SN07 Changes to OSSGate and Its Applications - Highlights

- Centrex IP Client Manager (CICM) flow through provisioning supported. CentrexIP option provisioning failure work around information detailed.
- Improvement to OSSGate configuration of parameters, SESM stop, start, configure procedures simplified.
- Additional information regarding use of LENs in Servord+ commands.
- Additional information on enhancements to H.323 provisioning.
- VCAC and Internet Transparency now fully provisionable over OSSGate.
- Update to all chapters providing explanation of each command, related parameter, data type, optional / mandatory values, data range and usage requirement.
- About 230 examples, that cover various XML operation request and response supported by OSSGate.
- Addition of new gateway profiles in “Provisioning Conventions for GWC, Media Gateways, VMG, and Endpoints” on page 289.
- Updates to document number cross references, adding of new references.
- Update to needed glossary, new tables, ordering of tables and page numbers through out the document.

0: OSSGate Introduction

OSSGate is an application that provides a machine interface for provisioning components within Succession. The main functionality of OSSGate is to act as a gateway to the Node, Carrier, Trunk, Line, ADSL Provisioning applications and the Trunk Maintenance application. It provides the end user with an alternative to the GUI interface as a method for provisioning succession components; one that allows more automation (less human intervention) than the GUI interface.

OSSGate provides TCP/IP connectivity as an alternative to the async connections used in the DMS100F. It implements a telnet protocol over a simple TCP/IP socket connection to allow clients to connect to OSSGate. Although it is based on telnet it does not implement a complete set of telnet capabilities. It does not require the client to support all the telnet options. It does require the client to support line mode. The client or OSS establishes a TCP/IP socket connection to a specific port number (user configurable) on the server running the OSSGate application.

OSSGate supports two modes - XML and CI. The XML interface is used to send provisioning commands to the Nodes, Carrier, and Trunk applications and maintenance commands to the TMM application. The CI interface is used to send provisioning commands to the Lines Provisioning application. OSSGate also performs basic syntax checks on XML input before sending it to the Nodes, Carrier, ADSL, TMM and Trunk provisioning applications.

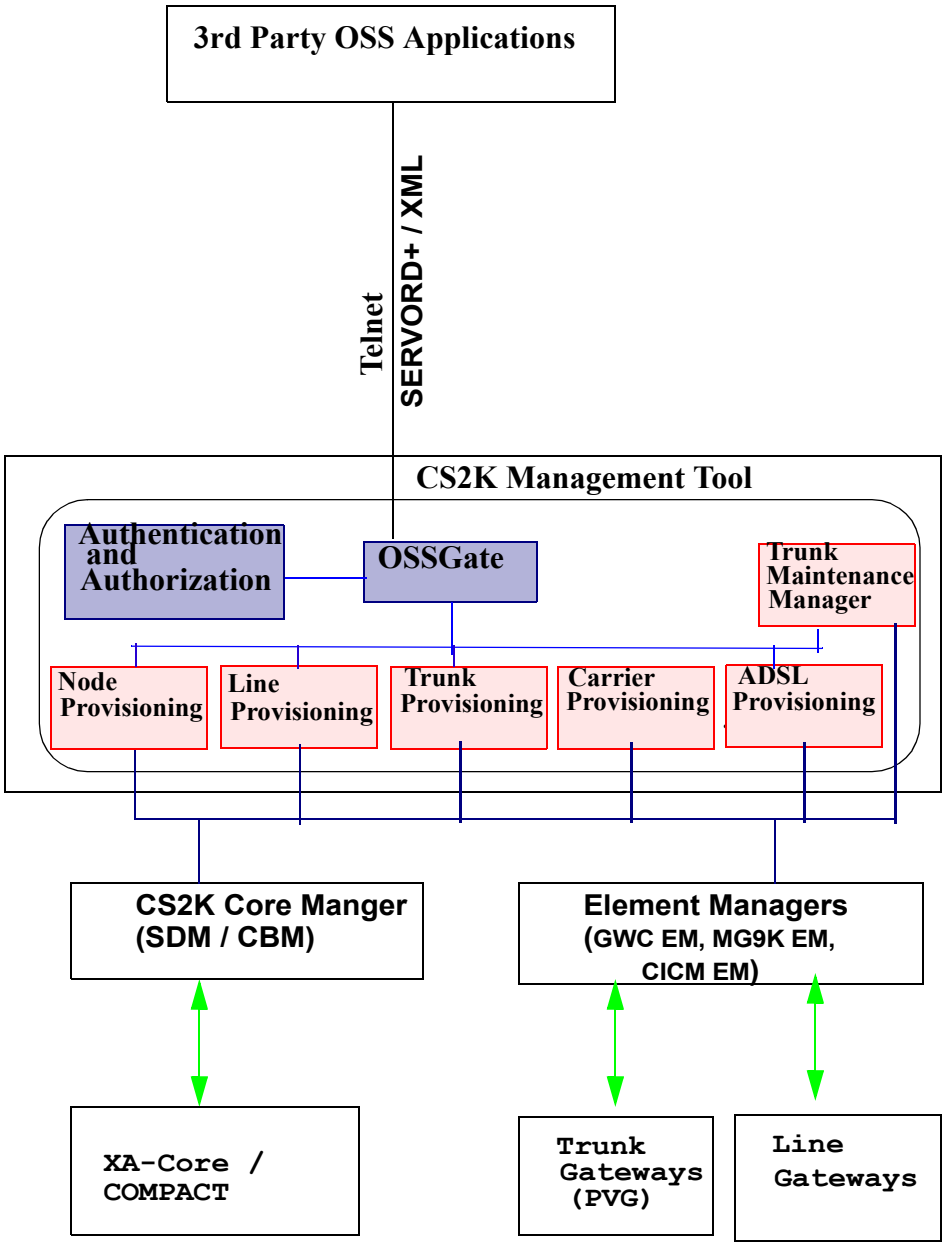


Figure 1 OSSGate interaction with Succession provisioning and Maintenance components in SN07

1: Using OSSGate

The OSSGate server runs as part of the CS2000 Management Tools application. The OSSGate server continuously listens for incoming connection requests. For each connection request, it starts a session after the username and password authentication. Such a session can be used for sending various provisioning commands (for example, Servord+ for Line Provisioning commands, XML for Node, Carrier, ADSL and Trunk provisioning). OSSGate can be used by either an OSS or a standard telnet client.

1.1 Supported Provisioning Connections

Following are recommended usage limits apply when each application is being run in isolation (for example, you can have 10 people doing Nodes provisioning as long as zero people are doing Lines, Carriers, and LMM at the same time):

- Node Provisioning (includes add/delete/query of GWs) - Maximum simultaneous users: 10 (only 5 of which can be from the CS2K Management tools GUI)
- Line Provisioning - Maximum simultaneous users: 30
- Carrier Provisioning - Maximum simultaneous users: 4
- LMM - Maximum simultaneous GUI users: 10
- TMM - Maximum simultaneous users: 10
- Trunk Provisioning - Maximum simultaneous users: 5

The maximum number of concurrent OSSGate connections is 45. Following are maximum recommended usage limits for concurrent operations (for example when performing Nodes provisioning, Lines Provisioning, LMM and TMM all at the same time, these limits apply):

- Nodes: 5 users
- Lines: 30 users
- Carriers: 4 users
- LMM: 2 users (GUI)
- TMM: 2 users
- Trunks: 2 users

Note: System response time will increase as the number of concurrent connections increase.

1.2 Connecting to OSSGate via telnet

A system connects to the OSSGate server by initiating a telnet session to the correct host name (or IP address) and port number. user must belong to primary authentication group “succcssn” to login to OSSGate.

% telnet <ptm_hostname or IP address> <ossgate_primary_port>

Note: The host name or IP address is assigned by the customer network administrator. It is assigned to the server where OSSGate is configured during installation and setup. Refer to your local network administrator for the correct address. The default primary port is 10023 (Standard Telnet Port 23 + 10000).

Example of OSSGate login (User input is highlighted in blue):

```
$ telnet znc0s0j6 10023
Trying 42.120.94.57...
Connected to znc0s0j6.
Escape character is '^]'.

Enter username and password
> maint maint
maint logged in on  04/08/08 at 08:08:05.

**********************************************************
**                                                      **
**              OSS Gateway                              **
**                                                      **
**       This is a PRIVATE Database.                      **
**                                                      **
**    All activity is subject to monitoring.              **
**                                                      **
**   Any UNAUTHORIZED access or use is PROHIBITED   **
**        and may result in PROSECUTION.                **
**                                                      **
**********************************************************
** WARNING : Different service types require              **
** different formats.  Consult the OSSGate User's         **
** Guide, NE1004-512, for detailed information             **
** regarding command formats and usage rules.             **
** Failure to do so can cause a mismatch between          **
** XACore and SESM data.                                 **
**********************************************************

      SN07 Build: Jul 22, 2004 12:26:02 PM
**********************************************************
 >
```


1.3 OSS/Telnet Client Requirements

1.3.1 Non-Secure channel between client and OSSGate

In order for a telnet connection into OSSGate to work, there are some requirements that the telnet client must support. Listed below are the options that the telnet client should support

- Support Line mode. For example, the telnet client should NOT send character by character to OSSGate, instead it should be able to send one line at a time.
- The telnet client should be able to implicitly add a Carriage Return (CR) to any data coming from the OSSGate server

Any client that supports these options will work.

1.3.1.1 Putty Configuration

A freeware windows telnet client (putty.exe) which supports the above options can be found at <http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>. After starting up putty, remember to set the above options by checking the following in the Terminal category:

- Implicit CR in every LF
- Auto wrap mode initially on

Note: In SN07 OSSGate was tested using Putty Release beta 0.53b version on Win2000 machine.
Nortel neither recommends nor provide support for putty.

Unix telnet clients work with OSSGate without need of any explicit options setting.

1.3.2 Setting Secure channel between client and OSSGate using SSH Port Forwarding.

In order to have a secure (i.e., encrypted) channel of communication between OSS/telnet clients and OSSGate server, SSH port forwarding needs to be set up. Refer to the instructions that follow on how to do this for Unix and Windows. Once set up, SSH Port Forwarding establishes a port forwarding session from client to server, wherein all data forwarded are encrypted and hence secure. Regardless of Unix or Windows client, when using SSH port forwarding, OSSGate needs to be configured to set ssh port_forward=yes, since this will disallow any non-secure telnet clients to connect to OSSGate. Shown below is example of how to set up port forwarding using openSSH implementation on Unix. The list of SSH clients, both commercial and otherwise for various platforms, is given in section “Other SSH Products.”

Unix:

To set up SSH Port Forwarding on the Unix machine, install the SSH software first. After installation, establish a port forwarding session between this machine and the CS2000 management tool server. The following command does that.

ssh –L <local-port>:<remote-host>:<remote-port> remote-Host

The value for remote-port is typically 10023 (unless OSSGate is configured to listen on a different port). The value for remote-host is the host name of the CS2000 Management Tools server. User can choose any value for local-port, but higher numbers like 2000 and above are preferred.

The first time this command is run on the user's machine in an attempt to forward data to remote-host, the user will be prompted with information as shown here:

The authenticity of host 'remote-Host (1.2.3.4)' can't be established. RSA key fingerprint is <finger print information>. Are you sure you want to continue connecting (yes/no)?

SSH is verifying with the user whether the host remote-host is a trusted host and whether the user wants to continue connecting to it. The user should enter 'yes'. Next the user will be prompted for a password for the current user logged in. Once the entered password is verified, a successful port forwarding session is established. This means that all new sessions by this user connecting to localhost:local-port will be forwarded to remote-host:remote-port in a secure channel. See the example below:

For example, a user sets up SSH port forwarding on machine A with the following values:
 # ssh –L 2001:CS2000 Management Tools host:10023 CS2000 Management Tools host

Now, to securely transmit data from machine A to the server (where OSSGate is running), the user needs to open a window logged into machine A and type the following:

 # telnet localhost 2001

The telnet connection automatically gets secured between machine "A" and the server running the CS2000 Management Tools applications. The OSSGate session will look normal, the user does not see any visible change.

Windows:

The freeware telnet client putty mentioned in the section "Non-Secure channel between client and OSSGate" also supports SSH. In order to secure the connection between the telnet client and OSSGate server, the user has to configure the SSH port forwarding using the 'putty' software release 0.53B as shown below:

1. Choose Session Category
   - Enter Host name with value of the SUN server that is running the CS2000 Management Tools applications
   - Enter port number as 22
   - Choose protocol as SSH
2. Choose Tunnels Category
   - Under Source Port, give any local port value (say 2001)
   - Under Destination, enter host:port where host is the CS2000 Management Tools host name, and port is the port number where the OSSGate server listens for input. (10023 is the standard port where the OSSGate server listens for a client connection).
   - Choose 'Local' radio button, and click Add.
   - Click on Open.

The user will be prompted to enter a user and password to log in to the CS2000 Management Tools application host/server. Once a valid user and password is entered, this port forwarding session is established.

The user can now establish a secure connection between the client machine and CS2000 Management Tools host as long

as the port forwarding session (above) exists, by doing the following.

- Right-click on top left side of the window. From the pull-down menu, choose New Session. A Putty Configuration dialog window opens up.
- Under Session category, enter the string ‘localhost’ under HostName field. Enter port 2001, since the local port chosen was 2001 in our example (above) in the port field. Choose telnet protocol.
- Choose Terminal options as explained in the section "Putty Configuration". Click on Open.

A secure session with OSSGate server is established as detailed above

Note: Shown above are examples to set up SSH port forwarding to one CS2000 Management Tools host from a client machine. If a client machine is to have multiple port forwarding sessions, the user must choose different ‘local’ port numbers. In the examples above, the local port chosen was 2001. If the user wants another port forwarding session to another host, he must choose one.

Please refer to Section “15: SSH Products Comparison” on page 287 for other SSH Products that are available.

1.4 OSSGate commands

The following commands are supported by OSSGate. Note that the following commands are accepted only in Control mode (‘?’ prompt). To change from input mode (‘>’ prompt) to Control mode, enter (Ctrl+B) at ‘>’ prompt.

- **login**
  Allows user to log in with username and password separated by a space. If a user enters this command when already logged in, OSSGate logs out the previous user. Note that when the user telnets into OSSGate, it automatically prompts for login.

  Screen output shown below (User input is highlighted):

  > ^B
  ? login

  admin logged out.

  Enter username and password
  > maint maint


```
maint logged in on  04/08/08 at 08:08:05.

**************************************************
**                                              **
**              OSS Gateway                      **
**                                              **
**       This is a PRIVATE Database.              **
**                                              **
**    All activity is subject to monitoring.       **
**                                              **
**  Any UNAUTHORIZED access or use is PROHIBITED  **
**       and may result in PROSECUTION.           **
**                                              **
**************************************************
** WARNING : Different service types require      **
** different formats.  Consult the OSSGate User's  **
** Guide, NE1004-512, for detailed information     **
** regarding command formats and usage rules.      **
** Failure to do so can cause a mismatch between   **
** XACore and SESM data.                          **
**************************************************

      SN07 Build: Jul 22, 2004 12:26:02 PM
**************************************************
>
```

If a login user id , password is invalid or the user does not belong to the primary authentication group “succssn” login will fail and user will get appropriate error response

```
Enter username and password
> maint moint


User Login Failed, Reason: Authentication failed. Invalid
Username / Password / Unauthorized Group.
```

If three consecutive attempts to login fail, the telnet session will terminate.

- **logout**
  Allows the user to log out of OSSGate.

```
> ^B
? logout
maint logged out.
>
```

The current or new user can login after a logout using the login command

```
> ^B
? login
Enter username and password
>
```

- **security**
  Allows the user to know what security service is being used by OSSGate. Example (User input is highlighted):

```
> ^B
? security
Security service is JAAS/PAM based
```

- **clearconv**
  Short for “clear conversation”, it allows the user to end the OSSGate session.

```
> ^B
? clearconv
SESSION TERMINATED.
Connection closed by foreign host.
```

- **sesm_version** - this communicates and displays the version of CS2000 Management Tools

```
> ^B
? sesm_version
SN07 Build: Jul 22, 2004 12:26:02 PM
```

- **mode <OSSGate mode>**
  When this command is issued without the <OSSGate mode> parameter, it will display the current mode the OSSGate session is using. The default mode upon login is set to CI. OSSGate supports two modes, the CI mode and the XML mode.
  Examples: (User input is highlighted):

Example of querying the current mode

```
> ^B
? mode
Mode is XML.
```


Example of switching to CI mode

>^B
? mode ci

Mode is CI

1.5 Disconnecting from OSSGate

To properly disconnect from OSSGate, the user (or OSS client) should first log out from the session and then close the session.
Example: (User input is highlighted):

> ^B
? logout

user1 logged out.

> ^B
? clearconv

SESSION TERMINATED.
Connection closed by foreign host.

Note: A user can terminate a session without explicitly logging out, since the clearconv command automatically logs out any logged-in user. The logout command is useful, for example, when a user has finished doing the operations and wants to let another user use the same session, the first user can log out and let another user log in without ending the session.

2: Configuring OSSGate

In SN05 and previous releases users were required to edit properties file to change the OSSGate server configuration. The process is now configured differently. Users can now use a command line configuration utility to change the certain permitted default OSSGate server properties, if needed.

2.1 Configuration Properties

The following properties can be configured for the OSSGate server:

- **Telnet primary port**

  This property specifies the primary port on which OSSGate would listen for input. The default port is 10023, which can be overridden by changing this property value in the properties file. The maximum value for this port is 65535. If the user is to override this number, it's advisable to choose a high number, since many standard servers like ftp (21), telnet (23) use lower range numbers.

- **Telnet secondary port**

  This property specifies the secondary port on which OSSGate would listen for input if OSSGate failed to bind to the port specified in oss-gate.telnet.primary_port property. The default value for this port is 11023, which can be overridden by changing this property value in the properties file. The maximum value for this port is 65535.

  Note: Check if the port numbers chosen is not already in use by some other standard server - look in the /etc/services file and ensure that the port number is not already used by some other application. If a port is chosen which another application **is** already assigned, an failure will occur on one of the two applications attempting to use the port.

- **Telnet session timeout**

  This property specifies the time (in seconds) OSSGate will wait before timing out if there is no input on a session. The default timeout value is 600 seconds (10 minutes). The valid range for this property is a positive number less than 4294967296. (4 bytes)

- **SSH port forwarding**

This property, when set to “y” indicates that the connection between OSS and OSSGate is secured using SSH port forwarding. Hence, OSSGate will reject insecure connections coming directly to it from remote hosts. When the value is set to “n” OSSGate will accept connections from remote clients over a non-secure channel.

2.1.1 Pre-requisite to reset the properties

Warning: The operation detailed below will stop all the CS2000 management tool applications running on the server. It is recommended that the procedure below is during a maintenance window if any of the above properties need to be reset.

- Verify if CS2K management tool server is running by issuing the command
  #ptmctl status

- If the CS2K management tool server is running, the server must be stopped before attempting any configuration changes to OSSGate.
- Only user root can change the configuration parameters

2.1.2 Stopping CS2K management tool server

Login as user **root** to the CS2K management tool server.

#ptmctl -f stop

This will force stop all the applications on this server, including the proxy agent. The server stop can be verified by using the status option. The status check must show application as “NOTRUNNING” similar to details shown below.

#ptmctl status
SESM STATUS ----------

COMPONENT	STATUS
Proxy Agent	NOT RUNNING
RMI Registry	NOT RUNNING
Snmpfactory	NOT RUNNING
MI2 Server	NOT RUNNING

Current number of SESM processes running: 0 (of 4)

SESM APPLICATION STATUS: No Applications are ready

2.1.3 Changing OSSGate parameters

#configure

SESM configuration
1 - SESM common configuration (IP addresses, Market, CM CLLI)
2 - SESM database tools
3 - SESM related applications configuration (MG9K, LMM, CICM)
4 - SESM provisioning configuration
5 - SESM logging configuration (syslog, sesm debug log)
6 - view sesm configuration settings
7 - SESM refresh properties

X - exit

select - 4

SESM Provisioning Configuration

1 - XML Trunk Provisioning configuration

2 - OSSGate Provisioning configuration

3 - Office Provisioning Type configuration

X - exit

select - 2

SESM OSSGate Provisioning Configuration

Enter the Primary Port OSSGate will use for telnet connections (default: 10023): 11123

Enter the Secondary Port OSSGate will use for telnet connections (default: 11023): 12223

Enter the OSSGate Timeout period, in seconds (default: 600):

Do you wish to have OSSGate Port Forwarding on for SSH [y/n]: n

Primary Port : 11123
Secondary Port : 12223
Timeout : 600
Port Forwarding for SSH : no

Are these information correct? (y or n) : y

Updating the property files with changed values, please wait...

Reloading the changed property values into memory, please wait...

In the above example 11123 was entered for primary port, 12223 was entered for secondary port, a carriage return to pick the default value of 600 for timeout period and “n” for port forwarding on SSH. Once the correct data is entered, user can exit back to command prompt level.

2.1.4 Starting CS2K management tool server

For configuration parameter changes to take effect the CS2K management tool server must be started. To start login as user **root** to the CS2K management tool server.
#ptmctl -f start

Successful startup of the server and all applications, picks up the updated configuration. Users can now telnet to OSSGate using the changed port information.

2.2 Configuring Log levels

CS2000 Management tool server provides ability to run the server and its applications with different log levels. This enables the user to configure the server and applications to generate internal log files during certain situations when errors are detected. The CS2M Management tool fault documentation (Doc no. NN10084911.pdf) details the procedure to set the system to different log levels.

3: User Authorization

3.1 User Groups

Users of OSSGate applications must belong to the primary user group "succssn" and to one or more secondary user groups listed in Table-1

Table 1: User groups

trkadm	lnadm	mgcadm	mgadm	emsadm
trkrw	lnrw	mgcrw	mgrw	emsrw
trksprov	lnsprov	mgcsprov	mgsprov	emsprov
trkmtc	lnmtc	mgcmtc	mgmtc	emsmtc
trkro	lnro	mgcro	mgro	emsro

A secondary user group consist of a user group domain which defines the range of applications to which a user group applies. The following are valid domains for OSSGate applications

adm groups have permissions to do everything rw, mtc, sprov and ro can do and more.

rw groups can do everything mtc, sprov and ro can do and more, but can not do adm specific operations.

mtc groups can do everything ro can do and more, but can not do adm, rw or sprov specific operations.

sprov groups can do everything ro can do and more, but can not do adm, rw or mtc specific operations.

ro groups have the least permissions. They can only do read only operations.

The CS2000 Management Tools Security and Administration Guide (NN10172611.pdf) lists the various steps to create users, assign users to specific groups, user group domains etc. The mapping of application specific operations to user groups is listed in the application specific chapters discussed in this document. If the user does not have sufficient permissions to execute the command, an error message "Insufficient Security Privileges to perform this action" is returned as part of the response.

3.2 Security Logs

This log is generated when a user logs into the system, attempts to perform an unauthorized operation, a session expires and when user logs out. The log file is located in the server at /var/log/securitylog file on the Succession Server Platform Foundation Software (SSPFS) machine.

3.3 Authorization Audit Logs

Authorization Audit Log: this log is generated when a user is successfully authorized to perform an operation. This log does not imply that the user successfully completes the operation. It only indicates the user was granted permission to perform the operation.

This is an Audit Log and the default location for the logs can be found at: /var/log/auditlog directory of the SSPFS machine.

3.4 User account, group Administration

For details on how to set user accounts, assign users to different user groups please refer to the CS2000 Management Tool Security and Administration document (NN10172611.pdf)

4: Line Provisioning with OSSGate

OSSGate is an application that provides a machine interface for provisioning components within Succession. One of these interfaces is for Line Provisioning (part of the CS2000 Management Tools application). In order to enter Lines Provisioning commands, the OSSGate session must be running in CI mode. CI mode is the default mode when first connecting to OSSGate.

The SERVORD+ syntax for provisioning Succession lines is very similar to the SERVORD syntax used in the DMS. ServOrd commands that are executed from OSSGate are called ServOrd+ commands. With these commands, the endpoint generally replaces the LEN for Succession lines.

For a complete description of the commands and their syntax, please refer to the following NTP reference:

- The ServOrd Reference Manual (NTP 297-8021-808 for North American and NTP 297-9051-8081 for international)

Some examples are given below for the types of commands that can be entered via OSSGate.
Examples:

>QDN <DN>

>QLEN <DR_LEN_TYPE >

>QLEN <MGName> <TPname>

>NEW $ <DN> 1FR NORT1 0 0 919 NILLATA 0 <MGName> <TPname> 3WC $

>OUT $ 9917577 <MGName> <TPname> BLDN

.

Note: The media gateway name (MGname) and the termination point (TP) name have replaced the line equipment number (LEN) wherever the LEN was used in the ServOrd command. Please note that TP alone may not be unique in the succession call server, but the MG and TP pair will uniquely addresses a subscriber line. This can be seen above in the ‘OUT’ command.

4.0.1 LEN and Gateway/termination Usage in Commands

For most Succession lines, the gateway and termination point name replace the LEN in the command string.

However, there are currently two gateway types which support either gateway/termination names or LENs in the command.

MG9000 - LENs or gateway/termination names may be used in SERVORD+ commands.

Centrex IP Client Manager (CICM) - LENs or gateway/termination names may be used in SERVORD+ commands.

For all other gateway types, **use of LENs in non-query commands is prohibited** - the command will be rejected at OSSGate.

4.0.2 DNH Huntgroup DEL Command Syntax Exception

Another change is the modification in the syntax of the DEL command for DNH, DLH, and MLH members. To delete DNH members, users must enter both DNs, MG Name and MG TP names of the members. The legacy DEL command required only DNs to be entered for the DNH members.

Examples:

>DEL $ DNH <DN> <MGname> <TPname> $ bldn

>DEL $ DLH <MGname> <TPname> <key> $

>DEL $ MLH <MGname> <TPname> $

4.1 Line Provisioning - Special Case For Lengthy ServOrd Commands

When executing Line Provisioning commands that are greater than 75 characters long via a telnet session to OSSGate, the commands must be entered following the convention described in this paragraph. If a CI command is greater than 75 characters, the user should put up to 75 characters on one line, then enter a '+' symbol and a carriage return (new line) after the 75th character. The remaining portion of the command should be entered on the next line. Using this convention communicates to OSSGate that the command is continued on the next line.

In the following example, the single ServOrd command is split over five lines of input. Each of the first four lines ends with a '+' followed by a carriage

return, and the prompt is given back to the user after each carriage return.

Example:

```
>EST $ DNH 9195200570 1FR LATA1 0 les24.mgcp.net aaln/16 9195200571+
>les24.mgcp.net aaln/17 9195200572 les24.mgcp.net aaln/18 9195200573+
>les24.mgcp.net aaln/19 9195200574 les24.mgcp.net aaln/20 9195200575+
>les24.mgcp.net aaln/21 9195200576 les24.mgcp.net aaln/22 9195200577+
>les24.mgcp.net aaln/23 9195200578 les24.mgcp.net aaln/24 $ $ 15
```

Note: The command when entered at OSSGate can be split at any position.

4.2 ServOrd Commands supported

- Table-2 lists the commands used for provisioning lines. Table-3 lists the line services or options that are available. The commands and options are not described or defined in this document. Refer to the Servord Reference Manual (NTP 297-8021-808 for North American and NTP 297-9051-8081 for international) for further details.

4.2.1 MG9000 Flow Through Command Support

The NEW, EST, ADD, DEL, OUT, CDN, and CHDN commands update data on the MG9000 and MG9000 Element Manager. The “NEW”, “EST”, and “ADD” commands add the termination point, directory number and indicated line class code. The “DEL”, and “OUT” commands delete the termination point. The “CDN” and “CHDN” commands change the directory number. CLN, CKLN, and CHG commands are also supported. All flow through to the MG9000EM is blocked when the MG9000 is in an Emergency Stand Alone (ESA). Other conditions within the MG9000EM and MG9000 may also block the successful process of OSSGate commands. Please refer to MG9000 product documentation for more specific information regarding ESA and other failure modes, response

4.2.2 CICM Flow Through Command Support

SERVORD+ commands are used to ensure that the necessary information is provisioned in the CS2K tables and in the CICM EM for CICM lines. This ensures key labelling consistency between the CICM client and the CS2K representation of the line. The SN07 flow through provisioning capability for CICM lines does not flow all SERVORD commands through to the CICM. Hunt group commands (eg. EST/ADD/DEL) do not provision CICM

correctly. The use of hunting features on CICM will require separate provisioning via the CICM EM GUI. The user must manually ensure that the CICM client key labels are updated via the CICM Element Managers.

Line provisioning commands sent to CICM gateway as part of flow through provisioning include : ADO, CDN, CHF, CHL, DEO, NEW, NEWACD, OUT. CICM client specific SERVORD+ commands (NEW, EST, OUT, etc..) may contain USERID and PASSWD option. The USERID and PASSWD options are used to specify CICM client information in the various SERVORD+ commands which create or modify lines. Datafill interaction include:

1. Key feature addition overwrites any existing key feature on the CICM terminal. No servord equivalent datafill rules are applied to CICM datafill. CS2K servord checking still applies.
2. Assignment of multiple features to a single key is not allowed (e.g., 4 rag 4 3WC).
3. CICM specific key features USERID and PASSWD must be assigned to key 1. Duplicate feature assignments to key 1 only is allowed (e.g., 1 USERID 1234 $ 1 RAG).
4. The USERID feature cannot be changed using the CHF command. Use DEO and ADO commands instead. Note that the password is also reset when the ADO command is executed.
5. The PASSWD feature can be added, changed or deleted at anytime providing that the USERID feature is provisioned.
6. USERID and PASSWD features will never be sent to the CS2K servord interface.
7. CICM and CICM EM applications must be running, otherwise the SERVORD+ command will fail. Commands are not saved and executed at a later date.

4.2.3 CICM Line provisioning examples.

1. **NEW $ 8906917 M5216 CSLINES 0 0 125 1 Y CICM 142 2 00 01 3 3WC 4 ACB 1 $ $**
   RESULT: features 3WC, ACB, added to CICM LEN

2. **NEW $ 8906917 M5216 CSLINES 0 0 125 1 Y CICM 142 2 00 01 3 3WC 4 ACB 1 $ 1**
   USERID 9999 PROFILE SRV $ 1 PASSWD 1234 $

RESULT: features 3WC, ACB, USERID, PASSWD added to CICM LEN

3. **ADO $ CICM 142 2 00 01 1 USERID 123456 $ $**
   RESULT: USERID feature (no default PASSWD) created on CICM.
4. **DEO $ CICM 142 2 00 01 5 3WC 6 RAG 7 ACBAMA $**
   RESULT: features 3WC and RAG deleted from key 5 and 6 on CICM
5. **CHF $ CICM 142 2 00 01 5 3WC 6 RAG 7 ACBAMA $**
   RESULT: features 3WC and RAG added to keys 5 and 6.
6. **OUT $ 1278701234 CICM 142 2 00 01 BLDN $**
   RESULT: All features and USERID and PASSWD options deleted from CICM

4.2.4 CICM Line provisioning Responses.

Table-1 lists the new SERVORD command response messages that may be presented to the OSSGate user to indicate a CICM-specific command failure or problem.

Table 1 CICM Line provisioning - response messages.

Response Message	Cause
USERID option change is not supported. Use DEO and ADO commands.	Entered command (e.g., CHF) cannot be used to change the USERID option data.
{0} restricted to key 1. Example: USERID restricted to key 1.	The option string (represented by {0}) can only be added to key 1.
Multiple {0} options are not allowed. Example: Multiple USERID options are not allowed.	The option string (represented by {0}) can only be added to a single key.
Multiple options assigned to keys {0}. Example: Multiple options assigned to keys 3 and 4.	The key numbers (represented by {0}) can only be associated with a single option.
Multiple options assigned to key {0}. Example Multiple options assigned to key 3.	The key number (represented by {0}) can only be associated with a single option.
USERID option syntax is invalid.	The entered USERID option is not compatible with the syntax
PASSWD option syntax is invalid.	The entered PASSWD option is not compatible with the syntax
Addon {0} is not valid for LCC {1}. Example: Addon M622 is not valid for LCC M5216.	A valid addon was entered but is not compatible with the indicated LCC.
Addon {0} data is invalid. Quantity must be 0 - {1}. Example: Addon M522 data is invalid. Quantity must be 0 - 2.	Addons can be added in groups. The quantity added is dependant on the addon type.

Table 1 CICM Line provisioning - response messages.

Response Message	Cause
{0} command with LCC = {1}; {2} is required. Example: NEWACD command with LCC = M5678; M5216 is required.	The servord command ({0}) and LCC ({1}) are not valid for the supported LCC.
NEWACD agent type must be SUPERVISOR or AGENT.	Self explanatory.
Unable to locate ACD Group information for agent.	The servord command syntax is invalid. The command parser was unable to locate the ACD group field(s).
Unable to locate ACD Group information for supervisor.	The servord command syntax is invalid. The command parser was unable to locate the ACD group field(s).
Failed to define ACD options using template.	Internal application error. Collect details and report to the next level of support.
Unable to locate template information.	The entered ACD template cannot be found in the KSETKEYS table. Check the table and try again.
LCC {0} is not valid. Example: LCC M5678 is not valid.	The entered Line Class Code is not supported by the Proxy for the entered CICM LEN.
Template {0} can not be used with the {1} ACD type. Example: Template NORTEL can not be used with the AGENT ACD type.	Data in table KSETKEYS is not consistent with the entered ACD type.
Template {0} is not compatible with the {1} LCC. Example: Template NORTEL is not compatible with the M5316 LCC.	Data in table KSETKEYS is not compatible with the entered LCC.
Template {0} has another {1} option. Only one {1} is allowed on an ACD.	User is attempting to add duplicate options using templates.
Timeout waiting for CICM EM response.	An HTTPS connection was made with the IIS web server but the EM response exceeded the provisioned timeout threshold.
Timeout contacting Primary & Secondary CICM EM server.'	The proxy was unable to contact either the primary or secondary IIS servers. Check the state of the IIS servers or provisioned CICM data on SESM.
End of option area expected. '$' not found.	SERVORD command syntax is invalid. The option string or command must be terminated by a '$' character.

Table 1 CICM Line provisioning - response messages.

Response Message	Cause
Unable to parse the SONUMBER.	Self explanatory. SONumber should be '$'.
Invalid DN entered.	The entered DN, or combination of SNPA and NXX is not valid.
Invalid LEN entered.	The proxy is unable to parse the entered CICM or other LEN.
The NXX of the DN was not found in table TOFCNAME.	Self explanatory.
Rejected by CICM EM gateway. XML Gateway Message failure.	Fatal error. The request sent to the IIS web server was rejected. Collect details and report to the next level of support.
Rejected by CICM EM. EM terminal data corrupted.	The servord request partially failed on the CICM EM and the proxy was unable to successfully undo the changes made.
Command FAILED. Rejected by CICM EM.	The servord request failed on the CICM EM.

4.3 Line Provisioning Commands and Authorization Level

In addition to users belonging to "succssn" group to login to OSSGate, user need to be in application specific authorization groups to perform specific operations. Each Line provisioning command is associated with one or more authorization groups. In order to execute a command, a user must belong to at least one of the associated authorization groups. The groups associated with each OSSGate Node provisioning operation are specified in the table below.

In Table-2 below, the Legacy column indicates if the command may be used on Legacy Lines via the OSSGate interface. The Succession column indicates if the command may be used on Succession Lines via the OSSGate interface.

Table Legend:

- SN0x - Indicates the release in which the command is first supported
- N/S - Indicates the command is not supported
- N/A - Indicates the command is not applicable in the given column

- No termination point info means that in output from query commands, the data will show LEN (logical group) info, but not the corresponding termination point name
- ISDN - Indicates the command is only supported for ISDN phone sets
- MMP - Indicates the command is supported in International markets only

Table 2: Line Provisioning Commands

Number	Command	Legacy	Succession	Authorization Group	Note
1	ABNN	SN05	SN03	Insprov	
2	ADA	SN05	SN05	Insprov	
3	ADD	SN05	SN03	Insprov	
4	ADDPH	SN06	N/A	Insprov	ISDN
5	ADO	SN05	SN03	Insprov	
6	BULK	N/A	N/A	Insprov	
7	CAPSORD	SN06	N/A	Insprov	ISDN
8	CBLKDN	SN06	SN06	Insprov	
9	CDN	SN05	SN05	Insprov	
10	CHDN	SN05	SN03	Insprov	
11	CHAPH	SN06	N/A	Insprov	ISDN
12	CHF	SN05	SN03	Insprov	
13	CHG	SN05	N/S	Insprov	
14	CHL	SN05	SN05	Insprov	
15	CICP	SN05	SN05	Insprov	
16	CISG	SN05	N/A	Insprov	
17	CKLN	SN05	SN05	Insprov	
18	CLN	SN05	SN05	Insprov	
19	CLTG	SN05	SN05	Insprov	
20	COPYSET	SN05	N/S	Insprov	
21	CTP	N/A	SN05	Insprov	
22	CKTP	N/A	SN05	Insprov	
23	DBNN	SN05	SN03	Insprov	
24	DEA	SN05	SN05	Insprov	
25	DEL	SN05	SN03	Insprov	
26	DELCF	N/S	N/S	Insprov	MMP

Table 2: Line Provisioning Commands

Number	Command	Legacy	Succession	Authorization Group	Note
27	DELPH	SN06	N/A	Insprov	ISDN
28	DEO	SN05	SN03	Insprov	
29	DSP	SN05	N/S	Insprov	
30	ECHO	N/S	N/A	Inro	
31	EST	SN05	SN03	Insprov	See restrictions
32	EXBADD	N/S	N/S	Insprov	
33	EXBADO	N/S	N/S	Insprov	
34	EXBCHG	N/S	N/S	Insprov	
35	EXBDEL	N/S	N/S	Insprov	
36	EXBDELG	N/S	N/S	Insprov	
37	EXBDELM	N/S	N/S	Insprov	
38	EXBDEO	N/S	N/S	Insprov	
39	EXBEST	N/S	N/S	Insprov	
40	MQDN	N/S	N/S	Insprov	Wireless only
41	NEW	SN05	SN03	Insprov	
42	NEWACD	SN05	SN06	Insprov	
43	NEWDN	SN05	SN05	Insprov	
44	OUT	SN05	SN03	Insprov	
45	OUTDN	SN05	SN05	Insprov	
46	PLP	SN05	SN05	Insprov	
47	QX75	SN06	N/A	Inro	ISDN
48	QBB	SN06	N/A	Inro	ISDN
49	QBERT	SN05	N/S	Inro	
50	QCM	SN05	SN06	Inro	
51	QCOUNTS	SN05	SN05	Inro	
52	QCPUGNO	SN05	SN06	Inro	
53	QCUST	SN06	SN06	Inadm	
54	QDCH	SN06	SN06	Inro	ISDN
55	QDN	SN05	SN03	Inro	
56	QDNA	SN05	SN05	Inro	
57	QDNSU	SN06	SN06	Inadm	
58	QDNWRK	SN06	SN06	Inadm	

Table 2: Line Provisioning Commands

Number	Command	Legacy	Succession	Authorization Group	Note
59	QGRP	SN05	SN06	Inro	
60	QHA	SN06	SN06	Inadm	
61	QHASU	SN06	SN06	Inadm	
62	QHLR	N/S	N/S	Inro	Wireless only.
63	QHU	SN06	SN06	Inadm	
64	QIT	SN06	N/A	Inro	ISDN
65	QLEN	SN03	SN03	Inro	
66	QLENWRK	SN06	SN06	Inadm	
67	QLOAD	SN06	SN06	Inadm	
68	QLRN	SN05	SN05	Inro	
69	QLT	SN05	N/A	Inro	
70	QMADN	SN06	SN06	Inadm	
71	QMODEL	SN05	SN05	Inro	
72	QMSB	SN05	SN05	Inro	
73	QNCOS	SN06	SN06	Inadm	
74	QPDN	SN06	SN06	Inadm	
75	QPHF	SN05	N/A	Inro	
76	QPRIO	SN05	SN05	Inro	
77	QSCONN	SN06	N/A	Inro	ISDN
78	QSCUGNO	SN05	SN06	Inro	
79	QSIMR	SN05	SN05	Inro	
80	QSL	SN05	SN06	Inro	
81	QTOPSPOS	SN05	SN05	Inro	
82	QTP	N/A	SN04	Inro	
83	QWUCR	SN05	SN05	Inro	
84	RES	SN05	SN05	Insprov	
85	RESGRP	SN05	SN05	Insprov	
86	SDNA	SN05	SN05	Insprov	
87	SETPH	SN06	N/A	Insprov	ISDN
88	SLT	SN04	N/A	Insprov	
89	STOPECHO	N/S	N/A	Insprov	
90	SUS	SN05	SN05	Insprov	

Table 2: Line Provisioning Commands

Number	Command	Legacy	Succession	Authorization Group	Note
91	SUSGRP	SN05	SN05	Insprov	
92	SWAP	N/S	N/S	Insprov	
93	SWLT	SN06	N/A	Insprov	ISDN

4.4 Line Provisioning Options

In Table-3 below, the Legacy column indicates if the option may be used on Legacy Lines via the OSSGate interface. The Succession column indicates if the option may be used on Succession Lines via the OSSGate interface. Not all options are valid for all line class codes. For more details, refer to the appropriate Servord NTPs.

Table Legend

- SN0x - Indicates the first release in which the option is supported
- N/S - Indicates the option is not supported
- N/A - Indicates the option is not applicable in the given column
- ISDN - Indicates the option is only supported for ISDN phone sets
- MMP - Indicates the option is supported in International markets only

NOTE: Any options not listed in the above table are considered not supported via the OSSGate Line Provisioning interface.

Table 3: Line Provisioning Option

Number	Option	Legacy	Succession	Notes
1	1MMS	SN05	N/S	
2	3WC	SN05	SN05	
3	3WCPUB	SN05	SN05	
4	AAB	SN05	SN05	
5	AAK	SN05	SN05	

Number	Option	Legacy	Succession	Notes
6	ABR	SN05	SN05	
7	ACB	SN05	SN05	
8	ACCB	SN05	SN05	
9	ACD	SN05	SN05	
10	ACDNR	SN05	SN05	
11	ACOU	SN05	N/A	ISDN
12	ACR	SN05	N/A	ISDN
13	ACRJ	SN05	SN05	
14	ADSI	SN05	SN05	
15	ADSL	SN06	N/S	
16	AEMK	SN05	SN05	
17	AFC	SN05	N/A	ISDN
18	AGA	SN06	N/A	ISDN (Using SLT command)
19	AIN	SN05	SN05	
20	AINDENY	SN06	SN06	
21	AINDN	SN05	SN05	
22	AINMWT	SN05	SN05	
23	AIOD	SN05	SN05	
24	ALI	SN06	SN06	
25	AMATEST	SN05	SN05	
26	AMSG	SN05	SN05	
27	AMSGDENY	SN05	SN05	
28	AOC	SN06	SN06	MMP
29	APS	SN05	SN05	
30	AR	SN05	SN05	
31	ARDDN	SN05	SN05	
32	ARLNA	SN05	SN05	
33	ARR	SN06	N/A	ISDN
34	ASL	SN05	SN05[a]	

Number	Option	Legacy	Succession	Notes
35	ASP	SN05	SN05	
36	ATC	SN05	SN05	
37	AUD	SN05	SN05	
38	AUL	SN05	SN05	
39	AUTODISP	SN05	SN05	
40	AUTOHF	N/S	N/S	ISDN MFT sets
41	AVT	N/S	N/S	
42	BBGI	SN06	N/A	ISDN
43	BC	SN05	SN05	
44	BCLID	SN05	N/S[b]	
45	BLF	SN05	SN05	
46	BLOCKCDN	SN06	N/A	ISDN
47	BLOCKCGN	SN06	N/A	ISDN
48	BNN	SN05	SN05	See restrictions
49	BRICLID	SN06	SN06	MMP
50	CACH	SN06	N/A	ISDN (using SLT command)
51	CAG	SN05	SN05	
52	CALLOG	SN05	SN05	
53	CARR	SN06	SN06	MMP
54	CARRG	SN06	SN06	MMP
55	CBE	SN05	SN05	
56	CBI	SN05	SN05	
57	CBU	SN05	SN05	
58	CCBS	SN05	SN05	
59	CCNR	SN06	SN06	MMP
60	CCSA	SN05	SN05	
61	CCV	SN05	SN05	
62	CCW	SN05	SN05	
63	CCWB	SN06	SN06	MMP

Number	Option	Legacy	Succession	Notes
64	CD	SN06	SN06	MMP
65	CD0–CD9	SN05	N/S	
66	CDC	SN05	SN05	
67	CDE	SN05	SN05	
68	CDF	SN05	SN05	LCC
69	CDI	SN05	SN05	
70	CDND	SN06	SN06	MMP
71	CDT	SN05	SN05	
72	CDTA	SN06	SN06	MMP
73	CDTO	SN06	SN06	MMP
74	CDU	SN05	SN05	
75	CEPT	SN06	SN06	MMP
76	CFB	SN05	SN05	
77	CFBL	SN05	SN05	
78	CFD	SN05	SN05	
79	CFDA	SN05	SN05	
80	CFDVT	SN05	SN05	
81	CFF	SN05	SN05	
82	CFFA	SN06	SN06	MMP
83	CFFPOVR	SN05	SN05	
84	CFGD	SN05	SN05	
85	CFGDA	SN05	SN05	
86	CFI	SN05	SN05	
87	CFIND	SN05	SN05	
88	CFK	SN05	SN05	
89	CFMDN	SN05	SN05	
90	CFO	SN05	SN05	
91	CFRA	SN05	SN05	
92	CFS	SN05	SN05	

Number	Option	Legacy	Succession	Notes
93	CFTANN	SN05	SN05	
94	CFTB	SN05	SN05	
95	CFTD	SN05	SN05	
96	CFU	SN05	SN05	
97	CFW	SN05	SN05	
98	CFXDNCT	SN06	N/A	ISDN
99	CFXVAL	SN06	N/A	ISDN
100	CFWANN	SN05	SN05	
101	CHD	SN05	SN05	
102	CHG	SN06	N/A	ISDN
103	CIDSDLV	SN05	N/S	ISUP
104	CIDSSUP	SN05	N/S	ISUP
105	CIF	SN05	SN05	
106	CIR	SN05	SN05	
107	CLF	SN05	SN05	
108	CLI	SN05	SN05	
109	CLNT900	SN05	SN05	
110	CLSUP	SN05	SN05	
111	CMCF	SN05	SN05	
112	CMD	SN06	N/A	ISDN
113	CMG	SN05	SN05	
114	CNAB	SN05	SN05	
115	CNAMD	SN05	SN05	
116	CND	SN05	SN05	
117	CNDB	SN05	SN05	
118	CNDBO	SN05	SN05	
119	CNDDTMF	SN06	SN06	MMP
120	CNF	SN05	SN05	
121	COD	SN05	SN05	

Number	Option	Legacy	Succession	Notes
122	COLP	SN06	SN06	MMP
123	COLR	SN06	SN06	MMP
124	COLROVR	SN06	SN06	MMP
125	COT	SN05	SN05	
126	COTAMA	SN05	SN05	
127	CPC	SN06	SN06	MMP
128	CPH	SN05	SN05	
129	CPR	SN05	N/S	
130	CPU	SN05	SN06	
131	CRA	SN06	SN06	MMP
132	CRBL	SN06	N/A	ISDN
133	CRT	SN05	SN05	
134	CRTDENY	SN05	SN05	
135	CSMI	SN05	SN05	
136	CTD	SN05	SN05	
137	CTW	SN05	SN05	
138	CUG	SN05	SN06	
139	CUSD	SN05	SN05	
140	CW	SN06	SN06	MMP
141	CWD	SN05	SN05	
142	CWI	SN05	SN05	
143	CWO	SN05	SN05	
144	CWR	SN05	SN05	
145	CWT	SN05	SN05	
146	CWTACT	SN05	SN05	
147	CWTC	SN05	SN05	
148	CWX	SN05	SN05	
149	CXR	SN05	SN05	
150	DASK	SN05	SN05	

Number	Option	Legacy	Succession	Notes
151	DBC	SN06	N/A	ISDN
152	DCBI	SN05	SN05	
153	DCBX	SN05	SN05	
154	DCC	SN06	N/A	ISDN
155	DCF	SN05	SN05	
156	DCPK	SN05	SN05	
157	DCPU	SN05	SN05	
158	DCPX	SN05	SN05	
159	DDN	SN05	SN05	
160	DDI	SN06	SN06	MMP
161	DELFTERM	SN06	N/A	ISDN (using SLT command)
162	DENY	SN05	SN05	
163	DENYAR	SN05	SN05	
164	DENYCSMI	SN05	SN05	
165	DENYCTFP	SN05	SN05	
166	DENYCWTC	SN05	SN05	
167	DENYISA	SN05	SN05	
168	DENYSRA	SN05	SN05	
169	DENYU3WC	SN05	SN05	
170	DENYWUCR	SN06	SN06	MMP
171	DGT	SN05	SN05	
172	DIN	SN05	SN05	
173	DISCTO	SN05	N/S	
174	DISP	SN05	SN05	
175	DLH	SN05	SN05	
176	DMCT	SN06	SN06	MMP
177	DNA	SN06	N/A	ISDN (using SETPH, ADDPH, DELPH, and CHAPH commands).
178	DND	SN05	SN05	

Number	Option	Legacy	Succession	Notes
179	DNH	SN05	SN05	
180	DOR	SN05	SN05	
181	DP	SN05	N/S	
182	DPCAR	SN06	N/A	ISDN
183	DPR	SN05	N/S	
184	DQS	SN05	SN05	
185	DQT	SN05	SN05	
186	DRCW	SN05	SN05	
187	DRING	SN05	SN05	
188	DROP	SN06	N/A	ISDN
189	DSCWID	SN05	SN05	
190	DTM	SN05	SN05	
191	EBO	SN05	SN05	
192	EBX	SN05	SN05	
193	ECM	SN05	SN05	
194	ECONF	SN06	SN06	MMP
195	ECT	SN06	SN06	MMP
196	ECTPTOP	SN06	SN06	MMP
197	EHLD	SN05	N/A	ISDN
198	EKTS	SN06	N/A	ISDN (using SLT command)
199	ELN	SN05	SN05	
200	EMK	SN05	SN05	
201	EMR	SN06	SN06	MMP
202	EMW	SN05	SN05	
203	ENQ	SN06	SN06	MMP
204	ESL	SN05	SN05	
205	EWAL	SN05	SN05	
206	EWALI	SN05	SN06	
207	EXT	SN05	SN05	

Number	Option	Legacy	Succession	Notes
208	FAA	SN05	SN05	
209	FANI	SN05	SN05	
210	FC	SN06	N/A	ISDN
211	FCTDINT	SN05	SN05	
212	FCTDNTER	SN05	SN05	
213	FCTDNTRA	SN05	SN05	
214	FDN	N/S	N/S	MMP
215	FGA	SN05	SN05	
216	FIG	SN05	SN05	
217	FNO	SN05	SN05	
218	FNT	SN05	SN05	
219	FPS	SN06	SN06	
220	FRO	SN06	SN06	
221	FRS	SN06	SN06	
222	FSR	SN05	SN05	
223	FTRGRP	SN05	SN05	
224	FTRKEYS	SN05	SN05	
225	FTS	SN05	SN05	
226	FXR	SN05	SN05	
227	GIAC	SN05	SN05	
228	GIC	SN05	SN05	
229	GLITE	N/S	N/S	
230	GLTC	SN05	SN05	
231	GND	SN05	SN05	
232	HF	N/S	N/S	ISDN MFT sets.
233	HFMUTE	N/S	N/S	ISDN MFT sets.
234	HLD	SN05	SN05	
235	HOLD	SN06	SN06	MMP
236	HOT	SN05	SN05	

Number	Option	Legacy	Succession	Notes
237	HTL	N/S	N/S	MMP
238	I3WC	SN06	SN06	MMP
239	I6WC	SN06	SN06	MMP
240	ICM	SN05	SN05	
241	ICR	SN06	SN06	MMP
242	ICSDEACT	SN05	SN05	
243	ICT	SN06	SN06	MMP
244	ICWT	SN06	SN06	MMP
245	IECFB	SN05	SN05	
246	IECFD	SN05	SN05	
247	IICB	SN06	SN06	MMP
248	ILB	SN05	SN05	
249	ILDCHNL	N/S	N/A	
250	ILR	SN06	SN06	MMP
251	IMB	SN05	SN05	
252	INSPECT	SN05	SN05	
253	INT	SN05	SN05	
254	INTPIC	SN05	SN05	
255	IRR	SN05	SN05	
256	ISA	SN05	SN05	
257	ISADEACT	SN05	SN05	
258	ISDNAMA	SN06	N/A	ISDN
259	IWUC	SN06	SN06	MMP
260	JOIN	SN05	SN05	
261	KSH	SN05	SN05	
262	KSMOH	SN05	SN05	
263	LAPB	SN06	N/A	ISDN (using SETPH, ADDPH, DELPH, and CHAPH commands)

Number	Option	Legacy	Succession	Notes
264	LAPD	SN06	N/A	ISDN (using SETPH, ADDPH, DELPH, and CHAPH commands)
265	LCDR	SN05	SN05	
266	LDA	SN06	SN06	MMP
267	LDSA	SN05	SN05	
268	LDSO	SN05	SN05	
269	LDSR	SN05	SN05	
270	LDST	SN05	SN05	
271	LDTPSAP	N/S	N/S	
272	LINEPSAP	SN05	SN05	
273	LMOH	SN05	SN05	
274	LNPTST	SN05	SN05	
275	LNR	SN05	SN05	
276	LNRA	SN05	SN05	
277	LOB	SN05	SN05	
278	LOD	SN05	SN05	
279	LOR	SN05	SN05	
280	LPIC	SN05	SN05	
281	LROA	N/S	N/S	MMP
282	LRN	SN06	SN06	MMP
283	LRS	N/S	N/S	MMP
284	LSPAO	SN05	SN05	
285	LSPSO	SN05	SN05	
286	LVM	SN05	SN05	
287	M518	SN05	SN05	
288	M522	SN05	SN05	
289	M536	SN05	SN05	
290	M622	SN05	SN05	
291	MAN	SN05	N/S	

Number	Option	Legacy	Succession	Notes
292	MBK	SN05	SN05	
293	MBSCAMP	SN05	SN05	
294	MCH	SN05	SN05	
295	MCID	SN06	SN06	MMP
296	MDN	SN05	SN05	
297	MDNNAME	SN05	SN05	
298	MEMDISP	SN05	SN05	
299	MLAMP	SN05	SN05	
300	MLH	SN05	SN05	
301	MMI	SN06	SN06	
302	MOG	SN05	SN05	
303	MPB	SN05	SN06	
304	MPH	SN06	N/S	
305	MREL	SN05	SN05	
306	MRF	SN05	SN05	
307	MRFM	SN05	SN05	
308	MSB	SN05	SN05	
309	MSBI	SN05	SN05	
310	MSGDEACT	SN05	SN05	
311	MTR	SN06	SN06	MMP
312	MUTE	N/S	N/S	ISDN MFT sets.
313	MWI	SN06	SN06	MMP
314	MWIDC	SN05	SN05	
315	MWINK	SN06	SN06	
316	MWQRY	SN05	SN05	
317	MWT	SN05	SN05	
318	NAME	SN05	SN05	
319	NCCW	SN05	SN05	
320	NEMD	SN06	SN06	MMP

Number	Option	Legacy	Succession	Notes
321	NDC	SN05	SN05	
322	NDNAP	SN06	N/A	ISDN
323	NFA	SN05	N/S	
324	NGTSRVCE	SN05	SN05	
325	NHT	SN05	N/S	
326	NLT	SN05	SN05	
327	NOCOLL	SN05	SN05	
328	NODNY	N/A	N/A	Sub-option of SDN option.
329	NOH	SN05	SN05	
330	NOCOLPSCR	SN06	SN06	MMP
331	NPGD	SN05	N/S	
332	NRS	SN05	N/S	
333	NSDN	SN06	N/S	
334	NTAIT	SN06	SN06	MMP
335	NUMC	SN06	N/A	ISDN
336	OBS	SN05	SN05	
337	OCB	SN06	SN06	MMP
338	OCFA	SN05	SN05	
339	ODB	SN06	N/A	ISDN
340	OFR	SN06	SN06	
341	OFS	SN05	SN05	
342	OLS	SN05	SN05	
343	ONI	SN05	SN05	
344	OUTWT	SN05	SN05	
345	PBL	SN05	SN05	
346	PCA	SN06	SN06	MMP
347	PCACIDS	SN05	N/S	ISDN
348	PCI	SN06	SN06	MMP
349	PDO	SN05	SN05	

Number	Option	Legacy	Succession	Notes
350	PF	SN05	SN05	
351	PIC	SN05	SN05	
352	PILOT	SN05	SN05	
353	PLP	SN05	SN05	
354	PMC	SN05	SN05	
355	PMD	SN06	SN06	
356	PORT	SN05	SN05	
357	PPH	SN06	SN06	MMP
358	PPL	SN05	SN05	
359	PREMTBL	N/S	N/S	Sub-option of SDN option.
360	PRH	SN05	SN05	
361	PRI	SN05	SN05	
362	PRK	SN05	SN05	
363	PRL	SN05	SN05	
364	PROVCDS	SN06	N/A	ISDN
365	PROVCGS	SN06	N/A	ISDN
366	PROVHLC	SN06	N/A	ISDN
367	PROVLLC	SN06	N/A	ISDN
368	PRV	SN05	SN05	
369	PTP	N/S	N/S	MMP
370	PVC	SN06	N/A	ISDN (using SLT command)
371	QBS	SN05	SN05	
372	QCK	SN05	SN05	
373	QTD	SN05	SN05	
374	RAG	SN05	SN05	
375	RATEAREA	SN05	SN05	
376	RCD	SN05	SN05	
377	RCHD	SN05	SN05	

Number	Option	Legacy	Succession	Notes
378	RCVD	SN05	SN05	
379	REASDSP	SN05	SN05	
380	REATTACH	N/S	N/S	
381	RESL	SN06	SN06	MMP
382	REV	SN06	SN06	MMP
383	RLS	SN06	SN06	
384	RND	SN06	N/A	ISDN
385	RMB	SN05	SN05	
386	RMI	SN05	SN05	
387	RMP	SN05	SN05	
388	RMR	SN05	SN05	
389	RMS	SN05	SN05	
390	RMT	SN05	SN05	
391	RPA	SN05	SN05	
392	RSP	SN05	SN05	
393	RSUS	SN05	SN05	
394	SACB	SN05	SN05	
395	SBLF	SN05	SN05	
396	SC1	SN05	SN05	
397	SC2	SN05	SN05	
398	SC3	SN05	SN05	
399	SCA	SN05	SN05	
400	SCF	SN05	SN05	
401	SCI	SN05	SN05	
402	SCL	SN05	SN05	
403	SCMP	SN05	SN05	
404	SCR	SN06	SN06	MMP
405	SCRJ	SN05	SN05	
406	SCS	SN05	SN05	

Number	Option	Legacy	Succession	Notes
407	SCU	SN05	SN05	
408	SCWID	SN05	SN05	
409	SDN	SN05	SN05	
410	SDS	SN05	SN05	
411	SDSDENY	SN05	SN05	
412	SDY	SN05	SN05	
413	SEC	SN05	SN05	
414	SETMODEL	SN05	SN05	
415	SHU	SN06	SN06	
416	SIMRING	SN05	SN05	
417	SKDISP	N/S	N/S	ISDN MFT set.
418	SL	SN05	SN05	
419	SLBRI	SN06	N/A	ISDN (using SLT command)
420	SLC	SN05	SN05	
421	SLQ	SN05	SN05	
422	SLU	SN05	SN05	
423	SLVP	SN05	SN05	
424	SMDI	SN06	SN06	
425	SMDICND	N/S	N/S	
426	SMDR	SN05	SN05	
427	SND	N/S	N/S	Wireless
428	SNUMC	N/S	N/S	MMP
429	SOFTKEY	N/S	N/S	ISDN MFT sets.
430	SOR	SN05	SN05	
431	SORC	SN05	SN05	
432	SPB	SN05	SN05	
433	SPL	N/S	N/S	MMP
434	SPM	N/S	N/S	MMP
435	SRA	SN05	SN05	

Number	Option	Legacy	Succession	Notes
436	SSAC	SN05	SN05	
437	STRD	SN05	SN05	
438	SUBCOM	SN06	SN06	MMP
439	SUPPRESS	SN05	SN05	
440	SUPPRND	SN06	N/A	ISDN
441	SUPR	SN05	SN05	
442	SUS	SN05	SN05	
443	SVCGRP	SN05	SN05	
444	TBO	SN05	SN05	
445	TCW	SN06	SN06	
446	TDN	SN05	SN05	
447	TDV	SN05	SN05	
448	TERM	SN05	SN05	
449	TERML	SN06	N/A	ISDN (using SLT command)
450	TES	SN05	SN05	
451	TFO	SN05	SN05	
452	TLS	SN05	SN05	
453	TRANSFER	SN06	N/A	ISDN
454	TRMBOPT	SN05	SN05	
455	TSPID	SN06	N/A	ISDN (using SLT command)
456	UCD	SN05	SN05	
457	UCDLG	SN05	SN05	
458	UCDLI	SN05	SN05	
459	UCDSD	SN05	SN05	
460	UUS!	SN06	SN06	MMP
461	VAD	SN06	SN06	
462	VI	SN06	N/A	ISDN
463	VIS	SN06	SN06	MMP

Number	Option	Legacy	Succession	Notes
464	VMEADENY	SN05	SN05	
465	VMEADN	SN05	SN05	
466	VMI	SN06	SN06	MMP
467	VOW	SN06	SN06	MMP
468	VOWDN	SN06	SN06	MMP
469	WC	SN05	SN05	
470	WLN	N/S	N/S	MMP
471	WML	SN05	SN05	
472	WUCR	SN05	SN05	
473	XFER	SN06	N/A	ISDN
474	XLAPLAN	SN05	SN05	

a. Servord+ query commands do not display termination point data for this option.
b. Manual work-around provisioning procedure exists

Note: Any options not listed in the above table are considered not supported via the OSSGate Line Provisioning interface.

4.5 Restricted Queries

The following commands are restricted Queries. Only one restricted query is allowed to run via OSSGate on the CS2K management tool server at a given time.

For example: If one user issues a QDNWRK query via OSSGate and a second user issues a QLENWRK query via a second OSSGate session before the QDNWRK query has finished processing, the QLENWRK query request will be denied, with a message "The maximum number of concurrent instances of this command has been reached. Please try later".

- QCUST
- QDNSU
- QDNWRK
- QHA
- QHASU

- QHU
- QMADN
- QNCOS
- QLENWRK
- QLOAD
- QPDN

In some instances it may desirable to stop the processing of a restricted query. To stop the processing of a restricted query the KILL command may be issued either via OSSGate or directly from the Core.

Note: The KILL command should be used with extreme caution. It has the potential to kill all of a certain type of process (e.g. all the QDNWRK commands running on the Core).

The following is a list of the restricted queries and their corresponding process names on the Core with example KILL command syntax.

Table 4: Example Syntax to Stop Restricted Commands

Query	Process Name	Example Syntax to Stop Command
QCUST	QCUST	kill QCUST only <process ID> kill QCUST all
QDNSU	SOQDNSU	kill SOQDNSU only <process ID> kill SOQDNSU all
QDNWRK	SOQDWRK	kill SOQDWRK only <process ID> kill SOQDWRK all
QHA	SOQHA	kill SOQHA only <process ID> kill SOQHA all
QHASU	SOQHASU	kill SOQHASU only <process ID> kill SOQHASU all
QHU	SOQHU	kill SOQHU only <process ID> kill SOQHU all
QLENWRK	SOQLWRK	kill SOQLWRK only <process ID> kill SOQLWRK all
QLOAD	SOQLOAD	kill SOQLOAD only <process ID> kill SOQLOAD all
QMADN	MDNQUERY	kill MDNQUERY only <process ID> kill MDNQUERY all
QNCOS	SOQNCOS	kill SOQNCOS only <process ID> kill SOQNCOS all

Table 4: Example Syntax to Stop Restricted Commands

Query	Process Name	Example Syntax to Stop Command
QPDN	QPDNCI	kill QPDNCI only <process ID> kill QPDNCI all

4.5.1 Stopping a Restricted Query

In some instances it may desirable to stop the processing of a restricted query. To stop the processing of a restricted query the KILL command may be issued either via OSSGate or directly from the Core.

Note: The KILL command should be used with extreme caution. It has the potential to kill all of a certain type of process (e.g. all the QDNWRK queries running on the Core).

4.5.2 Determining the process name of a command:

At the Core issue the query command to determine the process name of the restricted query:

***Syntax**: query alias <command>*

```
>query alias qdnwrk

SOQDWRK  EC=EF01  MODREF=28BA  PERPROCESS  SOQRYSUB
ORIGINAL

protected:  address=42CD6180  size=00C0 words

public size=0000 words extension size=0000 words

shared:     not allocated

private:    not allocated

scratch:    not allocated

entry: QUERY_DN  offset=0000  increment of CIPROC

alias: QDNWRK
```

SOQDWRK is the process name of the QDNWRK query.

4.5.3 Determining the process IDs of a process:

At the core issue the query command on a process name to determine the process IDs running.

***Syntax**: query process <process name>*

```
>query process SOQDWRK

496C02C0: 451F 208A SOQDWRK   class=BKG    slice=2
lock=3  unprot=0  queued on flag
```

451F 208A is the process ID of the SOQDWRK (i.e. the QDNWRK command) process running.

4.5.4 Stopping a process:

To stop a specific process ID for a process name issue the KILL command with the process ID either via OSSGate or the Core.

***Syntax**: kill <process name> only #<process ID>*

```
> kill SOQDWRK only #451F #208A

Process 451F 1068 killed dead.
```

To stop all the process IDs for a process name issue the KILL command with the ALL option either via OSSGate or the Core.

***Syntax**: kill <process name> all*

```
>kill SOQDWRK all

Process 451F 1068 killed dead.
```

4.5.5 List of process names for Restricted commands:.

Table 5: Example Syntax to Stop Restricted Commands

Query	Process Name	Example Syntax to Stop Command
QCUST	QCUST	kill QCUST only <process ID> kill QCUST all
QDNSU	SOQDNSU	kill SOQDNSU only <process ID> kill SOQDNSU all
QDNWRK	SOQDWRK	kill SOQDWRK only <process ID> kill SOQDWRK all
QHA	SOQHA	kill SOQHA only <process ID> kill SOQHA all

Table 5: Example Syntax to Stop Restricted Commands

Query	Process Name	Example Syntax to Stop Command
QHASU	SOQHASU	kill SOQHASU only <process ID> kill SOQHASU all
QHU	SOQHU	kill SOQHU only <process ID> kill SOQHU all
QLENWRK	SOQLWRK	kill SOQLWRK only <process ID> kill SOQLWRK all
QLOAD	SOQLOAD	kill SOQLOAD only <process ID> kill SOQLOAD all
QMADN	MDNQUERY	kill MDNQUERY only <process ID> kill MDNQUERY all
QNCOS	SOQNCOS	kill SOQNCOS only <process ID> kill SOQNCOS all
QPDN	QPDNCI	kill QPDNCI only <process ID> kill QPDNCI all

4.6 Limitations and Restrictions

- Any commands not listed in Table-3 are considered not supported via OSSGate

Note: Use of unsupported commands on Succession Lines via the DMS CallServer MAP (Servord) interface is not supported and will incorrectly provisioned lines with a data mismatch between CS2K management tool server and the CallServer. This is only supported for MG9000 lines with certain restrictions.

- Any options not listed in Table-4 are considered not supported via OSSGate.
- Setting the DMS CallServer table OFCVAR parameter XLAPLAN_RATEAREA_SERVORD_ENABLED to MANDATORY_PROMPTS is not supported for provisioning via the OSSGate Line Provisioning interface.
- Any commands and services that have not been officially tested by Nortel product verification, are considered unsupported and are not officially sanctioned for use.
- The PDO option can not be added a DN on treatment. The PDO option can not be added or deleted via the table editor. It can only be added or deleted using Servord.

- The CHG command does not support changes of LCC (Line Class Code) on lines assigned to an SAA line card that involve changes from business sets to non-business set LCCs or vice-versa.
- There is a limitation on the number of characters that can be entered in one command. This number is approximately 400 characters. If this limit is exceeded, the command will not work. Some commands that allow multiple member adds or deletes can exceed the 400 character limit.
- There is an engineering limit of 16 MADN members in the same group per LGC or gateway. MADN Engineering Rules (SEB 92-11-001). Table OFCENG Office parm MAX_MADN_MEMBERS_PER_LSG
- When the PDO option is applied to a VDN, the VDN can not be removed using the OUTDN command. The PDO option must first be removed using the servord DEO command. This is consistent with existing PDO behavior on DNs associated with POTS, IBN or KSET lines.
- The command name in an error message may not match the command entered when performing certain ServOrd+ commands from OSSGate. The failure message will reflect the actual XA-Core ServOrd command that was executed. Some Examples are: CKTP will be displayed as CKLN and QTP will be displayed as QLEN. Please note that this discrepancy only occurs in error messages.
- Due to performance considerations, it is recommended that system-wide queries be done during off-peak times when no other provisioning is in progress.

4.6.1 HUNT GROUP Restrictions:

The following HUNT group types are supported when using the EST servord+ command:

- MLH, DLH, MPH, DNH, CPU, CMG, SIMRING

The following HUNT group types are not supported when using the EST servord+ command:

- UA, BNN, PRH (NOTE: BNN members may be added via the ABNN command and deleted via the DBNN command).

4.6.2 Meridian Business Group (MBG) Provisioning Limitations:

Office parameter MAX_MBG_LINES (OFCOPT) controls the number of lines allowed to be added to a MBG. When the maximum number of lines is reached, Servord+ commands will be

rejected by the XACore. However, the XACore Servord will not remove HASU LNINV entries which were created as part of the failed processing. These entries will need to be manually removed prior to deleting the associated gateway via the CS2000 Management Tool, however they pose no problems for further line provisioning actions via OSSGate.

4.6.3 CICM Line Provisioning Limitations:

When executing commands (NEW, ADO, DEO, etc.) to add or delete multiple options from CICM (Centrex IP Client Manager) lines, some options may be rejected by the CM while the overall command itself is accepted and processed successfully. For example, when adding or modifying certain line options (e.g., FXR, CAG, DASK, etc.), incompatibilities with existing options can result in a core response message of the form "<feat> COULD NOT BE ADDED" or "...FAILED TO ASSIGN ONE OR MORE FEATURES..." or "<feat> did not pass updating" or "ATTEMPT TO ASSIGN MULTIPLE APPEARANCE". In this case, the command is not rejected in it’s entirety on the CM and is therefore not rolled back on the CICM Element Manager. Manual action must be taken at the CICM Element Manager to ensure that the option data accepted by the CM is mirrored on the CICM line.

- Hunt Group commands e.g., ABNN, ADD, CHDN, DEL, EST are not supported.
- Centrex IP LCC’s cannot be changed (commands CHG, CKLN, CLN).
- COPYSET command is not supported.
- PF and FTRGRP features are not supported.

5: Provisioning Using XML

The greatest use for OSSGate is automation of provisioning and maintenance commands through an OSS connection. Some commands are sent in XML form and then parsed by OSSGate into the parameters required by the interfacing provisioning and maintenance applications. Note: Line Provisioning does not support an XML interface.

Once a connection is established by the OSS, the mode of OSSGate must be set to XML. This is accomplished by sending a CTRL-B and then sending the text string “mode XML”. Once in XML mode, the OSS can begin sending the XML data to OSSGate. OSSGate will forward incoming XML input to a parser, which parses the contents of the XML file and, after performing some validation of the parameters, passes the information to the appropriate provisioning or maintenance application. Currently there are two generic formats for a valid XML input file. Both of these are described below.

5.1 Supported Syntax for XML Provisioning

5.1.1 Rules for valid XML commands are:

- For every open tag there must be a close tag.
- Every attribute value must be quoted, either with single or double quotes, but they must be consistent.
- No attribute name may appear more than once in a single element.
- Elements must be nested (closed) properly.
- Only one root element is allowed.
- XML is case-sensitive.
- Support of XML Schemas (rather than DTDs) and XML Name Space is added.

5.1.2 Supported XML file format

5.1.2.1 XML Command Messages

The following changes have been made to the existing Node, Carrier, and V5.2 Carrier Provisioning XML command messages for all existing commands:

- The following XML tag is no longer supported.
  - MethodName
- The following XML tag has been added since SN05
  - the operation name - e.g., when the operation is delete Carrier, a delete Carrier tag exists (where the MethodName tag previously existed).
- standalone="yes" is removed from the first line of the command message.
- The xml version is added to the contents of the “specific method” tag.

Example format of an SN04 command message - generic operation/method:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList >
  <Command>
    <Interface>EndptGrpProvIf</Interface>
      <Methods>
        <MethodName usn=”7”>someMethod</MethodName>
          <Parameters>
       <fieldName>somevalue</fieldName>
       <fieldName>somevalue</fieldName>
          </Parameters>
    </Methods>
  </Command>
</CommandList>
```

Example format of an SN05 and later command message - generic operation/method:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList >
  <Command>
    <Interface>EndptGrpProvIf</Interface>
     <Methods>
     <someMethod usn="7" version="1.0">
       <Parameters>
          <fieldName>somevalue</fieldName>
          <fieldName>somevalue</fieldName>
       </Parameters>
     </someMethod>
    </Methods>
  </Command>
</CommandList>
```


Example format of an SN04 command message, where deleteCarrier is the example:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
 <CommandList >
  <Command>
   <Interface>EndptGrpProvIf</Interface>
    <Methods>
     <MethodName usn=”7”>deleteCarrier</MethodName>
      <Parameters>
        <mgName>PVG8</mgName>
       <carrierName>DS3_20.1</carrierName>
     </Parameters>
   </Methods>
 </Command>
</CommandList>
```

Example format of an SN05 and later command message - in this example the deleteCarrier method is used:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList >
  <Command>
  <Interface>EndptGrpProvIf</Interface>
    <Methods>
       <deleteCarrier usn="7" version="1.0">
         <Parameters>
        <mgName>PVG8</mgName>
         <carrierName>DS3_20.1</carrierName>
         </Parameters>
       </deleteCarrier>
    </Methods>
  </Command>
</CommandList>
```

Note: For other commands, substitute the command name for deleteCarrier tag. For example, for the associate MG command, substitute assocMG for deleteCarrier. Make sure to do so for both the open and close tags.

5.1.2.2 XML Response Messages

The following changes have been made to the existing Nodes, Carrier, and V5.2 Carrier Provisioning XML response messages, for all existing commands:

- The following XML tags have been removed:
  - MethodName
  - usn
- The following XML tags have been added:
  - the operation name - e.g., when the operation is deleteCarrier, a deleteCarrier tag exists (where the MethodName tag previously existed). This tag also contains the usn.
  - ReturnData

Also, note the following three additional changes to the response message:

- version and usn number are added to the contents of the “operation name” tag. The version refers to the version of the method or operation - e.g., the deleteCarrier operation may have version 1.0 and 2.0, where version 1.0 takes parms X and Y and version 2.0 takes parms X, Y, and Z
- The RC and MsgText XML tags are moved to a new location in the response message**.** In SN04, they came before any operation-specific data returned in the response message. In SN05 and later, they come after any operation-specific data returned in the response message. The deleteCarrier operation does not reveal the relocation of these tags/fields - there is no other data returned in the response message. However, in other operations, this “re-ordering” is evident.
- standalone="yes" is removed from the first line of the response message.

Example of general file format for a valid XML response file - generic SN04 operation:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList>
  <Response>
    <Interface>somevalue</Interface>
      <Methods>
        <MethodName>somevalue</MethodName>
        <usn>1</usn>
          <RC>somevalue</RC>
          <MsgTxt>somevalue</MsgTxt>
           <ReturnData>
             <Row>
          <fieldName>somevalue</fieldName>
              </Row>
           </ReturnData>
    </Methods>
  </Response>
</CommandList>
```


Example of general file format for a valid XML response file - generic SN05 and later operation:

```
<?xml version="1.0" encoding="UTF-8"?>
<CommandList>
 <Response>
  <Interface>somevalue</Interface>
   <Methods>
     <someMethod usn="7" version="1.0">
      <ReturnData>
        <fieldName>somevalue</fieldName>
          <RC>somevalue</RC>
            <MsgTxt>somevalue</MsgTxt>
      </ReturnData>
     </someMethod>
  </Methods>
 </Response>
</CommandList>
```

Example format of an SN04 **deleteCarrier** response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
 <CommandList>
  <Response>
   <Interface>EndptGrpProvIf</Interface>
    <Methods>
     <MethodName >deleteCarrier</MethodName>
        <usn>7</usn>
       <RC>0</RC>
       <MsgTxt>Delete Carrier operation was  successful.</MsgTxt>
    </Methods>
  </Response>
</CommandList>
```

Example format of an SN05 and later **deleteCarrier** response

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
   <Response>
     <Interface>EndptGrpProvIf</Interface>
       <Methods>
         <deleteCarrier usn="7" version="1.0">
       <ReturnData>
             <RC>0</RC>
             <MsgTxt>Delete Carrier operation was successful.</MsgTxt>
          </ReturnData>
        </deleteCarrier>
       </Methods>
   </Response>
</CommandList>
```


6: Nodes Provisioning with OSSGate

Nodes Provisioning is available with OSSGate by providing an interface with the CS2000 Configuration Manager (CS2kCfgMgr) that runs as part of CS2000 Management Tools suite. XML requests are sent to OSSGate, which parses the information and forwards it on to the CS2kCfgMgr. Responses are then put into XML-formatted strings that are returned to the interfacing OSS.

6.1 H.323 Provisioning changes

Prior to the SN07 release, for H.323 GWs the End Point Groups (EPGs) were automatically created and added to the system. The size of the EPGs is dependent upon configuration (North American systems, 24 is used, International systems, 32). The number of EPGs provisioned was automatically calculated by the system so that the appropriate number of groups were added as dictated by the mandatory “Reserved terminations” field. Pre-SN07 the location of the TIDs allocated was under system control. In SN07, this behavior has been altered. EPGs are no longer automatically added. A separate step of adding the EPGs is used with the “Add carrier” operation. Functionality update in changeMG for capacity, IPaddress, port exist. Functionality updates to support H.323 gateways in addCarrier, queryEndpointGroup, listAllCarriers, disassociateMG, deleteCarrier has been added.

6.2 XML Commands

The Cs2kCfgMgr is accessed by way of the cs2kCfgMgrIf interface. The following operations are available through that interface.

- Add a GWC to the callserver specified by XML element addGWCtoCS (not recommended for use by OSS)
- Delete a GWC from the callserver specified by XML element deleteGWCfrmCS (not recommended for use by OSS)
- Query the list of GWCs on the callserver or query the attributes of a specific GWC specified by XML element queryGWC.
- Associate an MG with a GWC specified by XML element assocMG.
- Disassociate an MG specified by XML element disAssocMG

- Change MG attributes specified by XML element changeMG
- Query the list of MGs associated with a GWC or query the attributes of a specific MG specified by XML element queryMG .
- Query the list of Sites populated in Call Server table Site specified by XML element querySiteInfo

6.2.1 Add GWC

The following are the XML elements that are applicable to the add GWC operation. Unless indicated the element is required in the XML document to be valid. This command is not intended to be used by customers' mechanized provisioning systems.

addGWCtoCS - specifies the provisioning method. It has two attributes usn and version. The usn is a sequence number used by OSS to associate requests with responses. The usn value specified in the request is returned in the response. The version attribute specifies the version of the method being used. Currently only 1.0

Parameters - specifies that the following elements are parameters for the method.

csUIName - delimits callserver name value. This parameter element is optional or not required

gwcUIName - delimits GWC name value

profileName- delimits gwc profile name value

gwcActvIp - delimits the active IP address value of the GWC

gwcSnmpPort - delimits the SNMP protocol port value to be used. This parameter element is optional, or not required.

msgRouterIp - delimits the CM message router IP address value.

msgRouterIpPort - delimits the CM message router IP port value

externalIP - delimits the external IP address value for the GWC. This parameter element is optional or not required.

externalPort - delimits the external IP port value for the GWC. This parameter element is optional or not required.

bearerNetworkName - delimits the bearer network name value to which the GWC is being added. This parameter element is optional or not required.

bearerFabricType - delimits the bearer network fabric type value which the GWC must support. This parameter element is optional or not required.

codecProfileName - delimits the code profile name value which is to be applied to the GWC. This parameter element is optional or not required.

termType - delimits terminal type value to be supported by the GWC. This element may be repeated up to 8 times along with a corresponding exec, the following element.

execLineup - delimits executive routine value that is to be associated with the corresponding terminal type. This element may be repeated up to 8 times along with a corresponding terminal type.

6.2.2 Add GWC Response

The following XML elements are returned in response to an ADD GWC operation:

Response - delimits the response

Interface - delimits the interface specified in the request cs2kCfgMgrIf.

Methods - delimits the cs2kCfgMgrIf methods in the request

addGWCtoCS - method requested. Has attributes usn and version. The user sequence number provided on the request. The version of the method accessed.

RC - return code. Delimits a value indicating the results of the request. See table 7 below for list of valid values

MsgTxt - delimits text describing the results of the request.

6.2.3 Delete GWC

The following are the XML elements that are applicable to the delete GWC operation. Unless indicated the element is required in the XML document to be valid. This command is not intended to be used by customers' mechanized provisioning systems.

deleteGWCfrmCS - specifies the provisioning method. It has two attributes usn and version. The usn is a sequence number used by OSS to associate requests with responses. The usn value specified in the request is returned in the response. The version attribute specifies the version of the method being used. Currently only 1.0

Parameters - specifies that the following elements are parameters for the method.

csUIName - delimits callserver name value. This parameter element is optional or not required

gwcUIName - delimits GWC name value

6.2.4 Delete GWC Response

The following XML elements are returned in response to a Delete GWC operation:

Response - delimits the response

Interface - delimits the interface specified in the request cs2kCfgMgrIf.

Methods - delimits the cs2kCfgMgrIf methods in the request

deleteGWCfrmCS - method requested. Has attributes usn and version. The user sequence number provided on the request. The version of the method accessed.

RC - return code. Delimits a value indicating the results of the request. See table 7 below for list of valid values

MsgTxt - delimits text describing the results of the request.

6.2.5 Query GWC

The following are the XML elements that are applicable to the Query GWC operation.

queryGWC - specifies the provisioning method. It has two attributes usn and version. The usn is used by OSS to associate requests with responses. The usn value specified in the request is returned in the response. The version attribute specifies the version of the method being used. Currently only 1.0

Parameters - specifies that the following elements are parameters for the method.

> Note: Note: a choice between each of the following parameters is required, one or the other may be specified.

csUIName - delimits callserver name value. When this parameter element is specified a list of all the GWC's in the call server is returned.

gwcUIName - delimits GWC name value. When this parameter element is specified the attributes of the GWC specified are returned.

6.2.6 Query a List of All GWCs on a Call Server Response

The following XML elements are returned in response to a Query list of all GWCs on a call server operation:

Response - delimits the response

Interface - delimits the interface specified in the request cs2kCfgMgrIf.

Methods - delimits the cs2kCfgMgrIf methods in the request

queryGWC - method requested. Has attributes usn and version. The user sequence number provided on the request. The version of the method accessed.

ReturnData - delimits the row of the query

Row - delimits the query data

gwcUIList - delimits the GWC name value

gwcIpList - delimits the GWC IP value

RC - return code. Delimits a value indicating the results of the request. See table 7 below for list of valid values

MsgTxt - delimits text describing the results of the request.

6.2.7 Query attributes of a GWC Response

The following XML elements are returned in response to a Query attributes of a GWC operation:

Response - delimits the response

Interface - delimits the interface specified in the request cs2kCfgMgrIf.

Methods - delimits the cs2kCfgMgrIf methods in the request

queryGWC - method requested. Has attributes usn and version. The user sequence number provided on the request. The version of the method accessed.

ReturnData - delimits the row of the query

Row - delimits the query data

gwcUIList - delimits the GWC name value

gwcIpList - delimits the GWC active unit IP address value

callServerId - delimits the call server name value

nodeName - delimits the GWC's node name value

typeList - delimits a GWC capability type value

typeList values are interpreted as follows:

1. Lines
2. Trunks
3. Audio
4. APG
5. DPT
6. DQoS
7. Small MGs
8. Large MGs

9. Audio MGs

10. APG MG's

11. SIPT

12. VRDN

13. RA

14. BCT

15. IPSec

16. Kerberos

17. V52

18. Conferences

19. Announcements

20. RMGC MG's

21. H.323

xacNodeNumber - delimits the call server node number value for the GWC

activIpAddress - delimits the active GWC IP address value

snmp port - delimits the value of the port the GWC uses for receiving snmp messages

mktTones - delimits the tone value for the market where the GWC is deployed

termTypes - delimits the callserver terminal type value

pmExecs - delimits the callserver peripheral module executive value. (termTypes and pmExecs are paired corresponding values)

capacity - delimits the value of the terminal capability of the GWC

RC - return code. Delimits a value indicating the results of the request. See table 7 below for list of valid values

MsgTxt - delimits text describing the results of the request.

6.2.8 Associate MG

The following are the XML elements that are applicable to the Associate MG operation. Unless indicated the element is required in the XML document to be valid.

Prior to this release, associate MG for a H.323 gateway automatically provisioned the endpoint groups. In SN07 EPGs are now provisioned separately using the "Add Carrier" command.

assocMG - specifies the provisioning method. It has two attributes usn and version. The usn is used by OSS to associate requests with responses. The usn value specified in the request is returned in the response. The version attribute specifies the version of the method being used. Currently only 1.0

Parameters - specifies that the following elements are parameters for the method.

mgUIName - delimits MG name value.

mgProfileName - delimits the MG profile name value to be applied to the MG.

mgIpAddr - delimits the MG IP address value.

mgProtocolType - delimits the MG protocol type. Valid values are:

1. NCS
2. Aspen
3. DSMCC
4. MEGACO
5. MGCP
6. H.323

mgProtocolVersion - delimits the version value of the MG protocol to be used.

mgProtocolPort - delimits the port value to be used by the protocol

mgSiteName - delimits the site name value to used by a line type MG for its logical group. This parameter element is optional or not required.

gwcUIName - delimits GWC name value. This parameter element is optional or not required. When not specified the callserver selects the most appropriate GWC to associate with the MG.

reservedTerminations - delimits the number of terminations value to be reserved for the MG. This parameter element is optional or not required and cannot exceed the engineered or maximum number of terminations supported by the type of MG being associated as defined by the profile.

Note: a choice between each of the following 3 parameters is required, one may be specified.

pepServerName - delimits policy enforcement point server name value. Only valid for MG that support dynamic quality of service or DQoS

itransMiddleboxName - delimits the adjacent Middlebox name
(either a network address translation server name or a VCAC limited bandwidth link name).

rootMiddleboxName1(..5) - delimits the root Middlebox names. Up to 5 separate entries can be defined per MG, tags must be sequential e.g. if 3 root Middleboxes then 1,2 & 3 must be provided.

6.2.9 Associate MG Response

The following XML elements are returned in response to an Associate MG operation:

Response - delimits the response

Interface - delimits the interface specified in the request cs2kCfgMgrIf.

Methods - delimits the cs2kCfgMgrIf methods in the request

assocMG - method requested. Has attributes usn and version. The user sequence number provided on the request. The version of the method accessed.

gwcUIName - delimits the name of the GWC that the MG is associated to.

gwcIpAddr - delimits the value of GWC active unit IP address

mgNodeName - delimits the MGs node name value

RC - return code. Delimits a value indicating the results of the request. See table 7 below for list of valid values

MsgTxt - delimits text describing the results of the request.

6.2.10 Disassociate MG

The following are the XML elements that are applicable to the Disassociate MG operation.

disAssocMG - specifies the provisioning method. It has two attributes usn and version. The usn is used by OSS to associate requests with responses. The usn value specified in the request is returned in the response. The version attribute specifies the version of the method being used. Currently only 1.0

Parameters - specifies that the following elements are parameters for the method.

mgUIName - delimits MG name value of MG to be disassociated

6.2.11 Disassociate MG Response

The following XML elements are returned in response to an Disassociate MG operation:

Response - delimits the response

Interface - delimits the interface specified in the request cs2kCfgMgrIf.

Methods - delimits the cs2kCfgMgrIf methods in the request

disAssocMG - method requested. Has attributes usn and version. The user sequence number provided on the request. The version of the method accessed.

RC - return code. Delimits a value indicating the results of the request. See table 7 below for list of valid values

MsgTxt - delimits text describing the results of the request.

6.2.12 Change MG

Change MG for H.323 Gateway in SN07 supports ability to change capacity, the IP address, and the Port. The capacity change is a stand alone operation while the IP address and Port changes can be combined.

The following are the XML elements that are applicable to the Change MG operation.

changeMG - specifies the provisioning method. It has two attributes usn and version. The usn is used by OSS to associate requests with responses. The usn value specified in the request is returned in the response. The version attribute specifies the version of the method being used. Currently only 1.0

Parameters - specifies that the following elements are parameters for the method.

mgUIName - delimits MG name value.

Note: Only one parameter may be changed per operation, a choice between each set of the following parameters is required, one or the other may be specified.

a. **reservedTerminations** - delimits the MG profile name value to be applied to the MG.

b. **mgIpAddr** - delimits the new MG IP address value of an H.323 MG. Not applicable to any other type of MG

c. **mgProtocolPort** - delimits the new protocol port value of an H.323 MG. Not applicable to any other type of MG

Note 1: The user has the ability to include the reserved termination choice or the IP address and/or Port choice, but, cannot list both choices within a single transaction. Since the IP address and Port tags have been made optional, the user can include either or both within a single transaction. Note that failure to include any of the choice tags will result in a failed operation.

6.2.13 Change MG Response

The following XML elements are returned in response to an Change MG operation:

Response - delimits the response

Interface - delimits the interface specified in the request cs2kCfgMgrIf.

Methods - delimits the cs2kCfgMgrIf methods in the request

changeMG - method requested. Has attributes usn and version. The user sequence number provided on the request. The version of the method accessed.

RC - return code. Delimits a value indicating the results of the request. See table 7 below for list of valid values

MsgTxt - delimits text describing the results of the request.

6.2.14 Query MG

The following are the XML elements that are applicable to the Query MG operation.

queryMG - specifies the provisioning method. It has two attributes usn and version. The usn is used by OSS to associate requests with responses. The usn value specified in the request is returned in the response. The version attribute specifies the version of the method being used. Currently only 1.0

Parameters - specifies that the following elements are parameters for the method.

> Note: a choice between each of the following parameters is required, one or the other may be specified.

gwcUIName - delimits GWC name value. When this parameter element is specified a list of all the MGs associated with the GWC is returned.

mgUIName - delimits MG name value. When this parameter element is specified the attributes of the MG specified are returned

6.2.15 Query a List of MGs on a GWC Response

The following XML elements are returned in response to a Query list of all MGs on a GWC operation:

Response - delimits the response

Interface - delimits the interface specified in the request cs2kCfgMgrIf.

Methods - delimits the cs2kCfgMgrIf methods in the request

queryMG - method requested. Has attributes usn and version. The user sequence number provided on the request. The version of the method accessed.

ReturnData - delimits the row of the query

Row - delimits the query data

mgUIList - delimits the MG name value

mgIpList - delimits the MG IP value

RC - return code. Delimits a value indicating the results of the request. See table 7 below for list of valid values

MsgTxt - delimits text describing the results of the request.

6.2.16 Query attributes of an MG Response

The following XML elements are returned in response to a Query attributes of an MG operation:

Response - delimits the response

Interface - delimits the interface specified in the request cs2kCfgMgrIf.

Methods - delimits the cs2kCfgMgrIf methods in the request

queryMG- method requested. Has attributes usn and version. The user sequence number provided on the request. The version of the method accessed.

ReturnData - delimits the row of the query

Row - delimits the query data

mgUIList - delimits the MG name value

mgIpList - delimits the MG IP address value

callServerId - delimits the call server name value

svcTypeList - delimits an MG service type value

svcTypeList values are interpreted as follows:

0 - Line

1 - Trunk

2 - Audio

3 - APG

4 - DQoS

5 - ITRANS

6 - H.323

7 - ITRANS ROAM

nodeName - delimits the MGs node name value

pepServerName - delimits a policy enforcement point server name when applicable (only when the MG supports this attribute e.g. DQOS service type)

itransMiddleboxName- delimits the adjacent Middlebox name
(either a network address translation server name or a VCAC limited bandwidth link name) when applicable (only when the MG supports this attribute e.g. ITRANS service type)

engrEndPoints - delimits the number of reserved endpoints value

protType - delimits the protocol type value. Values mean:

1 - NCS

2 - Aspen

3 - DSMCC

4 - MEGACO

5 - MGCP

6 - H.323

protVersion - delimits the protocol version value

protPort - delimits the protocol port value

profileName - delimits the profile name

rootMiddleboxName1(..5) - delimits the root Middlebox names up to 5 separate entries can be returned per MG when applicable (only when the MG supports this attribute e.g. ITRANS_ROAM service type)

RC - return code. Delimits a value indicating the results of the request. See table 7 below for list of valid values

MsgTxt - delimits text describing the results of the request.

Note: The pepServerName, itransMiddleboxName and rootMiddleboxName1..5 tags are only returned to the client when the MG service type is compatible (see specific tags above). Also an empty tag can be returned to the client when there is no entry (this is displayed as <none> on the CS2K Config Manager GUI.). The format used for the empty tag is as follows :

<exampleTag></exampleTag>

6.2.17 Query Site

The following are the XML elements that are applicable to the Query Site operation.

getSiteInfoMG - specifies the provisioning method. It has two attributes usn and version. The usn is used by OSS to associate requests with responses. The usn value specified in the request is returned in the response. The version attribute specifies the version of the method being used. Currently only 1.0

Parameters - delimits the one parameter

csUIName - delimits the call server name value

6.2.18 Query Site Response

The following XML elements are returned in response to a Query list of Site names operation:

Response - delimits the response

Interface - delimits the interface specified in the request cs2kCfgMgrIf.

Methods - delimits the cs2kCfgMgrIf methods in the request

getSiteInfo - method requested. Has attributes usn and version. The user sequence number provided on the request. The version of the method accessed.

ReturnData - delimits the row of the query

Row - delimits the query data

siteNameList - delimits a site name value read from Site table

RC - return code. Delimits a value indicating the results of the request. See table 7 below for list of valid values

MsgTxt - delimits text describing the results of the request.

The following are examples of XML commands and the corresponding response messages for each operation supported for Nodes provisioning. The XML code in these examples is formatted for ease of understanding.

Note: **Adding and deleting gateway controllers should be done from the Call Server 2000 GUI rather than via OSSGate**. The syntax is provide for reference, volume deployment only.

Figure 1 **An example add GWC request**

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
<Command>
<Interface>cs2kCfgMgrIf</Interface>
<Methods>
<addGWCtoCS usn="1" version="1.0">
<Parameters>
<csUIName>COMPACT6</csUIName>
<gwcUIName>GWC-12</gwcUIName>
<profileName>LARGE_LINENA</profileName>
<gwcActvIp>26.3.4.8</gwcActvIp>
<gwcSnmpPort>161</gwcSnmpPort>
<msgRouterIp>47.142.128.144</msgRouterIp>
<msgRouterIpPort>4684</msgRouterIpPort>
<bearerNetworkName>NET_IP</bearerNetworkName>
<bearerFabricType>IP</bearerFabricType>
<codecProfileName>Test</codecProfileName>
<termType>POTS</termType>
<termType>KEYSET</termType>
<execLineup>POTSEX</execLineup><execLineup>KSETEX</execLineup>
</Parameters>
</addGWCtoCS>
</Methods>
</Command>
</CommandList>
```

Figure 2 An example of an add GWC response

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
<Response>
<Interface>cs2kCfgMgrIf</Interface>
<Methods>
<addGWCtoCS usn="1"
version="1.0">
<RC>0</RC>
<MsgTxt>Add GWC operation was successful</MsgTxt>
</addGWCtoCS>
</Methods>
</Response>
</CommandList>
```

Figure 3 An example of assocMG request:

```
<?xml version="1.0" encoding="UTF-8"  ?>
<CommandList>
  <Command>
    <Interface>cs2kCfgMgrIf</Interface>
    <Methods>
    <assocMG usn="1" version="1.0">
     <Parameters>
      <mgUIName>mg1.nortel.net</mgUIName>
      <mgProfileName>ASKEY_LINE_GW_4</mgProfileName>
      <mgIpAddr>47.49.23.43</mgIpAddr>
      <mgProtocolType>5</mgProtocolType>
      <mgProtocolVersion>2.0</mgProtocolVersion>
      <mgProtocolPort>2427</mgProtocolPort>
      <gwcUIName>GWC-0</gwcUIName>
     </Parameters>
    </assocMG>
   </Methods>
  </Command>
</CommandList>
```

Note: The parameters need to be specified in correct sequential order as listed in the request command.

Figure 4 An example of assocMG response:

```
<?xml version="1.0" encoding="UTF-8" ?> <CommandList>
 <Response>
  <Interface>cs2kCfgMgrIf</Interface>
   <Methods><assocMG usn="1" version="1.0">
    <ReturnData>
     <Row>
      <gwcUIName>GWC-0</gwcUIName>
      <gwcIpAddr>172.17.40.24</gwcIpAddr>
      <mgNodeName>LG    00 0</mgNodeName>
     </Row>
     <RC>0</RC>
     <MsgTxt>The MG was successfully associated with a GWC</MsgTxt>
    </ReturnData>
   </assocMG>
  </Methods>
 </Response>
</CommandList>
```

H.323 gateway association:

The process for associating an H.323 MG via XML is very similar to adding any other media gateway. The only difference are the additionalMG profiles. The reserved terminations tag is a mandatory tag for H.323 GWs. The reserved endpoints must be specified as the last parameter tag Example: <reservedTerminations>32</reservedTerminations>.

Figure 5 Associate H.323 MG

```
<?xml version="1.0" encoding="UTF-8"  ?>
<CommandList>
  <Command>
    <Interface>cs2kCfgMgrIf</Interface>
    <Methods>
    <assocMG usn="1" version="1.0">
       <Parameters>
            <mgUIName>H323_M1</mgUIName>
            <mgProfileName>SUCCESSION_1000</mgProfileName>
            <mgIpAddr>10.10.10.43</mgIpAddr>
            <mgProtocolType>6</mgProtocolType>
            <mgProtocolVersion>4.0</mgProtocolVersion>
            <mgProtocolPort>6000</mgProtocolPort>
            <gwcUIName>GWC-0</gwcUIName>
            <reservedTerminations>24</reservedTerminations>
            <itransMiddleboxName>NAT1</itransMiddleboxName>
       </Parameters>
    </assocMG>
   </Methods>
  </Command>
</CommandList>
```

Figure 6 An example of disAssocMG request:

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>cs2kCfgMgrIf</Interface>
    <Methods>
     <disAssocMG usn="1" version="1.0">
     <Parameters>
     <mgUIName>mg1.nortel.net</mgUIName>
     </Parameters>
     </disAssocMG>
    </Methods>
  </Command>
</CommandList>
```

Figure 7 An example of disAssocMG response:

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Response>
   <Interface>cs2kCfgMgrIf</Interface>
    <Methods>
     <disAssocMG usn="1" version="1.0">
     <RC>0</RC>
     <MsgTxt>The MG was successfully disassociated from a GWC</MsgTxt>
     </disAssocMG>
   </Methods>
  </Response>
</CommandList>
```

Note: Before a gateway can be deleted, it is important to verify that it is not in use to avoid taking down active calls. All associated

services (lines, carriers, trunks etc. depending on the type of gateway) must be deleted to ensure that no calls can originate during the gateway deletion process. To delete a H.323 gateway "BSY INB" the corresponding trunk group on the CS2K and delete the associated H.323 carrier. Failure to do this will result in the deletion being denied by the system.

Figure 8 An example of **changeMG** request for capacity

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList >
 <Command>
  <Interface>cs2kCfgMgrIf</Interface>
  <Methods>
  <changeMG usn="1" version="1.0">
    <Parameters>
    <mgUIName>mg1.nortel.net</mgUIName>
    <reservedTerminations>3</reservedTerminations>
    </Parameters>
  </changeMG>
 </Methods>
 </Command>
</CommandList>
```

Figure 9 An example of changeMG request for IP address and/or Port

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList >
 <Command>
  <Interface>cs2kCfgMgrIf</Interface>
  <Methods>
  <changeMG usn="1" version="1.0">
    <Parameters>
    <mgUIName>mg1.nortel.net</mgUIName>
     <mgIpAddr>22.44.66.88</mgIpAddr>
      <mgProtocolPort>88</mgProtocolPort>
    </Parameters>
  </changeMG>
 </Methods>
 </Command>
```

Note: The IP/Port change operation is only supported for H.323 GWs and they must have a NAT associated with them.

Figure 10 An example of **changeMG** response

```
<?xml version="1.0" encoding="UTF-8" ?> <CommandList>
  <Response>
   <Interface>cs2kCfgMgrIf</Interface>
   <Methods><changeMG usn="1" version="1.0">
   <RC>0</RC>
    <mgUIName>mg1.nortel.net</mgUIName>
    <MsgTxt>mg1.nortel.net Change MG Successful
     All Change MG requests have been processed.
    </MsgTxt>
  </changeMG>
 </Methods>
</Response>
</CommandList>
```

Figure 11 An example of **changeMG** request that causes a failure response - a change attempted when reserved terminations exceed the maximum

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList >
  <Command>
    <Interface>cs2kCfgMgrIf</Interface>
     <Methods>
      <changeMG usn="1" version="1.0">
       <Parameters>
        <mgUIName>mg1.nortel.net</mgUIName>
        <reservedTerminations>45</reservedTerminations>
       </Parameters>
      </changeMG>
     </Methods>
   </Command>
</CommandList>
```

Figure 12 An example of **changeMG** response - failure scenario

```
<?xml version="1.0" encoding="UTF-8" ?> <CommandList>
  <Response><Interface>cs2kCfgMgrIf</Interface>
   <Methods>
    <changeMG usn="1" version="1.0">
     <RC>50</RC><mgUIName>mg1.nortel.net</mgUIName>
        <MsgTxt> mg1.nortel.net Change MG Failed - Reserved Terminations Exceed
                 Maximum. All Change MG requests have been processed.
         </MsgTxt>
    </changeMG>
   </Methods>
  </Response>
</CommandList>
```

Figure 13 An example of querySiteInfo request

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
   <CommandList>
    <Command>
      <Interface>cs2kCfgMgrIf</Interface>
      <Methods>
         <getSiteInfo usn="1" version="1.0">
           <Parameters>
          <csUIName>RTPS</csUIName>
          </Parameters>
        </getSiteInfo>
     </Methods>
    </Command>
</CommandList>
```

Figure 14 An example of **querySiteInfo** response

```
<?xml version="1.0"encoding="UTF-8"?> <CommandList>
  <Response>
   <Interface>cs2kCfgMgrIf</Interface>
    <Methods><getSiteInfo usn="1" version="1.0">
    <ReturnData>
     <Row>
      <siteNameList>HOST</siteNameList>
      <siteNameList>LG</siteNameList>
      <siteNameList>UAIP</siteNameList>
     </Row>
     <RC>0</RC>
     <MsgTxt>Request successful</MsgTxt>
    </ReturnData>
   </getSiteInfo>
  </Methods>
 </Response>
</CommandList>
```

Figure 15 An example of **query all GWC** on a calls server request:

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
   <Command>
    <Interface>cs2kCfgMgrIf</Interface>
      <Methods>
       <queryGWC usn="1" version="1.0">
        <Parameters>
          <csUIName>RTPS</csUIName>
        </Parameters>
       </queryGWC>
      </Methods>
   </Command>
</CommandList>
```

Note: The query param in Query Gateway Controller on a CallServer can be either

<csUIName> - Which will list all GWC's in that CM CLLI space.
<gwcUIName> - Which will list the details about specific GWC.

Figure 16 An example of query all GWC on a call server response:

```
<?xml version="1.0" encoding="UTF-8" ?>
  <CommandList>
   <Response>
    <Interface>cs2kCfgMgrIf</Interface>
    <Methods>
     <queryGWC usn="1" version="1.0">
     <ReturnData>
     <Row><gwcUIList>GWC-0</gwcUIList>
         <gwcIpList>172.17.40.24</gwcIpList>
     </Row>
     <Row><gwcUIList>GWC-1</gwcUIList>
         <gwcIpList>172.17.40.28</gwcIpList>
     </Row>
     <Row><gwcUIList>GWC-2</gwcUIList>
         <gwcIpList>172.17.40.32</gwcIpList>
     </Row>
     <Row><gwcUIList>GWC-3</gwcUIList>
         <gwcIpList>172.17.40.36</gwcIpList>
     </Row>
     <RC>0</RC>
     <MsgTxt>Query of all the GWC on a Call Server
          was successful</MsgTxt>
     </ReturnData>
     </queryGWC>
    </Methods>
  </Response>
</CommandList>
```

Figure 17 An example query attributes of specific GWC request **:**

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>cs2kCfgMgrIf</Interface>
    <Methods>
     <queryGWC usn="1" version="1.0">
     <Parameters>
       <gwcUIName>GWC-1</gwcUIName>
     </Parameters>
     </queryGWC>
    </Methods>
  </Command>
</CommandList>
```


Figure 18 Response to query the attributes of a specific GWC:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
<Response><Interface>cs2kCfgMgrIf</Interface>
<Methods>
        <queryGWC usn="1" version="1.0">
        <ReturnData>
        <Row>
                <gwcUIList>GWC-1</gwcUIList>
                <gwcIpList>172.17.40.28</gwcIpList>
                <callServerId>RTPS</callServerId>
                <nodeName>GWC1</nodeName>
                <typeList>2</typeList>
                <typeList>8</typeList>
                <xacNodeNumber>13</xacNodeNumber>
                <actvIpAddress>172.17.40.28</actvIpAddress>
                <snmpPort>161</snmpPort>
                <mktTones>NORTHAM</mktTones>
                <termTypes>ABTRK</termTypes>
                <termTypes>PRAB</termTypes>
                <termTypes>null</termTypes>
                <termTypes>null</termTypes>
                <termTypes>null</termTypes>
                <termTypes>null</termTypes>
                <termTypes>null</termTypes>
                <termTypes>null</termTypes>
                <pmExecs>DTCEX</pmExecs>
                <pmExecs>UTR250</pmExecs>
                <pmExecs>null</pmExecs>
                <pmExecs>null</pmExecs>
                <pmExecs>null</pmExecs>
                <pmExecs>null</pmExecs>
                <pmExecs>null</pmExecs>
                <pmExecs>null</pmExecs>
                <capacity>4094</capacity>
        </Row><RC>0</RC>
        <MsgTxt>Query of a Single GWC was successful</MsgTxt>
        </ReturnData>
        </queryGWC>
</Methods>
</Response>
</CommandList>
```

Figure 19 An example of query attribute of a specific MG request:

```
<?xml version="1.0" encoding="UTF-8" ?>
  <CommandList>
    <Command>
      <Interface>cs2kCfgMgrIf</Interface>
      <Methods>
        <queryMG usn="1" version="1.0">
          <Parameters>
            <mgUIName>mg1.nortel.net</mgUIName>
          </Parameters>
        </queryMG>
      </Methods>
  </Command>
</CommandList>
```


[Note: The GWC name in gwcUIName tag need not be provided. However, either gwcUIName or mgUIName tag needs to have a value provided. If mgUIName is empty, all the MGs for that GWC will be returned. (queryMGList command)]

Figure 20 An example of query attributes of a specific MG response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
  <Response><Interface>cs2kCfgMgrIf</Interface>
   <Methods><queryMG usn="1" version="1.0">
    <ReturnData>
     <Row>
      <mgUIList>mg1.nortel.net</mgUIList>
      <mgIpList>47.49.23.43</mgIpList>
       <callServerId>RTPS</callServerId><gwcUIName>GWC-0</gwcUIName>
       <svcTypeList>0</svcTypeList>
       <svcTypeList>1</svcTypeList>
       <nodeName>LG    00 0</nodeName>
       <pepServerName>NOT_USED</pepServerName>
       <NATname>NOT_USED</NATname>
       <engrEndPoints>2</engrEndPoints>
       <protType>mgcp</protType>
        <protVersion>2.0</protVersion>
        <protPort>2427</protPort>
        <profileName>ASKEY_LINE_GW_4</profileName>
         <maxEngrEndPoints>4</maxEngrEndPoints>
        </Row><RC>0</RC>
      <MsgTxt>Query of a SingleMG was successful</MsgTxt>
    </ReturnData>
   </queryMG>
  </Methods>
 </Response>
</CommandList>
```

Figure 21 An example of **query List of MGs on a GWC request:**

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
   <Command>
    <Interface>cs2kCfgMgrIf</Interface>
     <Methods>
      <queryMG usn="1" version="1.0">
       <Parameters>
        <gwcUIName>GWC-0</gwcUIName>
       </Parameters>
      </queryMG>
     </Methods>
  </Command>
</CommandList>
```

Figure 22 An example of query List of MGs on a GWC response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList><Response>
<Interface>cs2kCfgMgrIf</Interface>
<Methods><queryMG usn="1" version="1.0">
<ReturnData>
<Row><mgUIList>mg1.nortel.net</mgUIList><mgIpList>47.49.23.43</mgIpList></Row>
<Row><mgUIList>pp1.arris.net</mgUIList><mgIpList>10.9.1.201</mgIpList></Row>
<Row><mgUIList>pp10.arris.net</mgUIList><mgIpList>10.9.1.210</mgIpList></Row>
<Row><mgUIList>pp2.arris.net</mgUIList><mgIpList>10.9.1.202</mgIpList></Row>
<Row><mgUIList>pp3.arris.net</mgUIList><mgIpList>10.9.1.203</mgIpList></Row>
<Row><mgUIList>pp4.arris.net</mgUIList><mgIpList>10.9.1.204</mgIpList></Row>
<Row><mgUIList>pp5.arris.net</mgUIList><mgIpList>10.9.1.205</mgIpList></Row>
<Row><mgUIList>pp6.arris.net</mgUIList><mgIpList>10.9.1.206</mgIpList></Row>
<Row><mgUIList>pp7.arris.net</mgUIList><mgIpList>10.9.1.207</mgIpList></Row>
<Row><mgUIList>pp8.arris.net</mgUIList><mgIpList>10.9.1.208</mgIpList></Row>
<Row><mgUIList>pp9.arris.net</mgUIList><mgIpList>10.9.1.209</mgIpList></Row>
<Row><mgUIList>rtps1124a.nortel.com</mgUIList>
<mgIpList>10.9.1.50</mgIpList></Row>
<RC>0</RC>
<MsgTxt>
Query of all the Media Gateway's on the Gateway Controller was successful
</MsgTxt>
</ReturnData>
</queryMG>
</Methods>
</Response>
</CommandList>
```

Figure 23 An example of **Error Response format for any operation**:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
        <Response>
                <Interface>cs2kCfgMgrIf</Interface>
                <Methods>
                    <queryMG usn=”1” version="1.0">
                        </ReturnData>
                            <RC>2</RC>
                            <MsgTxt>Operation failed</MsgTxt>
                        </ReturnData>
                    <queryMG
                </Methods>
        </Response>
</CommandList>
```

6.3 Policy Enforcement Point Provisioning for Cable

Configuration management of PacketCable dynamic quality of service (DQoS) elements are Policy Enforcement Points (PEPs) Servers, admission control policies, DQoS network level

parameters, GWC to PEP Server connections and MG to PEP Server associations.

The primary purpose for implementing DQoS policy enforcement points (PEPs) is to provide subscriber admission control mechanisms and to minimize abusive quality of service (QoS) usage. Abuse occurs when a subscriber fraudulently uses QoS or when denial-of-service attacks are launched.

Policy enforcement is performed by a PEP in the CMTS. Each PEP is associated with a particular MTA (multimedia terminal adapter) or MG that belongs to a subscriber. Each MTA subscribes to a service level or QoS which is granted per session or call. The class of the session identifies the proper admission control policy or parameters to be applied for a call.

Data is configured by a system administrator to change the desired policy that is enforced by the PEP. A separate policy is defined for each level of service that is to be supported in a PacketCable network. Each policy has a DSCP, differentiated services code point and a flow specification.

At this time a single network wide policy will be supported making admission control the primary reason for this capability. Multiple policies i.e. qualities of service is not currently supported.

6.3.1 OSS Based DQoS Configuration Management

Provisioning of the DQoS capability in the Call Server 2000 (CS2k) is accomplished from the CS2000 Management tool GUI. Initial provisioning of a Cable Network supporting DQoS and its elements PEP's and policies proceeds as follows:

1 Identify the policy enforcement point servers by adding PEP Servers to the management system. Note: Ensure that the PEP server has been added using the CS2000 management tool GUI.

Add, delete, change of PEP servers are done from the CS2000 Management Tool GUI. Follow details in GWC Configuration NTP NN10112-511.pdf

2 Specify the admission control policy to be enforced.

3 Associate all MGs (MTAs) with a PEP Server defined in step 1 above.

Once these above steps are completed the network managed from the CS2K management tool is DQoS capable. It is now possible to do any of the following:

1. Association of additional MG's with GWCs and PEP Servers by using assocMG xml command.
2. Changing an MG's PEP association.
3. Monitoring the level of the number of PEP Server to GWC connections and GWC to PEP Server connections to avoid exceeding limits resulting in failures to associate MGs with GWC's by using the QueryPEPData xml command.
4. Querying of the admission control policy by using the QueryDQoSPolicy xml command.
5. Auditing PEP Servers specified in the network by using the QueryPEPInfo xml command.
6. Auditing MG associations with PEP's by using the queryMG xml command.

Figure 24An example an PEP server use with associate MG request

```
<?xml version="1.0" encoding="UTF-8"  ?>
<CommandList>
<Command>
<Interface>cs2kCfgMgrIf</Interface>
<Methods>
<assocMG usn="1" version="1.0" >
<Parameters>
<mgUIName>mg5.nortel.net</mgUIName>
<mgProfileName>ARRIS_TOUCHTONE_NN02_4</mgProfileName>
<mgIpAddr>47.143.34.39</mgIpAddr>
<mgProtocolType>1</mgProtocolType>
<mgProtocolVersion>1.0</mgProtocolVersion>
<mgProtocolPort>2724</mgProtocolPort>
<mgSiteName>LG</mgSiteName>
<gwcUIName>GWC-0</gwcUIName>
<reservedTerminations>4</reservedTerminations>
<pepServerName>pep1</pepServerName>
</Parameters>
</assocMG>
</Methods>
</Command>
</CommandList>
```

Figure 25 An example an PEP server use with associate MG response

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
<Response>
<Interface>cs2kCfgMgrIf</Interface>
<Methods>
<assocMG usn="1" version="1.0">
<ReturnData>
<Row>
<gwcUIName>GWC-0
</gwcUIName>
<gwcIpAddr>172.17.40.24</gwcIpAddr>
<mgNodeName>LG    00 0</mgNodeName>
</Row>
<RC>0</RC>
<MsgTxt>The MG was successfully associated with a GWC</MsgTxt>
</ReturnData>
</assocMG>
</Methods>
</Response>
</CommandList>
```


Figure 26 An Example of Query Single MG Response with PEP server

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
<Response>
<Interface>cs2kCfgMgrIf</Interface>
<Methods><queryMG usn="1" version="1.0">
<ReturnData><Row><mgUIList>mg5.nortel.net</mgUIList>
<mgIpList>47.143.34.39</mgIpList>
<callServerId>RTPS</callServerId>
<gwcUIName>GWC-0</gwcUIName>
<svcTypeList>0</svcTypeList>
<nodeName>LG    00 0</nodeName>
<pepServerName>pep1</pepServerName>
<NATname>NOT_USED</NATname>
<engrEndPoints>4</engrEndPoints>
<protType>ncsprotocol</protType>
<protVersion>1.0</protVersion>
<protPort>2724</protPort>
<profileName>ARRIS_TOUCHTONE_NN02_4</profileName>
</Row><RC>0</RC>
<MsgTxt>Query of a Single MG was successful</MsgTxt>
</ReturnData>
</queryMG>
</Methods>
</Response>
</CommandList>
```

Figure 27An example request to change assigned PEP server to a media gateway :

Note: The pep server must exist in the system before the change is attempted. In the example mg5.nortel.net assigned to pep1 is changed to pep2. Both pep1 and pep2 are available before the change.

```
<?xml version="1.0" encoding="UTF-8"  ?>
<CommandList>
<Command>
<Interface>DQoSOSSIf</Interface>
<Methods>
<changeMGGWCEMData usn="135" version="1.0" >
<Parameters>
<MGUIName>mg5.nortel.net</MGUIName>
<PEPServerName>pep2</PEPServerName>
</Parameters>
</changeMGGWCEMData>
</Methods>
</Command>
</CommandList>
```


Figure 28 An example response to change assigned PEP server to a media gateway:

```
<?xml version='1.0'?>
<CommandList>
<Response>
<Interface>DQoSOSSIf</Interface>
<Methods>
<changeMGGWCEMData usn="135" version="1.0">
<ReturnCode value="13.0" text="Successful result" />
</changeMGGWCEMData>
</Methods>
</Response>
</CommandList>
```

Figure 29 An example to get one PEP Server Data request

```
<?xml version="1.0" encoding="UTF-8"  ?>
<CommandList>
<Command>
<Interface>DQoSOSSIf</Interface>
<Methods>
<getPEPServersData usn="379" version="1.0" >
<Parameters>
<PEPServerName>pep1</PEPServerName>
</Parameters>
</getPEPServersData >
</Methods>
</Command>
</CommandList>
```

Figure 30 **A example to get one PEP Server Data response**

```
<?xml version='1.0'?>
<CommandList>
<Response>
<Interface>DQoSOSSIf</Interface>
<Methods>
<getPEPServersData usn="379" version="1.0">
<ReturnCode value="13.0" text="Successful result"/>
<PEPServerName>pep1</PEPServerName>
<Type>dqosmb</Type>
<IPAddress>47.143.34.39</IPAddress>
<MaxConnections>10</MaxConnections>
<ProtocolVersion>DQOS I04</ProtocolVersion>
</getPEPServersData>
</Methods>
</Response>
</CommandList>
```


Figure 31 **An example of QueryGWCPEPConn request**

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>DQoSOSSIf</Interface>
    <Methods>
       <parameters>
          <getPepNamesbyGWCId usn=”1”, version=”1.0>
              <GWC>GWC-1</GWC>
          </getPepNamesbyGWCId>
          <getPepNamesbyGWCId usn=”1”, version=”1.0>
               <GWC>GWC-5</GWC>
          </getPepNamesbyGWCId>
       </parameters>
    </Methods>
  </Command>
</CommandList>
```

Figure 32An example of Query GWC to PEP connections response

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
       <Response>
              <Interface>DQoSOSSIf</Interface>
              <Methods>
                     <getPepNamesbyGWCId usn=”1” version=”1.0”>
                     <ReturnCode value=”0” text="Successful result” />
                            <MsgTxt>Data Available</MsgTxt>
                            <GWC>GWC-1<\GWC>
                            <PEPServer>NorthA5</PEPServer>
                            <PEPServer>NorthA3</PEPServer>
                            <PEPServer>NorthA2</PEPServer>
                            <PEPServer>NorthA8</PEPServer>
                            <PEPServer>NorthA10</PEPServer>
                     </getPepNamesbyGWCId>
                     <getPepNamesbyGWCId usn=”2” version=”1.0”>
                     <ReturnCode value=”0” text="Successful result” />
                            <MsgTxt>Data Available</MsgTxt>
                            <GWC>GWC-5<\GWC>
                            <PEPServer>NorthWestD1</PEPServer>
                            <PEPServer>NorthWestD8</PEPServer>
                            <PEPServer>NorthWestD2</PEPServer>
                     </getPepNamesbyGWCId>
              </Methods>
       </Response>
</CommandList>
```


Figure 33 **An example of GetDQoSPoliciesData request**

```
<?xml version="1.0" encoding="UTF-8"  ?>
<CommandList>
<Command>
<Interface>DQoSOSSIf</Interface>
<Methods>
<getDQoSPoliciesData usn="379" version="1.0" >
<Parameters>
<Policy>All</Policy>
</Parameters>
</getDQoSPoliciesData>
</Methods>
</Command>
</CommandList>
```

Figure 34 An example of GetDQoSPoliciesData response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
<Response>
<Interface>DQoSOSSIf</Interface>
<Methods>
<getDQoSPoliciesData usn=”3” version=”1.0”>
<RC>0</RC>
<MsgTxt>Data Available</MsgTxt>
<DSCP>101110</DSCP>
<BucketDepth>200</BucketDepth>
<BucketRate>150</IBucketRate>
<PeakRate>1000</PeakRate>
<MinimumUnit>16</MinimumUnit>
<MaxDatagram>1024</MaxDatagram>
<ReservedRate>4096</ReservedRate>
<SlackTerm>200</SlackTerm>
</getDQoSPoliciesData>
</Methods>
</Response>
</CommandList>
```

6.4 PEP Provisioning Limitations and restrictions

Certain provisioning rules apply when provisioning PEP servers. These include:

- AssocMG

a. The profile applied to the MG must have a service type of DQoS when a PEP Server is specified.

b. The GWC specified must have the DQoS capability when a PEP Server is specified.

c. The GWC specified cannot have more than 20 PEP Server connections when this limit is exceeded the command is rejected.

d. The PEP Server specified cannot have more than the maximum number of connections specified when it was defined. When this limit is exceeded the command is rejected.

- QueryPEPInfo

a. The specified PEP name must be defined.

- QueryGWCPEPData

a. The specified GWC must be defined.

6.5 User Authorization for Node Provisioning operations

In addition to users belonging to "succssn" group to login to OSSGate, user need to be in application specific groups to perform specific operations. Each operation is associated with one or more user groups. In order to execute a command, a user must belong to at least one of the associated user groups. The user group's associated with each OSSGate Node provisioning operation are specified in the table below.

Table 6: Node Provisioning user group

Command	User Group				
	mgcadm	mgciprov	mgcmtc	mgcsprov	mgcro
disAssocMg	X	X			
assocMG	X	X			
changeMG	X	X			
querySiteInfo	X	X	X	X	X
queryGWC	X	X	X	X	X
queryMG	X	X	X	X	X
changeMGGWCEMData	X	X			
getPEPServerData	X	X	X	X	X
queryGWCPEPConn	X	X	X	X	X
getDQosPoliciesData	X	X	X	X	X
queryEndpointGroups	X	X	X	X	X

6.6 Return Codes

Table 7 shows the Nodes Provisioning return codes generated in SN06.2

Table 7: Nodes Provisioning Return Codes

Return Code	Meaning
0	**Successful operation**
1	**More data coming**
2	**Request Rejected due to Resource Limits Reached**
3	**Application was Commanded to Abort**
4	**Invalid input from client**
5	**Failed SERVRINV update or could not get node name and number**
6	**Failed Add to GWCEM**
7	**Failed to update NetworkView database**
8	**Failed Rollback of ADD GWC**
9	**Query GWC Operation Failed to Get Data from GWC EM**
10	**Query GWC Operation Failed to Read GWC List from the Network View**
11	**Query GWC Operation Failed to Get Data from XA Core**
12	**Delete GWC Operation failed GWC Data in Network View could not be read**
13	**Delete GWC Operation aborted, the GWCEM failed to delete the GWC**
14	**Delete GWC Operation aborted, GWCEM rejected delete, GWC has associated MG's or Endpoints, invalid operation**
15	**Delete GWC Operation encountered an error after deleting the GWC from the GWCEM**
16	**Associate MG Operation Invalid input from client interface**
17	**Associate MG Operation failed to access DB when reading gateway table**
18	**Associate MG Operation failed to assign a GWC. GWC with sufficient capacity could not be selected**
19	**Associate MG Operation failed to read the GWC Data frames Network View**
20	**Associate MG Operation failed to assign a LGRP node name for the MG**
21	**Associate MG Operation failed to associate the MG with a GWC**
22	**Associate MG Operation failed to update the SB and the Network View with data about the new MG**

Table 7: Nodes Provisioning Return Codes

Return Code	Meaning
23	**Associate MG Operation failed roll back of a transaction in progress that encountered an error**
24	**Query MG Operation invalid input from client**
25	**Query MG Operation failed to read the Gateway Data from the GWCEM**
26	**Disassociate MG Operation invalid input from client**
27	**Disassociate MG Operation failed to Read Gateway Data**
28	**Disassociate MG Operation failed to read Gateway Controller Data**
29	**Disassociate MG Operation aborted, GWCEM failed to delete the MG**
30	**Disassociate MG Operation aborted, GWCEM rejected delete, MG has provisioned Endpoints, this is an invalid operation**
31	**Disassociate MG Operation failed to de-assign Lgrp Node Name**
32	**Disassociate MG Operation encountered an error after deleting the MG from the GWCEM**
33	**Audit of XACore data used by Cs2kCfgMgr failed to complete successfully**
34	**Query XACore GWC data used by CS2KCfgMgr failed to complete successfully**
35	**Query XACore GWC data used by CS2KCfgMgr failed to complete IP not found**
36	**Query XACore GWC data not found in XAC**
37	**Query XACore GWC data failed**
38	Associate MG Operation MG is already provisioned
39	One of the mandatory parameters required for assigning a MG is not present
40	One of the parameters used when assigning a MG does not have the correct format
41	The query of XaCore table site failed
42	The query of XaCore table site returned an empty list
43	The MG name is not known
44	One of the parameters used does not have the correct format
45	One of the mandatory parameters required is not present
46	Other input errors

Table 7: Nodes Provisioning Return Codes

Return Code	Meaning
47	Change MG Operation failed to access NV when reading gateway table
48	Change MG Operation failed to access GWC-EM when reading GWC data
49	Change MG Operation failed to read the Profile Data from the Network View
50	Change MG Operation the number of reserved terminations exceeds maximum value.
51	Change MG Operation the number of reserved terminations less than 1.
52	Change MG Operation the number of reserved terminations less than
53	Change MG Operation the GWC does not have capacity
54	Change MG Operation failed to update the SB and the NetworkView with data about the new MG
55	Change MG Operation failed roll back of a transaction in progress that encountered an error
56	Failed SERVRINV update or could not get node name and number
57	Failed change to GWCEM registration
58	Failed to update NV
59	Failed RollBack of Change GWC
60	Associate MG Operation Preprovisining Failed
61	Associate MG Operation Preprovisioning is in progress
62	Failed MG9000 VMG line conversion
63	Upgrade MG Operation progress message indication
64	Change MG Operation Preprovisioning Failed (i.e. failed to add/delete line card(s)
65	The GWC is not deletable from GWCEM (i.e. provisioned data associated with it

Table 7: Nodes Provisioning Return Codes

Return Code	Meaning
66	The MG is not deletable from GWCEM (i.e provisioned data associated with it
67	The MG cannot be associated because the number of gateways in the call server is at the limit that a redirecting GWC can support.
68	Associate MG operation failed and was rolled back
69	The MG and GWC TN's are provisioned, LEN provisioning is incomplete retry to continue and complete LEN provisioning
70	The query of XaCore table BEARNETS failed
71	The query of XaCore table BEARNETS returned an empty list
72	An event was received by a state which it was able to process. This is a software error

6.7 Nodes Provisioning support for Internet Transparency

Provisioning Media Gateways in IP address spaces that are different to those in the Telecom Service Providers office is supported by the Internet Transparency capabilities of the OSSGate Nodes provisioning interface. This provides the ability to associate Media Gateways with NAT middleboxes as part of the Media Gateway provisioning requests. It also provides the ability to query the NAT middleboxes and Media Proxies that have been provisioned for a CS2000.

Provisioning Media Gateways that are behind a limited bandwidth link (LBL) is supported by the VCAC capabilities of the Nodes provisioning interface. This provides the ability to associate Media Gateways with LBL middleboxes as part of the Media Gateway provisioning requests.

Media Gateways which support service type 'ITRANS_ROAM' may be associated with up to five 'Root' middleboxes as part of the Media Gateway provisioning request. This allows terminals belonging to the Media Gateway to operate from behind NATs and limited bandwidth links.

The interface also provides the ability to provision the following network devices, and topological links between middleboxes.

- NAT and LBL middleboxes
- Resource Usage profile (used by VCAC LBL middleboxes)

- Media Proxies

In order to support the functionality which allows SIP-T trunks to be configured as 'intra-domain' SIP-T trunks, provisioning of a unique identifier for each CS2K, the 'Call Agent Identifier' is provided in SN07.

The OSSGate interface provides the following:

- Querying the Call Agent Identifier (new in SN07)
- Setting the Call Agent Identifier (new in SN07)
- Adding a NAT or LBL Middle box (modified in SN07)
- Changing a NAT or LBL middlebox attribute (new in SN07)
- Deleting a NAT or LBL Middle box (modified in SN07)
- Adding a RU Profile (new in SN07)
- Changing an RU profile attribute (new in SN07)
- Deleting an RU profile (new in SN07)
- Association of a MG to an adjacent NAT / LBL middlebox OR a set of root Middleboxes as part of the MG to Gateway Controller association request (see section 6.1.4 for definitions, examples provided below)
- Changing of the adjacent NAT / LBL middlebox OR set of rootMiddleboxes associated with a Media Gateway
- Listing of the adjacent NAT / LBL middlebox OR rootMiddleboxes assigned to a MG as part of the query of the MG data (see section 6.1.7 for definitions examples provided below)
- The ability to specify that the MG is outside Telecom Service Provider/TSP domain, but not behind a NAT or LBL, as part of the MG to Gateway Controller association request.
- Listing of all NAT or LBL middleboxes (modified in SN07)
- Listing of all NAT or LBL middleboxes associated with a specified Gateway Controller (modified in SN07)
- Listing of parameters for a specified NAT or LBL middlebox (modified in SN07)
- Listing of all Media Proxies
- Listing of all Media Proxies associated with a specified Gateway Controller
- Listing of parameters for a specified Media Proxy

Note: All the above functions are also supported by the CS2000 Management Tools Graphical User Interface.

6.7.1 Terminology and Description of Method Parameters

- **version** - The version refers to the version of the method or operation - e.g., the addNAT operation may have version 1.0 and 2.0, where version 1.0 takes parameters X and Y and version 2.0 takes parms X, Y, and Z. TYPE *decimal*.
- **usn** - Unique Sequence Number. This parameter is introduced to facilitate sending multiple XML commands in one file. This parameter value will be used to match the responses with the requests. TYPE *integer*.
- **CallAgentId** - The unique integer that has been assigned by the user to this Call Agent (e.g. this CS2k). This must be a value between 1 and 255. TYPE *integer*.
- **CounterGWC** - The VCAC counter GWC IP address. *TYPE IPAddressType*
- **GWCname** - The name of the GWC. String of form GWC- followed by an integer 0-255 range.
- **IPAddress** - The Media Proxy IP address.
- **ListNATid** - Indication of whether the NAT id should be included in the response to this command. Set to ‘true’ if the NATid is required and ‘false’ if not.
- **itransMiddleboxName -** The name of the adjacent Middlebox (either NAT or LBL) for the gateway command. 32 character token without spaces.
- **LBLname** - The name of the LBL that this command applies to. 32 character token without spaces
- **LBLid** - The unique middlebox id for this LBL. This must be an integer between 2 and 16777215. NB the allowed range for LBLid is smaller that the allowed range for the data type *MiddleBoxIndexType*.
- **MaxCount** - The VCAC count maximum limit. TYPE *RUMaxCountType*.
- **MPname** - The name of the Media Proxy that this command applies to. TYPE *NoSpaceNameType* .(32 character token without spaces, see xsd definitions in Schema document, section 2.14)
- **NATname** - The name of the NAT that this command applies to. TYPE *NoSpaceNameType* .(32 character

token without spaces, see xsd definitions in Schema document, section 2.14)

- **NATid** - The unique middlebox id for this NAT. This must be an integer between 2 and 16777215. TYPE *MiddleBoxIndexType (*see xsd definitions in Schema document, section 2.14). NB the allowed range for NATid is smaller that the allowed range for the data type *MiddleBoxIndexType*.
- **NATType** - Indicates the type of NAT, in particular, NATType = 1 indicates an uncontrolled NAT. No other values are used in this release. TYPE *string*.
- **ParentMB** - The name of the middlebox that is the parent of the NAT. 32 character token without spaces
- **Protocol** - The Media Proxy communication protocol (GWC to MP). This must be either MGCP+ or MPCP. *TYPE ProtocolType.*
- **ProtocolVersion** - The Media Proxy communication protocol version. Version is restricted to a value of 2.0 for MGCP+ or a value of 3.0 for MPCP. *TYPE ProtocolVersionType.*
- **rootMiddleboxName1(1..5)** - The Middlebox name(s) of the root node middlebox(es) that encompasses the enterprise network that the CICM gateway operates with.. 32 character token without spaces
- **ReturnCode value**- A numeric value indicating the result of the attempted operation. TYPE *string*.
- **Return code text**- Appropriate text that describes the result of the operation. TYPE *string*.
- **RUDescription** - a text description for the RU Profile (maximum length of 64 characters). TYPE *string*.
- **RUValue** - a composite of the following parameters. Codec,PacketRate,Value. *TYPE RUValueParamsType*

6.7.2 Description of Method Parameters

Method parameters are defined below. Input data is mandatory except where indicated otherwise.

1. **queryCallAgentId** - Method that gets the current value of the Call Agent Id for this Call Agent (CS2k). This method has the following parameters:

- Input data:

  - usn
  - version

- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - CallAgentId - The value of the Call Agent Id for this Call Agent (CS2k).
  - ReturnCode - indicates via an integer value if the command has been successful or, if not, the error type and includes a brief textual message with further information.

2. **setCallAgentId** - Method that sets to Call Agent Id for this Call Agent (CS2k) to the specified value. This method has the following parameters:

- Input data:
  - usn
  - version
  - CallAgentId - The desired value for the Call Agent Id for this Call Agent (CS2k).
- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - ReturnCode - indicates via an integer value if the command has been successful or, if not, the error type and includes a brief textual message with further information.

3. **queryNAT** - Method that gets the information regarding a NAT or set of NATs, depending on the parameters specified. If neither a NATname nor a GWCname is included, then information is returned for ALL NATs provisioned in this CS2k Mgr. This method has the following parameters:

- Input data:
  - usn
  - version

- NATname (optional, cannot be included as well as GWCname) - indicates the NAT for which information should be returned
- GWCname (optional, cannot be included as well as NATname) - returns information for all NATs associated with this GWC
- ListNATid (optional) - if set to true, this returns the NAT id as part information for each NAT, if set to false or if the parameter is omitted the NAT id is not returned.

• Output data:

- usn (value should be the same as the input)
- version (value should be the same as the input)
- NATname
- NATType (returned only when the NATname is specified)
- NATid (returned only when ListNATid is set to 'true' in the input data)
- ParentMB (returned only when the NAT has a parent middlebox).

4. **addNAT** - Method that provision a NAT into the CS2k Mgr. This method has the following parameters: If the NAT id is not specified then the CS2k Mgr generates a NAT middlebox id for the NAT.

• Input data:

- usn
- version
- NATname - unique name for the NAT to be provisioned
- NATid (optional) - indicates the middlebox id that should be allocated to this NAT.
- ParentMB (optional) -indicates that the NAT has a parent middlebox. The parent middlebox specified here must already have been provisioned into the CS2k Mgr.

• Output data:

- usn (value should be the same as the input)

- version (value should be the same as the input)
- ReturnCode

5. **deleteNAT** - Method that removes a NAT from the CS2k Mgr. This method has the following parameters:

- Input data:
  - usn
  - version
  - NATname - unique name for the NAT to be removed
- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - ReturnCode

6. **changeNAT** - Method that modifies the provisioned details of a NAT in the CS2k Mgr. This method has the following parameters:

- Input data:
  - usn
  - version
  - NATname - unique name identifying the NAT to be changed
  - ParentMB (optional) -indicates that the NAT has a parent middlebox. The parent middlebox specified here must already have been provisioned into the CS2k Mgr.
- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - ReturnCode

7. **queryLBL** - Method that gets the information regarding a LBL or set of LBLs, depending on the parameters specified. If neither a LBLname nor a GWCname is included, then information is returned for ALL LBLs provisioned in this CS2k Mgr. This method has the following parameters:

- Input data:
  - usn
  - version
  - LBLname (optional, cannot be included as well as GWCname) - indicates the LBL for which information should be returned
  - GWCname (optional, cannot be included as well as LBLname) - returns information for all LBLs associated with this GWC
- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - LBLname
  - LBLType (returned only when the LBL name is specified)
  - The Counter GWC IPAddress
  - The RU Description
  - Max Count Value
  - ParentMB (returned only when the LBL has a parent middlebox).

8. **addLBL** - Method that provision a LBL into the CS2k Mgr. This method has the following parameters:

- Input data:
  - usn
  - version
  - LBLname - unique name for the LBL to be provisioned
  - LBLid (optional) - indicates the middlebox id that should be allocated to this LBL.
  - The Counter GWC IPAddress (optional).

  - The RU Description - must match a description of an RU Profile already provisioned into the CS2k Mgr.
  - Max Count Value.
  - ParentMB (optional) -indicates that the LBL has a parent middlebox. The parent middlebox specified here must already have been provisioned into the CS2k Mgr.

- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - ReturnCode

9. **deleteLBL** - Method that removes a LBL from the CS2k Mgr. This method has the following parameters:

- Input data:
  - usn
  - version
  - LBLname - unique name for the LBL to be removed
- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - ReturnCode

10. **changeLBL** - Method that modifies the provisioned details of a LBL in the CS2k Mgr. This method has the following parameters:

- Input data:
  - usn
  - version
  - LBLname - unique name identifying the LBL to be changed.
  - The Counter GWC IPAddress (optional).
  - The RU Description (optional) - must match a description of an RU Profile already provisioned into the CS2k Mgr.

  - Max Count Value (optional).
  - ParentMB (optional) -indicates that the NAT has a parent middlebox. The parent middlebox specified here must already have been provisioned into the CS2k Mgr.

- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - ReturnCode

11. **queryMP** - Method that gets the information regarding a MP or set of MPs, depending on the parameters specified. If neither a MPname nor a GWCname is included, then information is returned for ALL MPs provisioned in this CS2k Mgr. This method has the following parameters:

- Input data:
  - usn
  - version
  - MPname (optional, cannot be included as well as GWCname) - indicates the MP for which information should be returned
  - GWCname (optional, cannot be included as well as MPname) - returns information for all MPs associated with this GWC
- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - MPname
  - IPAddress
  - Protocol
  - Protocol version

12. **addMP** - Method that provision a MP into the CS2k Mgr. This method has the following parameters:

- Input data:
  - usn

  - version
  - MPname - unique name for the NAT to be provisioned
  - IPAddress - the address must not be assigned already to another MP in the CS2k Mgr
  - Protocol
  - Protocol version

- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - ReturnCode

13. **deleteMP** - Method that removes a MP from the CS2k Mgr. This method has the following parameters:

- Input data:
  - usn
  - version
  - MPname - unique name for the MP to be removed
- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - ReturnCode

14. **changeMP** - Method that modifies the provisioned details of a NAT in the CS2k Mgr. This method has the following parameters:

- Input data:
  - usn
  - version
  - MPname - unique name identifying the MP to be changed
  - IPAddress - the new address must not be assigned already to another MP in the CS2k Mgr
  - Protocol

  - Protocol version

- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - ReturnCode

15. **changeRootMiddleboxes** - Method that changes the rootMiddleboxes for a given gateway. This method has the following parameters:

- Input data:
  - usn
  - version
  - MGname indicates the gateway that this change command is for.
  - rootMiddleboxName1 - defines the 1st RootMiddlebox.
  - rootMiddleboxName2 - (Optional) defines the 2nd Root Middlebox.
  - rootMiddleboxName3 - (Optional) defines the 3rd Root Middlebox.
  - rootMiddleboxName4 - (Optional) defines the 4th Root Middlebox.
  - rootMiddleboxName5 - (Optional) defines the 5th Root Middlebox.
- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - ReturnCode - indicates via an integer value if the command has been successful or, if not, the error type and includes a brief textual message with further information.

6.7.3 Query Call Agent Identifier Command

Figure 35 XML command queryCallAgentId

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <queryCallAgentId usn="1" version="1.0"/>
    </Methods>
  </Command>
 </CommandList>
```

Figure 36 XML Response for queryCallAgentId

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
     <queryCallAgentId usn="1" version="1.0">
      <ReturnData>
       <CallAgentId>3</CallAgentId>
      <ReturnCode value="0" text="Successful result" />
      </ReturnData>
     </queryCallAgentId>
    </Methods>
   </Response>
</CommandList>
```

6.7.4 Set Call Agent Identifier command

Figure 37 XML Command: setCallAgentId

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <setCallAgentId usn="1" version="1.0">
      <Parameters>
       <CallAgentId>3</CallAgentId>
      </Parameters>
     </setCallAgentId>
    </Methods>
  </Command>
 </CommandList>
```


Figure 38 XML Response for setCallAgentId

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
     <setCallAgentId usn="1" version="1.0">
      <ReturnData>
       <ReturnCode value="0" text="Successful result" />
      </ReturnData>
     </setCallAgentId>
    </Methods>
  </Response>
</CommandList>
```

6.7.5 Associate Gateway with Adjacent Middlebox Command

The association MG to adjacent MB is only allowed if the gateway supports the Internet Transparency service type (ITRANS) . The OSS can associate a Media Gateway with a Middle Box and specify if the gateway is inside or outside the Telecoms Service Providers (IN/OUT TSP) domain. This is used to determine if the Media Proxy NAT services are required or the VCAC counting service should be enabled for a call flow. A specific Middlebox "outtsp" is reserved to indicate that the MG is outside the TSP/Succession Site but NOT behind a NAT. An additional field is added to the existing *assocMG* method XML query. The new element <itransMiddleboxName> is optional. When used, it must contain the name of an existing NAT or LBL middle box.

Figure 39 An example of assocMG command with adjacent Middlebox addition

```
<?xml version="1.0" encoding="UTF-8"  ?>
 <CommandList>
  <Command>
   <Interface>cs2kCfgMgrIf</Interface>
    <Methods>
     <assocMG usn="1" version="1.0">
      <Parameters>
       <mgUIName>mg4.nortel.net</mgUIName>
       <mgProfileName>ASKEY_LINE_GW_4</mgProfileName>
       <mgIpAddr>47.49.23.48</mgIpAddr>
       <mgProtocolType>5</mgProtocolType>
       <mgProtocolVersion>2.0</mgProtocolVersion>
       <mgProtocolPort>2427</mgProtocolPort>
       <gwcUIName>GWC-0</gwcUIName>
       <itransMiddleboxName>myNat1</itransMiddleboxName>
      </Parameters>
     </assocMG>
    </Methods>
   </Command>
```

Figure 40 An example of assocMG Response with adjacent Middlebox addition:

```
<?xml version="1.0" encoding="UTF-8" ?>
  <CommandList>
   <Response>
    <Interface>cs2kCfgMgrIf</Interface>
     <Methods><assocMG usn="1" version="1.0">
     <ReturnData>
     <Row>
      <gwcUIName>GWC-0</gwcUIName>
      <gwcIpAddr>172.17.40.24</gwcIpAddr>
      <mgNodeName>LG    00 0</mgNodeName>
     </Row>
     <RC>0</RC>
     <MsgTxt>The MG was successfully associated with a GWC</MsgTxt>
     </ReturnData>
    </assocMG>
   </Methods>
  </Response>
</CommandList>
```

If the Media Gateway to be added is outside the succession VPN and not behind a NAT or LBL, the itransMiddleboxName XML tag must be used with a value of "***outtsp***".

6.7.6 QueryMG Command

An additional field is added to the existing *QueryMG* method XML response. The new element <itransMiddleboxName> is returned when a NAT or LBL

middle box is associated with the gateway. When no NAT or LBL is associated to the gateway, an empty tag is returned.

Figure 41 An example of queryMG command response with NAT

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
   <Response>
      <Interface>cs2kCfgMgrIf</Interface>
      <Methods>
      <queryMG usn="1" version="1.0">
      <ReturnData><Row><mgUIList>mg4.nortel.net</mgUIList>
       <mgIpList>47.49.23.48</mgIpList>
       <callServerId>RTPS</callServerId>
       <gwcUIName>GWC-0</gwcUIName>
       <svcTypeList>0</svcTypeList>
       <nodeName>LG    00 0</nodeName>
       <itransMiddleboxName>myNat1</itransMiddleboxName>
       <engrEndPoints>4</engrEndPoints>
       <protType>mgcp</protType>
       <protVersion>2.0</protVersion>
       <protPort>2427</protPort>
       <profileName>ASKEY_LINE_GW_4</profileName>
       </Row><RC>0</RC>
       <MsgTxt>Query of a Single MG was successful</MsgTxt>
     </ReturnData>
    </queryMG>
  </Methods>
 </Response>
</CommandList>
```

Note: When the MG is outside the succession VPN and not behind a NAT, the itransMiddleboxName value is set to "***outtsp***" ('**out**side **t**elecom **s**ervice **p**rovider VPN').

6.7.7 Associate Gateway with Root Middleboxes Command

The association MG to root MBs is only allowed if the gateway supports the Internet Transparency service type (ITRANS_ROAM) . This is used to determine if the Media Proxy NAT services are required or the VCAC counting service should be enabled for a call flow. Additional fields are added to the existing *assocMG* method XML query, these are defined in section 6.1.4. The new elements <rootMiddleboxName1>, <rootMiddleboxName2>, <rootMiddleboxName3>, <rootMiddleboxName4> & <rootMiddleboxName4> are optional. When used, they must contain the name of an existing NAT or LBL middle box.

Figure 42 An example of assocMG command with root Middleboxes addition

```
<?xml version="1.0" encoding="UTF-8"  ?>
 <CommandList>
  <Command>
   <Interface>cs2kCfgMgrIf</Interface>
    <Methods>
     <assocMG usn="1" version="1.0">
      <Parameters>
        <mgUIName>CICM-022</mgUIName>
        <mgProfileName>CICM</mgProfileName>
        <mgIpAddr>11.13.45.58</mgIpAddr>
        <mgProtocolType>4</mgProtocolType>
        <mgProtocolVersion>1.0</mgProtocolVersion>
        <mgProtocolPort>2944</mgProtocolPort>
        <gwcUIName>GWC-107</gwcUIName>
           <reservedTerminations>1023</reservedTerminations>
           <rootMiddleboxName1>nat1</rootMiddleboxName1>
           <rootMiddleboxName2>nat2</rootMiddleboxName2>
           <rootMiddleboxName3>nat3</rootMiddleboxName3>
           <rootMiddleboxName4>nat4</rootMiddleboxName4>
           <rootMiddleboxName5>lbl1</rootMiddleboxName5>
      </Parameters>
    </assocMG>
   </Methods>
  </Command>
</CommandList>
```

6.7.8 QueryMG Command (Root Middleboxes Returned)

Additional fields are added to the existing *QueryMG* method XML response. The new root Middlebox Names are returned when root middleboxes are associated with the gateway. When no root Middleboxes are associated to the gateway, empty tags are returned.

Figure 43 An example of queryMG command response with root MBs

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList><Response><Interface>cs2kCfgMgrIf</Interface>
<Methods><queryMG usn="1" version="1.0">
<ReturnData><Row>
<mgUIList>CICM-322</mgUIList>
<mgIpList>11.13.45.58</mgIpList>
<callServerId>telco</callServerId>
<gwcUIName>GWC-222</gwcUIName>
<svcTypeList>0</svcTypeList><svcTypeList>7</svcTypeList>
<nodeName>LG</nodeName>
<engrEndPoints>1023</engrEndPoints>
<protType>megaco</protType>
<protVersion>1.0</protVersion>
<protPort>2944</protPort>
<profileName>CICM</profileName>
<maxEngrEndPoints>3069</maxEngrEndPoints>
<rootMiddleboxName1>lbl1</rootMiddleboxName1>
<rootMiddleboxName2>nat1</rootMiddleboxName2>
<rootMiddleboxName3>nat2</rootMiddleboxName3>
<rootMiddleboxName4></rootMiddleboxName4>
<rootMiddleboxName5></rootMiddleboxName5>
</Row><RC>0</RC>
<MsgTxt>Query of a Single MG was successful</MsgTxt>
</ReturnData></queryMG>
</Methods></Response></CommandList>
```

6.7.9 Add NAT Command

A NAT can be added to the CS2000 management system by using a unique name.

Figure 44 An example of AddNAT command request

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <addNAT usn="1" version="1.0">
      <Parameters>
       <NATname>Nat-B</NATname>
       <NATid>12345</NATid>
       <ParentMB>Nat-A</ParentMB>
      </Parameters>
     </addNAT>
    </Methods>
  </Command>
 </CommandList>
```

Figure 45 An example of AddNAT response

```
<?xml version='1.0' ?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
     <addNAT usn="1" version="1.0">
      <ReturnData>
       <ReturnCode value="0" text="Successful result"/>
      </ReturnData>
     </addNAT>
    </Methods>
  </Response>
 </CommandList>
```

Note: Attempting to add a NAT name already added to the system will fail with a message "Failed to add the Middlebox because Name specified is already in use: Nat-B"

Depending on the parameters used in the XML query the response returns one of the following:

- Success result
- NAT name already in use.
- NAT id already in use
- Unknown Parent Middlebox

6.7.10 Delete NAT command

A provisioned NAT can be deleted from the CS2000 management system by passing the NAT name. A existing NAT will be deleted only if the NAT has no association to a media gateway.

Figure 46 An example of deleteNAT command request

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
 <Command>
  <Interface>ITransIf</Interface>
   <Methods>
    <deleteNAT usn="1" version="1.0">
     <Parameters>
      <NATname>NAT-A</NATname>
     </Parameters>
    </deleteNAT>
   </Methods>
 </Command>
</CommandList>
```


Figure 47 An example of deleteNAT response

```
<?xml version='1.0'?>
<CommandList>
 <Response>
  <Interface>ITransIf</Interface>
   <Methods>
    <deleteNAT usn="1" version="1.0">
     <ReturnData>
      <ReturnCode value="0" text="Successful result"/>
     </ReturnData>
    </deleteNAT>
   </Methods>
 </Response>
</CommandList>
```

Depending on the parameters used in the XML query the response returns:

- Success result
- MiddleBox name not found

Note 1: If a NAT is provisioned into multiple CS2ks, care should be taken when deleting the NAT. If the NAT middlebox ID used for the shared NAT has been automatically generated by one CS2k Mgr, the NAT should not be deleted from that CS2k Mgr while it is still provisioned in other CS2ks. It must be deleted from all other CS2k Mgrs first.

6.7.11 Change NAT command

A provisioned NAT can be changed on the CS2000 management system by passing the NAT name and a new parent middlebox name.

Figure 48 XML command to Change specified NAT parent middlebox

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <changeNAT usn="1" version="1.0">
      <Parameters>
       <NATname>NAT-A</NATname>
       <ParentMB>VPN-Eastenders</ParentMB>
      </Parameters>
     </changeNAT>
    </Methods>
  </Command>
 </CommandList>
```

Figure 49 XML response to Change specified NAT

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
     <changeNAT usn="1" version="1.0">
      <ReturnData>
       <ReturnCode value="0" text="Successful result" />
      </ReturnData>
     </changeNAT>
    </Methods>
   </Response>
</CommandList>
```

Depending on the parameters used in the XML query the response returns:

- Success result
- MiddleBox name not found

6.7.12 Query NAT command

The *queryNAT* command returns:

- information concerning a given NAT
- names of the NAT used on a given GWC
- names of all NATs provisioned

The information regarding each NAT returned is as follows:

- NAT name
- NAT type - only in *queryNAT* request in which a single NAT is specified
- NAT parent middlebox. If the NAT has no parent middlebox, the parent middlebox tag is not present.

An additional optional tag may be specified in the queryNAT command, the 'ListNATid' tag. If this tag is present and has a value true, the NAT middlebox identifier is also listed for each NAT returned. This tag may be present in all the forms of the queryNAT command i.e.. for a specified NAT, on a given GWC and for all provisioned NATs). If the tag is not present, middlebox identifiers are not listed.

Figure 50 An example of query one NAT request:

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <queryNAT usn="1" version="1.0">
      <Parameters>
        <NATname>myNat1</NATname>
      </Parameters>
     </queryNAT>
    </Methods>
  </Command>
 </CommandList>
```

Figure 51 An example of query one NAT response

```
  <?xml version='1.0'?>
   <CommandList>
    <Response>
     <Interface>ITransIf</Interface>
      <Methods>
        <queryNAT usn="1" version="1.0">
         <ReturnData>
           <NATname>myNat1</NATname>
           <NATType>1</NATType>
           <ParentMB>parentNat</ParentMB>
           <ReturnCode value="0" text="Successful result" />
         </ReturnData>
        </queryNAT>
      </Methods>
     </Response>
  </CommandList>
```

Figure 52 An example of query one NAT request, with NAT id:

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <queryNAT usn="1" version="1.0">
      <Parameters>
        <NATname>myNat1</NATname>
        <ListNATid>true</ListNATid>
      </Parameters>
     </queryNAT>
    </Methods>
  </Command>
 </CommandList>
```

Figure 53 An example of query one NAT response, including NAT id:

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
     <queryNAT usn="1" version="1.0">
      <ReturnData>
       <NATname>myNat1</NATname>
       <NATType>1</NATType>
       <ParentMB>parentNat</ParentMB>
       <NATid>65538</NATid>
       <ReturnCode value="0" text="Successful result" />
      </ReturnData>
     </queryNAT>
    </Methods>
  </Response>
</CommandList>
```

Figure 54 An example of query all NATs on a given GWC request

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <queryNAT usn="1" version="1.0">
     <Parameters>
        <GWCname>GWC-0</GWCname>
     </Parameters>
     </queryNAT>
    </Methods>
  </Command>
 </CommandList>
```

Figure 55 An example of query all NATs on a given GWC response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>ITransIf</Interface>
      <Methods>
      <queryNAT usn="1" version="1.0">
      <ReturnData>
         <NATname>myNat1</NATname>
         <NATname>myNat2</NATname>
   <ParentMB>myNAT2Parent</ParentMB>
         <ReturnCode value="0" text="Successful result" />
       </ReturnData>
       </queryNAT>
    </Methods>
  </Response>
</CommandList>
```


Figure 56 An example of query all NATs request:

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <queryNAT usn="1" version="1.0">
     <Parameters>
     </Parameters>
     </queryNAT>
    </Methods>
  </Command>
 </CommandList>
```

Figure 57 An example of query all NATs response:

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
     <queryNAT usn="1" version="1.0">
      <ReturnData>
       <NATname>NAT1</NATname>
       <NATname>NAT2</NATname>
       <NATname>NAT3</NATname>
       <ParentMB>NAT3Parent</ParentMB>
       <NATname>NAT4</NATname>
       <ParentMB>NAT1</ParentMB>
       <NATname>NAT5</NATname>
       <ReturnCode value="0" text="Successful result" />
      </ReturnData>
     </queryNAT>
    </Methods>
  </Response>
</CommandList>
```

6.7.13 Add LBL command

A LBL can be added to the CS2000 management system by using a unique name.

Figure 58 XML command to Create a LBL device

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
        <Methods>
    <addLBL usn="1" version="1.0">
        <Parameters>
        <LBLname>LBL1</LBLname>
        <CounterGWC>47.132.132.12</CounterGWC>
        <RUDescription>AAL1/ip40</RUDescription>
        <MaxCount>1000</MaxCount>
        <ParentMB>VPN-A</ParentMB>
     </Parameters>
    </addLBL>
   </Methods>
</Command>
 </CommandList>
```

Figure 59 XML response to Creating a LBL device.

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
      <addLBL usn="1" version="1.0">
       <ReturnData>
         <ReturnCode value="0" text="Successful result" />
       </ReturnData>
      </addLBL>
    </Methods>
   </Response>
</CommandList>
```

Depending on the parameters used in the XML query the response returns on of the following:

- Success result
- LBL already in use.
- LBL id already in use
- Unknown Parent Middlebox

6.7.14 Delete LBL command

A provisioned LBL can be deleted from the CS2000 management system by passing the LBL name. The existing LBL will be deleted only if the LBL has no association to a media gateway.

Figure 60 XML command to Delete a LBL device

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <deleteLBL usn="1" version="1.0">
      <Parameters>
        <LBLname>LBL1</LBLname>
          </Parameters>
    </deleteLBL>
    </Methods>
  </Command>
 </CommandList>
```

Figure 61 XML response to Deleting a LBL device.

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
     <deleteLBL usn="1" version="1.0">
      <ReturnData>
        <ReturnCode value="0" text="Successful result" />
      </ReturnData>
     </deleteLBL>
   </Methods>
  </Response>
</CommandList>
```

Depending on the parameters used in the XML query the response returns:

- Success result
- MiddleBox name not found

6.7.15 Change LBL command

A provisioned LBL can be changed on the CS2000 management system by passing the LBL name.

Figure 62 XML command to Change a LBL device RU profile.

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
        <Methods>
    <changeLBL usn="1" version="1.0">
        <Parameters>
       <LBLname>LBL1</LBLname>
         <RUDescription>AAL2/ip40</RUDescription>
        </Parameters>
    </changeLBL>
   </Methods>
</Command>
 </CommandList>
```

Figure 63 XML response to Changing a LBL device.

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
     <changeLBL usn="1" version="1.0">
      <ReturnData>
        <ReturnCode value="0" text="Successful result" />
      </ReturnData>
     </changeLBL>
    </Methods>
   </Response>
</CommandList>
```

Depending on the parameters used in the XML query the response returns:

- Success result
- MiddleBox name not found

6.7.16 Query LBL command

The *query LBL* command returns:

- LBL name
- The Counter GWC IPAddress
- The RU Description
- Max Count Value
- Parent MB name

Figure 64 XML command to Query a LBL

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <queryLBL usn="1" version="1.0">
      <Parameters>
        <LBLname>LBL-A</LBLname>
      </Parameters>
     </queryLBL>
    </Methods>
  </Command>
</CommandList>
```

Figure 65 XML response to Query LBL

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
     <queryLBL usn="1" version="1.0">
      <ReturnData>
         <LBLname>LBL1</LBLname>
        <CounterGWC>47.132.132.12</CounterGWC>
        <RUDescription>AAL1/ip40</RUDescription>
        <MaxCount>1000</MaxCount>
        <ParentMB>VPN-A</ParentMB>
        <ReturnCode value="0" text="Successful result" />
      </ReturnData>
     </queryLBL>
    </Methods>
  </Response>
</CommandList>
```

6.7.17 Add RU Profile command

A RU can be added to the CS2000 management system by using a unique RU Description, and RUValue which includes the Codec, PacketRate and Value.

Figure 66 XML command to Create an RU profile

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
        <Methods>
        <addRU usn="1" version="1.0">
        <Parameters>
                <RUDescription>AAL1/IP40</RUDescription>
                <RUValue>
                        <Codec>G.711</Codec>
                        <PacketRate>10 ms</PacketRate>
                        <Value>103</Value>
                </RUValue>
                <RUValue>
                        <Codec>G.711</Codec>
                        <PacketRate>20 ms</PacketRate>
                        <Value>133</Value>
                </RUValue>
                <RUValue>
                        <Codec>G.729</Codec>
                        <PacketRate>10 ms</PacketRate>
                        <Value>132</Value>
                </RUValue>
                <RUValue>
                        <Codec>G.729</Codec>
                        <PacketRate>20 ms</PacketRate>
                        <Value>103</Value>
                </RUValue>
        </Parameters>
        </addRU>
    </Methods>
        </Command>
</CommandList>
```

Figure 67 XML response to Creating an RU profile .

```
 <?xml version='1.0'?>
  <CommandList>
   <Response>
    <Interface>ITransIf</Interface>
     <Methods>
       <addRU usn="1" version="1.0">
        <ReturnData>
          <ReturnCode value="0" text="Successful result" />
        </ReturnData>
       </addRU>
     </Methods>
    </Response>
  </CommandList>
```

Depending on the parameters used in the XML query the response returns on of the following:

- Success result
- RU already in use.

6.7.18 Delete RU Profile command

A provisioned RU can be deleted from the CS2000 management system by passing the RU name. A existing RU will be deleted only if the RU has no association to an LBL.

Figure 68 XML command to Delete an RU Profile

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <deleteRU usn="1" version="1.0">
      <Parameters>
        <RUDescription>AAL1/IP40</RUDescription>
         </Parameters>
     </deleteRU>
    </Methods>
  </Command>
 </CommandList>
```

Figure 69 XML response to Deleting an RU profile.

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
     <deleteRU usn="1" version="1.0">
      <ReturnData>
        <ReturnCode value="0" text="Successful result" />
      </ReturnData>
     </deleteRU>
    </Methods>
  </Response>
</CommandList>
```

Depending on the parameters used in the XML query the response returns:

- Success result
- RU name not found
- RU in use by an LBL

6.7.19 Change RU Profile command

A provisioned RU can be changed on the CS2000 management system by passing the RU name.

Figure 70 XML to Change RU profile values

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
        <Methods>
        <changeRU usn="1" version="1.0">
        <Parameters>
                <RUDescription>AAL1/IP40</RUDescription>
                <RUValue>
                        <Codec>G.711</Codec>
                        <PacketRate>10 ms</PacketRate>
                        <Value>123</Value>
                </RUValue>
                <RUValue>
                        <Codec>G.711</Codec>
                        <PacketRate>20 ms</PacketRate>
                        <Value>133</Value>
                </RUValue>
                <RUValue>
                        <Codec>G.729</Codec>
                        <PacketRate>10 ms</PacketRate>
                        <Value>152</Value>
                </RUValue>
                <RUValue>
                        <Codec>G.729</Codec>
                        <PacketRate>20 ms</PacketRate>
                        <Value>163</Value>
                </RUValue>
        </Parameters>
        </changeRU>
    </Methods>
        </Command>
 </CommandList>
```

Figure 71 XML response to Changing an RU profile .

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
     <changeRU usn="1" version="1.0">
      <ReturnData>
        <ReturnCode value="0" text="Successful result" />
      </ReturnData>
     </changeRU>
    </Methods>
   </Response>
</CommandList>
```

Depending on the parameters used in the XML query the response returns:

- Success result
- RU name not found

6.7.20 Query RU Profile command

The *query RU* command returns:

- RU Description
- Codec
- PacketRate
- Value.

Figure 72 XML command to Query all RU Profiles

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <queryRU usn="1" version="1.0">
      <Parameters>
          </Parameters>
     </queryRU>
    </Methods>
  </Command>
 </CommandList>
```

Figure 73 XML response to Query all RU Profiles

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
      <queryRU usn="1" version="1.0">
         <ReturnData>
         <RUDescription>AAL1/IP40</RUDescription>
         <RUDescription>AAL2/IP40</RUDescription>
         <RUDescription>AAL1/IP40-B</RUDescription>
         <RUDescription>AAL2/IP40-B</RUDescription>
       <ReturnCode value="0" text="Successful result" />
         </ReturnData>
         </queryRU>
    </Methods>
   </Response>
</CommandList>
```

Figure 74 XML command to Query RU Profile data

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <queryRU usn="1" version="1.0">
      <Parameters>
        <RUDescription>AAL1/IP40</RUDescription>
         </Parameters>
     </queryRU>
    </Methods>
  </Command>
 </CommandList>
```

Figure 75 XML response to Querying an RU profile.

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
      <queryRU usn="1" version="1.0">
       <ReturnData>
                <RUDescription>AAL1/IP40</RUDescription>
                <RUValue>
                        <Codec>G.711</Codec>
                        <PacketRate>10 ms</PacketRate>
                        <Value>123</Value>
                </RUValue>
                <RUValue>
                        <Codec>G.711</Codec>
                        <PacketRate>20 ms</PacketRate>
                        <Value>133</Value>
                </RUValue>
                <RUValue>
                        <Codec>G.729</Codec>
                        <PacketRate>10 ms</PacketRate>
                        <Value>152</Value>
                </RUValue>
                <RUValue>
                        <Codec>G.729</Codec>
                        <PacketRate>20 ms</PacketRate>
                        <Value>163</Value>
                </RUValue>
  <ReturnCode value="0" text="Successful result" />
       </ReturnData>
      </queryRU>
    </Methods>
   </Response>
</CommandList>
```


6.7.21 Add MP command

A MP can be added to the CS2000 management system by using a unique name.

Figure 76 XML command to Create a new Media Proxy

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <addMP usn="1" version="1.0">
      <Parameters>
        <MPname>MP-A</MPname>
        <IPAddress>47.165.32.23</IPAddress>
         <Protocol>MGCP+</Protocol>
         <ProtocolVersion>2.0</ProtocolVersion>
         </Parameters>
    </addMP>
   </Methods>
 </Command>
</CommandList>
```

Figure 77 XML response to Creating a new Media Proxy command

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
     <addMP usn="1" version="1.0">
      <ReturnData>
        <ReturnCode value="0" text="Successful result" />
      </ReturnData>
     </addMP>
   </Methods>
  </Response>
</CommandList>
```

Depending on the parameters used in the XML query the response returns on of the following:

- Success result
- MP already in use.

6.7.22 Delete MP command

A provisioned MP can be deleted from the CS2000 management system by passing the MP name. A existing MP will be deleted only if the MP has no association to a GWC gateway.

Figure 78 XML command to Delete a Media Proxy

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <deleteMP usn="1" version="1.0">
      <Parameters>
        <MPname>MP-A</MPname>
          </Parameters>
    </deleteMP>
    </Methods>
  </Command>
 </CommandList>
```

Figure 79 XML response to Deleting Media Proxy .

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
     <deleteMP usn="1" version="1.0">
      <ReturnData>
        <ReturnCode value="0" text="Successful result" />
      </ReturnData>
     </deleteMP>
   </Methods>
  </Response>
</CommandList>
```

Depending on the parameters used in the XML query the response returns:

- Success result
- MP name not found

6.7.23 Change MP command

A provisioned MP can be changed on the CS2000 management system by passing the MP name.

Figure 80 XML command to Change IP data of a Media Proxy

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <changeMP usn="1" version="1.0">
      <Parameters>
        <MPname>MP-A</MPname>
        <IPAddress>47.165.32.22</IPAddress>
         <Protocol>MGCP+</Protocol>
         <ProtocolVersion>2.0</ProtocolVersion>
         </Parameters>
     </changeMP>
    </Methods>
  </Command>
 </CommandList>
```

Figure 81 XML response to Change Media Proxy IP data.

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
    <Methods>
     <changeMP usn="1" version="1.0">
      <ReturnData>
        <ReturnCode value="0" text="Successful result" />
      </ReturnData>
     </changeMP>
    </Methods>
   </Response>
</CommandList>
```

Depending on the parameters used in the XML query the response returns:

- Success result
- MP name not found

6.7.24 Query MP command

The *queryMP* command returns:

- complete information concerning a given MP
- names of the Media Proxies used on a given GWC
- names of all Media Proxies provisioned.

Figure 82 An example of query one Media Proxy request:

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <queryMP usn="1" version="1.0">
      <Parameters>
       <MPname>churchill</MPname>
      </Parameters>
     </queryMP>
    </Methods>
  </Command>
</CommandList>
```

Figure 83 An example of query one Media Proxy response

```
<CommandList>
  <Response>
    <Interface>ITransIf</Interface>
     <Methods>
        <queryMP usn="1" version="1.0">
                <ReturnData>
                  <MPname>churchill</MPname>
                  <DeviceIP>1.1.1.1</DeviceIP>
                  <Protocol>MGCP+</Protocol>
                  <ProtocolVersion>2.0</ProtocolVersion>
                  <ReturnCode value="0" text="Successful result" />
                </ReturnData>
        </queryMP>
     </Methods>
  </Response>
</CommandList>
```

Figure 84 An example of query Media Proxies on a given GWC request:

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
  <Command>
   <Interface>ITransIf</Interface>
    <Methods>
     <queryMP usn="1" version="1.0">
      <Parameters>
       <GWCname>GWC-102</GWCname>
      </Parameters>
     </queryMP>
    </Methods>
  </Command>
 </CommandList>
```


Figure 85 An example of query Media Proxies on a given GWC response:

```
<CommandList>
  <Response>
    <Interface>ITransIf</Interface>
    <Methods>
      <queryMP usn="1" version="1.0">
      <ReturnData>
        <MPname>admiral</MPname>
        <MPname>churchill</MPname>
      <ReturnCode value="0" text="Successful result" />
      </ReturnData>
      </queryMP>
 </Methods>
  </Response>
</CommandList>
```

Figure 86 An example of query all Media Proxies request:

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
 <Command>
  <Interface>ITransIf</Interface>
   <Methods>
    <queryMP usn="1" version="1.0">
     <Parameters>
     </Parameters>
     </queryMP>
    </Methods>
   </Command>
  </CommandList>
```

Figure 87 An example of query all Media Proxies response:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>ITransIf</Interface>
    <Methods>
      <queryMP usn="1" version="1.0">
      <ReturnData>
            <MPname>admiral</MPname>
            <MPname>churchill</MPname>
            <ReturnCode value="0" text="Successful result" />
      </ReturnData>
      </queryMP>
      </Methods>
  </Response>
</CommandList>
```

6.7.25 Change Gateway's Associated NAT or LBL command

This method provides ability to change the adjacent NAT or LBL middle box associated with a gateway.

Figure 88 An example of Change middlebox associated to a GW request:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
 <Command>
  <Interface>ITransIf</Interface>
   <Methods>
    <changeAssocMB usn="1" version="1.0">
     <Parameters>
       <MGname>NorthBrook1105.com</MGname>
       <itransMiddleboxName>myNAT1</itransMiddleboxName>
     </Parameters>
    </changeAssocMB>
   </Methods>
 </Command>
</CommandList>
```

Figure 89 An example of Change middlebox associated to a GW response:

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
    <Interface>ITransIf</Interface>
    <Methods>
      <changeAssocMB  usn="1" version="1.0">
        <ReturnData>
          <ReturnCode value="0" text="Successful result" />
        </ReturnData>
      </changeAssocMB>
    </Methods>
  </Response>
</CommandList>
```

To disassociate a gateway from a NAT or LBL, omit the itransMiddleboxName XML tag . This way, the gateway will not be associated to any NAT.

To change the status of a gateway as being outside the succession VPN and not behind a NAT or LBL, set the itransMiddleboxName XML tag to "***outtsp***".

6.7.26 Change Gateway's Associated root Middleboxes command

This method provides ability to change the root middle boxes associated with a gateway.

Figure 90 An example of Change root Middleboxes associated to a GW request:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
 <Command>
  <Interface>ITransIf</Interface>
   <Methods>
    <changeRootMiddleboxes usn="1" version="1.0">
     <Parameters>
       <MGname>CICM-001</MGname>
       <rootMiddleboxName1>nat1</rootMiddleboxName1>
       <rootMiddleboxName2>nat2</rootMiddleboxName2>
       <rootMiddleboxName3>nat3</rootMiddleboxName3>
     </Parameters>
    </changeRootMiddleboxes>
   </Methods>
 </Command>
</CommandList>
```

Figure 91 An example of Change root Middleboxes associated to a GW response:

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
    <Interface>ITransIf</Interface>
    <Methods>
      <changeRootMiddleboxes  usn="1" version="1.0">
        <ReturnData>
          <ReturnCode value="0" text="Successful result" />
        </ReturnData>
      </changeRootMiddleboxes>
    </Methods>
  </Response>
</CommandList>
```

To disassociate a gateway from root Middleboxes, omit the rootMiddleboxName1..5 XML tags . This way, the gateway will not be associated to any root Middleboxes.

6.7.27 Internet Transparency unsuccessful response messages

Figure 92 An example of Internet transparency error response

```
<?xml version='1.0'?>
 <CommandList>
  <Response>
   <Interface>ITransIf</Interface>
   <Methods>
    <queryNAT usn="1" version="1.0">
     <ReturnData>
       <NATname>nat1</NATname>
       <ReturnCode value= "305" text="NAT not found"/>
     </ReturnData>
    </queryNAT>
   </Methods>
  </Response>
 </CommandList>
```

6.7.28 Limitations and restrictions

- *assocMG* (Associate Media Gateway)
  - The profile applied to the MG must have a service type of ITRANS when a NAT or LBL middle box is specified
  - The profile applied to the MG must have a service type of ITRANS_ROAM when root middleboxes are specified.
  - The GWC specified must have the Internet Transparency capability (ability to handle NAT/LBL and MPs) when a NAT or LBL middle box is specified
  - The GWC specified cannot have more than 2000 middleboxes associated
  - The NAT, LBL or Root Middleboxes names passed to *assocMG* must exist.
  - 'outtsp' cannot be specified as a Root Middlebox.
  - The Pep server name tag cannot be used in a XML query containing the itransMiddlebox name tag
  - The PepServer name tag or the itransMiddlebox name tag cannot be used in a XML query containing the rootMiddlebox name tags

- queryMP (Query Media Proxy)
  - the MP name and GWC name must not be specified together in the same query
- queryNAT
  - the NAT name and GWC name must not be specified together in the same query
- changeAssocMB (Change NAT/LBL associated to a Media Gateway)
  - the specified MG must be defined
  - the specified NAT/LBL middlebox must be defined
- changeRootMiddleboxes (Change the root Middleboxes associated to a Media Gateway)
  - the specified MG must be defined
  - the specified root middleboxes must be defined
  - 'outtsp' cannot be a specified middlebox
  - the specified MG must be defined
- addLBL
  - 'outtsp' cannot be specified as the parent of an LBL
- addNAT
  - 'outtsp' cannot be specified as the parent of a NAT

6.7.29 User Authorization for Internet Transparency operations

The security for the OSSGate interface includes support for permission or 'Authorization' levels for commands. Each operation is associated with one or more authorization groups. To execute a command, a user must belong to at least one of the associated authorization groups. The authorization groups associated with each Internet Transparency operation is listed in Table-8. (For assocMG and queryMG authorization levels, see Nodes Provisioning permissions).

Table-8 Internet Transparency Command Authorization Levels

Command	User Group				
	mgcadm	mgcrw	mgcmtc	mgcsprov	mgcro
queryCallAgentId	X	X	X	X	X
setCallAgentId	X	X			
addNAT	X	X			
deleteNAT	X	X			
changeNAT	X	X			
queryNAT	X	X	X	X	X
addLBL	X	X			
deleteLBL	X	X			
changeLBL	X	X			
queryLBL	X	X	X	X	X
addRU	X	X			
deleteRU	X	X			
changeRU	X	X			
queryRU	X	X	X	X	X
addMP	X	X			
deleteMP	X	X			
changeMP	X	X			
queryMP	X	X	X	X	X
changeAssocMB	X	X			
changeRootMiddleboxes	X	X			

6.7.30 Internet Transparency Return Codes

Table 2 Internet Transparency return codes

Return code	Meaning
0	Successful operation
16	Associate MG Operation invalid input from client interface. Example A service type of ITRANS is required
21	Associate MG Operation failed to associate the MG with a GWC. Example Reason the number of distinct NAT's used exceeds the limit of 400 per GWC
301	Incorrect command version in Internet Transparency change/query request
302	Platform applications internal error: OSS Interface applications cannot connect to required server application
303	Error in the input data
304x	GWC error during ITRANS operation
305	No DATA Available example : No NAT /MP found matching this query or query of a non-existing GWC
501	User is not a member of any of the user groups allowed to perform this action

6.8 H.323 Limitation and Restrictions

The following are current restrictions with respect to H.323 gateway provisioning.

Change gateway operation: Following modifications are not allowed

- Changing H.323 version. (This is set to “4.0”.).
- Changing protocol from H.323 to another protocol.
- Changing from another protocol to H.323.

Change gateway controller operation GWCs can not be changed from being non-H.323 to being H.323. Likewise, they can not be changed from H.323 to non-H.323.

7: Carrier Provisioning with OSSGate

7.1 Supported Carrier Provisioning Commands

The following existing Carrier Provisioning operations are supported:

- Add Carrier
- Delete Carrier
- Get Carrier
- Get Endpoint
- List All Carriers

7.2 XML Commands

AddCarrier: This interfaces will add carriers to a trunk gateway or a End Point Groups (EPG) of size 24 or 32 endpoints to a H.323 Gateway dependent upon market configuration. For H.323 gateways In order to provision a Gateway with multiple EPGs, this command should be called repeatedly with a unique EPG. This command will automatically grab the first available block of contiguous TID space TNs available on the GWC if the optional "FirstTN" tag is not used. The user can also specify the starting TID location. This option gives users the ability to assign EPs to specific TID locations if they desire. If a firstTN tag is included, the system will assign a contiguous group of 24 or 32 EPs starting at the given location. If any of the TNs in the range are unavailable the command will fail.

7.2.1 Description of Method Parameters

Method parameters are defined below. Input data is mandatory except where indicated otherwise.

1. **addCarrier** - Method to add a group of carriers to any trunk gateway including H.323 gateways. This method has the following parameters:

- Input data
  - usn - Unique Sequence Number. This parameter is introduced to facilitate sending multiple XML commands in one file. This parameter value will be used to match the responses with the requests. TYPE *integer*.

- version - The version refers to the version of the method or operation - Current version is 1.0
- mgName - A string value starting with PVG followed by alphanumeric or underscore
- carrierName - A string value of size range 1 to 32 characters that represents the various carrier types like DS3, E1, SM, ST
- svcData - A optional parameter. This can be one of PRI service type, V5.2 service type, ISUP or H.323
  A PRI service type has one parameter, IID - an integer value between 0 to 254
  A v5.2 service type has three parameters, V5.2IID, V5.2LinkID and V5.2UALinkId. All these parameters are integers 1 to 4094 range.

  –firstTN - A optional parameter. An integer value between 1 to 4094
- tidSize - A optional parameter. An integer value between 1 to 4094

• Output data:

- usn (value should be the same as the input)
- version (value should be the same as the input)
- firstTID - A integer value that is a concatenation of node number and terminal number
- numberOfTids - An integer value that indicates the total number of allocated tids for the carrier.
- ReturnCode - indicates via an integer value if the command has been successful or, if not, the error type and includes a brief textual message with further information.

Operation getCarrier - The same functionality is provided by new operation listAllCarriers when used with the FILTER_CARRIER option.

2. **getCarrier** - Method to add a group of carriers to any trunk gateway including H.323 gateways. This method has the following parameters:

- Input data:
  - usn - Unique Sequence Number. This parameter is introduced to facilitate sending multiple XML commands in one file. This parameter value will be used to match the responses with the requests. TYPE *integer*.
  - version - The version refers to the version of the method or operation - Current version is 1.0
  - mgName A string value starting with PVG followed by alphanumeric or underscore
  - carrierName A string value of size range 1 to 32 characters that represents the various carrier types like DS3, E1, SM, ST
- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - gwcName A string value starting with GWC- followed by a number between 0 to 255
  - mgName A string value starting with PVG followed by alphanumeric or underscore
  - carrierName A string value of size range 1 to 32 characters that represents the various carrier types like DS3, E1, SM, ST
  - svcData - A optional parameter. This can be one of PRI service type, V5.2 service type, ISUP or H.323
    A PRI service type has one parameter, IID - an integer value between 0 to 254
    A v5.2 service type has three parameters, V5.2IID, V5.2LinkID and V5.2UALinkId. All these parameters are integers 1 to 4094 range.

- service - The type of service the carrier is associated with. It can be one of PRI, V5.2, ISUP or H.323
- numberOfTids - An integer value that indicates the total number of allocated tids for the carrier.
- ReturnCode - indicates via an integer value if the command has been successful or, if not, the error type and includes a brief textual message with further information.

3. **getEndPoint** - Method to add a group of carriers to any trunk gateway including H.323 gateways. This method has the following parameters:

- Input data:
  - usn - Unique Sequence Number. This parameter is introduced to facilitate sending multiple XML commands in one file. This parameter value will be used to match the responses with the requests. TYPE *integer*.
  - version - The version refers to the version of the method or operation - Current version is 1.0
  - mgName A string value starting with PVG followed by alphanumeric or underscore
  - endpointName A string value of size range 1 to 32 characters that represents the various carrier types like DS3, E1, SM, ST
- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - mgName A string value starting with PVG followed by alphanumeric or underscore
  - endpointName A string value of size range 1 to 32 characters that represents the various carrier types like DS3, E1, SM, ST
  - tid - A integer value that represent the Terminal-ID associated with the channel.
  - ReturnCode - indicates via an integer value if the command has been successful or, if not, the error type and includes a brief textual message with further information.

4. **deleteCarrier** - Method to add a group of carriers to any trunk gateway including H.323 gateways. This method has the following parameters:

- Input data:
  - usn - Unique Sequence Number. This parameter is introduced to facilitate sending multiple XML commands in one file. This parameter value will be used to match the responses with the requests. TYPE *integer*.
  - version - The version refers to the version of the method or operation - Current version is 1.0
  - mgName A string value starting with PVG followed by alphanumeric or underscore
  - carrierName A string value of size range 1 to 32 characters that represents the various carrier types like DS3, E1, SM, ST
  -
- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - ReturnCode - indicates via an integer value if the command has been successful or, if not, the error type and includes a brief textual message with further information.
  -

5. **listAllCarrier** - Method to add a group of carriers to any trunk gateway including H.323 gateways. This method has the following parameters:

- Input data:
  - usn - Unique Sequence Number. This parameter is introduced to facilitate sending multiple XML commands in one file. This parameter value will be used to match the responses with the requests. TYPE *integer*.
  - version - The version refers to the version of the method or operation - Current version is 1.0
  - FILTER_GWC A option from which one of the following four may be specified: FILTER_ALL, FILTER_GWC, FILTER_MG, FILTER_CARRIER.

  - gwcname A string value starting with GWC- followed by a number between 0 to 255

- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - gwcname A string value starting with GWC- followed by a number between 0 to 255
  - mg name A string value starting with PVG followed by alphanumeric or underscore
  - carrier name A string value of size range 1 to 32 characters that represents the various carrier types like DS3, E1, SM, ST
  - svcData This can be one of PRI, ISUP, V5.2, H.323. A PRI type has one parameter - IID an integer value between 1 to 4094
  - service - The type of service the carrier is associated with. It can be one of PRI, V5.2, ISUP or H.323
  - IID - Data associated with PRI service type. Integer value between 0 to 254
  - endptList - A list of all endpoints associated with the carrier. Each endpoint has a name (string) and associated tid value (a integer value that is a concatenation of node number and terminal number).
  - ReturnCode - indicates via an integer value if the command has been successful or, if not, the error type and includes a brief textual message with further information.

7.2.2 Examples of XML Command and Response Messages

Figure 93 An example of addCarrier request:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
 <Command>
    <Interface>EndptGrpProvIf</Interface>
       <Methods>
         <addCarrier usn="1" version="1.0">
           <Parameters>
       <mgName>PVG190</mgName>
       <carrierName>DS3_20.28</carrierName>
       <svcData><PRI>
        <IID>7</IID>
             </PRI>
       </svcData>
       <firstTN>649</firstTN>
          </Parameters>
        </addCarrier>
       </Methods>
 </Command>
</CommandList>
```

Note: firstTN is an optional field.

Figure 94 An example of H.323 addCarrier request:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
 <Command>
    <Interface>EndptGrpProvIf</Interface>
       <Methods>
         <addCarrier usn="1" version="1.0">
           <Parameters>
             <mgName>PVG190</mgName>
             <carrierName>DS3_20.28</carrierName>
             <svcData>  <H323 /> </svcData>
             <firstTN>649</firstTN>
         </Parameters>
        </addCarrier>
       </Methods>
 </Command>
</CommandList>
```


Figure 95 An example of addCarrier response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
<Response>
<Interface>EndptGrpProvIf</Interface>
<Methods><addCarrier usn="1" version="1.0">
<ReturnData>
<Row><firstTID>13649</firstTID>
  <numberOfTids>24</numberOfTids></Row>
<RC>0</RC>
<MsgTxt>
EGP:AddCarrierOpReplyStAdd CARRIER operation was successful
</MsgTxt>
</ReturnData>
</addCarrier>
</Methods>
</Response>
</CommandList>
```

Figure 96 An example of **getCarrier** request:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList >
  <Command>
  <Interface>EndptGrpProvIf</Interface>
  <Methods>
  <getCarrier usn="1" version="1.0">
  <Parameters>
  <mgName>PVG190</mgName>
  <carrierName>DS3_20.1</carrierName>
  </Parameters>
  </getCarrier>
  </Methods>
 </Command>
</CommandList>
```


Figure 97 An example of getCarrier response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
 <Response><Interface>EndptGrpProvIf</Interface>
  <Methods>
   <getCarrier usn="1" version="1.0">
    <ReturnData>
     <gwcName>GWC-1</gwcName>
     <mgName>PVG190</mgName>
      <Row><carrierName>DS3_20.1</carrierName>
        <svcData><service>ISUP</service></svcData>
     </Row><RC>0</RC>
     <MsgTxt>Carrier was successfully retrieved</MsgTxt>
    </ReturnData>
   </getCarrier>
  </Methods>
 </Response>
</CommandList>
```

Figure 98 An example of **getEndPoint** request:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList >
      <Command>
            <Interface>EndptGrpProvIf</Interface>
            <Methods>
                  <getEndPoint usn="1" version="1.0">
                    <Parameters>
                      <mgName>PVG8</mgName>
                      <endpointName>DS3_20.1.23</endpointName>
                    </Parameters>
                  </getEndPoint>
            </Methods>
      </Command>
</CommandList>
```

Figure 99 An example of getEndPoint response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
      <Response>
            <Interface>EndptGrpProvIf</Interface>
            <Methods>
                  <getEndPoint usn="1" version="1.0">
                    <ReturnData>
                          <mgName>PVG8</mgName>
                          <endpointName>DS3_20.1.23</endpointName>
                          <tid>200 23</tid>
                          <RC>0</RC>
                          <MsgTxt>Get Endpoint operation was successful.</MsgTxt>
                    </ReturnData>
                  </getEndPoint>
            </Methods>
      </Response>
</CommandList>
```

Operation deleteCarrier

Figure 100An example of deleteCarrier request:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList >
      <Command>
            <Interface>EndptGrpProvIf</Interface>
            <Methods>
               <deleteCarrier usn="1" version="1.0">
                  <Parameters>
                        <mgName>PVG8</mgName>
                        <carrierName>DS3_20.1</carrierName>
                  </Parameters>
               </deleteCarrier>
            </Methods>
      </Command>
</CommandList>
```

Figure 101An example of deleteCarrier response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
      <Response>
            <Interface>EndptGrpProvIf</Interface>
            <Methods>
               <deleteCarrier usn="1" version="1.0">
                  <ReturnData>
                        <RC>0</RC>
                        <MsgTxt>Delete Carrier operation was successful.</MsgTxt>
                  </ReturnData>
               </deleteCarrier>
            </Methods>
      </Response>
</CommandList>
```

Operation ListAllCarriers

Figure 102An example of ListAllCarriers command request:

```
<?xml version="1.0" encoding="UTF-8" ?>
 <CommandList>
   <Command>
     <Interface>EndptGrpProvIf</Interface>
       <Methods>
         <listAllCarriers usn="1" version="1.0">
            <Parameters>
              <FILTER_GWC>
                 <gwcName>GWC-6</gwcName>
              </FILTER_GWC>
            </Parameters>
         </listAllCarriers>
       </Methods>
   </Command>
</CommandList>
```


Figure 103An example of ListAllCarriers response:

```
<?xml version="1.0" encoding="UTF-8"?>
<CommandList>
<Response>
<Interface>EndptGrpProvIf</Interface>
<Methods>
<listAllCarriers usn="1" version="1.0">
<ReturnData>
<gwc name="GWC-6">
        <mg name="TrunkMG">
<carrier name="DS3_20.2">
<svcData>
<service>PRI</service>
<IID>7</IID>
</svcData>
<endptList>
<endPt name="DS3_20.2.1"><tid>36 1</tid></endPt>
<endPt name="DS3_20.2.2"><tid>36 2</tid></endPt>
:
:
<endPt name="DS3_20.2.22"><tid>36 22</tid></endPt>
<endPt name="DS3_20.2.23"><tid>36 23</tid></endPt>
<endPt name="DS3_20.2.24"><tid>36 24</tid></endPt>
</endptList>
</carrier>
<carrier name="DS3_20.9">
<svcData>
<service>ISUP</service>
</svcData>
<endptList>
<endPt name="DS3_20.9.1"><tid>36 1401</tid></endPt>
<endPt name="DS3_20.9.2"><tid>36 1402</tid></endPt>
<endPt name="DS3_20.9.3"><tid>36 1403</tid></endPt>
:
:
<endPt name="DS3_20.9.22"><tid>36 1422</tid></endPt>
<endPt name="DS3_20.9.23"><tid>36 1423</tid></endPt>
<endPt name="DS3_20.9.24"><tid>36 1424</tid></endPt>
</endptList>
</carrier>
</mg>
</gwc>
<RC>0</RC>
<MsgTxt>
Retrieval of Carriers Successfully Completed. </MsgTxt>
</ReturnData>
</listAllCarriers>
</Methods>
</Response>
</CommandList>
```


7.3 User Authorization for Carrier Operations

The security for the OSSGate interface includes support for permission or ‘Authorization’ levels for commands. Each operation is associated with one or more user groups. In order to execute a command, a user must belong to at least one of the associated user groups. The user groups associated with each Carrier Provisioning command are specified in the Table-8.

Table 8: Carrier Provisioning user groups

Command	User Group				
	trkadm	trkrw	trksprov	trkmtc	trlro
addCarrier	X	X			
deleteCarrier	X	X			
getEndpoint	X	X	X	X	X
get Carrier	X	X	X	X	X
get CarrierByFilter	X	X	X	X	X

7.3.1 Return Codes

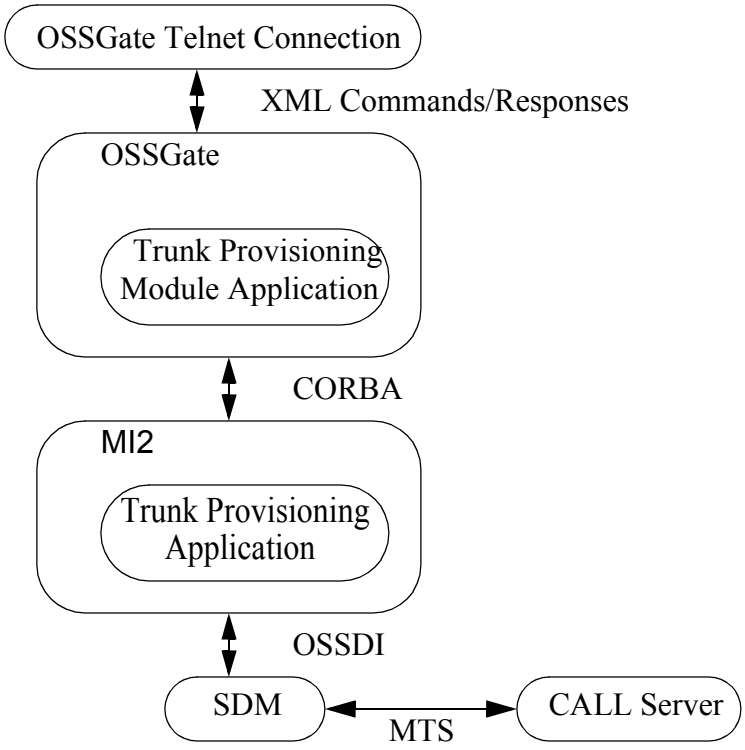
Table 9: Carrier Provisioning return codes

Return Code	Meaning
0	**Successful operation**
1	**More data coming**
2	**Request Rejected due to Resource Limits Reached**
3	**Application was Commanded to Abort**
4	**Invalid input from client**
5	**Failed at GWC EM**
6	**Failed at Network View**
7	**Successful operation, but no data.**
8	**Timeout at GWC EM**

8: Trunk Provisioning with OSSGate

The Trunk Provisioning application enables authenticated OSS clients to perform provisioning operations on legacy and MG-based trunk data from CS2000 Management tool server. The provisioning operations include adding, changing, listing and deleting tuples. Access to this functionality is by connection to OSSGate.

Figure 104 Provisioning in the Succession Network



Succession trunk provisioning of gateway-hosted endpoints is a multiple-step process:

1. Carrier endpoints on a MG must be provisioned by using the Bulk Carrier Provisioning application. The Carrier Provisioning application is responsible for allocating TIDs for all channels of a carrier.
2. Provision the CS2000 tables CLLI and TRKGRP with the appropriate data.

3. Provision trunk service on MG-based endpoints by using the Trunk Provisioning application to populate tables TRKSGRP and TRKMEM. The endpoint/TID which was allocated for the carrier channel in step 1 is specified when provisioning tables TRKSGRP and TRKMEM.

TRKSGRP tuples for PRI (Primary Rate Interface) trunk groups specify the D channel endpoint/TID. TRKMEM tuples specify endpoint/TID of a respective trunk group.

Note 1: Non-MG-hosted endpoints (legacy trunks) do not require a separate TID allocation step. Provisioning of table TRKMEM with the carrier channel is all that is required.

Note 2: The IID table on the respective GWC must be populated with the corresponding endpoint/channel data for MG-based PRI trunks.

Note 3: The remaining tables on the CS2000 for trunk provisioning (i.e. CLLI, TRKGRP, etc.) are unchanged by this activity and are still managed through Table Editor.

8.1 Supported Trunk Provisioning Command

Following XML commands are supported for Trunk Provisioning use OSSGate.

- AddTuple
- DelTuple
- ReplaceTuple
- GetTuple
- GetRange
- GetTupleWithoutGwcemCheck
- GetRangeWithoutGwcemCheck

8.2 Terminology, Description of Method Parameters

- **TableName** - Name of the table. TYPE *string*. Min length 1, Max length 8. The valid values include "TRKSGRP" and "TRKMEM".
- **Tuple** - Information of the Tuple data. TYPE *string*.

- **MGName** - Name of the Media Gateway. TYPE *string*.
- **EndPointName** - Name of the Endpoint. TYPE *string*.
- **BackupMGName** - Name of the backup Media Gateway. TYPE *string*.
- **BackupEndPointName** - Name of the backup Endpoint. TYPE *string*.
- **TupleKey** - Key of the Tuple. TYPE *string*.
- **NumberOfTuples** - Number of the returnedTuples. TYPE *string*. If **NumberOfTuples** is less than 0, the number of the returned tuples is the default value in System.
- **value** - Value of the Return Code. TYPE *string only contains number*.
- **text** - Message of the operation result. TYPE *string*.
- **severity** - Type of the serverity. TYPE *string*. The valid values include "INFORMATION", "WARNING", "MINOR", "MAJOR" and "CRITICAL".
- **msgTxtParm** - Information of the parameters. TYPE *string*.
- **GWCNumber** - No. of the GWC. TYPE *unsigned short*. Min is 0.
- **NodeNumber** - No. of the Node. TYPE *unsigned short*. Min is 0.
- **TerminalNumber** - No. of the Terminal. TYPE *unsigned short*. Min is 0.
- **BackupTerminalNumber** - No. of the Backup Terminal. TYPE *unsigned short*. Min is 0.

The following parameters will be returned when some errors happen.

- **Number** - No. of the error. TYPE *string only contains number*. Valid values include "14100", "14101", "14102", "14103", "14104", "14105", "14107" and "14108".
- **Message** - Message of the error. TYPE *string*.
- **Severity** - Serverity of the error. TYPE *string*. The valid values include "INFORMATION", "WARNING", "MINOR", "MAJOR" and "CRITICAL".
- **Param*i*** - Parameter, *i* is *integer*. TYPE *string*.
- **name** - Name of the Sub Component. TYPE *string*.

- **value** - Value of the Return Code. TYPE *integer.*
- **text** - Message of the operation result. TYPE *string.*

8.3 Description of Method Parameters

1. **AddTuple** - Interface/Method that adds a tuple to the respective table.

- Input data:
  - Version - Optional
  - TableName - Required
  - Tuple - Required
  - MGName - Optional
  - EndPointName - Optional
  - BackupMGName - Optional
  - BackupEndPointName - Optional
- Output data:
  - tableName - Required
  - value - Required. TYPE *string only contains numbers*.
  - text - Optional
  - severity - Optional
  - msgTxtParm - Optional

2. **DelTuple** - Interface/Method that deletes a tuple from the respective table based on the tuple key or the full tuple.

- Input data:
  - Version - Optional
  - TableName - Required
  - TupleKey - Required
- Output data:
  - tableName - Required
  - value - Required. TYPE *string only contains numbers*.
  - text - Optional
  - severity - Optional
  - msgTxtParm - Optional

3. **ReplaceTuple** - Interface/Method that changes a tuple based on the tuple key or the full tuple.

- Input data:
  - Version - Optional
  - TableName - Required
  - Tuple - Required
  - MGName - Optional
  - EndPointName - Optional
  - BackupMGName - Optional
  - BackupEndPointName - Optional
- Output data:
  - tableName - Required
  - value - Required. TYPE *string only contains numbers*.
  - text - Optional
  - severity - Optional
  - msgTxtParm - Optional

4. **GetTuple** - Interface/Method that lists or queries a specific tuple based on the tuple key or full tuple from the respective table. If no key or tuple is provided, the first tuple in the specified table will be returned to the OSS.

- Input data:
  - Version - Optional
  - TableName - Required
  - TupleKey - Required
- Output data:
  - tableName - Required
  - value - Required. TYPE *string only contains numbers*.
  - text - Optional
  - severity - Optional
  - msgTxtParm - Optional
  - Tuple - Optional
  - GWCNumber - Optional
  - NodeNumber - Optional

– TerminalNumber - Optional

– BackupTerminalNumber - Optional

5. **GetRange** - Interface/Method that lists the specified number of tuples from the respective table based on the tuple key or the full tuple of the first tuple in the range and the number of tuples requested. If a tuple key is not provided, the list of tuples will be captured from the beginning or "top" of the specified table.

• Input data:

– Version - Optional

– TableName - Required

– TupleKey - Required

– NumberOfTuples - Optional

• Output data:

– tableName - Required

– value - Required. TYPE *string only contains numbers*.

– text - Optional

– severity - Optional

– msgTxtParm - Optional

– Tuple - Optional

– GWCNumber - Optional

– NodeNumber - Optional

– TerminalNumber - Optional

– BackupTerminalNumber - Optional

6. **GetTupleWithoutGwcemCheck** - Interface/Method that lists or queries a specific tuple based on the tuple key or full tuple from the respective table without GWCEM check. If no key or tuple is provided, the first tuple in the specified table will be returned to the OSS.

• Input data:

– Version - Optional

– TableName - Required

– TupleKey - Required

• Output data:

– tableName - Required

– value - Required. TYPE *string only contains numbers*.
– text - Optional
– severity - Optional
– msgTxtParm - Optional
– Tuple - Optional
– GWCNumber - Optional
– NodeNumber - Optional
– TerminalNumber - Optional
– BackupTerminalNumber - Optional

7. **GetRangeWithoutGwcemCheck** - Interface/Method that lists the specified number of tuples from the respective table based on the tuple key or the full tuple of the first tuple in the range and the number of tuples requested without GWCEM check. If a tuple key is not provided, the list of tuples will be captured from the beginning or "top" of the specified table.

• Input data:
– Version - Optional
– TableName - Required
– TupleKey - Required
– NumberOfTuples - Required
• Output data:
– tableName - Required
– value - Required. TYPE *string only contains numbers*.
– text - Optional
– severity - Optional
– msgTxtParm - Optional
– Tuple - Optional
– GWCNumber - Optional
– NodeNumber - Optional
– TerminalNumber - Optional
– BackupTerminalNumber - Optional

8.4 XML Commands

The following are examples of XML commands and the corresponding response messages for each operation supported for ADSL flow through pro-

visioning. The XML coding in these examples is formatted for ease of understanding.

Figure 105An example of AddTuple request without MGName and EndpointName:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
 <Command>
  <Interface>TrunkProv</Interface>
   <Methods Version="2.0">
    <AddTuple TableName="TRKMEM" Tuple="SUC101ISUPV2LP 1 0 GWC 5 18 1"/>
  </Methods>
 </Command>
</CommandList>
```

Figure 106An example of AddTuple response without MGName and EndpointName:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkProv</Interface>
    <Methods>
  <AddTuple>
    <ReturnCode tableName="TRKMEM" value="0" text="Command Successful!"/>
  </AddTuple>
    </Methods>
  </Response>
</CommandList>
```

Figure 107An example of AddTuple request with MGName and EndpointName:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
  <Command>
    <Interface>TrunkProv</Interface>
    <Methods Version="2.0">
      <AddTuple TableName="TRKMEM" Tuple="PRIFORUPGRADEDOC 1 0
                        GWC PRIFORDOC DS1_10.1"
            MGName="PRIFORDOC"
            EndPointName="DS1_10.1"/>
    </Methods>
  </Command>
</CommandList>
```


Figure 108An example of AddTuple response for Succession trunk:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkProv</Interface>
    <Methods>
  <AddTuple>
    <ReturnCode tableName="TRKMEM" value="0" text="Command Successful!"/>
  </AddTuple>
    </Methods>
  </Response>
</CommandList>
```

Figure 109An example of DelTuple request:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
 <Command>
  <Interface>TrunkProv</Interface>
   <Methods Version="2.0">
    <DelTuple TableName="TRKMEM" TupleKey="IBNT2ISUPOG 0"/>
  </Methods>
 </Command>
</CommandList>
```

Figure 110An example of DelTuple response:

```
<?xml version="1.0" encoding="UTF-8"?>
<CommandList>
 <Response>
  <Interface>TrunkProv</Interface>
        <Methods>
   <DelTuple>
    <ReturnCode TableName="TRKMEM" value="0" text="Command Successful!"/>
   </DelTuple>
  </Methods>
</Response>
</CommandList>
```

Figure 111An example of ReplaceTuple request without MGName and EndpointName:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
  <Command>
    <Interface>TrunkProv</Interface>
    <Methods Version="2.0">
       <ReplaceTuple TableName="TRKMEM"
              Tuple="PRIFORUPGRADEDOC 3 0 GWC 0 67 38"/>
    </Methods>
  </Command>
</CommandList>
```

Figure 112An example of ReplaceTuple response without MGName and EndpointName:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkProv</Interface>
    <Methods>
  <ReplaceTuple>
    <ReturnCode tableName="TRKMEM" value="0" text="Command Successful!"/>
  </ReplaceTuple>
    </Methods>
  </Response>
</CommandList>
```

Figure 113An example of ReplaceTuple request with MGName and EndpointName:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
  <Command>
    <Interface>TrunkProv</Interface>
    <Methods Version="2.0">
      <ReplaceTuple TableName="TRKMEM" Tuple="PRIFORUPGRADEDOC
                                             3 0 GWC PRIFORDOC DS1_10.6"
            MGName="PRIFORDOC"
            EndPointName="DS1_10.6"/>
    </Methods>
  </Command>
</CommandList>
```

Figure 114An example of ReplaceTuple response with MGName and EndpointName:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkProv</Interface>
    <Methods>
  <ReplaceTuple>
    <ReturnCode tableName="TRKMEM" value="0" text="Command Successful!"/>
  </ReplaceTuple>
    </Methods>
  </Response>
</CommandList>
```

Figure 115An example of GetTuple request:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
 <Command>
  <Interface>TrunkProv</Interface>
   <Methods Version="2.0">
     <GetTuple TableName="TRKSGRP" TupleKey="IBNT2ISUPOG 0"/>
  </Methods>
 </Command>
</CommandList>
```


Figure 116An example of GetTuple response:

```
<?xml version="1.0" encoding="UTF-8"?>
<CommandList>
 <Response>
  <Interface>TrunkProv</Interface>
  <Methods>
    <GetTuple>
<ReturnCode TableName="TRKSGRP" value="0" text="Command Successful!"/>
     <TupleData>
      <Tuple>IBNT2ISUPOG 0 DS1SIG C7UP 2W N N UNEQ NONE Q764
                                        THRH 100 DMSNODE $ NIL CIC</Tuple>
     </TupleData>
    </GetTuple>
  </Methods>
 </Response>
</CommandList>
```

Figure 117An example of GetRange request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkProv</Interface>
    <Methods Version="2.0">
       <GetRange
          TableName="TRKMEM"
          TupleKey="PRIFORUPGRADEDOC 1"
          NumberOfTuples="5"/>
    </Methods>
  </Command>
</CommandList>
```

Figure 118An example of GetRange response:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkProv</Interface>
    <Methods>
  <GetRange>
    <ReturnCode tableName="TRKMEM" value="0" text="Command Successful!"/>
    <TupleData>
      <Tuple>PRIFORUPGRADEDOC 1 0 PRIFORDOC DS1_10.1 </Tuple>
      <GWCNumber>0</GWCNumber>
      <NodeNumber>67</NodeNumber>
      <TerminalNumber>32</TerminalNumber>
    </TupleData>
    <TupleData>
      <Tuple>PRI 2 0 GAOPRI E1_1001.2 </Tuple>
      <GWCNumber>0</GWCNumber>
      <NodeNumber>67</NodeNumber>
      <TerminalNumber>2</TerminalNumber>
    </TupleData>
    <TupleData>
      <Tuple>PRI 3 0 GAOPRI E1_1001.3 </Tuple>
      <GWCNumber>0</GWCNumber>
      <NodeNumber>67</NodeNumber>
      <TerminalNumber>3</TerminalNumber>
    </TupleData>
    <TupleData>
      <Tuple>H323TEST 2 0 GWC 3 72 2 ; TID not found in GWCEM;
                                          node#=72;term#=2.</Tuple>
      <GWCNumber>3</GWCNumber>
      <NodeNumber>72</NodeNumber>
      <TerminalNumber>2</TerminalNumber>
    </TupleData>
    <TupleData>
      <Tuple>H323TEST 3 0 GWC 3 72 3; TID not found in GWCEM;
                node#=72;term#=3.</Tuple>
      <GWCNumber>3</GWCNumber>
      <NodeNumber>72</NodeNumber>
      <TerminalNumber>3</TerminalNumber>
    </TupleData>
  </GetRange>
    </Methods>
  </Response>
</CommandList>
```

Figure 119An example of GetTupleWithoutGwcemCheck request:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
 <Command>
  <Interface>TrunkProv</Interface>
   <Methods Version="2.0">
     <GetTupleWithoutGwcemCheck TableName="TRKSGRP"
                                TupleKey="PVG40_2_PRI_USR 0"/>
  </Methods>
 </Command>
</CommandList>
```


Figure 120An example of GetTupleWithoutGwcemCheck response:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkProv</Interface>
    <Methods>
  <GetTupleWithoutGwcemCheck>
    <ReturnCode tableName="TRKSGRP" value="0" text="Command Successful!"/>
    <TupleData>
      <Tuple>PVG40_2_PRI_USR 0 DS1SIG ISDN 20 20 96ISOQSIG 2 N STAND USER
     PT_PT USER N INTERNAL N N 255 N DEFAULT GWC 5 18 47 64K HDLC $ $</Tuple
      <GWCNumber>5</GWCNumber>
      <NodeNumber>18</NodeNumber>
      <TerminalNumber>47</TerminalNumber>
    </TupleData>
  </GetTupleWithoutGwcemCheck>
    </Methods>
  </Response>
</CommandList>
```

Figure 121An example of GetRangeWithoutGwcemCheck request:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
 <Command>
  <Interface>TrunkProv</Interface>
   <Methods Version="2.0">
    <GetRangeWithoutGwcemCheck TableName="TRKMEM"
                                    TupleKey="PVG40_2_PRI_USR 1"
        NumberOfTuples="5"/>
  </Methods>
 </Command>
</CommandList>
```

Figure 122An example of **GetRangeWithoutGwcemCheck** response**:**

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkProv</Interface>
    <Methods>
  <GetRangeWithoutGwcemCheck>
    <ReturnCode tableName="TRKMEM" value="0" text="Command Successful!"/>
    <TupleData>
      <Tuple>PVG40_2_PRI_USR 1 0 GWC 5 18 32 </Tuple>
      <GWCNumber>5</GWCNumber>
      <NodeNumber>18</NodeNumber>
      <TerminalNumber>32</TerminalNumber>
    </TupleData>
    <TupleData>
      <Tuple>PVG40_2_PRI_USR 2 0 GWC 5 18 33 </Tuple>
      <GWCNumber>5</GWCNumber>
      <NodeNumber>18</NodeNumber>
      <TerminalNumber>33</TerminalNumber>
    </TupleData>
    <TupleData>
      <Tuple>PVG40_2_PRI_USR 3 0 GWC 5 18 34 </Tuple>
      <GWCNumber>5</GWCNumber>
      <NodeNumber>18</NodeNumber>
      <TerminalNumber>34</TerminalNumber>
    </TupleData>
    <TupleData>
      <Tuple>PVG40_2_PRI_USR 4 0 GWC 5 18 35 </Tuple>
      <GWCNumber>5</GWCNumber>
      <NodeNumber>18</NodeNumber>
      <TerminalNumber>35</TerminalNumber>
    </TupleData>
    <TupleData>
      <Tuple>PVG40_2_PRI_USR 5 0 GWC 5 18 36</Tuple>
      <GWCNumber>5</GWCNumber>
      <NodeNumber>18</NodeNumber>
      <TerminalNumber>36</TerminalNumber>
    </TupleData>
  </GetRangeWithoutGwcemCheck>
    </Methods>
  </Response>
</CommandList>
```


Figure 123An example of error response:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkProv</Interface>
    <Methods>
  <AddTuple>
      <ReturnCode tableName="TRKMEM" value="707" text="ERROR, An error was rece
Communication Server.">
        <Subcomponent name="Communication Server" value="20" text='RC=3; TxtIdx=2
message m0=RC=3; TxtIdx=20; CMError="The GWC node number has been
67\015TERMINAL ALREADY BOUND TO ANOTHER TRUNK\015"; end; end'/>
    </ReturnCode>
  </AddTuple>
    </Methods>
  </Response>
</CommandList>
```

8.5 User Authorization for Trunk provisioning Operations

The security for the OSSGate interface includes support for permission or 'Authorization' levels for commands. Each operation is associated with one or more user groups. In order to execute a command, a user must belong to at least one of the associated user groups. The user groups associated with each Trunk Provisioning operation is listed in Table-10 below.

Table 10: Trunk Provisioning user groups

Command	User Group				
	trkadm	trkiprov	trksprov	trkmtc	trlro
GetTuple	X	X	X	X	X
GetRange	X	X	X	X	X
AddTuple	X	X			
ReplaceTuple	X	X			
DelTuple	X	X			
GetTupleWithoutGwcemCheck	X	X	X	X	X
GetRangeWithoutGwcemCheck	X	X	X	X	X

8.6 Limitation and Restrictions

- ***Abort Operation Command is Unsupported*** - the ability to abort an XML request received from OSSGate is not supported. The Trunk Provisioning application writes to only one data repository and does not need to "roll back" data. Either the XML request is processed successfully, or a corresponding error message is returned to OSSGate. If an OSS client would like to terminate or abort a table operation, the client can break the telnet link to OSSGate.
- ***Pause Operation Command is Unsupported***- the ability to pause an XML request received from OSSGate will not be supported. The Trunk Provisioning application resides in a unified framework which cannot pause one application while allowing others to continue unabated. If an OSS client wishes to pause a table operation, the client can abort it by breaking the telnet link to OSSGate. When the client reconnects, the operation will have to be restarted.

8.7 Return Codes

The Trunk Provisioning application will respond to each XML request with an XML response. The XML response will contain a return code that will signify whether the request was processed properly or if an error was incurred.

The return code of **"0"** means the table operation request was processed successfully.

The following return codes for errors may be sent back if an error occurs during the processing of a table operation request.

Table 11: Trunk Provisioning Return Codes

Operation	Return Code	Description	MsgText	Comment
All Trunk Provisioning operations	0	Successful operation	Varies, depending on the operation and specific scenario.	This error code means that there was no error and the request was processed successfully.

Table 11: Trunk Provisioning Return Codes

Operation	Return Code	Description	MsgText	Comment
All Trunk Provisioning operations	701	Unsuccessful operation. Trunk Provisioning is unavailable.	"The Trunk Provisioning application is currently off-line. Please try your request again later."	This error generally means the Trunk Provisioning application is off-line and should be manually restarted using the administrative control tool.
All Trunk Provisioning operations	702	Unsuccessful operation.	"An error has occurred while attempting to execute the Trunk Provisioning command."	Probably due to catching an unexpected exception. An example is the database connection being down.
All Trunk Provisioning operations	703	Unsuccessful operation. Invalid customer input.	"An invalid XML message was received. Please try your request again."	This error generally means the OSS sent in an invalid message. The OSS should verify their XML using the XSD. If it complies, Nortel GPS should be notified.
All Trunk Provisioning operations	704	Unsuccessful operation. GWCEM error.	"An error has occurred within the GWCEM application."	Probably due to catching an unexpected exception.
Add Tuple Change Tuple	705	Unsuccessful operation.	Varies, depending on the operation and specific scenario.	There is a potential data integrity issue within a database.
Add Tuple	706	Unsuccessful operation. Tuple Already Exists.	Varies, depending on the operation and specific scenario.	It is possible someone back-door added the tuple into the CS (bypassing the CS2000 Management Tools server).

Table 11: Trunk Provisioning Return Codes

Operation	Return Code	Description	MsgText	Comment
All Trunk Provisioning operations	707	Unsuccessful operation.	Varies, depending on the operation and specific scenario.	Major problem affecting many areas of the server and needs to be resolved immediately. (possible loss of connection between the provisioning applications and the Communication Server).
Change Tuple Delete Tuple Query Tuple	708	Unsuccessful operation. Tuple Not Found.	Varies, depending on the operation and specific scenario.	It is possible someone erased the tuple from the Communication Server.
All Trunk Provisioning operations	709	Unsuccessful operation. Unknown internal problem.	Varies, depending on the operation and specific scenario.	
GetRange GetRangeWithoutGwcemCheck	710	Unsuccessful operation. NumberOfTuples Invalid.	Varies, depending on the operation and specific scenario.	
All Trunk Provisioning operations	501	Insufficient security privileges to perform this action.	The User is not authorized to perform the operation	User is not a member of correct authorization group.

9: V5.2 Carrier Provisioning with OSSGate

V5 is a standard interface between the access network and the carrier switch for basic telephony, ISDN and semi-permanent leased lines. A V5.2 Interface consists of a ‘bundle’ of ‘n’ E1 carriers where $1 \leq n \leq 16$. OSS can provision the V5.2 interface with OSSGate. The XML template defines the data which the OSS must send in order to provision a V5.2 interface. The data arriving from the OSS is parsed to route it to the right application. The V5.2 configuration data which is likely to be passed from the OSS is as follows:

- The interface ID.
- The number of E1 links in the interface.
- The gateways which these links are on.
- The links which contain the signaling.

Functionality supported by OSSGate for V5.2 interface include add, delete and list V5.2 interfaces.

9.1 Supported V5.2 Provisioning Commands

The following V5.2 Provisioning operations are supported in SN06:

- Add Interface
- Delete Interface
- List Interface
- List All Interfaces
- Add V5Prov Template
- Delete V5Prov Template
- List V5Prov Template
- List All V5Prov Template
- Add V5Signalling Template
- Delete V5Signalling Template
- List V5Signalling Template
- List All V5Signalling Template
- Add V5Ring Template
- Delete V5Ring Template
- List V5Ring Template
- List All V5Ring Template

9.2 Terminology, Description of Method Parameters

- **siteGwcLoc** - A four character site identifier, together with frame and unit numbers that together allow the AN to be identified. Format: <Host identifier> <Frame number=0-511> <Unit number=0-9> Example - LG 02 1
- **gwcId** - This is the number of the GWC on which the V5.2 Interface will reside. Range 0~255. Type *integer*.
- **v52InterfaceId** - A unique value for interface ID. Range 0~16777215. Type *integer*.
- **v5ProvRef** - V5 provisioning identifier, identifies V5 provisioning variant used with the V5.2.
- **v5SigTableRef** - V5 signaling identifier, identifies V5 signaling variant used with the V5.2.
- **v5RingTableRef** - V5 ring identifier, identifies V5 ring variant used with the V5.2.
- **maxlinesSelector** - A selector field used for future support of increased MAXLINES of 3072. Currently, REG is only supported for IP_V52. Possible values are "REG", "PRIM", "SIS1", "SIS2". Type *string*.
- **maxlines** - Maximum lines defined on a V5.2 interface. Range 1~3072. Type *integer*.

  Each V5.2 Interface can consists of a ‘bundle’ of ‘n’ E1 carriers where $1 \leq n \leq 16$ and each bundle require the following parameters data filled:
- **linkId** - Identifiers to each of the E1 carriers (up to 16) that make up the V5.2 interface. Range 1~4094. Type *integer*.
- **epGrp** - E1 carrier on PVG gateway in Aspen format.

Format:

<GW Name>.E1_<([1-9]|1[0-5])(0[1-9]|1[0-9]|2[0-9]|3[0-2])>

Example: PVG1.E1_1111

- **v5provid** - V5 provisioning variant ID. Range 0~127. Type *integer*.
- **bcctimer** - Two Bearer channel control (BCC) timers sets both timers TBCC1 and TBCC4 to values between 500 and 1500 ms. (1=100ms). Range 5~15. Type *integer*.
- **cchnlinflist -** C-channel link information. Defines on what link and channel the protocol process are carried on. Array of 1-16.
  - chnlid - Control Channel Number. Range 0~65535. Type *integer*.
  - lcc - Link and C-channel.
    - lnk - V5.2 Link Number associated with physical GPP P-side link. Range 1~16. Type *integer*.
    - chnl - C-channel Number. Possible values are 16, 15, 31. Type *integer*.
  - cpathlist - Type of control messaging carried on C-Channel. Possible values are "CTRL", "PSTN", "ISDD", "ISDF", "ISDP", "PSET". Type *string array*.
- **prot1** - Protection Link 1. Secondary link protection group 1 switches to if primary C-channel link fails. Range 1~16. Type *integer*.
- **prot2 -** Protection link 2. Standby link and C-channel for protection group 2, first entry being link second entry. Array of up to 3 (lnk, chnl) pairs.
  - lnk - link id. Range 1~16. Type *integer*.
  - chnl - channel. Possible values are 16, 15, 31. Type *integer*.
- **alarmthreshold** - Alarm Threshold level of V5.2 link failures before a major alarm is triggered. Range 0~100. Type *integer*.
- **v5sigid** - A unique identifier for V5Sig. Range string of up to 16 alphanumeric. Type *string*.
- **atten** - Attenuation. Possible values are "V5_NONE", "V5_ANALOG", "V5_DIGITAL". Type *string*
- **apa** - Accelerated port alignment. Possible values are "N", "Y". Type *string*.
- **plf** - Park line feed. Possible values are "N", "Y". Type *string*.
- **ds1flash** - Digit 1 register recall. Possible values are "N", "Y". Type *string*.
- **eoc** - End of call signaling. Possible values are "N", "Y". Type *string*.
- **suppind** - Suppression indicator. Possible values are

"NO_SUPP", "LE_SUPP", "TE_SUPP", "LE_TE_SUPP". Type *string*.

- **plsdur** - Plus duration type. Range 0~31. Type *integer*.
- **mtrpn** - Meter pulse notification. Possible values are "N", "Y". Type *string*.
- **lroa** - Line reversal on answer. Possible values are "N", "Y", "CHKLN". Type *string*.
- **lrosfd** - Line reversal on seizure and forward disconnect. Possible values are "N", "Y". Type *string*.
- **rngtype** - Provisionable ring type. Possible values are "C3C", "C3D", "C6F", "C5I", "C6R". Type *string*.
- **v5ringid** - A unique identifier for V5Ring. Range string of up to 16 alphanumeric. Type *string*.
- **std** - Standard ring. Range 0~31. Type *integer*.
- **r01~r15** - Ring char 1 to ring char 15. Range 0~31. Type *integer*.
- **version** - The version refers to the version of the method or operation - e.g., the AddInterface operation may have version 1.0 and 2.0, where version 1.0 takes parameters X and Y and version 2.0 takes parms X, Y, and Z. TYPE *decimal*.
- **usn** - Unique Sequence Number. This parameter is introduced to facilitate sending multiple XML commands in one file. This parameter value will be used to match the responses with the requests. TYPE *integer*.
- **RC** - Return Code. A numeric value indicating the result of the attempted operation (see Table 15, for range and definitions of each possible value). TYPE *short*.
- **MsgTxt** - Appropriate text that describes the result of the operation. TYPE *string*.

9.3 Description of Method Parameters

1. **addInterface** - Interface/Method that adds a V5.2 Interface and associated carriers. This method has the following parameters:

- Input Data:

– usn

– version

– siteGwcLoc - The AN node location.

– gwcId - This is the number of the GWC on which the V5.2 Interface will reside.

– v52InterfaceId - A unique value for interface ID. Range 0~16777215. Type *integer*.

– v5ProvRef - V5 provisioning template identifier.

– v5SigTableRef - V5 signaling template identifier.

– v5RingTableRef - V5 ring template identifier.

– maxlinesSelector - Possible values are "REG", "PRIM", "SIS1", "SIS2".

– maxlines - Maximum lines defined on a V5.2 interface. Range 1~3072. Type *integer*.

The following data will be specified for each of the E1 carriers. At least one pair of E1 carriers has to be data filled.

Each V5.2 Interface can consists of a ‘bundle’ of ‘n’ E1 carriers where $1 \leq n \leq 16$ and each bundle require the following parameters data filled:

Required data for each of E1 carrier:

– linkId - Identifiers to each of the E1 carriers (up to 16) that make up the V5.2 interface. Range 1~4094.

– epGrp - E1 carrier on PVG gateway in Aspen format.

• Output Data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

2. **deleteInterface** - Interface/Method that deletes the specified V5.2 interface and associated carriers. This method has the following parameters:

• Input Data:

– usn

– v52InterfaceId

• Output Data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

3. **listInterface** - Interface/Method that returns a V5.2 interface and associated carriers. This method has the following parameters:

• Input Data:

– usn

– version

– v52InterfaceId

• Output Data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– siteGwcLoc - The AN node location.

– gwcId - This is the number of the GWC on which the V5.2 Interface will reside.

– v52InterfaceId - A unique value for interface ID. Range 0~16777215. Type *integer*.

– v5ProvRef - V5 provisioning template identifier.

– v5SigTableRef - V5 signaling template identifier.

– v5RingTableRef - V5 ring template identifier.

– maxlinesSelector - Possible values are "REG", "PRIM", "SIS1", "SIS2".

– maxlines - Maximum lines defined on a V5.2 interface. Range 1~3072. Type *integer*.

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

The following data will be returned for each of the E1 carrier:

– linkId - Identifiers to each of the E1 carriers (up to 16) that make up the V5.2 interface. Range 1~4094.

– epGrp - E1 carrier on PVG gateway in Aspen format.

4. **listAllInterfaces** - Interface/Method that returns all V5.2 Interfaces and associated carriers. This method has the following parameters:

- Input Data:

– usn

– version

- Output Data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

– keylist - This is the number of the GWC on which the V5.2 Interface will reside.

5. addV5ProvTemplate - Interface/Method that adds a V5PROV template. This method has the following parameters:

- Input Data:

– usn

– version

– v5provid - V5 provisioning variant ID. Range 0~127. Type *integer*.

– bcctimer - Two Bearer channel control (BCC) timers sets both timers TBCC1 and TBCC4 to values between 500 and 1500 ms. (1=100ms). Range 5~15. Type *integer*.

The following data will be specified for each of the C-channel link information.

i. chnlid

ii. Link and C-channel

– lnk - link id. Range 1~16. Type *integer*.

– chnl - channel. Possible values are 16, 15, 31. Type *integer*.

iii. cpathlist - Type of control messaging carried on C-Channel. Possible values are "CTRL", "PSTN", "ISDD", "ISDF", "ISDP", "PSET". Type *string array*.

– prot1- Protection Link 1. Range 1~16. Type *integer*.

The following data will be specified for each protection link 2. Prot2 is an array of up to 3 (lnk, chnl) pairs.

– 1. lnk - link id. Range 1~16. Type *integer*.

– 2. chnl - channel. Possible values are 16, 15, 31. Type *integer*.

– alarmthreshold - Alarm Threshold level of V5.2 link failures before a major alarm is triggered. Range 0~100. Type *integer*.

• Output Data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

6. **deleteV5ProvTemplate** - Interface/Method that deletes a V5PROV template. This method has the following parameters:

• Input Data:

– usn

– version

– v5provid - The V5 provisioning variant ID. Range 0~127.

• Output Data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

7. **listV5ProvTemplate** - Interface/Method that returns a V5PROV template. This method has the following parameters:

• Input Data:

– usn

– version

– v5provid - V5 provisioning variant ID. Range 0~127.

• Output Data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

– v5provid - V5 provisioning variant ID. Range 0~127.

– bcctimer - Two Bearer channel control (BCC) timers sets both timers TBCC1 and TBCC4 to values between 500 and 1500 ms. (1=100ms). Range 5~15.

The following data will be specified for each of the C-channel link information.

– 1. chnlid

– 2. Link and C-channel

– 2.1 lnk - link id. Range 1~16. Type *integer*.

– 2.2 chnl - channel. Possible values are 16, 15, 31. Type *integer*.

– 3. cpathlist - Type of control messaging carried on C-Channel. Possible values are "CTRL", "PSTN", "ISDD", "ISDF", "ISDP", "PSET". Type *string array*.

– prot1- Protection Link 1. Range 1~16. Type *integer*.

The following data will be specified for each protection link 2. Prot2 is an array of up to 3 (lnk, chnl) pairs.

– 1. lnk - link id. Range 1~16. Type *integer*.

– 2. chnl - channel. Possible values are 16, 15, 31. Type *integer*.

– alarmthreshold - Alarm Threshold level of V5.2 link failures before a major alarm is triggered. Range 0~100. Type *integer*.

8. **listAllV5ProvTemplate** - Interface/Method that returns all V5PROV templates. This method has the following parameters:

• Input Data:

– usn

– version

• Output Data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– keylist - V5 provisioning variant ID. Range 0~127.

9. addV5SigTemplate - Interface/Method that adds a V5SIG template. This method has the following parameters:

• Input Data:

– usn

– version

– v5sigid - A unique identifier for V5Sig. Range string of up to 16 alphanumeric. Type *string*.

– atten- Attenuation. Possible values are "V5_NONE", "V5_ANALOG", "V5_DIGITAL". Type *string*

– apa - Accelerated port alignment. Possible values are "N", "Y". Type *string*.

– plf - Park line feed. Possible values are "N", "Y". Type *string*.

– ds1flash - Digit 1 register recall. Possible values are "N", "Y". Type *string*.

– eoc - End of call signaling. Possible values are "N", "Y". Type *string*.

– suppind - Suppression indicator. Possible values are "NO_SUPP", "LE_SUPP", "TE_SUPP", "LE_TE_SUPP". Type *string*.

– plsdur - Plus duration type. Range 0~31. Type *integer*.

– mtrpn - Meter pulse notification. Possible values are "N", "Y". Type *string*.

– lroa- Line reversal on answer. Possible values are "N", "Y", "CHKLN". Type *string*.

– lrosfd - Line reversal on seizure and forward disconnect. Possible values are "N", "Y". Type *string*.

– rngtype - Provisionable ring type. Possible values are "C3C", "C3D", "C6F", "C5I", "C6R". Type *string*.

• Output Data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

10. **deleteV5SigTemplate** - Interface/Method that deletes a V5SIG template. This method has the following parameters:

- Input Data:
  - usn
  - version
  - v5sigid - The unique identifier for V5Sig.
- Output Data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - RC - Return Code
  - MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

11. **listV5SigTemplate** - Interface/Method that returns a V5SIG template. This method has the following parameters:

- Input Data:
  - usn
  - version
  - v5sigid - The unique identifier for V5Sig.
- Output Data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - RC - Return Code
  - MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.
  - v5sigid - A unique identifier for V5Sig.
  - atten - Attenuation. Possible values are "V5_NONE", "V5_ANALOG", "V5_DIGITAL".
  - apa - Accelerated port alignment. Possible values are "N", "Y".
  - plf - Park line feed. Possible values are "N", "Y".
  - ds1flash - Digit 1 register recall. Possible values are "N", "Y".
  - eoc - End of call signaling. Possible values are "N", "Y".

– suppind - Suppression indicator. Possible values are "NO_SUPP", "LE_SUPP", "TE_SUPP", "LE_TE_SUPP".

– plsdur - Plus duration type. Range 0~31.

– mtrpn - Meter pulse notification. Possible values are "N", "Y".

– lroa - Line reversal on answer. Possible values are "N", "Y", "CHKLN".

– lrosfd - Line reversal on seizure and forward disconnect. Possible values are "N", "Y".

– rngtype - Provisionable ring type. Possible values are "C3C", "C3D", "C6F", "C5I", "C6R".

– ssonhook - Signal SS: On-hook message flag. Possible values are "N", "Y".

12. **listAllV5SigTemplates** - Interface/Method that returns all V5SIG templates. This method has the following parameters:

• Input Data:

– usn

– version

• Output Data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

– keylist - The unique identifier for V5Sig.

13. **addV5RingTemplate** - Interface/Method that adds a V5RING template. This method has the following parameters

• Input Data:

– usn

– version

– v5ringid - A unique identifier for V5Ring. Range string of up to 16 alphanumeric. Type *string*.

– std - Standard ring. Range 0~31. Type *integer*.

– r01 ~ r15 - Ring char 1 to ring char 15. Range 0~31. Type *integer*.

• Output Data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

14. **deleteV5RingTemplate** - Interface/Method that deletes a V5RING template. This method has the following parameters:

• Input Data:

– usn

– version

– v5ringid - The unique identifier for V5Ring.

• Output Data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

15. **listV5RingTemplate** - Interface/Method that gets the configuration data for a V5.2 Ring Template.

• Input Data:

– usn

– version

– v5ringid - The unique identifier for V5Ring.

• Output Data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

– v5ringid - The unique identifier for V5Ring.

– std - Standard ring. Range 0~31.

– r01 ~ r15 - Ring char 1 to ring char 15. Range 0~31.

16. **listAllV5RingTemplates** - Interface/Method that returns all V5RING templates. This method has the following parameters:

• Input Data:

– usn

– version

• Output Data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

– keylist - The unique identifier for V5Ring.

9.4 XML Commands

The following are examples of XML commands and the corresponding response messages for each operation supported for V5.2. The XML coding in these examples is formatted for ease of understanding.

Operation addInterface

Figure 124An example of addInterface request:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
        <Command>
                <Interface>v5CfgMgrIf</Interface>
                <Methods>
                        <addInterface usn=”1” version="1.0">
                            <Parameters>
                                    <siteGwcLoc>LG 02 1</siteGwcLoc>
                                    <gwcId>73</gwcId>
                                    <v52InterfaceId>123</v52InterfaceId>
                                    <linkMapTable>
                                            <linkId>1</linkId>
                                            <epGrp>PVG1.E1_705</epGrp>
                                            <linkId>2</linkId>
                                            <epGrp>PVG1.E1_706</epGrp>
                                    </linkMapTable>
                                    <v5ProvRef>20</v5ProvRef>
                                    <v5SigTableRef>DEFAULT</v5SigTableRef>
                                    <v5RingTableRef>DEFAULT</v5RingTableRef>
                                    <maxlinesSelector>REG</maxlinesSelector>
                                    <maxlines>100</maxlines>
                            </Parameters>
                        </addInterface>
                </Methods>
        </Command>
</CommandList>
```

Figure 125An example of **addInterface** response:

```
<?xml version=”1.0” encoding=”UTF-8” ?>
<CommandList >
        <Response>
                <Interface>v5CfgMgrIf</Interface>
                <Methods>
                        <addInterface usn="1" version="1.0">
                            <RC>0</RC>
                            <MsgTxt>Table operation was successful</MsgTxt>
                            <ReturnData>
                        <addInterface>
                </Methods>
        </Response>
</CommandList>
```

Operation deleteInterface

Figure 126An example of **deleteInterface request**:

```
<?xml version=”1.0” ?>
<CommandList>
	<Command>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<MethodName usn=”1”>deleteInterface</MethodName>
			<Parameters>
				<v52InterfaceId>123</v52InterfaceId>
			</Parameters>
		</Methods>
	</Command>
</CommandList>
```

Figure 127An example format of deleteInterface response:

```
<?xml version=”1.0” encoding=”UTF-8” ?>
<CommandList >
	<Response>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<deleteInterface usn="1" version="1.0">
				<RC>0</RC>
				<MsgTxt>Table operation was successful</MsgTxt>
			    <ReturnData>
			</deleteInterface>
		</Methods>
	</Response>
</CommandList>
```


Operation listInterface

Figure 128An example of **listInterface** request:

```
<?xml version="1.0" ?>
<CommandList>
	<Command>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<listInterface usn="1" version="1.0">
				<Parameters>
					<v52InterfaceId>123</v52InterfaceId>
				</Parameters>
			</listInterface>
		</Methods>
	</Command>
</CommandList>
```

Figure 129An example of listInterface response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList >
	<Response>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<listInterface usn="1" version="1.0">
				<RC>0</RC>
				<MsgTxt>Table operation was successful</MsgTxt>
				<ReturnData>
					<siteGwcLoc>LG 02 1</siteGwcLoc>
					<gwcId>73</gwcId>
					<v52InterfaceId>123</v52InterfaceId>
					<linkMapTable>
						<linkId>1</linkId>
						<epGrp>PVG1.E1_705</epGrp>
						<linkId>2</linkId>
						<epGrp>PVG1.E1_706</epGrp>
					</linkMapTable>
					<v5ProvRef>20</v5ProvRef>
					<v5SigTableRef>DEFAULT</v5SigTableRef>
					<v5RingTableRef>DEFAULT</v5RingTableRef>
					<maxlinesSelector>REG</maxlinesSelector>
					<maxlines>100</maxlines>
				</ReturnData>
			</listInterface>
		</Methods>
	</Response>
</CommandList>
```

Operation listAllInterfaces

Figure 130An example of **listAllInterfaces** request:

```
<?xml version="1.0" ?>
<CommandList>
	<Command>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<listAllInterfaces usn="1" version="1.0">
				<Parameters>
				</Parameters>
			</listAllInterfaces>
		</Methods>
	</Command>
</CommandList>
```

Figure 131An example of listAllInterfaces response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
	<Response>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
		  <listAllInterfaces usn="1" version="1.0">
			<RC>0</RC>
			<MsgTxt>Table operation was successful</MsgTxt>
			<ReturnData>
				<keylist>73</keylist>
				<keylist>74</keylist>
			</ReturnData>
		  </listAllInterfaces>
		</Methods>
	</Response>
</CommandList>
```


Operation addV5ProvTemplate

Figure 132An example of addV5ProvTemplate request:

```
<?xml version=”1.0” ?>
<CommandList>
	<Command>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<addV5ProvTemplate usn="1" version="1.0">
			<Parameters>
				<v5provid>66</v5provid>
				<bcctimer>5</bcctimer>
				<cchnlinflist>
					<chnlid>0</chnlid>
					<lcc>
						<lnk>1</lnk>
						<chnl>16</chnl>
					</lcc>
					<cpathlist>CTRL</cpathlist>
					<chnlid>1</chnlid>
					<lcc>
						<lnk>3</lnk>
						<chnl>16</chnl>
					</lcc>
					<cpathlist>PSTN</cpathlist>
				</cchnlinflist>
				<prot1>2</prot1>
				<prot2>
					<lnk>4</lnk>
					<chnl>16</chnl>
				</prot2>
				<alarmthreshold>20</alarmthreshold>
			</Parameters>
			</addV5ProvTemplate>
		</Methods>
	</Command>
</CommandList>
```

Figure 133An example of **addV5ProvTemplate** response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
	<Response>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<addV5ProvTemplate usn="1" version="1.0">
				<RC>0</RC>
				<MsgTxt>Table operation was successful</MsgTxt>
				<ReturnData>
			</addV5ProvTemplate>
		</Methods>
	</Response>
</CommandList>
```

Operation deleteV5ProvTemplate

Figure 134An example of **deleteV5ProvTemplate** request:

```
<?xml version=”1.0” ?>
<CommandList>
	<Command>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<deleteV5ProvTemplate usn="1" version="1.0">
				<Parameters>
				    <v5ProvId>66</v5ProvId>
				</Parameters>
			</deleteV5ProvTemplate>
		</Methods>
	</Command>
</CommandList>
```

Figure 135An example of deleteV5ProvTemplate response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
	<Response>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<deleteV5ProvTemplate usn="1" version="1.0">
				<RC>0</RC>
				<MsgTxt>Table operation was successful</MsgTxt>
				<ReturnData>
			</deleteV5ProvTemplate>
		</Methods>
	</Response>
</CommandList>
```


Operation listV5ProvTemplate

Figure 136An example of **listV5ProvTemplate** request:

```
<?xml version=”1.0” ?>
<CommandList>
	<Command>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<listV5ProvTemplate usn="1" version="1.0">
				<Parameters>
					<v5ProvId>66</v5ProvId>
				</Parameters>
			</listV5ProvTemplate>
		</Methods>
	</Command>
</CommandList>
```

Figure 137An example of listV5ProvTemplate response:

```
<?xml version=”1.0” encoding=”UTF-8” ?>
<CommandList >
	<Response>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<listV5ProvTemplate usn="1" version="1.0">
			 <RC>0</RC>
			 <MsgTxt>Table operation was successful</MsgTxt>
			 <ReturnData>
				<v5provid>66</v5provid>
				<bcctimer>5</bcctimer>
				<cchnlinflist>
					<chnlid>0</chnlid>
					<lcc>
						<lnk>1</lnk>
						<chnl>16</chnl>
					</lcc>
					<cpathlist>
					    <cpathlist>CTRL</cpathlist>
					</cpathlist>
					<chnlid>1</chnlid>
					<lcc>
						<lnk>3</lnk>
						<chnl>16</chnl>
					</lcc>
					<cpathlist>
						<cpathlist>PSTN</cpathlist>
					</cpathlist>
				</cchnlinflist>
				<prot1>2</prot1>
				<prot2>
					<lnk>4</lnk>
					<chnl>16</chnl>
				</prot2>
				<alarmthreshold>20</alarmthreshold>
			 </ReturnData>
			</listV5ProvTemplate>
		</Methods>
	</Response>
</CommandList>
```

Operation listAllV5ProvTemplates

Figure 138An example of **listAllV5ProvTemplates** request:

```
<?xml version=”1.0” ?>
<CommandList>
	<Command>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<listAllV5ProvTemplates usn="1" version="1.0">
				<Parameters>
				</Parameters>
			</listAllV5ProvTemplates>
		</Methods>
	</Command>
</CommandList>
```

Figure 139An example of listAllV5ProvTemplates response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
	<Response>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<listAllV5ProvTemplates usn="1" version="1.0">
				<RC>0</RC>
				<MsgTxt>Table operation was successful</MsgTxt>
				<ReturnData>
					<keylist>1</keylist>
					<keylist>4</keylist>
					<keylist>66</keylist>
				</ReturnData>
			</listAllV5ProvTemplates>
		</Methods>
	</Response>
</CommandList>
```


Operation addV5SigTemplate

Figure 140An example of addV5SigTemplate request:

```
<?xml version=”1.0” ?>
<CommandList>
	<Command>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<addV5SigTemplate usn="1" version="1.0">
				<Parameters>
					<v5sigid>SIG1</v5sigid>
					<atten>V5_ANALOG</atten>
					<apa>N</apa>
					<plf>N</plf>
					<ds1flash>N</ds1flash>
					<eoc>N</eoc>
					<suppind>NO_SUPP</suppind>
					<plsdur>5</plsdur>
					<mtrpn>N</mtrpn>
					<lroa>N</lroa>
					<lrosfd>N</lrosfd>
					<rngtype>C3C</rngtype>
				</Parameters>
			</addV5SigTemplate>
		</Methods>
	</Command>
</CommandList>
```

Figure 141An example of **addV5SigTemplate** response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
	<Response>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<addV5SigTemplate usn="1" version="1.0">
				<RC>0</RC>
				<MsgTxt>Table operation was successful</MsgTxt>
				<ReturnData>
			</addV5SigTemplate>
		</Methods>
	</Response>
</CommandList>
```


Operation deleteV5SigTemplate

Figure 142An example of **deleteV5SigTemplate** request:

```
<?xml version=”1.0” ?>
<CommandList>
	<Command>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<deleteV5SigTemplate usn="1" version="1.0">
				<Parameters>
				    <v5sigid>SIG1</v5sigid>
				</Parameters>
			</deleteV5SigTemplate>

		</Methods>
	</Command>
</CommandList>
```

Figure 143An example of deleteV5SigTemplate response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
	<Response>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<deleteV5SigTemplate usn="1" version="1.0">
				<RC>0</RC>
				<MsgTxt>Table operation was successful</MsgTxt>
				<ReturnData>
			</deleteV5SigTemplate>
		</Methods>
	</Response>
</CommandList>
```


Operation listV5SigTemplate

Figure 144An example of **listV5SigTemplate** request:

```
<?xml version="1.0" ?>
<CommandList>
    <Command>
        <Interface>v5CfgMgrIf</Interface>
        <Methods>
            <listV5SigTemplate usn="1" version="1.0">
                <Parameters>
                    <v5sigid>SIG1</v5sigid>
                </Parameters>
            </listV5SigTemplate>
        </Methods>
    </Command>
</CommandList>
```

Figure 145An example format of listV5SigTemplate response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList >
    <Response>
        <Interface>v5CfgMgrIf</Interface>
        <Methods>
            <listV5SigTemplate usn="1" version="1.0">
                <RC>0</RC>
                <MsgTxt>Table operation was successful</MsgTxt>
                <ReturnData>
                    <v5sigid>SIG1</v5sigid>
                    <atten>V5_ANALOG</atten>
                    <apa>N</apa>
                    <plf>N</plf>
                    <ds1flash>N</ds1flash>
                    <eoc>N</eoc>
                    <suppind>NO_SUPP</suppind>
                    <plsdur>5</plsdur>
                    <mtrpn>N</mtrpn>
                    <lroa>N</lroa>
                    <lrosfd>N</lrosfd>
                    <rngtype>C3C</rngtype>
                    <ssonhook>N</ssonhook>
                </ReturnData>
            </listV5SigTemplate>
        </Methods>
    </Response>
</CommandList>
```

Operation listAllV5SigTemplates

Figure 146An example of **listAllV5SigTemplates** request:

```
<?xml version="1.0" ?>
<CommandList>
    <Command>
        <Interface>v5CfgMgrIf</Interface>
        <Methods>
            <listAllV5SigTemplates usn="1" version="1.0">
                <Parameters>
                </Parameters>
            </listAllV5SigTemplates>
        </Methods>
    </Command>
</CommandList>
```

Figure 147An example of listAllV5SigTemplates response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList >
    <Response>
        <Interface>v5CfgMgrIf</Interface>
        <Methods>
            <listAllV5SigTemplates usn="1" version="1.0">
                <RC>0</RC>
                <MsgTxt>Table operation was successful</MsgTxt>
                <ReturnData>
                    <keylist>DEFAULT</keylist>
                    <keylist>1</keylist>
                    <keylist>2</keylist>
                    <keylist>ETS</keylist>
                    <keylist>SIG1</keylist>
                    <keylist>SIG2</keylist>
                    <keylist>SIG3</keylist>
                    <keylist>SIG4</keylist>
                </ReturnData>
            </listAllV5SigTemplates>
        </Methods>
    </Response>
</CommandList>
```


Operation addV5RingTemplate

Figure 148An example of addV5RingTemplate request:

```
<?xml version=”1.0” ?>
<CommandList>
	<Command>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<addV5RingTemplate usn="1" version="1.0">
				<Parameters>
					<v5ringid>3</v5ringid>
					<std>3</std>
					<r01>1</r01>
					<r02>1</r02>
					<r03>1</r03>
					<r04>1</r04>
					<r05>1</r05>
					<r06>1</r06>
					<r07>1</r07>
					<r08>1</r08>
					<r09>1</r09>
					<r10>1</r10>
					<r11>1</r11>
					<r12>1</r12>
					<r13>1</r13>
					<r14>1</r14>
					<r15>1</r15>
				</Parameters>
			</addV5RingTemplate>
		</Methods>
	</Command>
</CommandList>
```

Figure 149An example of **addV5RingTemplate** response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
	<Response>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<addV5RingTemplate usn="1" version="1.0">
				<RC>0</RC>
				<MsgTxt>Table operation was successful</MsgTxt>
				<ReturnData>
			</addV5RingTemplate>
		</Methods>
	</Response>
</CommandList>
```

Operation deleteV5RingTemplate

Figure 150An example of **deleteV5RingTemplate** request:

```
<?xml version=”1.0” ?>
<CommandList>
	<Command>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<deleteV5RingTemplate usn="1" version="1.0">
				<Parameters>
				    <v5ringid>3</v5ringid>
				</Parameters>
			</deleteV5RingTemplate>
		</Methods>
	</Command>
</CommandList>
```

Figure 151An example of deleteV5RingTemplate response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
	<Response>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<deleteV5RingTemplate usn="1" version="1.0">
				<RC>0</RC>
				<MsgTxt>Table operation was successful</MsgTxt>
				<ReturnData>
			</deleteV5RingTemplate>
		</Methods>
	</Response>
</CommandList>
```


Operation listV5RingTemplate

Figure 152An example of **listV5RingTemplate** request:

```
<?xml version="1.0" ?>
<CommandList>
	<Command>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<listV5RingTemplate usn="1" version="1.0">
				<Parameters>
					<v5ringid>3</v5ringid>
				</Parameters>
			</listV5RingTemplate>
		</Methods>
	</Command>
</CommandList>
```

Figure 153An example of listV5RingTemplate response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList >
	<Response>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<listV5RingTemplate usn="1" version="1.0">
				<RC>0</RC>
				<MsgTxt>Table operation was successful</MsgTxt>
				<ReturnData>
					<v5ringid>3</v5ringid>
					<std>3</std>
					<r01>1</r01>
					<r02>1</r02>
					<r03>1</r03>
					<r04>1</r04>
					<r05>1</r05>
					<r06>1</r06>
					<r07>1</r07>
					<r08>1</r08>
					<r09>1</r09>
					<r10>1</r10>
					<r11>1</r11>
					<r12>1</r12>
					<r13>1</r13>
					<r14>1</r14>
					<r15>1</r15>
				<ReturnData>
			<listV5RingTemplate>
		</Methods>
	</Response>
</CommandList>
```

Operation listAllV5RingTemplates

Figure 154An example of **listAllV5RingTemplates** request:

```
<?xml version=”1.0” ?>
<CommandList>
	<Command>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			<listAllV5RingTemplates usn="1" version="1.0">
				<Parameters>
				</Parameters>
			</listAllV5RingTemplates>
		</Methods>
	</Command>
</CommandList>
```

Figure 155An example of listAllV5RingTemplates response:

```
<?xml version=”1.0” encoding=”UTF-8” ?>
<CommandList >
	<Response>
		<Interface>v5CfgMgrIf</Interface>
		<Methods>
			</listAllV5RingTemplates>
			  <RC>0</RC>
			  <MsgTxt>Table operation was successful</MsgTxt>
			  <ReturnData>
			    <keylist>DEFAULT</keylist>
			    <keylist>3</keylist>
			    <keylist>TEST1</keylist>
			    <keylist>TEST</keylist>
			  </ReturnData>
			</listAllV5RingTemplates>
		</Methods>
	</Response>
</CommandList>
```

9.4.1 Error handling

V5.2 operations can send error message back to client when an operation fails. The error response has a return code with a message text describing the reason.

Figure 156Example of an error scenario for list All Interfaces

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
 <Response>
  <Interface>v5CfgMgrIf</Interface>
  <Methods>
   <listAllInterfaces usn="1" version="1.0">
    <RC>8</RC>
    <MsgTxt>V5CFGMGR_INVALID_INPUT</MsgTxt>
    <ReturnData>
    </ReturnData>
   </listAllInterfaces>
  </Methods>
 </Response>
</CommandList>
```

9.5 Authorization for V5.2 Operations

In addition to users belonging to “succssn” group to login to OSSGate, user need to be in application specific groups to perform specific operations. Each operation is associated with one or more user groups. In order to execute a command, a user must belong to at least one of the associated user groups. The user groups associated with each OSSGate V5.2 provisioning operation is listed in Table-12 below.

Table 12: V5.2 User groups

Commands	User Groups									
	trkadm	trkrw	trkmtc	trksprov	trkro	lnadm	lnrw	lnmtc	lnsprov	lnro
addInterface	X	X				X	X			
deleteInterface	X	X				X	X			
listAllInterfaces	X	X	X	X	X	X	X	X	X	X
listInterface	X	X	X	X	X	X	X	X	X	X
addV5ProvTemplate	X	X				X	X			
deleteV5ProvTemplate	X	X				X	X			
listV5ProvTemplate	X	X	X	X	X	X	X	X	X	X
listAllV5ProvTemplates	X	X	X	X	X	X	X	X	X	X
addV5SigTemplate	X	X				X	X			

Table 12: V5.2 User groups

Commands	User Groups									
	trkadm	trkrw	trkmtc	trksprov	trkro	lnadm	lnrw	lnmtc	lnsprov	lnro
deleteV5SigTemplate	X	X				X	X			
listV5SigTemplate	X	X	X	X	X	X	X	X	X	X
listAllV5SigTemplates	X	X	X	X	X	X	X	X	X	X
addV5RingTemplate	X	X				X	X			
deleteV5RingTemplate	X	X				X	X			
listV5RingTemplate	X	X	X	X	X	X	X	X	X	X
listAllV5RingTemplates	X	X	X	X	X	X	X	X	X	X

9.6 V5.2 Return Codes

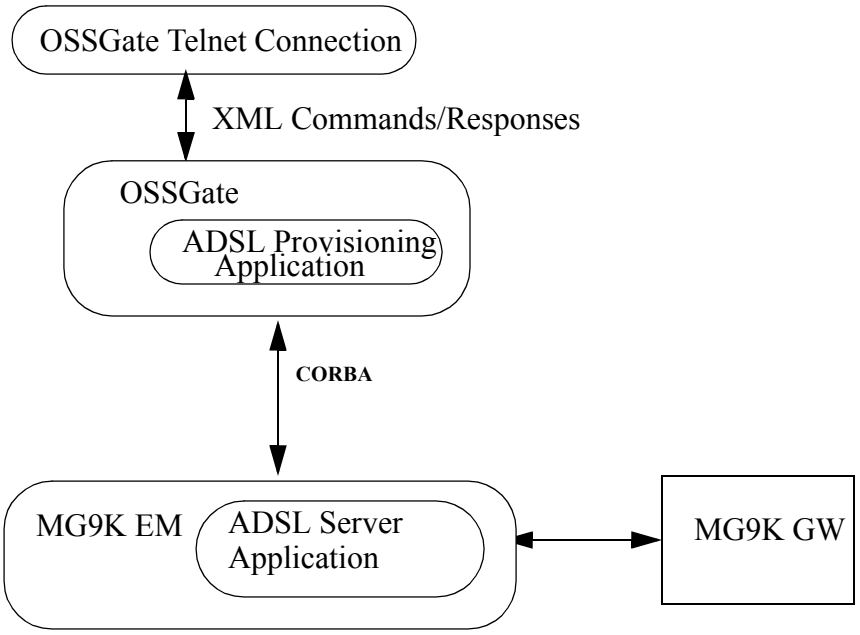
Table 13: V5.2 operational return codes

Return Code	Meaning
0	Successful operation
1	More data coming
2	Request Rejected due to Resource Limits Reached
3	Application was Commanded to Abort
4	Invalid input from client
5	Failed SERVRINV update or could not get node name and number
6	Failed Add to GWCEM
7	Failed to update NV
8	Failed Rollback of ADD GWC
9	Query GWC Operation Failed to Get Data from GWC EM
10	Query GWC Operation Failed to Read GWC List from the Network View

10: ADSL Flow through Provisioning for MG9000

The ADSL flow through provisioning application enables authenticated OSS clients to perform provisioning operations on ADSL data circuits on MG9000 through MG9000 EM from CS2000 Management tool server. The provisioning operations include querying, adding, modifying and deleting ADSL subscriber data. Access to this functionality is by connection to OSSGate.

Figure 157 ADSL Provisioning in the Succession Network



10.1 Supported ADSL Provisioning Commands

Following XML commands are supported for ADSL provisioning using OSSGate.

- GetSubscriber
- AddSubscriber
- AddCrossConnection
- ModifySubscriber
- ModifyCrossConnection

- DeleteSubscriber
- DeleteCrossConnection

10.2 Terminology, Description of Method Parameters

- **VMGName** - Name of the media gateway. TYPE *string*
  Format: <SITEname 4 charater><officeframe=000-511> - <logicalframe=0-7>-<shelf=0-3>.
  Example: LAKE017-6-2.
- **TerminationPoint** - Name of the termination point. This parameter identifies the ADSL data circuit that is being provisioned. TYPE *string*
  Format tp/<slot=02-21, 0-padded>/<circuit=0-31, 0-padded>.
  Example tp/02/03.
- **version** - The version refers to the version of the method or operation - e.g., the AddSubscriber operation may have version 1.0 and 2.0, where version 1.0 takes parameters X and Y and version 2.0 takes parms X, Y, and Z. TYPE *decimal*.
- **usn** - Unique Sequence Number. This parameter is introduced to facilitate sending multiple XML commands in one file. This parameter value will be used to match the responses with the requests. TYPE *integer*.
- **RC** - Return Code. A numeric value indicating the result of the attempted operation (see Table 19, for range and definitions of each possible value). TYPE *short*.
- **MsgTxt** - Appropriate text that describes the result of the operation. TYPE *string*.
- **DownMaxSpeed -** The value in kbits, Max DownStream 32 - 13376, multiple of 32. TYPE *positiveInteger*.
- **UpMaxSpeed** - The value in kbits, Max Upstream 32 - 1440, multiple of 32. TYPE *unsignedShort*.
- **DownMaxInterleaveDelay** - The value in milliseconds - DownStream delay 0 - 255. TYPE *unsignedShort*.
- **UpMaxInterleaveDelay** - The value in milliseconds - Upstream delay 0 - 255. TYPE *unsignedShort*.
- **DownSignalNoiseMargin** - The value in dB - DownStream noise margin 0 - 31. TYPE *unsignedShort*.
- **UpSignalNoiseMargin** - The value in dB - Upstream noise margin 0 - 31. TYPE *unsignedShort*.

- **TransmissionMode** - Possible values are “Auto Mode”, “ANSI”, “G.DMT”. Default value is “Auto Mode”. TYPE *string*.

Each ADSL data circuit can provide up to 8 cross connections and each cross connection require the following parameters data filled:

- **VPI** - Virtual Path Identifier. Range 16 - 31. TYPE *unsignedShort*.
- **VCI** - Virtual Circuit Identifier. Range 33 - 2047. TYPE *unsignedShort*.
- **UpStreamTrafficDescriptor** - Name of the traffic descriptor user label for transmission. TYPE *string*.
- **DownStreamTrafficDescriptor** - Name of the traffic descriptor user label for reception. TYPE *string*.
- **State** - State of the cross connection. Possible values are “Inactive”, “Active”. TYPE *string*.

10.3 Description of Method Parameters

1. **GetSubscriber** - Interface/Method that gets the configuration data for a subscriber that includes the cross connection data associated with the specified MG and the termination point.

- Input data:

– usn

– version

– VMGName

– TerminationPoint

- Output data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– DownMaxSpeed - The value in kbits, Max DownStream 32 - 13376, multiple of 32

– UpMaxSpeed - The value in kbits, Max Upstream 32 - 1440, multiple of 32.

– DownMaxInterleaveDelay - The value in milliseconds - DownStream delay 0 - 255

– UpMaxInterleaveDelay - The value in milliseconds - Upstream delay 0 - 255

– DownSignalNoiseMargin - The value in dB - DownStream noise margin 0 - 31

– UpSignalNoiseMargin - The value in dB - Upstream noise margin 0 - 31

– TransmissionMode - Possible values are “Auto Mode”, “ANSI”, “G.DMT”.

The following data will be returned for each of the 8 cross connections.

i. VCC.ID - Virtual Cross Connection Identifier. The value is range is 1-8 both inclusive.

ii. VPI - Virtual Path Identifier. Range 16 - 31.

iii. VCI - Virtual Circuit Identifier. Range 33 - 2047.

iv. UpStreamTrafficDescriptor - Name of the traffic descriptor user label for transmission.

v. DownStreamTrafficDescriptor - Name of the traffic descriptor user label for reception.

vi. State - State of the cross connection. Possible values are “Inactive”, “Active”, or “De-provision”.

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

2. AddSubscriber - Interface/Method that will add a new subscriber with the given configuration data. Using this method, multiple cross connections can be configured in one transaction. This method has the following parameters:

• Input data:

– usn

– version

– VMGName

– TerminationPoint

a. Config data (applies to all cross connections)

– DownMaxSpeed - The value in kbits, Max DownStream 32 - 13376, multiple of 32

– UpMaxSpeed - The value in kbits, Max Upstream 32 - 1440, multiple of 32.

– DownMaxInterleaveDelay - The value in milliseconds - DownStream delay 0 - 255

– UpMaxInterleaveDelay - The value in milliseconds - Upstream delay 0 - 255

– DownSignalNoiseMargin - The value in dB - DownStream noise margin 0 - 31

– UpSignalNoiseMargin - The value in dB - Upstream noise margin 0 - 31

– TransmissionMode - Possible values are “Auto Mode”, “ANSI”, “G.DMT”. Default value is the ‘Auto Mode”.

Note: The following data will be specified for each of the 8 cross connections that need to be configured. Typically, a single cross connection is configured per subscriber. At least one cross connection has to be data filled to add a new subscriber.

b. Required data for each cross connection

– VCC.ID - Virtual Cross Connection Identifier. The value is between 1-8 both inclusive.

– VPI - Virtual Path Identifier. Range 16 - 31.

– VCI - Virtual Circuit Identifier. Range 33 - 2047.

– UpStreamTrafficDescriptor - Name of the traffic descriptor user label for transmission.

– DownStreamTrafficDescriptor - Name of the traffic descriptor user label for reception.

– State - State of the cross connection. Possible values are “Inactive”, “Active”.

• Output data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

3. AddCrossConnection - Interface/Method that will add a new subscriber with the specified cross connection data. This method has the following parameters:

Note: Typically, a single cross connection is configured per subscriber.

- Input data:

– usn

– version

– VMGName

– TerminationPoint

– VCC.ID - Virtual Cross Connection Identifier. The value range is 1-8 both inclusive.

– VPI - Virtual Path Identifier. Range 16 - 31.

– VCI - Virtual Circuit Identifier. Range 33 - 2047.

– UpStreamTrafficDescriptor - Name of the traffic descriptor user label for transmission.

– DownStreamTrafficDescriptor - Name of the traffic descriptor user label for reception.

– State - State of the cross connection. Possible values are “Inactive”, “Active”.

- Output data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

4. **ModifySubscriber** - Interface/Method that will modify an existing subscriber with the given configuration data without having to delete and re-add the service. Using this method, multiple cross connection data can also be modified in one transaction. This method has the following parameters:

- Input data:

– usn

– version

– VMGName

– TerminationPoint

Note: Zero or more of the following config parameters that need to be modified are specified as the input data. This configuration data applies to all cross connections in the circuit.

– DownMaxSpeed - The value in kbits, Max DownStream 32 - 13376, multiple of 32

– UpMaxSpeed - The value in kbits, Max Upstream 32 - 1440, multiple of 32.

– DownMaxInterleaveDelay - The value in milliseconds - DownStream delay 0 - 255

– UpMaxInterleaveDelay - The value in milliseconds - Upstream delay 0 - 255

– DownSignalNoiseMargin - The value in dB - DownStream noise margin 0 - 31

– UpSignalNoiseMargin - The value in dB - Upstream noise margin 0 - 31

– TransmissionMode - Possible values are “Auto Mode”, “ANSI”, “G.DMT”.

Note: The following data will be specified for each of the 8 cross connections that need to be modified.

Only the data that needs to be modified is specified for each cross connection. Zero or more of the following are specified as input data for each cross connection. For any cross connection data that needs to be modified, the VCC.ID is the required parameter to identify the VCC.

– VCC.ID - Virtual Cross Connection Identifier. The value is between 1-8 both inclusive.

– VPI - Virtual Path Identifier. Range 16 - 31.

– VCI - Virtual Circuit Identifier. Range 33 - 2047.

– UpStreamTrafficDescriptor - Name of the traffic descriptor user label for transmission.

– DownStreamTrafficDescriptor - Name of the traffic descriptor user label for reception.

– State - State of the cross connection. Possible values are “Inactive”, “Active”.

• Output data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

5. **ModifyCrossConnection** - Interface/Method that will modify an existing subscriber with the given cross connection data, without having to delete and re-add the service. This method has the following parameters:

• Input data:

– usn

– version

– VMGName

– TerminationPoint

– VCC.ID - Virtual Cross Connection Identifier. The value is between 1-8 both inclusive.

Note: Only the data that needs to be modified is specified for the cross connection. One or more of the following are specified as input data.

– VPI - Virtual Path Identifier. Range 16 - 31.

– VCI - Virtual Circuit Identifier. Range 33 - 2047.

– UpStreamTrafficDescriptor - Name of the traffic descriptor user label for transmission.

– DownStreamTrafficDescriptor - Name of the traffic descriptor user label for reception.

– State - State of the cross connection. Possible values are “Inactive”, “Active”.

• Output data:

– usn (value should be the same as the input)

– version (value should be the same as the input)

– RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

6. **DeleteSubscriber** - Interface/Method that deletes the specified subscriber data.

Note: All the cross connection data and the circuit configuration data are deleted. To add a new subscriber for this circuit will require specifying the optional configuration parameters as well as the cross connection parameters using the 'AddSubscriber' method.

This method has the following parameters:

- Input data:
  - usn
  - version
  - VMGName
  - TerminationPoint
- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - RC - Return Code
  - MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

7. **DeleteCrossConnection** - Interface/Method that deletes the specified cross connection data.

Note: All the cross connection data is deleted. To add cross connection back, use the 'AddCrossConnection' method.

This method has the following parameters:

- Input data:
  - usn
  - version
  - VMGName
  - TerminationPoint
  - VCC.ID - Virtual Cross Connection Identifier. The value is between 1-8 both inclusive.
- Output data:
  - usn (value should be the same as the input)
  - version (value should be the same as the input)
  - RC - Return Code

– MsgTxt - Text (string) detailing specific results of the operation in terms of Success or Failure of the operation and possible indication of failure reason.

10.4 XML Commands

The following are examples of XML commands and the corresponding response messages for each operation supported for ADSL flow through provisioning. The XML coding in these examples is formatted for ease of understanding.

Figure 158An example of GetSubscriber request:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList >
   <Command>
      <Interface>AdslCircuitProvisioningManager</Interface>
      <Methods>
         <GetSubscriber usn=”1” version=”1.0”>
            <Parameters>
                  <VMGName>LAKE017-6-2</VMGName>
                  <TerminationPoint>tp/02/03</TerminationPoint>
       </Parameters>
      </GetSubscriber>
      </Methods>
   </Command>
</CommandList>
```


Figure 159An example of **GetSubscriber** response:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList>
	<Response>
		<Interface>AdslCircuitProvisioningManager</Interface>
		<Methods>
			<GetSubscriber usn="1" version="1.0">
				<ReturnData>
					<VMGName>LAKE017-6-2</VMGName>
					<TerminationPoint>tp/02/03</TerminationPoint>
					<UpMaxSpeed> 1440</UpMaxSpeed>
					<DownMaxSpeed>13376</DownMaxSpeed>
					<UpSignalNoiseMargin>6</UpSignalNoiseMargin>
					<DownSignalNoiseMargin>6</DownSignalNoiseMargin>
					<UpMaxInterleaveDelay>10</UpMaxInterleaveDelay>
					<DownMaxInterleaveDelay>10</DownMaxInterleaveDelay>
					<TransmissionMode>Auto Mode</TransmissionMode>
					<VCC
					    ID=”1“
					    VPI=”0”
					    VCI=”0”
					    UpStreamTrafficDescriptor=”userTDLabel1”
					    DownStreamTrafficDescriptor=”userTDLabel1”
					    State=”Active”
					 />
					<VCC
					    ID=”2“
					    VPI=”1”
					    VCI =”2”
					    UpStreamTrafficDescriptor=”userTDLabel2”
					    DownStreamTrafficDescriptor=”userTDLabel2”
					    State=”Active”
					/>
					<RC>0</RC>
					<MsgTxt>GetSubscriber operation was successful.</MsgTxt>
				</ReturnData>
			</GetSubscriber>
		</Methods>
	</Response>
</CommandList>
```

AddSubscriber Command

Figure 160An example of AddSubscriber (with 2 cross connections) request:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList >
    <Command>
        <Interface>AdslCircuitProvisioningManager</Interface>
        <Methods>
            <AddSubscriber usn=”1” version=”1.0”>
                <Parameters>
                    <VMGName>LAKE017-6-2</VMGName>
                    <TerminationPoint>tp/02/03</TerminationPoint>
                    <UpMaxSpeed> 1440</UpMaxSpeed>
                    <DownMaxSpeed>13376</DownMaxSpeed>
                    <UpMaxInterleaveDelay>10</UpMaxInterleaveDelay>
                    <DownMaxInterleaveDelay>10</DownMaxInterleaveDelay>
                    <UpSignalNoiseMargin>6</UpSignalNoiseMargin>
                    <DownSignalNoiseMargin>6</DownSignalNoiseMargin>
                    <TransmissionMode>Auto Mode</TransmissionMode>
                     <VCC>
                        <ID>1</ID>
                        <VPI>21</VPI>
                        <VCI>40</VCI>
                    <UpStreamTrafficDescriptor>upTD</UpStreamTrafficDescriptor>
                 <DownStreamTrafficDescriptor>dnTD</DownStreamTrafficDescriptor>
                        <State>Active</State>
                    </VCC>
                     <VCC>
                        <ID>2</ID>
                        <VPI>21</VPI>
                        <VCI>400</VCI>
                     <UpStreamTrafficDescriptor>upTD</UpStreamTrafficDescriptor>
                <DownStreamTrafficDescriptor>dnTD</DownStreamTrafficDescriptor>
                        <State>Inactive</State>
                    </VCC>
                 </Parameters>
                </AddSubscriber>
            </Methods>
     </Command>
</CommandList>
```

Figure 161An example of **AddSubscriber** response:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList>
    <Response>
        <Interface>AdslCircuitProvisioningManager</Interface>
        <Methods>
            <AddSubscriber usn="1" version="1.0">
                <ReturnData>
                    <RC>0</RC>
                    <MsgTxt>AddSubscriber operation was successful.
                    </MsgTxt>
                </ReturnData>
            </AddSubscriber>
        </Methods>
    </Response>
</CommandList>
```


AddCrossConnection Command

Figure 162An Example of AddCrossConnection request:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList >
      <Command>
            <Interface>AdslCircuitProvisioningManager</Interface>
            <Methods>
                  <AddCrossConnection usn=”1” version=”1.0”>
                        <Parameters>
                              <VMGName>LAKE017-6-2</VMGName>
                              <TerminationPoint>tp/02/03</TerminationPoint>
                               <VCC>
                                    <ID>8</ID>
                                    <VPI>21</VPI>
                                    <VCI>500</VCI>
                                 <UpStreamTrafficDescriptor>upTD</UpStreamTrafficDescriptor>
                              <DownStreamTrafficDescriptor>dnTD</DownStreamTrafficDescriptor>
                                          <State>Active</State>
                                    </VCC>
                              </Parameters>
                        </AddCrossConnection>
            </Methods>
      </Command>
</CommandList>
```

Figure 163An example of **AddCrossConnection** response:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList>
      <Response>
            <Interface>AdslCircuitProvisioningManager</Interface>
            <Methods>
                  <AddCrossConnection usn="1" version="1.0">
                        <ReturnData>
                              <RC>0</RC>
            <MsgTxt>AddCrossConnection operation was successful.</MsgTxt>
                        </ReturnData>
                  </AddCrossConnection>
            </Methods>
      </Response>
</CommandList>
```

ModifySubscriber Command:

Figure 164An example of ModifySubscriber request:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList >
        <Command>
                <Interface>AdslCircuitProvisioningManager</Interface>
                <Methods>
                        <ModifySubscriber usn=”1” version=”1.0”>
                                <Parameters>
                                        <VMGName>LAKE017-6-2</VMGName>
                                        <TerminationPoint>tp/02/03</TerminationPoint>
                                        <UpMaxInterleaveDelay>5</UpMaxInterleaveDelay>
                                        <DownSignalNoiseMargin>8</DownSignalNoiseMargin>
                                        <VCC>
                                            <ID>1</ID>
                                            <VPI>31</VPI>
                                            <VCI>2047</VCI>
                                           <State>Inactive</State>
                                        </VCC>
                                        <VCC>
                                            <ID>2</ID>
                                           <State>Active</State>
                                        </VCC>
                                </Parameters>
                        </ModifySubscriber>
                </Methods>
        </Command>
</CommandList>
```

Figure 165An example of **ModifySubscriber** response:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList>
        <Response>
                <Interface>AdslCircuitProvisioningManager</Interface>
                <Methods>
                        <ModifySubscriber usn="1" version="1.0">
                                <ReturnData>
                                        <RC>0</RC>
                                        <MsgTxt>ModifySubsriber operation was
successful.</MsgTxt>
                                </ReturnData>
                        </ModifySubscriber>
                </Methods>
        </Response>
</CommandList>
```


ModifyCrossConnection Command

Figure 166An example of ModifyCrossConnection request:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList >
        <Command>
                <Interface>AdslCircuitProvisioningManager</Interface>
                <Methods>
                        <ModifyCrossConnection usn=”1” version=”1.0”>
                                <Parameters>
                                        <VMGName>LAKE017-6-2</VMGName>
                                        <TerminationPoint>tp/02/03</TerminationPoint>
                                         <VCC>
                                              <ID>8</ID>
                                              <VPI>30</VPI>
                                              <VCI>300</VCI>
                                             <State>Active</State>
                                         </VCC>
                                </Parameters>
                        </ModifyCrossConnection>
                </Methods>
        </Command>
</CommandList>
```

Figure 167An example of **ModifyCrossConnection** response:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList>
        <Response>
                <Interface>AdslCircuitProvisioningManager</Interface>
                <Methods>
                        <ModifyCrossConnection usn="1" version="1.0">
                                <ReturnData>
                                        <RC>0</RC>
                <MsgTxt>ModifyCrossConnection operation was successful.</MsgTxt>
                                </ReturnData>
                </ModifyCrossConnection>
                </Methods>
        </Response>
</CommandList>
```


DeleteSubscriber Command:

Figure 168An example of **DeleteSubscriber** request:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList >
      <Command>
            <Interface>AdslCircuitProvisioningManager</Interface>
            <Methods>
                  <DeleteSubscriber usn=”1” version=”1.0”>
                        <Parameters>
                              <VMGName>LAKE017-6-2</VMGName>
                              <TerminationPoint>tp/02/03</TerminationPoint>
                        </Parameters>
                  </DeleteSubscriber>
            </Methods>
      </Command>
</CommandList>
```

Figure 169An example of **DeleteSubscriber** response:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList>
      <Response>
            <Interface>AdslCircuitProvisioningManager</Interface>
            <Methods>
                  <DeleteSubscriber usn="1" version="1.0">
                  <ReturnData>
                        <RC>0</RC>
                        <MsgTxt>DeleteSubscriber operation wa
successful.</MsgTxt>
                  </ReturnData>
            </Methods>
      </Response>
</CommandList>
```


DeleteCrossConnection Command

Figure 170An example of **DeleteCrossConnection** request:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList >
      <Command>
            <Interface>AdslCircuitProvisioningManager</Interface>
            <Methods>
                  <DeleteCrossConnection usn=”1” version=”1.0”>
                  <Parameters>
                        <VMGName>LAKE017-6-2</VMGName>
                        <TerminationPoint>tp/02/03</TerminationPoint>
                        <VCC>
                            <ID>1</ID>
                        </VCC>
                  </Parameters>
                  </DeleteCrossConnection>
            </Methods>
      </Command>
</CommandList>
```

Figure 171An example of **DeleteCrossConnection** response:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<CommandList>
      <Response>
            <Interface>AdslCircuitProvisioningManager</Interface>
            <Methods>
                  <DeleteCrossConnection usn="1" version="1.0">
                        <ReturnData>
                              <RC>0</RC>
                              <MsgTxt>DeleteCrossConnection operation was
successful.</MsgTxt>
                        </ReturnData>
                  </DeleteCrossConnection>
            </Methods>
      </Response>
</CommandList>
```

10.5 User Authorization for ADSL Provisioning operations

In addition to users belonging to “succssn” group to login to OSSGate, user needs to be in application specific groups to perform specific operations. Each operation is associated with one or more user groups. To execute a command, user must belong to at least one of the associated user groups. The user groups associated with ADSL flow through provisioning operations are detailed in Table-14 below.

Table 14: ADSL Commands Authorization levels

Command	User	Group			
	lnadm	lnrw	lnmtc	lnsprov	lnro
getSubscriber	X	X	X	X	X
addSubscriber	X	X		X	
addCrossConnection	X	X		X	
modifySubscriber	X	X		X	
modifyCrossConnection	X	X		X	
deleteSubscriber	X	X		X	
deleteCrossConnection	X	X		X	

Figure 172An example of authorization failure response

```
<?xml version="1.0" encoding="UTF-8" ?>
<CommandList>
  <Response>
   <Interface>AdslCircuitProvisioningManager</Interface>
   <Methods>
     <GetSubscriber usn="1" version="1.0">
       <RC>501</RC>
       <MsgTxt>Insufficient security privileges to perform this action</MsgTxt>
     </GetSubscriber>
    </Methods>
   </Response>
</CommandList>
```


10.6 Return Codes

Table 15: Return Code Definitions

Return Code	MsgText
0	Request Successful.
1	Operation failure. The name of ADSL circuit received is invalid or the circuit can not be identified.
2	Add Operation Failure. ATM index not found in interface MIB table
3	Modify Operation Failure. ATM index not found in interface MIB table
4	Delete Operation Failure. ATM index not found in interface MIB table
5	Query request failed.
501	Insufficient security privileges to perform this action.

10.7 Limitations and Restrictions

1. Endpoint names must include the VMG name and the termination point.
2. The VMG name must conform to the following format:

   SITEXXX-Y-Z - Example: LAKE017-6-2

   XXX is the frame number within the office (000 to 511 both inclusive)

   Y is the logical frame number within the physical MG (0 to 7 both inclusive)

   Z is the shelf number (0 to 3 both inclusive)
3. The termination point must conform to the following format:

   tp/AA/BB - Example tp/02/04

   AA is the card number (02-09 (both inclusive) and 14-21 (both inclusive))

   BB is circuit number (00 to 31 both inclusive)
4. Abort operation is not supported. The ability to abort an XML request received from OSSGate is not supported.

11: Batch Provisioning Tool

The Batch Provisioning Tool (BPT) is a command line user interface. It uses OSSGate as the backend to perform all batch operations. BPT command line user interface allows users to batch provision line and ADSL circuit commands. Following functionalities are supported by BPT

- Execute Line and ADSL batch operation.
- View / Delete Batch operation results
- View / Delete Batch operation logs.

11.1 Pre-requisite to use Batch Provisioning Tool

User must be logged in to the CS2000 management tool server.

User must belong to group “succssn” to start Batch provisioning tool

User must have appropriate authorization to execute the required line provisioning or ADSL provisioning commands.

Batch provisioning input files must be generated by user before using the tool

11.2 Using Batch Provisioning Tool

On successful login to the CS2000 management tool server, user can type “bpt” from any directory level. Once successfully authenticated the main menu will be displayed. A typical login session is shown below

Example of BPT login (User input is highlighted in blue):

```
$ bpt

  BPT Main Menu
  ------------------------------------------------------------------------
                ====================================
                Batch Provisioning Tool (BPT V1.0)
                ====================================

  Username :tom
  Password :
```

Login in process ...

You are currently logged in as : tom!

==========
Main Menu:
==========

(1) Execute Batch File
(2) Display Output
(3) Display Logs
(4) Delete Output or Log Files
(h) Help

(e) Exit

Selection: [1/2/3/4/h/e:1]

Main Menu:

Option (1) Execute Batch File permits user to execute batch provisioning commands. When option (1) is selected, the "Provisioning Input Entry Menu" will be displayed as shown in 13.2.1.

Option (2) Display Output permits user to view the provisioning output results. The output files are in a text format for line provisioning and in XML format for ADSL provisioning.

Option (3) Display Logs is permits user the view the log files that are associated to the provisioned batch operation.

Option (4) Delete Output or Log Files permits user to remove any unnecessary output or log files.

Option (h) Help provides a generic operation help using BPT.

Option (e) Exit permits user to exit out the BPT.

11.2.1 Provisioning Input Entry Menu:

When Option (1) Execute Batch File of the Main Menu is selected, BPT will prompt the following menu.

Provisioning Input Entry Menu

==========

Provisioning Input Entry Menu:

==========

(1) Lines
(2) ADSL Lines
(3) Go to shell
(r) Return to the main menu.
(e) Exit BPT.

Selection: [1/2/3/r:1]

Option (1) lines permits user to do lines batch provisioning. Option (2) ADSL permits user to do the ADSL lines batch provisioning. When either option is selected, BPT will prompt:

Please enter the input file name :

Note: The data needed for batch provisioning must be generated by user. The input file should be available with proper permissions for use in the CS2000 management tool server. The files can be located in any directory. The absolute path of the input file must be entered.

Sample input file templates are located at:

/opt/nortel/NTsesm/tools/bpt/templates

After the input file name is entered, the tool process the batch. For example, after entering the line batch provisioning command file “linesBatch”, here is what BPT will display to the user:

Please wait while processing the batch commands ...

.....

Provisioning is successful! The output file is located at:

/opt/nortel/NTsesm/tools/bpt/output/lines/linesBatch_021002_114504.out

---

Then, BPT will display the Main Menu as in Section 13.2.1 again for further selection.

Option (3) Go to shell brings the user to the command line to perform UNIX commands. User can type “exit” to go back the “Provisioning Input Entry Menu”.

Option (r) Return to the main menu allows the user to go back to the Main Menu in section 13.2

Option (e) Exit allows the user to exit out the BPT.

11.2.2 Display Output Menu:

When Option (2) Display Output File of the Main Menu is selected, the following “Display Output Menu” will be displayed.

Display Output Menu

==========

Display Output Menu:
==========

(1) Lines
(2) ADSL Lines
(3) Go to shell
(r) Return to the main menu.
(e) Exit BPT.

Selection: [1/2/3/r/e:1]

Option (1) lines permits user to view lines batch provisioning output. Option (2) ADSL permits user to view the ADSL lines batch provisioning output. When either option is selected, BPT will display the output files that are

currently in the output directory for that selected option. For example, if the user selected option (1) lines, BPT will display all the output files that are currently in the lines output directory. The following example lists the line provisioning output files,

---

The following files are listed in the output directory:

linesBatch_020930_154219.out
linesBatch_021001_131924.out

linesBatch_021001_111451.out
linesBatch_021002_114504.out

Please enter the file name :

User just needs to enter the file name. BPT will display the file content. Use space bar to view the next page. Type “q” at any time to quit without having to finish viewing the file

After viewing one output file, ability to view other available files exist by going back to the previous menu. For example, the following menu will be displayed after the user finishes viewing a line provisioning output file.

Display Line Output File Menu

==========

Display lines output file menu:

==========

(1) View another lines output File

(r) Return to the previous menu.

(e) Exit BPT.

Selection: [1/2/r/e:1]

Note: The CS2000 Management tool provides a GUI based application named "Batch configuration Monitor" that ADSL provisioning output files, without the XML tags, in a easy readable form.

11.2.3 Display Log File Menu:

If Option (3) Display Log Files is selected from the Main Menu, the following menu will be displayed.

Display Log File Menu

==========

Display Log File Menu:

==========

(1) Lines

(2) ADSL Lines

(3) Go to shell

(r) Return to the main menu.

(e) Exit BPT.

Selection: [1/2/3/r/e:1]

This menu works exactly like “Display Output Menu” in section 13.2.2. The only difference is that it allows the user to view log files instead of the provisioning output files.

11.2.4 Delete Output or Log Files

When Option (4) Delete Output or Log Files is selected, the following menu will be displayed.

Delete Output or Log File Menu

==========

Delete Files Menu:

==========

(1) Lines

(2) ADSL Lines

(3) Go to shell

(r) Return to the main menu.

(e) Exit BPT.

Selection: [1/2/3/r/e:1]

Option (1) lines permits user to delete the log or output files for lines provisioning. Option (2) permits user to delete the log or output files for ADSL lines provisioning. When option (1) is selected, the following menu will be displayed, and a similar menu will be displayed when option (2) is selected.

11.2.4.1 Delete Lines File Menu

==========

Delete lines File Menu:

==========

(1) Delete lines Output Files

(2) Delete lines Log Files

(3) Go to shell

(r) Return to the previous menu.

(e) Exit BPT.

Selection: [1/2/3/r:1]

Option (1) permits user to delete output files for the selected provisioning category. Option (2) permits user to delete the log files for the selected provisioning category.

When option (1) or (2) is selected, BPT will display the output files that are in the output directory for that provisioning category. An example listing when "delete lines output files" is selected is listed below

---

The following files are listed in the specified directory:

linesBatch_020930_154219.out
linesBatch_021001_131924.out

linesBatch_021001_111451.out
linesBatch_021002_114504.out

Please enter the file name(s) that you want to delete (you can enter more than 1 file using the space as a separator:

The user just needs to enter the output file name in order to have it deleted.

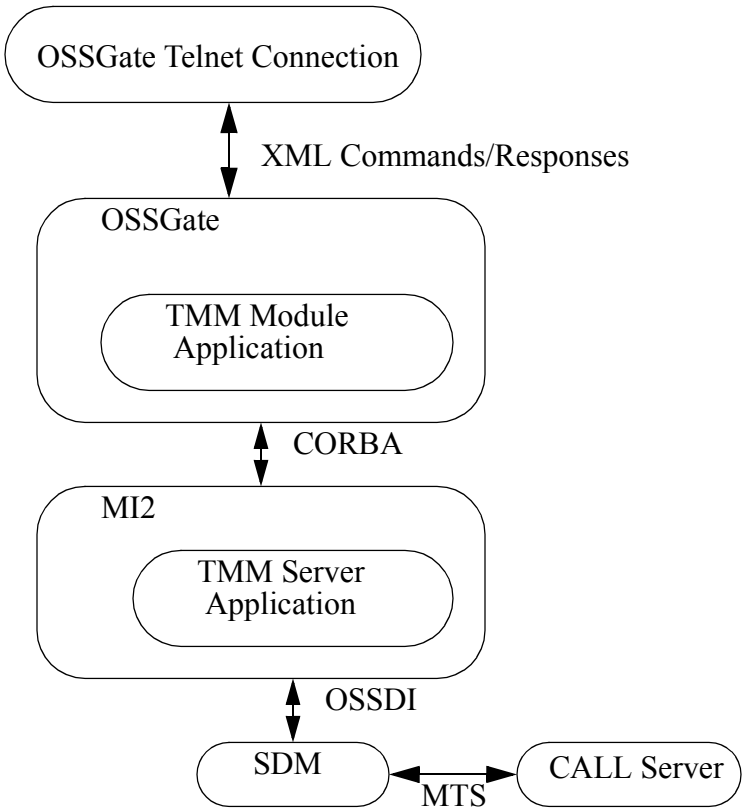
It works the same way if the user wants to delete one or more log files. The command returns a confirmation message on files that were deleted.

Note 1: In lines batch, each line represent a servord+ command. This is valid even when the line length exceeds 75 characters. There is no need to add "+" when the commands exceed 75 characters while using BPT

12: Trunk Maintenance with OSSGate

The TMM application enables authenticated OSS clients to perform full maintenance capability for ISUP, PRI, PTS trunks and query all end point states in a trunk gateway. The maintenance operations include QES, POST, BSY, RTS, BSY INB, FRLS trunks in a trunk gateway. Access to this functionality is by connection to OSSGate.

Figure 173TMM in the Succession Network



12.1 Supported TMM Commands

Following XML commands are supported for TMM using OSSGate.

- PostByGatewayName
- QESByGatewayName

- BSYByGatewayName
- RTSByGatewayName
- INBByGatewayName
- FRLSByGatewayName
- PostByTrunkCLLI
- BSYByTrunkCLLI
- INBByTrunkCLLI
- RTSByTrunkCLLI
- FRLSByTrunkCLLI
- ICOTTest
- PostGroupDChannelByTrunkCLLI
- RTSDChannelByTid
- INBDChannelByTid
- BSYDChannelByTid
- PostByCarrier
- QESByCarrier
- BSYByCarrier
- INBByCarrier
- RTSByCarrier
- FRLSByCarrier
- GetTrunkCllisByGatewayName
- GetGatewayNames
- GetCarriers
- GetCMCLLIs
- GetGWCNames

12.2 Terminology, Description of Method Parameters

- **GatewayName** - Name of the media gateway. TYPE *string*. Format: Min length 1; Max length 32
- **EndpointRange** - Range of maintained endpoints. TYPE *string*. Format: [Start member number [,-End member number]]* [Start member number [-[End member number]]] Examples:

  a."1" - Post trunk 1

b.“1,2” - Post trunk 1 and 2

c.“1-3” - Post trunks 1 through 3 inclusive

d.“1, 3-5” - Post trunks 1 and 3-5 inclusive

e.“1, 3-” - Post trunks 1, and post the rest of the trunk group starting with trunk member 3.

- **TrunkMembers** - Range of maintained trunk members. TYPE *string*. Format: same as EndpointRange
- **CMCLLI** - CLLI Name of Call Server. TYPE *string*. Format: Min length 1; Max length 32
- **TrunkCLLI** - CLLI Name of trunks. TYPE *string*. Format: Min length 1; Max length 16
- **GWCName** - Name of the gateway controller. TYPE *string*. Format: Min length 1; Max length 32
- **CarrierNames** - Name of the carriers. TYPE *string*. Format: Min length 1
- **ShowDetails** - Whether show the details of trunks. TYPE *boolean*.
- **FilterState** - The valid states of trunks. TYPE *string*. The valid values include "ALL", "CPD", "IDL", "MB", "NEQ", "INB", "NMB", "PMB", "RMB", "SB", "CPB", "CFL", "LO", "DEL", "INI", "RES", "SZD", "DMB", "DFL", "INS", "STB" and "UNKNOWN".
- **NodeNumber** - The Node No. TYPE *string*.
- **Value** - The value of trunks’ state. TYPE *string*. The valid values are the same as FilterState except "ALL".
- **Count** - The number of trunks in the state. TYPE *non negative integer*.
- **State** - The current state for the trunk. TYPE *string*. Min length 2, Max length 5. The valid values are the same as FilterState except "ALL".
- **ConnectedTo** - What the trunk is connected to. TYPE *string*.
- **TrunkDirection** - The trunk direction. TYPE *string*.
- **TrunkSignaling** - The trunk signaling. TYPE *string*.
- **PMType** - The PM type. TYPE *string*. The valid values include "PRI", "ISUP", and "PTS".
- **PMNumber** - The PM number. TYPE *string*.
- **TerminalNumber** - Terminal Number. TYPE *string*.

- **EndpointName** - Name of endpoint. TYPE *string*.
- **TrunkMember** - Trunk member. TYPE *non negative integer*.
- **PMCarrier** - The PM Carrier. TYPE *string*.
- **PMTimeSlot** - The PM timeslot. TYPE *string*.
- **TrunkType** - Type of Trunk. TYPE *string*.
- **TestResult** - ICOT test result. TYPE *string*.
- **ContinuityCondition** - The continuity condition. TYPE *string*.
- **AdditionalInfo** - The additional information. TYPE *string*.
- **CallID** - The call identification. TYPE *string*.
- **SupplementInfo** - The supplement information. TYPE *string*.
- **Version** - The version refers to the version of the method or operation - e.g., the PostByGatewayName operation may have version 1.0 and 2.0, where version 1.0 takes parameters X and Y and version 2.0 takes parms X, Y, and Z. TYPE *string*.

The following parameters will be returned when some errors happen.

- **Number** - No. of the error. TYPE *string*. Required
- **Message** - Message of the error. TYPE *string*. Required
- **Severity** - Type of the error. TYPE *string*. The valid values include "INFORMATION", "WARNING", "MINOR", "MAJOR" and "CRITICAL". Optional
- **Param1** - First parameter. TYPE *string*. Optional
- **Param2** - Second parameter. TYPE *string*. Optional
- **Param3** - Third parameter. TYPE *string*. Optional

12.3 Description of Method Parameters

1. PostByGatewayName - Interface/Method that gets all the endpoint information for ISUP, PRI, PTS trunks based on Gateway Name and EndpointRange.

- Input data:

– Version - Optional

– GatewayName - Required

– EndpointRange - Required
– FilterState - Optional
– ShowDetails - Optional

• Output data:

– Version - Optional
– GatewayName - Required
– NodeNumber - Required
– FilterState - Required
– EndpointRange - Required
– Value - Required
– Count - Required
– SupplementInfo - Optional
– State - Optional
– ConnectedTo - Optional
– TrunkDirection - Optional
– TrunkSignaling -Optional
– PMType - Optional
– PMNumber - Optional
– TerminalNumber - Optional
– EndpointName - Optional
– TrunkCLLI - Optional
– TrunkMember - Optional
– PMCarrier - Optional
– PMTimeSlot - Optional
– TrunkType - Optional

2. QESByGatewayName - Interface/Method that query the endpoint state for ISUP, PRI, PTS trunks based on Gateway Name and EndpointRange.

• Input data:

– Version - Optional
– GatewayName - Required
– EndpointRange - Required
– FilterState - Optional

– ShowDetails - Optional

• Output data:

– Version - Optional

– GatewayName - Required

– NodeNumber - Required

– FilterState - Required

– EndpointRange - Required

– Value - Required

– Count - Required

– SupplementInfo - Optional

– State - Optional

– TerminalNumber - Optional

3. BSYByGatewayName - Interface/Method that will busy ISUP, PRI, PTS trunks based on Gateway Name and EndpointRange.

• Input data:

– Version - Optional

– GatewayName - Required

– EndpointRange - Required

• Output data:

– Version - Optional

– GatewayName - Required

– NodeNumber - Required

– EndpointRange - Required

– TerminalNumber - Optional

4. RTSByGatewayName - Interface/Method that will return ISUP, PRI, PTS trunks to service based on Gateway Name and EndpointRange.

• Input data:

– Version - Optional

– GatewayName - Required.

– EndpointRange - Required

• Output data:

– Version - Optional

– GatewayName - Required

– NodeNumber - Required

– EndpointRange - Required

– TerminalNumber - Optional

5. INBByGatewayName - Interface/Method that will make ISUP, PRI, PTS trunks be in Installation busy state based on Gateway Name and EndpointRange.

• Input data:

– Version - Optional

– GatewayName - Required

– EndpointRange - Required

• Output data:

– Version - Optional

– GatewayName - Required

– NodeNumber - Required

– EndpointRange - Required

– TerminalNumber - Optional

6. FRLSByGatewayName - Interface/Method that will force to release endpoints of ISUP, PRI, PTS trunks based on Gateway Name and EndpointRange.

• Input data:

– Version - Optional

– GatewayName - Required

– EndpointRange - Required

• Output data:

– Version - Optional

– GatewayName - Required

– NodeNumber - Required

– EndpointRange - Required

– TerminalNumber - Optional

7. PostByTrunkCLLI - Interface/Method that gets all the endpoint information for ISUP, PRI, PTS trunks based on Tunk CLLI and Trunk members.

- Input data:
  - Version - Optional
  - CMClli - Optional
  - TrunkClli - Required
  - TrunkMembers - Required
- Output data:
  - Version - Optional
  - TrunkCLLI - Required
  - CMCLLI - Required
  - FirstMember - Optional
  - GroupSize - Optional
  - TrunkMembers - Optional
  - State - Optional
  - ConnectedTo - Optional
  - TrunkDirection - Optional
  - TrunkSignaling - Optional
  - PMType - Optional
  - PMNumber - Optional
  - TerminalNumber - Optional
  - EndpointName - Optional
  - NodeNumber - Optional
  - GatewayName - Optional
  - TrunkMember - Optional, TYPE *non negative integer*.
  - PMCarrier - Optional
  - PMTimeSlot - Optional

8. BSYByTrunkCLLI - Interface/Method that will busy ISUP, PRI, PTS trunks based on TrunkCLLI and TrunkMembers.

- Input data:
  - Version - Optional
  - CMClli - Optional
  - TrunkClli - Required
  - TrunkMembers - Required

- Output data:
  - Version - Optional
  - TrunkCLLI - Required
  - CMCLLI - Required
  - FirstMember - Optional
  - GroupSize - Optional
  - TrunkMembers - Optional
  - TrunkMember - Optional. TYPE *string*. Its format is the same as TrunkMembers.

9. RTSByTrunkCLLI - Interface/Method that will return ISUP, PRI, PTS trunks to service based on TrunkCLLI and TrunkMembers.

- Input data:
  - Version - Optional
  - CMClli - Optional
  - TrunkClli - Required
  - TrunkMembers - Required
- Output data:
  - Version- Optional
  - TrunkCLLI - Required
  - CMCLLI - Required
  - FirstMember - Optional
  - GroupSize - Optional
  - TrunkMembers - Optional
  - TrunkMember - Optional. TYPE *string*. Its format is the same as TrunkMembers.

10. INBByTrunkCLLI - Interface/Method that will make ISUP, PRI, PTS trunks be in Installation Busy based on TrunkCLLI and TrunkMembers.

- Input data:
  - Version - Optional
  - CMClli - Optional
  - TrunkClli - Required
  - TrunkMembers - Required

- Output data:

– Version - Optional

– TrunkCLLI - Required

– CMCLLI - Required

– FirstMember - Optional

– GroupSize - Optional

– TrunkMembers - Optional

– TrunkMember - Optional. TYPE *string*. Its format is the same as TrunkMembers.

11. FRLSByTrunkCLLI - Interface/Method that will force to release endpoints of ISUP, PRI, PTS trunks based on TrunkCLLI and TrunkMembers.

- Input data:

– Version - Optional

– CMClli - Optional

– TrunkClli - Required

– TrunkMembers - Required. TYPE *string*. Format: member number [, member number]*
Examples:

a."1" - Post trunk 1

b.“1,2” - Post trunk 1 and 2

- Output data:

– Version - Optional

– TrunkCLLI - Required

– CMCLLI - Required

– FirstMember - Optional

– GroupSize - Optional

– TrunkMembers - Optional

– TrunkMember - Optional. TYPE *string*. Its format is the same as TrunkMembers.

12. ICOTTest - Interface/Method that will do ICOT test for ISUP trunks based on TrunkCLLI and TrunkMember.

- Input data:

– Version - Optional

– CMClli - Optional
– TrunkClli - Required
– TrunkMember - Required. TYPE *non negative integer.*

• Output data:

– Version - Optional
– TrunkCLLI - Required
– CMCLLI - Required
– FirstMember - Optional
– GroupSize - Optional
– TrunkMembers - Optional
– TrunkMember - Optional. TYPE *non negative integer.*
– TestResult - Optional
– ContinuityCondition - Optional
– AdditionalInfo - Optional
– CallID - Optional

13. PostGroupDChannelByTrunkCLLI - Interface/Method that gets all the endpoint information for PRI DChannel based on TrunkCLLI.

• Input data:

– Version - Optional
– CMClli - Optional
– TrunkClli - Required

• Output data:

– Version - Optional
– TrunkCLLI - Required
– CMCLLI - Required
– FirstMember - Optional
– GroupSize - Optional
– TrunkMembers - Optional
– State - Optional
– ConnectedTo - Optional
– TrunkDirection - Optional
– TrunkSignaling - Optional

– PMType - Optional

– PMNumber - Optional

– TerminalNumber - Optional

– EndpointName - Optional

– NodeNumber - Optional

– GatewayName - Optional

14. BSYDChannelByTid - Interface/Method that busy PRI DChannel based on TerminalNumber.

• Input data:

– Version - Optional

– CMClli - Optional.

– NodeNumber - Required

– TerminalNumber - Required

– Force - Optional. If the DChannel is in INS and Force is false, BSYDChannelByTid will fail.

• Output data:

– Version - Optional

– CMCLLI - Required

– TrunkMember - Optional. TYPE *string*. Its format is the same as TrunkMembers.

15. RTSDChannelByTid - Interface/Method that return PRI DChannel service based on TerminalNumber.

• Input data:

– Version - Optional

– CMClli - Optional.

– NodeNumber - Required

– TerminalNumber - Required

• Output data:

– Version - Optional

– CMCLLI - Required

– TrunkMember - Optional. TYPE *string*. Its format is the same as TrunkMembers.

16. INBDChannelByTid - Interface/Method that make PRI DChannel in installation busy based on TerminalNumber.

- Input data:
  - Version - Optional
  - CMClli - Optional.
  - NodeNumber - Required
  - TerminalNumber - Required
- Output data:
  - Version - Optional
  - CMCLLI - Required
  - TrunkMember - Optional. TYPE *string*. Its format is the same as TrunkMembers.

17. PostByCarrier - Interface/Method that gets all the endpoint information for ISUP, PRI, PTS trunks based on Gateway Name and CarrierNames.

- Input data:
  - Version - Optional
  - GatewayName - Required
  - GWCName - Required
  - CarrierNames - Required
  - EndpointRange - Required
  - FilterState - Optional
  - ShowDetails - Optional
- Output data:
  - Version - Optional
  - GatewayName - Required
  - NodeNumber - Required
  - FilterState - Required
  - EndpointRange - Required
  - Value - Required
  - Count - Required
  - SupplementInfo - Optional
  - State - Optional
  - ConnectedTo - Optional
  - TrunkDirection - Optional

– TrunkSignaling - Optional
– PMType - Optional
– PMNumber - Optional
– TerminalNumber - Optional
– EndpointName - Optional
– TrunkCLLI - Optional
– TrunkMember - Optional
– PMCarrier - Optional
– PMTimeSlot - Optional
– TrunkType - Optional

18. QESByCarrier - Interface/Method that query the endpoint state for ISUP, PRI, PTS trunks based on Gateway Name and Carrier.

• Input data:
– Version - Optional
– GatewayName - Required
– GWCName - Required
– CarrierNames - Required
– EndpointRange - Required
– FilterState - Optional
– ShowDetails - Optional
• Output data:
– Version - Optional
– GatewayName - Required
– NodeNumber - Required
– FilterState - Required
– EndpointRange - Required
– Value - Required
– Count - Required
– SupplementInfo - Optional
– State - Optional
– TerminalNumber - Optional

19. BSYByCarrier - Interface/Method that will busy ISUP, PRI, PTS trunks based on Gateway Name and CarrierNames.

- Input data:
  - Version - Optional
  - GatewayName - Required
  - GWCName - Required
  - CarrierNames - Required
  - EndpointRange - Required
- Output data:
  - Version - Optional
  - GatewayName - Required
  - NodeNumber - Required
  - EndpointRange - Required
  - TerminalNumber - Optional.

20. RTSByCarrier - Interface/Method that will return ISUP, PRI, PTS trunks to service based on Gateway Name and CarrierNames.

- Input data:
  - Version - Optional
  - GatewayName - Required
  - GWCName - Required
  - CarrierNames - Required
  - EndpointRange - Required
- Output data:
  - Version - Optional
  - GatewayName - Required
  - NodeNumber - Required
  - EndpointRange - Required
  - TerminalNumber - Optional

21. INBByCarrier - Interface/Method that will make ISUP, PRI, PTS trunks in installation busy based on Gateway Name and CarrierNames.

- Input data:
  - Version - Optional

– GatewayName - Required
– GWCName - Required
– CarrierNames - Required
– EndpointRange - Required

• Output data:

– Version - Optional
– GatewayName - Required
– NodeNumber - Required
– EndpointRange - Required
– TerminalNumber - Optional

22. FRLSByCarrier - Interface/Method that will force to release endpoints of ISUP, PRI, PTS trunks based on Gateway Name and CarrierNames.

• Input data:

– Version - Optional
– GatewayName - Required
– GWCName - Required
– CarrierNames - Required
– EndpointRange - Required

• Output data:

– Version - Optional
– GatewayName - Required
– NodeNumber - Required
– EndpointRange - Required
– TerminalNumber - Optional

23. GetTrunkCllisByGatewayName - Interface/Method that will get trunk CLLIs of ISUP, PRI, PTS trunks based on Gateway Name.

• Input data:

– Version - Optional
– CMCLLI - Optional
– GatewayName - Required

• Output data:

– Version - Optional

– TrunkClli - Required

24. GetGatewayNames - Interface/Method that will get gateways' names.

• Input data:

– Version - Optional

– MaxReturn - Optional.

– StartingIndex - Optional

– CMCLLI - Optional

– GWC - Optional

• Output data:

– Version - Optional

– Names - Required

25. GetCarriers - Interface/Method that will get carriers' names.

• Input data:

– Version - Optional

– MaxReturn - Optional.

– StartingIndex - Optional

– CMCLLI - Optional

– GWC - Optional

• Output data:

– Version - Optional

– GatewayName - Required

– GWCName - Required

– CarrierNames - Required

26. GetCMCLLIs - Interface/Method that will get CM CLLIs.

• Input data:

– Version - Optional

– MaxReturn - Optional.

– StartingIndex - Optional

• Output data:

– Version - Optional

– Names - Required

27. GetGWCNames - Interface/Method that will get Gateway Controllers' names.

• Input data:

– Version - Optional

– MaxReturn - Optional.

– StartingIndex - Optional

– CMCLLI - Optional

• Output data:

– Version - Optional

– Names - Required

12.4 XML Commands

The following are examples of XML commands and the corresponding response messages for each operation supported for TMM. The XML coding in these examples is formatted for ease of understanding.

Figure 174A example of **PostByGatewayName** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <PostByGatewayName
        GatewayName="PRIFORDOC"
        EndpointRange="35-36"
        ShowDetails="true"
        FilterState="ALL"
      />
    </Methods>
  </Command>
</CommandList>
```


Figure 175A example of **PostByGatewayName** response:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <PostByGatewayName>
    <Header
      GatewayName="PRIFORDOC"
      EndpointRange="35-36"
      NodeNumber="67"
      FilterState="ALL"
    >
      <Summary>
      <State Value="INB " Count="2"/>
      </Summary>
    </Header>
```

Figure 176A example of **PostByGatewayName** response:

```
    <Members>
      <Member
        TerminalNumber="35"
        State="INB "
        ConnectedTo="                "
        TrunkDirection="2W"
        TrunkSignaling="ISD ISD "
        PMType="GWC_NODE"
        PMNumber="0"
        EndpointName="DS1_10.4"
        TrunkCLLI="PRIFORUPGRADEDOC"
        TrunkMember="3"
        PMCarrier="0"
        PMTimeSlot="1"
        TrunkType="PRI"
      />
      <Member
        TerminalNumber="36"
        State="INB "
        ConnectedTo="                "
        TrunkDirection="2W"
        TrunkSignaling="ISD ISD "
        PMType="GWC_NODE"
        PMNumber="0"
        EndpointName="DS1_10.5"
        TrunkCLLI="PRIFORUPGRADEDOC"
        TrunkMember="4"
        PMCarrier="0"
        PMTimeSlot="1"
        TrunkType="PRI"
      />
    </Members>
  </PostByGatewayName>
    </Methods>
  </Response>
</CommandList>
```

Figure 177A example of **QESByGatewayName** request:

```
<?xml version="1.0"?>
<CommandList>
 <Command>
  <Interface>TrunkMtc</Interface>
  <Methods Version="2.0">
   <QESByGatewayName
    GatewayName="PRIFORDOC"
    EndpointRange="35-36"
    ShowDetails="true"
    FilterState="ALL"
   />
  </Methods>
 </Command>
</CommandList>
```

Figure 178A example of **QESByGatewayName** response:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <QESByGatewayName>
    <Header
      GatewayName="PRIFORDOC"
      EndpointRange="35-36"
      NodeNumber="67"
      FilterState="ALL"
    >
      <Summary>
      <State Value="INB " Count="2"/>
      </Summary>
    </Header>
    <Members>
      <Member
        TerminalNumber="35"
        State="INB "
      />
      <Member
        TerminalNumber="36"
        State="INB "
      />
    </Members>
  </QESByGatewayName>
    </Methods>
  </Response>
</CommandList>
```

Figure 179A example of **BSYByGatewayName** request:

```
<?xml version="1.0"?>
<CommandList>
 <Command>
  <Interface>TrunkMtc</Interface>
  <Methods Version="2.0">
   <BSYByGatewayName
    GatewayName="PRIFORDOC"
    EndpointRange="35-36"
   />
  </Methods>
 </Command>
</CommandList>
```


Figure 180A example of **BSYByGatewayName** response:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <BSYByGatewayName>
    <Header
      GatewayName="PRIFORDOC"
      EndpointRange="35-36"
      NodeNumber="67"
    />
  </BSYByGatewayName>
    </Methods>
  </Response>
</CommandList>
```

Figure 181A example of **RTSByGatewayName** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <RTSByGatewayName
        GatewayName="PVG194"
        EndpointRange="674-675"
      />
    </Methods>
  </Command>
</CommandList>
```

Figure 182A example of **RTSByGatewayName** response:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <RTSByGatewayName>
    <Header
      GatewayName="PVG194"
      EndpointRange="674-675"
      NodeNumber="16"
    />
  </RTSByGatewayName>
    </Methods>
  </Response>
</CommandList>
```


Figure 183A example of **INBByGatewayName** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <INBByGatewayName
        GatewayName="PVG194"
        EndpointRange="674-675"
      />
    </Methods>
  </Command>
</CommandList>
```

Figure 184A example of **INBByGatewayName** response:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <INBByGatewayName>
    <Header
      GatewayName="PVG194"
      EndpointRange="674-675"
      NodeNumber="16"
    />
  </INBByGatewayName>
    </Methods>
  </Response>
</CommandList>
```

Figure 185A example of **FRLSByGatewayName** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <FRLSByGatewayName
        GatewayName="PVG194"
        EndpointRange="674,675"
      />
    </Methods>
  </Command>
</CommandList>
```


Figure 186A example of **FRLSByGatewayName** response:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <FRLSByGatewayName>
    <Header
      GatewayName="PVG194"
      EndpointRange="674,675"
      NodeNumber="16"
    />
  </FRLSByGatewayName>
    </Methods>
  </Response>
</CommandList>
```

Figure 187A example of **PostByTrunkCLLI** request:

```
<?xml version="1.0"?>
<CommandList>
 <Command>
  <Interface>TrunkMtc</Interface>
  <Methods Version="2.0">
    <PostByTrunkCLLI
      TrunkClli="P194ITLOOPOG1"
      TrunkMembers="2-3"
    />
  </Methods>
 </Command>
</CommandList>
```

Figure 188A example of **PostByTrunkCLLI** response:

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <PostByTrunkCLLI>
    <Header
      TrunkCLLI="P194ITLOOPOG1"
      CMCLLI="RTPS"
      FirstMember="1"
      GroupSize="24"
      TrunkMembers="2-3"
    />
    <Members>
      <Member
        TrunkMember="2"
        State="IDL "
        ConnectedTo="                    "
        TrunkDirection="2W"
        TrunkSignaling="S7  S7  "
        PMType="GWC_NODE"
        PMNumber="2"
        PMCarrier="0"
        PMTimeSlot="1"
        GatewayName="PVG194"
        EndpointName="SS_6003_VT15_0143.2"
        NodeNumber="16"
        TerminalNumber="674"
      />
      <Member
        TrunkMember="3"
        State="IDL "
        ConnectedTo="                    "
        TrunkDirection="2W"
        TrunkSignaling="S7  S7  "
        PMType="GWC_NODE"
        PMNumber="2"
        PMCarrier="0"
        PMTimeSlot="1"
        GatewayName="PVG194"
        EndpointName="SS_6003_VT15_0143.3"
        NodeNumber="16"
        TerminalNumber="675"
      />
    </Members>
  </PostByTrunkCLLI>
    </Methods>
  </Response>
</CommandList>
```


Figure 189A example of **BSYByTrunkCLLI** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <BSYByTrunkCLLI
        TrunkClli="P194ITLOOPOG1"
        TrunkMembers="2-3"
      />
    </Methods>
  </Command>
</CommandList>
```

Figure 190A example of **BSYByTrunkCLLI** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <BSYByTrunkCLLI>
    <Header
      TrunkCLLI="P194ITLOOPOG1"
      CMCLLI="RTPS"
      FirstMember="1"
      GroupSize="24"
      TrunkMembers="2-3"
    />
    <Members>
    </Members>
  </BSYByTrunkCLLI>
    </Methods>
  </Response>
</CommandList>
```

Figure 191A example of **RTSByTrunkCLLI** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <RTSByTrunkCLLI
        TrunkClli="P194ITLOOPOG1"
        TrunkMembers="2-3"
      />
    </Methods>
  </Command>
</CommandList>
```

Figure 192A example of **RTSByTrunkCLLI** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <RTSByTrunkCLLI>
    <Header
      TrunkCLLI="P194ITLOOPOG1"
      CMCLLI="RTPS"
      FirstMember="1"
      GroupSize="24"
      TrunkMembers="2-3"
    />
    <Members>
    </Members>
  </RTSByTrunkCLLI>
    </Methods>
  </Response>
</CommandList>
```

Figure 193A example of **INBByTrunkCLLI** request:

```
<?xml version="1.0"?>
<CommandList>
 <Command>
   <Interface>TrunkMtc</Interface>
   <Methods Version="2.0">
     <INBByTrunkCLLI
      TrunkClli="P194ITLOOPOG1"
      TrunkMembers="2-3"
     />
   </Methods>
 </Command>
</CommandList>
```

Figure 194A example of **INBByTrunkCLLI** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <INBByTrunkCLLI>
    <Header
      TrunkCLLI="P194ITLOOPOG1"
      CMCLLI="RTPS"
      FirstMember="1"
      GroupSize="24"
      TrunkMembers="2-3"
    />
    <Members>
    </Members>
  </INBByTrunkCLLI>
    </Methods>
  </Response>
</CommandList>
```


Figure 195A example of **FRLSByTrunkCLLI** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <FRLSByTrunkCLLI
        TrunkClli="P194ITLOOPOG1"
        TrunkMembers="2-3"
      />
    </Methods>
  </Command>
</CommandList>
```

Figure 196A example of **FRLSByTrunkCLLI** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <FRLSByTrunkCLLI>
    <Header
      TrunkCLLI="P194ITLOOPOG1"
      CMCLLI="RTPS"
      FirstMember="1"
      GroupSize="24"
      TrunkMembers="2,3"
    />
    <Members>
    </Members>
  </FRLSByTrunkCLLI>
    </Methods>
  </Response>
</CommandList>
```

Figure 197A example of **PostByCarrier** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <PostByCarrier
        GatewayName="PRIFORDOC"
        GWCName="GWC-0"
        CarrierNames="DS1_10"
        EndpointRange="35-36"
      />
    </Methods>
  </Command>
</CommandList>
```


Figure 198A example of **PostByCarrier** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <PostByCarrier>
    <Header
      GatewayName="PRIFORDOC"
      EndpointRange="35-36"
      NodeNumber="67"
      FilterState="All"
    >
      <Summary>
      <State Value="CFL " Count="2"/>
      </Summary>
    </Header>
  </PostByCarrier>
    </Methods>
  </Response>
</CommandList>
```

Figure 199A example of **QESByCarrier** request:

```
<?xml version="1.0"?>
<CommandList>
 <Command>
   <Interface>TrunkMtc</Interface>
   <Methods Version="2.0">
    <QESByCarrier
      GatewayName="PRIFORDOC"
      GWCName="GWC-0"
      CarrierNames="DS1_10"
      EndpointRange="35-36"
      ShowDetails="true"
      FilterState="ALL"
    />
   </Methods>
 </Command>
</CommandList>
```


Figure 200A example of **QESByCarrier** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <QESByCarrier>
    <Header
      GatewayName="PRIFORDOC"
      EndpointRange="35-36"
      NodeNumber="67"
      FilterState="ALL"
    >
      <Summary>
      <State Value="CFL " Count="2"/>
      </Summary>
    </Header>
    <Members>
      <Member
        TerminalNumber="35"
        State="CFL "
      />
      <Member
        TerminalNumber="36"
        State="CFL "
      />
    </Members>
  </QESByCarrier>
    </Methods>
  </Response>
</CommandList>
```

Figure 201A example of **BSYByCarrier** request:

```
<?xml version="1.0"?>
<CommandList>
 <Command>
   <Interface>TrunkMtc</Interface>
   <Methods Version="2.0">
    <BSYByCarrier
      GatewayName="PRIFORDOC"
      GWCName="GWC-0"
      CarrierNames="DS1_10"
      EndpointRange="35-36"
    />
   </Methods>
 </Command>
</CommandList>
```


Figure 202A example of **BSYByCarrier** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <BSYByCarrier>
    <Header
      GatewayName="PRIFORDOC"
      EndpointRange="35-36"
      NodeNumber="67"
    />
  </BSYByCarrier>
    </Methods>
  </Response>
</CommandList>
```

Figure 203A example of **RTSByCarrier** request:

```
<?xml version="1.0"?>
<CommandList>
 <Command>
   <Interface>TrunkMtc</Interface>
   <Methods Version="2.0">
    <RTSByCarrier
      GatewayName="PRIFORDOC"
      GWCName="GWC-0"
      CarrierNames="DS1_10"
      EndpointRange="35-36"
    />
   </Methods>
 </Command>
</CommandList>
```

Figure 204A example of **RTSByCarrier** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <RTSByCarrier>
    <Header
      GatewayName="PRIFORDOC"
      EndpointRange="35-36"
      NodeNumber="67"
    />
  </RTSByCarrier>
    </Methods>
  </Response>
</CommandList>
```


Figure 205A example of **INBByCarrier** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <INBByCarrier
        GatewayName="PRIFORDOC"
        GWCName="GWC-0"
        CarrierNames="DS1_10"
        EndpointRange="35-36"
      />
    </Methods>
  </Command>
</CommandList>
```

Figure 206A example of **INBByCarrier** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <INBByCarrier>
    <Header
      GatewayName="PRIFORDOC"
      EndpointRange="35-36"
      NodeNumber="67"
    />
  </INBByCarrier>
    </Methods>
  </Response>
</CommandList>
```

Figure 207A example of **FRLSByCarrier** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <FRLSByCarrier
        GatewayName="PRIFORDOC"
        GWCName="GWC-0"
        CarrierNames="DS1_10"
        EndpointRange="35,36"
      />
    </Methods>
  </Command>
</CommandList>
```

Figure 208A example of **FRLSByCarrier** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <FRLSByCarrier>
    <Header
      GatewayName="PRIFORDOC"
      EndpointRange="35,36"
      NodeNumber="67"
    />
  </FRLSByCarrier>
    </Methods>
  </Response>
</CommandList>
```

Figure 209A example of **PostGroupDChannelByTrunkCLLI** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <PostGroupDChannelByTrunkCLLI
        TrunkClli="PRIFORUPGRADEDOC"
      />
    </Methods>
  </Command>
</CommandList>
```


Figure 210A example of **PostGroupDChannelByTrunkCLLI** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <PostGroupDChannelByTrunkCLLI>
    <Header
      TrunkCLLI="PRIFORUPGRADEDOC"
      CMCLLI="COMPACT5"
    />
    <Members>
      <Member
        State="INB "
        TrunkDirection="2W"
        TrunkSignaling="ISD ISD "
        PMType="GWC_NODE"
        PMNumber="0"
        GatewayName="PRIFORDOC"
        EndpointName="DS1_10.2"
        NodeNumber="67"
        TerminalNumber="33"
      />
      <Member
        State="INB "
        TrunkDirection="2W"
        TrunkSignaling="ISD ISD "
        PMType="GWC_NODE"
        PMNumber="0"
        GatewayName="PRIFORDOC"
        EndpointName="DS1_10.3"
        NodeNumber="67"
        TerminalNumber="34"
      />
    </Members>
  </PostGroupDChannelByTrunkCLLI>
    </Methods>
  </Response>
</CommandList>
```

Figure 211A example of **ICOTTest** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <ICOTTest
        TrunkClli="SUC101ISUPV2LP"
        TrunkMember="2"
      />
    </Methods>
  </Command>
</CommandList>
```


Figure 212A example of **ICOTTest** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <ICOTTest>
    <Header
      TrunkCLLI="SUC101ISUPV2LP"
      CMCLLI="COMPACT2"
      FirstMember="2"
      GroupSize="2"
      TrunkMembers="2"
    />
    <Members>
      <Member
        TrunkMember="2"
        TestResult="TEST_PASSED"
        ContinuityCondition="                    "
        AdditionalInfo="                                    "
        CallID=""
      />
    </Members>
  </ICOTTest>
    </Methods>
  </Response>
</CommandList>
```

Figure 213A example of **BSYDChannelByTid** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <BSYDChannelByTid
        NodeNumber="18"
        TerminalNumber="543"
        Force="true"
      />
    </Methods>
  </Command>
</CommandList>
```


Figure 214A example of **BSYDChannelByTid** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <BSYDChannelByTid>
    <Header
      CMCLLI="COMPACT2"
    />
    <Members>
    </Members>
  </BSYDChannelByTid>
    </Methods>
  </Response>
</CommandList>
```

Figure 215A example of **RTSDChannelByTid** request:

```
<?xml version="1.0"?>
<CommandList>
 <Command>
   <Interface>TrunkMtc</Interface>
   <Methods Version="2.0">
    <RTSDChannelByTid
      NodeNumber="18"
      TerminalNumber="543"
    />
   </Methods>
 </Command>
</CommandList>
```

Figure 216A example of **RTSDChannelByTid** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <RTSDChannelByTid>
    <Header
      CMCLLI="COMPACT2"
    />
    <Members>
    </Members>
  </RTSDChannelByTid>
    </Methods>
  </Response>
</CommandList>
```

Figure 217A example of **INBDChannelByTid** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <INBDChannelByTid
        NodeNumber="18"
        TerminalNumber="543"
      />
    </Methods>
  </Command>
</CommandList>
```

Figure 218A example of **INBDChannelByTid** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <INBDChannelByTid>
    <Header
      CMCLLI="COMPACT2"
    />
    <Members>
    </Members>
  </INBDChannelByTid>
    </Methods>
  </Response>
</CommandList>
```

Figure 219A example of **GetTrunkCllisByGatewayName** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <GetTrunkCllisByGatewayName
        GatewayName="PRIFORDOC"
      />
    </Methods>
  </Command>
</CommandList>
```


Figure 220A example of **GetTrunkCllisByGatewayName** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <GetTrunkCllisByGatewayName>
        <TrunkClli>PRIFORUPGRADEDOC</TrunkClli>
  </GetTrunkCllisByGatewayName>
    </Methods>
  </Response>
</CommandList>
```

Figure 221A example of **GetGatewayNames** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <GetGatewayNames
      />
    </Methods>
  </Command>
</CommandList>
```

Figure 222A example of **GetGatewayNames** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <GetGatewayNames>
    <Gateway Names="GAOPRI,PRIFORDOC,PVG1"/>
  </GetGatewayNames>
    </Methods>
  </Response>
</CommandList>
```

Figure 223A example of **GetCarriers** request:

```
<?xml version="1.0"?>
<CommandList>
  <Command>
    <Interface>TrunkMtc</Interface>
    <Methods Version="2.0">
      <GetCarriers
      />
    </Methods>
  </Command>
</CommandList>
```


Figure 224A example of **GetCarriers** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <GetCarriers>
    <Carriers GatewayName="PVG1" GWCName="GWC-112" CarrierNames="E1_1111,E1_1112"/>
    <Carriers GatewayName="GAOPRI" GWCName="GWC-0" CarrierNames="E1_1001"/>
<Carriers GatewayName="PRIFORDOC" GWCName="GWC-0" CarrierNames="DS1_10,DS3_10.1"/>
  </GetCarriers>
    </Methods>
  </Response>
</CommandList>
```

Figure 225A example of **GetCMCLLIs** request:

```
<?xml version="1.0"?>
<CommandList>
 <Command>
   <Interface>TrunkMtc</Interface>
   <Methods Version="2.0">
     <GetCMCLLIs
     />
   </Methods>
 </Command>
</CommandList>
```

Figure 226A example of **GetCMCLLIs** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <GetCMCLLIs>
    <CallServer Names="COMPACT5"/>
  </GetCMCLLIs>
    </Methods>
  </Response>
</CommandList>
```

Figure 227A example of **GetGWCNames** request:

```
<?xml version="1.0"?>
<CommandList>
 <Command>
   <Interface>TrunkMtc</Interface>
   <Methods Version="2.0">
     <GetGWCNames
     />
   </Methods>
 </Command>
</CommandList>
```


Figure 228A example of **GetGWCNames** response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <GetGWCNames>
    <GWC Names="GWC-112,GWC-4,GWC-1,GWC-2,GWC-0"/>
  </GetGWCNames>
    </Methods>
  </Response>
</CommandList>
```

Figure 229A example of error response

```
<?xml version='1.0'?>
<CommandList>
  <Response>
    <Interface>TrunkMtc</Interface>
    <Methods>
  <RTSDChannelByTid>
    <Header
      CMCLLI="COMPACT5"
    />
    <Members>
      <Member
      >
        <Error
          Number="1311"
          Message="Unable to transition the endpoint to the requested state"
          Severity="MAJOR"
        />
      </Member>
    </Members>
  </RTSDChannelByTid>
    </Methods>
  </Response>
</CommandList>
```

12.5 User Authorization for Trunk Maintenance Operation

In addition to users belonging to “succssn” group to login to OSSGate, user need to be in application specific groups to perform specific operations. Each operation is associated with one or more user groups. In order to execute a command, a user must belong to at least one of the associated user groups. The user groups associated with each TMM maintenance operation are specified in Table-16.

Table 16: TMM Commands Authorization levels

Command	User	Group			
	lnadm	lnrw	lnmtc	lnsprov	lnro
Post by Trunk CLLI	X	X	X	X	X
D-Channel Post by Trunk CLLI	X	X	X	X	X
Mtc by Trunk CLLI (BSY, RTS, INB, FRLS)	X	X	X		
ICOT	X	X	X		
D-Channel Mtc by Trunk CLLI (BSY, RTS,BSYINB)	X	X	X		
Post by Gateway Name	X	X	X	X	X
QES by Gateway Name	X	X	X	X	X
Mtc By Gateway Name (BSY, RTS, INB, FRLS)	X	X	X		
Post by Carrier	X	X	X	X	X
QES by Carrier	X	X	X	X	X
Mtc By Carrier (BSY, RTS, INB, FRLS)	X	X	X		

12.6 Limitations and Restrictions

1. Only individual trunk members (no lists or ranges) may be specified when performing an ICOT test. If an ICOT test is requested on an ISUP trunk which is not in the BSY state, the request will be rejected.
2. Maintenance operations are supported for ISUP and PRI trunks. Other trunk types may work, but they are not explicitly supported.
3. Post Endpoints by Gateway name is supported.
4. Only one maintenance (RTS, BSY, BSY INB or FRLS) request, plus either POST or QES, is allowed per XML request. Batching of maintenance requests is not allowed.

5 TMM supports the following commands: BSY, RTS, FRLS, BSY INB, Post (by Trunk CLLI) and QES (by gateway name) for ISUP, PRI and PTS trunks. Other trunk types may work, but they are not explicitly supported.

13: Glossary

13.1 Terminology & Description of Method Parameters

- **gwcName** - the external or public name to a GWC (Gateway Controller), e.g. GWC7 or CallServerName, GWC7. TYPE String.
- **mgName** - the external name of the MG (Media Gateway), e.g. PVG03, PVG11. TYPE String.
- **RC** - the return code, a numeric value indicating the result of the attempted operation. TYPE String. (see Table , “,” on page 174, ~~above~~ for range and definitions of each possible value).
- **MsgText** - the appropriate text string that describes the result of the operation.
- **<Component>-ErrorCode** - the error code supplied by the component which generated the error. (e.g.: <Oracle-RC>17002</Oracle-RC>)
- **<Component>-ErrorText** - the text string supplied by the component which generated the error.
- **TN** - terminal number. The valid range is 1-n, where n = 24 for North American carriers (DS1) and n = 31 for International carriers (E1).
- **TID** - Terminal Identifier - consisting of node number (1-4094) and terminal number (1-4094). This numeric identifier is allocated (one per endpoint) and managed by the GWC EM. The GWC EM also maintains a mapping of endpoints to TIDs. TYPE Integer
- **carrierName** - Name of the carrier, following the appropriate endpoint naming convention for the chosen protocol. TYPE String.
- **endPointName** -name of this endpoint; defined using naming convention for the associated protocol. TYPE String.

14: Definitions & Abbreviations

Acronym	Definition
ADSL	Asymmetric Digital Subscriber Line
AFC	Advanced Fibre Communications
BCM	Business Communications Manager
CS	Communication Server
CS2K	Call Server 2000
CORBA	Common Object Request Broker Architecture
DDMS	DMS Data Management System
DMS	Digital Multiplex System
DQoS	Dynamic quality of service
DS	Differentiated services field. An 8 bit field containing the 6 bit DSCP subfield.
DSCP	Diffserv Code Point. A 6 bit subfield of the DS field in every IP packet which identifies the Diffserv Per Hop Behavior. In IP version 4, the TOS byte is redefined to be the DSCP. In IP version 6, the Traffic Class octet is used as the DSCP.
DTD	Document Type Definition
DTC	Digital Trunk Controller
DTCI	ISDN Digital Trunk Controller
EM	Element Manager
EPID	End Point Identifier
GUI	Graphical User Interface
GW	Gateway
GWC	Gateway Controller
GWC EM	Gateway Controller Element Manager
HTML	HyperText Markup Language

IDL	Interface Definition Language
IP	Internet Protocol
LBL	Low Bandwidth Link
LTC	Line/Trunk Controller
MG9K	Media Gateway 9000
MG9K EM	Media Gateway 9000 Element Manager
MG	Media Gateway
MGC	Media Gateway Controller
MP	Media Proxy
MTA	Multimedia terminal adapter
MTC	Maintenance
NAT	Network Address Translator
NV	Network View
NN	Node Number
OSS	Operation Support System
OSSDI	OSS Data Interface
PEP	Policy Enforcement Point
PRI	Primary Rate Interface
RU	Resource Usage
SNMP	Simple Network Management Protocol
SSPFS	Succession Solaris Platform Foundation Software
SS7	Signaling System 7
TDM	Time Division Multiplexing
TID	Terminal Identifier
TMM	Trunk Maintenance Manager
TN	Terminal Number
USN	Unique Sequence Number

XML	Extensible Markup Language
XMLCP	XML Command Processor
XSD	XML Schema Definition
XSL	Extensible Style Sheet Language

15: SSH Products Comparison

OSSGate supports SSH to enable secure data transport. The table below provides a comparison of several SSH products, which are available in the market. This table is provides as a guidance for selection if needed.

Table 17: SSH Product Comparison

Name	Platform	License	Protocol	Server	Authentication	KeyGen	Contact	Forwarding
AmigaSSH	Amiga	GNU PublicLicense	SSH-1	No	Password, Public-key	ssh-keygen	www.lysator.liu.se/~lilja/amigassh	No
SSH	BeOS	Freeware	SSH-1	No	Password, Public-key, trusted-Host	ssh-keygen	www.bebits.com/app/703	Port, X
JavaSSH	Java	Freely Distributable	SSH-1	No	Password, Public-key	N/A	www.cl.cam.ac.uk/~fapp2/software/java-ssh	No
MindTerm	Java	GNU publicLicense	SSH-1	No	Password, Public-key, Trusted-host, TIS, sid-token	Yes	www.mindbright.se	Port, X
F-Secure SSH client	Mac, Windows	Commercial	SSH-1 , SSH-2	No	Password, Public-key	Yes	www.f-secure.com	Port, X
SSHDOS	MS-DOS	GNU publicLicense	SSH-1	No	Password	No	www.vein.hu/~nagyd	No
SSHOS2	OS/2	Info Not Available	SSH-1	No	Password, Public-key, Trusted-host	Yes	ftp://ftp.cs.hut.fi/pub/ssh/old/os2	Port, X
TopGun SSH	PalmOS	Free	SSH-1	No	Password	No	www.isac.cs.berkeley.edu/pilot	No
Ossh	Unix	BSD License	SSH-1	sshd	Password, Public-key, Trusted-host,	ssh-keygen	ftp://ftp.nada.kth.se/pub/krypto/ossh	Port, X

Table 17: SSH Product Comparison

Name	Platform	License	Protocol	Server	Authentication	KeyGen	Contact	Forwarding
FISH	VMS	Freeware	SSH-1	No	Password, Public-key, Trusted-host,	Yes	www.free.lp.se/fish	No
sshexec.com	VMS	Freeware	SSH-1	Yes	Password, public-key	Yes	www.er6.eng.ohio-state.edu/~jonesd/ssh	
AppGate	Windows, Unix, Mac	Commercial					www.appgate.com	
Metro StateSSH	Windows	GNU public license	SSH-1	No	Password	No	http://csi.mscd.edu/MSSH	Port
Okhapkin Port	Windows	Free for non commercial use	SSH-1, SSH-2	Sshd	Password, public-key, trusted-host	ssh-keygen	http://miracle.geol.msu.ru/sos	Port, X
PenguinNet	Windows	Shareware	SSH-1	No	Password, public-key, rhosts	Yes	www.siliconcircus.com	No
SSH Secure Shell	Windows	Free for non commercial use	SSH-2	No	Password, public-key	Yes	www.ssh.com	Port, X
SecureCRT	Windows	Commercial	SSH-1, SSH-2	No	Password, public-key, TIS	RSA,DSA	ww.vandyke.com	Port, X
SecureFX	Windows	Commercial	SSH-2	No	Password, public-key	Yes	www.vandyke.com	No
SecureKoalaTerm	Windows	Shareware	SSH-1, SSH-2	No	Password, public-key	Yes	www.midasoft.com	No
TTSSH	Windows	Freely distributable	SSH-1	No	Password, public-key, trusted-host, TIS	No	www.zip.com.au/~roca/ttssh.html	Port, X
Zoc	Windows	Commercial	SSH-1	No	Password	No	www.emtec.com/zoc	No
SshCE	Windows	Freeware	SSH-1	No	Password	No	www.movsoftware.com/sshce.htm	No

16: Provisioning Conventions for GWC, Media Gateways, VMG, and Endpoints

16.1 PVG gateways

Capacities of MGs are defined in the profiles available for selection when the MG is associated to the GWC. Correct selection of capacity is important to get the maximum utilization of your GWC. For example, a trunking GWC supports a maximum of 4094 datafilled ports, however, some PVG VSP configurations support a maximum of 1120 ports. Therefore to get maximum utilization of the GWC, one would provision 3 1120 port VSPs and 1 624 port VSPs. Changing capacity is supported. To get better utilization of the GWC, one could change reserved ports for a GWC to be lower than what is defined in the profile.

In SN05 and later releases, PVGs are also used to host anchor packet resources. We call this an Anchor Packet Gateway or APG. APGs can only be associated with GWCs that are APG capable.

Table 18: PVG MG Profile Values and Configuration Parameters for Provisioning

Profile Name	Service Type	Reserved Port Capacity	Protocol	OSSGATE Protocol	Protocol Version
PVG15K	trunk	1120	ASPEN, MEGACO	2 , 4	2.1
PVG15K_1000	trunk	1000	ASPEN, MEGACO	2, 4	2.1
PVG15K_PARTIAL	trunk	624	ASPEN, MEGACO	2, 4	2.1
PVG7K	trunk	1008	ASPEN, MEGACO	2, 4	2.1
PVG_VSP3	trunk	2016	ASPEN, MEGACO	2, 4	2.1
PVG_APG	APG	1120	ASPEN, MEGACO	2, 4	2.1
PVG_APG_VSP3	APG	2016	ASPEN, MEGACO	2, 4	2.1

Table 19: PVG Internally Used MG Profile Values and Configuration Parameters

Profile Name	MG Category	GWC Connectivity Profile Number	Protocol	Protocol Version (internal storage)
PVG15K	large	46	2, 4	2.1, 1.0
PVG15K_1000	large	46	2, 4	2.1, 1.0
PVG15K_PARTIAL	large	46	2, 4	2.1, 1.0
PVG7K	large	46	2, 4	2.1, 1.0
PVG_VSP3	large	46	2, 4	2.1, 1.0
PVG_APG	APG	46	2, 4	2.1, 1.0
PVG_APG_VSP3	APG	46	2, 4	2.1, 1.0

Table 20: GWC Profiles used by PVG Gateways

Profile Name	Tone Data	([Exec, Term]...)	([Type, Capacity],...)
TRUNKNA	NORTHAM	[('DTCEX','PRAB'), ('DTCEX', 'ABTRK')]	[(trunks(2),4094), (largeGWs(8), 24)]
TRUNK250	NORTHAM	[('UTR250','PRAB'), ('DTCEX', 'ABTRK')]	[(trunks(2),4094), (largeGWs(8), 24)]
TRUNKINTL	UKADSI	[('DTCEX','PRAB'), ('DTCEX', 'ABTRK')]	[(trunks(2),4094), (largeGWs(8), 24)]
V52TRUNK	UKADSI	[('POTSEX','POTS'), ('DTCEX', 'ABTRK')]	[(trunks(2),3968), (largeGWs(8), 24), (v52(17), 0)]

Table 21: GWC Profiles used by PVG_APG Gateways

Profile Name	Tone Data	([Exec, Term]...)	([Type,Capacity],...)
APG_WITH_RA	NORTHAM	[('DTCEX', 'ABTRK')]	[(apgp(4),6048), (apgGWs(10), 3) (ra(13),0)]
APG	NORTHAM	[('DTCEX', 'ABTRK')]	[(apg(4),6048), (apgGWs(10), 3)]

16.1.1 Media Gateway Name

Up to 8 upper case characters starting with an alphabetical character, followed by alphas and numbers

suggested format:

PVG<n...n><lp> where

<nn> is device number of the PVG, which value should be any character in the range 0-9 or a-z or A-Z, or with '-' or '_' embedded in it.

<lp> is the number of the slot of the logical processor card for the VSP in the PVG (recommended slots 6-11)

e.g. PVG046

16.2 H.323 gateways

The maximum port or endpoint capacity for H.323 gateways varies depending on the vendor gateway type. Consult

Table 22: H.323 MG Profile Values and Configuration Parameters for Provisioning

Profile Name	Service Type	Protocol	OSSGATE Protocol	Protocol Version
NORTEL_BCM	H.323, ITRANS	H.323	6	4.0
SUCCESSION_1000	H.323, ITRANS	H.323	6	4.0
CISCO_2600	H.323, ITRANS	H.323	6	4.0
CISCO_3600	H.323, ITRANS	H.323	6	4.0
CISCO_AS5300	H.323, ITRANS	H.323	6	4.0
WESTELL	H.323, ITRANS	H.323	6	4.0
H.323_PROXY	H.323, ITRANS	H.323	6	4.0

vendor documentation for details.

Table 23: H.323 Internally Used MG Profile Values and Configuration Parameters

Profile Name	MG Category	GWC Connectivity Profile Number	Protocol	Protocol Version (internal storage)
NORTEL_BCM	Large	61	H.323	4.0
SUCCESSION_1000	Large	62	H.323	4.0
CISCO_2600	Large	63	H.323	4.0
CISCO_3600	Large	64	H.323	4.0
CISCO_AS5300	Large	65	H.323	4.0
WESTELL	Large	66	H.323	4.0

Table 24: GWC Profiles used by H.323 Gateways

Profile Name	Tone Data	([Exec, Term]...)	([Type, Capacity],...)
H.323_NA	NORTHAM	[('DTCEX', 'PRAB)] [('DTCEX', 'ABTRK')]	[(h323(21),1032), (largegws(8), 200)]
H.323_INTL	UKADSI	[('DTCEX','PRAB'), ('DTCEX', 'ABTRK')]	[(h323(21),1024), (largeGWs(8), 200)]

16.3 CVX gateways

Table 25: CVX MG Profile Values and Configuration Parameters for Provisioning

Profile Name	Service Type	Reserved Port Capacity	Protocol	OSSGATE Protocol	Protocol Version
CVX1800_2688	Trunk	2688	DSMCC	3	1.0
CVX600_612	Trunk	612	DSMCC	3	1.0

Table 26: CVX Internally Used MG Profile Values and Configuration Parameters

Profile Name	MG Category	GWC Connectivity Profile Number	Protocol	Protocol Version (internal storage)
CVX1800_2688	Large	47	3	1.0
CVX600_612	Large	47	3	1.0

16.4 Other trunk gateways and Audio Servers

Table 27: UAS, Profile Values and Configuration Parameters for Provisioning

Profile Name	Service Type	Reserved Port Capacity	GUI Protocol	OSSGATE Protocol	Protocol Version
UAS	audio	0 (undefined)	MEGACO	4	1.0
AUDIOCODES	trunk	280	MEGACO	4	1.0
NEURA_GX	trunk	2108	ASPEN, MEGACO	2.4	2.1, 1.0
TGCP	trunk	-	TGCP	7	

Table 28: Internally Used UAS Profile Values and Configuration Parameters

Profile Name	MG Category	GWC Connectivity Profile Number	Protocol	Protocol Version (internal storage)
UAS	audio	48	4	1.0
AUDIOCODES	large	54	4	1.0
NEURA_GX	large	59	2,4	2.1, 1.0
TGCP	large	60	7	

Table 29: GWC Profiles used by UAS Gateways

Profile Name	Tone Data	([Exec, Term]...)	([Type,Capacity],...)
AUDCNTL	NORTHAM	[('DTCEX', 'ABTRK')]	[(audio(3),4096), (audioGWs(9),16), (bct(14),0), (ipsec(15),0) (conferences(18),0) , (announcements(19),0)]
AUDCNTLINTL	UKADSI	[('DTCEX', 'ABTRK')]	[(audio(3),4096), (audioGWs(9),16), (bct(14),0),(ipsec(15),0) (conferences(18),0), (announcements(19),0)]

16.4.1 Media Gateway Name

A domain name of the Media Gateway in the form of an absolute domain name including the hostname of the device and suitable for lookup using Directory Name Service (DNS). The name must no longer than 32 characters. An example would be:

uas1.ral5.vendor.net

16.4.2 Endpoint Names

Endpoints are not specified during provisioning of Universal Audio Servers

16.5 Other Gateway Controller Profiles

Table 30: Gateway Controller Profile Updates

Profile Name	Tone Data	Service Type	Service Type, Capacity
BICC	NORTAM	DTCEX, ABTRK	dpt(5), 4096 sipt(11), 0
AUDCNTL_RMGC	NORTHAM	DTCEX, ABTRK	audio (3), 4096; audioGWs(9), 16 bct (14), 0; ipsec (15), 0 kerberos (16), 0 conferences (18), 0 announcements (19), 0 rmgcGWs (20),115,000

Table 30: Gateway Controller Profile Updates

Profile Name	Tone Data	Service Type	Service Type, Capacity
AUDCNTL_R MGCINTL	UKADSI	DTCEX, ABTRK	audio (3), 4096; audioGWs(9), 16 bct (14), 0; ipsec (15), 0 kerberos (16), 0 conferences (18), 0 announcements (19), 0 rmgcGWs (20),115,000

16.6 Carrier Name and Carrier Endpoint Names

Carrier Endpoints are provisioned in groups representing E1 and DS1 levels. Provisioning at this level gives access to all timeslots for service provisioning. Services supported in since SN04 include: ISUP trunking, PRI trunking, V5.2 service and APG service for bearer channel anchoring.

Carrier names are case sensitive on the PVG and should be entered in upper case. Descriptions below include both endpoint groups and individual endpoint descriptions. Services can be applied at the DS1/E1 timeslot level.

In addition to the traditional trunking carrier groups, special H.323 carrier groups are supported using carrier operations.

16.6.0.1 E1

E1_<h1><h2>.<g> where

<h1> is the LP (logical processor) number (or slot) of the E1: 1-15 (no padding)

<h2> is the E1 (two digit) number: 01-32

<g> is the channel number: 1-31 (no leading 0)

e.g. Carrier name: E1_220; Carrier Endpoint name (timeslot) 1

16.6.0.2 DS3

DS3_<b1><b2>.<c>.<d> where

<b1> is the LP (logical processor) number (or slot) of the DS3 (recommended slots 2-5): 2-5

<b2> is the DS3 (single digit) port number: 0-1

<c> is the DS1 number within the DS3: 1-28

<d> is the channel in the DS1: 1-24

e.g. Carrier name: DS3_20.3 - Carrier Endpoint name (timeslot) DS3_20.3.1

16.6.0.3 STM-1

SM_<lp><pp><r>_412_<jj><k><l><m>.<ee> (when using ASPEN protocol)

STM/<lp>/<pp>/<r>/VC4VC12/<jj>/<k>/<l>/<m>/<ee>
(When using H.248/Megaco Protocol)

where

<lp> is the LP (logical processor) number (or slot) of the STM-1 interface: 1-15 (no padding) (recommended slots 2-5)

<pp> is the (two digit) port number: 00-03

<r>: is the (one digit) STM level ID, STM-1:1, STM-4:2 (Only STM-1 is supported now, hence valid value is 1)

"_412_" identifies the muxing type VC4VC12.

<jj>: is the (two digit) AUG number within the STM-n (Valid value 01 only, since STM-1 only is supported now)

<k> is the (one digit) TUG-3 number within a VC4: 1-3

<l> is the (one digit) TUG-2 number within a TUG-3: 1-7

<m> is the (one digit) TU number within a TU: 1-3

<ee> 1 or 2 digit number, with VS-12 channel/timeslot: 1-31 (no leading 0)

e.g. carrier name: SM_2011_412_01361

endpoint name: SM_2011_412_01361.1

e.g. STM/2/1/1/VC4VC12/1/3/6/1

16.6.0.4 OC-n/STS-n

SS_<lp><pp><r>_VT15_<jj><l><m>.<e> when using ASPEN protocol

STS/<lp>/<pp>/<r>/VT15/<jj>/<l>/<m>/<e> when using H.248/Megaco protocol

where

<lp> is the LP (logical processor) number (or slot) of the OC-3 interface: 1-15 (no padding)(recommended slots 2-5)

<pp> is the (two digit) port number: 00-03

<r>: 1 digit STS level ID, STS-3:3, STS-12:4 etc (valid value is 3 since only OC3 is supported as of now)

"_VT15_" identifies the muxing type STS-1/VT15.

<jj> is the (two digit) STS-1 number within the STS-n: (valid range is 01-03, since only OC3 is supported as of now)

<l> is the (one digit) VT group number within STS-1: 1-7

<m> is the (one digit) VT number within a VT: 1-4

<e> is the VT1.5 channel/timeslot: 1-24 (no leading 0)

e.g. carrier name: SS_2023_VT15_0161

endpoint name: SS_2023_VT15_0161.1

e.g STS/2/1/3/VT15/1/6/1

16.7 MG9000 Line Gateways

In SN04 as in SN03 capacities of MGs are defined in the profiles available for selection when the MG is associated to the GWC. Therefore, selection of capacity is important to get the maximum utilization of your GWC.

For example, a line GWC supports a maximum of 6400 datafilled ports, however, MG9000 VMGs support 512 circuits. Changing this capacity is not supported in before SN04. A future release will allow lowering the reserved capacity for existing VMGs and to allow the customer to specify reserved port capacity upon entering the association.

Table 31: MG9000 Profile Values and Configuration Parameters for Provisioning

Profile Name	Service Type	Reserved Port Capacity	GUI Protocol	OSSGATE Protocol	Protocol Version
UE9000MG	line	512	MEGACO	5	1.0
UE9000MG_IP (was : MG9K_IP)	large	512	MEGACO	1 5 . 0	1.0

Table 32: MK9K Internally Used MG Profile Values and Configuration Parameters

Profile Name	MG Category	GWC Profile Number	Protocol	Protocol Version (internal storage)
UE9000MG	large	50	5	1.0
UE9000MG_IP (was : MG9K_IP)	large	55	5	1.0

Table 33: GWC Profiles used by MG9000 Gateways

Profile Name	Tone Data	([Exec, Term]...)	([Type,Capacity],...)
LARGE_LINENA	NORTHAA	[('POTSEX','POTS'), ('KSETEX', 'KEYSET')]	[(lines(1),6400), (largeGWs(8),27)]
LARGE_LINEINTL	UKADSI	[('POTSEX','POTS'), ('KSETEX', 'KEYSET')]	[(lines(1),6400), (largeGWs(8),27)]

16.7.1 Virtual Media Gateway (VMG) Names

The UE9000 MG is comprised of one or more VMGs. This section documents the format for naming of a VMG.

- **Format:** SSSSXXX-Y-Z

- **Where:**
- SSSS is a 1 to 4 character SITE name (as provisioned in Table SITE on the XA-Core).
- XXX is the office frame number (000-511).
- Y is the logical frame (0-7).
- Z is the shelf (0-3).

Example: LAKE017-6-2

16.7.2 Media Gateway Name

up to 32 characters with the following format:

<string>/<frame number>/<shelf number> where

<string> is MG9K_<n> where n is a number between 1 and 999 indicating the number of the MG9000 network element in this call server network. <string> cannot contain a "/", but can contain alphanumerics and "_".

<frame> is a number: 0-7

<shelf> is a number: 0-3

16.7.3 Line Termination Endpoint Names

tp/<slot>/<circuit> where

<slot> is a 2 digit number: 02-21

<circuit> is a 2 digit number: 00-31

The **tp** must be lower case.

Example: tp/03/01

16.8 CICM, AFC Line Gateways

The characteristics of the CICM and AFC gateways are listed in the following table.

Table 34: Gateway Profile Values and Configuration Parameters

Gateway Profile Name	GW Category	Signal Protocol	Protocol Version	Protcol Port	Service Type	Port/EP Capacity	**GWC Profile Number**
CICM	Large	MEGACO	1.0	2944	Line, ITRANS	1024	57
AFC	Large	MEGACO	1.0	2944	Line, Trunk, Audio, APG, DQOS, ITRANS	1023	67

16.8.1 Media Gateway Name

AFC and SN06 CICM gateway naming convention follow those of small line gateways detailed in section 16.6.1

SN07 CICM gateway naming convention:

<name>-<nnn> where

<name> is any alpha numeric string

<nnn> is a zero padded number that ranges from 000 to 511. This number matches the frame number seen in the assigned logical group.

16.8.2 AFC Endpoint Names

Endpoints for AFC gateways takes the format

tp/<nnnn> where

<nnnn> is a zero padded number that range from 0000 to 1022.

16.8.3 CICM Endpoint Names

Endpoints for CICM gateways takes the format

Format of terminations provisioned in SN06:

tp/<nnnn>

<nnnn> is a number that ranges from 0 to 9999999. It is not zero padded.

Format of terminations provisioned in SN07:

tp/<G>/<nnnn> where

<G> is a number that ranges from 0-2.

<nnnn> is a number that ranges from 0000 to 1022. It is zero padded.

16.9 MTA Line Gateways

Capacities of MGs are defined in the profiles available for selection when the MG is associated to the GWC. Therefore, selection of capacity is important to get the maximum utilization of your GWC.

For example, a line GWC supports a maximum of 6400 datafilled ports, however, MTA devices support varying numbers of endpoints. Initial selection of reserved capacity should reflect the maximum number of lines this customer will possible use. This will reserve capacity in the GWC and may therefore impact the number of GWCs that support a given office. This is required to avoid the need for "rehoming" MTAs when unused lines are put into service.

A future release will allow lowering the reserved capacity for existing VMGs and to allow the customer to specify reserved port capacity upon creating the association.

Table 35: MTA Profile Values and Configuration Parameters for Provisioning

Profile Name	Service Type	Reserved Port Capacity	GUI Protocol	OSSGATE Protocol	Protocol Version
MOTOROLAMTA_1	line, DQOS	1	NCS	1	1.0
MOTOROLAMTA_2	line, DQOS	2	NCS	1	1.0
MOTOROLAMTA_4	line, DQOS	4	NCS	1	1.0

Table 35: MTA Profile Values and Configuration Parameters for Provisioning

Profile Name	Service Type	Reserved Port Capacity	GUI Protocol	OSSGATE Protocol	Protocol Version
TOUCHTONE_NN01_1	line, DQOS	1	NCS	1	1.0
TOUCHTONE_NN01_2	line, DQOS	2	NCS	1	1.0
TOUCHTONE_NN01_3	line, DOQS	3	NCS	1	1.0
TOUCHTONE_NN01_4	line, DQOS	4	NCS	1	1.0
ARRIS_TOUCHTONE_ NN01_4	line, DOQS	4	NCS	1	1.0
ARRIS_TOUCHTONE_ NN02_4	line, DQOS	4	NCS	1	1.0

Table 36: Internally Used MTA Profile Values and Configuration Parameters

Profile Name	MG Category	GWC Connectivity Profile Number	Protocol	Protocol Version (internal storage)
MOTOROLAMTA_1	small	52	1	1.0
MOTOROLAMTA_2	small	52	1	1.0
MOTOROLAMTA_4	small	52	1	1.0
TOUCHTONE_NN01 _1	small	45	1	1.0
TOUCHTONE_NN01 _2	small	45	1	1.0
TOUCHTONE_NN01 _3	small	45	1	1.0
TOUCHTONE_NN01 _4	small	45	1	1.0
ARRIS_TOUCHTON E_NN01_4	small	45	1	1.0

Table 36: Internally Used MTA Profile Values and Configuration Parameters

Profile Name	MG Category	GWC Connectivity Profile Number	Protocol	Protocol Version (internal storage)
ARRIS_TOUCHTONE_NN02_4	small	52	1	1.0

Table 37: GWC Profiles used by MTA Line Gateways

Profile Name	Tone Data	([Exec, Term]...)	([Type,Capacity],...)
SMALL_LINENA	NORTHAA	[('POTSEX','POTS'), ('KSETEX', 'KEYSET')]	[(lines(1),6400), (smallGWs(7),6400), (ipsec(15), 0), (kerberos(16),0), (dqos(6),20)]
SMALL_LINEINTL	UKADSI	[('UTR250','PRAB'), ('DTCEX', 'ABTRK')]	[(lineports(1),6400), (smalllinegws(7),6400), (ipsec(15), 0), (kerberos(16),0), (dqos(6),20)]

16.9.1 Media Gateway Name

A domain name of the Media Gateway in the form of an absolute domain name including the hostname of the device and suitable for lookup using Directory Name Service (DNS). The name must contain a "." and be no longer than 32 characters. An example would be:

cust34671.rdu.attcable.net

Steps to configure Cable gateway names where FQDN exceed 32 characters:

[TBD]

16.9.2 Line Termination Endpoint Names

aaln/<n> where

<n> is a number: 1-4 depending on the MTA model and market*

16.10 IAD Line Gateways

Capacities of MGs are defined in the profiles available for selection when the MG is associated to the GWC. Therefore, selection of capacity is important to get the maximum utilization of your GWC.

For example, a line GWC supports a maximum of 6400 datafilled ports, however, Integrated Access Devices (IADs) support varying numbers of endpoints. Initial selection of reserved capacity should reflect the maximum number of lines this customer will possible use. This will reserve capacity in the GWC and may therefore impact the number of GWCs that support a given office. This is required to avoid the need for "rehoming" IADs when unused lines are put into service.

A future release will allow lowering the reserved capacity for existing VMGs and to allow the customer to specify reserved port capacity upon creating the association.

Table 38: IAD Profile Values and Configuration Parameters for Provisioning

Profile Name	Service Type	Reserved Port Capacity	GUI Protocol	OSSGATE Protocol	GUI Protocol Version	OSSGATE Protocol Version
MEDIATRIX_LINE_GW_4	line	4	MGCP	5	1.0	1.0
MEDIATRIX_LINE_GW_24	line	24	MGCP	5	1.0	1.0
ASKEY_LINE_GW_4	line	4	MGCP	5	1.0	1.0
ASKEY_LINE_GW_12	line	12	MGCP	5	1.0	1.0
ASKEY_LINE_GW_30	line	30	MGCP	5	1.0	1.0

Table 39: Internally Used MG Profile Values and Configuration Parameters

Profile Name	MG Category	GWC Connectivity Profile Number	Protocol	Protocol Version (internal storage)
MEDIATRIX_LINE_GW_4	small	49	5	1.0
MEDIATRIX_LINE_GW_24	small	49	5	1.0
ASKEY_LINE_GW_4	small	49	5	1.0

Table 39: Internally Used MG Profile Values and Configuration Parameters

Profile Name	MG Category	GWC Connectivity Profile Number	Protocol	Protocol Version (internal storage)
ASKEY_LINE_GW_12	small	49	5	1.0
ASKEY_LINE_GW_30	small	49	5	1.0
AMBIT_LINE_GW_16	small	49	5	1.0
MGCP_LINE_GW_1	small	49	5	1.0

Table 40: GWC Profiles used by IAD Line Gateways

Profile Name	Tone Data	([Exec, Term]...)	([Type,Capacity],...)
SMALL_LINENA	NORTHAA	[('POTSEX','POTS'), ('KSETEX', 'KEYSET')]	[(lines),6400), (smallGWs(7),6400), (ipsec(15), 0), (kerberos(16),0), (dqos(6),20)]
SMALL_LINEINTL	UKADSI	[('UTR250','PRAB'), ('DTCEX', 'ABTRK')]	[(lines(1),6400), (smallGWs(7),6400), (ipsec(15), 0), (kerberos(16),0), (dqos(6),20)]

16.10.1 Media Gateway Name

A domain name of the Media Gateway in the form of an absolute domain name including the hostname of the device and suitable for lookup using Directory Name Service (DNS). The name must contain a "." and be no longer than 32 characters. An example would be:

cust34671.rdu.vendor.net

16.10.2 Line Termination Endpoint Names

aaln/<n> where

<n> is a number: 1-4 depending on the model and market*

Note: *size of media gateway is specified when choosing the media gateway profile. Size values reserve space on selected GWCs.

16.11 Other Gateway Controller Profiles

16.11.1 VRDN

The following profiles are supported for VRDN Gateway Controllers.

Table 41: VRDN GWC Profiles

Profile Name	Tone Data	([Exec, Term]...)	([Type,Capacity],...)
VRDN	NORTHAM	[('DTCEX', 'ABTRK')]	[(vrdn(12),0)]
VRDNINTL	UKADSI	[('DTCEX', 'ABTRK')]	[(vrdn(12),0)]

16.11.2 SIP-T

The following profiles are supported for SIP-T Gateway Controllers.

Table 42: SIP-T GWC Profiles

Profile Name	Tone Data	([Exec, Term]...)	([Type,Capacity],...)
SIP-T	NORTHAM	[('DTCEX', 'ABTRK')]	[(dpt(5),4096), (sipt(11),0)]
SIP-TINTL	UKADSI	[('DTCEX', 'ABTRK')]	[(dpt(5),4096), (sipt(11),0)]
SIP-T_APG	NORTHAM	[('DTCEX', 'ABTRK')]	[(apg(4), 2016), (dpt(5),4096), (apgGWs(10),1), (sipt(11),0)]
SIP-T_APGINTL	UKADSI	[('DTCEX', 'ABTRK')]	[(apg(4), 2016),(dpt(5),4096), (apgGWs(10),1), (sipt(11),0)]
SIP-T_APG_RA	NORTHAM	[('DTCEX', 'ABTRK')]	[(apg(4), 2016), (dpt(5),4096), (apgGWs(10),1), (sipt(11),0), (ra(13), 0)]
SIP-T_APG_RAINTL	UKADSI	[('DTCEX', 'ABTRK')]	[(apg(4), 2016), (dpt(5),4096), (apgGWs(10),1), (sipt(11),0), (ra(13), 0)]

