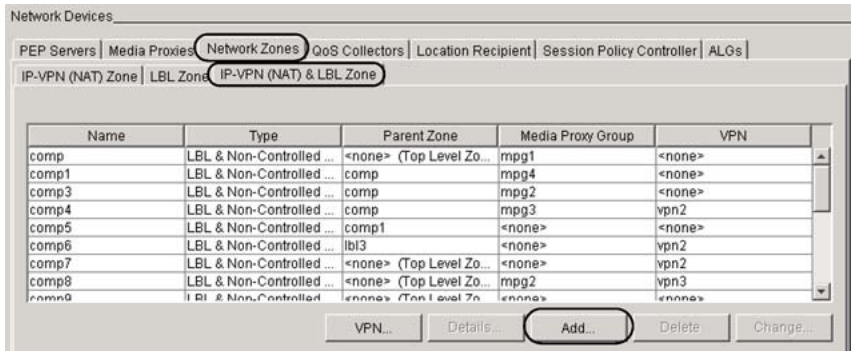
If your network configuration includes the Session Server for SIP Lines, the following additional prerequisites and guidelines apply to this procedure:

- The Session Server Manager connectivity information must be configured on the CS 2000 Management Tools server.

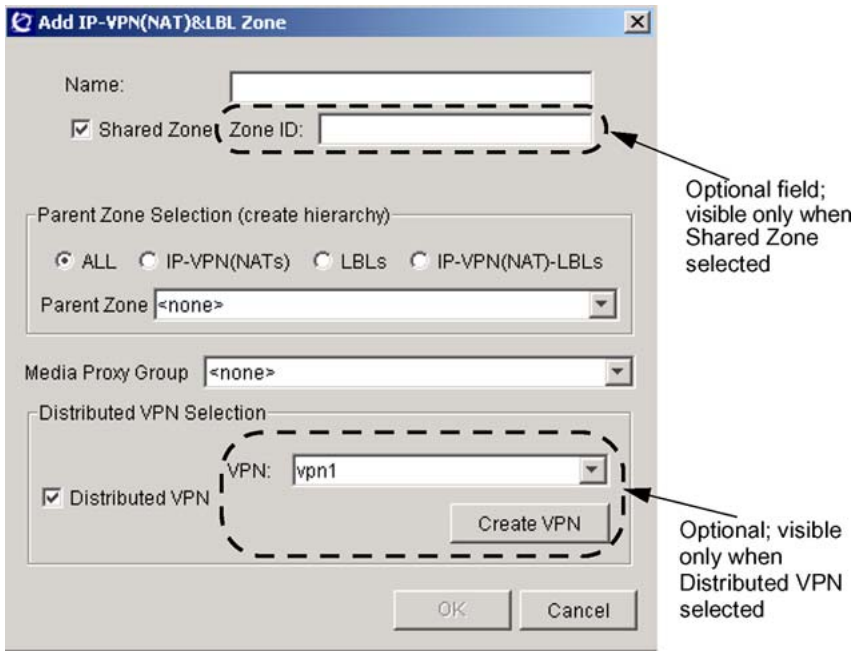
  For more information, see procedure "Adding the Provisioning Manager to SESM" in *Nortel Session Server Lines Fundamentals* (NN10437-111).
- The VPN IDs in the GWC database and the Session Server Lines database must match to allow the correct insertion of media proxies. If there are IP-VPN(NAT)-LBL zones already configured in the GWC database, perform an audit for the Session Server Manager to ensure that the current data is synchronized. Complete procedure "Perform a CS 2000 data integrity audit" in the *Gateway Controller Fault Management* (NN10202-911), selecting the CS2KSS EM Data Integrity Audit component.
- Once you complete this procedure, perform the appropriate steps on the Session Server Lines to provision SIP lines that use the routability groups corresponding to the network zones added with this procedure. See *Nortel Session Server Lines Fundamentals* (NN10437-111).

Action

Step	Action
	At CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Network Devices panel, click the **Network Zones** tab, then click the IP-VPN (NAT) & LBL Zone tab to display the **IP-PVN (NAT) & LBL zone** panel.



3 Click the **Add** button to display the Add IP-VPN (NAT) &L BL Zone dialog box.



4 Click in the Name: field and type a unique alphanumeric name for the composite IP-VPN (NAT) and LBL zone.

If you intend to share this zone with another CS 2000, it is recommended that the name of the zone corresponds to the name used on the other CS 2000. However, this is not a requirement.

5 If you want the zone to be shared, complete the following sub-steps. Otherwise, continue with step 6.

The zone ID of the shared zone is required for this procedure. Access the GWC Manager for a CS 2000 that is already configured with the zone you intend to share. Display and record the zone ID for that zone. See procedure "View network service zone configuration details" (page 354).

If necessary, contact your site system administrator to identify the zone ID you must use.

a. Select the Shared Zone check box. The dialog box extends to include the Zone ID: field.

b. Assign the zone ID of the zone you intend to share with another CS 2000.

   The zone ID must match the existing ID for the zone already configured on another CS 2000.

   The range of valid values is between 2 and 16777215 inclusive (1 is reserved). If necessary, contact your site system administrator to determine the zone ID you must use.

   If the value entered is invalid, the text field is outlined in red and the OK button is disabled.

6 Use the following table to determine your next step.

If the new zone	Do
has a parent zone in the network	go to step step 7
does not have a parent zone in the network	leave the Parent Zone: field blank or select <none>, then go to step 8

7 Select a parent zone for the new zone using the following sub-steps.

A parent zone is a zone that is closer to the network core (the CS 2000) than the composite zone you are adding.

a. In the Parent Zone Selection area, select one of the radio buttons to choose the scope of your zone selection. The options are:

   - ALL - includes all zones
   - IP-VPN(NATs) - restricts the selection to IP-VPN (NAT) zones
   - LBLs - restricts the selection to LBL zones
   - IP-VPN(NAT)-LBLs - restricts the selection to composite IP-VPN (NAT) and LBL zones

b. Click the Parent Zone: field and from the list in the drop-down menu, select a parent zone for the new composite zone.

If desired, first type text characters of a zone name in the field to fine tune your display. The system displays all IP-VPN (NAT), LBL, or composite NAT-LBL zones with a name that matches any of the characters you type.

8 Click the Media Proxy Group field and from the list of available groups, select a preferred media proxy group for this network zone.

If you do not wish to assign a media proxy group to this zone, leave this field at the default value of <none>.

To associate the selected media proxy group with a GWC, select this zone as an adjacent network zone when associating a gateway with a GWC. If this zone is not selected as an adjacent network zone but it belongs to a gateway's network zone tree, this selected media proxy group is sent to a GWC only if it is the first media proxy group found in the network zone hierarchy.

For CICM gateways, all media proxy groups in the root network zone hierarchy are sent to a GWC.

A media proxy group can be associated with more than one network zone.

9 If you wish to add this network zone to a virtual private network (VPN), complete the following sub-steps. Otherwise, continue with step 10.

A VPN can contain one or more NAT-type network zones. GWCs use the VPN IDs of the parties involved in a call to determine if a call is required. If two parties involved a call belong to different VPNs, the GWC inserts a media proxy.

a. In the Distributed VPN Selection section, click the Distributed VPN check box. The dialog box extends to include the VPN: field and the **Create VPN** button.

b. Click the VPN: field and from the list of configured VPNs, select the VPN to which you want to add this network zone.

c. If there are no VPNs configured or you wish to add a new VPN, click the **Create VPN** button, complete procedure "Add a virtual private network (VPN)" (page 360), then continue this procedure.

10 Click **OK** at the bottom of the dialog box to accept all the settings for the new composite zone.

If you did not assign the Zone ID manually, the system automatically assigns it. This ID incorporates the call agent ID assigned to the CS 2000.

If the name or the shared ID assigned is already in use, you will see an error message. If an error was made when adding the zone, delete it from the network using procedure "Delete a network service zone" (page 357). Then re-add the composite zone using this procedure.

If your network configuration includes the Session Server for SIP lines component, the system sends a request to the Session Server Lines to add a new Routability Group corresponding to the new network zone. If the Session Server fails to add the new zone, the system displays an appropriate error message describing the cause.

11 Confirm that the new zone appears in the IP-VPN (NAT) & LBL Zone table.

If your network configuration includes the Policy Controller, you must now add this new zone to the Policy Controller using the same zone name, ID, and parent selection. If you did not assign the zone ID manually, obtain the ID assigned by the system using procedure "View network service zone configuration details" (page 354).

12 The procedure is complete.

—End—

Change attributes of a network zone

Purpose of this procedure

ATTENTION

If your network configuration includes the Policy Controller, all IP-VPN (NAT), LBL, and composite IP-VPN (NAT)-LBL zones must be configured identically; first on the CS 2000 system through the Gateway Controller (GWC) Manager or the OSSGate, then on the Policy Controller. Once you change any attribute of a network zone, you must immediately change it on the Policy Controller. Otherwise, the Network VCAC may not function properly.

For the Policy Controller configuration information, see *Policy Controller Configuration Management* (NN10432-511).

Use this procedure to change the attributes of one of the following existing network service zones defined for the CS 2000 system:

- IP -VPN network address translator (NAT) zone

  A NAT device is used to provide the gateways with a temporary public address.

- limited bandwidth link (LBL) zone

  An LBL is a virtual representation of a link identified in the network that has restricted capacity and which warrants bandwidth management.

- composite NAT and LBL zone

  A composite zone contains both NAT and LBL. Use this option only when your network configuration includes the Policy Controller, and the Network VCAC status is ON.

The attributes that you can change for any network zone are:

- parent zone settings
- selected media proxy group

CAUTION

Possible service disruption

If the selected network zone is associated with a GWC, changing a media proxy group will affect call processing - media proxies will not be available during the change process. To check the current associations of the selected network zone, follow procedure "View network service zone configuration details" (page 354).

For a NAT and a composite NAT and LBL network zones, you can also change the virtual private network (VPN) with which the zone is associated.

In a network configuration without the Policy Controller (Network VCAC status: OFF), you can also change the resource usage (RU) profile and the Max Count value for an LBL zone.

When to use this procedure

Use this procedure when you need to change the attributes of a service zone in your network.

Prerequisites and guidelines

The following prerequisites apply to this procedure:

- You must already have a network zone configured.
- If you are changing the parent zone, the new parent zone must already be configured on the CS 2000.
- If you are changing the media proxy group, the new group must be added before completing this procedure. If required, see procedure "Add a preferred media proxy group to the network" (page 299).
- If you are changing the VPN (for network zones other than LBL), the new VPN must be added before completing this procedure. If required, see procedure "Add a virtual private network (VPN)" (page 360).

  You can also create a new VPN while completing this procedure.

The following guidelines apply to this procedure:

- You cannot change the name of an existing network zone.
- Whether or not the zone is shared cannot be changed.
- You may change the parent zone setting of an existing network zone even if a media gateway that uses this zone is associated with a GWC. The changes to the zone will be reflected on the GWC.

CAUTION

Do not attempt to remove the top-most IP-VPN (NAT) zone if it is associated with one of the following gateways:

- H.323 gateway
- any small line gateway configured with IP address other than 0.0.0.0

For these gateways, the IP address is not discovered; it is manually provisioned when associating the gateway with a GWC. Changing or removing the NAT zone would cause the gateway IP address to become invalid, since the gateway would now be in a different IP address space. For this reason, this operation is not allowed.

Action

Step	Action

At CS 2000 GWC Manager client

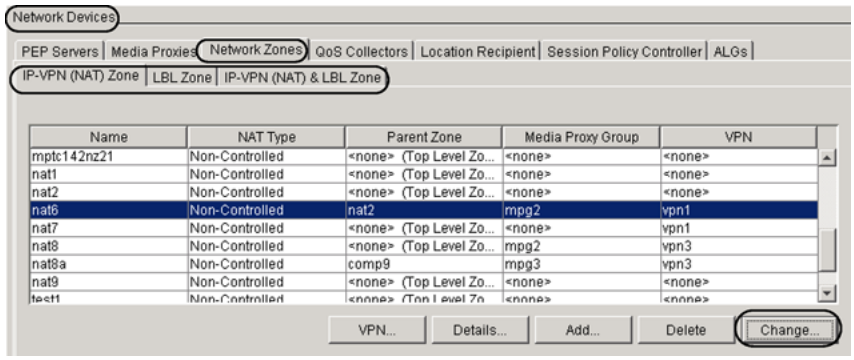
1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

2 At the Network Devices panel click the **Network Zones** tab.

3 Click the appropriate tab to select the zone that you want to display; for example, **IP-VPN (NAT) Zone** tab.

4 At the selected zone panel, select the zone that you want to change.

Your selection is highlighted.

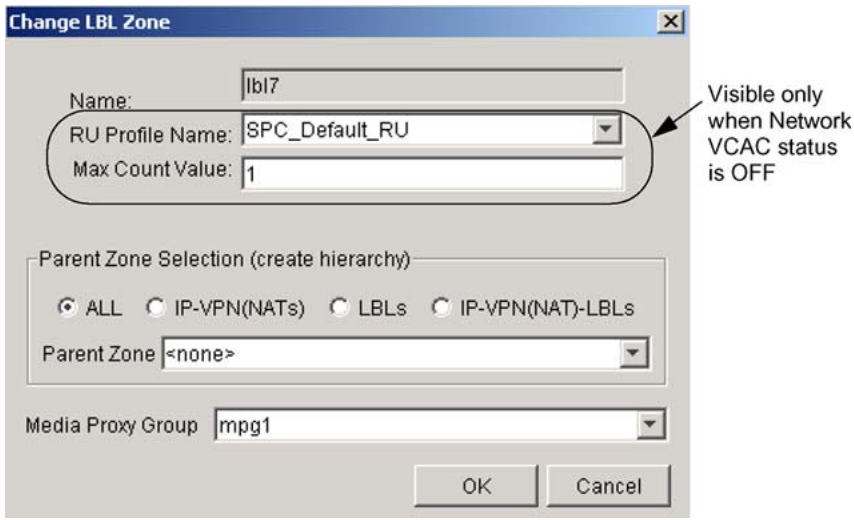


5 Click the **Change** button to display the appropriate Change <zone> Zone dialog box.

Use the following table to determine your next step.

If you are changing the attributes of	Do
an IP-VPN (NAT) or a composite IP-VPN(NAT) & LBL zone	go to step 7
an LBL zone, in a network with the Policy Controller (Network VCAC status: ON)	go to step 7
an LBL zone, in a network without the Policy Controller	go to step 6

6 At the displayed Change LBL Zone dialog box, change the applicable fields using the following steps.



a. In the RU Profile Name: field, click the drop-down menu to change the resource usage (RU) profile to be used for the selected LBL zone

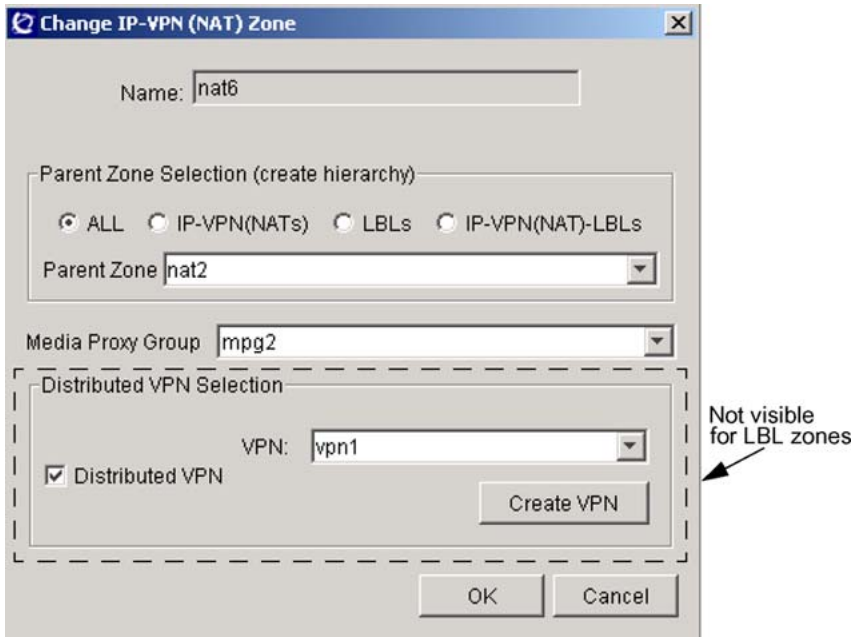
   Only RU profiles already configured will appear in the drop-down list. To view the details of existing RU profiles, click the **VCAC Resource Usage** button under Network Configuration.

b. In the Max Count Value: field, change the call set-up capacity through the link. The call set-up capacity must be compared against the contents of the RU profile selected in the previous step.

7 In the "Parent Zone Selection (create hierarchy)" section of the displayed Change <zone> Zone dialog box, change the parent zone setting to another zone or to <none>, using the following sub-steps.

The name of the zone and whether or not the zone is shared cannot be changed.

The following example shows the Change IP-VPN (NAT) Zone dialog box.



a. Select one of the radio buttons to choose the scope of your zone selection. The options are:

- ALL - includes all zones
- IP-VPN(NATs) - restricts the selection to IP-VPN (NAT) zones
- LBLs - restricts the selection to LBL zones
- IP-VPN(NAT)-LBLs - restricts the selection to composite NAT-LBL zones

b. Click in the Parent Zone field.

c. If desired, type text characters of a zone name in the field to fine tune your display. The system displays all zones with a name that matches any of the characters you type.

d. Select a new parent zone for the selected zone from the list in the drop-down menu.

CAUTION
Possible service disruption
If the selected network zone is associated with a GWC, changing a media proxy group will affect call processing - media proxies will not be available during the change process.

8 Click the Media Proxy Group field and from the list of available groups, select the new preferred media proxy group for this network zone.

If you wish to remove the media proxy group, select <none>.

A media proxy group can be associated with more than one network zone.

9 For any network zone other than an LBL zone, you can also change the virtual private network (VPN) to which the selected network zone belongs.

A VPN can contain one or more NAT-type network zones. GWCs use the VPN IDs of the parties involved in a call to determine if a call is required. If two parties involved a call belong to different VPNs, the GWC inserts a media proxy.

If you are modifying an LBL zone, continue with step 10.

If you are modifying a NAT or a composite NAT-LBL zone, complete one of the following actions:

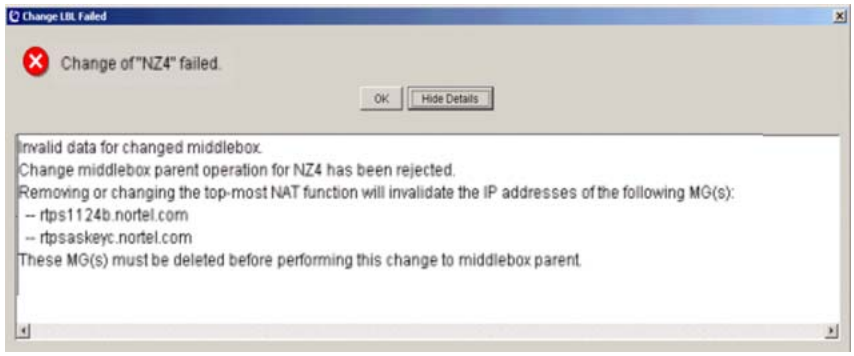
- If you want to remove the selected network zone from any VPN, click the Distributed VPN check box to deselect it. The VPN: field and the **Create VPN** button become invisible.
- If the selected network zone currently does not belong to any VPN and you wish to add it, click the Distributed VPN check box to select it. The dialog box extends to include the VPN: field and the **Create VPN** button.

  Click the VPN: field and from the list of configured VPNs, select the VPN to which you want to add this network zone.
- If the selected network zone currently belongs to a VPN and you wish to assign it to a different VPN, click the VPN: field and from the list of configured VPNs, select the new VPN to which you want to add this network zone.

If the VPN that you want to use is not listed and you wish to add it, click the **Create VPN** button, complete procedure "Add a virtual private network (VPN)" (page 360), then repeat this step.

10 Click **OK** at the bottom of the dialog box to accept the changes.

If you attempted to remove the top-most IP-VPN (NAT) zone associated with an H.323 gateway or any small line gateway configured with IP address other than 0.0.0.0, the system displays the following error message.



You must remove and reconfigure the gateways indicated in this message, then complete this procedure again.

11 Confirm that the changed settings appear in the selected zone table.

12 The procedure is complete.

—End—

View network service zone configuration details

Purpose of this procedure

This procedure describes how to display the following information about a network service zone:

- zone ID - a unique number assigned to the network zone, used by the Gateway Controller (GWC) to identify the zone
- list of all media gateways associated with the selected zone. The list includes the following details:
  - gateway name
  - node names of all GWCs with which each listed gateway is associated
  - gateway IP address
  - gateway profile
  - gateway protocol type
- parent zone
- media proxy group assigned to the selected zone
- virtual private network (VPN) to which the selected zone belongs (not applicable to an LBL zone)
- resource usage (RU) profile name and the maximum count value assigned to the selected LBL zone (applicable only to LBL zones in a network configuration without the Policy Controller - Network VCAC status: OFF).

When to use this procedure

Use this procedure when you need to view any of the configuration details for the selected network service zone.

Prerequisites and guidelines

The following prerequisites and guidelines apply to this procedure:

- The LBL, NAT, or composite NAT-LBL zone must already exist in the CS 2000 network and must be configured using the CS 2000 GWC Manager.
- If you need to view a zone ID in order to configure another CS 2000 to share the same zone, you first need to perform procedure "Set the call agent identifier" (page 69) for each CS 2000 in your network.

Action

Step	Action

At CS 2000 GWC Manager client

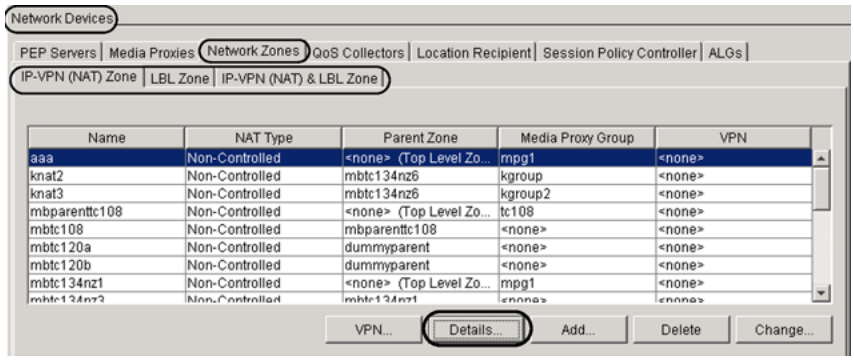
1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

2 At the Network Devices panel, click the **Network Zones** tab.

3 Click the appropriate tab to display the panel for the zone that you want to view; for example, **IP-VPN(NAT) Zone** tab.

4 At the displayed zone panel, click the zone that you want to view.

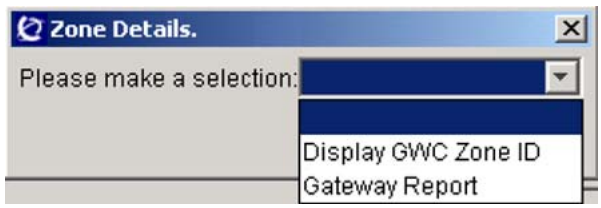
Your selection is highlighted.



5 The displayed table lists some the configuration details. Continue the procedure to display the zone ID and the associated gateways.

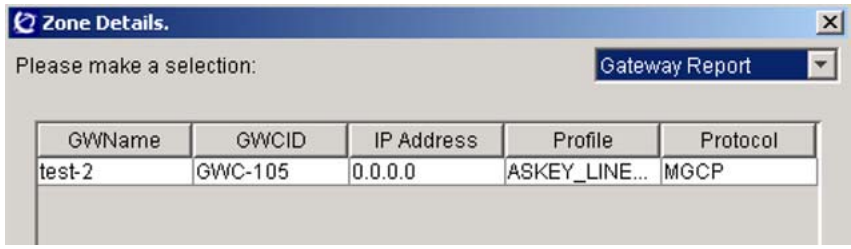
6 Click the **Details** button to display the Zone Details dialog box.

7 Click the Please make a selection: field and from the drop-down menu, select the appropriate option.



If you select Display GWC Zone ID, the system displays the zone ID used by the GWC to identify the selected zone; for example:

If you select Gateway Report, the system displays the list of all media gateways associated with the selected zone; for example:



The displayed list includes the following details:

- gateway name
- node names of all GWCs with which each listed gateway is associated
- gateway IP address
- gateway profile
- gateway protocol type

8 If you want to change your selection, click the Please make a selection: field again and select the other option. Otherwise, continue with the next step.

9 Click **OK** to close the Zone Details window.

10 The procedure is complete.

—End—

Delete a network service zone

Purpose of this procedure

ATTENTION

If your network configuration includes the Policy Controller, all IP-VPN (NAT), LBL, and composite IP-VPN (NAT) and LBL zones must be configured identically; first on the CS 2000 system through the GWC Manager or the OSSGate, then on the Policy Controller. Once you delete a network zone from the CS 2000 system, you must immediately delete it from the Policy Controller. Otherwise, the Network VCAC may not function properly.

For information about how to delete a zone from the Policy Controller, see *Policy Controller Configuration Management* (NN10432-511).

Use this procedure to delete one of the following network service zones from your network:

- IP-VPN network address translator (NAT) zone

  A NAT device is used to provide the gateways with a temporary public address.

- limited bandwidth link (LBL) zone

  An LBL is a virtual representation of a link identified in the network that has restricted capacity and which warrants bandwidth management.

- composite IP-VPN (NAT) and LBL zone

  A composite zone contains both NAT and LBL. Use this option only when your network configuration includes the Policy Controller, and the Network VCAC status is ON.

When to use this procedure

Use this procedure when you wish to remove one or more network zones from the network database.

Prerequisites and guidelines

The following prerequisites apply to this procedure:

- A network zone cannot be deleted if it is associated with a media gateway as an adjacent zone.

  Before attempting to delete a zone, remove all media gateway associations with it. See procedure "Disassociate a media gateway" (page 273).

- A zone cannot be deleted if it is configured as a parent zone for another network zone.

Before attempting to delete a zone, ensure that it is not configured as a parent zone for another network zone. To change the parent zone setting of a selected network zone, follow procedure "Change attributes of a network zone" (page 347).

The following guidelines apply when deleting a network zone.

If a network zone ID has been configured on more than one CS 2000 (that is, if the zone is shared), you must delete instances of the zone in the following order:

1. Delete the zone ID from all CS 2000s on which the zone ID was *manually* assigned during the network zone configuration (using the Shared Zone check box).

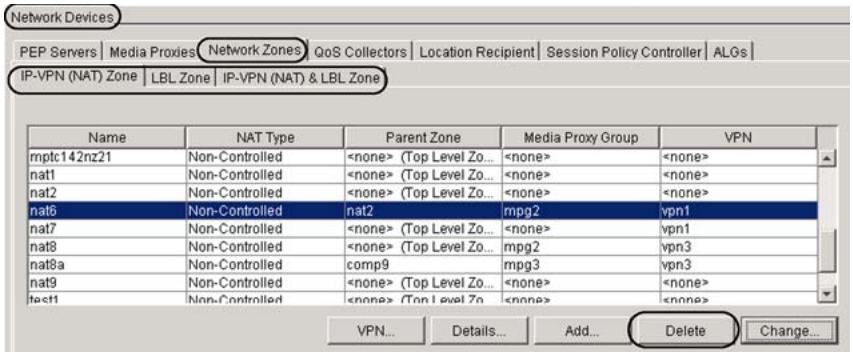
   If the zone is manually configured on more than one CS 2000, it does not matter which instance of the zone you remove first.

2. After all manually configured instances of the zone are removed, delete the zone ID from the CS 2000 on which the zone ID was automatically assigned by the system.

   This step refers to the CS 2000 on which the zone was originally configured.

Action

Step	Action
At the CS 2000 GWC Manager client	
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Network Devices panel click the **Network Zones** tab.
3	Click the appropriate tab to select the zone that you want to display; for example, **IP-VPN(NAT) Zone** tab.
4	Select the zone instance that you want to remove. Your selection is highlighted.



5 Click the **Delete** button to delete the selected zone.

6 At the confirmation window, click **Yes** to confirm the deletion.

The deletion will not work and the system will return an error message if

- any of the previously described prerequisites are not met. See section "Prerequisites and guidelines" (page 357).
- your network configuration includes the Session Server for SIP lines component, and the GWC Manager fails to delete the selected zone from both GWC and Session Server Manager databases.

If you encounter errors in trying to remove a zone, contact your site system administrator.

7 Confirm that the selected network zone instance is removed from the appropriate zone display.

8 The procedure is complete.

—End—

Add a virtual private network (VPN)

Purpose of this procedure

This procedure describes how to create a virtual private network (VPN). Once created, the VPN can be assigned to an IP-VPN (NAT) or a composite IP-VPN (NAT) and LBL zone.

You can also add a new VPN when adding or changing a NAT-type network zone. For information about how to add or change a network zone and how to associate it to a VPN, see one of the following procedures:

- "Add an IP-VPN (NAT) zone" (page 315)
- "Add a composite IP-VPN (NAT) and LBL zone" (page 340)
- "Change attributes of a network zone" (page 347)

Network zones with the same VPN identifier (ID) belong to the same logical VPN. Each VPN can contain one or more network zones. The Gateway Controller (GWC) uses the VPN IDs of the parties involved in a call to determine if a media proxy is required. If two parties involved the call belong to different VPNs, the GWC inserts a media proxy.

The system automatically assigns the VPN ID or you can manually configure a global ID that can be shared by two or more CS 2000s.

You cannot change the VPN ID after adding a VPN.

When to use this procedure

Use this procedure when you need to add one or more VPNs to be used for grouping the NAT-type network zones.

As part of this procedure, you have the option to manually configure global ID for the VPN. You can do this instead of allowing the system to automatically assign the ID. Use this capability when you wish to configure a VPN ID that is shared with another CS 2000. Manually configuring a VPN ID allows two or more CS 2000s to share the same VPN ID.

Prerequisites and guidelines

The following prerequisites apply to this procedure:

- The call agent ID must be set for your CS 2000 before you add a VPN. If required, complete procedure "Set the call agent identifier" (page 69).
- If you intend to configure a VPN ID that is already configured on another CS 2000 (that is, a shared ID configuration), you need to determine the ID of the VPN on the other CS 2000. See procedure "View VPN details" (page 364).

The following guidelines apply to this procedure:

- VPNs must be configured before any NAT-type service zones can be added to a VPN.
- You can only add IP-VPN (NAT) and composite NAT-LBL network zones to a VPN.
- One or more NAT-type network zone can belong to the same VPN.

If your network configuration includes the Session Server for SIP Lines, the following additional prerequisites and guidelines apply to this procedure:

- The Session Server Manager connectivity information must be configured on the CS 2000 Management Tools server.

  For more information, see procedure "Adding the Provisioning Manager to SESM" in *Nortel Session Server Lines Fundamentals* (NN10437-111).
- The VPN IDs in the GWC database and the Session Server Lines database must match to allow the correct insertion of Media Proxies. If there are IP-VPN(NAT) zones already configured in the GWC database, perform an audit for the Session Server Manager to ensure that the current data is synchronized. Complete procedure "Perform a CS 2000 data integrity audit" in the *Gateway Controller Fault Management* (NN10202-911), selecting the CS2KSS EM Data Integrity Audit component.

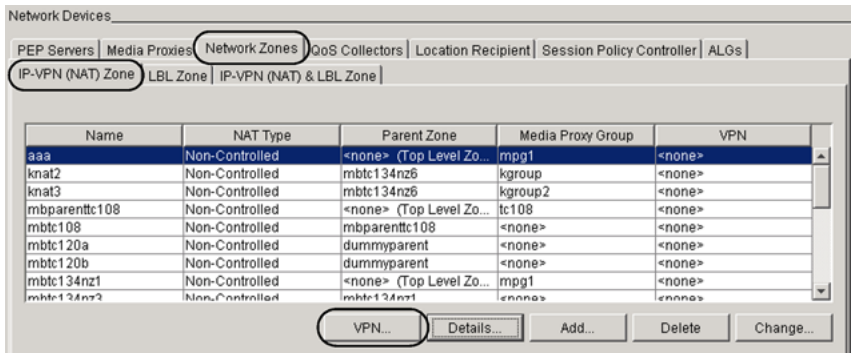
Action

Step	Action

At CS 2000 GWC Manager client

1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

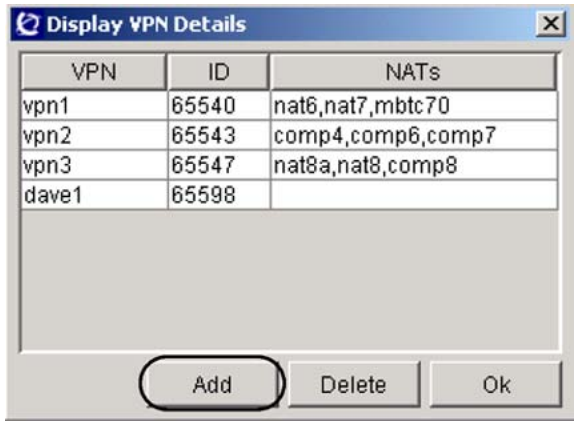
2 From the Network Devices panel, click the **Network Zones** tab, then click the **IP-VPN (NAT) Zone** or **IP-VPN (NAT) & LBL Zone** tab.



3 At the displayed panel, click the **VPN** button.

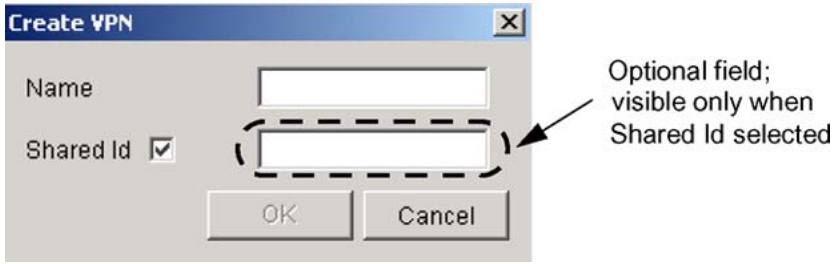
The **VPN** button is not available from the LBL Zone panel.

4 At the Display VPN Details window, click the **Add** button.



5 At the Create VPN dialog box, click in the Name: field and type a unique alphanumeric name for the VPN. If necessary, contact your site system administrator for assistance with this task.

If you intend to share this zone with another CS 2000, it is recommended that the name of the zone corresponds to the name used on the other CS 2000. However, this is not a requirement.



6 If you want the VPN ID to be shared, complete the following sub-steps. Otherwise, continue with step 7.

a. The ID of the shared VPN is required for this procedure. Access the GWC Manager for a CS 2000 that is already configured with the VPN you intend to share. Display and record the ID for that VPN. See procedure "View VPN details" (page 364).

If necessary, contact your site system administrator to identify the VPN ID you must use.

b. Select the Shared Id check box. The dialog box extends to include a new field.

c. Enter the global ID of the VPN you intend to share with another CS 2000.

The ID must match the existing ID for the VPN already configured on another CS 2000.

The range of valid values is between 2 and 16777215 inclusive (1 is reserved). If necessary, contact your site system administrator to determine the VPN ID you must use.

If the value entered is invalid, the text field is outlined in red and the OK button is disabled.

7 Click**OK** at the bottom of the dialog box to accept the settings for the new VPN.

If you did not assign the VPN ID manually, the system automatically assigns it. This ID incorporates the call agent ID assigned to the CS 2000.

If the name or the shared ID assigned is already in use, you will see an error message.

8 Confirm that the new VPN appears in the Display VPN Details table.

The newly created VPN is automatically added to the list of VPNs that can be assigned to the NAT-type network zones.

If your network configuration includes the Policy Controller, you must now add this new VPN to the Policy Controller using the same VPN name and ID selection. If you did not assign the ID manually, obtain the ID assigned by the system using procedure "View VPN details" (page 364).

9 The procedure is complete.

—End—

View VPN details

Purpose of this procedure

This procedure describes how to display the configuration details of a virtual private network (VPN).

When to use this procedure

Use this procedure when you need to view the following information:

- VPN name
- VPN identifier (ID)
- list of all network address translator (NAT)-type network zones assigned to the selected VPN

Prerequisites and guidelines

There are no prerequisites or guidelines for this procedure.

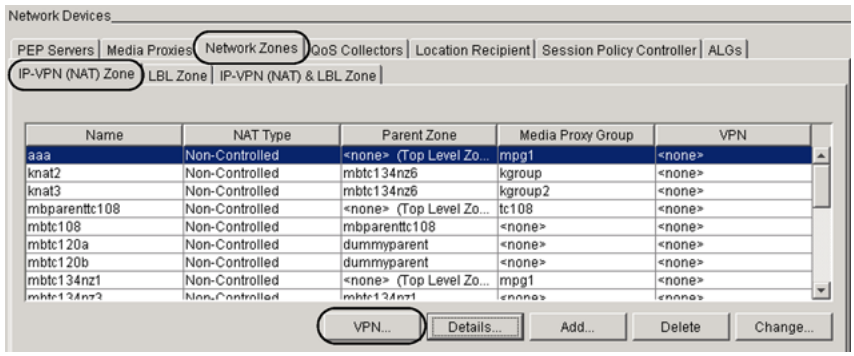
Action

Step	Action

At CS 2000 GWC Manager client

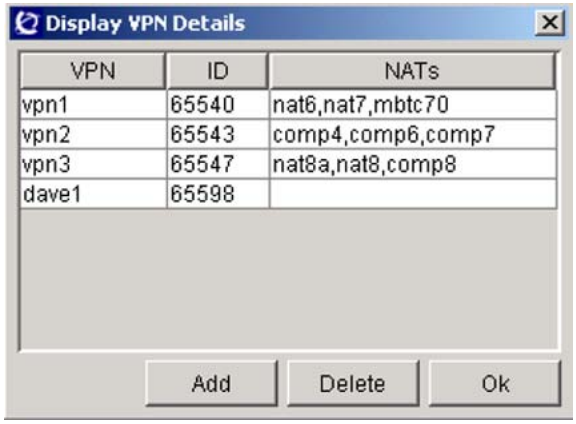
1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

2 From the Network Devices panel, click the **Network Zones** tab, then click the **IP-VPN (NAT) Zone** or **IP-VPN (NAT) & LBL Zone** tab.



3 At the displayed panel, click the **VPN** button.

The **VPN** button is not available from the LBL Zone panel.



The Display VPN Details window provides the following information for all currently configured VPNs:

- the name
- the ID
- the list of NAT-type network zones included in the selected VPN

4 Click **OK** to close the window.

5 The procedure is complete.

—End—

Delete a VPN

Purpose of this procedure

This procedure describes how to delete a virtual private network (VPN) from a list of configured VPNs.

When to use this procedure

Use this procedure when you need to delete one of the configured VPNs.

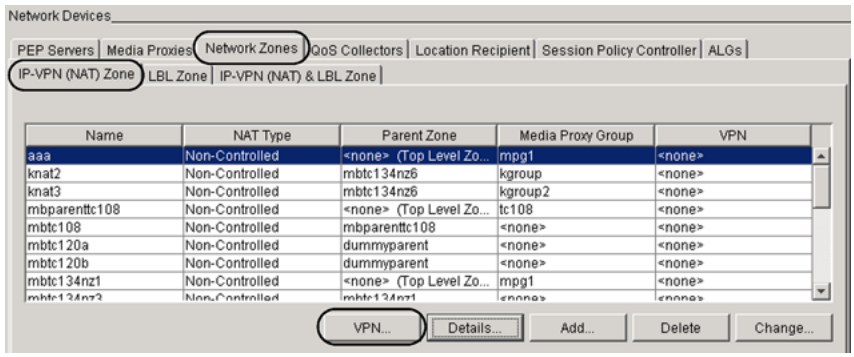
Prerequisites and guidelines

The following prerequisites and guidelines apply to this procedure:

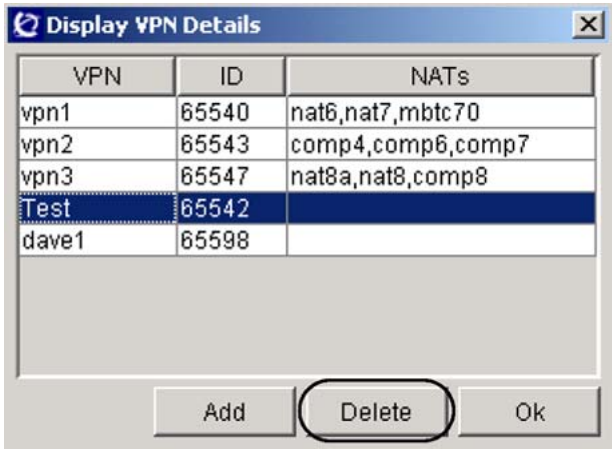
- Before starting this procedure, make sure that there are no network zones associated with the selected VPN. Follow procedure "View VPN details" (page 364) to identify any network zones included in the selected VPN.
- If the selected VPN still includes any network zones, disassociate all of them from the VPN. See procedure "Change attributes of a network zone" (page 347).

Action

Step	Action
	At CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Network Devices panel, click the **Network Zones** tab, then click the **IP-VPN (NAT) Zone** or **IP-VPN (NAT) & LBL Zone** tab.
3	At the displayed panel, click the **VPN** button to display all currently configured VPNs.



The **VPN** button is not available from the LBL Zone panel.



4 Click the VPN that you wish to delete. Your selection is highlighted.

Make sure that there are no NATs listed for the selected VPN.

5 Click the **Delete** button. The selected VPN is removed from the table.

If you attempt to delete a VPN that still includes any NATs, the system displays an error message and the operation fails.

6 Click **OK** to close the Display VPN Details window.

7 The procedure is complete.

—End—

Add a quality of service (QoS) collector

Purpose of this procedure

Use this procedure to add a quality of service (QoS) collection device running a QoS collection application to the network. The QoS collector receives end-of-call quality of service statistics from GWCs that have QoS reporting configured and enabled.

QoS is different from dynamic quality of service (DQoS), which relates to policy enforcement and dynamic bandwidth allocation provided in cable networks.

When to use this procedure

Use this procedure when you need to add one or more QoS collector devices to the network, which can be associated with GWC nodes for collecting QoS data.

Use this procedure before associating a specific QoS collector with a GWC node to manage a pool of QoS collector applications.

Prerequisites and guidelines

Only one QoS collection application can be configured on a CS 2000 Management Tools server.

QoS collection must also be enabled on the Core. See the *CS 2000 Configuration Management* NTP applicable to your solution.

For QoS reporting correlation to billing records, QoS reporting must also be enabled at table AMAOPT in the Core using the MAPCI interface. See procedure "Provisioning in support of QoS reporting" in the *CS 2000 Configuration Management* NTP applicable to your solution.

QoS reporting is applicable to ATM and hybrid networks as well as to VoIP networks. Currently, QoS reporting has only been tested using gateways associated with GWC nodes in Carrier VoIP cable solutions.

If you would like to use QoS reporting in a non-cable solution, please contact your Nortel account prime for more support information.

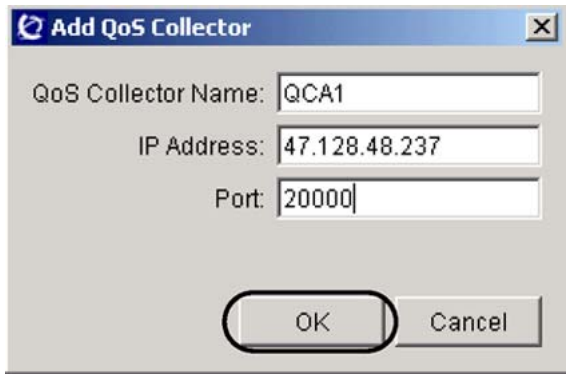
Action

Step	Action
	At the CS 2000 GWC Manager client

1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

2 At the Network Devices panel, click the **QoS Collectors** tab, then the **Add** button.

3 At the Add QoS Collector dialog box, type the following information:



a. In the QoS Collector Name field, type the unique network name of an available, provisioned QoS collector server, preferably in FQDN format.

   If necessary, contact your site system administrator for assistance with this task.

b. In the IP Address field, type the IP address of the QoS collector.

c. It the Port field, type the port number of the QOS collector. This value must be an integer from 20000 to 20004 inclusive.

   The QCA name and port number combination must be unique.

   A QoS collector IP address can have multiple port numbers associated with it. (The same port number can be assigned to different IP addresses.)

d. Click **OK** .

4 Verify that the new QoS Collector appears in the list of QoS collectors.

5 The procedure is complete.

—End—

Associate a QoS collector with a GWC node

Purpose of this procedure

Use this procedure to associate a quality of service (QoS) collection device running a QoS collection application with one or more GWC nodes.

When to use this procedure

Use this procedure when you need to associate a QoS collector device with a GWC node so that QoS data can be collected from the gateways associated with the node.

Prerequisites and guidelines

The QoS collection device you intend to associate with a GWC node must already be configured and added to the CS 2000 network. See procedure "Add a quality of service (QoS) collector" (page 368) for details.

A GWC node can be associated with a maximum of two QoS collectors.

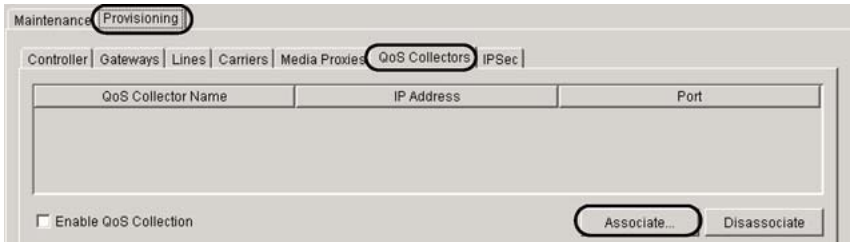
If QoS reporting is enabled for all GWC nodes, QoS data is sent for all calls. If QoS reporting is enabled for only one or two GWC nodes involved in a call, QoS reports will only be sent for the call leg that includes any GWC nodes that have QoS reporting enabled.

QoS reporting is applicable to ATM and hybrid networks as well as to VoIP networks. Currently, QoS reporting has only been tested using gateways associated with GWCs in Carrier VoIP cable solutions.

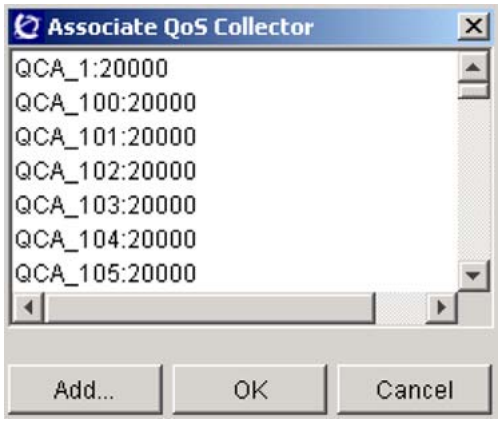
If you would like to use QoS reporting in a non-cable solution, please contact your Nortel account prime for more support information.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node with which you wish to associate a QoS collector.
3	Click the **Provisioning** tab, then click the **QoS Collectors** tab.



4 Click the **Associate** tab to display the Associate QoS Collector dialog box.



If there are no QoS collectors configured and added to the network, the system displays an error message. Follow procedure "Add a quality of service (QoS) collector" (page 368) to add a collector.

5 From the displayed list of QoS collectors in your network, select a collector to associate with the GWC node.

6 Click **OK** to confirm your selection.

7 Confirm that your selection appears on the list of QoS collectors associated with the GWC node.

8 Select the Enable QoS Collection check box to enable QoS data reporting for this GWC node.

9 If you wish to associate another QoS collector with this GWC node, return to step 5.

10 The procedure is complete.

—End—

Enable or disable QoS reporting for a GWC node

Purpose of this procedure

Use this procedure to enable or disable quality of service (QoS) reporting for a GWC node.

When to use this procedure

Use this procedure when you need to start or stop recording QoS data for gateways associated with the node.

Prerequisites and guidelines

At least one QoS Collector must be associated with the GWC node. A maximum of two collectors are allowed. If no QoS Collector is associated with the node, complete procedure "Associate a QoS collector with a GWC node" (page 371).

If QoS reporting is enabled for all GWC nodes, QoS data is reported for all calls. If QoS reporting is enabled for only one or two GWC nodes involved in a call, QoS data will be reported for the call leg that includes any GWC nodes that have QoS reporting enabled.

QoS reporting is applicable to ATM and hybrid networks as well as to VoIP networks. Currently, QoS reporting has only been tested using gateways associated with GWCs in Carrier VoIP cable solutions.

If you would like to use QoS reporting in a non-cable solution, please contact your Nortel account prime for more support information.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node for which you wish to enable/disable QoS collection.
3	Click the **Provisioning** tab.
4	Click the **QoS Collectors** tab. At least one QoS Collector must be associated with this GWC node. A maximum of two collectors are permitted per node.

5 Select the Enable QoS Collection check box to enable QoS data reporting for the GWC node.

If QoS collection is already enabled, de-select the Enable QoS Collection check box to disable QoS data reporting for the GWC node.

6 If you wish to enable/disable QoS reporting on another GWC node, return to step 2.

7 The procedure is complete.

—End—

View QoS collector configuration data for a GWC node

Purpose of this procedure

Use this procedure to view quality of service (QoS) collector data for a selected GWC node.

When to use this procedure

Use this procedure when you require specific information about the QoS collector associated with a specific GWC node.

Prerequisites and guidelines

There are no prerequisites or guidelines for this procedure.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree in the far left frame.
2	Select or type the name of the GWC node that has a QoS collector you wish to view.
3	Click the**Provisioning** tab, then the **QoS Collectors** tab to view any QoS collector devices associated with the GWC node.
4	The procedure is complete.

—End—

Disassociate a QoS collector from a GWC node

Purpose of this procedure

Use this procedure to disassociate a quality of service (QoS) collection device running a QoS collection application from one or more GWC nodes.

When to use this procedure

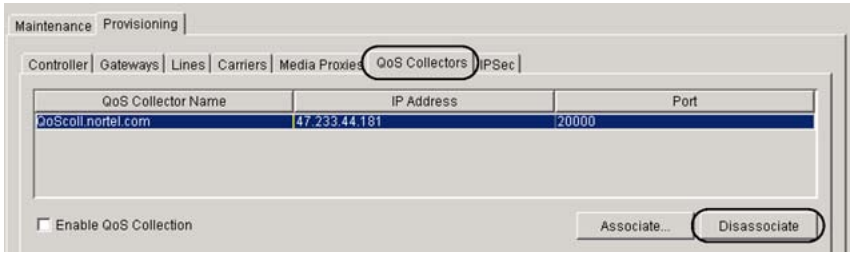
Use this procedure when you need to disassociate a QoS collector device from a GWC node.

Prerequisites and guidelines

Prior to disassociating a QoS collector device from a GWC node, disable QoS collection for the node. See procedure "Enable or disable QoS reporting for a GWC node" (page 374).

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node from which you wish to disassociate a QoS collector.
3	Click the **Provisioning** tab, then the **QoS Collectors** tab.
4	Select a QoS collector from the list. Your selection is highlighted.
5	Click the **Disassociate** button.
6	At the confirmation window, click **Yes** to confirm that you wish to disassociate the QoS collector from the GWC node.
7	Verify that the collector has been successfully removed from the list.



8 If you wish to disassociate another QoS collector from this GWC node, return to step 4.

9 The procedure is complete.

—End—

Delete a QoS collector

Purpose of this procedure

Use this procedure to remove a quality of service (QoS) collection device from the network.

When to use this procedure

Use this procedure when you need to remove one or more QoS collector devices from the network.

Prerequisites and guidelines

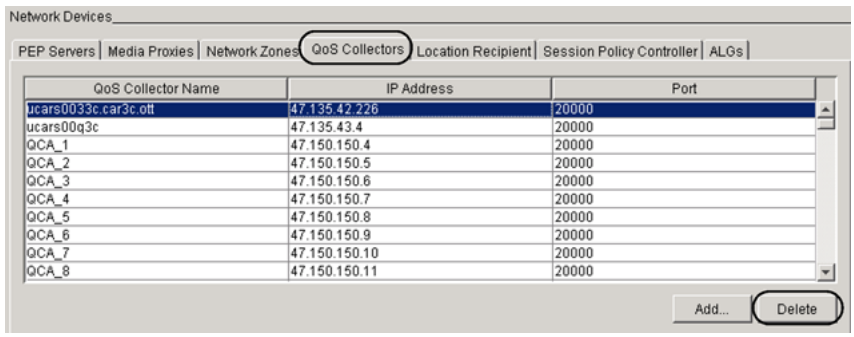
All QoS collectors may be deleted while QoS Reporting is enabled. This will cause the QCA state to change to "enabled pending".

When a QoS collector is deleted from the network database, any GWC node associations is automatically removed.

When deleting a QoS collector, a confirmation dialog box identifies any GWC nodes with which the collector was associated.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	At the Network Devices panel, click the **QoS Collectors** tab.



3	Select the QoS collector device to be deleted. Your selection is highlighted.
4	Click the **Delete** button.

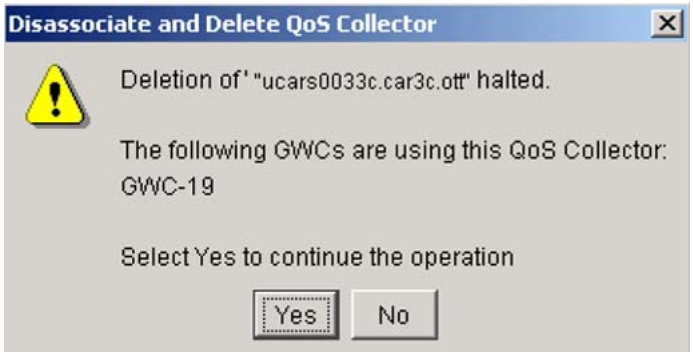
5 At the confirmation window, click **Yes** to confirm the deletion.

If any GWC nodes are associated with the QoS collector being deleted, you will see a warning box notifying you of the GWC nodes that are using the QoS collector.

You can continue with the deletion by clicking **Yes**, but the QoS collector you are deleting will be removed from any GWC nodes with which it is currently associated. QoS collection for those nodes will be stopped.

To restart QoS collection for any GWC nodes, you must associate a different QoS collector with those GWC nodes.

6 If any GWC nodes are currently using the QoS collector, and you wish to continue the operation, click **Yes** at the Disassociate and Delete QoS Collector prompt.



7 Verify that the QoS Collector has been removed from the list of QoS collectors.

8 The procedure is complete.

—End—

Add a policy enforcement point (PEP) server

Purpose of this procedure

Use this procedure to add a policy enforcement point (PEP) server to the network.

A PEP server, also called a middlebox, is associated with small line gateways. The GWC communicates with the PEP server to provide dynamic quality of service (DQoS) and other policy services for the associated gateways.

When to use this procedure

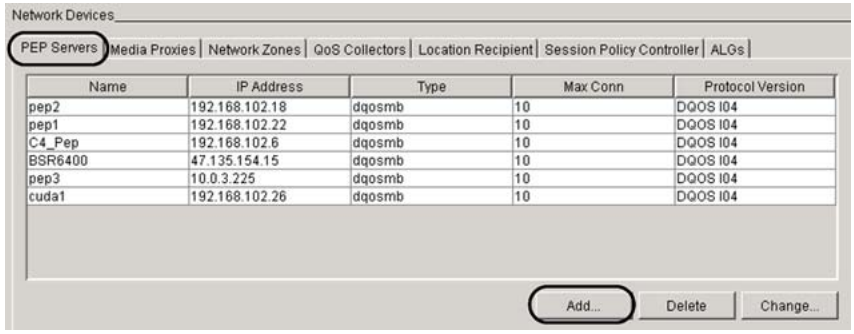
Use this procedure after initial network configuration has been completed and both a DQoS system policy and DQoS subscriber policy have been defined.

Prerequisites and guidelines

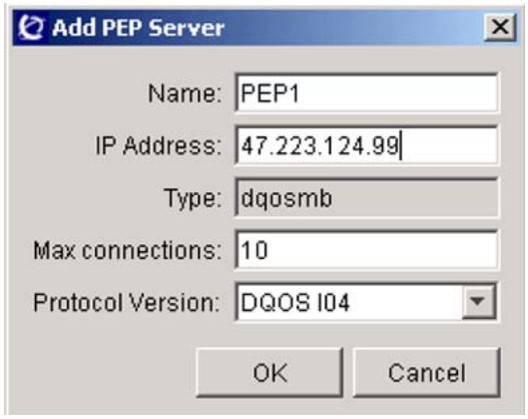
A valid PEP server name and IP address must be provided to successfully configure a PEP server in the network.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	In the Network Devices area, click the **PEP Servers** tab.



3	Click the **Add** button to display the Add PEP Server dialog box
4	At the Add PEP Server dialog box, type the applicable configuration information as described in the following sub-steps.



a. In the Name field, type the network name of the server preferably in an fully qualified domain name (FQDN) format.

b. In the IP Address field, type the IP address of the server.

c. In the Max connections filed, enter the maximum number of connections. The default value is 10. Verify the maximum number of connections with your cable modem termination system (CMTS) vender.

d. Select the applicable protocol version.

   Field Type is pre-defined to DQoS Middlebox (dqosmb).

e. Click **OK** .

5 Verify that the server you added appears in the PEP Servers list.

6 The procedure is complete.

—End—

Associate a PEP server with a media gateway

Purpose of this procedure

Use this procedure to associate a media gateway with a policy enforcement point (PEP) server.

A PEP server, also called a middlebox, is associated with small line gateways. The GWC communicates with the PEP server to provide dynamic quality of service (DQoS) and other policy services for the associated gateways.

When to use this procedure

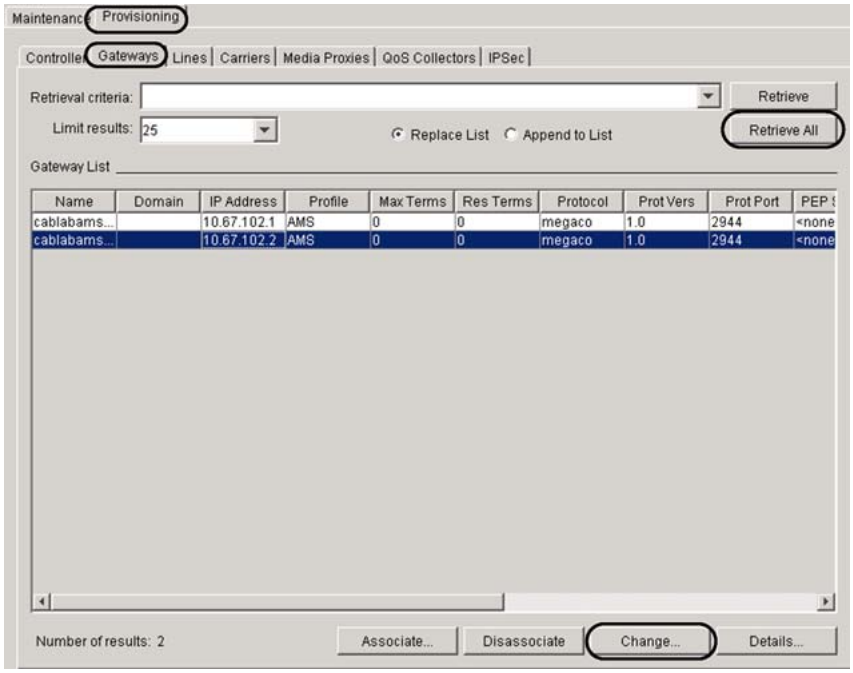
Use this procedure when you wish to associate a media gateway on a specific GWC node with a PEP server for policy services

Prerequisites and guidelines

A PEP server must be installed and configured in the network.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to view.
3	Click the **Provisioning** tab, the **Gateways** tab, then click the **Retrieve All** button to display the media gateways associated with the GWC node.



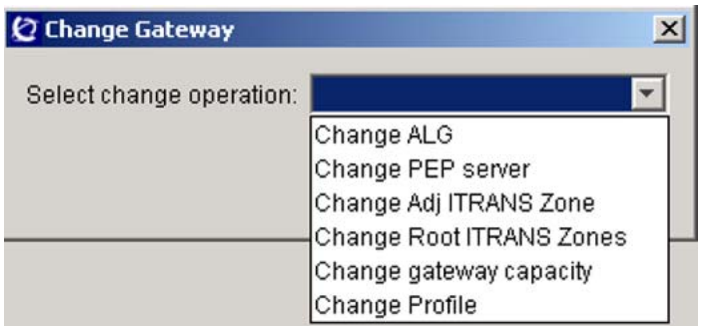
4 Select a gateway from the list that you wish to associate with a PEP server.

Your selection is highlighted.

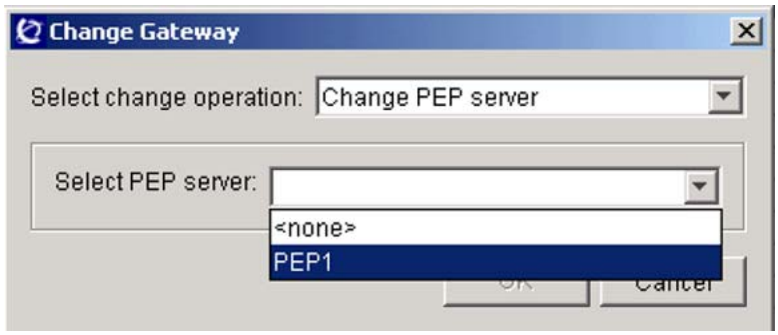
5 Click the **Change** button at the bottom of the display.

The Change Gateway dialog box is displayed.

6 Click the Select change operator drop-down menu and select **Change PEP Server**.

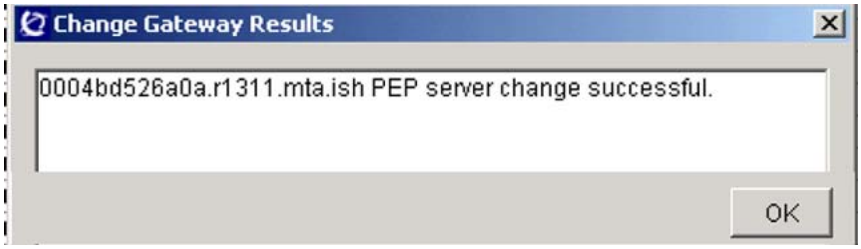


7 Click the Select PEP server drop-down menu and select an available PEP server.



8 Click **OK** to select the PEP server.

The Change Gateway Results dialog box is displayed.



9 Click **OK** to continue.

10 Repeat this procedure as required for other gateways with which you wish to associate a PEP server.

11 The procedure is complete.

—End—

Change the attributes of a PEP server

Purpose of this procedure

Use this procedure to change one of the following attributes of a policy enforcement point (PEP) server:

- IP address of the server
- The maximum number of connections supported by the server
- The version of dynamic quality of service (DQoS) protocol supported by the server

A PEP server, also called a middlebox, is used by small line gateways. The GWC communicates with the PEP server to provide DQoS and other policy services for the associated gateways.

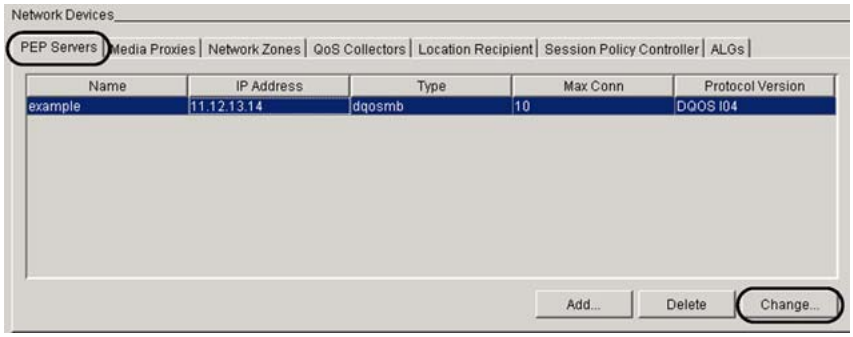
When to use this procedure

Use this procedure when you need to change the one or more attributes of an associated PEP server.

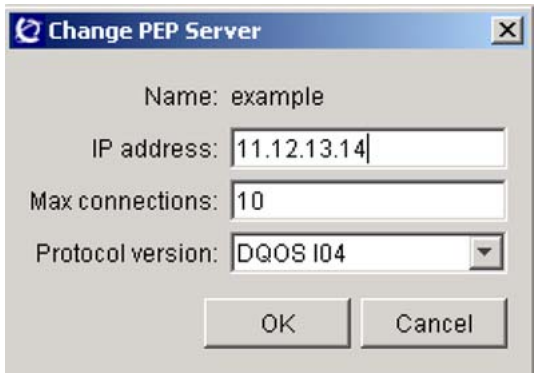
Prerequisites and guidelines

There are no prerequisites for this procedure.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	In the Network Devices section, click the **PEP Servers** tab.
	
3	Click the **Change** button.

The Change PEP Server dialog box is displayed



4 At the Change PEP Server dialog box, change any of the current settings in the following fields:

- In the IP address field, type a new IP address to be associated with the server.
- In the Max connections field, type a new value for the PEP server.

  Verify the maximum number of connections with your cable modem termination system (CMTS) vender.
- Select a different version of the DQoS protocol for the server.

5 Click **OK**.

6 Verify that the changes appear in the list of PEP servers.

7 The procedure is complete.

—End—

Disassociate a PEP server from a media gateway

Purpose of this procedure

Use this procedure to disassociate a policy enforcement point (PEP) server from a media gateway.

A PEP server, also called a middlebox, is associated with small line gateways. The GWC communicates with the PEP server to provide dynamic quality of service (DQoS) and other policy services for the associated gateways.

When to use this procedure

Use this procedure when you want to disassociate a PEP server from a media gateway associated with a GWC node.

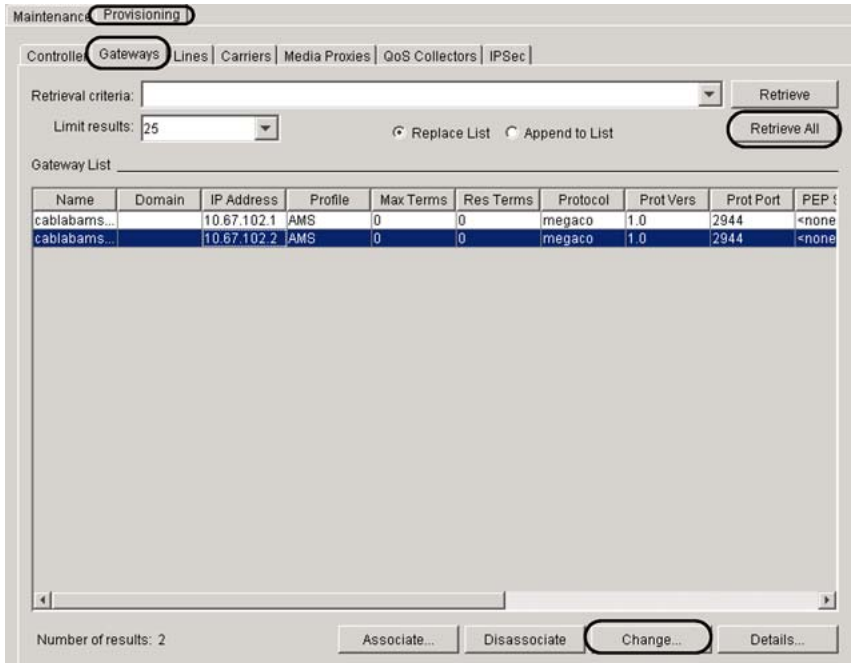
Prerequisites and guidelines

CAUTION
Possible service disruption
Disassociating a media gateway from its PEP server can affect call processing on the gateway.

There are no other prerequisites or guidelines for this procedure.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to view.
3	Click the **Provisioning** tab, then the **Gateways** tab.



4 Click the **Retrieve All** button to view information about gateways associated with the selected GWC node.

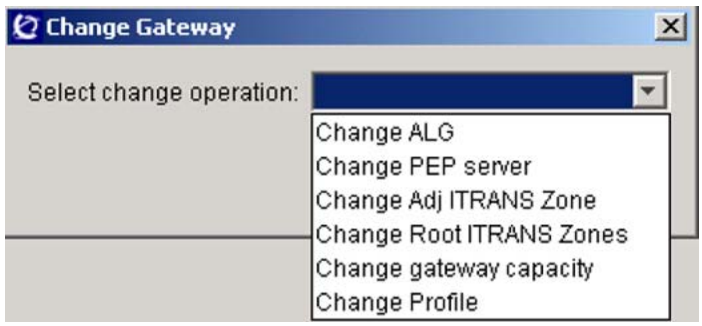
5 Select a media gateway from which you wish to disassociate a PEP server.

Your selection is highlighted.

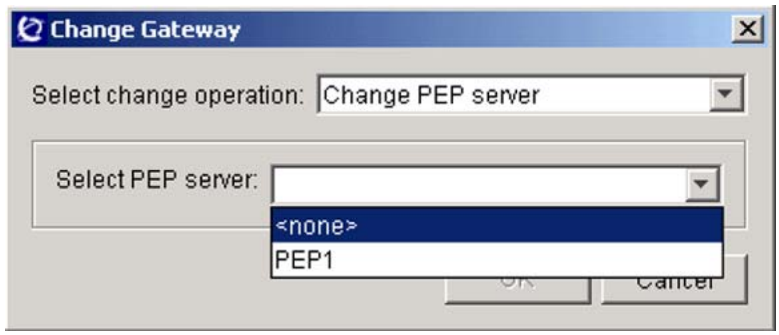
6 Click the **Change** button at the bottom of the screen.

The Change Gateway dialog box is displayed.

7 Click the Select change operation: drop down menu and select **Change PEP Server**.

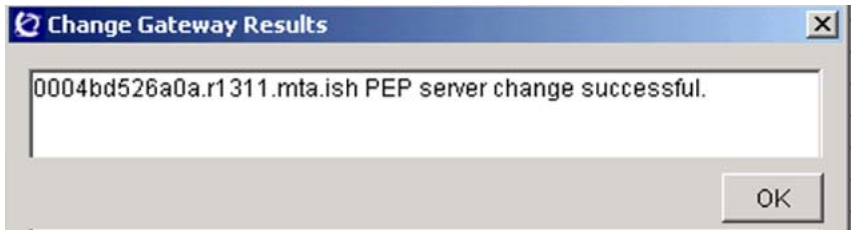


8 Click the Select PEP server: drop down menu and select **<none>**.



9 Click **OK**.

The Change Gateway Results dialog box is displayed.



10 Click **OK** to continue.

11 Verify that the PEP server is disassociated from the gateway.

The display of media gateways may not indicate that the PEP server has been disassociated from the gateway. If necessary, repeat step 1 through step 4 of this procedure to verify that the change has occurred.

12 Repeat this procedure as required for other gateways from which you wish to disassociate a PEP server.

13 The procedure is complete.

—End—

Delete a PEP server

Purpose of this procedure

Use this procedure to delete a policy enforcement point (PEP) server from the network.

A PEP server, also called a middlebox, is associated with small line gateways. The GWC communicates with the PEP server to provide dynamic quality of service (DQoS) and other policy services for the associated gateways.

When to use this procedure

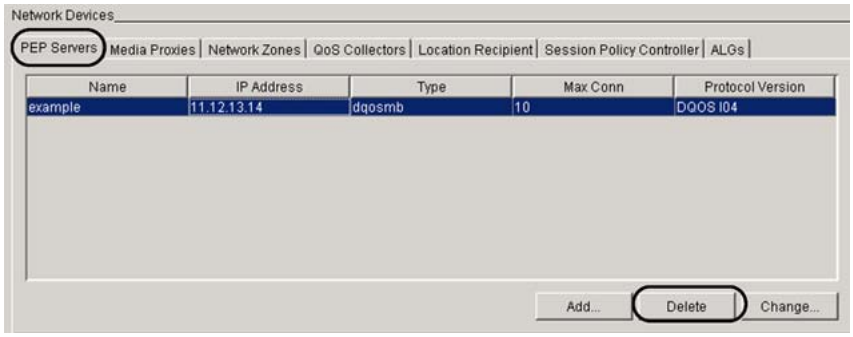
Use this procedure whenever you need to remove a PEP server from the network.

Prerequisites and guidelines

You cannot remove a PEP server from the network while it is associated with a media gateway. You must first disassociate the PEP server from the gateway. Compete procedure "Disassociate a PEP server from a media gateway" (page 388) to accomplish this task.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	In the Network Devices section, click the **PEP Servers** tab.
3	Select a PEP server from the list. Your selection is highlighted.
4	Click the **Delete** button.



5 At the Confirm PEP Server Delete prompt, click **Yes**.

6 Verify that the PEP server is removed from the list.

7 The procedure is complete.

—End—

Add an application layer gateway to the network (cable market)

Purpose of this procedure

This procedure describes how to add an application layer gateway (ALG) to the network in a cable market solution.

An ALG is a type of middlebox associated with multimedia terminal adapter (MTA) small line gateways running network-based call signaling (NCS) protocol. An ALG is a virtual gateway residing on the third-party session border controller - a device located on the border between a cable provider network and a service provider network. The function of an ALG is to separate the cable provider IP address space from the service provider IP address space.

An ALG provides a network address translation (NAT) functionality. It provides a single IP address for a set of MTAs and maintains the mapping to the real MTA addresses. The real IP addresses of the gateways are not known to the Gateway Controller (GWC). The GWC communicates with MTAs through the ALG, using the single ALG IP address. This solution increases the security for the gateways, since ALG hides the real MTA IP addresses.

When to use this procedure

Use this procedure before associating MTAs to a GWC.

Prerequisites and guidelines

A valid ALG name and IP address must be provided to successfully configure an ALG in the network.

Use the following guidelines when adding an ALG to the network:

- You can provision and associate ALGs only with MTA small line gateways in a cable market solution.
- You can associate ALGs only with gateways hosted by GWCs that are configured with the small line gateway profile.
- Each GWC can support up to 20 ALGs.
- If you associate an ALG with a gateway, you cannot associate any of the following middleboxes with the same gateway:
  - DQoS policy enforcement point (PEP) server
  - limited bandwidth link (LBL)
  - IP-VPN network address translator (NAT)

- If you associate an ALG with a gateway, IPSec between the GWC, ALG, and that gateway is not supported.
- If a redirecting media gateway controller (RMGC) is configured in the network, make sure that the Domain Servers IP addresses are configured correctly. When the ALG receives a message from the RMGC, the MTA gateway associated with this ALG must be able to resolve the fully qualified domain name (FQDN) included in that message through domain name service (DNS) queries.

  If required, see procedure "Manually re-provision GWC cards" (page 102) for how to verify and change basic GWC node configuration values, including Domain Servers IP addresses.

Action

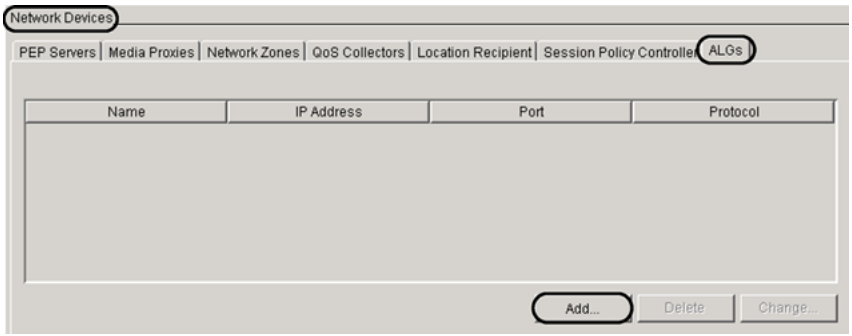
Step	Action

At the CS 2000 GWC Manager client

1 At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.

2 In the Network Devices area, click the **ALGs** tab.

3 Click the **Add** button to display the Add ALG dialog box.



4 At the Add ALG dialog box, type the applicable configuration information as described in the following sub-steps.

a. In the Name: field, type the network name of the ALG, preferably in an fully qualified domain name (FQDN) format.

   Use an ALG domain name in the form of an absolute domain name including the host name of the device, suitable for lookup using Domain Name Service (DNS).

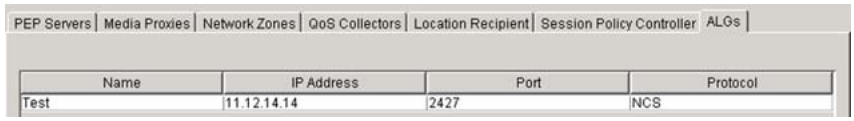
b. In the IP Address: field, type the IP address of the ALG in the format of: <0-255>.<0-255>.<0-255>.<0-255>.

c. The Port: field is preset to the NCS value of 2427. If you wish, you can delete this value and enter a new port number.

d. The Protocol: field is predefined with the only valid value of NCS. You cannot change this field.

5 Click **OK** to apply the configuration values.

6 Verify that the ALG you added appears in the ALGs list.



7 The procedure is complete.

—End—

Change the attributes of an ALG

Purpose of this procedure

Use this procedure to change one of the following attributes of an application layer gateway (ALG):

- IP address of the ALG
- the port number

An ALG, a type of middlebox, is associated with multimedia terminal adapter (MTA) small line gateways. The GWC communicates with MTAs through the ALG, using the single ALG IP address.

When to use this procedure

Use this procedure when you need to change the IP address or the port number of an associated ALG.

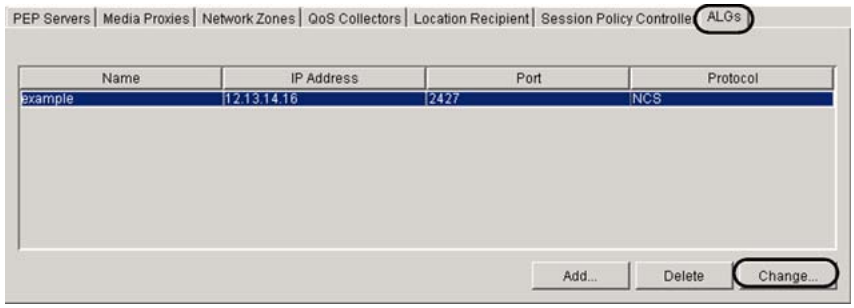
Prerequisites and guidelines

CAUTION
Possible service interruption
Changing ALG IP address or port of an ALG that has gateways associated with it can affect call processing on the gateway. Before proceeding, busy all lines configured on the gateway.

ALG must be installed and configured on the network.

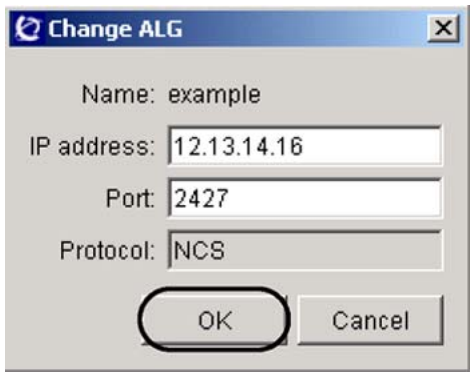
Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	In the Network Devices section, click the **ALGs** tab and select the ALG that you want to change.



3 Click the **Change** button.

The Change ALG dialog box is displayed.



4 At the Change dialog box, enter the new data in one or both of the following fields:

- In the IP address: field, type a new IP address to be associated with this ALG.
- In the Port: field, enter the new port number.

Do not change the Protocol: field. ALGs are only supported for NCS (1) protocol.

5 Click **OK**.

6 Verify that the changes appear in the list of ALGs.

7 The procedure is complete.

—End—

Associate an ALG with a media gateway

Purpose of this procedure

This procedure describes how to associate an application layer gateway (ALG) to a multimedia terminal adapter (MTA) gateway or gateways already associated with a specific Gateway Controller (GWC) node.

You can also associate an ALG to the gateway during the process of associating the gateway with the GWC. See procedure "Associate a small line media gateway (cable market)" (page 135).

When to use this procedure

Use this procedure when you wish to complete one of the following tasks:

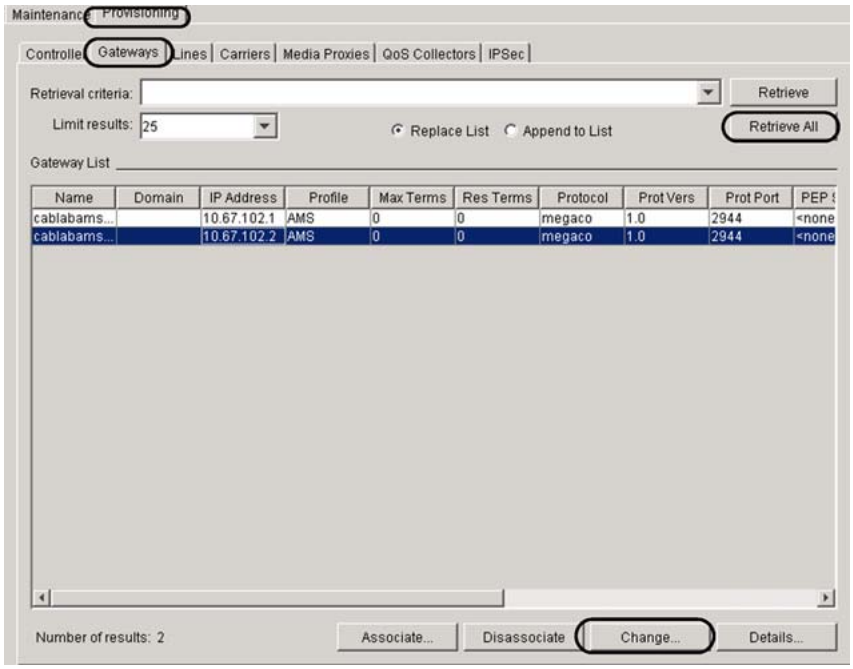
- associate an ALG to a media gateway or gateways already associated with a specific GWC node
- change the ALG associated with a specific gateway or gateways

Prerequisites and guidelines

An ALG must be installed and configured in the network.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to view.
3	Complete the following sub-steps to select the gateway or gateways that you wish to associate with an ALG, or for which you wish to change the associated ALG.



a. Click the **Provisioning** tab, then the **Gateways** tab, then click the **Retrieve All** button to display the media gateways associated with the selected GWC node.

b. From the Gateway List, select one or more gateways by clicking on the appropriate row.

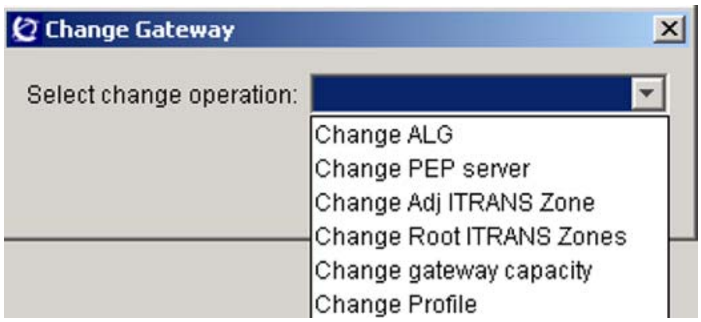
   To select multiple gateways, hold down the Shift key and select each gateway entry.

   Your selection is highlighted.

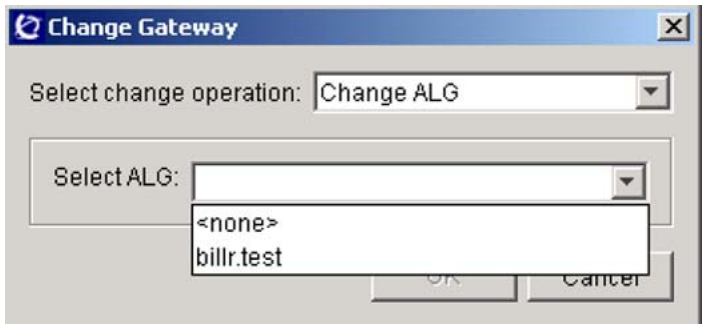
4 Click the **Change** button at the bottom of the display.

The Change Gateway dialog box is displayed.

5 Click the Select change operation: drop-down menu and select Change ALG option.



6 Click the Select ALG: drop-down menu and select one of the ALG names displayed.



7 Click **OK** to apply the ALG selection.

The Change Gateway Results dialog box is displayed

8 Click **OK** to continue.

9 Repeat this procedure as required for other gateways with which you wish to associate an ALG, or for which you want to change the associated ALG.

10 The procedure is complete.

—End—

Disassociate an ALG from a media gateway

Purpose of this procedure

This procedure describes how to disassociate an application layer gateway (ALG) from a media gateway or gateways.

An ALG, a type of middlebox, is associated with multimedia terminal adapter (MTA) small line gateways. The GWC communicates with MTAs through the ALG, using the single ALG IP address.

When to use this procedure

Use this procedure when you want to disassociate an ALG from a media gateway or gateways associated with a specific GWC node.

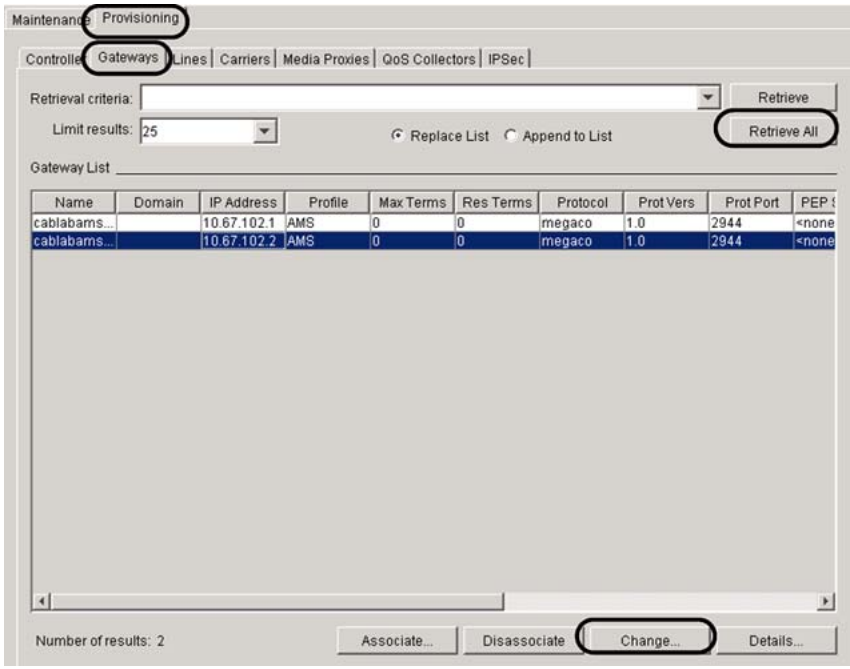
Prerequisites and guidelines

CAUTION
Possible service interruption
Disassociating a media gateway from its ALG can affect call processing on the gateway. Before proceeding, busy all lines configured on the gateway.

There are no other prerequisites or guidelines for this procedure.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to view.
3	Complete the following sub-steps to select the gateway gateways from which you wish to disassociate the ALG.



a. Click the **Provisioning** tab, then the **Gateways** tab, then click the **Retrieve All** button to display the media gateways associated with the GWC node.

b. From the Gateway List, select one or more gateways by clicking on the appropriate row.

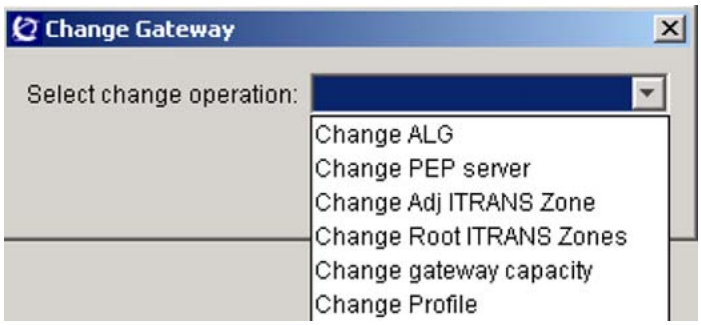
   To select multiple gateways, hold down the Shift key and select each gateway entry.

   Your selection is highlighted.

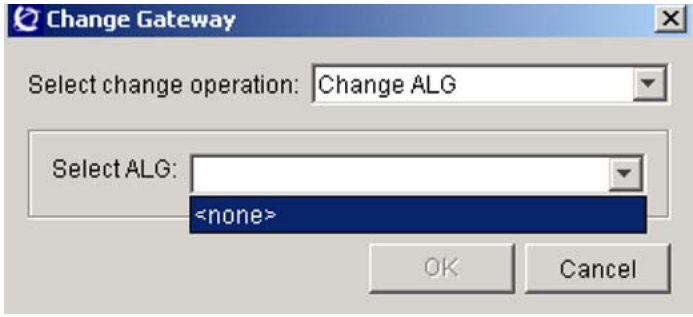
4 Click the **Change** button at the bottom of the screen.

The Change Gateway dialog box is displayed.

5 Click the Select change operation: drop-down menu and select the Change ALG option.



6 Click the Select ALG: drop down menu and select <none>.



7 Click **OK** .

The Change Gateway Results dialog box is displayed.

8 Click **OK** to continue.

9 Verify that the ALG is disassociated from the gateway.

The display of media gateways may not indicate that the ALG has been disassociated from the gateway. If necessary, refresh the current display and verify that the word <none> appears under the ALG heading.

10 Repeat this procedure as required for other gateways from which you wish to disassociate an ALG.

11 The procedure is complete.

—End—

Delete an ALG

Purpose of this procedure

Use this procedure to delete an application layer gateway (ALG) from the network.

An ALG, a type of middlebox, is associated with multimedia terminal adapter (MTA) small line gateways. The GWC communicates with MTAs through the ALG, using the single ALG IP address.

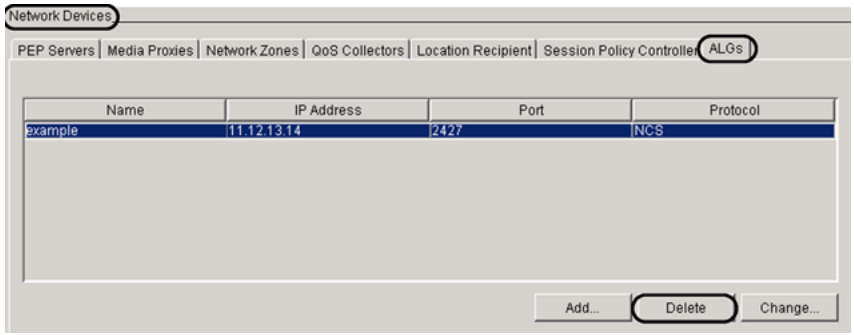
When to use this procedure

Use this procedure whenever you need to remove an ALG from the network.

Prerequisites and guidelines

You cannot remove an ALG from the network while it is associated with a media gateway. You must first disassociate the ALG from the gateway. Follow procedure "Disassociate an ALG from a media gateway" (page 401).

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	In the Network Devices section, click the **ALGs** tab and select the ALG that you want to delete.
	
3	Click the **Delete** button.
4	At the Confirm ALG Delete prompt, click **Yes**.
5	Verify that the ALG is removed from the list.

6 The procedure is complete.

—End—

Add a V5 interface provisioning template

Purpose of this procedure

Use this procedure to create and datafill V5PROV table information relating to:

- which channel(s) on which link(s) are the signaling channel(s) on the V5 interface
- what type of signaling is sent over which link
- which channels are used for backup signaling

Table V5PROV is referenced by main CM table GPPTRNSL.

When to use this procedure

Use this procedure when creating a new V5.2 provisioning template.

Prerequisites and guidelines

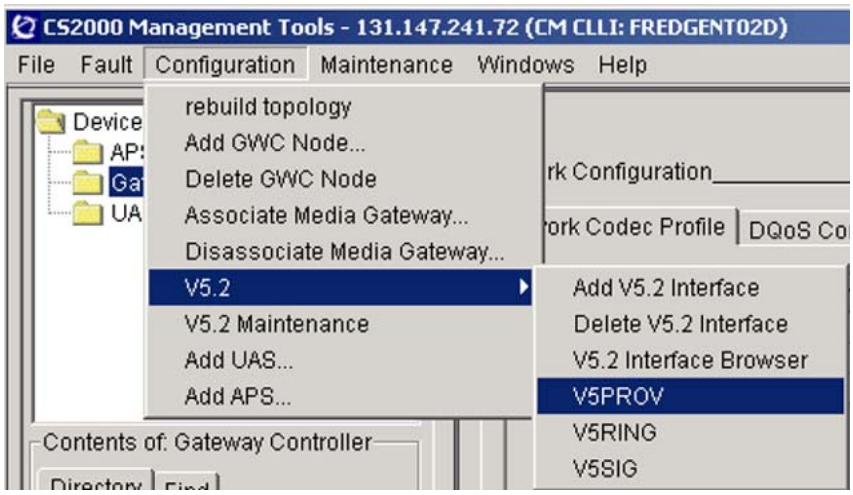
Before adding a V5.2 provisioning template, ensure that the following information is in place:

- You must know the V5 variant ID that is provisioned on the access node. This needs to match the V5PROV template as datafilled for the Interface (in table GPPTRNSL). Consult your site system administrator for details on how to acquire this information.
- The c-channel information in this profile must match the provisioning profile in the access node.

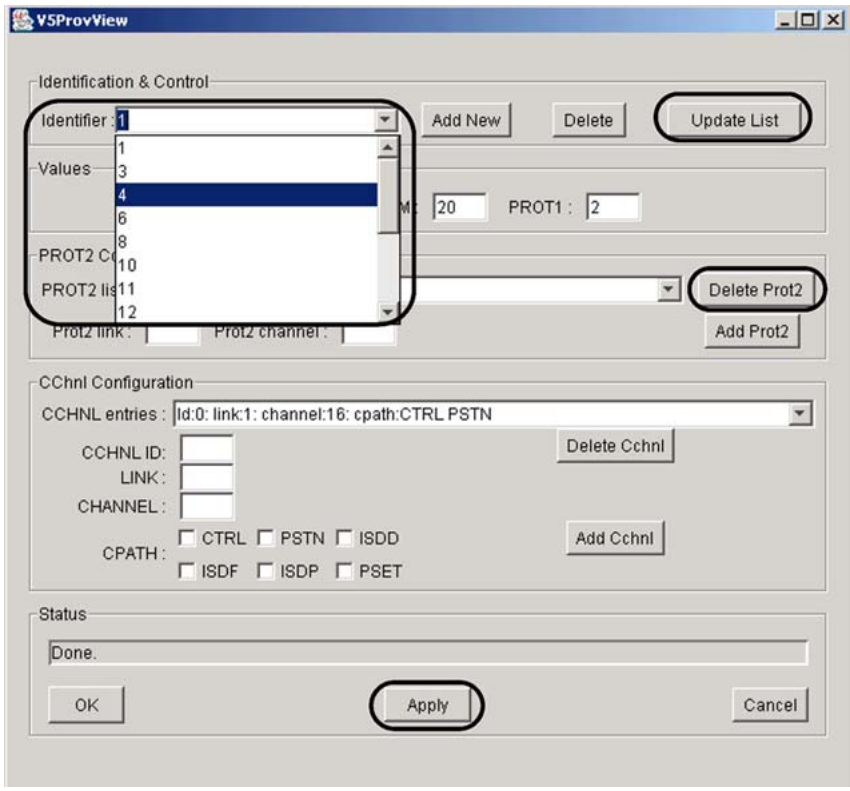
Tables V5RING and V5SIG must also be datafilled before the interface is fully provisioned.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	Click the **Configuration** menu, select **V5.2**, and then **V5PROV**.



2 Use the following provisioning view to select a provisioning template to modify by selecting its Identifier. If you cannot find the Identifier you are expecting, click the **Update List** button.



3 Use table "V5 provisioning template values" (page 408) to add values to the field entries:

- To add a new Prot2 link and channel, type the link and channel numbers into the Prot2 link and Prot2 channel data fields and click the **Add Prot2** button.

  For a protected V5.2 interface with protection group 2, four C-channels are needed: primary link and secondary link, time slot 16, and two additional C-channels running active and standby c-path for the V5 PSTN protocol.

- To add a new C-channel configuration entry, type the CCHNL ID, LINK, CHANNEL entries in the appropriate data fields, check the appropriate CPATH check boxes that apply and click the **Add Cchnl** button.

4 Click the **Apply** button when you are finished adding templates.

5 Click **OK** to close the V5 provisioning view window.

6 The procedure is complete.

—End—

V5 provisioning template values

Field	Description
Identifier:	V5 provisioning variant ID. The operating company defines the different V5 provisioning IDs; use a numeric value from 0 to 127.
TBCC	Two bearer channel control timers. Set the timers to between 500 and 1500 ms; use a numeric value between 5 and 15 (5 =500 ms).
LKMJALM	Link manager alarm: threshold level of V5.2 link failure before the link triggers a major alarm. The value is the percentage of fault links that must be exceeded to generate the alarm; use a numeric value between 0 and 100.
PROT1	Protection link 1. Secondary link protection group 1 switches to this link if the primary C-channel link fails; use a numeric value from 1 to 16. For a protected V5.2 interface with protection group 1, two C-channels are needed: primary link and secondary link, time slot 16. For an unprotected V5.2 interface, only one C-channel is needed: primary link, time slot 16.
Add Prot2 Delete Prot2 Buttons	Click the Add Prot2 button to add protection group 2. Click the Delete Prot2 button to remove it. For a protected V5.2 interface with protection group 2, four C-channels are needed: primary link and secondary link, time slot 16, and two additional C-channels running active and standby c-path for the V5 PSTN protocol.
PROT2 list:	Protection link 2. Standby link and C-channel for protection group 2. First entry is the link, the second entry is the channel.
Prot2 link:	Link for standby link for protection group 2.

Field	Description
Prot2 channel:	Channel for standby link for protection group 2.
CCHNL entries:	C-channel link information; a maximum of 43 multiples of fields: CCHNL ID, LINK, CHANNEL, CPATH.
CCHNL ID:	Control channel ID number. An internal C-channel ID number; a numeric value, from 0 to 9, of provisioning channel IDs.
LINK:	The V5.2 link number that the C-channel resides on; a numeric value between 1 and 16.
CHANNEL	C-channel number or physical channel that the C-channel is on. Table control only accepts channel 16 for CNTRL. Use channel 31 after channels 15 and 16 have been used.
CPATH	Type of C-path control messages carried on the C-channel.
CTRL	Control channel messages.
PSTN	Public switched telephone network control messages.
ISDD	ISDN D-channel control messages; not currently supported.
ISDF	ISDN F-channel control messages; not currently supported.
ISDP	ISDN-P-channel control messages; not currently supported.
PSET	Proprietary phone signaling (EBS); not currently supported.

Add V5.2 interfaces

Purpose of this procedure

Use this procedure to do the following:

- add and datafill a V5.2 Interface
- map a bundle of up to 16 E1 carriers to the interface
- assign a ring plan, provisioning profile and signaling profile

When to use this procedure

Use this procedure when you are adding V5.2 interfaces and associating physical E1 links to a specific interface.

Prerequisites and guidelines

Prerequisites

Before adding V5.2 interfaces, ensure that the following prerequisites are in place:

- A GWC node must be provisioned with a V52Trunk profile using procedure "Add and configure a GWC node" (page 111). The gateways associated with that GWC must use the Megaco (H.248) signaling protocol.
- Carrier links must follow the MEGACO naming convention.

  For the naming convention used for various carriers and their applicable supported protocols, see procedure "Add carriers to a GWC" (page 186).
- You must know the V5.2 Interface ID and the GWC node ID. Your site system administrator should have this information.
- You must know the V5 variant ID that is provisioned on the access node. The profile associated with this variant ID on the access node must match the V5PROV template as datafilled for the V5.2 Interface. Consult your site system administrator for details on how to acquire this information.
- The Media Gateway 7480/15000 nodes are already provisioned and available.
- The E1 carriers must be provisioned and in service on the Media Gateway 7480/15000.
- You must know the gateway name and carrier name of the E1 links which connect to access nodes (AN). You must also know the AN to which each E1 link connects.
- The Core SOC option for V5.2 services must be turned on.

- You must know the location information contained within the Core table SITE. This information is provisioned as the AMCNO key component of table GPPTRNSL.

Guidelines

A single GWC node can support the following V5.2-related resources:

- up to 6400 V5.2 line endpoints
- up to 63 protected V5.2 Interfaces in table GPPTRNSL
- 128 E1 links
- 256 C-Channels

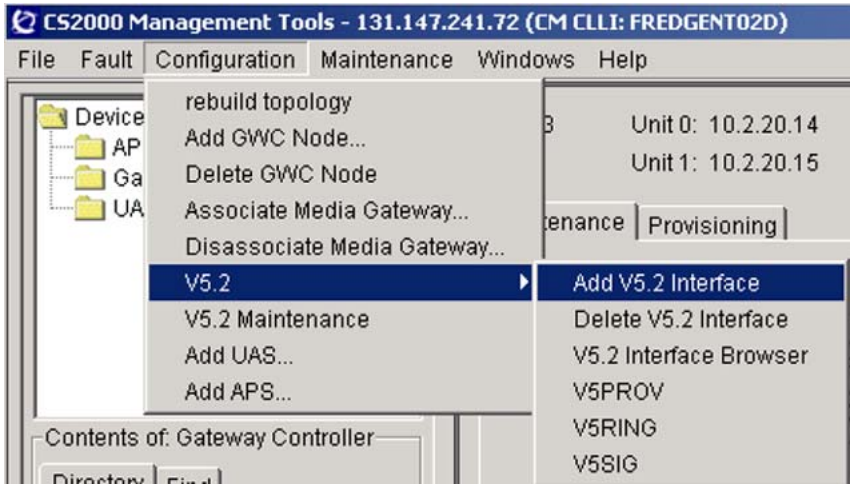
When adding an interface, the following guidelines apply:

- One interface can not be spread over more than one GWC
- One interface can be spread over one or more gateways
- Links of several interfaces can be defined on one gateway

It is recommended that you spread every interface evenly over two gateways (VSP cards in different Media Gateway 7480/15000 shelves). For more information, see Network Engineering Guidelines for your solution.

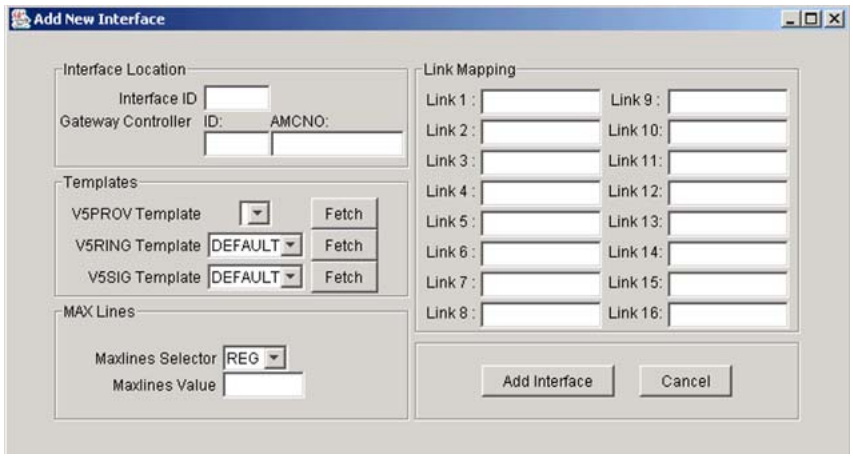
Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to provision a V5.2 interface on.
3	Click the **Configuration** menu, select **V5.2**, and then **Add V5.2 Interface**.



4 Type the interface attributes in each of the fields as needed.

Use table "V5.2 interface attributes" (page 413) to assist you with entering valid attributes.



5 Click **Add Interface** when you are done.

6 Click **OK** at the Adding V5.2 Interface confirmation box.

7 The procedure is complete.

—End—

V5.2 interface attributes

Field	Description
Interface ID	The V5.2 interface identifier tuple is a unique number between 0 and 16777215. It is unique between the local exchange and the access node. Up to 53 interfaces can be configured per GWC node.
Gateway Controller ID	Type the GWC number in the range of 1-255.
AMCNO	AN (access node) location, a unique line identifier.
V5PROV Template	Click on the drop-down menu button to obtain a list of up to 127 definable provisioning profiles. (The profile number needs to match the variant ID as provisioned in the access node.)
V5RING Template	Click the **Fetch** button to obtain a list of available ringing profiles (up to 127 definable profiles) or select the DEFAULT template.
V5SIG Template	Click the **Fetch** button to obtain a list of available signaling profiles (up to 127 definable profiles). Do not use the DEFAULT template as this will generate error messages from the Core.
MAX Lines Selector	REG (regular) lines or PRIM (primary) lines; only REG lines are supported.
MAX Lines	Maximum number of lines assigned to the interface from 1 to 2048, based on the capacity of the AN.
Link Mapping	V5 link-to-carrier mapping fields (up to 16 for each interface) Carrier links must follow the naming convention for the protocol of the gateway with which they are associated. For the naming convention used for various carriers and their applicable supported protocols, see procedure "Add carriers to a GWC" (page 186). Carrier link names can use one of the following formats: • <gateway_name>.E1_<xxxx> where **<gateway_name>** is the provisioned name of a Media Gateway 7480/15000 gateway **<xxx>** is a combined shelf slot and E1 number • <gateway_name>.E1/<yy>/<zz> where **<gateway_name>** is the provisioned name of a suitable gateway **<yy>** is a shelf slot number **<zz>** is an E1 number

Add a V5 ring template

Purpose of this procedure

Use this procedure to create V5 ring templates for the V5RING table which contains information relating to mappings between ringing cadences and ringing types. Table V5RING is referenced by the main CM table GPPTRNSL.

When to use this procedure

Use this procedure when a new V5.2 interface is being provisioned.

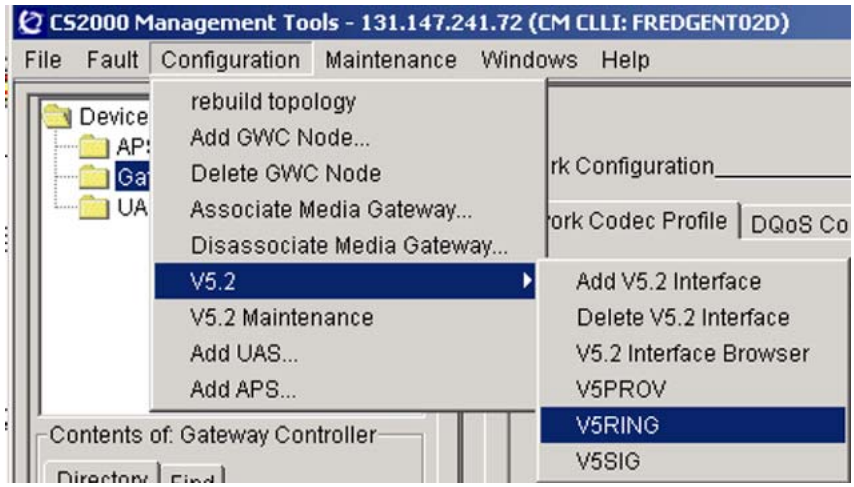
Prerequisites and guidelines

Tables V5PROV and V5SIG must also be datafilled before the interface is fully provisioned.

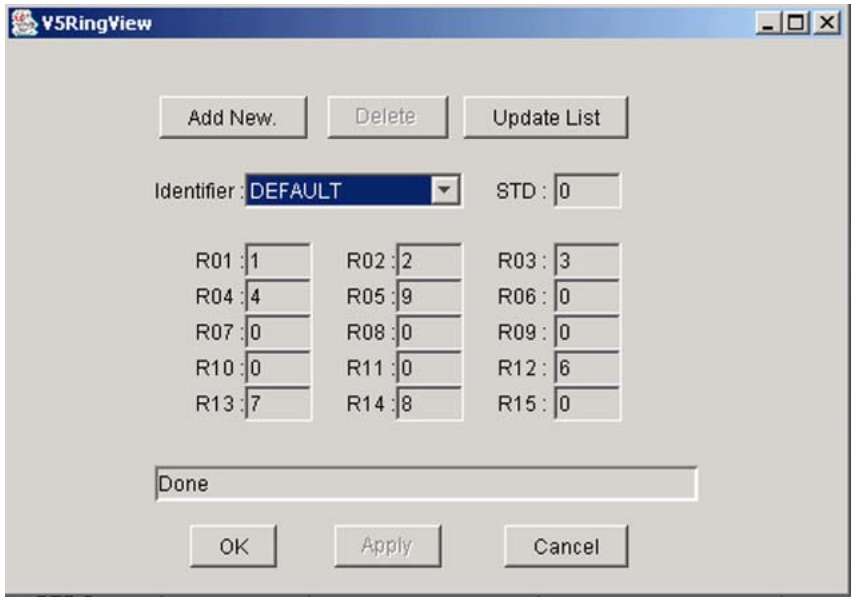
A default profile, identified as DEFAULT, is always provided in the template.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	Click the **Configuration** menu, select **V5.2**, and then **V5RING**.



2	Use table "V5.2 ring template attributes" (page 415) to enter all of the ring attributes for a V5.2 ring template. Set up a new template by adding an Identifier. Click the **Add New** button and complete the appropriate data fields.



3 Click the **Apply** button when you are finished adding ring templates.

4 Click **OK** to close the V5 ring view window.

5 The procedure is complete.

—End—

V5.2 ring template attributes

Field	Description
Identifier:	The V5 ring mapping ID. The operating company can define up to 127 different V5 ring mapping profile IDs; use an alphanumeric string up to 16 characters that uniquely identifies the ring character to ring type mapping set.
STD	Standard Ring; a number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 0.
R01	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 1. XPM Ring Char 1 is commonly used for Distinctive Ringing 1.
R02	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 2. XPM Ring Char 2 is commonly used for Distinctive Ringing 2.
R03	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 3. XPM Ring Char 3 is commonly used for Distinctive Ringing 3.

Field	Description
R04	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 4. XPM Ring Char 4 is commonly used for Distinctive Ringing 4 and Automatic Recall.
R05	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 5. XPM Ring Char 5 is commonly used for Distinctive Ringing 5.
R06	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 6. No known service matching.
R07	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 7. No known service matching.
R08	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 8. No known service matching.
R09	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 9. No known service matching.
R10	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 10. No known service matching.
R11	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 11. No known service matching.
R12	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 12. Ring Char 12 is most commonly used for Distinctive Ringing 6 and Teen Service SDN1.
R13	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 13. Ring Char 13 is most commonly used for Distinctive Ringing 7 and Teen Service SDN2.
R14	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 04. Ring Char 14 is most commonly used for Distinctive Ringing 8 and Teen Service SDN3.
R15	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 15. No known service matching.

Add a V5 signaling template

Purpose of this procedure

Use this procedure to create and datafill V5SIG table information relating to signaling characteristics. Table V5SIG allows a set of signaling characteristics to be defined as a signaling profile. There is a default profile provisioned on any switch. These characteristics include (but are not limited to) line attenuation, End-Of-Call signaling support and suppression indication. Table V5SIG is referenced by main CM table GPPTRNSL.

When to use this procedure

Use this procedure when provisioning a new V5.2 interface.

Prerequisites and guidelines

Tables V5PROV and V5RING must also be datafilled before the interface is fully provisioned.

For V5.2, a line attenuation value of V5_DIGITAL is not currently supported.

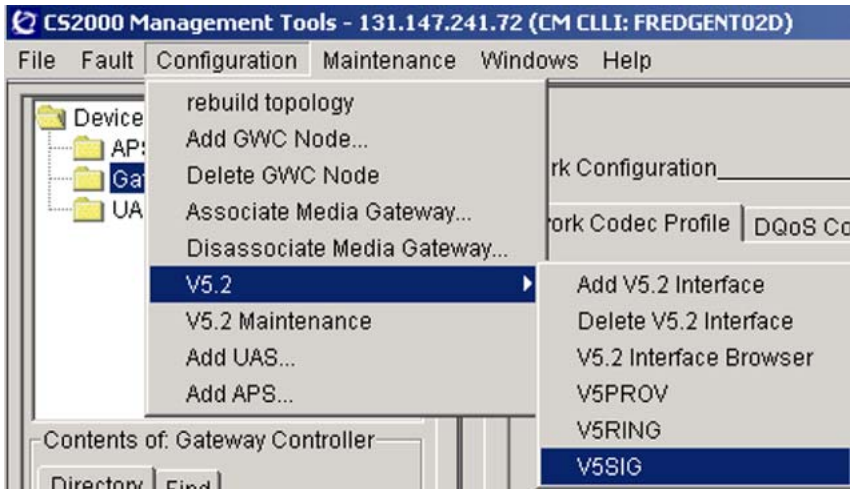
ATTENTION

The DEFAULT template for the V5SIG table is not a valid option to select. If used, the Core returns an error message.

This procedure assumes that you are already logged into the CS 2000 GWC Manager and that you know the V5 Interface ID and the GWC node ID. Consult your site system administrator for details on how to acquire this information.

Action

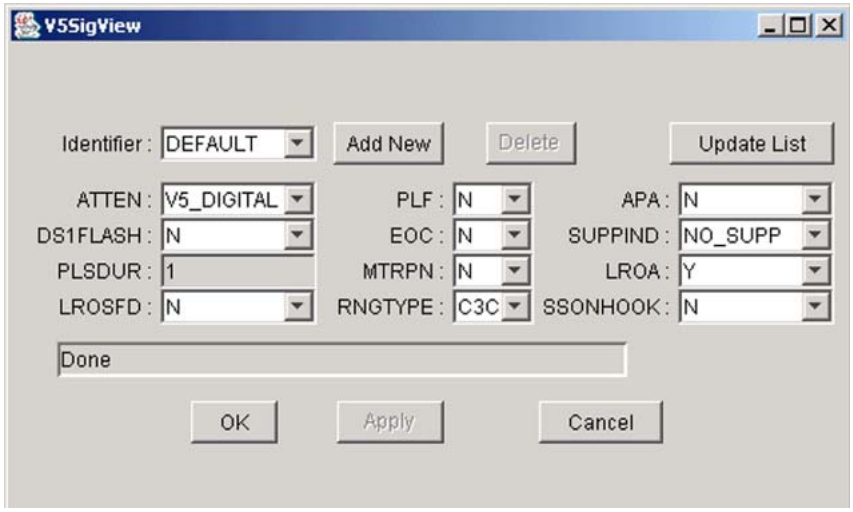
Step	Action
	At the CS 2000 GWC Manager client
1	Click on the **Configuration** menu, select **V5.2**, and **V5SIG**.



2 Datafill all of the signaling attributes for the desired V5.2 interface.

For descriptions of the V5.2 signaling attributes, see table "V5.2 interface signaling attributes" (page 419).

To add a new Identifier click the Add New button and complete the appropriate data fields.



3 Click the **Apply** button when you are done adding the sig template(s).

4 Click **OK** to close the V5 sig view window.

5 The procedure is complete.

—End—

V5.2 interface signaling attributes

Field	Description
Identifier	The V5 sig profile ID. The operating company can define up to 127 different V5 signaling profile IDs; use an alphanumeric string of up to 16 characters that uniquely identifies the ring character to ring type mapping set.
ATTEN:	Line attenuation field; possible values are: • V5_NONE-no additional attenuation is inserted • V5-DIGITAL-not currently supported • V5-ANALOG-attenuation is added at the access node (AN) line card
PLF:	Parked Line Feed fictionalizing; Enter Y if the battery signal should be sent from the local exchange to an access node when the line enters the lock or blocked state. The reduced battery signal allows the access node to save power. The default is N (No).
APA:	Accelerated Port Alignment: Enter Y to allow the alignment of port states without supply block and unblock messages for each port. Default is N (No).
DS1FLASH:	Digit 1 register recall. Enter Y to use digit 1 to represent recall during an active call (that is, not during digit collection). The default is N (No).
EOC:	End of Call Signaling. Enter Y to use a signaling sequence that sends a V5.2 'pulse signal no battery' message from the local exchange to the access node. This message indicates to the subscriber that the call has ended or failed. The end of call signaling feature provides the CPE with an indication of call completion. The default value is N (No).
SUPPIND:	Field Suppression Indication; possible values are: • NO_SUPP - No suppression is allowed. • LE_SUPP - Only a new message generated from the local exchange (LE) shall terminate the pulses being sent out from a user port. An example of a condition involving LE_SUPP would be to initiate a disconnect signal before pulsing has completed. • TE_SUPP - Only a new condition from terminal endpoint (TE) shall terminate the pulses being sent out from a user port. An example involving TE_SUPP would be to perform an on-hook before pulsing has completed. • LE_TE_SUPP - Either messages from the LE or new conditions from TE shall terminate the pulses being sent out from a user port.
PLSDUR:	Pulse Duration; When available for datafill, the value of this field reflects the length of the pulse defined in the Access Node. Enter a value between 0 and 31. The default value is 1.

Field	Description
MTRPN:	Meter Pulse Notification; supported. If the MTRPN field of V5SIG datafilled to Y, pulse notification will be enabled. Datafilling this field to FALSE will indicate that the V5.2 interface will not enable pulse notification.
LROA:	Line Reversal On Answer. Enter Y to indicate that each V5.2 virtual line in the office receives line reversal on seizure and forward disconnect. Enter N to indicate that V5.2 virtual lines in the office do not receive line reversal on seizure and forward disconnect. (If the entry is N, operating company personnel cannot provision fields LROSFD or RNGTYPE on a V5.2 line. Enter CHKLN in indicate V5.2 virtual lines in the office receive line reversal on answer. The line reversal depends on the LROA line option on each line.
SSONHOOK:	Signal SS: On-hook message flag; Enter a value of Y to allow or N to disallow.
LROSFD:	If the entry in the field LROA is Y or CHKLN, enter data for field LROSFD to indicate if the office requires line reversal on seizure and forward disconnect signal. Enter Y to indicate all V5.2 virtual lines in the office have line reversal. Enter N to indicated all V5.2 virtual lines in the office do not have line reversal.
RNGTYPE:	Ring Type; possible values for V5SIG table field RNGTYPE are: • C3C - The default ring type • C3D - Japanese ringing type • C6F - Portuguese ringing type

View V5.2 interface properties

Purpose of this procedure

Use this procedure to view provisioning details about the V5.2 interface.

When to use this procedure

Use this procedure when you need to view provisioning datafill about the interface and its carrier mapping.

Prerequisites and guidelines

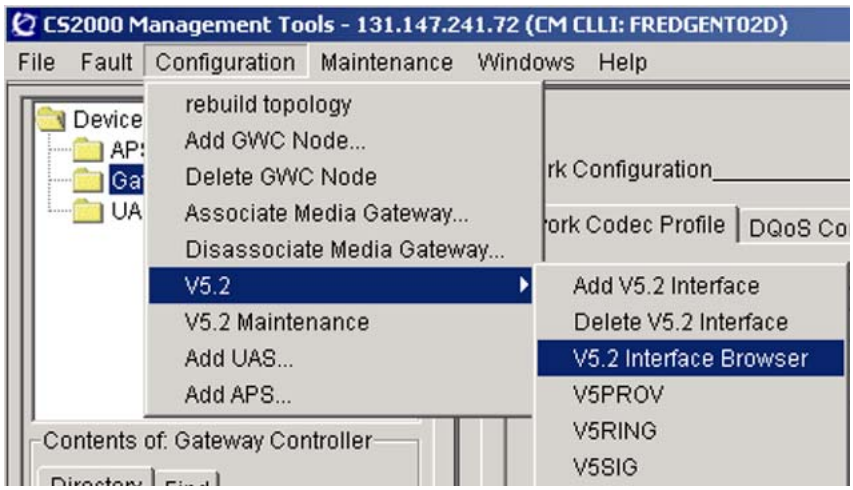
A V5.2 interface must be provisioned using the CS 2000 GWC Manager.

Action

Step	Action

At the CS 2000 GWC Manager client

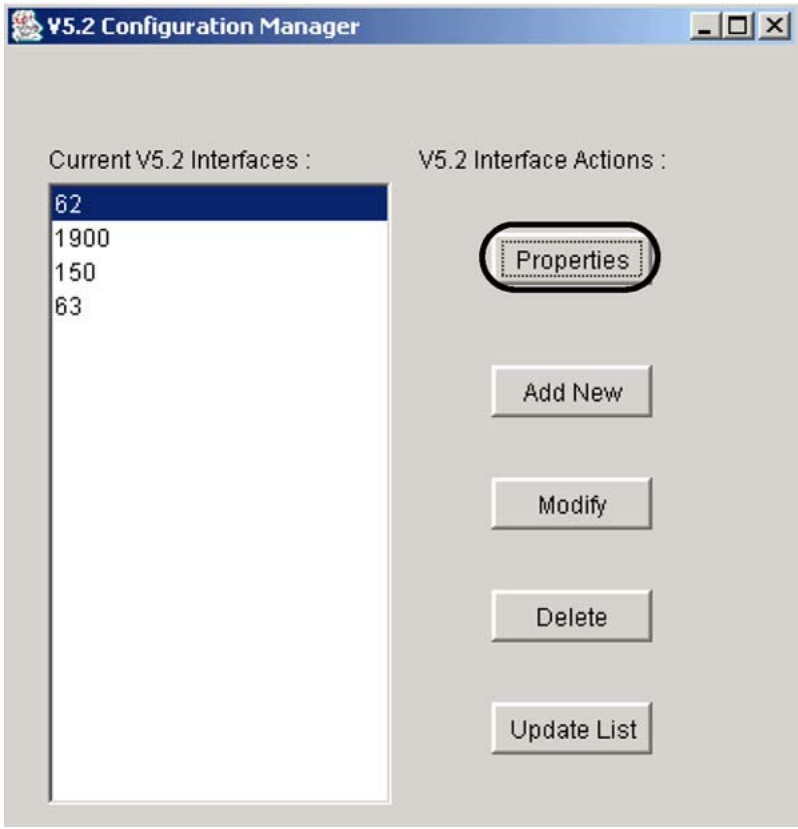
1 Click on the **Configuration** menu, select **V5.2**, and then **V5.2 Interface Browser**.



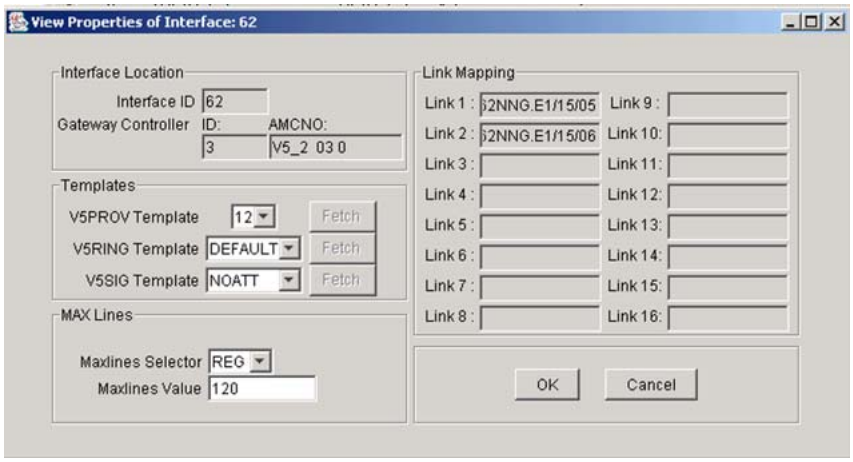
2 At the V5.2 Configuration Manger dialog box select the interface you wish to review.

Your selection is highlighted.

3 Click the **Properties** button.



4 Review the fields of the properties box. For a description of the various fields, see table "V5.2 interface properties" (page 423).



5 The procedure is complete.

—End—

V5.2 interface properties

Field	Description
Interface ID	The V5.2 interface identifier tuple is a unique number between 0 and 16777215. It is unique between the local exchange and the access node.
Gateway Controller ID	Type the GWC number in the range of 1-255.
AMCNO	AN (access node) location, a unique line identifier.
V5PROV Template	The V5PROV provisioning profile selected for this interface.
V5RING Template	The V5RING provisioning profile selected for this interface.
V5SIG Template	The V5SIG provisioning profile selected for this interface.
MAX Lines Selector	REG (regular) lines or PRIM (primary) lines; only REG lines are supported.
MAX Lines	Maximum number of lines assigned to the interface from 1 to 2048, based on the capacity of the AN.
Link Mapping	V5 link-to-carrier mapping fields (up to 16 for each interface)
	Carrier links must follow the naming convention for the protocol that the Gateway they are associated with is running. For the naming convention used for various carriers and their applicable supported protocols, see procedure "Add carriers to a GWC" (page 186).

View a V5 interface provisioning template

Purpose of this procedure

Use this procedure to view the details about a datafilled V5 interface provisioning template.

When to use this procedure

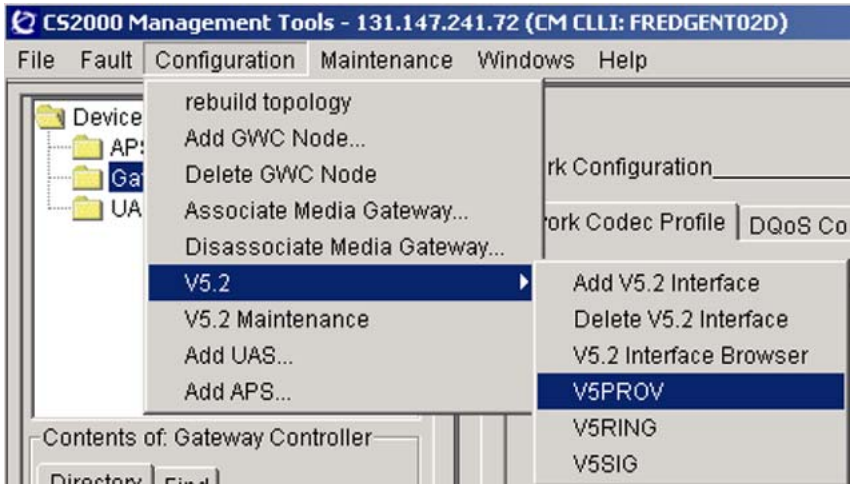
Use this procedure when you need to review certain provisioning template details are needed for review.

Prerequisites and guidelines

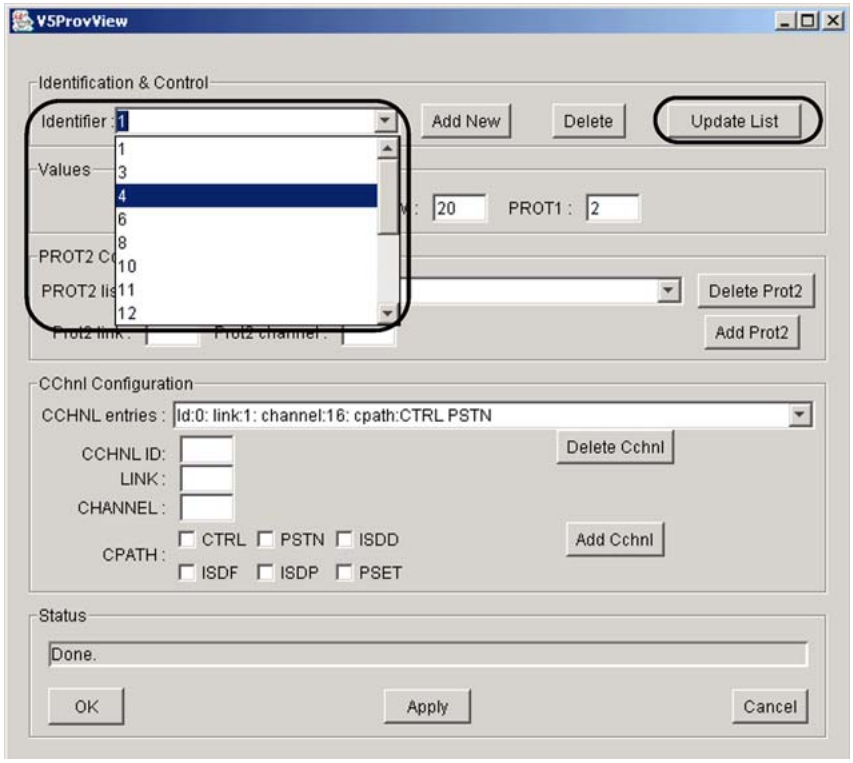
There are no prerequisites or guidelines for this procedure.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	Click the **Configuration** menu, select **V5.2**, and then **V5PROV**.



2	Use the following provisioning view to select a provisioning template to review by selecting its Identifier. If you cannot find the Identifier you are expecting, click the **Update List** button.



3 Use table "V5 Interface provisioning template" (page 425) to determine the meaning and value of the field entries.

4 Click **OK** or **Cancel** when you are finished.

5 The procedure is complete.

—End—

V5 Interface provisioning template

Field	Description
Identifier:	V5 provisioning variant ID. The operating company defines the different V5 provisioning ID; use a numeric value from 0 to 128.
TBCC	Two bearer channel control timers. Set the timers to between 500 and 1500 ms; use a numeric value between 5 and 15 (5 =500 ms).
LKMJALM	Link manager alarm. Threshold level of V5.2 link failure before the link triggers a major alarm. The value is the percentage of fault links that must be exceeded to generate the alarm; use a numeric value between 0 and 100.
PROT1	Protection link 1. Secondary link protection group 1 switches to this link if the primary C-channel link fails; use a numeric value from 1 to 16.

Field	Description
PROT2 list:	Protection link 2. Standby link and C-channel for protection group 2. First entry is the link, the second entry is the channel.
Prot2 link:	Link for standby link for protection group 2
Prot2 channel:	Channel for standby link for protection group 2.
CCHNL entries:	C-channel link information; a maximum of 43 multiples of fields: CCHNL ID, LINK, CHANNEL, CPATH.
CCHNL ID:	Control channel ID number. An internal C-channel ID number; a numeric value, from 0 to 9, of provisioning channel IDs.
LINK:	The V5.2 link number that the C-channel resides on; a numeric value between 1 and 16.
CHANNEL	C-channel number or physical channel that the C-channel is on. Table control only accepts channel 16 for CNTRL. Use channel 31 after channels 15 and 16 have been used.
CPATH	Type of C-path control messages carried on the C-channel.
CTRL	Control channel messages.
PSTN	Public switched telephone network control messages.
ISDD	ISDN D-channel control messages; not currently supported.
ISDF	ISDN F-channel control messages; not currently supported.
ISDP	ISDN-P-channel control messages; not currently supported.
PSET	Proprietary phone signaling (EBS); not currently supported.

View V5 ring template

Purpose of this procedure

Use this procedure to view details about an existing V5 ring template.

When to use this procedure

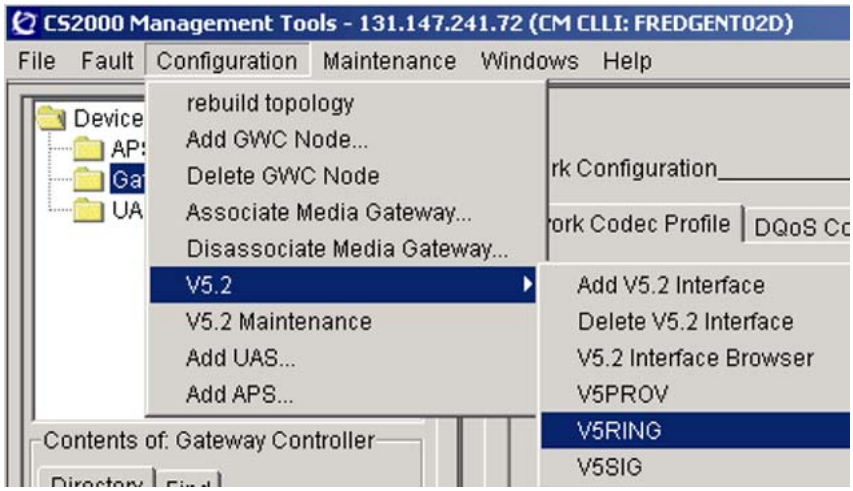
Use this procedure whenever ring template details need to be for reviewed.

Prerequisites and guidelines

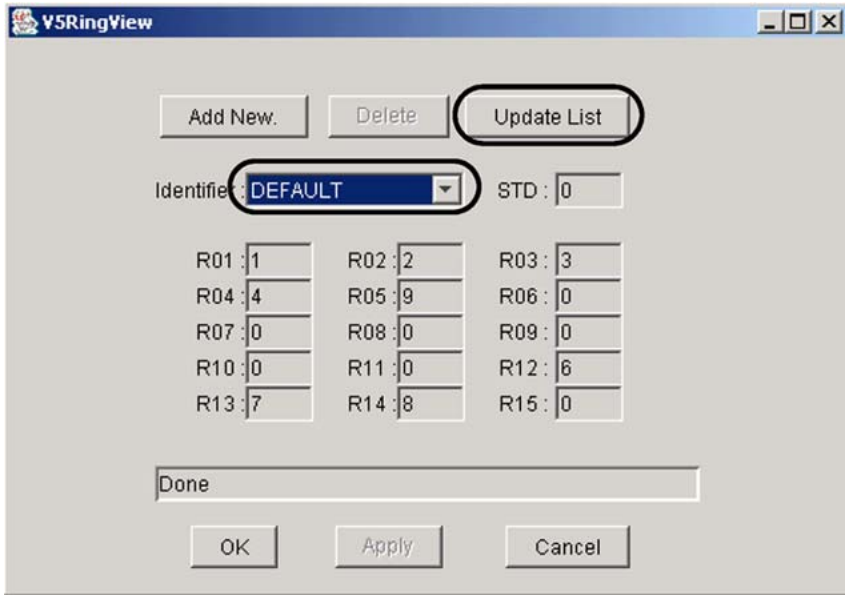
There are no prerequisites or guidelines for this procedure.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	Click the **Configuration** menu, select **V5.2**, and then **V5RING**.



2	At the V5RingView dialog box, select a ring template Identifier to review using the drop-down menu. If the identifier is not available, click the **Update List** button.



3 Use table "V5.2 ring template attributes" (page 428) to review the fields, terms and the descriptions.

4 Click **OK** or **Cancel** when you are done.

5 The procedure is complete.

—End—

V5.2 ring template attributes

Field	Description
Identifier:	The V5 ring mapping ID. The operating company defines the different V5 ring mapping IDs; use an alphanumeric string up to16 characters that uniquely identifies the ring character to ring type mapping set.
STD	Standard Ring; a number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 0.
R01	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 1. XPM Ring Char 1 is commonly used for Distinctive Ringing 1.
R02	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 2. XPM Ring Char 2 is commonly used for Distinctive Ringing 2.
R03	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 3. XPM Ring Char 3 is commonly used for Distinctive Ringing 3.

Field	Description
R04	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 4. XPM Ring Char 4 is commonly used for Distinctive Ringing 4 and Automatic Recall.
R05	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 5. XPM Ring Char 5 is commonly used for Distinctive Ringing 5.
R06	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 6. No known service matching.
R07	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 7. No known service matching.
R08	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 8. No known service matching.
R09	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 9. No known service matching.
R10	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 10. No known service matching.
R11	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 11. No known service matching.
R12	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 12. Ring Char 12 is most commonly used for Distinctive Ringing 6 and Teen Service SDN1.
R13	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 13. Ring Char 13 is most commonly used for Distinctive Ringing 7 and Teen Service SDN2.
R14	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 04. Ring Char 14 is most commonly used for Distinctive Ringing 8 and Teen Service SDN3.
R15	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 15. No known service matching.

View a V5 signaling template

Purpose of this procedure

Use this procedure to view the V5SIG table signaling attributes.

When to use this procedure

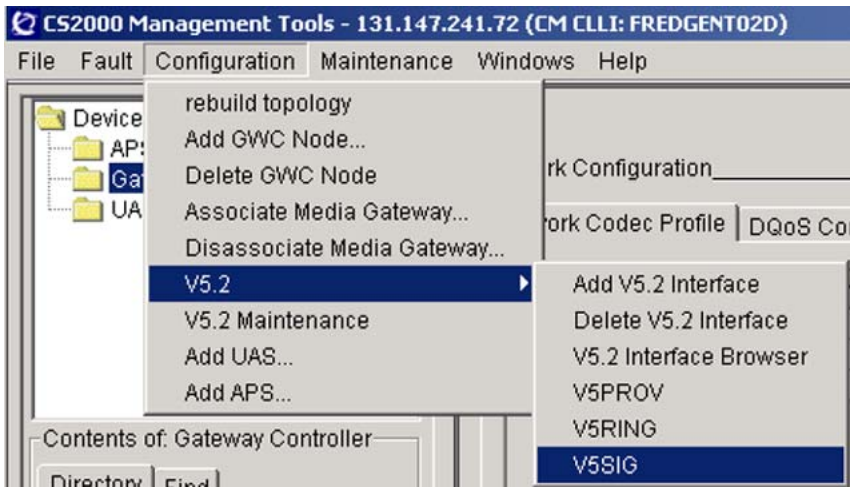
Use this procedure when you need to view certain signaling template details.

Prerequisites and guidelines

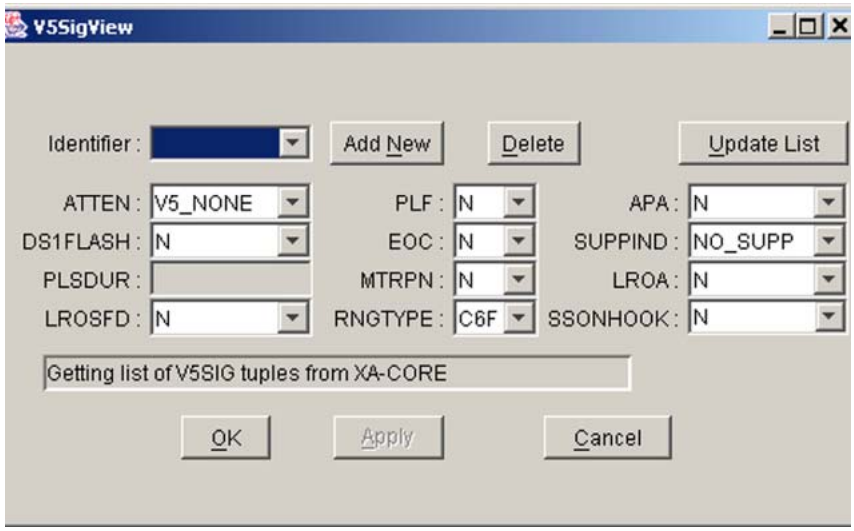
There are no prerequisites or guidelines for this procedure.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	Click the **Configuration** menu, select **V5.2**, and then **V5.2SIG**.



2	Select the signaling template attributes to review using the Identifier drop-down menu. For the field definitions, see table "V5.2 signaling template attributes" (page 431).



3 Click **OK** or **Cancel** when you are finished reviewing the sig template.

4 The procedure is complete.

—End—

V5.2 signaling template attributes

Field	Description
Identifier	The V5 sig profile ID. The operating company can define up to 127 different V5 signaling profile IDs; use an alphanumeric string of up to16 characters that uniquely identifies the ring character to ring type mapping set.
ATTEN:	Line attenuation field; possible values are: • V5_NONE-no additional attenuation is inserted • V5-DIGITAL-not currently supported • V5-ANALOG-attenuation is added at the access node (AN) line card.
PLF:	Parked Line Feed fictionalizing; Enter Y if the battery signal should be sent from the local exchange to an access node when the line enters the lock or blocked state. The reduced battery signal allows the access node to save power. The default is N (No).
APA:	Accelerated Port Alignment: Enter Y to allow the alignment of port states without supply block and unblock messages for each port. Default is N (No).
DS1FLASH:	Digit 1 register recall. Enter Y to use digit 1 to represent recall during an active call (that is, not during digit collection). The default is N (No).

Field	Description
EOC:	End of Call Signaling. Enter Y to use a signaling sequence that sends a V5.2 'pulse signal no battery' message from the local exchange to the access node. This message indicates to the subscriber that the call has ended or failed. The end of call signaling feature provides the CPE with an indication of call completion. The default value is N (No).
SUPPIND:	Field Suppression Indication; possible values are: • NO_SUPP - No suppression is allowed. • LE_SUPP - Only a new message generated from the local exchange (LE) shall terminate the pulses being sent out from a user port. An example of a condition involving LE_SUPP would be to initiate a disconnect signal before pulsing has completed. • TE_SUPP - Only a new condition from terminal endpoint (TE) shall terminate the pulses being sent out from a user port. An example involving TE_SUPP would be to perform an on-hook before pulsing has completed. • LE_TE_SUPP - Either messages from the LE or new conditions from TE shall terminate the pulses being sent out from a user port.
PLSDUR:	Pulse Duration; When available for datafill, the value of this field reflects the length of the pulse defined in the Access Node. Enter a value between 0 and 31. The default value is 1.
MTRPN:	Meter Pulse Notification; not currently supported. If the MTRPN field of V5SIG datafilled to Y, pulse notification will be enabled. Datafilling this field to FALSE will indicate that the V5.2 interface will not enable pulse notification.
LROA:	Line Reversal On Answer. Enter Y to indicate that each V5.2 virtual line in the office receives line reversal on seizure and forward disconnect. Enter N to indicate that V5.2 virtual lines in the office do not receive line reversal on seizure and forward disconnect. (If the entry is N, operating company personnel cannot provision fields LROSFD or RNGTYPE on a V5.2 line.) Enter CHKLN to indicate that V5.2 virtual lines in the office receive line reversal on answer. The line reversal depends on the LROA line option on each line.
SSONHOOK	Signal SS: On-hook message flag; Enter a value of Y to allow or N to disallow.

Field	Description
LROSFD:	If the entry in the field LROA is Y or CHKLN, enter data for field LROSFD to indicate if the office requires line reversal on seizure and forward disconnect signal. Enter Y to indicate all V5.2 virtual lines in the office have line reversal. Enter N to indicated all V5.2 virtual lines in the office do not have line reversal.
RNGTYPE	Ring Type; possible values for V5SIG table field RNGTYPE are: • C3C - The default ring type • C3D - Japanese ringing type • C6F - Portuguese ringing type

View V5.2 carrier and interface endpoint mapping

Purpose of this procedure

Use this procedure to view carrier-to-interface endpoint mapping information associated with a selected carrier or V5.2 interface.

When to use this procedure

Use this procedure when you need to determine the following information:

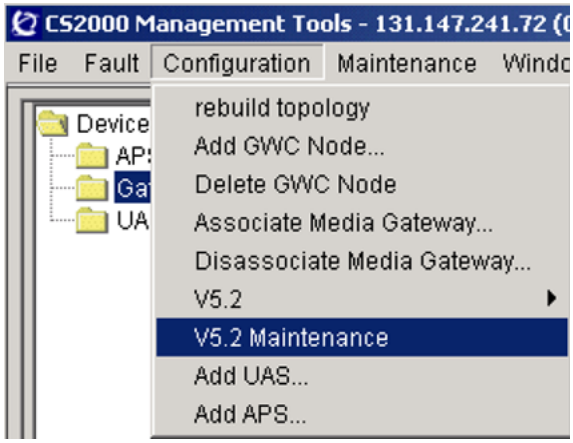
- the carriers associated with a specific V5.2 interface
- the link IDs used to associate a carrier to an interface
- the V5.2 interface terminating on a particular gateway.

Prerequisites and guidelines

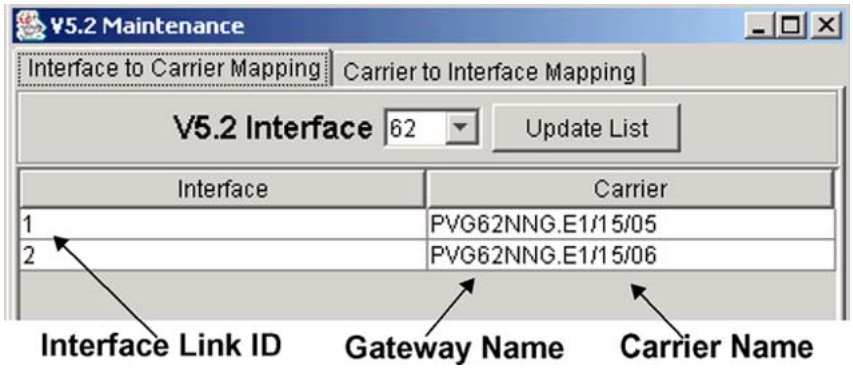
There are no prerequisites or guidelines for this procedure.

Action

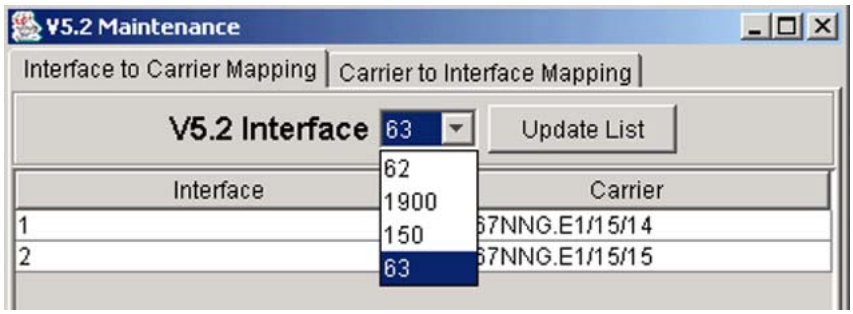
Step	Action
	At the CS 2000 GWC Manager client
1	Click the **Configuration** menu and select **V5.2 Maintenance**.



The system responds by collecting information about all V5.2 interfaces in the database and presenting a maintenance panel to display them.



2 Click the V5.2 Interface drop-down menu to select an interface.



Carrier links follow the naming convention for the protocol that the gateway they are associated with is running. For the naming convention used for different carriers and their supported protocols, see procedure "Add carriers to a GWC" (page 186).

3 At the V5.2 Maintenance dialog box, perform the following steps:

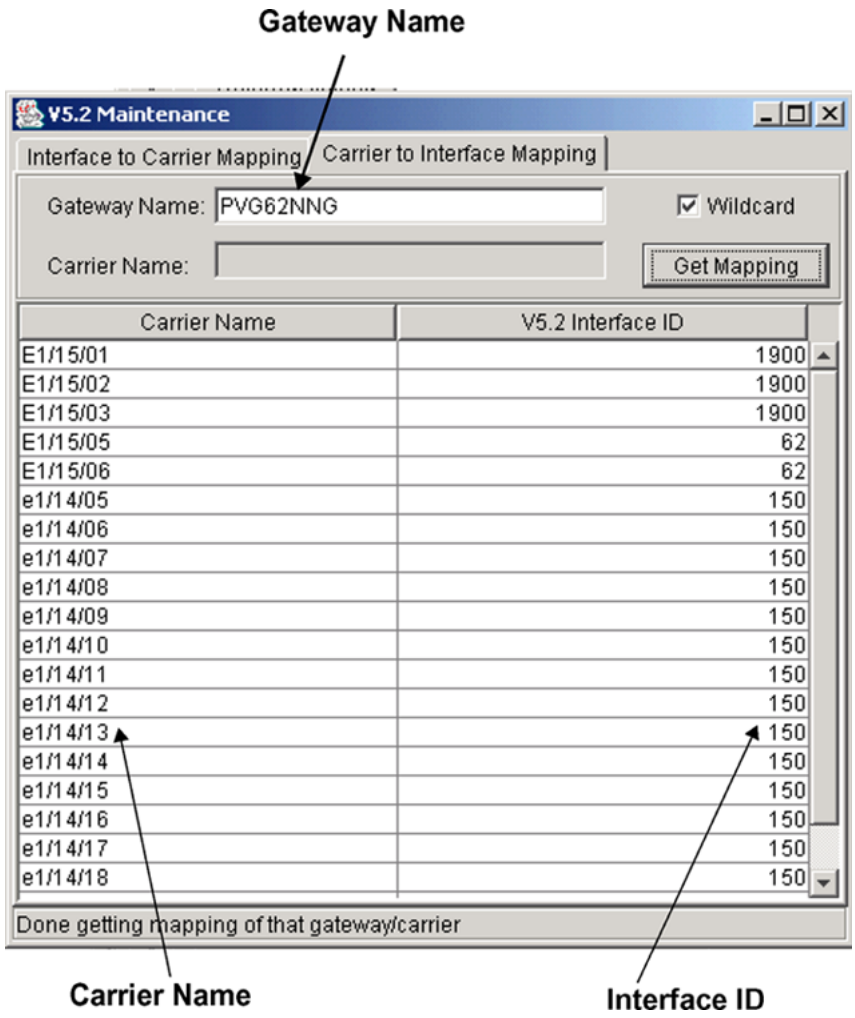
a. Click the **Carrier to Interface Mapping** tab to view the V5.2 Interface ID-to-Carrier Name mapping.

b. In the Gateway Name field, type the name of a gateway.

c. Select the Wildcard check box.

The wildcard option allows the system to examine all endpoints on a given gateway. With this option selected, the system then displays any endpoints associated with a V5 interface.

d. Click the **Get Mapping** button.



Carrier links follow the naming convention for the protocol that the Gateway they are associated with is running. For the naming convention used for different carriers and their supported protocols, see procedure "Add carriers to a GWC" (page 186).

4 The procedure is complete.

—End—

Modify V5.2 interfaces

Purpose of this procedure

Use this procedure to modify the attributes of an existing V5.2 interface.

When to use this procedure

Use this procedure whenever you need to modify an existing V5.2 interface.

Prerequisites and guidelines

The following prerequisites must be implemented before modifying V5.2 interfaces:

- The interface must be deactivated on the Core using the maintenance level of the MAP before making the following modifications:
  - changing the Interface ID
  - changing V5PROV or V5RING templates
- The link must be busied on the Core using the maintenance level of the MAP before making the following modifications:
  - changing or deleting the mapping of a link

Note the following guidelines applicable to this procedure:

- the interface can stay activated on the Core when the following modifications are made:
  - changing V5SIG templates
  - adding a link
- the following interface options cannot be modified and require a new interface to be provisioned:
  - Maxlines (you cannot change the Access Node size of an existing interface)
  - GWC-ID

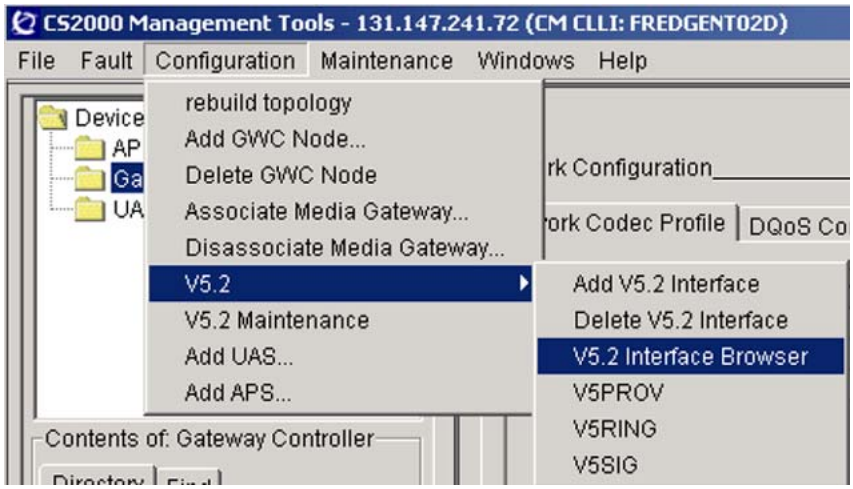
CAUTION
When the interface is deactivated, it brings down all V5.2 line services on this interface.

Action

Step	Action

At the CS 2000 GWC Manager client

1 Click on the **Configuration** menu, select **V5.2**, then **V5.2 Interface Browser**.

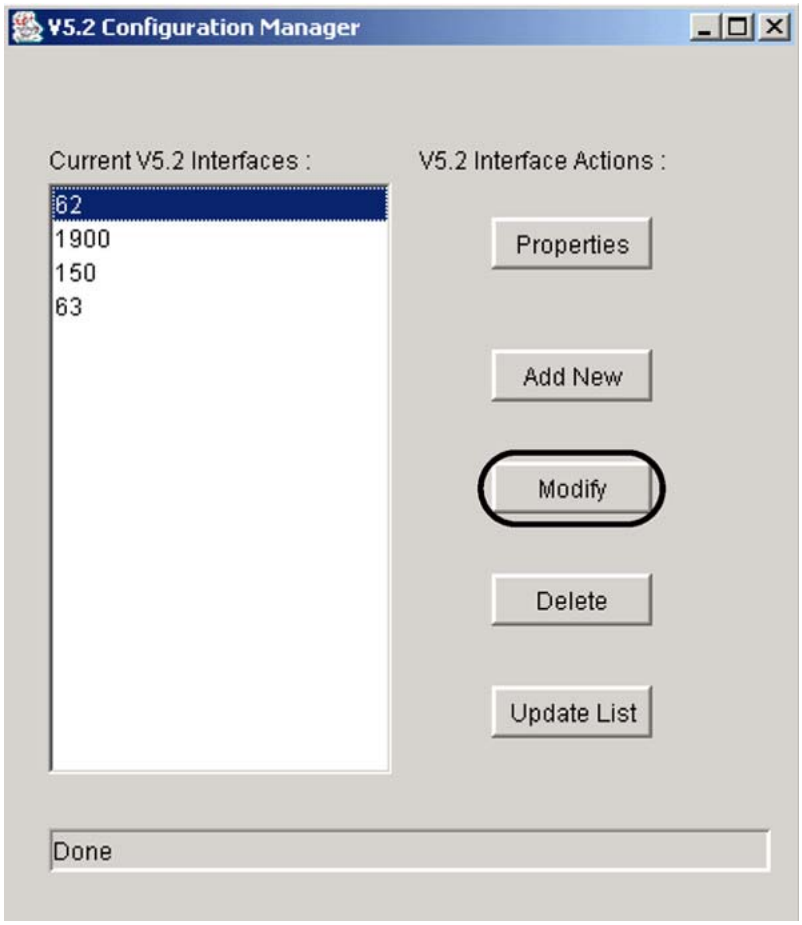


2 At the V5.2 Configuration Manager dialog box, select a V5.2 Interface from the list of available interfaces.

Your selection is highlighted.

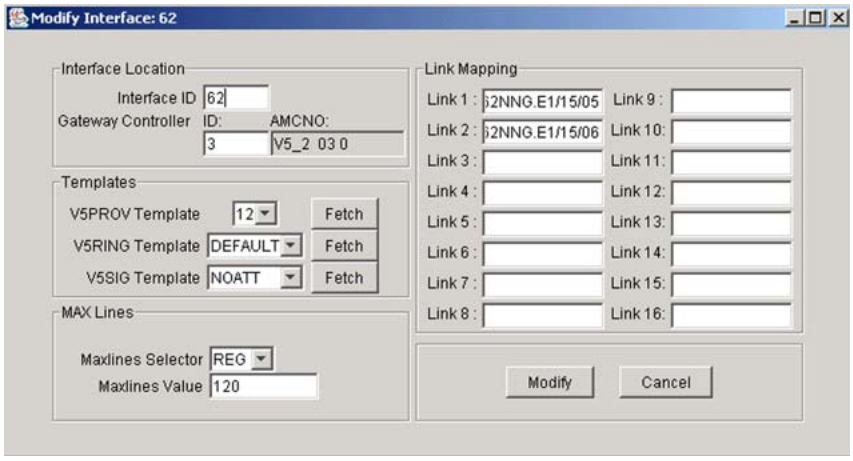
If an interface that was added recently is not shown in the list, click the **Update List** button to force the configuration manager to refresh the list of current interfaces.

3 Click the **Modify** button.



4 Change the attributes in each of the following fields as needed.

Use table "V5.2 interface properties" (page 440) to assist you when changing attribute values.



5 Click the **Modify** button when you are finished.

6 Click **OK** at the Modify Confirmation box.

7 The procedure is complete.

—End—

V5.2 interface properties

Field	Description
Interface ID	The V5.2 interface identifier tuple is a unique number between 0 and 16777215. It is unique between the local exchange and the access node. Up to 53 interfaces can be configured per GWC node.
Gateway Controller ID	Type the GWC number in the range of 1-255.
AMCNO	AN (access node) location, a unique line identifier.
V5PROV Template	Click the drop-down menu button to obtain a list of up to 127 definable provisioning profiles.
V5RING Template	Click the Fetch button to obtain a list of available ringing profiles (up to 127 definable profiles) or select the Default template.
V5SIG Template	Click the Fetch button to obtain a list of available signaling profiles (up to 127 definable profiles). Do not use the Default template as this will generate error messages from the Core.
MAX Lines Selector	REG (regular) lines or PRIM (primary) lines; only REG lines are supported.
MAX Lines	Maximum number of lines assigned to the interface from 1 to 2048, based on the capacity of the AN.
Link Mapping	V5 link-to-carrier mapping fields (up to 16 for each interface) Carrier links must follow Carrier links must follow the naming convention for the protocol of the Gateway with which they are associated. For the naming convention used for various carriers and their applicable supported protocols, see procedure "Add carriers to a GWC" (page 186). Carrier link names can use one of the following formats: • <gateway_name>.E1_<xxxx> where **<gateway_name>** is the provisioned name of a Media Gateway 7480/15000 gateway **<xxxx>** is a combined shelf slot and E1 number • <gateway_name>.E1/<yy>/<zz> where **<gateway_name>** is the provisioned name of a suitable gateway **<yy>** is a shelf slot number

Field	Description
	<zz> is an E1 number

Modify a V5 interface provisioning template

Purpose of this procedure

Use this procedure to make changes to the V5 interface provisioning template datafill.

When to use this procedure

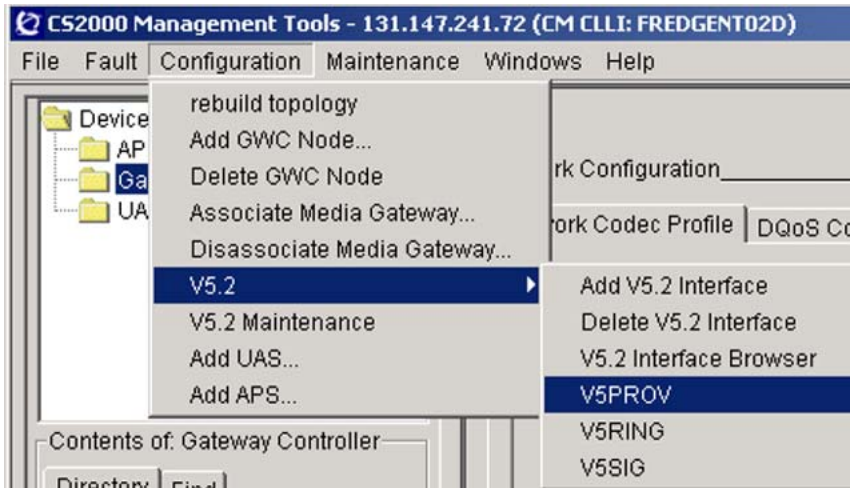
Use this procedure when you need to modify certain provisioning template datafill.

Prerequisites and guidelines

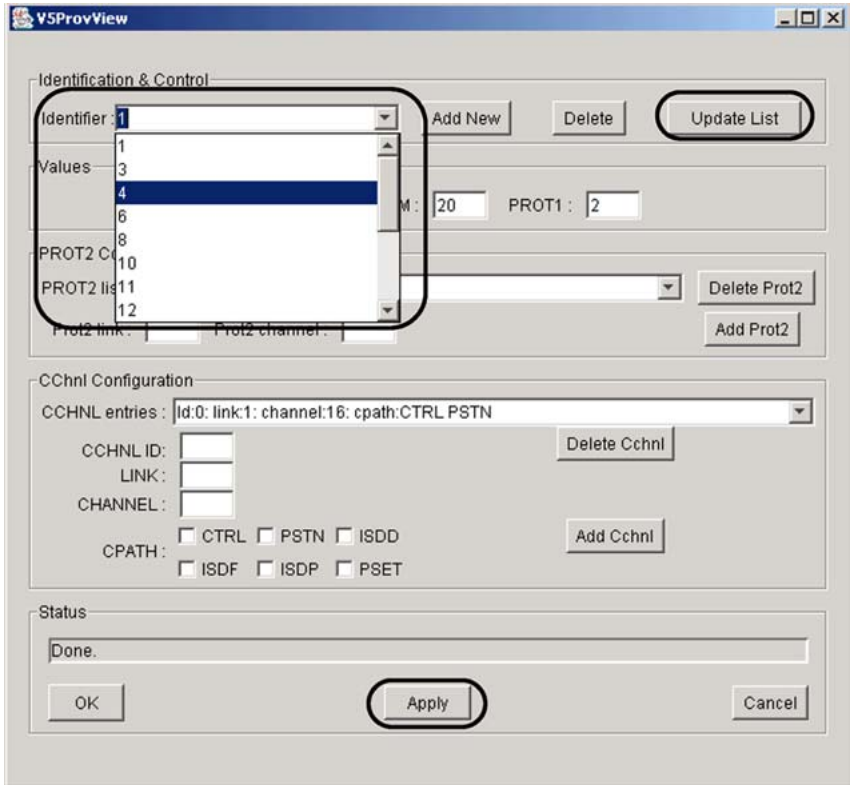
You cannot modify a provisioning template that is currently being used by a V5.2 interface. If necessary, check all existing V5.2 interfaces and modify them to ensure they are not referencing the template being modified. See procedure "View V5.2 interface properties" (page 421) to perform this task.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	Click the **Configuration** menu, select **V5.2**, and then **V5PROV**.



2	Select a provisioning template to modify by choosing an Identifier using the drop-down menu. If you cannot find the Identifier you need, click the **Update List** button.



3 Use table "V5 interface provisioning template" (page 444) to review and modify the field entries.

Note the following specific instructions:

- To delete an existing Prot2 link and channel, select the link and channel numbers from the PROT2 drop-down list and click the **Delete Prot2** button.
- To add a new Prot2 link and channel, type the link and channel numbers in the Prot2 link and Prot2 channel data fields and click the **Add Prot2** button.

  For a protected V5.2 interface with protection group 2, four C-channels are needed: primary link and secondary link, time slot 16, and two additional C-channels running active and standby c-path for V5 PSTN protocol.
- To delete a C-channel configuration entry, select the entry from the CCHNL entries drop-down list and click the **Delete Cchnl** button.
- To add a new C-channel configuration entry, type the CCHNL ID, LINK, CHANNEL entries the appropriate data fields, select the appropriate CPATH check boxes and click the **Add Cchnl** button.

4 Click **Apply** when you are finished making changes.

5 Click **OK** to close the V5 provisioning view window.

6 The procedure is complete.

—End—

V5 interface provisioning template

Field	Description
Identifier:	V5 provisioning variant ID. The operating company defines the different V5 provisioning IDs; use a numeric value from 0 to 127.
TBCC	Two bearer channel control timers. Set the timers to between 500 and 1500 ms; use a numeric value between 5 and 15 (5 =500 ms).
LKMJALM	Link manager alarm: threshold level of V5.2 link failure before the link triggers a major alarm. The value is the percentage of fault links that must be exceeded to generate the alarm; use a numeric value between 0 and 100.
PROT1	Protection link 1. Secondary link protection group 1 switches to this link if the primary C-channel link fails; use a numeric value from 1 to 16. For a protected V5.2 interface with protection group 1, two C-channels are needed (primary link and secondary link, time slot 16). For an unprotected V5.2 interface only one C-channel is needed (primary link, time slot 16).
Add Prot2 Delete Prot2 Buttons	Click the **Add Prot2** button to add protection group 2. Click the **Delete Prot2** button to remove it. For a protected V5.2 interface with protection group 2, four C-channels are needed: primary link and secondary link, time slot 16, and two additional C-channels running active and standby c-path for V5 PSTN protocol.
PROT2 list:	Protection link 2. Standby link and C-channel for protection group 2. First entry is the link, the second entry is the channel.
Prot2 link:	Link for standby link for protection group 2.
Prot2 channel:	Channel for standby link for protection group 2.
CCHNL entries:	C-channel link information; a maximum of 43 multiples of fields: CCHNL ID, LINK, CHANNEL, CPATH.
CCHNL ID:	Control channel ID number. An internal C-channel ID number; a numeric value from 0 to 9 of provisioning channel IDs.
LINK:	The V5.2 link number that the C-channel resides on; a numeric value between 1 and 16.
CHANNEL	C-channel number or physical channel that the C-channel is on. Table control only accepts channel 16 for CNTRL. Use channel 31 after channels 15 and 16 have been used.
CPATH	Type of C-path control messages carried on the C-channel.

Field	Description
CTRL	Control channel messages.
PSTN	Public switched telephone network control messages.
ISDD	ISDN D-channel control messages; not currently supported.
ISDF	ISDN F-channel control messages; not currently supported.
ISDP	ISDN-P-channel control messages; not currently supported.
PSET	Proprietary phone signaling (EBS); not currently supported.

Modify a V5 ring template

Purpose of this procedure

Use this procedure to modify V5 ring templates for the V5RING table which contains information relating to mappings between ringing cadences and ringing types. Table V5RING is referenced by the main CM table GPPTRNSL.

When to use this procedure

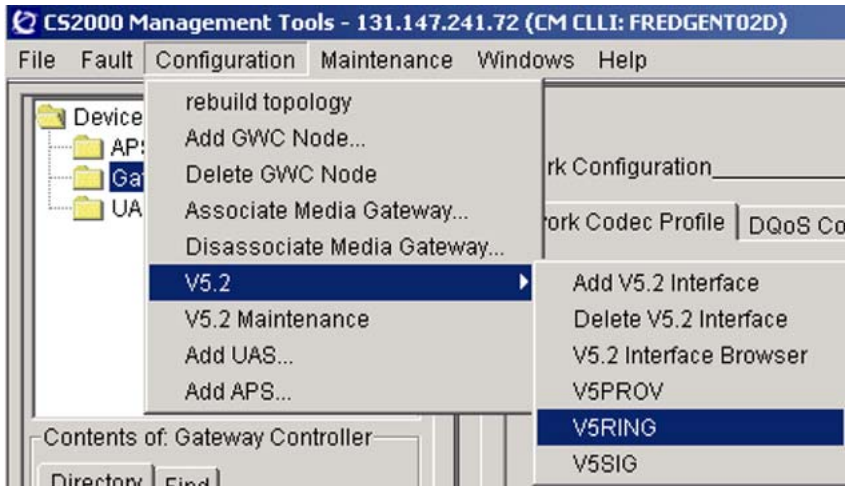
Use this procedure when you need to modify the datafill for a selected template.

Prerequisites and guidelines

No V5.2 interface can be referencing this template while you are making changes. Check all existing interfaces and make the necessary changes to ensure they are not referencing the template you intend to modify. See procedure"View V5.2 interface properties" (page 421).

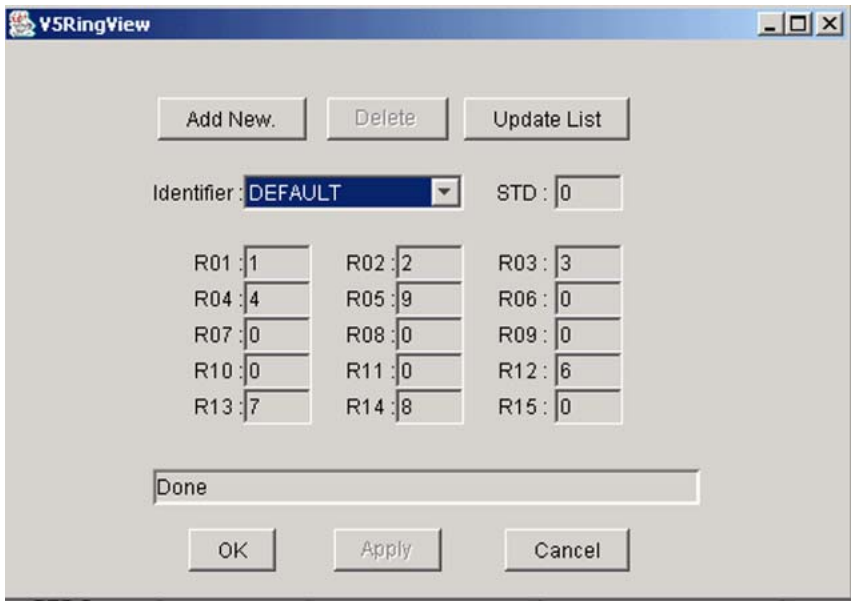
Action

Step	Action
	At the CS 2000 GWC Manager client
1	Click the **Configuration** menu, select **V5.2**, and then **V5RING**.



The system displays the V5RingView dialog box.

2	Use table "V5.2 ring template attributes" (page 447) to modify the ring attributes for a V5.2 ring template.



3 Click **Apply** when you are finished modifying the ring template.

4 Click **OK** to close the V5 ring view window.

5 The procedure is complete.

—End—

V5.2 ring template attributes

Field	Description
Identifier	The V5 ring mapping ID. The operating company defines the different V5 ring mapping IDs; use an alphanumeric string up to16 characters that uniquely identifies the ring character to ring type mapping set.
STD	Standard Ring; a number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 0.
R01	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 1. XPM Ring Char 1 is commonly used for Distinctive Ringing 1.
R02	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 2. XPM Ring Char 2 is commonly used for Distinctive Ringing 2.
R03	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 3. XPM Ring Char 3 is commonly used for Distinctive Ringing 3.

Field	Description
R04	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 4. XPM Ring Char 4 is commonly used for Distinctive Ringing 4 and Automatic Recall.
R05	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 5. XPM Ring Char 5 is commonly used for Distinctive Ringing 5.
R06	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 6. No known service matching.
R07	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 7. No known service matching.
R08	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 8. No known service matching.
R09	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 9. No known service matching.
R10	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 10. No known service matching.
R11	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 11. No known service matching.
R12	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 12. Ring Char 12 is most commonly used for Distinctive Ringing 6 and Teen Service SDN1.
R13	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 13. Ring Char 13 is most commonly used for Distinctive Ringing 7 and Teen Service SDN2.
R14	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 04. Ring Char 14 is most commonly used for Distinctive Ringing 8 and Teen Service SDN3.
R15	A number (0-31) representing the V5 cadenced-ringing type to be mapped to XPM Ring Char 15. No known service matching.

Modify a V5 signaling template

Purpose of this procedure

Use this procedure to modify an existing datafilled interface signaling template.

When to use this procedure

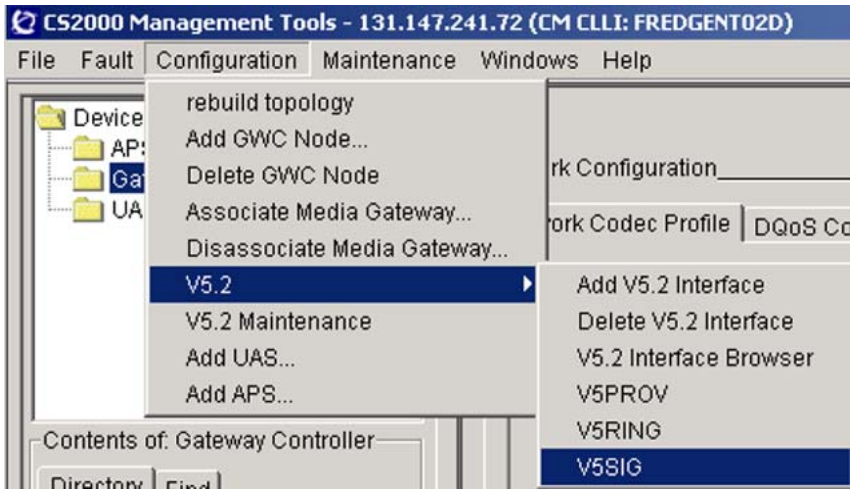
Use this procedure when you wish to change the datafill for an existing interface signaling template.

Prerequisites and guidelines

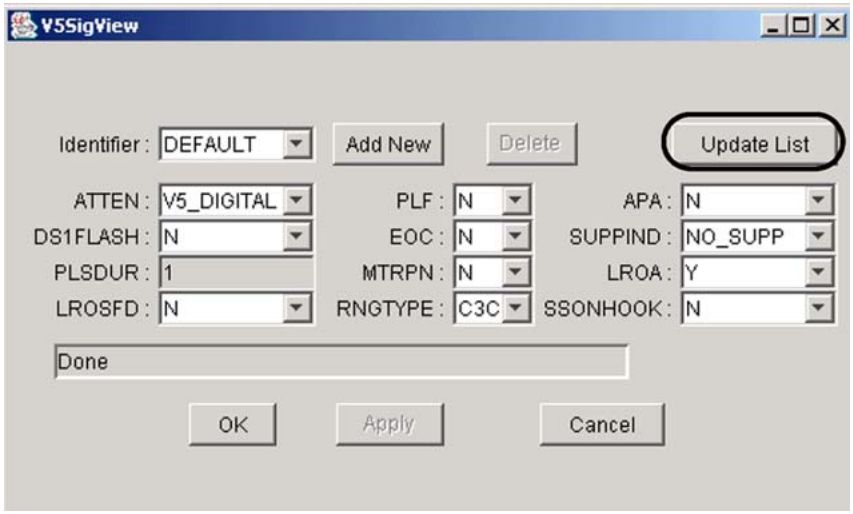
Ensure that the signaling template to be removed is not in use by a V5.2 interface. See the procedure "View V5.2 interface properties" (page 421).

Action

Step	Action
	At the CS 2000 GWC Manager client
1	Click the **Configuration** menu, select **V5.2**, and then **V5.2SIG**.



2	Select a template identifier to modify using the Identifier drop-down menu. If the identifier is not available, click the **Update List** button.



3 For information about modifying the datafill for all signaling attributes on a selected V5.2 interface, see table "V5.2 signaling template attributes" (page 450).

4 Click **Apply** when you are finished modifying the sig template.

5 Click **OK** to close the V5 sig view window.

6 The procedure is complete.

—End—

V5.2 signaling template attributes

Field	Description
Identifier	The V5 sig profile ID. The operating company can define up to 127 different V5 signaling profile IDs; use an alphanumeric string of up to 16 characters that uniquely identifies the ring character to ring type mapping set.
ATTEN:	Line attenuation field; possible values are: • V5_NONE-no additional attenuation is inserted • V5-DIGITAL-not currently supported • V5-ANALOG-attenuation is added at the AN line card
PLF:	Parked Line Feed fictionalizing; Enter Y if the battery signal should be sent from the local exchange to an access node when the line enters the lock or blocked state. The reduced battery signal allows the access node to save power. The default is N (No).

Field	Description
APA:	Accelerated Port Alignment: Enter Y to allow the alignment of port states without supply block and unblock messages for each port. The default is N (No).
DS1FLASH:	Digit 1 register recall. Enter Y to use digit 1 to represent recall during an active call (that is, not during digit collection). The default is N (No).
EOC:	End of Call Signaling. Enter Y to use a signaling sequence that sends a V5.2 'pulse signal no battery' message from the local exchange to the access node. This message indicates to the subscriber that the call has ended or failed. The end of call signaling feature provides the CPE with an indication of call completion. The default value is N (No).
SUPPIND:	Field Suppression Indication; possible values are: • NO_SUPP - No suppression is allowed. • LE_SUPP - Only a new message generated from the local exchange (LE) shall terminate the pulses being sent out from a user port. An example of a condition involving LE_SUPP would be to initiate a disconnect signal before pulsing has completed. • TE_SUPP - Only a new condition from terminal endpoint (TE) shall terminate the pulses being sent out from a user port. An example involving TE_SUPP would be to perform an on-hook before pulsing has completed. • LE_TE_SUPP - Either messages from the LE or new conditions from TE shall terminate the pulses being sent out from a user port.
PLSDUR:	Pulse Duration; When available for datafill, the value of this field reflects the length of the pulse defined in the Access Node. Enter a value between 0 and 31. The default value is 1.
MTRPN:	Meter Pulse Notification; not currently supported. If the MTRPN field of V5SIG datafilled to Y, pulse notification will be enabled. Datafilling this field to FALSE will indicate that the V5.2 interface will not enable pulse notification.
LROA:	Line Reversal On Answer. Enter Y to indicate that each V5.2 virtual line in the office receives line reversal on seizure and forward disconnect. Enter N to indicate that V5.2 virtual lines in the office do not receive line reversal on seizure and forward disconnect. (If the entry is N, operating company personnel cannot provision fields LROSFD or RNGTYPE on a V5.2 line.) Enter CHKLN to indicate that V5.2 virtual lines in the office receive line reversal on answer. The line reversal depends on the LROA line option on each line.
SSONHOOK	Signal SS: On-hook message flag; Enter a value of Y to allow or N to disallow.

Field	Description
LROSFD:	If the entry in the field LROA is Y or CHKLN, enter data for field LROSFD to indicate if the office requires line reversal on seizure and forward disconnect signal. Enter Y to indicate all V5.2 virtual lines in the office have line reversal. Enter N to indicated all V5.2 virtual lines in the office do not have line reversal.
RNGTYPE	Ring Type; possible values for field RNGTYPE are: • C3C - The default ring type • C3D - Japanese ringing type • C6F - Portuguese ringing type

Delete V5.2 interfaces

Purpose of this procedure

Use this procedure to decommission a V5.2 interface.

When to use this procedure

Use this procedure when you wish to delete an existing V5.2 interface that is no longer in use.

Prerequisites and guidelines

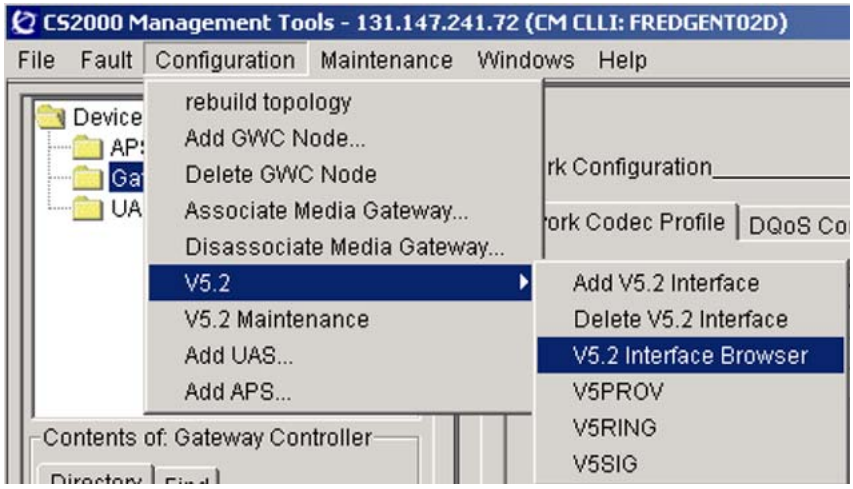
The following prerequisites must be implemented before removing V5.2 interfaces:

- lines associated with the interface must be deleted
- all lines referenced on the interface must be de-provisioned
- the interface must be deactivated in the Core using the maintenance level of the MAP

CAUTION
This procedure brings down all V5.2 line services on the interface.

Action

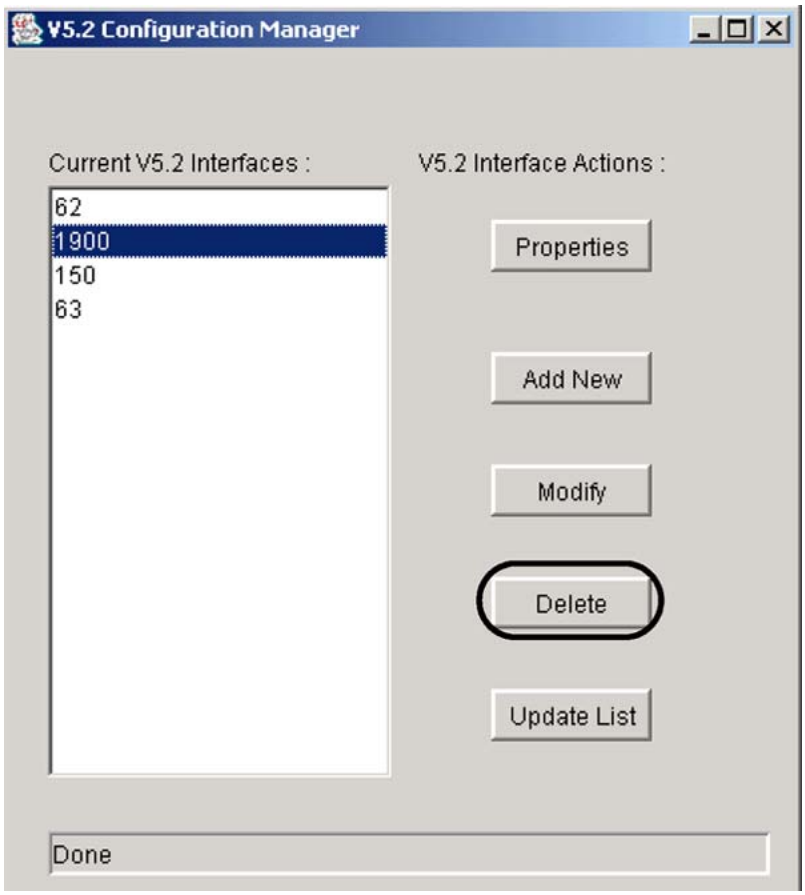
Step	Action
	At the CS 2000 GWC Manager client
1	Click on the **Configuration** menu and select **V5.2** and then **V5.2 Interface Browser**.



2 At the V5.2 Configuration Manger dialog box, select the interface you wish to delete.

Your selection is highlighted.

3 Click the **Delete** button.



4 Click **OK** at the Delete Confirmation box.

5 The procedure is complete.

—End—

Delete a V5 interface provisioning template

Purpose of this procedure

Use this procedure to remove a datafilled V5 interface provisioning template.

When to use this procedure

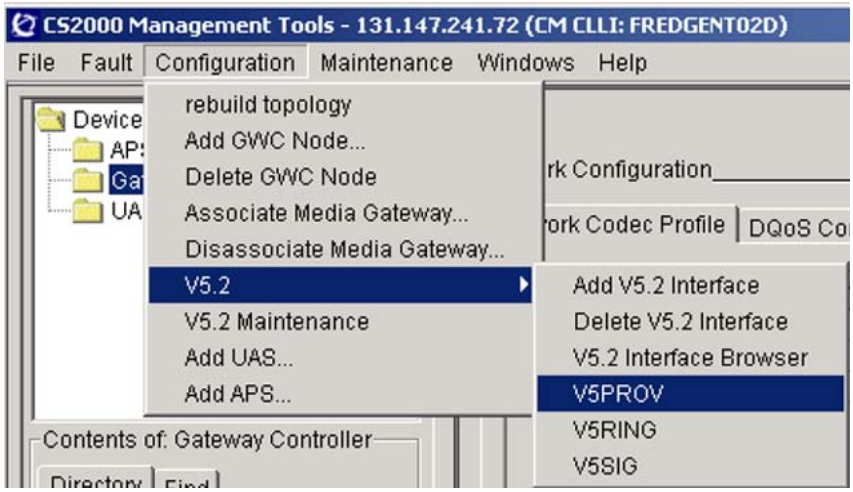
Use this procedure when the template is no longer needed, or if it is being replaced by another template.

Prerequisites and guidelines

Ensure that no V5.2 interface is referencing this template when it is removed. Check all existing interfaces and modify them to ensure they are not referencing the template being removed. See procedure "View V5.2 interface properties" (page 421).

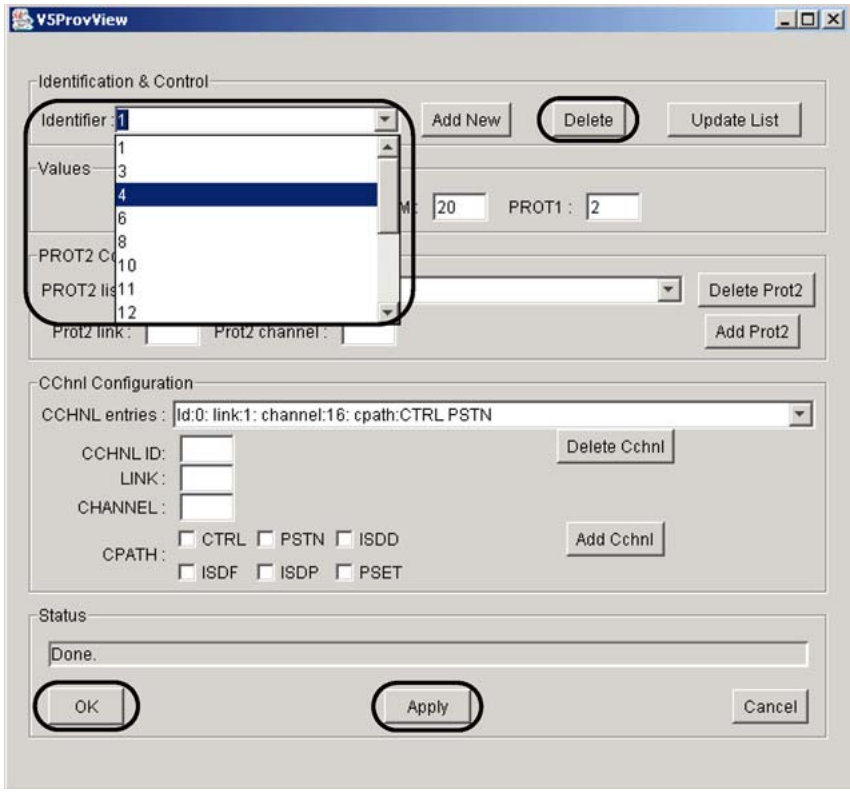
Action

Step	Action
	At the CS 2000 GWC Manager client
1	Click the **Configuration** menu, select **V5.2**, and then **V5PROV**.



2	Select a provisioning template identifier using the drop-down menu. Your selection is highlighted.
3	Click the **Delete** button.
4	Click **Apply** when you are finished deleting provisioning templates.

5 Click **OK** to close the V5 provisioning view window.



6 The procedure is complete.

—End—

Delete a V5 ring template

Purpose of this procedure

Use this procedure to delete an existing V5 ring template.

When to use this procedure

Use this procedure when you wish to remove a ring template from the identifier list.

Prerequisites and guidelines

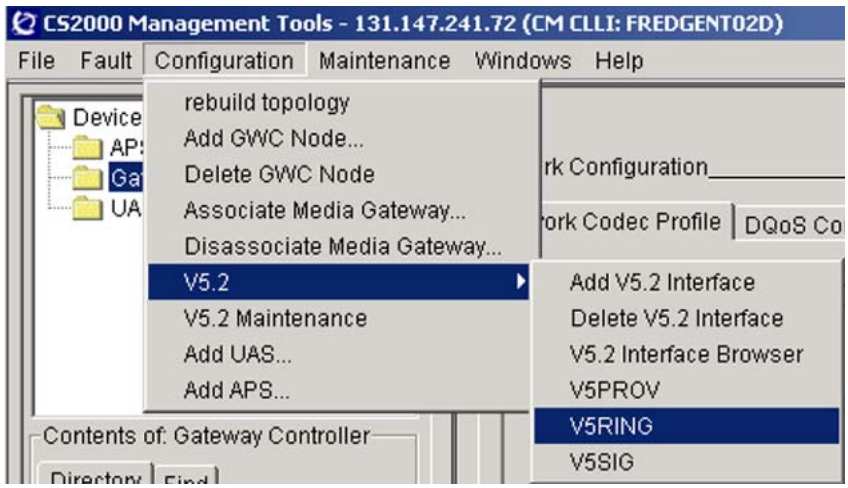
Ensure that the ring template to be removed is not currently being used by a V5.2 interface.

Action

Step	Action

At the CS 2000 GWC Manager client

1 Click the **Configuration** menu, select **V5.2**, and then **V5RING**.



2 At the V5RingView dialog box, select a ring mapping identifier to delete using the Identifier drop-down menu.

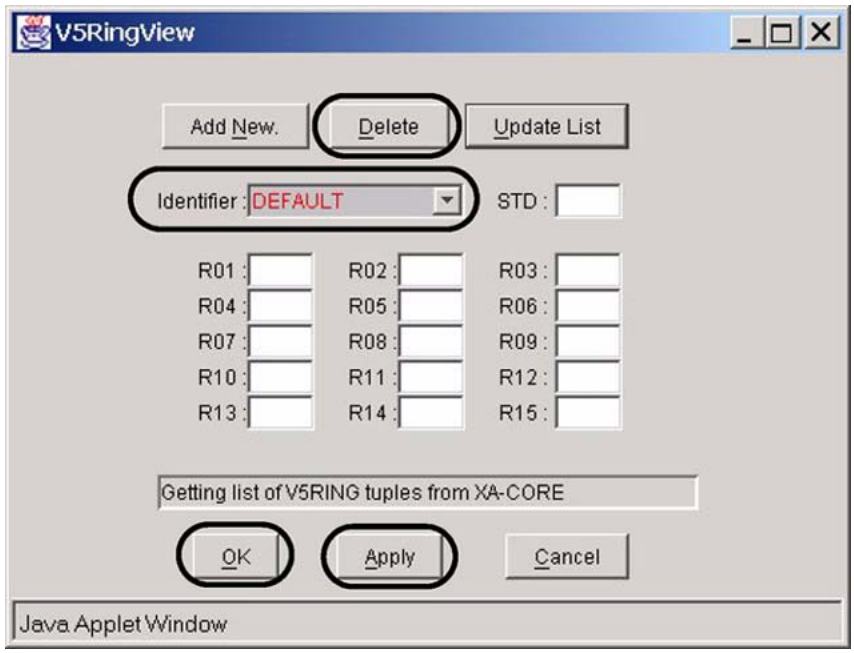
If the identifier is not available, click the **Update List** button.

Note: You cannot delete the default identifier.

3 Click the **Delete** button to delete the ring template.

4 Click **Apply** when you are finished deleting ring templates.

5 Click **OK** to close the V5 ring view window.



6 The procedure is complete.

—End—

Delete a V5 signaling template

Purpose of this procedure

Use this procedure to delete a datafilled interface signaling template.

When to use this procedure

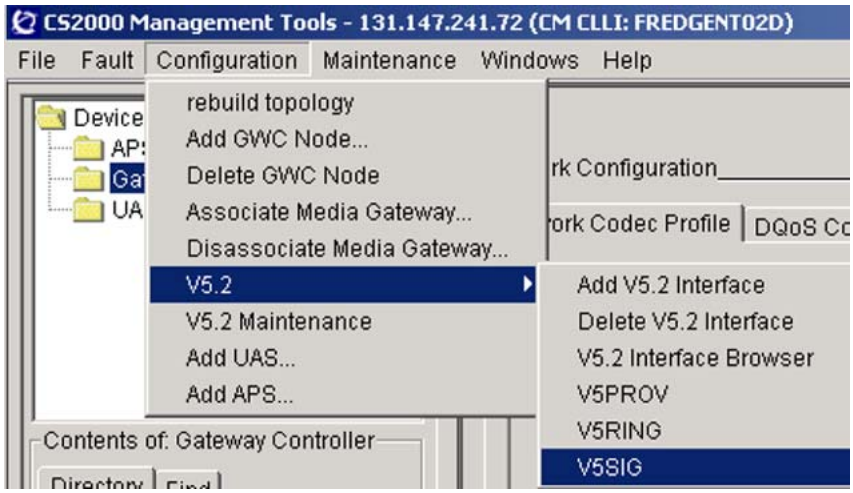
Use this procedure when you wish to remove a signaling template from the identifier list.

Prerequisites and guidelines

Ensure that the signaling template to be removed is not currently being used by a V5.2 interface. See procedure "View V5.2 interface properties" (page 421).

Action

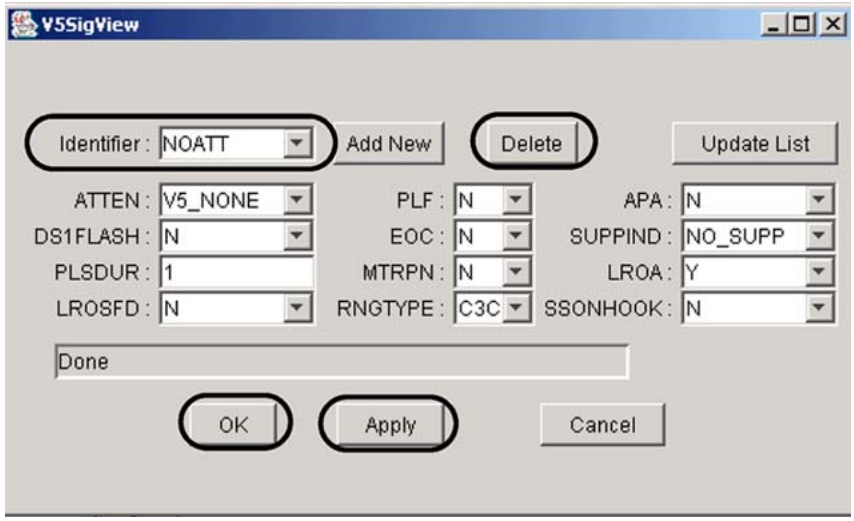
Step	Action
	At the CS 2000 GWC Manager client
1	Click the **Configuration** menu, select **V5.2**, and then **V5.2SIG**.



2	At the V5SigView dialog box, select a template identifier to delete using the Identifier drop-down menu. If the identifier is not available, click the **Update List** button.
3	Click the **Delete** button to delete the template.
4	If necessary, repeat step 2 and step 3 to delete other sig templates.

5 Click **Apply** when you are finished deleting sig templates.

6 Click **OK** to close the V5SigView dialog box.



7 The procedure is complete.

—End—

Busy a GWC node

Purpose of this procedure

Use this procedure to busy the services allocated on a fully configured Gateway Controller (GWC) node, comprised of unit 0 and unit 1 GWC cards.

When to use this procedure

Use this procedure when it is necessary to make the gateway services provided by either the active or standby GWC card unavailable for call processing activity.

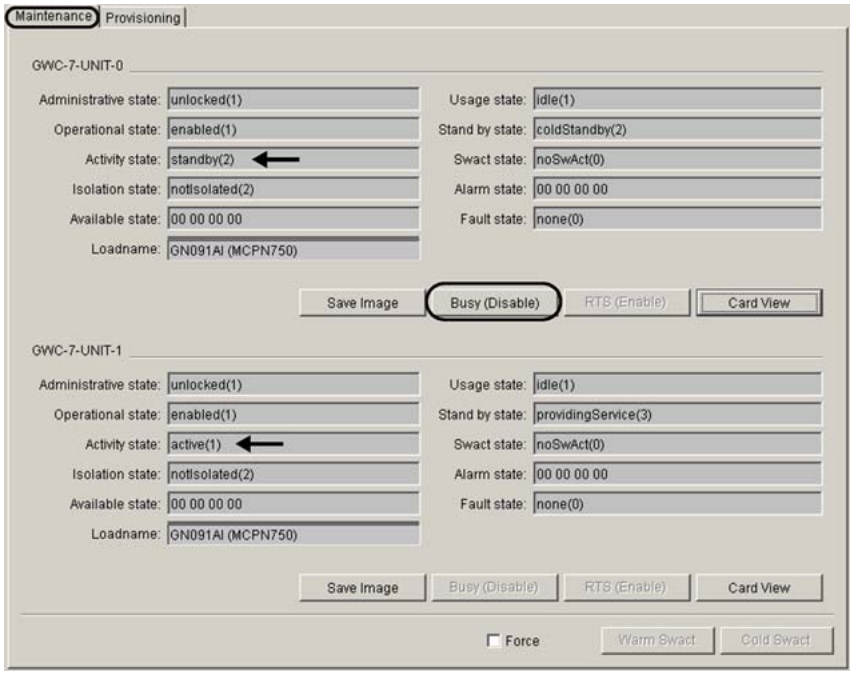
Prerequisites and guidelines

CAUTION
Partial service disruption
This procedure busies call processing service on an entire GWC node.

If you wish to busy (lock) the services for a single, standby GWC card in a node, while allowing the other card to continue processing call traffic, follow procedure "Disable (BSY) GWC services" for a single card in *Gateway Controller Security and Administration* (NN10213-611).

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to busy.
3	Click the **Maintenance** tab.
4	Locate the Activity state field for each GWC unit and determine which unit (card) is active and which is standby.
5	Click the **Busy (Disable)** button for the standby GWC unit.



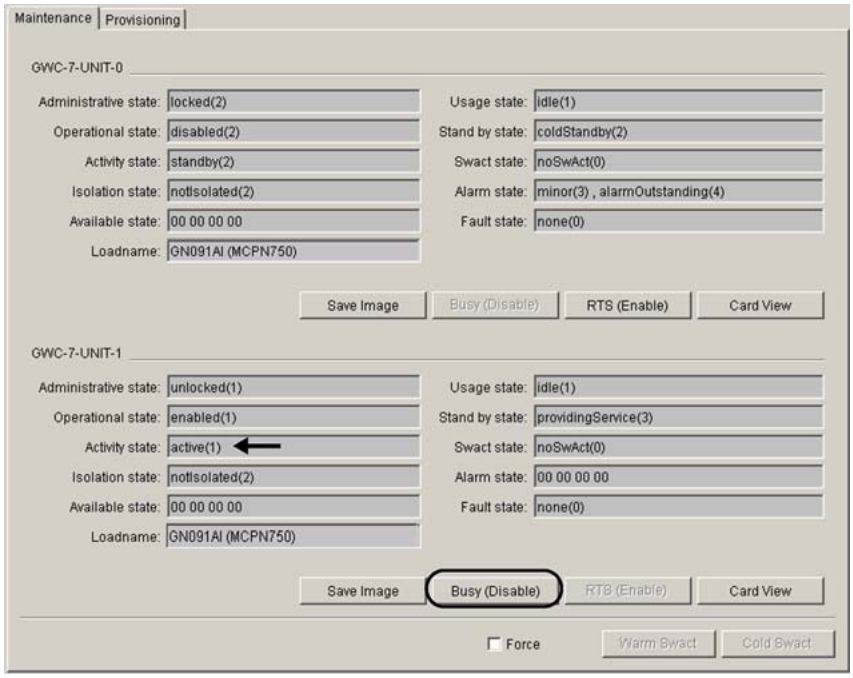
6 At the confirmation box, click **OK** to continue busy the standby GWC unit.

7 Verify that the states for the unit are set as follows:

8 Use the following table to determine your next step.

If you need to busy	Do
both the standby and the active GWC units (the entire node)	go to step 9.
only the standby GWC unit	go to step 12.

9 Click the **Busy (Disable)** button for the active GWC unit.



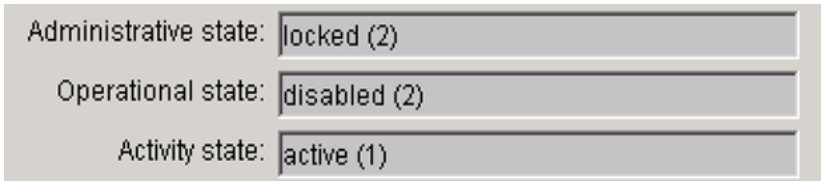
If the **Busy (Disable)** button for the active GWC is not available, wait for 30 seconds.

You can refresh the screen as follows: At the top of the CS 2000 GWC Manager screen, click the **Windows** menu item and select **Refresh GWC Status**.

CAUTION
Partial service disruption
Continuing this procedure removes all service from the entire GWC node. All services provisioned for the GWC cards in the node will be disabled.

10 At the confirmation box, click OK to continue busying the active GWC unit.

11 Verify that the states for the unit that you busied are set as follows:



12 Repeat this procedure for other GWC nodes you wish to busy.

13 The procedure is complete.

—End—

Lock a GWC card

Purpose of this procedure

This procedure locks a single GWC card, stopping the services, applications, and platform software running on the GWC card.

When to use this procedure

Use this procedure:

- when you are removing the card from service
- along with procedure "Unlock a GWC card" (page 469) to reboot a GWC and force a software download
- as part of fault clearing activity to determine if a problem is temporary or persistent
- when you have applied or removed a patch to the GWC software using the Network Patch Manager (NPM) and have created a new GWC software image on the CS 2000 Core Manager.
- when you are removing a GWC node from the CS 2000 GWC Manager database
- when replacing or upgrading hardware

Prerequisites

If the card that you want to lock is currently active, you need to switch call processing to its mate card in the node. This places the card in standby mode. If required, follow procedure Invoke a manual protection switch (warm SWACT).

When the card is standby, you need to disable (busy) services on the card. Follow procedure Disable (Busy) GWC card services.

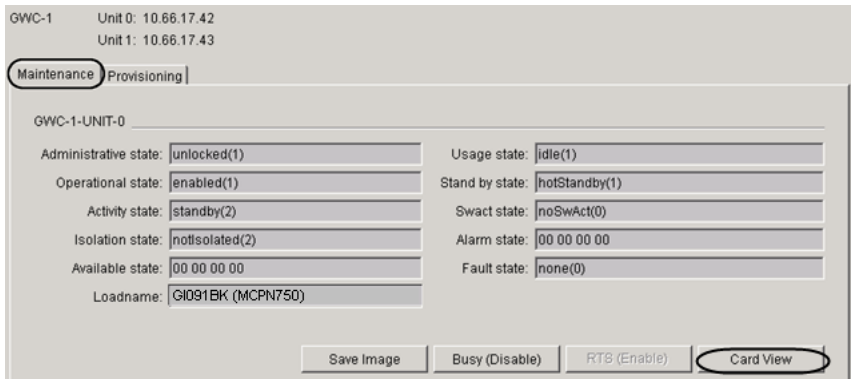
Once services on a standby card have been disabled, you can proceed with locking the card.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree in the far left frame.

2 From the Contents of: GatewayController frame, select the GWC node that contains the card you want to lock.

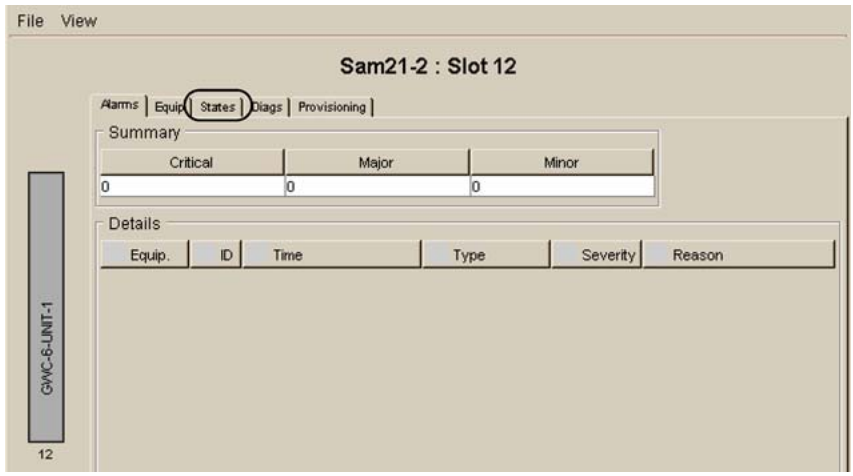
3 Select the **Maintenance** tab to display maintenance information about the node.



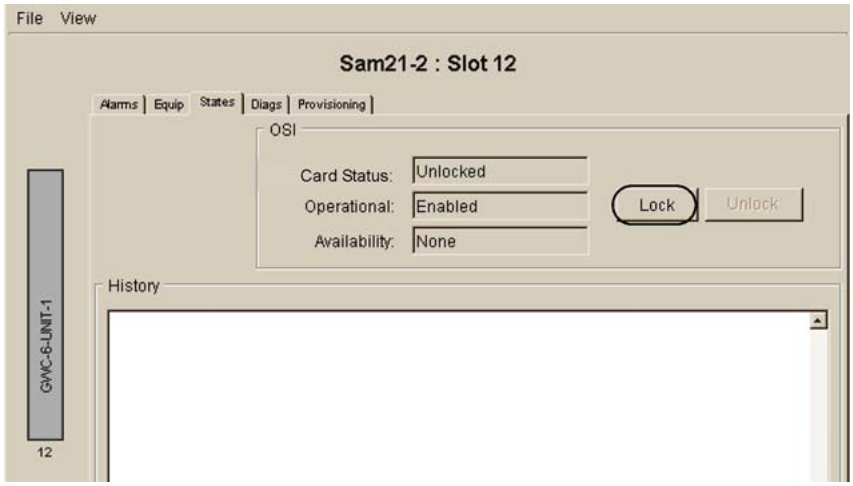
4 Click the **Card View** button for the card you want to lock.

At the CS 2000 SAM21 Manager client

5 In the card view, select the **States** tab.



6 In the States display, click the **Lock** button to lock the card.



7 Observe the system response in the History window.

The card is locked when you see the text "Application locked successfully" in the History display. The lock icon (circled in the following figure) should also be present on the card graphic at the left of the screen:

8 If necessary, return to step 2 and repeat this procedure for the next GWC card in the node.

9 The procedure is complete.

—End—

Unlock a GWC card

Purpose of this procedure

This procedure initiates a reboot of the GWC card causing the card to download its software from the CS 2000 Core Manager and to restart its call processing services and applications software.

When to use this procedure

Use this procedure:

- after replacing a GWC card.
- as part of a fault clearing activity.
- when a new software load is available.
- when you have completed reprovisioning a GWC card or GWC node (a node is made up of unit 0 and unit 1 GWC cards) and you would like the card or node to begin using the new provisioning values.
- when you have applied or removed a patch to the GWC software using the Network Patch Manager (NPM) and have saved a new GWC software image to the CS 2000 Core Manager.

Prerequisites

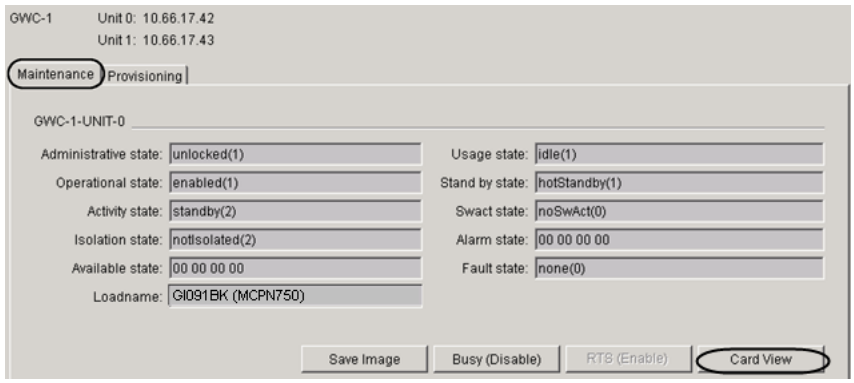
The GWC card must be locked. The procedure "Lock a GWC card" (page 466) provides instruction on how to lock a GWC card.

If the IP addresses for the card that you want to unlock and its mate are not contiguous, you cannot unlock the card. You must correct these addresses using procedure "Manually re-provision GWC cards" in the *Gateway Controller Configuration Management* (NN10205-511) before attempting to unlock the card.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types directory tree in the far left frame.
2	From the Contents of: GatewayController frame, select the GWC node that contains the card you want to unlock.

3 Select the **Maintenance** tab to display maintenance information about the node.



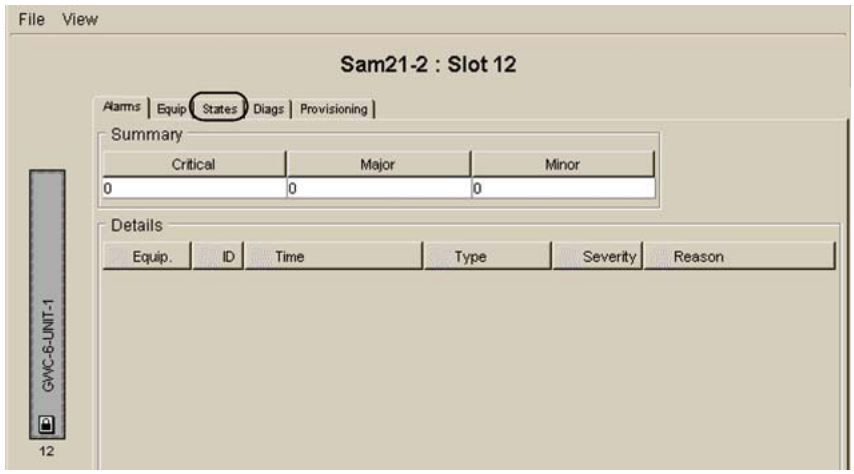
4 Click the **Card View** button for the card you want to unlock. This action opens the CS 2000 SAM21 Manager.

If a card is currently locked, all fields display the value <unknown>.

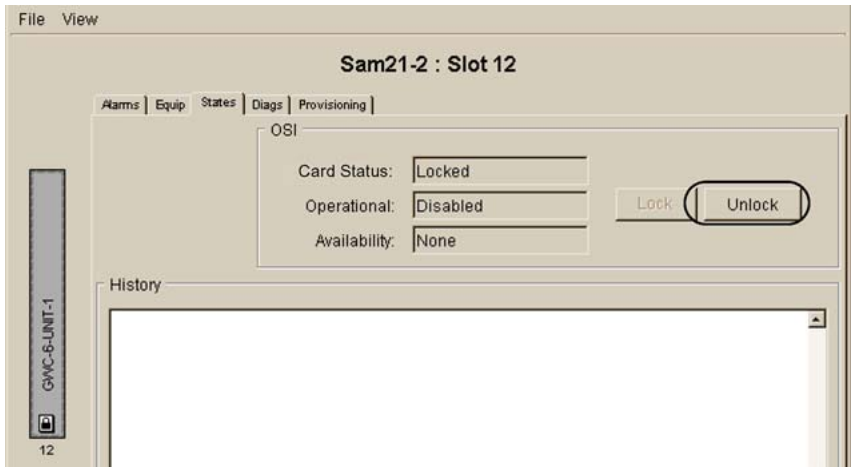
At the CS 2000 SAM21 Manager

5 In the card view, select the **States** tab.

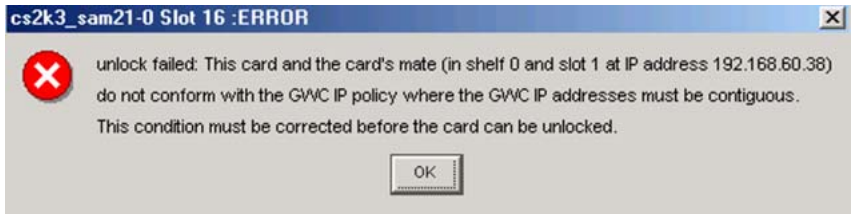
If you want to display the status of all cards in the shelf, select **Shelf View** from the **View** menu.



6 In the States display, click the **Unlock** button to unlock the card.



If the IP addresses for the selected card and its mate are not contiguous, the system displays the following error message:



Follow procedure "Manually re-provision GWC cards" in *Gateway Controller Configuration Management* (NN10205-511) to correct these addresses, then repeat this procedure.

7 Observe the system response in the History window.

The card is unlocked when you see the text "Application unlocked successfully".

8 Return to step 2 and repeat this procedure for the next GWC card until all the GWC cards have been unlocked and brought into service. Remember, each GWC node has two GWC cards.

9 The procedure is complete.

—End—

Manually return a GWC node to service

Purpose of this procedure

Use this procedure to make services and resources allocated on a specific Gateway Controller (GWC) node available for call processing.

This task is commonly referred to as return to service (RTS).

When to use this procedure

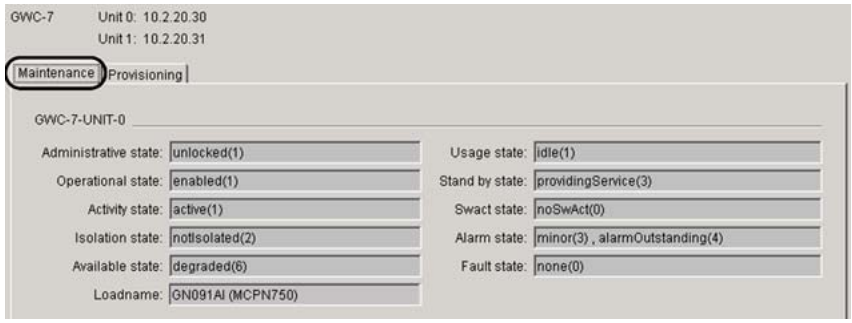
Use this procedure when you wish to return to service the services associated with a specific GWC node.

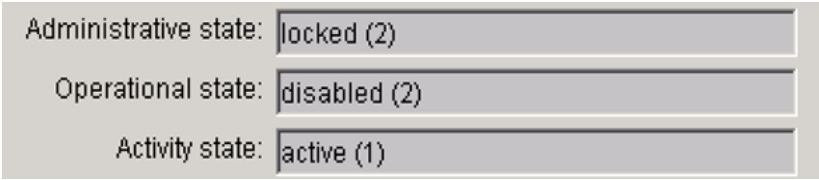
Prerequisites and guidelines

A GWC node must already be disabled (busied) before it can be returned to service. Before starting procedure, see procedure "View and interpret the operational status of a GWC node" (page 476) to determine if either of the GWC units in the node is disabled (busied).

Action

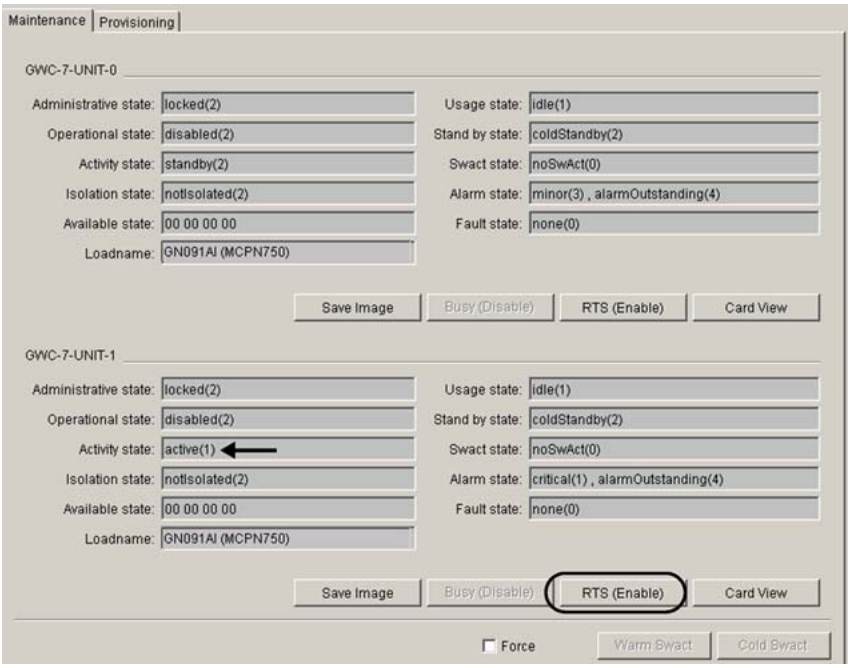
Step	Action
	At the CS 2000 GWC Manager Client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to return to service (RTS).
3	Select the **Maintenance** tab.
4	Use the following figure to determine whether the active GWC unit is currently disabled (busied). The figure shows the status fields for a disabled (busied) active GWC unit.



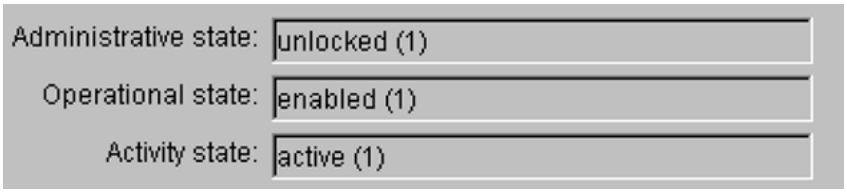


If the active unit is	Do
disabled (busied)	go to step 5
not disabled (busied)	go to step 6

5 Return the active unit to service. Click the **RTS (Enable)** button for the active unit you wish to return to service (either Unit 0 or Unit 1).



After 120 seconds, the Administrative state: field changes to unlocked and the Operational state field changes to enabled.

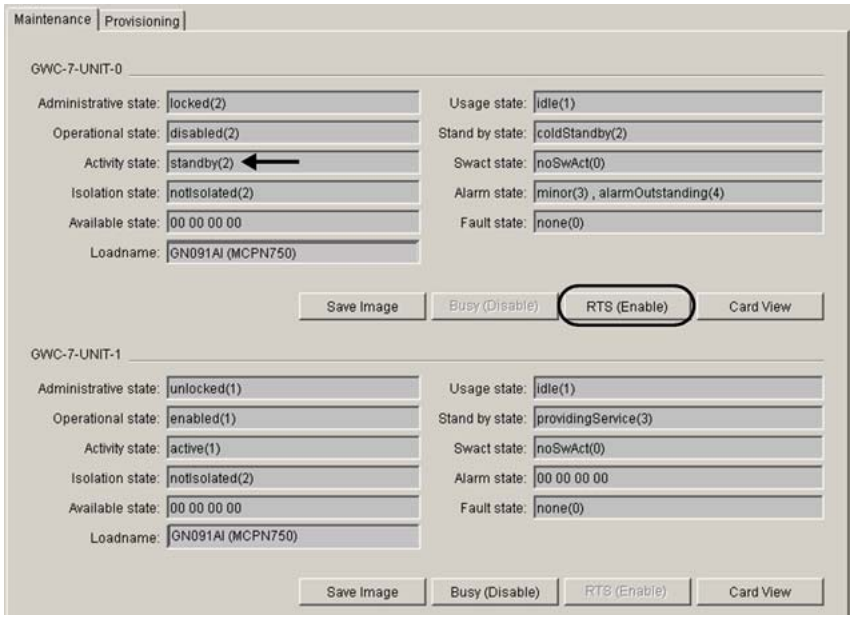


In most cases, the system displays this state change automatically. However, you may need to refresh the display. If necessary, click the **Windows** menu at the top of the screen and select **Refresh GWC Status**.

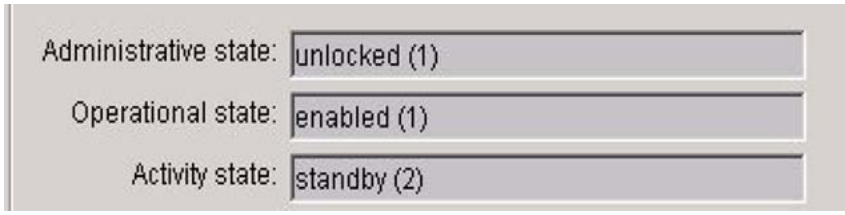
6 Determine whether the standby GWC unit is disabled (busied).

If the standby unit is	Do
disabled (busied)	go to step 7
not disabled (not busied)	go to step 8

7 Click the **RTS (Enable)** button for the standby unit to return the standby unit to service.



After 120 seconds, the Administrative state: field changes to unlocked and the Operational state field changes to enabled.



In most cases, the system displays this state change automatically. However, you may need to refresh the display. If necessary, click the **Windows** menu at the top of the screen and select **Refresh GWC Status**.

8 Repeat this procedure for all GWC nodes you wish to return to service.

9 The procedure is complete.

—End—

View and interpret the operational status of a GWC node

Purpose of this procedure

Use this procedure to determine the operational status of a selected Gateway Controller (GWC) node using the CS 2000 GWC Manager.

When to use this procedure

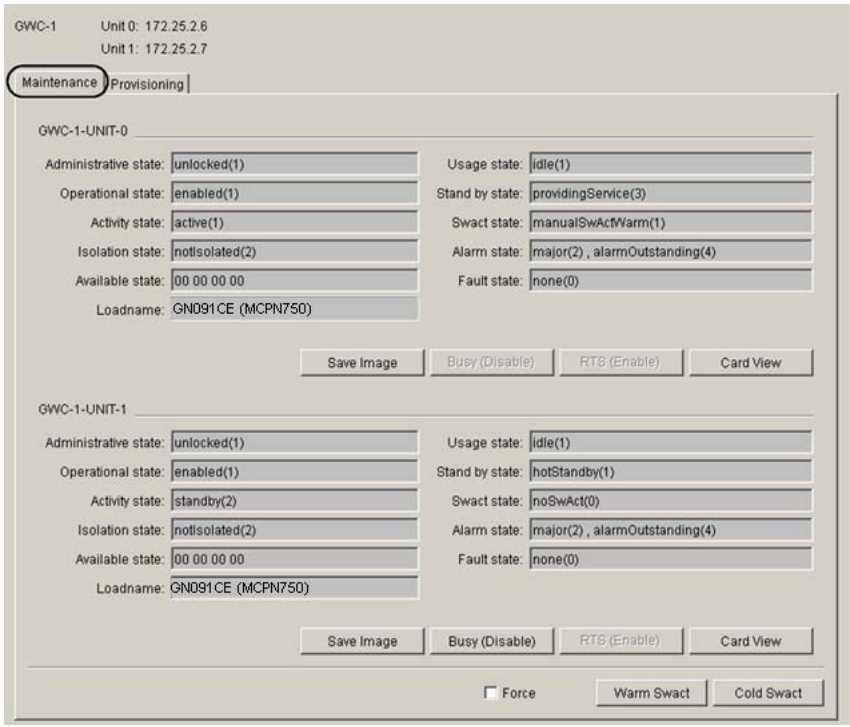
Use this procedure as a primary source of information about the operational status of a GWC card or GWC node.

Prerequisites or guidelines

This procedure has no prerequisites or guidelines.

Action

Step	Action
	At the CS 2000 GWC Manager client
1	At the CS 2000 Management Tools window, click the Gateway Controller folder from the Device Types menu.
2	From the Contents of: Gateway Controller frame, select the GWC node that you wish to view.
3	Click the **Maintenance** tab. The GUI displays the Maintenance panel with two independent status views, one for each of the GWC cards in the node.



4 See table "CS 2000 GWC Manager status fields" (page 478) following this procedure to interpret the GWC card (unit) status fields.

If the selected GWC loses communication with the GWC Manager, the client does not provide an accurate status of the GWC node. You can verify the call processing status of a GWC node using the MAPCI interface. If required, follow procedure "Verify the call processing status of a GWC node" (page 477).

5 Repeat this procedure for other cards that you wish to view.

6 The procedure is complete.

—End—

Verify the call processing status of a GWC node

Step	Action
	At the MAPCI interface
1	Enter the peripheral module maintenance level by typing `>MAPCI;MTC;PM` and pressing the Enter key.

2 Post the desired GWC node in the control position by typing

```
>post GWC <node_number>
```

and pressing the Enter key.

where

node_number is the node number of the GWC that you selected

3 The system displays both GWC units and their current states. Verify the current state of the selected GWC node.

The GWC node can be in one of the following states:

- InSv (in service)

  If one or both units are in an InSv state, the GWC is capable of performing call processing.

- SysB (system busy) or ManB (manual busy)

  If both units are in SysB or ManB state, the GWC is not capable of performing call processing.

4 Go back to step 5 in the main procedure.

—End—

The following table describes the GWC card (unit) status fields.

CS 2000 GWC Manager status fields

Status field	Possible values	Meaning
Administrative state:	locked	The unit is prohibited, administratively, from providing service to users.
	A status of "locked" on the CS 2000 GWC Manager indicates that the software application on the card is no longer performing its primary call processing function, but the card is still running. (The call processing function has been "busied", but underlying maintenance and communications activities are still functioning.) A status of "locked" on the CS 2000 SAM21 Manager indicates that the hardware is locked to ROM level, and the software application is no longer running.	
	unlocked	The unit is permitted, administratively, to provide service to users.
Operational state:	enabled	The unit is partially or fully providing service to users.

Status field	Possible values	Meaning
	disabled	The unit is not operating or providing service to users. If the Administrative state for this unit is "locked", then the unit has been manually busied. If the Administrative state for this unit is "unlocked", then the unit has been busied by the system.
Activity state:	active	The unit is currently providing end user services. This is the state of the node as seen by other network elements.
	standby	The unit is not providing end user services but can be switched to Active at any time if the active (mate) unit fails.
Isolation state:	isolated	The unit is not communicating with the Core.
	notisolated	The unit is communicating with the Core.
Available state:	offLine(3)	The unit has not received its configuration data from the CS 2000 GWC Manager. The unit cannot provide service until it is booted and receives configuration data.
	degraded(6)	The unit does not have heartbeat communication with its mate and it is operating without fault-tolerant redundancy.
	offLine(3), degraded(6)	The unit has both: offline and degraded conditions.
	00 00 00 00	The unit does not have either of the preceding conditions.
Loadname:	<string_of_alphanumeric_ characters>	This is the name of the load file that the unit currently boots from. The file is located on the CS 2000 Core Manager or Core and Billing Manager (CBM) disk drive.
Usage state:	idle	The GWC maintenance system is not currently working on a request, such as a Return to Service (RTS). The unit is available for maintenance requests.
	busy	Maintenance is in progress on this unit and no further requests are accepted.
Stand by state:	providingService	The unit is the active unit and is providing service.
	hotStandby	The unit is the standby unit - ready to provide service.

Status field	Possible values	Meaning
	coldStandby	The unit is synchronizing with the active unit (not providing redundancy). After completion of synchronization, the status changes to hotStandby when the Operational state is enabled.
Swact state:		This field indicates the last switch of activity for the unit.
	manualSwActWarm	Last switch of activity was due to a manual warm SwAct. Requested by a user, a warm SwAct causes no service interruption to stable calls, but calls in the setup processes can be lost.
	manualSwActCold	Last switch of activity was due to a manual cold SwAct. Requested by a user, a cold SwAct temporarily takes both units out of service and takes down all calls.
	autonomousSwActWarm	Last switch of activity was due to a system warm SwAct. These SwActs are automatically performed by the device in response to faults or failures. Established calls are preserved. Calls in setup are lost.
	autonomousSwActCold	Last switch of activity was due to a system cold SwAct. These SwActs are automatically performed by the device in response to faults or failures. All calls are lost.
	noSwAct	No switch of activity has occurred.
Alarm state:		This field indicates the severity of the currently raised alarms.
	00 00 00 00	There are no alarms raised on the GWC card unit.
	critical(1)	If present, indicates that one or more critical alarms have been raised.
	major(2)	If present, indicates that one or more major alarms have been raised.
	minor(3)	If present, indicates that one or more minor alarms have been raised.
	alarmOutstanding(4)	If present, indicates that at least one or a combination of different alarms has been raised.
Fault state:	none(0)	This field is not used.

Carrier VoIP

Gateway Controller Configuration Management

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