MG 9000 Configuration Management

Configuration management activities control system topology and establish the parameters within which the system functions. These activities include adding, removing, or modifying cards and services or the parameters that define their function.

Configuration management strategy

Nortel Networks installation personnel complete the initial configuration of the MG 9000 as part of the installation process. The installation process establishes the baseline for MG 9000 operation.

Configuration management refers to specifying the relationship between MG 9000 hardware and software with the network elements and nodes (cards) that reside in the MG 9000 shelf. Configuration of the MG 9000 is controlled through the MG 9000 Manager. The EM allows for provisioning of switched lines services, private lines services, and circuit cards in support of the following solutions:

- Universal Access-AAL1 (UA-AAL1)
- Universal Access IP (UA-IP)

The MG 9000 Manager must be installed and configured before configuring the MG 9000. Installation and configuration of the MG 9000 Manager are provided in *Upgrading the MG 9000*, NN10048-461. Procedures for configuring components in support of the solutions listed previously are provided in this document.

Tools and utilities

The MG 9000 uses the following tools for all configuration management, fault clearing, performance monitoring, security, and upgrade tasks.

- local craft interface (LCI)
- MG 9000 Manager graphical user interface (GUI)

Local craft interface

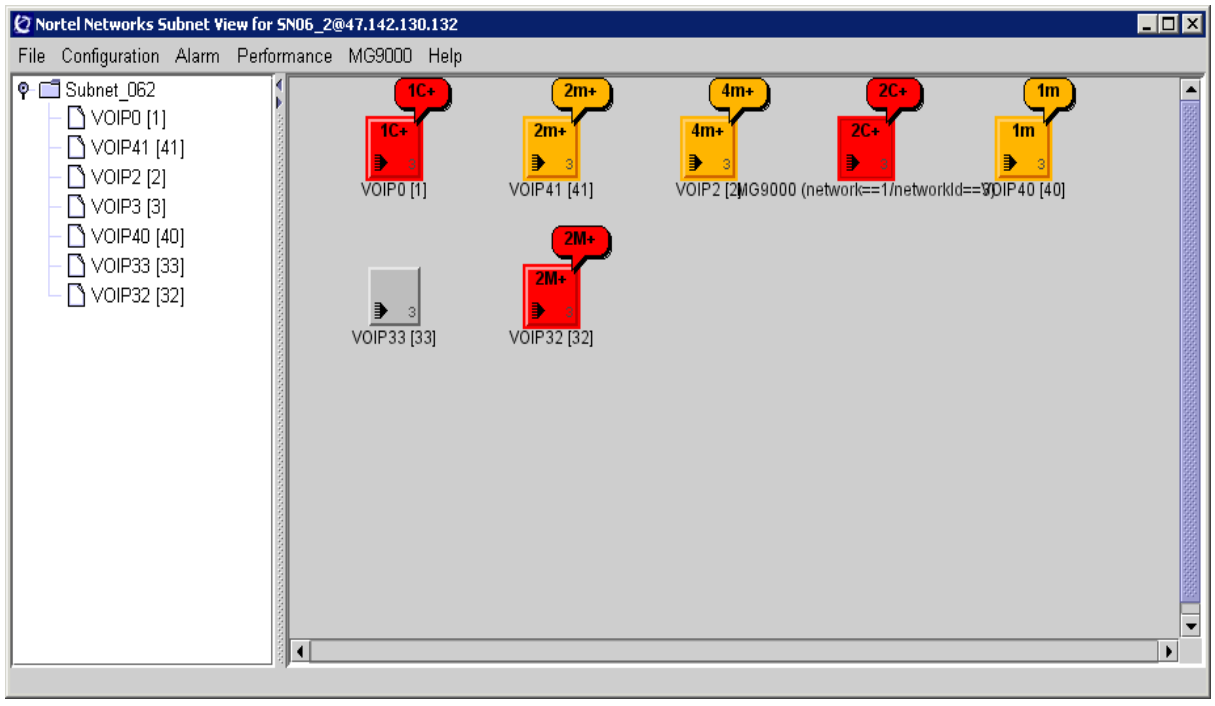
A local craft interface (LCI) port on the data control card (DCC) provides another method for configuring the MG 9000. The LCI is used primarily for installation and initial commissioning of the MG 9000. The LCI can be used in emergency instances when the MG 9000 Manager is not available. Daily operation, administration, and maintenance of the MG 9000 is performed from the MG 9000 Manager. The LCI is described in MG 9000 local craft interface on page 279.

The local craft interface (LCI) communicates to the DCC through an Ethernet port. The web browser must be Netscape 4.7 on a Windows95 platform or Netscape 7.0 and above, or Microsoft Internet Explorer 5.5 and above on the Windows2000 platform. Use the DCC IP address (10.0.0.1) to locate the LCI through the browser. A security screen requests a user name and password.

MG 9000 Manager graphical user interface

The MG 9000 Manager serves as the element management system for the MG 9000 and is responsible for the fault clearing, configuration, performance monitoring, and upgrade tasks for the MG 9000. The following figure shows the MG 9000 Manager Subnet View.

MG 9000 Manager Subnet View



The MG 9000 Manager is used to manage the MG 9000 dealing with operations and issues that affect the network element. The following table lists the menus and sub-menus accessible from the Subnet View.

Subnet View menu options

Menu	Menu options	Explanation
File	Refresh Subnet View	Refreshes the Subnet View
	Exit	Closes the GUI View
Configuration	Add a new MG 9000 NE	Opens the MG 9000 Provisioning View. Refer to Provisioning an MG 9000 network element on page 14.
	Audit NE	Opens the Audit GUI. Refer to Auditing MG 9000 provisioning data on page 260.
	Delete NE	Opens the Network Element Deletion View. Refer to Deleting an MG 9000 network element on page 23.
	Discover NE	Opens the NE Discovery View which lists the properties of an MG 9000 network element (NE) that is discovered or is to be discovered. The Discover button is used to initiate the discovery of the MG 9000. The Discover button can be used in a troubleshooting scenario, such as when hardware mismatches occur between the MG 9000 Manager and the MG 9000. ***Note 1:*** When using the Discover button, the NE must be in a discoverable state. ***Note 2:*** Do not initiate the Discovery of an MG 9000 NE at the same time that • a line or trunk audit is running from the CS 2000 Manager • an autoapply is running on the NPM • any provisioning is running on the CS 2000 Manager

Subnet View menu options

Menu	Menu options	Explanation
	View/Modify NE Properties	Open the Properties View which lists the properties associated with an NE and allows for the NE Password and NE OM Collection status to be changed. The fields are describe in table NE properties on page 5. The Apply and Refresh buttons apply any changes made to the NE Password field or the OM Collection checkbox.
	Refresh Icon	Refreshes the MG 9000 icons.
	ESA Download	Opens the ESA Data Download GUI which is used to manually download ESA data from the Core to the MG 9000 Manager. Refer to Changing MG 9000 Manager ESA data download properties on page 272 for information on setting up the MG 9000 Manager properties to support the ESA data download.
	Global Traffic Descriptions	Opens the TD Manager GUI. Refer to Provisioning the Global Traffic Descriptors in the Traffic Descriptor Manager on page 101.
	Office-Wide Defaults	Opens the Office-Wide Defaults GUI. Refer to Provisioning Office-Wide Defaults on page 16.
	Ploa Services Browser	Opens the Ploa Services Browser which lists all PLoA services on the network elements in the Subnet. Refer to Accessing the PloA Services Browser on page 157.
	VMG Browser	Opens the VMG Browser which lists all VMGs from across all network elements in the MG 9000 Manager. Refer to Listing all VMGs using the VMG Browser on page 184.
	Tools	Opens the Connection Test Tool GUI for Ping and Traceroute tools. Refer to “Accessing the Connection test tool” in *MG 9000 Fault Management*, NN10074-911.
Alarm	Alarm Browser	Opens the Alarm Browser which is used to view and manage MG 9000 alarms. Refer to “Alarm Browser” in *MG 9000 Fault Management*.

Subnet View menu options

Menu	Menu options	Explanation
	Audit alarms	A command used to synchronize alarm data between the MG 9000 and the MG 9000 Manager. Refer to “Audit Alarm” in *MG 9000 Fault Management*.
Performance	Performance Browser	Opens the Performance Statistics Browser used to monitor MG 9000 performance statistics. Refer to *MG 9000 Performance Management*.
MG9000	Persistence	Opens the Persist Date GUI and provides a command used to manually save provisioning data for an NE to the database. Refer to Persisting MG 9000 provisioning data on page 20.
	Import NE	Opens the Import from XML File GUI which is used during an upgrade process through which MG 9000 XML data is imported into an undiscovered NE. Refer to *Upgrading the MG 9000*, NN10048-461
Help	About	Opens the About view and lists the software versions used at client, mid-tier, and server.

The following table lists the fields common to the NE Discovery View, and the NE Deletion View. A more complete description of values that are common to the NE Provisioning View are provided in table Provisioning View properties on page 15.

NE properties

Field	Explanation
NE Number	The selected element number
NE Name	The selected network element name
NE IP Address/Hostname	The IP address to the DCC card
NE Password	Enter the MG 9000 Manager SFTP password.
MG 9000 Manager IP Address	MG 9000 Manager IP address/name

NE properties

Field	Explanation
NE Provisioning Mode	Auto-discover
Vendor	The name of the manufacturer of the physical component
MG 9000 Software Version	MG 9000 software version
SNMP Trap Port (expected)	SNMP Trap port number expected by the MG 9000 Manager.
SNMP Trap Port (from MG)	SNMP Trap port number set on the MG 9000.
NE OM Collection	Not an active checkbox on this GUI. When checked the OM Collector will collect OM data starting from its next collection cycle. If unchecked, the OM Collector will stop collecting OM data starting from its next collection cycle.

OSS fault management system support

To support third-party operations support systems (OSS) fault management systems, the following information is needed to ensure correct registration and connection to the MG 9000 Manager to receive alarm information:

- MG 9000 Manager server IP address (specifically the CORBA Naming Service)
- CORBA Naming Service port - the default is 2001. To verify, check the TNAMES_PORT in file

  `/opt/nortel/mg9ksrv_<release#>/bin/mg9kimpl`
- Fault Service Manager CORBA name - The entry in the CORBA Naming Service of the MG 9000 Manager fault system. For example,

  `Subnet_<release#>.Services.FaultServiceManager`
- CORBA entry for Fault Event Channel:

  `Subnet_<release#>.ec.Oss`

  where <release#> represents the release number.

MG 9000 Manager server data backup and restore

To backup and restore data on the MG 9000 Manager server platform, go to the Succession Solaris Platform Foundation Software (SSPFS) for the Succession Solaris platform backup and restore procedures. Refer to *ATM/IP Solution-Level Operational Configuration*, NN10409-500.

Configuration management procedures

The procedures in this section address the following activities:

- Using the MG 9000 Manager to provision equipment and services
- Provisioning an MG 9000 network element
- Provisioning Office-Wide Defaults
- Persisting MG 9000 provisioning data
- Deleting an MG 9000 network element
- Provisioning subtended shelves
- Renumbering an MG 9000 frame
- Provisioning an MG 9000 frame's physical location
- Decommissioning an MG 9000 frame
- Provisioning MG 9000 cards
  - Provisioning a World line card
  - Provisioning a Global line card
  - Provisioning an ADSL card
  - Provisioning an SAA line card
  - Provisioning a DS1 card
  - Provisioning an ITX card
- De-provisioning a line card
- Provisioning private lines services
- Provisioning switched lines services
- Viewing and modifying DS1 IMA group and links
- Provisioning and maintenance of OC-3 APS
- Provisioning SIC inputs and outputs
- Provisioning IBIP inputs and outputs
- Using the Bandwidth Manager
- Using the Bandwidth Management Planning Tool
- Performing an audit of the MG 9000 provisioning data
- Provisioning performance thresholds
- Managing overload thresholds
- Changing MG 9000 Manager ESA data download properties

Note: To promote recovery from the unlikely event of a simultaneous data loss and an MG 9000 Manager initialization, be sure to record all provisioning and configuration information.

After provisioning cards and services on the MG 9000, it is recommended that all the following configuration information be recorded or captured using screen captures:

- bandwidth manager
- automatic protection switching (APS)
- digital test access (DTA) setup
- metallic test access (MTA) setup
- floating IP address manager (refer to *Upgrading the MG 9000*, NN10048-461)
- software download manager
- line card circuit type

In addition, use the Save PLoA services and Save SLoA services procedures to save provisioning information into a file that provides a list of all services on that network element. It is recommended that these files are printed and retained with office configuration information.

Using the MG 9000 Manager to provision equipment and services

When to use this procedure

Use this procedure when it is necessary to use the MG 9000 Manager to provision MG 9000 equipment and services.

After the MG 9000 is discovered by the MG 9000 Manager, several graphical user interface (GUI) windows that represent different levels of the MG 9000 hardware components can be accessed from the MG 9000 Manager. Each GUI window contains:

- icons which are graphic images used to represent particular objects of the MG 9000 hardware components
- menus at the top of each window which provide a means of performing various functions. The following table defines the “menus” that appear at the top of each window and the menu options.

Note: All menu options may not apply for each window or for the solution in which the MG 9000 is deployed.

Menu options for GUI views

Menu	Menu Options	Explanation
MG9000	Close	Close the window.
Actions		
	Save SLOA services	Refer to Saving SLoA services in Provisioning switched lines services.
	Save PLOA services	Refer to Saving PLoA Services in Provisioning private lines services. Not applicable to the UA-IP solution.
	Software Download Manager	Valid for XDSL Card and MTA Card view.
	Software Download Template Table	Refer to the Provisioning a line template table procedure in Provisioning a World line card.

Menu options for GUI views

Menu	Menu Options	Explanation
	Maintenance	Indicates the type of maintenance to perform: — APS Provisioning - Refer to Provisioning OC-3 automatic protection switching section. ***Note:*** APS Provisioning are valid at the Shelf View only. — Diagnostic - Refer to “Common equipment card diagnostics” for cards, and the “Line circuit diagnostics” for circuits in *MG 9000 Fault Management*, NN10074-911. — Swact - Refer to “Switching activity of a card” in *MG 9000 Fault Management*, NN10074-911. ***Note:*** Diagnostic and Swact are valid for DCC, ITP, and ITX views only.
	Software Upgrade	Refer to “Upgrading software in the MG 9000” in *Upgrading the MG 9000*, NN10048-461 ***Note:*** Valid for DCC, DS1, ABI (DS-512), ITP, and ITX card views only.
	Software Image	Refer to “Manually imaging software for MG 9000 cards.” ***Note 1:*** Valid for DCC, DS1, ABI (DS-512), ITP, and ITX card views only. ***Note 2:*** Software imaging is performed through the NPM using the SoftImage Task command. For more information on the SoftImage Task command, refer to *ATM Solutions Basics*, NN10320-100.
Services	Bandwidth Manager	Refer to Using the Bandwidth Manager.
	Private Line Services Manager	Refer to Provisioning private lines services. Not applicable to the UA-IP solution.

Menu options for GUI views

Menu	Menu Options	Explanation
	Switched Lines Services Manager	Refer to Provisioning switched lines services.
	DTA Test Manager	Refer to “DTA Test Manager” in *MG 9000 Fault Management*, NN10074-911.
	MTAP Test Manager	Refer to “MTAP Test Manager” in *MG 9000 Fault Management,* NN10074-911.
	Floating IP Address Manager	Refer to “Provisioning a floating IP address” in *Upgrading the 9000*, NN10048-461.
Alarms	Alarm Browser	Refer to *MG 9000 Fault Management*, NN10074-911 for a discussion of alarms and accessing the Alarm Browser.

- The bottom of each window has “panels” which provide additional information for each hardware level. The following table describes the panels and their purpose.

GUI window panels

Panel	Explanation
Alarms	Indicates for the specific GUI view the number of active alarms for each severity.
Details	Indicates the specific frame and shelf for the component. ***Note:*** Valid for frame and shelf views only.
NE Info	Indicates information associated with the MG 9000. — Name - Refer to Provisioning an MG 9000 network element. — Number - Refer to Provisioning an MG 9000 network element. — Version - Indicates the software version of the MG 9000 Manager software. — Vendor - Indicates the name of the manufacturer for the physical component. — IP Address - Refer to Provisioning an MG 9000 network element.

The different levels of the MG 9000 hardware components can be accessed by double clicking an icon in a window.

Prerequisites

There are no prerequisites.

Action

Accessing the MG 9000 Frame View

At the MG 9000 Manager

1 Double click on the MG 9000 icon to access the MG 9000 element window, which represents a specific MG 9000 frame.

2 This procedure is complete.

Accessing MG 9000 Shelf View

At the MG 9000 Manager

1 Double click on an MG 9000 shelf icon to access the MG 9000 Shelf window, which represents a specific MG 9000 shelf.

Each shelf displays icons for 21 slots. Slots 1, 10 and 11, 12 and 13, 14 and 15 are reserved for specific cards which are the SIC, DCC, ITP, and ITX respectively. The other slots are available for line cards.

The slot number and name for each card is indicated below each slot.

Above each slot are a triangle and a rectangle which represent the card's condition. Refer to "View current shelf-level alarms" in *MG 9000 Fault Management*, NN10074-911 or "Circuit card indicators" in *MG 9000 Basics*, NN10011-111 for details on LEDs.

2 This procedure is complete.

Provisioning an MG 9000 network element

When to use this procedure

The following procedure provides the steps to provision an MG 9000 from the MG 9000 Manager.

Prerequisites

There are no prerequisites.

Action

Provisioning an MG 9000 network element

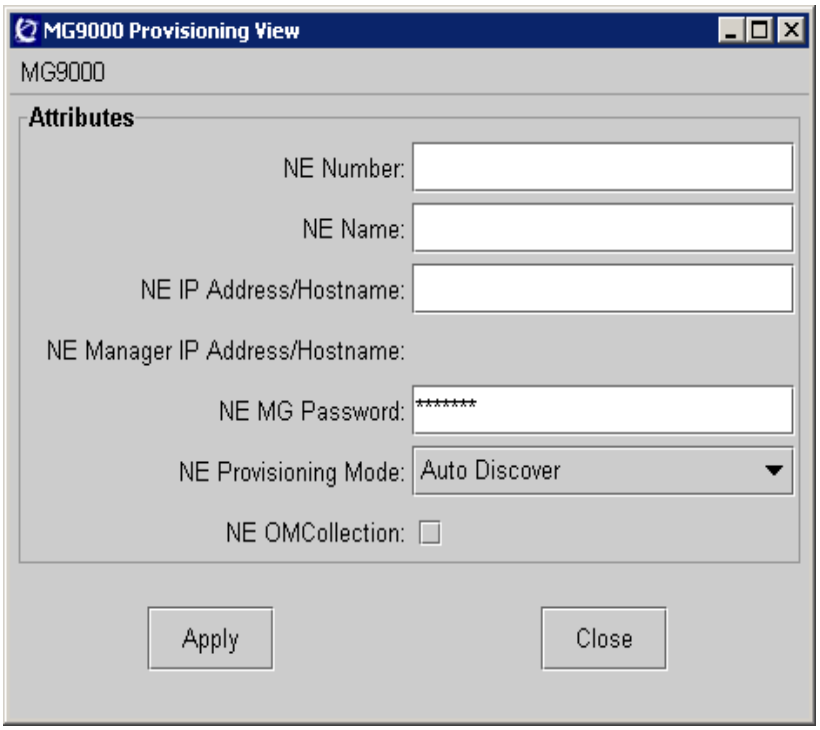
At the MG 9000 Manager

1 From the Subnet View, select the Configuration menu option.

2 Select the option to “Add New MG 9000 Node...”

3 The MG 9000 Provisioning View appears.

MG 9000 Provisioning View



4 From the provisioning window, provide the following information:

Provisioning View properties

Field	Explanation
NE Number	A number (1-999) used for MG 9000 identification purposes.
NE Name	A descriptive name for the MG 9000. The name can contain any alphanumeric characters and underscore characters.
NE IP Address/ hostname	The IP address assigned to the DCC card. IP addresses must be in the form 0.0.0.0 through 255.255.255.255. Hostnames are allowed but must begin with a character (a-z, A-Z). Hostnames are translated immediately to IP addresses when a node is provisioned.
NE Manager IP Address/ Hostname	The IP address assigned to the MG 9000 Manager that manages the new NE. IP addresses must be in the form 0.0.0.0 through 255.255.255.255. Hostnames are allowed but must begin with a character (a-z, A-Z). Hostnames are translated immediately to IP addresses when a node is provisioned.
NE MG Password	Enter the password for secure FTP communication between the MG 9000 Manager and the MG 9000. The password entered in this field is provided for thE MG 9000 Manager. The same password must be entered for the MG 9000 at the LCI. To change the password, the same value must be entered in this field (for the MG 9000 Manager) and in the Password Change screen at the LCI for the MG 9000.
NE provisioning mode	Auto Discover - The MG 9000 sends a cold start trap which allows the MG 9000 Manager to read the MG 9000 hardware information during the discovery process. This process is indicated by an up arrow symbol. Once auto discovery is complete, all the MG 9000 information may be queried and configurable fields may be changed as needed.
NE OM Collection	Checkbox when checked, the OM Collector will collect OM data for the NE starting from its next collection cycle. If unchecked, the OM Collector will stop collecting OM data for the NE starting from its next collection cycle.

Note 1: If an invalid NE name is entered, an error message appears informing the user that the NE name must contain letters, numbers, and underscore characters only.

Note 2: If an invalid IP address or unknown host name for the MG 9000 is entered, an error message appears.

5 Select the Apply button to finish the process.

6 This procedure is complete.

Provisioning Office-Wide Defaults

When to use this procedure

The following procedure provides the steps to provision Office-Wide Defaults for the MG 9000 Manager.

Values input in this view can be changed at any time. Changes will affect the values which are defaulted the next time VMGs are created. Changes have no affect on VMGs which have already been created.

MarketFit is an association of several pieces of data common to a country and operator. Market-Fit is comprised of Custom Local Area Signaling Services (CLASS), tone, ringing, and coefficient data. When a Market-Fit is assigned to a VMG, the coefficient associated to the selected market is also assigned to that VMG. Coefficients are provisioned for the GLC card circuits and are described in Provisioning a Global line card.

The North American MarketFit comparisons table lists the characteristics of the current North American Market Fit templates.

Prerequisites

There are no prerequisites.

Action

Provisioning Office-Wide Defaults

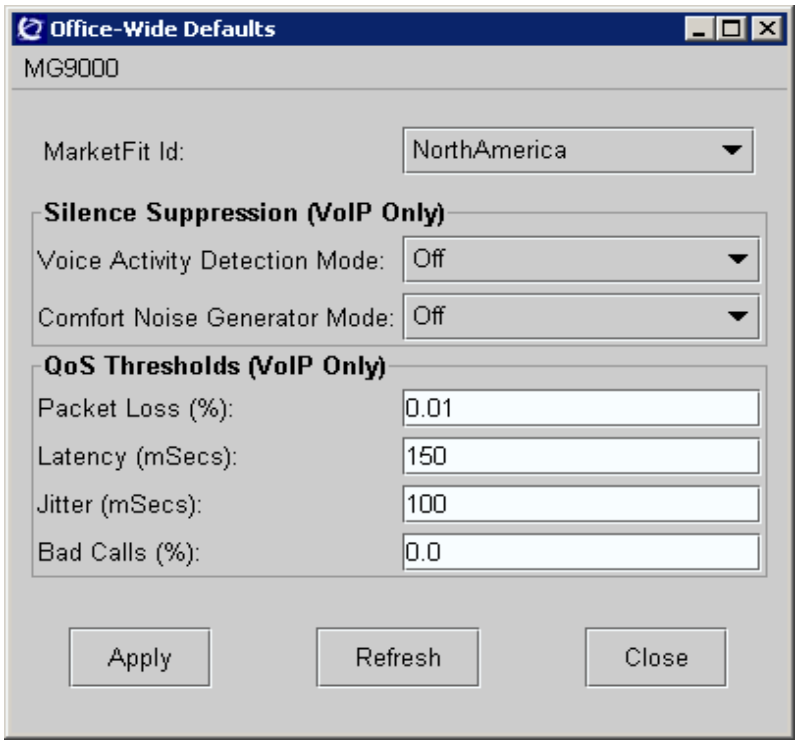
At the MG 9000 Manager

1 From the Subnet View, select the Configuration menu option.

2 Select the Office-Wide Defaults option.

3 The MG 9000 Office-Wide Defaults view appears.

MG 9000 Office-Wide Defaults View



4 From the Office-Wide Defaults View, provide the following information:

Field	Explanation	Default
MarketFit Id	Select the appropriate Country/Operator combination from the dropdown.	NorthAmerica
Silence Suppression (VoIP only) is comprised of:		
Voice Activity Detection	The dropdown has the following values: Off, Transparent, Conservative, Aggressive	Off
Comfort Noise Generation	The dropdown has the following values: Off, White, Pink, Spectral	Off
QoS Thresholds (VoIP only) is comprised of:		
Packet Loss%	Value float between 0.0 and 100.01	0.01
Latency (mSec)	An integer value representing the latency in milliseconds.	150

Field	Explanation	Default
Jitter (mSec)	An integer value representing the jitter in milliseconds.	100
Bad Calls%	Value float between 0.0 and 100.00	0.00

5 Select the Apply button to finish the process.

Note: The Market-Fit, Silence Suppression, and QoS parameters are saved to the Oracle database so the same data is presented in the VMG panels when a VMG is added. Clicking Apply here does not send data down to the network elements. Only when the Apply button on the VMGs are pressed will data be sent to the network elements.

6 This procedure is complete.

MarketFit comparisons

The following table provides a listing of the characteristics of the North American MarketFits.

North American MarketFit comparisons

	Template	
Characteristic	**NorthAmerica**	**NorthAmerica_v1**
Ring voltage ***Note:*** Only applies to Global line card. World line cards are not affected by this value since they are hard wired to 100 V.	85 V	100 V
Payphone recognition tone	Matches the behavior of SN06/SN06.2 CS 2000	Matches behavior of SN07 CS 2000

North American MarketFit comparisons

Characteristic	Template	
	NorthAmerica	NorthAmerica_v1
Intrusion tone	1200 Hz/-5 dB, 100 ms, 150 ms off 1200 Hz/-5 dB, 100 ms, 75 ms off 2100 Hz/-5 dB, 200 ms on, 150 ms off 1700 Hz/-5 dB, 400 ms on, 2900 ms off, repeated	440 Hz/-13 dB, cadence: 100 on, 100 off, 100 on, 100 off, 100 on
Conference unlock tone	1200 Hz/-5 dB 100 ms, 150 ms off 1200 Hz/-5 dB 100 ms, 75 ms off 2100 Hz/-5 dB 200 ms on, 150 ms off 1700 Hz/-5 dB 400 ms on, 2900 ms off, repeated	480 Hz/-17 dB, 100 on, 100 off, 100 on, 100 off, 100 on, 100 off, 400 on
Warning tone	1400 Hz/ -7 dB, 500 ms	1400 Hz/-7 dB, 500 ms on, 15 s off repeated

Manually persisting MG 9000 provisioning data

When to use this procedure

MG 9000 Manager data is automatically persisted hourly. Use this procedure when it is necessary to manually persist data to the database. The following are the circumstances when this manual process would be used:

- after a significant amount of services data have been provisioned. This action would ensure a backup of the data will be available on the database.
- before shutting down the MG 9000 Manager

All the network elements (nodes) may be selected to persist or individual network elements can be manually selected to persist.

Prerequisites

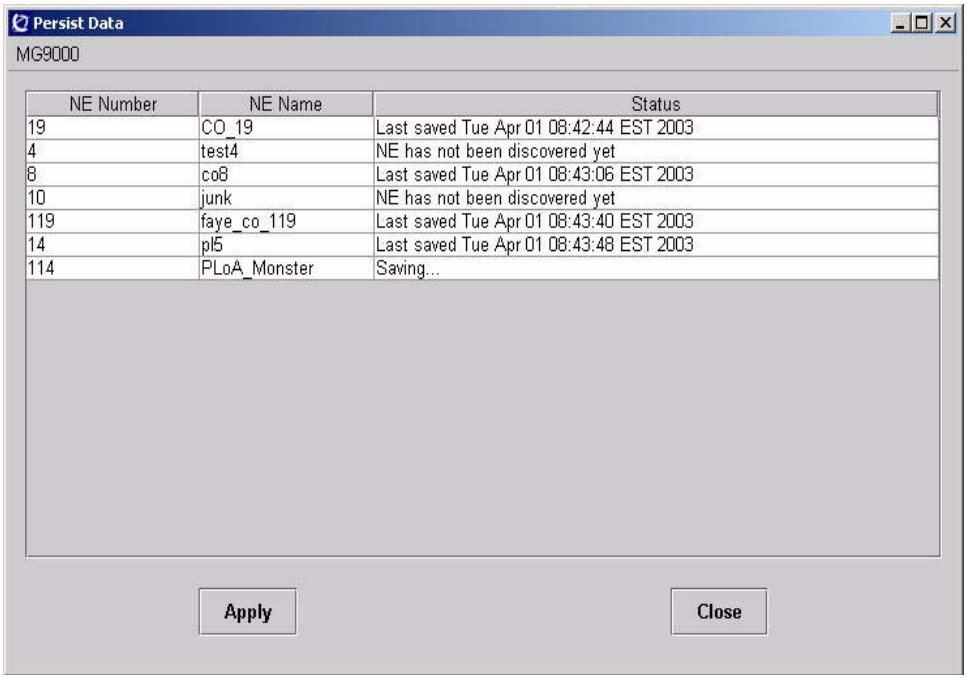
There are no prerequisites.

Action

Persisting MG 9000 provisioning data

At the MG 9000 Manager

1 At the Subnet View, from the menu select MG9000->Persistence. The Persistence window appears.

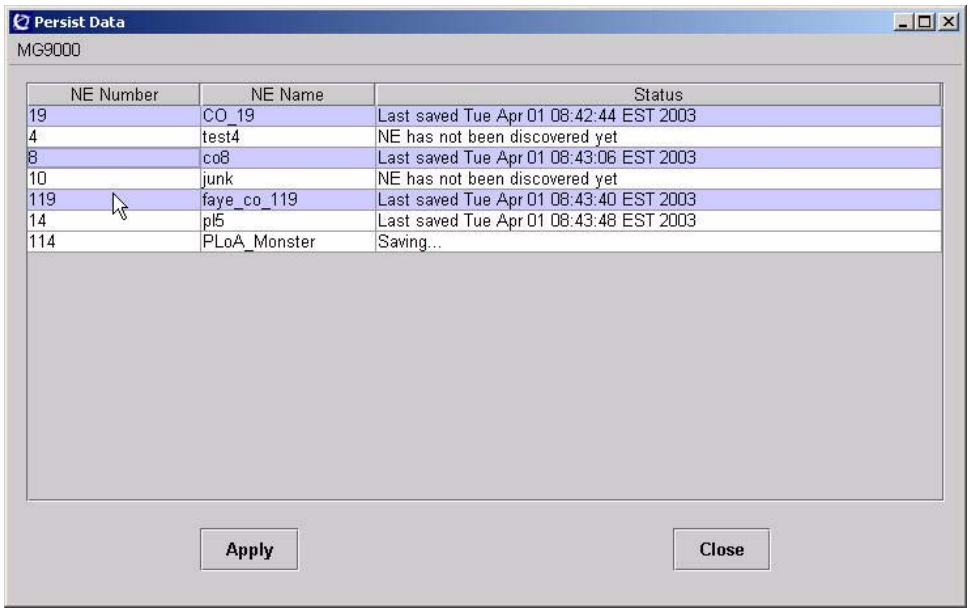


2 The next step is based on information in the following table.

If persisting	Do
all the nodes	step 3
only selected nodes	step 4

3 To persist all the nodes, select Apply. Go to step 5.

4 To persist only selected nodes, highlight the rows that correspond to the desired nodes by holding down the CONTROL key while clicking. Then select Apply.



The following table lists the NE conditions, if persistence is allowed in that condition, and the system response.

Network element persistence conditions

NE condition	Persistence allowed?	System response
Undiscovered NE	No	This message is displayed under the status column: “NE has not been discovered yet.”
Discovering	No	This message is displayed under the status column: “NE is still discovering.”
Auditing	No	The node cannot be persisted at this time as a Data Audit is in progress. This message is displayed under the status column: “NE is still discovering.”
Database Recovery	No	The node is currently recovering data from database. This message is displayed under the status column: “NE is recovering from DB”.
Discovered	Yes	The node can now be persisted to Database. The status column will display “Saving...” and when finished will display a time of completion.

5 This procedure is complete.

Deleting an MG 9000 network element

When to use this procedure

Use this procedure when it is necessary to delete an MG 9000 network element (node).

Prerequisites

Ensure that any SLoA data on the NE is removed before deleting the NE. Deleting the NE without removing the SLoA data may result in the Core data being out of sync with the MG 9000 and the NE. For information on deleting the SLoA data, refer to Deleting a termination and Deleting a VMG on page 181.

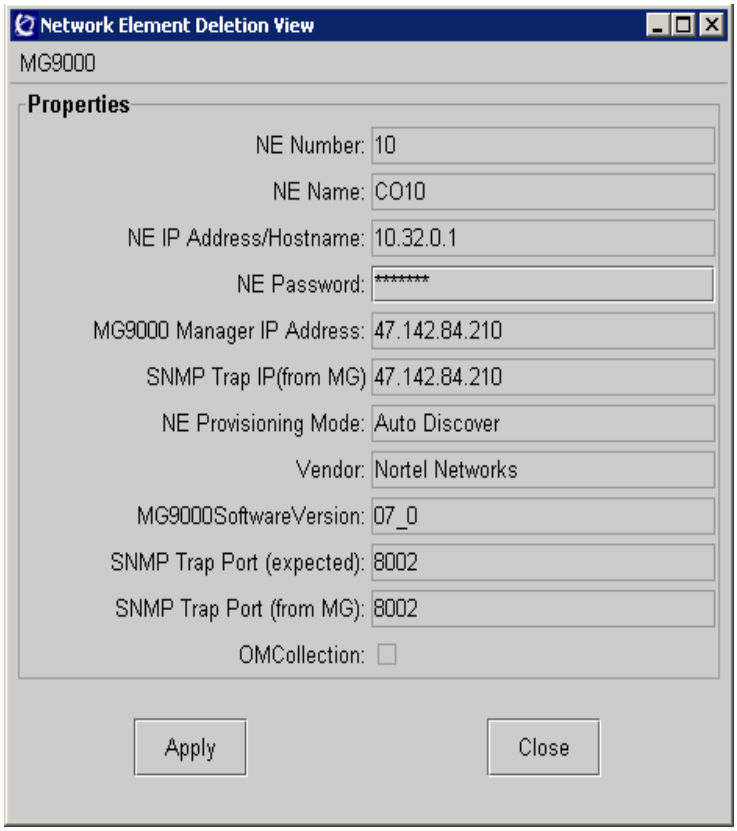
Action

Deleting an MG 9000 network element

At the MG 9000 Manager

1. At the Subnet View, select the MG 9000 icon to be deleted.
2. From the menu, select Configuration->Delete Node. The system responds with the Network Element Deletion View. A description of the fields follows the figure.

Network Element Deletion View



The following table lists the fields in the Network Element Deletion View.

Network Element Deletion View fields

Field	Explanation
NE Number	The selected element number
NE Name	The selected network element name
NE IP Address/Hostname	The IP address to the DCC card
NE Password	Enter the MG 9000 Manager SFTP password
MG 9000 Manager IP Address	Succession MG 9000 Manager IP address/name
NE Provisioning Mode	Auto-discover

Network Element Deletion View fields

Field	Explanation
Vendor	The name of the manufacturer for the physical component
MG 9000 Software Version	MG 9000 software version
SNMP Trap Port (expected)	SNMP Trap port number expected by the MG 9000 Manager.
SNMP Trap Port (from MG)	SNMP Trap port number set on the MG 9000
NE OM Collection	Not an active checkbox on this GUI. When checked the OM Collector will collect OM data starting from its next collection cycle. If unchecked, the OM Collector will stop collecting OM data starting from its next collection cycle.

3 Select the Apply button to begin the deletion process. The system will determine if the deletion is allowed. The following table identifies the conditions for which deletion will or will not be allowed and the system response.

Network element deletion conditions

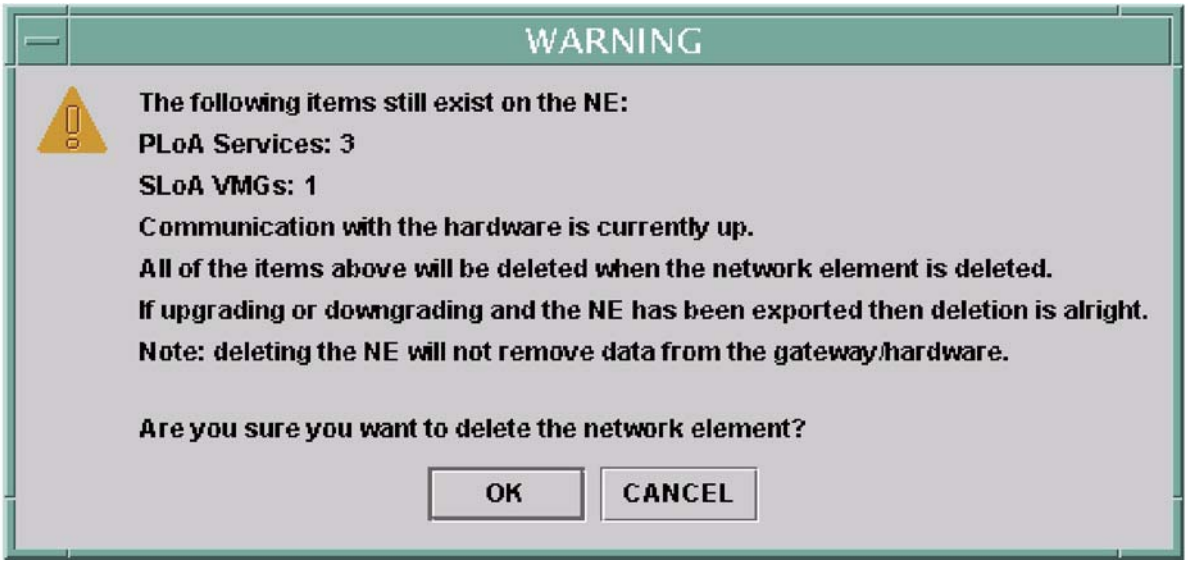
NE condition	Deletion allowed?	System response
Discovering	No	Node is discovering, deletion not allowed
Terminating	No	Node is already being deleted. No additional delete request allowed.
Discovered - with PLoA/SLoA/xDSL services but has lost communications with the gateway	Yes	A warning message will be displayed listing the services on the NE. This warning message will give the user the option to proceed or cancel the deletion request. If the user chooses to proceed with the deletion request, the deletion process will remove all the equipment information associated with the NE.

Network element deletion conditions

NE condition	Deletion allowed?	System response
Discovered - without any PLoA/SLoA/xDSL services	Yes	A confirmation warning message will be displayed. This warning message will give the user the option to proceed or cancel the deletion request. If the user chooses to proceed with the deletion request, the deletion process will remove all the equipment information associated with the NE.
Undiscovered NEs	Yes	A confirmation warning message will be displayed. This warning message will give the user the option to proceed or cancel the deletion request. If the user chooses to proceed with the deletion request, the deletion process will remove all the equipment information associated with the NE.
Discovered - with PLoA/SLoA/xDSL services	Yes	A warning message is displayed and is shown in the figure that follows this table.

Note: If an audit is in progress when deleting an NE, the audit will be safely abandoned. Any scheduled audits on the NE will be deleted. The Network element deletion warning will also contain a message if audit operations are to be abandoned.

Network element deletion warning



4 This procedure is complete.

Subtending shelves

What is a subtended shelf?

The concept of a subtending shelf applies to an MG 9000 Network Element (NE) that contains more than one shelf. Provisioning a subtended shelf is nearly identical to the provisioning of any other. For auto-discovered configurations both subtended and master shelves will be discovered with no additional configuration required.

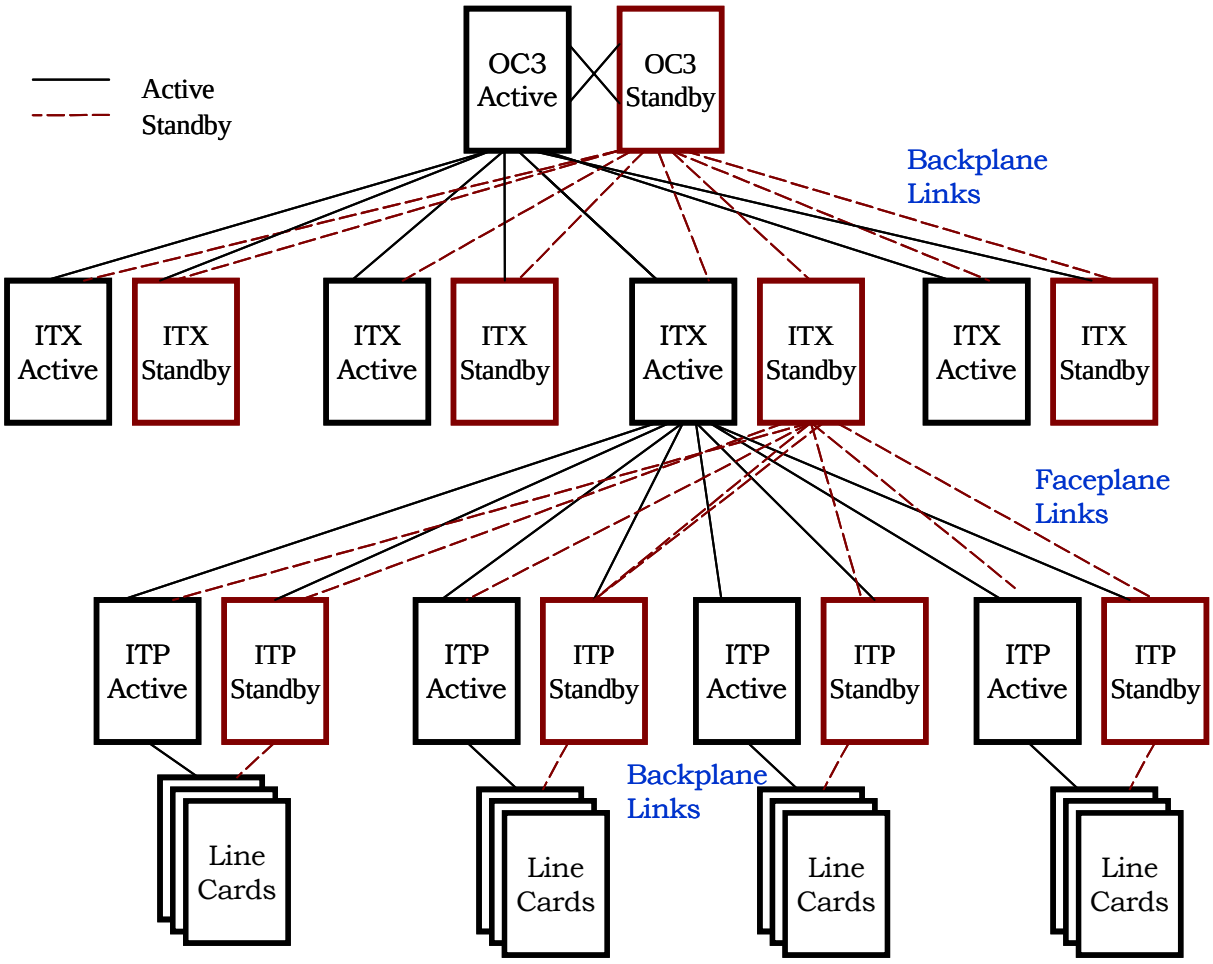
The MG 9000 shelves are defined as follows:

- master shelf - any shelf which contains an active OC-3/STM-1 or DS1-IMA card
- subtending shelf - also known as a slave shelf, is any shelf which does not contain an active OC-3/STM-1 or DS1-IMA card

There is no physical restriction on the location of a subtended shelf, nor is it necessary that it be adjacent to its associated master shelf. Subtended shelves allow multiple cards and shelves to utilize a single OC-3/STM-1 (ATM) (OC-3c or OC-3 channelized) or DS1-IMA connection. In addition, DS1-IMA cards support a maximum of three subtended shelves.

The following figure shows the connections associated with a sample subtended shelf.

MG 9000 subtended shelf card hierarchy



Shelf provisioning rules

The MG 9000 Manager enforces the following rules associated with master and subtending shelf configuration:

- There can only be one master shelf.
- A maximum of 15 subtended shelves per master shelf are supported in the UA-AAL1 solution.
- A maximum of 11 subtended shelves are supported in the UA-IP solution.
- A maximum of three subtended shelves are supported off of DS1-IMA cards.
- A master shelf is determined by the presence of an active OC-3/STM-1 or DS1-IMA card.

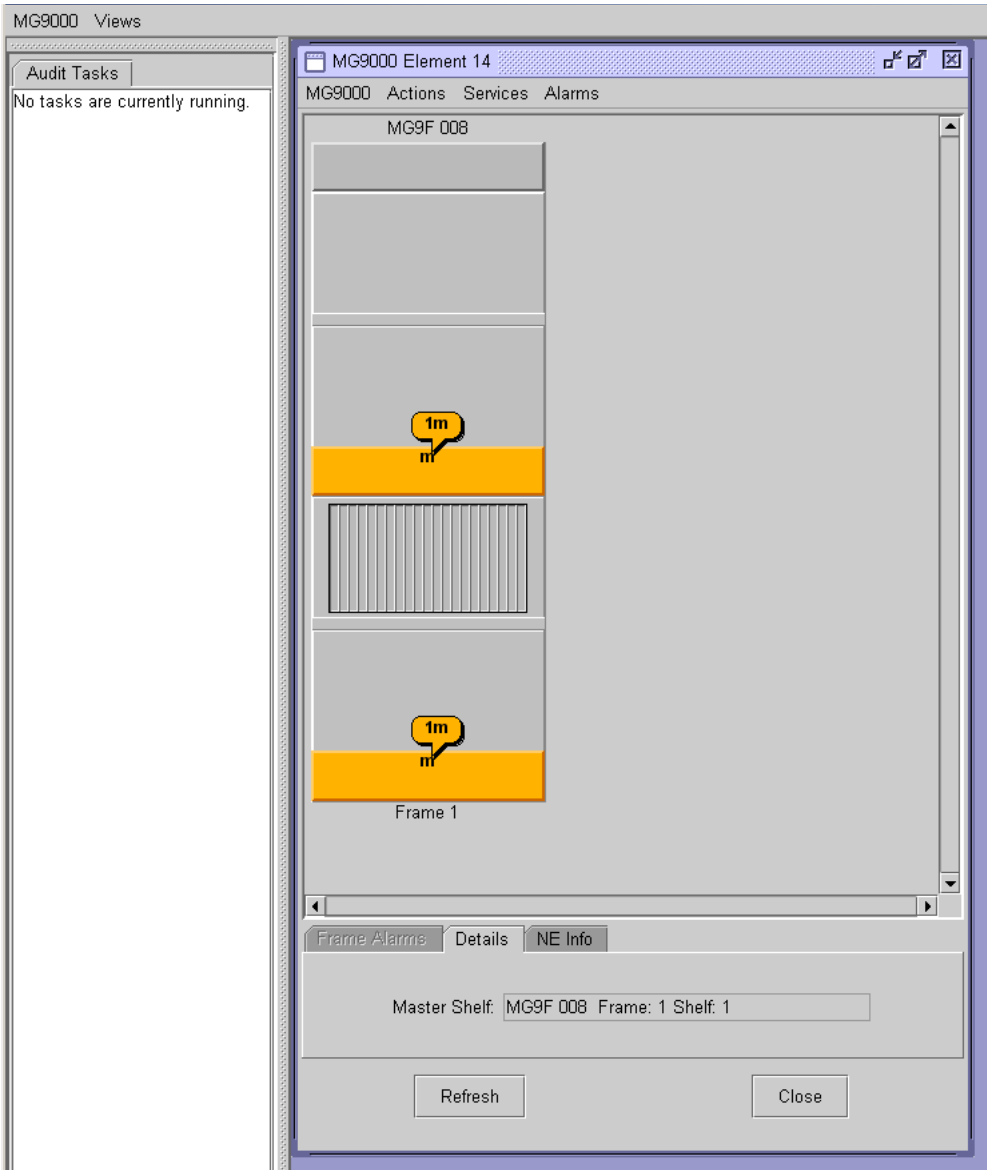
Differentiating a shelf type

The following information identifies how to differentiate between master and subtending shelves using the Frame View and Shelf View in the MG 9000 Manager.

Frame View

In the Frame View, the master frame is always seen at the far left side of the Frame View, and subtending frames to the right of the master frame. The details tab pane at the bottom portion of the screen identifies the master shelf in the master frame. All other shelves are considered subtended or slave shelves. The following figure shows the Frame View within the NE desktop view with the Details tab selected at the bottom of the window.

Frame View



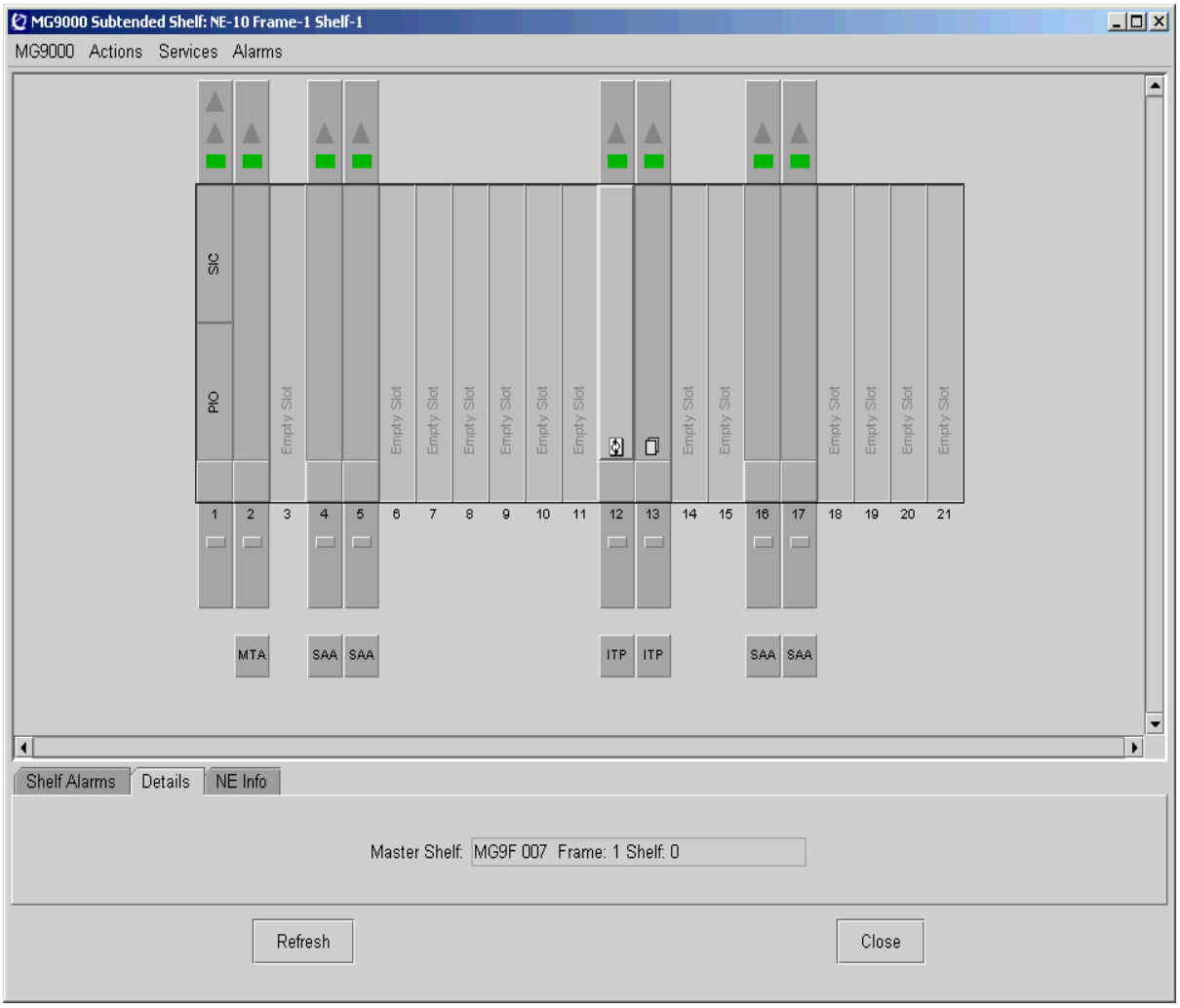
Shelf View

In a Shelf View, there are two ways to determine if a shelf is a master or slave shelf.

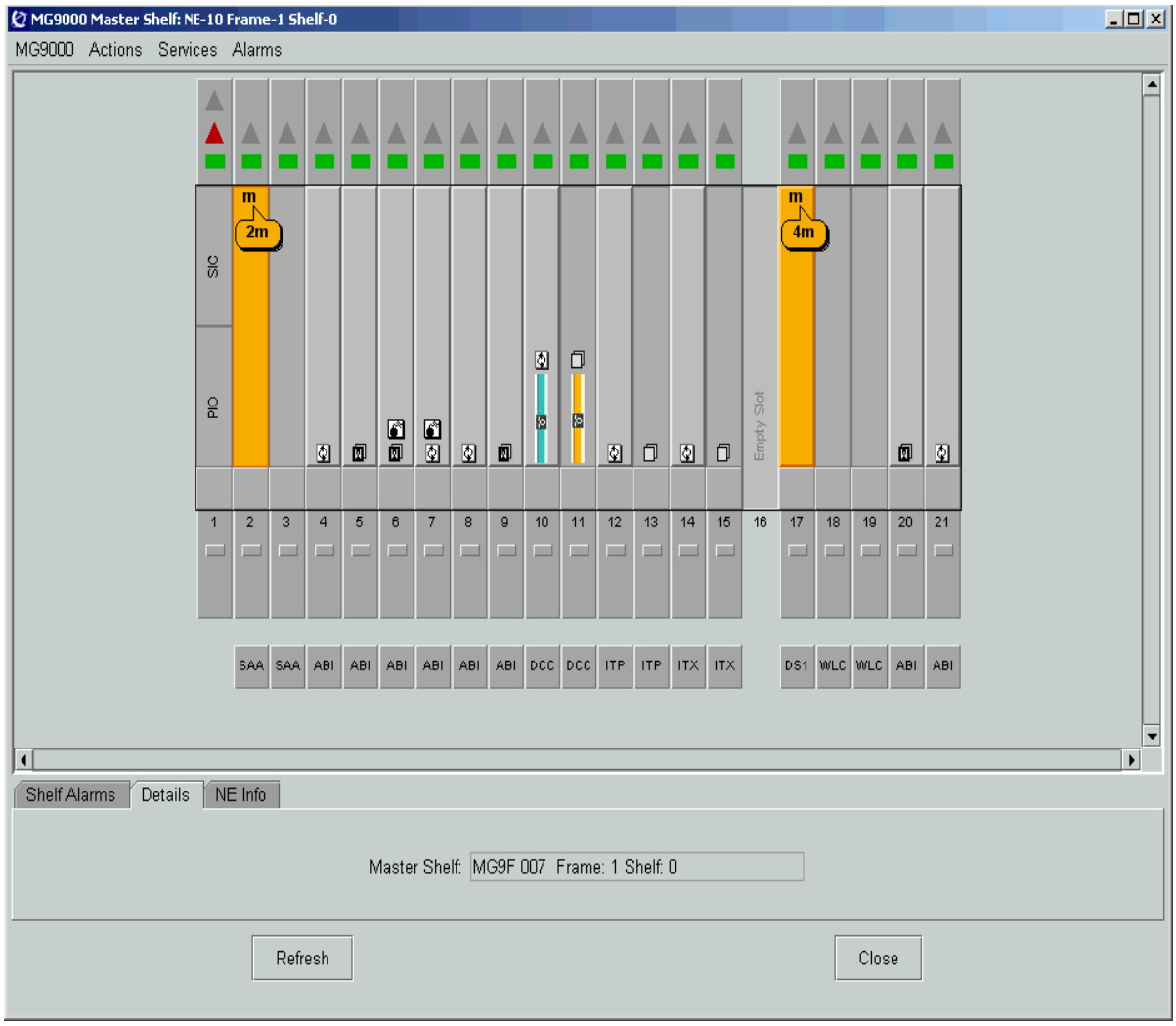
- First, the details tab pane at the bottom portion of the screen has the location of the master shelf, this can be compared to the shelf location displayed in the title bar.
- Second, look for the presence of a provisioned DCC (OC-3/STM-1 or DS1-IMA card). The DCC card indicates a master shelf.

The following figures show the Shelf View with the Details tab selected at the bottom of the window for a subtended shelf and a master shelf.

Shelf View of a Subtended Shelf



Shelf View of a master shelf



Provisioning subtended shelves

Autodiscovery detects additional shelves and updates the node/shelf view. Provisioning the virtual media gateway (VMG) on the subtended shelf is the same as for a master shelf, except that the shelf must be identified on which the VMG is to be provisioned.

Renumbering an MG 9000 frame

When to use this procedure

Use this procedure when it is necessary to change a frame number as part of an office reconfiguration of MG 9000 frames and shelves.

Prerequisites

Perform this activity during periods of low traffic.

Action

Renumbering an MG 9000 frame

At the CS2000 Management Tools

1 Using OSSGate, deprovision all lines configured off the frame to be renumbered.

At the MG 9000 Manager

2 Perform the “Deprovisioning a line card procedure” in this document for all line cards in the frame.

3 Remove all line cards from the frame.

4 Deprovision all SIC cards in the frame by performing the following steps:

a At the Shelf View, double-click on the SIC card in slot 1. The SIC Card View appears.

b Set the Administrative State of the card to Locked. The Operational State changes to Disabled.

c Repeat steps 4a and 4b for each SIC in the frame.

5 Deprovision the inactive ITP cards in the frame by performing the following steps:

a At the Shelf View, double-click on the inactive (Hot_Standby) ITP card. The ITP Card View appears.

b Set the Administrative State of the card to Locked. Set the Configuration State to Offline. The Operational State changes to Disabled.

c Repeat steps 5a and 5b for each ITP card in the frame.

At the MG 9000 frame

WARNING
Static electricity damage
Wear a wrist strap that connects to the wrist-strap grounding point to handle cards. The wrist-strap grounding point is on the local craft access panel (LCAP). The wrist strap protects the cards against static electricity damage.

6 Remove the inactive ITP cards from each shelf in the frame.

At the MG 9000 Manager

7 Deprovision the active ITP cards in the frame by performing the following steps:

a At the Shelf View, double-click on the active (Providing_Service) ITP card. The ITP Card View appears.

b Set the Administrative State of the card to Locked. Set the Configuration State to Offline. The Operational State changes to Disabled.

c Repeat steps 7a and 7b for each ITP card in the frame.

At the MG 9000 frame

8

WARNING
Static electricity damage
Wear a wrist strap that connects to the wrist-strap grounding point to handle cards. The wrist-strap grounding point is on the local craft access panel (LCAP). The wrist strap protects the cards against static electricity damage.

Remove the active ITP cards from each shelf in the frame.

At the MG 9000 Manager

9 At the Subnet View, double click the MG 9000 icon. The Frame View appears.

10 Double click on the IBIP shelf to access the IBIP Shelf View for the MG 9000 IBIP shelf with the alarm processor card in alarm.

11 Identify the alarm processor card with the alarm by observing the alarm balloon.

12 To lock the card, change the Administrative state by selecting Lock from the administrative state pull-down menu in the state section.

13 Set the Configuration State to Offline from the configuration state pull-down menu in the state section. Wait for the Restart to complete. Observe that the LED indicator on the Card View changes to red, indicating Safe to pull.

At the MG 9000 frame

14 Remove the IBIP front cover.

15

WARNING

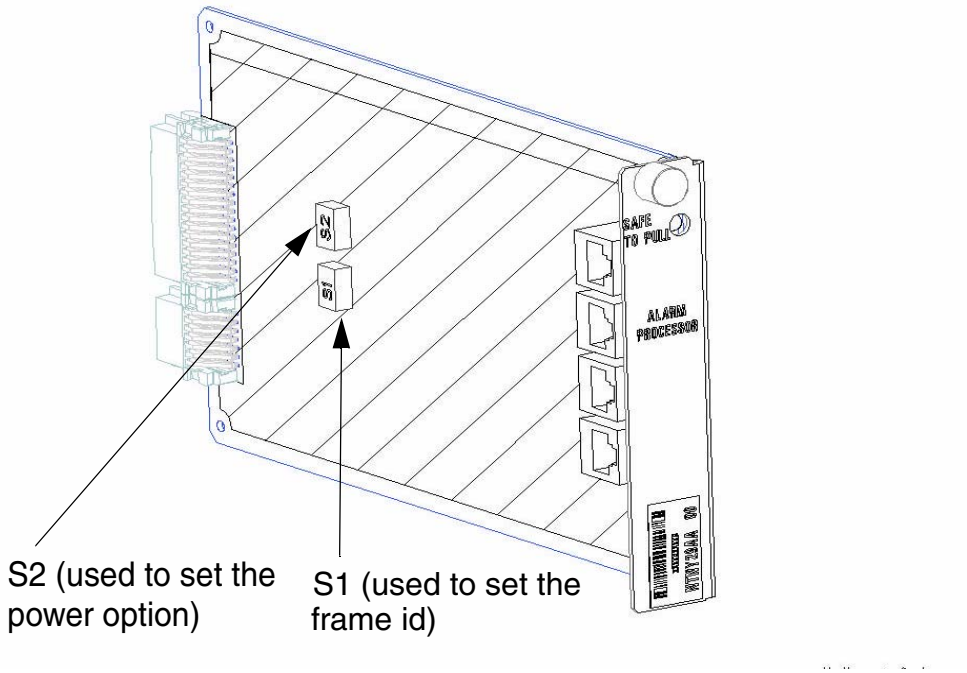
Static electricity damage

Wear a wrist strap that connects to the wrist-strap grounding point to handle cards. The wrist-strap grounding point is on the local craft access panel (LCAP). The wrist strap protects the cards against static electricity damage.

Loosen the hold-down screw on the faceplate of the alarm processor card

16 Identify the two switch banks (S1 and S2) on the alarm card. Refer to the following figure for switch bank locations.

Alarm processor card switch location



17 Set switch bank SW-1 to the frame id settings desired. Use the following note and table when setting the frame id.

Note: Ensure the frame id setting used for the renumbered frame is the logical frame number, not the physical frame number.

Switch 1 Frame ID switch settings

SW-2 Setting				Description
1	**2**	**3**	**4**	
Off	Off	Off	Off	Frame 0
On	Off	Off	Off	Frame 1
Off	On	Off	Off	Frame 2
On	On	Off	Off	Frame 3
Off	Off	On	Off	Frame 4
On	Off	On	Off	Frame 5
Off	On	On	Off	Frame 6
On	On	On	Off	Frame 7

Switch 1 Frame ID switch settings

SW-2 Setting				Description
1	2	3	4	
Off	Off	Off	On	Frame 8
On	Off	Off	On	Frame 9
Off	On	Off	On	Frame 10
On	On	Off	On	Frame 11
Off	Off	On	On	Frame 12
On	Off	On	On	Frame 13
Off	On	On	On	Frame 14
On	On	On	On	Frame 15

18 Insert the alarm processor card into the IBIP and secure the card into place with the hold-down screw.

19 Replace the IBIP front cover.

At the MG 9000 Manager

20 To return the alarm processor card to service, set the Configuration state to Online from the configuration state pull-down menu in the state section. Wait for the Restart to complete and set the Administrative state to Unlocked from the administrative state pull-down menu in the state section.

21 Provision all SIC cards in the frame by performing the following steps:

a At the Shelf View, double-click on the SIC card in slot 1. The SIC Card View appears.

b Set the Administrative State of the card to Unlocked. The Operational State changes to Disabled.

c Repeat steps 21a and 21b for each SIC in the frame.

At the MG 9000 frame

22

WARNING
Static electricity damage
Wear a wrist strap that connects to the wrist-strap grounding point to handle cards. The wrist-strap grounding point is on the local craft access panel (LCAP). The wrist strap protects the cards against static electricity damage.

Install one ITP card into each shelf in the frame.

At the MG 9000 Manager

23 Provision the ITP cards that were just installed in the previous step by performing the following steps:

a At the Shelf View, double-click on the discovered ITP card. The ITP Card View appears.

b Set the Administrative State of the card to Unlocked. Set the Configuration State to Online. The Operational State changes to Enabled.

c Repeat steps 23a and 23b for each ITP card in the frame.

At the MG 9000 frame

24

WARNING
Static electricity damage
Wear a wrist strap that connects to the wrist-strap grounding point to handle cards. The wrist-strap grounding point is on the local craft access panel (LCAP). The wrist strap protects the cards against static electricity damage.

Install the mate ITP card into each shelf in the frame.

At the MG 9000 Manager

25 Provision the mate ITP cards that were just installed in the previous step by performing the following steps:

a At the Shelf View, double-click on the discovered mate ITP card. The ITP Card View appears.

b Set the Administrative State of the card to Unlocked. Set the Configuration State to Online. The Operational State changes to Enabled.

c Repeat steps 25a and 25b for each mate ITP card in the frame.

At the MG 9000 frame

26

WARNING
Static electricity damage
Wear a wrist strap that connects to the wrist-strap grounding point to handle cards. The wrist-strap grounding point is on the local craft access panel (LCAP). The wrist strap protects the cards against static electricity damage.

Install all line cards that were removed from the frame in step 3.

At the MG 9000 Manager

27 Provision all the line cards by line card type that were installed in the previous step. Use the line card provisioning procedures in this document for this activity.

At the CS2000 Management Tools

28 Using OSSGate, provision all lines configured off the frame that were deprovisioned in step 1.

29 This procedure is complete.

Provisioning an MG 9000 frame's physical location

When to use this procedure

Use this procedure when it is necessary to provision an MG 9000 frame's physical location in an office. The following information is displayed concerning a frame's physical location:

- Site identifier
- internal (logical) frame number
- floor position
- row position
- frame position within the row

After the frame is provisioned, the provisioned data is displayed in alarm logs, and the external office frame number will be displayed on the MG 9000 Frame View. The external office frame number will be displayed on the frame view and the details tab of the shelf views. For any non-ABI VMGs created after provisioning the frame, use the site and office frame number from the frame as part of the VMG name.

Note 1: This procedure must be completed before any new VMGs are created in a frame. If VMGs already exist, any attempt to provision or change a frame's site and office frame number will be blocked if the new site and office frame number conflict with existing VMG names. To continue with the provisioning activity, the VMGs that do not match the desired site and office frame number will have to be deleted and then recreated after the frame is provisioned.

Note 2: If Frame location is reprovisioned when an Alarm audit is in progress, the Frame location information for the MG 9000 alarm may not be updated immediately on Alarm browser.

Prerequisites

Users must have emsrw or emsadm permissions to update the frame location information.

Action

Provisioning an MG 9000 frame's physical location

At the MG 9000 Manager

1 At the Subnet View, double click the MG 9000 network element icon. The Frame View appears.

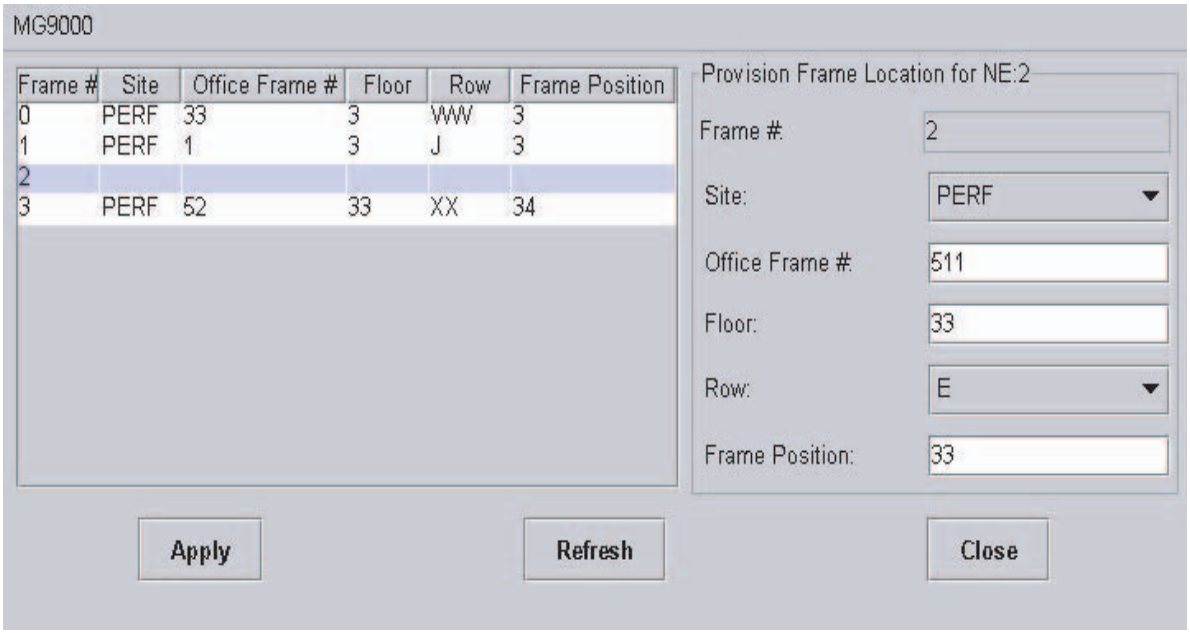
2 From the Frame View, select Actions->Provision Frame Location Information from the menu bar.

The Frame Provisioning Information View displays all the frames in the NE in tabular form with the index being the internal frame number. For each frame, the following location information is displayed.

Field	Description
Site	Specifies the MG 9000 frame site location. The value for this field is selected from the Site table at the CS 2000 XACore.
Office Frame #	Specifies the external office frame number that is physically labeled on the frame. Range is 0-511.
Floor	Specifies the floor number within the site where the MG 9000 frame is located. Range is 0-99.
Row	Specifies the row within the floor where the MG 9000 frame is located. The range is: A, B, .., Z, AA, BB, ..., ZZ with the exclusion of I, O, II, and OO.
Frame Position	Specifies the frame position within the row where the MG 9000 frame is located. Range is 0-99.

The Frame Provisioning Information View appears as shown in the following figure.

Frame location information view



3 Select the frame from the table and modify the frame location fields on the right side of the view based on the information provided in the table in step 2.

Note: If non-ABI VMGs already exist, any attempt to provision or change a frame's site and office frame number will be blocked if the new site and office frame number conflict with existing VMG names. To continue with the provisioning activity, the VMGs that do not match the desired site and office frame number will have to be deleted and then recreated after the frame is provisioned.

Click Apply to submit the changes.

4 The procedure is complete.

Decommissioning an MG 9000 frame

When to use this procedure

Use this procedure when it is necessary to decommission an MG 9000 frame.

Note: If it is necessary to decommission a shelf or series of shelves without decommissioning the entire network element (NE), contact Nortel Networks before proceeding. Decommissioning a shelf without Nortel support will result in an outage when attempting to add a shelf back to the NE.

Prerequisites

There are no prerequisites.

Action

Decommissioning an MG 9000 frame

At the CS2000 Management Tools

1 Using OSSGate, deprovision all lines configured off the frame to be decommissioned.

At the MG 9000 Manager

2 Perform the Deleting a VMG procedure in this document for all VMGs in the frame to be decommissioned.

3 Perform the De-provisioning a line card procedure in this document for all line cards in the frame.

4 Remove all line cards from the frame.

5 Deprovision all SIC cards in the frame by performing the following steps:

Note: Each of the following steps takes at least 5 minutes to complete.

a At the Shelf View, double-click on the SIC card in slot 1. The SIC Card View appears.

b Set the Administrative State of the card to Locked. The Operational State remains Enabled.

c Set the Configuration state of the card to Deprovision. Click OK in response to the confirmation message for deprovisioning to continue.

d Repeat steps 5a and 5b for each SIC in the frame.

6 Deprovision the inactive ITP cards in the frame by performing the following steps:

a At the Shelf View, double-click on the inactive (Hot_Standby) ITP card. The ITP Card View appears.

b Set the Administrative State of the card to Locked. Set the Configuration State to Offline. The Operational State remains Enabled.

c Set the Configuration state of the card to Deprovision. Click OK in response to the confirmation message for deprovisioning to continue.

d Repeat steps 6a and 6b for each ITP card in the frame.

At the MG 9000 frame

7 Remove the inactive ITP cards from each shelf in the frame.

At the MG 9000 Manager

8 Deprovision the active ITP cards in the frame by performing the following steps:

a At the Shelf View, double-click on the active (Providing_Service) ITP card. The ITP Card View appears.

b Set the Administrative State of the card to Locked. Set the Configuration State to Offline. The Operational State remains Enabled.

c Set the Configuration state of the card to Deprovision. Click OK in response to the confirmation message for deprovisioning to continue.

d Repeat steps 8a and 8b for each ITP card in the frame.

At the MG 9000 frame

9 Remove the active ITP cards from each shelf in the frame.

At the MG 9000 Manager

10 At the Subnet View, double click the MG 9000 icon. The Frame View appears.

11 Double click on the IBIP shelf to access the IBIP Shelf View for the MG 9000 IBIP shelf with the faulty alarm processor card.

12 Identify the alarm processor card with the alarm condition by observing the alarm balloon.

13 To lock the card, change the Administrative state by selecting Lock from the administrative state pull-down menu in the state section.

14 Set the Configuration State to Offline from the configuration state pull-down menu in the state section. Wait for the Restart to complete. Observe that the LED indicator on the Card View changes to red, indicating Safe to pull.

15 At the Subnet View, verify that the shelves and frame pertaining to the frame being decommissioned do not appear.

At the MG 9000 frame

16 Remove the IBIP front cover.

17

WARNING
Static electricity damage
Wear a wrist strap that connects to the wrist-strap grounding point to handle cards. The wrist-strap grounding point is on the local craft access panel (LCAP). The wrist strap protects the cards against static electricity damage.

Remove power to the shelves by removing the fuse modules on the IBIP that provides power to the frame and shelves being decommissioned.

18 Replace the IBIP front cover.

19 The procedure is complete.

Provisioning cards and services

Line/service cards in an MG 9000 shelf can be provisioned to support SLoA and PLoA services. The following tasks describe how to configure specific cards for service.

- Provisioning a World line card
- Provisioning a Global line card
- Provisioning a DS1 card
- Provisioning an SAA line card
- Provisioning an ADSL card
- Provisioning an ITX card
- De-provisioning a line card

The following services and functions can be provisioned after the required hardware is installed and configured.

- Provisioning private lines services
- Provisioning switched lines services
- Provisioning and maintenance of OC-3 APS
- Provisioning SIC inputs and outputs
- Provisioning IBIP inputs and outputs
- Using the Bandwidth Manager
- Using the Bandwidth Management Planning Tool

The following activity can be performed to audit provisioning data on the MG 9000:

- Performing an audit of the MG 9000 provisioning data

The following activities can be performed when it becomes necessary to address performance issues or change the ESA data download properties:

- Managing performance thresholds
- Managing overload thresholds
- Changing MG 9000 Manager ESA data download properties

Provisioning a World line card

When to use this procedure

Use this procedure when it is necessary to provision a POTS 32 World line card and line circuits. The POTS 32-line card uses the single in-line package version of the World Line Card (WLC) and serves 32 subscriber loops. Provision a POTS line card using the following procedure.

Included are the following procedures:

- Provisioning a WLC
- Provisioning a line circuit on a WLC
- Viewing all WLC circuits
- Provisioning a line template table

Prerequisites

A WLC card must have been installed in the slot to be provisioned using correct ESD precautions.

Action

Provisioning a World line card

At the MG 9000 Manager

1 At the Subnet View, double click on the MG 9000 that is to have the WLC provisioned. The Frame View appears.

2 At the Frame View, double click on the shelf in which the WLC resides. The Shelf View appears.

3 At the Shelf View, double click on the slot in which the WLC resides. The WLC Card screen appears. Since the WLC card is already installed, autodiscovery datafills the data about the card. Any specific parameter that must be modified, can be performed as outlined in the next step, using the information in the WLC Card View data table.

Note: When provisioning a World line card, click Refresh at the bottom of the WLC Card View to synchronize the data between the MG 9000 and the MG 9000 Manager.

4

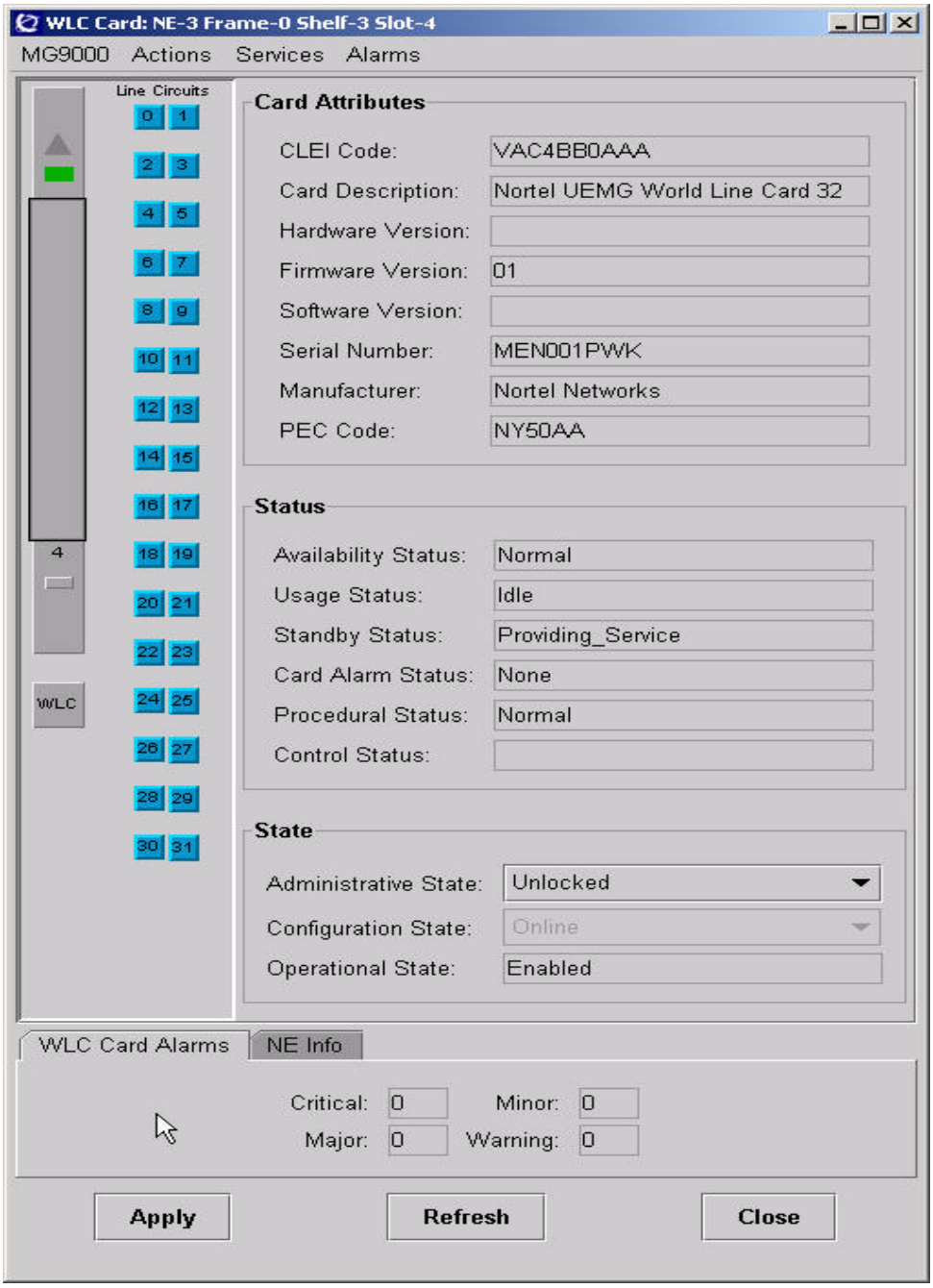
CAUTION

Affects subscriber service

When commands are entered at the GUI that may affect service on the card, an “Are you sure” dialog box is displayed to allow the user to cancel or approve of the command.

Enter data in the fields that appear in the Line Circuit Management screen from the WLC Card View.

WLC Card View



Refer to the following table for a list of the data fields and the possible values. Only the Administrative State and Configuration

State may be changed. The following figure shows the WLC Card View.

WLC Card View data fields

Box	Field	Explanation
Card Attributes	CLEI Code	Common Language Equipment Identifier (CLEI) indicates an inventory number assigned to each physical component.
	Card Description	Indicates the manufacturer's name for the physical component.
	Hardware Version	Indicates the vendor-specific hardware revision for the physical component.
	Firmware Version	Indicates the vendor-specific firmware revision for the physical component.
	Software Version	Indicates the vendor-specific software revision for the physical component.
	Serial Number	Indicates the serial number for the physical component.
	Manufacturer	Indicates the name of the manufacturer for the physical component.
	PEC Code	Indicates the model name associated with the physical component.

WLC Card View data fields

Box	Field	Explanation
Status	Availability Status	Provides a more refined/detailed status of the card: • in test - The card is undergoing a test procedure which could cause maintenance requests to be rejected. • failed - The card has a fault that prevents it from providing service. The operational state is disabled. • off line - The card requires a routing operation to be performed to place it online and make it available for use. • dependency - The card cannot operate because some other resource on which it depends is unavailable. • degraded - The service available from the card is degraded in some respect, such as speed or operating capacity. • not installed - The card is not present or is only partially installed.
	Usage Status	Indicates whether or not the card is actively in use at a specific instance. • active - If the card is Unlocked/Enabled. • idle - If the card is Unlocked/Disabled or in the Locked state.
	Standby Status	Indicates whether the card is active or standby. • hot standby - The card is not providing service. • providing service - The card is providing service.

WLC Card View data fields

Box	Field	Explanation
	Alarm Status	Indicates the severity of an alarm on the card. • none - No alarms have been detected on the card. • critical - A critical alarm indicating a fault has been detected on the card. major - A major alarm indicating a fault has been detected on the card. • minor - A minor alarm indicating a fault has been detected on the card. • alarm outstanding - One or more alarms have been detected on the card.
	Procedural Status	Indicates a card which is initializing after a restart and terminating before a restart. • initialization Required - The resource requires initialization to be invoked by the manager before it can perform its normal functions, and this procedure has not been initiated. • not Initialized - The resource requires initialization before it can perform its normal functions, and this procedure has not been initiated. • initializing -The resource requires initialization before it can perform its normal functions, and this procedure has been initiated but is not yet complete • reporting - The resource has completed some processing operation and is notifying the results of the operation. • terminating - The resource is in a termination phase.
	Control Status	Not supported.

WLC Card View data fields

Box	Field	Explanation
State	Administrative State	Indicates whether the card can be used or is prohibited from use. • locked - The card is administratively prohibited from performing service for its users. • force locked - The card is administratively prohibited from performing service for its users. The lock will be applied even if there are active calls on the card. Those calls will be stopped when the card is locked. • unlocked - The card is administratively permitted to perform service for its users. • force unlocked - The card is administratively permitted to perform service for its users. The unlock will be applied no matter what state the card is in. ***Note:*** Changing the Administration State does not require selection of the Apply button.

WLC Card View data fields

Box	Field	Explanation
	Configuration State	Indicates whether or not the card is actively in use at a specific instance. • online - The card is administratively allowed to send messages, such as alarm messages, to the MG 9000 Manager. • offline - The card is administratively prevented from sending messages, such as alarm messages, to the MG 9000 Manager • deprovisioned - The card is administratively removed and must be physically removed from the shelf to remove all associated data. ***Note 1:*** When an WLC card goes from the Deprovisioned state to the Offline state, the associated terminations are configured in the MG 9000 Manager, the MG 9000, and the SESM. ***Note 2:*** The Administrative State must be Locked prior to changing the Configuration State. ***Note 3:*** Changing the Configuration State does not require selection of the Apply button.
	Operational State	Indicates the operability of a card. • disabled - The card is inoperable and unable to provide service. • enabled - The card is partially or fully operable and available for use

5 This procedure is compete.

Provisioning a line circuit on a WLC

At the MG 9000 Manager

1 At the Subnet View, double click on the MG 9000 that is to have the WLC line circuits provisioned. The Frame View appears.

2 At the Frame View, double click on the shelf in which the WLC resides. The Shelf View appears.

3 At the Shelf View, double click on the slot in which the WLC resides. The WLC Card screen appears.

4

CAUTION

Affects subscriber service

When commands are entered at the GUI that may affect service on the card, an “Are you sure” dialog box is displayed to allow the user to cancel or approve of the command.

At the WLC Card screen, double click on an individual circuit. The window for Line Circuit appears.

5 At the Line Circuit screen, select the Locked option for the Administrative Status in the Circuit Status box to change data.

When the circuit is Locked, the fields in the Circuit Provisioning box become available for modification.

6 Enter data in the fields that appear in the Circuit Provisioning box from the Line Circuit window. Refer to the following table for a list of the data fields and the possible values.

Note: When the MG 9000 Manager is having trouble retrieving circuit data from the MG 9000, the following conditions may exist when attempting to provision circuits. Each of these panels work independently of each other and any data that is available will be displayed.

- Circuit Provisioning panel, the fields in this panel will be greyed out and the Apply button is disabled. When this condition exists, move the cursor over the Apply button and a message appears informing the user that circuit provisioning is disabled because of the communication failure.
- State Provisioning panel, the fields indicate that states are unavailable.

- Circuit Status panel, though the Administrative Status can be modified, it will most likely fail. In addition, the Operational Status indicates the value is unavailable.
- Software Load Status panel, indicates the load state and name are unavailable.

WLC Circuit View data box fields

Box	Field	Explanation
Circuit Provisioning	Service Type	The line service type for WLC = POTS loop start.
	Min Flash Duration	The minimum flash time in milliseconds. Default value is 31 (31 x 8ms = 248ms)
	Min Inter Digit Time	The minimum time allowed between digits in milliseconds. Default value is 63 (63 x 2ms = 126ms)
	Template	The B11 template to use for the line circuit. ***Note:*** The template is defined at the card level and configured at the circuit level.
	Min Disc Time	The minimum time, in milliseconds, to be considered on hook with flash enabled. Default value is 150 (150 x 8ms = 1200ms)
State Provisioning	Fault State	Indicates if the line is in a fault condition. • notInFault - No faults exist on the circuit. • inFault - A fault has been detected on the circuit and a line fault notification is sent to the MG 9000 Manager. • unknown - have not communicated with the card yet.
	Protection State	Indicates if the line circuit is currently in over-voltage condition. • notInProtection - no foreign voltage has been detected. • inProtection - foreign voltage has been detected and the cut-off relay operated. • unknown - have not communicated with the card yet.

WLC Circuit View data box fields

Box	Field	Explanation
	Babble State	Indicates if the line circuit is in a babbling state. • notInBabble - a babbling condition has not been detected on the circuit. • inBabble - a babbling condition has been detected and the circuit is disabled from call processing. • unknown - have not communicated with the card yet.
	Cut Off Relay	Indicates if Cut Off Relay is operated. • on - the relay is on • off - the relay is off
Circuit Status	Administrative Status	Indicates whether the circuit can be used or is prohibited from use. • locked - The circuit is administratively prohibited from performing service for its users. The lock will be applied even if there is an active call on the circuit. The call will be stopped when the circuit is locked. • unlocked - The circuit is administratively permitted to perform service for its users. ***Note:*** Changing the Administrative State does not require selection of the Apply button.
	Operational Status	Indicates the operability of a circuit. • disabled - The circuit is inoperable and unable to provide service. • enabled - The circuit is partially or fully operable and available for use .

The following figure shows the WLC Line Circuit View.

WLC Line Circuit View

7 Select the Apply button at the bottom of the Line Circuit window to update the circuit with the data entered.

8 This procedure is complete.

Viewing all WLC line circuits

At the MG 9000 Manager

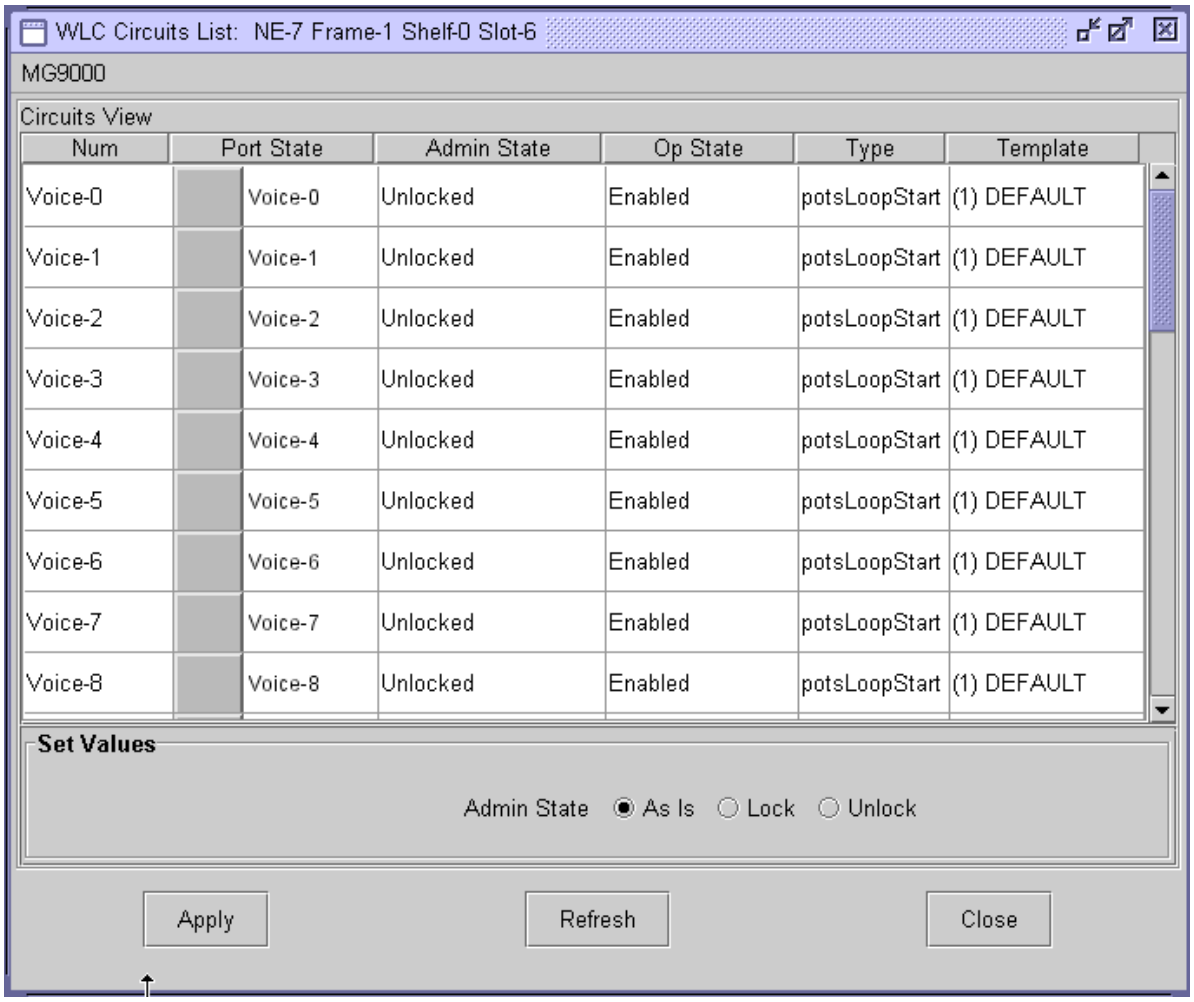
1 At the WLC Card screen, from the menu bar select Services->Circuits Listing.

2 The window for Circuits Listing appears. The Circuits Listing View is a table that shows a complete list of all ports contained within the card. Double clicking on any port row in the table opens up the corresponding Port View for that circuit.

Note 1: The values presented in the table cannot be edited. However, from the Circuit Listing View the technician can operate on multiple ports at the same time or apply certain commands like setting the Admin state.

Note 2: The alarm, configuration, and Admin state of the ports in the table get updated dynamically to reflect the state of the circuits on the MG 9000. The line service type and operational state do not get updated dynamically. Click on the Refresh button to see the current values.

WLC Circuits Listing View



The following table lists the fields in the Circuits Listing View.

Circuits Listing View fields

Field	Entry	Explanation
Num	0-31	Port number.
Port State	None	Graphical representation of the port along with its state.
Admin State	Locked, Unlocked, Testing, ERROR	Administrative state of the port. This is updated dynamically.

Circuits Listing View fields

Field	Entry	Explanation
Op State	Enabled, Disabled, Testing, Dormant, Not Present, Lower Layer Down, ERROR	Operational state of the port. Does not get updated dynamically.
Type	potsLoopStart, coin, pPhone, potsGroundStart, No Service	Specifies the line service type for the port. Does not get updated dynamically.
Template	N/A	Identifies the template selected for the circuit.
SetValues	None	This is a logical grouping of all the values that can be set for multiple selections of the ports in the table. The technician must select a value in any of these subfields and after selecting the ports for which the operation is to be performed, click on Apply.
Admin State	As Is, Locked, Unlocked	Select any of the values to perform the respective operation on the selected port(s). The action is only performed after clicking on Apply.
Apply	None	Performs the specified action on the selected port(s).
Refresh	None	Causes the view to refresh itself.
Close or from the Menu->Close	None	Closes the view.

3 This procedure is complete.

Provisioning a line template table

At the MG 9000 Manager

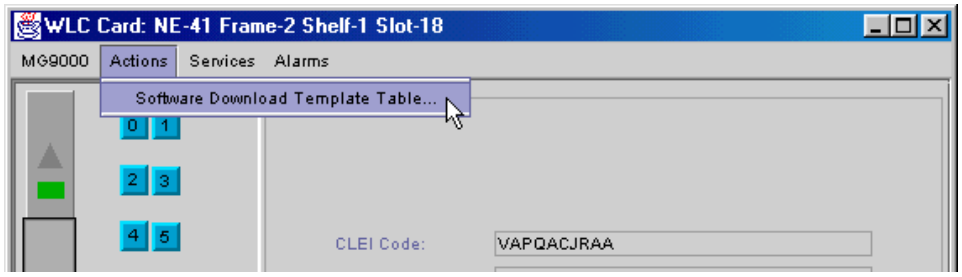
1 At the Subnet View, double click on the MG 9000 that is to have the WLC line circuits provisioned. The Frame View appears.

2 At the Frame View, double click on the shelf in which the WLC resides. The Shelf View appears.

3 At the Shelf View, double click on the slot in which the WLC resides. The WLC Card screen appears.

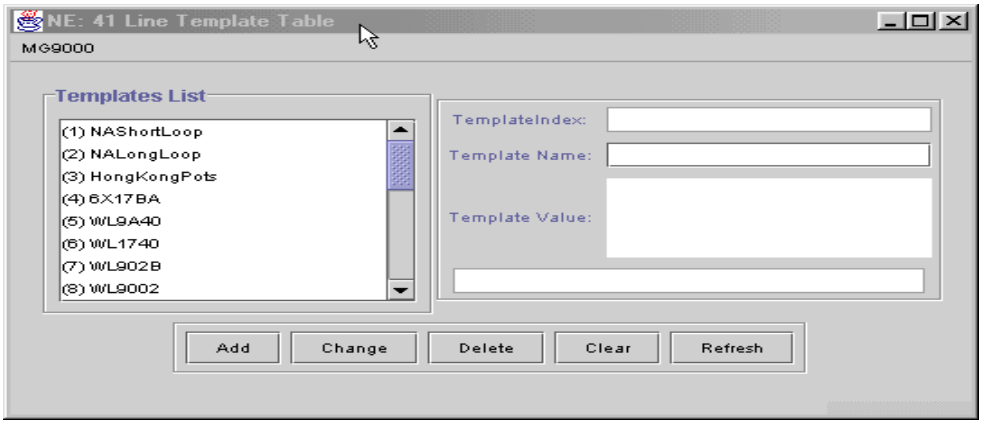
4 From the WLC Card View, access the Actions->Software Download Template Table.... menu item as shown in the following figure.

Accessing the Software Download Template Table



A Line Template Table window appears that contains a listing of default templates available for the circuits on the card. The Line Template is shown in the following figure.

Line Template Table View



Refer to the following table for a list of the data fields and the possible values. The supported templates and their characteristics are provided at the end of this procedure.

Note: The default template for North America is the NAShortLoop50ma for loop lengths under 30,000 feet, or NALongLoop50ma for loop lengths over 30,000 feet.

Line Template Table data fields

Fields	Explanation
Templates List	The name and numerical index associated with a Line Template.
Template Index	A numerical value from 1 to 256 indicating the index of the template in the Templates List. This value is autonomously generated when adding a template.
Template Name	The name associated with the template. Maximum number of characters specified is 20.
Template Value	A maximum of 37 bytes indicating the actual contents of the template.

At the Line Template Table screen

5 Determine the next action from the following Management options in the Line Template Table screen.

If the next step is to	Do
add a line template	step 6
change a line template	step 7
delete a line template	step 8
clear information for a line template	step 9
refresh a line template	step 10

6 To add a line template, perform the following steps:

a Enter a Template Name.

b Enter the Template Value.

c Select the Add option at the bottom of Line Template Table screen.

d Go to step 11.

7 To change a line template, perform the following steps:

a Highlight the template requiring change in the Templates List by clicking on the template.

b Change the Template Name and/or the Template Value.

c Select the Change option at the bottom of Line Template Table screen.

Note: Default templates that are provided during auto discovery may not be changed.

d Go to step 11.

8 To delete a line template, perform the following steps:

a Highlight the template requiring change in the Templates List by clicking on the template.

b Select the Delete option at the bottom of Line Template Table screen.

Note: Default templates that are provided during auto discovery may not be deleted.

c Go to step 11.

9 To clear the line template being entered, perform the following steps:

a Select the Clear option at the bottom of Line Template Table screen.

b Go to step 11.

10 To refresh a line template, click on the Refresh button.

11 This procedure is complete.

Line template tables and characteristics

The following tables list the characteristics for each of the supported B11 POTS templates used in the World line card circuits and ADSL card voice circuits.

NAShortLoop50ma template characteristics (for loops < 30 kft)

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB

NAShortLoop50ma template characteristics (for loops < 30 kft)

Characteristic	Value
Off-hook supervision threshold	12 mA
PCM encoding	u-law
Current limit	50 mA
Equalization loss	no

NAShortLoop40ma template characteristics (for loops < 30 kft)

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	12 mA
PCM encoding	u-law
Current limit	40 mA
Equalization loss	no

NAShortLoop30ma template characteristics (for loops < 30 kft)

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	12 mA
PCM encoding	u-law

NAShortLoop30ma template characteristics (for loops < 30 kft)

Characteristic	Value
Current limit	30 mA
Equalization loss	no

NAShortLoop23ma template characteristics (for loops < 30 kft)

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	12 mA
PCM encoding	u-law
Current limit	23 mA
Equalization loss	no

NALongLoop50ma template characteristics (for loops > 30 kft)

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	18 mA
PCM encoding	u-law
Current limit	50 mA
Equalization loss	no

NALongLoop40ma template characteristics (for loops > 30 kft)

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	18 mA
PCM encoding	u-law
Current limit	40 mA
Equalization loss	no

NALongLoop30ma template characteristics (for loops > 30 kft)

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	18 mA
PCM encoding	u-law
Current limit	30 mA
Equalization loss	no

NALongLoop23ma template characteristics (for loops > 30 kft)

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB

NALongLoop23ma template characteristics (for loops > 30 kft)

Characteristic	Value
Off-hook supervision threshold	18 mA
PCM encoding	u-law
Current limit	23 mA
Equalization loss	no

NP40AA template characteristics

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	12 mA
PCM encoding	u-law
Current limit	50 mA
Equalization loss	yes

6X17BA template characteristics

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
Balance impedance	NL: 88.9 ohms || (711.1 ohms + 63.3 nF)
	LD: 94.3 ohms || (1555.7 ohms + 5.6 nF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	12 mA

6X17BA template characteristics

Characteristic	Value
PCM encoding	u-law
Current limit	50 mA
Equalization loss	no

WLUKPSTN (short-line) template characteristics

Characteristic	Value
Input impedance	298 ohms || (1055 ohms + 2.16 uF)
Balance impedance	259 ohms || (676.8 ohms + 400 nF) (194.3 ohms + 246 nF)
A-D gain at 1004Hz	-1 dB
D-A gain at 1004Hz	-6 dB
Off-hook supervision threshold	12 mA
PCM encoding	A-law
Current limit	40 mA
Equalization loss	yes

WLUKPTN1 (long-line heavy gauge) template characteristics

Characteristic	Value
Input impedance	298 ohms || (1055 ohms + 2.16 uF)
Balance impedance	164 ohms || (1227 ohms + 350 nF) (162 ohms + 363 nF)
A-D gain at 1004Hz	-1 dB
D-A gain at 1004Hz	-6 dB
Off-hook supervision threshold	12 mA
PCM encoding	A-law

WLUKPTN1 (long-line heavy gauge) template characteristics

Characteristic	Value
Current limit	40 mA
Equalization loss	yes

WLUKPTN2 (long-line small gauge) template characteristics

Characteristic	Value
Input impedance	298 ohms || (1055 ohms + 2.16 uF)
Balance impedance	270 ohms || (1434 ohms + 265 nF)(263 ohms + 358 nF)
A-D gain at 1004Hz	-1 dB
D-A gain at 1004Hz	-6 dB
Off-hook supervision threshold	12 mA
PCM encoding	A-law
Current limit	40 mA
Equalization loss	yes

WL902B (9 + 2 balanced) template characteristics

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
Balance impedance	900 ohms || (0 ohms + 2.16 uF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	12 mA
PCM encoding	u-law

WL902B (9 + 2 balanced) template characteristics

Characteristic	Value
Current limit	50 mA
Equalization loss	no

WL902B (9 + 2 ground) template characteristics

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
Balance impedance	900 ohms || (0 ohms + 2.16 uF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	12 mA
PCM encoding	u-law
Current limit	40 mA
Equalization loss	no

WL93AA template characteristics

Characteristic	Value
Input impedance	600 ohms || (0 ohms + 2.16 uF)
Balance impedance	85.7 ohms || (514.3 ohms + 68.1nF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	12 mA
PCM encoding	A-law
Current limit	50 mA
Equalization loss	no

WL93CA template characteristics

Characteristic	Value
Input impedance	200 ohms || (680 ohms + 100 nF)
Balance impedance	160 ohms || (780 ohms + 115 nF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	12 mA
PCM encoding	A-law
Current limit	50 mA
Equalization loss	no

WLAUBX template characteristics

Characteristic	Value
Input impedance	220 ohms || (820 ohms + 120 nF)
Balance impedance	220 ohms || (820 ohms + 120 nF)
A-D gain at 1004 Hz	0 dB
D-A gain at 1004 Hz	-7 dB
On/Off hook threshold	12 mA
PCM encoding	A-Law
Current limiting	50 mA
Equalization loss	no
Loop resistance	2 k ohms
Battery voltage	44.5 - 53 V

WLCHAX template characteristics

Characteristic	Value
Input impedance	220 ohms || (820 ohms + 115 nF)
Balance impedance	220 ohms || (820 ohms + 115 nF)
A-D gain at 1004 Hz	0 dB
D-A gain at 1004 Hz	-6.5 dB
On/Off hook threshold	12 mA
PCM encoding	A-Law
Current limiting	55 mA
Equalization loss	no
Loop resistance	600 - 2200 ohms
Battery voltage	43 - 57 V

WLNLAL (long-line) template characteristics

Characteristic	Value
Input impedance	150 ohms || (830 ohms + 72 nF)
Balance impedance	150 ohms || (830 ohms + 72 nF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	-7 dB
On/Off hook threshold	12 mA
PCM encoding	A-Law
Current limiting	55 mA
Equalization loss	no
Loop resistance	2 k ohms
Battery voltage	44.5 - 53 V

WLNLAS (short-line) template characteristics

Characteristic	Value
Input impedance	150 ohms || (830 ohms + 72 nF)
Balance impedance	0 ohms || (600 ohms + 0 F)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	-7 dB
On/Off hook threshold	12 mA
PCM encoding	A-Law
Current limiting	55 mA
Equalization loss	no
Loop resistance	2 k ohms
Battery voltage	44.5 - 53 V

WLNLBL (long-line) template characteristics

Characteristic	Value
Input impedance	150 ohms || (830 ohms + 72 nF)
Balance impedance	150 ohms || (830 ohms + 72 nF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	-7 dB
On/Off hook threshold	12 mA
PCM encoding	A-Law
Current limiting	55 mA
Equalization loss	no

WLNLBS (short-line) template characteristics

Characteristic	Value
Input impedance	150 ohms || (830 ohms + 72 nF)
Balance impedance	0 ohms || (600 ohms + 0 F)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	-7 dB
On/Off hook threshold	12 mA
PCM encoding	A-Law
Current limiting	55 mA
Equalization loss	no

WL9A40 (9 + 2) template characteristics

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
Balance impedance	900 ohms || (0 ohms + 2.16 uF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	12 mA
PCM encoding	u-law
Current limit	40 mA
Equalization loss	no

WL1740 template characteristics

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
Balance impedance	88.9 ohms || (711.1 ohms + 63.3 nF)

WL1740 template characteristics

Characteristic	Value
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	12 mA
PCM encoding	u-law
Current limit	40 mA
Equalization loss	no

WL9002 (9 + 2 balanced) template characteristics

Characteristic	Value
Input impedance	900 ohms || (0 ohms + 2.16 uF)
Balance impedance	900 ohms || (0 ohms + 2.16 uF)
A-D gain at 1004Hz	0 dB
D-A gain at 1004Hz	0 dB
Off-hook supervision threshold	12 mA
PCM encoding	u-law
Current limit	50 mA
Equalization loss	no

Provisioning a Global line card

When to use this procedure

Use this procedure when it is necessary to provision a Global line card (GLC) 32 and line circuits. The GLC 32-line card serves 32 subscriber loops. Provision a GLC line card using the following procedure. Coefficients are used to control circuit characteristics and may be assigned on an individual circuit basis similar to how templates are used for WLC circuits. The circuit must be locked to change the coefficient.

Note 1: The GLC 32 card is used only in the UA-IP solution.

Note 2: The circuit will be configured with the coefficient selected for the VMG unless the selection is overridden in the GLC Line Circuit View.

Note 3: When replacing a WLC with a GLC, the original WLC must be deprovisioned before installing the new GLC card. Refer to De-provisioning a line card on page 141.

Included are the following procedures:

- Provisioning a GLC
- Provisioning a line circuit on a GLC
- Viewing all GLC circuits
- Provisioning coefficients

Prerequisites

A GLC card must have been installed in the slot to be provisioned using correct ESD precautions.

Action

Provisioning a Global line card

At the MG 9000 Manager

1 At the Subnet View, double click on the MG 9000 that is to have the GLC provisioned. The Frame View appears.

2 At the Frame View, double click on the shelf in which the GLC resides. The Shelf View appears.

3 At the Shelf View, double click on the slot in which the GLC resides. The GLC Card View appears. Since the GLC card is already installed, autodiscovery datafills the data about the card.

Any specific parameter that must be modified can be performed as outlined in the next step, using the information in the GLC Card View data table.

Note: When provisioning a Global line card, click Refresh at the bottom of the GLC Card View to synchronize the data between the MG 9000 and the MG 9000 Manager.

4

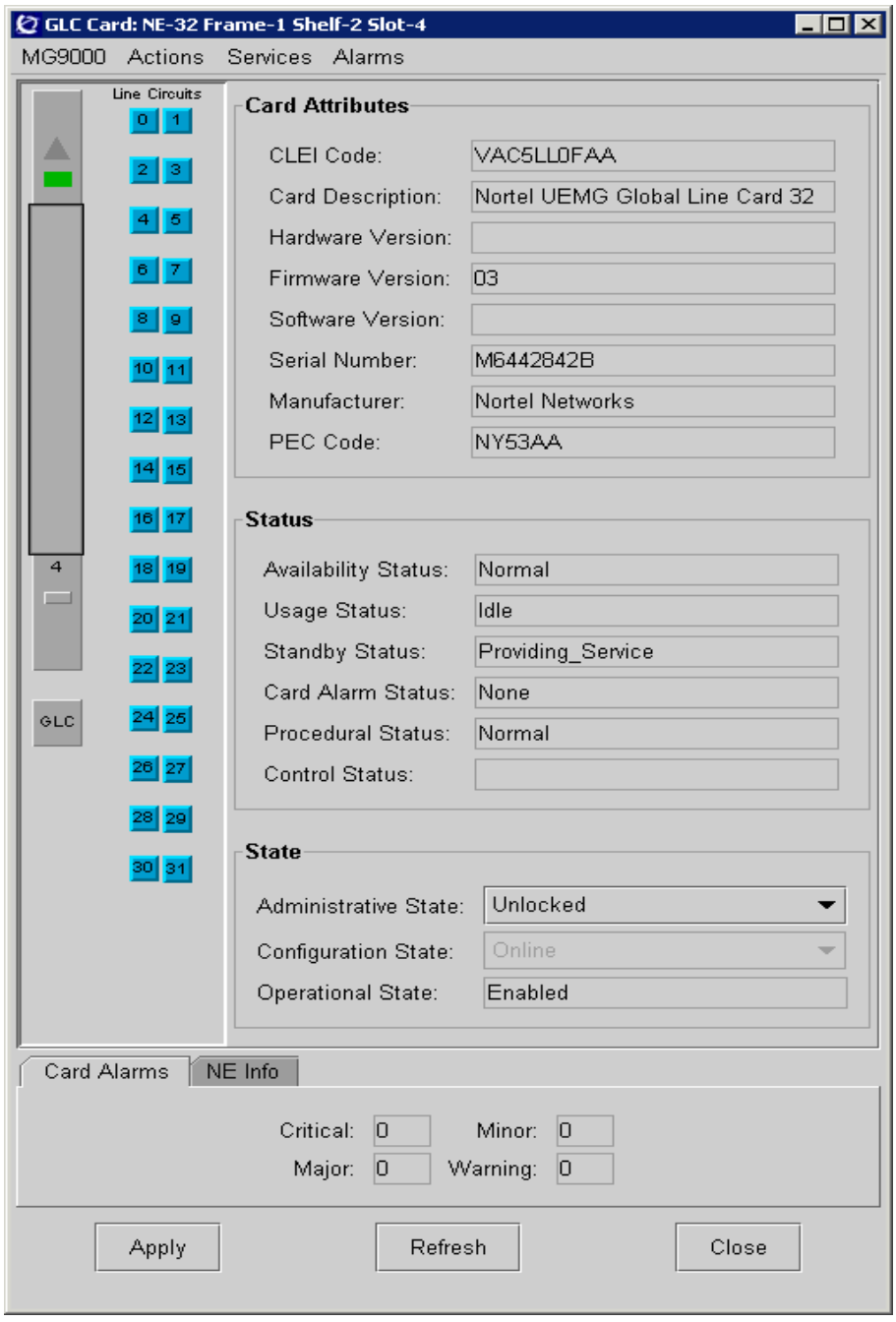
CAUTION

Affects subscriber service

When commands are entered at the GUI that may affect service on the card, an “Are you sure” dialog box is displayed to allow the user to cancel or approve of the command.

Enter data in the fields that appear in the Line Circuit Management screen from the GLC Card View. The following figure shows the GLC Card View.

GLC Card View



Refer to the following table for a list of the data fields and the possible values. Only the Administrative State and Configuration State may be changed.

GLC Card View data fields

Box	Field	Explanation
Card Attributes	CLEI Code	Common Language Equipment Identifier (CLEI) indicates an inventory number assigned to each physical component.
	Card Description	Indicates the manufacturer's name for the physical component.
	Hardware Version	Indicates the vendor-specific hardware revision for the physical component.
	Firmware Version	Indicates the vendor-specific firmware revision for the physical component.
	Software Version	Indicates the vendor-specific software revision for the physical component.
	Serial Number	Indicates the serial number for the physical component.
	Manufacturer	Indicates the name of the manufacturer for the physical component.
	PEC Code	Indicates the model name associated with the physical component.

GLC Card View data fields

Box	Field	Explanation
Status	Availability Status	Provides a more refined/detailed status of the card: • in test - The card is undergoing a test procedure which could cause maintenance requests to be rejected. • failed - The card has a fault that prevents it from providing service. The operational state is disabled. • off line - The card requires a routing operation to be performed to place it online and make it available for use. • dependency - The card cannot operate because some other resource on which it depends is unavailable. • degraded - The service available from the card is degraded in some respect, such as speed or operating capacity. • not installed - The card is not present or is only partially installed.
	Usage Status	Indicates whether or not the card is actively in use at a specific instance. • active - If the card is Unlocked/Enabled • idle - If the card is Unlocked/Disabled or in the Locked state.
	Standby Status	Indicates whether the card is active or standby. • hot standby - The card is not providing service, but is in synchronism operation with another resource that is to be backed-up. • providing service - The card is providing service and is backing up another card .

GLC Card View data fields

Box	Field	Explanation
	Alarm Status	Indicates the severity of an alarm on the card. • none - No alarms have been detected on the card. • critical - A critical alarm indicating a fault has been detected on the card and has not been corrected. major - A major alarm indicating a fault has been detected on the card and has not been corrected. • minor - A minor alarm indicating a fault has been detected on the card and has not been corrected. • alarm outstanding - One or more alarms have been detected on the card.
	Procedural Status	Indicates a card which is initializing after a restart and terminating before a restart. • initialization Required - The resource requires initialization to be invoked by the manager before it can perform its normal functions, and this procedure has not been initiated. • not Initialized - The resource requires initialization before it can perform its normal functions, and this procedure has not been initiated. • initializing -The resource requires initialization before it can perform its normal functions, and this procedure has been initiated but is not yet complete. • reporting - The resource has completed some processing operation and is notifying the results of the operation. • terminating - The resource is in a termination phase.
	Control Status	Not supported

GLC Card View data fields

Box	Field	Explanation
State	Administrative State	Indicates whether the card can be used or is prohibited from use. • locked - The card is administratively prohibited from performing service for its users. • force locked - The card is administratively prohibited from performing service for its users. The lock will be applied even if there are active calls on the card. Those calls will be stopped when the card is locked. • unlocked - The card is administratively permitted to perform service for its users. • force unlocked - The card is administratively permitted to perform service for its users. The unlock will be applied no matter what state the card is in. ***Note:*** Changing the Administration State does not require selection of the Apply button.

GLC Card View data fields

Box	Field	Explanation
	Configuration State	Indicates whether or not the card is actively in use at a specific instance. • online - The card is administratively allowed to send messages, such as alarm messages, to the MG 9000 Manager. • offline - The card is administratively prevented from sending messages, such as alarm messages, to the MG 9000 Manager • deprovisioned - The card is administratively removed and must be physically removed from the shelf to remove all associated data. ***Note 1:*** When a GLC card goes from the Deprovisioned state to the Offline state, the associated terminations are configured in the MG 9000 Manager, the MG 9000, and the SESM. ***Note 2:*** The Administrative State must be Locked prior to changing the Configuration State. ***Note 3:*** Changing the Configuration State does not require selection of the Apply button.
	Operational State	Indicates the operability of a card. • disabled - The card is inoperable and unable to provide service. • enabled - The card is partially or fully operable and available for use.

5 This procedure is compete.

Provisioning a line circuit on a GLC

At the MG 9000 Manager

1 At the Subnet View, double click on the MG 9000 that is to have the GLC line circuits provisioned. The Frame View appears.

2 At the Frame View, double click on the shelf in which the GLC resides. The Shelf View appears.

3 At the Shelf View, double click on the slot in which the GLC resides. The GLC Card View appears.

4 At the GLC Card View, double click on an individual circuit. The window for Line Circuit appears.

Note: When commands are entered at the GUI that may affect service on the circuit, an “Are you sure” dialog box is displayed to allow the user to cancel or approve of the command.

5 At the Line Circuit screen, select the Locked option for the Administrative Status in the Circuit Status box to change data.

When the circuit is Locked, the fields in the Circuit Provisioning box become available for modification.

6 Enter data in the fields that appear in the Circuit Provisioning box from the Line Circuit window. Refer to the following table for a list of the data fields and the possible values.

Note: When the MG 9000 Manager is having trouble retrieving circuit data from the MG 9000, the following conditions may exist when attempting to provision circuits. Each of these panels work independently of each other and any data that is available will be displayed.

- Circuit Provisioning panel, the fields in this panel will be greyed out and the Apply button is disabled. When this condition exists, move the cursor over the Apply button until a message appears informing the user that circuit provisioning is disabled because of the communication failure.
- State Provisioning panel, the fields indicate that states are unavailable.

- Circuit Status panel, though the Administrative Status can be modified, it will most likely fail. In addition, the Operational Status indicates the value is unavailable.
- Software Load Status panel, indicates the load state and name are unavailable.

Circuit View data box fields

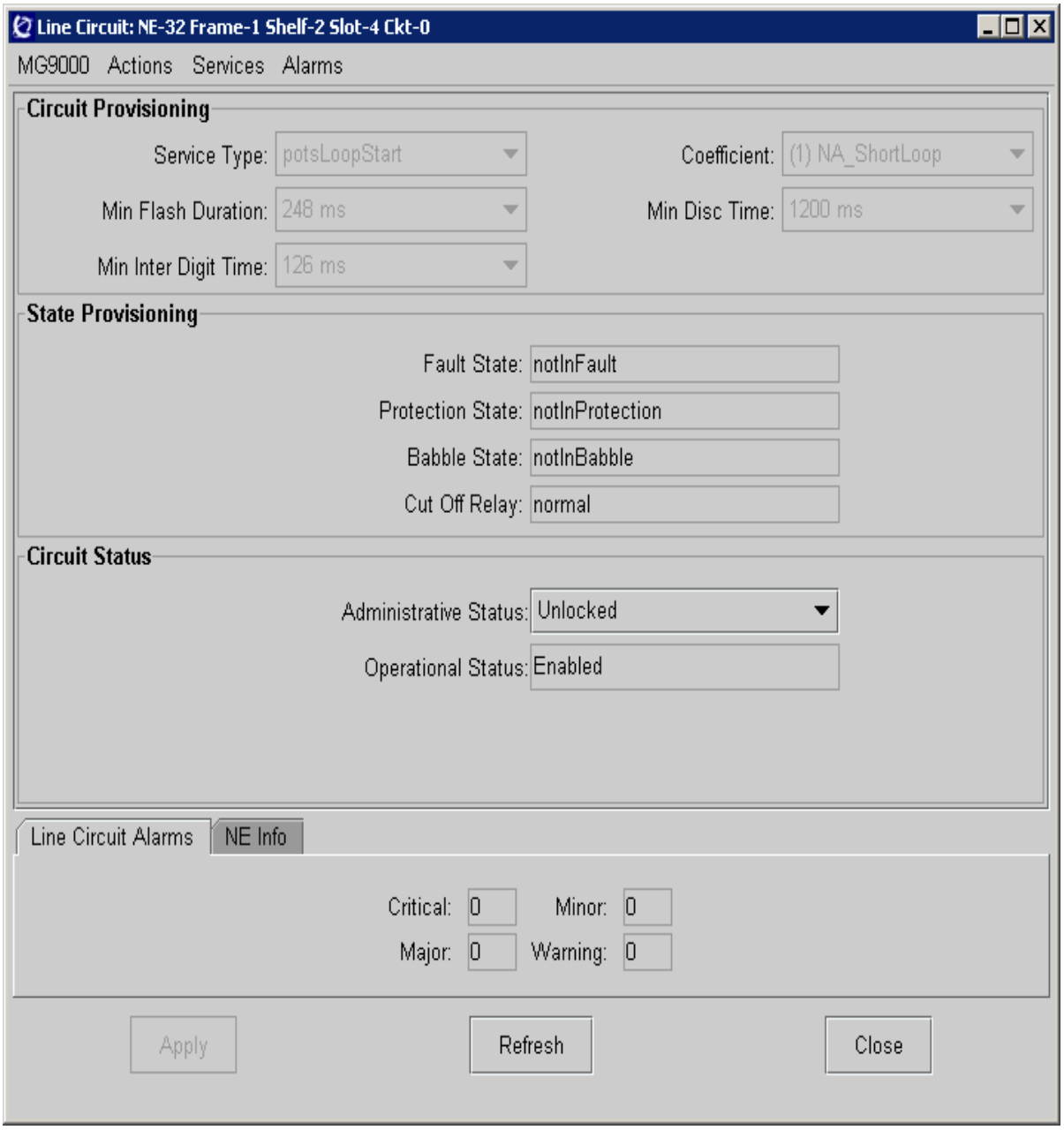
Box	Field	Explanation
Circuit Provisioning	Service Type	The line service type for GLC = potsLoopStart or postGndStart.
	Min Flash Duration	The minimum flash time in milliseconds. Default value is 31 (31 x 8ms = 248ms)
	Min Inter Digit Time	The minimum time allowed between digits in milliseconds. Default value is 63 (63 x 2ms = 126ms)
	Coefficient	Contains a pull down list of defined coefficients.
	Min Disc Time	The minimum time, in milliseconds, to be considered on hook with flash enabled. Default value is 150 (150 x 8ms = 1200ms)
State Provisioning	Fault State	Indicates if the line is in a fault condition. • notInFault - No faults exist on the circuit. • inFault - A fault has been detected on the circuit and a line fault notification is sent to the MG 9000 Manager. • unknown - have not communicated with the card yet.
	Protection State	Indicates if the line circuit is currently in over-voltage condition. • notInProtection - no foreign voltage has been detected. • inProtection - foreign voltage has been detected and the cut-off relay operated. • unknown - have not communicated with the card yet.

Circuit View data box fields

Box	Field	Explanation
	Babble State	Indicates if the line circuit is in a babbling state. • notInBabble - a babbling condition has not been detected on the circuit. • inBabble - a babbling condition has been detected and the circuit is disabled from call processing. • unknown - have not communicated with the card yet.
	Cut Off Relay	Indicates if Cut Off Relay is operated. • on - the relay is on • off - the relay is off
Circuit Status	Administrative Status	Indicates whether the circuit can be used or is prohibited from use. • locked - The circuit is administratively prohibited from performing service for its users. The lock will be applied even if there is an active call on the circuit. The call will be stopped when the circuit is locked. • unlocked - The circuit is administratively permitted to perform service for its users. ***Note:*** Changing the Administrative State does not require selection of the Apply button.
	Operational Status	Indicates the operability of a circuit. • disabled - The circuit is inoperable and unable to provide service. • enabled - The circuit is partially or fully operable and available for use.

The following figure shows the GLC Line Circuit View.

Line Circuit View for GLC line circuits



7 Select the Apply button at the bottom of the Line Circuit window to update the circuit with the data entered.

8 This procedure is complete.

Viewing all GLC line circuits

At the MG 9000 Manager

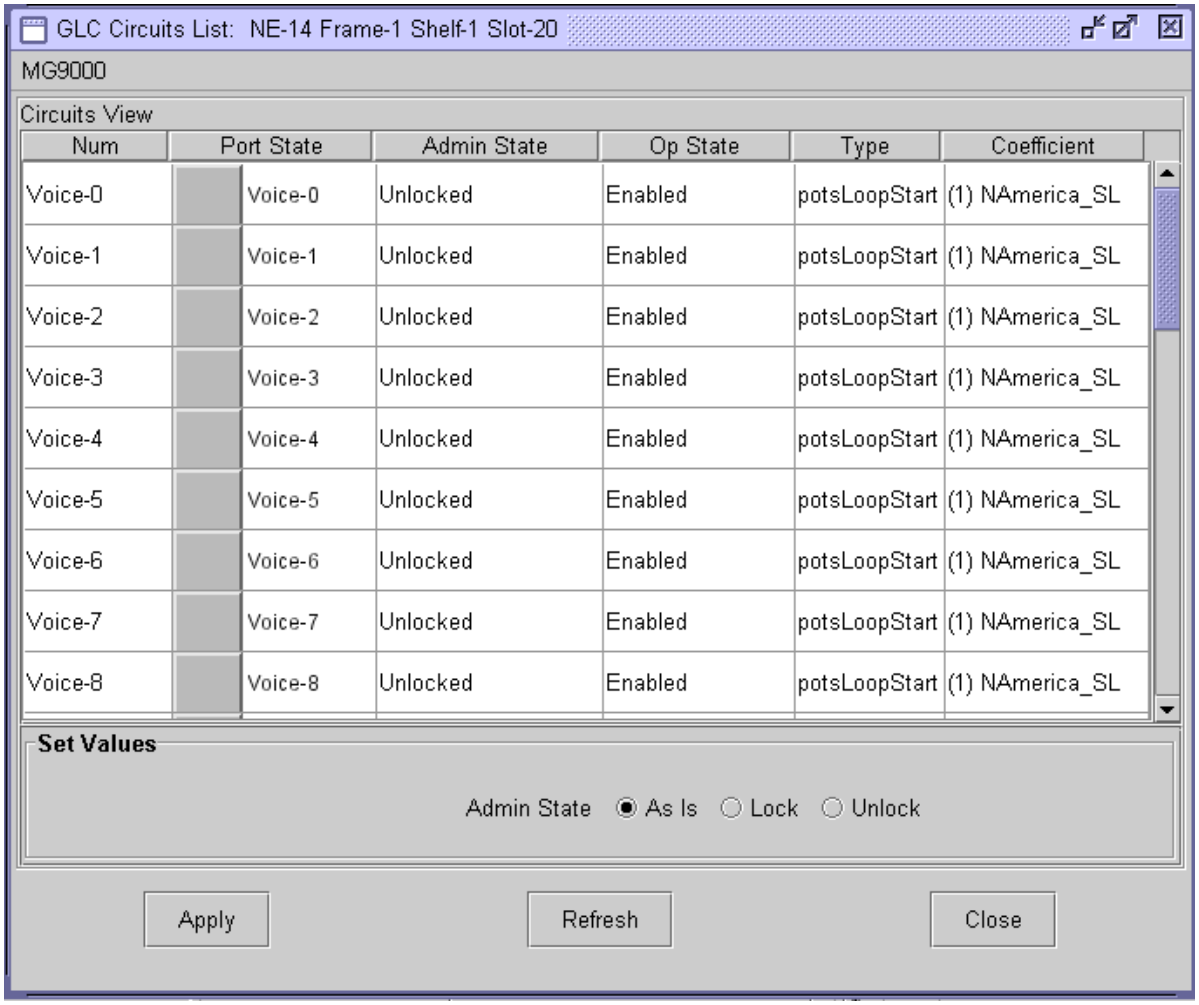
1 At the GLC Card View, from the menu bar select Services->Circuits Listing.

2 The window for Circuits Listing appears. The Circuits Listing View is a table that shows a complete list of all ports contained within the card. Double clicking on any port row in the table opens up the corresponding Port View for that circuit.

Note 1: The values presented in the table cannot be edited. However, from the Circuit List View the technician can operate on multiple ports at the same time or apply certain commands like setting the Admin state.

Note 2: The alarm, configuration, and Admin state of the ports in the table get updated dynamically to reflect the state of the circuits on the MG 9000. The line service type and operational state do not get updated dynamically. Click on the Refresh button to see the current values.

GLC Circuits List View



The following table lists the fields in the Circuits Listing View.

Circuits Listing View fields

Field	Entry	Explanation
Num	0-31	Port number.
Port State	None	Graphical representation of the port along with its state.
Admin State	Locked, Unlocked, Testing, ERROR	Administrative state of the port. This is updated dynamically.

Circuits Listing View fields

Field	Entry	Explanation
Op State	Enabled, Disabled, Testing, Dormant, Not Present, Lower Layer Down, ERROR	Operational state of the port. Does not get updated dynamically.
Type	potsLoopStart, coin, pPhone, potsGroundStart, No Service	Specifies the line service type for the port. Does not get updated dynamically.
Coefficient	N/A	Identifies the coefficient selected for the circuit.
SetValues	None	This is a logical grouping of all the values that can be set for multiple selections of the ports in the table. The technician must select a value in any of these subfields and after selecting the ports for which the operation is to be performed, click on Apply.
Admin State	As Is, Locked, Unlocked	Select any of the values to perform the respective operation on the selected port(s). The action is only performed after clicking on Apply.
Apply	None	Performs the specified action on the selected port(s).
Refresh	None	Causes the view to refresh itself.
Close or from the Menu->Close	None	Closes the view.

3 This procedure is complete.

Coefficients can be assigned on an individual circuit basis or on the GLC, similar to the way templates are used for WLC circuits. Several coefficients are available and are assigned based to a circuit or as part of a VMG Market Fit. The Coefficient Table Manager is used to add new coefficients. Once added, the coefficients are available for assignment

on an individual circuit basis. Values for coefficients must be provided by Nortel Networks.

Provisioning a coefficient table

At the MG 9000 Manager

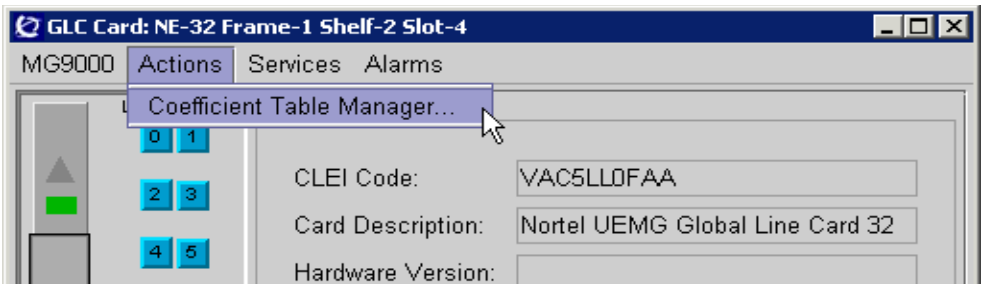
1 At the Subnet View, double click on the MG 9000 that is to have the GLC line circuits provisioned. The Frame View appears.

2 At the Frame View, double click on the shelf in which the GLC resides. The Shelf View appears.

3 At the Shelf View, double click on the slot in which the GLC resides. The GLC Card View appears.

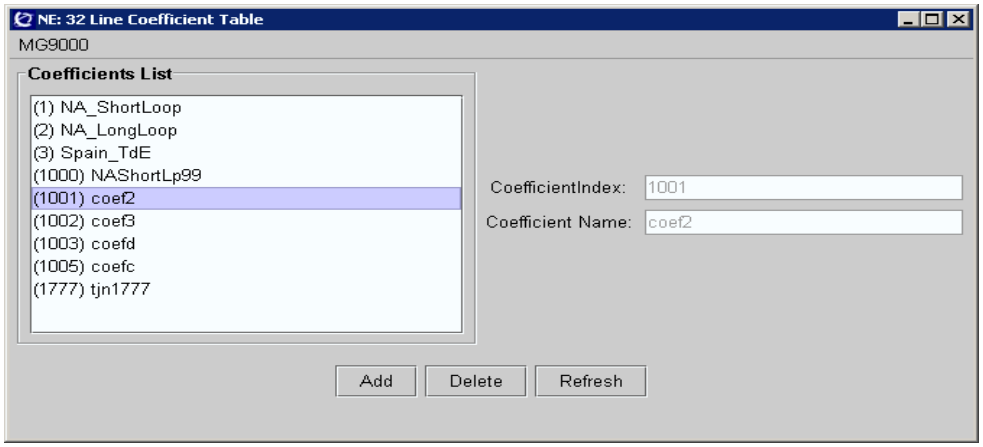
4 From the GLC Card View, access the Actions->Coefficient Table Manager.... menu item as shown in the following figure.

Accessing the Coefficient Table Manager



A Line Coefficient Table window appears that contains a listing of default coefficients available for the circuits on the card. The Line Coefficient Table window is shown in the following figure.

Line Coefficient Table window



Refer to the following table for a list of the data fields and the possible values.

Line Coefficient Table data fields

Fields	Explanation
Coefficients List	Provides a selection list of those coefficients that have already been defined.
Coefficient Index	Provides a system assigned index number associated with the selected coefficient.
Coefficient Name	Provides the name assigned to the coefficient.
Coefficient Value	Provides the coefficient value which must be obtained from Nortel Networks.

At the Line Coefficient Table window

5 Determine the next action from the following options in the Line Coefficient Table window.

Note: Coefficients cannot be edited.

If the next step is to	Do
add a line coefficient	step 6
delete a line coefficient	step 7
refresh a line coefficient	step 8

6 To add a line coefficient, perform the following steps:

a Click Add. The Enter Coefficient Filename box appears requesting that the fully qualified coefficient filename be entered.

b Enter a Coefficient filename.

c Click OK.

d Go to step 9.

7 To delete a line coefficient, perform the following steps:

a Highlight the coefficient to be deleted from the Coefficient List by clicking on the Coefficient name.

b Click on Delete option at the bottom of Line Coefficient Table window.

Note: Default coefficients that are provided during auto discovery may not be deleted.

c Go to step 9.

8 To refresh a line coefficient, Click on the Refresh button.

9 This procedure is complete.

Provisioning an ADSL card

When to use this procedure

Use the procedures in this section when it is necessary to provision an asymmetrical digital subscriber loop (ADSL) card, and ADSL lines and data circuits. The ADSL combo 8+8 line card terminates eight fully compliant ADSL subscriber loops. Each loop interface has a splitter circuit to separate or join the lifeline voice service with the value-added ATM data cell traffic for the subscriber. The data traffic routes to the ATM common equipment MG shelf. In this section, the term ADSL signifies a specific type of DSL card, in this case, asymmetrical DSL. Throughout this section, XDSL is used to correspond with the screen title, where the “X” represents a variable to include multiple Digital Subscriber Loop versions.

Provisioning an XDSL card is the same as provisioning a World Line Card except that the XDSL card requires a software download. Refer to Provisioning a World line card for more information. The XDSL card

- supports a software download menu. The software load used by the card is displayed under Software Load on the card view.
- supports Restart from the software load stored in RAM on the MG 9000. To restart the card, choose the Type to download (Restart Current Cold is the only type supported currently) and select the Restart button. The load used for the restart is displayed under Software Load, Restart Current on the card GUI.

Note 1: When an ADSL card goes from the Deprovisioned state to the Offline state, associated terminations are configured in the MG 9000 Manager, the MG 9000, and the SESM.

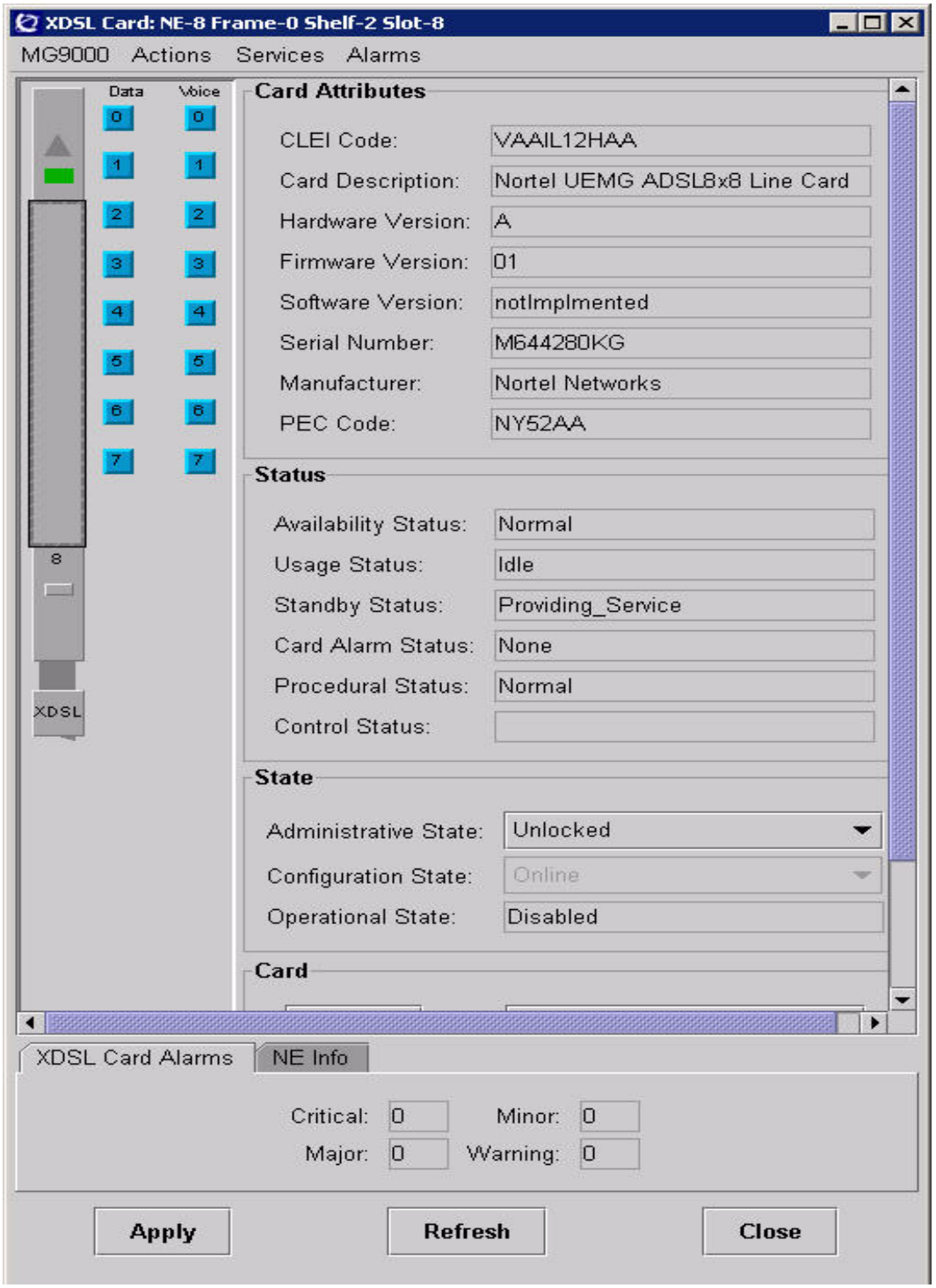
Note 2: XDSL voice circuits are only loop start.

Note 3: When commands are entered at the GUI that may affect service on the card, an “Are you sure” dialog box is displayed to allow the user to cancel or approve of the command.

Note 4: When provisioning an XDSL line card, click Refresh at the bottom of the XDLC Card View to synchronize the data between the MG 9000 and the MG 9000 Manager.

The following figure shows an XDSL Card View.

XDSL Card View



The following procedures are included

- Provisioning an xDSL voice circuit
- Provisioning the Global Traffic Descriptor
- Provisioning an xDSL data circuit
- Downloading software into the xDSL card
- Viewing all circuits on an xDSL card

Note: After provisioning an ADSL card and circuits on the MG 9000, it is recommended that all provisioning information be recorded. Use the Save SLoA services procedure to save provisioning information into a file that provides a list of all services on that network element.

Operations support systems (OSS) clients can perform provisioning operations such as add, delete, modify, and query ADSL circuit data using an XML-based machine interface using the OSSGate from the SESM server. The OSSGate forwards the ADSL provisioning requests from the SESM to the MG 9000 Manager.

To correctly identify the ADSL circuit on the MG 9000 from OSSGate, the following parameters must be entered in the following pattern: <site><cf>-<rf>-<rs> tp/<ss>/<cc>

where

- site - a four character site name from the XACore table SITE
- cf - a contiguous office frame number, three digits, zero-padded if necessary (000-511)
- rf - a relative frame number (0-7)
- rs - a relative shelf number (0-3)
- ss - a slot which is the holder of one line card, padded with a zero if less than 10. For example, slot 9 appearing as 09.
- cc - a physical line circuit on a card, padded with a zero if less than 10. For example, 3 appearing as 03.

The following configuration parameters must be datafilled at the OSSGate for successful ADSL provisioning from the OSSGate:

ADSL configuration parameters

Attribute	Parameter	Meaning	Value
Circuit configuration	dnMaxSpeed	Max DownStream	32-13376 kbits, in multiples of 32
	upMaxSpeed	Max Upstream	32-1440 kbits, in multiples of 32
	dnMaxInterleaveDelay	Downstream delay	10-255 msec
	upMaxInterleaveDelay	Upstream delay	10-255 msec
	dnSignalNoiseMargin	Downstream noise margin	6-31 db
	upSignalNoiseMargin	Upstream noise margin	6-31 db
	Transmission Mode		Auto Mode, ANSI, G.DMT
Specific cross connection	VPI	Virtual Path Identifier	
	VCI	Virtual Circuit Identifier	
	upStream and dnStream Traffic Descriptors	ATM traffic characteristics	
	State of the cross connection		Inactive, Active, de-provision

Prerequisites

An ADSL line card must have been installed in the slot to be provisioned using correct ESD precautions.

Action

The following procedures provide the steps for provisioning voice and data circuits on an XDSL card.

The basic steps for provisioning data circuits in a XDSL card include the following:

1. Provision the Global Traffic Descriptors in the Traffic Descriptor Manager. The Global Traffic Descriptor provides the rate of transmission rules and the service category used by the virtual path identifiers (VPI) and virtual channel identifiers (VCI) required for DSL traffic. The Global TD manager is launched from the Subnet View of the MG 9000 Manager.
2. The XDSL data circuit must be locked.
3. Provision the VCC fields at the X-Connects field in the XDSL data circuit view. There are 8 VCC allowed per data circuit.
4. Make required and recommended changes.
5. Click Apply.
6. Set the Administrative Status to Unlocked.
7. Click on Refresh (the operational status should become enabled).

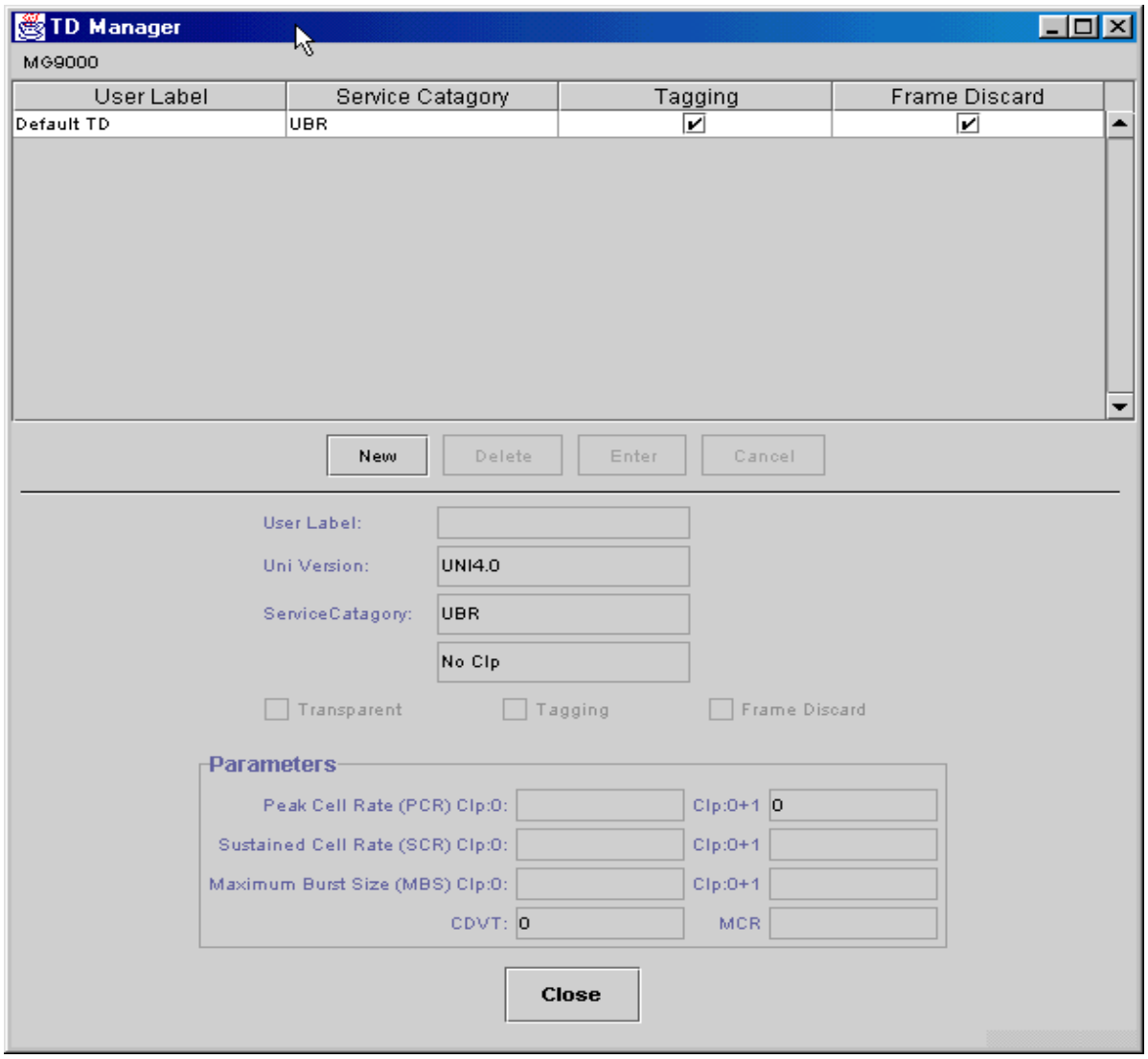
Note: Before provisioning an XDSL data circuit, use the following procedure to access the Global Traffic Descriptor screen and provision the VPI and VCI values.

Provisioning the Global Traffic Descriptors in the Traffic Descriptor Manager

At the MG 9000 Manager

1 At the Subnet View, from the menu bar, select Configuration -> Global Traffic Descriptors... The TD Manager screen appears. The following figure shows the TD Manager screen.

TD Manager screen



2 Click on New to add the upstream parameters.

3 Add the following traffic descriptor upstream information into the screen:

ADSL upstream parameters

Field	Datafill
User Label	UpTD (maximum 15 character limit)
Uni Version	UNI4.0
ServiceCategory	select one from the pull down menu. (UBR, UBR+, CBR, rt-vBR, nrt-vBR)
Tagging (box)	Check mark (click the box)
FrameDiscard (box)	Check mark (click the box)
CDVT	2500
Clp:0+1	2159

4 Select the Enter button.

5 Select the New button.

6 Add the following traffic descriptor downstream information into the screen:

ADSL downstream parameters

Field	Datafill
User Label	DownTD (maximum 15 character limit)
Uni Version	UNI4.0
ServiceCategory	select one from the pull down menu. (UBR, UBR+, CBR, rt-vBR, nrt-vBR)
Tagging (box)	Check mark (click the box)
FrameDiscard (box)	Check mark (click the box)
CDVT	2500
Clp:0+1	22978

7 Select the Enter button.

8 In the XDSL Card View, double-click one of the data icons. An XDSL Circuit View window appears.

9 Scroll down and select Lock.

10 Scroll up and provision the following fields, they will have a default value but they can be altered if required:

- UpMaxSpeed=1440
- DnMaxSpeed=13376
- UpSignalNoiseMargin=6
- DnSignalNoiseMargin=6
- UpMaxInterleaveDelay=10
- DnMaxInterleaveDelay=10

11 Select the “Transmission mode” that the modem is capable of transmitting. The default value is ‘Auto mode’ and the other values are: ANSI or G.DMT.

12 In VCC1:

- VPI = (value between 16 - 31)
- VCI = (value between 33 - 2047)

13 Click on SelectUpStreamTD, highlight the UpTD and click OK.

14 Click on Select DownStreamTD, highlight the DownTD and click OK.

Note: The UpTD and DownTD must be of the same service category.

15 Set the Status to Active.

16 Click Apply, then OK.

17 After the VCCs are datafilled, unlock the circuit.

18 This procedure is complete.

Provisioning an XDSL voice circuit

At the MG 9000 Manager

1 Double click on an individual voice circuit to access the Voice Circuit View line circuit management screen.

The XDSL Voice Circuit View screen contains the same data fields described for the WLC as presented in the table WLC Circuit View data box fields on page 57. XDSL Voice circuit and WLC circuit provisioning are identical.

2 This procedure is complete.

Provisioning an XDSL data circuit

At the MG 9000 Manager

1 At the XDSL Card View, double-click on an individual data circuit to access the Data Circuit View management screen. The following table lists the data fields that appear on this screen.

Note: Provision the upstream and downstream traffic descriptors through the Global Traffic Descriptor screen, described in Provisioning an XDSL data circuit procedure, before provisioning a data circuit.

XDSL Data Circuit fields

Box	Field	Explanation
ADSL Data Provisioning	upMaxSpeed	The maximum upstream speed of the line toward the ATU-C. The recommended value is 1440 kbit/s.
	upSignalNoiseMargin	Level of upstream line noise as seen by this ATU-C with respect to its received signal. The recommended value is 6 dB.
	upMaxInterleaveDelay	Interleave delay defines the relative spacing between subsequent input bytes at the interleaver input and their placement in the bit stream at the interleaver output. Larger numbers provide greater separation between consecutive input bytes in the output bit stream allowing for improved impulse noise immunity at the expense of payload latency. The recommended upstream setting is 10 ms.
	dnMaxSpeed	The maximum downstream speed of the line toward the ATU-R. The recommended value is 13376 kbit/s.
	dnSignalNoiseMargin	Level of downstream line noise as seen by this ATU-R with respect to its received signal. The recommended value is 6 dB.

XDSL Data Circuit fields

Box	Field	Explanation
	dnMaxInterLeaveDelay	The recommended downstream setting is 10 ms.
	Transmission Mode	Transmission Mode: The ADSL modems on the 8x8 line card are capable of supporting the following transmission modes: • ANSI (T1.413) • G.DMT (992.1) • AUTO (T1.413/992.1) ***Note:*** The default provisioning for this field is, AUTO, thereby allowing the remote CPE to dictate the transmission mode during the training sequence. Some vendor CPE may require the mode to be set to either ANSI or G.DMT; therefore, this field would need to be changed, while the data circuit is locked. Upon unlocking the data circuit, the modems (ATUC/ATUR) will train utilizing the newly set transmission mode.
	Modem Status	This field is read only and displays the modem state as it transitions from IDL to OPERATIONAL as reported by the MG 9000 during the training sequence. After the Modem is in OPERATIONAL state, the following two fields will be reported to indicate the current downstream transmit rate and current upstream transmit rate.
	Sync upSpeed	Current upstream transmit rate. These rates will be less than or equal to the maximum attainable rate of the loop. They are determined during the training sequence of the modems and are dependent on the quality of the loop, provisioned MaxTx speeds, error correction algorithms, etc.

XDSL Data Circuit fields

Box	Field	Explanation
	Sync dnSpeed	Current downstream transmit rate. These rates will be less than or equal to the maximum attainable rate of the loop. They are determined during the training sequence of the modems and are dependent on the quality of the loop, provisioned MaxTx speeds, error correction algorithms, etc.
X-Connects for Each VCC	VPI	The range is 16 through 31.
	VCI	The range is 33 through 2047.
Select UpStream TD	N/A	When clicked, the selected traffic descriptor GUI is displayed. After selecting the TD, the field next to it will display the name of the traffic descriptor selected for Up stream data.
Select DnStream TD	N/A	When clicked, the selected traffic descriptor GUI is displayed. After selecting the TD, the field next to it will display the name of the traffic descriptor selected for Down stream data.

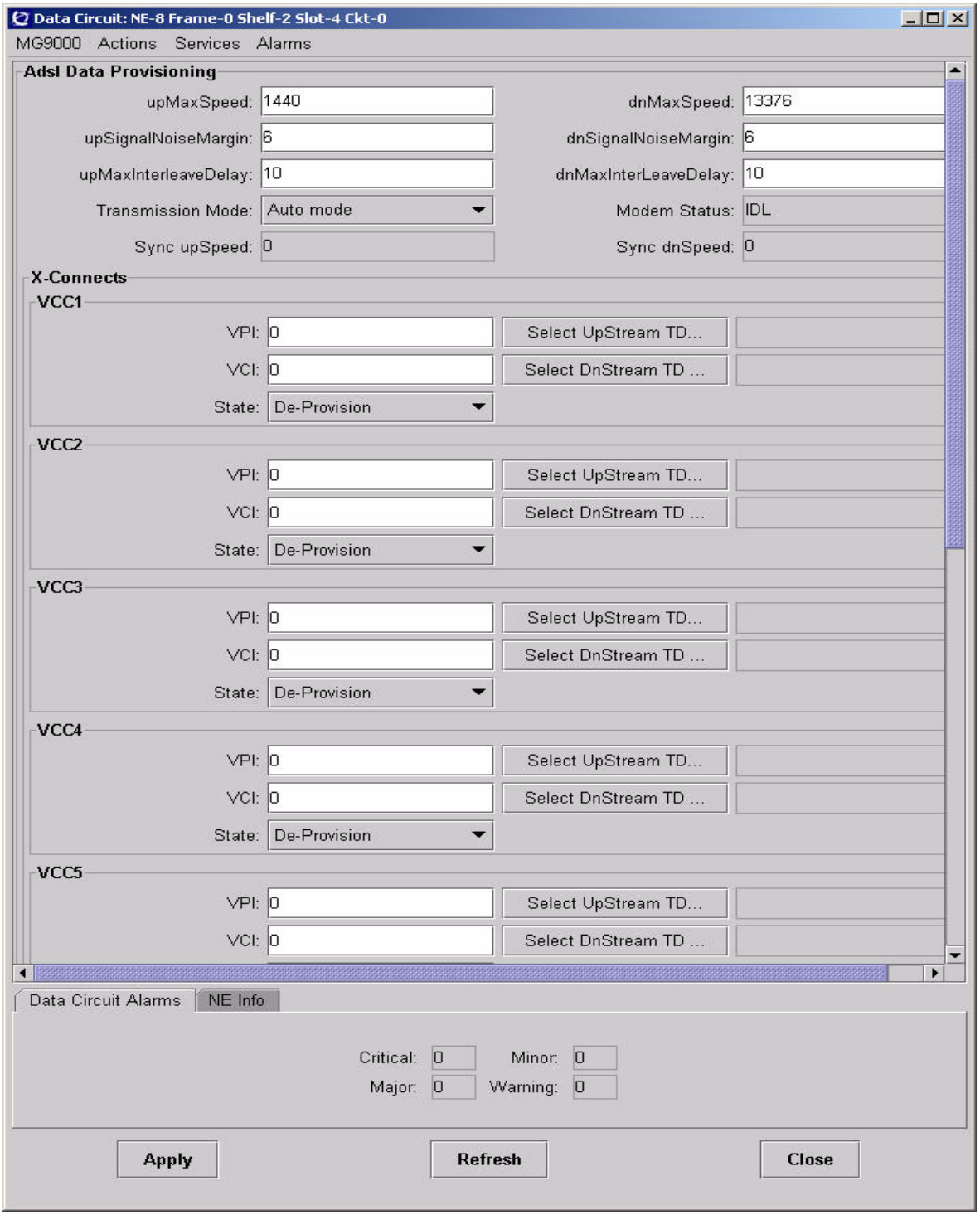
XDSL Data Circuit fields

Box	Field	Explanation
	State	The recommended value is Active. ***Note:*** To change or select the state, the circuit must be locked. After provisioning is complete, the circuit must be returned to unlocked for the circuit to be able to transmit/receive data or be ready to be enabled when the state is changed from inactive to active. • Active - selected when provisioning the VCC and to indicate that data transmission is enabled. (Administrative Status of the cross-connect is Up.) • Inactive - selected when provisioning the VCC and to indicate that data transmission will not be enabled. (Administrative Status of the cross-connect is Down.) • De-provision - default state when VCC is not provisioned ***Note 1:*** If the VCC is already provisioned, and if this state is selected, the VCC will be deprovisioned. The cross-connect is cleared and no more DSL service is provided to the customer. ***Note 2:*** If selecting the de-provision state, it is recommended to leave the circuit in the locked Administrative Status.
De-Provision	De-Provision	Clears the VCC fields.

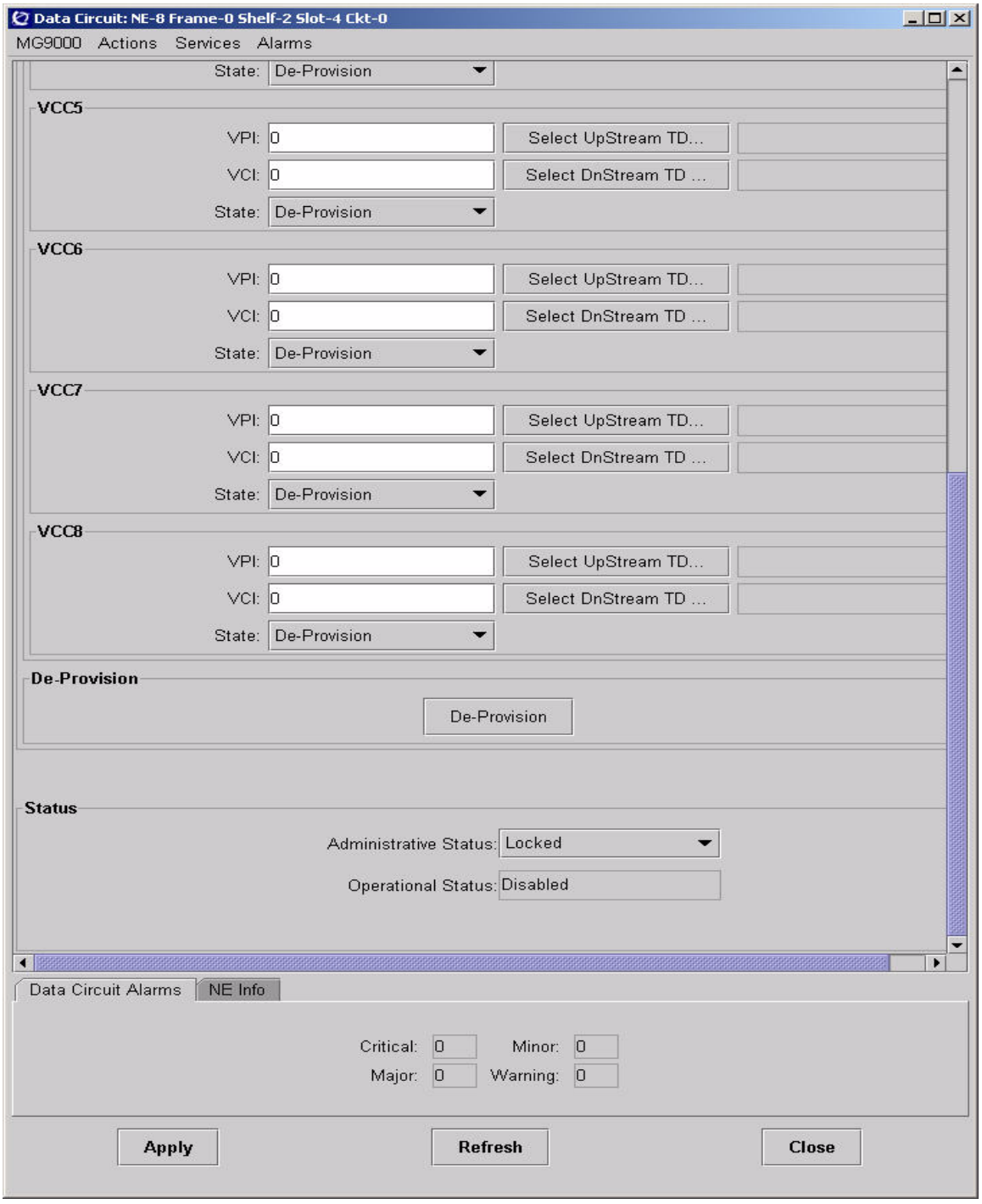
XDSL Data Circuit fields

Box	Field	Explanation
Status	Administrative Status	Place the circuit in one of two possible conditions: • locked • unlocked
	Operational Status	Read only box indicating the operational status of the circuit as: • enabled • disabled • unknown

XDSL Data Circuit view (top screen)



XDSL Data Circuit view (bottom screen)



2 To complete the circuit provisioning and set the circuit state, click on Apply.

3 This procedures is complete.

Downloading software using the Software Download Manager

The Software Download Manager menu option provides access to a Software Download Manager window. The following procedure provides the steps for downloading software into the ADSL card.

Downloading software into the ADSL card

At the MG 9000 Manager

1 At the Subnet View, double click on the MG 9000 that has the ADSL card to which software is to be downloaded. The Frame View appears.

2 At the Frame View, double click on the shelf in which the ADSL card resides. The Shelf View appears.

3 At the Shelf View, double click on the slot in which the ADSL card resides. The ADSL Card screen appears.

4 To request a download, select the Locked option for the Administrative Status in the Status box. The card must be Locked prior to requesting a download.

5 From the ADSL Card View menu level, select Actions->Software Download Manager

6 Enter data in the fields as follows:

- File Path - the path and name of the file to be downloaded to the card (/mg9k/<loadname>)
- IP address - the file location (IP address)
- Server userName - the login name for the server where load resides
- Server password - the password for the server where load resides
- select Force Download if forced download is required. The force option is needed only when the card must be reloaded with the same load that already exists on the card.

7 Select the Download button at the bottom of the Software Download Manager window. When the download begins the download icon appears on the card.

Once the download is complete, the download icon disappears and the initialization icon appears. Once initialization is complete, the icon disappears and the software load used in the card is displayed in the Software Load section of the Card View.

8 This procedure is complete.

Viewing all circuits on a xDSL card

At the MG 9000 Manager

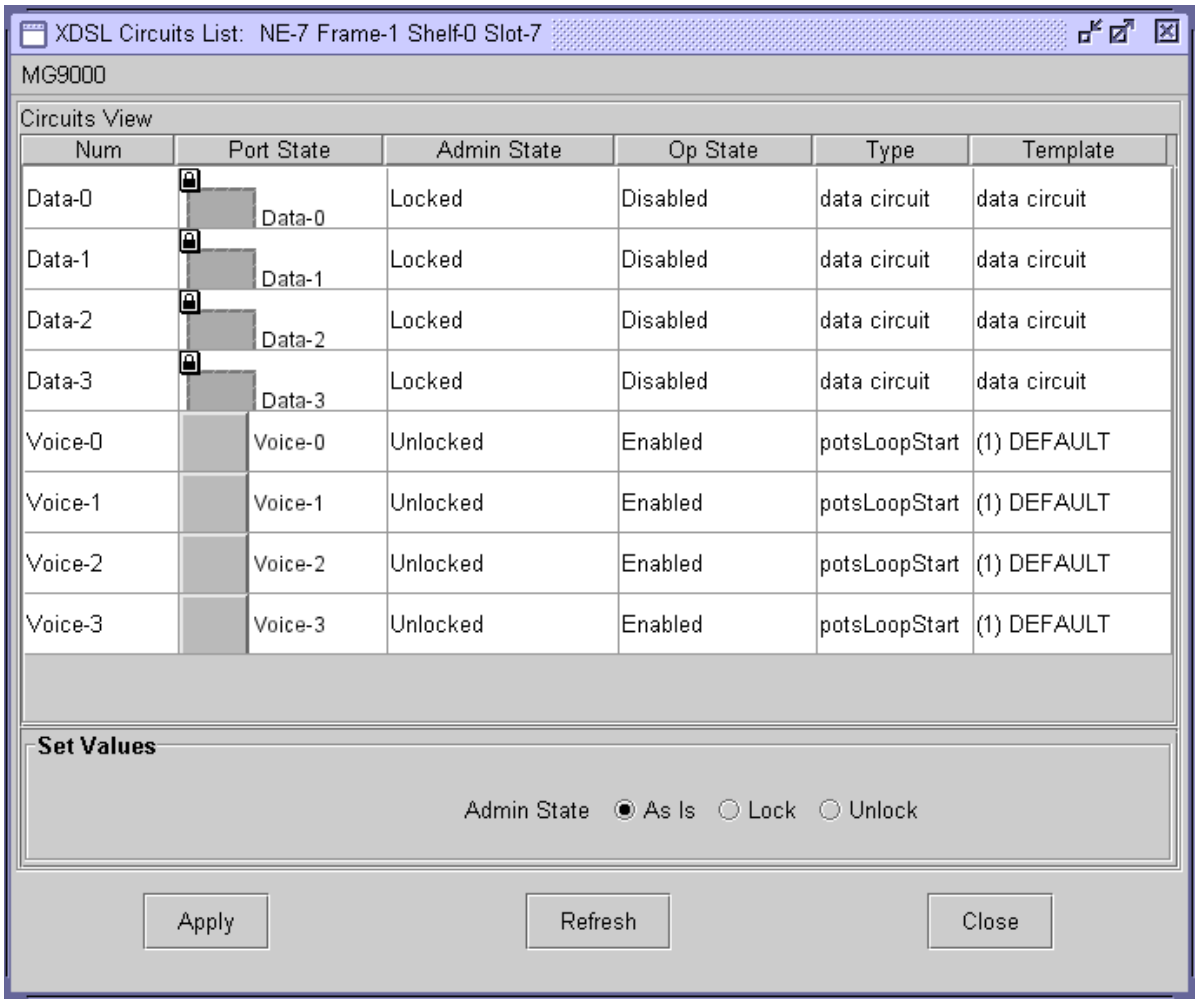
1 At the xDSL Card screen, from the menu bar select Services->Circuits Listing.

2 The window for Circuits Listing appears. The Circuits Listing View is a table that shows a complete list of all ports contained within the card. Double clicking on any port row in the table opens up the corresponding Port View for that circuit.

Note 1: The values presented in the table cannot be edited. However, from the Circuit Listing View the technician can operate on multiple ports at the same time or apply certain commands like setting the Admin state.

Note 2: The alarm, configuration, and Admin state of the ports in the table get updated dynamically to reflect the state of the circuits on the MG 9000. The line service type and operational state do not get updated dynamically. Click on the Refresh button to see the current values.

xDSL Circuits Listing View



The following table lists the fields in the Circuits Listing View.

Circuits Listing View fields

Field	Entry	Explanation
Num	1-4	Port number.
Port State	N/A	Graphical representation of the port along with its state.
Admin State	Locked, Unlocked, Testing, ERROR	Administrative state of the port. This is updated dynamically.

Circuits Listing View fields

Field	Entry	Explanation
Op State	Enabled, Disabled, Testing, Dormant, Not Present, Lower Layer Down, ERROR	Operational state of the port. Does not get updated dynamically.
Type	potsLoopStart, coin, pPhone, potsGroundStart, No Service	Specifies the line service type for the port. Does not get updated dynamically.
Template	N/A	Identifies the template selected for the circuit.
SetValues	N/A	This is a logical grouping of all the values that can be set for multiple selections of the ports in the table. The technician must select a value in any of these subfields and after selecting the ports for which the operation is to be performed, click on Apply.
Admin State	As Is, Locked, Unlocked	Select any of the values to perform the respective operation on the selected port(s). The action is only performed after clicking on Apply.
Apply	N/A	Performs the specified action on the selected port(s).
Refresh	N/A	Causes the view to refresh itself.
Close or from the Menu->Close	N/A	Closes the view.

3 This procedure is complete.

Provisioning an SAA line card

When to use this procedure

Use this information to provision an SAA line card and line circuits.

Note: The SAA card is not used in the UA-IP solution.

The Service Adapter Access (SAA) line card is a programmable line card that supports the following services:

- POTS (loop and ground start)
- Coin
- Meridian Business Set (P-phone)

Included are the following procedures:

- Provisioning an SAA line circuit
- Viewing all circuits on an SAA card

Note 1: When an SAA card goes from the Deprovisioned state to the Offline state, associated terminations are configured in the MG 9000 Manager, the MG 9000, and the SESM.

Note 2: After provisioning an SAA card and circuits on the MG 9000, it is recommended that all provisioning information be recorded. Use the Save SLoA services procedure to save provisioning information into a file that provides a list of all services on that network element.

Prerequisites

An SAA line card must be installed in the slot to be provisioned.

Action

SAA line card and World Line Card (WLC) provisioning are identical except that the SAA card does not use B11 templates. Refer to Provisioning a World line card for information on SAA card provisioning.

Provisioning an SAA line circuit

At the MG 9000 Manager

1 At the Subnet View, double click on the MG 9000 that is to have the SAA line circuits provisioned. The Frame View appears.

2 At the Frame View, double click on the shelf in which the SAA card resides. The Shelf View appears.

3 At the Shelf View, double click on the slot in which the SAA card resides. The SAA Card screen appears.

4 At the SAA Card screen double click on an individual circuit and the window for SAA Circuit screen appears.

Note: When commands are entered at the Succession MG 9000 Manager that may affect service on the circuit, an "Are you sure" dialog box is displayed to allow the user to cancel or approve of the command.

5 At the SAA Circuit screen, select the Locked option for the Administrative Status in the Circuit Status box. The circuit must be Locked prior to modifying the circuit's data.

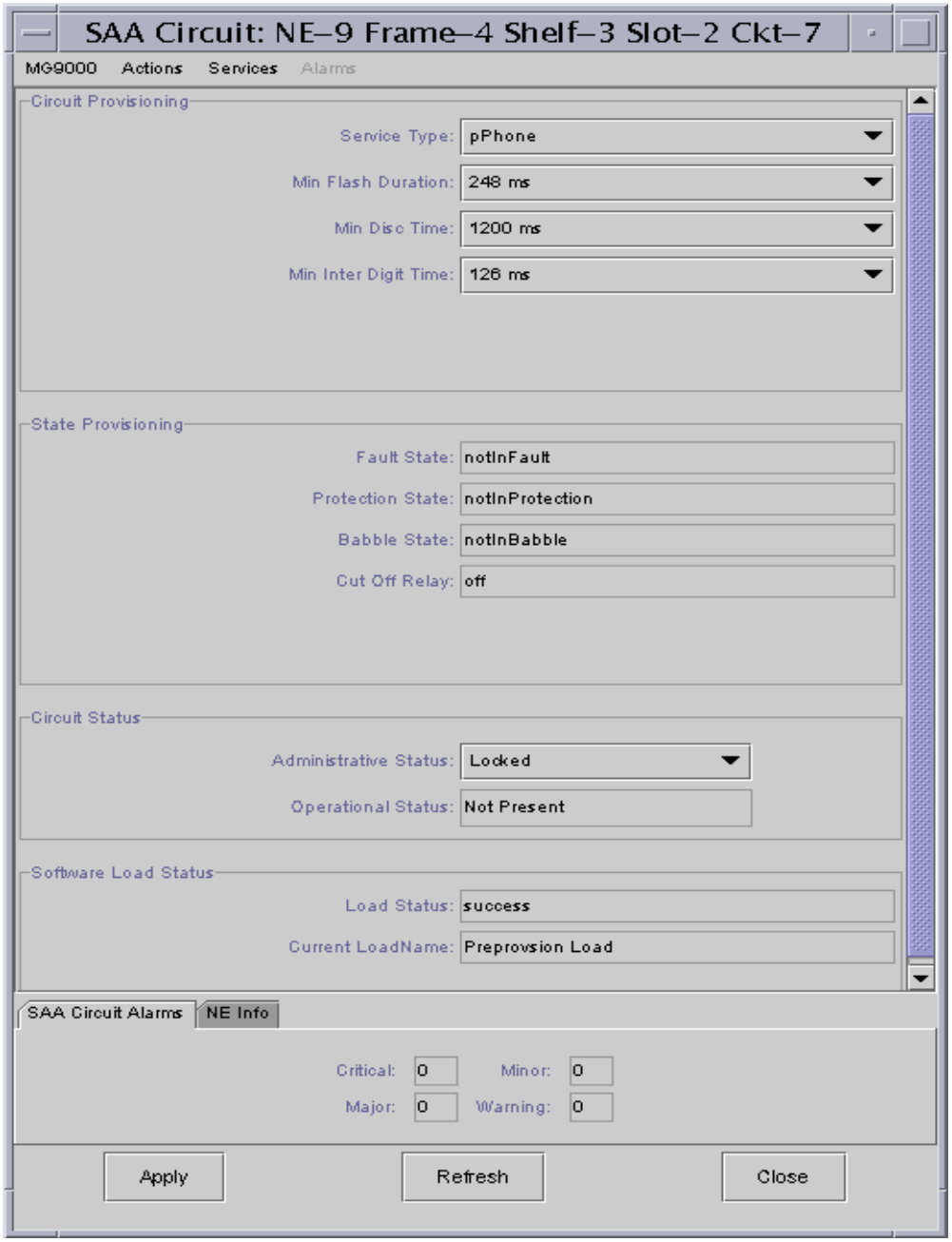
When the circuit is Locked, the fields in the Circuit Provisioning box become available for modification.

6 Enter data in the fields that appear in the Circuit Provisioning box from the Line Circuit window. The SAA Circuit screen contains the same data fields described for the WLC Line Circuit and presented in the Circuit View data box fields table. In addition to POTS ground start and POTS loop start, the Service Type for SAA may be Coin or P-phone. All SAA line circuits default to P-phone when provisioned. To change the service type option, use the Service Type pull-down combo box.

Note: When the MG 9000 Manager is having trouble retrieving circuit data from the MG 9000, conditions may exist when attempting to provision circuits affecting the ability to enter data into the fields. Each of these panels work independently of each other and any data that is available will be displayed. For more information refer to Provisioning a line circuit on a WLC.

The following figure shows the SAA Circuit View.

SAA Circuit View

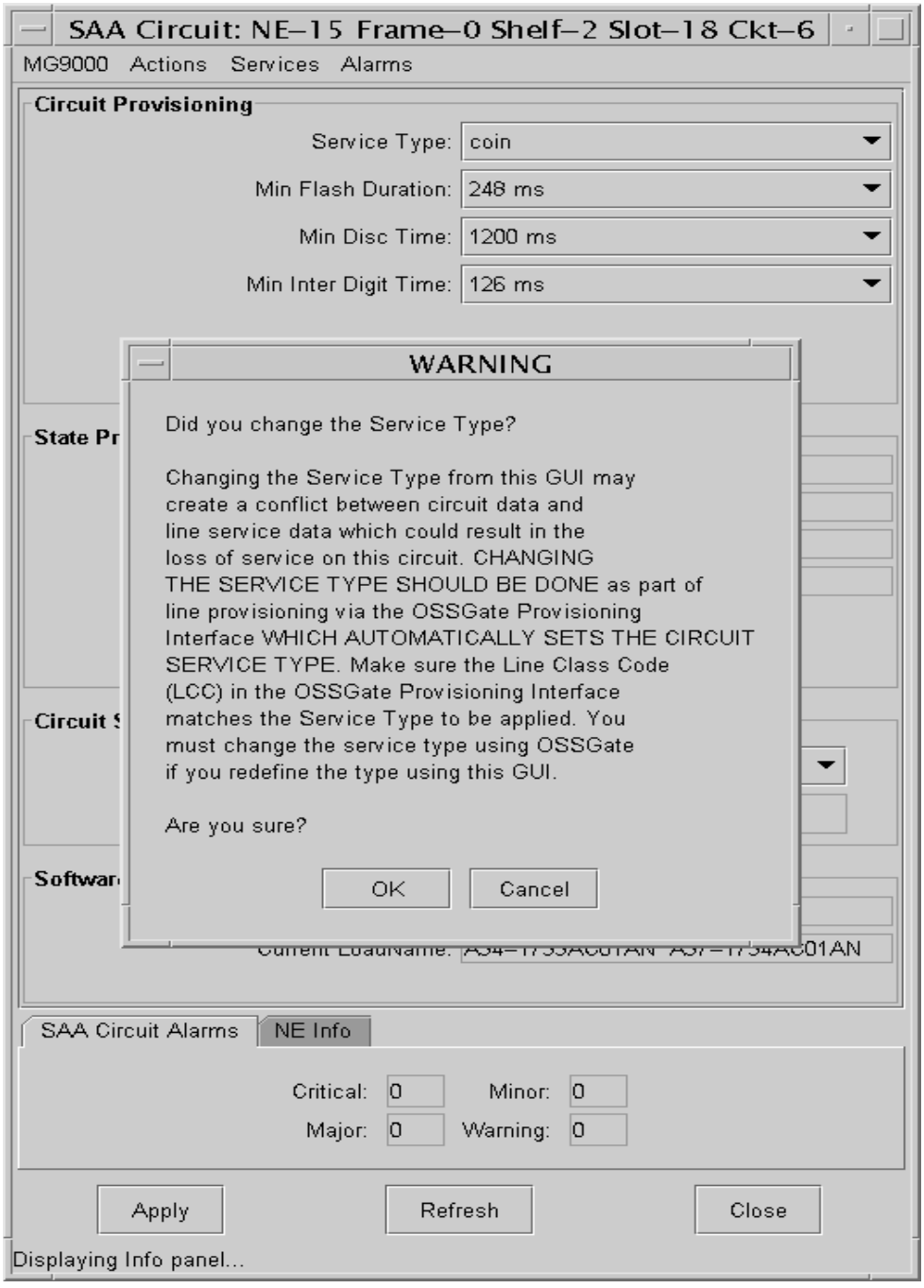


7 Select the Apply button at the bottom of the SAA Circuit window to update the circuit with the data entered.

Note: When making a service change to an SAA circuit, and the user clicks on Apply to commit the change, the following message is displayed. After clicking OK in response to the message, the service type is changed. However, there are no

checks made from the MG 9000 Manager for whether the DN exists on the termination associated with the circuit.

Message in response to Apply after an SAA card service change



8 This procedure is complete.

Viewing all circuits on a SAA card

At the MG 9000 Manager

1 At the Subnet View, double click on the MG 9000 that is to have the SAA line circuits to be listed. The Frame View appears.

2 At the Frame View, double click on the shelf in which the SAA card resides. The Shelf View appears.

3 At the Shelf View, double click on the slot in which the SAA card resides. The SAA Card screen appears.

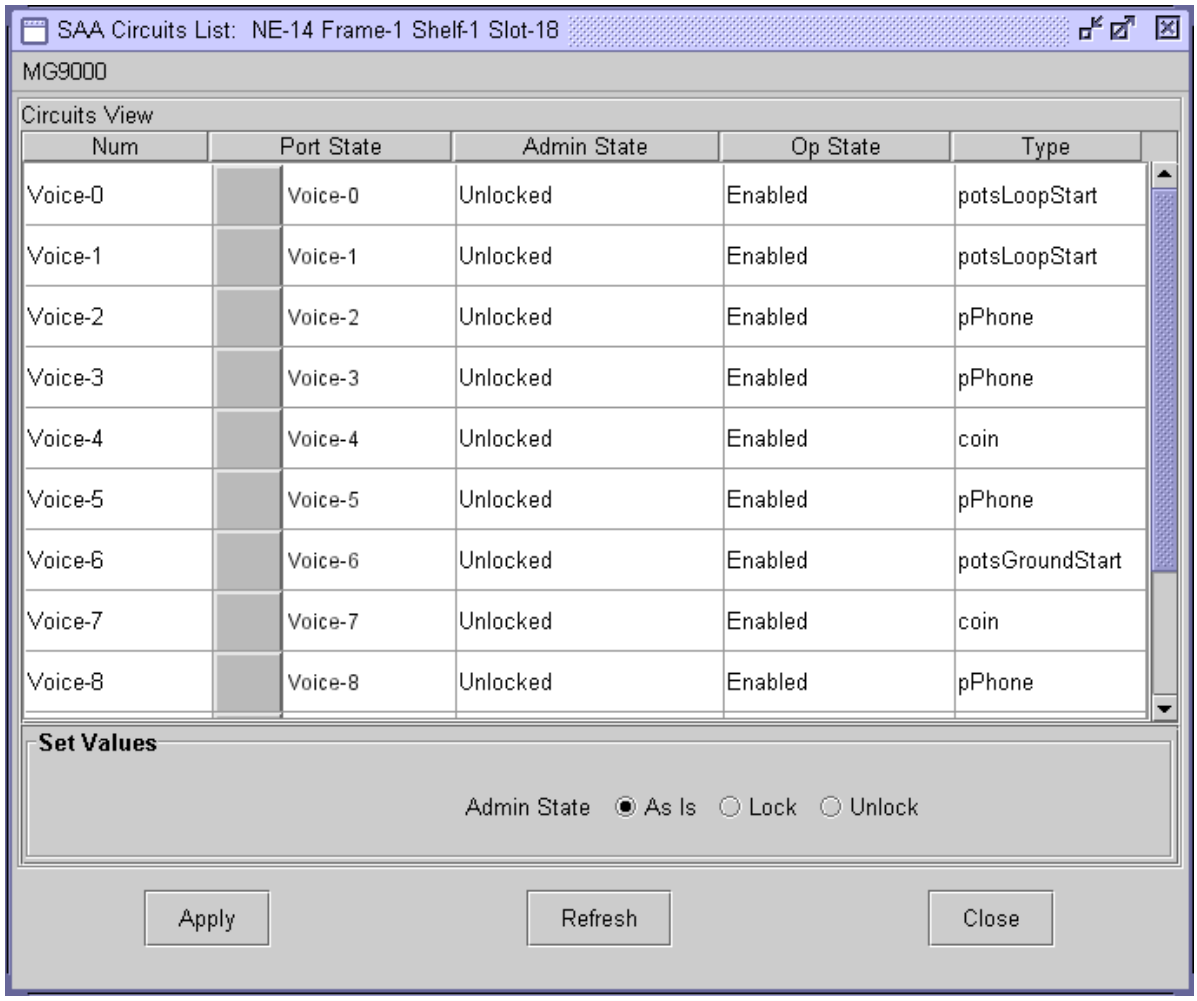
4 At the SAA Card screen, from the menu bar select Services->Circuits Listing.

5 The window for Circuits Listing appears. The Circuits Listing View is a table that shows a complete list of all ports contained within the card. Double clicking on any port row in the table opens up the corresponding Port View for that circuit.

Note 1: The values presented in the table cannot be edited. However, from the Circuit Listing View the technician can operate on multiple ports at the same time or apply certain commands like setting the Admin state.

Note 2: The alarm, configuration, and Admin state of the ports in the table get updated dynamically to reflect the state of the circuits on the MG 9000. The line service type and operational state do not get updated dynamically. Click on the Refresh button to see the current values.

SAA Circuits Listing View



The following table lists the fields in the Circuits Listing View.

Circuits Listing View fields

Field	Entry	Explanation
Num	1-12	Port number.
Port State	N/A	Graphical representation of the port along with its state.
Admin State	Locked, Unlocked, Testing, ERROR	Administrative state of the port. This is updated dynamically.

Circuits Listing View fields

Field	Entry	Explanation
Op State	Enabled, Disabled, Testing, Dormant, Not Present, Lower Layer Down, ERROR	Operational state of the port. Does not get updated dynamically.
Type	potsLoopStart, coin, pPhone, potsGroundStart, No Service	Specifies the line service type for the port. Does not get updated dynamically.
SetValues	N/A	This is a logical grouping of all the values that can be set for multiple selections of the ports in the table. The technician must select a value in any of these subfields and after selecting the ports for which the operation is to be performed, click on Apply.
Admin State	As Is, Locked, Unlocked	Select any of the values to perform the respective operation on the selected port(s). The action is only performed after clicking on Apply.
Apply	N/A	Performs the specified action on the selected port(s).
Refresh	N/A	Causes the view to refresh itself.
Close or from the Menu->Close	N/A	Closes the view.

6 This procedure is complete.

Provisioning a DS1 card

When to use this procedure

Use this procedure when it is necessary to provision a DS1 card.

Note: The DS1 card is used only in the UA-AAL1 solution.

The DS1 AAL-1 line card supports private line services in the MG 9000 shelf. The initialization process creates 16 available 1.544 Mbps DS1 service facilities on the DS1 card. The channelization process divides a DS1 facility into 24 DS0 channels.

Included are the following procedures:

- Provisioning a DS1 card
- Provisioning DS1 ports
- Provisioning a DS0 bundle with contiguous channels
- Provisioning a DS0 bundle with non-contiguous channels
- Deleting DS0 bundles on DS1 ports
- Unchannelizing ports
- Viewing all DS1 circuits

Note: After provisioning a DS1 card and port data on the MG 9000, it is recommended that all provisioning information be recorded. Use the Save PLoA services procedure to save provisioning information into a file that provides a list of all services on that network element.

Prerequisites

A DS1 card must have been installed in the slot to be provisioned using correct ESD precautions.

Action

The following procedure provides steps for provisioning a DS1 card. After the card is provisioned, the DS1 ports must be provisioned to enable services through the DS1 card.

Provisioning a DS1 card

At the MG 9000 Manager

1 At the Subnet View, double click on the MG 9000 that is to have the DS1 card provisioned. The Frame View appears.

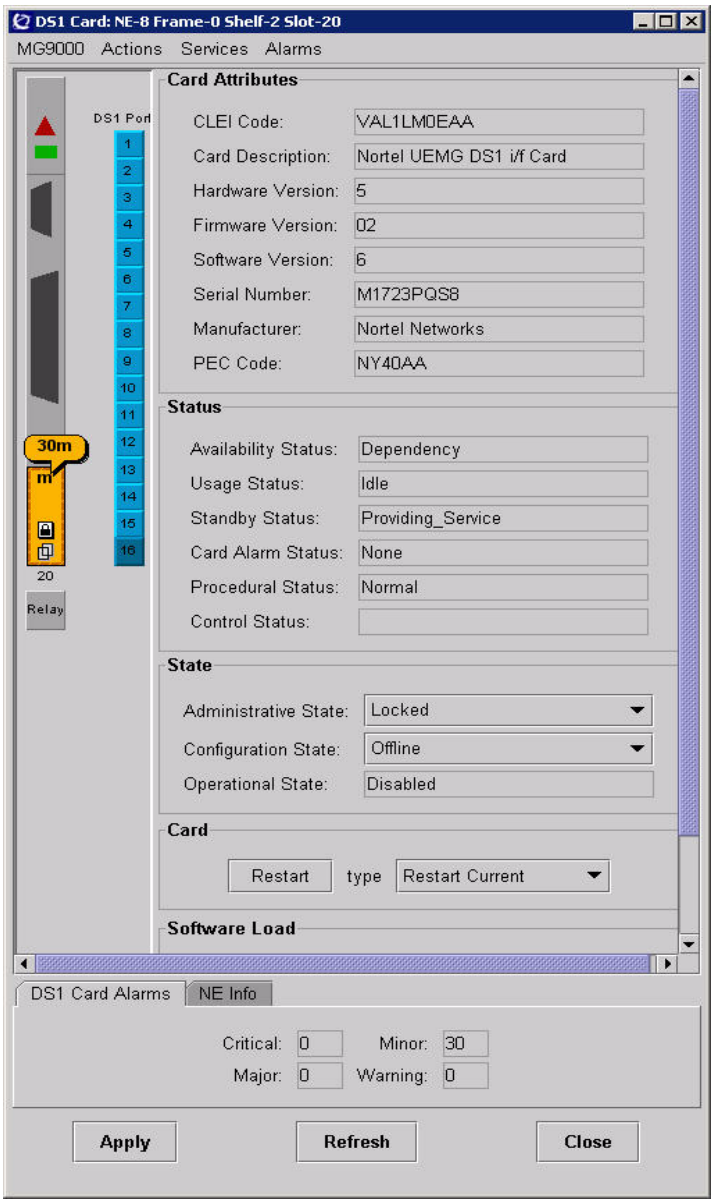
2 At the Frame View, double click on the shelf in which the DS1 card resides. The Shelf View appears.

3 At the Shelf View, double click on the slot in which the DS1 card resides. The DS1 Card View appears. Since the DS1 card is already installed, autodiscovery datafills the data about the card.

Note: When provisioning a DS1 card, click Refresh at the bottom of the DS1 Card View to synchronize the data between the MG 9000 and the MG 9000 Manager.

The following figure shows a DS1 Card View.

DS1 Card View



4 This procedure is complete.

The DS1 Ports box that appears to the right of the DS1 Card image provides access to a Port View window for each of the DS1 facilities. The following procedure provides steps for accessing and provisioning the DS1 ports.

Provisioning DS1 ports

At the MG 9000 Manager

1 At the Subnet View, double click on the MG 9000 that is to have the DS1 ports provisioned. The Frame View appears.

2 At the Frame View, double click on the shelf in which the DS1 card resides. The Shelf View appears.

3 At the Shelf View, double click on the DS1 card with DS1 ports to be provisioned. The DS1 Card View appears.

4 At the DS1 Card View, double click on the DS1 port to be provisioned. The DS1 Port View appears.

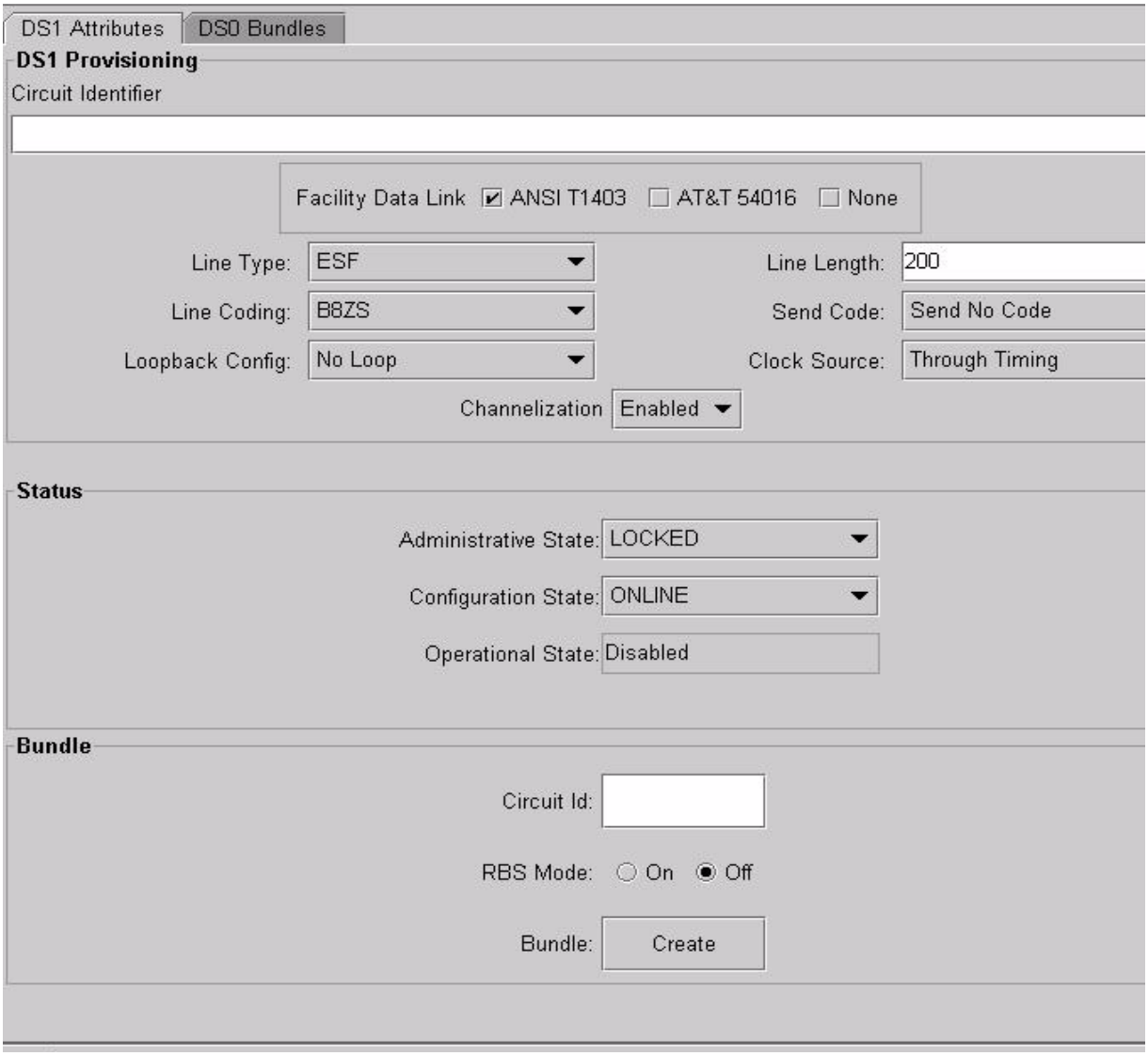
5 At the DS1 Port View, select Enabled if the DS1 facility channelization option is to be enabled. Choose Disabled if DS1 channelization is not to be enabled, the default is Disabled.

The DS1 Port view screen contains two management tabs:

- DS1 Attributes - manages the entire DS1 facility.
- DS0 Bundle - manages individual DS0 channels (disabled if channelization is set to Disabled).

The following figure shows a DS1 Attributes tab on the DS1 Port Attributes screen.

DS1 Port View Attributes screen



Note 1: Configuration data for a DS1, DS0, or a DS0 Bundle cannot be changed while in-service. Carrier maintenance (CARM) allows configuration changes only to locked DS carriers and interfaces. A locked DS facility is in an out-of-service condition that positions the carrier on-line with no subscriber traffic but still provides continuous defect monitoring.

Note 2: When attempting to lock a DS1 port with services provisioned, a pop-up message appears informing the user of this condition.

6 Enter the attributes for the DS1 port. The following table lists the fields that appear in the attributes screen of the DS1 Port View.

DS1 Port View Attributes box fields

Box	Field	Explanation
DS1 Provisioning	Circuit Identifier	A character string, created from the Private Line Creation screen, used for circuit identification.
	Facility Data Link	• ANSI T1403 • AT&T 154016 • None
	Line type	ESF (Extended Super Frame) D4 [SF (Super Frame)]
	Line Coding	B8ZS coding AM1 coding
	Loopback configuration	Options are: • no loop • pay load • line • inward • dual (line and inward)
	Line Length	655
	Send Code	• Send No Code • Send Line Code • Send Payload Code • Send Reset Code
	Clock Source	Through Timing (required option)
	Channelization	Enabled - divides the 1.544 Mbps DS1 facility into 24 individual 64 kbps channels. Disabled - maintains the DS1 facility as a single 1.544 Mbps channel. ***Note:*** Any DS0 Bundles must be removed from a port before unchannelizing a DS1 carrier.

DS1 Port View Attributes box fields

Box	Field	Explanation
Status	Administrative status	Places the port into one of the following conditions: • unlocked • locked
	Configuration status	Places the port into one of the following conditions: • Online • Offline
	Operational status	Indicates one of the following conditions: • enabled • disabled • Lower Layer Down
Bundle	Circuit Id	Customer assigned number based on the format used in each operating company.
	RBS Mode	Robbed bit signaling.

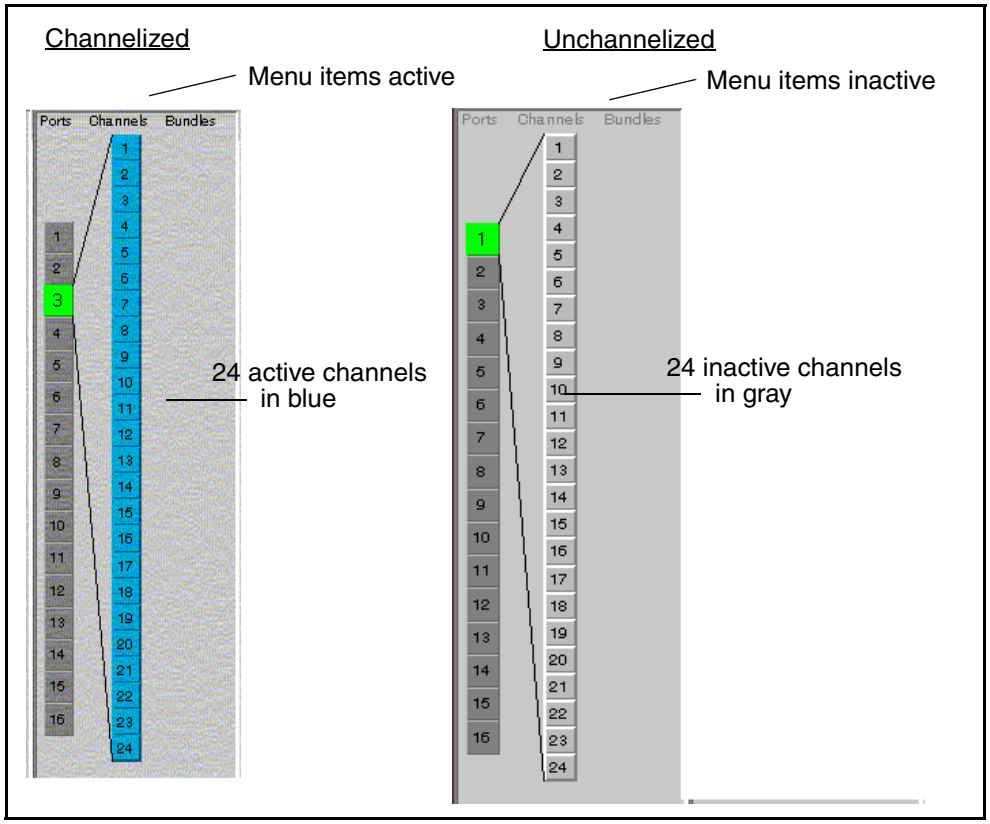
7 The next step is based on the information in the following table.

If channelization was	Do
enabled	Proceed to the procedures for provisioning DS0 bundles
disabled	step 8

8 This procedure is complete.

The following figure illustrates how the MG 9000 Manager presents a channelized versus an unchannelized DS1 port.

Channelized versus unchannelized DS1 port



Bundled DS0 channels allow private line bandwidth variation by creating combinations of multiple 64 kbps DS0 channels. Structured (channelized) services can only be provided over bundled channels.

Note: DS0 channel bundles must be locked before making changes to a corresponding DS1 facility or DS0 channel.

DS0 bundles are provisioned from a channelized DS1 Port View. A bundle can consist of a minimum 1 channel or a maximum 24 channels. One DS1 port can support multiple DS0 bundles. Bundles can consist of contiguous channels or non-contiguous channels.

- contiguous channels (for example, channels 1, 2, 3, and 4)
- non-contiguous channels (for example, channels 2, 6, 9, and 12)

The following procedures provide two different methods for provisioning a bundle with contiguous channels.

Provisioning a DS0 Bundle with contiguous channels, method 1

At the MG 9000 Manager

1. From the channelized DS1 Port View, click the left mouse button on the first proposed channel in the bundle.
2. Continue to hold the button.
3. Drag the mouse to the last desired channel.
4. Click on Create to create the bundle.
5. This procedure is complete.

Provisioning a DS0 Bundle with contiguous channels, method 2

At the MG 9000 Manager

1. From the channelized DS1 Port View, click the mouse button on the first proposed channel in the bundle
2. Let go of the button.
3. Press the Shift button on the keyboard, and while holding it down, use the mouse to select the last proposed channel in the bundle.
4. Release the mouse button and click the Create button on the right panel under the Bundle title.
5. This procedure is complete.

The following procedure describes the process to create a bundle with noncontiguous channels.

Provisioning a DS0 bundle with non-contiguous channels

At the MG 9000 Manager

1 From a channelized DS1 Port View, click the mouse button on the first proposed channel in the bundle.

2 Hold down the Control key on the keyboard.

3 Click the next desired channel.

4 Still holding the control key, repeat step 3 until all the desired channels are selected.

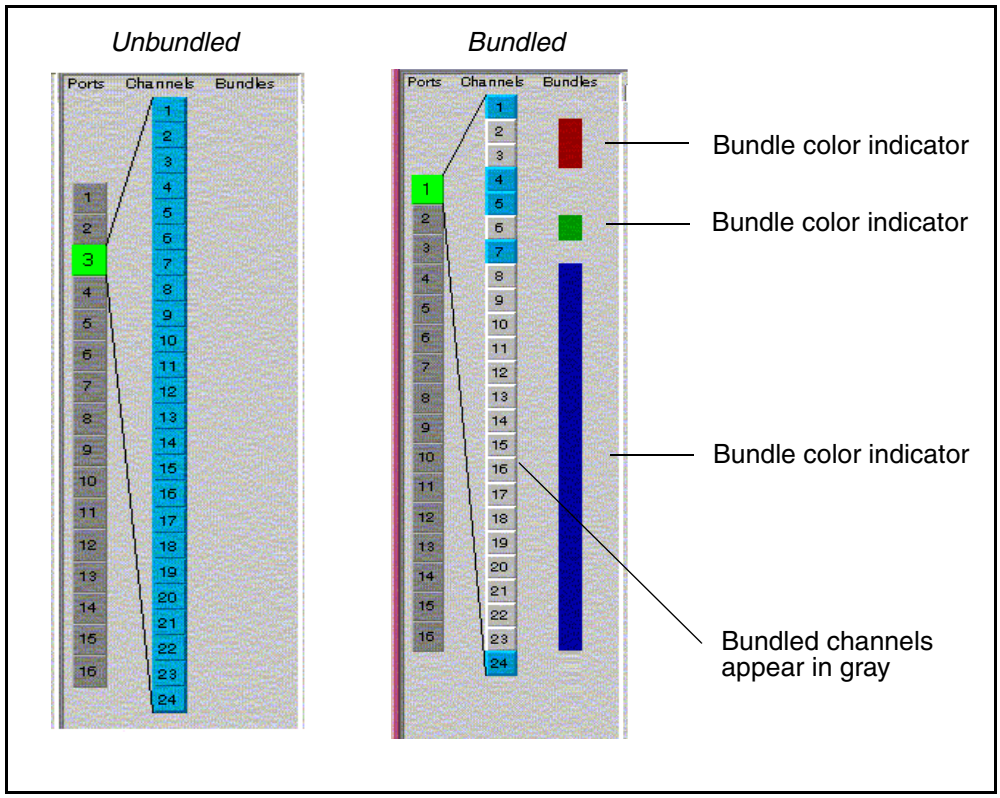
5 Click the Create button on the right panel under the Bundle title.

Creating one or more bundles changes the GUI DS0 channel presentation. Non bundled channels continue to appear in blue. Bundled channels become gray and a color code to the right of bundle is used for identification when using the Bundle Tab. The following figure shows a channelized unbundled, DS1 port 3 and a channelized bundled, DS1 port 1.

Also, the color of the port representation on the DS1 Card View change as follows:

- Blue - if no bundles exist
- Light Blue - if bundles exist on the port but there are still channels available for creating the bundles
- Dark Blue - if bundles exist and no more can be created as all channels have been taken.

Unbundled versus bundled DS0 channels



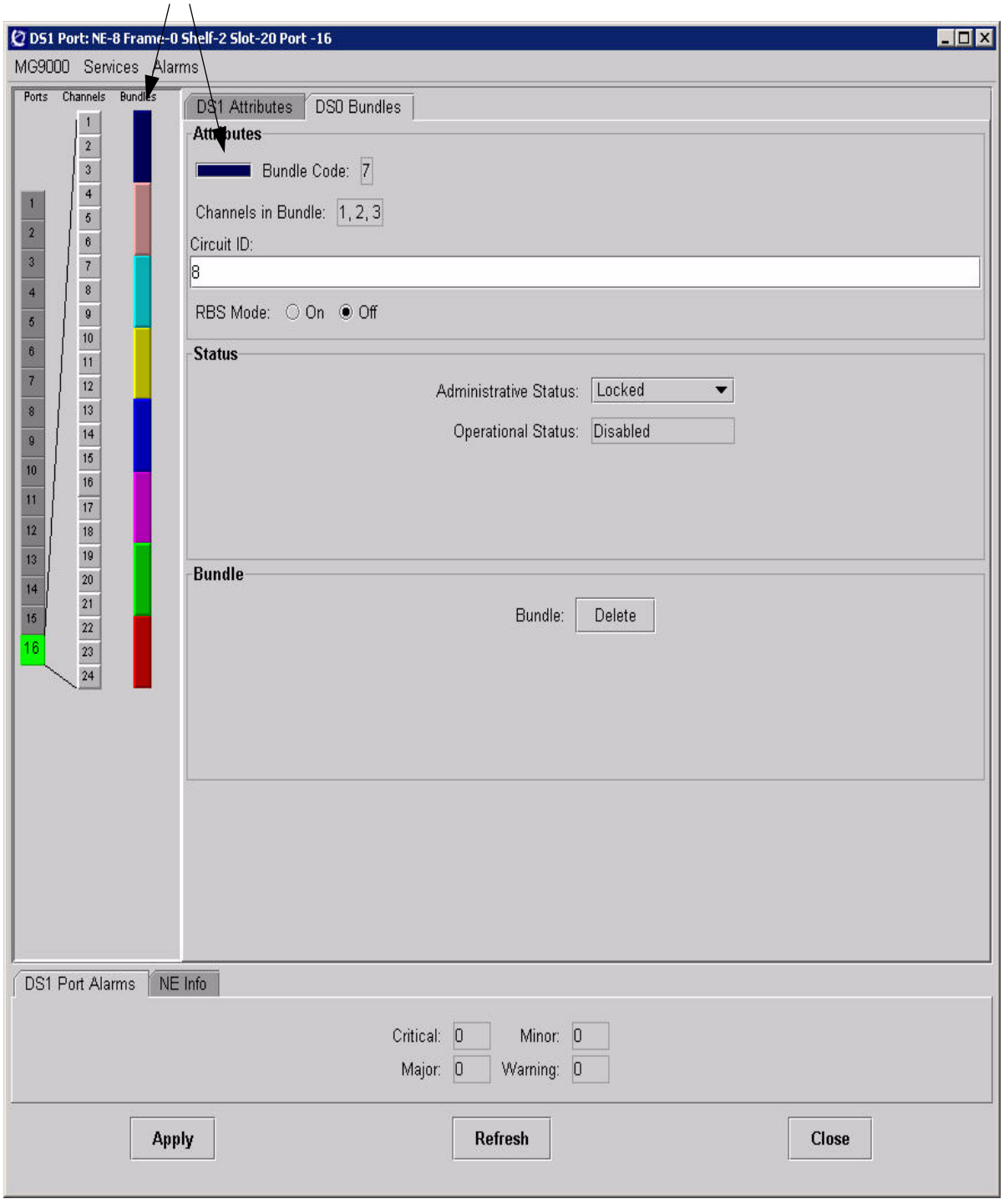
In the previous figure, the Bundled view on the right Port 1 contains three bundles:

- channels 2 and 3
- channel 6
- channels 8 through 23

Each bundle has a color bar indicator to the right of the DS0 channel. In this example, the color bars are red, green, and blue.

The DS0 Bundles tab provides information detail regarding a selected bundle's attributes and also the ability to perform bundle administration. The following figure shows an example of a DS1 Port view with the Bundles Tab selected.

DS1 Port View Bundles tab



The following table lists the fields that appear in the DS0 Bundles screen from the DS1 Port View.

DS0 Bundles tab

Box	Field	Explanation
Attributes	<color_code>	The color indicator that appears next to the channel.
	Bundle code	Hexadecimal bundle identification.
	Channels in Bundle	The DS0 channel numbers that make up the bundle.
	Circuit ID	A character string used for the restart discovery process.
Status	Administrative Status	Place the selected bundle in one of two possible conditions: • locked (when locking a bundle, the user will be warned with a message if a service exists on it) • unlocked
	Operational Status	Informational box indicating the operational status of the bundle as: • enabled • disabled • Testing • Lower Layer Down ***Note:*** This information is not automatically updated by the MG 9000. Use the Refresh button to obtain the latest status.
	Delete this Bundle	Removes the bundle and returns the channels in the bundle to individual 64 kbps DS0 channels. If a service exists on the bundle, the user will not be able to delete the bundle and a pop-up message will appear informing him of that. ***Note 1:*** Delete all DS0 Bundles on a DS1 port before unchannelizing the port. ***Note 2:*** The bundle must be locked before it is deleted.

6 This procedure is complete.

Deleting DS0 bundles on DS1 ports

At the MG 9000 Manager

1 Access the DS1 Port View.

2 Double click on the DS0 bundle to be deleted. The DS0 Bundles tab appears.

3 Change the Administrative State of the bundle to Locked.

4 Click on the Delete Bundle button.

5 This procedure is complete.

Unchannelizing ports

At the MG 9000 Manager

1 Access the DS1 Circuits List View for the DS1 card which is to have ports unchannelized.

2 Select each channelized port using Shift + Click with left mouse button.

3 Select the Unchannelize selection button at the bottom of the DS1 Circuits List View.

4 Click on Apply.

5 This procedure is complete.

Viewing all circuits on a DS1 card

At the MG 9000 Manager

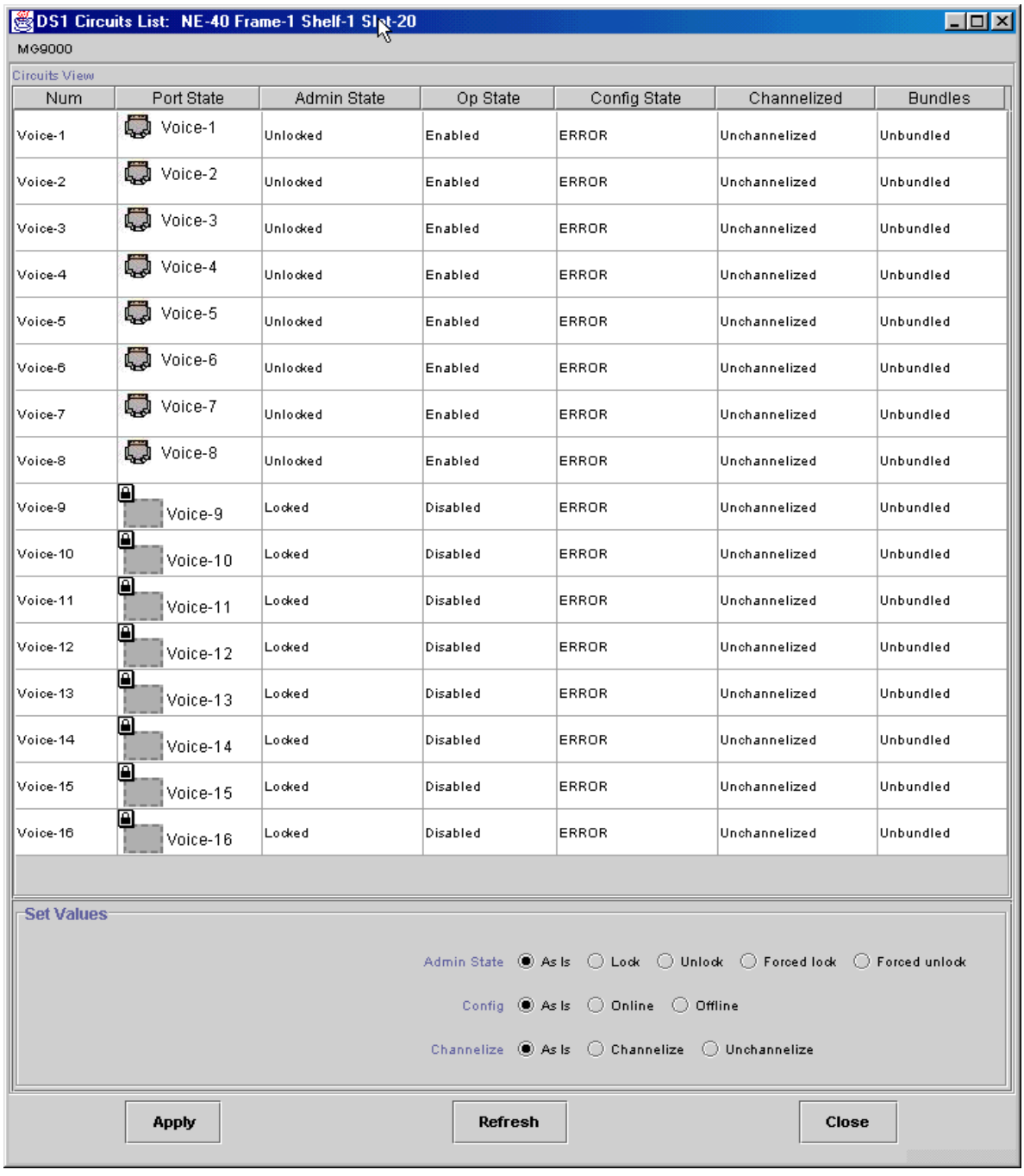
1 At the DS1 Card screen, from the menu bar select Services->Circuits Listing.

2 The window for Circuits Listing appears. The Circuits Listing View is a table that shows a complete list of all ports contained within the card. Double clicking on any port row in the table opens up the corresponding Port View for that circuit.

Note 1: The values presented in the table cannot be edited. However, from the Circuit Listing View the technician can operate on multiple ports at the same time or apply certain commands like setting the Admin state.

Note 2: The alarm, configuration, and Admin state of the ports in the table get updated dynamically to reflect the state of the circuits on the MG 9000. The line service type and operational state do not get updated dynamically. Click on the Refresh button to see the current values.

DS1 Circuits Listing View



The following table lists the fields in the Circuits Listing View.

Circuits Listing View fields

Field	Entry	Explanation
Num	1-16	Port number.
Port State	N/A	Graphical representation of the port along with its state.
Admin State	Locked, Unlocked, Testing, ERROR	Administrative state of the port. This is updated dynamically.
Op State	Enabled, Disabled, Testing, Dormant, Not Present, Lower Layer Down, ERROR	Operational state of the port. Does not get updated dynamically.
Config	Online, Offline, ERROR	Configuration State of the port. This is only applicable to the DS1 ports. Gets dynamically updated.
Channel	Channelized, Unchannelized	Channelization information of the port. Indicates whether the port has been channelized. Gets dynamically updated.
Bundle	Unbundled, Free Channels, No Free Channels	Bundle information of the port. Indicates if the channel has bundles and if there are any free channels available for further bundles. Gets dynamically updated.
SetValues	N/A	This is a logical grouping of all the values that can be set for multiple selections of the ports in the table. The technician must select a value in any of these subfields and after selecting the ports for which the operation is to be performed, click on Apply.
Admin State	As Is, Locked, Unlocked	Select any of the values to perform the respective operation on the selected port(s). The action is only performed after clicking on Apply.

Circuits Listing View fields

Field	Entry	Explanation
ConfigSt	As Is, Online, Offline	The technician can set the configuration state of the selected port(s) by selecting the appropriate value and clicking on Apply. ***Note:*** Selecting a value other than “As Is” will disable the user from selecting other input values.
ChannelSt	As Is, Channelized, Unchannelized	The technician can (un)channelize a port(s) by selecting the appropriate value and clicking on Apply. ***Note:*** Selecting a value other than “As Is” will disable the user from selecting other input values.
Apply	N/A	Performs the specified action on the selected port(s).
Refresh	N/A	Causes the view to refresh itself.
Close or from the Menu->Close	N/A	Closes the view.

3 This procedure is complete.

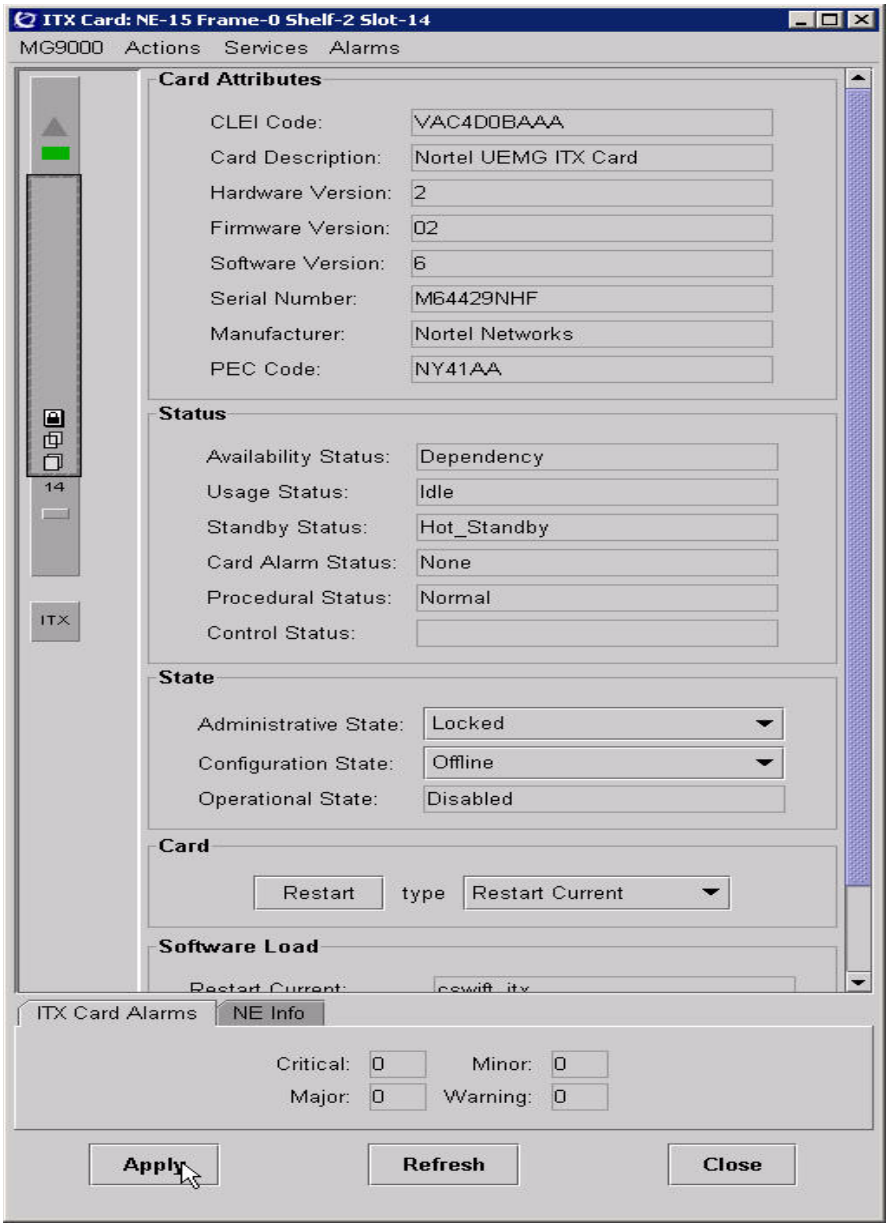
Provisioning an ITX card

When to use this procedure

Use the procedures in this section when it is necessary to provision additional ITX cards to support subtending shelves.

The following figure shows an ITX Card View.

ITX Card View



Prerequisites

The ITX cards must have been installed in pairs in the slots to be provisioned using correct ESD precautions. Appropriate cables have been connected to the faceplate of the ITX card according to the configurations requirements for the MG 9000.

Note: Ensure all provisioning requirements and considerations for growth are considered before provisioning additional ITX card.

Action

The following procedure provides the steps for provisioning an ITX card.

Provisioning an ITX card

At the MG 9000 Manager

1 At the Subnet View, double click on the MG 9000 that is to have the ITX card provisioned. The Frame View appears.

2 At the Frame View, double click on the shelf in which the ITX card resides. The Shelf View appears.

3 At the Shelf View, double click on the slot in which the ITX card resides. The ITX Card View appears. Since the ITX card is already installed, autodiscovery datafills the data about the card.

Note: When provisioning an ITX card, click Refresh at the bottom of the ITX Card View to synchronize the data between the MG 9000 and the MG 9000 Manager.

4 This procedure is complete.

De-provisioning a line card

When to use this procedure

Use this procedure when it is necessary to de-provision one of the following line cards: ADSL, DS1, WLC, GLC, or SAA. This procedure may be used when it is necessary to move cards from one shelf or slot to another.

Note: After de-provisioning card and port data on the MG 9000, it is recommended that all provisioning information be recorded. Use the Save PLoA or Save SLoA services procedure to save provisioning information into a file that provides a list of all services on that network element.

Prerequisites

A line card must be equipped in the slot to be de-provisioned.

Action

The following procedure provides the steps for de-provisioning a line card in the MG 9000 shelf.

De-provisioning a line card

At the MG 9000 Manager

1 At the Subnet View, double click on the MG 9000 that is to have the line card de-provisioned. The Frame View appears.

2 At the Frame View, double click on the shelf in which the line card resides. The Shelf View appears.

3 At the Shelf View, double click on the slot in which the line card resides. The appropriate card view appears.

4 At the card view for the card to be de-provisioned, remove all DNs from the card to be de-provisioned. For example, remove all terminations from the WLC, GLC, SAA, or ADSL card or remove all private lines services (channelization, DS0 bundling) from a DS1 card.

Note: When a card is de-provisioned the associated terminations will be removed from the MG 9000 Manager, the MG 9000, and the SESM. To update the current list of configured terminations, use the Saving SLoA Services tool.

5 To lock the card, change the Administrative state by selecting Lock from the administrative state pull-down menu in the State pane. When attempting to lock a card with services, a warning message appears, informing the user that to proceed, Forced

Lock must be used. Ensure all services and terminations have been removed before proceeding.

6 Set the Configuration State to Offline from the configuration state pull-down menu in the State pane. Observe that the LED indicator on the Card View changes to red, indicating Safe to pull. (If an Offline card is removed, a card of the same type may be inserted in the slot. The card and circuit data on the MG 9000 Manager are not affected.)

7 Set the Configuration State to Deprovision from the configuration state pull-down menu in the State pane. When a Deprovisioned card is pulled, the data for that card and associated circuits are removed from the MG 9000 Manager.

At the MG 9000 frame

8

WARNING

Static electricity damage

Wear a wrist strap that connects to the wrist-strap grounding point to handle cards. The wrist-strap grounding point is on the local craft access panel (LCAP). The wrist strap protects the cards against static electricity damage.

The card can be removed from the shelf.

9 This procedure is complete.

Provisioning private lines services

When to use this procedure

Use the following procedure to provision the private lines services.

Note: Provisioning private lines services is not supported on an MG 9000 in a UA-IP solution.

Included are the following procedures:

- Provisioning private lines services on page 144
- Accessing the PIoA Services Browser on page 157
- Performing a bulk reconnect of PLoA services on page 158
- Deleting private lines services on page 159
- Saving PLoA Services on page 160
- Diagnosing PLoA services on page 161

Note 1: After provisioning private lines services on the MG 9000, it is recommended that all provisioning information be recorded. Use the Save PLoA services procedure to save provisioning information into a file that provides a list of all services on that network element.

Note 2: When provisioning private lines data, or deleting a private lines data and an error occurs which precludes the process from completing, indicating corrupted data, perform the Auditing MG 9000 provisioning data procedure in this document. If this does not clear the data corruption, refer to the “Reinitialize intelligent cards in the MG 9000” procedure in *MG 9000 Fault Management*, NN10074-911. This procedure is used to clear corrupted data out of the MG 9000. However, reinitializing the applicable cards is disruptive and is not for normal fault clearing activities.

Prerequisites

Private lines services requires that:

- MG 9000 hardware has been discovered and communication established to the MG 9000 Manager
- ATM connectivity has been established and maintained
- DS1 card, port, or bundle has been unlocked
- channelization and bundles have been created for structured services

Action

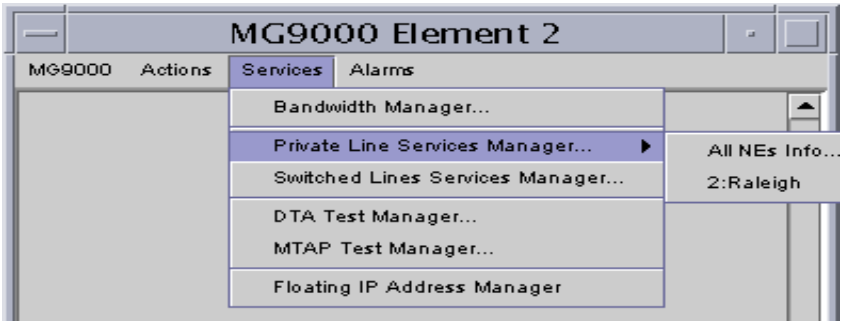
Provisioning private lines services

At the MG 9000 Manager

1 At the Subnet View, double click on the MG 9000 icon for which PLoA services are to be provisioned. The Frame View appears.

2 From the Frame View, select Private Lines Services Manager from the Services menu and continue to the sub-menu which allows private lines services for all MG 9000s within the same subnet manager or private lines services for a specific MG 9000 to be displayed. To display services for all MG 9000s, select the sub-menu All NEs info... To display services for a specific MG 9000, select the specific NE from the sub-menu. When either sub-menu is selected a Private Lines Services Manager appears as shown in the following figure.

Accessing the Private Lines Services Manager

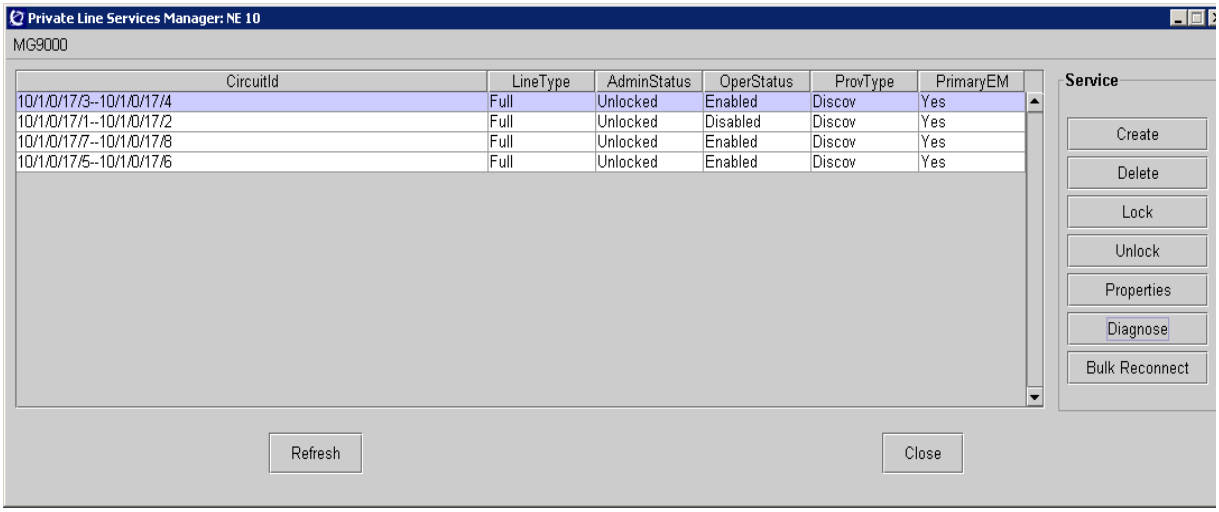


When either sub-menu is selected, a Private Lines Services Manager is opened that displays the appropriate services.

3 From the Private Line Services Manager, select the Create button.

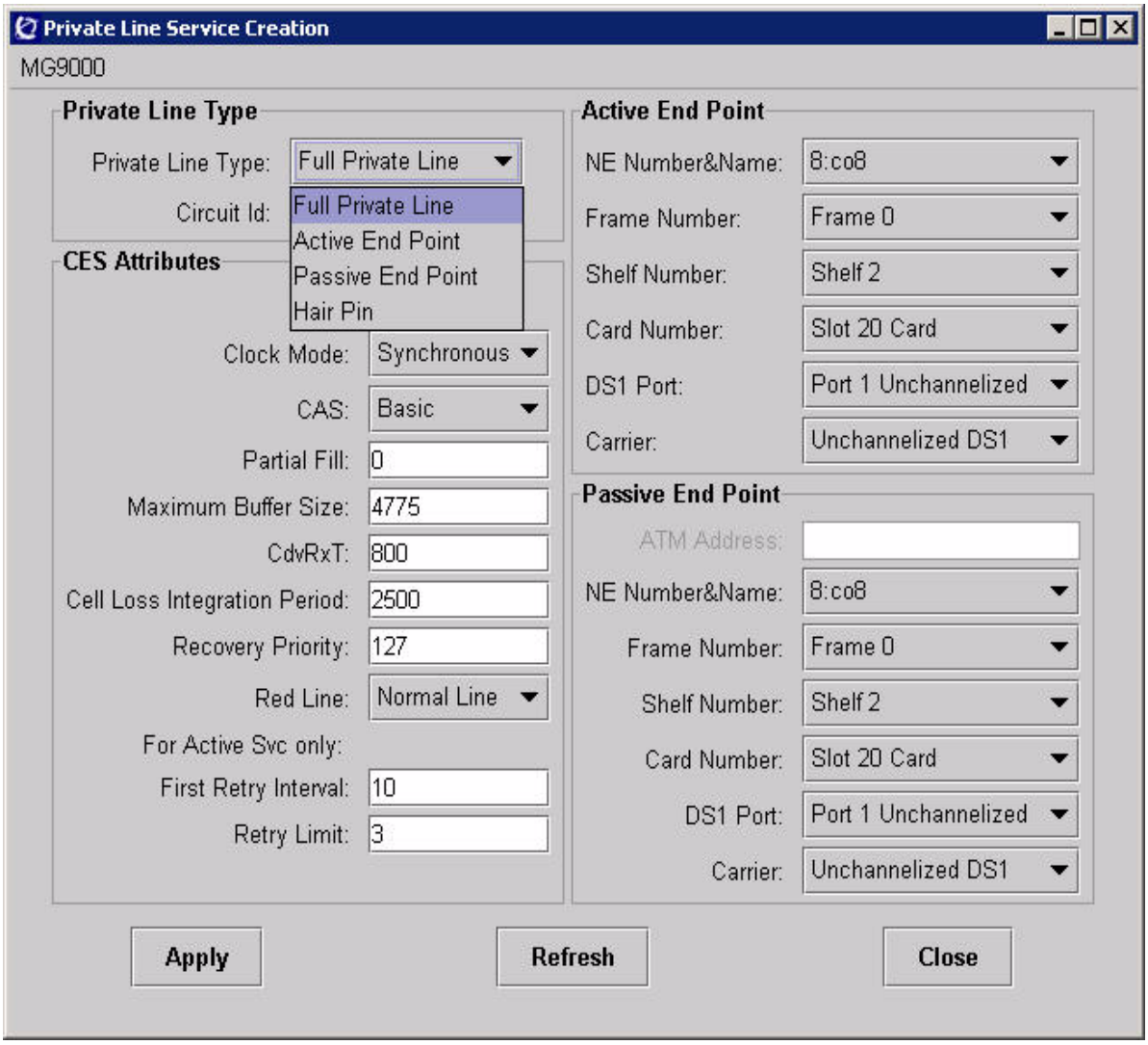
Note: All private lines services which have been created on any MG 9000 within the same subnet manager are shown. This is because private line services are normally from one MG 9000 to another MG 9000 and require knowledge of the MG 9000's within the same subnet.

Private Line Services Manager



4 Provision the private line service from the Private Line Service Creation screen.

Private Line Service Creation



The Private Line Service Creation screen is used to create services through MG 9000 end point definitions. An endpoint is one end of a private line service across an ATM network. End points represent the Interworking Function (IWF) used to provide interconnections of two Narrowband networks through an ATM network using ATM Virtual Connections. The following table

defines the four private line service type options available through the Private Line Service Creation screen.

Private line service types

Type	Explanation
Full Private Line	An ATM circuit emulation service that provides a permanent connection between two MG 9000s. A full private line contains a passive and an active end point. (This is used to cross MG 9000s within the network.)
Active End Point	One end of a half private line. The end point that initiates an ATM circuit emulation connection. (This is used when the passive endpoint is not in the network.)
Passive End Point	One end of a half private line. The end point where the ATM address is waiting for a connection or passively connected. (This is used when the active endpoint is not in the network.)
Hair Pin	A private line where both end points reside on the same MG 9000. With both connections on the local gateway, the hair pin connection does not connect to the ATM network.

Note: When an Active or Passive end point is recovered from the MG 9000 after restarting the MG 9000 Manager, the active and passive services are converted to Full Private Line service. This occurs when the active end point is created with a remote ATM address matching the ATM address of a passive endpoint on the same subnet.

The following table shows the data boxes and fields contained in the Private Line Service Creation screen. The GUI does not provide access to fields that do not apply to a selected Private

Line type. The following table indicates when a default value exists for a field.

Private Line Service Creation data fields

Box	Field	Explanation
Private Line Type	Private Line Type	Select a Private Line Type. • Full Private Line • Active End Point • Passive End Point • Hair Pin
	Circuit ID	Create a character string to provide a description for the circuit. If one is not provided by the technician, then a default ID will be assigned based on the physical equipment over which the service being carried.
CES Attributes	Clock Mode	Define the DS1 service clocking mode. • synchronous (default) • SRTS (not currently supported) • adaptive (not currently supported) ***Note:*** Refer to the CES clocking options table (Table) for more information. The selection made here is based on the selection made at the DSI interface.
	CAS	Select an AAL1 format. • Basic (default) • DS1 SF • DS1 ESF • E1 (not currently supported) • J2 (not currently supported) ***Note:*** The Basic (default) selection does not carry Channel Associated Signalling (CAS) bits.
	Partial Fill	Enable partial cell fill and determine the number of user octets used in the ATM payload cell. 0 (zero) disables partial cell fill. (default) A number from 1 to 47 defines the number of user octets and enables partial cell fill.

Private Line Service Creation data fields

Box	Field	Explanation
	Maximum Buffer Size	Define the maximum size, in 10 microsecond increments, of the reassembly buffer. Values are 1 through 65536.
	CdvRxt	Define the maximum cell arrival jitter, in10 µs increments, that the reassembly process can tolerate without producing errors on the CBR service interface. Values are 1 through 65536.
	Cell Loss Integration Period	The cell loss integration time, in milliseconds. Values are 1000 through 65536.
	Recovery Priority	Define the recovery priority for an end point. Where 1 is the highest priority. 0 means no priority. (not currently supported) Values are 0 through 255. The default value is 127.
	Red Line	Determine if the endpoint is a special code of the CES IWF. Indicates if the circuit is a special line (such as 911). (Currently not supported)
	First Retry Interval	The amount of time, in seconds, to wait before attempting to establish the SVC after the first failed call attempt. (Used only for the active side of a PLoA service.) Values are 1 through 3600. Valid for Full Private line and Active End Point only.
	Retry Limit	The maximum limit of consecutive unsuccessful call setup attempts allowed before ending the connection attempt. (Used only for the active side of a PLoA service.) Values are 0 through 65535. 0 denotes infinite retry attempts. Valid for Full Private Line and Active End Point only.
Active End Point	Node 9000 Number & Name	The defined name and number for the MG 9000 endpoint location.

Private Line Service Creation data fields

Box	Field	Explanation
	Frame Number	The sequential MG 9000 frame number endpoint location.
	Shelf Number	The shelf number endpoint location
	Card Number	The slot number endpoint location.
	DS1 Port	The port number endpoint location.
	Carrier	The private line carrier status. The status options appear in Table that immediately follows this table.
Passive End Point	ATM Address	The ATM net prefix address of the UNI. The ATM address is required for Active and Passive End Point lines. For Passive End Point lines, the GUI automatically fills in the ATM Address field after the Apply button has been selected. If the active end point is created with an address matching the address of a passive end point on the same subnet, then the active and passive services are converted to Full Private Line service. An Active End Point service establishes a connection to a Passive End Point that has provided an ATM Address.

The allowed clocking options for CES is based on selections made at the DS1 port. SRTS can be used only when there is a common network card. When selecting the DS1 port from the DS1 port list in the Active End Point and Passive End Point panes of the Private Line Service Creation window, the word channelized or unchannelized follows the port number. This is used to determine the CES clock option that applies based on

the port that was selected. The following table provides the CES clock options.

CES clock options

DS1 clock option	CES clock option being configured	
	Unstructured (type of service created on an unchannelized DS1 port)	**Structured (type of service created on a channelized DS1 port)**
Looped	Synchronous, Adaptive, SRTS	Synchronous
Local	Synchronous, Adaptive, SRTS	Synchronous
Through	Adaptive, SRTS	Not an option

The following table shows the options that appear in the carrier field.

Carrier Data field options

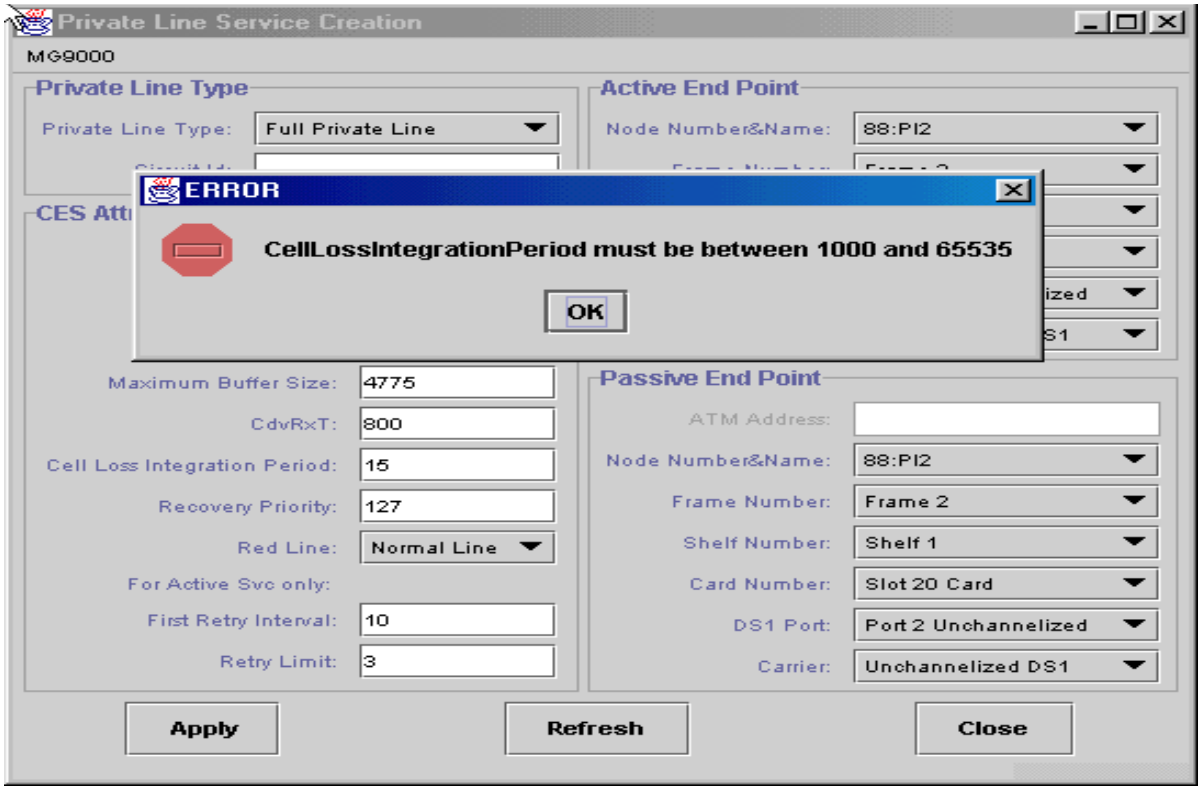
Option	Explanation
Unchannelized DS1	The selected DS1 port has not been channelized. The carrier provides full T1 service.
Channelized bundles	The selected DS1 port has been channelized and bundled. The “x” is a variable, used for identification, and shows the first channel in the bundle.
Channelized no bundles	The DS1 port has been channelized but no bundles have been created.

5 Select the Apply button to create the private line service. When the message in the status bar at the bottom goes away, indicating the service is successfully created, return to the Private Line Services Manager screen.

If any equipment is added or if DS0 bundles are created while the creation window is open, the Private Lines Service Creation view is updated automatically.

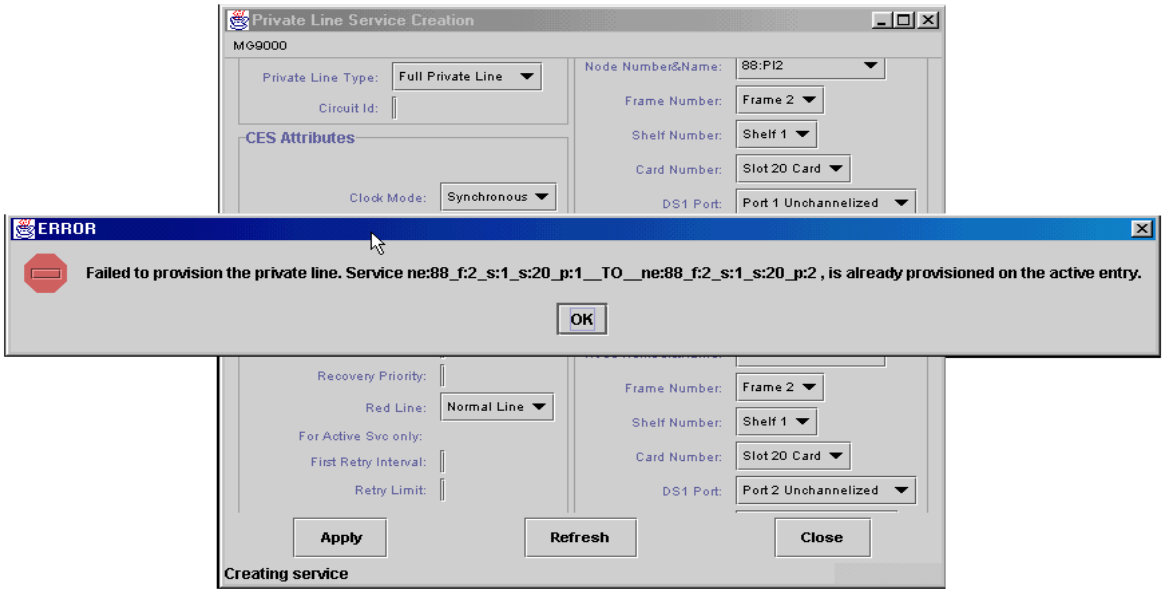
If the service creation data fields are invalid, a message indicating the first error encountered is displayed, as shown in the following figure.

Private Line Service Creation error message



If a service already exists on the endpoint being created, a message indicating which endpoint already has a service including the existing service name is shown.

Private Line Service Creation service creation error message

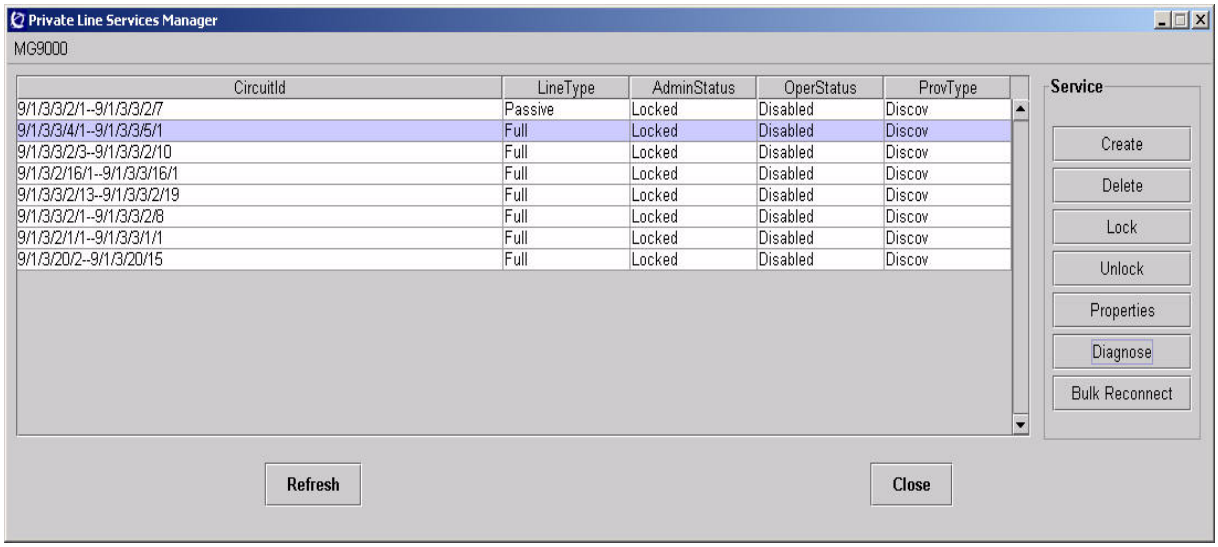


Management options from the Private Line Services Manager screen for a selected service include:

- delete the service or bulk delete all selected services
- lock the service or bulk lock all selected services
- unlock the service or bulk unlock all selected services
- show properties for the service
- perform ATM diagnostic tests on the service
- bulk reconnect all selected services

At the Private Line Services Manager, when the technician is ready for the private line service to go in service, select the service. Select the Unlock button to allow traffic flow.

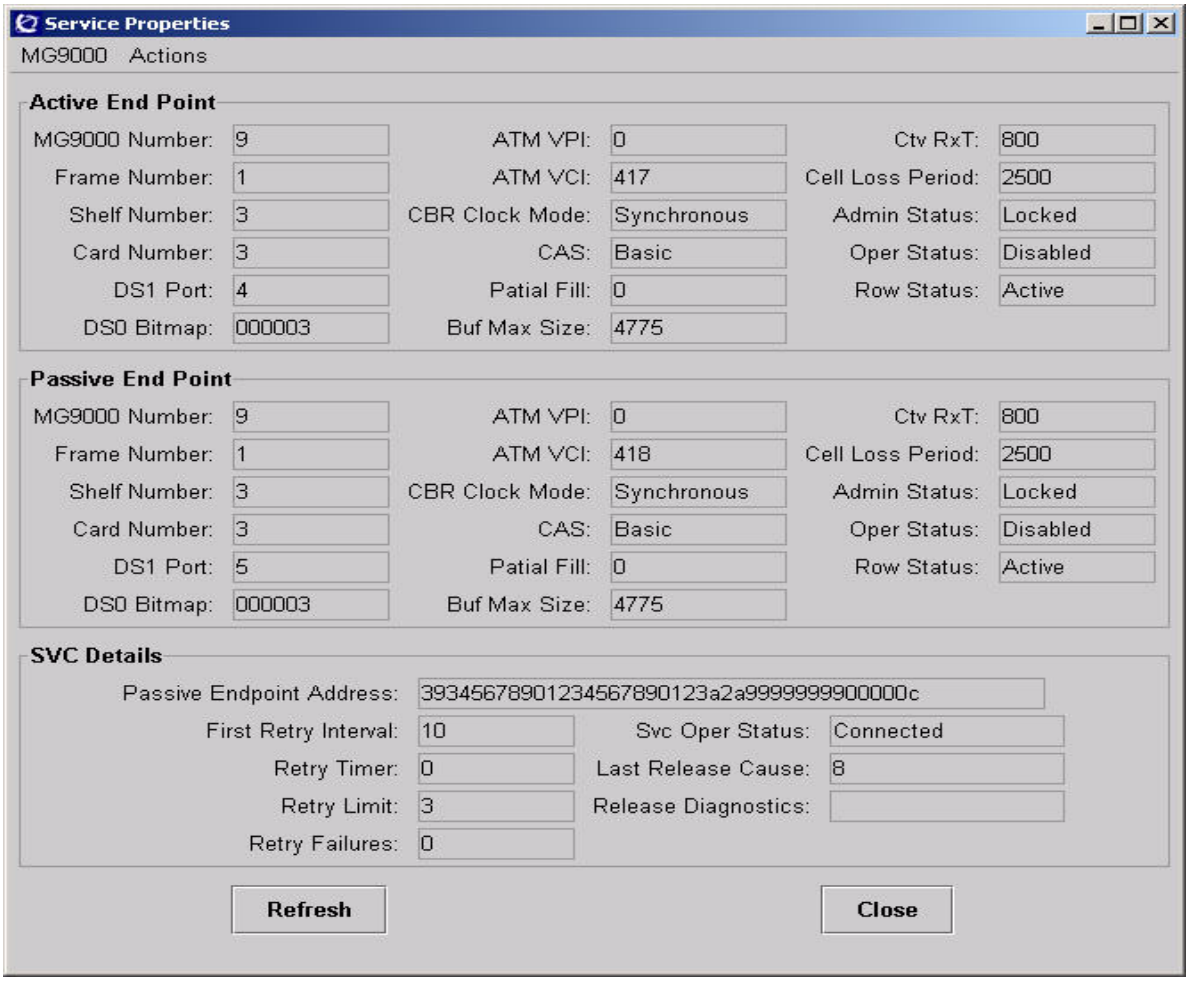
Private Line Services Manager



Services whose OperStatus indicates disabled will not be able to carry traffic.

6 Select Properties to show the data properties of the created Private Line Service. The Service Properties screen appears as shown in the following figure. The properties of the service may be viewed any time after its creation.

Service Properties screen



Note: When existing bundles, that is, those bundles already persisted in the database either manually or automatically, are deleted and recreated for provisioning PLoA services, manually persist the data to the database. Refer to the Persisting MG 9000 provisioning data procedure in this document. This action ensures proper recovery of PLoA services in the event of an MG 9000 Manager restart.

For active endpoints or full services, the SVC OperStatus indicates if the service is

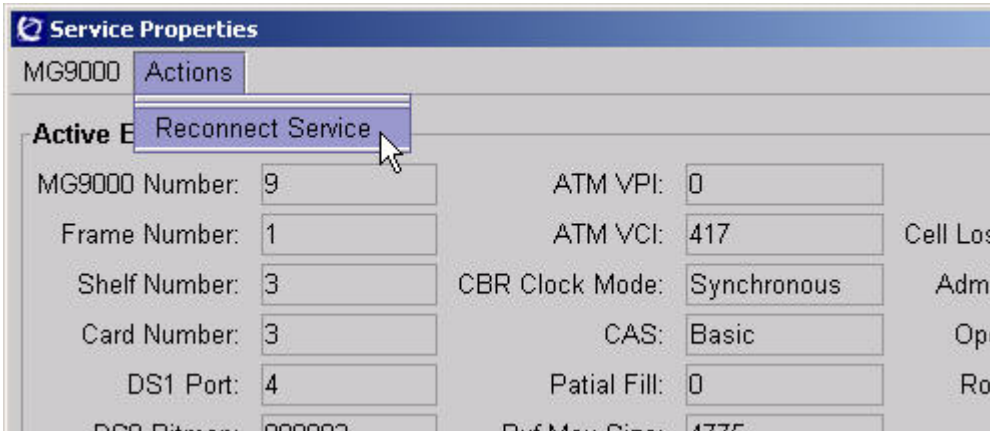
- Connected
- In progress
- Failed
- Retries Exhausted

- NoAddress Supplied
- LowerLayerDown, meaning one of the lower layers, such as the ATM layer or the physical layer is down

The last release cause will indicate the cause for service connection failure.

One particular service can be reconnected by using the Actions->Reconnect command at the menu bar of the Service Properties view. The following figure shows the Reconnect command being accessed from the Service Properties view.

Accessing Reconnect Service from Service Properties



7 This procedure is complete.

Viewing PLoA services from the PLOA Services Browser

From the Subnet View, all PLoA services can be viewed and accessed be selecting Configuration->PloA Services Browser from the menu bar.

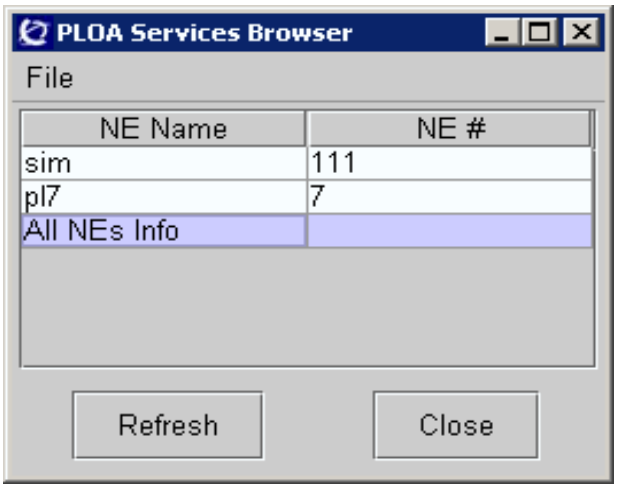
Accessing the PloA Services Browser

At the MG 9000 Manager

1 At the Subnet View, select Configuration->PloA Services Browser. The PloA Services Browser appears. The following figure shows the PloA Services Browser.

Note: When the MG 9000 Manager performs a restart or there is a failover condition (for offices with the N240 HA configuration), PLoA services are recovered from the database. The time it takes to recover depends on the number of PLoA services configured. During recovery, if the Private Lines Services Manager window is opened, no PLoA services will appear. Wait 15-20 minutes, if 300 or more PLoA services are provisioned, before opening the Private Lines Services Manager. No services are lost; this delay allows the MG 9000 Manager to finish updating following the restart or failover.

Ploa Services Browser



2 To list all PLoA services on a network element, double click on that NE name. To view all PLoA services, double click on “All NEs info.” The Private Line Services Manager appears.

3 This procedure is complete.

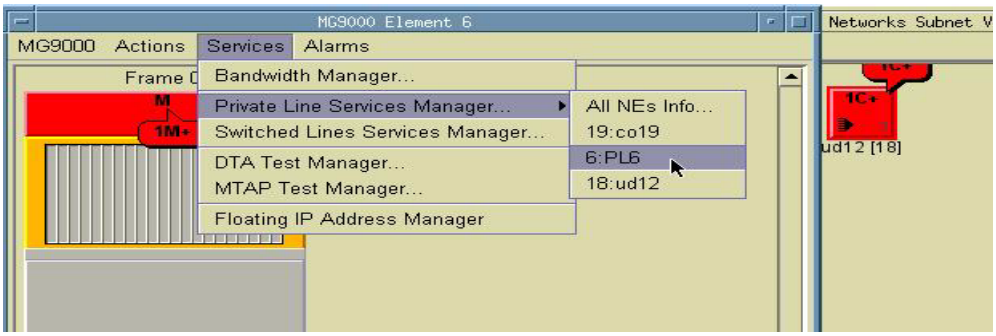
Performing a bulk reconnect of PLoA services

When it is necessary to perform a bulk reconnect of PLoA services in response to a network failure, use the following procedure.

Performing a bulk reconnect of PLoA services

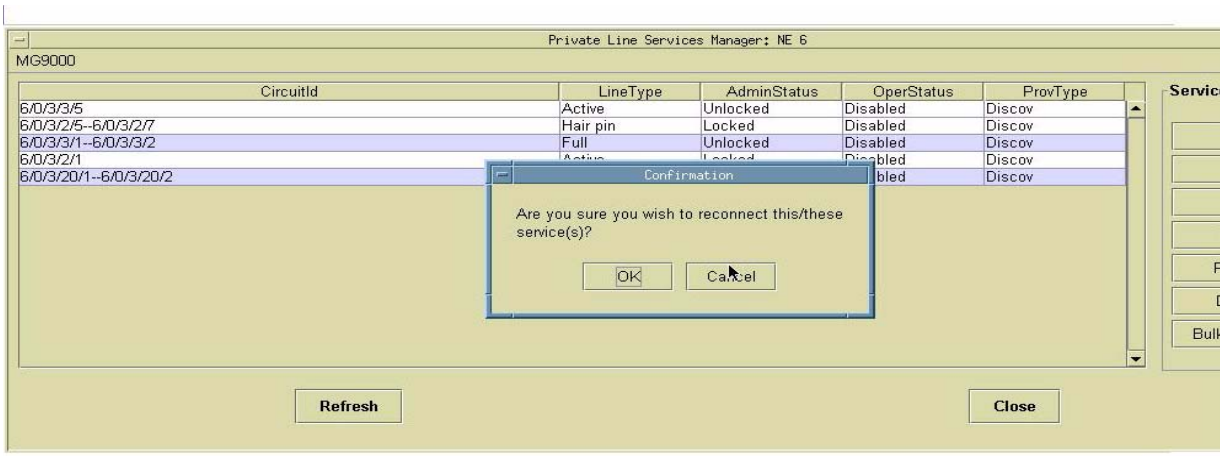
At the MG 9000 Manager

1 At the Frame View, from the Services menu, select Private Lines Services Manager. The Private Lines Services Manager appears.



2 To select all the services to be connected, press and hold Ctrl and click to highlight the services.

3 Select Bulk Reconnect and respond to the confirmation message. The services will be reconnected.



4 This procedure is complete.

Deleting private lines services

At the MG 9000 Manager

1 At the Frame View, from the Services menu, select Private Lines Services Manager.

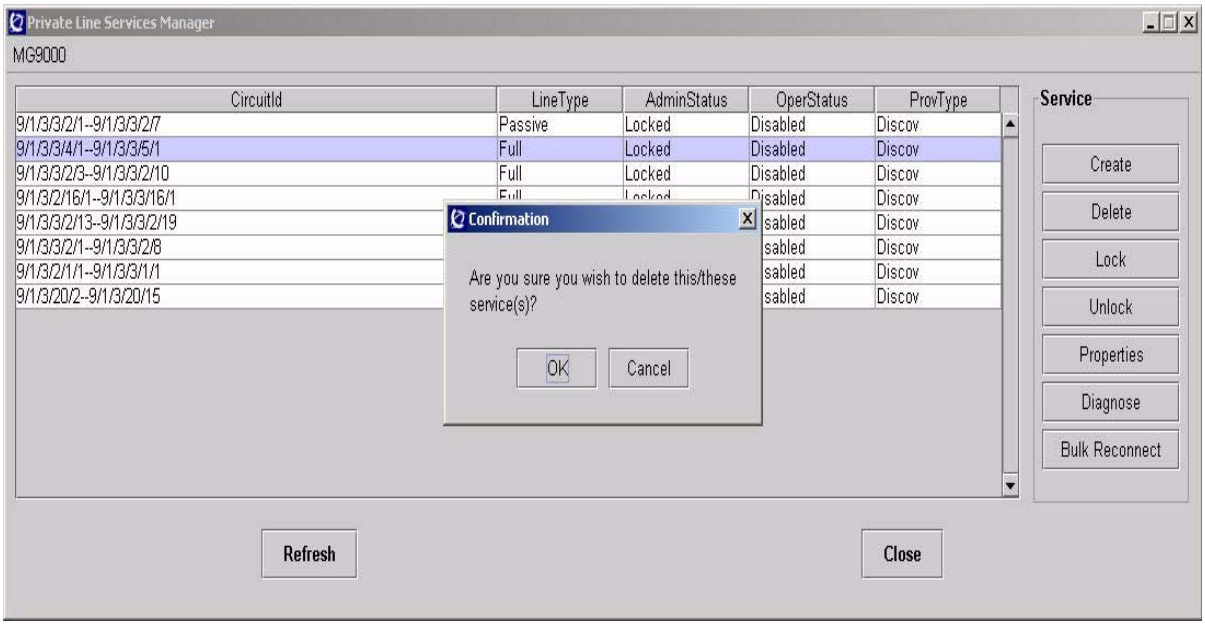
2 Select the service which is to be deleted and select the Lock button if the service is unlocked. Click on Ok when prompted with the message Are you sure, the service(s) should be locked? The following figure shows the confirmation message.

Note: More than one service can be selected at a time.

3 Once the service is locked, select the Delete button.

4 Select OK when prompted with the message Are you sure you wish to delete this/these service(s)? The service will be deleted from the MG 9000 and removed from the Private Line Services Manager window. The following figure shows the confirmation message.

Private Line Service Manager services deletion confirmation message



5 This procedure is complete.

Saving a list of PLoA services to a file

When it is necessary to view all the services on the MG 9000, a listing of the private lines services can be obtained using the Save PLoA Services tool. This tool is also used to save a list the services to a flat file for inventory management or when manual re-provisioning is required, such as in the unlikely event that persistence is lost, and to preclude the need for writing the information manually. Files are written in both HTML and text format. The information is always output to the server. The directory in which the files are written to is the /tmp directory on the server and the file name is displayed in the information dialog message that is output. The user should FTP the file to any desired location to retain the information.

Note: These files must be regularly moved to another directory since the /tmp directory is cleaned periodically.

The following procedure provides the steps for saving PLoA services information into a file.

Saving PLoA Services

At the MG 9000 Manager

1 From the Frame View, access the Save PLoA Services tool from the Actions menu. The Save PLoA services dialog box appears as shown in the following figure.

Save PLoA Services dialog

2 The PLoA services have been saved into the file noted in the dialog box. Note the file name. Click OK to close the dialog box.

3 This procedure is complete.

Diagnosing PLoA services

On the Private Line Services Manager, there is a Diagnose button, which when clicked, displays the available private lines with corresponding virtual connections and associated endpoints available for testing.

When it is necessary to diagnose PLoA connections, perform the following procedure.

Diagnosing PLoA services

At the MG 9000 Manager

1 At the Subnet View, double click on the MG 9000 icon on which PLoA services are to be diagnosed. The Frame View appears.

2 From the Frame View menu bar, select Services->Private Line Services Manager and choose whether to view all private line connections for all network elements in the subnet or choose one network element.

3 Select a private line to be tested then click on Diagnose. Depending on the line type selected, full or passive, a Passive Endpoint ATM Diagnostics view or Full Private Line Diagnostics view appears.

There are two kinds of maintenance actions, loopback test and continuity check, which appear as four tabbed panes corresponding to each test:

- loopback tests - provides the ability to send out a loopback OAM cell to verify the existence of connectivity for an entire connection (end-to-end) or a segment of a connection.
  - — End to End Loopback Test
  - — Segment Loopback Test
- continuity checks - provides the ability to perform a continuity check for an entire connection (end-to-end) or a segment of a connection.
  - — Segment Continuity Check
  - — End to End Continuity Check

4 Click on the appropriate tab based on the kind of test to be performed.

5 Click Execute to start the test. The Current Status field changes from Not Activated to Activation Requested to Activated. The system reports the test status in the Test Owner Details panel. Click Query to query the status of the test and the results are

displayed in the Results field as Success or Failed. If the test failed, the reason is displayed.

If the test is complete, a message dialog box appears indicating the test is complete.

If the technician clicked Abort to stop the test and then clicked on Query, the message dialog will indicate the test is aborted.

Note: If the Diagnostics GUI is closed after starting a test, the test is aborted.

6 This procedure is complete.

Provisioning switched lines services

When to use this procedure

Use these procedures when provisioning switched lines services. The following procedures are included in this section.

Note 1: After provisioning switched lines services on the MG 9000, it is recommended that all provisioning information be recorded. Use the Save SLoA services procedure to save provisioning information into a file that provides a list of all services on that network element.

Note 2: When provisioning VMG data, changing VMG data, creating a termination, or deleting a termination and an error occurs which precludes the process from completing which indicates corrupted data, first perform the Auditing MG 9000 provisioning data procedure in this document. If this does not clear the data corruption, refer to the "Reinitialize intelligent cards in the MG 9000" procedure in *MG 9000 Fault Management*, NN10074-911 and reinitialize the shelf's pair of ITP cards. This procedure is used to clear corrupted data out of the MG 9000. However, reinitializing the applicable cards is a last resort. It is disruptive and is not for normal fault clearing activities.

Note 3: After the site and office frame number are provisioned in the Frame Provisioning Information view (using the Provisioning an MG 9000 frame's physical location procedure), the user need not input the site and frame location information when provisioning VMGs. When the location is selected during non-ABI VMG provisioning, the

Site Name, Office Frame Number, and VMG name fields automatically reflect the site and office frame number for the selected frame.

What is a Virtual Media Gateway?

Switched lines services use a VMG to divide the physical hardware into logical entities. A VMG can be thought of as a container for terminations. A termination is a logical representation of a circuit. There is a one-to-one mapping between terminations and circuits.

When examining a termination and VMG combination, the circuit can be revealed. For example; if the termination “tp/5/15” is contained in a VMG named “CO10007-0-1”, it can be determined that the termination is on Frame 7, Shelf 1, Slot 5, and circuit 15. See the figure titled Provision a Virtual Media Gateway window in the following procedure. The VMG name and termination points have the following formats:

SITExxx-y-z tp/aa/bb, where

- xxx is the office frame number (000 to 511)
- y is the internal frame number, which is set to 0

  Note: VMGs provisioned in SN05/SN06+ with a non-zero Internal frame number, continue to exist as they are, that is, the VMGs continue to exist with a non-zero Internal frame number.

- z is the shelf number (0 to 9)
- aa is the card number (02 to 09 and 14 to 21)
- bb is the circuit number (00 to 47)

The line equipment numbers (LEN) associated with MG 9000 lines are determined based on the VMG and termination names. The following table shows the method used to calculate the LEN number.

Value	Format	Example
Physical MG 9000 name	<site><cf><any string>	HOST001-123-MAINST-LSVGNV
Virtual MG Name + TP	<site><cf>-<rf>-<rs> tp/<ss>/<cc>	HOST001-0-2 tp/03/04
LEN format	<site><cf><rs><ss><cc>	HOST 01 2 03 04

The abbreviations in the previous table are defined as follows:

- site - a site name from the XA-core table SITE
- cf - a contiguous frame or office frame which is the frame number in the office. This field must be three characters where the maximum is 511. Office frame numbers less than 100 are padded with a zero (0), for example 99 appearing as 099. Office frames less than 10 are padded with two zeros (00), for example 9 appearing as 009 when the VMG names are generated. The ServOrd+ query commands will only pad one zero if the number is less than 10 but will still show the full number if the number is greater than 99.
- rf - a relative frame which is the offset of the VMG frame inside the physical MG 9000 (0-7).
- rs - a relative shelf which is offset of the VMG shelf inside the VMG frame (0-3).
- ss - a slot which is the holder of one line card on a frame. This field will be padded with a zero (0) if less than 10, for example 9 appearing as 09.
- cc - a physical line circuit on a card. This field will be padded with a zero (0) if less than 10, for example 9 appearing as 09.

Silence suppression in the UA-IP solution

Silence suppression is a mechanism meant to reduce bandwidth of voice calls in the UA-IP solution. Silence suppression uses a voice activated detector (VAD) to detect periods of silence in a call and then send special silence insertion descriptor (SID) packets in place of silence encoded into voice packets. For silence suppression to be enabled on an MG 9000, the following must be provisioned:

- At the GWC, the comfort noise box available from the Network Configuration panel must be set to On. The comfort noise box is Off by default.
- In the Switched Lines Services Provisioning window, in the GW Config tab, the Voice activity detector must be enabled.

Prerequisites

The appropriate POTS 32, GLC32, SAA, or ADSL line cards or DS-512 (ABI) cards are installed in the shelf.

When provisioning VMGs on a UA-IP MG 9000, and silence suppression is to be used, the comfort noise box at the SESM Network Configuration level must be checked.

Action

Adding a Virtual Media Gateway

When adding a VMG, use the following guidelines to avoid data corruption and a mismatch of configuration data between the MG 9000, MG 9000 Manager, SESM, GWC, and Core:

- Always provision a VMG from the MG 9000 Manager.
- After the VMG is created, set the ESA flag to ON. (This will allow recovery of the directory numbers from the MG 9000 when the network element is deleted from MG 9000 Manager using the Delete Node command.)
- Use the correct VMG format identified at the beginning of this section.
- Make sure no extra spaces are present in the VMG name or in IP addresses.

Use the following procedure to add a virtual media gateway.

Adding a Virtual Media Gateway

At the MG 9000 Manager

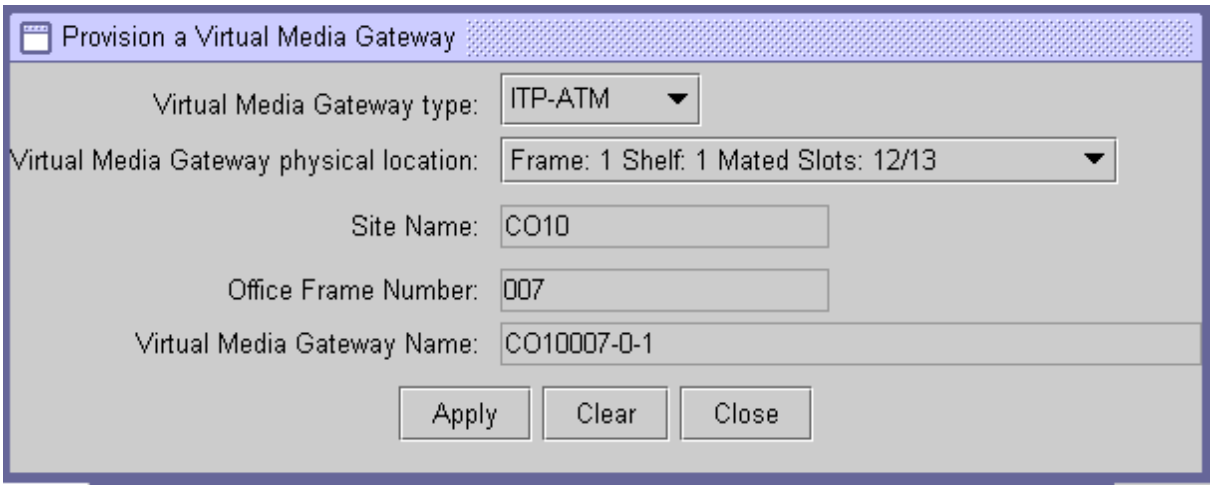
1 From the Subnet View, double click on the MG 9000 icon on which switched lines services are to be provisioned. The Frame View appears.

2 At the Frame View, select Switched Lines Services Manager from the Services menu.

3 Select the Create button from the Switched Line Services screen.

The following figure shows the Provision a Virtual Media Gateway window.

Provision a Virtual Media Gateway window



4 Select the type of VMG from the top most combo box: (ABI-ATM, ITP-ATM, ITP-IP, or ABI-IP). The VMG types are related to the PEC code for the ABI or ITP cards installed in the MG 9000 and are listed next:

- ABI-ATM - NTNY43BA or NTNY43AA in UA-AAL1 solution
- ABI-IP - NTNY43BA in UA-IP solution
- ITP-ATM - NTNY30CA or NTNY30AB in UA-AAL1 solution
- ITP-IP - NTNY30CA or NTNY30BA in UA-IP solution

Note 1: After one VMG type is selected, the alternate choices are greyed out. For example, when the ITP-ATM VMG is selected for an ATM system, the ITP-IP, ABI-ATM, and ABI-IP choices are greyed out.

Note 2: If Frame location information for a VMG is only partially available, then Frame location information was not pushed to the SESM while provisioning ITP VMGs. When this occurs, the Frame location information must be provisioned completely and then reprovision the VMG.

Frame location information for a frame is considered only partially available when only Logical Frame number, Office Frame number, site name are available and the remaining parameters floor, row, and framePos are not available or set. Frame location information becomes partially available if the NE is deleted from the MG 9000 Manager and rediscovered from the MG 9000.

5 Select the physical location for the VMG's type from the second combo box. This combo box will have a list of all possible locations for the type of VMG that was selected in step 4.

6 The next step depends on the information in the following table.

If	Do
ITP-ATM or ITP-IP was selected in step 4	Step 8
ABI-ATM or ABI-IP was selected in step 4	Step 7

7 For ABI VMGs, the Virtual Media Gateway Name field is editable. Append an LGC node number to the end of the provided external XPM (EXPM) string.

8 In the Provision a Virtual Media Gateway window the GUI automatically supplies the VMG name, simply click the Apply button.

The GUI conforms to the following naming convention:

```
<site><cf>-<rf>-<rs> tp/<ss>/<cc>
```

Provisioning of the VMG will not proceed until all the following requirements are met.

- The VMG name must begin with an alphabetical character.
- The VMG name must contain only alphanumeric characters and the hierarchical delimiter “/”.
- The frame and shelf on which the VMG resides must be encoded into the VMG name. This information is placed after the user portion. Delimit the frame number from the user portion with a / delimit the shelf number from the frame number with a /. For example, Raleigh/1/2 indicates a VMG named Raleigh on frame 1, shelf 2.
- VMG names must be unique across the network.
- The VMG name seen at the CS 2000 GWC Manager GUI matches the one created by the MG 9000 Manager GUI.

9 The Switched Line Services provisioning screen contains the following six tabs. Each tab provides a different provisioning view.

- ESA Config (refer to Provisioning ESA later in this section)
- GW Config
- GW Controller Config
- GW Market Config

- GW Status Config
- GW Termination Config (refer to How to display a termination later in this section)

Note: The status information in the GW Configuration and GW Controller Config tabs are not updated in real time. Use the Refresh button on the tab to update the values in the status fields.

10 Select the GW Config tab and enter the following information:

- GWC Name: GWC-<unit number>
- Signaling Address: <ITP card CIPOA address>
- Bearer Address
- Port: 2944
- Protocol: MEGACO/H248
- Administrative Status: Unlocked

When an ITP-IP VMG is provisioned, the silence suppression and quality of service (QOS) threshold values must be entered.

Use the following table when provisioning these values.

GWC Config tab - Silence Suppression and QoS Thresholds values

Function	Field	Entry	Explanation
Silence Suppression			
	Voice Activity Detection Mode	Off, transparent, conservative, aggressive	Silence Suppression parameter controlling how voice activity should be detected.
	Comfort Noise Generation	Off, white, pink, spectral	Silence Suppression parameter controlling comfort noise generation.
QoS Thesholds			
	Packet Loss (%)	Default is 0.01%	Maximum acceptable value of (QoS threshold) for the percentage of packets lost in a 15 minute interval. Also, if the value for a particular call is above this threshold, then the call is counted as a ‘bad call’.

GWC Config tab - Silence Suppression and QoS Thresholds values

Function	Field	Entry	Explanation
	Latency (mSecs)	Default is 150 ms	Maximum acceptable value (QoS threshold) for the one-way delay in a 15 minute interval (averaged) for Latency. Also, if the value for a particular call is above this threshold, then the call is counted as a 'bad call'.
	Jitter (mSecs)	Default is 100 ms	Maximum acceptable value (Qos threshold) for jitter in a 15 minute interval (averaged). Also, if the value for a particular call is above this threshold, then the call is counted as a 'bad call'.
	Bad Calls (%)	Default is 0%	Maximum acceptable value (QoS threshold) for the percentage of bad calls over a 15 minute interval. Also, if the value for a particular call is above this threshold, then the call is counted as a 'bad call'.

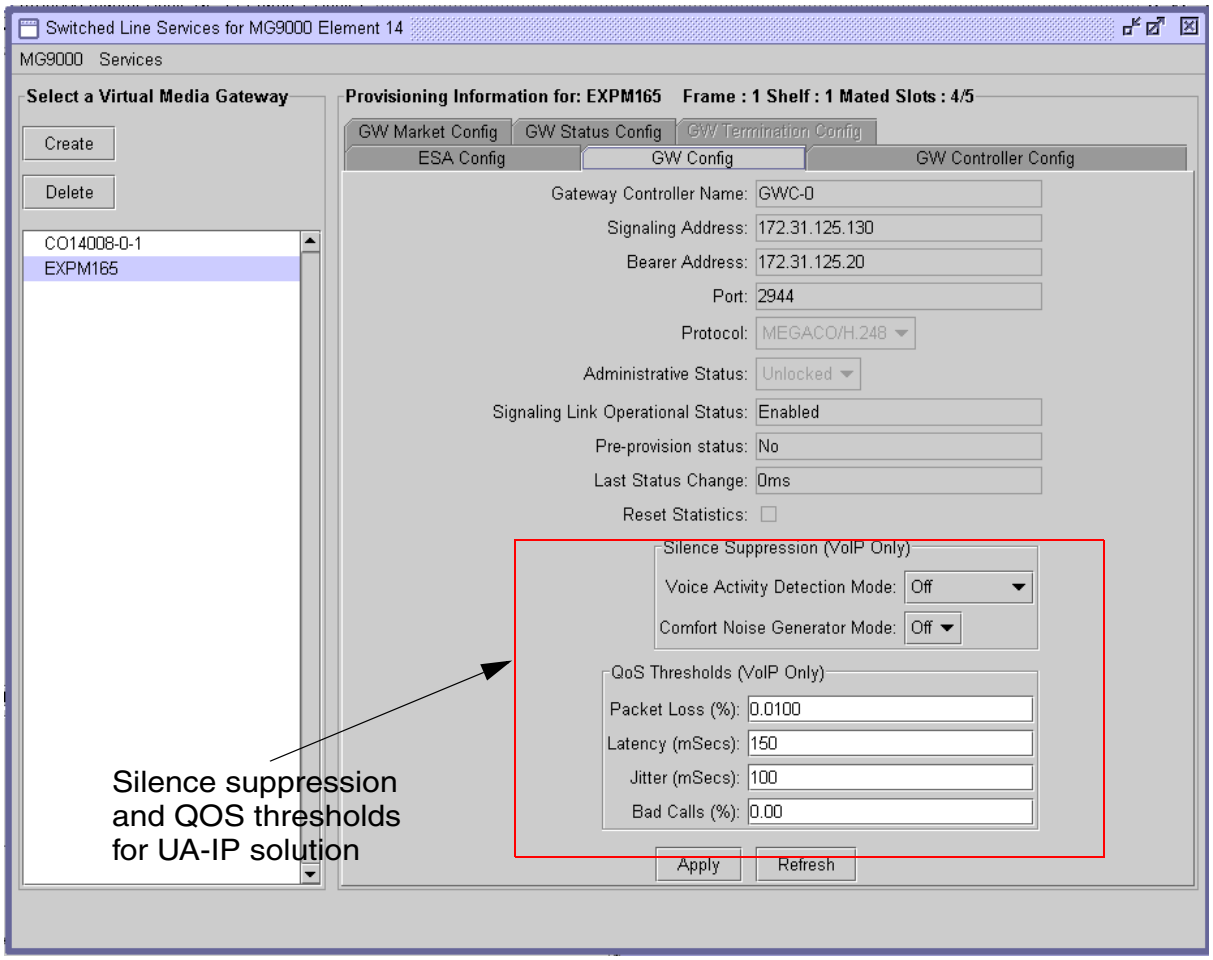
Select Apply when done.

Note 1: When Apply is selected, the entered information is used to obtain the GWC IP from the Succession Element Subnode Management (SESM). Once obtained, this IP is displayed on the GWC Configuration tab. Also, the VMG information is propagated to the SESM so that both the MG 9000 Manager and the SESM contain the same VMG information. All the terminations that may be associated with the VMG are provisioned in the MG 9000 Manager, the GWC, and the SESM when Apply is selected.

Note 2: ABI VMGs do not send data to the SESM.

The following figure shows the GW Config tab window.

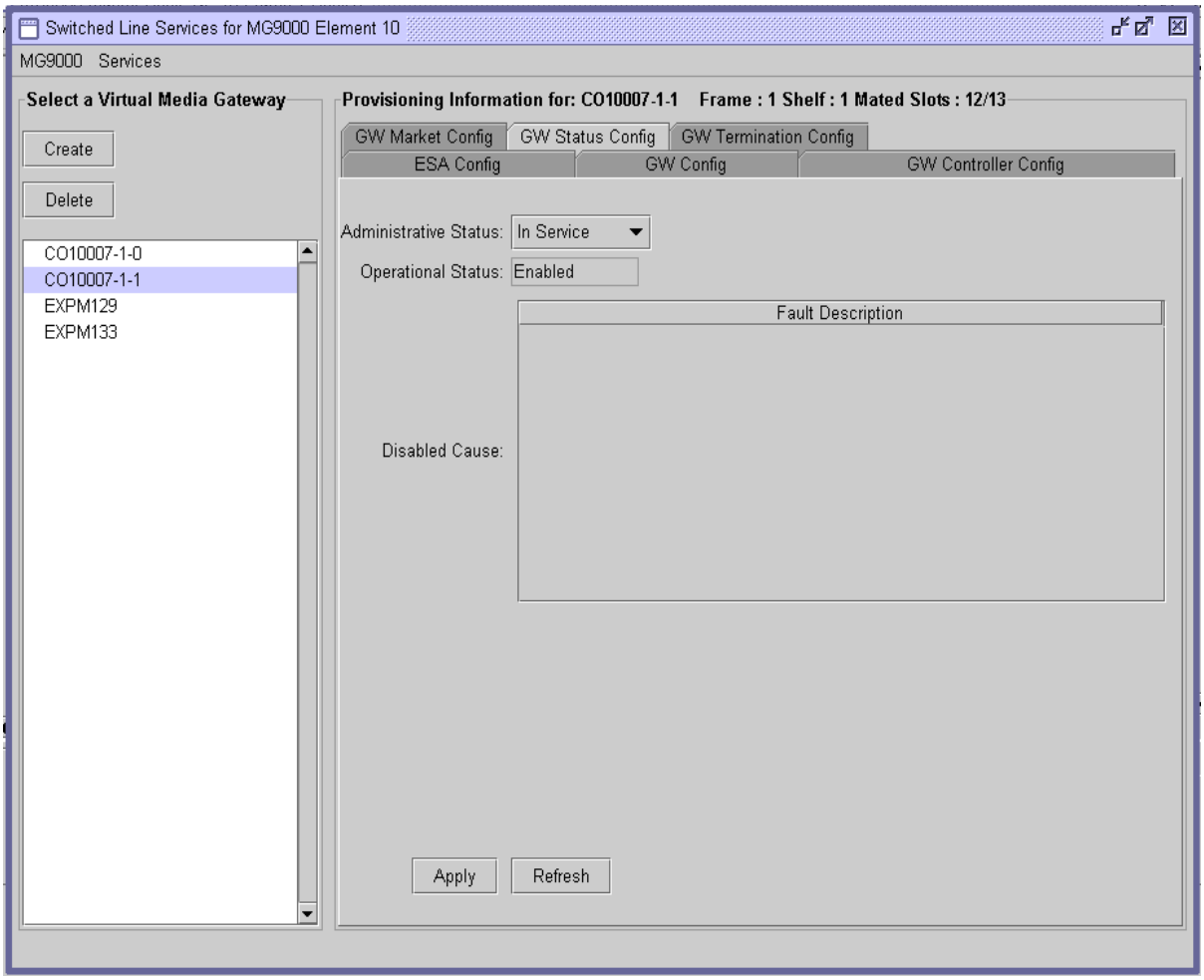
GW Configuration tab



11 Select the GW Status Config tab and change the status to In Service. Select Apply when done.

The following figure shows the GW Status Config tab window.

GW Status Config tab



The following table lists the VMG faults that appear in the Fault Description pane, the related VMG logs that are output at the alarm browser. Clearing the VMG faults is described in “Clearing MG 9000 ITP card and VMG alarms” in *MG 9000 Fault Management*, NN10074-911

VMG faults seen in Fault Description pane

Fault type	VMG log report	Description
vmgAdminStatusOutOfService	VMG322	VMG is administratively set to out of service
vmgOOSCardLocked	VMG323	Card is locked
vmgOOSCardDisabled	VMG324	Card is disabled

VMG faults seen in Fault Description pane

Fault type	VMG log report	Description
vmgInitializing	VMG325	Card is initializing
vmgOOSLineMtcNotReady	VMG328	Line maintenance is not ready
vmgOOSMegacoMtcNotReady	VMG329	Card is locked or disabled
vmgOOSGWCUnreachable	VMG373	Pings to reach GWC failed
vmgOOSNoReplyFromGWC	VMG374	GWC did not reply to service change
vmgOOSAAL1BearerSubsystemOnPairNotReady	VMG376	AAL1 bearer not ready
vmgOOSIPBearerSubsystemOnPairNotReady	VMG377	IP bearer not ready

12 The next step depends on the information in the following table.

If	Do
Market Fit information was provisioned from the Subnet View using the Configuration->Office-Wide Defaults command	Step 16. Market Fit information has already been provisioned for this VMG. This Market information will be the office wide default.
Market Fit information needs to be changed for the MG 9000 Manager VMGs	Step 13

13 To change the market data, select the GW Market Config tab and select the Market Fit based on the Country/Operator that applies from the pull down. If the Country/Operator does not appear, click on Get Market to retrieve a list.

Note 1: If the VMG is in-service and enabled, market information for the VMG cannot be changed.

Note 2: To successfully provision a set of data pertaining to the selected country, the selected VMG must be out-of-service before clicking the Apply button. When the

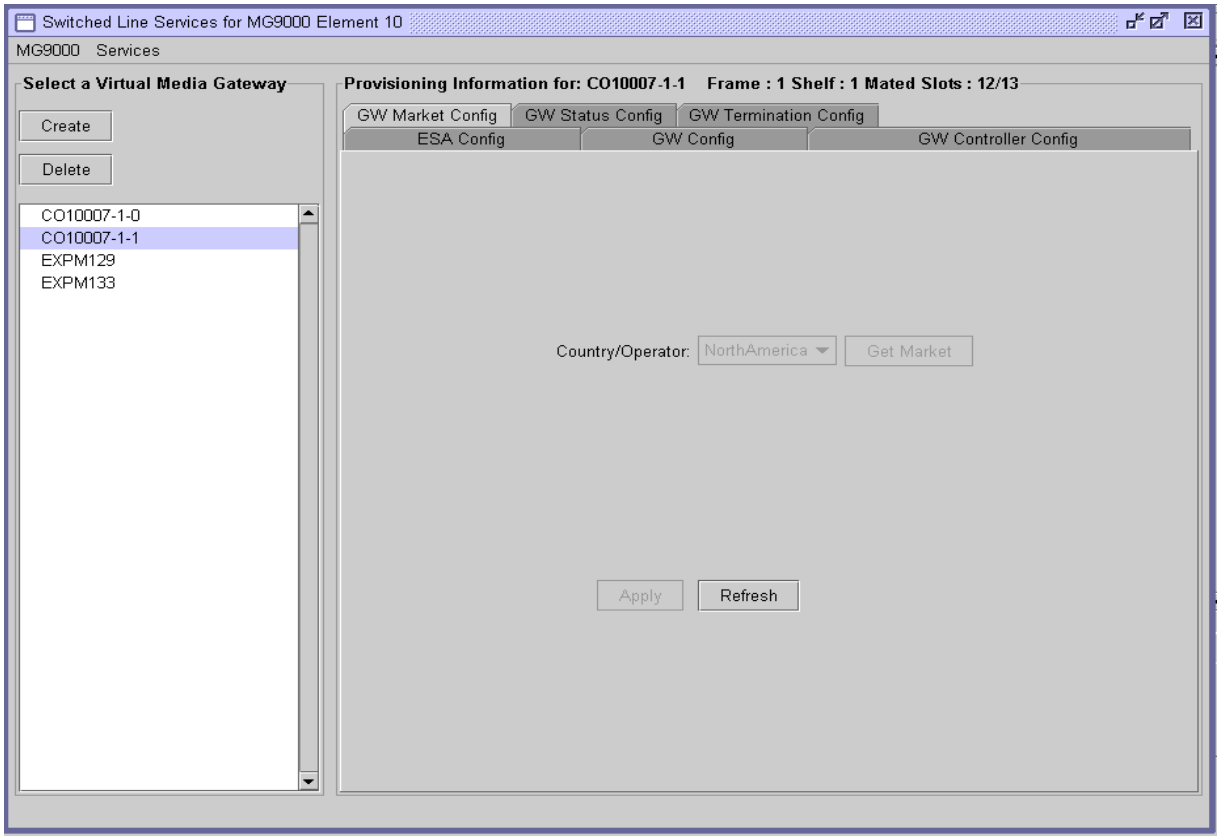
apply button is clicked, a warning message appears with user confirmation required before the ITP card is restarted.

Note 3: After selecting the Country/Operator from the pull down and clicking on Apply, this triggers provisioning of the VMG and subsequently the MG 9000. While this operation is in progress, the buttons and pull down list will become disabled until the operation is complete. If an error occurs during provisioning, the user will be notified using a pop-up dialog box that contains details of the error,

Select Apply when done.

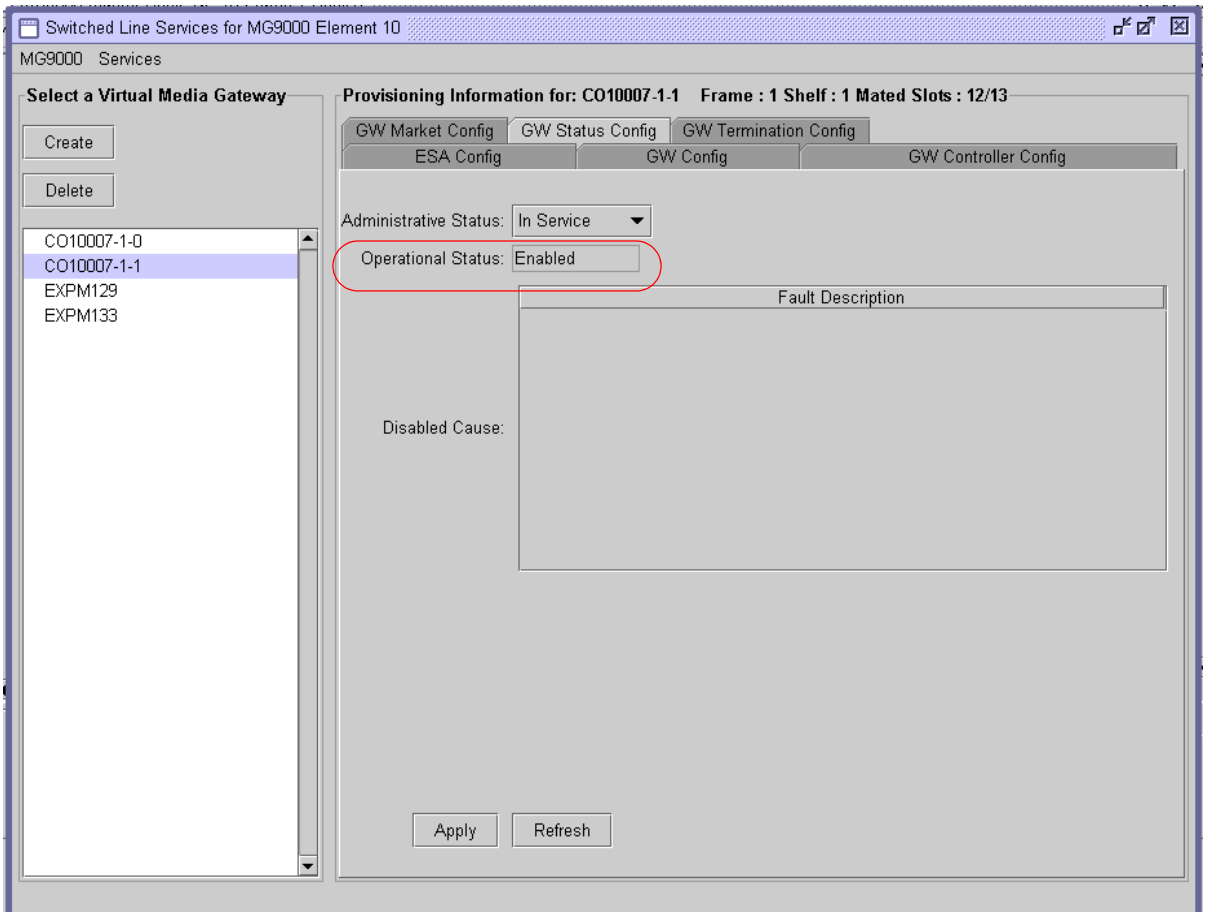
The following figure shows the GW Market Config tab window.

GW Market Config tab



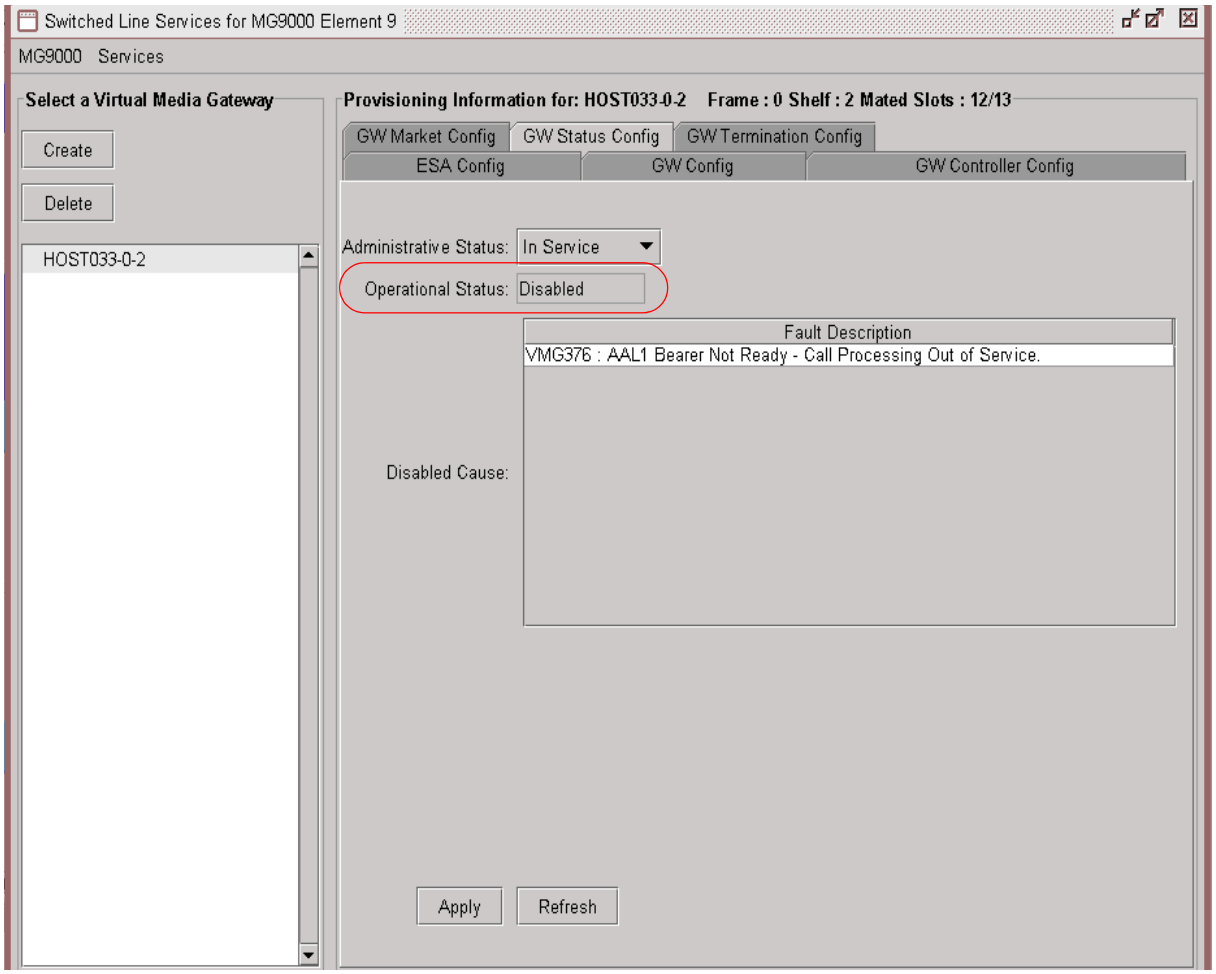
The following figure shows the GWC Status Config screen after successfully provisioning a VMG, with the Operational Status as Enabled.

GW Status Config screen showing a successful VMG provisioned



The following figure shows the GWC Status Config screen after a VMG provisioning failure, with the Operational Status as Disabled.

GWC Status Config screen showing a VMG provisioning failure



14 The next step depends on the information in the following table.

If provisioning the VMG was	Do
successful	step 16
not successful	step 15

15 Determine the reason for the VMG provisioning failure by performing the following steps until the failure is cleared:

a At the MG 9000 Alarm Browser, check for alarms against the MG 9000 network element, especially an alarm for locked DCC cards. Clear the alarm. Refer to *MG 9000 Fault Management*, NN10074-911

b Check the service state of the GWC. Refer to *GWC Fault Management*, NN10202-911.

c In the Switched Lines Services screen, in the GW Controller Config tab, verify that the IP address for the VMG is correct, and for ABI VMGs, that the correct GWC was entered.

d If this is the first ITP VMG, or the first ABI VMG provisioned on this NE, access the LCI and verify that the Call Control subnet (for ITP VMGs) or ABI subnet (for ABI VMGs) has been provisioned.

e If this is an ABI VMG, verify that the LGRP has been provisioned on the CS 2000, verify that the IP address for the VMG is provisioned on the correct GWC.

f Ping the Multiservice Switch 15000 and SAM21 shelf controller IP addresses. A lack of response may reveal some place in the network that is not configured correctly or is having a problem. Refer to the “Connection test tool” procedure in *MG 9000 Fault Management*, NN10074-911.

g If the problem cannot be cleared, contact Nortel Networks Global Product Support for assistance.

16 This procedure is complete.

How terminations are created and their format

Terminations are created by the MG 9000 Manager when one of the following occur:

- a VMG is created
- a line card is set to the Offline state after having been Deprovisioned
- a new line card is inserted and is discovered by the MG 9000 Manager
- a new line has been provisioned from OSSGate, if the termination was not created by one of the three events listed above

Configuring a termination

When configuring a termination use the following guidelines to avoid data corruption and a mismatch of configuration data between the MG 9000, MG 9000 Manager, SESM, GWC, and Core:

- For Basic ESA, all line/terminations must always be configured from OSSGate. Since the ESA flag is turned On, the directory number will be sent to the MG 9000. When a termination is successfully configured from OSSGate, the next time this termination is selected from the GW Termination Config tab, the termination's updated status will be displayed. However, if this termination is already selected, click the Refresh button on the GUI to retrieve the updated status.
- For Basic ESA, the directory number for a termination must only be changed using OSSGate CDN or CTP command.

  Note: If you change the DN from MG 9000 Manager, it will not change the data at the Core. Such a situation leads to data inconsistency. Therefore always use OSSGate to ensure data at the Core, SESM and MG 9000 Manager are correctly changed / rolled back in the event of any operational failure.

- For Enhanced ESA, line/terminations are configured from the Core using Servord.

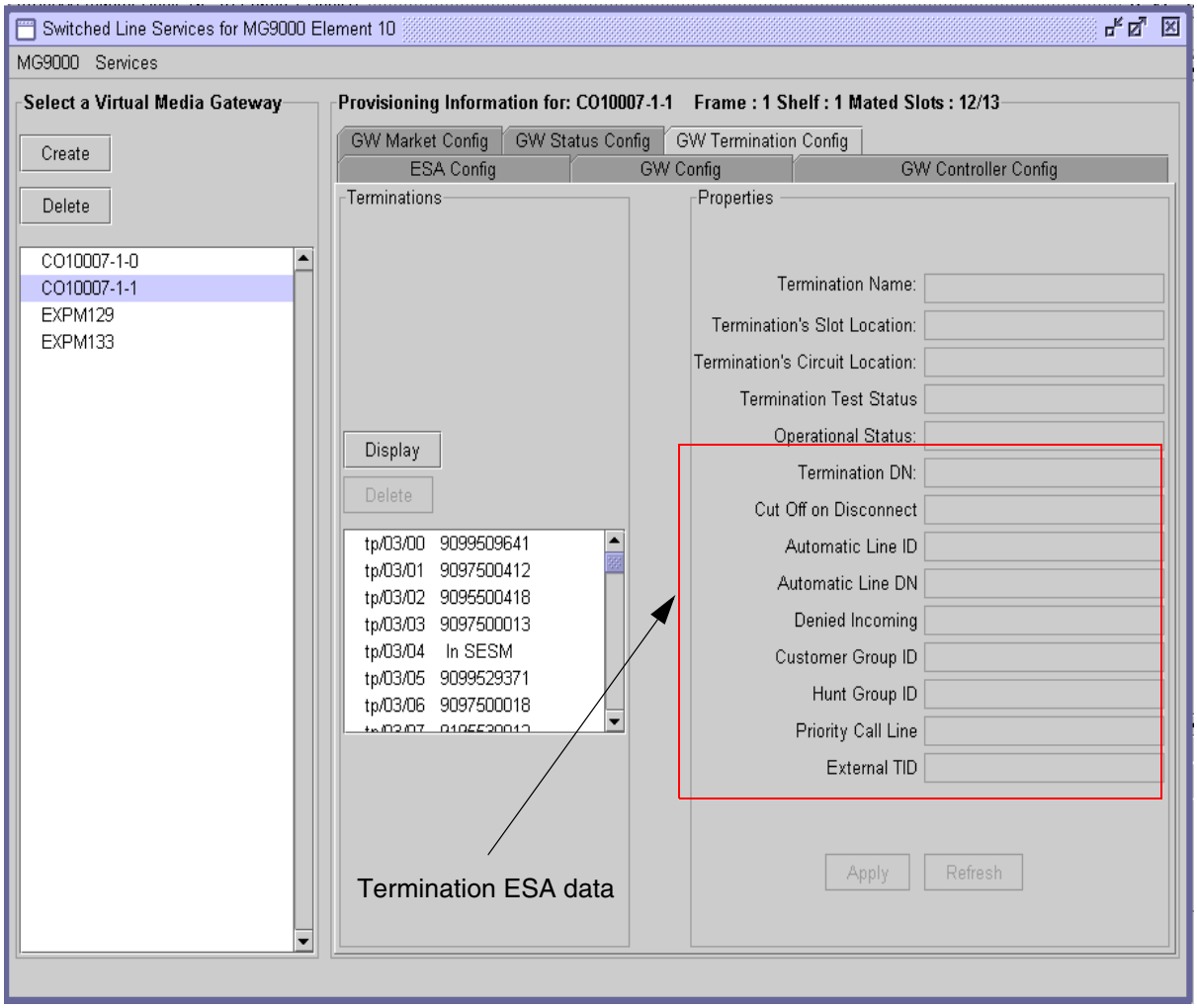
Displaying a termination

There are two ways to view termination information. First is to view the termination information displayed in the GW Termination Config Tab. The second is to click on the Display button within the same window and any unprovisioned terminations will appear.

The following figure shows the GW Termination Config tab window.

Note: The fields outlined in red in the following figure are applicable to ESA data and are described later in Viewing termination ESA data.

GW Termination Config tab



The GW Termination Config tab gives the associated card status for each termination whenever a DN does not exist. The following are the status indicators:

- In SESM - indicates the terminations on an associated card have been added to SESM. Terminations cannot be deleted for this case. This is the normal case.
- Not in SESM - indicates the terminations on an associated card have not been added to SESM. Terminations can be deleted for this case.

- DN - a DN appears in place of the status next to the termination name whenever a DN exists.
- Unknown - indicates the card associated with the termination is not available. When this occurs, deletion of the termination is allowed.

The termination naming convention is as follows:

tp/<ss>/<cc>

Note: Termination names begin with “tp/” followed by the slot number (ss), a “/”, and finally the circuit number (cc).

Use the following procedure to display a termination.

How to display a termination

At the MG 9000 Manager

1 Click on the GW Termination Config tab and use this tab to display the circuits (lines) registered in the Gateway Controller.

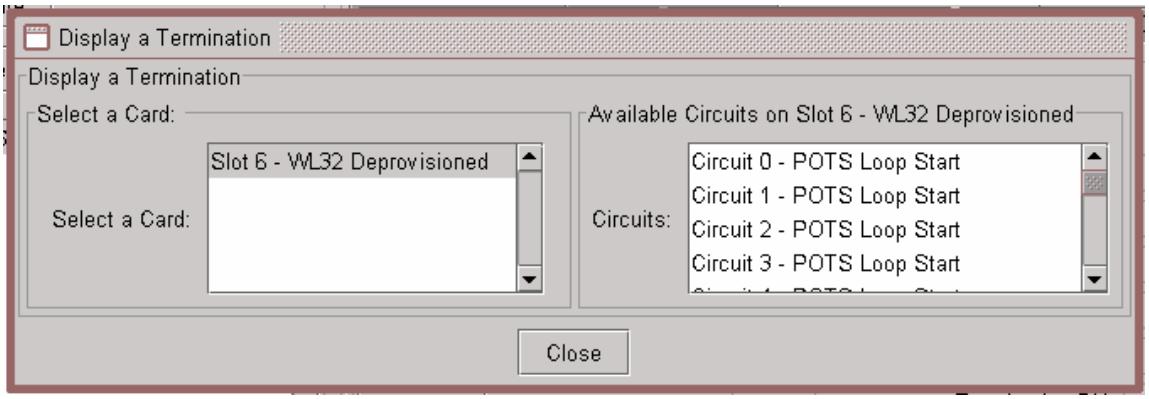
2 To view specific information on an individual termination, click on that termination from the Terminations list. Properties for the termination are provided in the Properties pane on the right.

3 To view unprovisioned terminations, from the Terminations portion of the window, select Display.

4 The system locates all circuits that do not already have an associated termination. The Display a Termination window appears allowing the user to view unprovisioned termination(s) based on this information.

The following figure shows the Display a Termination window.

Display a Termination window



5 This procedure is complete.

Deleting a termination

Terminations are deleted automatically when a line card is deprovisioned or when a VMG is deleted. When a termination is seen as “Unknown” at the GUI, meaning no line card is provisioned to connect to the termination, the termination can be deleted manually by selecting the “unknown” termination on the GW Termination Config tab, then clicking on Delete.

Deleting a VMG

When deleting a VMG, to avoid data corruption and a mismatch of configuration data between the MG 9000, MG 9000 Manager, SESM, GWC, and Core, use the following information:

1. Deletion of the VMG must always be done from the MG 9000 Manager by a user with Admin privileges.
2. Before a VMG is deleted, all lines associated with the VMG must be removed from SESM, Core, GWC, and MG 9000 using the OSSGate. Use the following steps:
   a. Launch the CS 2000 Management Tool Manager. Access table DNINV and list all DNs associated with the VMG or at the Switched Lines Services Manager, select the VMG, then select the GW Termination Config tab to list all the circuits associated with the VMG.
   b. Use the OSSGate to remove the lines.
   c. Repeat step a and verify that the line data does not show up in the MG 9000 Manager.
3. Deletion of the VMG will be blocked at the MG 9000 Manager if there are lines associated with that VMG in the SESM.

Use the following procedure to delete a VMG.

Deleting a VMG

At the CS 2000 GWC Manager

1 Set the associated VMG terminations to be deleted to out of service.

At the MG 9000 Manager

2 From the Services menu, select the Switched Lines Services Manager. Delete the VMG terminations that were set to out of service in step 1.

3 Delete the VMG by selecting Delete.

Note 1: The VMG will also be deleted from the CS 2000 Management Tools server.

Note 2: If the VMG fails to be deleted from SESM, unless the user attempting to delete the VMG has admin privileges, the deletion cannot continue.

4 This procedure is complete.

Changing VMG data

At the MG 9000 Manager

1 From the GW Status Config tab, set the Administrative Status of the VMG to Out of Service.

Note: Setting the VMG to out of service is service affecting and a warning message is output.

2 From the GW Config tab, the Administrative Status may be changed.

3 From the GW Status Config tab, set the Administrative Status of the VMG to In Service if desired.

4 This procedure is complete.

Refreshing data in Switched Lines Services GUI screens

The status information in the following tabs are not updated in real time. Therefore, when entering or changing data in the following tabs, the Refresh button must be clicked to update status information in the fields:

- GW Configuration tab
- GW Controller Config tab

How to refresh data in Switched Lines Services GUI screens

At the MG 9000 Manager

1 From the GW Configuration tab or GW Controller Config tab, enter the prescribed changes.

2 To update status information in the tab changed in the previous step, click on Refresh.

3 This procedure is complete.

Listing all VMGs using the VMG browser

The VMG Browser, accessed from the Configuration menu at the Subnet View, allows the user to view all the VMGs in the Subnet. The following information is displayed in the VMG Browser:

- NE Name
- NE number
- VMG Name
- VMG Type
- GWC
- GWC Oper Status

The following limitations apply to the VMG Browser:

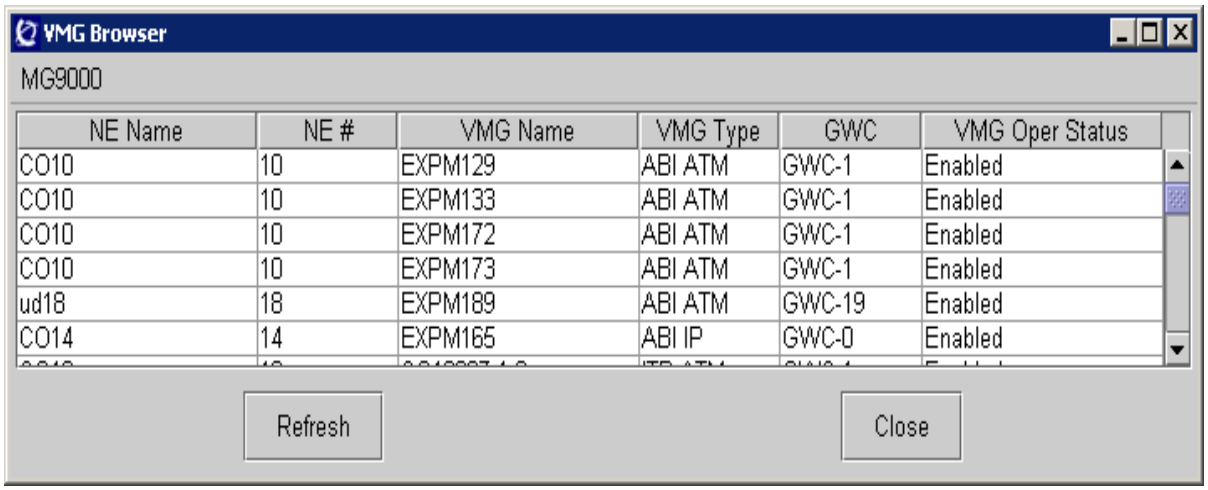
- The VMG Browser is not updated in real time. Click on Refresh to update the browser.
- Only one Switched Lines Services view can be opened at a time.
- Data cannot be edited.
- No termination information is provided in the VMG Browser. Fields with Unknown indicate that the VMG is partially provisioned.

Listing all VMGs using the VMG Browser

At the MG 9000 Manager

1 From the Subnet View, select Configuration->VMG Browser from the menu bar. The VMG Browser appears as shown in the following figure.

VMG Browser



2 To sort the list based on NE Name, NE#, VMG Name, GWC, or VMG Oper Status, click on the column header. To reverse the order to sort descending, use Shift-click on the header.

3 To view specific data on an individual VMG, double click on that line and the Switched Lines Services view opens.

4 This procedure is complete.

Emergency stand alone

Emergency stand alone (ESA) provides the ability to support basic calls within an MG 9000 while one or more of the VMGs in the MG 9000 are out of communication with its assigned Gateway Controller (GWC).

ESA is provisioned on an individual VMG basis. Each VMG can be provisioned to support ESA.

Note: For ABI VMGs, only Enhanced ESA is supported. Warm exit is not supported for ESA on ABI VMGs.

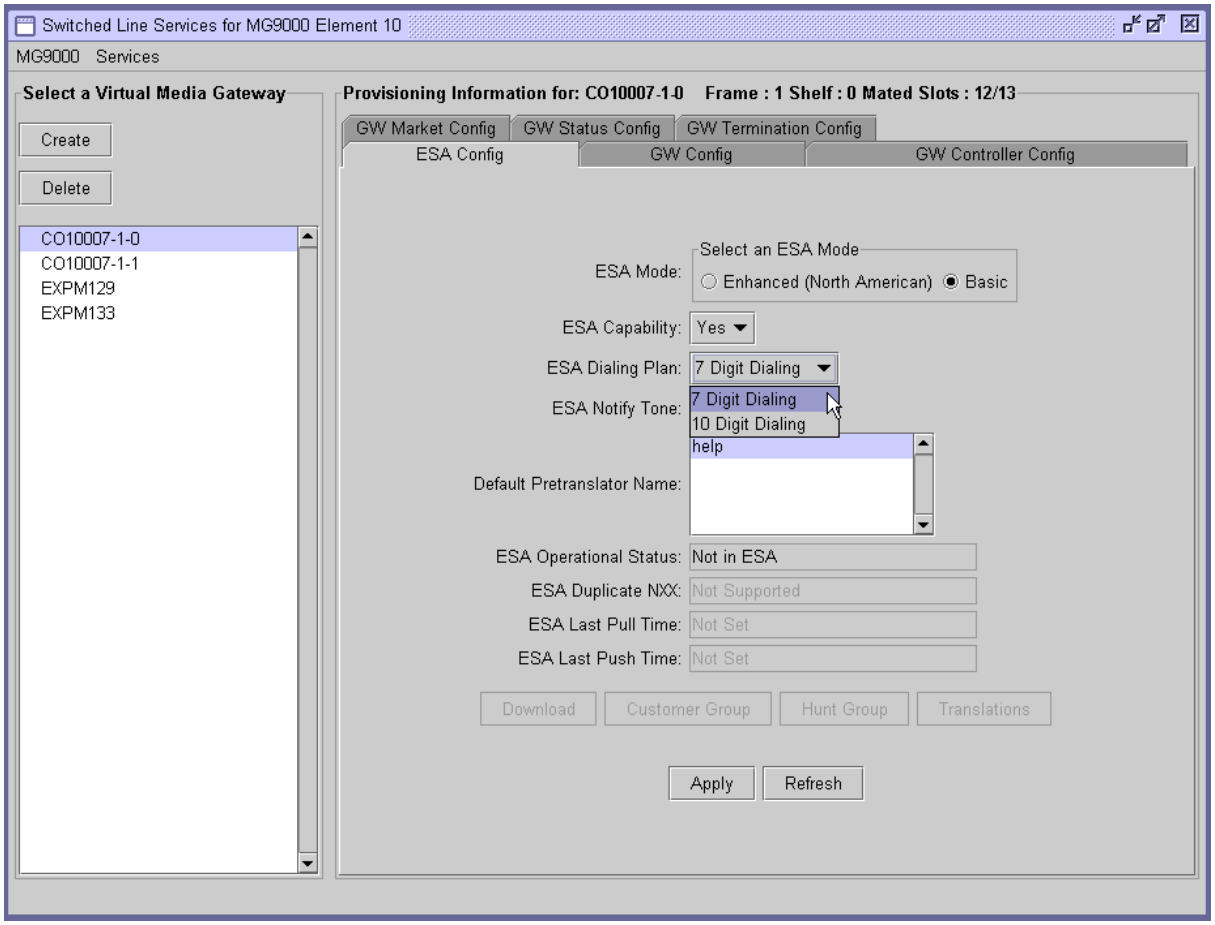
The following procedure describes how to set up a VMG to support ESA.

Provisioning ESA

At the MG 9000 Manager

1. From the Subnet View, double click on the MG 9000 icon on which ESA is to be provisioned. The Frame View appears.
2. At the Frame View, select Switched Lines Services Manager from the Services menu.
3. Select the VMG from the list of VMGs at the left pane in the Switched Line Services screen.
4. In the Provisioning Information pane at the right, select the ESA Config tab

ESA Config tab



5

CAUTION

Potential ESA data mismatch because of nightly ESA data file creation in Core

If a VMG is deleted from the Switched Line Services GUI, data related to that VMG must be removed from the ESA data file in the Core and reloaded in the MG 9000 Manager. Otherwise, if the VMG is recreated before the next scheduled Core ESA data download, the previously saved data will be reloaded.

CAUTION

Potential data mismatch between XA-Core, MG 9000, and MG 9000 Manager - Enhanced ESA download

Changes propagated to the MG 9000 Manager through Enhanced ESA data downloads may take up to 24 hours to take effect. Data that has been deleted in the Core will still be visible in the MG 9000 Manager and data that has been added may not be visible, unless a new Core file is created and manually downloaded to the MG 9000 Manager.

CAUTION

Potential data mismatch between XA-Core, MG 9000, and MG 9000 Manager - automated ESA downloads

The automatic download time in the MG 9000 Manager must be configured promptly following the Core file generation time (office parameter ESA_GWDATAUPD_HOUR) in table OFCENG, but must be at least 30 minutes preceding. This minimizes the amount of time until the next download to the MG 9000 Manager, while allotting 30 minutes for the Core ESA download to complete.

CAUTION

Potential data mismatch between XA-Core, MG 9000, and MG 9000 Manager due to VMG deletion and Core file not regenerated

If a VMG and its corresponding lines are deleted and the Core ESA download data file is not regenerated, then re-creation of the VMG will result in the appearance of “ghost DNs” at the MG 9000 Manager. This situation will be corrected within 24 hours when the scheduled Core ESA download completes.

Enter the values in the ESA Config panel. The following table lists the fields that appear in the ESA Config panel.

Note: To provision this panel, a VMG must be provisioned and, for Basic ESA only, at least one ESA pretranslator name must be provisioned.

ESA Config tab fields and buttons

Field	Entry	Explanation
ESA Mode	Select an ESA Mode using the following radio buttons: • Enhanced (North American) • Basic	The Enhanced mode uses ESA data from the Core. This mode is used by both ABI and ITP VMGs. When selected, the Download, Customer Group, Hunt Group, and Translations button are no longer greyed out and become functional. Their description is provided later in this table The Basic mode relies on ESA data configured within the MG 9000 Manager. The Basic mode is not supported for ABI VMGs. ***Note 1:*** If Basic ESA is being provisioned (through OSSGate), a Pretranslator must also be provisioned. However, if Enhanced ESA is being provisioned, a Pretranslator cannot be selected. ***Note 2:*** If Enhanced ESA is being provisioned, several interactions may be observed between Enhanced ESA and OSSGate for ITP VMGs that cause temporary data mismatches between the core, the MG 9000 Manager, and the MG 9000. The scenarios that follow describe those interactions and how they are cleared:

ESA Config tab fields and buttons

Field	Entry	Explanation
ESA Mode (Contd)		• Scenario A — 1. An ESA data XML file is created at the Core. — 2. The Batch command with changeDN is run, changing the data in the Core and the MG 9000 Manager, though it is not automatically reflected in the Core XML file, — 3. The Core XML file is downloaded to the MG 9000 Manager which then overwrites the changes made in step 2. This scenario is self-correcting since steps 1 and 2 automatically run once each day. However, there is the possibility that lines would have the wrong DN for 24 hours. • Scenario B — 1. The Core file is downloaded to the MG 9000 Manager and processing begins. — 2. Before the XML file processing is complete, a CDN command is invoked from OSSGate. — 3. If the termination being changed by the CDN command has already been processed by the MG 9000 Manager, not problem arises. However, if the termination has not been processed, or is currently in process, inconsistent data results. This scenario is corrected within 24 hours or when the next ESA download occurs.

ESA Config tab fields and buttons

Field	Entry	Explanation
ESA Mode (Contd)		• Scenario C (this scenario is unlikely to occur) — 1. The Core file is downloaded to the MG 9000 Manager and processing completes for a VMG. — 2. The technician attempts to download data to an MG 9000 for a specific VMG. The MG 9000 Manager creates XML information to send to the ITP card using data from step 1. — 3. Before the file FTP in step 2 completes, the OSSGate command comes in to change the DN and makes its way to the VMG. — 4. File FTP completes and the MG 9000 overwrites data in step 3 with data from step 2. The MG 9000 Manager has the latest data but the VMG does not. This scenario is corrected within 24 hours. If the customer needs to synchronize the data without waiting for the automated nightly download, perform the following: 1. Regenerate the ESA data XML file on the Core. 2. Download the updated XML file to the MG 9000 Manager. 3. For the relevant VMGs with enhanced ESA capability, download the ESA data to the MG 9000. 4. This procedure is complete.
ESA Capability	Yes	The selected VMG is capable of going into ESA. Selecting Yes causes all data associated with ESA provisioning for the selected VMG to be provisioned on the MG 9000.
	No	The selected VMG is not capable of going into ESA. All ESA data associated with the selected VMG is deleted from the MG 9000.

ESA Config tab fields and buttons

Field	Entry	Explanation
ESA Dialing Plan ***Note:*** When Enhanced ESA is selected, this field is greyed out and is not selectable.	7 digit dialing through 13 digit dialing	Select the dialing plan. • For the UA-AAL1 and UA-IP solutions, 7 and 10 digit dialing plan lengths are supported in Enhanced ESA. • For the UA-IP solution, 6 through 13 digit dialing plan lengths are supported.
ESA Notify Tone ***Note:*** When Enhanced ESA is selected, this field is greyed out and is not selectable.	Yes	A notify tone is given to alert that the VMG is in ESA mode.
	No	No indication is provided that the VMG is in ESA mode.
Default Pretranslator Name ***Note:*** When Enhanced ESA is selected, this field is greyed out and is not selectable.	The choices that appear are dependant on values from Service Code Translations	This field is the Default Pretranslator name that is associated with the selected VMG. ***Note:*** If no translations exist, go to Provisioning an ESA pretranslator
ESA Operational Status	Not in ESA	Means the VMG is not in ESA mode.
	In ESA	Means the VMG is in ESA mode. This gets updated when the Refresh button is selected or the MG 9000 Manager receives an ESA Alarm from the MG 9000. In ESA means communication with the Gateway Controller is down. An ESA icon appears next to the VMG in ESA.

ESA Config tab fields and buttons

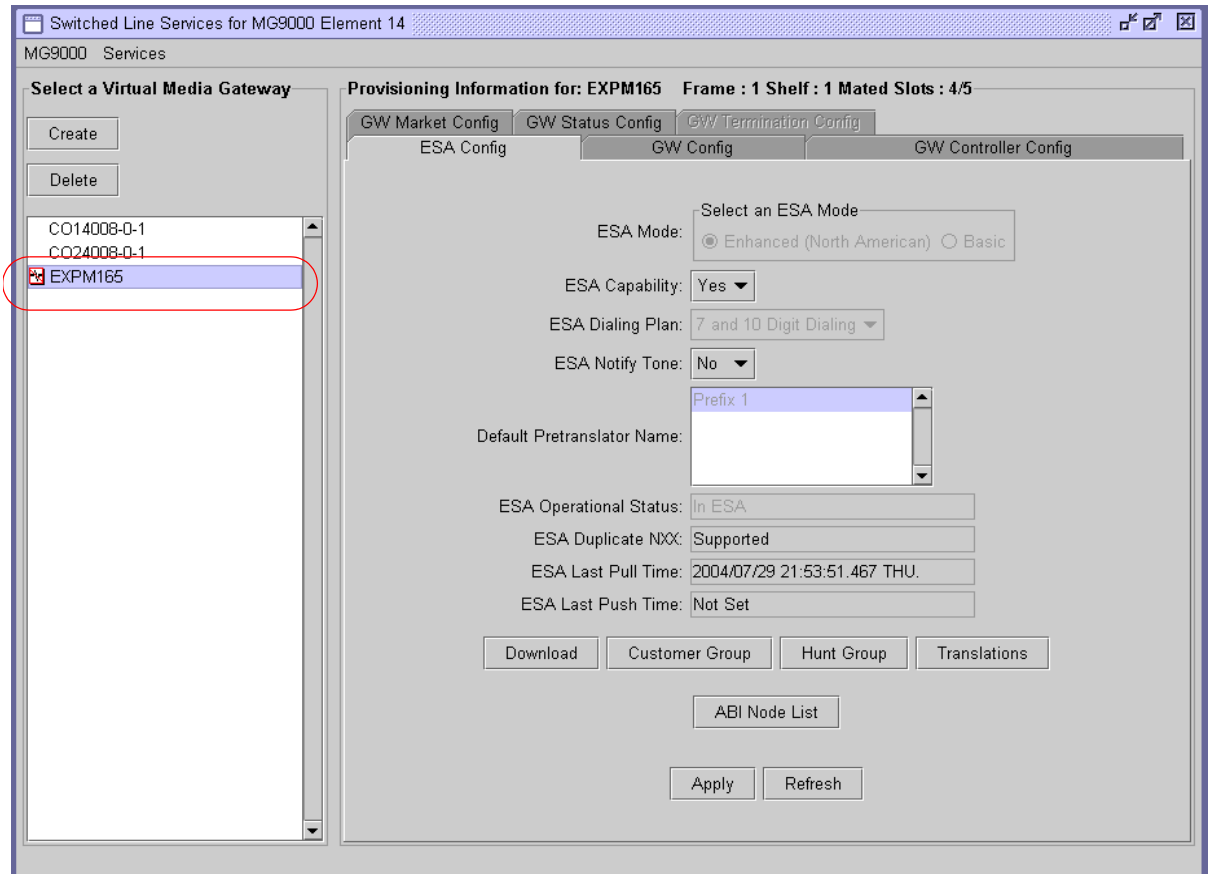
Field	Entry	Explanation
ESA Duplicate NXX		A value received from the Core that is used to determine the dialing plan, 7, 10 or 7 and 10. If NUMDIG_PER_DN = 7 then 7 digit dialing. If NUMDIG_PER_DN = 10 and dupNXX = true then 7 and 10 digit dialing. If NUMDIG_PER_DN = 10 and dupNXX = false then 10 digit dialing.
ESA Last Pull Time		The time stamp of the last XML file that was created on the Core. This is the last time the data was pulled from the Core tables into the file
ESA Last Push Time		The last time ESA data was sent to the MG 9000.
Download button ***Note:*** Enabled only if Enhanced ESA mode is selected.		When selected, a manual download of the MG 9000 Manager ESA data to the MG 9000 to sync the MG 9000 with the latest ESA data from the Core in the MG 9000 Manager for the selected VMG. The Download button can be used when it is determined that the ESA data in the MG 9000 Manager is newer than the data in the MG 9000. This can be determined when the ESA Last Pull Time is more recent than the ESA Last Push Time. ***Note:*** Do not use the Download button while the VMG is in ESA.
Customer Group button ***Note:*** Enabled only if Enhanced ESA mode is selected.		When selected, the ESA Customer Group List view appears.

ESA Config tab fields and buttons

Field	Entry	Explanation
Hunt Group button ***Note:*** Enabled only if Enhanced ESA mode is selected.		When selected, the ESA Hunt Group List view appears.
Translations button ***Note:*** Enabled only if Enhanced ESA mode is selected.		When selected, the ESA Translations List view appears.
ABI Node List button ***Note:*** Enabled only if Enhanced ESA mode is selected and if an ABI VMG is selected.		When selected, the ABI Note Data view appears and lists the ABI node properties including the node number, name, and type.

The following figure shows the VMG in ESA as noted by the ESA icon adjacent to the VMG

ESA Config tab showing VMG in ESA icon



6 To determine the next step, use the information in the following table.

If ESA mode selected in step 5 is	Do
Enhanced	Step 7
Basic	Step 13

7 To provision Enhanced ESA, use the following checklist.

Enhanced ESA provisioning checklist

Step	Description	Documentation reference
1	Review the Enhanced ESA capabilities for SN07	*MG 9000 Basics*, NN10011-111.
2	Generate a separate disk volume and change the value for the OFCENG parameter to the name of the volume that is to be built.	Refer to "Generating the ESA information file" in *CS2000 Configuration Management,* NN10105-511, NN10188-511, NN10201-511, or NN10193-511.
3	Create the volume with a file name in compliance with operating company engineering guidelines. Use the following volume creation steps: 1. From the MAP terminal, at the CI level, enter diskadm to enter the Disk Administration level and press enter. 2. To create the new volume on the disks, enter the following command **`> createvol esadata 500 ftfs`** where • esadata is the volume name • 500 is the volume size in Mbytes • ftfs is the volume type keyword 3. To view the data on the new name and all others, type **`> displayvols`** 4. To exit the DISKADM level, type **`> quit`** ***Note:*** The value of the volume size is administered by the operating company.	Refer to Changing ESA download properties on page 276

Enhanced ESA provisioning checklist

Step	Description	Documentation reference
4	Change the "ESA_GWDATA_DEVICE" parameter in table OFCENG to reflect the new volume to which the file is to be generated (for example, esadata).	Refer to “Generating the ESA information file” in *CS2000 Configuration Management,* NN10105-511, NN10188-511, NN10201-511, or NN10193-511.
5	Populate the ESAPXLA table for each node that will utilize local lines to handle Emergency Service (911) calls while in ESA. An entry must be made for every VMG (MG 9000 shelf) to be served by a particular code/line. If no emergency service lines are available, MG 9000 treatment may also be applied. The documentation references provide guidance on for the selector to be used. The operating company’s Network Control and Translations Engineering departments should evaluate and agree upon the entries in this table.	Refer to “Generating the ESA information file” in *CS2000 Configuration Management,* NN10105-511, NN10188-511, NN10201-511, or NN10193-511.
6	If data is to be manually collected at any time into the download file (ESA_SYSTEM_SD$XML) enter the ESATOOLS level from the CI prompt in the MAP terminal and execute the ESACOLL command. If this command is successful in performing the data collection and writes the data to the file, an ESA120 log is output. If it fails, an ESA121 log is output. The XA-Core data collection is generated automatically on a daily basis on the time specified by ESA_GWDATAUPD_HOUR parameter in table OFCENG. The default value of this parameter is 6:00 AM. Refer to the Note: at the end of this checklist.	Refer to “Generating the ESA information file” in *CS2000 Configuration Management,* NN10105-511, NN10188-511, NN10201-511, or NN10193-511.

Enhanced ESA provisioning checklist

Step	Description	Documentation reference
7	Ensure the IPHOST table contains a tuple for the CM with the appropriate parameter values.	Refer to Core configuration on page 272.
8	Configure the Base server to permit the download of the XA-Core data file (ESA_SYSTEM_SD$XML) from the SDM.	Refer to Changing ESA download properties on page 275
9	Perform the procedure Changing ESA download properties on page 275 to synchronize the MG 9000 Manager data collection times and device to the XA-Core. Ensure the notes and information about setting the ESA.DataDownloadTime in the MG 9000 Manager to a value at least 30 minutes greater than ESA_GWDATAUPD_HOUR in the XA-Core is followed. The ESA_GWDATAUPD_HOUR parameter is added to the OFCENG table and this time is configurable.	
10	Configure the VMGs that require Enhanced ESA at the Switched Line Services Manager.	Refer to Provisioning ESA on page 185.
11	If desired, manually pull the data from the XA-Core to the MG 9000 Manager by accessing the Configuration menu of the Subnet View and selecting the “ESA Download” option. When the Apply key is pressed, the manual download is initiated. Data is provided on the progress of the download in this view until it is complete. Refer to the Note: at the end of this checklist.	Refer to the description of the Download button in table ESA Config tab fields and buttons on page 188.

Enhanced ESA provisioning checklist

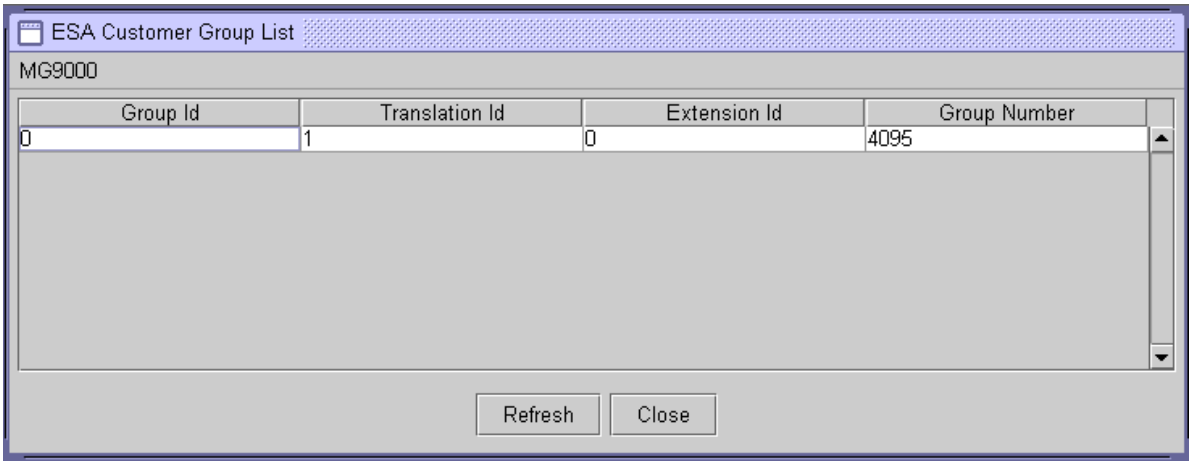
Step	Description	Documentation reference
12	Once the ESA_SYSTEM_SD$XML is downloaded and parsed into the VMG files on the MG 9000 Manager, a manual download may be performed on the "ESA Config" tab of the “Switched Line Services Manager” to push the VMG file to the MG 9000 node. Refer to the Note: at the end of this checklist.	Refer to the description of the Download button in table ESA Config tab fields and buttons on page 188.
Note: Steps 6, 11 and 12 are required to assure that new ESA data added to the XA-Core is propagated immediately to the MG 9000 and is active if an ESA condition occurs before the next automated download		

8 To determine the next step, use the information in the following table.

If	Do
the Customer Group data for a selected VMG must be displayed	Step 9
the Hunt Group data for a selected VMG must be displayed	Step 10
the Translations List for a selected VMG must be displayed	Step 11
the ABI node properties for a selected ABI VMG node must be displayed	Step 12

9 To display the Customer Group data, click on the Customer Group button. The ESA Customer Group List appears as shown in the following figure.

ESA Customer Group List View



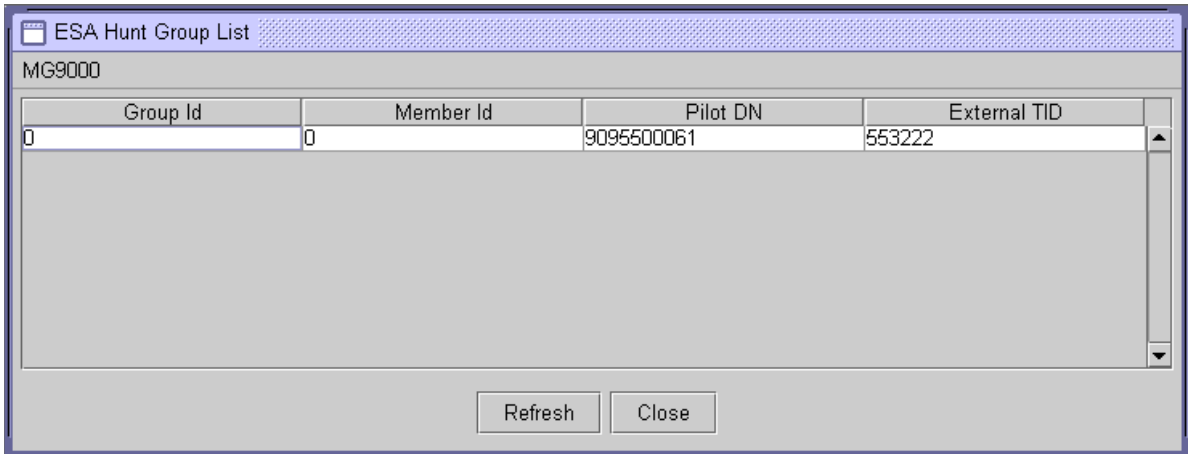
The following table lists the fields in the ESA Customer Group List View and their descriptions.

ESA Customer Group List View field descriptions

Field	Descriptions
Group Id	The customer group index.
Translation Id	The Pre Translation index which indicates which Pre Translation table to use.
Extension Id	The Pre Translation index which indicates which Pre Translation table to use for extension dialing.
External Group Number	External customer group number.

10 To display the Hunt Group data, click on the Hunt Group button. The ESA Hunt Group List appears as shown in the following figure.

ESA Hunt Group List View



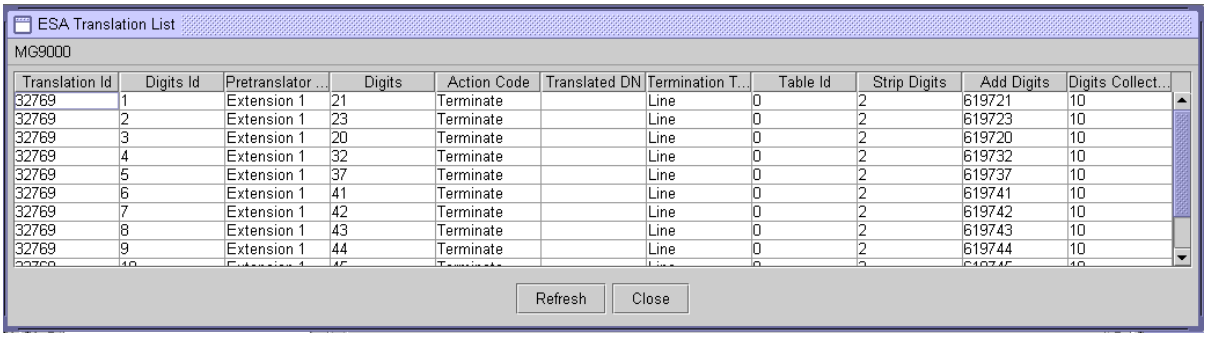
The following table lists the fields in the ESA Hunt Group List View and their descriptions.

ESA Hunt Group List View field descriptions

Field	Descriptions
Group Id	The index to the hunt group table.
Member Id	The HuntGroup member index.
Pilot DN	Pilot Directory Number for the Hunt Group.
External TID	The terminal number.

11 To display the Translations data, click on the Translations button. The ESA Translations List appears as shown in the following figure.

ESA Translations List View



The following table lists the fields in the ESA Translations List View and their descriptions.

ESA Translations List View field descriptions

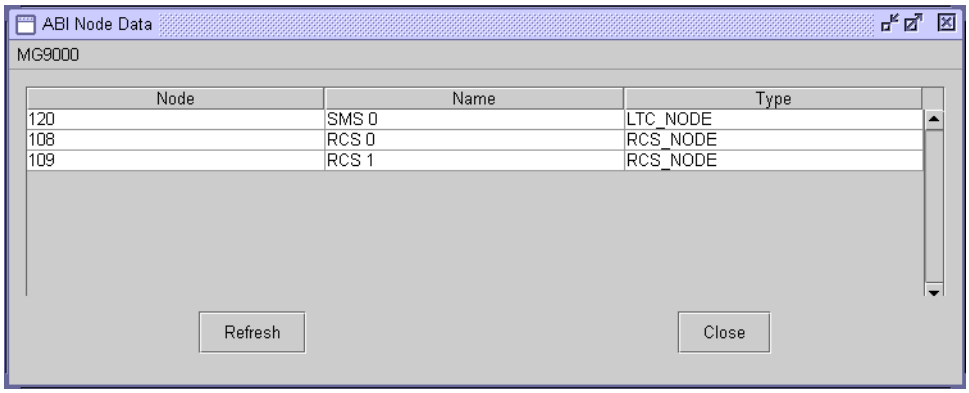
Field	Descriptions
Translation Id	An identification number assigned to the translation.
Digits Id	An identification number assigned to the prefix Digit.
Pretranslation Name	The name of this prefix translation.
Digits	Dialing digits.
Action Code	This specifies which action to take: Terminate; Givereorder; Strip and pretranslate; Ambiguous termination; Second dial strip and pretranslate; Second dial and terminate; Spare.
Translated DN	Translated directory number for the service code.
Termination Type	Type of termination: Line; Trunk route; Hunt; Customer Group.
Table Id	An index to either HuntGroupTable, CustomerGroupTable, or RouteTable.
Strip Digits	This specifies how many digits to remove.

ESA Translations List View field descriptions

Field	Descriptions
Add Digits	The digits to add before the directory number.
Collected Digits	The total number of digits to collect for this translation.

12 To display the ABI Node properties, click on the ABI Node Data button. The ABI Node Data view appears as shown in the following figure.

ABI Node Data View



The following table lists the fields in the ESA Translations List View and their descriptions.

ABI Node Data view field descriptions

Field	Descriptions
Node	The number of the ABI node.
Name	The name of the ABI node.
Type	The type of XPM ABI node.

13 This procedure is complete.

Viewing termination ESA data

At the MG 9000 Manager

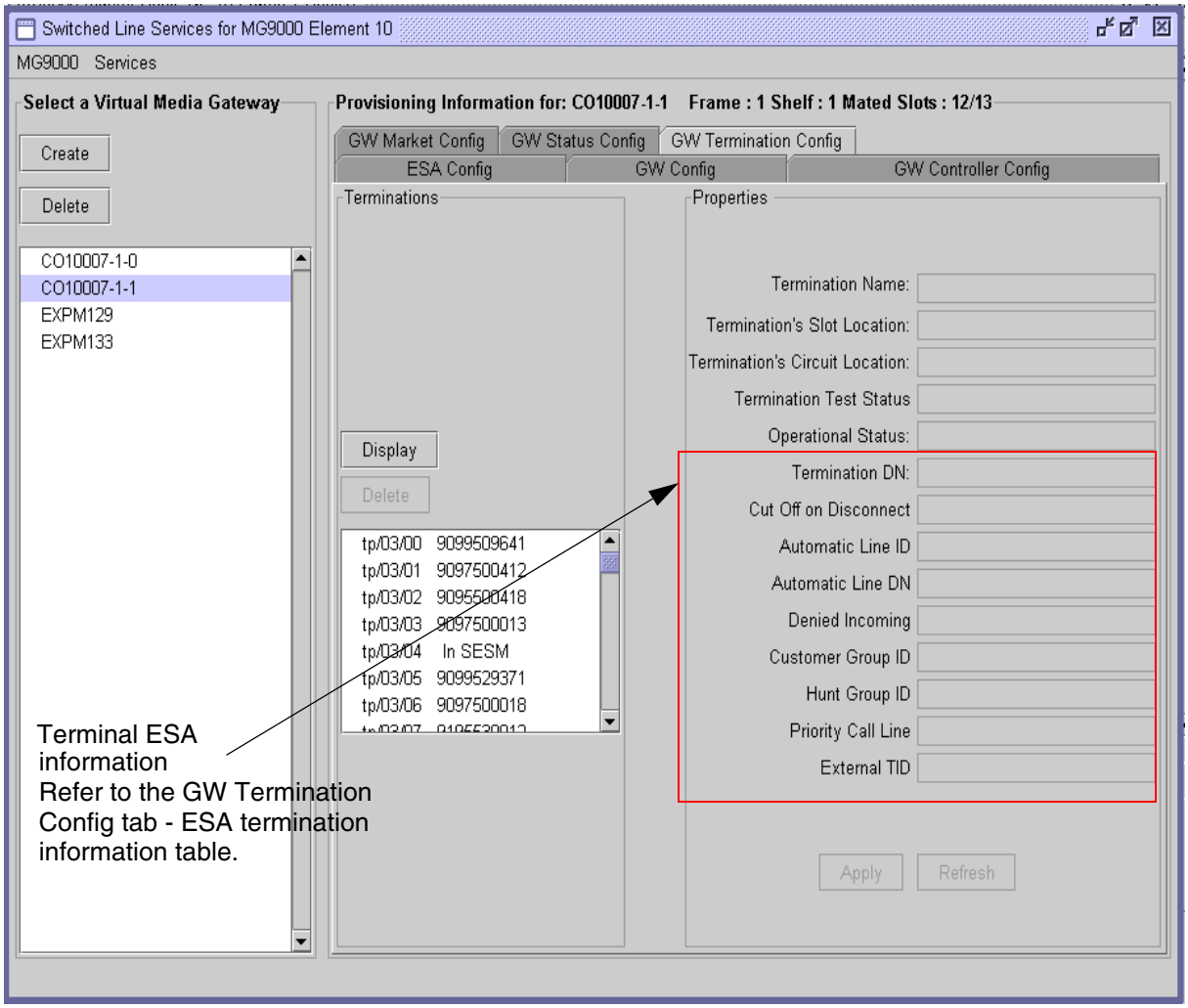
1 From the Subnet View, double click on the MG 9000 icon on which ESA is provisioned. The Frame View appears.

2 At the Frame View, select Switched Lines Services Manager from the Services menu.

3 Select the VMG from the list of VMGs at the left pane in the Switched Line Services screen.

4 In the Provisioning Information pane at the right, select the GW Termination Config tab. The view changes as shown in the following figure.

GW Termination Config tab



The following table lists the fields that provide information on ESA terminations.

GW Termination Config tab - ESA termination information

Field	Explanation
Termination DN	The directory number of this termination as provisioned by the Core.
Cut Off on Disconnect	Cut Off on Disconnect - Supported or Not Supported
Automatic Line ID	An index to the Automatic lines table.
Automatic Line DN	The directory number of the terminator for Automatic lines.
Denied Incoming	Denied incoming - Supported or Not Supported
Customer Group ID	Customer group number to which this line belongs.
Hunt Group ID	Index to the Hunt Group Table.
Priority Call Line	Indicates the line is for the priority call - Priority Call or Not Priority Call
External TID	External termination identifier.

5 This procedure is complete.

When it becomes necessary to provision a ESA pretranslator, use the following procedure.

Note: This procedure only applies to Basic ESA.

Provisioning an ESA Pretranslator

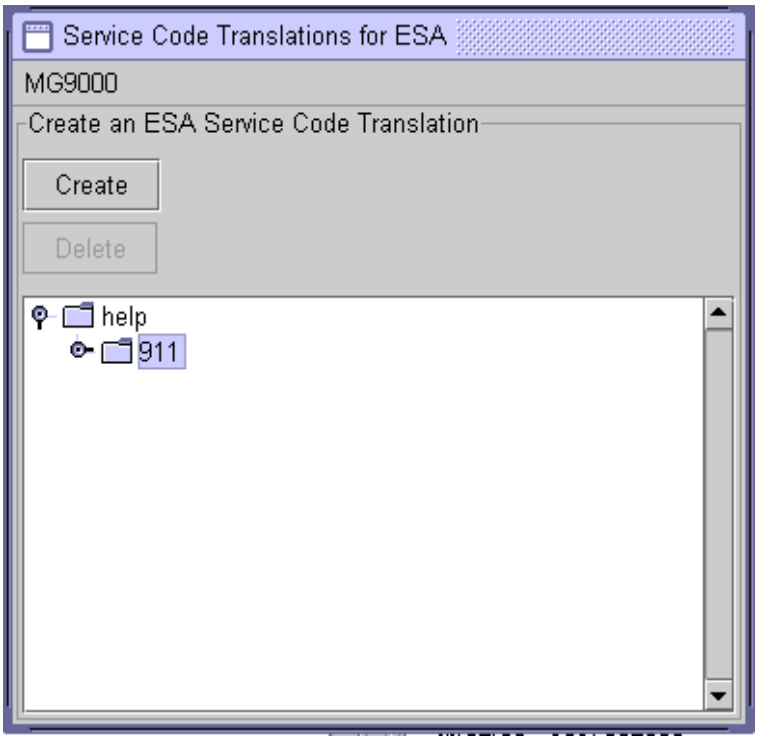
At the MG 9000 Manager

1 From the Subnet View, double click on the MG 9000 icon on which ESA is to be provisioned. The Frame View appears.

2 At the Frame View, select Switched Lines Services Manager from the Services menu.

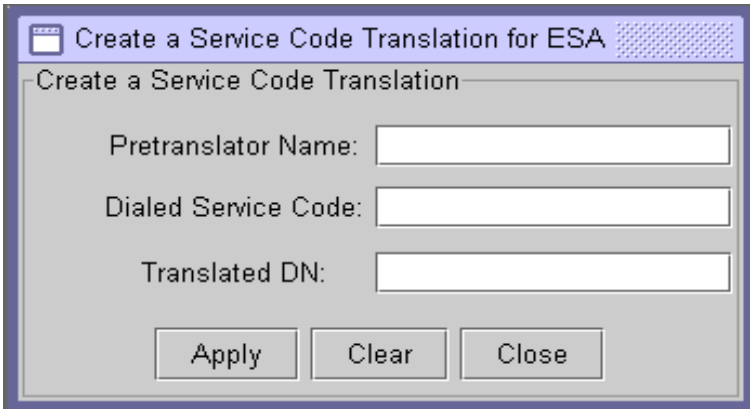
3 From the Switched Lines Services Manager menu bar, select Services->ESA Service Code Translations. The ESA Pretranslator screen appears.

ESA Pretranslator screen



4 Select Create to create a new Service Code Translation. The Create a Service Code Translation window appears.

Create a Service Code Translation for ESA



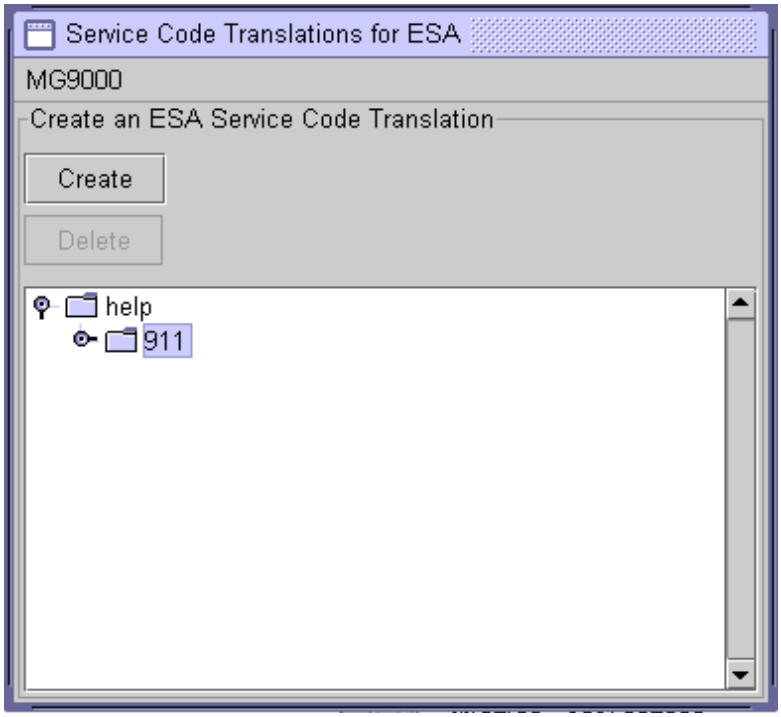
5 Provision the fields associated with the translator. The following table lists the fields associated with the translator:

ESA Service code translation fields and explanation

Field	Explanation
Pretranslator Name	This field can be an alphanumeric string representing the name of the translator. The field length allows for 1 to 8 characters. ***Note:*** The Pretranslator Name and Dialed Service Code must be a unique combination. For example, a translator with the name “default” can have several translations provisioned but those translations cannot have the same dialed service code.
Dialed Service Code	This field is a numeric field representing the digits to be dialed by the customer. The field allows for 1 to 10 numbers.
Translated DN	This field is a numeric field containing the DN that the dialed digits will terminate/translate to when dialed by the customer. The Translated DN should contain the Full DN, including the NPA. If the Full DN is not used, whenever a change DN occurs for the Translated DN, the Service Code Translation will not be automatically updated. For the updates to occur, the Translated DN needs to contain the same number of digits that are received from OSSGate. The Translated DN may contain from 1 to 15 digits.

6 Click Apply when complete. The data is displayed in the Service Code Translations for ESA, as shown in the following figure.

Service Code Translations for ESA



The Pretranslator Name will now appear in the ESA Config tab in the Switched Line Services window.

7 This procedure is complete.

Deleting a service code translation

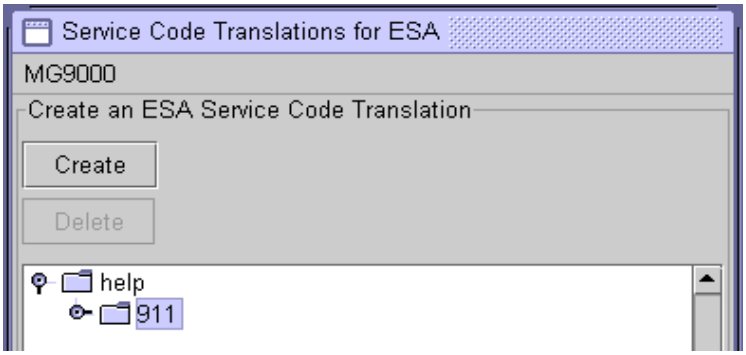
At the MG 9000 Manager

1 From the Subnet View, double click on the MG 9000 icon on which ESA is to be provisioned. The Frame View appears.

2 At the Frame View, select Switched Lines Services Manager from the Services menu.

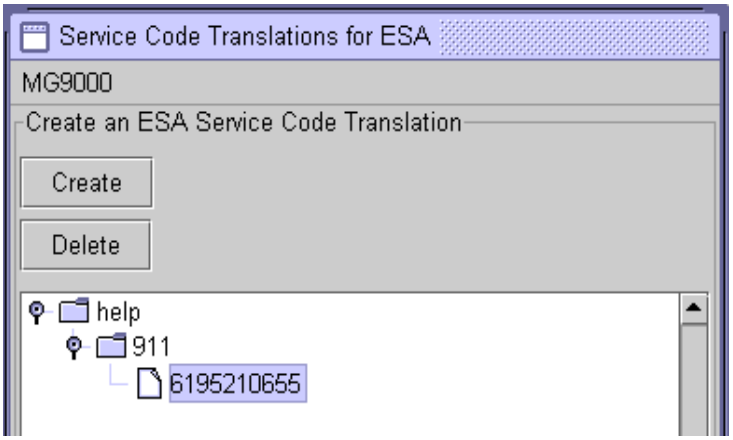
3 From the Switched Lines Services Manager menu bar, select Services->ESA Service Code Translations. The ESA Pretranslator screen appears.

ESA Pretranslator screen



4 Expand the translator and select the DN to be deleted. The Delete button becomes visible after selecting the target DN.

ESA Pretranslator screen with DN selected to be deleted



5 Click on the Delete button.

6 This procedure is complete.

Download ESA data from the Core

ESA data is automatically downloaded from the Core to the MG 9000 Manager nightly. For more information on setting up ESA data download and changing the download properties, refer to Changing MG 9000 Manager ESA data download properties.

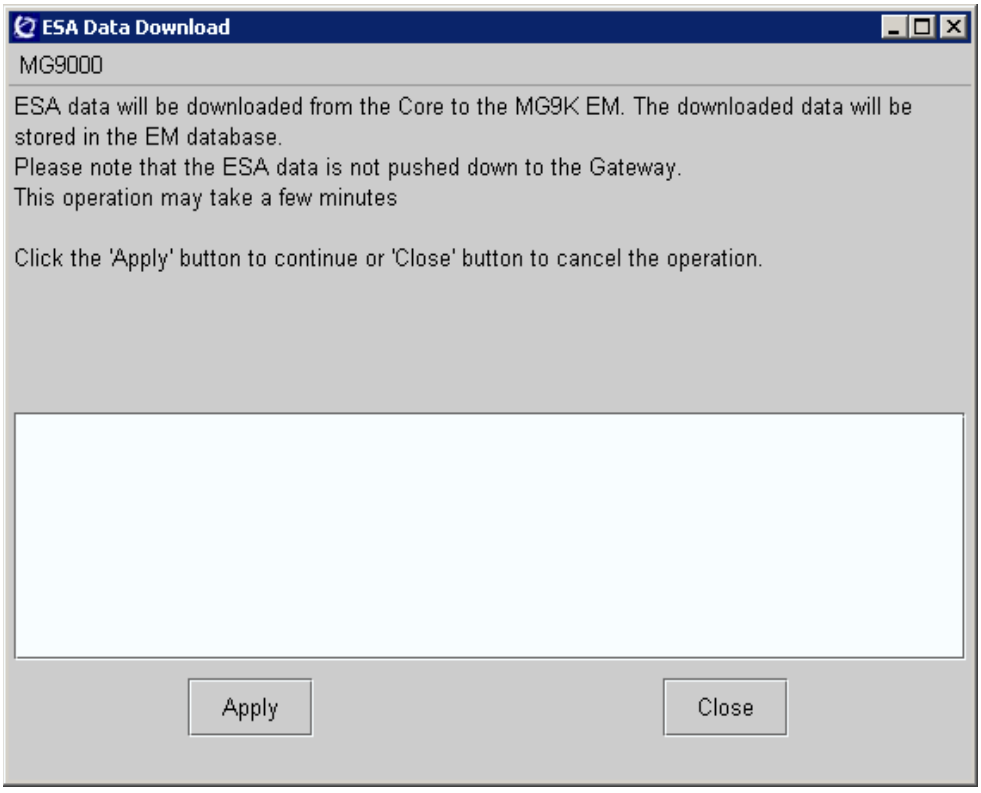
Use the following procedure when it is necessary to manually download ESA data from the Core to the MG 9000 Manager.

Downloading ESA data

At the MG 9000 Manager

1 From the Subnet View menu bar, select Configuration->ESA Download. The ESA Data Download View appears as shown in the following figure.

ESA Data Download View



2 Click Apply to continue with the download.

3 This procedure is complete.

Disabling ESA in a VMG

At the MG 9000 Manager

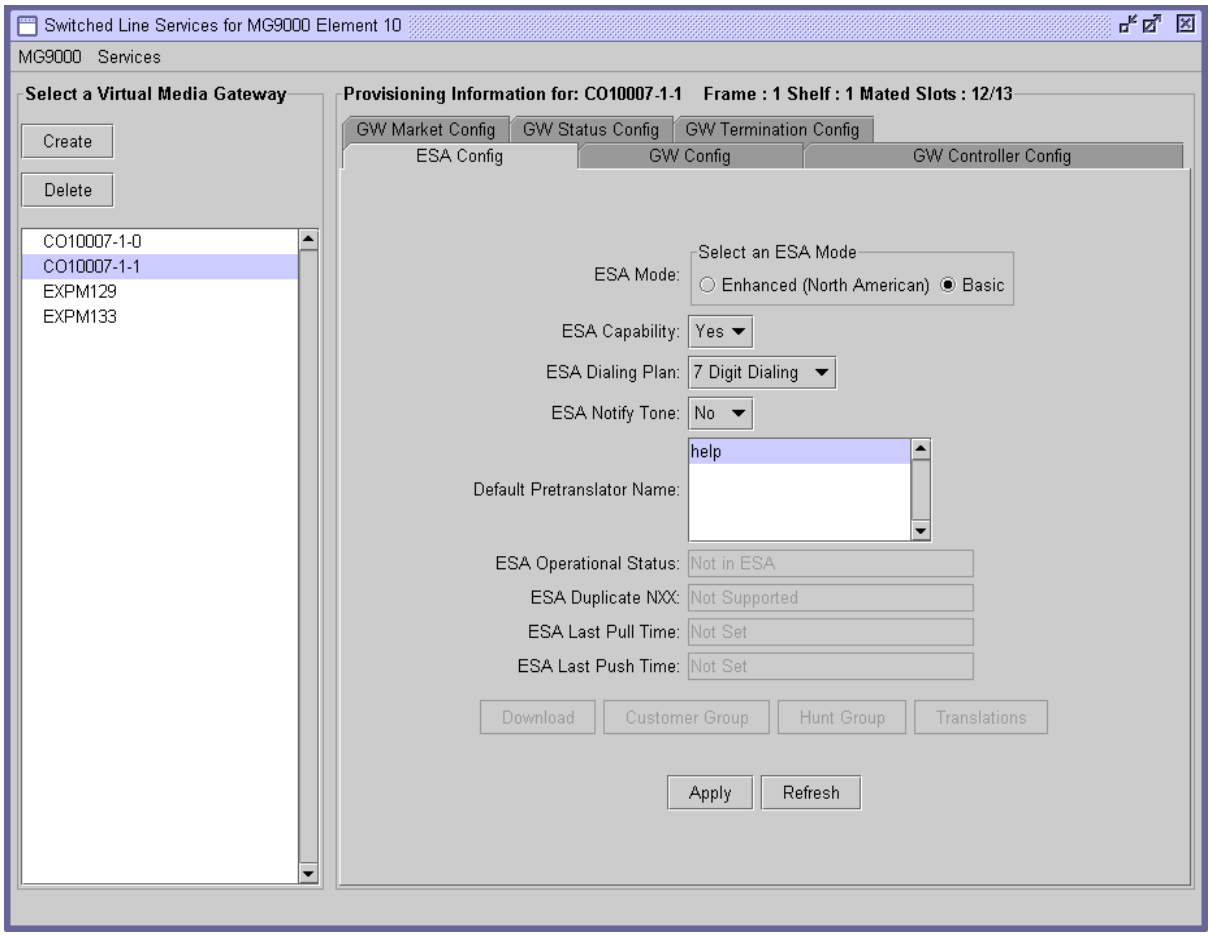
1 From the Subnet View, double click on the MG 9000 icon on which ESA is to be provisioned. The Frame View appears.

2 At the Frame View, select Switched Lines Services Manager from the Services menu.

3 Select the VMG from the list of VMGs at the left pane in the Switched Line Services screen.

4 In the Provisioning Information pane at the right, select the ESA Config tab

Switched Line Services View



5 In the ESA Capability field, select No. Click on Apply.

6 This procedure is complete.

Saving a list of SLoA services to a file

When it is necessary to view all the services on the MG 9000, a listing of the VMG names can be obtained using the Saving SLoA Services tool. This tool is also used to save a list of the services to a flat file for inventory management or when manual re-provisioning is required, such as in the unlikely event that persistence is lost, and to preclude the need for writing the information manually. Files are written in both HTML and text format. The information is always output to the server. The directory in which the files are written is /tmp directory on the server and the file name is displayed in the information dialog message that is output. The user should FTP the file to any desired location to retain the information.

Note: These files must be regularly moved to another directory since the /tmp directory is cleaned periodically.

The filenames for SLoA services are the same as VMG names to make the names unique. If there are multiple VMGs, then the dialog will have multiple filenames that have been written

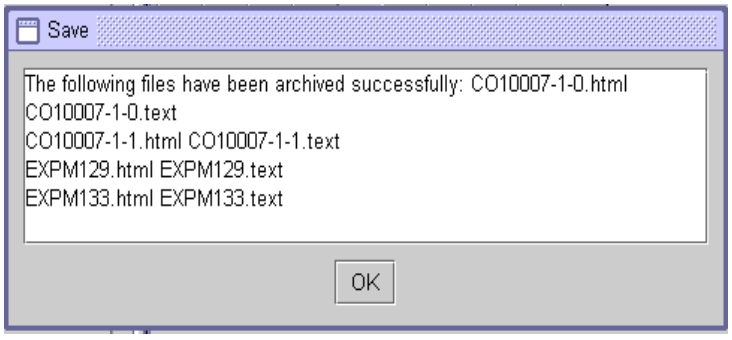
The following procedure provides the steps for saving SLoA services information into a file.

Saving SLoA services

At the MG 9000 Manager

1 From the Frame View, access the Save SLoA Services tool from the Actions menu. The Save SLoA services dialog box appears as shown in the following figure.

Save SLoA Services dialog



2 The VMG names have been exported into the file noted in the dialog box. Note the file name. Click OK to close the dialog box.

3 This procedure is complete.

Viewing and modifying DS1 IMA group and links

When to use this procedure

Use the procedures in this section to view and modify DS1 IMA links.

The following procedures are provided:

- viewing DS1 IMA group or link attributes
- modifying (adding or deleting) links in the DS1 IMA group
- locking DS1 IMA ports

Note: In the DS1 IMA Port View, the state of the links in the IMA group are viewed on the active card only. When viewing the DS1 IMA Port View for the inactive card, the Administrative State and Configuration State and not enabled (greyed out) and the state of the links is reported as “No Links on Inactive Card.”

Prerequisites

There are no prerequisites.

Action

Viewing DS1 IMA group and link attributes

At the MG 9000 Manager

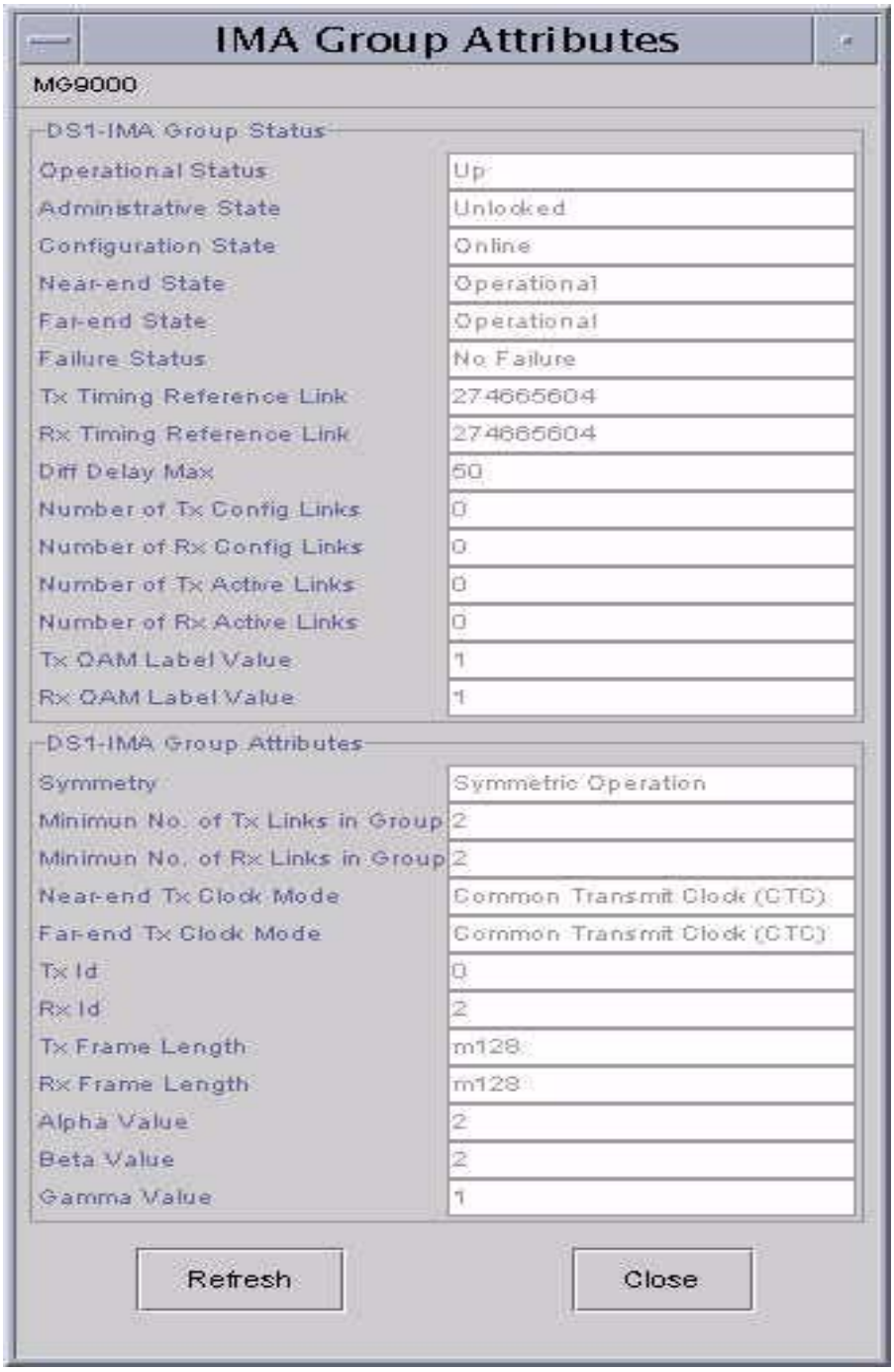
1 At the Subnet View, double click the MG 9000 network element icon. The Frame View appears.

2 At the Frame View, double click on the master shelf. The Shelf View appears.

3 At the Shelf View, select Actions->View IMA Group from the main menu bar.

The IMA Group Attributes View appears as shown in the following figure.

IMA Group Attributes View



4 This procedure is complete.

Modifying (adding or deleting) links in the DS1 IMA group

At the MG 9000 Manager

1 At the Subnet View, double click the MG 9000 node icon. The Frame View appears.

2 At the Frame View, double click on the master shelf. The Shelf View appears.

3 At the Shelf View, double click on the active DCC (DS1 IMA) card. The IMA Card view appears.

4 Use the information in the following table to determine the next step.

If	Do
adding links to an IMA group	step 5
deleting links from an IMA group	step 11

5 To add links to an IMA group, double click on the DS1-IMA Port corresponding to the link to be added to the group. The DS1-IMA Port View appears.

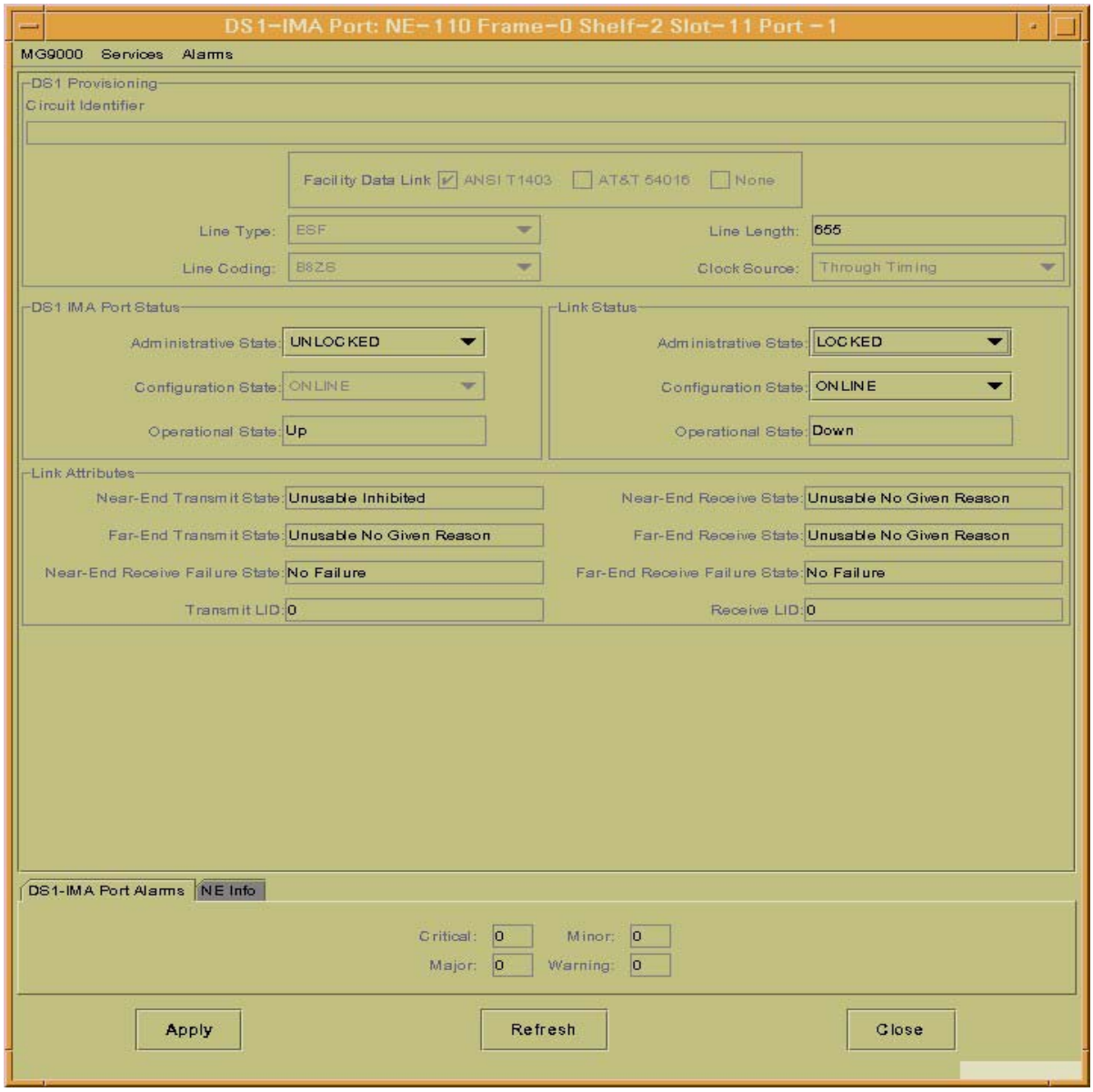
6 In the Port Status pane, set these Configuration status to Online. Then, set the Administrative status of the port to Unlocked. Observe that the Operational State is Up.

Note: If the link does not come up check the connections. Perform the procedure “Performing DS1 IMA diagnostics” in *MG 9000 Fault Management*, NN10074-911.

Repeat steps 5 through 6 for each link to be added to the IMA group.

The following figure shows a Unlocked DS1 IMA port.

DS-IMA Port View showing a Unlocked port

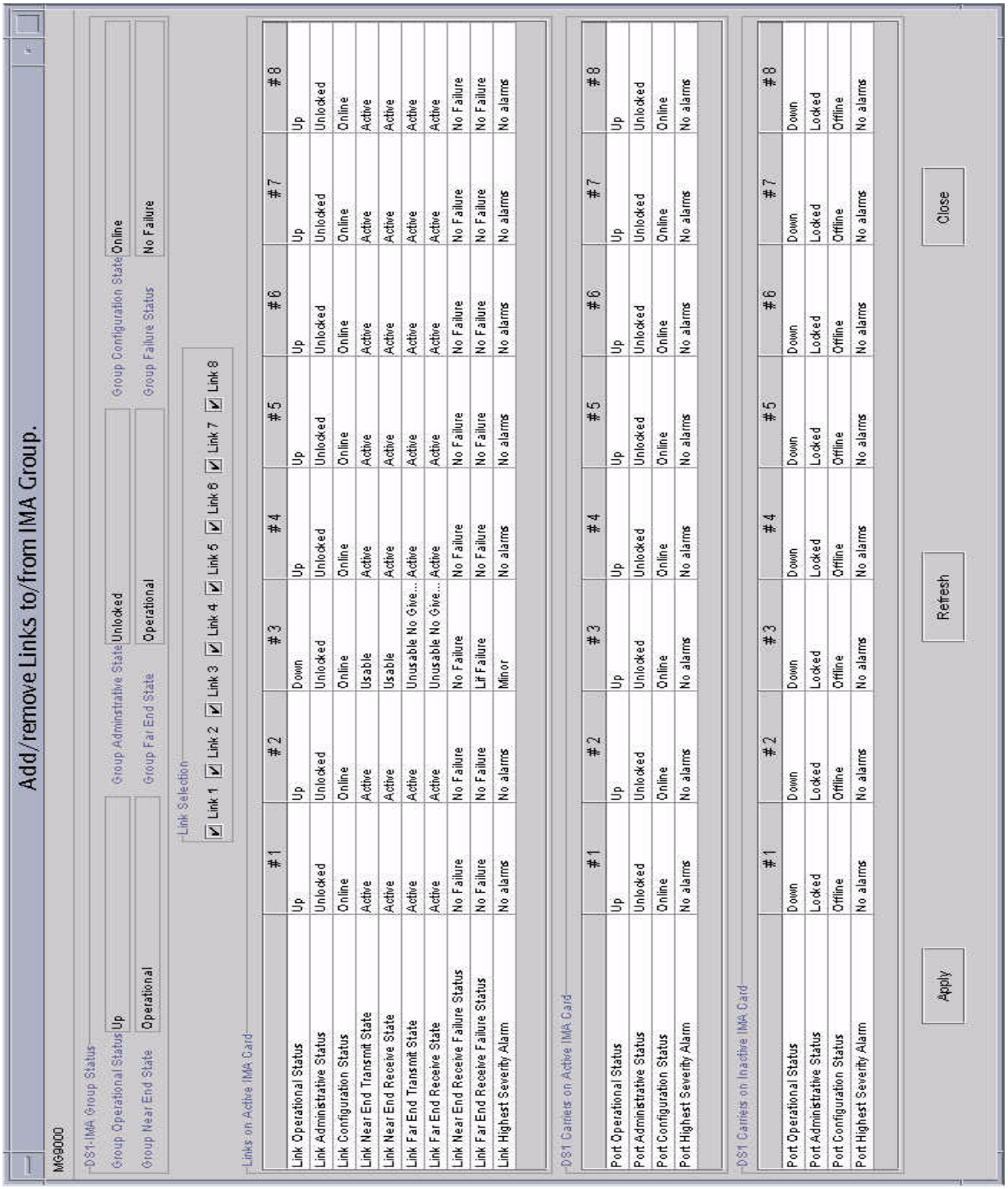


7 At the Shelf View, select Actions->Edit IMA Group from the main menu bar.

The Add/Remove Links to/from IMA Group View appears as shown in the following figure.

Note: DS1-IMA link attributes are not automatically updated by the MG 9000, when links are added from other applications such as the LCI. Use the Refresh button to obtain the latest status.

Add/remove Links to/from IMA Group View



8 Select the links to be added to the IMA group by clicking in the box next to each link number, making the check mark appear in the box.

9 At the IMA Group View, click on Apply to initiate the changes.

10 In the Link status pane, online the link by setting the Configuration status to Online. Then, set the Administrative status of the link to Unlocked. The Operational State of the link should show Up. If the IMA link does not come up, perform the "Performing DS1 IMA diagnostics" procedure in *MG 9000 Fault Management*, NN10074-911.

Repeat this step for each link that was added to the group.

Go to step 17.

11 To remove links from an IMA group, double click on the DS1-IMA Port representing the link to be removed from the group. The DS1-IMA Port View appears.

12 In the Link status pane, set the Administrative status of the link to Locked. Then, set the Configuration Status to Offline.

Repeat steps 11 and 12 for each link to be removed from the IMA group.

13 At the Shelf View, select Actions->Edit IMA Group from the main menu bar.

The Add/Remove Links to/from IMA Group View appears.

14 Select the links to be removed from the IMA group by clicking in the box next to each link number, removing the check mark from the box.

15 At the IMA Group View, click on Apply to initiate the changes.

16 For each link that was removed from the group, the corresponding DS1 IMA port can be locked, depending on local policy. If it is determined that the DS1 IMA port should be locked, go the Locking DS1 IMA ports procedure.

Repeat this step for each link that was locked in this procedure.

17 This procedure is complete.

Locking DS1 IMA ports

At the MG 9000 Manager

1 At the Subnet View, double click the MG 9000 node icon. The Frame View appears.

2 At the Frame View, double click on the master shelf. The Shelf View appears.

3 At the Shelf View, double click on the active DCC (DS1 IMA) card. The IMA Card view appears.

4 To access the port to be locked, double click on the DS1-IMA Port. The DS1-IMA Port View appears.

5 At the DS1 IMA Port View, set the Administrative Status of the port to Locked and set the Configuration Status to Offline.

6 This procedure is complete.

Provisioning and maintenance of OC-3 APS

When to use this procedure

Use the procedures in this section to provision and maintain OC-3/STM-1 automatic protection switching (APS). The procedures included are

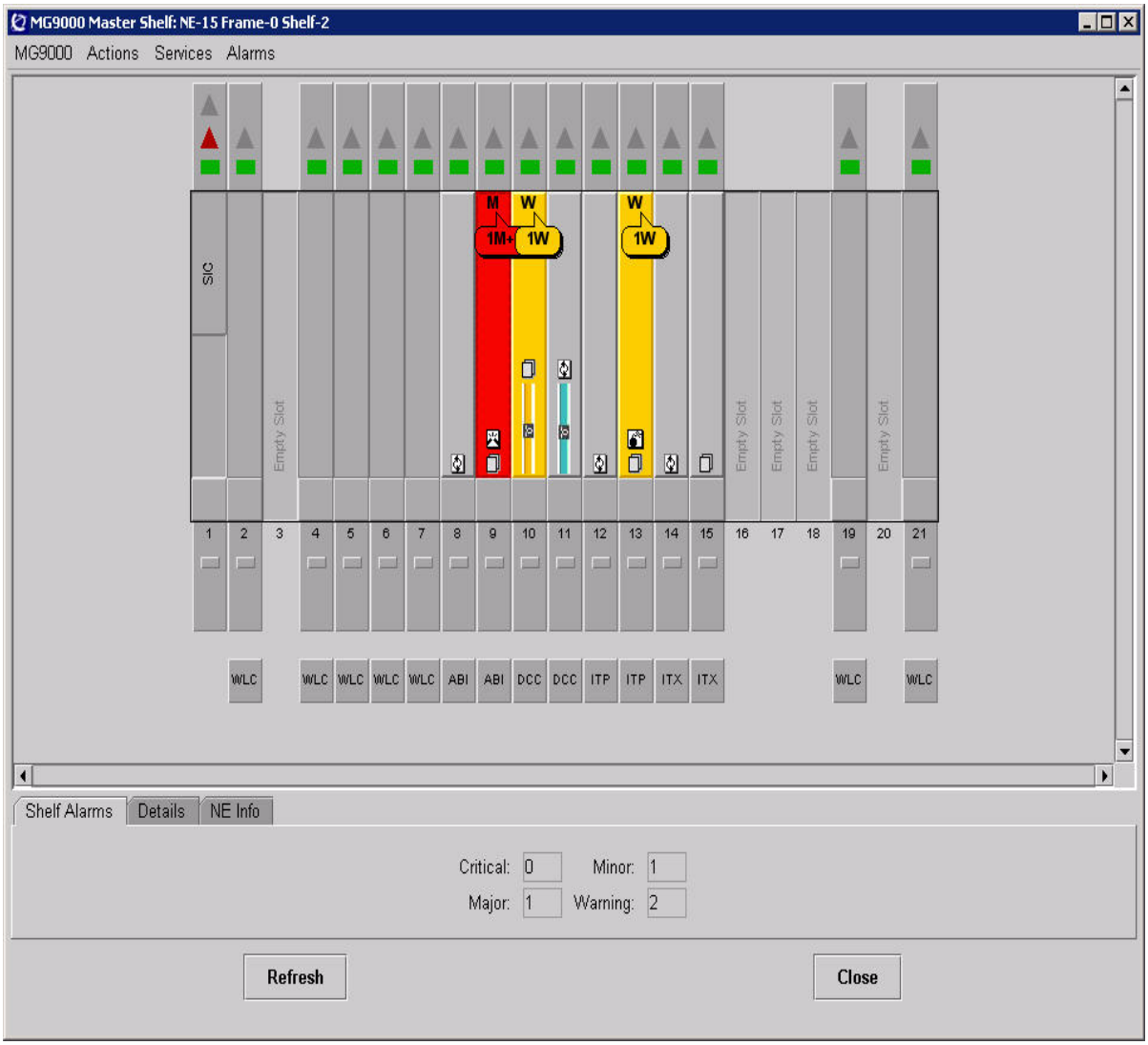
- provisioning OC-3 automatic protection switching
- maintaining OC-3 automatic protection switching

In 1+1 configuration, the MG 9000 is required to spare the OC-3 line carrier and guarantee all stable calls survive over the spare. The term 1+1 comes from the fact that there is one working carrier and one protection carrier at both the head-end and tail-end of the transmission path. Both head-end units transmit identical data/payload to the tail-end equipment. The receiving equipment at each end chooses the signal (working or protection) to which it will listen.

Note: When a mode mismatch occurs with the far end, and the APS Maintenance or APS Provisioning GUI is open, a message appears warning of this condition. On the Shelf View, an X icon appears with the other APS carrier state icons indicating an APS failure. When the mismatch is corrected, the X icon on the Shelf View and Card View will clear. The following figure shows the X icon.

The following figure shows the Shelf View with icons displayed on the DCC-OC3 cards.

Shelf View showing the APS icons on the DCC-OC3 cards



The unit from which the data/payload is sourced and transmitted and also the unit which selects, receives, and processes the incoming line signal is referred to as the Active Unit. The Inactive Unit is considered standby equipment to spare the active line carrier.

Prerequisites

There are no prerequisites.

Action

Provisioning OC-3 automatic protection switching

At the MG 9000 Manager

1 At the Subnet View, double click the MG 9000 node icon. The Frame View appears.

2 At the Frame View, double click on the master shelf. The Shelf View appears.

3 At the Shelf View, select APS Provisioning from the Actions->Maintenance menu on the main menu bar.

> ***Note:*** The APS Provisioning GUI is not available if only one OC-3 Card is installed or if the system has a DS1-IMA network interface. An information message will appear in this case.

The APS Provisioning View appears as shown in the following figure. Steps described in this section are optional.

APS Provisioning View

4 To disable the APS group, use the “Set Disable” button.

5 To Enable APS, use the “Set Enable” button.

6 To Rename the APS Group, disable the APS group using the “Set Disable” button. The Rename button will become enabled. Change the APS group name by typing in the new name. Press the Rename button for the change to take effect. Set the APS Group Status to Enable.

7 The Refresh button may be clicked at any time to update the GUI with fresh information from the MG 9000.

8 This procedure is complete.

Maintaining OC-3 automatic protection switching

At the MG 9000 Manager

1 At the Subnet View, double click the MG 9000 node icon. The Frame View appears.

2 At the Frame View, double click on the master shelf. The Shelf View appears.

3 At the Shelf View, if there are two DCC (OC-3) cards in the master shelf, double click on the Active DCC (OC-3) card. The OC-3 Card View appears.

4 At the OC-3 Card View, double click on the OC-3 port. The OC-3 Port View appears.

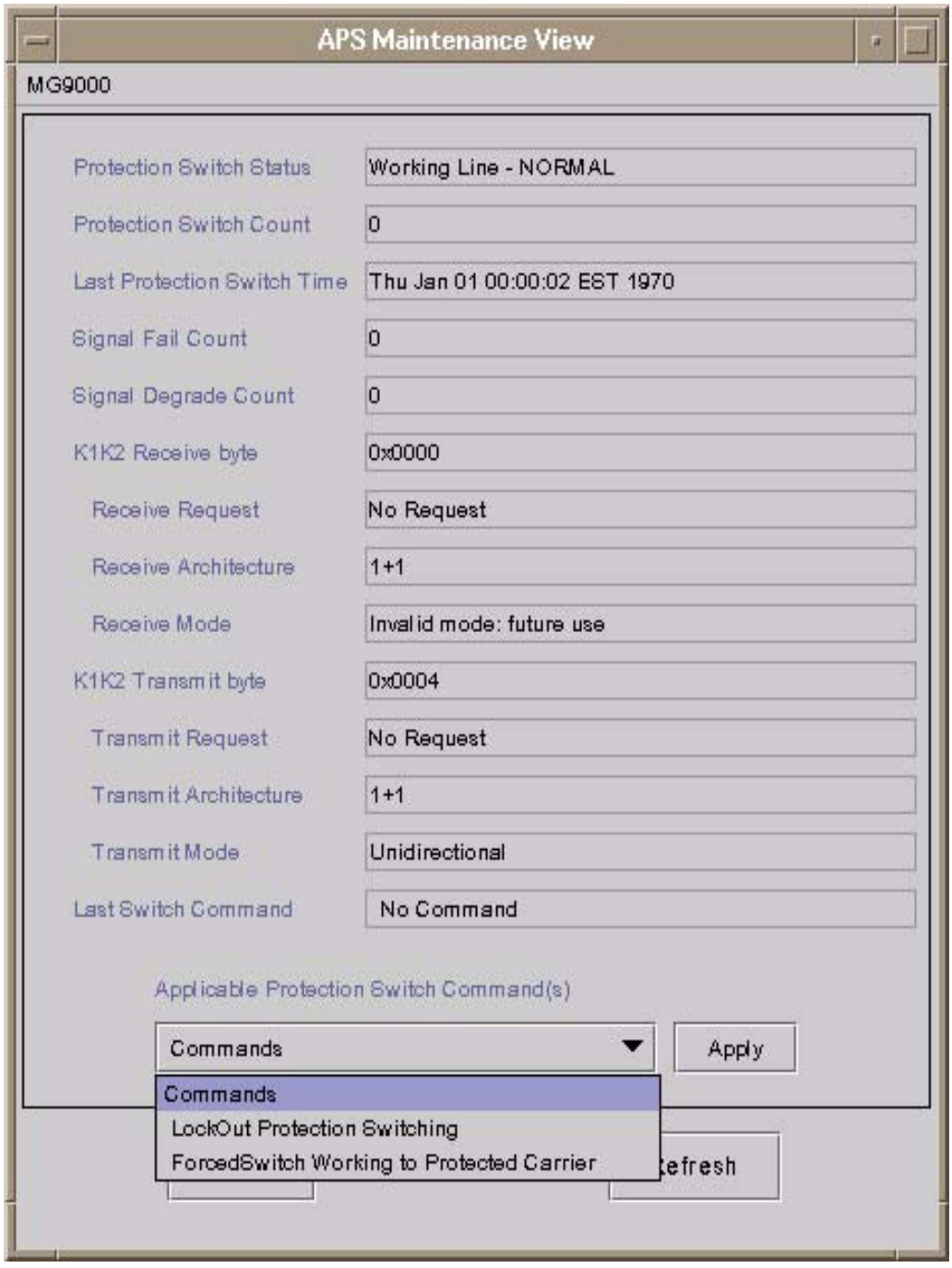
5 At the OC-3 Port View, launch the APS Maintenance View.

The APS Maintenance View shows the

- Protection Switch Status
- Protection Switch Count
- Last Protection Switch Time
- Signal Fail Count
- Signal Degrade Count
- Transmit and receive data
- Last Switch Command

The Protection Switch Commands may only be exercised from the APS Maintenance View launched from the OC-3 port on the active OC-3 card. The APS Maintenance View is shown next.

APS Maintenance View with protection switch commands shown



6 Set the OC-3 to the desired state using the Commands pull-down and select Apply.

Note: The list of commands displayed varies according to the state of the carrier. The Commands pull-down is only accessible on the active card.

The following table lists the commands and their effect on the carrier.

Applicable Protection switch commands

Command	Effect
LockOut Protection Switching	Disables Automatic Protection Switching and manual/Force Protection Switching features by locking out the protected (spare) carrier. ***Note:*** During a lockout of protection switching, call processing redundancy will be at risk since the APS feature is disabled/locked Out.
ForcedSwitch Working to Protected Carrier	Forces a manual protection switch from working (normal) carrier to protected (spare) carrier by overriding minor failure conditions. This command, in effect, forces the Active controller card to use the fiber on the Inactive card. If failure conditions are major or excessive on the protected carrier, this command will be rejected.
ManualSwitch Working to Protected Carrier	Manual protection switch from working (normal) carrier to protected (spare) carrier. This command, in effect, allows the Active controller card to use the fiber on the INactive card. This may be useful when repairing a fiber on the Active card. This command will be rejected if signal fail conditions exist on the protected carrier or the Inactive carrier of the card is locked.

Applicable Protection switch commands

Command	Effect
ForcedSwitch Protected to Working Carrier	Forces a manual protection switch from protected (spare) carrier to working (normal) carrier by overriding minor failure conditions. This, in effect, forces the Active controller to use its own fiber. ***Note:*** This command is only available when the carriers are currently switched (for example, APS mode). If failure conditions are excessive on the working carrier, this command will be rejected.
ManualSwitch Protected to Working Carrier	Manual Protection switch from protected (spare) carrier to working (normal) carrier. This, in effect, allows the Active controller card to use its own fiber. Typically, this command is recommended to switch BACK to the working (normal) carrier after a carrier defect has been cleared.

The icons visible on the shelf/card view identify the carrier states. The different states are listed in the following table.

APS Shelf/Card View Icons and meaning

Icon	Meaning
	The OC3 Carrier is in an untroubled state. The OC3 Card and Carrier Admin State is Unlocked and Operational state is Up/Enabled. This is the normal configuration for the Active OC-3 carrier.
	The OC3 Carrier is untroubled and ready to handle the protection switch (APS). This is the normal configuration for the Standby OC-3 carrier.

APS Shelf/Card View Icons and meaning

Icon	Meaning
	The carrier is troubled, that is, either the card or the carrier has alarms on it, the card's or carrier's Operational status is not "Up", or the card's or the carrier's Administrative state is "Locked".
	The carrier is untroubled but not protected. Its mate carrier is troubled or locked out and is not ready for protection switch.
	The carrier is locked out for protection switching
	The carrier is switched and unprotected.
	The carrier is switched and protected. The mate carrier is ready to switch back.

APS Shelf/Card View Icons and meaning

Icon	Meaning
	The carrier is manually switched
	The carrier is forced switched.

7 This procedure is complete.

Provisioning SIC inputs and outputs

When to use this procedure

Use this to provision shelf interface card (SIC) inputs and outputs.

The SIC Input/Output Provisioning screen displays the following characteristics of the SIC inputs and outputs:

- Input/Output name
- Input/Output description
- Administration state (outputs only)
- Operational state
- Alarm severity

Prerequisites

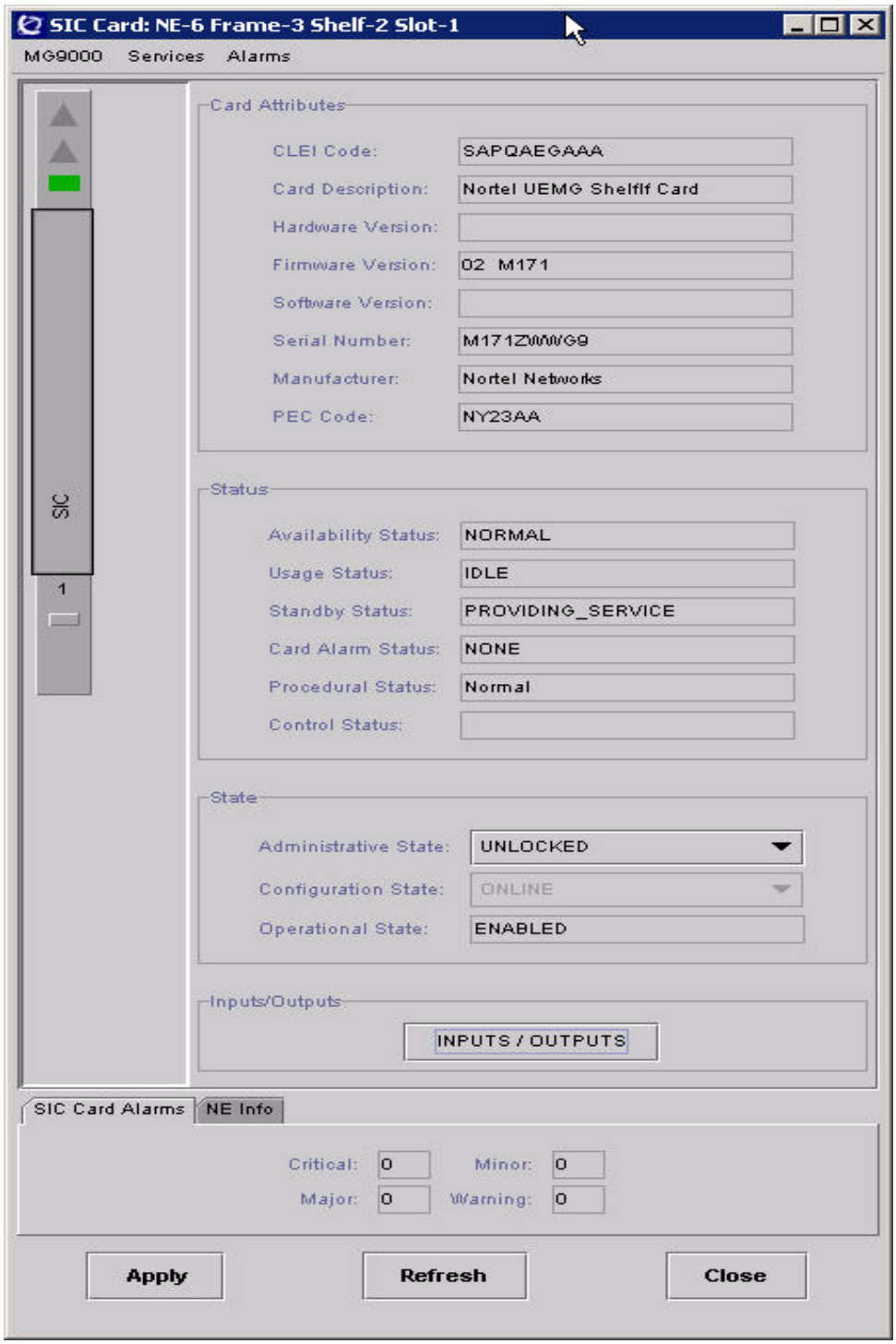
There are no prerequisites.

Action

The SIC Card View is accessed by double clicking on the SIC card in the Shelf View. The SIC Card View displays characteristics and states for the SIC card. To access the SIC Input/Output View use the INPUTS/OUTPUTS button on the SIC Card View.

The following figure shows the SIC Card View.

SIC Card View



Viewing a SIC input

At the MG 9000 Manager

1 At the Subnet View, double click on the MG 9000 to be modified. The Frame View appears.

2 From the Frame View, double click on the shelf. The Shelf View appears.

3 From the Shelf View, double click on the SIC card. The SIC card View appears.

4 Click the Inputs/Outputs button to view the SIC card inputs.

5 Select the Inputs radio button in the top left hand corner of the SIC Input/Output View.

6 Select the SIC input to view in the Inputs scroll pane window on the left hand side of the view.

7 This procedure is complete.

Modifying the Input Name or the In Alarm Severity

At the MG 9000 Manager

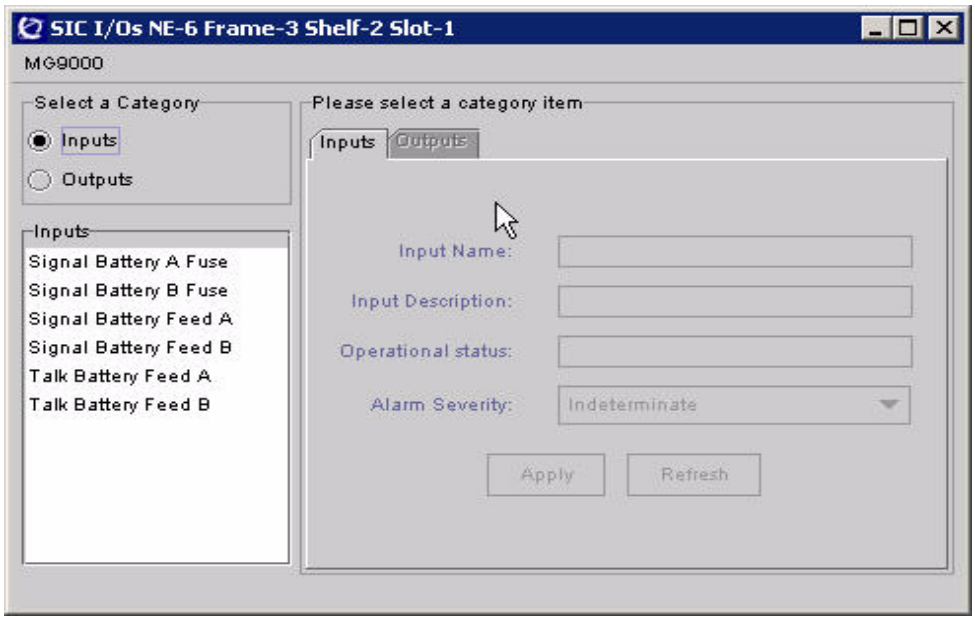
1 At the SIC Input/Output View, change the value(s)

2 Press the Apply button.

Note: The Refresh button can be used to resync the Input/Output view with the data that is currently applicable to the selected input.

The following figure shows the SIC Input/Output window with the inputs listed.

SIC Input/Output View (inputs)



3 This procedure is complete.

Viewing a SIC output

At the MG 9000 Manager

1 At the SIC Input/Output View, select the Outputs radio button in the top left hand corner of the SIC Input/Output View.

2 Select the SIC output to view in the Outputs scroll pane window on the left hand side of the view.

3 This procedure is complete.

Changing the Output Name and/or Output Alarm Severity

At the MG 9000 Manager

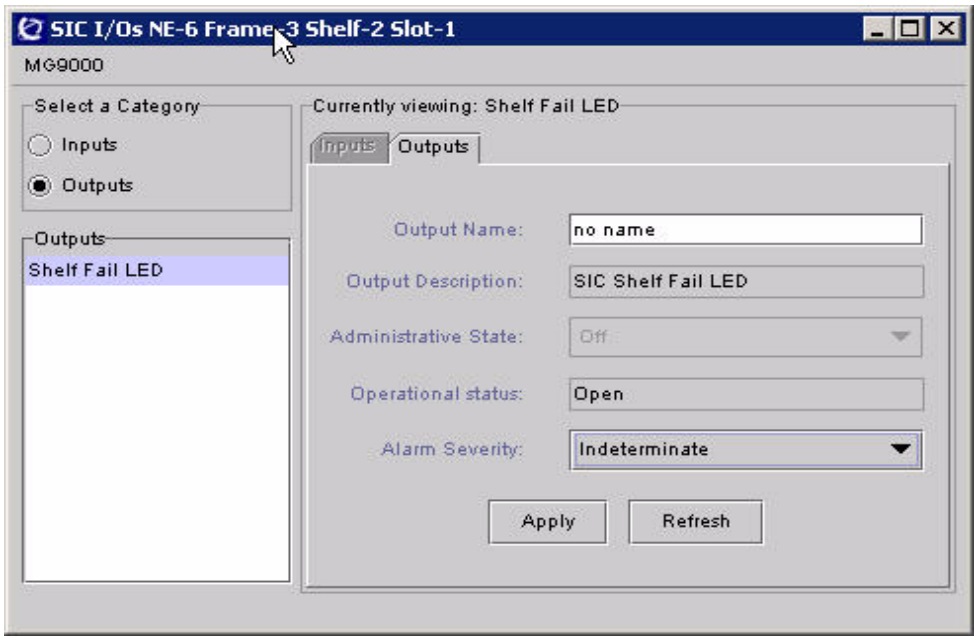
1 At the SIC Input/Output View, change the value(s).

2 Press the Apply button.

Note: The Refresh button can be used to resync the Input/Output view with the data that is currently applicable to the selected output.

The following figure shows the SIC Input/Output window with outputs listed.

SIC Input/Output (outputs)



3 This procedure is complete.

Provisioning IBIP inputs and outputs

When to use this procedure

Use this information to provision intelligent bay interface panel (IBIP) alarm inputs and outputs (I/O).

The IBIP I/Os screen displays the following characteristics of the IBIP inputs and outputs:

- Input/Output name
- Input/Output description
- Administration state (outputs only)
- Operational state
- Alarm severity

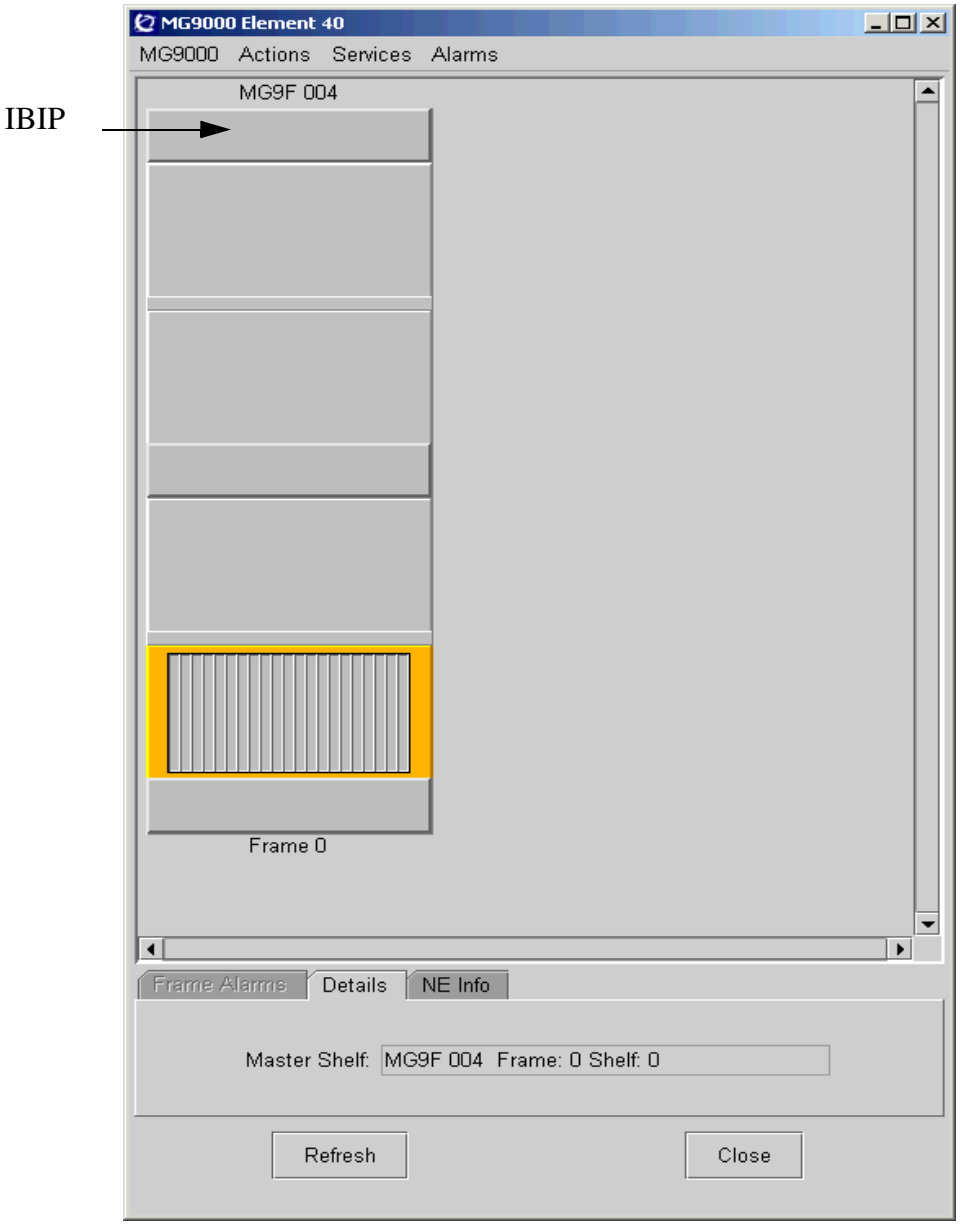
Prerequisites

There are no prerequisites.

Action

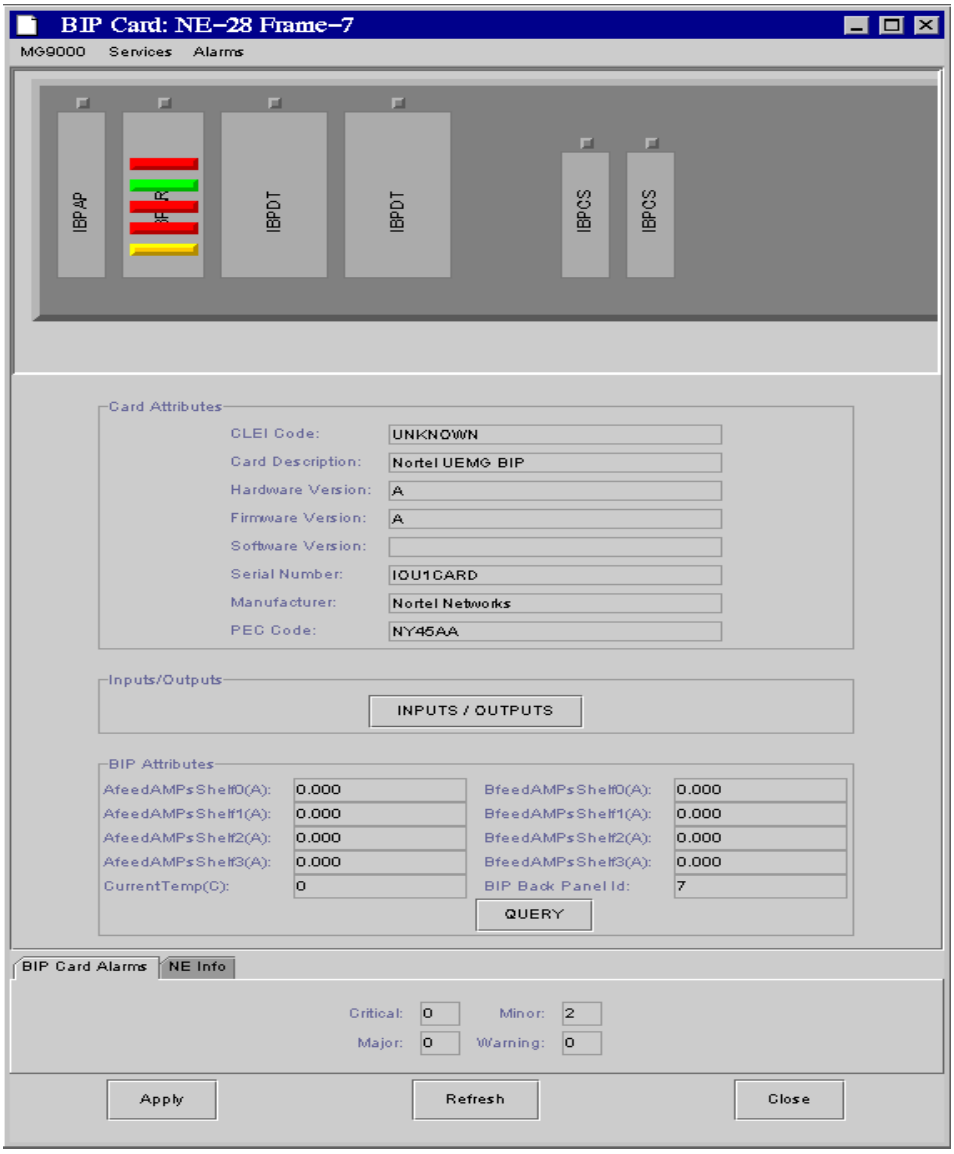
The BIP Card View, accessed by double clicking on the IBIP in the Frame View, can be used to access the BIP I/Os View. The following figure shows the IBIP's location in the MG 9000 frame.

Frame View showing the IBIP



The BIP Card view also displays characteristics and LED states for the IBIP.

BIP Card View showing the LEDs



To access the IBIP I/Os View use the INPUTS/OUTPUTS button on the BIP Card View. To access the BIP I/O View for a specific set of ECU (Environmental Control Unit) Inputs/Outputs double click on either fan unit in the Frame view.

To view a IBIP input perform the following procedure.

Viewing IBIP inputs

At the MG 9000 Manager

1 From the IBIP I/O View, select the Inputs radio button in the top left hand corner of the IBIP Input/Output View

2 Select the IBIP input to view in the Inputs scroll pane window on the left hand side of the view.

3 This procedure is complete.

For the IBIP inputs the Input Name and Input Alarm Severity are configurable. To modify either the Input Name and/or Input Alarm Severity perform the following steps:

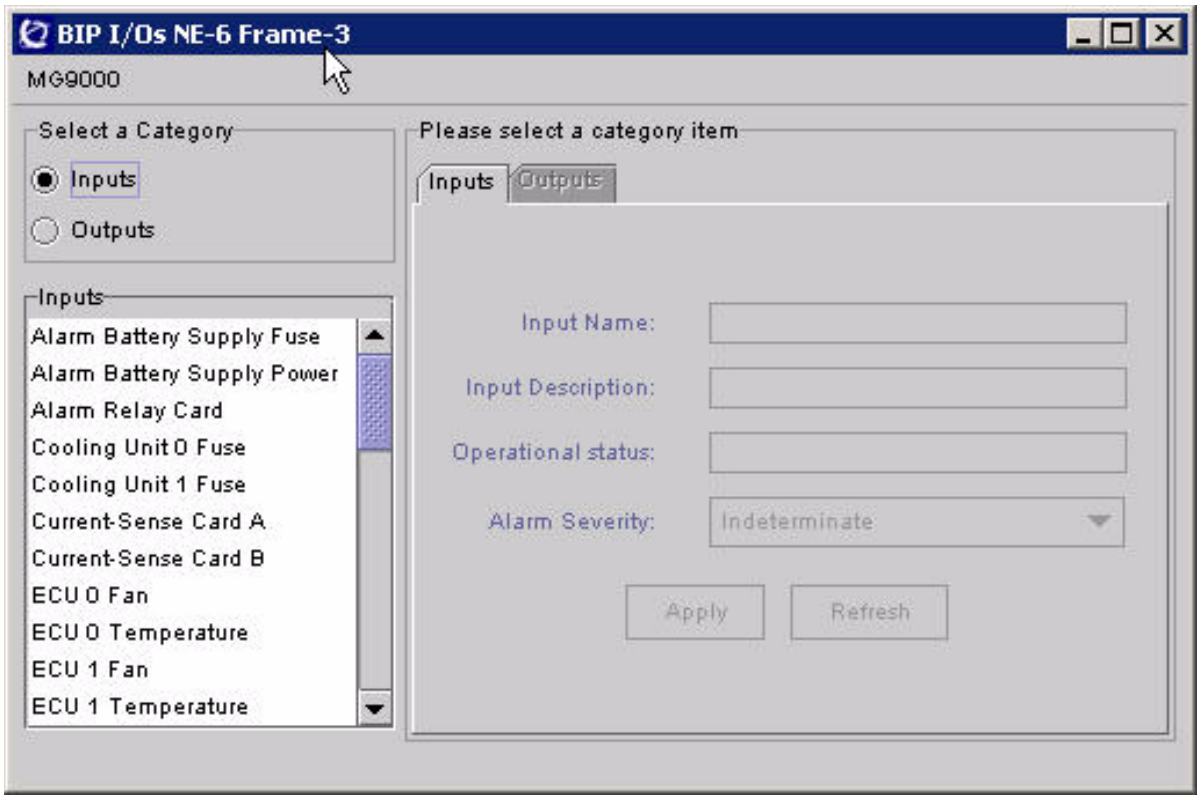
1. Change the Input Name and Input Alarm Severity value(s).
2. Press the Apply button.
3. This procedure is complete.

Note 1: The MG 9000 Manager will not permit any Indeterminate Input scan point alarms to appear at the Subnet View or the IBIP icon in the Frame View. If any of the scan point alarms inputs must appear, the alarm severity must be changed to some value other than Indeterminate.

Note 2: The Refresh button can be used to resync the Input/Output view with the data that is currently applicable to the selected input.

Note 3: The Query button is used to refresh the threshold attributes on the IBIP reported to the BIP Card View from the MG 9000.

BIP I/Os View (Inputs)



To view a IBIP output perform the following procedure.

Viewing IBIP Outputs

At the MG 9000 Manager

1 At the IBIP I/O View, select the Outputs radio button in the top left hand corner of the IBIP Input/Output View.

2 Select the IBIP output to view in the Outputs scroll pane window on the left hand side of the view.

3 This procedure is complete.

For the IBIP outputs the following fields are configurable:

- Output Name
- Output Administrative State (Signal Distribution Points only)
- Output Alarm Severity

Note: The MG 9000 Manager will not add any Indeterminate Output alarms to the alarm browser. This prevents the LED events from showing up as alarms. If any of the outputs must appear in the alarm

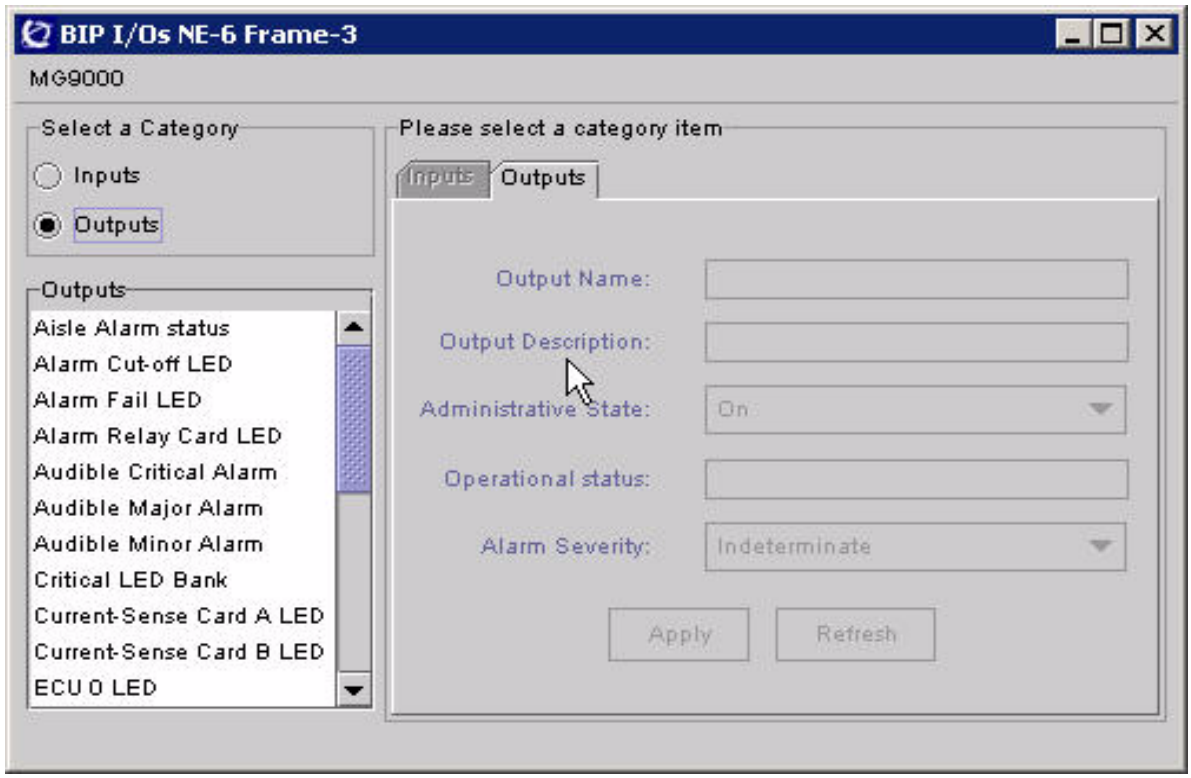
browser, the alarm severity must be changed to some value other than Indeterminate.

To modify either of the fields perform the following steps:

1. Change the value(s)
2. Press the Apply button.
3. This procedure is complete.

Note: The Refresh button can be used to resync the Input/Output view with the data that is currently applicable to the selected output.

BIPI/Os View (Outputs)



Using the Bandwidth Manager

When to use this procedure

The MG 9000 Manager's Bandwidth Management application provides

- the capability to enforce maximum bandwidth values for each of the main service types (SLoA, PLoA, ABI and xDSL) for VCs (virtual channels) through the network interface for AAL1 systems. In the case of VoIP, only the SLoA and DSL service type partitions can be used. ABI bearer and ITP bearer traffic falls under the umbrella of the SLoA partition on a VoIP system.
- the capability to monitor the currently allocated reserved bandwidth on the Network interface and the SLoA reserved bandwidth to monitor per shelf capacity
- a way to manage configurable thresholds.

The MG 9000 Manager also receives corresponding state change notifications. These are useful for scenarios where the reserved bandwidth is nearing capacity.

There are no thresholds for PLoA or xDSL since these connections are provisioned by the MG 9000 Manager, which can check the currently reserved capacity before provisioning.

Note: After provisioning bandwidth management data on the MG 9000, it is recommended that a record be maintained of all provisioning information.

Bandwidth allocation overview

The following describes the way bandwidth is available for various main services on either an AAL1 or a VoIP system.

- Voice over AAL1 - SLoA, PLoA, DSL and ABI all share the same bandwidth. The total of all of these items together must be less than or equal to 100% of the Maximum Partitionable Bandwidth. The Total Partitionable Bandwidth displayed on the MG 9000 Manager is

  where

  Total partitionable = Total - OAM - ITP CallP messaging - ABI CallP messaging

- Voice over IP - The total bandwidth for VoIP is divided into three PVCs plus any DSL PVCs

  The three PVCs are described as follows:

  — PVC A (CCB) - Carries ITP H.248 and all ITP and ABI bearer traffic.

  — PVC B (OAM) - Carries MG 9000 Manager traffic such as, data collection and sftp.

  — PVC C (ABI) - Carries ABI H.248 and XPM messaging

  The Bandwidth Manager ensures that bandwidth only from the appropriate PVC is used.

  PVC A is normally much bigger than PVC B or C.

  The Total Partitionable Bandwidth shown on the MG 9000 Manager = Total Partitionable Bandwidth - PVC B - PVC C

  SLoA partition uses bandwidth from PVC A only.

There is no significance of putting any partition values for PLoA or ABI for an IP system. ABI voice uses the CCB PVC. ABI messaging uses a PVC not partitionable using the Bandwidth Manager.

Each DSL data service has a PVC. This is created through the MG 9000 Manager. The remainder of (Total Partitionable Bandwidth - PVC A) can be used for partitioning guaranteed DSL on the Bandwidth Manager GUI.

Prerequisites

There are no prerequisites

Action

Starting the Bandwidth Manager

At the MG 9000 Manager

1 From the Frame View or Shelf View menu bar, select Services->Bandwidth Manager. The Bandwidth Manager View appears showing the current values for the MG 9000.

2 This procedure is complete.

The following table lists the commands, controls and tabs available from the Bandwidth Manager view.

Bandwidth Manager GUI commands, controls and GUI tabs

Command / control	Tab	Description and purpose
Managing section		
	Partition tab	For UA-IP switched lines, the Maximum Partitionable Bandwidth on the Partition tab allows the technician to view the maximum bandwidth in cells/sec. While the PVC traffic parameters are fixed, this field serves to further limit that bandwidth if the available bandwidth is needed for other services. Attempts to set values greater than the available CallP VCC bandwidth will result in the new value being rejected. Setting the value to 0 indicates that the traffic descriptor associated with the CallP VCC will be used to provide bandwidth management. That is, all available bandwidth on that VCC will be used for switched lines traffic.

Bandwidth Manager GUI commands, controls and GUI tabs

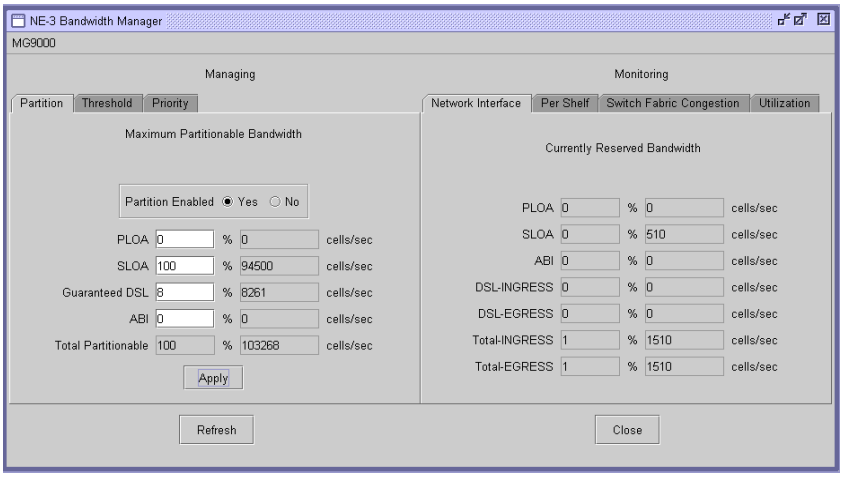
Command / control	Tab	Description and purpose
Partition Enabled option	Partition tab	The Partition Enabled option can be changed to Yes/No. This option enables or disables connections admission control (CAC) for all services except switched lines in a UA-IP solution. When the “No” radio button is selected, CAC is disabled and the UA-IP switched lines connection admission control remains active because quality of service would be severely degraded once the combined bandwidth for all UA-IP switched line calls exceed the available call processing (CallP) virtual channel connection (VCC) bandwidth. To disable partitioning, select the “No” radio button and click on the Apply button. When the “Yes” radio button is selected, all the percentage fields (PLoA, SLoA and Guaranteed DSL) except the “Total Partitionable” become editable. The values can be entered in the corresponding text fields.

Bandwidth Manager GUI commands, controls and GUI tabs

Command / control	Tab	Description and purpose
	Partition tab (contd)	For UA-IP, the SLoA partition is bandwidth limited by the CallP PVC provisioned at the LCI. The SLoA partition cannot be equal to the Total Partitionable bandwidth, it must be less than or equal to the bandwidth reserved for the CallP PVC. The SLoA partition is calculated against the CallP PVC instead of Total Partitionable bandwidth. The DSL partition can use the remainder of the Total Partitionable bandwidth displayed on the MG 9000 Manager; the bandwidth not consumed by the CallP PVC. This means the DSL partition is also bandwidth limited by the CallP PVC, not the SLoA partition configured. As mentioned earlier, partition values for PLoA and ABI do not apply to a UA-IP solution. The sum of the three partitions (DSL, ABI and PLoA) cannot be configured to be greater than (Total Partitionable Bandwidth on MG 9000 Manager - CallP PVC Bandwidth). Refer to the following example: • Call PVC = 342,600 cells/sec • OAM PVC = 5000 cells/sec • SLoA Partition: 80% ***Note:*** This allows switched lines to use 80% of the bandwidth reserved for the CallP PVC which is less than 80% of the Total Partitionable bandwidth because the bandwidth reserved for SLoA is calculated against the CallP PVC instead of the Total Partitionable bandwidth. • Guaranteed DSL: 2% ***Note:*** This is the remaining bandwidth (Total Partitionable bandwidth - CallP PVC - OAM PVC - ABI PVC.)

Bandwidth Manager GUI commands, controls and GUI tabs

Command / control	Tab	Description and purpose
	Partition tab (contd)	There can be cases where the percentage values displayed on the Bandwidth Manager GUI might be misleading for a UA-IP solution. Refer to the following figure and explanation.



In this example,

- CallP PVC = 94500
- Total Partitionable Bandwidth = 103268

This leaves only 8768 cell/seconds for the other three services.

Consider the following valid partition values entered by the user and their corresponding cell/seconds:

- PLoA Partition: 0% 0 cells/sec
- SLoA Partition: 100% 94500 cells/sec
- DSL Partition: 6% 6196 cells/sec
- ABI Partition 0% 0 cells/sec

The SLoA bandwidth is calculated against the CallP PVC instead of Total Partitionable Bandwidth. Whereas, bandwidth for DSL service is calculated with respect to the Total Partitionable Bandwidth.

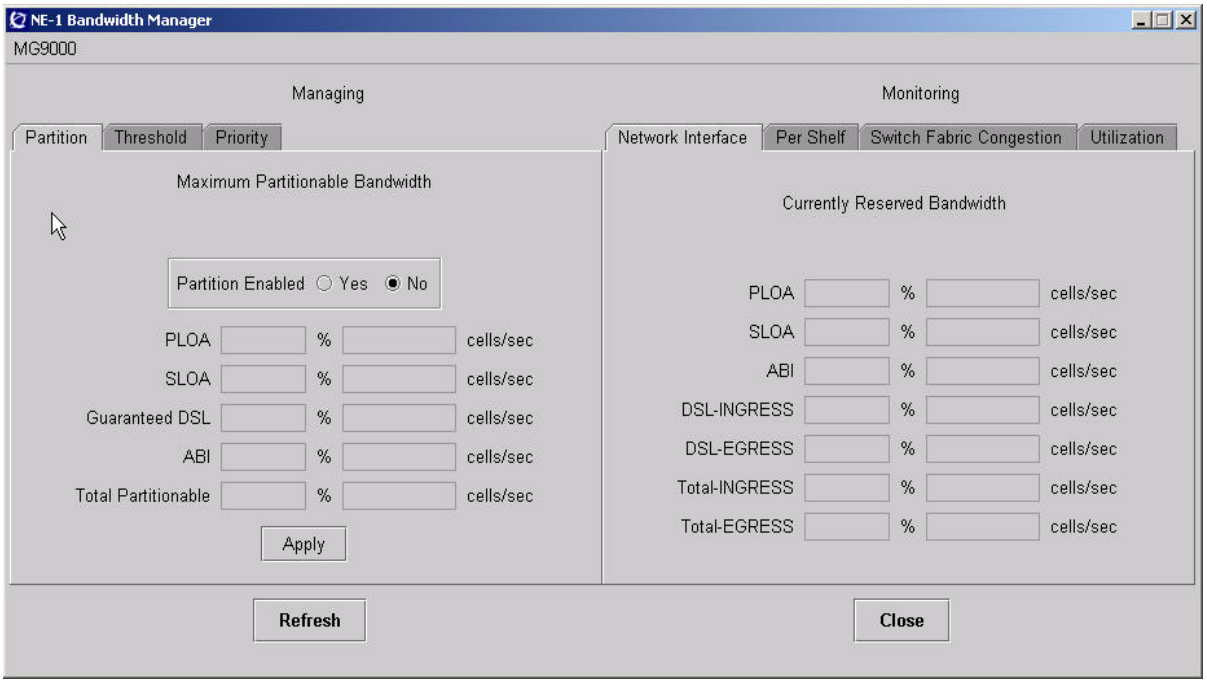
Since this is an IP system, there is no point in allocating partition for ABI or PLoA though they are enabled. The total partitioned bandwidth for all the four services will not be allowed to exceed the Total Partitionable Bandwidth. However the total percentage may appear to have crossed 100%.

Bandwidth Manager GUI commands, controls and GUI tabs

Command / control	Tab	Description and purpose
Apply	Partition tab	Click on the Apply button at any point and the values shown in the fields are validated and sent to the MG 9000.
	Threshold tab	The new Bandwidth Congestion Threshold, DSL utilized bandwidth congestion threshold, and queue congestion threshold value can be set according to the following rules: • The acceptable range is from 50 to 100 • If the user does not enter the valid value, an error message is displayed when the “Apply” button is clicked.
	Priority tab	The Priority tab allows the technician to make changes to the hold (release) priority related attributes for DS1 IMA links.
Monitoring section		
	Network Interface tab	None of the fields shown are editable. They display the current values in the MG 9000.
	Per Shelf tab	None of the fields shown are editable. They display the current values in the MG 9000.
	Switch Fabric Congestion tab	None of the fields shown are editable. They display the current values in the MG 9000.
	Utilization tab	None of the fields shown are editable. They display the current values in the MG 9000.
Close		Closes the Bandwidth Manager screen
Refresh		Retrieves all the field values and displays them on the screen.

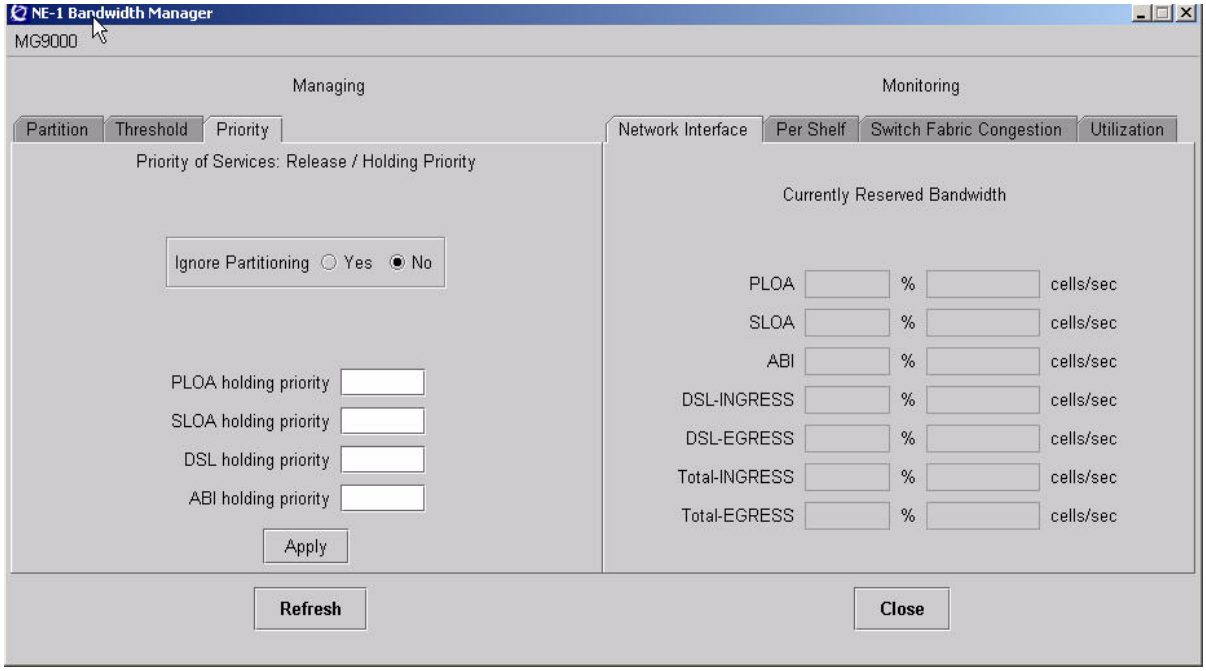
The Partition tab is shown in the following figure.

Bandwidth Manager View showing Partition panel



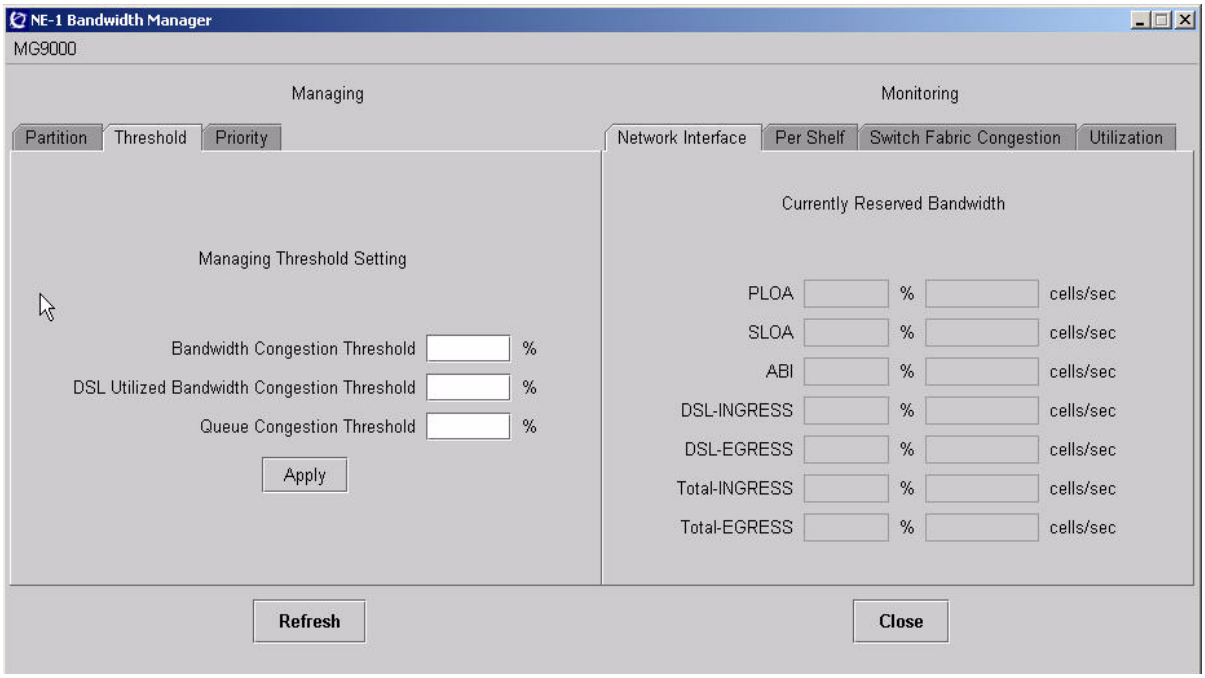
The Priority tab is shown in the following figure.

Bandwidth Manager View showing Priority panel



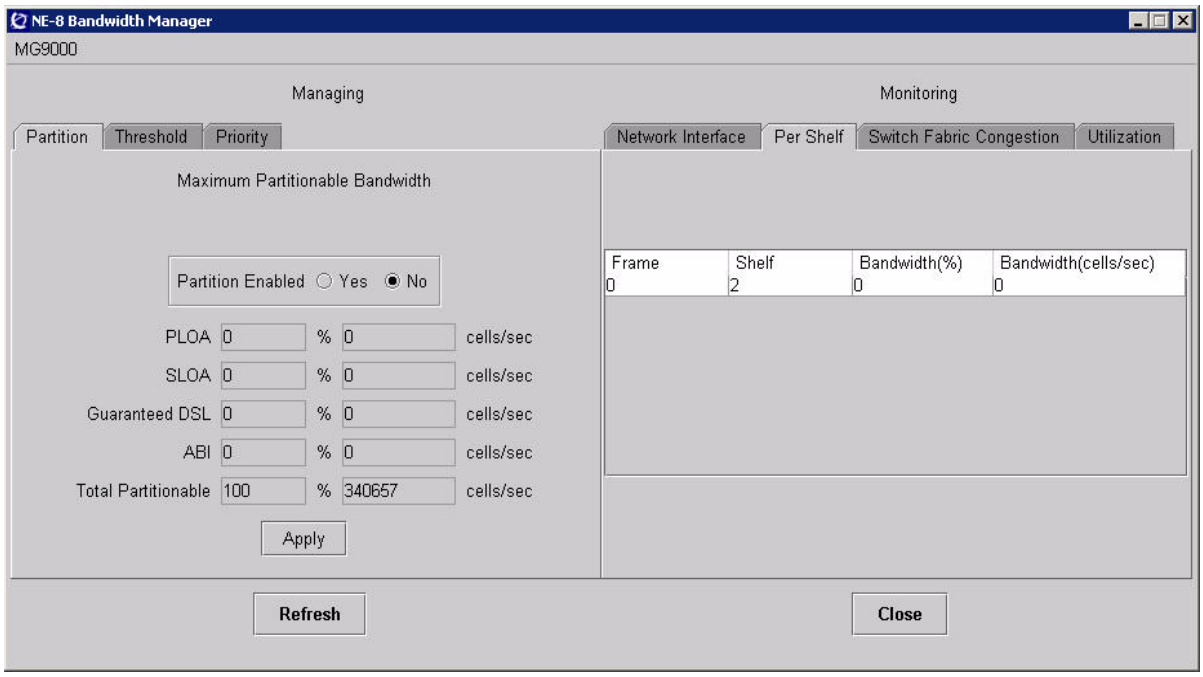
The Threshold Panel selected is shown in the following figure. The Network Interface tab on the right side of the GUI is also shown.

Bandwidth Manager View showing Threshold panel



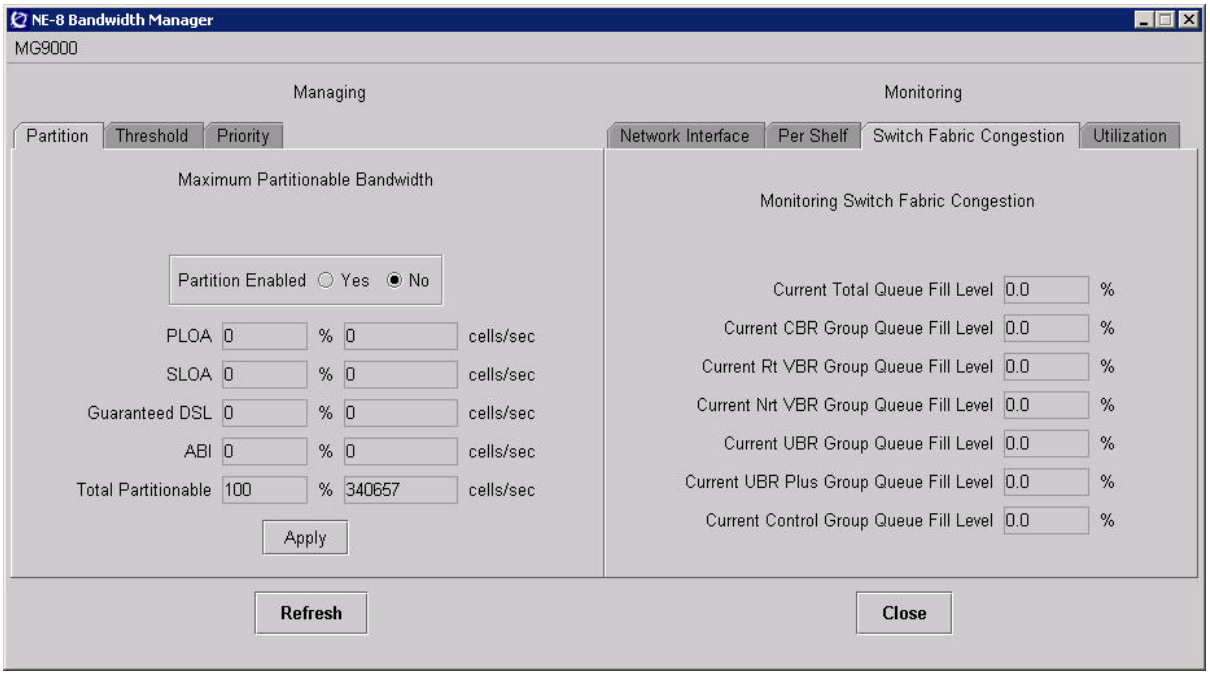
The Per Shelf Panel is shown in the following figure.

Bandwidth Manager View showing Per Shelf panel



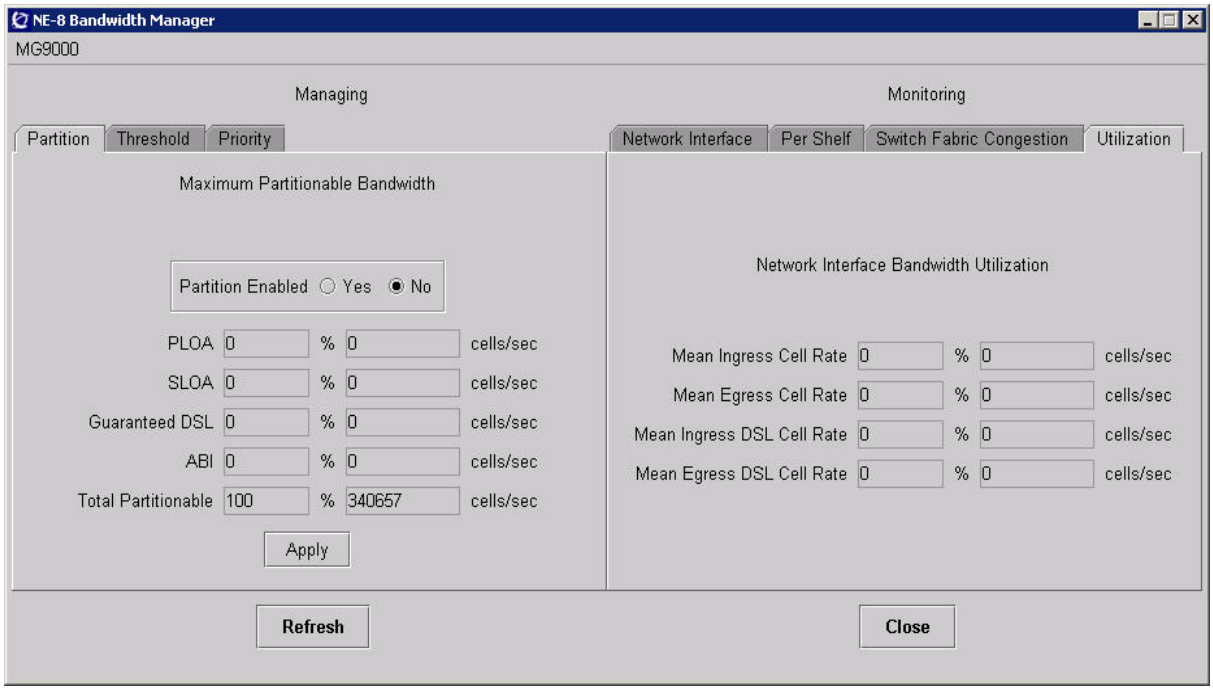
The Switch Fabric Congestion Panel is shown next.

Bandwidth Manager View showing Switch Fabric Congestion panel



The Utilization Panel is shown in the following figure.

Bandwidth Manager View showing Utilization panel



Using the Bandwidth Management Planning Tool

When to use this procedure

This procedure is used to assist in planning an MG 9000 deployment by estimating various combinations of lines (SLoA, SLoIP, PLoA, DS-512 [ABI] and DSL) given the target service levels. The Bandwidth Management Planning Tool is a stand alone JAVA application that runs on Windows or Solaris operating systems. The Solaris version is packaged with the MG 9000 Manager.

Note: More information on the Bandwidth Management Planning tool is available in the help document that accompanies the tool. Also available with the tool is an explanation of the mathematics used in the tool.

The following are the high level steps followed to obtain bandwidth calculations from the Bandwidth Management Planning Tool:

1. Site information
2. Network interface
3. Solution type
4. Operational mode
5. Switched lines
6. Private lines
7. DSL lines
8. DS-512 (ABI) channels
9. Obtain results

VCC parameters

On the Results panel, the user may generate the VCC parameters that will be used by the MG 9000 for

- Call Control Signalling - this VCC is used for Megaco ITP CallP messaging
- OAM - this VCC is used to communicate with the MG 9000 Manager and any other OAMP device
- ABI - this VCC is used to support ABI CallP

For the UA-IP solution, this information may be used as a guide to configure the MG 9000's Call Control PVC and OAM PVC.

For the UA-AAL1 solution, these VCCs are not configurable.

Toolbar and menu commands

The following commands are available from the toolbar and menu:

- New - creates a new empty MG 9000 site configuration data set
- Open - opens an MG 9000 site data file with a file type extension of .mg9k)
- Save/Save As - saves MG 9000 site data to a file with a file type extension of .mg9k
- Generate Report - generates a report reflecting all of the site data entered in the various steps and outputs the results from the Results panel. The report is a plain text temporary file that is displayed using NotePad on Windows and using VI on Solaris. The report can be printed or saved as a permanent file. To change the editor used to display the report to any plain text editor available on the system use the Options dialog box.
- Options - displays the Options dialog box. See Options for more details.
- Erlang Calculator - displays a general purpose Erlang calculator
- Help - displays the Help document. The document is normally presented in the user's default web browser on Windows. The tool attempts to present the Help document using the Netscape Navigator web browser on Solaris machines. If the Netscape web browser is not installed on a Solaris machine the user may need to bring up the Help document manually using any available html browser.
- Exit - exits the program

Options

The Options dialog box provides the following options:

- Intraswitching Percentage - specifies the default intraswitching percentage value used for new switched lines table entries
- CCS - specifies the default CCS value used for new switched lines table entries.
- Grade of Service - specifies the default grade of service (blocking probability) value used for switched lines
- Mean Rate - specifies the default mean rate value used for new DSL table entries
- Guaranteed Bandwidth - specifies whether the Guaranteed field of new DSL table entries defaults to being checked or unchecked (that is, true or false)

- Utilization Percentage - specifies the default utilization percentage value used for new DSL table entries
- Operational Mode - specifies whether the default operational mode for new sites is bandwidth mode or lines mode
- Network Interface - specifies whether the default network interface for new sites is OC3 or DS1-IMA. If the choice is DS1-IMA, the default number of DS1s in the IMA group may be specified also.
- Report Editor - specifies the text editor used to display site reports via the Generate Report action. An example for switching to the Windows WordPad editor might be the following:

  C:\Program Files\Windows NT\Accessories\WORDPAD.EXE
- Show Button Hints - specifies whether the small popup button help windows are displayed when the cursor is paused over a toolbar button
- Include Site Notes in Site Report - specifies whether the site notes from the Site Information step are included in the site report

Prerequisites

There are no prerequisites

Action

Using the Bandwidth Management Planning tool

At the MG 9000 Manager workstation or Windows-based PC

1 Enter information describing the MG 9000 site being configured

- site name - user defined name for the MG 9000
- site notes - user defined notes associated with the MG 9000 site

2 Select the network interface type (OC-3 or DS1-IMA). If DS1-IMA is chosen, select the number of DS1s that constitute the DS1-IMA group.

3 Enter the solution type, UA-AAL1 or UA-IP. If UA-IP is entered, select the desired voice codec and packetization rates.

Include the desired number of shelves for the MG 9000. This entry aids in the calculation of bandwidth requirements for signaling and OAMP.

4 Select the mode of operation from the following:

- Bandwidth - determine the amount of network interface bandwidth used for a given number of lines. Specify the

number of lines for each line type in the switched lines, private lines, and DSL lines steps. The Results step calculates the amount of bandwidth required for each defined line type as both a percentage and as units of Mbps.

- Lines - determine the number of lines that can be supported if the percent of each service type is known. Specify the percentage of available network interface bandwidth to be allocated to each defined line type in the switched lines, private lines, and DSL lines steps. The Results step calculates the number of lines that can be supported for each defined line type.

Note: While in Bandwidth mode, the column labeled "# of lines" appears in switched lines, private lines, and DSL lines tables in the corresponding steps. The column is replaced by the "Bandwidth %" column when the operational mode is changed to Lines mode.

5 Define the switched lines types to be included in the tool's calculations. The following fields appear in the switched lines table:

- included - determines whether the line type is included in the tool's calculations. A checked box indicates the line type is included in the tool's calculations. An unchecked box indicates the line type is ignored during calculations. Uncloaking a line type is easier than removing and then reading a line type when experimenting with different line configurations.
- line type - an identifying name for the line type. Choose a name such as POTS, Coin, or ISDN.
- # of lines/Bandwidth % - The definition of this field varies according to the selected operational mode as follows:
  - — # of lines - specify the number of lines to be provisioned for the line type when the operation mode is set to bandwidth
  - — Bandwidth % - specify the percentage of total available network interface bandwidth to be allocated to traffic from lines of the defined line type when the operational mode is set to lines mode
- intrasw % - specify the percentage of call traffic which is intraswitched for the defined line type

- CCS - specify the per line CCS traffic level expected for the defined line type
- Grade of service - specify the tolerable percentage of switched lines traffic that is blocked because of unavailable network interface bandwidth. The specified value applies to all line types.

The switched lines panel includes buttons for adding new line types to the table and deleting existing line types from the table. It also includes buttons for reordering the line type entries within the table.

6 Specify the number of lines, or bandwidth percentage, for DS0 and DS1 private lines. The following fields appear in the private lines table:

- Included - determines whether the line type is included in the tool's calculations. A checked box indicates the line type is included in the tool's calculations. An unchecked box indicates the line type is ignored during calculations.
- Line Type - distinguishes the DS0 and DS1 line types. The names cannot be modified.
- # of Lines/Bandwidth % - the definition of this field varies according to the selected operational mode as follows:
  - — # of Lines - specify the number of lines to be provisioned for the line type when the operational mode is set to bandwidth mode
  - — Bandwidth % - specify the percentage of total available network interface bandwidth to be allocated to traffic from lines of the defined line type when the selected operational mode is set to lines mode

Note 1: Narrow band specials should be included as DS0s for calculation purposes.

Note 2: The calculations performed for private lines do not take into account Partial Cell Fill or Robbed Bit Signaling.

7 Define the DSL line categories to be included in the tool's calculations. The defined DSL line categories appear in a table with the following fields:

- Included - determines whether the DSL category is included in the tool's calculations. A checked box indicates the DSL category is included in the tool's calculations. An unchecked box indicates the DSL category is ignored during calculations. Unchecking a DSL category is easier than

removing and then re-adding a DSL category when experimenting with different line configurations.

- Category - an identifying name for the DSL category such as, Gold, Silver, and Bronze referring to differing levels of DSL service
- # of Lines/Bandwidth % - the definition of this field varies according to the selected operational mode as follows:
  - — # of Lines: Specify the number of lines to be provisioned for the DSL category when the operational mode is set to bandwidth mode
  - — Bandwidth %: Specify the percentage of total available network interface bandwidth to be allocated to bearer traffic from lines of the defined DSL category when the selected operational mode is set to lines
- Mean Rate - the mean data rate in Mbps for lines in the DSL category
- Guaranteed - indicates whether the mean rate value is considered to be guaranteed. If the mean rate is not guaranteed subscribers may experience periods of lower data throughput when the MG 9000 is under heavy load. Such lines are referred to as best effort lines.
- Utilization % - indicates the percentage of lines that are "in use." "In use" refers to a DSL line which is actively transmitting or receiving data at a given point in time. Utilization % is always 100% for guaranteed bandwidth DSL lines. The utilization percentage can also be thought of as the reverse of the oversubscription percentage (that is, oversubscription % = 100% minus utilization %).

The DSL Lines panel includes buttons for adding new DSL categories to the table, and deleting existing DSL categories from the table. It also includes buttons for reordering the DSL type entries within the table.

8 Specify whether the MG 9000 being configured includes any subtended XPMs connected through DS-512 (ABI) links. The presence of DS-512 links affects the amount of network interface bandwidth available for bearer traffic. This is because a portion of the network interface bandwidth is reserved for XPM maintenance messaging when subtended XPMs are present. This step also allows the user to specify the number of channels

that will be used for bearer traffic for the subtended XPMs. The DS-512 channels table has the following fields:

- Included - determines whether the line type is included in the tool's calculations. A checked box indicates the line type is included in the tool's calculations. An unchecked box indicates the line type is ignored during calculations. For DS-512, if this is checked the bandwidth required for XPM maintenance messaging will be subtracted from the available network interface bandwidth.
- Line Type - an identifying name for the line type such as, ESMA
- # of Channels/Bandwidth % - the definition of this field varies according to the selected operational mode as follows:
  - # of Channels: Specify the number of channels needed for subtended XPM bearer traffic when the operational mode is set to bandwidth mode
  - Bandwidth %: Specify the percentage of total available network interface bandwidth to be allocated to traffic from lines of the defined line type when the selected operational mode is set to lines mode

The DS-512 Channels panel includes buttons for adding new line types to the table, and deleting existing line types from the table. It also includes buttons for reordering the line type entries within the table. This should be used to separate each subtended XPM into its own type.

9 Display the results of the tool's calculations as a set of bar graphs as follows:

- The first bar graph indicates the total amount of available network interface bandwidth used by the line types defined in the previous steps which are marked to be “included” in the calculations. This bar graph also includes the bandwidth required for CallP signalling and OAM. If there are no line types included, this bar graph will only include the required

bandwidth for CallP signalling and OAM. The color of this bar graph is

— green if the amount of bandwidth used by the lines does not exceed the bandwidth available on the network interface

— red if the network interface available bandwidth is exceeded and indicates by how much the available bandwidth was exceeded

- A bar graph is displayed for each line type marked as “included” in the previous steps. Each bar graph shows the percentage of available network interface bandwidth required by that line type, the amount of bandwidth in Mbps, and the number of lines that can be provisioned against that bandwidth.

Note: The tool always recalculates the results whenever the user transitions to the Results panel from any other step. This means the user can go back and change one or more steps and immediately go back to the Results panel to see the affect without going back through each step.

10 This procedure is complete.

Performing an audit of the MG 9000 provisioning data

When to use this procedure

The following procedure provides the steps to perform an audit of provisioning data of an MG 9000 using the MG 9000 Manager.

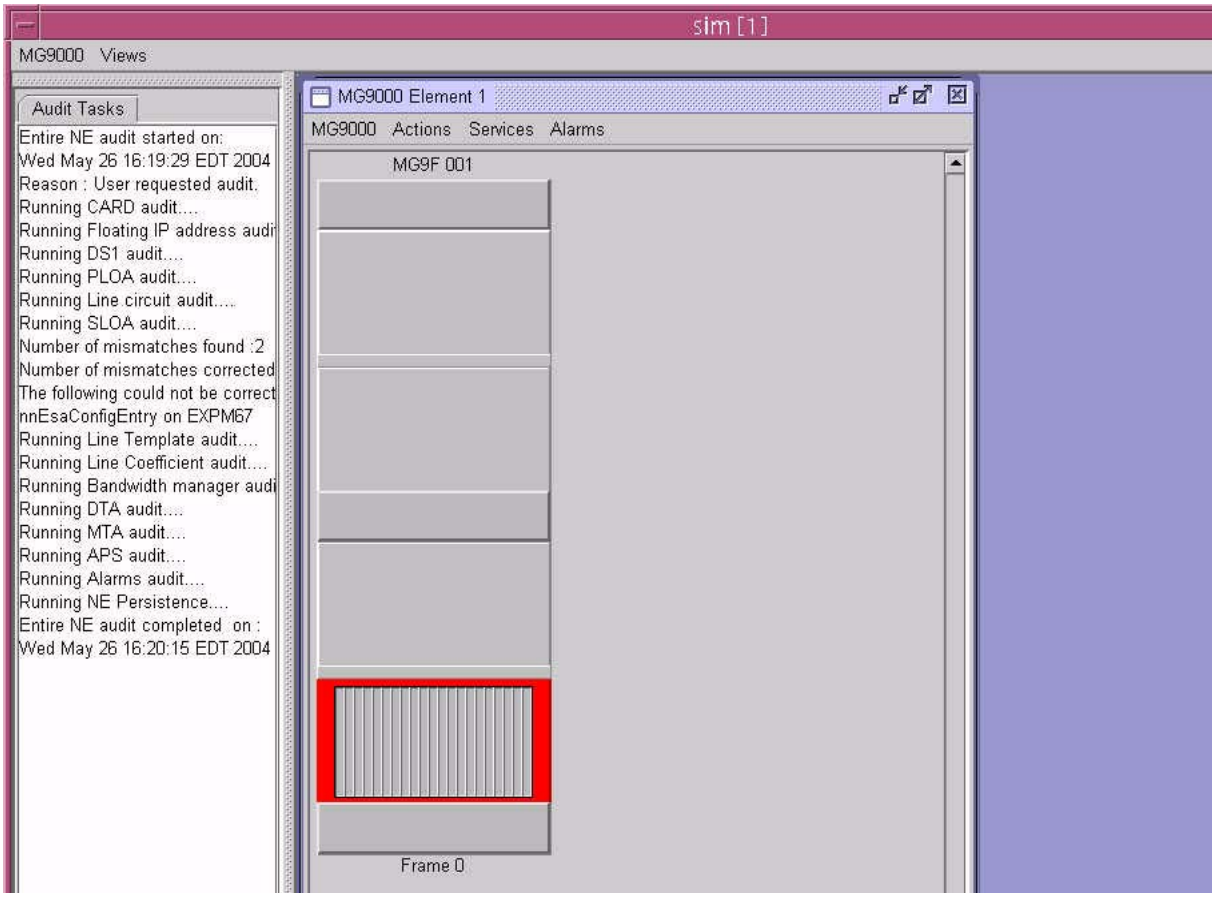
The following restrictions apply when performing audits:

- There may only be one audit per NE.
- The maximum period of an audit is 1 week. For example, a user may create an audit to run on Mondays and Wednesdays. Monthly, bi-monthly, multi-monthly, and yearly audits are not allowed.
- An audit that has been created as a result of the “Run Immediately” option, will run once only. The user must modify its properties after it is created to make it a recurring audit.
- For an MG 9000 with a large line capacity, the audit may not complete in the allowed time. The audit will start where it left off during the next window.
- Only one audit may be scheduled per day on an NE, that is, an audit cannot be scheduled to run at 6 A.M. and 6 P.M. on the same NE on the same day.
- The audit duration cannot be less than 30 minutes.

Audit progress details are visible in the Progress details window of the Audit window. In addition, progress details are also visible in the NE Discovery View, Properties View, and the NE desktop view.

The audit progress shown in the NE desktop view is meant as an audit indicator for those tasks that run in the background so the user is aware that an audit is currently in progress for the NE. The text in the audit area is only persistent during the lifetime of the audit, meaning if the client is closed and re-opened after the audit is complete, nothing will appear in the Audit task tab of the NE desktop view. The following figure shows the NE desktop view with the Audit task tab.

NE desktop view showing Audit Tasks tab



Prerequisites

There are no prerequisites.

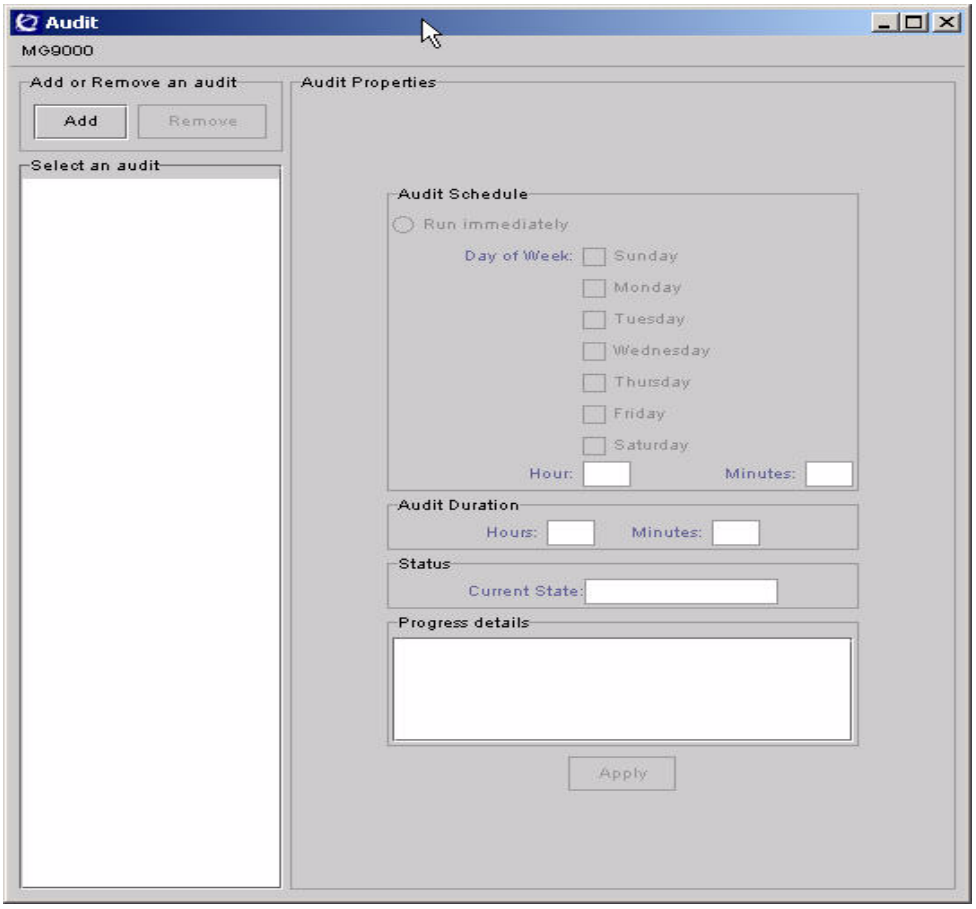
Action

Auditing MG 9000 provisioning data

At the MG 9000 Manager

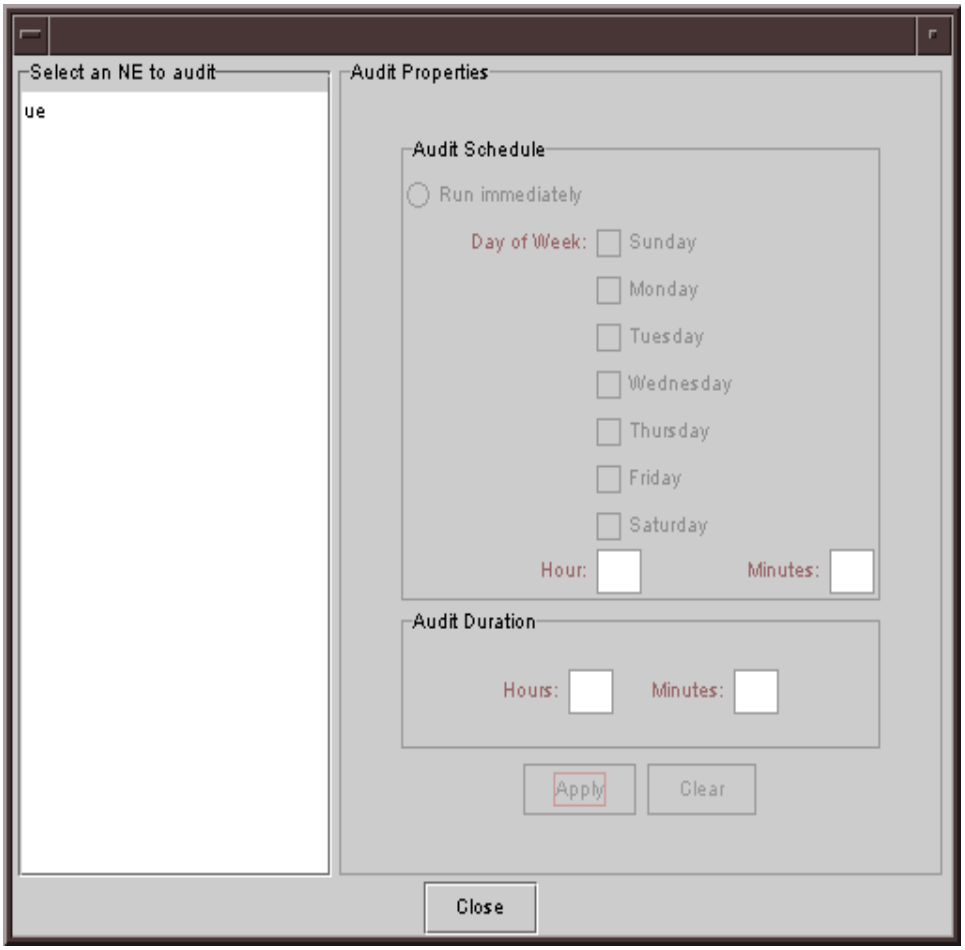
1 At the Subnet View from the Configuration menu, select Audit NE. The Audit window appears.

Audit window



2 Click the Add button from the Audit window. The Audit Creation window appears.

Audit Creation window



3 Select the network element (NE) on which to run the audit.

4 Determine if the audit is to run immediately or is to be a recurring audit.

If selecting Run immediately, the audit will run to completion and stop.

If a recurring audit is selected, select at least one day of the week and use the information in the following table to schedule a recurring audit.

Field	Description
Day of Week	The days of the week on which the audit should run.
Hour/Minutes	The hour of the day on which the audit is to run. The audit scheduling subsystem assumes the MG 9000 Manager client and server machines are in the same time zone. Unexpected time shifts occur when the two machines are not in the same time zone. The following describes this behavior: • If the client is behind the server in time, the audit will run later than the time chosen in the GUI. For example, if the server is at EST and the client is at PST (-3 hours), an audit scheduled to run at 15:00 hrs will be run at 18:00 hrs on the server. • If the client is ahead of the server in time, the audit will run earlier than the time chosen in the GUI. For example, if the server is at PST and the client is at EST (+3 hours), an audit scheduled to run at 15:00 hrs will be run at 12:00 hrs on the server.
Audit Duration	The maximum duration allowed for the selected audit. An audit duration must be greater than 30 minutes.
Audit State	The current state of the audit (Running, Stopped).

5 Click Apply to create the audit.

6 The progress of the audit will be displayed in the Progress Details window of the Audit window.

7 This procedure is complete.

Removing an audit

At the MG 9000 Manager

1 At the Subnet View from the Configuration menu, select Audit NE. The Audit window appears.

2 Select an existing audit from Audit window.

3 Click the Remove button. The audit should disappear from the existing audit list.

4 This procedure is complete.

Modifying or Viewing an Audit's properties

At the MG 9000 Manager

1 At the Subnet View from the Configuration menu, select Audit NE. The Audit window appears.

2 Select an existing audit from Audit window. The panel to the right of the existing audit list should become enabled. It will show the audit's properties.

Note: If the audit was designated to Run Immediately all of the scheduling information (such as, day of week, hour of day) will be blank.

3 Modify the scheduling information.

4 Click Apply to recommit the information.

5 This procedure is complete.

Managing performance thresholds

When to use this procedure

Growth of supported services and increased channel concentration on the MG 9000 requires additional system stability protection in the event of call processing overload. The MG 9000 supports performance thresholds that are used to raise and clear alarms. Use this procedure when it is necessary to provision performance thresholds after initial MG 9000 commissioning is complete for the following cards

- DCC (OC3 or DS1-IMA card)
- DS1
- ABI (DS-512)
- ITP
- ITX

Note 1: It is recommended that the factory configured default threshold settings be used.

Note 2: The values provisioned in the Performance Threshold tab impact when performance alarms are raised and cleared. These alarms appear at the Alarm Browser and are noted by OVLD800 to OVLD807 logs being output.

The performance threshold values are changed by accessing Actions->Manage Thresholds from any one of previously listed cards' the Card View menu bar.

Prerequisites

The user must have at least emsmtc permissions to make provisioned changes in the Thresholds View. Read only (emsro) and Services Provisioning (emssprov) users can access the view, but cannot make changes.

Action

Provisioning performance thresholds

At the MG 9000 Manager

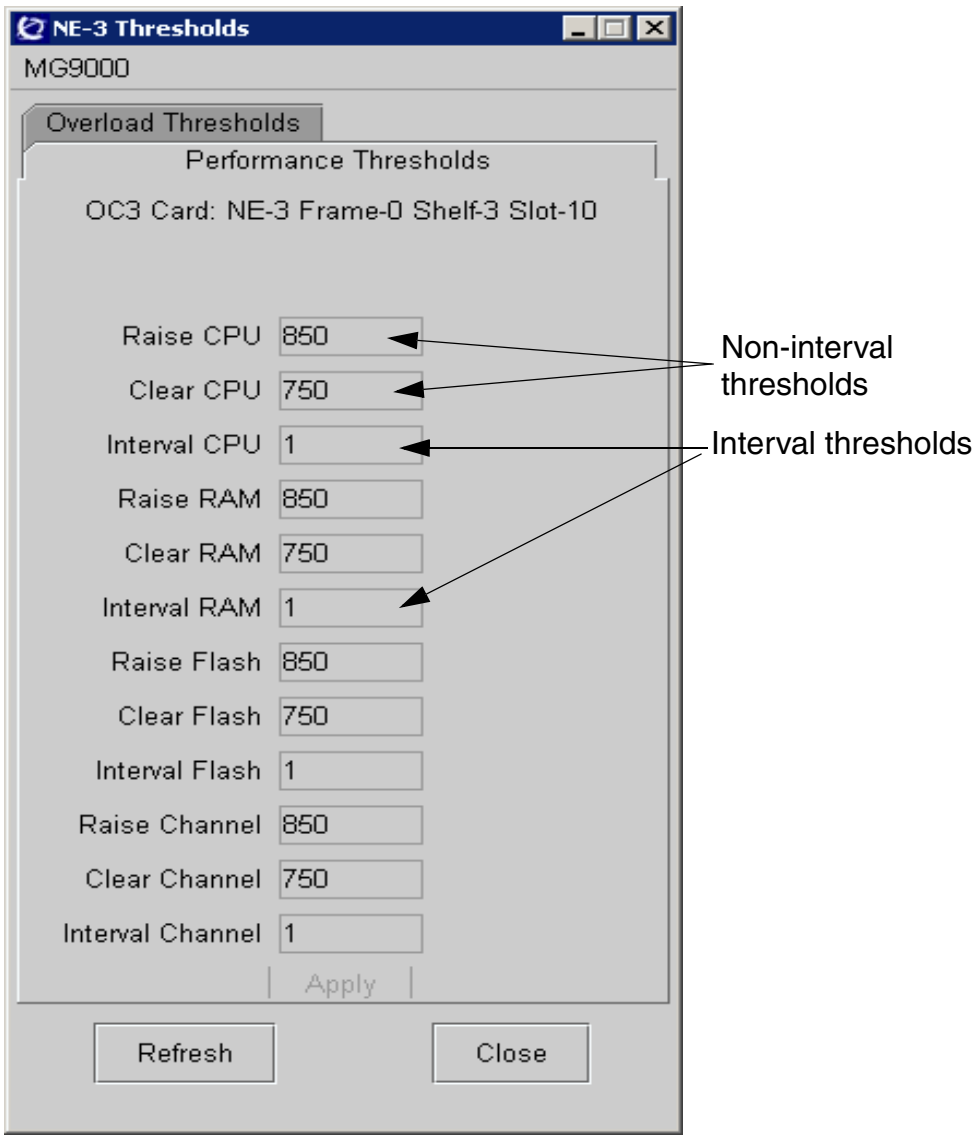
1 From the Subnet View, double click on the network element icon for which performance thresholds are to be provisioned. The Frame View appears.

2 From the Frame View double click on the target shelf. The Shelf View appears.

3 From the Shelf View, double click on the card for which performance thresholds are to be provisioned. The Card View appears.

4 From the menu bar, select Actions->Manage Thresholds. The Thresholds View appears. Click on the Performance Thresholds tab. The following figure shows the Threshold View with the Performance Thresholds tab for a DCC card. On DS1 ABI, ITP, and ITX cards, the Threshold View displays only performance thresholds, since overload thresholds are not applicable.

Threshold View with Performance Thresholds tab selected



5 Make any changes to the threshold values based on technical input from Nortel. The options are to raise, clear or interval for each threshold. The following criteria apply to the selections:

- raise/clear values have a range of integer values from 0 - 10000
- interval values have a range of integer values from 1-60

Note: Moving the cursor over the specific field displays the valid input ranges.

Click on Apply to submit the values. Select the OK button when the warning message appears.

6 This procedure is complete.

Managing overload thresholds

When to use this procedure

Growth of supported services and increased channel concentration on the MG 9000 requires additional system stability protection in the event of call processing overload. The MG 9000 supports overload thresholds that are used to raise and clear alarms. Use this procedure when it is necessary to provision overload thresholds after initial MG 9000 commissioning is complete. The overload thresholds are provisioned for the DCC cards (OC3 or DS1-IMA cards).

Note 1: It is recommended that the factory configured default threshold settings be used. These settings have a direct impact on call processing and any changes should be made only after contacting Nortel Networks for support.

Note 2: When overload thresholds are crossed, overload faults are raised at the MG 9000 Alarm Browser and in log files and are denoted by OVLD800 to OVLD804. OMs associated with these MG 9000 Overload controls are collected and displayed in the MG 9000 Manager Performance Browser. Refer to *MG 9000 Performance Management*, NN10140-711

The threshold values are changed by accessing Actions->Manage Thresholds from OC-3 or DS1-IMA Card View menu bar.

Prerequisites

The user must have at least emsmtc permissions to make provisioning changes in the Thresholds View. Read only (emsro) and services provisioning (emssprov) users can still access the view but cannot make changes.

Action

Managing overload thresholds

At the MG 9000 Manager

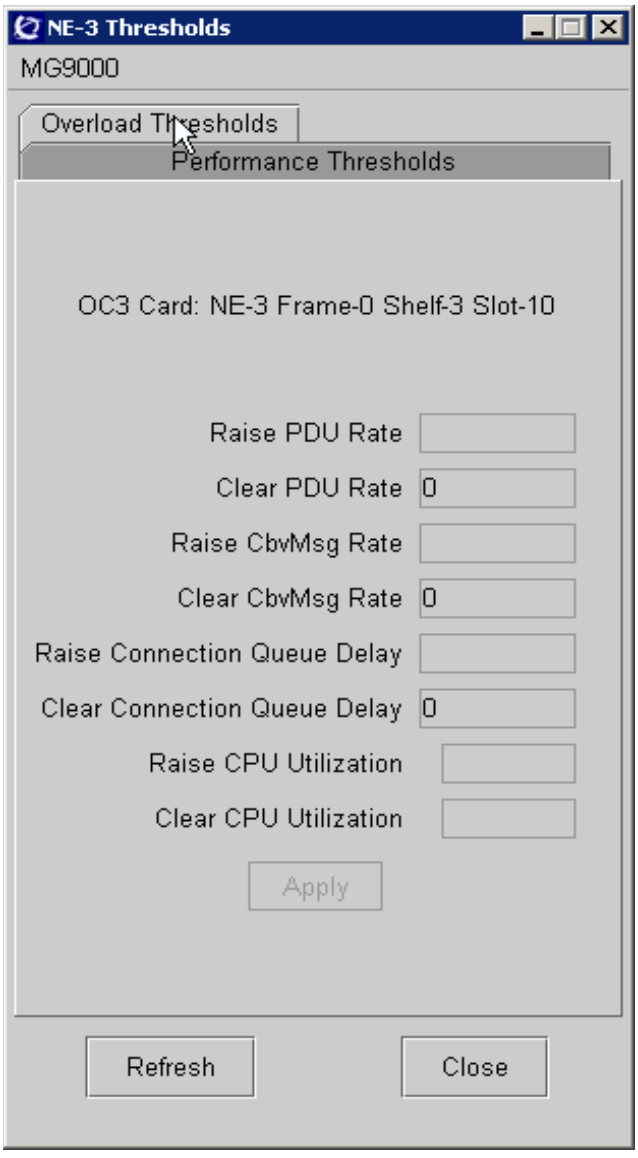
1 From the Subnet View, double click on the network element icon for which overload thresholds are to be provisioned. The Frame View appears.

2 From the Frame View double click on the target shelf. The Shelf View appears.

3 From the Shelf View, double click on the OC-3/DS1-IMA DCC card for which overload thresholds are to be provisioned. The OC-3/DS1-IMA Card View appears.

4 From the menu bar, select Actions->Manage Thresholds. The Thresholds View appears. Click on the Overload Thresholds tab. The following figure shows the Threshold View with the Overload Thresholds tab.

Threshold View with Overload Thresholds tab selected



5 Make any changes to the threshold values based on technical input from Nortel. The options are to Raise and Clear each threshold. The following criteria apply to the selections:

- Raise PDU Rate, Raise CbvMsg Rate, and Raise Connection Queue Delay have an integer value range of 1 to 2147483647.
- Raise CPU Utilization has an integer value range of 1 to 10000.
- Clear PDU Rate and Clear CbvMsg Rate have an integer value range of 0 to 2147483647, which is at least 30 % less than the raise value.
- Clear Connection Queue Delay has an integer value range of 0 to 2147483647, which is at least 1000 % less than the raise value.
- Clear CPU Utilization has an integer value range of 1 to 10000, which is at least 30 % less than the raise value.

Note: Moving the cursor over the specific field displays the valid input ranges.

Click on Apply to submit the values.

6 This procedure is complete.

Changing MG 9000 Manager ESA data download properties

When to use this procedure

The following procedures provides the steps to support ESA data download from the Core to the MG 9000 Manager and how to change the MG 9000 Manager ESA data download properties.

Core configuration

The ESA data file will be downloaded from the Core using Secure Shell FTP (SSH FTP). Therefore it is important to ensure that enough TCP connections are configured in the Core for the SSH FTP Server sessions.

The maximum number of FTP session is controlled by the CM tuple in Table IPHOST in the CM. The CM tuple is usually the first tuple in the table. The tuple contains the following fields:

- NODENAME: Node name = CM
- CMINDEX: Index = 0
- TCPCONN: The total number of TCP connections allowed. This number must be greater than or equal to (FTPCLCON + FTPSVCON) x 2

  where

  — FTPCLCON is the maximum number of FTP client sessions allowed. SFT is not impacted by this value

  — FTPSVCON is the maximum number of FTP server sessions allowed. Secure file transfer (SFT) shares this resource with other CM FTP users.

Care must be taken when determining the value of FTPSVCON. Other telnet applications may have been configured and the value of FTPSVCON should be incremented taking this into account.

If FTPSVCON is incremented, ensure that TCPCONN is large enough to support the total of FTPCLCON and FTPSVCON. Each FTP session will consume 2 TCP connections. This will be enforced by the IPHOST table control.

Prerequisites

Ensure the CS 2000 Core Manager has the latest fileset as part of the CS2E07 CS 2000 Core Manager load, for the package SDM_BASE.fts for the File Transfer Service application. The minimum load is CS2E0007 6.1 19.78.0.0.

The following configuration activities must have occurred in the CS2000 Core to support ESA data download to the MG 9000 Manager. Procedures for configuring the CS2000 to support ESA data download are contained in *CS2000 Configuration Management*, NN10105-511, NN10188-511, NN10201-511, or NN10193-511.

- table LGRPINV must have tuples with GRPTYPE of S provisioned for MG 9000 VMGs
- table ESAPXLA updated to include special dialing codes for ESA
- table OFCENG, office parameter ESA_GWDATA_DEVICE must specify the device on the core where the ESA data is generated

Action

Set up Secure Shell (SSH) authentication for the MG 9000 Manager to have the required access to the CS 2000 Core Manager for downloading the ESA data.

Setting up the SSH authentication

At the CS 2000 Management Tools Manager

1 Configure the SDM IP and SDM User for this system by performing the following steps:

a Log into the MG 9000 Manager server as root.

b Execute the following command:

```
$cli
```

c Select Configuration, then select OAMP Application Configuration.

d Select Configure SDM IP Address and User.

e Set the SDM IP to the correct IP address of the SDM.

f Set the SDM user name to be “esauser”

g Follow any on-screen instructions that are given.

2 For the user, mgems on the MG 9000 Manager server, generate the SSH key pair needed for data transmission between the MG 9000 Manager and the SDM by performing the following steps:

a With superuser access, the mgems user generates the SSH key by typing:

```
#su - mgems
$ssh-keygen -t rsa
```

b Accept the default location and enter an empty passphrase which creates the following key file:

```
/export/home/mgems/.ssh/id_rsa.pub
```

3 The key information contained in the file /export/home/mgems/.ssh/id_rsa.pub must be placed in the following file on the CS 2000 Core Manager: /home/esauser/.ssh/authorized_keys2 by performing the following steps:

a Secure copy the id_rsa.pub file to the CS 2000 Core Manager by typing

Note: The following command must be entered on one line exactly as shown.

```
$scp /export/home/mgems/.ssh/id_rsa.pub
root@$SDM_IP:/home/esauser/tempkey
```

The system responds with

```
Are you sure you want to continue connecting
(yes/no)?
```

b Type Yes to continue.

c Enter the password of the root SDM user.

d Secure append the public key to the authorized keys list on the SDM by typing

Note: The following command must be entered on one line exactly as shown.

```
$ssh root@$SDM_IP 'cat /home/esauser/tempkey
>> /home/esauser/.ssh/authorized_keys2'
```

e Enter the password of the root SDM user when prompted for it.

4 This procedure is complete.

Changing ESA download properties

ESA properties must be set up correctly to download the right ESA data file from the Core at the right time. The XA-Core data collection is generated automatically on a daily basis on the time specified by ESA_GWDATAUPD_HOUR parameter in table OFCENG. The default value of this parameter is 6:00 AM. This data is saved in file ESA_SYSTEM _SD$XML on a device specified by Table OFCENG tuple ESA_GWDATA_DEVICE.

The default time when data is downloaded to the MG 9000 Manager is 6:00 AM. Nortel recommends that the default download time be changed immediately to some time after 6:00 AM, such as 6:30 or 7:00 AM.

Note 1: The download of the ESA data to the MG 9000 Manager must be synchronized to ensure all the required service order changes are captured. Using the default download time of 6:00 AM, changes will not be downloaded to the MG 9000 Manager or the MG 9000 for 24 hours after the changes are made in the Core.

Note 2: Ensure that the time the ESA data download occurs is not scheduled at the same time as the nightly audit, if a nightly audit is scheduled.

The following are the three data download properties that must be configured and their default values:

- the time that will be used for data downloads - ESA.DataDownloadTime = 6:30 AM
- the name of the device on the Core where the ESA data file will be stored - ESA.DataDeviceName = /SFDEV
- the name of the ESA data file - ESA.DataFileName = ESA_SYSTEM_SD$XML ESA.DataFileNameUnix = ESA_SYSTEM_SD.XML

Note: The ESA.DataFileNameUnix property is not editable. This is dynamically derived from the ESA.DataFileName property by the MG 9000 Manager software. The ESA.DataFileName on the Core must adhere to the following naming conventions:

- There can only be one $ sign in the name separating the ‘name’ part from the ‘extension’ part. Refer to the default value for an example.
- No spaces are allowed in the file name.

Use the following procedure only if it is necessary to change the default values of the ESA properties.

Changing ESA download properties

At the MG 9000 Manager server

1 Telnet into the MG 9000 Manager server.

2 To change directory, type

```
# cd /opt/nortel/mg9ksrv_07/bin
```

3 To configure the server type

```
# ./mg9kserver config
```

The system responds

```
Main Configuration Menu
1) Change Distribution Policy
2) Change CS2M IP Address
3) Change Oracle IP Address
4) Change Debug Level for logs
5) Change Persistence settings
6) Change ESA data download settings
7) Change Imaging Server settings
8) Display current settings
9) Exit from Main Menu
Please make a selection =>
```

4 Select 6.

The system responds:

```
ESA Configuration Menu
1) Change ESA data download time
2) Change ESA data device name
3) Change ESA data file name
4) Exit to Main Menu
Please make a selection =>
```

Note: Changes may take up to 60 seconds to take effect.

5 Select 1 to change the download time.

The system responds:

```
Please enter the new ESA data nightly download
time ?
Default: [6:00 AM] =>
```

Note: The time must be entered in AM/PM format as shown.

An example input:

`6:30 PM`

The system responds:

```
ESA Configuration Menu
1) Change ESA data download time
2) Change ESA data device name
3) Change ESA data file name
4) Exit to Main Menu
Please make a selection =>
```

6 Select 2 to change the device name.

Note: The ESA data device must be a valid Core device such as SFDEV or a disk volume.

The system responds:

```
Please enter the new ESA data device name on the
core ?
Default: [/SFDEV] =>
```

An example input:

`/F02IMAGE`

Note: When choosing the default or disk volume, the forward slash (/) is required.

The system responds:

```
ESA Configuration Menu
1) Change ESA data download time
2) Change ESA data device name
3) Change ESA data file name
4) Exit to Main Menu
Please make a selection =>
```

7 Select 3 to change the ESA data file name.

Note: The Core file name is hard coded as ESA_SYSTEM_SD$XML.

The system responds:

```
Please enter the new ESA data file name on the
core ?
Default: [ESA_SYSTEM_SD$XML] =>
```

An example input:

ESADATA$XML

The system responds:

```
Name of the ESA data file on the EM: ESADATA.XML

 ESA Configuration Menu
1) Change ESA data download time
2) Change ESA data device name
3) Change ESA data file name
4) Exit to Main Menu
Please make a selection =>
```

8 Select 4 to exit.

4

Note: Once completed, the new ESA data download properties will become effective on the future downloading of the ESA data.

9 This procedure is complete.

MG 9000 local craft interface

This section describes the local craft interface (LCI) which is used to install and commission the Succession Media Gateway (MG 9000). Installation and commissioning activities are typically handled by Nortel or by operating company personnel using special documentation purchased from Nortel.

The LCI provides emergency MG 9000 management through a standard Web browser environment available on a personal computer (PC). The network server uses Hypertext Transfer Protocol (HTTP) to send Hypertext Markup Language (HTML) to the browser. This form of network management allows a PC-based browser to display statistics and control and configure a network device. The LCI runs off the Data Communications Controller (DCC) card on the MG 9000.

> ***Note:*** The LCI is to be used only in emergency instances when the MG 9000 Manager is not available. Daily operation, administration, and maintenance of the MG 9000 is performed from the MG 9000 Manager.

Refer to the following MG 9000 documents for information on operation, configuration, and maintenance of the MG 9000 and the MG 9000 Manager:

- *MG 9000 Fault Management,* NN10074-911
- *Upgrading the MG 9000*, NN10048-461
- *MG 9000 Configuration Management,* NN10096-511
- *MG 9000 Performance Management*, NN10140-711
- *MG 9000 Security and Administration*, NN10162-611
- *MG 9000 Basics*, NN10011-111

This chapter includes information on the following topics:

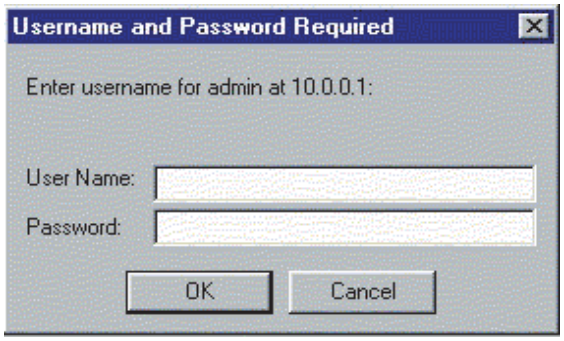
LCI access

The LCI communicates to the MG 9000 shelf through an Ethernet port on the faceplate of the DCC card. A windows PC equipped with a Ethernet Network Interface Card (NIC) and Netscape Communicator Browser software Version 7.0 and up or Internet Explorer 5.5 and up is required. Versions of Netscape Communicator between 4.7 and 7.0 are not supported. An RJ-45 cross-over cable is required to connect the NIC on the PC to the RJ-45 port on the faceplate of the NTNY45AA/BA DCC card. A local PC is connected to the port and Netscape browser software is used to provide a GUI for performing basic functions on the cards equipped in the MG 9000 shelf and configuring the connections to the network and CS 2000. Use the DCC IP address to locate the LCI through the browser. HTTPS access is required.

Note: The LCI runs a heartbeat audit every 10 seconds. If no communication is received or is delayed for 30 seconds, the LCI is taken down. When the LCI is operating over a network, congestion may contribute to this delay. If the LCI connection is taken down, it must be restarted.

Set up the PC and connect to the LCI using the “LCI setup and access” procedure in *MG 9000 Security and Administration*, NN10162-611. After the connection and setup procedures are complete, login using the correct username and password. The following figure shows the security screen requesting a user name and password.

LCI security access



A successful login produces a screen display listing the LCI browser configuration requirements.

LCI browser configuration

MG 9000 Local Craft Interface

Configuration Requirements: *NN=Netscape Navigator, IE=Internet Explorer*	
1. [Netscape] Edit-->Preferences-->Appearance-->Fonts [Explorer] Tools-->Internet Options-->General-->Fonts	• Fonts for Encoding/Fonts for:Western (NN4.7 &NN7.0) • Variable Font =Times New Roman,Size =10 (NN4.7),Proportional:Serif,Size=12,Serif:Times New Roman,Sans-serif:Arial (NN7.0) • Fixed Font/Monospace =Courier New,Size =10 (NN4.7 &NN7.0) • Select:use my default fonts,overriding document-specified fonts (NN4.7) • Uncheck:Allow documents to use other fonts (NN7.0) • Language Script:Latin Based,Web page font:Times New Roman,Plain text font:Courier New (IE5.5)
2. [Netscape] Edit-->Preferences-->Advanced [Explorer] Tools-->Internet Options-->Advanced	• Select:Automatically load images (NN4.7) • Select:Enable Java (NN4.7 &NN7.0) • Select:Enable JavaScript (NN4.7) • Select:Enable style sheets/XSLT (NN4.7 &NN7.0) • Select:Restore Defaults (IE5.5)
3. [Netscape] Edit-->Preferences-->Advanced-->Cache [Explorer] Tools-->Internet Options-->General-->Temporary Internet Files-->Settings	• Memory Cache =0 (NN4.7 &NN7.0) • Disk Cache =0 (NN4.7 &NN7.0),Amount of disk space to use :Set to minimum value (IE5.5) • Select:Document in cache is compared to document on network:Every time (NN4.7 &NN7.0) • Check for newer versions of stored pages :Every visit to the page (IE5.5)
4. General	• If any toolbars are installed (like google toolbar,yahoo toolbar,etc.),ensure that the pop-up blocker is disabled on all of them

Click image below when complete:

Configure the browser according to the setting described in Table . When the settings are completed, mouse click on the Nortel Networks logo to connect to the LCI interface.

LCI Browser Configuration

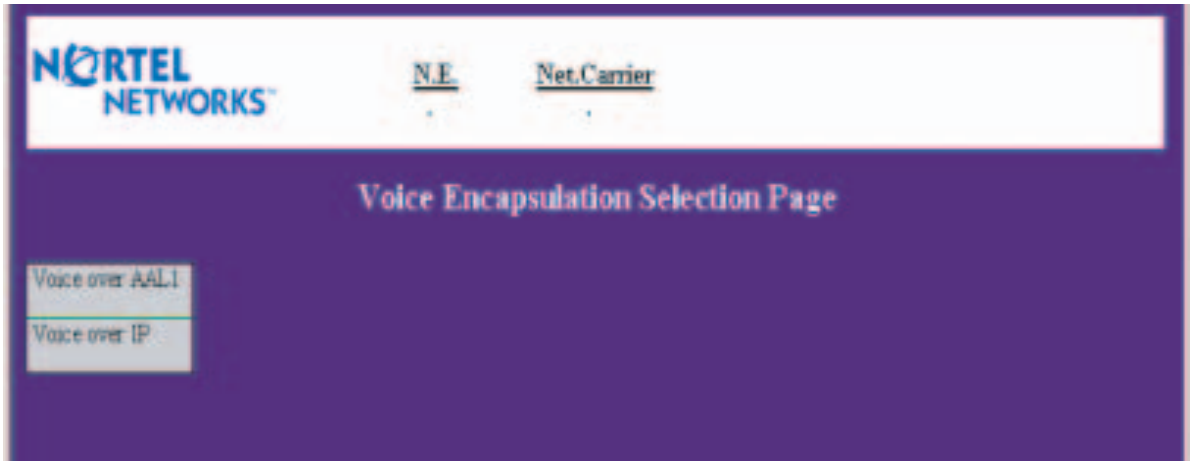
Menu path	Setting
[Netscape] Edit-->Preferences--> Appearance-->Fonts [Explorer] Tools-->Internet Options-->General-->Fonts	• Fonts for Encoding/Fonts for: Western (NN4.7 & NN7.0) • Variable Font =Times New Roman, Size = 10 (NN4.7), Proportional: Serif, Size = 12, Serif: Times New Roman, Sans-serif: Arial (NN7.0) • Fixed Font/Monospace = Courier New, Size = 10 (NN4.7 & NN7.0) • Select: use my default fonts, overriding document-specified fonts (NN4.7) • Uncheck: Allow documents to use other fonts: (NN7.0) • Language Script: Latin Based, Web page font: Times New Roman, Plain text font: Courier New (IE5.5)
[Netscape] Edit-->Preferences--> Advanced [Explorer] Tools-->Internet Options-->Advanced	• Select: Automatically load images (NN4.7) • Select: Enable Java (NN4.7 & NN7.0) • Select: Enable JavaScript (NN4.7) • Select: Enable style sheets/SXLT (NN4.7 & NN7.0) • Select: Restore Defaults (IE5.5)
[Netscape] Edit-->Preferences--> Advanced-->Cache [Explorer] Tools-->Internet Options-->General-->Temporary Internet Files-->Settings	• Memory Cache = 0 (NN4.7 & NN7.0) • Disk Cache = 0 (NN4.7 & NN7.0), Amount of disk space to use: Set to minimum value (IE5.5) • Select: Document in cache is compared to document on network: Every time (NN4.7 & NN7.0) • Check for newer versions of stored pages: Every visit to the page (IE5.5)
General	If any toolbars are installed (such as, Google toolbar or Yahoo toolbar), ensure the pop-up blocker is disabled on all of them.

Note: Only one user login access is permitted on the LCI. If LCI access is networked, only one user may be logged in on an LCI port on a control shelf at any time.

If a pop-up window appears stating 'You must use the Active DCC', then the DCC card you have plugged into is not the active unit. The active unit will have the steady green light on the faceplate. Change the connection to the active DCC Card.

If the method over which the MG 9000 is providing voice services has not been selected, the Voice Encapsulation Selection Page appears as shown in the following figure. Choose from Voice over AAL1 (ATM) or Voice over IP (IP).

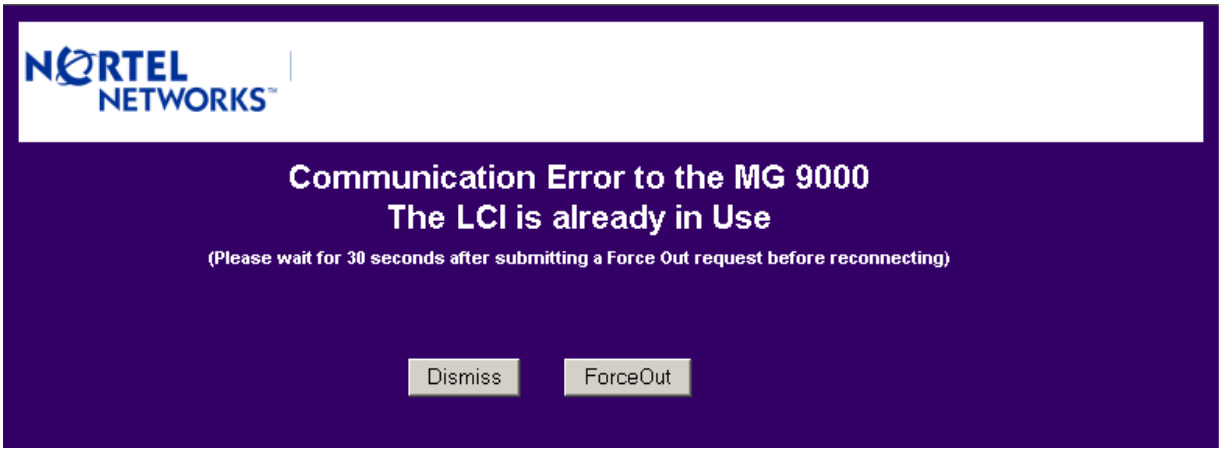
Voice Encapsulation Selection Page



After the method is selected, a Network Element view appears which indicates the method of encapsulation chosen, which is described next.

When a user attempts to connect to the LCI, after entering the user name and password, the system performs an in-use check. The system responds with the following message

LCI in-use check message



If a user is already connected to the LCI, and another user tries to connect to the same system, the LCI gives the second user an option to force out the first user. The following force-out message is received.

LCI in use message

When a user logs out of the LCI, wait 30 seconds before attempting to login again. This delay is used to cleanup data from the previous session and ensure a successful login. If another user tries to connect during this period, the LCI will behave the same as if a user is already connected by providing the LCI in use message seen in the previous figure.

When an intelligent card (DS1, ABI, DCC, ITP, or ITX) is restarted, a message appears in a pop-up window indicating the status of the restart and reporting the frame, shelf, and slot numbers.

When the connection between the MG 9000 and the MG 9000 Manager is not up, messages reporting the status of the connection to the user are visible at the LCI. If the system reports the same condition repeatedly, one message window will be repeatedly refreshed until the condition changes.

LCI network element screen

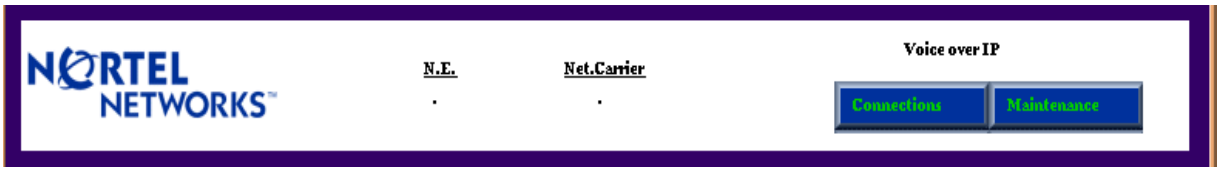
The initial LCI screen presents a network element (NE) view of the MG 9000. The NE view provides the following functions:

- access to the Connections menu
- access to the Maintenance menu
- MG 9000 alarm status

The following figure shows an example of the network element screen.

LCI network element screen - ATM

LCI network element screen - IP



The Connections menu is accessed by clicking on the Connections button in the banner and provides access to information necessary to add a newly configured MG 9000 network. Some common Connections menu tasks include the following actions:

- setting up connection to ATM network
- setting up call control connection
- setting up the OAMP connection between the MG 9000 and the MG 9000 Manager
- setting up ABI connection

The Maintenance menu is accessed by clicking on the Maintenance button in the banner and provides the ability to manage individual MG 9000 frames and shelves down to the card level. Some common Maintenance menu tasks include the following actions:

- perform a return to service (RTS)
- view the carriers
- reload system cards

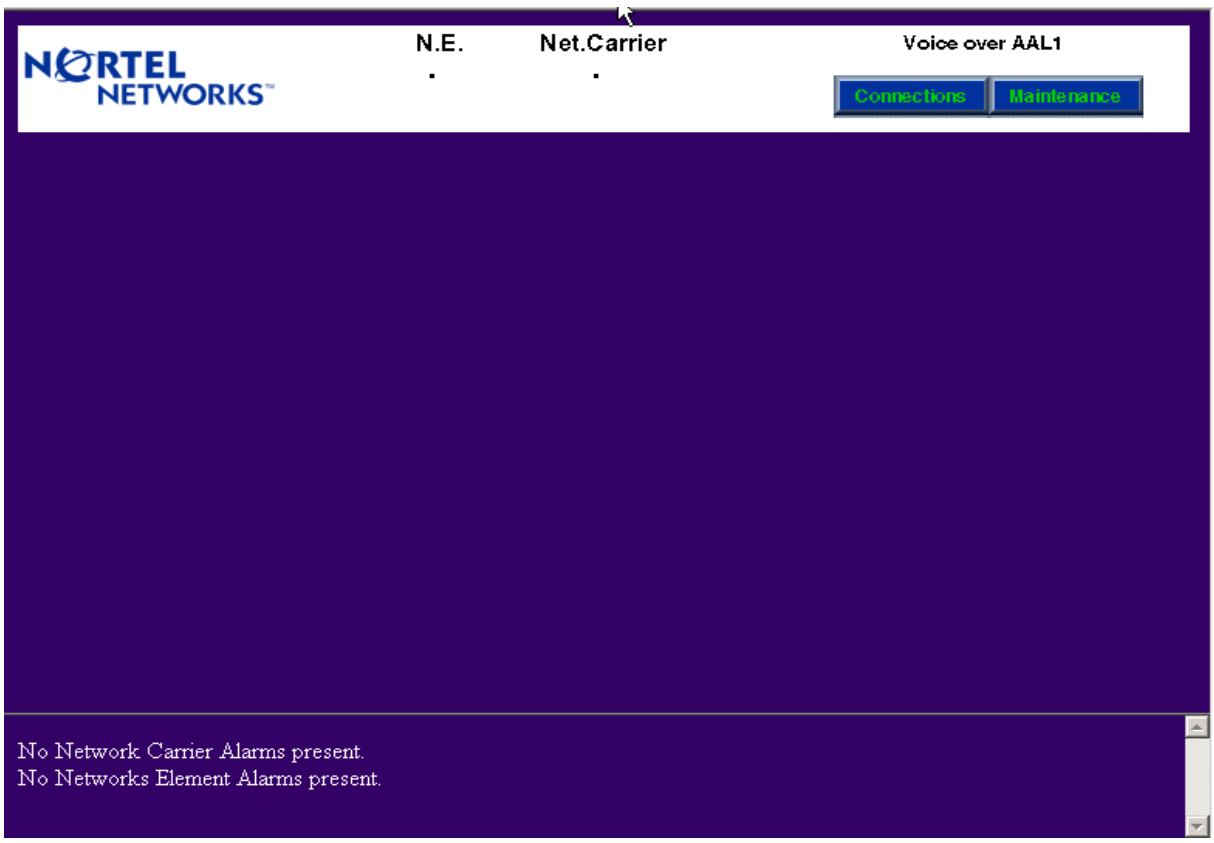
- run diagnostics
- monitor alarms

The network element screen displays the following alarm notifications that appear as light emitting diode (LED) icons on the screen:

- critical
- major
- minor

The following figure shows the NE screen and the accompanying message area at the bottom of the screen in response to clicking on either N.E. or Net.Carrier in the banner. If alarms are present, they appear in the banner as C, M, or m and the severity of each alarm is listed in the bottom frame of the screen. If no alarms are present, a dot (.) is present in the banner. The following figure shows the message reporting that no alarms are present in the MG 9000.

Network element screen with alarms message



The message area shown at the bottom of the previous figure displays messages to the user and also acts as a message buffer, retaining the last message displayed during the LCI session. A new message overwrites the previous message.

The alarm notifications reflect the current state of the MG 9000 network element. These alarm displays appear on all LCI screens throughout all menus. If an LED next to an alarm appears lit, information regarding the alarm condition appears on demand by a mouse click on the alarm. During an alarm condition, a list of affected frames and shelves appears at the bottom of the screen. If multiple alarms apply, only the highest severity alarm for a particular shelf appears. The alarm notification serves as a warning and provides information to navigate to the problem area through the Maintenance menu.

Certain alarms are raised and appear under the NE banner but do not have corresponding alarms appear on the cards in the shelf screen. These alarms are

- virtual media gateway (VMG)
- emergency stand alone (ESA)
- stream control transmission protocol (SCTP)

Click on the NE in the banner and the alarm type, location, and severity information appear in the message area at the bottom of the screen.

The following are three examples of alarm messages seen in the message area:

- No carrier alarm and one minor node maintenance alarm. No VMG, ESA, or SCTP alarms are present.

```
No Network Carrier Alarms present.
Frame: 0 Shelf: 3 - Highest Alarm Severity for Node
Mtc: Mn
```

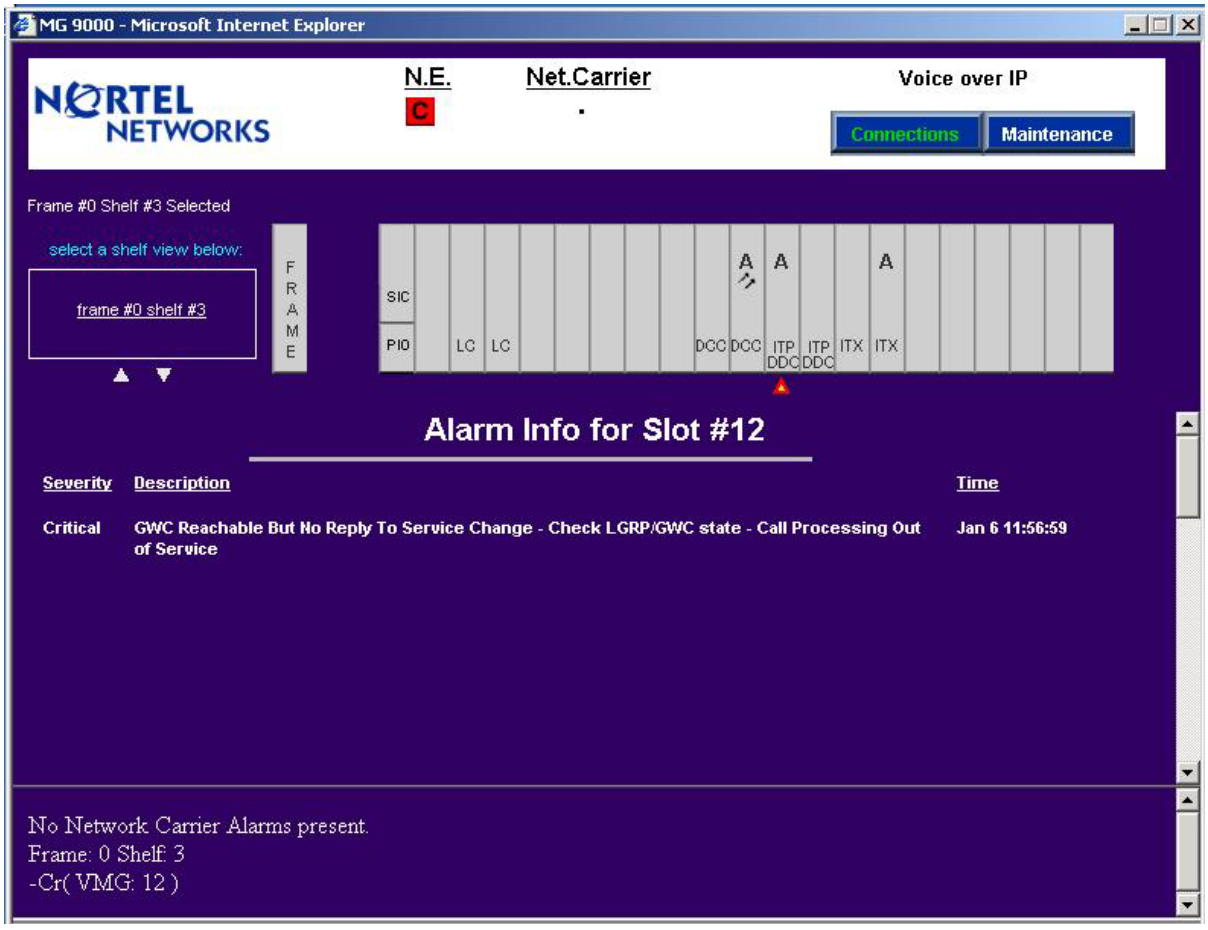
- No carrier alarm and no node maintenance alarm. One Critical VMG alarm, one Major ESA alarm, and one Minor SCTP alarm.

```
No Network Carrier Alarms present.
Frame: 0 Shelf: 3
-Cr( VMG: 12 ) -Mj( VMG: 12 ESA: 12) -Mn(SCTP: 21)
```

- No carrier alarm and no node maintenance alarm. One VMG alarm, no ESA alarm, and no SCTP alarm.

```
No Network Carrier Alarms present.
Frame: 0 Shelf: 3
-Cr( VMG: 12 )
```

The following figure shows one VMG alarm and no other alarms as listed above.


MG 9000 - Microsoft Internet Explorer
NORTEL NETWORKS
N.E.
C
Net.Carrier
Voice over IP
Connections
Maintenance
Frame #0 Shelf #3 Selected
select a shelf view below:
frame #0 shelf #3
FRAME
SIC
PIO
LC
LC
DCC
DCC
ITP DDC
ITP DDC
ITX
ITX
Alarm Info for Slot #12
Severity
Description
Time
Critical
GWC Reachable But No Reply To Service Change - Check LGRP/GWC state - Call Processing Out of Service
Jan 6 11:56:59
No Network Carrier Alarms present.
Frame: 0 Shelf: 3
-Cr(VMG: 12)

LCI Connections view

The Connection View is where the basic connection information is configured to allow the MG 9000 to communicate to the ATM or IP network and CS 2000. In this section, the IP and ATM addressing information along with other connection-related data is entered for the network element.

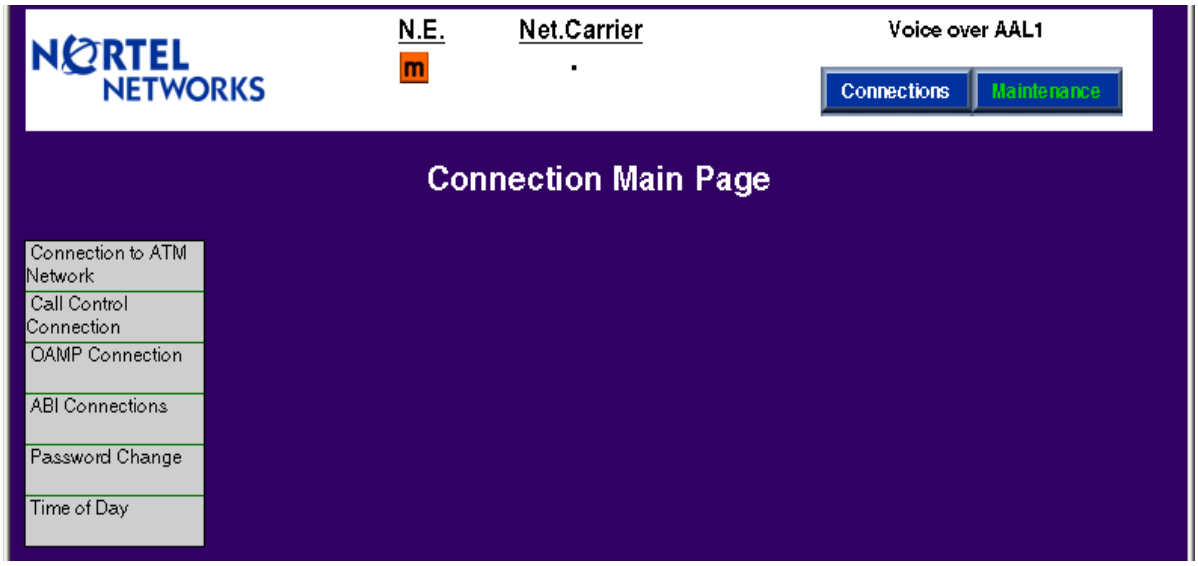
Separate connections are configured for the ATM network, Call Control, OAMP, and ABI (if equipped). The Time of Day clock is also set from the Connections section. Selecting the Connections function box at the top of the screen produces the following options.

- Connection to ATM Network (Voice over AAL1 only)
- Call Control Connection
- OAMP Connection
- ABI connection
- Password Change
- Time of Day

After accessing a Connections menu item and it is necessary to return to the Main Page, click on the Connections button. This behavior is true throughout the LCI, to return to the previous menu, click on the menu item, card, frame or shelf which you entered.

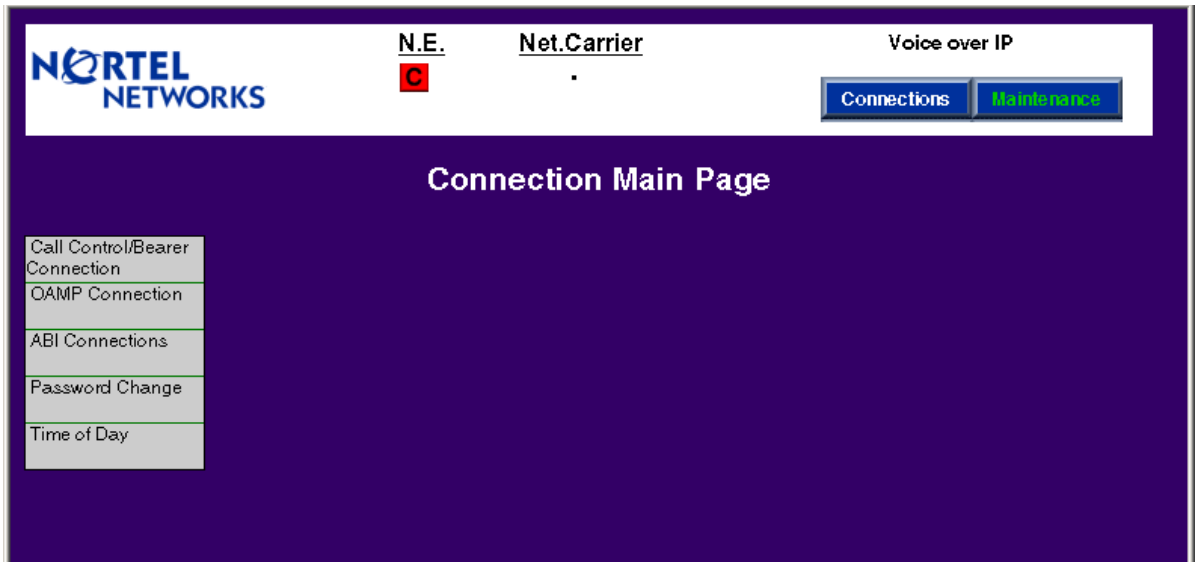
The following figure shows the LCI Connections Main Page for Voice over AAL1.

Connection Main Page - Voice over AAL1



The following figure shows the Connection Main Page for Voice over IP.

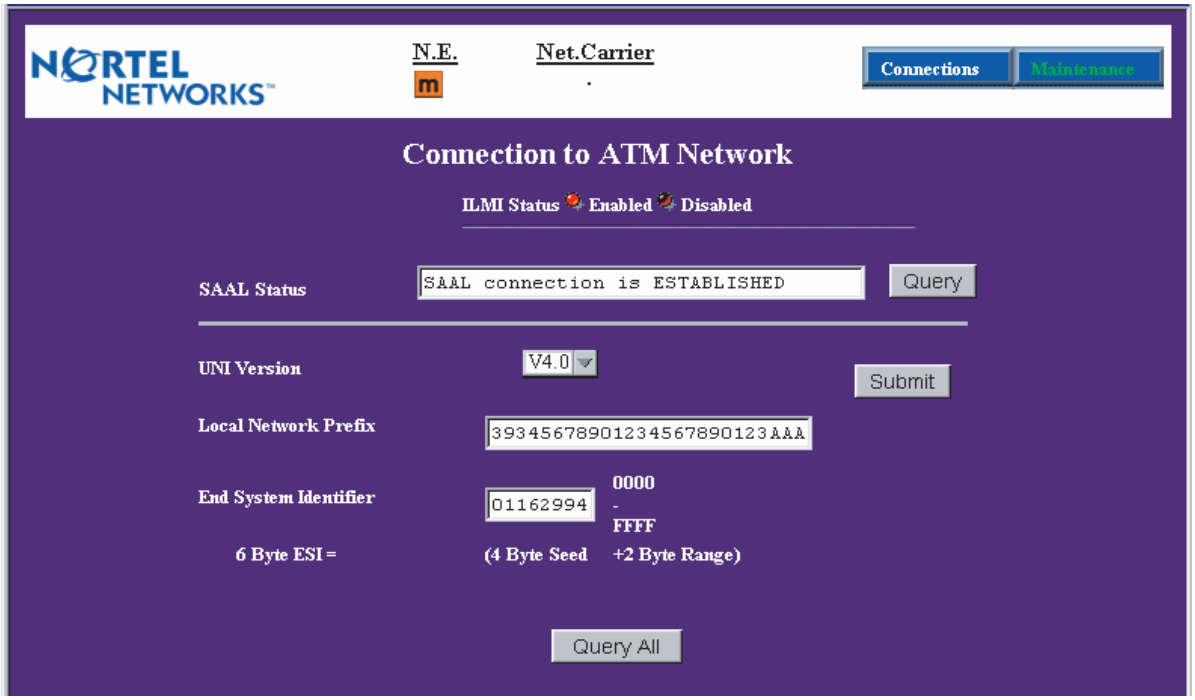
Connection Main Page - Voice over IP



Connection to ATM Network (Voice over AAL1 only)

The Connection to ATM network screen defines the location of the MG 9000 in the network.

Connection to ATM Network screen



At initial screen access, the LCI queries the server side for current settings of the following fields:

- ILMI Status
- SAAL Status
- UNI Version
- Local Network Prefix
- End System Identifier

Note: The Local Network Prefix value is automatically displayed in the associated boxes.

ILMI status has an LED Indicator that displays whether ILMI is enabled or disabled. This LED is updated after each Query. If Address registration is enabled, leaving the Local Network Prefix field blank and clicking “Submit” allows the network switch to automatically provide a network prefix.

The “Query All” button displays current values in the status boxes.

The following table describes the data fields displayed on the Connection to ATM Network screen.

Connection to ATM Network screen fields

Field	Description
ILMI status	Interim Local Management Information shares UNI management information between the MG 9000 as an ATM end system and the ATM switch. The ILMI status is either enabled or disabled. If disabled, a 13 byte network prefix must be entered in the Local Network Prefix field. If enabled, the ATM network switch assigns the Local Network Prefix automatically.
SAAL Status	The LCI queries the Signalling ATM Adaptation Layer (SAAL) at screen access. A query button allows for an updated status after initial screen access.
UNI Version	The User-to-Network-Interface version represents the interface between the MG 9000 and the ATM switch.
Local Network Prefix	The local network prefix is the ATM end system address (AESA). An AESA is similar to an IP address and uniquely identifies the ATM endpoint within the global network. Routing and network management require this prefix configured into the ATM switch.
End System Identifier	The End System Identifier must be a unique number, (one that no other MG 9000 is using) which is converted to hexadecimal.

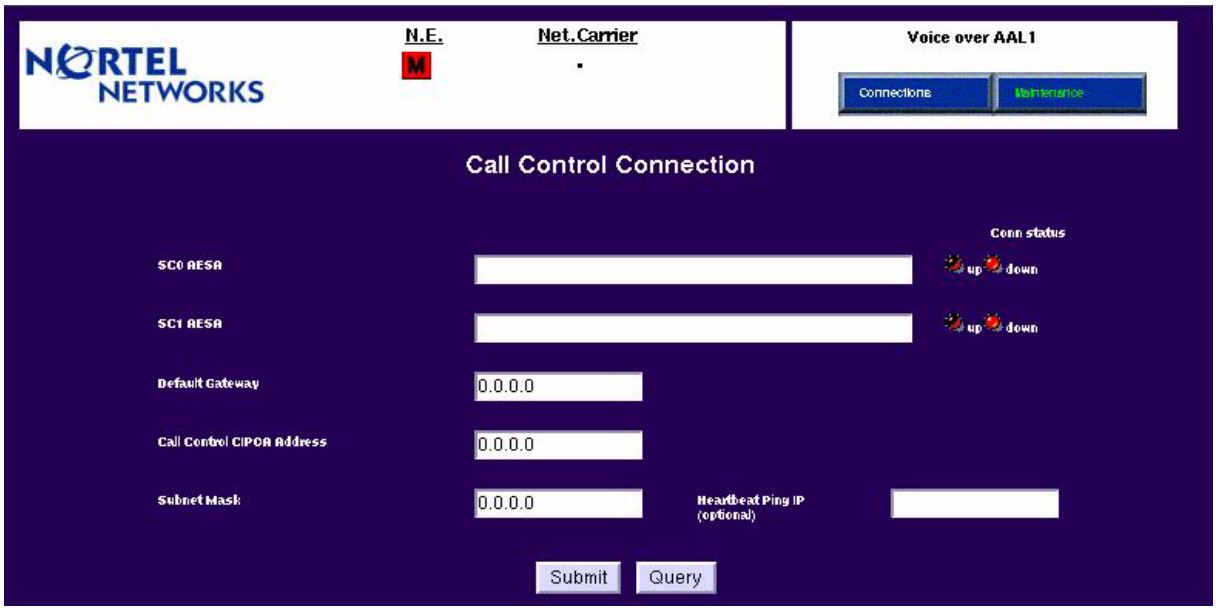
Call Control Connection

The Call Control Connection is used to assign the Subnet mask, Default Gateway, and Heartbeat Ping IP addresses supporting the MG 9000, in addition to the following specific fields based on solution:

- For Voice over AAL1, the Primary AESA to SC0 and Secondary AESA to SC1 address and Call Control Classical IP Over ATM (CIPOA) address.
- For Voice over IP, the VCC information and Traffic Parameters must be configured for the PVC configured between the MG 9000 and CallP VLAN on the CS LAN.

The following figure shows the Call Control Connection screen for ATM solutions.

Call Control Connection screen - Voice over AAL1



The Heartbeat Ping IP field is an optional field in both solution screens. If this field is provisioned, the MG 9000 will do Internet Control Message Protocol (ICMP) pings on the connection side and will attempt corrective action if the pings fail. This field also appears in the OAMP Connection and ABI Connection screens. Typically, the value is the same for each. Having this field in several screen gives the user the flexibility to enter different destinations, such as having call control messaging sent to one SAM21 and the OAMP messaging sent to another SAM21.

Use the following information to determine the heartbeat address to enter in the field based on the type of solution being configured.

- For Voice over AAL1, the recommended heartbeat address is the active Ethernet IP address of the shelf controller. Never use a unit or inactive address. Normally this address is the same for all connection types (OAMP, Call Control, and ABI).
- For Voice over IP, the recommended heartbeat address is the default Gateway for the connection.

  Note: This address must be an address in the connection subnet.

The following figure shows the Call Control Connection screen for IP solutions.

Call Control Connection screen - Voice over IP

Note: In the Call Control Connection screen for IP solutions, after a call control connection is established the VPI, VCI, PCR, SCR, MBS and CDVT fields become non-editable.

The following are the traffic parameter fields in the Voice over IP screen:

- PCR - peak cell rate
- SCR - sustainable cell rate
- MBS - maximum burst size
- CDVT - cell delay variation tolerance

The values for the traffic parameters are set to 0 when the screen is first displayed. Use the Default button to request default values for these fields.

Note: Since the calculation of these default values depends on the amount of available bandwidth, the carriers must be provisioned first. If not, 0's are returned and the following message is displayed: The Default Traffic Descriptors parameters cannot be determined. Please provision carriers.

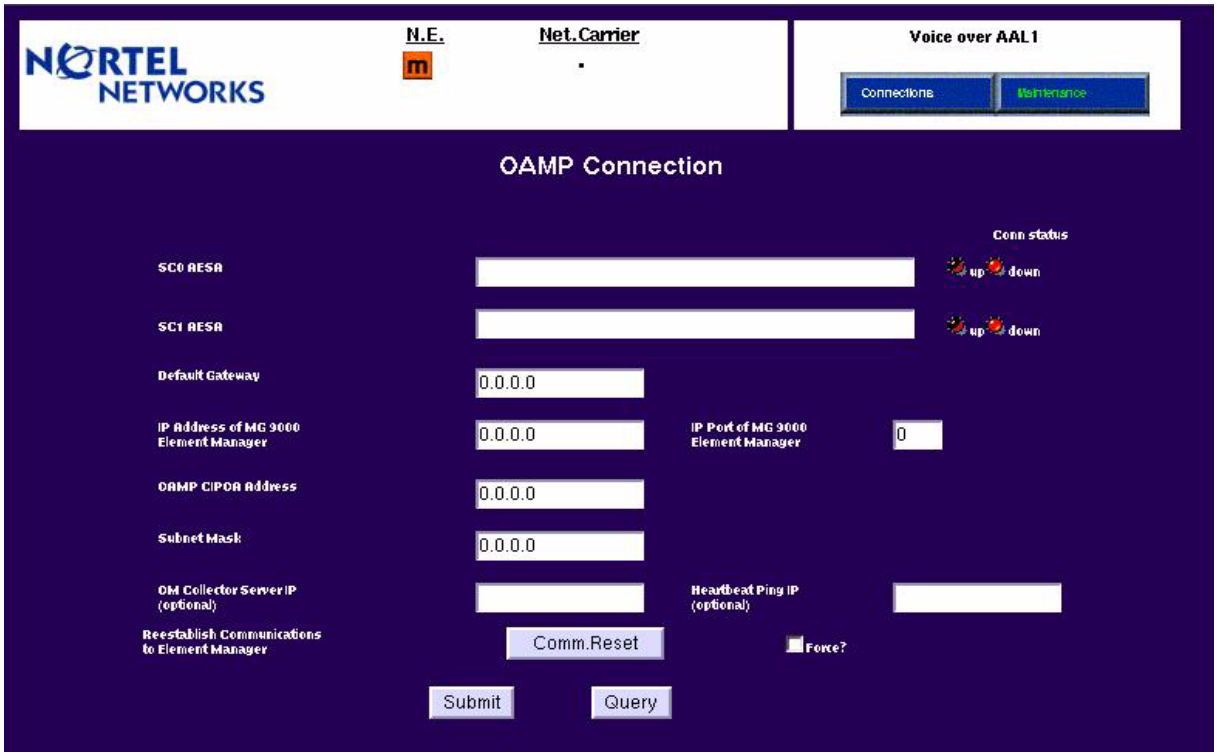
The Traffic Parameters also appear in the OAMP Connection and ABI Connection screens. The values are different for each connection type.

Note: Consult with Nortel Networks before entering values other than the default values.

OAMP Connection

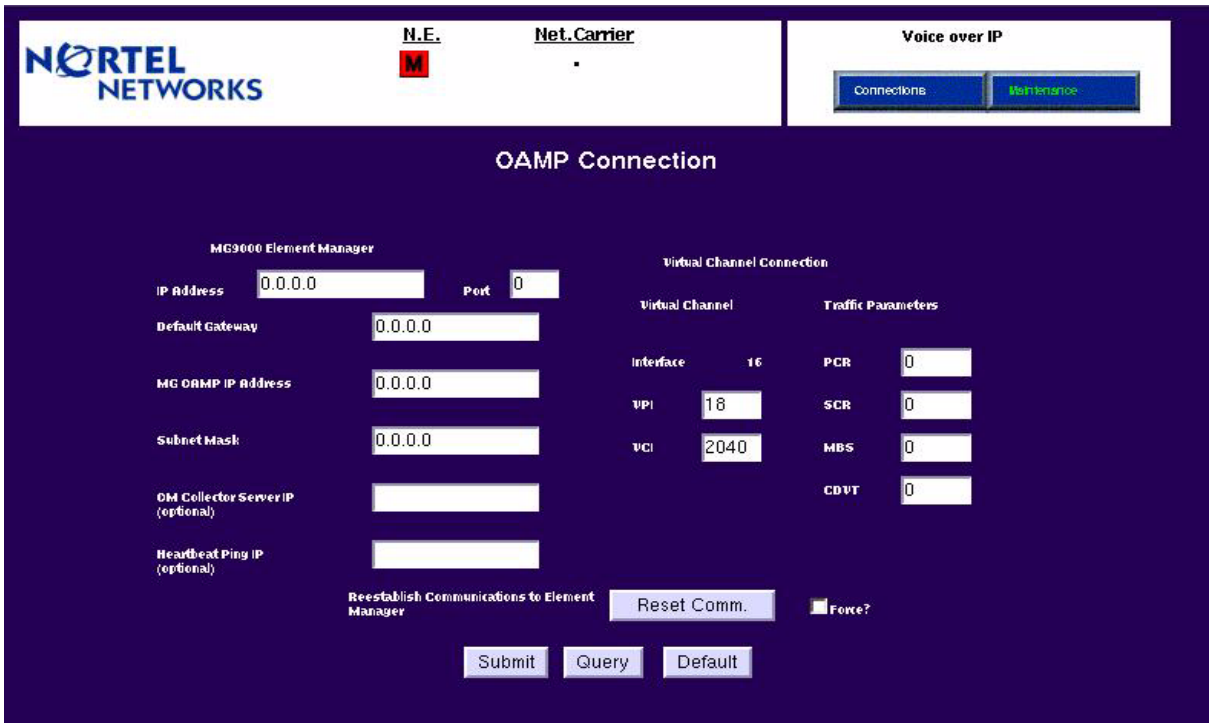
The OAMP Connection screen defines the MG 9000 connection to the MG 9000 Manager. The following figure shows the OAMP Connection screen for ATM solutions.

OAMP Connection screen - Voice over AAL1



The following figure shows the OAMP Connection screen for IP solutions.

OAMP Connection screen - Voice over IP



The following table describes the data fields displayed on the OAMP Connection screen.

OAMP Connection screen fields for AAL1 and VoIP solutions

Field	Description
SC0 AESA (Voice over AAL1 only)	The ATM address for the primary Switched Virtual Circuit (SVC) to the Service Application Module 21 (SAM21) shelf controller in the call server. The MG 9000 Manager connects to the SAM21 shelf controller through an Ethernet port. The Primary AESA is for the shelf controller card in slot 7.
SC1 AESA (Voice over AAL1 only)	The Secondary AESA is for the shelf controller card in slot 9.
IP Address	The IP network address assigned to the MG 9000 Manager.
IP Port	The IP port number assigned to the MG 9000 Manager. Ports are used to identify the ends of logical connections.
Default Gateway	The IP address of the designated default router to create a route used when a more specific route is not available in the routing table.

OAMP Connection screen fields for AAL1 and VoIP solutions

Field	Description
Subnet Mask	A subnet mask is a series of numbers over an IP address used to simplify routing. An 8-bit binary mask of “1s” (decimal 255) tells the router to look at the number underneath the mask.
OAMP address	For Voice over AAL1, this is the OAMP IP address for the in-band connection to the SAM21 Shelf Controller. For Voice over IP, this is the OAMP IP address to the PVG virtual router.
Heartbeat Ping IP	The Heartbeat ping IP field also appears in the ABI Connection and Call Control Connection screens. Refer to the discussion of this field in the Call Control Connection screen
OM Collector Server IP (optional)	The IP address of the OM Collector server.
Virtual Channel Connection (Voice over IP only)	The values for the traffic parameters (PCR, SCR, MBS, and CDVT) are set to 0 when the screen is first displayed. Use the Default button to request default values for these fields. Since the calculation of these default values depends on the amount of available bandwidth, the carriers must be provisioned first. If not, 0’s are returned and the following message is displayed: The Default Traffic Descriptors parameters cannot be determined. Please provision carriers.

Queries, through initial screen access and the Query button, display the server side field values in the text boxes.

The Comm Reset button provides the ability to send a manual cold start event to the MG 9000 Manager in situations where the MG 9000 Manager does not receive an automatic cold start.

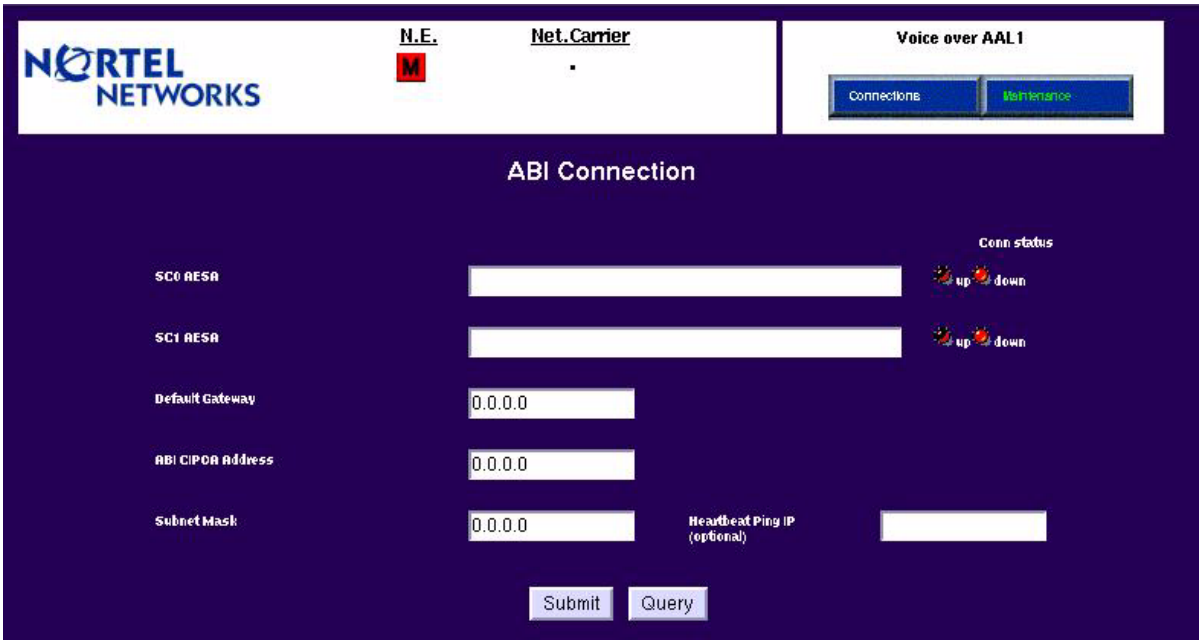
ABI connection

The ABI Connection page allows the technician to assign the following for an ABI card

- the Primary and Secondary (ATM End System Addresses (AESA) for the SC cards in the SAM 21 shelf
- the default gateway IP address
- the ABI CIPOA address
- the subnet mask
- the Heartbeat ping IP address. This field also appears in the OAMP Connection and Call Control Connection screens. Refer to the discussion of this field in the description of the Call Control Connection on page 295.

Refer to the tables in previous sections for explanations of the values for these fields. The following figure shows the ABI Connection screen for Voice over AAL1.

ABI Connection screen for Voice over AAL1



The following figure shows the ABI Connection screen for Voice over IP.

ABI Connection screen for Voice over IP

For Voice over IP only, the values for the traffic descriptor (PCR, SCR, MBS, and CDVT) are set to 0 when the screen is first displayed. Use the Default button to request default values for these fields. Since the calculation of these default values depends on the amount of available bandwidth, the carriers must be provisioned first. If not, 0's are returned and the following message is displayed: The Default Traffic Descriptors parameters cannot be determined. Please provision carriers.

Password Change

The Password Change screen provides a means for changing the default password. This password is used for LCI and SFTP authentication. The following are the fields shown in the Password Change screen:

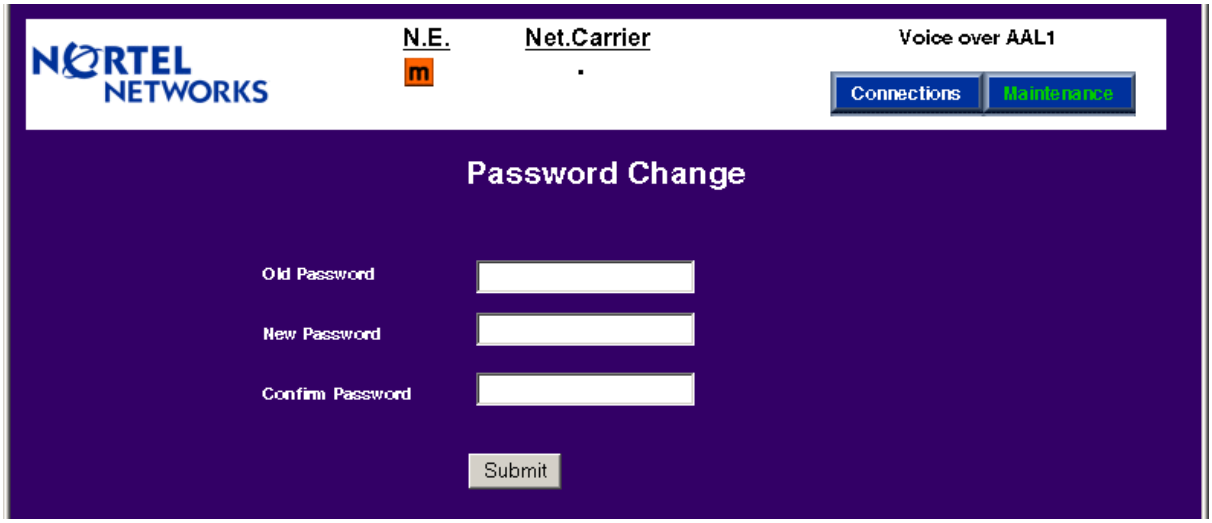
- Old Password - enter the existing password that is to be changed
- New Password - enter the new password
- Confirm Password - enter the new password again. If the password is entered incorrectly, an error message appears indicating the password change will not take affect.

Note: If the provisioned password is forgotten, contact Nortel Networks GNPS for assistance.

Use the Submit button to send the data entered on the screen to the MG 9000 as a provisioning request. Results from the request are presented in the text area at the bottom of the LCI GUI screen.

The following figure shows the Password Change screen.

Password change screen



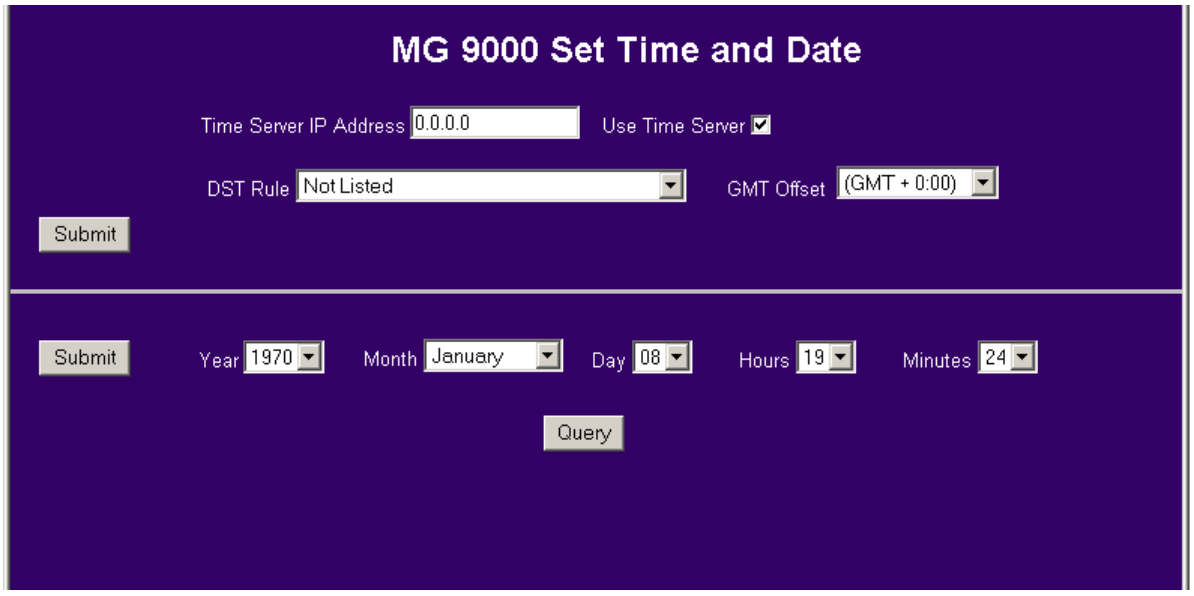
Time of Day

The Time of Day command accesses the Set Time and Date screen which is used to set and query the MG 9000 system clock. The initial screen access, queries, and displays the current time and date. Fields in this screen provide the ability to

- enter the IP address for the Network Time Provider (NTP) server and click on the Use Time Server box
- set the time and date if time server is not available

Changes become active through the Submit button. The Query button displays the current system time and date.

Set Time and Date screen



The data entered must fit into the ranges described in the following table, and must contain all numeric values. The hours entry requires a military format (hours 0–23). There is no checking for leap year or for invalid entries in months with less than 31 days.

The following table contains the Set Time and Date screen fields and ranges.

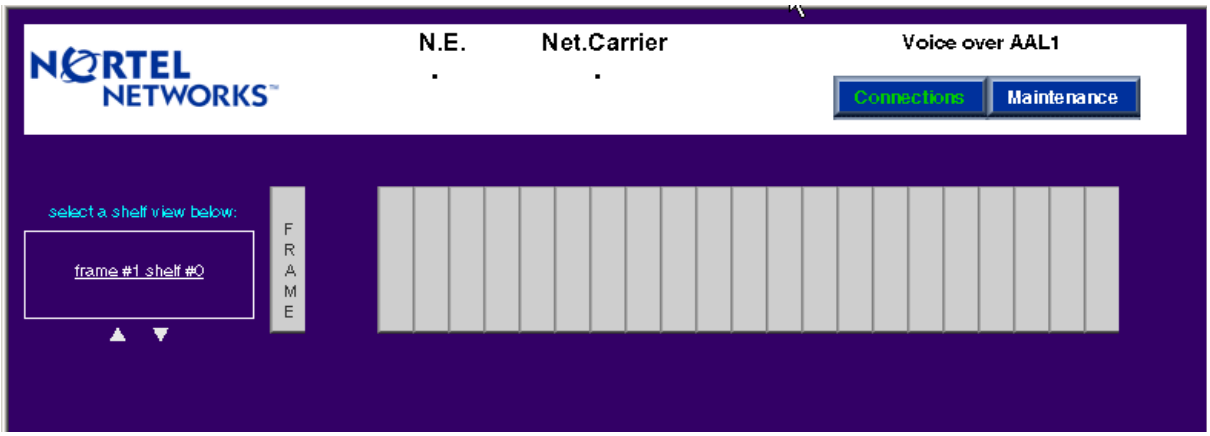
Set Time and Date screen ranges

Field	Ranges
Year	2001 through 9999
Month	1 through 12
Day	1 through 31
Hours	0 through 23
Minutes	0 through 59
Seconds	0 through 59

LCI Maintenance view

Selecting the Maintenance button at the top of the screen produces a shelf view with a frame selection box on the left. When first accessed, the view displays 21 empty slots. A list of available frames and shelves for selection is located on the left side of the screen. The full list is accessible through scroll arrows located immediately below the scroll window (in Internet Explorer) or through scroll bars (in Netscape Communicator). All subtending shelves connected to the master shelf are displayed. When performing activities that involve clicking on the Submit button in any of the maintenance screens, the results are displayed in the message frame at the bottom of the screen. When messages appear at the bottom, they will remain until replaced by another message. This message area acts as a message history buffer.

Initial Maintenance View



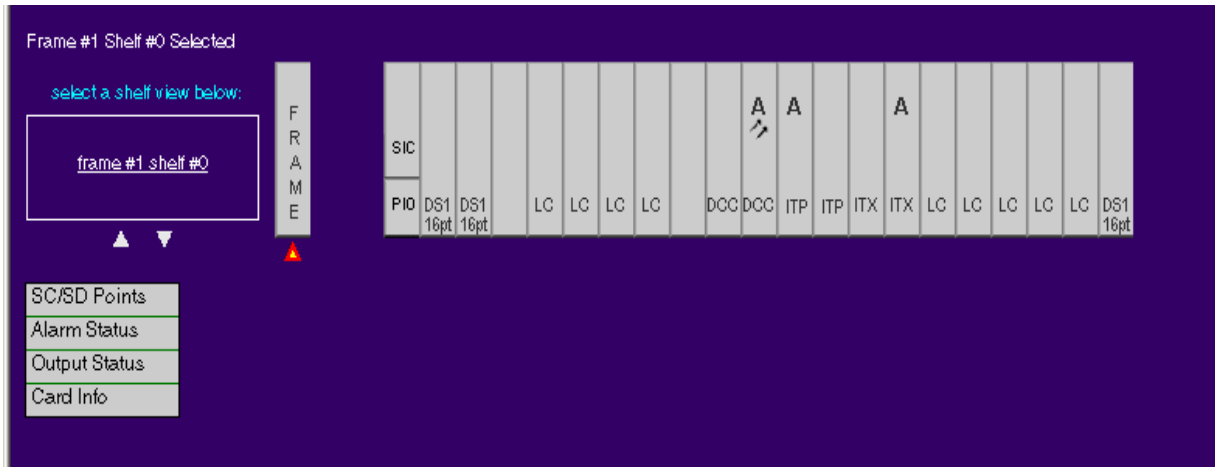
Frame View

To view a frame, select a frame from the selection box on the left. Click on the Frame button and the following Frame Maintenance options appear:

- scan/signal distribution (SC/SD) Points
- Alarm Status
- Output Status
- Card Info

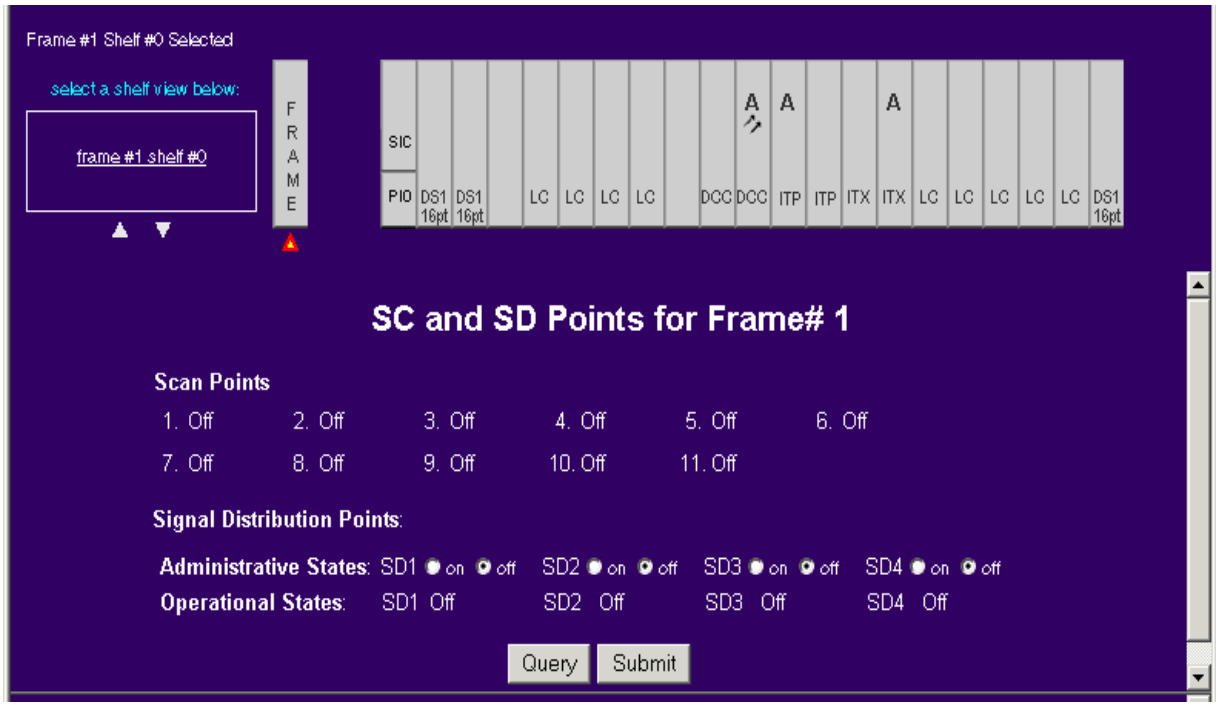
The following figure shows the frame menu options.

Frame View



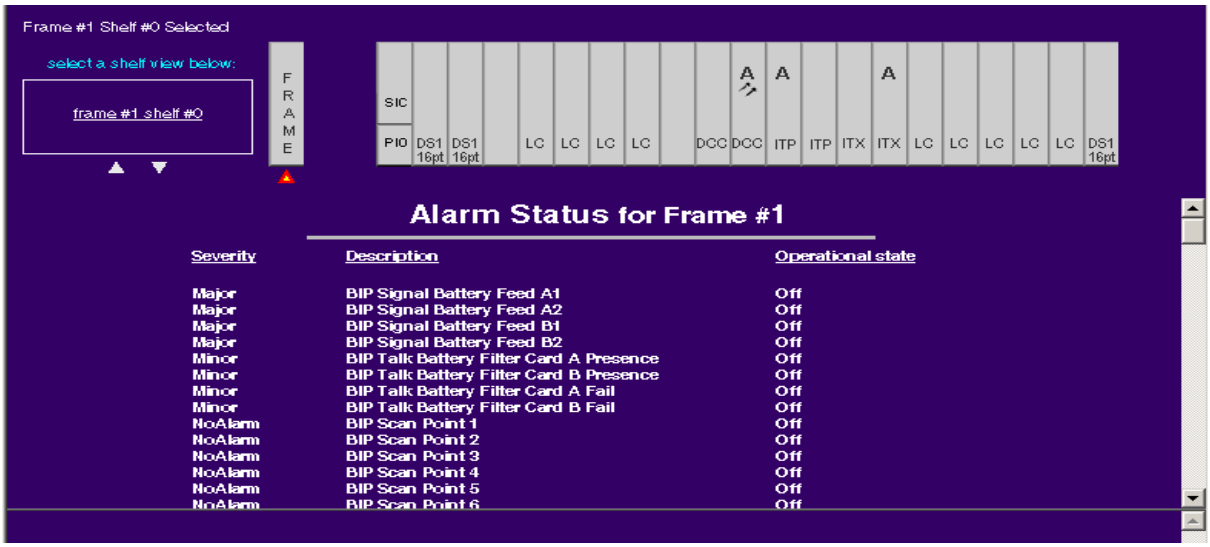
The SC/SD Points option identifies the states of the Scan Points and allows the Administrative State of the Signal Distribution Points to be set. The following figure shows the SC/SD Points screen.

Frame SC/SD Points screen



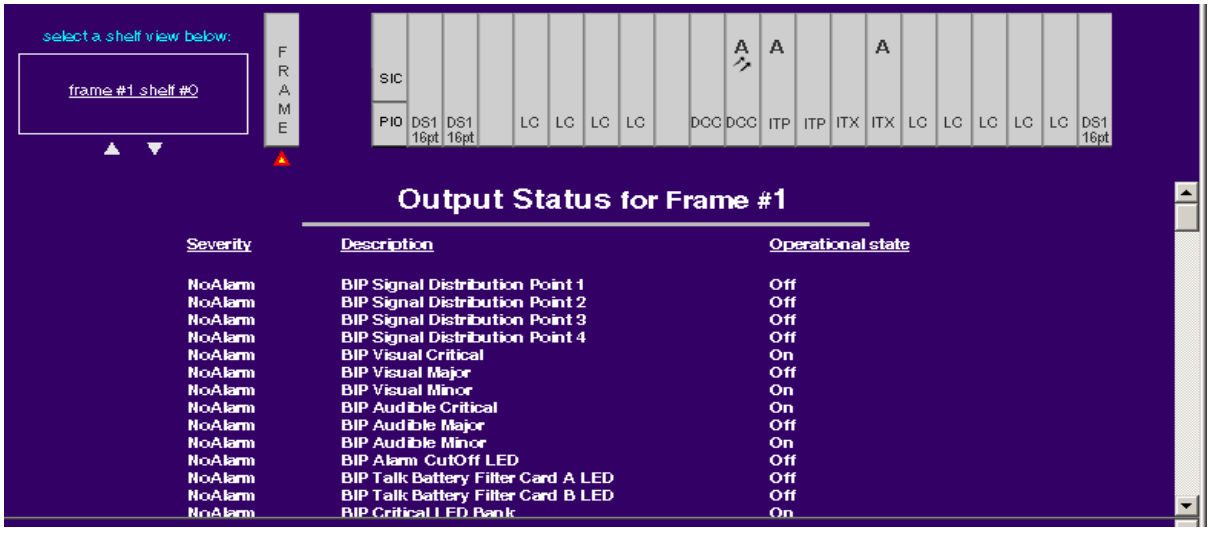
The Alarm Status option lists the alarm types and severities and their operational states. The following figure shows the Alarm Status screen.

Frame Alarm Status



The Output status option lists the parameters for which an alarm or status condition will be raised, the severity and the operational state. The following figure shows the Output Status screen.

Frame Output Status

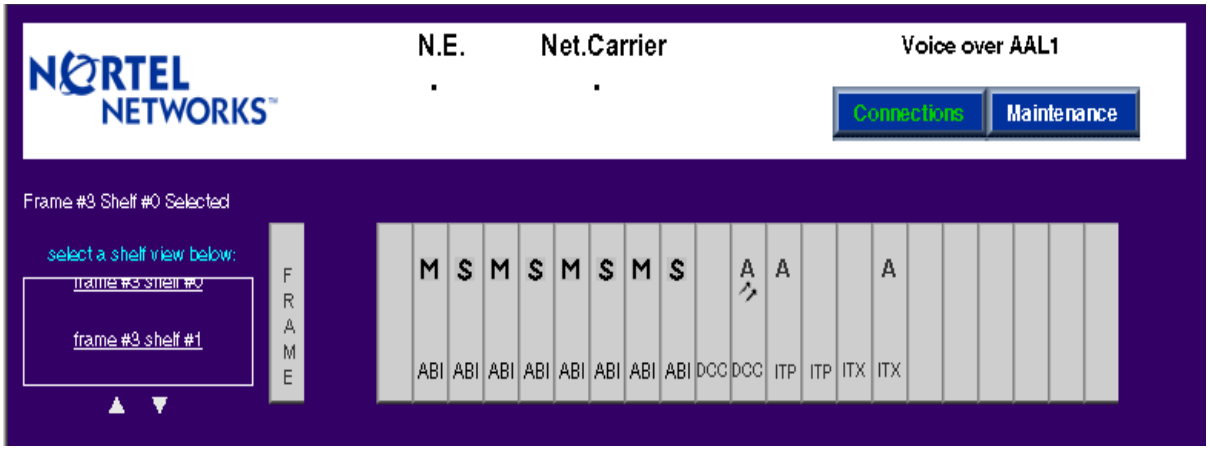


The Card Information option identifies the Product Engineering Code (PEC) for the frame, the hardware revision, and any relevant software revision code.

Shelf View

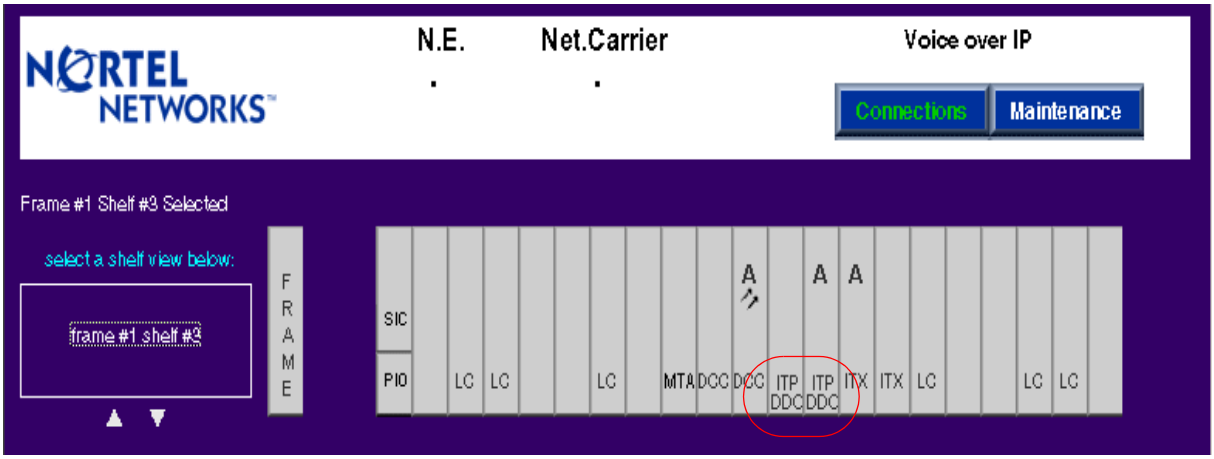
To select a shelf, move the cursor to a shelf location and click. After a selection has been made, the slots display the cards associated with the shelf selection.

Maintenance shelf view



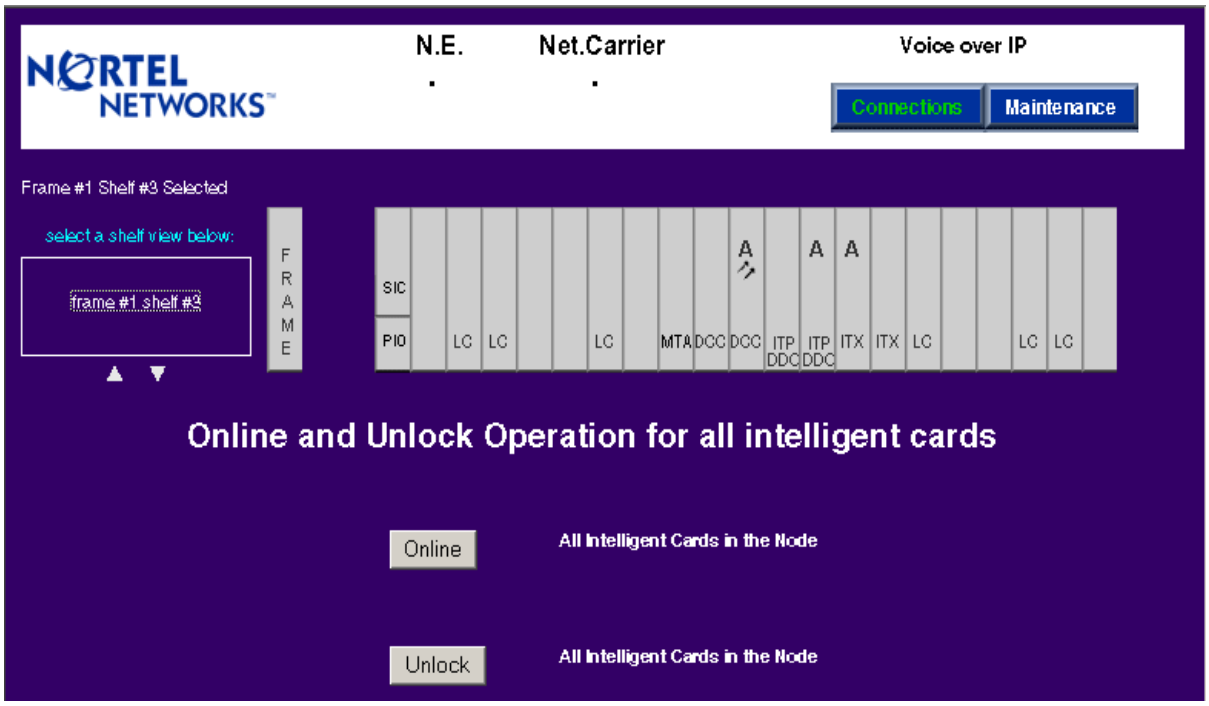
In an IP solution shelf view shown below, DDC appears below the ITP cards to indicate a daughter card is installed to support IP.

Maintenance shelf view showing DDC under ITP card for IP solution



When selecting the master shelf in a frame, the Online and Unlock screen appears. This screen provides buttons that enable the user to Online or Unlock all intelligent cards in the Node. These commands are typically used in an installation and commissioning scenario.

Maintenance shelf - Online and Unlock of intelligent cards in node



The shelf screen is dynamically updated as cards are added and de-provisioned. Cards are identified by the abbreviated card name. For example, DCC, DS1, ITX, and ITP. In addition to the card name, the screen also displays icons to indicate the following information regarding the card status:

- locked
- minor/major/critical (alarm)
- active carrier

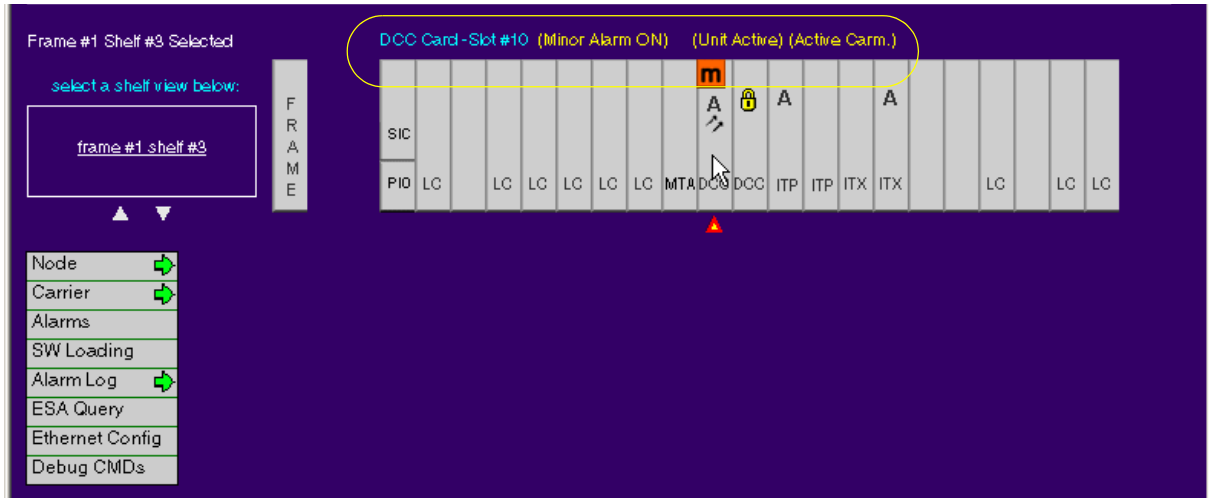
The following table lists the various icons seen on the cards which provide a high level view of the state of the card.

Icon	Description
	Card is locked
	Carrier is locked, only appears when the card is unlocked. For the DS1-IMA DCC card, this symbol indicates the IMA group is locked and only appears on the active IMA card. ***Note:*** The Carrier locked icon takes precedence over the Card locked icon.
	Critical alarm
	Major alarm
	Minor alarm
	Active card
	Active carrier
	Card or carrier is disabled
	Master ABI card
	Slave ABI card

Icon	Description
	Carrier is enabled (red) LED
	Carrier is disabled (black) LED
	Card selected, appears below the card in the shelf view

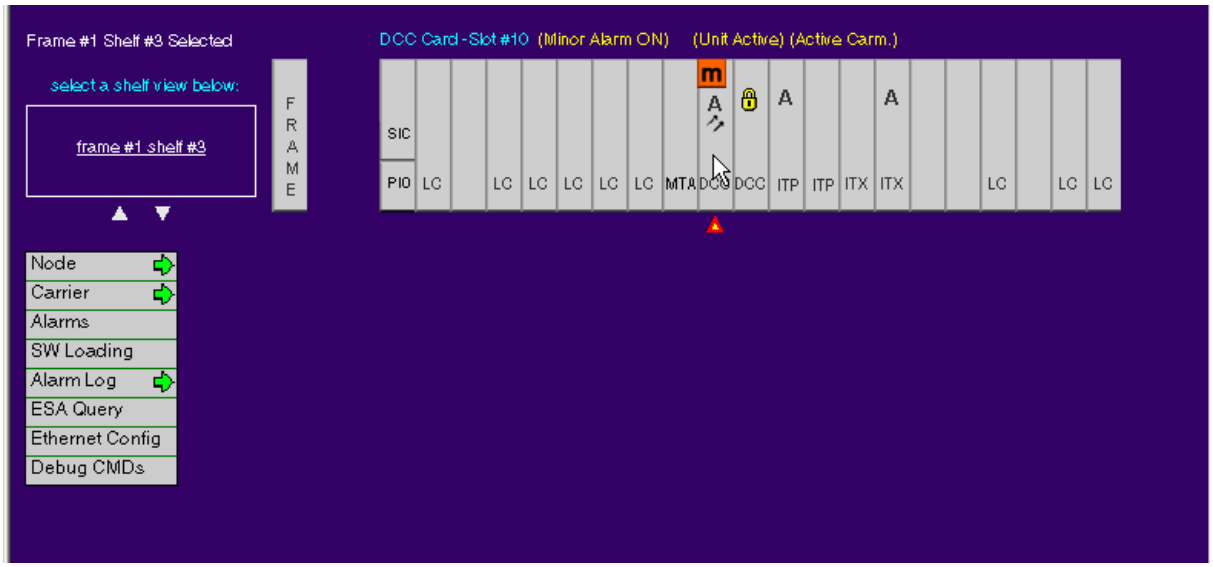
To view the status and position of a card, in addition to the status icon, move the cursor over the card. Descriptive text appears above the card stating the card type, location, and status.

Maintenance card status descriptive text



To select a card, move the cursor on the card and click. Selecting a card produces a menu that displays the options available for that card. A separate set of maintenance menu options exists for each card type. A red triangle indicator appears underneath a selected card. The following figure shows the results of selecting a DCC card.

Maintenance card selection menu



The following table shows the cards and menu options available from the LCI maintenance screen.

Maintenance menu options

DS1	DCC (OC3)	DCC (DS1-IMA)	ITP	ITX/ABI
Node • Controls • Diags • Card Info • Sparing (not supported)	Node • Controls • Diags • Card Info	Node • Controls • Diags • Card Info	Node • Controls • Diags • Card Info	Node • Controls • Diags • Card Info
Carrier • Provisioning • Controls • Status • Test	Carrier • Provisioning • Controls • Status • Test • APS — Controls — Status	Carrier • Provisioning — IMA Group/Links — DS1 • Controls — IMA Group/Links — DS1 • Status — IMA Group — IMA Link — DS1 • Test — IMA Group/Links — DS1		
Alarms	Alarms	Alarms	Alarms	Alarms
SW Loading	SW Loading	SW Loading	SW Loading	SW Loading

Maintenance menu options

DS1	DCC (OC3)	DCC (DS1-IMA)	ITP	ITX/ABI
			Clock Sync • Provisioning • Controls • Status • Ref/Sig	
	Alarm log	Alarm log		
	ESA Query	ESA Query		
	Ethernet Config	Ethernet Config		
	Debug CMDs	Debug CMDs		

This section includes information on the following topics:

DS1 maintenance options

DS1 maintenance actions consist of the following options:

- node maintenance
- carrier maintenance
- alarm display
- software loading

To select an option, move the cursor to the option and click.

DS1 node maintenance

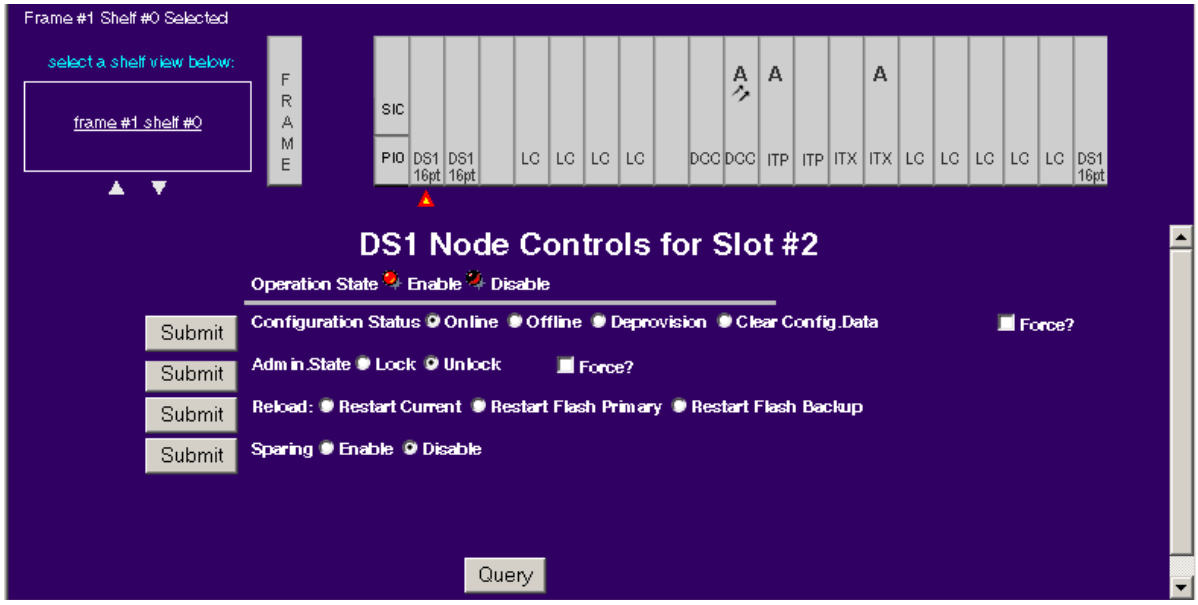
Node maintenance contains four separate options to manage the DS1 card at the node level:

- controls
- diagnostics
- card information
- sparing (not supported)

DS1 node controls

All node control screens, for all cards, provide configuration, administrative and restart options. The following figure shows an example of a Node Control screen for a DS1 card.

DS1 Node Control screen



The DS1 Node Control screen provides the following maintenance options:

DS1 Node Control options

Control	Options
Configuration	Online - allows the network to see and receive information from the card
	Offline - allows the network to see the card but not receive any information from the card
	Deprovision - used in conjunction with physically removing a card, removes the card from the network software. Removing a card without deprovisioning the card produces an alarm.
	Clear Config. Data - only used on the active DCC card. This action clears configuration data. When selecting this action, the LCI will instruct the user what actions to take.
	Force - used with the Clear Config. Data option
Admin. State	Lock (out of service)
	Unlock (return to service)
	Force (used with lock or unlock)
Reload	Restart Current
	Restart Flash Primary
	Restart Flash Backup
Sparing	Not supported

Each maintenance procedure requires selecting the appropriate action and clicking on the adjacent “submit” button.

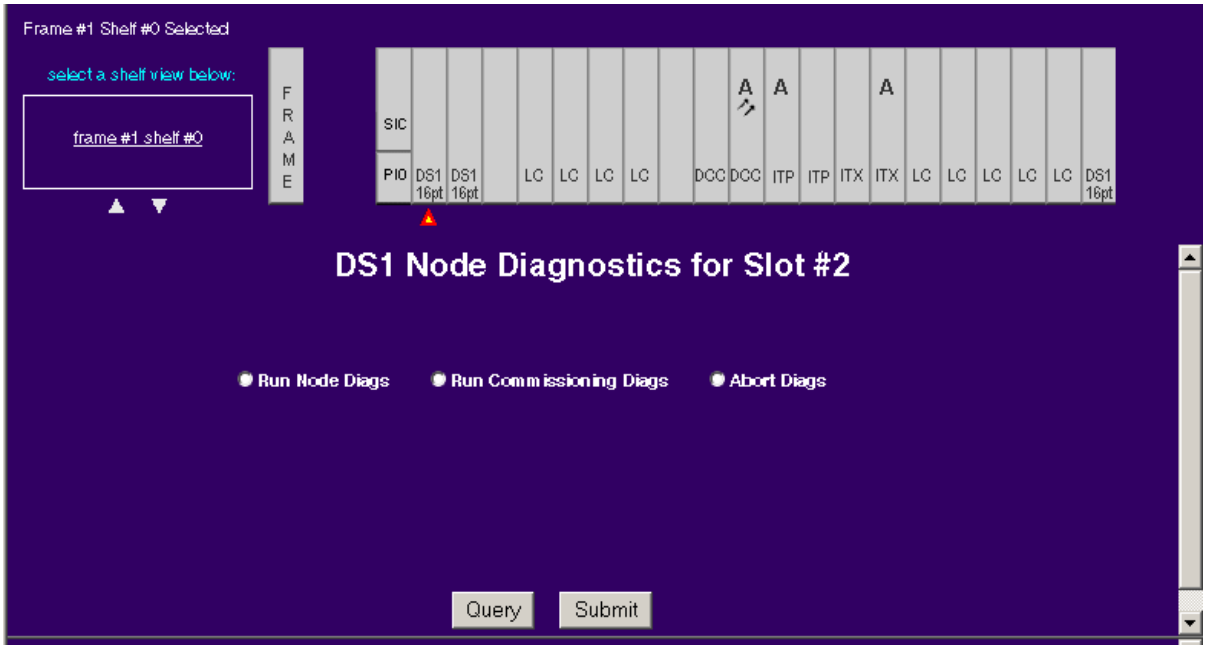
The “Operation State” field shows the status of the card as either system enabled or system disabled. A red LED identifies the card’s operational status. Status messages for submitted operations appear at the bottom of the screen.

DS1 Node Diagnostics

The Node Diagnostics screen launches a request to run node level diagnostics for a selected card. The state of the card at the time of the request determines the diagnostic severity level. When accessed, the Node Diagnostics screen automatically performs an immediate query to determine if any diagnostics are currently running on the card. Only

one set of diagnostics can run for a single card at a time. Multiple diagnostics, for multiple cards, can run simultaneously. The following figure shows a Node Control Diagnostics screen.

DS1 Node Diagnostics screen



The Node Diagnostics screen offers three options:

- Run Node Diags
- Run Commissioning Diags
- Abort Node Diags

Each screen option becomes active through a Submit button. Status messages appear at the bottom of the screen during diagnostic testing.

The diagnostic results appear in a separate pop-up diagnostic response window when the tests have completed. The pop-up diagnostic response window appears with the first diagnostic result and continues to accumulate data for each card.

The diagnostic response window contains a print option button that allows printing the diagnostic results to either paper or to a file. The print option requires that the response window document be closed. Any responses received after the print option has been selected is captured in a later buffer.

The Abort Node Diags option allows operating company personnel to stop diagnostics while tests are underway.

DS1 Node Card information

The Node Card Information screens displays the following hardware and software data for a selected card:

- product engineering code (PEC)
- hardware revision
- software revision
- restart load name
- restart flash load name

DS1 Carrier Maintenance

Carrier maintenance contains four separate options to manage the DS1 card at the DS0 carrier level.

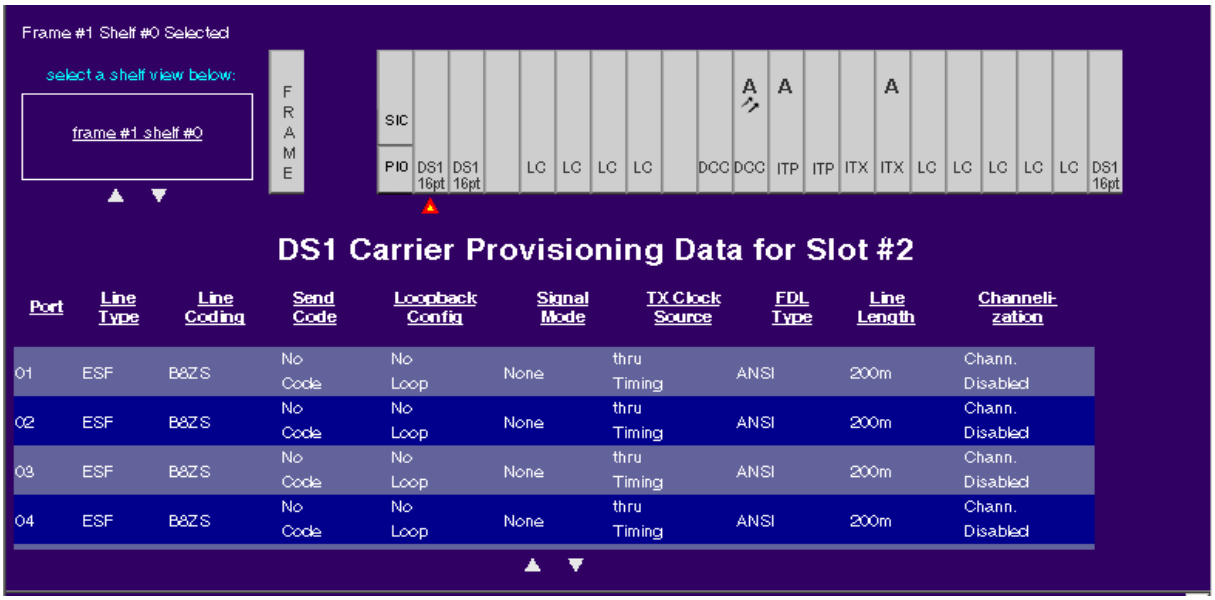
- provisioning
- controls
- status
- test

To select an option, move the cursor to the option and click.

DS1 Carrier Provisioning

DS1 carrier provisioning displays the configuration data for the 16 ports of a selected DS1 card. The screen displays four ports with up and down arrows to navigate through all 16 ports. This screen is informational only and cannot modify the configurations. Modifications to DS1 carriers must be made through the MG 9000 Manager.

DS1 Carrier Provisioning screen



The following table describes the fields and options displayed on the DS1 carrier provisioning screen.

DS1 carrier provisioning screen options

Field	Options
Line Type	• extended super frame (ESF) • super frame (SF) • user facility (UF)
Line Coding	• binary eight bit zero code (B8ZS) • alternate mark inversion (AMI) • zero code suppression (ZS)
Send Code	• no code • line code • payload • reset • quasi random signal

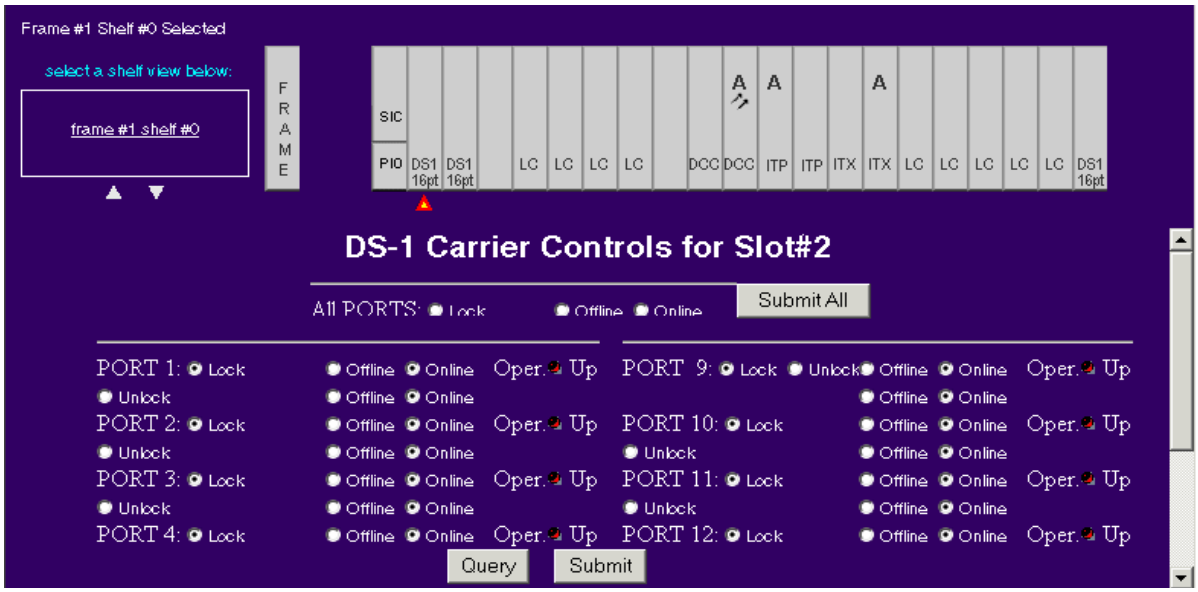
DS1 carrier provisioning screen options

Field	Options
Loopback Configuration	• no loop • payload • line • inward terminal • dual • other
Signal Mode	• none • robbed bit • bit oriented • message oriented • other
Transmit Clock Source	• looping timing • local timing • thru timing
Facilities Data Link (FDL) type	• Att54016 • none • ansiT1403 • other
Line Length	• 655 meters
Channelization	• channel disabled • channel enabled DS0 • channel enabled DS1

DS1 Carrier Control

The DS1 carrier control screen defines administration (lock or unlock) and operation (online or offline) statuses for each carrier (port) on a DS1 card. In addition, all ports can be locked or set to online or offline by selecting the appropriate radio button and clicking on Submit All.

DS1 carrier control screen



Initial screen access automatically queries the administration and operation statuses for all 16 ports of the selected DS1 card. The Query button updates the carriers current status. DS1 carriers have a default status of locked and offline. Click on the Submit button to submit changes. Results are displayed in the message frame at the bottom of the screen.

The following table lists the DS1 carrier control option compatibilities. A carrier cannot have an unlock administration status with an offline operation status.

DS1 carrier control option compatibilities

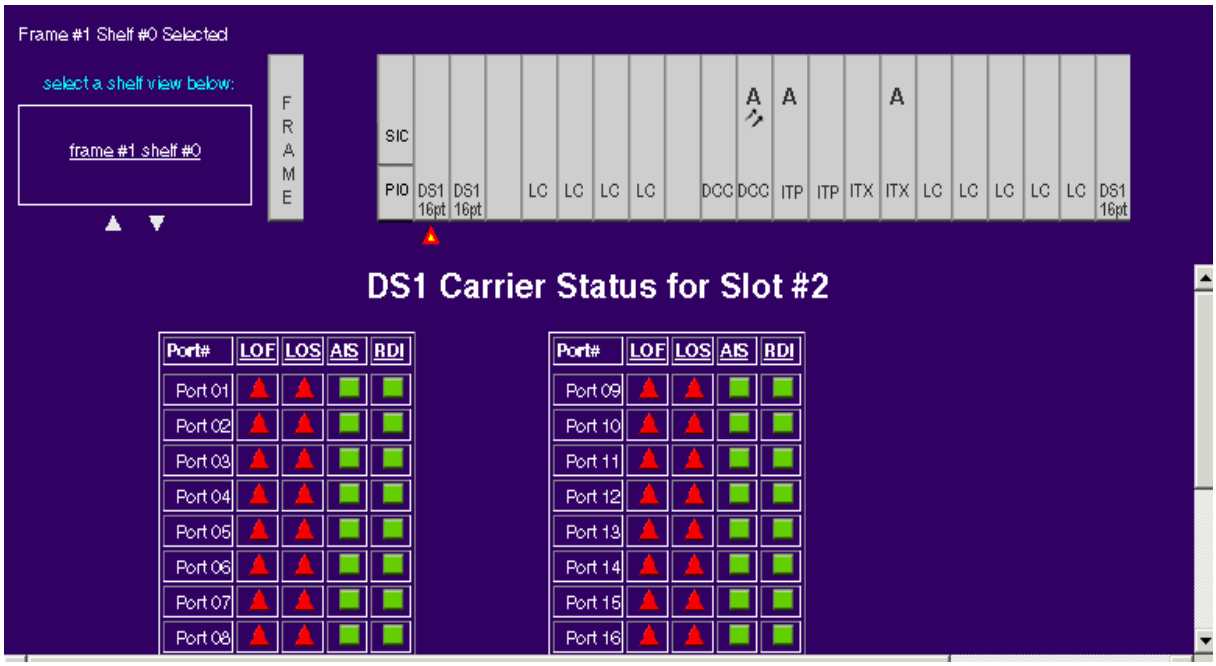
Administration status	Operation status
lock	offline
lock	online
unlock	online

DS1 Carrier Status

The DS1 carrier status screen detects error conditions relative to the individual ports of a selected card. Synchronous optical network (SONET) overhead adds end-to-end path level information to DS1 signals. Path level information contains SONET alarm defect status. A defect indicates a density of conditions, known as anomalies, that has

reached a level where the ability to perform a function has been interrupted.

DS1 carrier status screen



The following table defines the defects displayed on the DS1 carrier status screen.

DS1 carrier status defects

Defect	Explanation
AIS	Alarm indication signal. AIS generates to replace the normal traffic signal when it contains a defect condition. AIS prevents further downstream failures.
LOF	Loss of frame alignment. LOS occurs when an out of frame alignment (OOF) state exists for a specified time period.
LOS	Loss of signal. LOS occurs when the synchronous signal (STS-N) level drops below a specified threshold.
RDI	Remote defect indication. A signal indicating the detection of a LOS, LOF, or AIS defect.

The DS1 carrier status screen automatically updates defect status every five seconds for all carriers. The following table shows the status indicators displayed for each defect.

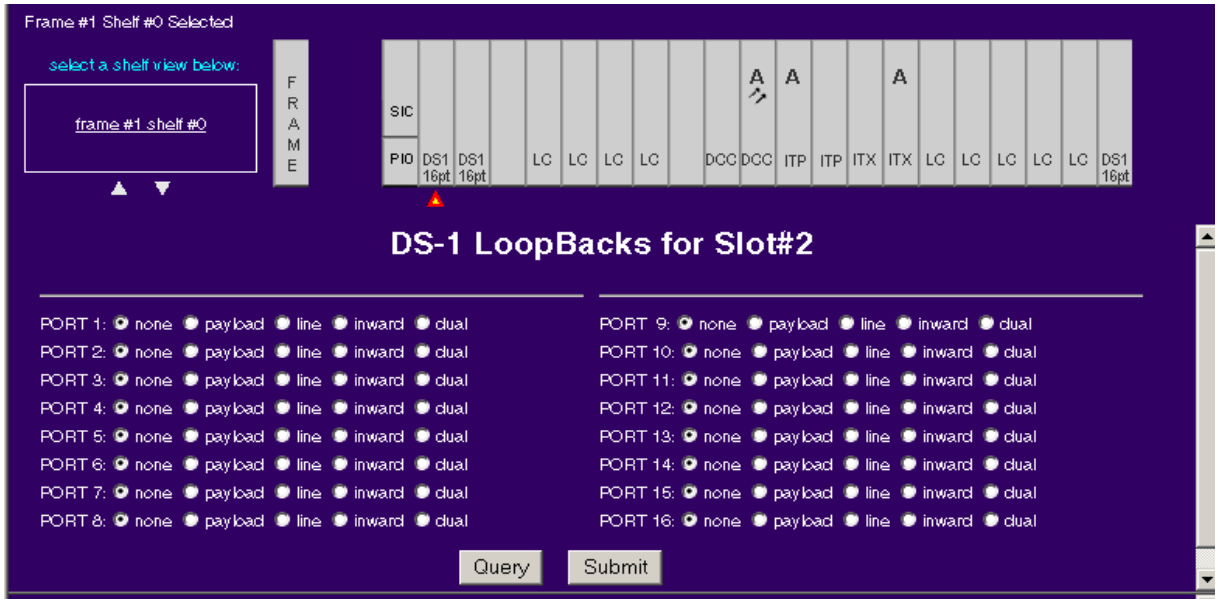
DS1 carrier status indicators

Symbol	Explanation
green square	A defect has not been detected for the carrier.
red triangle	A defect has been detected for the carrier.
empty square	The carrier is offline.

DS1 Carrier Test

The DS1 carrier test screen performs a set of loopback tests on the DS1 carrier links for a selected card. Loopback testing is a diagnostic method used to determine the integrity of a DS1 carrier. A transmit line loops back to a receive line either in the local device, along the line, or inside the remote device.

DS1 carrier test screen



The following table defines the loopback tests available from the DS1 test screen.

DS1 carrier loopback tests

Loopback Test	Explanation
Payload	The payload loopback loops the near end transmit to the near end receive. The loopback produces newly generated framing that may causes changes to the original received signal.
Line	The line loopback loops the received data back through the network. The signal returned toward the loopback source remains identical with no change in framing.
Inward	The inward loopback loops the near end transmit to the near end receive, but does not cause a change to framing.
Dual	The dual loopback performs the line and inward loopback tests at the same time.

Initially the DS1 carrier test screen displays the loopback testing status for all 16 ports on the selected DS1 card at the time of screen access. The Query button display updates the loopback status on demand. Each carrier is limited to a single loopback test at a time. Click on the Submit button to submit changes. Results are displayed in the message frame at the bottom of the screen.

DS1 Alarms

The Alarms display screen is identical for all cards managed through the LCI. For a detailed description, see Alarm display on page 344 in the DCC Maintenance options section.

DS1 Software Loading

The Software loading screen functionality is identical for all cards managed through the LCI. For a detailed description, see Software Loading on page 345 in the DCC Maintenance options section.

DCC Maintenance options

DCC maintenance options consist of the following maintenance actions:

- Node maintenance
- carrier maintenance
- Alarm display
- Software loading

- alarm log
- ESA query
- Ethernet Config
- Debug CMDs

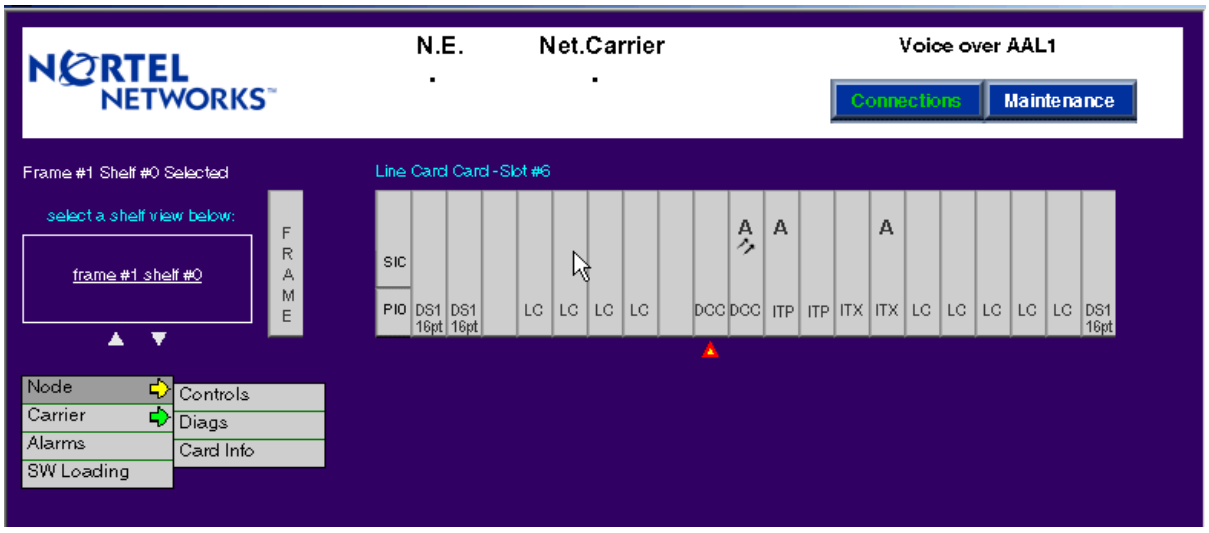
To select an option, move the cursor to the option and click.

DCC Node Maintenance

Node maintenance contains four separate options to manage the DCC card at the node level. The figure that follows shows the Node maintenance levels

- controls
- diagnostics
- card information

DCC Node Maintenance levels



DCC Node Controls

All node control screens, for all cards, provide configuration, administrative and restart options. The DCC Node Control screen provides the following maintenance options:

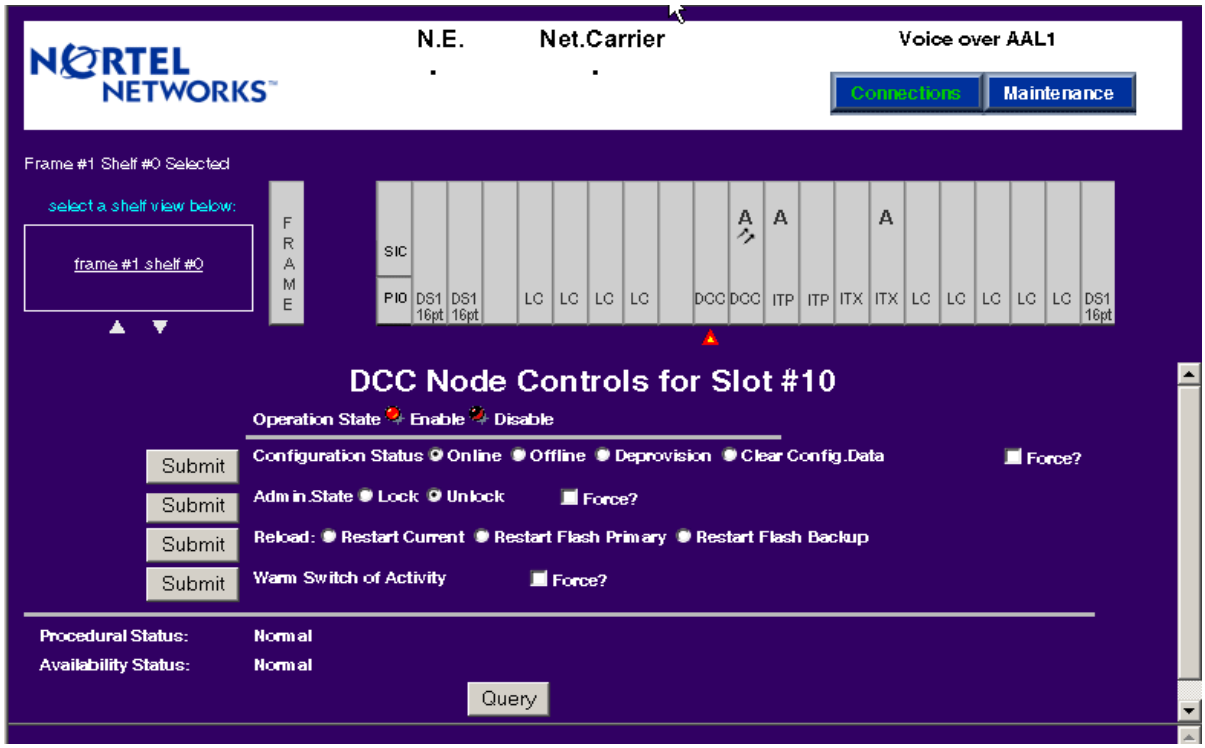
DCC Node Control options

Control	Options
Configuration	Online Offline Deprovision Clear Config. Data Force
Admin. State	Lock (out of service) Unlock (return to service) Force (used with lock or unlock)
Reload	Restart Current Restart Flash Primary Restart Flash Backup
Switch of Activity	Warm Switch of Activity Force

Click in the appropriate box or on the appropriate radio button to select the desired option then click on Submit adjacent to the option to begin the action.

The following figure shows the DCC Node Controls screen.

DCC Node Controls screen



DCC Node Diagnostics

The Node Diagnostics screen functionality is identical for all cards managed through the LCI. For a detailed description, see DS1 Node Diagnostics on page 316 in the DS1 Maintenance section.

DCC Node Card Information

The Node Card Information screen functionality is identical for all cards managed through the LCI. For a detailed description, see the DS1 Maintenance section.

DCC Carrier Maintenance

Carrier maintenance contains five separate options to manage the DCC card at the OC3 carrier level.

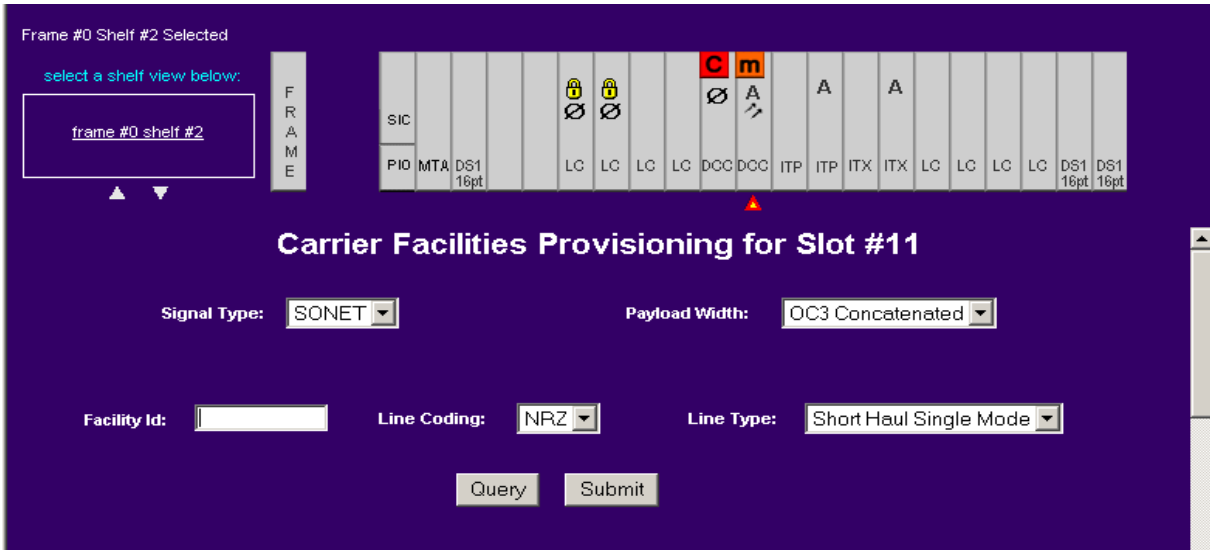
- provisioning
- controls
- status
- test
- APS

To select an option, move the cursor to the option and click.

DCC provisioning

DCC provisioning identifies OC-3 carrier circuit characteristics maintained by the DCC card. Screen access automatically generates a query to the DCC. The Query button updates the carriers current status. The Submit button saves provisioning data. The carrier must be locked before attempting to save any provisioning data.

DCC OC3 carrier provisioning screen



The following table lists the OC3 carrier definition options available on the MG 9000.

DCC OC3 carrier provisioning definitions

Field	Options	Explanation
Signal Type	SONET SDH	Select the signaling type.
Payload Width	STM1 OC-3 Concatenated OC-3	STM1 is the default payload for SDH Non-channelized OC-3 carrier Channelized OC-3 carrier. When selected, this option enables the second section permitting selection of the payload and destination of the path

DCC OC3 carrier provisioning definitions

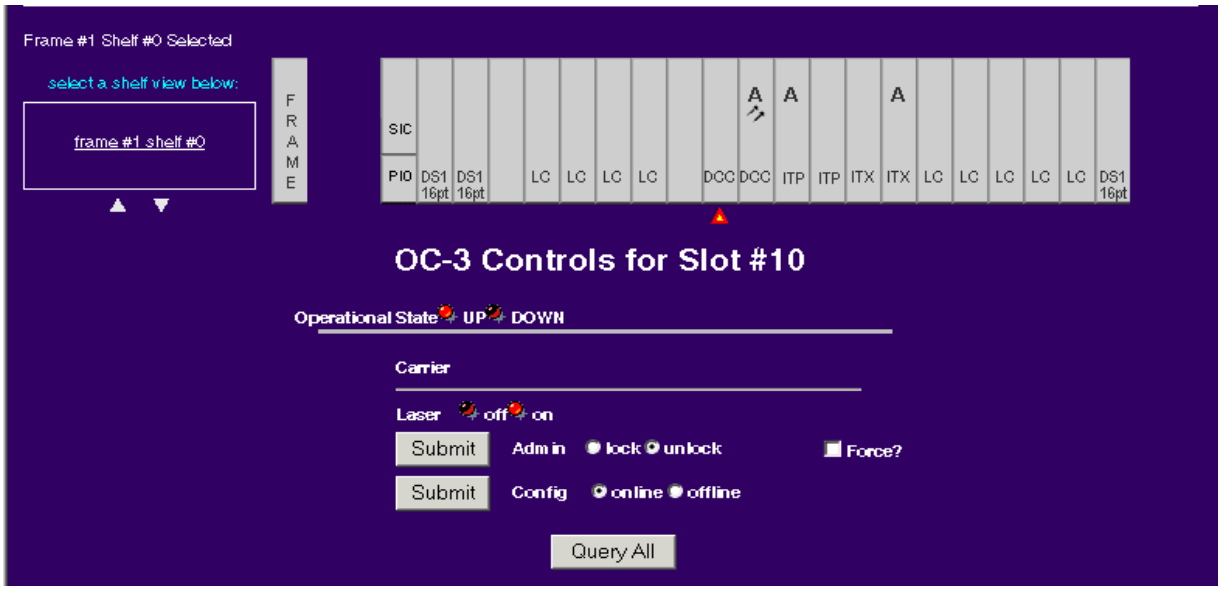
Field	Options	Explanation
Line Coding	NRZ	Non Return to Zero (NRZ) line coding used for optical Synchronous Optical Network/Synchronous Digital Hierarchy (SONET/SDH) signals.
Host Name	Alpha-numeric text string of up to 32 characters	Circuit identifier for the node's carrier
Line Type	Short haul single mode	The type of optical transport network.
Payload	DS3clearChannel	DS3 clearChannel
Destination	Network None	Identifies the active carrier paths when Network is selected.

DCC carrier controls

The DCC OC-3 carrier control screen defines administration (lock or unlock), configuration (online or offline) and laser statuses for the DCC card.

SONET automatic protection switching (APS) configures a pair of SONET lines for line redundancy so that the interface hardware automatically switches from a working line to a protection line, or vice versa within a defined period of time after a line failure.

DCC OC-3 carrier control screen for concatenated or SDH



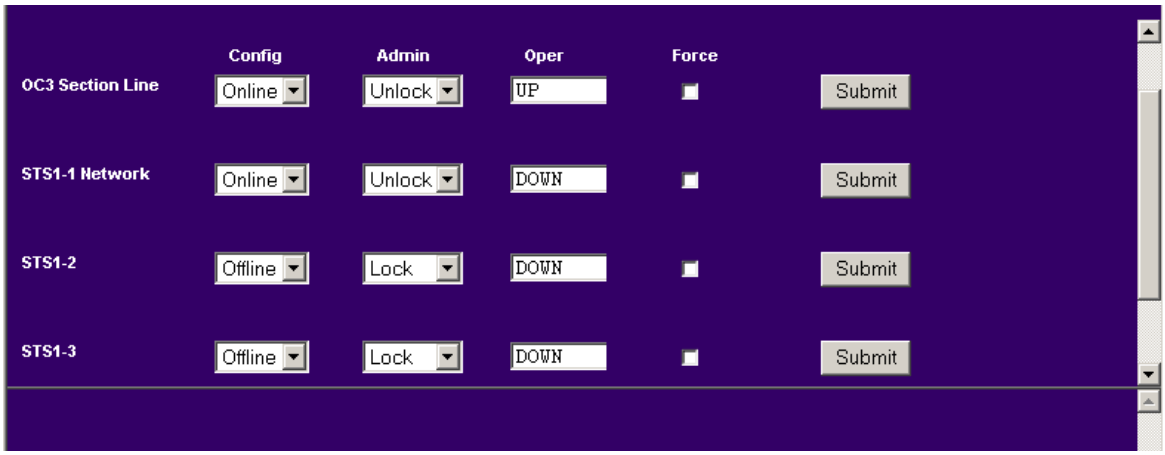
The Carrier Control screen provides the following maintenance options for a carrier in SDH or OC-3 concatenated mode:

DCC OC-3c Carrier Control screen options

Control	Option	Explanation
Laser	On Off	The laser option is an informational field indicating the OC3 carrier is on (in-service) or off (system busy).
Administration	Unlock (return to service) Lock (out of service) Force (used with lock)	The administrative option to lock or unlock a card either places a card out of service (lock) or returns the card to service (unlock). The lock option can be used in conjunction with the “force” option.
Configuration	Online Offline	The online option allows the network to see and receive information from the OC3 carrier. The offline option completely disables the carrier.

When the payload width of OC3 is selected, the OC3 carrier control screen appears as follow. This screen allows the user to select the payload and destination for the carrier path. This activity is performed during initial installation/commissioning activities.

DCC OC3 carrier control screen for channelized OC3



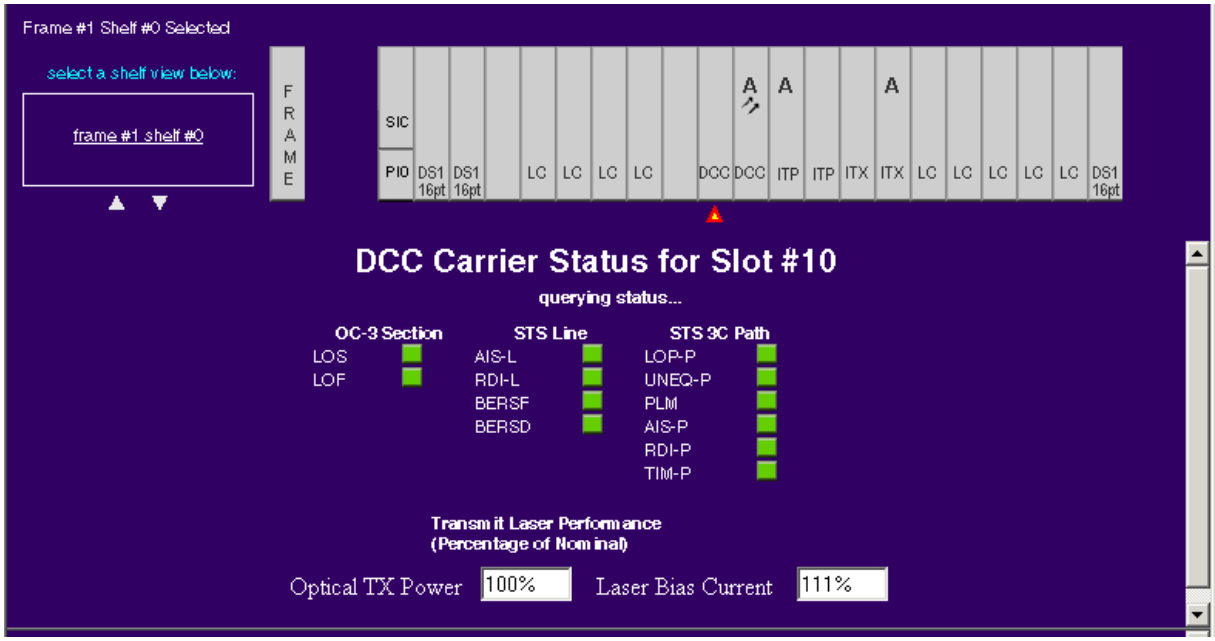
DCC OC3 carrier status

The DCC OC3 carrier screen displays the current carrier alarm status for the selected OC3 board. The following are the symbols that are displayed and their meaning:

- A green square indicates that no faults exist.
- A red triangle indicates an alarm condition exists.
- A blank display indicates the fault information could not be retrieved.

The following figure shows the DCC OC3 Carrier Status screen.

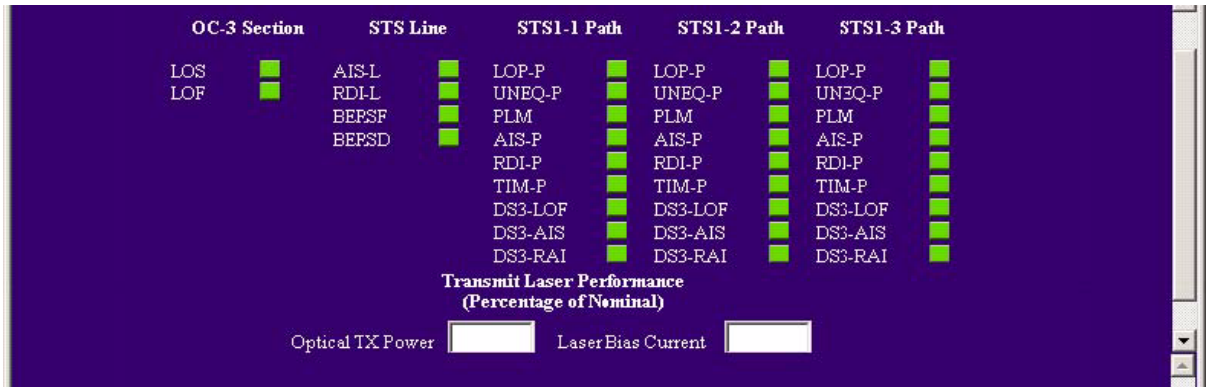
DCC OC3 Carrier Status screen for SDH and OC3 concatenated modes



Access to the screen automatically sends a query to the DCC card. After the initial query, the LCI automatically sends additional queries every 5 seconds. A message indicating “querying status...” displays on the screen whenever a query command has been issued.

The following figure shows the DCC OC3 Carrier Status screen.

DCC OC3 Carrier Status screen for OC3 channelized mode with DS3 payload



The DCC carrier status screen contains the following maintenance options:

DCC carrier status parameters

Column	Alarm	Definition
OC3 Section	loss of signal (LOS)	LOS is raised when the synchronous signal (STS-N) level drops below a defined threshold. LOS causes could include a cut cable, excessive attenuation of the signal, or equipment fault.
	loss of frame (LOF) alignment	LOF state occurs when the OOF state exists for a specified time in milliseconds. LOF state clears when an in-frame condition exists continuously for a specified time in milliseconds.
STS Line	line alarm indication signal (AIS-L)	AIS-L is generated by section terminating equipment (STE) upon the detection of a loss of signal or loss of frame defect, or an equipment failure.
	line remote defect indication (RDI-L)	An RDI-L signal is returned to the transmitting line terminating equipment (LTE) upon detection of a loss of signal, loss of frame, or AIS-L defect. RDI-L was previously known as line FERF.
	bit error ratio signal fail (BERSF)	Bit error ratio is the ratio of the number of bit errors to the total number of bits transmitted in a given time interval. BERSF includes receiver failure and excessive BER.

DCC carrier status parameters

Column	Alarm	Definition
	bit error ratio signal degradation (BERSD)	BERSD includes receiver degrade and moderate BER.
STS 3C Path	path loss of pointer (LOP-P)	An LOP-P defect is declared when either a valid pointer is not detected in eight consecutive frames, or when eight consecutive frames are detected with the New Data Flag set to “1001” without a valid concatenation indicator.
	path unequipped (UNEQ-P)	UNEQ-P occurs when a path connection is not provisioned (idle) the DCC signals the state by transmitting a Path signal label to indicate an unequipped path.
	payload label mismatch (PLM)	PLM indicates that a path is not correctly provisioned. A received signal label is considered mismatched if it does not equal either the locally provisioned value or the “equal equipped non-specific” value. Only in-service provisioned PTE can detect mismatched signal labels.
	path alarm indication signal (AIS-P)	AIS-P is defined as all “1s” in bytes H1-3 and the entire STS SPE.
	RDI-P	a signal returned to the transmitting STS path terminating equipment (PTE) upon detection of certain defects on the incoming path
	TIM-P	a mismatch has occurred between the expected and received path trace message. This applies to SDH only, though it is displayed on the DCC Carrier Status screen.
When a channelized OC3 is selected, the following alarm information appears for each STS-1 path in addition to the alarms seen for the STS-3C Path listed above.		
	DS3-LOF	Loss of frame on the DS3 payload
	DS3-AIS	Alarm indication signal for the DS3 payload
	DS3-RAI	Remote alarm indication for the DS3 payload

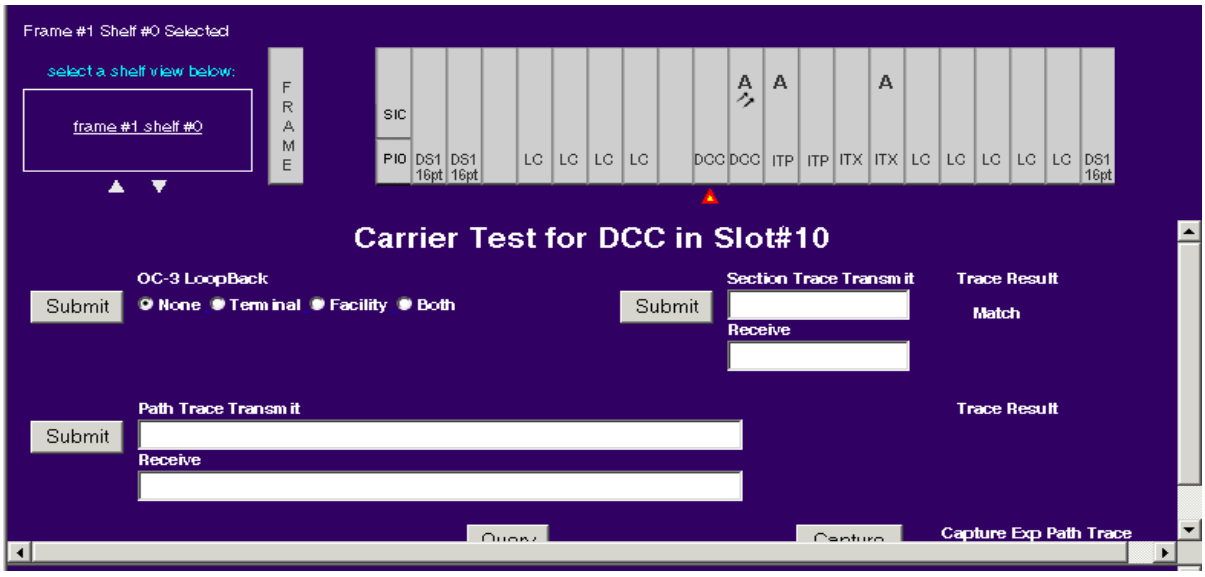
The Transmit Laser Performance portion of the OC3 Carrier Status screen provides two fields that report optical transmit power and laser bias current. These two values provide a view of the health of the transmit laser of the OC-3 card. An explanation of the values and their interpretation is provided in “OC-3 laser performance” in *MG 9000 Performance Management*, NN1040-711.

DCC carrier test

The DCC carrier test screen sets and queries OC3 Loopbacks and submits test strings for the Section and Path trace tests. The LCI automatically sends a query to the OC3 when the screen is accessed. A Query button also provides an on-demand query for updates.A Section or Path trace test produces an automatic query transmitted to the Section and Path trace data every 10 seconds. The trace tests identify locations of communication loss.

Note: The carrier must be locked before placing it in loopback.

DCC carrier test



The DCC carrier test screen contains the following maintenance options:

DCC Carrier tests and options

Test	Option	Explanation
OC3 LoopBack	none	clears a loopback test
	terminal	The signal from the transmit interface is looped back by connecting it to the receive interface.
	facility	The signal from the receive interface is looped back by connecting it to the transmit interface.
	both	Perform a terminal and a facility loopback test.
Section Trace	transmit	A character string up to 14 characters. A value of 0 clears the trace.
	receive	Not available.
Path Trace	transmit	A character string up to 62 characters. A value of 0 clears the trace. For SDH only, supports a 15 character string.
	receive	Not available.
Capture Exp. Path Trace	none	Only used for SDH to clear Trace Identifier Mismatch - Path (TIM-P) alarms. The Path Trace Message (J1) received in the incoming STM-1 stream is compared against a 'saved' 16 byte string. If the two are different, a TIM-P alarm is raised. To clear the alarm, the incoming Path Trace Message (J1) is 'saved' so to create a match, clearing the alarm. This is normally performed at commissioning when the laser is first turned on.

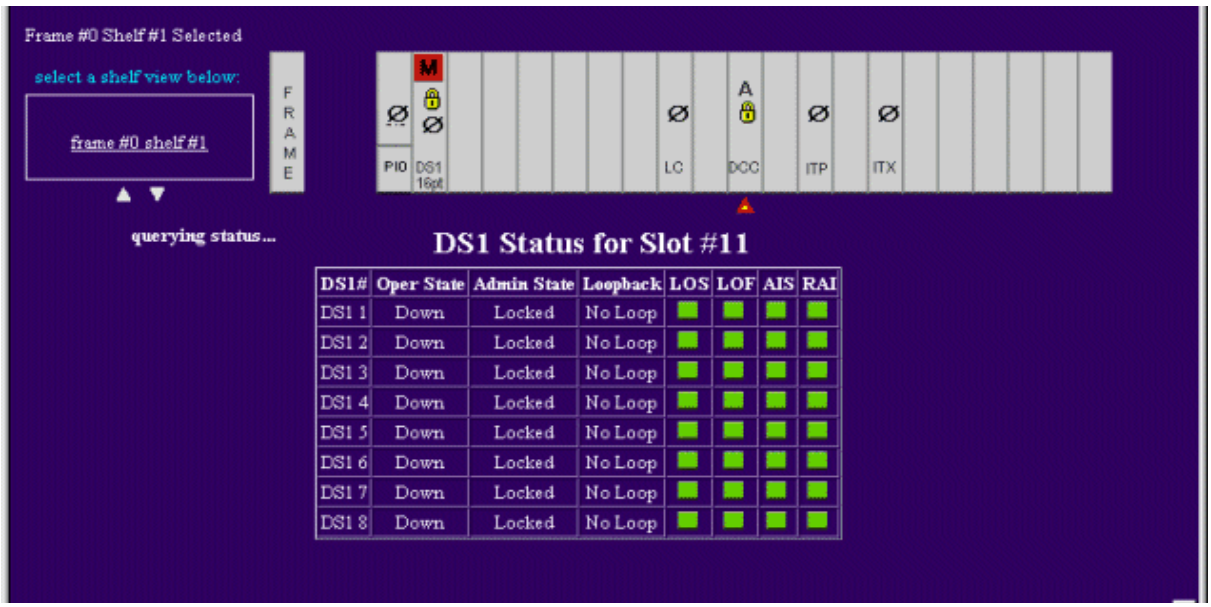
DS-1 IMA

When a DS1-IMA DCC card is installed, the DS1 IMA links can be managed used the LCI screens that are provided in this section. The DS1-IMA screens are accessed from the DCC Carrier Maintenance menu.

DS1-IMA DS1 Status

The DS1 Status screen identifies the status of DS1 IMA links and any error conditions that may exist. Refer to DS1 Carrier Status for an explanation of the alarm status defects and indicators. The DS1 Status screen is shown in the following figure.

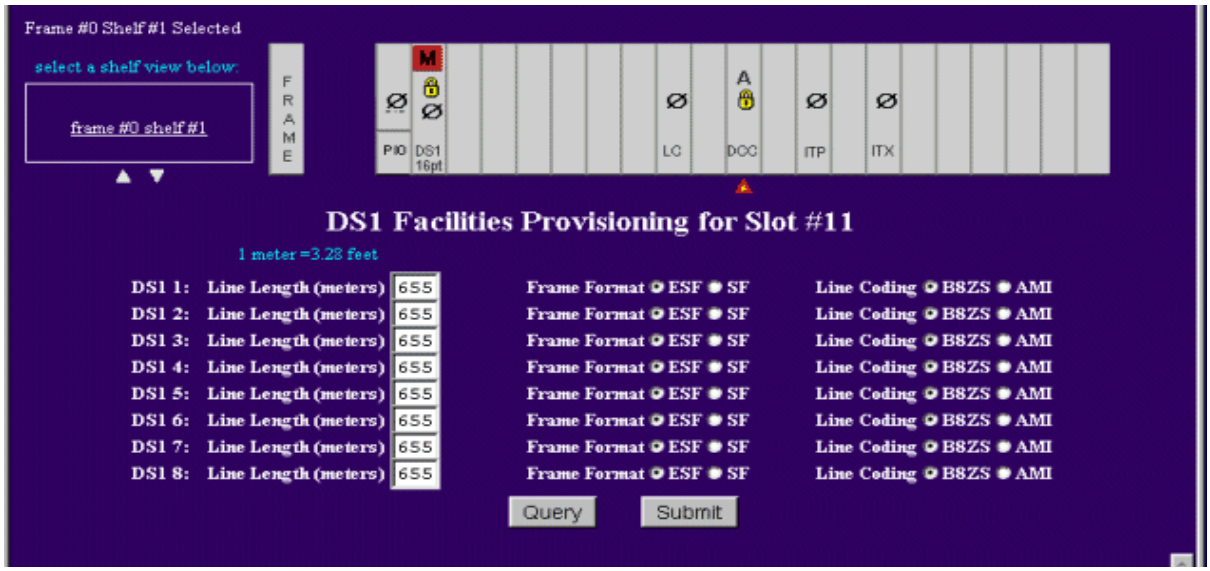
DS1 Carrier Status



DS1-IMA DS1 Facilities Provisioning

Allows the line length, frame format and line coding to be provisioned. The following figure shows the DS1 Facilities Provisioning screen.

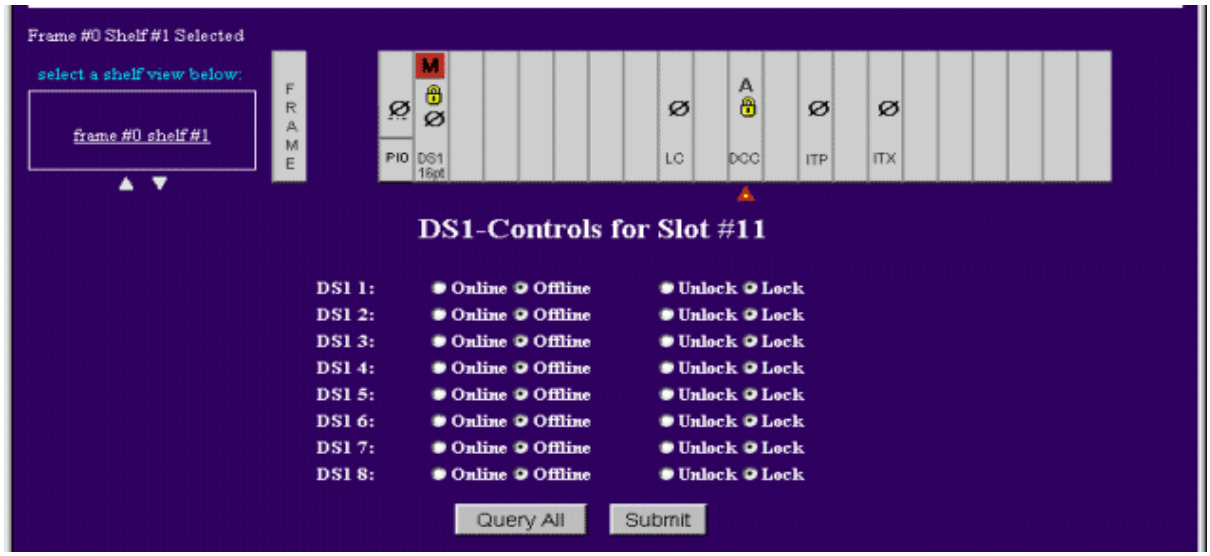
DS1 Facilities Provisioning



DS1-IMA DS1 Controls

The DS1 Controls screen allows the DS1-IMA links to set the state and status of the link, as shown in the following figure.

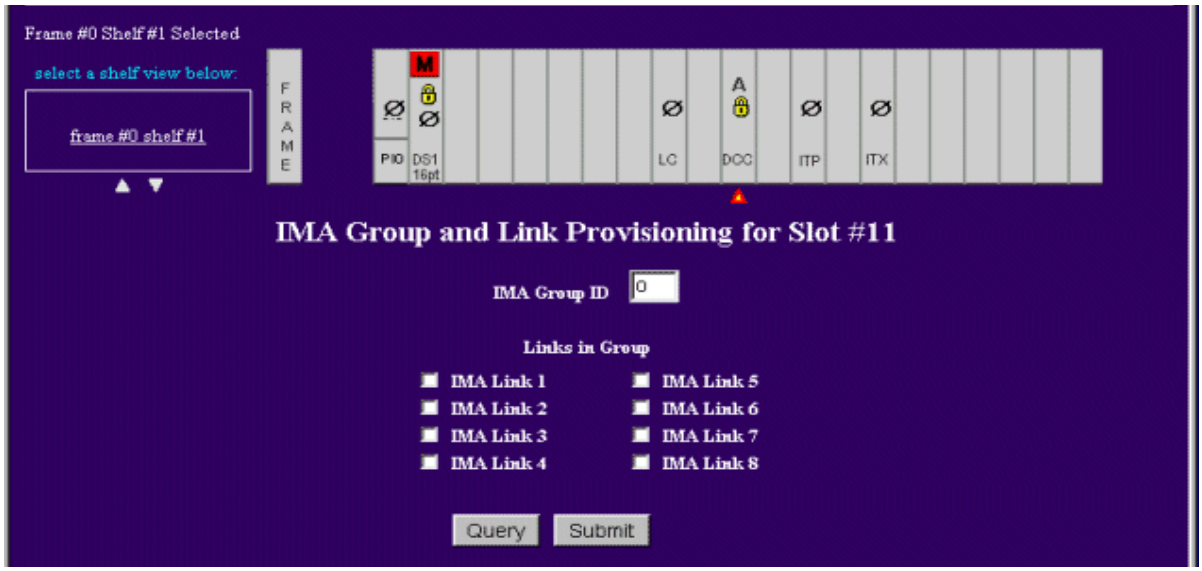
DS1-IMA Controls



DS1-IMA DS1 Group and Link Provisioning

The DS1-IMA Group and Link Provisioning screen allows the user to provision the links that will be a part of an IMA group, as shown in the following figure.

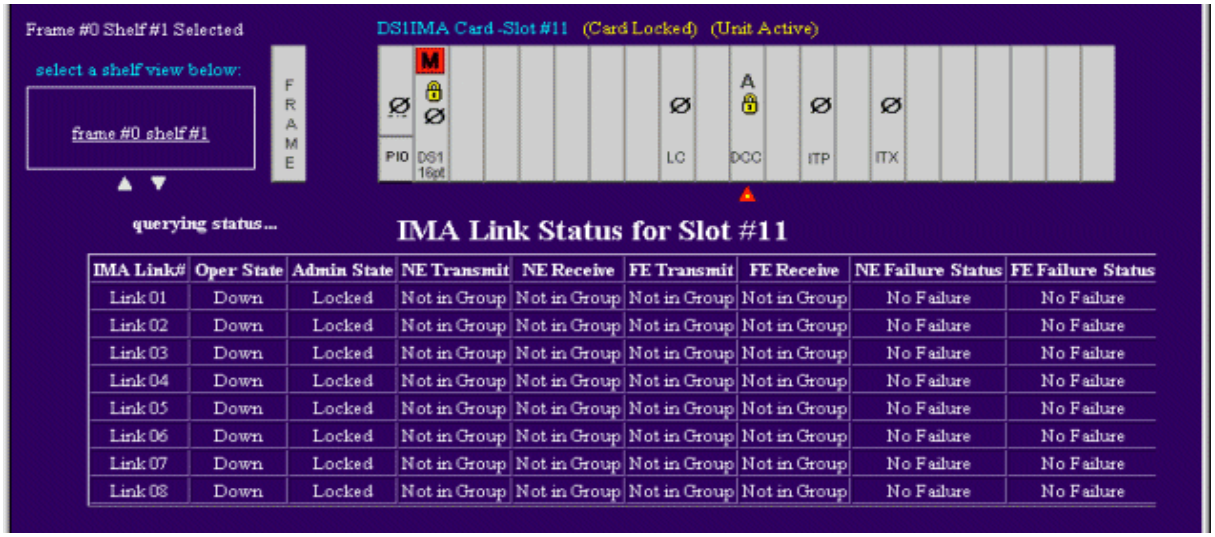
DS1-IMA Group and Link Provisioning



DS1-IMA DS1 IMA Link Status

The DS1-IMA Link Status screen reports the status of each link, failure conditions, and whether the link is in a group. The following figure shows this screen.

IMA Link Status

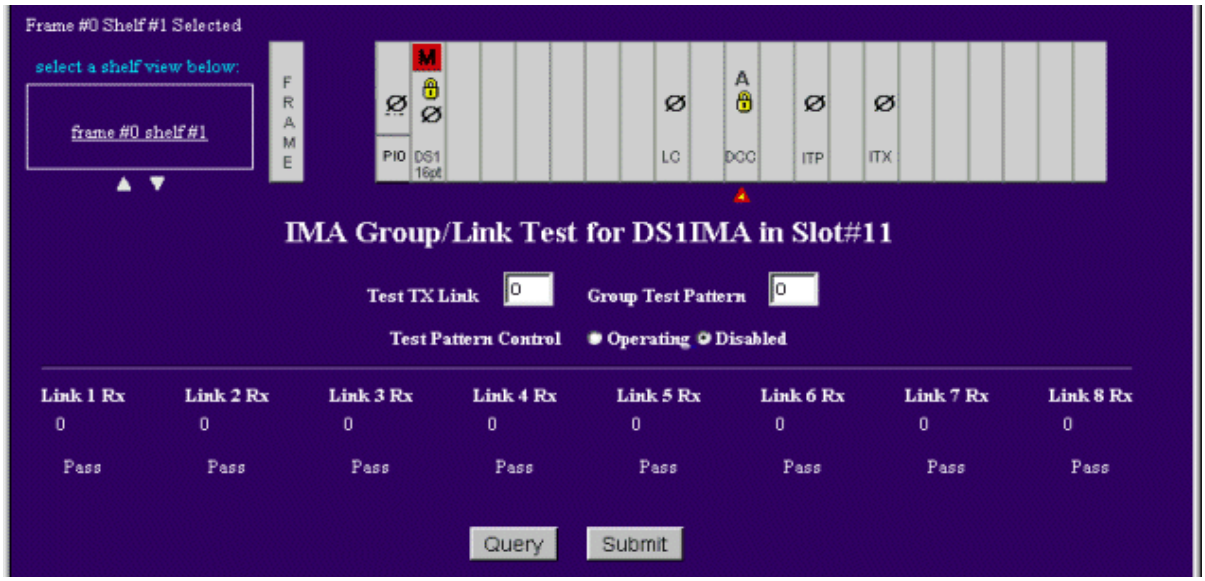


IMA Link#	Oper State	Admin State	NE Transmit	NE Receive	FE Transmit	FE Receive	NE Failure Status	FE Failure Status
Link 01	Down	Locked	Not in Group	Not in Group	Not in Group	Not in Group	No Failure	No Failure
Link 02	Down	Locked	Not in Group	Not in Group	Not in Group	Not in Group	No Failure	No Failure
Link 03	Down	Locked	Not in Group	Not in Group	Not in Group	Not in Group	No Failure	No Failure
Link 04	Down	Locked	Not in Group	Not in Group	Not in Group	Not in Group	No Failure	No Failure
Link 05	Down	Locked	Not in Group	Not in Group	Not in Group	Not in Group	No Failure	No Failure
Link 06	Down	Locked	Not in Group	Not in Group	Not in Group	Not in Group	No Failure	No Failure
Link 07	Down	Locked	Not in Group	Not in Group	Not in Group	Not in Group	No Failure	No Failure
Link 08	Down	Locked	Not in Group	Not in Group	Not in Group	Not in Group	No Failure	No Failure

DS1-IMA DS1 IMA Group/Link Test

The DS1-IMA Group/Link Test screen provides a test tool for testing an individual link and selecting the test pattern to be used when conducting the test. The test results are provided at the bottom of the screen.

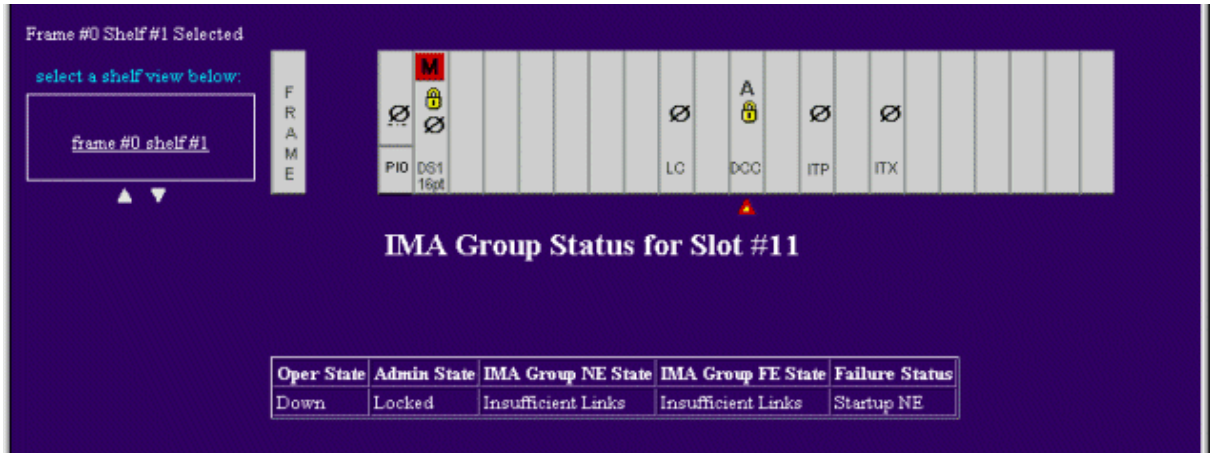
DS1-IMA Group/Link Test



DS1-IMA Group Status

The DS1-IMA Group status screen reports the operational state, administrative state, near end and far end states, and failure status of the IMA group. The following figure shows the DS1-IMA Group Status screen.

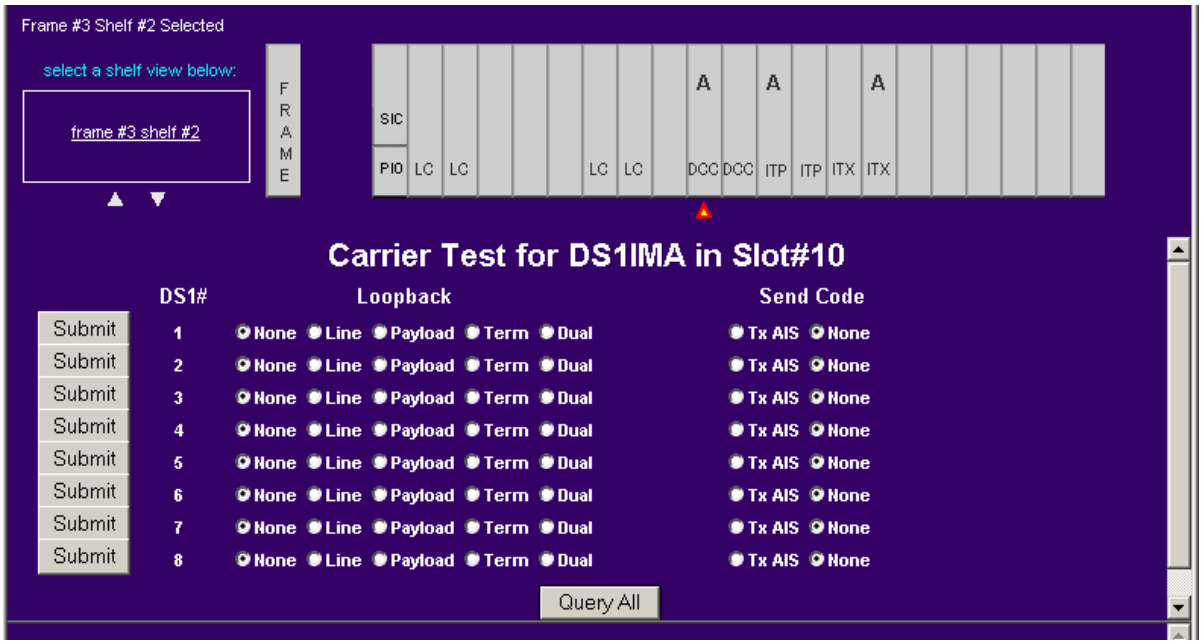
DS1-IMA Group Status



DS1-IMA DS1 IMA Carrier Test

The DS1-IMA Carrier Test screen allows the user to select the link for a loopback test, the test type, and the send code. Click on Submit to begin the test on the selected link. The following figure shows the IMA Carrier Test screen.

DS1-IMA Carrier Test



DS1-IMA DS1 IMA Group/Link Controls

The DS1-IMA Group/Link Controls screen allows the user to enable or disable individual links or enable or disable the entire IMA group as shown in the following figure.

Note: Use of the Force option to disable the group is disruptive to traffic on the link.

DS1-IMA Group/Link Controls

DCC APS

The Automatic protection switching (APS) Group Controls screen contains the options listed in the following table.

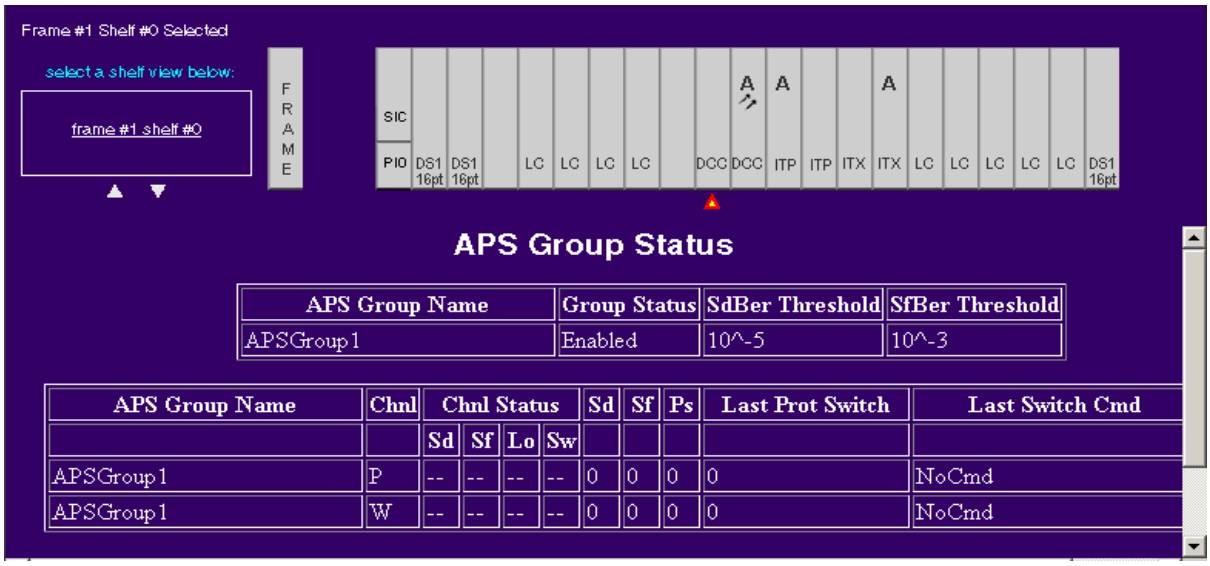
APS Group Controls

Option	Explanation
Protection channel	Select the protection channel to apply changes to the APS group.
Working channel	Select the working channel to apply changes to the APS group.
Clear lockout	Clears the APS lockout if the user has locked the carrier's ability to APS (the carrier subsystem will return to being able to switch as needed).
Lockout of protection	Disables Automatic Protection Switching and manual/Force Protection Switching features by locking out the protected (spare) carrier.
Manual Switch Protected to Working	Manual Protection switch from protected (spare) carrier to working (normal) carrier. This, in effect, allows the Active controller card to use its own fiber. Typically, this command is recommended to switch BACK to the working (normal) carrier after a carrier defect has been cleared.
Forced Switch Protected to Working	Forces a manual protection switch from protected (spare) carrier to working (normal) carrier by overriding minor failure conditions. This, in effect, forces the Active controller to use its own fiber.

DCC APS Group Status

The APS group status information is provided in this screen. The APS Group Status is shown in the following figure.

APS Group Status



The screen provides the following information for the APS group.

APS Group status information

Field	Description
APS Group Name	Name of the APS group
Group Status	Status of the APS group, enabled or disabled
Sd BER Threshold	Signal degrade (Sd) bit error rate (BER)
Sf BER Threshold	Signal fail (Sf) bit error rate
Chnl	Channel, protected (P) or working (W)
Chnl Status	Value of the following for each channel: • Sd - Signal Degrade condition exists • Sf - Signal Fail condition exists • Lo - lockout of Protection Switching • Sw - Protection Switched
Sd	Signal degrade count
Sf	Signal fail count
Ps	Protection switch count

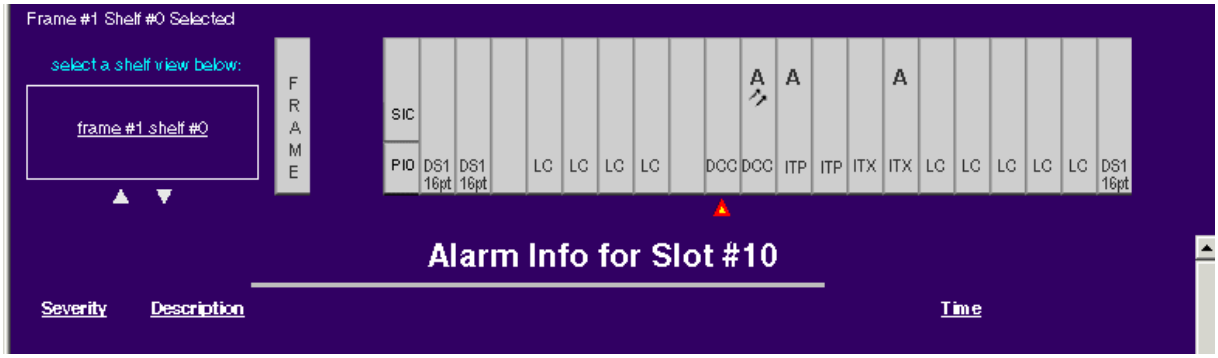
APS Group status information

Field	Description
Last Prot Switch	Time of last protection switch
Last Switch Cmd	The last command used to initiate a protection switch.

Alarm display

The Alarms screen displays the active alarms for a selected card. No maintenance activities can be performed at this screen.

Alarm information



The screen provides the following information for each alarm:

Alarm screen fields

Field	Explanation
Severity	The alarm severity as one of the following: • Critical • Major • Minor
Description	A description of the alarm type.
Time	The time that the alarm first occurred.

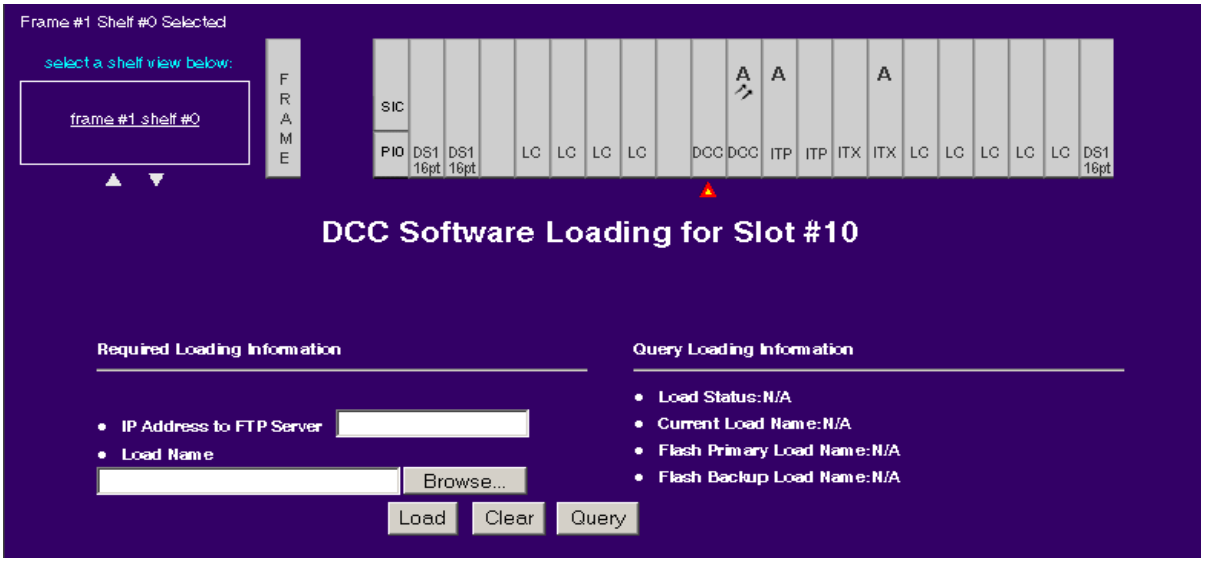
Software Loading

This screen loads current software to the selected board or queries and displays the current load status. To perform software loading using the LCI, the following conditions apply:

- the laptop PC must be connected directly to the Active DCC card
- 10-base addresses must be used, meaning the laptop must address the DCC card directly
- an FTP Daemon must be running on the laptop PC to act as the FTP server
- the software load file must be present locally on the PC
- the sFTP Daemon must be configured to accept requests from the following userid and password:
  - — userid - admin
  - — password - nortel

When a load request is submitted, a message appears near the bottom of the screen indicating that the request was successful. The loading process continues in the background after the message appears allowing access to other LCI screens. When the loading process has completed, a new window opens to provide notification that the load has finished. Query Load Information fields display the load information at the time of the query request. The query does not automatically update.

Software Loading



The Clear button clears the IP address and Load Name text boxes.

The Software Loading screen provides the following information:

Software Loading screen options

Task Heading	Field Option	Explanation
Required loading information		
	IP Address to FTP Server	Enter the IP address of the location storing the software load designated for download.
	Load Name	Enter the full path name of the load designated for download.
Query Loading Information		
	Load Status	Indicates whether the current load has been completed, or is still in progress
	Current Load Name	Identifies the current load in the DCC card.
	Flash Primary Load Name	Shows the full path name of the load in flash.
	Flash Backup Load Name	Shows the full path name of the load in RAM.

Laptop setup for software loading

The following procedure provides step for setting up a PC (laptop or desktop) to support software loading.

Note 1: Read all the steps in this procedure first.

Note 2: Ensure Serv_U FTP server software is loaded onto the PC before proceeding. Serv_U is free FTP software available online at http://www.rhinosoft.com/.

Setting up the PC for software loading

At the LCI PC

1 Ensure the MG 9000 loads (ITP, ITX, ABI, DS1, SCO*_GZ) are available on CD (or other media device), or FTP the loads to the PC.

2 Start the Serv_U FTP Server on the PC.

3 Setup the User and Home directory path as follows:

- userid = uemgbeta (user directory path = D: or E: if loading from CD)
- password = nortel
- home directory path = D: or E: if loading from CD (under user's Dir access)

4 Verify that Serv-U Server is running and the Domain is online. Ensure that user privileges are set to read/write.

5 Connect an RJ45 cross-over cable to the active DCC card from the Ethernet port of the PC.

6 Set the PC network configuration as follows:

a From the Start menu select Settings->Network Connections->Local Area Connections. The Local Area Connection Status window appears.

b Click on Properties. The Local Area Connection Properties window appears.

c From the list, select Internet Protocol (TCP/IP), then click Properties and enter the following values

- IP address = 10.0.0.2
- Subnet mask = 255.255.255.0
- Gateway = 10.0.0.1

d Restart the PC, if required.

e Ping the MG 9000 to ensure the devices are communicating by typing the following from the Command Prompt (DOS):

```
C:\ ping 10.0.0.1 -t
```

Note: The MG 9000 has 10.0.0.1 address with SN07 dual homing feature.

7 Launch the LCI screen, using the Netscape 7.0 or Explorer 5.5 browser, by typing the following in the address field:

```
https://10.0.0.1
```

8 In the LCI, click on Maintenance, select the affected MG 9000 shelf, and click on the intelligent card on which the software is to be loaded.

9 In the Software Loading screen for the target card, enter the required loading information which includes the IP address of the FTP server and the load name and path.

For example:

- IP address to FTP server: 10.0.0.2
- Load Name: E:\Loads\<loadname_GZ>

  where ITPA07BQ_GZ is the loadname

10 Click the Load button. From the Serv_U software window, press F5 to verify the connection. The MG 9000 image transfers as a software.bak file.

11 In the shelf view, click on the card being loaded and access the Node->Controls maintenance menu.

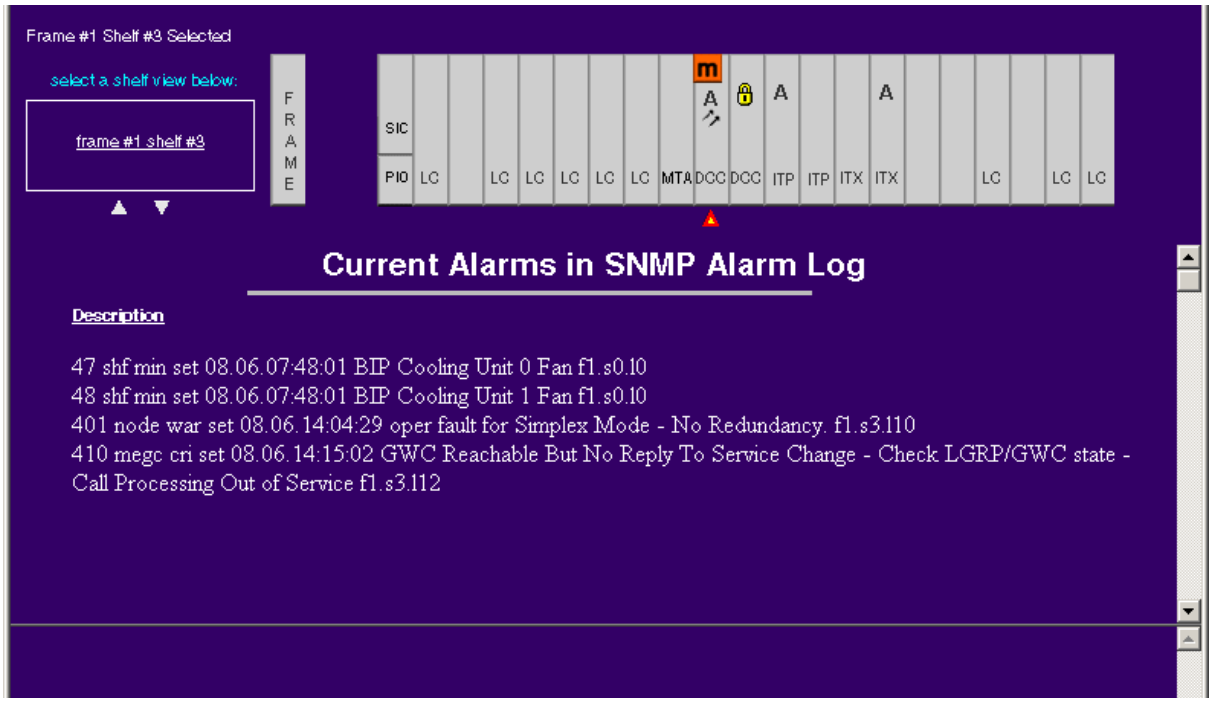
12 Click on the Restart Flash Backup radio button and click Submit. This action will boot the new load onto the MG 9000.

13 This procedure is complete.

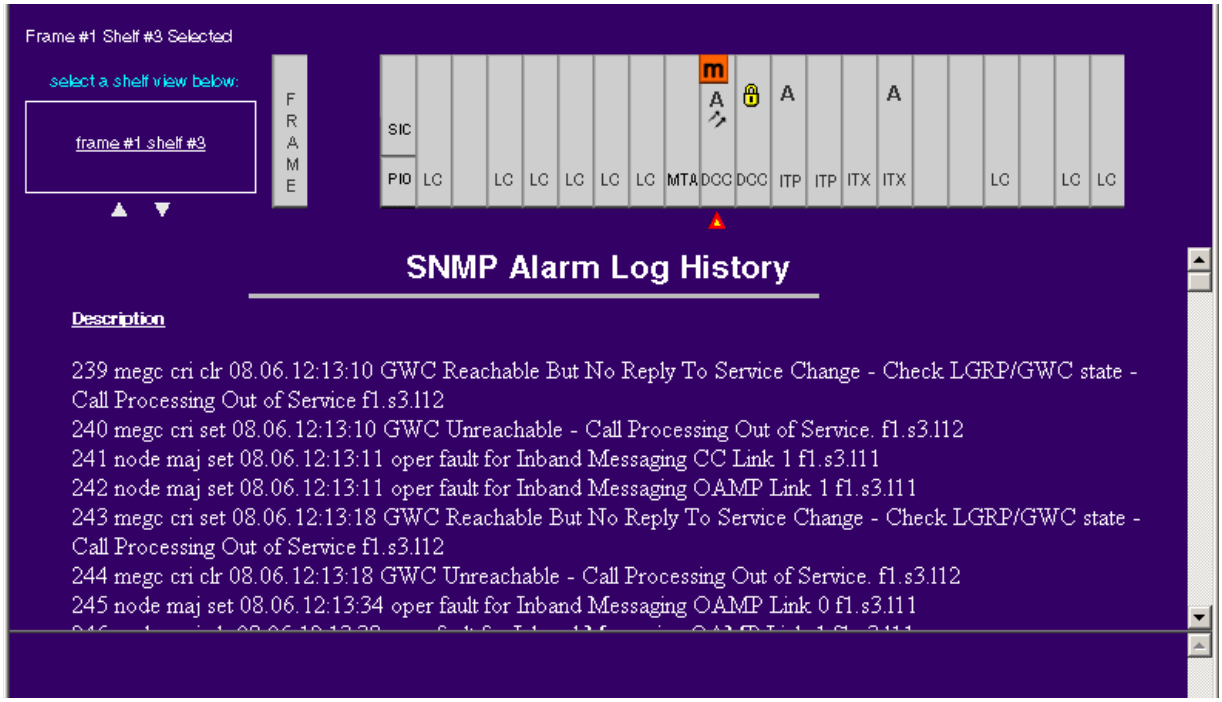
Alarm log

The SNMP Alarm Log History screen allows the technician to query and display the current SNMP alarms from the active DCC card by selecting Current from the Alarm log menu. The information provides a list of all the current events that occur on the node. To view the history of SNMP alarms, select History from the Alarm Log menu. The information displays a list of all the events that occurred to bring the node to its current state, which is useful for debugging. The following figures show the Alarm Log Current and History display screens,

SNMP Alarm Log Current screen



SNMP Alarm Log History screen



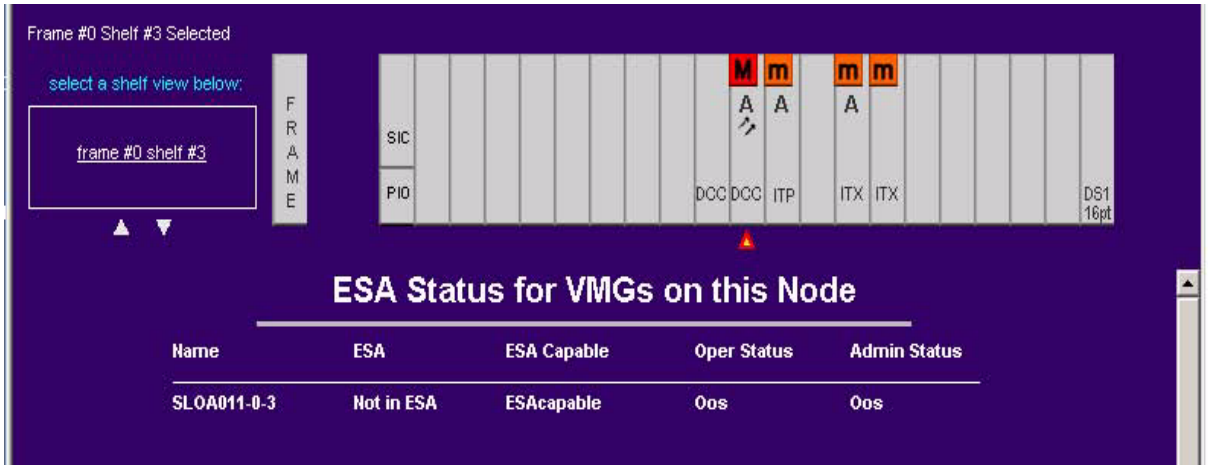
ESA Query

This screen provides a tool to the technician to identify if an MG 9000 that is not communicating with the MG 9000 Manager is in ESA and is still processing calls. The ESA Query tool provides a list of all the VMGs for a node and the ESA status for each. The following fields are displayed on the screen:

- VMG Name - lists the VMG names that relate to all call processing services on a specified frame and shelf
- ESA - indicates whether the specified VMG is in ESA
- ESA Capable - indicates whether the particular VMG has been configured for ESA
- Oper Status - identifies if the VMG is in an active and in-service
- Admin Status - identifies if the VMG is presently active and in-service

The following figure shows the ESA Status screen

ESA Status screen



Note: The ESA Status screen is an information only screen that gathers data only when the user enters the screen. To refresh the data displayed on the screen, re-enter the ESA Query tool.

Ethernet Config

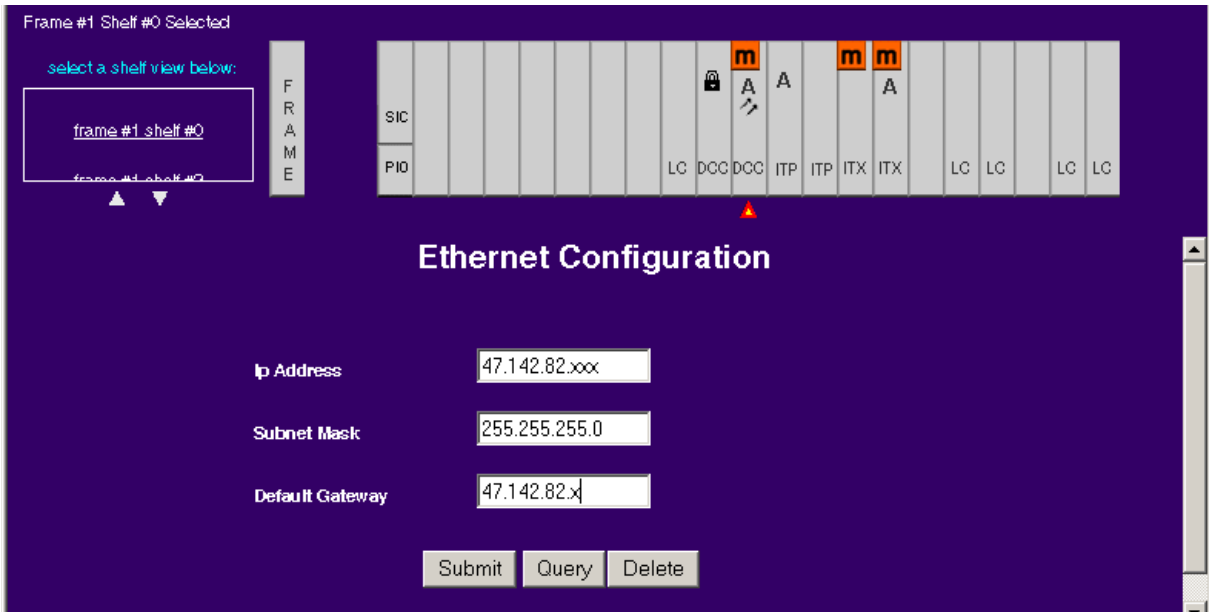
This screen allows the technician to provision the Ethernet ports to a specified IP address. This allows remote access to the Ethernet port for FTP and LCI management.

The following fields appear in the Ethernet Configuration screen

- IP address - displays the provisioned address for the Ethernet port on the selected card or enter a new address for the port
- Subnet Mask - is used by network administrators to indicate how an IP address (host) is interpreted
- Default Gateway - defines the first hop in the routing of packets, where the first hop is the initial router to which the Ethernet is connected

The following figure shows the Ethernet Configuration screen.

Ethernet Configuration screen



Debug Commands

The Debugs Commands screen provides debugging commands used for system troubleshooting.

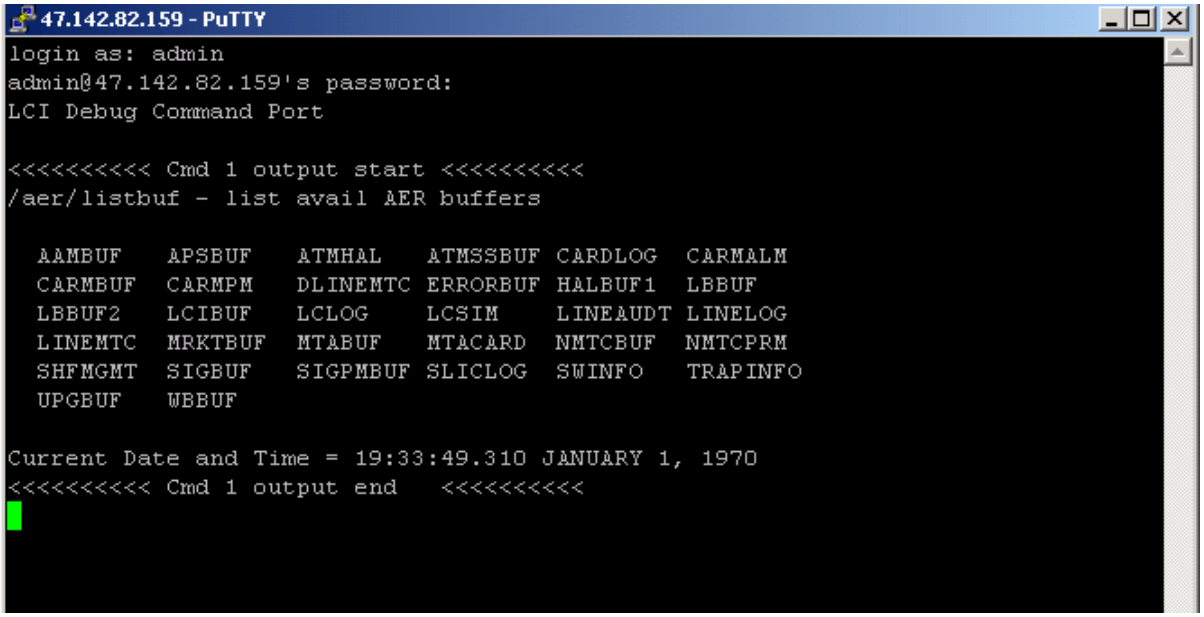
To use the debug commands, the user must perform the following steps:

1. Secure shell to the LCI debug port on the active DCC card (port 69).

   Note: The SN07 release only supports running the debug commands on the active DCC card.

   - Access debug port 69 by typing the following command string
     `> ssh -l admin -p 69 <IP_address>`
   - Enter the login and password information:
     — login = admin
     — password = n0rtel

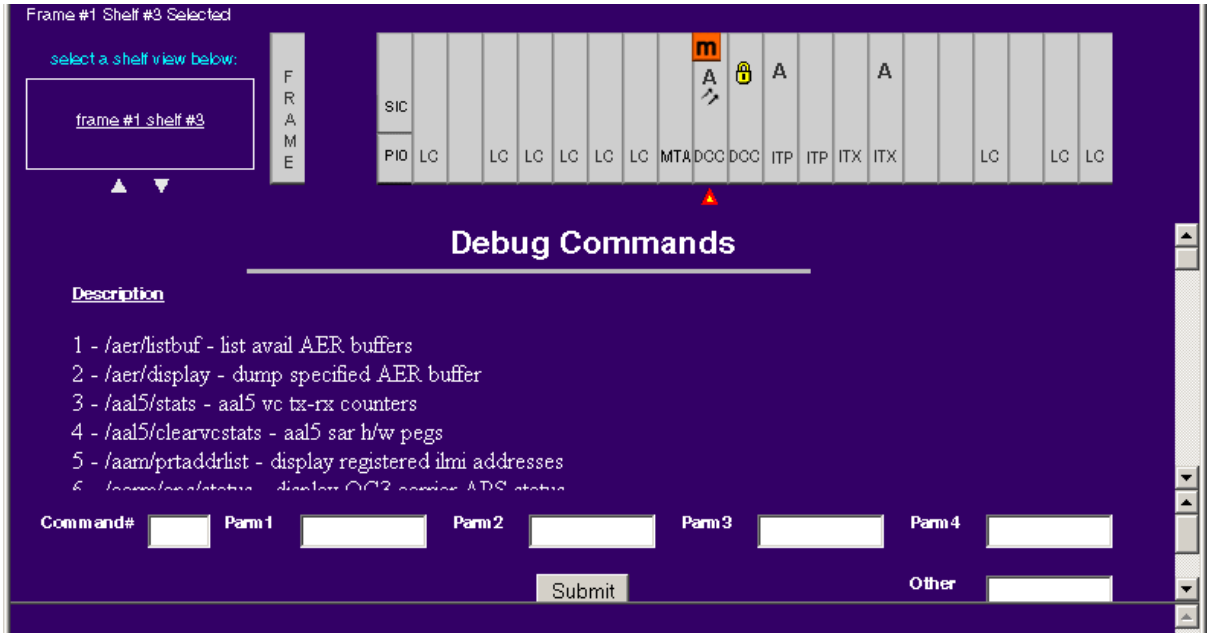
   The following figure shows the system response.



2. Navigate to the Debug CMDs screen off the DCC card menu.
3. Select the command number from the list of commands presented on the screen.
4. Enter the command number in the Commands field and If applicable, any parameters in the Parm (1-4) field(s).
5. Press Submit.
6. View the results which are sent to the secure shell session for viewing.

The following figure shows the Debug Commands screen.

Debug Commands screen



The following table lists the available debug commands, the syntax, description, options/parameters and examples.

Debug commands, syntax, description, and options

Debug command Syntax	Description Options/parameters and example
Command: /aal5/clearvcstats Syntax: /aal5/clearvcstats [-h]	Description: Clears (zeros) the per-virtual-circuit statistics for all virtual circuits. Options/parameters: No command line options or parameters.
Command: /aal5/stats Syntax: /aal5/stats [-h]	Description: Obtains either Global or per-virtual-circuit statistics Options/parameters: • stats g - to print Global statistics • stats global - to print Global statistics • stats interface vpi vci - to print Per-VC statistics for 1 VC

Debug commands, syntax, description, and options

Debug command Syntax	Description Options/parameters and example
Command: /aam/prtaddrlist Syntax: /aam/prtaddrlist -h	Description: Prints all entries in the ATM address list table Options/parameters: No command line options or parameters.

Command: /aer/display
Syntax: /aer/display [-h] <buffer_name/all> [<class_name> [<start_num> [<stop_num>]]]
	Description: Displays selected event reports.
	The buffer types ERRORBUF and TRAPINFO are used to log error conditions. Any events in these buffers warrant GNPS follow-up. All other buffer class are used for status/progress indications and the presence of logs in these buffers does not necessarily represent an error condition. For instance, the restorePersistance log shown below is a progress indication and does not indicate an error.
	Options/parameters:
	• <buffer_name>STRING - the name of a buffer type, as displayed by /aer/listbuf
	• <class_name>STRING. - the specific class of buffer, as display by /aer/listevent
	• <start_num>{0 TO 1000}
	<stop_num>{0 TO 1000}
	Example:
	`SCO [0 2 10] dSH> /aer/display errorbuf No records`
	
	`SCO [0 2 10] dSH> /aer/display aambuf INFO601 AAM JAN-01 00:00:24.960 restorePersistence called`

Command: /aer/listbuf
Syntax: /aer/listbuf [-h]
	Description: Lists all the AER buffer names in use on the card where it is executed.
	Options/parameters: No command line options or parameters.
	Example:
	`SCO [0 2 10] dSH> /aer/listbuf`
	`AAMBUF ATMHAL ATMSSBUF CARDLOG CARMALM CARMBUF CARMPM DLINEMTC ERRORBUF HALBUF1 LBBUF LBBUF2`
	`LCIBUF LCLOG LCSIM LINEAUDT LINELOG LINEMTC`
	`MRKTBUF MTABUF MTACARD NMTCBUF NMTCPRM RDPBUF`
	`SHFMGMT SIGBUF SIGPMBUF SLICLOG SWINFO TRAPINFO`
	`UPGBUF WBBUF`

Debug commands, syntax, description, and options

Debug command Syntax	Description Options/parameters and example
Command: /carm/aps/status Syntax: /carm/aps/status [-h]	Description: Prints local and mate protection group status for the carrier on this card. Options/parameters: No command line options or parameters.
Command: /carm/carrconfig/print Syntax: /carm/carrconfig/print[-h]	Description: Prints configuration data on the network carrier interfaces for the board on which it is executed. Options/parameters: No command line options or parameters.

Debug commands, syntax, description, and options

Debug command Syntax	Description Options/parameters and example
Command: /inet/ping Syntax: /inet/ping [-c count] [-s packetsize] [-I interval] host	Description: Sends ICMP ECHO_REQUEST packets to the specified network host. This is useful for verifying connectivity to gateway controller (GWC) and MG 9000 Manager. If an OAMP inband connection has been established (this can be verified using the /wb/getconn command), pings to the MG 9000 Manager from the active DCC should be successful, as should pings to the shelf controller (SC0 CIPOA address for this MG 9000. An ability to ping from the DCC to the SC but not to the MG 9000 Manager indicates an IP routing problem in the central office LAN and/or within the SC itself. An inability to ping from the DCC to the shelf controller when /wb/getconn indicates the OAMP CIPOA connection is available would tend to indicate a problem at the DCC or the shelf controller. A ping to a GWC must be issued from the subtending ITP cards. (To access Dshell on subtending ITPs, use the /dshell/telnet command.) A subtending ITP may only ping the GWC address on which that ITP's VMG has been configured. Pings from the ITP to the GWC may be used to determine if network packet loss/delay (a possible cause of Megaco ALF alarms) is present. Options/parameters: • Count - number of ICMP ping requests to attempt (not necessary to use dshell access while the requests are in progress - so exercise caution in using this) • Packetsize - the size of the ECHO_REQUEST packets to use • Interval - the time to wait between ICMP ECHO_REQUEST packets • Host - the IP address (in format xx.xx.xx.xx) to which the packets are sent

Debug commands, syntax, description, and options

Debug command Syntax	Description Options/parameters and example
Command: /inet/ping (contd)	Example: SCO [0 0 11] dSH> /snmp/getsnmip NVNodeNEIdentifier Payload: ========== NE Id........= 11 NE Name......= C411 NE TimeOfDay.= 2004-8-9,0:32:20 NE OamAesaSc0...= 393456789012345678901 23aba00e0cf0060f200' NE OamAesaSc1...= 393456789012345678901 23aba00e0cf00612100' NE CcAesaSc0....= 393456789012345678901 23ABA00E0CF0060F200' NE CcAesaSc1....= 393456789012345678901 23aba00e0cf00612100' NE DS512AesaSc0....= 393456789012345678901 23aba00e0cf0060f200' NE DS512AesaSc1....= 393456789012345678901 23aba00e0cf00612100' Transparent Items NE OamUemg Ip...= 10.32.0.70 NE OamUemg Mask.= 255.255.254.0 NE OamNextHop= 10.32.0.254 NE SnmIp....= 47.142.131.100 :: 8006 NE CcUemg Ip...= 10.32.0.80 NE CcUemg Mask.= 255.255.254.0 NE CcNextHop= 10.32.0.254 NE DS512Uemg Ip...= 10.32.0.90 NE DS512Uemg Mask.= 255.255.254.0 NE DS512NextHop= 10.32.0.254 SCO [0 0 11] dSH> /inet/ping 10.32.0.254 10.32.0.254 is alive SCO [0 0 11] dSH> /inet/ping 47.142.131.100 47.142.131.100 is alive

Debug commands, syntax, description, and options

Debug command Syntax	Description Options/parameters and example
Command: /inet/traceroute Syntax: /inet/traceroute [-adnruvAMOQ] [-w wait] [-S start_ttl] [-m max_ttl] [-p port#] [-q nqueries] [-g gateway] [-t tos] [-s src_addr] [-g router] host [data size]	Description: Traces packet route to a network host. This command can be useful in diagnosing connectivity problems to a central office host (usually the MG 9000 Manager if traceroute is being executed from the DCC, or the GWC if traceroute is being executed from an ITP/ABI) Options/parameters: • -a - Abort after 10 consecutive drops • -g - Use this gateway as an intermediate hop (uses LSRR) • -S - Set start TTL (default 1) • -m - Set maximum TTL (default 30) • -n - Report IP addresses only (not hostnames) ALWAYS ON • -p - Use an alternate UDP port • -q - Set the number of queries at each TTL (default 3) • -r - Set Don't Route option • -s - Set your source address • -t - Set the IP TOS field (default 0) • -u - Use microsecond timestamps • -v - Verbose • -w - Set timeout for replies (default 5 sec) • -A - Report AS# at each hop (from GRR) • -M - Do RFC1191 path MTU discovery • -O - Report owner at each hop (from DNS) • -P - Parallel probing • -Q - Report delay statistics at each hop (min/avg+-stddev/max) (ms) • -T - Terminator (line end terminator) • -U - Go to next hop on any success

Debug commands, syntax, description, and options

Debug command Syntax	Description Options/parameters and example
Command: /inet/traceroute (contd)	Example: SCO [0 0 11] dSH> /snmp/getsnmip NVNodeNEIdentifier Payload: ========== NE Id........= 11 NE Name......= C411 NE TimeOfDay.= 2004-8-9,0:32:20 NE OamAesaSc0...= 393456789012345678901 23aba00e0cf0060f200' NE OamAesaSc1...= 393456789012345678901 23aba00e0cf00612100' NE CcAesaSc0....= 393456789012345678901 23ABA00E0CF0060F200' NE CcAesaSc1....= 393456789012345678901 23aba00e0cf00612100' NE DS512AesaSc0....= 393456789012345678901 23aba00e0cf0060f200' NE DS512AesaSc1....= 393456789012345678901 23aba00e0cf00612100' Transparent Items NE OamUemg Ip...= 10.32.0.70 NE OamUemg Mask.= 255.255.254.0 NE OamNextHop= 10.32.0.254 NE SnmIp....= 47.142.131.100 :: 8006 NE CcUemg Ip...= 10.32.0.80 NE CcUemg Mask.= 255.255.254.0 NE CcNextHop= 10.32.0.254 NE DS512Uemg Ip...= 10.32.0.90 NE DS512Uemg Mask.= 255.255.254.0 NE DS512NextHop= 10.32.0.254 SCO [0 0 11] dSH> /inet/traceroute 47.142.131.100 traceroute to 47.142.131.100 (47.142.131.100), 30 hops max, 40 byte packets 1 10.32.0.254 0 ms 0 ms 10 ms 2 172.20.240.3 0 ms 0 ms 0 ms 3 47.142.131.100 10 ms 0 ms 0 ms

Debug commands, syntax, description, and options

Debug command Syntax	Description Options/parameters and example
Command: /lanbuilder/prtconnlst Syntax: /lanbuilder/prtconnlst [-h] [all]	Description: Used to print the card to card connection list. Each MG 9000 has an internal IP network between the intelligent cards inserted into the MG 9000 shelves. This network is called the “lanbuilder” network, and uses the 192.168.0.0 subnet. Each card within the network receives a unique address within the 192.168.0.0 subnet based on it’s shelf/frame/slot location. While these addresses can be calculated, the easiest way to see which address correspond to which cards on the internal network is to use the /lanbuilder/prtconnlst command. The output of this command shows the shelf/frame/slot for each intelligent card, and the address of the card. These internal addresses can be used to telnet to subtending cards from the DCC. /lanbuilder/prtconnlst can also be used to determine the health of the connections between cards. The simple form of the command gives only an up/down indication (or in the case of a subtending card, an N/A indication when there is no direct connection between the subtending card and the address). When the “all” parameter is added, additional debugging information is printed out. Options/parameters: [all] indicates that additional status information should be printed.

Debug commands, syntax, description, and options

Debug command Syntax	Description Options/parameters and example
Command: /lanbuilder/prtconnlst (Contd)	Example: SCO [0 2 10] dSH> /lanbuilder/prtconnlst CONNECTION LIST ========== Frame Shelf Slot Card ip Succ Fail ConnId ConnState ========== 0 2 10 OC3 192.168.192.74 0 0 0 up 0 2 11 OC3 192.168.192.75 3 29 39 up 0 2 12 ITP 192.168.128.76 0 3 37 up 0 2 13 ITP 192.168.128.77 0 6 38 up 0 2 14 ITX 192.168.128.78 1 0 34 up 0 2 15 ITX 192.168.128.79 0 4 36 up

Debug commands, syntax, description, and options

Debug command Syntax	Description Options/parameters and example
Command: /lanbuilder/prtconnlst (Contd)	Example: SCO [0 2 10] dSH> /lanbuilder/prtconnlst all wyaReceived_ = True lbInitComplete_ = True rdpConTo10_ = False rdpConTo11_ = True CONNECTION LIST ========== Frame Shelf Slot Card ip Succ Fail ConnId ConnState ========== 0 2 10 OC3 192.168.192.74 0 0 0 up Fr:0 Sh:2 Sl:10 Ip:192.168.192.74 cardType:OC3 vccCipoaIsSetUp_ = False wyaAcked_ = True wyaResends_ = 0 msgUp_ = False nonRDPmsgUp_ = False rdpConnPtr_ = 0x0 0 2 11 OC3 192.168.192.75 3 29 39 up Fr:0 Sh:2 Sl:11 Ip:192.168.192.75 cardType:OC3 vccCipoaIsSetUp_ = True wyaAcked_ = True wyaResends_ = 0 msgUp_ = True nonRDPmsgUp_ = False rdpConnPtr_ = 0x6782e98 0 2 12 ITP 192.168.128.76 0 3 37 up Fr:0 Sh:2 Sl:12 Ip:192.168.128.76 cardType:ITP vccCipoaIsSetUp_ = True wyaAcked_ = True wyaResends_ = 1 msgUp_ = True nonRDPmsgUp_ = False rdpConnPtr_ = 0x67cc8c8 0 2 13 ITP 192.168.128.77 0 6 38 up Fr:0 Sh:2 Sl:13 Ip:192.168.128.77 cardType:ITP vccCipoaIsSetUp_ = True wyaAcked_ = True wyaResends_ = 1 msgUp_ = True nonRDPmsgUp_ = False rdpConnPtr_ = 0x67c1990 0 2 14 ITX 192.168.128.78 1 0 34 up Fr:0 Sh:2 Sl:14 Ip:192.168.128.78 cardType:ITX vccCipoaIsSetUp_ = True wyaAcked_ = True wyaResends_ = 0 msgUp_ = True nonRDPmsgUp_ = False rdpConnPtr_ = 0x6817278 0 2 15 ITX 192.168.128.79 0 4 36 up Fr:0 Sh:2 Sl:15 Ip:192.168.128.79 cardType:ITX vccCipoaIsSetUp_ = True wyaAcked_ = True wyaResends_ = 1 msgUp_ = True nonRDPmsgUp_ = False rdpConnPtr_ = 0x67e13b8

Debug commands, syntax, description, and options

Debug command Syntax	Description Options/parameters and example
Command: /snmp/getsnmip Syntax: /snmp/getsnmip [-h]	Description: Displays inband (wan builder) configuration and external addressing for the MG 9000 subnets. Options/parameters: No command line options or parameters.
Command: /snmp/getsnmip (contd)	Example: SCO [0 0 11] dSH> /snmp/getsnmip NVNodeNEIdentifier Payload: ========== NE Id.....= 11 NE Name.....= C411 NE TimeOfDay.= 2004-8-9,0:32:20 NE OamAesaSc0...= 39345678901234567890123aba00e0cf0060f200' NE OamAesaSc1...= 39345678901234567890123aba00e0cf00612100' NE CcAesaSc0....= 39345678901234567890123ABA00E0CF0060F200' NE CcAesaSc1....= 39345678901234567890123aba00e0cf00612100' NE DS512AesaSc0....= 39345678901234567890123aba00e0cf0060f200' NE DS512AesaSc1....= 39345678901234567890123aba00e0cf00612100' Transparent Items NE OamUemg Ip...= 10.32.0.70 NE OamUemg Mask.= 255.255.254.0 NE OamNextHop= 10.32.0.254 NE SnmIp....= 47.142.131.100 :: 8006 NE CcUemg Ip...= 10.32.0.80 NE CcUemg Mask.= 255.255.254.0 NE CcNextHop= 10.32.0.254 NE DS512Uemg Ip...= 10.32.0.90 NE DS512Uemg Mask.= 255.255.254.0 NE DS512NextHop= 10.32.0.254
Command: /wb/cause Syntax: /wb/cause[-h]	Description: Displays the release cause codes for the inband (wanbuilder0 messaging links. Options/parameters: No command line options or parameters.

Debug commands, syntax, description, and options

Debug command Syntax	Description Options/parameters and example

	Example:
	`SCO [0 0 11] dSH> /wb/cause`
	
	`OAMP Connection...`
	`SVC to SC0 is currently Connected -- cause code 0 - NA`
	`SVC to SC1 is currently Connected -- cause code 0 - NA`
	
	`Call Control Connection...`
	`SVC to SC0 is currently Connected -- cause code 0 - NA`
	`SVC to SC1 is currently Connected -- cause code 0 - NA`
	
	`DS512 Connection...`
	`SVC to SC0 is currently Connected -- cause code 0 - NA`
	`SVC to SC1 is currently Connected -- cause code 0 - NA`

Command: /wb/getconn
Syntax: /wb/getconn [all]
	Description: Displays connection information for the inband (wan builder) messaging links.
	Options/parameters: [all] The All option displays more detailed information
	
	Example:
	`SCO [0 0 11] dSH> /wb/getconn`
	
	`OAM connection...`
	`Primary has been Connected to SC 1.`
	`Primary Vpi, Vci = 0, 1648.`
	`Secondary has been Connected to SC 0.`
	`Secondary Vpi, Vci = 0, 1649.`
	
	`Call Control connection...`
	`Primary has been Connected to SC 1.`
	`Primary Vpi, Vci = 0, 1650.`
	`Secondary has been Connected to SC 0.`
	`Secondary Vpi, Vci = 0, 1651.`
	
	`DS512 connection...`
	`Primary has been Connected to SC 1.`
	`Primary Vpi, Vci = 0, 1646.`
	`Secondary has been Connected to SC 0.`
	`Secondary Vpi, Vci = 0, 1647.`

ITP Maintenance options

ITP maintenance options consist of the following maintenance actions:

- node maintenance
- alarm display
- software loading
- clock synchronization maintenance

To select an option, move the cursor to the option and click.

The node, alarm and software screen functionality is identical for all cards managed through the LCI. For a detailed description, see the DS1 node maintenance and DCC Node Maintenance sections.

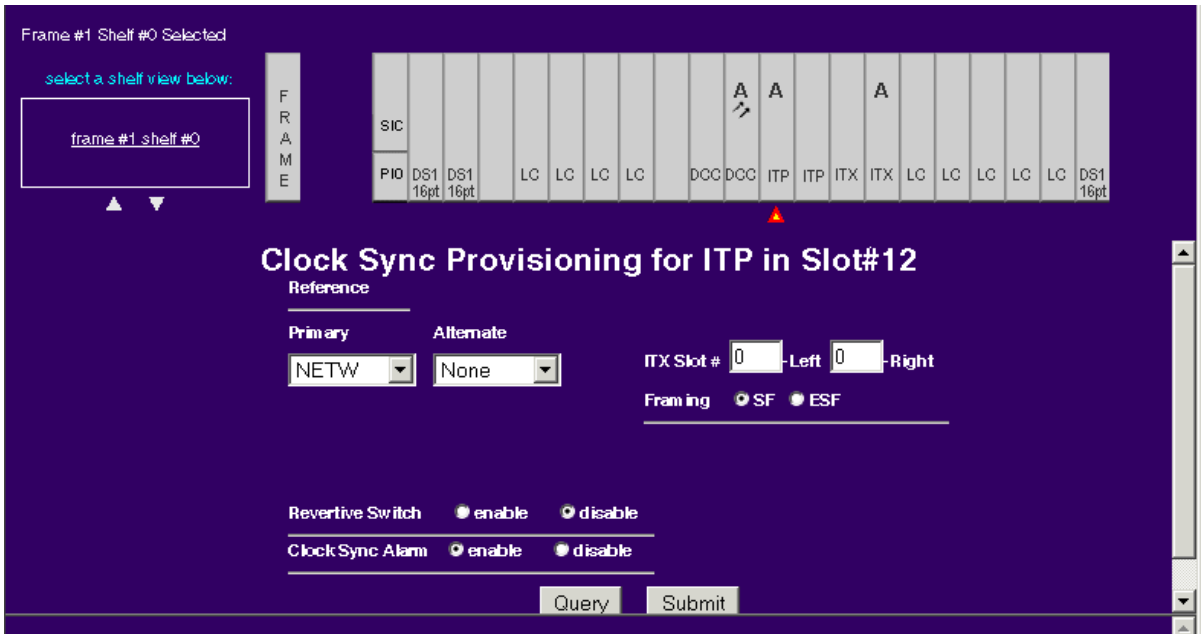
Clock Sync Provisioning

The Clock Sync Provisioning screen defines the system timing mode for the network element. The screen provides three timing mode options:

- network
- ITX building integrated timing system (BITS)
- DCCBITS

The Network selection indicates the clock sync derives the timing reference from the upstream network connection. The MG 9000 accepts an external BITS DS1 input signal, referenced to a Stratum timing source that is Stratum-3 or better. The external timing signal is a DS1 BITS supplied clock. The ITP card receives the BITS reference signal through an 8 KHz signal transmitted over the MG 9000 backplane.

ITP Clock Sync Provisioning screen



The ITXBITS selection requires at least one ITX card provisioned to serve as the BITS timing reference source. If only one ITX is provisioned, set the slot number fields to the same value. Set the upper ITX slot field to the left most ITX being used for BITS distribution. Set the lower slot field to the right most ITX being used for BITS distribution.

If ITXBITS or DCCBITS was selected, select the format encoding method, SF (superframe) or ESF (extended superframe).

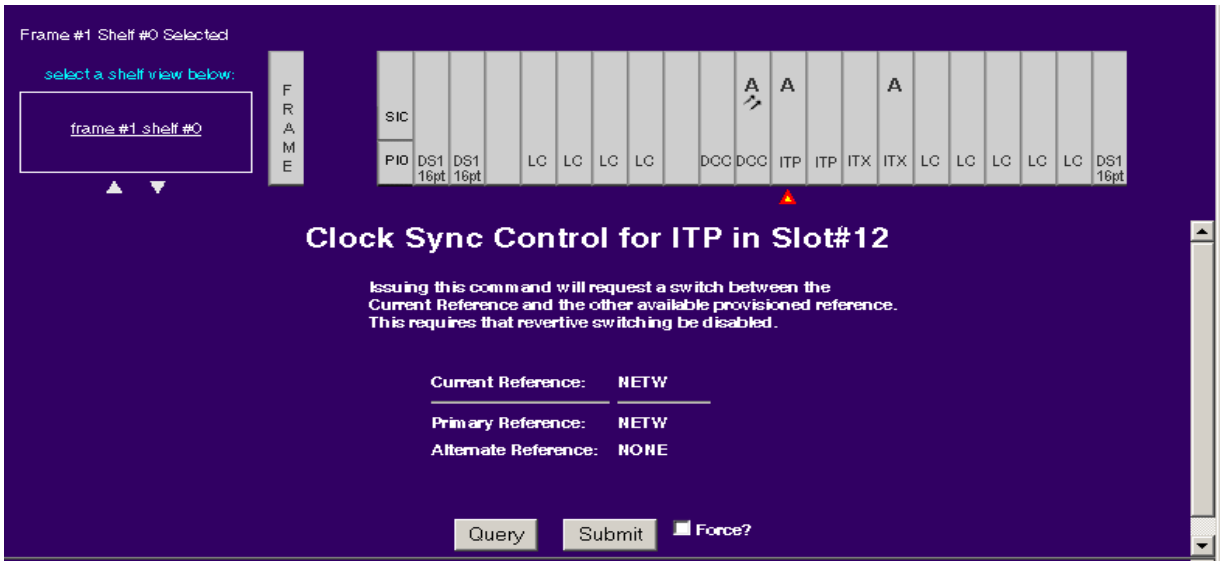
The reference switching default option is non-revertive.

To enable clock sync alarms, select the Enable radio button.

Clock Sync Control

The Clock Sync Control screen queries the current clock reference and allows the option to set the clock reference to either ITP0 or ITP1.

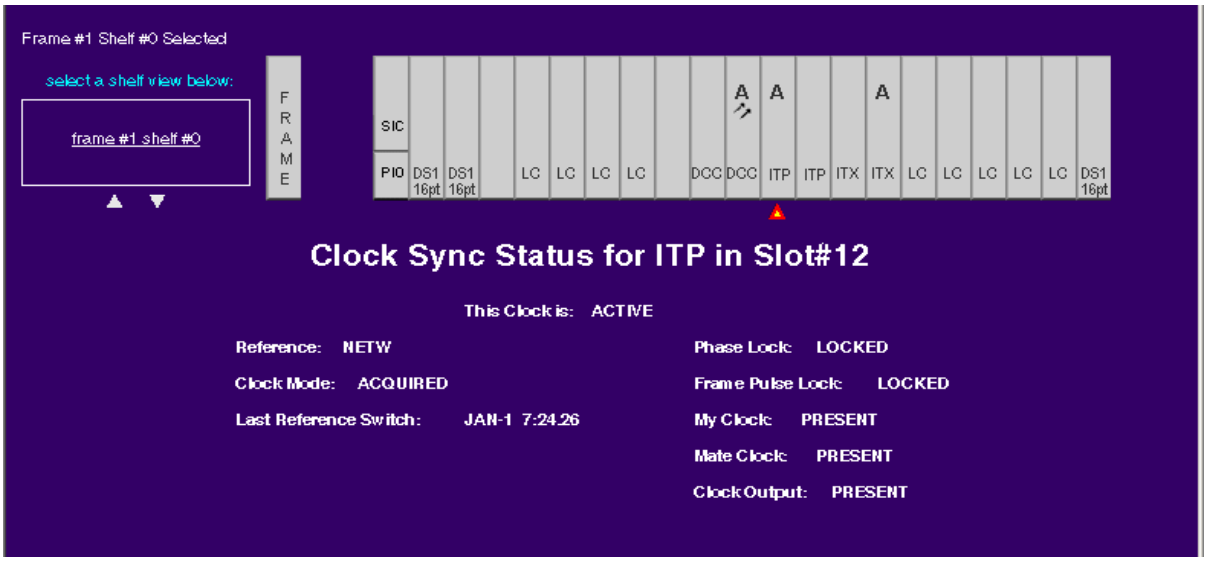
Clock Sync Control screen



Clock Sync Status

The Clock Sync Status screen contains information regarding the condition of the system clock and the selected ITP reference. The information appearing on the screen automatically updates every 10 seconds.

Clock Sync Status



The following table lists the fields and status options displayed on the Clock Sync Status screen.

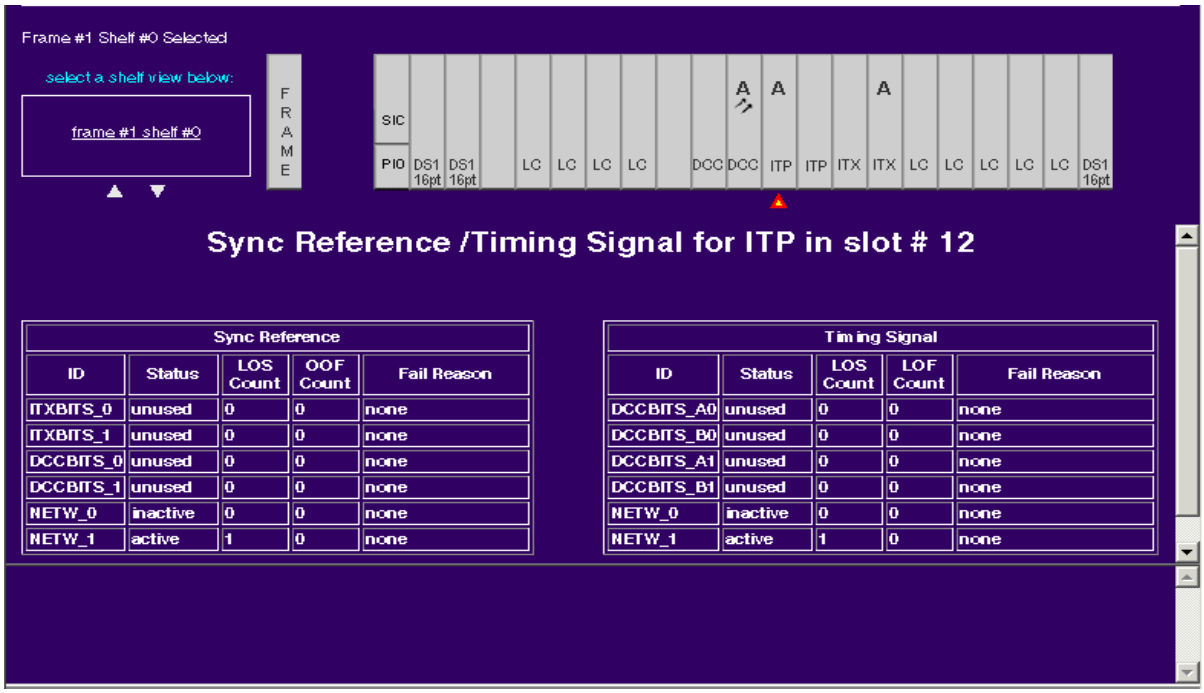
Clock Sync Status options

Field	Status Options
Reference	• DCC BITS • NETW • ITX BITS • None
Clock Mode	• Normal • Acquired • Hold Over • Free Run
Last Reference Switch	month, dd:hh:mm:ss
Phase Lock	• Locked • Not locked
Frame Pulse Lock	• Locked • Not locked
My Clock	• Present • Missing/Failed
Mate Clock	• Present • Missing/Failed
Clock Output	• Present • Missing/Failed

Clock Sync Reference/Timing Signal

The Reference/Timing Signal screen identifies the active clock sync reference and the timing signal source used by the MG 9000. The following figure shows the Reference/Timing Signal screen.

Clock Sync Reference/Timing Signal screen



ITX Maintenance options

ITX maintenance options consist of the following maintenance actions:

- node maintenance
- alarm display
- software loading

To select an option, move the cursor to the option and click.

The node, alarm and software screen functionality is identical for all cards managed through the LCI. For a detailed description, see the DS1 node maintenance and DCC Node Maintenance sections.

SIC Maintenance options

Shelf interface card/power input-output card (SIC/PIO) maintenance options consist of the following maintenance actions:

- alarm status
- output status
- card info

To select an option, move the cursor to the option and click.

The card info screen functionality is identical for all cards managed through the LCI. For a detailed description, see the DS1 node maintenance and DCC Node Maintenance sections.

The card output status reports the alarm that is output based on the operational state of the SIC card.

The alarm status screen identifies the alarms that can be output by type and the operational state that raises the alarm.

ABI Maintenance options

Access Bridging Interface (ABI) card, (also known as the DS512 card) maintenance options consist of the following maintenance actions:

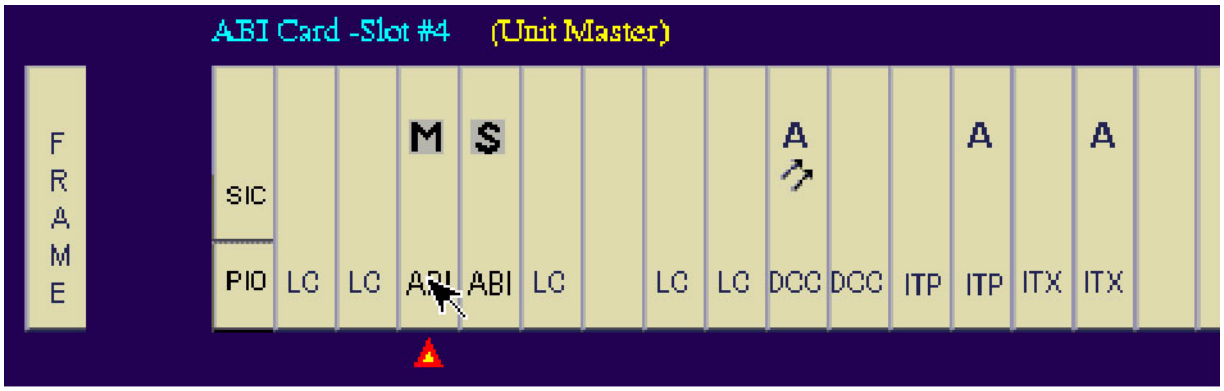
- node maintenance
- alarm display
- software loading

To select an option, move the cursor to the option and click.

The node, alarm and software screen functionality is identical for all cards managed through the LCI. For a detailed description, see the DS1 node maintenance and DCC Node Maintenance sections.

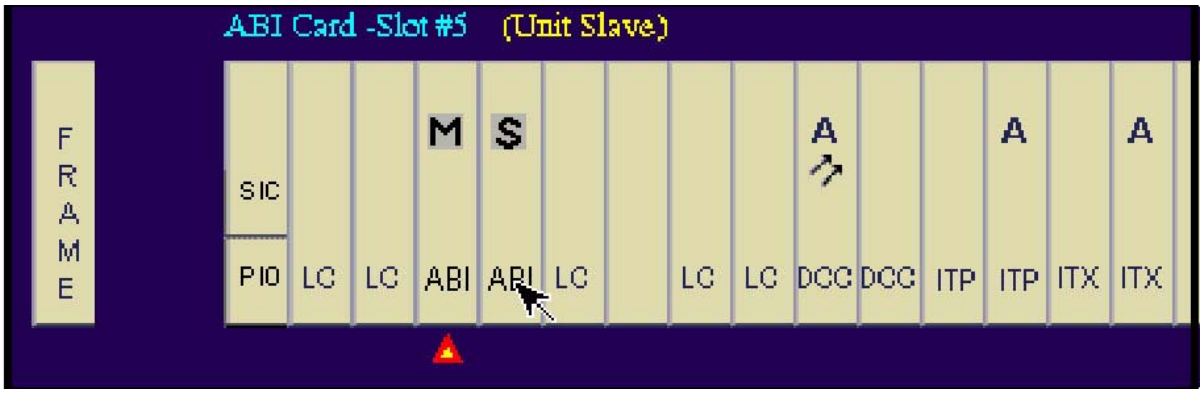
The following figure shows the Master ABI card selected. Moving the mouse cursor over the card causes (Unit Master) to appear above the shelf view.

Master ABI card selected and cursor over Master card



The following figure shows the mouse cursor over the Slave card which causes (Unit Slave) to appear above the shelf view.

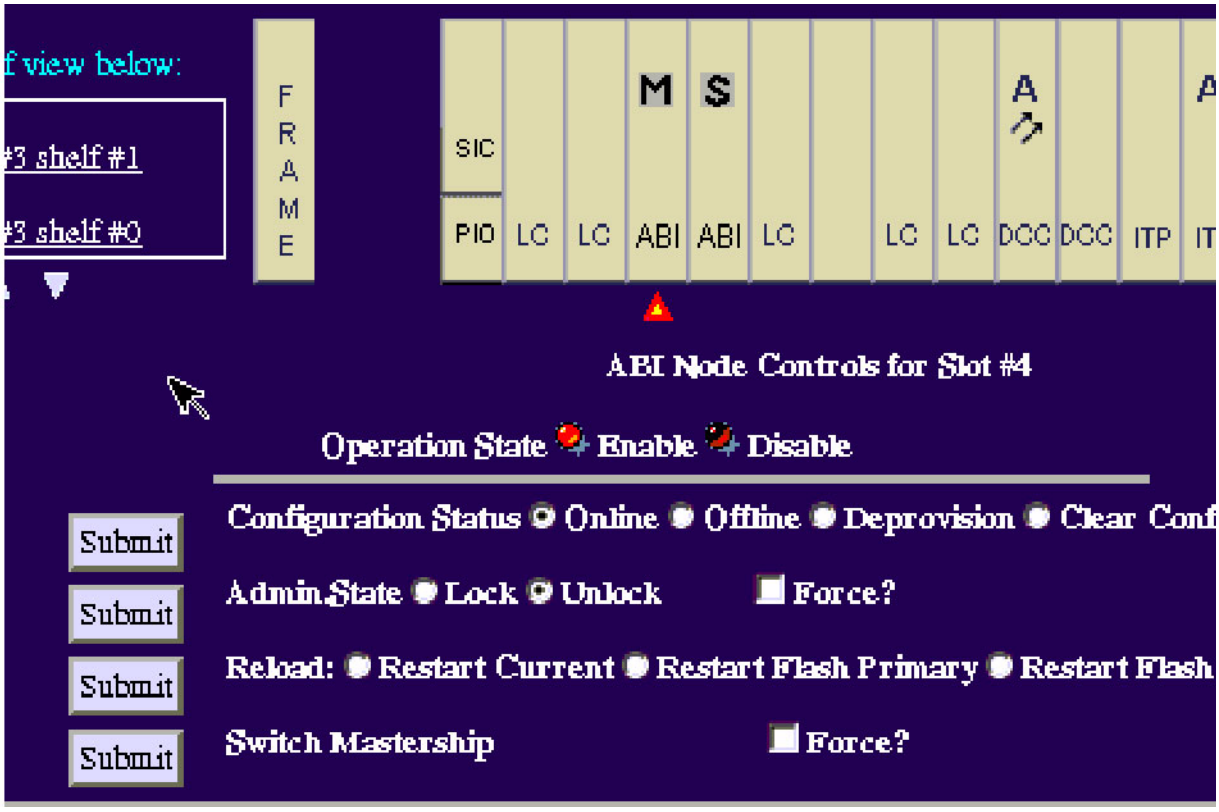
Cursor over Slave ABI card



ABI node controls

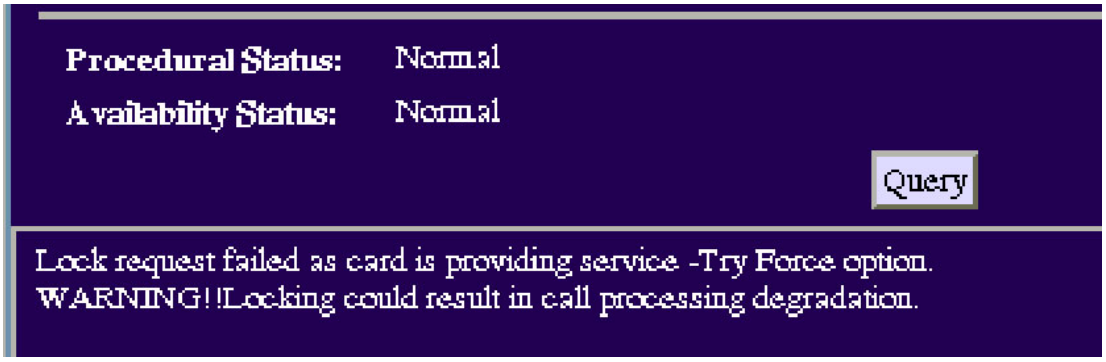
The node control screen for the ABI card is similar to all other cards. However, the ABI card uses Switch Mastership instead of Warm Switch of Activity. The following figure shows an example of a Node Control screen for an ABI card.

ABI Node Control screen showing the Switch Mastership control



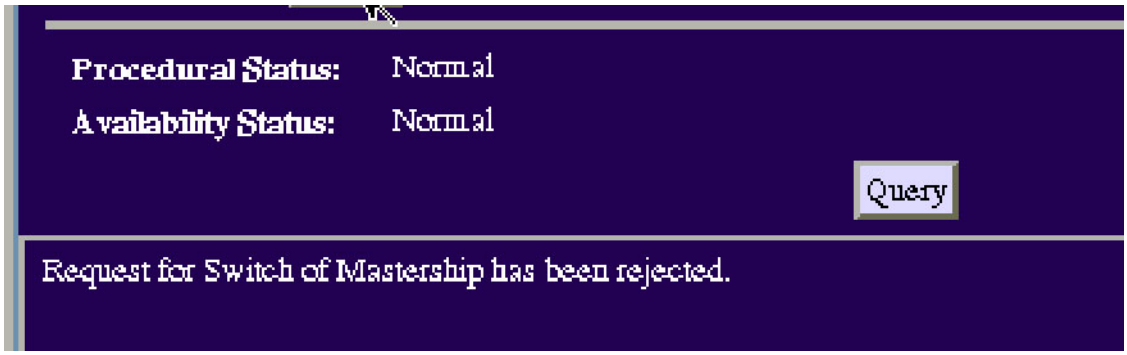
At the bottom of the node control screen, the command responses appear. The following figure shows the response when a normal lock is attempted on the selected Slave ABI card.

ABI Node Control screen - response to Normal lock on Slave ABI



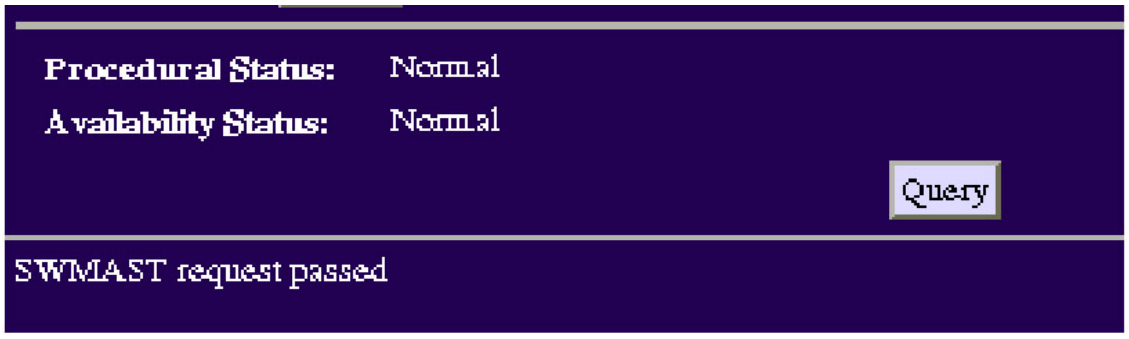
The following figure shows the response when a normal lock is attempted on the selected Slave ABI card.

ABI Node Control screen - response to Switch of Mastership on Slave ABI



The following figure shows the response when a Switch Mastership was successful.

ABI Node Control screen - response to successful Switch of Mastership



The following conditions and messages may appear

- Request failure message on Normal Lock of Master ABI card while the Slave ABI card is unlocked
- Request failure message on Force Lock of Master ABI card while the Slave ABI card is unlocked
- Request failure message on Normal Lock of Master ABI card while the Slave ABI card is disabled
- Request failure message on Force Lock of Master ABI card while the Slave ABI card is disabled
- Warning message on Force Lock of Master ABI card while Slave ABI card is locked

The following figure shows the response to a successful Force Lock of the Master ABI.

ABI Node Control screen - response to a Force Lock of the Master ABI