



Cisco BTS 10200 Softswitch Provisioning Guide, Release 5.0.x

May 31, 2010

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Preface

Revised: May 31, 2010, OL-12777-12

This preface describes the objectives, audience, organization, and conventions of this document and explains how to find additional information on related products and services.

Document History

Cisco BTS 10200 Softswitch Release	Change Date	Changes
Release 5.0	31 May 2010	Updated the provisioning steps in the “Provisioning BTS10200 ENUM” section on page 15-3.
Release 5.0	18 February 2010	Updated the Provisioning Notes/Caveats section in the “Local Number Portability for ANSI/North America” section on page 7-81.
Release 5.0	4 Dec 2009	Updated the provisioning steps for the “Calling Name Delivery” section on page 7-54.
Release 5.0	28 July 2009	Updated the Announcement Provisioning section in the “No Solicitation Announcement” section on page 7-97. Updated the Think Engine/IPUnity Ann ID for Release Cause Number 1172 in Appendix A, “Release Cause Codes and Announcement IDs” .
Release 5.0	13 May 2009	Enhanced the Office Provisioning steps in “Automatic Recall” section on page 7-22 and updated the announcement ID for Release Cause Code 1145. Updated the provisioning steps in “Provisioning for IVR Collection of Account/Authorization Codes” section on page 7-63.
Release 5.0	25 Nov 2008	Updated the “Multiline Variety Package” section on page 7-92
Release 5.0	15 Oct 2008	Enhanced the provisioning steps for Two-Level AR Activation. See the “Two-Level AR Activation” section on page 7-27.

Cisco BTS 10200 Softswitch Release	Change Date	Changes
Release 5.0	18 June 2008	Added information regarding Block All Inbound Calls Provisioning. See the “Block All Inbound Calls” section on page 7-31 .
Release 5.0	29 May 2008	Updated the office provisioning for Termination Attempt Trigger (TAT) in Chapter 7, “Feature Provisioning.”
Release 5.0	27 May 2008	Updated the provisioning for Hotline, Hotline-Variable, and Warmline in the Chapter 7, “Feature Provisioning.”
Release 5.0	20 Feb 2008	Updated the provisioning in the “Two-Level AR Activation” section on page 7-27 .
Release 5.0	13 Feb 2008	Adding Chapter 14, “SIP Subscriber Provisioning.”
Release 5.0	26 Dec 2007	Added the Enum Provisioning chapter. See the “ENUM Provisioning” section on page 15-1 . Added information regarding Multiline Variety Package Provisioning. See the “Multiline Variety Package” section on page 7-92 . Added information regarding provisioning the Seasonal Suspend feature. See the “Seasonal Suspend Provisioning for MR1 and Earlier” section on page 7-133 and “Seasonal Suspend Provisioning for MR1.1 and Later” section on page 7-138 . Added information regarding the provisioning the TMB and GMB features. See the “Terminal and Group Make Busy Services” section on page 7-155 .
Release 5.0		First issue of this document for Release 5.0.

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Document Objective

This document provides the information you need for provisioning your Cisco BTS 10200 Softswitch.

Audience

The primary audience for this document is Cisco BTS 10200 Softswitch users, network operators, and administrators who have experience in the following areas:

- Telecommunications network operations
- Data network operations
- SS7 protocols, switching, and routing
- Telecommunications hardware
- Data network hardware

In addition, the following audiences may find this document useful:

- Software and hardware installers
- Network designers

Document Conventions



Caution

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.



Note

Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in this manual.



Tip

Means *the following information might help you solve a problem*.



Timesaver

Means the *described action saves time*. You can save time by performing the action described in the paragraph.

Documentation Suite

The complete documentation set for Release 5.0 is located at the following URL:

http://www.cisco.com/univercd/cc/td/doc/product/voice/bts10200/bts5_0/index.htm

At the above site, you can see related documentation about the Cisco BTS 10200 Softswitch software, including:

- [Cisco BTS 10200 Softswitch Release Notes](#)
- [Cisco BTS 10200 Softswitch Command Line Interface Reference Guide](#)
- [Cisco BTS 10200 Softswitch System Description](#)
- [Cisco BTS 10200 Softswitch Network and Subscriber Descriptions](#)

- [Cisco BTS 10200 Softswitch Operations and Maintenance Guide](#)
- [Cisco BTS 10200 Softswitch Troubleshooting Guide](#)
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http://business.cisco.com/prod/tree.taf%3fasset_id=44699&public_view=true&kbns=1.html

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CHAPTER 1

Cisco BTS 10200 Softswitch Provisioning Overview

Revised: May 31, 2010, OL-12777-12

This chapter provides an overview of the Cisco BTS 10200 Softswitch provisioning process and tools. It includes the following sections:

- [Provisioning Overview, page 1-1](#)
- [Operator Interfaces, page 1-3](#)
- [Command Line Interface, page 1-4](#)
- [Report Files, page 1-7](#)
- [Bulk Provisioning, page 1-8](#)
- [Copy and Paste Provisioning, page 1-10](#)
- [Extensible Provisioning and Operations Manager, page 1-10](#)

Provisioning Overview

The Cisco BTS 10200 Softswitch provides the major functions performed by traditional Class 4 tandem and Class 5 Central Office (CO) switching systems. It provides call-control intelligence for establishing, maintaining, routing, and terminating voice calls, and it also serves as an interface to enhanced service and application platforms. The Cisco BTS 10200 Softswitch empowers service providers and carriers to gracefully transition to packet-based technology by leveraging the power of packet networks while seamlessly operating with legacy circuit-switched infrastructures.

The Cisco BTS 10200 Softswitch incorporates a comprehensive feature set, including support for local and long-distance voice services that previously required implementation of large, complex telephone switches.

Refer to the *Cisco BTS 10200 Softswitch System Description* for a complete description of the architecture, components, and features associated with the Cisco BTS 10200 Softswitch.

Provisioning tasks are performed in a sequence that can vary depending on your configuration. However, some provisioning tasks must be performed before certain other tasks are performed. The following list identifies a recommended provisioning sequence:

1. Initial Softswitch provisioning
2. Subscriber provisioning
3. Subscriber features provisioning

4. Softswitch routing provisioning

Secure Shell

Secure shell (SSH) is the default method of access to the Cisco BTS 10200 Softswitch command-line interface (CLI). SSH provides encrypted communication between a remote machine and the Element Management System (EMS) or Call Agent (CA) for executing CLI commands. The SSH server runs on the EMSs and CAs of the Cisco BTS 10200 Softswitch. To connect, the client and server sides must run the secure shell daemon (SSHD).

The SSHD runs as a Solaris daemon process. It is automatically started when the Solaris is brought up, but if it dies, it must be manually restarted. A single unique instance of the SSHD runs on every component of the Cisco BTS 10200 Softswitch.

SSH is an optional login choice. Use the Cisco BTS 10200 Softswitch default application installation option to enable SSH and to disable RSH, REMSH, RLOGIN, Telnet, or REXEC. FTP is not affected. If SSH is not selected, then RSH, REMSH, RLOGIN, Telnet, or REXEC are enabled and FTP is still not affected.

If SSH is enabled, new users are prompted to enter a new password and reenter that password during their first login. From that point, they are prompted once for a password only.

To log in from the client side, enter the following:

```
ssh -l username IPaddress
```

On the first SSH login from the client side, expect a message similar to this:

```
The authenticity of host [hostname] can't be established.  
Key fingerprint is 1024 5f:a0:0b:65:d3:82:df:ab:42:62:6d:98:9c:fe:e9:52.  
Are you sure you want to continue connecting (yes/no)?
```

Enter **yes** and press **Enter**.

The password prompt appears. From this point on, all communications are encrypted.

Subsequent SSH logins prompt only for a password.

Activating SSH Versions 1 and 2

SSH version 2 is the default SSH version. However, systems such as CALEA can use SSH version 1. The following procedure allows you to activate SSH version 1 so that the Cisco BTS 10200 supports both versions 1 and 2.

-
Step 1	Use a text editor to open <code>/opt/BTSossh/etc/sshd_config</code> and change “Version 2” to “Version 2,1”.
Step 2	At the command prompt, enter <code>/etc/init.d/sshd down</code>
Step 3	Enter <code>/etc/init.d/sshd start</code>
-

Before You Begin

Perform the following tasks before using this guide:

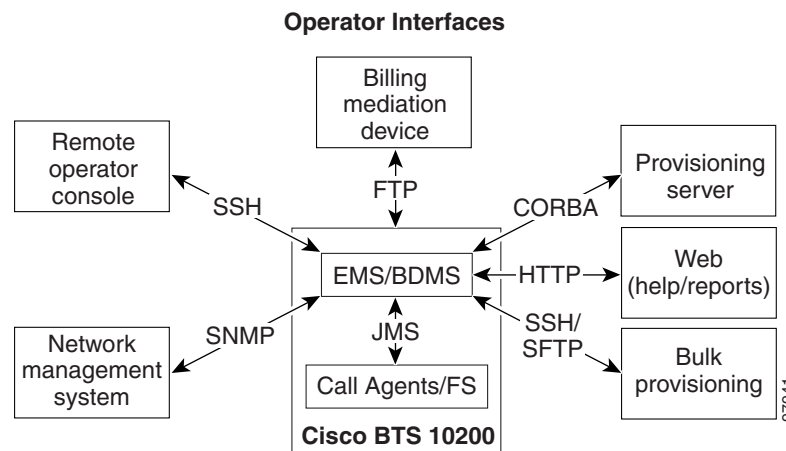
- Thoroughly plan your network configuration. A detailed network diagram is helpful when you are provisioning.
- Set up your system hardware and install all required software. For more information, refer to the following documents:
 - [Cisco BTS 10200 Softswitch Cabling Procedures](#)
 - [Cisco BTS 10200 Softswitch Application Installation](#)
 - [Cisco BTS 10200 Softswitch Release 5.0 Jumpstart Server Set Up and Procedures](#)

Operator Interfaces

The Cisco BTS 10200 Softswitch Element Management System (EMS) has six major operator interfaces, illustrated in [Figure 1-1](#):

- The Network management system (NMS) receives events and alarms from the EMS and establishes reporting thresholds and traffic monitoring management into the EMS using the Simple Network Management Protocol (SNMP).
- The remote operator console connects to the EMS via SSH.
- The Billing mediation devices connect to the Bulk Data Management System (BDMS) through Simple File Transfer Protocol (SFTP).
- The Provisioning server connects to the BTS 10200 through the Common Object Request Broker Architecture (CORBA) interface.
- Web report files and the Extensible Provisioning and Operations Manager (EPOM) provisioning tool are available through HTTP.
- Bulk provisioning connects to the EMS through an SFTP over SSH and SNMP.

Figure 1-1 EMS Operator Interfaces



The EMS manages these interfaces and forwards the information to external devices over Telnet/SSH, SFTP, and SNMP.

EMS Provisioning Paths

The EMS database interfaces internally with the CA and Feature Server (FS) using the Java Message Service (JMS) protocol over IP protocol. The Cisco BTS 10200 Softswitch uses Oracle to provide database applications. Oracle is flexible and scalable and has its own keep-alive and heartbeat checks for replication.

The Cisco BTS 10200 Softswitch provides two provisioning paths:

- OSS-EMS—This interface is used by external bulk provisioning applications.
- EMS-CA/FS—The EMS database holds up to 100 operator logins, and a maximum of 16 user sessions can be active at one time.

Once the provisioned data enters the EMS, the following occurs:

- The data is placed in the Oracle database tables, which are replicated to the standby system.
- A copy of the data is placed in a queue to be forwarded to the CA/FS.
- From the queue, data is sent to the appropriate component, either the CA or the FS.
- Once the component acknowledges receipt of the data, the EMS deletes the data from the queue. You can audit the database on the CA/FS to ensure that it matches the database on the EMS. A full audit of the database reads every field to ensure that a match exists.

The IDX DB (shared memory) on the CA/FS maintains only the real-time data needed for expedited call processing. Data is replicated to the standby system.

Provisioning and replication paths are fully redundant, eliminating any single point of failure during failover and support:

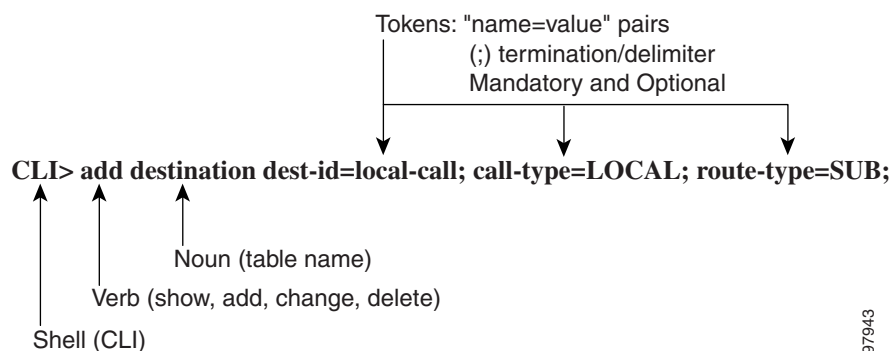
- Database synchronization and redundancy on all OSS-EMS and EMS-CA/FS paths
- Provisioning and replication paths for normal conditions and for alternate configuration
- Recovery mechanisms in case of abnormal conditions

Command Line Interface

The command-line interface (CLI) is a command language used to communicate with the Cisco BTS 10200 Softswitch. It is used to provision the entire softswitch and to manually add, delete, or modify objects.

CLI Structure

[Figure 1-2](#) provides an architectural example of the add destination CLI command.

Figure 1-2 Architecture of a CLI Command

CLI Command Syntax

The following conventions apply to CLI commands:

- All commands start with a verb.
- A noun immediately follows the verb, if appropriate.
- All primary keys must be specified in add, change, or delete commands.
- A primary key identifies a record and cannot be changed.
- All parameters must be specified in a “token-name=value” pair.
- Each value is terminated by a semicolon (;).
- A token can contain several values separated by commas (,).
- All token names, command verbs, and command nouns are case insensitive.
- All values entered after the equal sign (=) in a command are case sensitive.
- White space is allowed in a value field if the value type is an ASCII character string.
- Any alphanumeric characters and spaces can be used in specified values.
- All fields that are alphanumeric characters by nature are stored in string form in the database.
- If a token has a default value, it is considered optional when you are entering a command, and its default value is entered into the system.
- Optional fields can become required based on the provisioning of another token. For example, in the Destination table, carrier-id (optional) becomes required if route-type=Carrier.
- All fields that represent digit strings are entered and displayed in the proper dial plan format with a dash (-) but only the numeric characters are stored in the database. The international dial-plan digits should not contain dashes.
- All dashes (-) in the token fields are converted to underscores (_) when stored in the database.
- To remove values from a field, use “null” for the value. For example, add service id=1; fname5=null removes the previous value of fname5.
- Wildcards
 - % is the wildcard for show, report, and display commands (provisioning tables).
 - * is the wildcard for status and control commands (OAMP tables).

Preservation of Provisioning Order

The Operations, Administration, Maintenance, and Provisioning (OAM&P) element of the Cisco BTS 10200 Softswitch provides an asynchronous provisioning mechanism. A provisioning request initiated by a user on an external interface, such as CLI, is added into the database on the Element Management System (EMS), and a response is sent to the user indicating success or failure. This response indicates that the transaction has been committed to the database on the EMS and has been added to the Transaction Queue table. An indication of success does not guarantee successful execution of the transaction on the Call Agent or Feature Server.

Control and status commands are executed independently of provisioning commands and use different paths to the Call Agent. Control commands are queued with provisioning commands and ensure execution of the control command after all provisioning commands issued prior to it are executed. The flag, wait=Y/N, is added to all control and status commands to indicate whether control/status commands should be queued or not. If the flag is set to Y, control and status commands are queued. The default flag is set to N.

The following command controls the media gateway in service after all provisioning commands preceding this command have executed:

```
control mgw id=ubr.100; target-state=INS; mode=GRACEFUL; wait=y;
```

Issue the following command to verify the status of the media gateway:

```
status mgw id=ubr.100; wait=y;
```

Retrieval of Transaction Information

The following command shows all transactions in the transaction queue:

```
show transaction-queue
```

See the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* for a complete list of parameter values.

CLI Reference Guide Conventions

The following conventions are used in this document and in commands used to provision and maintain the Cisco BTS 10200:

- If only a single option from a list is allowed, the choices are separated with a vertical bar (|).
- Primary Key (PK) Token(s)—A mandatory, unique key. A primary key identifies a record and cannot be changed.
- Unique Key (UK) Token(s)—Provides a unique index (secondary key).
- Foreign Key (FK) Token(s)—References tokens in foreign tables. The table of the foreign key is listed in the Syntax Description section.
- Dependencies—In some cases, information must be entered into other tables before information can be entered into a specific table. Tables with these requirements have *dependencies*. For example, you cannot add a dial plan unless you add a dial plan profile with an ID.

CLI Control Characters

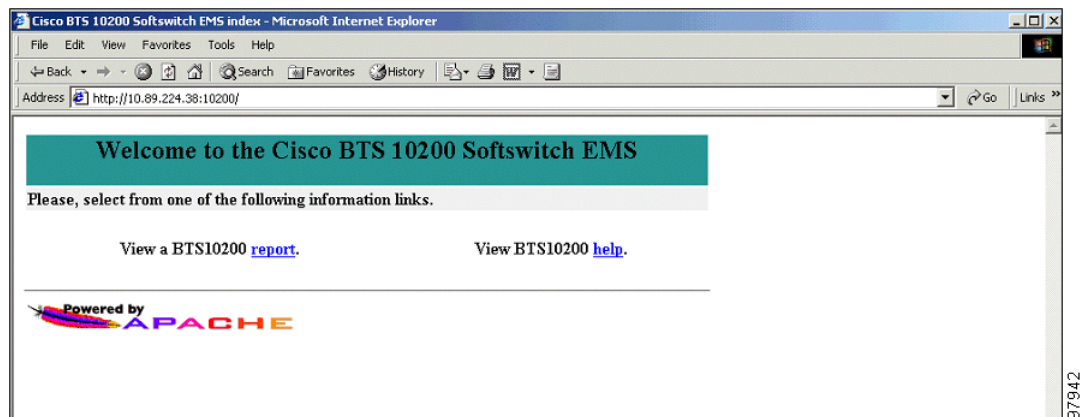
Use the following control key characters for navigation:

- ^P—Scrolls backward through commands starting with the most recent. You can also use the up arrow.
- ^N—Scrolls forward through commands that have been entered. (You must scroll backward through the commands first.) You can also use the down arrow.
- ^B—Moves cursor back one space. You can also use the left arrow.
- ^F—Moves cursor forward one character. You can also use the right arrow.
- ^A—Moves cursor to the beginning of the line.
- ^E—Moves cursor to the end of the line.
- ^I—Toggles between insert and overwrite (default is overwrite).
- ^D—Deletes character at the cursor position.
- Backspace/Delete—Deletes character to the left of the cursor.
- ^K—Deletes all characters from the cursor position to the end of the line.
- ^L—Redisplays the current line.
- ^T—Transposes the character at the cursor position with the previous character.
- ^C—Interrupts a command during execution.
- Return—Executes a command.

Report Files

Report files are available through XHTML web pages. The URL to get the main report menu, as shown in Figure 1-3, is the Primary EMS DNS or IP address, for example, <https://priemstrn1> or <https://10.89.52.201>.

Figure 1-3 Main Report/Help Menu



From the main window you can

- Click **report** to display all reports generated.

- Click **help** for help on the Cisco BTS 10200 Softswitch. The help files provide information on commands, tokens, and parameters from the *Cisco BTS 10200 Command Line Interface Reference Guide*.

The Cisco BTS 10200 Softswitch allows you to enable or disable the collection of measurement data and specify the reporting interval on a per report basis. The factory default setting is to enable the collection of all measurement types and to set the reporting intervals to 15 minutes. Currently, there are 13 types of measurement data generated by the Cisco BTS 10200. See the *Cisco BTS 10200 Softswitch Command Line Interface Reference* for a complete list of report types.

The command in the following example provisions the collection of call processing measurement data:

```
change measurement-prov type=callp; enable=yes; time-interval=15;
```

Bulk Provisioning

Batch files, called scripts, can be prepared in advance and forwarded, using SFTP, to the EMS for execution. Bulk provisioning involves the following procedures:

- [Creating a Script](#)
- [Executing a Script](#)
- [Confirming That a Script File Has Been Processed](#)

To bulk provision, make an SFTP connection to the EMS, navigate to the /opt/ems/ftp/deposit directory, and upload a script file. This directory is checked every 20 seconds for script files. Each file is processed line by line as a series of separate commands and deleted when it is finished executing. A report file is created, and you can view it with a web browser by going to the location https://ems<MachineName or IP address>.

Creating a Script

When you order a Cisco BTS 10200 Softswitch, a complete script file is created and delivered in both hard and soft copies. You can modify this script and create additional scripts. Scripts should follow the provisioning steps contained in the *Cisco BTS 10200 Command Line Interface Reference Guide*.

A script can contain a maximum of 10,000 command lines. We recommend that you have two separate scripts, one for provisioning and one for status and control. Otherwise, the Cisco BTS 10200 Softswitch might try to control a trunk group, trunk, or termination in services that have not yet been provisioned in the system.



Note

In order to avoid the complications that might result in frequent switchovers, we also recommend that you use many smaller scripts instead of one large script.

Perform the following steps to prepare a script file on your local system:

Step 1

On any computer, prepare and save a script file (a series of CLI commands that you want to enter into the system) in ASCII text format.



Note The files must follow CLI syntax. Blank lines are permitted, and commenting is provided by beginning a comment with the # character. Refer to the *Cisco BTS 10200 Command Line Interface Reference Guide* for command syntax and parameters.

- Step 2** On a UNIX system, open a terminal (shell) window, or on a Windows system, enter a command prompt.
- Step 3** At the UNIX shell or Windows command prompt, navigate to the directory where you created the script in Step 1, and verify that the script file is present.



Note If a script reaches 3000 errors, it stops processing.

The following is an example of a response received with 3000 errors:

```
Reply from command at line 2814(2002-09-30 09:27:21):
No Reply received.
Reply from command at line 2814(2002-09-30 09:27:21):
!!!!!!! Maximum(3000) number of errors reached!!!!!!!
Done reading: PRIEMS18_CLI_20_Q02.txt End-time: 2002-09-30 09:27:22
Success:-1398 Failed:3000
```

Executing a Script

You can use bulk provisioning to provision or assist with system recovery. To perform bulk provisioning, use the following steps:

- Step 1** Establish a secure Telnet session to the EMS and log in as root.
- Step 2** Navigate to the directory containing the bulk provisioning file; for example, filename.txt in the opt/ems/ftp/scripts directory.
- Step 3** Copy the file to the deposit directory; for example, cp filename.txt opt/ems/ftp/deposit.
The system executes the script. When the script is complete, a report is created.
- Step 4** To view the report, open an Internet browser and go to <http://<EMS Name or IP address>:10200>, for example, <https://10.89.52.201>.

The following information is captured in the report file:

- Owner of the file that was executed.
- Start-time and end-time.
- Errors during command execution. This includes the line number, in the original script, of the command that failed, the time that this command failed, and a description of the error.
- Summary containing the number of successful lines and the number of commands containing errors.



Note When errors occur, the script logs the errors and continues to run until it reaches 3000 errors.

Confirming That a Script File Has Been Processed

To confirm that a bulk provisioning script has executed, verify that the system has generated an output file by going to <https://ems<MachineName or IP address>>.

All command information is also stored in the activity log and can be accessed by means of the **show activity-summary** CLI command.

Copy and Paste Provisioning

Figure 1-4 illustrates copy and paste provisioning, which is executed by the copying of CLI provisioning commands from a text file directly into the system at the CLI prompt. No report is generated, but all command information is stored in the activity log.

Figure 1-4 Copy and Paste

```

notepad
# Help
#####
CHANGE
#####

id=c2421.192; target-state=OOS; mode=FORCED;
id=c2421.192; target-state=INS; mode=FORCED;
id=c2421.191; target-state=OOS; mode=FORCED;
id=c2421.191; target-state=INS; mode=FORCED;

subscriber-termination id=POD1_1; target-state=OOS; mode=FORCED;
subscriber-termination id=POD1_2; target-state=OOS; mode=FORCED;
subscriber-termination id=POD1_1; target-state=INS; mode=FORCED;
subscriber-termination id=POD1_2; target-state=INS; mode=FORCED;
subscriber-termination id=POD2_1; target-state=OOS; mode=FORCED;
subscriber-termination id=POD2_2; target-state=OOS; mode=FORCED;
subscriber-termination id=POD2_3; target-state=OOS; mode=FORCED;
subscriber-termination id=POD2_4; target-state=OOS; mode=FORCED;
subscriber-termination id=POD2_1; target-state=INS; mode=FORCED;
subscriber-termination id=POD2_2; target-state=INS; mode=FORCED;
subscriber-termination id=POD2_3; target-state=INS; mode=FORCED;
subscriber-termination id=POD2_4; target-state=INS; mode=FORCED;

criber-termination id=POD1_1;
criber-termination id=POD1_2;
criber-termination id=POD2_1;
criber-termination id=POD2_2;

Tera Term - sittest VT
File Edit Setup Control Window Help
CLI>control mgw id=c2421.192; target-state=OOS; mode=FORCED;
Please wait....
Reply : Request was successful.

REPLY=CONFIGURATION COMMAND EXECUTED -> c2421.192
INIT STATE -> ADMIN_INS
FINAL STATE -> ADMIN_OOS

CLI>control mgw id=c2421.192; target-state=INS; mode=FORCED;
Please wait....
Reply : Request was successful.

REPLY=CONFIGURATION COMMAND EXECUTED -> c2421.192
INIT STATE -> ADMIN_OOS
FINAL STATE -> ADMIN_INS

CLI>control mgw id=c2421.191; target-state=OOS; mode=FORCED;
Please wait....
Reply : Request was successful.

REPLY=CONFIGURATION COMMAND EXECUTED -> c2421.191
INIT STATE -> ADMIN_INS
FINAL STATE -> ADMIN_OOS

CLI>control mgw id=c2421.191; target-state=INS; mode=FORCED;
Please wait....
Reply : Request was successful.

REPLY=CONFIGURATION COMMAND EXECUTED -> c2421.191
INIT STATE -> ADMIN_OOS
FINAL STATE -> ADMIN_INS
  
```

Extensible Provisioning and Operations Manager

Cisco Extensible Provisioning and Operations Manager (EPOM) is a web-based application for real-time provisioning of the Cisco BTS 10200 Softswitch that allows authorized users to show, add, modify, delete, and check the status of Cisco BTS 10200 Softswitch components.

Provisioning tasks in Cisco EPOM generally match tasks done using the Cisco BTS 10200 Softswitch CLI but are accomplished through a web-browser interface. Common multistep procedures are simplified by being grouped together into tasks executed with task wizards.

Authorized Cisco EPOM administrators set up and manage the Cisco EPOM server software and perform the following Cisco EPOM user administration and network setup tasks:

- Add, modify, and delete users, user groups, and domains.
- Assign users to groups.
- Assign domain access (either read/write or read only) to groups.
- Assign a Cisco BTS login to a Cisco EPOM group. This restricts a Cisco EPOM user's access to that of the assigned Cisco BTS user login.
- Set up the network initially.
- Show, add, modify, and delete single or multiple Cisco BTS 10200 Softswitch components.
- Set up custom navigation trees.
- Create custom provisioning flows.
- Create custom templates that can be used for the bulk provisioning of components..
- View reports and download them to a Cisco BTS EMS server.
- Troubleshoot problems.

For details about these tasks, refer to the *Cisco EPOM Getting Started Guide*. Real-time provisioning of the Cisco BTS 10200 Softswitch using the Cisco EPOM provisioning wizards is described in the *Cisco EPOM Provisioning Guide for the Cisco BTS 10200 Softswitch*.

Cisco EPOM Window Example

Figure 1-5 displays an example of a typical EPOM window.

Figure 1-5 Example of an EPOM Window

Add component: call_agent_profile
OK
Apply
Skip

[Clear Form](#)
☐ Expand range expression

✓ id		?
cdb_billing_supp	Y	?
cms_id		?
cms_supp	N	?
description		?
dqos_supp	N	?
em_billing_supp	N	?
es_intercept_type	PACKET_CABLE_INTERCEPT	?
feid		?
gtd_supp	Y	?
mgc_id		?
mgc_supp	N	?
pri_rks_profile_id		?
sec_rks_profile_id		?

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Cisco EPOM Database

The Cisco EPOM database maintains Cisco EPOM administrative data (users, groups, and domains) and the inventory of Cisco BTS 10200 Softswitch devices. Device-level information (such as subscribers, subscriber features, and communication with media gateways) is retrieved from the Cisco BTS 10200 Softswitch EMS server devices in real time and is not stored in the Cisco EPOM database.



CHAPTER 2

Initial Softswitch Provisioning

Revised: May 31, 2010, OL-12777-12

This chapter describes how to provision the Cisco BTS 10200 Softswitch Call Agent and Feature Server and is organized into the following sections:

- [Call Agent Provisioning, page 2-1](#)
- [Provisioning a Feature Server, page 2-4](#)

For a more detailed description of all Cisco BTS 10200 Softswitch tables, tokens, and value ranges, refer to the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide*.

Call Agent Provisioning

The Call Agent (CA) provides signaling and call processing (call setup and teardown) for the Cisco BTS 10200 Softswitch. This section describes the steps necessary to add the Call Agent and associated office tables to the system.

[Table 2-1](#) provides an example of the steps required to provision the Cisco BTS 10200 Softswitch Call Agent and lists examples of CLI commands with mandatory tokens. Click on each step for a description of the step.

Table 2-1 **Call Agent Provisioning Steps**

Step	Description	CLI Command
Step 1	Add a Call Agent, page 2-2	add call-agent id=CA101; tsap-addr=sim-SYS04CA146.ipclab.cisco.com:9146;
Step 2	Add a Call Agent Profile, page 2-2	add call-agent-profile id=CA146; cms-id=12345; mgc-supp=y; mgc-id=12345; feid=financial-entity-id1; cdb-billing-supp=y; em-billing-supp=n;
Step 3	Change a Call Agent Configuration, page 2-3	show ca-config type=susp-tmr; change ca-config type=susp-tmr; datatype=integer;value=300 Note The add command is used during installation but additional parameters cannot be added.
Step 4	Add a National Destination Code, page 2-3	add ndc digit-string=469;

Table 2-1 *Call Agent Provisioning Steps (continued)*

Step	Description	CLI Command
Step 5	Add an Exchange Code, page 2-3	add exchange-code ndc=469; ec=255;
Step 6	Add an Office Code, page 2-3	add office-code call-agent-id=CA146; ndc=469; ec=255; dn-group=xxxx;
Step 7	Add a Digit Map, page 2-4	add digit-map id=default; digit-pattern=0Tl00l[2-9]11l[2-9]xx[2-9]xxxxxxl1[2-9]xx[2-9]xxxxxxl0[2-9]xx[2-9]xxxxxxl011xxxxxxxxxxxxxx.Tl101 xxxxl#l*[4-9]xl*[2-3]xxl1xxl[2-9]# l[2-4]xl[2-9]Tl[2-4]xTl01xxxxxxxxxxxx; Note This digit pattern permits the creation of both 2- and 3-digit VSCs. If the first digit is 2 or 3, the length is 3 digits. If first digit is 4–9, the length is 2 digit. For example: *2-3xxx *4-9xx
Step 8	Add a Point of Presence, page 2-4	add pop id=1; state=tx; country=usa; timezone=CST;

Add a Call Agent

The Call Agent (call-agent) table contains the domain name and tsap addresses of the Call Agent as well as the primary and secondary IP addresses of the Element Management System (EMS).

Command	Purpose
add call-agent id=CA101; tsap-addr=sim-SYS04CA146.ipclab.cisco.com: 9146;	Adds a Call Agent

Add a Call Agent Profile

The Call Agent Profile (call-agent-profile) table defines the properties (functionality) of the Call Agent. The BTS Call Agent reads the call-agent-profile table once in 20 calls (for efficiency). When the call-agent is processing 20 calls per second (cps), any change to parameters in call-agent-profile table takes effect in a second.

Command	Purpose
add call-agent-profile id=CA146; cms-id=12345; mgc-supply=y; mgc-id=12345; feid=financial-entity-id1; cdb-billing-supply=y; em-billing-supply=n;	Adds a Call Agent profile

Change a Call Agent Configuration

The Call Agent Configuration (ca-config) table defines the defaults for each Call Agent. The defaults are prepopulated at installation. Only change and show commands are valid. See the *Cisco BTS 10200 Command Line Interface Reference Guide*, Appendix A, “Call Agent and Feature Server Configurable Parameters,” for a complete list of configurable parameters.

Command	Purpose
change ca-config type=susp-tmr; datatype=integer;value=300;	Configures Call Agent parameters

**Note**

The add command is used during installation; additional parameters cannot be added.

Call Agent Configuration Base Table

The Call Agent Configuration Base (ca-config-base) table is a static table in the EMS to perform constraint checks. This table is not provisionable. Only the show command is allowed. Use the show command in this table to change information in the Call Agent Configuration table. Information in the Call Agent Configuration Base table must match the information in the Call Agent Configuration table.

Add a National Destination Code

The National Destination Code (ndc-code) table defines the home area codes supported by the Call Agent.

Command	Purpose
add ndc digit-string=469;	Adds a national destination code

Add an Exchange Code

The Exchange Code (exchange-code) table specifies the office codes assigned to a particular Call Agent. This table defines the office-code-index (normalized office code) that is used as an index in the DN2Subscriber table.

Command	Purpose
add exchange-code ndc=469; ec=255;	Adds an exchange code

Add an Office Code

The Office Code (office-code) table specifies the office codes assigned to a particular Call Agent. The office codes defined in this table normally terminate to a subscriber. This table defines the office-code-index (normalized office code) that is used as an index in the DN2Subscriber table.

Command	Purpose
<code>add office-code call-agent-id=CA146; ndc=469; ec=255; dn-group=xxxx;</code>	Adds an office code

Add a Digit Map

The Digit Map (digit-map) table tells a media gateway (MGW) how to collect and report dialed digits. The Call Agent uses a default digit map ID for normal digit collection unless a specific digit map ID is assigned to the subscriber. POTS subscribers use a public dialing plan. Centrex subscribers use a customized dialing plan.

Command	Purpose
<code>add digit-map id=default; digit-pattern=0Tl00l[2-9]1l[2-9]xx[2-9]xxxxxxl 1[2-9]xx[2-9]xxxxxxl0[2-9]xx[2-9]xxxxxxl011x xxxxxxxxxxxxx.Tl101xxxxl#l*[4-9]xl*[2-3]xxl11 xxl[2-9]# l[2-4]x#l[2-9]Tl[2-4]xTl01xxxxxxxxxxxx;</code>	Adds a digit map



Note

This table is case-sensitive.

Add a Point of Presence

The Cisco BTS 10200 Softswitch Call Agent can serve several geographical regions or Metropolitan Statistical Areas (MSAs) simultaneously. Each geographical region is referred to as a point of presence (POP). Each POP has its own unique dialing and routing characteristics. The Point of Presence (pop) table contains a default dialing and routing characteristics. Each originating entity (subscriber or trunk group) is assigned to a POP. The POP also performs policy routing, for example, it routes the call to the nearest announcement server in the POP or to the nearest interLATA carrier location within a POP.

Command	Purpose
<code>add pop id=1; state=tx; country=usa; timezone=CST;</code>	Adds a point of presence

Provisioning a Feature Server

The Feature Server provides access to features through a well-defined interface, Feature Control Protocol (FCP). Cisco BTS 10200 Feature Server architecture separates feature control from call control with a clear interface defined between them. The Call Agent uses FCP to provide an effective environment for interfacing with multiple feature servers. This provides AIN, POTS, Centrex, and 800 services as required during call processing.

A Feature Server is invoked from a detection point (DP). At the DP, the Call Agent checks if any triggers are armed. If they are, the Call Agent checks if the trigger applies to a subscriber, group, or office, in the order specified. If the trigger is applicable, the Call Agent invokes the feature associated with that trigger.

Table 2-2 lists the steps for provisioning a Cisco BTS 10200 Softswitch Feature Server and provides commands with mandatory tokens. Click on each step for a description of the step.

Table 2-2 Feature Server Provisioning Steps

	Description	CLI Command
Step 1	Add a Feature Server, page 2-5	add feature-server id=FSAIN201; tsap-addr-sidea=trn1AIN.trnglab.cisco.com:11205; type=AIN;
Step 2	Add a Feature, page 2-8	add feature fname=CFU; tdp1=termination-attempt-authorized; tid1=termination-attempt-authorized; ttype1=r; tdp2=collected-information; tid2=vertical-service-code; ttype2=r; feature-server-id=FSPTC231; fname1=CFUA; fname2=CFUD;
Step 3	Add a Vertical Service Code, page 2-8	add vsc digit-string=*72; fname=CFUA;
Step 4	Add a Service, page 2-9	add service id=1; fname1=CFU; fname2=CFB; fname3=CFNA; fname4=CW;

Add a Feature Server

The Feature Server (feature-server) table identifies the location and type of Feature Server (POTS or AIN). It also identifies the IP address of the primary and secondary EMS and MGWs used by the Feature Server. It is updated at both the Call Agent and the applicable Feature Server. The Feature Server can be prepopulated during installation using a script, and it is used to automatically provision the Service Trigger table.

Command	Purpose
add feature-server id=FSAIN201; tsap-addr-sidea= trn1AIN.trnglab.cisco.com:11205; type=AIN;	Adds a Feature Server Note The socket port provisioning for the tsap address of the feature server must be 11235 for FSPTC and 11205 for FSAIN, without regard to what instance has been defined for the FSAIN and the FSPTC.

Table 2-3 lists the service types and features available on a POTS or Centrex or Tandem Feature Server.

Table 2-3 **Service Types and Features on POT/Centrex/Tandem Feature Server**

Service Type	Feature Name
Class of Service Restrictions	Number Blocking Restrictions based on category of service: • 900 Blocking • Directory Assistance Blocking • International Blocking • 976 Blocking • National Black/White List • International Black/White List • Casual Black/White List • Account Codes • Authorization Codes
Screening features	Selective Call Forwarding Selective Call Acceptance Selective Call Rejection, Call Block Distinctive Ringing/Call Waiting
POTS features	Analog DID for PBX (FXO) DOD for PBX Multiple Directory Numbers (Teen Service)

Table 2-3 **Service Types and Features on POT/Centrex/Tandem Feature Server (continued)**

Service Type	Feature Name
Common features (POTS and Centrex)	Call Forwarding Unconditional
	Remote Activation of Call Forwarding
	Remote Call Forwarding
	Call Forwarding On Busy
	Call Forwarding No Answer
	Call Forwarding Redirection
	Calling Number Delivery Blocking
	Calling Name Delivery Blocking
	Calling Identity Delivery and Suppression
	Calling Number Delivery
	Calling Name Delivery (No External Query)
	Calling Identity Delivery on Call Waiting
	Anonymous Call Rejection
	Automatic Callback (Repeat Dialing)
	Automatic Recall (Call Return)
	Call Block (Reject Caller)
	Call Waiting
	Cancel Call Waiting
	Customer-Originated Trace
	Do Not Disturb
	Hotline Service
	Warmline Service
	Interactive Voice Response Functions
	Multiline Hunt Group (MLHG)
	Speed Call (1-digit and 2-digit)
	Three-Way Calling
	Usage-Sensitive Three-Way Calling
	Visual Message Waiting Indicator

Table 2-3 Service Types and Features on POT/Centrex/Tandem Feature Server (continued)

Service Type	Feature Name
Basic Centrex features	Customized Dialing Plan
	Intercom Dialing
	Semi/Fully Restricted Lines
	Direct Inward Dialing (DID)
	Distinctive Alerting/Call Waiting Indication on DID
	Direct Outward Dialing (DOD)
	Incoming/Outgoing Simulated Facility Group
	Call Transfer
	Call Hold
	Call Park and Call Retrieve
	Directed Call Pickup (With and Without Barge-in)
	Group Speed Call
Tandem features	ANI Screening

**Note**

When adding a Feature Server, add the entries to the Call Agent as well as the Feature Server tables in the respective Feature Servers. The POTS Feature Server has the Feature Server table, but the AIN Feature Server does not.

Add a Feature

The Feature (feature) table defines characteristics for the features supported by the Cisco BTS 10200 Softswitch. Repeat this step for each feature you want to add to the system.

Command	Purpose
add feature fname=CFU; tdp1=termination-attempt-authorized; tid1=termination-attempt-authorized; ttype1=r; tdp2=collected-information; tid2=vertical-service-code; ttype2=r; feature-server-id=FSPTC231; fname1=CFUA; fname2=CFUD;	Adds a feature

Add a Vertical Service Code

The Vertical Service Code (vsc) table translates a vertical service code, also known as a star code (*XX), to a feature name. This table is preprovisioned, based on the Feature table customer records, during installation.

Command	Purpose
<code>add vsc digit-string=*72, fname=CFUA;</code>	Adds a VSC

Add a Service

A service is a collection of one or more features that are invoked when a trigger is reached. Each feature within a service can have one or more triggers. Services can be dynamically created within the Cisco BTS 10200 Softswitch. The service provider defines a service and the features associated with it. Up to 10 commonly used features can be grouped into a service, and up to 50 services can be provisioned per subscriber. The subscriber is then provisioned with a service-id instead of individual features.

Command	Purpose
<code>add service id=1; fname1=CFU; fname2=CFB; fname3=CFNA; fname4=CW;</code>	Adds a service



CHAPTER 3

IAD Residential Subscriber Provisioning

Revised: May 31, 2010, OL-12777-12

This chapter describes how to provision the Cisco BTS 10200 Softswitch to communicate with a Cisco IAD 2421 to support local subscriber on-net calls.

For a more detailed description of all Cisco BTS 10200 Softswitch tables, tokens, and value ranges, refer to the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide*.

Provisioning an IAD Subscriber

[Table 3-1](#) provides an example of the steps required to provision the Cisco BTS 10200 Softswitch to communicate with an integrated access device (IAD) and provides examples of CLI commands with mandatory tokens. Click on each step for a complete description of the step.

Table 3-1 IAD Provisioning Steps

	Description	CLI Command
Step 1	Add a Media Gateway Profile, page 3-2	add mgw-profile id=IAD2421; vendor=cisco;
Step 2	Add a Media Gateway Profile, page 3-2	add mgw id=c2421.192; tsap-addr=c2421.192.trnglab.cisco.com; call-agent-id=CA101; mgw-profile-id=IAD2421; type=rgw;
Step 3	Add a Termination, page 3-3	add termination prefix=aaln/S1/; port-start=1; port-end=16; type=line; mgw-id=c2421.192;
Step 4	Add a Destination, page 3-3	add destination dest-id=local-call; call-type=local; route-type=sub;
Step 5	Add a Dial Plan Profile, page 3-3	add dial-plan-profile id=dp1; description=dialing plan profile id;
Step 6	Add a Dial Plan, page 3-4	add dial-plan id=sub; digit-string=469255; noa=national; dest-id=local_call;
Step 7	Add a Subscriber Profile, page 3-4	add subscriber-profile id=subpf1; dial-plan-id=dp1; pop-id=1;

Table 3-1 IAD Provisioning Steps

	Description	CLI Command
Step 8	Add a Subscriber, page 3-4	add subscriber id=sub1; category=individual; name=Richardson1; term-id=aaln/S1/3/; mgw-id=c2421.192; dn1=4692551231; sub-profile-id=subpf1; Note Each subscriber must have a unique term-id.
Step 9	Change the DN to a Subscriber, page 3-5	add dn2subscriber office-code-index=1;dn=1321; status=assigned;
Step 10	Control an MGW, page 3-6	control mgw id=c2421.192; target-state=INS; mode=forced;
Step 11	Equip a Subscriber Termination, page 3-6	equip subscriber-termination id=sub1;
Step 12	Control a Subscriber Termination, page 3-6	control subscriber-termination id=sub1;

Add a Media Gateway Profile

A media gateway (MGW) profile provides a template for provisioning one or more MGWs by vendor. It identifies the specifications and settings necessary for communications between the Call Agent (CA) and each type of MGW.

Several tokens have values that can be overwritten after the CA queries the media gateway for supported capabilities. If the MGW returns a value different from the value you originally provisioned, the returned value automatically replaces the originally provisioned value.

Command	Purpose
add mgw-profile id=IAD2421; vendor=cisco;	Adds a media gateway profile

If necessary, change the value of other keepalive tokens in the mgw-profile table.

The MGW table holds information about each MGW managed by the CA. The MGW can be uniquely addressed by domain name, an IP address, or the TSAP address.

The MGW table has two associated commands: RGW and TGW. The RGW command provisions a gateway as only a residential gateway, with the type token automatically set to RGW. The TGW command provisions a gateway as a trunking gateway only, with the type token automatically set to TGW. Both of these commands provision the MGW table, but a service provider can use these commands to provide user security to certain individuals based on their roles.

Command	Purpose
add mgw id=c2421.192; tsap-addr=c2421.192.trnglab.cisco.com; call-agent-id=CA101; mgw-profile-id=IAD2421; type=rgw;	Adds a media gateway



Note

The RGW command could also be used to provision the MGW in this instance. Refer to the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* for detailed information about the RGW and TGW commands.

Add a Termination

The Termination (termination) table holds information about each termination or endpoint managed by the Call Agent. Termination structure uniformly addresses analog ports, DS0 ports, ISDN circuits, and allows termination groupings for ISDN PRI and multiline hunt groups (MLHGs) for a single subscriber. Termination events and signals are grouped into packages, which are supported by a particular type of endpoint. For instance, one package supports a certain group of events and signals for analog access lines, while another package supports another group of events and signals for video lines. One or more packages can exist for a given endpoint type. The package type is determined by the gateway used.

The termination table can use commands that do not match command-to-field of the database. If the prefix token is used during provisioning, the termination ID is generated by concatenating prefix and port-start value and incrementing the termination port number until the port number value reach port-end. The prefix, port-start, and port-end are not in the table as individual fields.

The user enters:

Prefix: 1–32 ASCII characters

Port-start: 0000–9999 (1–4 numeric characters) (default = 1)

Port-end: 0000–9999 (1–4 numeric characters) (default = 24)

Command	Purpose
add termination prefix=aaln/S1/; port-start=1; port-end=16; type=line; mgw-id=c2421.192;	Adds a termination

Add a Destination

The Destination (destination) table defines the call type and the routing information for the dialed digits. Multiple digit strings in the Dial Plan table can use the same destination ID.

Command	Purpose
add destination dest-id=local-call; call-type=local; route-type=sub;	Adds a destination

Add a Dial Plan Profile

The Dial Plan Profile (dial-plan-profile) table creates dial-plan-profile-ids before they are assigned to subscribers or trunk groups. The dial-plan-profile-id links digit-string entries in the Dial Plan table within a dial plan. Different dial-plan-profile-ids are assigned to subscribers and trunk groups. A dial-plan-id must be created in this table before entries can be added to the Dial Plan table.

Command	Purpose
add dial-plan-profile id=dp1; description=dialing plan profile id;	Adds a dial plan profile

Add a Dial Plan

Dial plans analyze, screen, and route calls based on dialed digits. The Dial Plan (dial-plan) table holds dial plan information for a specific type of call. It defines valid dialing patterns and determines call routing. All records that share a common dial-plan-profile-id are considered a dial plan.

Command	Purpose
add dial-plan id=sub; digit-string=469-255; noa=national; dest-id=local_call;	Adds a dial plan

Add a Subscriber Profile

The Subscriber Profile (subscriber-profile) table groups properties that are shared by a number of subscribers. For example, a Centrex group consisting of several subscribers can share a subscriber profile. Because a Call Agent consists of several points of presence (POPs), and POP is one of the tokens in the subscriber profile, POP-specific subscriber profiles must be created.

Command	Purpose
add subscriber-profile id=subpf1; dial-plan-id=dp1; pop-id=1;	Adds a subscriber profile

Add a Subscriber

The Subscriber (subscriber) table defines the characteristics of a subscriber or group of subscribers in a Call Agent. All termination numbers reached by a directory number (DN) must be set up as a subscriber. Any termination that can originate in the primary Call Agent must be set up as a subscriber (residential, PBX, business, and Centrex). All terminations to customers, such as MLHG or Centrex, must be defined as well.

Command	Purpose
add subscriber id=sub1; category=individual; name=Richardson1; term-id=aaln/S1/3/; mgw-id=c2421.192; dn1=4692551231; sub-profile-id=subpf1;	Adds a subscriber



Note

Each subscriber must have a unique term-id.



Note

Do not use double quotation marks (""), single quotation marks ('), dashes (-), or underscores (_) in subscriber names. While dashes and underscores are allowed, but using a dash causes errors when you sent the name as part of a caller name feature.

Change the DN to a Subscriber

The Element Management System (EMS) automatically generates the DN2Subscriber table. A user can show data or change the Status field to VACANT if it is in the disconnected (DISC) or connected (CN) state. The DN2Subscriber (dn2subscriber) table determines the subscriber ID of a DN during termination processing. The table is populated when a subscriber DN is added to the Subscriber table. The table is queried when the called number is translated by the dial plan and the type of subscriber field indicates “Subscriber,” that is, it takes a DN and maps it to a subscriber.

The DN2Subscriber table also consists of the administrative states of the DN. [Table 3-2](#) lists the administrative states of the DN.

Table 3-2 Administrative States of the DN

State	Definition
VACANT	The DN is unassigned. An Unassigned DN announcement is played. A typical announcement is “The number you dialed is not in service. Please check the number and try again.” The cause code for this state is #1.
ASSIGNED	The DN is assigned to a subscriber.
CN	The DN status is marked as a changed number (CN) when the subscriber requests a new number. A Changed Number announcement is played in this state. A typical announcement is “The called number has changed. The new number is ...” The cause code for this state is #22.
DISC	The DN is disconnected. A Disconnected Number announcement plays. A typical announcement is “We’re sorry, you have reached a number that has been disconnected or is no longer in service...” The cause code for this state is #27.
LRN	The DN has been reserved as a Location Routing Number (LRN) on this Call Agent.
RACF-DN	The DN has been reserved for the remote activation of call forwarding (RACF) feature.
TEST-LINE	The DN has been assigned to a test line.
ANNC	The DN points to an announcement (ANNC) ID.
PORTED-OUT	The subscriber ported (moved) out of the Call Agent and chose to keep his or her DN (local number portability).

For PBX-DID subscribers to be provisioned, the DN2Subscriber table must be manually provisioned. The DN2Subscriber table can support groups of 10, 100, 1000, or 10,000 directory numbers. The format of the DN is nnnn, where n = 0–9. To provide a range of DNs, replace n with a lowercase x. If the last digit is replaced with a lowercase x, it represents a group of 10 DNs. 100 DNs are represented by xx, 1000 DNs are represented by xxx, and 10,000 DNs are represented by xxxx.

Command	Purpose
change dn2subscriber office-code-index=1;dn=1321; status=assigned;	Assigns a DN to a subscriber

To change the directory number of a subscriber, see the provisioning steps in the “[Class of Service Screening](#)” section on page 7-62.

Control an MGW

The control command sets the administrative state (OOS, INS) of MGWs, subscriber terminations, trunks, and trunk groups.

Command	Purpose
<code>control mgw id=c2421.192; target-state=INS; mode=forced;</code>	Places the MGW in-service

The status command displays the state of MGWs, subscriber terminations, trunks, and trunk groups.

Enter the following CLI command to verify that the MGW is in-service:

```
status mgw id=<mgw id>;
```

Reply example:

Reply : Success:

```
MGW ID -> c2421.192
RESULT -> ADM configure result in success
REASON -> ADM executed successful
ADMIN STATE -> ADMIN_INS
OPER STATE -> Media gateway in working status
```

Equip a Subscriber Termination

The equip command enables the subscriber trunk termination to be placed in-service. [Table 3-3](#) defines subscriber trunk termination states.

Command	Purpose
<code>equip subscriber-termination id=sub1;</code>	Enables a subscriber trunk termination to be placed in-service

Table 3-3 *Subscriber Trunk Termination States*

State	Definition
ADMIN-INS	In Service
ADMIN-OOS	Out of Service
ADMIN-MAINT	Maintenance Mode

Control a Subscriber Termination

The control command sets the administrative state (OOS, INS) of media gateways, subscriber terminations, trunks, and trunk groups.

Command	Purpose
<code>control subscriber-termination id=sub1;</code>	Places the subscriber termination in-service

Enter the following CLI command to verify that the subscriber termination is in-service:

```
status subscriber-termination id=<subscriber-termination id>;
```

Inter-LATA Option to Dial 1

Prefex screening tokens provisioned in the Subscriber Profile table determine whether a subscriber must dial 1 when dialing local or long distance calls. LOCAL_PFX1_OPT controls calls with call type set to LOCAL, and TOLL_PFX1_OPT controls inter-LATA and toll calls. Valid values for these tokens are RQ (required, NR (not required), and OPT (optional).

The following example turns on the inter_LATA option to dial 1:

```
change subscriber-profile ID=sp1; DIAL_PLAN_ID=cdp1; LOCAL_PFX1_OPT=NR; TOLL_PFX1_OPT=RQ;  
INTERLATA_PFX1_OPT=RQ; POP_ID=69;
```

**Note**

For Service Access Code calls such as 500, 700, 800, and 900, you must dial the 1. The flags LOCAL_PFX1_OPT, INTERLATA_PFX1_OPT, and TOLL_PFX1_OPT, do not affect such calls.



CHAPTER 4

ATA 18x Residential Subscriber Provisioning

Revised: May 31, 2010, OL-12777-12

The Cisco Analog Telephone Adaptor (ATA) products are standards-based communication devices that deliver voice-over-IP (VoIP) terminations to businesses and residences. This chapter describes how to provision the Cisco ATA 186 and 188 residential gateways to support local subscriber on-net calls.

For a more detailed description of all Cisco BTS 10200 Softswitch tables, tokens, and value ranges, refer to the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide*.

Provisioning an ATA 18X Residential Subscriber

[Table 4-1](#) provides the steps required to provision the Cisco BTS 10200 Softswitch to communicate with a Cisco ATA 18x residential gateway and support local subscribers. Click on each step for a description of the step.

Table 4-1 **ATA 18X Residential Subscriber Provisioning**

	Description	CLI Command
Step 1	Add a Media Gateway Profile, page 4-2	add mgw-profile id=ATA186; vendor=cisco; packet-type=IP; mgcp-version=mgcp_1_0; description=Cisco ATA186;
Step 2	Add an MGW, page 4-2	add mgw id=ATA1; tsap-addr=ATA1.trnglab.cisco.com; call-agent-id=CA101; mgw-profile-id=ATA186; type=rgw;
Step 3	Add a Termination, page 4-3	add termination prefix=aaln/; port-start=1; port-end=2; mgw-id=ATA-1; type=line;
Step 4	Add a Destination, page 4-3	add destination dest-id=local-call; call-type=local; route-type=sub;
Step 5	Add a Dial Plan Profile, page 4-3	add dial-plan-profile id=dp1; description=dialing plan profile id;
Step 6	Add a Dial Plan, page 4-4	add dial-plan id=sub; digit-string=469-255; noa=national; dest-id=local_call;
Step 7	Add a Subscriber Profile, page 4-4	add subscriber-profile id=subpf1; dial-plan-id=dp1; pop-id=1;
Step 8	Add a Subscriber, page 4-4	add subscriber id=sub2; category=individual; name=Richardson1; term-id=aaln/1; mgw-id=ATA-1; dn1=469-255-1231; sub-profile-id=subpf1;
		Note Each subscriber must have a unique term-id.

Table 4-1 ATA 18X Residential Subscriber Provisioning

	Description	CLI Command
Step 9	Generate a DN2Subscriber, page 4-5	The EMS automatically generates the DN2Subscriber table.
Step 10	Control an MGW, page 4-6	control mgw id=ATA - 1; target-state=INS; mode=forced;
Step 11	Equip a Subscriber Termination, page 4-6	equip subscriber-termination ID=sub2;
Step 12	Control a Subscriber Termination, page 4-6	control subscriber-termination id=sub2; target-state=INS; mode=forced;

Add a Media Gateway Profile

A media gateway (MGW) profile provides a template for provisioning one or more media gateways by vendor. It identifies the specifications and settings necessary for communications between the Call Agent and each type of MGW.

Several tokens have values that can be overwritten after the Call Agent queries the MGW for supported capabilities. If the MGW returns a value different from the value you originally provisioned, the returned value automatically replaces the originally provisioned value.

Command	Purpose
add mgw-profile id=ATA186; vendor=cisco; packet-type=IP; mgcp-version=mgcp_1_0; description=Cisco ATA186;	Provisions an MGW profile



Tip

The mgcp-max1-retries and mgcp-max2-retries tokens in the mgw-profile table can be adjusted, if necessary, to improve response if there are network bandwidth or reliability issues, or if an MGW is slow in responding to commands from the CA. For a detailed explanation of how these and other parameters affect the audit-endpoint and keepalive processes, see [Release 5.0 Keepalive](#) in the *Cisco BTS 10200 Softswitch Troubleshooting Guide*.

Add an MGW

The MGW table holds information about each MGW managed by the CA. The MGW can be uniquely addressed by domain name, an IP address, or the TSAP address.

The MGW table has two associated commands: RGW and TGW. The RGW command provisions a gateway as only a residential gateway, with the type token automatically set to RGW. The TGW command provisions a gateway as a trunking gateway only, with the type token automatically set to TGW. Both of these commands provision the Media Gateway table, but a service provider can use these commands to provide user security to certain individuals based on their roles.

Command	Purpose
add mgw id=ATA1; tsap-addr=ATA1.trnglab.cisco.com; call-agent-id=CA101; mgw-profile-id=ATA186; type=rgw;	Adds a media gateway

**Note**

The RGW command could also be used to provision the MGW in this instance. Refer to the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* for detailed information about the RGW and TGW commands

Add a Termination

The Termination (termination) table holds information about each termination or endpoint managed by the CA. Termination structure uniformly addresses analog ports, DS0 ports, ISDN circuits, and allows termination groupings for ISDN PRI and multiline hunt groups (MLHGs) for a single subscriber. Termination events and signals are grouped into packages, which are supported by a particular type of endpoint. For instance, one package supports a certain group of events and signals for analog access lines, and another package supports another group of events and signals for video lines. One or more packages can exist for a given endpoint type. The package type is determined by the gateway used.

The Termination table can use commands that do not match command-to-field of the database. If the prefix token is used during provisioning, the termination ID is generated by concatenating prefix and port-start value and incrementing the termination port number until the port number value reach port-end. The prefix, port-start, and port-end are not in the table as individual fields.

The user enters:

Prefix: 1–32 ASCII characters

Port-start: 0000–9999 (1–4 numeric characters) (default = 1)

Port-end: 0000–9999 (1–4 numeric characters) (default = 24)

Command	Purpose
add termination prefix=aaln/;port-start=1; port-end=2;mgw-id=ATA-1;type=line;	Adds a termination

Add a Destination

The Destination (destination) table defines the call type and the routing information for the dialed digits. Multiple digit strings in the Dial Plan table can use the same destination ID.

Command	Purpose
add destination dest-id=local-call; call-type=local; route-type=sub;	Adds a destination

Add a Dial Plan Profile

The Dial Plan Profile (dial-plan-profile) table creates dial-plan-profile-ids before they are assigned to subscribers or trunk groups. The dial-plan-profile-id links digit-string entries in the Dial Plan table within a dial plan. Different dial-plan-profile-ids are assigned to subscribers and trunk groups. A dial-plan-id must be created in this table before entries can be added to the Dial Plan table.

Command	Purpose
add dial-plan-profile id=dp1; description=dialing plan profile id;	Adds a dial plan profile

Add a Dial Plan

A dial plan analyzes, screens, and routes a call based on dialed digits. The Dial Plan (dial-plan) table holds dial plan information for a specific type of call. It defines valid dialing patterns and determines call routing. All records that share a common dial-plan-profile-id are considered a dial plan.

Command	Purpose
add dial-plan id=sub; digit-string=469-255; noa=national; dest-id=local_call;	Adds a dial plan

Add a Subscriber Profile

The Subscriber Profile (subscriber-profile) table groups properties that are shared by a number of subscribers. For example, a Centrex group consisting of several subscribers can share a subscriber profile. Because a CA consists of several points of presence (POPs), and POP is one of the tokens in the subscriber profile, POP-specific subscriber profiles must be created.

Command	Purpose
add subscriber-profile id=subpf1; dial-plan-id=dp1; pop-id=1;	Adds a subscriber profile

Add a Subscriber

The Subscriber (subscriber) table defines the characteristics of a subscriber or group of subscribers in a CA. All termination numbers reached by a directory number (DN) must be set up as a subscriber. Any termination that can originate in the primary CA must be set up as a subscriber (residential, PBX, business, or Centrex). All terminations to customers, such as MLHG or Centrex, must be defined as well.

Table 4-2 lists the tokens required for each value.

Command	Purpose
add subscriber id=sub2; category=individual; name=Richardson1; term-id=aaln/1; mgw-id=ATA-1; dn1=469-255-1231; sub-profile-id=subpf1;	Adds a subscriber
	Note Each subscriber must have a unique term-id.

Table 4-2 Required Tokens

Value	Required Token
Individual	TERM-ID, MGW-ID
MLHG	MLHG-ID

Table 4-2 Required Tokens

Value	Required Token
MLHG-INDIVIDUAL	TERM-ID, MGW-ID, MLHG-ID
MLHG-PREF-INDIV	TERM-ID, MGW-ID, MLHG-ID, MLHG-PREF-LIST-ID
CTXG-MLHG	MLHG-ID, CTXG-ID
CTXG	CTXG-ID
CTXG-INDIVIDUAL	TERM-ID, MGW-ID, CTXG-ID
CTXG-TG	CTXG-ID, TGN-ID
PBX	TGN-ID

Generate a DN2Subscriber

The EMS automatically generates the DN2Subscriber Table. A user can show data or change the Status field to VACANT if it is in the disconnected (DISC) or connected (CN) state. The DN2Subscriber (dn2subscriber) table determines the subscriber ID of a DN during termination processing. The table is populated when a subscriber DN is added to the Subscriber table. It is queried when the called number is translated using the dial plan and the type of subscriber field indicates “Subscriber,” that is, it takes a DN and maps it to a subscriber.

The DN2Subscriber table also includes the administrative states of the DN. [Table 4-3](#) lists the possible administrative states of the DN.

Table 4-3 Administrative States of the DN

State	Definition
VACANT	The DN is unassigned. An Unassigned DN announcement is played. A typical announcement is “The number you dialed is not in service. Please check the number and try again.” The cause code for this state is 1.
ASSIGNED	The DN is assigned to a subscriber.
CN	The DN status is marked as a changed number (CN) when the subscriber requests a new number. A Changed Number announcement is played in this state. A typical announcement is “The called number has changed. The new number is ...” The cause code for this state is 22.
DISC	The DN is disconnected. A Disconnected Number announcement is played. A typical announcement is “We’re sorry, you have reached a number that has been disconnected or is no longer in service...” The cause code for this state is 27.
LRN	The DN has been reserved as an Location Routing Number (LRN) on this Call Agent.
RACF-DN	The DN has been reserved for the remote activation of call forwarding (RACF) feature.
TEST-LINE	The DN has been assigned to a test line.
ANNC	The DN points to an announcement (ANNC) ID.
PORTED-OUT	The subscriber ported (moved) out of the Call Agent and chose to keep their DN (local number portability).

For PBX-DID subscribers to be provisioned, the DN2Subscriber table must be manually provisioned. The DN2Subscriber table can support groups of 10, 100, 1000, or 10,000 directory numbers. The format of the DN is nnnn where n = 0–9. To provide a range of DNs, replace n with a lowercase x. If the last digit is replaced with a lowercase x, it represents a group of 10 DNs. 100 DNs are represented by xx, 1000 DNs are represented by xxx, and 10,000 DNs are represented by xxxx.

Control an MGW

Control sets the administrative state (OOS, INS) of MGWs, subscribers terminations, trunks, and trunk groups.

Command	Purpose
<code>control mgw id=ATA-1; target-state=INS; mode=forced;</code>	Places a media gateway in-service

Enter the following CLI command to verify that the MGW is in-service:

```
status mgw id=ATA-1;
```

Reply example:

Reply : Success:

```
MGW ID -> ATA-1
RESULT -> ADM configure result in success
REASON -> ADM executed successful
ADMIN STATE -> ADMIN_INS
OPER STATE -> Media gateway in working status
```

Equip a Subscriber Termination

The equip command enables the subscriber trunk termination to be placed in-service. [Table 4-4](#) lists and defines trunk termination states.

Command	Purpose
<code>equip subscriber-termination ID=sub2;</code>	Enables a subscriber trunk termination to be placed in-service

Table 4-4 *Subscriber Trunk Termination States*

State	Definition
ADMIN-INS	In Service
ADMIN-OOS	Out of Service
ADMIN-MAINT	Maintenance Mode

Control a Subscriber Termination

The control command places the administrative state of a subscriber termination in-service.

Command	Purpose
<code>control subscriber-termination id=sub2; target-state=INS; mode=forced;</code>	Changes the administrative state of a subscriber termination to in-service

Verify that the subscriber termination is in-service by using a status command similar to the following:

```
status subscriber-termination id=sub2;
```




CHAPTER 5

Cable Subscriber Provisioning

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This chapter describes how to provision subscribers in a cable network.

For a more detailed description of all Cisco BTS 10200 Softswitch tables, tokens, and value ranges, refer to the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide*.

For information about how to provision the Cisco BTS 10200 Softswitch network elements to support PacketCable-based features and protocols, refer to the [PacketCable and Event Message Provisioning and Operations Guide](#).

Provisioning a Cable Subscriber

[Table 5-1](#) provides an example of the steps required to provision the Cisco BTS 10200 Softswitch to communicate with a cable network and lists command examples with mandatory tokens. Click on each step for a complete description of the step.

Table 5-1 Cable Subscriber Provisioning Steps

	Description	CLI Command
Step 1	Add a Media Gateway Profile, page 5-2	add mgw-profile id=UBR925; vendor=cisco; packet-type=IP; ec_supp=y; mgcp-version=mgcp_1_0; termination-prefix=aaln/; port-start=0; mgcp-variant=ncs-1-0; description=Cisco UBR925;
Step 2	Add an MGW, page 5-2	add mgw id=<MGW ID>; tsap-addr=<TSAP-ADDR>; call-agent-id=<CA ID>; mgw-profile-id=UBR925; type=rgw; aggr-id=aggr01;
Step 3	Add a Termination, page 5-3	add termination prefix=aaln/; port-start=0; port-end=1; mgw-id=<MGW ID>; type=line;
Step 4	Add a Destination, page 5-3	add destination dest-id=local-call; route-type=sub; call-type=local;
Step 5	Add a Dial Plan Profile, page 5-4	add dial-plan-profile id=dp1; description=NA_Default;
Step 6	Add a Dial Plan, page 5-4	add dial-plan id=dp1; digit-string=919-392; dest-id=sub; noa=national;

Table 5-1 Cable Subscriber Provisioning Steps (continued)

	Description	CLI Command
Step 7	Add a Subscriber Profile, page 5-4	add subscriber-profile id=subpf1; dial-plan-id=dp1; pop-id=1;
Step 8	Add a Subscriber, page 5-4	add subscriber id=sub11; sub-profile-id=subpf1; category=individual; term-id=aaln/0; mgw-id=c925.172;dn1=919-392-1235; name=RTP5; Note Each subscriber must have a unique term-id.
Step 9	Change Subscriber Ring Cadence (Optional), page 5-5	change subscriber id=sub11; sub-profile-id=subpf1; ring_type_dn1=3;
Step 10	Control a Media Gateway, page 5-5	control mgw id=<MGW ID>; target-state=INS; mode=FORCED;
Step 11	Equip a Subscriber Termination, page 5-6	equip subscriber-termination id=sub11;
Step 12	Control a Subscriber Termination, page 5-6	control subscriber-termination id=sub11; target-state=INS; mode=FORCED;

Add a Media Gateway Profile

A media gateway (MGW) profile provides a template for provisioning one or more MGWs. It identifies the specifications and settings necessary for communications between the Call Agent and each type of MGW. Execute this command once for each gateway.

Command	Purpose
add mgw-profile id=UBR925; vendor=cisco; packet-type=IP; ec_supp=y; mgcp-version=mgcp_1_0; termination-prefix=aaln/; port-start=0; mgcp-variant=ncs-1-0; description=Cisco UBR925;	Adds a media gateway profile



Tip

The mgcp-max1-retries and mgcp-max2-retries tokens in the mgw-profile table can be adjusted, if necessary, to improve response if there are network bandwidth or reliability issues, or if an MGW is slow in responding to commands from the CA. For a detailed explanation of how these and other parameters affect the audit-endpoint and keepalive processes, see the applicable appendix ("[Release 5.0 Keepalive](#)") in the *Cisco BTS 10200 Softswitch Troubleshooting Guide*.

Add an MGW

The Media Gateway (mgw) table holds information about each MGW managed by the Call Agent. The MGW can be uniquely addressed by domain name, an IP address, or the TSAP address.

The Media Gateway table has two associated commands: RGW and TGW. The RGW command provisions a gateway as only a residential gateway, with the type token automatically set to RGW. The TGW command provisions a gateway as a trunking gateway only, with the type token automatically set to TGW. Both of these commands provision the Media Gateway table, but a service provider can use these commands to provide user security to certain individuals based on their roles.

Command	Purpose
add mgw id=<MGW ID>; tsap-addr=<TSAP-ADDR>; call-agent-id=<CA ID>; mgw-profile-id=UBR925; type=rgw; aggr-id=aggr01;	Adds a media gateway

**Note**

The RGW command could also be used to provision the MGW in this instance. Refer to the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* for detailed information about the RGW and TGW commands.

Add a Termination

The Termination (termination) table holds information about each termination or endpoint managed by the Call Agent. Termination structure uniformly addresses analog ports, DS0 ports, ISDN circuits, and allows termination groupings for ISDN PRI and multiline hunt groups (MLHGs) for a single subscriber. Termination events and signals are grouped into packages. Packages are groupings of events and signals supported by a particular type of endpoint. For instance, one package supports a certain group of events and signals for analog access lines, and another package supports another group of events and signals for video lines. One or more packages can exist for a given endpoint type. The package type is determined by the gateway used.

The Termination table can use commands that do not match command-to-field of the database. If the prefix token is used during provisioning, the termination ID is generated by concatenating a prefix and port-start value and incrementing the termination port number until the port number value reach port-end. The prefix, port-start, and port-end are not in the table as individual fields.

The user enters:

prefix: 1–32 ASCII characters

port-start: 0000–9999 (1–4 numeric characters) (default = 1)

port-end: 0000–9999 (1–4 numeric characters) (default = 24)

Command	Purpose
add termination prefix=aaln/; port-start=0; port-end=1; mgw-id=<MGW ID>; type=line;	Adds a termination

Add a Destination

The Destination (destination) table defines the call type and the routing information for the dialed digits. Multiple digit strings in the Dial Plan table can use the same destination ID.

Command	Purpose
add destination dest-id=local-call; route-type=sub; call-type=local;	Adds a destination

Add a Dial Plan Profile

The Dial Plan Profile (dial-plan-profile) table creates dial-plan-profile-ids before they are assigned to subscribers or trunk groups. The dial-plan-profile-id links digit-string entries in the Dial Plan table within a dial plan. Different dial-plan-profile-ids are assigned to subscribers and trunk groups. A dial-plan-id must be created in this table before entries can be added to the Dial Plan table.

Command	Purpose
add dial-plan-profile id=dp1; description=NA_Default;	Adds a dial plan profile

Add a Dial Plan

You can use a dial plan to analyze, screen, and route calls based on dialed digits. The Dial Plan (dial-plan) table holds dial plan information for a specific type of call. It defines valid dialing patterns and determines call routing. All records that share a common dial-plan-profile-id are considered a dial plan.

Command	Purpose
add dial-plan id=dp1; digit-string=919-392; dest-id=sub; noa=national;	Adds a dial plan

Add a Subscriber Profile

The Subscriber Profile (subscriber-profile) table groups properties that are shared by a number of subscribers. For example, a Centrex group consisting of several subscribers can share a subscriber profile. Because a Call Agent consists of several points of presence (POPs), and POP is one of the tokens in the subscriber profile, POP-specific subscriber profiles must be created.

Command	Purpose
add subscriber-profile id=subpf1; dial-plan-id=dp1; pop-id=1;	Adds a subscriber profile

Add a Subscriber

The Subscriber (subscriber) table defines the characteristics of a subscriber or group of subscribers in a Call Agent. All termination numbers reached by a directory number (DN) must be set up as a subscriber. Any termination that can originate in the primary Call Agent must be set up as a subscriber (residential, PBX, business, and Centrex). All terminations to customers, such as MLHG and Centrex, must be defined as well.

[Table 5-2](#) lists the required tokens for each value.

Command	Purpose
add subscriber id=sub11; sub-profile-id=subpf1; category=individual; term-id=aaln/0; mgw-id=c925.172; dn1=919-392-1235; name=RTP5;	Adds a subscriber Note Each subscriber must have a unique term-id.

Table 5-2 Required Tokens Per Category

Value	Required Tokens
INDIVIDUAL	TERM-ID, MGW-ID
MLHG	MLHG-ID
MLHG-INDIVIDUAL	TERM-ID, MGW-ID, MLHG-ID
MLHG-PREF-INDIV	TERM-ID, MGW-ID, MLHG-ID, MLHG-PREF-LIST-ID
CTXG-MLHG	MLHG-ID, CTXG-ID
CTXG	CTXG-ID
CTXG-INDIVIDUAL	TERM-ID, MGW-ID, CTXG-ID
CTXG-TG	CTXG-ID, TGN-ID
PBX	TGN-ID

Change Subscriber Ring Cadence (Optional)

When changing the subscriber ring cadence, permitted values 1–7 are available. The cadence of each of these ringing cycles is

- 1 = 2 seconds ringing, 4 seconds off
- 2 = .5sec ringing, .5sec ringing, 4sec off
- 3 = .5sec ringing, .5sec ringing, .5sec ringing, 4sec off
- 4 = .3sec ringing, .2sec ringing, .3sec ringing, 4sec off
- 5 = .5sec ringing, 6sec off
- 6 = .5sec ringing, 1sec ringing, .5sec ringing, 4sec off
- 7 = .5sec ringing, 6sec off

Command	Purpose
change subscriber id=sub11; sub-profile-id=subpf1; ring_type_dn1=3;	Changes subscriber ring cadence

Control a Media Gateway

The control command sets the administrative state (OOS, INS) of media gateways, subscribers terminations, trunks, and trunk groups.

Command	Purpose
control mgw id=c925.172; target-state=INS; mode=FORCED;	Places a media gateway in-service

Enter a CLI status command similar to the following to verify that the media gateway is in-service:

```
status mgw id=c925.172;
```

```
Reply : Success:
```

```
MGW ID -> c925.172
RESULT -> ADM configure result in success
REASON -> ADM executed successful
ADMIN STATE -> ADMIN_INS
OPER STATE -> Media gateway in working status
```

Equip a Subscriber Termination

The equip command enables the subscriber trunk termination to be placed in-service.

Command	Purpose
equip subscriber-termination id=sub11;	Enables a subscriber termination to be placed in-service

Control a Subscriber Termination

The control command sets the administrative state (OOS, INS) of media gateways, subscribers terminations, trunks, and trunk groups.

Command	Purpose
control subscriber-termination id=sub11; target-state=INS; mode=FORCED;	Places a subscriber termination in-service

Verify that the subscriber termination is in-service by using the status command:

```
status subscriber-termination id=sub11;
```



CHAPTER 6

CALEA Provisioning

Revised: May 31, 2010, OL-12777-12

The Cisco BTS 10200 Softswitch provides interfaces for transmission of data used in conjunction with the Communications Assistance for Law Enforcement Act (CALEA). This chapter explains how to provision these interfaces on the Cisco BTS 10200 Softswitch and contains the following sections:

- [Create a Workgroup to Manage Access to ESS Commands, page 6-1](#)
- [Service Independent Interception Provisioning, page 6-2](#)
- [Release 5.0 Electronic Surveillance Provisioning, page 6-2](#)

The Cisco BTS 10200 Softswitch provides support for CALEA using two different industry-developed architectures: PacketCable, and the Cisco Service Independent Intercept (SII).



Note

For a general description of the Cisco BTS 10200 Softswitch implementation for CALEA support, refer to the [Cisco BTS 10200 Softswitch System Description](#).

Create a Workgroup to Manage Access to ESS Commands

Any user with a high enough command privilege level can execute electronic surveillance server (ESS) commands. However, access can be more easily controlled through a workgroup.

To set up a workgroup, execute the following commands.

Step 1 Start a session with SSH, and log in to the EMS.

Step 2 Create a workgroup for the ESS command.

```
change command-table noun=ess; verb=add; work-groups=<Workgroup Name>;
```

Step 3 Add this workgroup to the user using the following command. This permits the user to access the ESS commands.

```
change user name=<someUser>; work-groups=<Workgroup Name>;
```

Service Independent Interception Provisioning

Perform the following steps to set up CALEA on the Cisco BTS 10200 Softswitch in an SII network. Command examples are provided but may not replicate your specific network conditions.

- Step 1** Enable SII using the Call Agent Profile table. You need user class privileges to perform this command.
- ```
add call-agent-profile id=<CAid>; cms-id=1234; feid=4321;
```



**Note** CMS-ID=xxxx, FEID=xxxx are mandatory settings for CALEA.

- Step 2** Provision the Electronic Surveillance Server table. This table identifies the Delivery Function (DF) server to the Cisco BTS 10200 Softswitch.

```
add ess cdc-df-address=<IPaddress>; cdc-df-port=<port#>;
```

The CALEA feature is now available for use.

- Step 3** If an aggregation router (CMTS) supports CALEA, and CALEA is enabled on the aggregation router, provision the *Aggregation* table and *Media Gateway* table as follows:

- a. Provision the Aggregation table.

```
change aggr id=<er1>; es-supp=y; es-event-supp=y;
```

- b. To display the current settings in the MGW table for each MTA, enter the following command:

```
show mgw id=<mgw id for the MTA>;
```

- c. Verify that the display from the **show** command in Step b. indicates that the aggregation router (CMTS) is properly identified by the *aggr-id* token in the Media Gateway table. If there is no valid value displayed for *aggr-id*, you must enter it using the following command:

```
change mgw id=<mgw id>; aggr-id=<Aggregation router (CMTS) ID>
```

- d. Repeat Steps b and c as necessary to verify/enter the *aggr-id* on all MTAs (MGWs) connected to the CMTS (aggregation router).



**Note** CALEA must be enabled on every TGW and aggregation router used for CALEA. Consult your TGW and aggregation router vendor documentation for instructions.

## Release 5.0 Electronic Surveillance Provisioning

Perform the following steps to set up CALEA on Release 5.0 of the Cisco BTS 10200 Softswitch in a PacketCable network. Command examples are provided but might not replicate your specific network conditions.

This section explains how to perform the following tasks:

- Create a Workgroup to Manage Access to ESS Commands
- Provision the ESS Table

- Verify Aggregation Table and Softswitch Trunk Group Profile Table

**Note**

These tasks include examples of CLI commands that illustrate how to provision the specific feature. Most of these tables have additional tokens that are not included in the examples. For a complete list of all CLI tables and tokens, see the [Cisco BTS 10200 Softswitch Command Line Interface Reference Guide](#).

## Create a Workgroup to Manage Access to ESS Commands

Any user with sufficient privilege can execute electronic surveillance server (ESS) commands. However, access can be more easily controlled using a workgroup.

To set up a workgroup, complete the following steps.

### DETAILED STEPS

|               | Command or Action                                                                             | Purpose                                                                                                       |
|---------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | <code>ssh -l Calea@priemsXXX</code>                                                           | Start a session with SSH, and log in to the EMS.                                                              |
| <b>Step 2</b> | <code>change command-table noun=ess; verb=add;<br/>work-groups=&lt;Workgroup Name&gt;;</code> | Create a workgroup for the ESS command.                                                                       |
| <b>Step 3</b> | <code>change user name=&lt;someUser&gt;;<br/>work-groups=&lt;Workgroup Name&gt;;</code>       | Add this workgroup to the user using the following command. This permits the user to access the ESS commands. |

## Provision the ESS Table

For Cisco BTS 10200, Release 5.0, the ESS table includes four new optional tokens:

- CCC\_IP\_ADDRESS
- CCC\_IP\_PORT
- EM-PROTOCOL-VERSION-MAJOR
- EM-PROTOCOL-VERSION-MINOR

**Note**

CCC\_IP\_ADDRESS and CCC\_IP\_PORT are required when the CALEA feature is used in a multiple CMS environment. The values of CCC\_IP\_ADDRESS and CCC\_IP\_PORT provide the CMS with information about the IP address and port to which duplicate call-content streams should be sent if the BTS 10200 receives a call-content surveillance request from the CMS. If these tokens are not provisioned, the BTS 10200 uses the information received in the laes-content parameter of the SIP P-DCS-LAES header.

**Note**

For Release 5.0, the PROTOCOL-VERSION token that was available in previous releases of the ESS table is deprecated.

## ESS Table Provisioning Example

The following command example shows how to provision the new ESS table tokens for the CALEA feature in BTS 10200, Release 5.0.

### DETAILED STEPS

**Table 6-1 ESS Table Provisioning**

| Command or Action                                                                                                                                                                                                                                                                                                                                                    | Purpose                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre>add ess cdc-df-address = &lt;IP address of DF CDC application &gt;; cdc-df-port = &lt; Destination Port for call-data info &gt;; ccc-df-address = &lt;IP address of DF CCC application &gt;; ccc-df-port = &lt; Destination Port for call-content info &gt;; em-protocol-major=&lt; 11 or 15 (default) &gt;; em-protocol-minor=&lt;00 (default) to 99&gt;</pre> | <p>Provision the new ESS table tokens for the CALEA feature in BTS 10200, Release 5.0. This identifies the Delivery Function (DF) server to the Cisco BTS 10200 Softswitch.</p> |

## Verify Aggregation Table and Softswitch Trunk Group Profile Table Provisioning

Verify that the ES-SUPP tokens in the Aggregation-Profile (aggr-profile) table and Softswitch Trunk Group Profile (softsw-tg-profile) table are set to correspond with the functionality supported at the other end.

- The ES-SUPP flag in the Aggregation Profile table, which the Aggregation (aggr) table points to for a specific Aggregation record, should be set only if the Cable Modem Termination System (CMTS) supports CALEA requirements.
- The ENABLE\_P\_DCS\_LAES\_HEADER flag in the Softswitch Trunk Group Profile table should be set if the BTS10200 is allowed to send P-DCS-LAES header on the soft-switch trunk group associated with this profile.
- The SEND\_LAES\_IN\_RESPONSE flag in the Softswitch Trunk Group Profile table should be set if the BTS10200 is allowed to send P-DCS-LAES header in SIP 18X or 200 OK messages on the soft-switch trunk group associated with this profile.
- The ENABLE\_ES\_EVENTS and ENABLE\_SIP\_TRIGGER flag in the Softswitch Trunk Group Profile table should be set if the soft-switch trunk group associated with this profile is connected to an Application Server.



## CHAPTER 7

# Feature Provisioning

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**Revised: May 31, 2010, OL-12777-12**

This chapter describes the CLI provisioning commands necessary for offering supplementary features to a subscriber line and is limited to the Feature Server components of the Cisco BTS 10200 Softswitch. All the necessary steps required to provision the supplementary features offered by the Feature Servers are described in the recommended order; however, only the essential tokens are included in the examples.

The following sections outline the structure of this chapter, the conventions used, and the assumptions that are made. The provisioning procedures are grouped as follows:

- **Feature Provisioning**—Provisioning procedures to set up a feature server on the network.
- **Subscriber Provisioning**—Provisioning procedures required to set up a subscriber in the network.
- **Centrex Provisioning**—Provisioning procedures required to set up a Centrex group.
- **MLHG Provisioning**—Provisioning procedures required to set up a multi-line hunt group (MLHG).
- **Centrex-MLHG Provisioning**—Provisioning procedures required to set up a Centrex-MLHG.
- **Feature Provisioning**—Provisioning procedures for features that might be applicable to a POTS subscriber, Centrex, MLHG, Centrex-MLHG, or trunks.



### Note

Related features can be grouped under one section. For example, the procedures for provisioning the CFU, CFUA, CFUD, and CFUI features are described in the same section.



### Tip

For a complete description of the features provisioned in this chapter, see the [Network and Subscriber Feature Descriptions](#).

The individual procedures for provisioning each supplementary feature are structured as follows:

- **Office Provisioning**—Identifies provisioning requirements at the Office level.  
This is a one-time procedure performed during initial softswitch configuration and, under normal circumstances, it is not required at any other point during system operation.
- **Provisioning Resources**—Identifies provisioning requirements at the network resource level.  
Network resources include the Call Agent, Feature Servers, media gateways, trunks, and terminations. Resource provisioning, under normal circumstances, is done one time during the initial softswitch configuration and is not required at other points during system operation.

- **Provisioning Notes/Caveats**—Notes any other points related to provisioning not captured under the previous sections.
- **Alternate Activation and Deactivation Method**—Identifies alternative methods for activating and deactivating a feature.

If any of these elements do not apply in any individual procedure, they are eliminated. Each provisioning task is presented in a procedural format, with a sequence of provisioning steps.

## Conventions

This section outlines additional conventions used only within this chapter. Refer to the Preface for all other conventions.

1. In the CLI command examples:
  - A word in *italic* represents the primary key.
  - Token names in **bold** represent mandatory tokens for the command.
  - Token values in **bold** represent the mandatory value for a token.
2. The alternative CLI commands, “add/change,” specify an “add,” if the record has not yet been added, or “change,” if the record has already been added but needs to be changed. If the record is new, other parameters might be necessary before a basic call can be made.

## Assumptions

The following specific assumptions are made in this chapter:

- Basic network resource configuration and provisioning is done. Network resources include call agents, feature servers, media gateways, trunks, and terminations.
- The feature behavioral aspects are known to the user.
- Basic call processing is provisioned and works for a subscriber. Basic call provisioning aspects like dial plan are not discussed in this chapter.
- All CLI command examples are for illustrative purposes only and present only the necessary provisioning parameters specific to the feature.
  - The parameters presented should be sufficient for the switch to provide the service; however, some parameter values can differ and should be chosen based on the behavior required.
  - Parameter values themselves (like call-agent-id and vsc-code), might not be consistent from one example to another. All provisioning examples are only for stand-alone illustrative purposes.
- All steps in the procedures described here are mandatory unless specifically designated as optional.

## Vertical Service Codes

Some features can be accessed and controlled by the subscriber using a handset and vertical service codes (VSCs). VSCs are provisionable by the service provider (any valid unique ASCII string up to five characters long), and the customary values are country specific.



For convenience, some VSC values are preprovisioned in the Cisco BTS 10200 Softswitch. The valid formats for VSC ASCII strings are listed in the VSC table specification in the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide*. The preprovisioned VSC values are listed in the Vertical Service Code appendix of the same document.

**Note**

The regular digit pattern for North American VSCs is \* followed by two digits (\*XX). VSCs are provisionable by the service provider. The VSC values used throughout this chapter are for illustrative purposes only.

## Vertical Service Code Provisioning

This section supplements the feature provisioning sections for features that can be invoked with a VSC.

VSC provisioning is dependent on the type of dial plan in effect, NANP or otherwise. Currently, there are two standard configurations based on the nature of dial plan associated with a subscriber. They are identified by the NANP-DIAL-PLAN token in the dial-plan-profile table and are discussed in the following sections:

- [NANP Dial Plan VSC Provisioning, page 7-3](#)
- [Non-NANP Dial Plan VSC Provisioning for Subscriber and Centrex, page 7-4](#)

**Note**

The following restriction applies to networks with SIP endpoints. Certain combinations of VSCs should not be deployed on networks with SIP endpoints. If you deploy a VSC longer than 2 digits, make sure that the longer VSC does not begin with the same sequence of characters as one of the shorter VSCs. In some cases, the system might match the shorter string even if the subscriber dialed the longer string.

Consider the following example, for which the subscriber is expected to dial a VSC followed by a DN. A SIP subscriber is provisioned with \*93 for Feature1 and \*938 for Feature2, and dials \*938+2135551801 to invoke Feature2. The BTS 10200 receives \*9382135551801 in the INVITE message. By default, it takes the first six characters, in this case \*93821, and uses this string to look up the feature in the VSC table. There is no match for \*93821, therefore the BTS 10200 proceeds as follows. First, it uses \*9 to look for a match in the VSC table and it cannot be found. Then it uses \*93, finds a match, and delivers Feature1. This is incorrect. The user's intention was to invoke Feature2 and not Feature1. The solution is for the service provider to change one of the two VSCs (either \*93 or \*938) in the VSC table.

## NANP Dial Plan VSC Provisioning

**Step 1** Provision the digit map with the digit pattern.

```
add/change digit-map; id=digit-map-1; DIGIT_PATTERN=[regular digit
pattern]*xx|1lxx|[regular digit pattern];
```

**Note**

The "[regular digit pattern]" referred to is part of the subscriber digit map/digit pattern. The VSC digit patterns are embedded within the subscriber's digit map/digit pattern.

**Step 2** Add the digit pattern to the digit map used for Centrex subscribers:

```
add/change digit-map; id=digit-map-ctx; DIGIT_PATTERN=[regular Centrex digit
pattern]*xx|1lxx|[regular Centrex digit pattern];
```

**Note**

The "[regular Centrex digit pattern]" is part of the Centrex digit map/digit pattern. The VSC digit patterns are embedded within the Centrex digit map/digit pattern.

**Step 3** Associate the digit maps in Steps 1 and 2 with the appropriate subscriber profiles:

```
add/change sub-profile id=plan01; digit-map-id=digit-map-1;
add/change sub-profile id=plan01; digit-map-id=digit-map-ctx;
```

**Step 4** Associate the digman entry to the dial plan profile and update the NANP\_DIAL\_PLAN field in the dial-plan-profile table to Y:

```
add/change dial-plan-profile ID=dpp1; DESCRIPTION=dialing plan profile ID2;
NANP_DIAL_PLAN=Y;
```

**Step 5** Provision the VSC/CDP table with the VSC code. Here is an example for CFUA for POTS and Centrex subscribers:

```
add/change vsc digit-string=*72;fname=CFUA;
add/change cdp digit-string=*72; fname=CFUA; cdp-id=cdp1; cat-string=1111111111; nod=VSC;
```

## Non-NANP Dial Plan VSC Provisioning for Subscriber and Centrex

**Step 1** Provision the digit map with the digit pattern. This CLI example of the digit map highlights only the pattern for the VSC codes to be reported:

```
add/change digit-map id=digit-map-1; DIGIT_PATTERN=[regular digit
pattern]|[*,#]xx[*,#]|[regular digit pattern];
```

**Note**

The "regular digit pattern" referred to in this section is part of the subscriber digit map/digit pattern. The VSC digit patterns are to be embedded within the subscriber's digit map/digit pattern.

**Note**

Only the following VSC signatures are applicable:

```
XX
*XX#
#XX#
#XX
*#XX#
```

**Step 2** Add the digit pattern to the digit map used for Centrex subscribers:

```
add/change digit-map id=digit-map-ctx; DIGIT_PATTERN=[regular Centrex digit
pattern]|[*,#]xx[*,#]|*#xx[*,#]|[regular Centrex digit pattern];
```

**Note**

The regular Centrex digit pattern referred to in this section is part of the Centrex digit map/digit pattern. The VSC digit patterns are to be embedded within the Centrex digit map/digit pattern.

**Step 3** Associate the digit maps in Steps 1 and 2 to the appropriate subscriber profiles:

```
add/change sub-profile id=plan01; digit-map-id=digit-map-1;

add/change sub-profile id=plan01; digit-map-id=digit-map-ctx;
```

**Step 4** Add or change entries in the Digman table:

```
add/change digman id=pretrans; RULE=1; MATCH_STRING=^*; REPLACE_STRING=&;MATCH_NOA=ANY;
REPLACE_NOA=VSC;
```

```
add/change digman ID=pretrans; RULE=2; MATCH_STRING=^#; REPLACE_STRING=&; MATCH_NOA=ANY;
REPLACE_NOA=VSC;
```

**Step 5** Associate the entries in the Digman table to the dial plan profile and update the NANP\_DIAL\_PLAN token in the Dial-plan-profile table to N:

```
add/change dial-plan-profile ID=dpp1; DESCRIPTION=dialing plan profile ID2;
NANP_DIAL_PLAN=N; DNIS_DIGMAN_ID=pretrans;
```

**Step 6** After the feature tables are populated, provision the VSC/CDP table with a VSC code for all applicable features. The following is an example for CFUA for POTS and Centrex subscribers:

```
add/change vsc digit-string=*57*; fname=CFUA;
```

```
add/change cdp digit-string=*57*; fname=CFUA; cdp-id=cdp1; cat-string=1111111111;
nod=VSC;
```

## Configurable Default Values for Subscriber Provisioning

The Configurable Default Values for Subscriber Provisioning feature provides the following capabilities:

- Allows you to configure default values for optional tokens
- Adds data validation of configured default values
- Allows you to provision default values using a command alias
- Allows you to show the Cisco BTS 10200 Softswitch factory default settings

This feature is automatically enabled after Cisco BTS 10200 Softswitch installation. After upgrading, the existing configured default values are preserved.

**Note**

After configuring default values, you should exit and start a new CLI session before performing regular provisioning. The configured default values will only take effect in the new CLI session.

## Provisioning the Default Value for an Optional Token

The following example provisions the default value for the es\_supp token in the AGGR table.

**Step 1** Show the configured default value, if any. In this example, no default value is configured.

```
show var_default noun=aggr; var_name=es_supp;
```

```
Reply:Success: Database is void of entries
```

**Step 2** Provision Y as the default value for the es\_supp token.

```
add var_default noun=aggr; var_name=es_supp; def_vals=Y;
```

**Step 3** Verify that the default value for the es\_supp token is provisioned.

```
show var_default noun=aggr; var_name=es_supp;

NOUN=aggr
VAR_NAME=es_supp
DEF_VALS=Y
Reply:Success:Entry 1 of 1 returned.
```

---

## Checking the Integrity of the Configured Default Value

The Configurable Default Values for Subscriber Provisioning feature checks the integrity of the configured default value to ensure the default value is consistent with the token value specified in the database. An invalid default value will be rejected when you add or change the default value.

The following example illustrates an attempt to configure the default value of a token with an invalid value.

```
change var_default noun=aggr; var_name=es_supp; def_vals=BAD_VALUE;
Reply:Failure:<BAD_VALUE> is invalid - should be one of [Y,N]
```



### Note

A subsequent add operation may still fail even though the default value is an allowable value because the default value might violate further integrity checks and business rules validation at provisioning time.

## Provisioning a Default Value using a Command Alias

The Configurable Default Values for Subscriber Provisioning feature enables a command alias to be used for adding, changing, and viewing a token default value. The following example illustrates using the command alias sub when configuring the default value of the term\_type token in the Subscriber table.

**Step 1** Configure the default value for the term\_type token in the Subscriber table.

```
add var_default noun=sub; var_name=term_type; def_vals=SIP;

Reply:Success:CLI add successfully
```

**Step 2** Verify that the default value is configured as expected.

```
show var_default noun=sub; var_name=term_type;

NOUN=subscriber
VAR_NAME=term_type
DEF_VALS=SIP
Reply:Success:Entry 1 of 1 returned.
```

---

## Viewing the Factory Default Value

This feature adds the all token to the show var\_default command to provide the ability to show if a token has a factory default value configured and also the currently configured default value. The following example illustrates displaying both the factory default value and the currently configured value for the term\_type token in the subscriber table.

```
show var_default noun=subscriber; var_name=term_type; all=y;

NOUN=subscriber
VAR_NAME=term_type
BTS_DEFAULT=TERM
DEF_VALS=TG
Reply:Success:Entry 1 of 1 returned.
```

## Restoring a Factory Default Value

BTS 10200 factory default values can be replaced by user provisioned defaults. You can restore the factory default value by deleting the provisioned default value. The following example restores the factory default value for the term\_type token in the Subscriber table.

```
delete var_default noun=subscriber; var_name=term_type;

Reply:Success:CLI delete successfully.
```

## Feature Provisioning

This section describes how to provision the following features:

- [8XX \(Toll-Free Calling\), page 7-9](#)
- [911 Emergency, page 7-12](#)
- [Active Call Information Display, page 7-15](#)
- [Alerting Notification to Third Party Feature Server, page 7-16](#)
- [Anonymous Call Rejection and A/D, page 7-18](#)
- [Automatic Callback, page 7-19](#)
- [Automatic Recall, page 7-22](#)
- [Busy Line Verification, page 7-28](#)
- [Call Block—Reject Caller, page 7-30](#)
- [Call Forward Busy, page 7-31](#)
- [Call Forwarding Combination, page 7-35](#)
- [Call Forward No Answer, page 7-37](#)
- [Call Forward Redirection, page 7-40](#)
- [Call Forwarding Unconditional, page 7-41](#)
- [Call Forwarding Variable for Basic Business Groups, page 7-43](#)
- [Call Hold, page 7-45](#)
- [Call Park, Call Park Retrieve, page 7-47](#)
- [Call Transfer, page 7-48](#)
- [Call Waiting, page 7-49](#)
- [Call Waiting Deluxe, page 7-50](#)
- [Caller ID with Call Waiting, page 7-52](#)
- [Caller Name Blocking, page 7-53](#)

- [Calling Line Identity Presentation, Restriction, page 7-54](#)
- [Calling Name Delivery, page 7-54](#)
- [Calling Number Delivery, page 7-57](#)
- [Calling Number Delivery Blocking, page 7-58](#)
- [Caller Identity Delivery Suppression–Delivery, page 7-59](#)
- [Caller Identity Delivery Suppression–Suppression, page 7-60](#)
- [Cancel Call Waiting, page 7-61](#)
- [Custom Dial Plan, page 7-65](#)
- [Class of Service Screening, page 7-62](#)
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- [Direct Call Pickup Without Barge-In, page 7-67](#)
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- [Do Not Disturb, page 7-69](#)
- [Group Speed Call: 1-Digit and 2-Digit, page 7-71](#)
- [Hotline, page 7-72](#)
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- [Incoming Simulated Facility Group, page 7-76](#)
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- [Local Number Portability for ANSI/North America, page 7-81](#)
- [Local Number Portability for ITU Local BTS Database Query, page 7-84](#)
- [Multi-Line Hunt Group, page 7-91](#)
- [Multi-Lingual Support for Interactive Voice Response and Announcements, page 7-94](#)
- [Multiple Directory Number, page 7-96](#)
- [No Solicitation Announcement, page 7-97](#)
- [On-Net Routing and Local Number Portability for Inter–PacketCable Cable Management Server Routing, page 7-111](#)
- [Outgoing Call Barring, page 7-114](#)
- [Outgoing Call Barring—Activation, Deactivation, and Interrogation, page 7-117](#)
- [Outgoing Simulated Facility Group, page 7-118](#)
- [Own Calling Number Announcement, page 7-119](#)
- [Privacy Screening, page 7-120](#)
- [REFER, page 7-122](#)
- [Remote Activation of Call Forwarding and PIN\\_Change, page 7-123](#)
- [Remote Call Forwarding, page 7-126](#)
- [Replace, page 7-127](#)
- [Screen List Editing: SCF, SCR, SCA, and DRCW, page 7-127](#)
- [SIP Triggers, page 7-143](#)

- Speed Call (1-Digit and 2-Digit) and Activation, page 7-147
- Split Numbering Plan Area, page 7-148
- T.38 Fax Relay, page 7-149
- Temporary Disconnect, page 7-153
- Three-Way Calling, page 7-156
- Three-Way Calling Deluxe, page 7-156
- Time and Weather Number, page 7-162
- Usage Sensitive Three-Way Calling, page 7-157
- Voice Mail, Voice Mail Always, and Voice Mail Access, page 7-158
- Warmline, page 7-161

**Note**

The Feature table uses a type/value pair mechanism to define features. If you want to change feature values, enter them as follows:

change feature fname=OCB; type1=pin-len; value1=5; type2=to; value2=2-; type3=fail-cnt; value3=4; type4=lock-out; value4=60;

**Note**

For a description of MGCP vs. SIP features, refer to the following document:

[http://www.cisco.com/univercd/cc/td/doc/product/voice/bts10200/bts4\\_2/sipdocs/sipadmin/9usrappa.htm](http://www.cisco.com/univercd/cc/td/doc/product/voice/bts10200/bts4_2/sipdocs/sipadmin/9usrappa.htm)

**Note**

The following feature limitations apply if your network uses an ISUP variant other than ANSI ISUP:

- For call-waiting features, the system supports CWD, but not CW or CIDCW
- For three-way-calling features, the system supports TWCD, but not TWC or USTWC

## 8XX (Toll-Free Calling)

This section explains how to provision outbound toll-free calling for subscribers on the Cisco BTS 10200 Softswitch. Toll-free calling in North America usually involves an 8XX number.

**Tip**

For a complete description of this feature, see the “8XX (Toll-Free Calling)” section in the *Cisco BTS 10200 Softswitch Network and Subscriber Feature Descriptions* document.

## Office Provisioning

This section explains how to create the 8XX feature and apply it to a dial plan. It also shows how to provision the translation of an 8XX number to a local DN.

**Step 1** Create the 8XX feature:

```
add feature fname=8XX; tdp1=COLLECTED_INFORMATION; tid1=SPECIFIC_DIGIT_STRING; ttype1=R;
description=toll-free; feature_server_id=FSAIN205;
```

**Step 2** Add destination 800.

```
add destination dest-id=dest800; call-type=TOLL_FREE; route-type=SUB;
```

**Step 3** Add the dial plan profile.

```
add dial-plan-profile ID=dp1;
```

**Step 4** Add the digit string to the dial plan for the subscriber/trunk. The dial-plan ID must match the ID of the appropriate dial-plan-profile, and the dest-id must match the ID of the appropriate destination.**Caution**

For the 8XX feature, do *not* enter a value for the nature of address (NOA) parameter. You must allow the system to use the NOA default value (NATIONAL). This is true even if you have calls with a network-specific NOA.

**Tip**

Enter this command as **add dial-plan** (not **change dial-plan**) even if the dial-plan already exists.

```
add dial-plan ID=dp1; digit-string=800; dest-id=dest800;
```

**Step 5** Add the Dn2cust group. The system uses these provisioned values for local 8XX calls only, not for external calls or for calls that require an SCP database query.

```
add dn2cust-grp digit-string=8005550001; translated-dn=4695558724;
```

## Add 8XX to the Office Service IDs

This section explains how to add the 8XX feature to the default-office-service-id (a switch-wide default service) and to the office-service-id (a POP-wide default service). If you provision an office-service-id for a POP, that office-service-id takes precedence over the default-office-service-id. However, if you do not provision an office-service-id for a POP, the system uses the default-office-service-id.

**Step 1** Add this feature to the default office service ID (ABC in this example). This allows the system to provide this feature to all subscribers by default.

- a. Enter the following command to display the ID of the default-office-service-id.

```
show ca-config type=DEFAULT-OFFICE-SERVICE-ID;
```

The system displays the value of the default-office-service-id. In this example, assume that the system displayed the value as ABC.

- b. Use the following command to determine what number (N) should be used for **fnameN**.

```
show service id=ABC;
```

The system displays the features that are in this service table.

- c. If 8XX is not already included in this service, add 8XX by entering the following command. Do not use a number for FNAME<sub>N</sub> that is already being used for this service.

```
add/change service id=ABC; fname9=8XX;
```



**Step 2** If you are using POP-specific office service IDs, you can add the 8XX feature. If you add this feature to the office service ID (XYZ in this example), all subscribers in this POP will be given the 8XX feature.

- a. Enter the following command to display the ID of the office-service-id.

```
show pop id=pop1;
```

The system displays the value of the office-service-id, if it already exists for this POP. In this example, assume that the system displayed the value as XYZ.



**Note** If the display shows that there is no office-service-id provisioned for this POP, you must first use the **change pop** command to add an office-service-id.

- b. Use the following command to determine what number (N) should be used for **fnameN**.

```
show service id=XYZ;
```

The system displays the features that are in this service table.

- c. If 8XX is not already included in this service, add 8XX by entering the following command. Do not use a number for FNAME<sub>N</sub> that is already being used for this service.

```
add/change service id=XYZ; fname9=8XX;
```

## Provisioning Resources

These steps explain how to provision the resources to enable an SCP query.

**Step 1** Provision the signaling gateway:

```
add sg id=sg_1; description=signaling gateway 1;
```

**Step 2** Provision the signaling gateway group:

```
add sg-grp id=sg_grp1; sg1-id=sg_1; description=signaling gateway group 1;
```

**Step 3** Provision the signaling gateway process:

```
add sgp id=itp_7507_1; sg-id=sg_1; description=ITP 7507 for sg_1;
```

**Step 4** Provision the SCTP association profile:

```
add sctp-assoc-profile id=sctp_prof; bundle_timeout=500; max_assoc_retrans=5;
max_path_retrans=5; max_rto=6000; min_rto=301; sack_timeout=101; hb_timeout=1000;
```



**Note** The hb\_timeout and max\_path\_retrans tokens are not configurable via the CLI change command. To configure or change these values, a new SCTP association profile must be added.

**Step 5** Provision the SCTP association:

```
add sctp-assoc id=sctp_assoc1; sgp-id=itp_7507_1; sctp-assoc-profile-id=sctp_prof;
remote_port=14001; remote_tsap_addr1=10.89.232.9; remote_tsap_addr2=10.89.233.41;
dscp=NONE; ip_tos_precedence=FLASH; local_rcvwin=64000; max_init_retrans=5;
max_init_rto=1000; platform_id=FSAIN205;
```

**Step 6** Add the DPC:

```
add dpc id=stp1; point-code=1-101-0; description=STP1 MGTS STP;
```

**Step 7** Add the SCCP network:

```
add/change sccp-nw id=1; net-ind=NATIONAL; sub-svc=NATIONAL; hop-count=10;
```

**Step 8** Add the subsystem group:

```
add subsystem-grp id=SSN_TF; platform-id=FSAIN205; tcap-version=ANS92;
```

**Step 9** Add the subsystem:

```
add subsystem id=SSN_TF; opc_id=opc; local-ssn=254; remote-ssn=254; sccp-nw-id=1;
sccp-version=ANS92; application-version=AIN01; (if Toll-Free is an IN1 service,
application-version=IN1);
```

**Step 10** Add the routing key:

```
add routing-key id=rk_tf; opc-id=opc; sg-grp-id=sg_grp; si=SCCP; rc=201;
platform-id=FSAIN205; ssn-id=SSN_TF;
```

**Step 11** Add the SCCP route:

```
add sccp-route opc_id=opc; dpc_id=stp1; ssn_id=SSN_TF; rk_id=rk_tf;
```

**Step 12** Add the SLHR profile:

```
add slhr-profile id=slhr_tf;
```

**Step 13** Add the service logic host route:

```
add slhr id=slhr_tf; opc_id=opc; dpc_id=stp1; rk_id=rk_tf; ssn_id=SSN_TF; gtt-req=Y;
tt=254; gtt-addr-type=CDPN; gtt-addr=3;
```

**Step 14** Add the ca-config type DEFAULT-TOLL-FREE-SLHR-ID:

```
add ca-config type=DEFAULT-TOLL-FREE-SLHR-ID; datatype=string; value=slhr_tf;
```

**Step 15** Place the SCTP association in service:

```
control sctp-assoc id=sctp_assoc1; mode=forced; target-state=INS;
```

**Step 16** Place the subsystem group in service:

```
control subsystem-grp id=SSN_TF; mode=forced; target-state=INS;
```

---

## Provisioning Notes/Caveats

If the toll free trigger is generated by trunk (SS7, CAS) calls and no calling party is received in the setup indication (IAM), ensure that the JIP field or LRN field in the POP table associated with the trunk group is set to the appropriate value. If not, the SCP query will fail.

## 911 Emergency

Emergency service is a public safety feature providing emergency call routing to a designated Emergency Service Bureau (ESB), normally called the public safety answering point (PSAP) in the United States.

**Tip**

For a complete description of this feature, see "[Emergency Services](#)" in the *Network and Subscriber Feature Descriptions*.

The following section identifies the steps necessary to offer 911 Emergency Service.

## Office Provisioning

- 
- Step 1** Create the 911 feature:
- ```
add/change feature; fname=911; tdp1=COLLECTED_INFORMATION; tid1=911_TRIGGER; ttype1=R;
description=Emergency Service; feature_server_id=FSPTC235;
```
- Step 2** (Optional) Change the CA-config table entry for the default-office-service-id only if it is required to be different from ca-config-base:
- ```
change ca-config type=DEFAULT-OFFICE-SERVICE-ID; datatype=string; value=469;
```
- Step 3** (Optional) Change the CA-config table entry for the called-party-hold-control as required by your network:
- ```
change ca-config type=E911-CALLED-PARTY-HOLD; datatype=boolean; value=Y;
```
- Step 4** Add the destination:
- ```
add destination dest-id=dest911; CALL_TYPE=EMG; ROUTE_TYPE=ROUTE;
ROUTE_GUIDE_ID=opr911;zero-plus=y; CLDPTY_CTRL_REL_ALWD=Y;
```
- Step 5** Add the service:
- ```
add service id=469; FNAME1=911;
```
-

Provisioning Resources

-
- Step 1** Add the media server:
- ```
add mgw_profile id=cas_911; packet-type=ip; aal1=n; aal2=n; aal5=n; pvc=n; svc=n;
spvc=n; ec_supp=n; sdp-origfield-supp=n; sdp-sessname-supp=n; sdp-email-supp=n;
sdp-phone-supp=n; sdp-bandwidth-supp=n; sdp-info-supp=n; sdp-time-supp=n;
sdp-attrib-supp=n; mgcp-erqnt-supp=n; mgcp-hairpin-supp=n; mgcp-qloop-supp=n;
mgcp-3way-hshake-supp=n; mgcp-conn-id-at-gw-supp=n; termination-prefix=NULL; port-start=1;
vendor=CISCO; rbk-on-conn-supp=y; mgcp_max1_retries=3; mgcp-t-tran=1000;
MGCP_EP_SPECIFIC_CAP_SUPP=y;
```
- Step 2** Add the media gateway:
- ```
add mgw id=224.14:2434; tsap-addr=10.89.233.74:2434; call-agent-id=CA146;
mgw_profile_id=cas_911; call-agent-control-port=2427; type=twg;
```
- Step 3** Add the CAS trunk group profile:
- ```
add cas_tg_profile id=cas_911; sig-type=MF-OSS; mf-oss-type=MO-10II; oss-sig=n;
test_line=n; e911=y;
```
- Step 4** Add the trunk group:

```
add trunk_grp id=911; tg_type=CAS; dial_plan_id=dpcas; sel-policy=LRU; direction=BOTH;
GLARE=SLAVE; tg_profile_id=cas_911; call-agent-id=CA146; mgcp-pkg-type=MO;
```

**Step 5** Add the termination:

```
add termination prefix=cas/911/; mgw-id=224.14:2434; type=TRUNK; port-start=1;
port-end=24;
```

**Step 6** Add a trunk:

```
add trunk cic-start=1; cic-end=4; tgn-id=911; termination-prefix=cas/911/;
mgw-id=224.14:2434; termination-port-start=1; termination-port-end=4;
```

**Step 7** Add the route:

```
add route id=ops911; tgn1-id=911;
```

**Step 8** Add the route guide:

```
add route-guide id=ops911; policy-type=route; policy-id=ops911;
```

**Step 9** Add the destination:

```
add destination dest-id=ops911; call-type=EMG; route-type=ROUTE; route-guide-id=ops911;
zero-plus=y; CLDPTY_CTRL_REL_ALWD=Y;
```

**Step 10** Add the dial plan:

```
add dial-plan id=dpcas; digit-string=911; dest-id=ops911odr; min-digits=3; max-digits=3;
```

## Media Gateway Setup

The Cisco BTS 10200 Softswitch is connected to a MGW supporting MGCP (MS, DT, and MO) through an IP network. Some examples of media gateways are Cisco MC3810 and Cisco C3660. Contact Cisco TAC for additional details on gateways supported for CAS trunk groups.

### CAS Trunk Group Control Commands

After the CAS trunk group is provisioned in the BTS 10200 and the corresponding MGCP gateway is configured for CAS, the CAS trunk group and the CAS trunk circuits can be brought into service with control commands from the EMS.

At the EMS CLI> prompt, execute the following commands:

**Step 1** Bring the MGW into service:

```
CLI> control mgw 224.14:2434; target_state=ins; mode=forced;
CLI> status mgw id=224.14:2434;
```

After the above commands are executed, the status should show:

```
REPLY=CONFIGURATION COMMAND EXECUTED -> 224.14:2434
ADMIN STATUS -> ADMIN_INS
OPER STATUS -> MGW_STATUS_UP
```

**Step 2** Bring the CAS trunk group into service

```
CLI> control trunk_grp id=911; target_state=ins; mode=forced;
CLI> status trunk_grp id=911;
```

After the above commands are executed, the status should show:

```
REPLY=CONFIGURATION COMMAND EXECUTED CAS_TRUNK_GROUP -> 911
ADMIN STATUS -> ADMIN_INS
OPER STATUS -> TG_INS
```

**Step 3** Bring CAS trunk terminations into service:

```
CLI> control trunk-termination tgn-id=911; cic=all; mode=forced; target-state=ins;
CLI> status trunk-termination tgn-id=4005; cic=all;
```

After the commands are executed, the status should show:

```
CONFIGURATION COMMAND EXECUTED CAS_TRUNK_GROUP -> 911 -> CIC -> 1
TERM ADMIN STATUS -> ADMIN_INS
TERM OPER STATUS -> TERM_STATE_EQUIP
CIC STATIC STATE -> ACTV
CIC DYNAMIC STATE -> IDLE
CONFIGURATION COMMAND EXECUTED CAS_TRUNK_GROUP -> 911 -> CIC -> 2
TERM ADMIN STATUS -> ADMIN_INS
TERM OPER STATUS -> TERM_STATE_EQUIP
CIC STATIC STATE -> ACTV
CIC DYNAMIC STATE -> IDLE
...
CONFIGURATION COMMAND EXECUTED CAS_TRUNK_GROUP -> 911 -> CIC -> 24
TERM ADMIN STATUS -> ADMIN_INS
TERM OPER STATUS -> TERM_STATE_EQUIP
CIC STATIC STATE -> ACTV
CIC DYNAMIC STATE -> IDLE
```

This status should apply to all the corresponding circuits in the CAS trunk group (for example, 1 to 24). At this point, the CAS trunk group circuits are ready to originate and receive calls.

## Centrex Provisioning

The following two steps are mandatory for Centrex provisioning:

- 
- Step 1** Ensure that POTS access for the Centrex group is provisioned.
  - Step 2** Ensure that Call Agent provisioning of the digit-map has a digit-map for the emergency number (for example 911 for NANP).
- 

MLHG provisioning is similar to subscriber provisioning as described above.

## Active Call Information Display

This feature allows the display of the call information of a currently active call. With this feature, the operator enters the appropriate input, depending on whether it is a subscriber (POTS, H323 or SIP), a Multi-line Hunt Group (MLHG) terminal, a Centrex extension, SS7, an ISDN trunk, a SIP trunk, an H323 trunk, termination, or a media gateway. The input for each type, as well as how to arrive at the call information based on the input is explained in this document. The goal is to first arrive at the Call Segment Association (CSA) index from the input. From the CSA index, all call-related information is retrieved. In some instances, more than one CSA index may be associated with the given subscriber.

## CLI Provisioning

The following CLI syntax is used to provision this feature:

```
QUERY CALL-TRACE [MODE=<VERBOSE | BRIEF>]
DN=<dn>
MLHG-ID=<mlhg-id> TERMINAL=<terminal>
CTXG-ID=<ctxg-id> EXT=<ext>
TGN-ID=<tn-gn-id> TRUNK-ID=<trunk-id>
SIP-CALL-ID=<sip-call-id>
H323-CALL-ID=<h323-call-id>
TERM=<term>
MGW=<mgw>
```

## CLI examples

In the following example, the VERBOSE option is not shown (which defaults to BRIEF):

```
QUERY CALL-TRACE DN=4692551234 (for POTS/H323/SIP subscriber)
QUERY CALL-TRACE MHLG-ID=mlhg1 TERMINAL=23 (for POTS MLHG terminal)
QUERY CALL-TRACE CTXG-ID=ctxg1 EXT=1234 (for POTS centrex subscribers)
QUERY CALL-TRACE TGN-ID=123 TRUNK-ID=456 (for SS7 and ISDN trunks)
QUERY CALL-TRACE SIP-CALL-ID=<sip-call-id> (for SIP trunks)
QUERY CALL-TRACE H323-CALL-ID=<h323-call-id> (for H323 trunks)
QUERY CALL-TRACE TERM=aaln/2@x1-6-00-00-ca-30-88-79.CTlab.cisco.com (termination with
FQDN)
QUERY CALL-TRACE TERM=aaln/2@64.101.140.231 (termination with TSAP-ADDR)
QUERY CALL-TRACE MGW=x1-6-00-00-ca-30-88-79.CTlab.cisco.com (mgw FQDN)
QUERY CALL-TRACE MGW=64.101.140.231 (mgw TSAP-ADDRESS)
```

## Alerting Notification to Third Party Feature Server

The Cisco BTS 10200 Softswitch delivers alerting notification and call data to a third-party feature server (3PTYFS). The service provider can use appropriately designed and configured feature servers to make use of this notification and data to provide value-added services to subscribers; for example, delivery of caller ID on a subscriber television or computer screen.

For a complete description of this feature, refer to "[Alerting Notification to Third Party Feature Servers](#)" in the *Network and Subscriber Feature Descriptions*.

This document is intended for service provider technicians and engineers who are installing, provisioning, and deploying the Cisco BTS 10200 Softswitch and 3PTYFS in their network.

This section describes the steps required to provision support for Alerting Notification on Cisco BTS 10200 Softswitch. This includes provisioning the Cisco BTS 10200 Softswitch database with the TSAP address of the 3PTYFS, the feature trigger point, and the services with which the feature is offered.

## Precedence for Provisioned Values

Alerting Notification can be assigned on a switch-wide, per-POP, or per-subscriber level (or all three levels). The system interprets the provisioned values this way:

- **Switch**—If the office-service-id is not provisioned in the POP table and not provisioned for the individual subscriber, the system uses the default-office-service-id provisioned in the ca-config table. See Step 3.

- **POP**—If Alerting Notification is included in the office-service-id for the POP, then Alerting Notification applies to all subscribers in the POP, even if the feature is not assigned to an individual subscriber. See Step 4.
- **Subscriber**—If Alerting Notification is assigned to a specific subscriber, then Alerting Notification applies to the subscriber, regardless of whether Alerting Notification is provisioned in the office-service-id for the POP or in the default-office-service-id in the Call Agent Configuration (ca-config) table. See Step 5.

The following are command examples to provision this feature.

- Step 1** Add the 3PTYFS to the database. The TSAP address can be an IP address (with port optional) or a DNS name. If the TSAP address is a domain name, then the domain name must be configured in the service provider DNS.

```
ADD FEATURE-SERVER ID=3PTYFS24; TSAP-ADDR=192.168.100.103:11024; TYPE=3PTY;
EXTERNAL-FEATURE-SERVER=Y;
```

```
ADD FEATURE-SERVER ID=3PTYFS23; TSAP-ADDR=SPECIALFS.cisco.com; TYPE=3PTY;
EXTERNAL-FEATURE-SERVER=Y;
```

```
ADD FEATURE-SERVER ID=3PTYFS22; TSAP-ADDR=INTERNALFS.cisco.com; TYPE=3PTY;
EXTERNAL-FEATURE-SERVER=N;
```

**Note** The following rules apply:

- If the 3PTYFS is deployed in the private management network of the Cisco BTS 10200 Softswitch, you must set EXTERNAL-FEATURE-SERVER to N.
- If the 3PTYFS is deployed in a public network, you must set EXTERNAL-FEATURE-SERVER to Y.
- To set EXTERNAL-FEATURE-SERVER to Y, you must also set TYPE to 3PTY.

- Step 2** Add Alerting Notification and the associated TDP and trigger ID:

```
ADD FEATURE FNAME=ALERT_NOTIFY; TDP1=CALL_ACCEPTED; TID1=CALL_ACCEPTED_NOTIFY; TTYPE1=N;
FEATURE-SERVER-ID=3PTYFS24;
```



**Note**

In the procedures included in this document, Alerting Notification is provisioned using the feature identifier FNAME=ALERT\_NOTIFY. The feature identifier can be any unique string of up to 16 ASCII characters chosen by the service provider.

- Step 3** (Optional) The commands in this step assign Alerting Notification globally (by default) to all subscribers on the switch.

```
SHOW CA-CONFIG TYPE=DEFAULT-OFFICE-SERVICE-ID;
```

```
SHOW SERVICE ID=999;
```

```
CHANGE SERVICE ID=999; FNAME8=ALERT_NOTIFY;
```

- Step 4** (Optional) The commands in this step assign Alerting Notification to all subscribers in a specific POP.

```
SHOW POP ID=CITY007;
```

```
SHOW SERVICE ID=NOTIFY;
```

```
ADD/CHANGE SERVICE ID=NOTIFY; FNAME1=ALERT_NOTIFY;
```

**Step 5** The commands in this step assign Alerting Notification to a specific subscriber.

```
ADD/CHANGE SERVICE ID=silverservice; FNAME1=CFU; FNAME2=CFB; FNAME3=CFNA; FNAME4=CW;
FNAME5=ALERT_NOTIFY;
```

```
ADD SUBSCRIBER-SERVICE-PROFILE SUB-ID=Subscriber77; SERVICE-ID=silverservice;
```

## Anonymous Call Rejection and A/D

The Anonymous Call Rejection (ACR) activation (ACR\_ACT) and deactivation (ACR\_DEACT) feature allows users to reject calls from parties that have set their privacy feature to prevent calling number delivery. When ACR is active, the called party receives no alert for incoming calls that are rejected. The incoming call is rerouted to a denial announcement indicating that private numbers are not accepted by the called party.

ACR has the following activation options:

- Activated permanently at subscription time by service provider
- Activated by user

The user lifts the handset and listens for a dial tone. The user presses \*77. If ACR can be activated, the system returns a confirmation announcement. ACR is now activated and stays active until it is deactivated by \*87.

To complete a call to the party with ACR, the calling party must enter the vertical service code (\*82) to activate calling identity delivery and then place a call to the party with ACR. Incoming calls to the called party with ACR are checked even if the called party is offhook.



**Tip**

For a complete description of this feature, see "[Anonymous Call Rejection](#)" in the *Network and Subscriber Feature Descriptions*.

The following subsections identify the steps necessary to offer the ACR and A/D features.

## Office Provisioning

**Step 1** Create a feature for ACR\_Activation:

```
add feature FNAME=ACR_ACT; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYPE1=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=ACR Activation; GRP_FEATURE=N;
```

**Step 2** Create a feature for ACR\_Deactivation:

```
add feature FNAME=ACR_DEACT; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYPE1=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=ACR Deactivation; GRP_FEATURE=N;
```

**Step 3** Create a feature for ACR:

```
add feature FNAME=ACR; TDP1=TERMINATION_ATTEMPT_AUTHORIZED;
TID1=TERMINATION_ATTEMPT_AUTHORIZED; TTYPE1=R; FEATURE_SERVER_ID=FSPTC235;
DESCRIPTION=Anonymous Call Rejection; GRP_FEATURE=N;
```

**Step 4** Create VSC codes in the VSC table:

```
add vsc DIGIT_STRING=*77; FNAME=ACR_ACT
add vsc; DIGIT_STRING=*87; FNAME=ACR_DEACT;
```



---

## Subscriber Provisioning

---

**Step 1** Create a service with these features:

```
add service id=1; fname1=ACR; fname2=ACR_ACT; fname3=ACR_DEACT;
```

**Step 2** Assign the service to the subscriber:

```
add subscriber-service-profile; sub-id=sub1; service-id=1;
```

---

## Centrex Provisioning

---

**Step 1** Create an entry in the CDP table:

```
add cdp; id=cdp1; DIGIT_STRING=*77; NOD=VSC; FNAME=ACR_ACT; CAT_STRING=1111111111111111;
add cdp; id=cdp1; DIGIT_STRING=*87; NOD=VSC; FNAME=ACR_DEACT; CAT_STRING=1111111111111111;
```

---

MLHG provisioning is similar to subscriber provisioning, which is described above.

## Alternate Activation and Deactivation Method

ACR can alternately be activated and deactivated by creating an entry in the Subscriber-feature-data table.

Use a CLI command similar to the following to activate ACR:

```
add subscriber-feature-data sub-id=sub_1; active=Y; fname=ACR;
```

Use a CLI command similar to the following to deactivate ACR:

```
add subscriber-feature-data sub-id=sub_1; active=N; fname=ACR;
```

## Automatic Callback

Automatic Callback (AC) allows you to perform an activation procedure to set up a call to the last party you called without having to redial the telephone number. If the called party is busy, you can hang up and activate AC; the call is automatically connected when the called party becomes idle.



**Tip**

---

For a complete description of this feature, see "[Automatic Callback](#)" in the *Network and Subscriber Feature Descriptions*.

---

The following sections identify necessary steps for the automatic callback feature.

## Office Provisioning

**Step 1** Create a feature for AC activation:

```
add feature fname=AC_ACT; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE;
ttypel=R; description=AC activation; feature_server_id=FSPTC235;
```

**Step 2** Create a feature for AC deactivation:

```
add feature fname=AC_DEACT; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE;
ttypel=R; description=AC deactivation; feature_server_id=FSPTC235;
```

**Step 3** Associate AC\_ACT and AC\_DEACT features with the AC feature:

```
add feature fname=AC; fname1=AC_ACT; fname2=AC_DEACT; feature_server_id=FSPTC235;
```

**Step 4** Create VSC codes in the VSC table:

```
add vsc; DIGIT_STRING=*66; FNAME=AC_ACT;

add vsc; DIGIT_STRING=*86; FNAME=AC_DEACT;
```

**Step 5** Create AC service with only the AC feature:

```
add service id=1; fname1=AC;
```

**Step 6** Ensure the Call-Agent table has a TSAP\_ADDR populated:

```
change call-agent ID=CA416; STATUS=FORCED_STANDBY_ACTIVE;
TSAP_ADDR_SIDEA=sim-SYS02CA.ipclab.cisco.com:9416; MGW_MONITORING_ENABLED=Y;
CLLI=HERNVADTDS1;
```

**Step 7** Ensure office-code has call-agent id provisioned:

```
change office-code DIGIT_STRING=703432; OFFICE_CODE_INDEX=14; DID=N; CALL_AGENT_ID=CA416;
DIALABLE=Y; NDC=703; EC=432; DN_GROUP=xxxx;
```

**Step 8** Verify if related ca-config parameters provide the desired configuration. If not, change parameters as required:

```
show ca-config TYPE=AC-ACTIVATION-LEVEL; DATATYPE=STRING; DEFAULT_VALUE=ONE;
show ca-config TYPE=ACAR-SLHR-ID; DATATYPE=STRING;
```

The ca-config values for the AR feature are common to the AC feature. Refer to the ca-config values for the AR feature.

**Step 9** Add the feature to the default office service-id if it needs to be provided on an office basis.

```
change ca-config default-office-service-id=999;
```

**Step 10** Assign the feature to the default office service id:

```
change service id=999; fname1=AC_ACT;
```

## Provisioning Resources

**Step 1** Provision the signaling gateway:

```
add/change sg id=sg_1; description=signaling gateway 1;
```

**Step 2** Provision the signaling gateway group:

```
add/change sg-grp id=sg_grp1; sg1-id=sg_1; description=signaling gateway group 1;
```

**Step 3** Provision the signaling gateway process:

```
add/change sgp id=itp_7507_1; sg-id=sg_1; description=ITP 7507 for sg_1;
```

**Step 4** Provision the SCTP association profile:

```
add sctp-assoc-profile id=sctp_prof; bundle_timeout=500; max_assoc_retrans=5;
max_path_retrans=5; max_rto=6000; min_rto=301; sack_timeout=101; hb_timeout=1000;
```

**Note**

The hb\_timeout and max\_path\_retrans tokens are not configurable via the CLI change command. To configure or change these values, a new SCTP association profile must be added.

**Step 5** Provision the SCTP association:

```
add sctp-assoc id=sctp_assoc1; sgp-id=itp_7507_1; sctp-assoc-profile-id=sctp_prof;
remote_port=14001; remote_tsap_addr1=10.89.232.9; remote_tsap_addr2=10.89.233.41;
dscp=NONE; ip_tos_precedence=FLASH; local_rcvwin=64000; max_init_retrans=5;
max_init_rto=1000; platform_id=FSPTC235;
```

**Step 6** Add the DPC:

```
add dpc id=itp1; point-code=7-101-0; description=STP1, MGTS STP;
```

**Step 7** Add the SCCP network:

```
add/change sccp-nw id=1; net-ind=NATIONAL; SUB_SVC=NATIONAL; HOP-Count=10;
```

**Step 8** Add the subsystem profile:

```
add subsystem-profile id=SSN_ACAR; PLATFORM_ID=FSPTC235;
```

**Step 9** Add the subsystem:

```
add subsystem id=SSN_ACAR; opc_id=opc; local-ssn=251; remote-ssn=251; sccp-nw-id=1;
SCCP_VERSION=ANS92; TCAP_VERSION=ANS92; APPLICATION_VERSION=IN1;
```

**Step 10** Add the routing key:

```
add routing-key id=rk_acar; opc-id=opc; sg-grp-id=sg_grp; si=SCCP; rc=205;
PLATFORM_ID=FSPTC235; ssn-id=SSN_ACAR;
```

**Step 11** Add the SCCP route:

```
add sccp-route opc_id=opc; dpc_id=itp1; ssn_id=SSN_ACAR; rk_id=rk_acar;
```

**Step 12** Add the SLHR profile:

```
add slhr-profile id=slhr_acar;
```

**Step 13** Add the Service Logic Host Route:

```
add slhr id=slhr_acar; opc_id=opc; dpc_id=itp1; ssn_id=SSN_ACAR; gtt-req=Y; tt=251;
GTT_ADDR_TYPE=CDPN; GTT_ADDR=3;
```

**Step 14** Add the ca-config type ACAR-SLHR-ID:

```
Add ca-config type=ACAR-SLHR-ID; datatype=string; value=slhr_acar;
```

## Subscriber Provisioning

**Step 1** Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

**Step 2** Customize the feature denied flag for the subscriber according to individual requirements:

```
change subscriber-feature-data sub-id=subscriber_1; fname=AC_ACT; type1=DENIED; value1=Y;
```

**Step 3** Customize the subscriber's Usage Sensitivity feature applicability flag:

```
change subscriber id=subscriber_1; USAGE-SENS=Y;
```

## Centrex Provisioning

For the feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber. In addition, the following step should be completed.

**Step 1** Create the following entries in the CDP table:

```
add cdp id=cdp1; DIGIT_STRING=*66; NOD=VSC; FNAME=AC_ACT; CAT_STRING=1111111111111111;
```

```
add cdp id=cdp1; DIGIT_STRING=*86; NOD=VSC; FNAME=AC_DEACT; CAT_STRING=1111111111111111;
```

## Provisioning Notes/Caveats

- The AC and AR features will not work for the subscriber with the category CTXG, MLHG, or CTXG\_MLHG because these categories of subscriber do not give a unique DN.
- If the TSAP-Addr in Call-Agent table is incorrect, this feature will not work. It must have a specific UDP port number.
- Office-Code table entries must have the Call-Agent-Id for all the office-codes owned by the Call Agent. If the Call-Agent-Id is not configured in the Office-Code table, this feature will not work.

## Automatic Recall

Automatic Recall (AR) is an incoming call management feature that allows you to perform an activation procedure to automatically set up a call to the last incoming number.



### Tip

For a complete description of this feature, see [Automatic Recall](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify the steps necessary for provisioning the automatic recall (AR) feature.

## Office Provisioning

### Step 1 Create a feature for AR Activation:

```
add feature fname=AR_ACT; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE;
ttype1=R; description=AR activation; feature_server_id=FSPTC235;
```

### Step 2 Create a feature for AR Deactivation:

```
add feature fname=AR_DEACT; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE;
ttype1=R; description=AR deactivation; feature_server_id=FSPTC235;
```

### Step 3 Create VSC codes in the VSC table:

```
add vsc DIGIT_STRING=*69; FNAME=AR_ACT
add vsc DIGIT_STRING=*89; FNAME=AR_DEACT
```

### Step 4 Create a service with these features:

```
add service id=1; fname1=AR_ACT; fname2=AR_DEACT;
```

### Step 5 Add the AR two-level activation Audio-Sequence table. These commands must be entered in the order given, and all files specified in the sequence must be installed on the IVR system. If any file specified in the sequence is missing, and the IVR system does not return error, there is a possibility that no files will be played.

```
show ca-config type=AR%
Reply : Success: Entries 1-24 of 24 returned.
```

```
TYPE=AR-ACTIVATION-LEVEL
DATATYPE=STRING
VALUE=ONE
```

```
TYPE=ARAC-ACTIVATION-TO-COIN
DATATYPE=BOOLEAN
VALUE=N
```

```
TYPE=ARAC-ACTIVATION-TO-ANONYMOUS-DN
DATATYPE=BOOLEAN
VALUE=N
```

```
TYPE=ARAC-ACTIVATION-TO-MLHG
DATATYPE=BOOLEAN
VALUE=Y
```

```
TYPE=ARAC-ACTIVATION-TO-NON-UNIQUE-DN
DATATYPE=BOOLEAN
VALUE=N
```

```
TYPE=ARAC-INITIAL-QUERY-RESPONSE-TIMER-T5
DATATYPE=INTEGER
VALUE=3
```

```
TYPE=ARAC-INTER-BUSY-IDLE-QUERY-DURATION-TIMER-T11
DATATYPE=INTEGER
VALUE=95
```

```
TYPE=ARAC-MAX-6SEC-RINGING-CYCLES
DATATYPE=INTEGER
FROM_VALUE=2
TO_VALUE=5
VALUE=4
```

```
TYPE=ARAC-MAX-CONCURRENT-ATTEMPTS
DATATYPE=INTEGER
VALUE=30
```

```
TYPE=ARAC-MAX-QUEUE-SIZE
DATATYPE=INTEGER
FROM_VALUE=10
TO_VALUE=20
VALUE=15
```

```
TYPE=ARAC-MAX-UNANSWERED-RING-APPLICATIONS
DATATYPE=INTEGER
FROM_VALUE=1
TO_VALUE=12
VALUE=2
```

```
TYPE=ARAC-MONITORING-TIMER-T6
DATATYPE=INTEGER
VALUE=30
```

```
TYPE=ARAC-ORIGINATING-SCAN-RATE
DATATYPE=INTEGER
VALUE=60
```

```
TYPE=ARAC-OSPCS-OVERALL-MONITOR-TIMER-T10
DATATYPE=INTEGER
VALUE=3
```

```
TYPE=ARAC-OUTSTANDING-NOTIFICATION-TIMER-T8
DATATYPE=INTEGER
VALUE=35
```

```
TYPE=ARAC-PERIODIC-SCAN-RATE
DATATYPE=INTEGER
FROM_VALUE=5
TO_VALUE=30
VALUE=30
```

```
TYPE=ARAC-QUEUING-SUPPORTED
DATATYPE=BOOLEAN
VALUE=Y
```

```
TYPE=ARAC-RESUME-SCANNING-THRESHOLD-TIME
DATATYPE=INTEGER
VALUE=5
```

```
TYPE=ARAC-RESUME-SCANNING-TIMER-T2
DATATYPE=INTEGER
VALUE=5
```

```
TYPE=ARAC-SUB-QUERY-RESPONSE-TIMER-T9
DATATYPE=INTEGER
VALUE=3
```

```
TYPE=ARAC-TERMINATING-SCANNING-MONITOR-TIMER-T7
DATATYPE=INTEGER
VALUE=30
```

```
TYPE=ARAC-TERMINATING-SPCS-SCAN-ALLOW
DATATYPE=BOOLEAN
VALUE=Y
```

```
TYPE=ARAC-TSPCS-OVERALL-MONITOR-TIMER-T10
DATATYPE=INTEGER
```

VALUE=3

CA-Config values for the AC feature are common to the AR feature. Refer to the CA-Config values for the AC feature.

- Step 6** (Optional) Add the feature to the default office service-id if it needs to be provided on an office basis. To assign the feature to the default office service id, complete the following steps:

```
change ca-config type=default-office-service-id; value=999;
change service id=999; fname1=AR_ACT;
```

## Provisioning Resources

- Step 1** Provision the signaling gateway:

```
add sg id=sg_1; description=signaling gateway 1;
```

- Step 2** Provision the signaling gateway group:

```
add sg-grp id=sg_grp1; sg1-id=sg_1; description=signaling gateway group 1;
```

- Step 3** Provision the signaling gateway process:

```
add sgp id=itp_7507_1; sg-id=sg_1; description=ITP 7507 for sg_1;
```

- Step 4** Provision the SCTP association profile:

```
add sctp-assoc-profile id=sctp_prof; bundle_timeout=500; max_assoc_retrans=5;
max_path_retrans=5; max_rto=6000; min_rto=301; sack_timeout=101; hb_timeout=1000;
```



**Note**

The hb\_timeout and max\_path\_retrans tokens are not configurable via the CLI change command. To configure or change these values, a new SCTP association profile must be added.

- Step 5** Provision the SCTP association:

```
add sctp-assoc id=sctp_assoc1; sgp-id=itp_7507_1; sctp-assoc-profile-id=sctp_prof;
remote_port=14001; remote_tsap_addr1=10.89.232.9; remote_tsap_addr2=10.89.233.41;
dscp=NONE; ip_tos_precedence=FLASH; local_rcvwin=64000; max_init_retrans=5;
max_init_rto=1000; platform_id=FSPTC235;
```

- Step 6** Add the DPC:

```
add dpc id=itp1; point-code=7-101-0; description=STP1, MGTS STP;
```

- Step 7** Add the SCCP Network:

```
add sccp-nw id=1; net-ind=NATIONAL; SUB_SVC=NATIONAL; HOP-Count=10;
```

- Step 8** Add the subsystem profile:

```
add subsystem-profile id=SSN_ACAR; PLATFORM_ID=FSPTC235;
```

- Step 9** Add the subsystem:

```
add subsystem id=SSN_ACAR; opc-id=opc; local-ssn=251; remote-ssn=251 sccp-nw-id=1;
SCCP_VERSION=ANS92; TCAP_VERSION=ANS92; APPLICATION_VERSION=IN1;
```

- Step 10** Add the routing key:

```
add routing-key id=rk_acar; opc-id=opc; sg-grp-id=sg_grp; si=SCCP; rc=205;
PLATFORM_ID=FSPTC235; ssn-id=SSN_ACAR;
```

**Step 11** Add the SCCP route:

```
add sccp-route opc_id=opc; dpc_id=itp1; ssn_id=SSN_ACAR; rk_id=rk_acar;
```

**Step 12** Add the SLHR profile:

```
add slhr-profile id=slhr_acar;
```

**Step 13** Add the Service Logic Host Route:

```
add slhr id=slhr_acar; opc_id=opc; dpc_id=itp1; rk_id=rk_acar; ssn_id=SSN_ACAR; gtt-req=Y;
tt=251; GTT_ADDR_TYPE=CDPN; GTT_ADDR=3;
```

**Step 14** Add the ca-config type ACAR-SLHR-ID if not added before:

```
add ca-config type=ACAR-SLHR-ID; datatype=string; value=slhr_acar;
```

---

## Subscriber Provisioning

---

**Step 1** Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

**Step 2** Customize the feature denied flag for the subscriber as per the individual requirement:

```
change subscriber-feature-data sub-id=subscriber_1; fname=AR_ACT; type1=DENIED; value1=Y;
```

**Step 3** Change the subscriber's Usage Sensitivity feature applicability flag:

```
change subscriber id=subscriber_1; USAGE-SENS=Y;
```

---

## Centrex Provisioning

For the feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber. In addition, the following step must be completed.

**Step 1** Create the following entries in the CDP table:

```
add cdp; id=cdp1; DIGIT_STRING=*69; NOD=VSC; FNAME=AC_ACT; CAT_STRING=1111111111111111;
add cdp; id=cdp1; DIGIT_STRING=*89; NOD=VSC; FNAME=AC_DEACT; CAT_STRING=1111111111111111;
```

---

## Provisioning Notes/Caveats

- AC and AR features will not work for the subscriber with the category CTXG, MLHG, or CTXG\_MLHG because this category of subscriber does not give a unique DN.
- If the TSAP-Addr in the Call-Agent table is incorrect, this feature will not work. It must have a specific UDP port number.
- Office-Code table entries must have the Call-Agent-Id for all the office-codes owned by the call-agent. If the Call-Agent-Id is not configured in the Office-Code table, this feature will not work.



## Two-Level AR Activation

AR activation is also offered as a two-level procedure. When a subscriber dials the activation code, an announcement gives the last incoming calling party number, the date and time when the call was received, and instructions to dial 1 to activate the AR call to that party.

Provisioning two-level AR activation requires the following additional steps:

---

**Step 1** Specify the AR activation level. To apply at the system basis, :

```
add ca-config type=AR-ACTIVATION-LEVEL; datatype=string; value=TWO;
```

To apply at the POP basis:

```
add pop id=pop1; ar-activation-level=TWO;
```

**Step 2** Specify the AR two-level activation default Route-Guide to the IVR device.

```
add ca-config type=DEFAULT-IVR-ROUTE-GUIDE-ID; datatype=string; value=def_ivr_rg;
```

**Step 3** Add the AR two-level activation IVR-Script-Profile table:

```
add ivr-script-profile fname=AR_ACT; ivr-access-mode=IVR; ivr-route-guide-id=ar_ivr_rg;
ivr-script-pkg-type=BAU;
```

**Step 4** Specify the default voice back language in the Language table:

```
add language id=def;
```

**Step 5** Add the AR two-level activation Audio-Sequence table. These commands must be entered in the order given.

```
add audio-seq id=ar_vbk_dn_seq; language-id=def;
seq=ar_voice_back_dn,ar_var_dn,ar_voice_back_date,ar_var_date,ar_voice_back_time,ar_var_time,ar_activation_prompt;
description=The last incoming number was [dn]. This call was received on [date] at [time]. To activate Automatic Recall, dial 1 otherwise, hang up.
```

```
add audio-seq id=ar_vbk_anon_seq; language-id=def;
seq=ar_voice_back_dn,ar_voice_back_anonymous_dn,ar_voice_back_date,ar_var_date,ar_voice_back_time,ar_var_time,ar_activation_prompt;
description=The last incoming number was an anonymous number and cannot be announced. This call was received on [date] at [time]. To activate Automatic Recall, dial 1 otherwise, hang up.
```

```
add audio-seq id=ar_act_seq; language-id=def; seq=ar_activation_prompt; description=To activate Automatic Recall, dial 1 otherwise, hang up.
```

```
add audio-seq id=ar_inv_digit_seq; language-id=def;
seq=ar_dialing_error,ar_activation_prompt; description=We are sorry. The digits dialed are not a valid command. To activate Automatic Recall, dial 1 otherwise, hang up.
```

```
add audio-seq id=ar_con_instr_seq; language-id=def; seq=ar_consult_instruction;
description=We are sorry. The digits dialed are not a valid command. To activate Automatic Recall, dial 1 otherwise, hang up.
```

**Step 6** Add the AR two-level activation Audio-Segment table. These commands must be entered in the order given.

```
add audio-segment id=ar_voice_back_dn; type=physical; url=file://ar_voice_back_dn.wav;
description=The last incoming number was
```

```
add audio-segment id=ar_voice_back_anonymous_dn; type=physical;
url=file://ar_voice_back_anonymous_dn; description=an anonymous number and cannot be announced
```

```

add audio-segment id=ar_var_dn; type=variable; var-type=dig; var-subtype=ndn;

add audio-segment id=ar_voice_back_date; type=physical; url=file://ar_voice_back_date.wav;
description=This call was received on

add audio-segment id=ar_var_date; type=variable; var-type=dat; var-subtype=mdy;

add audio-segment id=ar_voice_back_time; type=physical; url=file://ar_voice_back_time.wav;
description=at

add audio-segment id=ar_var_time; type=variable; var-type=tme; var-subtype=t12;

add audio-segment id=ar_activation_prompt; type=physical;
url=file://ar_activation_prompt.wav; description=To activate Automatic Recall, dial 1
otherwise, hang up.

add audio-segment id=ar_dialing_error; type=physical; url=file://ar_dialing_error.wav;
description=We are sorry. The digits dialed are not a valid command.

add audio-segment id=ar_consult_instruction; type=physical;
url=file://ar_consult_instruction.wav; description=We are sorry. Please hang up now,
consult your written instructions, and try again later.

```

---

## Busy Line Verification

The Busy Line Verification (BLV) service allows you to obtain operator assistance to determine if a called line is in use.

Busy Line Interrupt (BLI) service allows the operator to interrupt the called party line and relay a message. If the interrupted party hangs up, you can originate a new call unless the called party has prohibited BLI in advance. At your request, the operator also has the option to connect you directly to the called party.



### Tip

For a complete description of this feature, see [Busy Line Verification](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the BLV feature.

## Office Provisioning

### Step 1 Add the default office service id:

```
change ca-config default-office-service-id=999;
```

### Step 2 Add the BLV Service to the default-office-service:

```
change service id=999; fname1=BLV;
```

### Step 3 Provision the feature in the office:

```
add feature fname=blv; tdp1=TERMINATION_ATTEMPT; tid1=BLV; ttype1=R;
feature_server_id=fsptc235; description=Busy-line verification; grp_feature=N;
```

## Provisioning Resources

**Step 1** Set the BLV CAS trunk group profile as “no-test” type:

```
add cas-tg-profile id=cas_blv; no-test-trunk=y;
```

**Step 2** Set the MGCP package type associated with the CAS trunk termination to “MT” type:

```
add termination id=S0/DS1-1/1; mgw-id=c2421.1001; mgcp-package-type=MT;
```



**Note**

For normal MGCP 1.0 CAS trunks, mgcp-package-type=MS should be used.

**Step 3** Set the Quality of Service parameter of the trunk group:

```
add trunk-grp id=152; qos-id=pcm;
```



**Note**

For the BLV barge-in feature to work, the CAS trunk quality of service (QoS) and subscriber QoS (next step, below) should match.

## Subscriber Provisioning

**Step 1** Set the Quality of Service parameter for a specific subscriber in the subscriber’s profile:

```
add subscriber-profile id=plano-sub-prof; qos-id=pcm;
```

**Step 2** Set access permissions for line verification on a subscriber line:

```
add subscriber-feature-data sub-id=plano_sub1; fname=BLV; type1=DENIED; value1=N;
```

Centrex and MLHG provisioning is similar to subscriber provisioning as described above.

## Provisioning Notes/Caveats

In general, the BLV feature does not support interaction with features that are invoked by the verified party (terminating subscriber) at the time of verification. If the verified party is engaged in a call and has features invoked, the operator receives a busy tone and cannot perform an interrupt on the call.

You can provision the BLV feature to allow verification if the subscriber has Cancel Call Waiting (CCW) or 911 emergency service invoked at the time of verification. The following optional commands provision the BLV feature to allow or disallow verification when the subscriber has invoked CCW or 911 emergency service.

- add feature-config fname=BLV; type=ALLOW-EMERGENCY-BARGE-IN; value=N;
- add feature-config fname=BLV; type=ALLOW-CCW-BARGE-IN; value=N;

- change feature-config fname=BLV; type=ALLOW-EMERGENCY-BARGE-IN;value=Y;
- change feature-config fname=BLV; type=ALLOW-CCW-BARGE-IN;value=Y;
- delete feature-config fname=BLV; type=ALLOW-EMERGENCY-BARGE-IN;
- delete feature-config fname=BLV; type=ALLOW-CCW-BARGE-IN;

## Call Block—Reject Caller

The call block (reject caller) feature allows the user to block incoming calls from the DN of the last received call. For the call block feature to work, the user must be subscribed to the selective call rejection (SCR) feature. Once call block is activated against a specified DN, that DN remains in the SCR list of the subscriber. A subscriber who wants to block callers (like sales calls) but does not know the caller's DN, can use this feature. Call block can be provided to POTS, Centrex, and MLHG subscribers.



**Tip**

For a complete description of this feature, see [Call Block](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the feature to be offered.

## Office Provisioning

**Step 1** Create a feature for CBLK:

```
add feature FNAME=CBLK; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=Call Block - Reject Caller; GRP_FEATURE=N;
```

**Step 2** Create VSC codes in the VSC table:

```
add vsc; DIGIT_STRING=*97; FNAME=CBLK;
```

## Subscriber Provisioning

**Step 1** Create a service with this feature:

```
add service id=1; fname1=CBLK;
```

**Step 2** Assign the service to the subscriber:

```
add/change subscriber-service-profile; sub-id=sub1; service-id=1;
```

## Centrex Provisioning

**Step 1** Create an entry in the CDP table:

```
add/change cdp; id=cdp1; DIGIT_STRING=*97; NOD=VSC; FNAME=CBLK;
CAT_STRING=1111111111111111;
```

## MLHG Provisioning

MLHG provisioning is similar to Subscriber provisioning.

## Provisioning Notes/Caveats

This feature works in conjunction with the SCR feature. Therefore, for the call to be rejected by Call Block, SCR should be assigned to the subscriber and activated. Refer to [Screen List Editing: SCF, SCR, SCA, and DRCW, page 7-127](#), for directions for provisioning SCR.

## Block All Inbound Calls

If a subscriber has blocked all the inbound calls, the calling party hears an announcement stating that called party has chosen to deny all inbound calls. For the inbound DN, the DN2SUBSCRIBER entry is provisioned to route the call to ANNC=998, which plays an announcement stating the called party has chosen to deny inbound calls. Use the announcement ID 800 through 899 for custom announcements.

The following steps explain how to provision this feature:

- 
- Step 1** Create subscriber without DN1, but with billing DN.
- ```
add subscriber id=sub_1; sub-profile-id=subprof_1; BILLING_DN=4692550260;
```
- Step 2** Add dn2subscriber entry for the billing DN assigned to the subscriber, but point it to an announcement ID.
- ```
add dn2subscriber FDN=4692550260; status=ANNC; ANNC_ID=998;
```
- 

## Call Forward Busy

The Call Forwarding Busy service allows you to forward incoming calls to another telephone number when you are already on a call.

The following subsections identify necessary steps for the feature to be offered.



**Tip**

For a detailed description of the call forwarding features, see [Call Forwarding Features](#) in the *Network and Subscriber Feature Descriptions*.

---

## Office Provisioning—Call Forwarding for Unreachable Condition

The CFB feature can forward a call when the called-party line is unreachable or the MGW is down. This is the normal behavior when the keepalive-method token in the mgw-profile table is set to AUEP (this is the default value). If you chose to set the keepalive-method token to NONE, and you want CFB to

forward a call when the called-party line is unreachable or down, you must provision an additional trigger for the CFB feature, and you must also refresh the service that contains the CFB feature. Two cases are shown in this section:

- [Fresh Installation](#)
- [Upgrade or Changes to Database](#)



#### Caution

We recommend that you keep the keepalive-method token set to the default value unless you have some other method of determining MGW connectivity status.

## Fresh Installation

### Step 1 Create a feature for CFB-Activation:

```
add feature FNAME=CFBVA; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CFB V Activation; GRP_FEATURE=N;
```

### Step 2 Create a feature for CFB-Deactivation:

```
add feature FNAME=CFBVD; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC32; DESCRIPTION=CFB V Deactivation; GRP_FEATURE=N;
```

### Step 3 Create a feature for CFB-Interrogation:

```
add feature FNAME=CFBI; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CFB Interrogation; GRP_FEATURE=N;
```

### Step 4 Create a feature for CFB (note that the T\_NOT\_REACHABLE trigger is added):

```
add feature fname=CFB; TDP1=T_BUSY; TID1=T_BUSY; TTYPE1=R; TDP2=T_EXCEPTION;
TID2=T_NOT_REACHABLE; TTYPE2=R; FNAME1=CFBVA; FNAME2=CFBVD; FNAME3=CFBI;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=Call Forwarding Busy; GRP_FEATURE=N;
```

### Step 5 Add a VSC code for CFB-A:

```
add/change vsc fname=CFBVA; digit-string=*40;
```

### Step 6 Add a VSC code for CFB-D:

```
add vsc fname=CFBVD; digit-string=#40#;
```

### Step 7 Add a VSC code for CFB-I:

```
add vsc fname=CFBI; digit-string=*#40;
```

### Step 8 Add a service with these features:

```
add service id=1; FNAME1=CFB; FNAME2=CFBVA; FNAME3=CFBVD; FNAME4=CFBI;
```

### Step 9 Customize the multiple call forwarding capability as required:

```
change feature fname=CFB; TYPE1=MCF; VALUE1=Y;
```

### Step 10 Customize for International Call Forwarding as required. This should be applied to CFB and CFBVA:

```
change feature fname=CFB; TYPE1=INTL; VALUE1=Y;
change feature fname=CFBVA; TYPE1=INTL; VALUE1=Y;
```

### Step 11 Customize for the second stage dial-tone (O):

```
change feature fname=CFBVA/CFBI; TYPE2=SDT; VALUE2=STUTTER-DIAL-TONE;
```

**Step 12** Customize for the courtesy call. Accepted values: ANS, NOANS, N (O):

```
change feature fname=CFBVA; TYPE3=CC; VALUE3=ANS;
```

**Step 13** Customize for the final-stage dial-tone:

```
change feature fname=CFBVA/CFBVD/CFBI; TYPE4=FDT; VALUE4=DIAL-TONE;
```

**Step 14** Add the applicable NODs to be restricted for the CFB feature:

```
add nod-restrict-list fname=CFB; nod=EMG;
add nod-restrict-list fname=CFB; nod=FIRE;
```



**Note**

See the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* for a complete list of NODs.



**Caution**

If you want to block call-forwarding to an emergency (EMG) DN, such as 911, you must provision NOD=EMG for the call-forwarding features (CFU, CFB, CFNA, and CFC) in the NOD-RESTRICT-LIST. This is necessary to comply with the rule in Telcordia document GR-580, which says that 911 should not be a permitted "forward to" number.

**Step 15** If you have decided to turn off MGW monitoring for a particular MGW, enter the following command:

```
add mgw-profile id=MTA_00777 keepalive-method=NONE;
```

**Step 16** Add a MGW and reference the applicable mgw-profile:

```
add mgw id=mta12345; call-agent-id=CA146; mgw-profile-id=MTA_00777;
tsap-addr=mta12345.cisco.com:1819; type=rgw;
```



**Note**

See the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* for a complete list of mgw-profile and mgw tokens.

## Upgrade or Changes to Database

**Step 1** Change the CFB feature to add the T\_NOT\_REACHABLE trigger:

```
change feature TDP1=T_BUSY; TID1=T_BUSY; TTYPE1=R; TDP2=T_EXCEPTION; TID2=T_NOT_REACHABLE;
TTYPE2=R; FNAME1=CFBVA; FNAME2=CFBVD; FNAME3=CFBI; FEATURE_SERVER_ID=FSPTC235;
DESCRIPTION=Call Forwarding Busy; GRP_FEATURE=N;
```

**Step 2** Use the **change service** command to refresh the service that contains the CFB feature:

```
change service id=1; FNAME1=CFB; FNAME2=CFBVA; FNAME3=CFBVD; FNAME4=CFBI;
```

**Step 3** If you have decided to turn off MGW monitoring for a particular MGW, enter the following command:

```
change mgw-profile id=MTA_00777 keepalive-method=NONE;
```

**Note**

See the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* for a complete list of mgw-profile tokens.

## Subscriber Provisioning

**Step 1** Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

## Centrex Provisioning

For the feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber. In addition, the following steps are required.

**Step 1** Add a feature into the custom-dial-plan table for the Centrex group:

```
add/change custom-dial-plan ID=cdp1; DIGIT-STRING=*40; NOD=VSC; FNAME=CFBVA;
CAT-STRING=1111111111111111;
```

```
add custom-dial-plan ID=cdp1; DIGIT-STRING=#40#; NOD=VSC; FNAME=CFBVD;
CAT-STRING=1111111111111111;
```

```
add custom-dial-plan ID=cdp1; DIGIT-STRING=*#40; NOD=VSC; FNAME=CFBI;
CAT-STRING=1111111111111111;
```

MLHG provisioning is similar to subscriber provisioning as described above.

## Provisioning Notes/Caveats

- Changing the second stage dial tone (SDT) option will have no effect on the delivery of the second dial tone for SIP subscribers. This option is available through the dial plan in the SIP phone.
- Changing the final stage dial tone (FDT) option will have no effect on the delivery of the final dial tone for SIP subscribers. For SIP phones, an announcement will always be delivered because provisioning to play a dial tone and collect further digits is not available.

## Alternate Activation and Deactivation Method

This feature is deactivated by default when it is assigned to a subscriber. CFB can alternately be activated and deactivated by creating an entry in the Subscriber-feature-data table.

Use a CLI command similar to the following to activate CFB:

```
add subscriber-feature-data sub-id=sub_1; active=Y; fname=CFB; type1=FDN1;
value1=4692551001;
```



**Note**

The value should be the forwarding-to DN.

Use a CLI command similar to the following to deactivate CFB:

```
add subscriber-feature-data sub-id=sub_1; active=N; fname=CFB;
```

## Call Forwarding Combination

The Call Forwarding Combination (CFC) feature allows a subscriber to combine and use various Call Forwarding features when the subscriber is either busy or does not answer their phone.

**Note**

For a complete description of this feature, see [Call Forwarding Combination](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the CFC feature to be offered.

## Office Provisioning

### Step 1 Create a feature for CFC\_ACT:

```
add/change feature FNAME=CFC_ACT; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYPE1=R; FEATURE_SERVER_ID=FSPTC325;
```

### Step 2 Create a feature for CFC\_DEACT:

```
add/change feature FNAME=CFC_DEACT; TDP1=COLLECTED_INFORMATION;
TID1=VERTICAL_SERVICE_CODE; TTYPE1=R; FEATURE_SERVER_ID=FSPTC325;
```

### Step 3 Create a feature for CFC\_DN\_CHG\_ACT:

```
add/change feature FNAME=CFC_DN_CHG_ACT; TDP1=COLLECTED_INFORMATION;
TID1=VERTICAL_SERVICE_CODE; TTYPE1=R; FEATURE_SERVER_ID=FSPTC325;
```

### Step 4 Create a feature for CFCI\_NO\_DN\_VRFY:

```
add/change feature FNAME=CFCI_NO_DN_VRFY; TDP1=COLLECTED_INFORMATION;
TID1=VERTICAL_SERVICE_CODE; TTYPE1=R; FEATURE_SERVER_ID=FSPTC325;
```

### Step 5 Create a feature for CFCI:

```
add/change feature FNAME=CFCI; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYPE1=R; FEATURE_SERVER_ID=FSPTC325;
```

### Step 6 Create a feature for CFC:

```
add/change feature FNAME=CFC; TDP1=T_BUSY; TID1=T_BUSY; TTYPE1=R; TDP2=CALL_ACCEPTED;
TID2=CALL_ACCEPTED; TTYPE2=R; FEATURE_SERVER_ID=FSPTC325; TYPE1=TO; VALUE1=30; TYPE2=MCF;
VALUE2=Y;
```

### Step 7 Define VSC codes for these features:

```
add/change vsc; fname=CFC_ACT; DIGIT_STRING=*68;
add/change vsc; fname=CFC_DEACT; DIGIT_STRING=*88;
add/change vsc; fname=CFC_DN_CHG_ACT; DIGIT_STRING=*201;
add/change vsc; fname=CFCI_NO_DN_VRFY; DIGIT_STRING=*202
add/change vsc; fname=CFCI; DIGIT_STRING=*203
```

**Step 8** Customize the FDT and SDT flags for these features, if necessary:

```
change feature; fname=CFC_ACT; TYPE1=FDT; VALUE1=STUTTER_DIAL_TONE;

change feature; fname=CFC_DEACT; TYPE1=FDT; VALUE1=STUTTER_DIAL_TONE;

change feature; fname=CFC_DN_CHG_ACT; TYPE1=FDT; VALUE1=DIAL_TONE;
TYPE2=FDT;VALUE2=STUTTER_DIAL_TONE;
```

**Step 9** Combine the features defined above into a service:

```
add/change service id=cfc_dn_chg; FNAME1=CFC_DN_CHG_ACT; FNAME2=CFC_DEACT; FNAME3=CFC;
FNAME4=CFCI_NO_DN_VRFY; FNAME5=CFCI; add/change service id=cfc; FNAME1=CFC_ ACT;
FNAME2=CFC_DEACT; FNAME3=CFC; FNAME4=CFCI_NO_DN_VRFY;
```

---

## Provisioning Resources

None.

## Subscriber Provisioning

**Step 1** Assign the service a subscriber:

```
add/change sub-service-profile; sub-id=[sub]; service-id=cfc_dn_chg;
add/change sub-service-profile; sub-id=[sub]; service-id=cfc;
```

**Step 2** Set the FDN, if required:

```
add/change sub-feature-data; sub-id=sub1; fname=CFC; TYPE1=FDN1; VALUE1=<fdn>;
```

---

## Centrex Provisioning

In addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber. In addition, the following steps are required:

**Step 1** Define the star codes in the CDP table for Centrex subscribers:

```
add/change cdp; fname=CFC_ACT; DIGIT_STRING=*68; nod=VSC; CAT_STRING=1111111111111111;

add/change cdp; fname=CFC_DEACT; DIGIT_STRING=*88; nod=VSC; CAT_STRING=1111111111111111;

add/change cdp; fname=CFC_DN_CHG_ACT; DIGIT_STRING=*201; nod=VSC;
CAT_STRING=1111111111111111;

add/change cdp; fname=CFCI_NO_DN_VRFY; DIGIT_STRING=*202; nod=VSC;
CAT_STRING=1111111111111111;

add/change cdp; fname=CFCI; DIGIT_STRING=*203; nod=VSC; CAT_STRING=1111111111111111;
```

## MLHG Provisioning

MLHG provisioning is similar to subscriber provisioning.

### Provisioning Notes/Caveats

While provisioning CFC, TO in the feature table denotes the time-out that should be used for reporting No-Answer. This TO can be changed to 'N' seconds by using the following CLI command –

change feature; fname=CFC; TYPE1=TO; VALUE1=N;

- The following can be used to activate the feature or change the forwarding-dn for subscriber sub\_1 via CLI –

add/change sub-feature-data; sub-id=sub\_1; ACTIVE=Y; FNAME=CFC; TYPE1=FDN1; VALUE1=DN

- See effect of changing SDT above for SIP phones
- See effect of changing FDT above for SIP phones

### Alternate Way to Activate and Deactivate CFC

**Step 1** Activate CFC for a subscriber and modify the forwarding number:

```
add/change sub-feature-data; sub-id=sub1; fname=CFC; ACTIVE=Y; TYPE1=FDN1; VALUE1=<fdn>;
```

**Step 2** Activate CFC for a subscriber and do not modify the forwarding number:

```
add/change sub-feature-data; sub-id=sub1; fname=CFC; ACTIVE=Y;
```

**Step 3** Deactivate CFC for a subscriber:

```
add/change sub-feature-data; sub-id=sub1; fname=CFC; ACTIVE=N;
```

## Call Forward No Answer

The Call Forward No Answer (CFNA) feature permits you to instruct the network to forward calls when there is no answer of the subscriber phone. A typical forwarding address is voice mail. You can activate and deactivate this feature through the DTMF interface on the handset. Once the feature is activated, it remains active until you deactivates it. While activated, any incoming calls to the subscriber phone that are not answered in six rings are forwarded to the specified number.



#### Note

If a call originates on a phone connected to Cisco CallManager toward a DN subscribed to the Cisco BTS 10200 Softswitch, the Cisco BTS 10200 Softswitch cannot forward that call over an H.323 network to a third party using the call forward no answer (CFNA) feature. (The Cisco BTS 10200 Softswitch can forward the Cisco CallManager-originated call over a SIP or MGCP-based network to a third party using CFNA.)

There is an interaction when a Centrex subscriber has all three of the following features assigned and active:

- Call hold—CHD
- Call waiting—CW or CIDCW or both
- Call forwarding on no answer—CFNA

In this case, the system does not invoke forwarding for any incoming calls. For the subscriber to have the call waiting features (CW or CIDCW) and CFNA active simultaneously, do not assign the CHD feature to the subscriber.


**Tip**

For a complete description of this feature, see [Call Forwarding No Answer](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the CFNA feature to be offered.

## Office Provisioning

**Step 1** Create a feature for CFNA-Activation:

```
add feature FNAME=CFNAVA; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYPE1=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CFNA Activation; GRP_FEATURE=N;
```

**Step 2** Create a feature for CFNA-Deactivation:

```
add feature FNAME=CFNAVD; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYPE1=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CFNA Deactivation; GRP_FEATURE=N;
```

**Step 3** Create a feature for CFNA-Interrogation:

```
add feature FNAME=CFNAI; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CFNA Interrogation; GRP_FEATURE=N;
```

**Step 4** Create a feature for CFNA:

```
add feature FNAME=CFNA; TDP1=CALL_ACCEPTED; TID1=CALL_ACCEPTED; TTYPE1=R; FNAME1=CFNAVA;
FNAME2=CFNAVD; FNAME3=CFNAI; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=Call Forwarding No
Answer; GRP_FEATURE=N;
```

**Step 5** Add/change the VSC code for CFNA-A:

```
add/change vsc fname=CFNAVA; digit-string=*72;
```

**Step 6** Add/change the VSC code for CFNA-D:

```
add/change vsc fname=CFNAVD; digit-string=#72#;
```

**Step 7** Add/change the VSC code for CFNA-I:

```
add/change vsc fname=CFNAI; digit-string=*#72;
```

**Step 8** Add the service with these features:

```
add service id=1; FNAME1=CFNA;
```

**Step 9** If required, change the default no-answer timeout value:

```
change feature fname=CFNA; TYPE1=TO; VALUE1=45;
```

**Step 10** Customize for International Call Forwarding as required. It should be applied to CFNA and CFNAVA:

```
change feature fname=CFNA; TYPE1=INTL; VALUE1=Y;
change feature fname=CFNAVA; TYPE1=INTL; VALUE1=Y;
```

**Step 11** Customize for the second stage dial-tone:

```
change feature fname=CFNAVA/CFNAI; TYPE2=SDT; VALUE2=STUTTER-DIAL-TONE;
```

**Step 12** Customize for the final-stage dial-tone:

```
change feature fname=CFNAVA/CFNAVD/CFNAI; TYPE4=FDT; VALUE4=DIAL-TONE;
```

**Step 13** Customize the multiple call forwarding capability as required:

```
change feature fname=CFNVA; TYPE1=MCF; VALUE1=Y;
```

**Step 14** Customize for courtesy call. Possible values: ANS, NOANS, N:

```
change feature fname=CFNAVA; TYPE3=CC; VALUE3=N;
```

**Step 15** Add the applicable NODs to be restricted for the CFNA feature:

```
add nod-restrict-list fname=CFNA; nod=EMG;
add nod-restrict-list fname=CFNA; nod=FIRE;
```

**Note**

See the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* for a complete list of NODs.

**Caution**

If you want to block call-forwarding to an emergency (EMG) DN, such as 911, you must provision NOD=EMG for the call-forwarding features (CFU, CFB, CFNA, and CFC) in the NOD-RESTRICT-LIST. This is necessary to comply with the rule in Telcordia document GR-580, which says that 911 should not be a permitted "forward to" number.

## Subscriber Provisioning

**Step 1** Assign the service to the subscriber(M):

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

## Centrex Provisioning

For the feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber. In addition, the following steps are required.

**Step 1** Add the feature into the custom-dial-plan table for the Centrex group:

```
add/change custom-dial-plan ID=cdp1;DIGIT-STRING=*72; NOD=VSC;FNAME=CFNAVA;
CAT-STRING=1111111111111111;
add/change custom-dial-plan ID=cdp1;DIGIT-STRING=*73; NOD=VSC;FNAME=CFNAVD;
CAT-STRING=1111111111111111;
```

MLHG provisioning is similar to subscriber provisioning as described above.

## Provisioning Notes/Caveats

- While provisioning CFNA, TO in the feature table denotes the time-out that should be used for reporting No-Answer. This TO can be changed to 'N' seconds by using the following CLI command:  

```
change feature fname=CFNA; TYPE1=TO; VALUE1=N;
```
- The following can be used to activate the feature or change the forwarding-dn for subscriber sub\_1 via CLI:  

```
add/change sub-feature-data sub-id=sub_1; ACTIVE=Y; FNAME=CFNA; TYPE1=FDN1; VALUE1=DN;
```
- Changing the second stage dial tone (SDT) option will have no effect on the delivery of the second dial tone for SIP subscribers. This option is available through the dial plan in the SIP phone.
- Changing the final stage dial tone (FDT) option will have no effect on the delivery of the final dial tone for SIP subscribers. For SIP phones, an announcement will always be delivered because provisioning to play a dial tone and collect further digits is not available.

## Alternate Activation and Deactivation Method

This feature is deactivated by default when it is assigned to a subscriber. CFNA can alternately be activated and deactivated by creating an entry in the Subscriber-feature-data table.

Use a CLI command similar to the following to activate CFNA:

```
add subscriber-feature-data sub-id=sub_1; active=Y; fname=CFNA; type1=FDN1;
value1=4692551001;
```



### Note

The value should be the forwarding-to DN.

Use a CLI command similar to the following to deactivate CFNA:

```
add subscriber-feature-data sub-id=sub_1; active=N; fname=CFNA;
```

## Call Forward Redirection

The Session Initiation Protocol (SIP) response code 302 requests that a call be redirected to a new IP address/telephone number. The BTS implements SIP 302 as the Call Forward Redirection (CFR) feature.

The following subsection details the necessary steps to provision the CFR feature.

### Step 1 Add CFR.

```
add/change feature_name fname=CFR; description=call forward redirection;
add/change feature FNAME=CFR; TDP1= T_EXCEPTION; TID1= CFR_TRIGGER; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC325; DESCRIPTION=call forward redirection; GRP_FEATURE=N
```

### Step 2 Assign CFR to service and trunk groups:

```
add service; id=cfr; fname1=CFR;
change trunk-grp-service-profile; tgn-id=<SIP trunk group id>; service-id=cfr;
```

**Step 3** Allow CFR routing on SIP trunks:

```
change softsw-tg-profile id=10; protocol-type=SIP; redirect_supported= VALID_DOMAINS_ONLY;
```

**Step 4** Update call forwarding features to allow 302:

```
change feature_config FNAME=CFNA; TYPE= SIP_302_SUPP; DATATYPE =STRING; VALUE=Y;
change feature_config FNAME=CFC; TYPE= SIP_302_SUPP; DATATYPE =STRING; VALUE=NOANSWER
change feature_config FNAME=VM; TYPE= SIP_302_SUPP; DATATYPE =STRING; VALUE=NOANSWER
```

**Step 5** Update outgoing SIP trunks to allow 302:

```
change softsw_tg_profile ID=tb11_sip_1; send-302-on-cf=Y
```

## Call Forwarding Unconditional

Call Forwarding Unconditional is a service that lets you forward all your incoming calls to another telephone number until you explicitly deactivate it. When CFU is activated on your telephone line, you only hear a short reminder ring at your number, after which the forwarded telephone line is offered the call.

**Tip**

For a complete description of the CFU feature, see [Call Forwarding Unconditional](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the feature to be offered.

## Office Provisioning

**Step 1** Create a feature for CFU-Activation:

```
add feature FNAME=CFUA; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CFU Activation; GRP_FEATURE=N;
```

**Step 2** Create a feature for CFU-Deactivation:

```
add feature FNAME=CFUD; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CFU Deactivation; GRP_FEATURE=N;
```

**Step 3** Create a feature for CFU-Interrogation:

```
add feature FNAME=CFUI; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CFU Interrogation; GRP_FEATURE=N;
```

**Step 4** Create a feature for CFU:

```
add feature FNAME=CFU; TDP1=TERMINATION_ATTEMPT_AUTHORIZED;
TID1=TERMINATION_ATTEMPT_AUTHORIZED; TTYPE1=R; FNAME1=CFUA; FNAME2=CFUD; FNAME3=CFUI;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CFU; MCF=multiple call forwarding allowed;
GRP_FEATURE=N;
```

**Note**

The features assigned to FNAME1, FNAME2, and FNAME3 in this step become sub-features of FNAME and are automatically assigned to a subscriber when FNAME is assigned.

**Step 5** Add/change a VSC code for CFU-A:

```
add/change vsc fname=CFUA; digit-string=*72;
```

**Step 6** Add/change a VSC code for CFU-D:

```
add/change vsc fname=CFUD; digit-string=#72#;
```

**Step 7** Add/change a VSC code for CFU-I:

```
add/change vsc fname=CFUI; digit-string=*#72;
```

**Step 8** Add a service with these features:

```
add service id=1; FNAME1=CFU;
```

**Step 9** Customize the reminder ring capability as required:

```
change feature fname=CFU; type1=RR; value1=N;
```

**Step 10** Customize the multiple call forwarding capability as required:

```
change feature fname=CFU; TYPE1=MCF; VALUE1=Y;
```

**Step 11** Customize for International Call Forwarding as required. This should be applied to CFU and CFUA:

```
change feature fname=CFU; TYPE1=INTL; VALUE1=Y;
change feature fname=CFUA; TYPE1=INTL; VALUE1=Y;
```

**Step 12** Customize the second stage dial-tone:

```
change feature fname=[CFUA|CFUI]; TYPE2=SDT; VALUE2=STUTTER-DIAL-TONE;
```

**Step 13** Customize the courtesy call. Possible values: ANS, NOANS, N:

```
change feature fname=CFUA; TYPE3=CC; VALUE3=ANS;
```

**Step 14** Customize the final-stage dial-tone:

```
change feature fname=[CFUA|CFUD|CFUI]; TYPE4=FDT; VALUE4=DIAL-TONE;
```

**Step 15** Add the applicable NODs to be restricted for the CFU feature:

```
add nod-restrict-list fname=CFU; nod=EMG;
add nod-restrict-list fname=CFU; nod=FIRE;
```

**Note**

See the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* for a complete list of NODs.

**Caution**

If you want to block call-forwarding to an emergency (EMG) DN, such as 911, you must provision NOD=EMG for the call-forwarding features (CFU, CFB, CFNA, and CFC) in the NOD-RESTRICT-LIST. This is necessary to comply with the rule in Telcordia document GR-580, which says that 911 should not be a permitted "forward to" number.

## Subscriber Provisioning

**Step 1** Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```



## Centrex Provisioning

For the feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber. In addition, the following step is required.

**Step 1** Add the feature into the custom-dial-plan table for the Centrex group:

```
add/change custom-dial-plan ID=cdp1;DIGIT-STRING=*72; NOD=VSC;FNAME=CFUA;
CAT-STRING=1111111111111111;

add/change custom-dial-plan ID=cdp1;DIGIT-STRING=#72#; NOD=VSC;FNAME=CFUD;
CAT-STRING=1111111111111111;

add/change custom-dial-plan ID=cdp1;DIGIT-STRING=*#72; NOD=VSC;FNAME=CFUI;
CAT-STRING=1111111111111111;
```

MLHG provisioning is similar to subscriber provisioning as described above.

## Provisioning Notes/Caveats

- Changing the second stage dial tone (SDT) option will have no effect on the delivery of the second dial tone for SIP subscribers. This option is available through the dial plan in the SIP phone.
- Changing the final stage dial tone (FDT) option will have no effect on the delivery of the final dial tone for SIP subscribers. For SIP phones, an announcement will always be delivered because provisioning to play a dial tone and collect further digits is not available.

## Alternate Activation and Deactivation Method

This feature is deactivated by default when it is assigned to a subscriber. CFU can alternately be activated and deactivated by creating an entry in the Subscriber-feature-data table.

Use a CLI command similar to the following to activate CFU:

```
add subscriber-feature-data sub-id=sub_1; active=Y; fname=CFU; type1=FDN1;
value1=4692551001;
```



**Note**

The value should be the forwarding-to DN.

Use a CLI command similar to the following to deactivate CFU:

```
add subscriber-feature-data sub-id=sub_1; active=N; fname=CFU;
```

## Call Forwarding Variable for Basic Business Groups

The following subsections identify necessary steps for provisioning the Call Forwarding Variable for Basic Business Groups (CFVBBG) feature.

**Tip**

For a complete description of the CFVBBG feature, see [Call Forwarding Variable for Basic Business Groups](#) in the *Network and Subscriber Feature Descriptions*.

**Note**

CFVBBG and CFVABBG are Centrex only (BBG) features.

## Office Provisioning

**Step 1** Create a feature for CFVABBG-Activation:

```
add feature FNAME=CFVABBG; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CFVBBG - activation;
GRP_FEATURE=N;
```

**Step 2** Create a feature for CFVBBG:

```
add feature FNAME=CFVBBG; FNAME1=CFVABBG; FNAME2=CFUD; FNAME3=CFUI;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CFV BBG; GRP_FEATURE=N;
```

**Step 3** Add a service with these features:

```
add service id=1; FNAME1=CFVBBG;
```

**Step 4** (Optional) Customize the reminder ring capability as required:

```
change feature fname=CFVBBG; type1=RR; value1=N;
```

**Step 5** (Optional) Customize the multiple call forwarding capability as required:

```
change feature fname=CFVBBG; TYPE1=MCF; VALUE1=Y;
```

**Step 6** (Optional) Customize for International Call Forwarding as required.  
This should be applied to CFU and CFUA:

```
change feature fname=CFVBBG; TYPE1=INTL; VALUE1=Y;
change feature fname=CFVABBG; TYPE1=INTL; VALUE1=Y;
```

**Step 7** (Optional) Customize for the second stage dial-tone:

```
change feature fname=CFVABBG; TYPE2=SDT; VALUE2=STUTTER-DIAL-TONE;
```

**Step 8** (Optional) Customize for the courtesy call:

```
change feature fname=CFVABBG; TYPE3=CC; VALUE3=N;
```

**Step 9** (Optional) Customize for the final-stage dial-tone:

```
change feature fname=CFVABBG; TYPE4=FDT; VALUE4=DIAL-TONE;
```

## Subscriber Provisioning

**Step 1** Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

## Centrex Provisioning

For the feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber. In addition, the following step is required.

**Step 1** Add the feature into the custom-dial-plan table for the Centrex group:

```
add/change custom-dial-plan ID=cdp1; DIGIT-STRING=*99; NOD=VSC; FNAME=CFVABBG;
CAT-STRING=1111111111111111;
```



**Note**

This is a randomly chosen digit-string.

MLHG provisioning is similar to subscriber provisioning as described above.

## Provisioning Notes/Caveats

- Changing the second stage dial tone (SDT) option will have no effect on the delivery of the second dial tone for SIP subscribers. This option is available through the dial plan in the SIP phone.
- Changing the final stage dial tone (FDT) option will have no effect on the delivery of the final dial tone for SIP subscribers. For SIP phones, an announcement will always be delivered because provisioning to play a dial tone and collect further digits is not available.
- For CFVBBG on SIP phones, the reminder ring will not be played because of limited capability on the SIP phone.
- The value provisioned for the courtesy call option will apply only to internal (within the Centrex group) extensions. If a subscriber wants to activate CFVBBG to an external DN, a courtesy call will always be delivered.

## Alternate Activation and Deactivation Method

This feature is deactivated by default when it is assigned to a subscriber. CFVBBG can alternately be activated and deactivated by creating an entry in the Subscriber-feature-data table.

Use a CLI command similar to the following to activate CFVBBG:

```
add subscriber-feature-data sub-id=sub_1; active=Y; fname=CFU; type1=FDN1;
value1=4692551001;
```



**Note**

The value should be the forwarding-to DN.

Use a CLI command similar to the following to deactivate CFVBBG:

```
add subscriber-feature-data sub-id=sub_1; active=N; fname=CFU;
```

## Call Hold

The Call Hold (CHD) feature allows you to temporarily shut-off an active call, use the telephone for making another call, and then return to the original call. You can alternate between two calls.

There is an interaction when a Centrex subscriber has all three of the following features assigned and active:

- Call hold—CHD
- Call waiting—CW or CIDCW or both
- Call forwarding on no answer—CFNA

In this case, the system does not invoke forwarding for any incoming calls. For the subscriber to have the call waiting features (CW or CIDCW) and CFNA active simultaneously, do not assign the CHD feature to the subscriber.


**Tip**

For a complete description of this feature, see [Call Hold](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the feature to be offered.

## Office Provisioning

**Step 1** Create a feature for CHD:

```
add feature fname=CHD; tdp1=O_MID_CALL; tdp2=T_MID_CALL;
tid1=O_SWITCH_HOOK_FLASH_IMMEDIATE; tid2=T_SWITCH_HOOK_FLASH_IMMEDIATE; ttype1=R;
ttype2=R; description=Call Hold; feature_server_id=FSPTC235;
```

**Step 2** Add a service with these features:

```
add service id=1; fname1=CHD; description=For some Centrex subscribers;
```

## Subscriber Provisioning

The CHD feature is applicable only to a Centrex group.

## Centrex Provisioning

For the CHD feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires the following steps:

**Step 1** Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

**Step 2** Add the feature into the custom-dial-plan table for the Centrex group:

```
add custom-dial-plan ID=cdp1; DIGIT-STRING=*52; NOD=VSC; FNAME=CHD;
CAT-STRING=1111111111111111;
```

MLHG provisioning is similar to Centrex provisioning as described above.

## Call Park, Call Park Retrieve

The Call Park (CPRK) feature allows a subscriber (parking party) to park an active call against its own DN or another DN within the Call Park subscriber group (CPSG). Once a call is parked, the parking party is free to make other calls, while the parked party remains parked. The parked party can be retrieved by any of the subscribers within the CPSG; otherwise, the call will be re-offered three times to the parking party.

The Call Park/Call Park Retrieve suite of features is available only to Centrex subscribers. The set of Centrex subscribers against a Centrex group are further subdivided into sets of Call Park Subscriber Groups (CPSGs).



### Tip

For a complete description of this feature, see [Call Park and Call Retrieve](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the CPRK and CPRK\_RET features to be offered.

## Office Provisioning

### Step 1 Create a feature for CPRK:

```
add feature FNAME=CPRK; TDP1=O_MID_CALL; TID1=O_SWITCH_HOOK_FLASH_IMMEDIATE; TTYPE1=R;
TDP2=T_MID_CALL; TID2=T_SWITCH_HOOK_FLASH_IMMEDIATE; TTYPE2=R; FEATURE_SERVER_ID=FSPTC235;
DESCRIPTION=Call Park; GRP_FEATURE=N;
```

### Step 2 Create a feature for CPRK\_RET:

```
add feature FNAME=CPRK_RET; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=Call Park Retrieve;
GRP_FEATURE=N;
```

### Step 3 Add a VSC code in the CDP table:

```
add cdp id=cdp1; DIGIT_STRING=*58; NOD=VSC; FNAME=CPRK; CAT_STRING=1111111111111111;
```

### Step 4 Add a VSC code in the CDP table:

```
add cdp id=cdp1; DIGIT_STRING=*59; NOD=VSC; FNAME=CPRK_RET; CAT_STRING=1111111111111111;
```

### Step 5 Create the CPSG table:

```
add cpsg ID=cpsg1; TCPRK=30; CTXG_ID=ctxg1; CPRK_FDN=414;
```



### Note

cpsg1 is the Call Park Subscriber Group id  
TCPRK is the Timed Recall (Re-offer) Timer  
CPRK\_FDN is the Forward-To DN, in case all the re-offers are exhausted

### Step 6 Add entries to the Ca-config table:

```
add ca-config TYPE=CPRK_ANN; DATATYPE=INTEGER; VALUE=901;
add ca-config TYPE=CPRK_CLEAR; DATATYPE=INTEGER; VALUE=902;
```

### Step 7 Configure Ca-config defaults as required:

```
add ca-config; TYPE=CPRK-TIMER; DATATYPE=INTEGER; VALUE=60;
add ca-config; TYPE=CPRK-HC-T1; DATATYPE=INTEGER; VALUE=24;
```

**Note**

CPRK will get the timer value configured against TCPRK from the CPSG table. If that value is 0, then this value (from the Ca-config table) will be used.

If the configured timer value in the Ca-config and CPSG tables are 0, then this value will be used. If this is also not configured, then a default value of 60 secs will be used.

**Step 8** (Optional) If step #6 is performed, add corresponding announcements:

```
add annc ID=901; TYPE=SYSTEM; SEND_ANSWER=N; NUM_REPEAT=1; DURATION=20;
ANNOUNCEMENT_FILE=ann_id_901.au; ROUTE_GUIDE_ID=annc1; ANNOUNCEMENT_NUMBER=323;
add annc ID=902; TYPE=SYSTEM; SEND_ANSWER=N; NUM_REPEAT=1; DURATION=20;
ANNOUNCEMENT_FILE=ann_id_902.au; ROUTE_DE_ID=annc1; ANNOUNCEMENT_NUMBER=323;
```

## Subscriber Provisioning

**Step 1** Create a service with these features:

```
add service id=1; fname1=CPRK; fname2=CPRK_RET;
```

**Step 2** Assign the service to the subscriber:

```
add/change subscriber-service-profile sub-id=sub1; service-id=1;
```

**Step 3** Associate the subscriber to a CPSG:

```
change ext2subscriber CTXG_ID=CTXgroup1; EXT=412; SUB_ID=sub1; CPSG_ID=cpsg1;
```

The feature is only available for a Centrex group. Refer to above provisioning.

## Provisioning Notes/Caveats

A call can be parked by a Centrex subscriber only against a subscriber in the same CPSG. Similarly, only a member of the same CPSG can retrieve a parked call.

## Call Transfer

The Call Transfer (CT) service lets you transfer an active call to a third party, and your line exits the call.

**Tip**

For a complete description of this feature, see [Call Transfer](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the CT feature to be offered.

## Office Provisioning

**Step 1** Provision the feature table:

```
add/change feature FNAME=CT; TDP1=O_MID_CALL; TID1=O_SWITCH_HOOK_FLASH_IMMEDIATE;
TTYPE1=R; TDP2=T_MID_CALL; TID2=T_SWITCH_HOOK_FLASH_IMMEDIATE; TTYPE2=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=Call Transfer Feature;
```

**Step 2** Provision the service table:

```
add service id=2; FNAME1=CT;
```

---

## Subscriber Provisioning

**Step 1** Provision the subscriber-service-profile:

```
add subscriber-service-profile sub_id=sub-1; service-id=2;
```

---

Centrex and MLHG provisioning is similar to subscriber provisioning.

## Call Waiting

Call Waiting is a service that enables you to accept an incoming call, even when you are already involved in a call, and allows you to alternate between the two calls. Assuming you are already involved in a call, and a third person is trying to call you, then with the call waiting feature enabled you will be notified distinctly of the new incoming call, and you have the choice to accept the call or ignore it. This way you do not miss any incoming calls.

A separate feature of call waiting is cancel-call-waiting, which you can use easily to advise that you do not wish to get notified of a call waiting for the entire duration of the call you are about to make.

There is an interaction when a Centrex subscriber has all three of the following features assigned and active:

- Call hold—CHD
- Call waiting—CW or CIDCW or both
- Call forwarding on no answer—CFNA

In this case, the system does not invoke forwarding for any incoming calls. For the subscriber to have the call waiting features (CW or CIDCW) and CFNA active simultaneously, do not assign the CHD feature to the subscriber.

**Tip**

For a complete description of this feature, see [Call Waiting Features](#) in the *Network and Subscriber Feature Descriptions*.

---

The following subsections identify necessary steps for the CW feature to be offered.

## Office Provisioning

**Step 1** Create a feature for CW-Activation:

```
add feature fname=CW; tdp1=T_BUSY; tid1=T_BUSY; ttype1=R; description=Call Waiting;
feature_server_id=FSPTC235;
```

```
add feature FNAME=CWDA; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=Call Waiting Activation Feature;
```

```
add/change feature FNAME=CWDD; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYPE1=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=Call Waiting-Deactivation Feature;
```

**Step 2** Add a service with these features:

```
add service id=1; FNAME1=CW;
```

---

## Subscriber Provisioning

**Step 1** Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

---

For the CW feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber.

The CW feature is not applicable for subscriber category MLHG.

## Alternate Activation and Deactivation Method

This feature is activated by default when it is assigned to a subscriber. CW can alternately be activated and deactivated by creating an entry in the Subscriber-feature-data table.

Use a CLI command similar to the following to activate CW:

```
add subscriber-feature-data sub-id=sub_1; active=Y; fname=CW;
```

Use a CLI command similar to the following to deactivate CW:

```
add subscriber-feature-data sub-id=sub_1; active=N; fname=CW;
```

## Call Waiting Deluxe

The following subsections identify necessary steps for provisioning the Call Waiting Deluxe (CWD) feature.



**Tip**

For a complete description of this feature, see [Call Waiting Deluxe](#) in the *Network and Subscriber Feature Descriptions*.

---

## Office Provisioning

**Step 1** Provision the Feature table:

```
add/change feature FNAME=CWD; TDP1=T_BUSY; TID1=T_BUSY; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=China Residential Call Waiting Deluxe Feature;
```



```
add/change feature FNAME=CWDA; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYE1=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=China Residential Call Waiting Deluxe
Activation Feature;
```

```
add/change feature FNAME=CWDD; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYE1=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=China Residential Call Waiting Deluxe
Deactivation Feature;
```

```
add/change feature FNAME=CWDI; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYE1=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=China Residential Call Waiting Deluxe
Interrogation Feature;
```

**Step 2** Provision the Service table:

```
add service id=1; FNAME1=CWD; FNAME2=CWDA; FNAME3=CWDD; FNAME4=CWDI;
```

**Step 3** Provision the VSC table:

```
add vsc FNAME=CWDI; DIGIT-STRING=*56;
add vsc FNAME=CWDA; DIGIT-STRING=*58;
add vsc FNAME=CWDD; DIGIT-STRING=*59;
```

**Step 4** (Optional) Customize the call-waiting indication timeout period (in seconds):

```
change feature fname=CWD; type1=T0; value1=25;
```

**Step 5** (Optional) Customize the RECONNECT-TMR used to time when controlling party goes on-hook but there is at least one party on hold:

```
change ca-config type=RECONNECT-TMR; datatype=INTEGER; value=20;
```

**Step 6** (Optional) Customize the FEATURE-RECONNECT-TMR when invalid/timeout user-interaction:

```
change ca-config type=FEATURE-RECONNECT-TMR; datatype=INTEGER; value=20;
```

## Subscriber Provisioning

**Step 1** Provision the subscriber-service-profile:

```
add subscriber-service-profile sub_id=sub_1; service-id=1;
```

## Centrex Provisioning

For the feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber. In addition, the following step must be performed.

**Step 1** Add the feature into the custom-dial-plan table for the Centrex group:

```
add custom-dial-plan ID=cdp1; DIGIT-STRING=*58*; NOD=VSC; FNAME=CWDA;
CAT-STRING=1111111111111111;
```

```
add custom-dial-plan ID=cdp1; DIGIT-STRING=#58#; NOD=VSC; FNAME=CWDD;
CAT-STRING=1111111111111111;
```

```
add custom-dial-plan ID=cdp1; DIGIT-STRING=*#58*; NOD=VSC; FNAME=CWDI;
CAT-STRING=1111111111111111;
```

---

MLHG provisioning is similar to subscriber provisioning as described above.

## Alternate Activation and Deactivation Method

This feature is deactivated by default when it is assigned to a subscriber. CWD can alternately be activated and deactivated by creating an entry in the Subscriber-feature-data table.

Use a CLI command similar to the following to activate CWD:

```
add subscriber-feature-data sub-id=sub_1; active=Y; fname=CWD;
```

Use a CLI command similar to the following to deactivate CWD:

```
add subscriber-feature-data sub-id=sub_1; active=N; fname=CWD;
```

## Caller ID with Call Waiting

Calling Identity Delivery with Call Waiting (CIDCW) enables you to receive caller ID information about a calling party while talking to another party. This feature allows call waiting and caller ID to work together. If you are talking to one party and are alerted that another call is coming in, you may want to see who is calling before deciding to put the current party on hold and take the call.



**Tip**

For a complete description of this feature, see [Caller Identity Delivery with Call Waiting](#) in the *Network and Subscriber Feature Descriptions*.

---

The following subsections identify the necessary steps for the CIDCW feature to be offered.

## Office Provisioning

**Step 1** Create a feature for CW-Activation:

```
add feature fname=CIDCW; tdp1=T_BUSY; tid1=T_BUSY; ttype1=R; description=Caller Id with
Call Waiting; feature_server_id=FSPTC235;
```

**Step 2** Add a service with these features:

```
add service id=1; FNAME1=CIDCW;
```

---

## Subscriber Provisioning

**Step 1** Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

## Centrex Provisioning

For the feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber.

MLHG provisioning is similar to subscriber provisioning as described above.

## Provisioning Notes/Caveats

The CIDCW feature requires the subscriber to already have the CND or CNAM feature assigned. The CND or CNAM feature enables the subscriber to see the calling party's information while ringing on a basic call and is a prerequisite before subscribing to the CIDCW feature.

## Alternate Activation and Deactivation Method

This feature is activated by default when it is assigned to a subscriber. CIDCW can alternately be activated and deactivated by creating an entry in the Subscriber-feature-data table.

Use a CLI command similar to the following to activate CIDCW:

```
add subscriber-feature-data sub-id=sub_1; active=Y; fname=CIDCW;
```

Use a CLI command similar to the following to deactivate CIDCW:

```
add subscriber-feature-data sub-id=sub_1; active=N; fname=CIDCW;
```

## Caller Name Blocking

The following subsections identify necessary steps for the Caller Name Blocking (CNAB) feature to be offered.

**Note**

The CNAB feature is not supported over SIP trunks.

**Tip**

For a complete description of this feature, see [Caller Identity Delivery Blocking](#) in the *Network and Subscriber Feature Descriptions*.

## Office Provisioning

**Step 1** Create a feature for CNAB:

```
add/change feature FNAME=CNAB; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYPE1=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CNAB;
```

**Step 2** Add a VSC code for CNAB:

```
add vsc fname=CNAB; digit-string=*95;
```

**Step 3** Add a service with the feature:

```
add service id=1; FNAME1=CNAB;
```

**Step 4** Enable (or set as required) the LIDB query flag for Softswitch POPs.

```
change pop id=1; cnam_option=LOCAL_OR_LIDB;
```

---

## Subscriber Provisioning

**Step 1** Assign the service to the subscriber

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

---

## Centrex Provisioning

For the feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber. In addition, the following step is required.

**Step 1** Add the feature into the custom-dial-plan table for the Centrex group:

```
add custom-dial-plan ID=cdp1; DIGIT-STRING=*95; NOD=VSC; FNAME=CNAB;
CAT-STRING=1111111111111111;
```

---

MLHG provisioning is similar to subscriber provisioning as described above.

## Calling Line Identity Presentation, Restriction

Provisioning for the CLIP and CLIR features is identical to CND and CNDB respectively, except for the change in feature-name. (See provisioning for CND and CNDB).



### Note

The CLIP feature is associated with and must be provisioned in combination with CND or CNAM, depending on customer requirements.

---



### Tip

For a complete description of these features, see [Calling Line Identification Presentation](#) and [Calling Line Identification Restriction](#) in the *Network and Subscriber Feature Descriptions*.

---

## Calling Name Delivery

Calling Name Delivery (CNAM) is a service that delivers the name of the calling person, the telephone number, and the local date and time when the call was delivered. Your telephone receiver must be equipped or attached to a caller-ID display device for you to view this information.

**Tip**

For a complete description of this feature, see [Calling Name Delivery](#) in the *Network and Subscriber Feature Descriptions*.

Prior to Release 5.0, a CNAM query is performed when a call is terminated to a subscriber with the CNAM feature. Beginning with Release 5.0, there is a separation of the call management server (CMS) and the media gateway controller (MGC), requiring the CNAM query to be performed at the MGC before routing the call to the CMS. To fulfill this requirement, the BTS 10200 allows the CNAM feature to be assigned to a trunk group.

The following sections explain the steps to provision the CNAM feature.

## Office Provisioning

### Step 1 Create a feature for CNAM:

```
add/change feature FNAME=CNAM; TDP1=FACILITY_SELECTED_AND_AVAILABLE;
TD1=TERMINATION_RESOURCE_AVAILABLE; TTYPE1=R; FEATURE_SERVER_ID=FSPTC325;
DESCRIPTION=CNAM;
```

### Step 2 Add service:

```
add service service-id=1; FNAME1=CNAM;
```

## Provisioning Resources

### Step 1 Provision a signaling gateway:

```
add/change sg id=sg_1; description=signaling gateway 1;
```

### Step 2 Provision a signaling gateway group:

```
add/change sg/grp id=sg_grp1; sg1-id=sg_1; description=signaling gateway group 1;
```

### Step 3 Provision the signaling gateway process:

```
add/change sgp id=itp_7507_1; sg-id=sg_1; description=ITP 7507 for sg_1;
```

### Step 4 Provision the SCTP association profile:

```
add/change sctp-assoc-profile id=sctp_prof; bundle_timeout=500;
max_assoc_retrans=5
max_path_retrans=5
max_rto=6000; min_rto=301;
sack_timeout=101;
hb_timeout=1000;
```

### Step 5 Provision the SCTP associations:

```
add change sctp-assoc id=sctp_assoc1;
sgp-id=itp_7507_1;
sctp-assoc-profile-id=sctp_prof;
remote_port=14001;
remote_tsap_addr1=10.89.232.9;
remote_tsap_addr2=10.89.233.41;
local_revwin=64000;
max_init_retrans=5;
```

```
max_init_rto=1000;
platform_id=FSPTC235;
```

**Step 6** Add DPC

```
add dpc id=stp1;
point-code=1-101-0;
description=STP1, MGTS STP;
```

**Step 7** Add SCCP network:

```
add/change sccp-nw id=1; net=ind=NATIONAL; SUB_SVC=NATIONAL; HOP-Count=10;
```

**Step 8** Add subsystem group:

```
add subsystem-grp id=SSN_CNAM; PLATFORM_ID=FSPTC235; TCAP_VERSION=ANS92;
```

**Step 9** Add subsystem:

```
add subsystem id=SSN_CNAM; opc_id=opc; local-ssn=232; remote-ssn=232; sccp-nw-id=1;
SCCP_VERSION=ANS92; APPLICATION_VERSION=IN1;
```

**Step 10** Add routing key:

```
add routing-key id=rk_cnam; opc-id=opc; sg-grp-id=sg_grp; si=SCCP; rc=204;
PLATFORM_ID=FSPTC235; ssn-id=SSN_CNAM;
```

**Step 11** Add SCCP route:

```
add sccp-route opc_id=opc; dpc_id=stp1; subsystem_grp_id=SSN_CNAM; rk_id=rk_cnam;
```

**Step 12** Add service logic host route (SLHR) profile:

```
add slhr-profile id=slhr_cnam;
```

**Step 13** Add SLHR:

```
add slhr id=slhr_cnam; opc_id=opc; dpc_id=stp1; rk_id=rk_cnam; ssn_id=232; gtt-req=1;
tt=5; GTT_ADDR_TYPE=CLGN; GTT_ADDR=3;
```

**Step 14** Add ca-config type:

```
Add ca-config type=DEFAULT-LIDB-SLHR-ID; type=string; value=slhr_cnam;
```

**Step 15** Place SCTP association in-service (INS):

```
control sctp-assoc id=sctp_assoc1; mode=FORCED; target-state=INS;
```

**Step 16** Place the subsystem group INS:

```
control subsystem-grp id=SSN_CNAM; mode=FORCED; target-state=INS;
```

---

## Subscriber Provisioning

---

**Step 1** Assign the CNAM service to the subscriber:

```
add subscriber-service-profile sub_id-subscriber_1; service-id=1
```

---

## Trunk Group Provisioning

### Step 1 Assign CNAM service to a trunk group:

```
add trunk_grp_service_profile tgn_id=1;service_id=1;
```

The trunk-grp-service-profile table associates a trunk group to services. In the above command, the service-id i= 1 corresponds to CNAM service as provisioned.

In addition to assigning the CNAM service to a trunk group, as described above, for the feature to be fully functional for SS7 and ISDN, additional provisioning is required as follows:

- For an outgoing SS7 trunk group, in order for the calling name information to be included in the IAM, the following parameter needs to be set in the ANSI trunk group profile:

```
change SS7-ansi-tg-profile id=SS7pf1; SEND_GN=Y;
```

- For ISDN NI2, in order for the calling name information to be included in the outgoing SetUp message, the following parameter needs to be set in the ISDN D-channel profile:

```
change ISDN-dchan-profile id=rudp_dchan; FACIL_IE_SUPP=Y;
```

## Centrex Provisioning

Centrex provisioning for the CNAM feature is similar to a POTS subscriber.

## MLHG Provisioning

MLHG provisioning for the CNAM feature is similar to subscriber provisioning.

## Calling Number Delivery

Calling Number Delivery (CND) displays the telephone number of the calling person, along with the local date and time when the call was delivered to your phone line. You can then decide whether or not to accept the call.

Your telephone receiver must be equipped with or attached to a “Caller-ID” display device for you to view the information.



### Tip

For a complete description of this feature, see [Calling Number Delivery](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the CND feature to be offered.

## Office Provisioning

### Step 1 Create a feature for CND:

```
add feature FNAME=CND; TDPl=FACILITY_SELECTED_AND_AVAILABLE;
TID1=TERMINATION_RESOURCE_AVAILABLE; TTYPE1=R; FEATURE_SERVER_ID=FSPTC235;
DESCRIPTION=CND;
```

**Step 2** Add a service with the feature:

```
add service id=1; FNAME1=CND;
```

---

## Subscriber Provisioning

**Step 1** Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

---

## Centrex Provisioning

For the feature, in addition to basic Centrex Office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber.

MLHG provisioning is similar to subscriber provisioning as described above.

## Calling Number Delivery Blocking

The Calling Number Delivery Blocking (CNDB) service provides you with the ability to toggle the status of your number privacy. If you have number privacy, using CNDB you could make the next call number public. On the other hand, if do not have number privacy, you could make the next call number private.

- If a call number is public, your telephone number will be delivered to the person you are calling (the next dialed number) before you go on-hook.
- If a call number is private, your number is not displayed to the called party.

Since this service is on a per call basis, enable CNDB for each calling number when you do not want the called number displayed.



**Tip**

For a complete description of this feature, see [Calling Number Delivery Blocking](#) in the *Network and Subscriber Feature Descriptions*.

---

The following subsections identify necessary steps to activate the CNDB feature.

## Office Provisioning

**Step 1** Create a feature for CNDB:

```
add feature FNAME=CNDB; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CNDB;
```

**Step 2** Add a VSC code for CNDB:

```
add vsc fname=CNDB; digit-string=*67;
```

**Step 3** Add a service with the feature:



```
add service id=1; FNAME1=CNDB;
```

---

## Subscriber Provisioning

---

**Step 1** Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

---

## Centrex Provisioning

For the feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning to a POTS subscriber. In addition, the following step must be performed:

**Step 1** Add the feature into the custom-dial-plan table for the Centrex group:

```
Add custom-dial-plan ID=cdp1; DIGIT-STRING=*67; NOD=VSC; FNAME=CNDB;
CAT-STRING=1111111111111111;
```

---

MLHG provisioning is similar to subscriber provisioning as described above.

## Caller Identity Delivery Suppression–Delivery

Calling Identity Delivery and Suppression (CIDSD) allows a subscriber to explicitly specify on a per-call basis whether both calling name and calling number will be treated as private or public. There are separate star codes for delivery or suppression. If the user enters the code for delivery, then, regardless of the subscriber's default privacy, the name and number will be treated as public. If the user enters the code for suppression, then, likewise, regardless of the default privacy, the user's name and number will be treated as private.



**Tip**

For a complete description of this feature, see [Caller Identity Delivery Suppression–Delivery](#) in the *Network and Subscriber Feature Descriptions*.

---

The following subsections identify necessary steps for the CIDSD feature to be offered.

## Office Provisioning

---

**Step 1** Create a feature for CIDSD:

```
add feature FNAME=CIDSD; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYPE1=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CIDSD;
```

**Step 2** Add a VSC code for CIDSD:

```
add vsc fname=CIDSD; digit-string=*82;
```

**Step 3** Add a service with the feature:

```
add service id=1; FNAME1=CIDSD;
```

---

## Subscriber Provisioning

---

**Step 1** Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

---

## Centrex Provisioning

For the feature, in addition to basic Centrex Office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber. In addition, perform the following step.

**Step 1** Add the feature into the custom-dial-plan table for the Centrex group:

```
Add custom-dial-plan ID=cdp1; DIGIT-STRING=*82; NOD=VSC; FNAME=CIDSD;
CAT-STRING=1111111111111111;
```

---

MLHG provisioning is similar to subscriber provisioning as described above.

## Caller Identity Delivery Suppression–Suppression

**Tip**

For a complete description of this feature, see [Caller Identity Delivery Suppression](#) in the *Network and Subscriber Feature Descriptions*.

---

The following subsections identify necessary steps for the CIDSS feature to be offered.

## Office Provisioning

---

**Step 1** Create a feature for CIDSS:

```
add feature FNAME=CIDSS; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYPE1=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CIDSS;
```

**Step 2** Add a VSC code for CIDSS:

```
add vsc fname=CIDSS; digit-string=*96;
```

**Step 3** Add a service with the feature:

```
add service id=1; FNAME1=CIDSS;
```

---

## Subscriber Provisioning

**Step 1** Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

## Centrex Provisioning

For the feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber. In addition, the following step must be performed.

**Step 1** Add the feature into the Custom-dial-plan table for the Centrex group:

```
Add custom-dial-plan ID=cdp1; DIGIT-STRING=*96; NOD=VSC; FNAME=CIDSS;
CAT-STRING=1111111111111111;
```

MLHG provisioning is similar to subscriber provisioning as described above.

## Cancel Call Waiting

The Cancel Call Waiting (CCW) service allows you to turn off your existing call waiting service for the entire duration of the current call or the next call you plan to make.



**Tip**

For a complete description of this feature, see [Cancel Call Waiting](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the CCW feature to be offered.

## Office Provisioning

**Step 1** Create the feature:

```
add feature FNAME=CCW; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE; TTYPE1=R;
TDP2=O_MID_CALL; TID2=O_SWITCH_HOOK_FLASH_IMMEDIATE; TTYPE2=R; TDP3=T_MID_CALL;
TID3=T_SWITCH_HOOK_FLASH_IMMEDIATE; TTYPE3=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=CCW;
```

**Step 2** Add a VSC code:

```
add vsc fname=CCW; digit-string=*70;
```

**Step 3** Add the service with the feature:

```
add service id=1; FNAME1=CCW;
```

## Subscriber Provisioning

**Step 1** Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

## Centrex Provisioning

For the feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber. In addition, the following step must be performed.

**Step 1** Add the feature into the custom-dial-plan table for the Centrex group:

```
Add custom-dial-plan ID=cdp1; DIGIT-STRING=*70; NOD=VSC; FNAME=CCW;
CAT-STRING=1111111111111111;
```

MLHG provisioning is similar to subscriber provisioning as described above.

## Class of Service Screening

The Class of Service (COS) Screening feature is a screening process based on Class of Service.



**Tip**

For a complete description of this feature, see [Class of Service Restrictions](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps to provision the COS feature.

## Office Provisioning

**Step 1** Register the feature in the Office:

```
Add feature FNAME=COS; tdp1=COLLECTED-INFORMATION; tid1=COS-TRIGGER; ttype1=R;
feature_server_id=FSPTC235; description=Class Of Service; grp_feature=N;
```

**Step 2** Provision the feature into a service package:

```
Add service id=special-srv; fname1=COS;
```



**Note**

This feature can be assigned to any of fnameN tokens

**Step 3** (Optional) Provision a Class of Service restriction class:

```
Add/change cos-restrict id=basic-restrict; casual-restrict-type=<applicable-values>;
national-restrict-type=<applicable-values>; national-wb-list=<applicable-values>;
intl-restrict-type=<applicable-values>; ii-restrict=<applicable-values>;
nod-wb-list=<applicable-values>; acct-code-allow=<applicable-values>;
acct-code-length=<applicable-values>; auth-code-allow=<applicable-values>;
auth-code-length=<applicable-values>; auth-code-grp-id=<applicable-values>;
```

**Step 4** (Optional) Provision cos-restrict related tables based on a given cos-restrict provisioning:

Auth-code-grp, Auth-code, Casual-wb-list, Intl-wb-list, Lata, Lata-map, National-wb-list;

**Step 5** (Optional) The timer to play the prompt tone for account and authorization codes on the media gateway is configurable via CLI. The delayed request applies only to trunks without a main-subscriber or to trunks with a main-subscriber whose category is PBX.

```
change ca-config type=ACCT-CODE-PROMPT-DELAY; datatype=integer; value=200;
change ca-config type=AUTH-CODE-PROMPT-DELAY; datatype=integer; value=250;
```



**Note**

Account codes and auth codes are not supported on ISDN trunks prior to R4.5 release

## Provisioning Resources

**Step 1** (Optional) Provision COS on a given trunk group (if required):

```
Add trunk-grp-feature-data tgn-id=isdn-1; tg=isdn-trunk-1; casual-call=Y/N;
cos-restrict-id=new-age-restriction;
```

## Subscriber Provisioning

**Step 1** Add the service to the subscriber's service profile:

```
add subscriber-service-profile sub-id=sub1_plano.com; service-id=special-srv;
```

**Step 2** (Optional) Add cos-restrict-id to the subscriber table:

```
add subscriber sub-id=sub1_plano.com; cos-restrict-id=new-age-restriction;
```

Centrex and MLHG provisioning is similar to subscriber provisioning as described above.

## Provisioning for IVR Collection of Account/Authorization Codes

**Step 1** Verify ca-config-base entry for default IVR route guide:



**Note**

The value for DEFAULT-IVR-ROUTE-GUIDE-ID must correspond to the entry in the ROUTE-GUIDE table that routes to the default IVR.

```
SHOW CA-CONFIG-BASE TYPE=DEFAULT-IVR-ROUTE-GUIDE-ID; DATATYPE=STRING; VALUE=def_ivr_rg;
```

**Step 2** Define the IVR script profile for the COS feature:

```
add ivr-script-profile fname=COS; ivr-access-mode=IVR; ivr-route-guide-id=cos_ivr_rg;
ivr-script-pkg-type=BAU; multiple-language-suppress=N;
```

**Step 3** Specify the COS default voice back language in the LANGUAGE table:

```
add language id=def;
```

**Step 4** Add an audio segment for the Authorization code prompt:

```
add audio-segment; id=AUTH-PROMPT; type=PHYSICAL; url=http://cos/auth.au;
```

**Step 5** Add an audio segment for the Account code prompt:

```
add audio-segment; id=ACCT-PROMPT; type=PHYSICAL; url=http://cos/acct.au;
```

**Step 6** Add an audio sequence for the Authorization code prompt:

```
add audio-seq id=cos_auth_prm_seq; language_id=def; seq=AUTH-PROMPT;
```

**Step 7** Add an audio sequence for the Account code prompt:

```
add audio-seq id=cos_acct_prm_seq; language_id=def; seq=ACCT-PROMPT;
```



**Note**

The ID values in the audio-seq table should be cos\_auth\_prm\_seq for authorization code prompt and cos\_acct\_prm\_seq for account code prompt as shown in the above steps; otherwise the announcements are not played.

**Step 8** Add/modify configurable timer values for IVR interaction:

```
add feature-config fname=COS; type=FDT_TIMER; datatype=INTEGER; value=100;
```

```
add feature-config fname=COS; type=IDT_TIMER; datatype=INTEGER; value=40;
```

## Subscriber Provisioning

**Step 1** Set prompt method as IVR based for the subscriber/group's COS restriction:

```
change COS-RESTRICT id=test; PROMPT-METHOD=IVR;
```

**Step 2** Set the ALLOW-CALLS-ON-IVR-FAILURE parameter in the subscriber's effective cos-restrict:

```
change cos-restrict id=test; ALLOW-CALLS-ON-IVR-FAILURE=Y;
```

## Centrex Provisioning

Provisioning is similar to subscriber provisioning and basic Centrex provisioning.

## Codec Negotiation

Codec negotiation is a process that is used during call transition states to change from the selected codec to a different one. Codec negotiation allows calls to be started using a certain low speed codec (for example, on-net calls) and, depending on the features used, a different codec may be needed to complete the feature call. Thus the codec is first selected and then negotiated as necessary for transition states in the call.

**Note**

---

Codec selection and negotiation work together.

---

## Codec Selection

Codec selection allows calls to be established using a variety of encoding and decoding DSP devices (codec) to compress voice for transmission via the RTP. With the proper codec selection for calls, bandwidth can be conserved, allowing more calls to be carried on the same equipment and improving the economics of the VoIP solution.

## Custom Dial Plan

The following subsections identify necessary steps for provisioning the Custom Dial Plan (CDP) feature.

### Office Provisioning

---

**Step 1** Provision the Feature table:

```
add feature FNAME=CDP; TDP1=COLLECTED_INFORMATION; TID1=CUSTOMIZE_DIALING_PLAN; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=Custom Dial Plan Feature;
```

**Step 2** Provision the Service table:

```
add service id=2; FNAME1=CDP;
```

---

### Centrex Provisioning

---

**Step 1** Provision the subscriber-service-profile:

```
add subscriber-service-profile sub_id=sub_1; service-id=2;
```

---

### MLHG Provisioning

MLHG provisioning is only applicable for MLHG-CTX and is similar to Centrex provisioning.

### Provisioning Notes/Caveats

The CDP feature should be assigned to every Centrex category user.

## Customer Originated Trace

The Customer Originated Trace (COT) feature allows subscribers to generate a record of an incoming harassing call. The data that will be recorded is the date and time of the trace, the calling DN, the unique/non-unique nature of the calling DN, the customer's DN, the customer's termination id, answer indication, call-waited indication, and the date/time of the call. This feature works with announcements or tones to prompt the user to generate a trace.



### Tip

For a complete description of this feature, see [Customer Originated Trace](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the COT feature to be offered.

## Office Provisioning

### Step 1 Create the feature:

```
add feature fname=COT; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE; ttype1=R;
description=Customer Originated Trace; feature_server_id=FSPTC235;
```

### Step 2 Add the VSC code:

```
add vsc fname=COT; digit_string=*57;
```

### Step 3 (Optional) For Usage-Sensitive COT behavior in the switch, add the ca-config table if your default office service id needs to be different from factory assigned defaults:

```
change ca-config type=DEFAULT-OFFICE-SERVICE-ID; datatype=string; value=467;
```

### Step 4 (Optional) For Usage-Sensitive COT, add the COT feature to the default office service id:

```
Add service id=467; FNAME1=COT;
```

## Subscriber Provisioning

### Step 1 Add the COT feature to a service set:

```
Add service id=special-srv; fname=COT;
```

### Step 2 Add the service to the subscriber's service profile:

```
add subscriber-service-profile sub-id=sub1_plano.com; service-id=special-srv;
```

### Step 3 (Optional) The operator may optionally deny originating a COT service on a subscribers line:

```
add subscriber-feature-data sub-id=sub1_plano.com; type1=DENIED; value1=Y;
```

### Step 4 (Optional) Change the subscriber's Usage Sensitivity feature applicability flag (if required):

```
change subscriber id=sub1_plano.com; USAGE-SENS=Y;
```



## Centrex Provisioning

**Step 1** Add an entry in the CDP table:

```
add cdp id=cdp1; DIGIT_STRING=*57; NOD=VSC; FNAME=COT;
```

MLHG provisioning is similar to subscriber provisioning as described above.

## Direct Call Pickup Without Barge-In

Direct Call Pickup (DPN) allows a user in a basic business group (BBG) to answer a call to a telephone from another telephone within the business group.

Directed Call Pickup has two versions, with and without barge-in capability.



**Tip**

For a complete description of this feature, see [Direct Call Pickup](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the DPN feature to be offered:

## Office Provisioning

**Step 1** Provision the feature table:

```
add feature FNAME=DPN; FEATURE_SERVER_ID=FSPTC235; GRP_FEATURE=N; DESCRIPTION=Direct Call Pickup Without Barge-In Feature;
```

**Step 2** Provision the service table:

```
add service ID=2; FNAME1=DPN;
```

## Centrex Provisioning

**Step 1** Provision the subscriber-service profile:

```
add subscriber-service-profile SUB_ID=SUB_1; SERVICE-ID=2;
```

**Step 2** Add the feature into the custom-dial-plan table for the Centrex group:

```
add custom-dial-plan ID=cdp1; DIGIT-STRING=*23; NOD=VSC; FNAME=DPN; CAT-STRING=1111111111111111;
```

## MLHG Provisioning

Applicable for MLHG\_CTX only; provisioning is similar to Centrex provisioning.

## Direct Call Pickup With Barge-In (DPU)

The following subsections identify necessary steps to provision Direct Call Pickup with barge-in:

### Office Provisioning

**Step 1** Provision the feature table:

```
add feature FNAME=DPU; FEATURE_SERVER_ID=FSPTC235; GRP_FEATURE=N; DESCRIPTION=Direct Call
Pickup With Barge-In Feature;
```

**Step 2** Provision the Service table:

```
add service ID=2; FNAME1=DPU;
```

### Centrex Provisioning

**Step 1** Provision the subscriber-service-profile:

```
add subscriber-service-profile SUB_ID=SUB_1; SERVICE-ID=2;
```

**Step 2** Add the feature into the custom-dial-plan table for the Centrex group:

```
add custom-dial-plan ID-cdp1; DIGIT-STRING=*24; NOD-VSC; FNAME-DPU;
CAT-STRING=1111111111111111;
```

### MLHG Provisioning

This feature is applicable for MLHG\_CTX only. MLHG provisioning is similar to Centrex provisioning.

## Distinctive Alerting/Call Waiting Indication

The Distinctive Alerting/Call Waiting Indication (DA/CWI) feature provides Centrex users special ringing and CW tones on DID calls. This feature is available only to Centrex subscribers.



#### Note

For the distinctive call-waiting tones to be played, either the [Call Waiting](#) feature or the [Call Waiting Deluxe](#) feature must also be assigned and active on the subscriber line.



#### Tip

For a complete description of this feature, see [Distinctive Alerting/Call Waiting Indication](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps to offer the DA/CWI feature.

## Office Provisioning

### Step 1 Provision the Feature table:

```
add feature FNAME=DACWI; TDP1=TERMINATION_ATTEMPT_AUTHORIZED;
TID1=TERMINATION_ATTEMPT_AUTHORIZED; TTYPE1=R; FEATURE_SERVER_ID=FSPTC235;
GRP_FEATURE=N; DESCRIPTION=Distinctive Alerting / Call Waiting Indication Feature;
```

### Step 2 Provision the Service table:

```
add service id=2; FNAME1=DACWI;
```

## Subscriber Provisioning

The DA/CWI feature applies only to a Centrex group.

## Centrex Provisioning

### Step 1 Provision the subscriber-service-profile:

```
add subscriber-service-profile sub_id=sub-1; service-id=2;
```

## MLHG Provisioning

This feature is only applicable to MLHG-CTX. MLHG provisioning is similar to Centrex provisioning.

## Do Not Disturb

The Do Not Disturb (DND) feature, based on the Telcordia document SR-504 SPCS Capabilities and Features, (FSD-01-02-0750), routes incoming calls either to a special do not disturb announcement or to a special tone.

A single flash ring, called a reminder ring, can be played to the DND user. This feature option is provisioned in the feature table. See Office Provisioning, Step 5.



#### Note

The reminder ring, as provisioned in Office Provisioning, Step 5, is not supported for SIP subscribers.



#### Tip

For a complete description of this feature, see [Do Not Disturb](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps to provision the DND feature.

## Office Provisioning

### Step 1 Create a feature for DND-Activation:

```
add feature FNAME=DND_ACT; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
FEATURE_SERVER_ID=FSPTC235; TTYPE1=R; DESCRIPTION=DND Activation; GRP_FEATURE=N;
```

**Step 2** Create a feature for DND-Deactivation:

```
add feature FNAME=DND_DEACT; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYPE1=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=DND Deactivation; GRP_FEATURE=N;
```

**Step 3** Create a feature for DND:

```
add feature FNAME=DND; TDP1=TERMINATION_ATTEMPT_AUTHORIZED;
TID1=TERMINATION_ATTEMPT_AUTHORIZED; TTYPE1=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=Do
not disturb; GRP_FEATURE=N;
```

**Step 4** Create the VSC codes in the VSC table:

```
add vsc DIGIT_STRING=*78; FNAME=DND_ACT
add vsc DIGIT_STRING=*79; FNAME=DND_DEACT;
```

**Step 5** Create the reminder ring feature:

```
add/change subscriber_feature_data fname=DND; sub_id=<sub id>; type1=RR; value1=Y;
```

## Subscriber Provisioning

**Step 1** Create the service with these features:

```
add service id=1; fname1=DND; fname2=DNDA; fname3=DNDD;
```

**Step 2** Assign the service to the subscriber:

```
add/change subscriber-service-profile; sub-id=<sub id>; service-id=1;
```

## Centrex Provisioning

**Step 1** Create an entry in the CDP table:

```
add/change cdp; id=cdp1; DIGIT_STRING=*78; NOD=VSC; FNAME=DND_ACT;
CAT_STRING=1111111111111111
```

```
add/change cdp; id=cdp1; DIGIT_STRING=*79; NOD=VSC; FNAME=DND_DEACT;
CAT_STRING=1111111111111111;
```

MLHG provisioning is similar to subscriber provisioning as described above.

## Alternate Activation and Deactivation Method

This feature is deactivated by default when it is assigned to a subscriber. DND can alternately be activated and deactivated by creating an entry in the Subscriber-feature-data table.

Use a CLI command similar to the following to activate DND:

```
add subscriber-feature-data sub-id=sub_1; active=Y; fname=DND;
```

Use a CLI command similar to the following to deactivate DND:

```
add subscriber-feature-data sub-id=sub_1; active=N; fname=DND;
```

## Group Speed Call: 1-Digit and 2-Digit



### Tip

For a complete description of this feature, see [Group Speed Call](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the GSC1D and GSC2D features to be offered.

## Office Provisioning

### Step 1 Add the Group 1 digit speed call feature:

```
add feature fname=GSC1D; tdp1=COLLECTED_INFORMATION; tid1=SC1D_TRIGGER; ttype1=R;
description=Group One Digit Speed Call Activation; feature_server_id=FSPTC235;
```

### Step 2 Add the Group 2 digit speed call feature:

```
add feature fname=GSC2D; tdp1=COLLECTED_INFORMATION; tid1=SC2D_TRIGGER;
ttype1=R; description=Group Two Digit Speed Call Activation;
feature_server_id=FSPTC235;
```

### Step 3 Create a service with all the Group speed call features:

```
Add service id=499; fname1=GSC1D; fname2=GSC2D;
```

## Subscriber Provisioning

### Step 1 Provision the Subscriber-service-profile table Add the service to the subscriber:

```
Add sub-service-profile sub-id=sub_1_4; service-id=499;
```

## Centrex Provisioning

In addition to subscriber provisioning, provision the Custom Dial Plan (CDP) Table:

### Step 1 Provision the Custom-dial-plan table:

```
add custom-dial-plan ID=cdp1; DIGIT-STRING=2; NOD=SPEED-CALL; FNAME=SC1D;
CAT-STRING=1111111111111111;
add custom-dial-plan ID=cdp1; DIGIT-STRING=3; NOD=SPEED-CALL; FNAME=SC1D;
CAT-STRING=1111111111111111;
add custom-dial-plan ID=cdp1; DIGIT-STRING=4; NOD=SPEED-CALL;
FNAME=SC1D; CAT-STRING=1111111111111111;
add custom-dial-plan ID=cdp1; DIGIT-STRING=5; NOD=SPEED-CALL;
FNAME=SC1D; CAT-STRING=1111111111111111;
add custom-dial-plan ID=cdp1; DIGIT-STRING=6; NOD=SPEED-CALL;
FNAME=SC1D; CAT-STRING=1111111111111111;
add custom-dial-plan ID=cdp1; DIGIT-STRING=7; NOD=SPEED-CALL;
FNAME=SC1D; CAT-STRING=1111111111111111;
```

```

add custom-dial-plan ID=cdp1; DIGIT-STRING=2x; NOD=SPEED-CALL;
FNAME=SC2D; CAT-STRING=1111111111111111;
add custom-dial-plan ID=cdp1; DIGIT-STRING=3x; NOD=SPEED-CALL;
FNAME=SC2D; CAT-STRING=1111111111111111;
add custom-dial-plan ID=cdp1; DIGIT-STRING=4x; NOD=SPEED-CALL;
FNAME=SC2D; CAT-STRING=1111111111111111;

```

MLHG provisioning is similar to subscriber provisioning as described above.

## Alternate Provisioning Method

GSC1D can alternately be provisioned or removed by creating an entry in the SC1D table.

Use a CLI command similar to the following to provision the GSC1D code:

```
add sc1d sub-id=sub_1; dnx=4692551001;
```

Use a CLI command similar to the following to remove provisioning for the GSC1D code:

```
add sc1d sub-id=sub_1; dnx=NULL;
```



### Note

dnx can be one of {dn1, dn2, dn3, ..., dn9}. For a Centrex subscriber, it can only be one of {dn2, dn3, ..., dn7}



### Note

For a Centrex user, the sub-id should be the main subscriber id defined in the Centrex-grp table.

GSC2D can alternately be provisioned or removed by creating an entry in the SC2D table.

Use a CLI command similar to the following to provision the GSC2D code:

```
add sc2d sub-id=sub_1; dnx=4692551001;
```

Use a CLI command similar to the following to remove provisioning for the GSC2D code:

```
add sc2d sub-id=sub_1; dnx=NULL;
```



### Note

dnx can be one of {dn20, dn21, ..., dn49}.



### Note

For a Centrex user, the sub-id should be the main subscriber id defined in the Centrex-Grp table.

## Hotline

The Hotline feature enables you to get connected to a pre-defined telephone user by lifting the handset. The Hotline feature can be used as a special high priority line or for a frequently called number.



### Tip

For a complete description of this feature, see [Hotline](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the Hotline feature to be offered.

## Office Provisioning

---

**Step 1** Register the feature in the Office:

```
Add feature FNAME=HOTLINE; tdp1=O_ATTEMPT_AUTHORIZED; tid1=O_ATTEMPT_AUTHD; ttype1=R;
feature_server_id=FSPTC235; description=Hotline; grp_feature=N;
```

**Step 2** Provision the feature into a service package:

```
Add service id=special-srv; fname1=HOTLINE;
```

**Note**

This feature may be assigned to any of fnameN tokens

---

## Provisioning Resources

---

**Step 1** The mgw-profile of the media gateway to which subscriber line is associated must have its MGCP version set as “non-0.1”:

```
add/change mgw-profile id=plano-iad; mgcp-version=MGCP_1_0;
```

**Note**

MGCP 0.1 version does not support TO signal completion report.

---

**Step 2** Set the Dial-Tone timeout as a supported feature by the MGW:

```
add/change mgw-profile id=plano-iad; mgcp-to-supp=Y;
```

---

## Subscriber Provisioning

---

**Step 1** Add the service to the subscriber’s service profile:

```
add subscriber-service-profile sub-id=sub1_plano.com; service-id=special-srv;
```

**Step 2** Add the Hotline target DN to the subscriber’s feature data:

```
add subscriber-feature-data sub-id=sub1_plano.com; fname=HOTLINE; type1=FDN1;
value1=9726712355;
```

---

## Centrex Provisioning

Centrex and MLHG provisioning is similar to subscriber provisioning as described above.

## Hotline—Variable


**Tip**

For a complete description of this feature, see [Hotline—Variable](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the Hotline—Variable (HOTV) feature to be offered.


**Note**

Provisioning the HOTV (invocation) feature is exactly the same as the Warmline feature except for the feature name.

## Office Provisioning

**Step 1** Register the features in the Office:

```
Add feature FNAME=HOTVx; tdp1=COLLECTED-INFORMATION; tid1=VERTICAL-SERVICE-CODE; ttype1=R;
feature_server_id=FSPTC235; description=Hotline-Variable Act / Deact; grp_feature=N;
```


**Note**

HOTVx is interchangeably referred to here for HOTVA, HOTVD, and HOTVI features.

**Step 2** Add the VSC code for HOTVA:

```
add vsc fname=HOTVA; digit-string=*52*;
```

**Step 3** Add the VSC code for HOTVD:

```
add vsc fname=HOTVD; digit-string=#52#;
```

**Step 4** Add the VSC code for HOTVI:

```
add vsc fname=HOTVI; digit-string=*#52*;
```

**Step 5** Add a service with these features:

```
add service id=special-srv; FNAME1=HOTV; FNAME2=HOTVA; FNAME3=HOTVD; FNAME4=HOTVI;
```

**Step 6** (Optional) Provision an exception call-type list for the Hotline service. Multiple call types can be entered:

```
Add nod-restrict-list fname1=HOTV; call-type=EMG;
```


**Note**

HOTVx is interchangeably referred to here for HOTVA, HOTVD, and HOTVI features.

**Step 7** (Optional) Change the HOTV dial-tone timeout parameter (if need to customize):

```
Add/change feature FNAME=HOTV; type1=TO; value1=6;
```


**Note**

The internal default is 4 seconds.



## Provisioning Resources

- Step 1** The mgw-profile of the media gateway to which the subscriber line is associated must have its MGCP version set as “non-0.1”:

```
add/change mgw-profile id=plano-iad; mgcp-version=MGCP_1_0;
```



**Note** MGCP 0.1 version does not support TO signal completion report.

- Step 2** Set the Dial-Tone timeout as a supported feature by the MGW:

```
add/change mgw-profile id=plano-iad; mgcp-to-supp=Y;
```

## Subscriber Provisioning

- Step 1** Add the service to the subscriber's service profile:

```
add subscriber-service-profile sub-id=sub1_plano.com; service-id=special-srv;
```

## Centrex Provisioning

For the feature, in addition to basic Centrex Office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber. In addition, the following steps must be performed.

- Step 1** Add the feature into the custom-dial-plan table for the Centrex group:

```
Add/change custom-dial-plan ID=cdp1; DIGIT-STRING=*52*; NOD=VSC; FNAME=HOTVA;
CAT-STRING=1111111111111111;
```

```
add/change custom-dial-plan ID=cdp1; DIGIT-STRING=#52#; NOD=VSC; FNAME=HOTVD;
CAT-STRING=1111111111111111;
```

```
add/change custom-dial-plan ID=cdp1; DIGIT-STRING=*#52*; NOD=VSC; FNAME=HOTVI;
CAT-STRING=1111111111111111;
```

MLHG provisioning is similar to subscriber provisioning as described above.

## Alternate Activation and Deactivation Method

This feature is deactivated by default when it is assigned to a subscriber. HOTV can alternately be activated and deactivated by creating an entry in the Subscriber-feature-data table.

Use a CLI command similar to the following to activate HOTV:

```
add subscriber-feature-data sub-id=sub_1; active=Y; fname=HOTV; type1=FDN1;
value1=4692551001;
```

**Note**


---

The value should be the Hotline DN.

---

Use a CLI command similar to the following to deactivate HOTV:

```
add subscriber-feature-data sub-id=sub_1; active=N; fname=HOTV;
```

## Incoming Simulated Facility Group

The following subsections identify necessary steps for the Incoming Simulated Facility Group (ISFG) feature to be offered.

### Office Provisioning

---

**Step 1** Provision the Feature table:

```
add feature FNAME=ISFG; TDP1=TERMINATION_ATTEMPT_AUTHORIZED;
TID1=TERMINATION_ATTEMPT_AUTHORIZED; TTYPE1=R; FEATURE_SERVER_ID=FSPTC235;
GRP_FEATURE=N; DESCRIPTION=Incoming Simulated Facility Group Feature;
```

**Step 2** Provision the Service table:

```
add service id=2; FNAME1=ISFG;
```

---

### Centrex Provisioning

---

**Step 1** Provision the subscriber-service-profile:

```
add subscriber-service-profile sub_id=sub_1; service-id=2;
```

**Step 2** Provision CTXG:

```
Change ctxg ID=ctxg1; SFG_CONTROL=Y; IN_SFG_COUNT=3; OUT_SFG_COUNT=3; BOTH_SFG_COUNT=4;
```

---

This feature is only applicable to MLHG-CTX. MLHG provisioning is similar to Centrex provisioning as described above.

### Provisioning Notes/Caveats

SFG controls will be effective only if the subscriber(s) are assigned SFG features and the Centrex-grp table has the SFG-Control flag set to Y.

## IP Transfer Point Non–Stop Operation

The IP Transfer Point (ITP) Non-Stop Operation (NSO) feature enhances the current ITP high availability support on the Cisco 7500 platform. It allows an ITP running on a Cisco 7500 router to continue operation in the event of a Route/Switch Processor (RSP) failure. The NSO feature supports two Signaling Gateway Platforms (SGPs) per Signaling Gateway (SG) in a Signaling Gateway Group (SG-grp) for mated Signal Transfer Points (STPs) and also supports the Sigtran M3UA and Single User Account (SUA) Application Server Process (ASP) load-share traffic modes.

The following steps are necessary for provisioning the NSO feature.

### NSO Configuration: D-Link for ISUP with ASP Load Sharing

Perform the following steps to provision an NSO D-Link configuration for ISUP with ASP load sharing.

- 
- Step 1** Add the Signaling Gateways with internal redundancy mode set to SSO-NSO.
- ```
add sg id=sgw100; internal_redundancy_mode=SSO-NSO;description=SS7 Signaling Gateway ANSI
testing;priority=1;

add sg id=sgw110; internal_redundancy_mode=SSO-NSO;description=SS7 Signaling Gateway ANSI
testing;priority=1;
```
- Step 2** Add the Signaling Gateway Group for STP (Mated STP) mode.
- ```
add sg-grp id=sg-grp100; sg1-id=sgw100;sg2-id=sgw110; sg-grp-mode=Mated_STP;description=SG
Group for ANSI testing;
```
- Step 3** Add 2 Signaling Gateway Process (SGP) for each Signaling Gateway
- ```
add sgp id=sgw100-sgp1; sg-id=sgw100; description=SGP on ITP va-7507-3;
add sgp id=sgw100-sgp2; sg-id=sgw100; description=SGP on ITP va-7507-3;

add sgp id=sgw110-sgp1; sg-id=sgw110; description=SGP on ITP va-7507-6;
add sgp id=sgw110-sgp2; sg-id=sgw110; description=SGP on ITP va-7507-6;
```
- Step 4** Add the OPC and ISUP DPCs.
- ```
add opc id=opc1; point-code=250-250-3; point-code-type=ANSI_CHINA;description= Network
Point Code 1;
add dpc id=hollyville; point-code=250-248-4; point-code-type=ANSI_CHINA; description=ANSI
SS7 network DPC;
add dpc id=havenville; point-code=250-248-6; point-code-type=ANSI_CHINA; description=ANSI
SS7 network DPC;
```
- Step 5** Add the SCTP association profile.
- ```
add sctp-assoc-profile id=sctp_pf100;
```
- Step 6** Add the SCTP associations to each Signaling Gateway.
- ```
add sctp-assoc id=CA-assoc1; sgp-id=sgw100-sgp1;sctp_assoc-profile-id=sctp_pf100;
platform-id=CA146; remote-port=2905; REMOTE_TSAP_ADDR1=10.0.1.230;
add sctp-assoc id=CA-assoc2; sgp-id=sgw100-sgp2;sctp_assoc-profile-id=sctp_pf100;
platform-id=CA146; remote-port=2907; REMOTE_TSAP_ADDR1=10.128.7.8;

add sctp-assoc id=CA-assoc3; sgp-id=sgw110-sgp1;sctp_assoc-profile-id=sctp_pf100;
platform-id=CA146; remote-port=2905; remote-tsap-addr1=10.0.5.216;
add sctp-assoc id=CA-assoc4; sgp-id=sgw110-sgp2;sctp_assoc-profile-id=sctp_pf100;
platform-id=CA146; remote-port=2907; remote-tsap-addr1=10.128.2.7;
```

**Step 7** Add the ISUP routing key.

```
add routing-key id=NewMatedSG-rk; opc-id=opc1; sg-grp-id=sg-grp100; si=ISUP;
platform-id=CA146; rc=60; description=Dual processor Signaling Gateway;
```

**Step 8** Add call control routes for each ISUP DPC.

```
add call-ctrl-route id=holly-ccr; routing-key-id=NewMatedSG-rk; dpc-id=hollyville;
user-part-variant-id=ANSISS7_GR317; si=ISUP; description=Call Control Route for ANSI ISUP
DPC;
```

```
add call-ctrl-route id=haven-ccr; routing-key-id=NewMatedSG-rk; dpc-id=havenville;
user-part-variant-id=ANSISS7_GR317; si=ISUP; description=Call Control Route for ANSI ISUP
DPC;
```

**Step 9** Add the SS7 trunk group, trunks, routing to the SS7 network destination, dial plan and equip the trunk group terminations according to your network setup, if not already done so.

**Step 10** Control CA SCTP-assoc INS

```
control sctp-assoc id=CA-assoc1;mode=forced;target-state=ins;
control sctp-assoc id=CA-assoc2;mode=forced;target-state=ins;
```

```
control sctp-assoc id=CA-assoc3;mode=forced;target-state=ins;
control sctp-assoc id=CA-assoc4;mode=forced;target-state=ins;
```

## NSO Configuration: D-link for TCAP with ASP Load Sharing

Perform the following steps to provision a D-link for TCAP NSO configuration with ASP load sharing.

**Step 1** Add the Signaling Gateways with internal redundancy mode set to SSO-NSO.

```
add sg id=sgw100; internal_redundancy_mode=SSO-NSO;description=SS7 Signaling Gateway ANSI
testing;priority=1;
```

```
add sg id=sgw110; internal_redundancy_mode=SSO-NSO;description=SS7 Signaling Gateway ANSI
testing;priority=1;
```

**Step 2** Add the Signaling Gateway Group for STP (Mated STP) mode

```
add sg-grp id=sg-grp100; sg1-id=sgw100;sg2-id=sgw110; sg-grp-mode=Mated_STP;description=SG
Group for ANSI testing;
```

**Step 3** Add 2 Signaling Gateway Process (SGPs) for each Signaling Gateway

```
add sgp id=sgw100-sgp1; sg-id=sgw100; description=SGP on ITP va-7507-3;
add sgp id=sgw100-sgp2; sg-id=sgw100; description=SGP on ITP va-7507-3;
add sgp id=sgw110-sgp1; sg-id=sgw110; description=SGP on ITP va-7507-6;
add sgp id=sgw110-sgp2; sg-id=sgw110; description=SGP on ITP va-7507-6;
```

**Step 4** ADD OPC & TCAP DPC's

```
add opc id=opc1; point-code=250-250-3; point-code-type=ANSI_CHINA;description= Network
Point Code 1;
add dpc id=cap_dpc1;point-code=1-101-0;point-code-type=ANSI_CHINA;description=Capability
Point Code for remote STP with GTT;
add dpc id=office2; point-code=250-250-3; description= Destination point code for IMT;
```

**Step 5** FSAIN & FSPTC feature server SCTP associations for LNP, 800, CNAM & AC/AR services

```

add sctp-assoc id=FSAIN-assoc1; sgp-id=sgw100-sgp1;
sctp_assoc-profile-id=sctp_pf100;platform-id=FSAIN205;
remote-port=14001;REMOTE_TSAP_ADDR1=10.0.1.230;
add sctp-assoc id=FSAIN-assoc2; sgp-id=sgw100-sgp2; sctp_assoc-profile-id=sctp_pf100;
platform-id=FSAIN205; remote-port=14002; REMOTE_TSAP_ADDR1=10.128.7.8;
add sctp-assoc id=FSAIN-assoc3; sgp-id=sgw100-sgp1;
sctp_assoc-profile-id=sctp_pf100;platform-id=FSPTC235;
remote-port=14001;REMOTE_TSAP_ADDR1=10.0.1.230;
add sctp-assoc id=FSAIN-assoc4; sgp-id=sgw100-sgp2; sctp_assoc-profile-id=sctp_pf100;
platform-id=FSPTC235; remote-port=14002; REMOTE_TSAP_ADDR1=10.128.7.8;
add sctp-assoc id=FSPTC-assoc1; sgp-id=sgw110-sgp1; sctp_assoc-profile-id=sctp_pf100;
platform-id=FSAIN205; remote-port=14001;REMOTE_TSAP_ADDR1=10.0.5.216;
add sctp-assoc id=FSPTC-assoc2; sgp-id=sgw110-sgp2; sctp_assoc-profile-id=sctp_pf100;
platform-id=FSAIN205;remote-port=14002;REMOTE_TSAP_ADDR1=10.128.2.7;
add sctp-assoc id=FSPTC-assoc3; sgp-id=sgw110-sgp1;
sctp_assoc-profile-id=sctp_pf100;platform-id=FSPTC235;
remote-port=14001;REMOTE_TSAP_ADDR1=10.0.5.216;
add sctp-assoc id=FSPTC-assoc4; sgp-id=sgw110-sgp2; sctp_assoc-profile-id=sctp_pf100;
platform-id=FSPTC235; remote-port=14002; REMOTE_TSAP_ADDR1=10.128.2.7;

```

#### Step 6 Add the LNP, CNAM & 800 features

```

add feature fname=LNP; feature-server-id=FSAIN205; description=Local number portability;
tdp1=COLLECTED_INFORMATION; tid1=LNP_TRIGGER; ttype1=R;
add feature fname=8XX; tdp1=COLLECTED_INFORMATION; tid1=SPECIFIC_DIGIT_STRING; ttype1=R;
description=Toll Free Number; feature_server_id=FSAIN205;
add feature fname=CNAM;tdp1=FACILITY_SELECTED_AND_AVAILABLE;
tid1=TERMINATION_RESOURCE_AVAILABLE; ttype1=R; description=Calling Name;
feature_server_id=FSPTC235;
add feature fname=AC; fname1=AC_ACT; fname2=AC_DEACT; feature_server_id=FSPTC235;
add feature fname=AR; fname1=AR_ACT; fname2=AR_DEACT; feature_server_id=FSPTC235;

```

#### Step 7 Add SCCP Network for TCAP services

```

add sccp-nw id=6;net-ind=NATIONAL;sub-svc=NATIONAL;hop-count=3;

```

#### Step 8 Add SSN profile

```

add subsystem-grp id=SSN_LNP1;platform-id=FSAIN205;tcap-version=ANS92; description=SS grp
profile for LNP svc;
add subsystem-grp id=SSN_AIN_800_1; platform-id=FSAIN205;tcap-version=ANS92;
description=SSN grp profile for 800 svc;
add subsystem-grp id=SSN_CNAM1; platform-id=FSPTC235;tcap-version=ANS92; description=SSN
grp profile for CNAM svc;
add subsystem-grp id=SSN_ACAR1; platform-id=FSPTC235;tcap-version=ANS92; description=SSN
grp profile for AC/AR svc;

```

#### Step 9 Add Subsystem

```

add subsystem id=SSN_LNP1; opc-id=opc1; local-ssn=247;remote-ssn=247;
sccp-nw-id=6;sccp-version=ANS92; application-version=AIN01;
add subsystem id=SSN_AIN_800_1; opc-id=opc1; local-ssn=248;remote-ssn=248;
sccp-nw-id=6;sccp-version=ANS92; application-version=AIN01;
add subsystem id=SSN_CNAM1; opc-id=opc1; local-ssn=232;remote-ssn=232; sccp-nw-id=6;
sccp-version=ANS92; application-version=IN1;
add subsystem id=SSN_ACAR1; opc-id=opc1;
local-ssn=251;remote-ssn=251;sccp-nw-id=6;sccp-version=ANS92;APPLICATION_VERSION=IN1;

```

#### Step 10 Add routing Key for FSPTC & FSAIN

```

add routing-key id=NewMatedSG-rk1; opc-id=opc1;
sg-grp-id=sg-grp100;si=sccp;subsystem-grp-id=SSN_LNP1;platform-id=FSAIN205; rc=161;
description=Routing Key for SUA User Adaptation layer;

```

```

add routing-key id=NewMatedSG-rk2; opc-id=opc1; sg-grp-id=sg-grp100;
si=sccp; subsystem-grp-id=SSN_AIN_800_1; platform-id=FSAIN205; rc=162; description=Routing
Key for SUA User Adaptation layer in FSAIN205;
add routing-key id=NewMatedSG-rk3; opc-id=opc1; sg-grp-id=sg-grp100;
si=sccp; subsystem-grp-id=SSN_CNAM1; platform-id=FSPTC235; rc=163; description=Routing Key
for SUA User Adaptation layer in FSPTC235;
add routing-key id=NewMatedSG-rk4; opc-id=opc1;
sg-grp-id=sg-grp100; si=sccp; subsystem-grp-id=SSN_ACR1; platform-id=FSPTC235;
rc=164; description=Routing Key for SUA User Adaptation layer in FSPTC235;

```

**Step 11** Add SCCP routes for LNP, CNAM, 800 and ACR

```

add sccp-route opc-id=opc1; dpc-id=cap_dpc1; rk-id=NewMatedSG-rk1;
subsystem-grp-id=SSN_LNP1; description=SCCP route for FSAIN LNP service;
add sccp-route
opc-id=opc1; dpc-id=cap_dpc1; rk-id=NewMatedSG-rk2; subsystem-grp-id=SSN_AIN_800_1; descriptio
n=SCCP route for 800 service in FSAIN;
add sccp-route
opc-id=opc1; dpc-id=cap_dpc1; rk-id=NewMatedSG-rk3; subsystem-grp-id=SSN_CNAM1; description=
SCCP route for FSPTC CNAM service;
add sccp-route
opc-id=opc1; dpc-id=office2; rk-id=NewMatedSG-rk4; subsystem-grp-id=SSN_ACR1; description=
SCCP route for FSPTC ACAR service;
add call-ctrl-route id=office2-ccr;
routing-key-id=NewMatedSG-rk; dpc-id=office2; user-part-variant-id=ANSISS7_GR317; si=ISUP;
description=Call Control Route for Office2 destination;

```

**Step 12** Add SS7 trunk group for AC/AR service, the Call Agent configuration for TCAP services, the SLHR profile, the SLHR, and configure the 800 dialing and ported office codes for your network setup.

**Step 13** Control FSAIN SCTP association into service.

```

control sctp-assoc id=FSAIN-assoc1; mode=forced; target-state=ins;
control sctp-assoc id=FSAIN-assoc2; mode=forced; target-state=ins;
control sctp-assoc id=FSAIN-assoc3; mode=forced; target-state=ins;
control sctp-assoc id=FSAIN-assoc4; mode=forced; target-state=ins;

```

**Step 14** Control the FSPTC SCTP association into service.

```

control sctp-assoc id=FSPTC-assoc1; mode=forced; target-state=ins;
control sctp-assoc id=FSPTC-assoc2; mode=forced; target-state=ins;
control sctp-assoc id=FSPTC-assoc3; mode=forced; target-state=ins;
control sctp-assoc id=FSPTC-assoc4; mode=forced; target-state=ins;

```

## Limited Call Duration

The Cisco BTS 10200 Softswitch supports the Limited Call Duration (LCD) feature, including both prepaid and postpaid services. This support includes interfaces to an authentication, authorization, and accounting (AAA) server. The LCD feature can be assigned to any Cisco BTS 10200 Softswitch subscriber with any phone type, including Media Gateway Control Protocol (MGCP)-based, Session Initiation Protocol (SIP)-based, and network-based call signaling (NCS)-based phones.



**Note**

For a complete description of this feature, see [Limited Call Duration](#) in the *Network and Subscriber Feature Descriptions*.

- Step 1** Create a NOD escape list for the LCD\_TRIGGER so the system will allow certain types of calls (such as repair calls without AAA server authorization).

```
add trigger-nod-escape-list tid=LCD_TRIGGER; nod=REPAIR;
```

- Step 2** Add a RADIUS profile with the appropriate TSAP address and server type (prepaid).



**Note** Two examples are shown—one using a domain name and one using an IP address.

```
add radius-profile id=rad-profile-prepd015; tsap-addr=central777.cisco.com:1819;
server-type=prepaid;
```

```
add radius-profile id=rad-profile-prepd777; tsap-addr=172.16.5.5:1819;
server-type=prepaid;
```

- Step 3** Add an AAA server group that links to the appropriate RADIUS profile.

```
add aaa-server-grp id=aaa-server-grp1; radius-profile-id=rad-profile-prepd015;
```

- Step 4** Provision the POP table to link to the appropriate AAA server group.

```
change pop id=londonpop3; aaa-server-grp-id=aaa-server-grp1;
```

- Step 5** Create the LCD feature.

```
add feature fname=LCD; tdpl=COLLECTED_INFORMATION; tid1=LCD_TRIGGER; ttype1=R;
description=Limited Call Duration Feature; feature-server=FSPTC235; grp-feature=N;
```

- Step 6** Add the LCD feature to a service.

```
add service id=5; fname1=LCD; description=Prepaid Service;
```

- Step 7** Assign the service to a subscriber.

```
add sub-service-profile sub-id=nyc-sub1; service-id=5;
```

- Step 8** (Optional) When the LCD\_TRIGGER is invoked, but for some reason the LCD\_TRIGGER fails, this flag is used to determine the action to be taken. If the flag is set to Y, the call is released, else the call is continued. By default, this value is set to Y. If required by your local business office, you can change this value to N.



**Note** If this parameter is set to N and the LCD\_TRIGGER fails, the call will be given for free to the caller.

```
add ca-config type=RELEASE-CALL-ON-LCD-TRIGGER-FAILURE; datatype=BOOLEAN; value=N;
```

## Local Number Portability for ANSI/North America

Local Number Portability (LNP) enables subscribers to keep their phone numbers after changing service providers. LNP in North America performs SS7 ANSI TCAP queries to an external SCP database.

**Tip**

For a complete description of this feature, see [Local Number Portability](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the LNP feature to be offered in North America. See the “[Local Number Portability for ITU Local BTS Database Query](#)” section on page 7-84 for the steps necessary for the LNP feature to be offered in the European market.

## Office Provisioning

- 
- Step 1** Create a feature for LNP DB lookup:
- ```
add feature fname=LNP; tdp1=COLLECTED_INFORMATION; tid1=LNP_TRIGGER; ttype1=R;
description=local number portability; feature_server_id=FSAIN205;
```
- Step 2** Add this feature to the default office service Id (assuming the default-office-service id=999):
- ```
add/change service id=999; fname1=LNP;
add ca-config type=DEFAULT-OFFICE-SERVICE-ID; DATATYPE=STRING; VALUE=999;
```
- Step 3** Add the ported-office-code:
- ```
add ported-office-code digits-string=NPA-NXX;
```
- Step 4** Add My-LRN and JIP in the POP table:
- ```
change pop id=1; my-lrn=NPA-NXX-XXXX; JIP=NPA;
```
- Step 5** Verify the following table fields for appropriate values:
- ```
dn2subscriber.LNP_TRIGGER
dn2subscriber.status
trunk-grp.signal-portcd-number
trunk-grp.remote-switch-lrn
```
-

Provisioning Resources

-
- Step 1** Provision the signaling gateway:
- ```
add sg id=sg_1; description=signaling gateway 1;
```
- Step 2** Provision the signaling gateway group:
- ```
add sg-grp id=sg_grp1; sg1-id=sg_1; description=signaling gateway group 1;
```
- Step 3** Provision the signaling gateway process:
- ```
add sgp id=itp_7507_1; sg-id=sg_1; description=ITP 7507 for sg_1;
```
- Step 4** Provision the SCTP association profile:
- ```
add sctp-assoc-profile id=sctp_prof; bundle_timeout=500; max_assoc_retrans=5;
max_path_retrans=5; max_rto=6000; min_rto=301; sack_timeout=101; hb_timeout=1000;
```


**Note**

The `hb_timeout` and `max_path_retrans` tokens are not configurable via the CLI change command. To configure or change these values, a new SCTP association profile must be added.

Step 5 Provision the SCTP association:

```
add sctp-assoc id=sctp_assoc1; sgp-id=itp_7507_1; sctp-assoc-profile-id=sctp_prof;
remote_port=14001; remote_tsap_addr1=10.89.232.9; remote_tsap_addr2=10.89.233.41;
local_rcvwin=64000; max_init_retrans=5; max_init_rto=1000; platform_id=FSAIN205;
```

Step 6 Add the DPC:

```
add dpc id=stp1; point-code=1-101-0; description=STP1, MGTS STP;
```

Step 7 Add the SCCP network:

```
add sccp-nw id=1; net-ind=NATIONAL; SUB_SVC=NATIONAL; HOP-Count=10;
```

Step 8 Add the subsystem group:

```
add subsystem-grp id=SSN_LNP; PLATFORM_ID=FSAIN205; TCAP_VERSION=ANS92;
```

Step 9 Add the subsystem:

```
add subsystem id=SSN_LNP; opc_id=opc; local-ssn=247; remote-ssn=247; sccp-nw-id=1;
SCCP_VERSION=ANS92; APPLICATION_VERSION=AIN01;
```

Step 10 Add the routing key:

```
add routing-key id=rk_lnp; opc-id=opc; sg-grp-id=sg_grp; si=SCCP; rc=202;
PLATFORM_ID=FSAIN205; ssn-id=SSN_LNP;
```

Step 11 Add an SCCP route:

```
add sccp-route opc_id=opc; dpc_id=stp1; rk_id=rk_lnp; subsystem_grp_id=SSN_LNP;
```

Step 12 Add the SLHR profile:

```
add slhr-profile id=slhr_lnp;
```

Step 13 Add the service logic host route:

```
add slhr id=slhr_lnp; opc_id=opc; dpc_id=stp1; rk_id=rk_lnp; ssn-id=SSN_LNP; gtt-req=Y;
tt=11; GTT_ADDR_TYPE=CDPN; GTT_ADDR=3;
```

Step 14 Add the ca-config type DEFAULT-LNP-SLHR-ID:

```
Add ca-config type=DEFAULT-LNP-SLHR-ID; datatype=string; value=slhr_lnp;
```

Step 15 Add the ca-config type SCP-RESPONSE-TIMER:

```
Add ca-config type=SCP-RESPONSE-TIMER; datatype=integer; value=3;
```

Step 16 Place SCTP Association In Service:

```
control sctp-assoc id=sctp_assoc1; mode=FORCED; target-state=INS;
```

Step 17 Place the Subsystem Group In Service:

```
control subsystem-grp id=SSN_LNP; mode=FORCED; target-state=UIS;
```

Subscriber Provisioning

Step 1 below shows the LNP-TRIGGER usage during the porting transition. At the start of the porting process, the subscriber status remains assigned, and the LNP-TRIGGER indication will cause an LNP query. If the SCP database query result indicates that the porting has not occurred yet (no LRN is received), then the call is routed locally to the subscriber. Otherwise, if the SCP returns the LRN of another switch, the porting has occurred, and the call is routed onward to the recipient switch using the LRN.



Note

The use of LNP-TRIGGER is optional. You may prefer to not use LNP-TRIGGER but instead mark the subscriber status as PORTED-OUT when porting occurs (see Step 2).

Step 2 shows the marking of a subscriber's DN as ported-out of this donor switch. After an LNP query, the call should be routed to the recipient switch using the Location Routing Number (LRN).

Step 1 (optional) Indicate that an LNP query should be performed to determine whether the subscriber has ported-out (or not):

```
change dn2subscriber dn=1522; office-code-index=15; lnp-trigger=Y;
```

Step 2 Mark subscriber ported-out (ported-out of this donor switch to the recipient switch):

```
change dn2subscriber dn=1522; office-code-index=15; status=ported-out;
```

Provisioning Notes/Caveats

- When the ported office code is served by the switch then during the transition period, the LNP-TRIGGER in the Dn2subscriber table should be set to Y. Once porting is complete, the status should be modified to = PORTED-OUT. If the subscriber is porting in, the LNP-trigger should be changed to N once porting is complete.
- BTS 10200 always checks the Dn2subscriber table to see if the called number is in the BTS before performing LNP query. If the LNP-TRIGGER flag is set to Y, an LNP query is performed by the BTS. If the subscriber is porting in and porting is complete, the LNP Query returns the LRN of BTS and the call is terminated locally. If no LRN is received or if the LRN does not belong to BTS, the call is routed out. If the subscriber is porting out and porting is complete, the LNP Query returns LRN of the recipient switch and the call is routed out. If no LRN is received, the call is terminated locally.
- If the SUBSCRIBER-STATUS field in the Dn2subscriber table is set to PORTED-OUT, then a query will be performed by the BTS even if the LNP-TRIGGER field in the Dn2subscriber table is set to N.
- If the LNP trigger is generated by the trunk (SS7,CAS) calls and no calling party is received in the setup indication (IAM), ensure that the JIP field or LRN field in the POP table associated with the trunk group is set to the appropriate value. If not, the SCP query will fail.

Local Number Portability for ITU Local BTS Database Query

In ITU/European markets, the LNP feature performs a query of an internal Cisco BTS 10200 Softswitch database. Since an external SS7 TCAP query is not needed, SIGTRAN provisioning is not required. The following subsections identify necessary steps for the LNP feature to be offered in European markets.

Office Provisioning

Step 1 Create a feature for the LNP database lookup.

```
add/change feature fname=LNP; tdp1=COLLECTED_INFORMATION; tid1=LNP_TRIGGER; ttype1=R;
description=local number portability;feature_server_id=FSAIN205;
```

Step 2 Add this feature to the default office service Id (assuming default office service id=999):

```
add/change service id=999; fname=LNP;
add ca-config type=DEFAULT-OFFICE-SERVICE-ID; datatype=string; value=999;
```

Step 3 Add one of the following LNP Profile examples:

a. Add switch-based LNP Profile for All Calls Query (ACQ):

```
add lnp-profile id=lnp_rn_acq; all-call-query=Y; external-lnp-db=n; internal-lnp-db=Y;
lnp-db-type=RN; rn-signaling-method=prefix-method;
```

b. Add switch-based LNP Profile for Query on Release (QoR):

```
add lnp-profile id=lnp_rn_qor; query-on-release=Y; external-lnp-db=n; internal-lnp-db=Y;
lnp-db-type=RN; rn-signaling-method=prefix-method; release-cause=14;
```

c. Add a switch-based LNP Profile for Combination of QoR and ACQ:

```
add lnp-profile id=lnp_rn_acq_qor; all-call-query=Y; query-on-release=Y;
external-lnp-db=n; internal-lnp-db=Y; np-db-type=RN; rn-signaling-method=prefix-method;
release cause=14;
```

d. Add a switch-based LNP Profile for Onward Call Routing (OCR) (also known as Onward Donor Based Routing (ODBR)):

```
add lnp-profile id=lnp_rn_odbr; onward-call-routing=Y; external-lnp-db=n;
internal-lnp-db=Y; lnp-db-type=RN; rn-signaling-method=prefix-method;
```

Step 4 Assign an LNP Profile to be used for the office. In this example, the QoR LNP Profile is used:

```
add/change ca-config type=DEFAULT-LNP-PROFILE-ID;DATATYPE=STRING; value=lnp_rn_acq_qor;
```

Subscriber Provisioning

The following sequence shows the marking of a subscriber's DN as ported-out of this donor switch. After an LNP query, the call should be routed to the recipient switch using the Routing Number (RN).

Step 1 Prepare to delete subscriber and mark as ported-out:

```
control subscriber-termination id=sub1; mode=graceful; target-state=oos;
```

Step 2 Delete the subscriber (see note for Step 3):

```
delete subscriber id=sub1;
```

Step 3 Mark deleted subscriber ported-out (ported-out of this donor switch to the recipient switch).



Note

As soon as this command is executed, calls may be mis-routed unless this switch, and others in the network, have the correct RN and associated routing configured to the new recipient switch to which this DN has ported-in. It is expected that the recipient switch also has service subscribed and activated for this DN, which has ported-in to the recipient switch.

```
change dn2subscriber dn=1522; office-code-index=15; status=ported-out;
```

NOA Routing and Dial Plan Provisioning

Although it is not customary to include basic dial plan and related provisioning in this document, it must be understood to understand the provisioning of Local LNP for ITU/Europe.

The following example shows selected commands for the following scenario:

A subscriber's dial-plan-profile has a noa-route-profile specified, pointing to a destination, which in turn points to an "RN dial-plan", used to route the call using the Routing Number (RN) prefix.

The digit translation flow for a Called Party Number with NoA=8 (ported number with routing number concatenated with directory number) is as follows (note, the objects are added in reverse order in the provisioning example):

```
subscriber/trunk dial-plan "dp_sub_itu" -> noa-route "noa_rt" -> destination "dummy_rn_itu" -> RN
dial-plan "dp_rn_itu" -> destination "dest_rn_sub_itu"
```

Example commands are included in the table below:

- Step 1** Provision Digman-profile for RN dial-plan-profile to match RN of this BTS and ported NOA, strip RN, and replace NoA:

```
add digman-profile id=dm_dpp_rn; description=digman for RN dial-plan-profile after NOA
Routing (ITU);
```

- Step 2** For a call terminating to a DN ported in to this switch, strip the RN prefix (of this switch, 4001), and replace the NoA:

```
add digman id=dm_dpp_rn; rule=1; match-string=^4001; match-noa=PORTED_NUMBER_WITH_RN;
replace-string=none; replace-noa=UNKNOWN;
```

- Step 3** RN dial-plan-profile does not use NOA routing because this dial-plan-profile is only reached after NOA routing:

```
add dial-plan-profile id=dp_rn_itu; description=RN dial plan (ITU); nanp-dial-plan=N;
noa-based-routing=N;
```



Note

For a non-North American dial plan, make sure nanp-dial-plan=N.

- Step 4** If this digman was not added earlier, then add it now, if desired:

```
change dial-plan-profile id=dp_rn_itu; dnis-digman-id=dm_dpp_rn;
```

- Step 5** Provision the Destination table. This destination, from the regular subscriber dial-plan, allows an LNP query:

```
add destination dest-id=dest_sub_itu; call-type=LOCAL; route-type=SUB;
ani-digman-id=dm_dest_sub_ani; dnis-digman-id=dm_dest_rn; acq-lnp-query=PERFORM-LNP-QUERY;
description=ITU Sub dest: Allow LNP query;
```

- Step 6** This destination, from the RN dial-plan, does not allow an LNP query (NO-LNP-QUERY). Since an RN was used for routing to this destination, a second query should not be allowed:

```
add destination dest-id=dest_sub_rn_itu; call-type=LOCAL; route-type=SUB;
ani-digman-id=dm_dest_sub_ani; acq-lnp-query=NO-LNP-QUERY;
description=ITU Sub dest after RN routing: do not allow LNP query;
```

- Step 7** NOA Route for ported NOA points to this destination. This destination in turn points to the RN dial-plan:
- ```
add destination dest-id=dummy_rn_itu; call-type=LOCAL; route-type=DP;
dial-plan-id=dp_rn_itu; description=dummy destination used for NOA Routing to point to RN
dial-plan;
```
- Step 8** The RN dial-plan, after stripping the RN (of this switch), routes on the subscriber DN prefix 1150:
- ```
add dial-plan id=dp_rn_itu; digit-string=1150; noa=UNKNOWN; min-digits=8; max-digits=8;
dest-id=dest_sub_rn_itu;
```
- Step 9** The RN dial-plan, after stripping RN (of this switch), routes to destination based on full digit string of ported in subscriber with DN 1-702-3001:
- ```
add dial-plan id=dp_rn_itu; digit-string=17023001; noa=UNKNOWN; min-digits=8;
max-digits=8; dest-id=dest_sub_rn_itu;
```
- Step 10** Setup the ndc for DN 1-150-1xxx:
- ```
add ndc digit-string=1;
```
- Step 11** Setup the exchange-code for DN 1-150-1xxx:
- ```
add exchange-code ec=150; ndc=1; max-dn-length=8; min-dn-length=8; office-code-index=15;
```
- Step 12** Setup the dn-group for DN 1-150-1xxx:
- ```
add office-code call-agent-id=CA146; ndc=1; ec=150; dn-group=1xxx;
```
- Step 13** Setup the exchange-code for ported-in DN 1-702-3001:
- ```
add exchange-code ec=702; ndc=1; max-dn-length=8; min-dn-length=8; office-code-index=5;
```
- Step 14** Setup the office-code for ported-in DN 1-702-3xxx:
- ```
add office-code call-agent-id=CA146; ndc=1; ec=702; dn-group=3xxx;
```
- Step 15** Add the regular subscriber dial-plan profile, with NOA routing:
- ```
add dial-plan-profile id=dp_sub_itu; ani-digman-id=dm_dpp_ani_itu;
dnis-digman-id=dm_dpp_sub_dnis; nanp-dial-plan=N; description=Subscriber Local dial-plan
(ITU);
```
- Step 16** Add normal routing for non-porting DN terminating to local subscriber, e.g., 1-150-1511:
- ```
add dial-plan id=dp_sub_itu; digit-string=1150; min-digits=8; max-digits=8; noa=UNKNOWN;
dest-id=dest_sub_itu;
```
- Step 17** Add the NOA route profile, if desired:
- ```
add noa-route-profile id=noa_rt; description=NOA Route profile (ITU) to RN dial-plan;
```
- Step 18** Add the NOA route for logical ported number NoA (ITU NoA=8, RN concatenated with DN). The destination identified here will point to the RN dial-plan:
- ```
add noa-route id=noa_rt; noa=PORTED_NUMBER_WITH_RN; dest-id=dummy_rn_itu;
```
- Step 19** Add NOA routing, if desired, if not done above:
- ```
change dial-plan-profile id=dp_sub_itu; noa-based-routing=Y; noa-route-profile-id=noa_rt;
```
- Step 20** Add the dn2rn (Directory Number to Routing Number). All DNs that are ported in to this switch must have a dn2rn entry with the RN value associated with this switch:
- ```
add dn2rn dn=17023001; rn=4001;
```

- Step 21** Add dn2rn entries with the RNs associated with all DN's that are ported out of this switch and all RNs needed to route calls to any ported DN in the network/country :

```
add dn2rn dn=11501522; rn=4101;
```

- Step 22** Prepare to delete the subscriber and mark as ported-out:

```
control subscriber-termination id=sub1; mode=graceful; target-state=oos;
```

- Step 23** Delete the subscriber (see note for Step 24):

```
delete subscriber id=sub1;
```

- Step 24** Mark deleted subscriber ported-out.



Note

As soon as this command is executed, calls may be mis-routed unless this switch, and others in the network, have the correct RN and associated routing configured to the new recipient switch to which this DN has ported-in (see add dn2rn above). It is expected that the recipient switch also has service subscribed and activated for this DN, which has ported-in to the recipient switch.

```
change dn2subscriber dn=1522; office-code-index=15; status=ported-out;
```

Allow ACQ or QoR Query on Incoming Trunk Calls

Usually, LNP queries for ACQ or QoR occur on the originating switch, in the originating network. However, in some cases the originating switch does not perform LNP queries, for example:

- Originating switch does not have LNP capability
- Originating switch is an International Gateway exchange which does not have access to the country specific LNP database
- At the point of interconnect (POI) between operators of separate networks (e.g., Telco and alternate service operator), a full, routable RN is not available. For example, in Denmark, a ported DN with NoA=112 does not supply the RN, and in Sweden, with NoA=8, the called party number digits may contain a partial RN (the RN indicates the recipient network operator but does not indicate the exact recipient switch ID). In this case, a second LNP query is required to obtain a full routable RN.

The following example shows how to allow queries on incoming calls for a particular trunk group.

- Step 1** Allow queries on this trunk group:

```
change trunk-grp id=1; perform-lnp-query=Y;
```

Destination and Call Type ACQ Control

If desired, an All Calls Query (ACQ) can be selectively controlled in the destination obtained as a result of digit translation. In some cases, ACQ is desired for 100% of call originations, in which case all destinations may have ACQ-LNP-QUERY=PERFORM-LNP-QUERY, or NA. The NA value, meaning

not applicable, indicates that either LNP is not applicable on this destination or that the destination should not be used as criteria on whether to perform an ACQ LNP query. LNP Profile and trunk group values will determine whether a query is performed or not.

For countries where two or more LNP queries are necessary, destinations with ACQ-LNP-QUERY=PERFORM-LNP-QUERY will allow the second query. For example, in Denmark an incoming call with NoA=112 and called party number contain a DN only requires another query, so destinations reached via NOA Routing for NOA=PORTED-NUMBER-WITHOUT-RN should allow have PERFORM-LNP-QUERY value. Likewise, in Sweden, a call with NoA=8 and a partial RN (indicating operator, but not identifying the exact recipient switch), uses a dial-plan entry with the partial RN (of this network) to select a destination with PERFORM-LNP-QUERY to force a second query for a call entering the recipient network.

ACQ-LNP-QUERY=NO-LNP-QUERY will prevent an ACQ query from being performed on this call. This may be used for certain calls for which a query should never be performed (e.g., outgoing calls to a carrier), or after an LNP query has been performed (on this switch, or another), such that NOA Routing and the RN dial-plan select destinations with NO-LNP-QUERY to prevent a second (unnecessary) query.

ACQ-LNP-QUERY=ACQ-BASED-ON-CALL-TYPE will use the call type table entry to determine whether a query will be performed (see examples below).

The destination ACQ criteria in this section only affects All Calls Query (ACQ). These values have no effect on decision criteria for ODBR or QoR queries.

The following examples demonstrate control over ACQ queries using the Destination table:

- Destination not used as LNP ACQ query criteria. LNP-Profile table ALL-CALL-QUERY (and trunk group table PERFORM-LNP-QUERY, for an incoming trunk call) determine whether a query is required.:

```
change destination dest-id=dest_sub_itu; ACQ-LNP-QUERY=NA;
```

- Destination explicitly allows ACQ:

```
change destination dest-id=dest_sub_itu; ACQ-LNP-QUERY=PERFORM-LNP-QUERY;
```

- Destination explicitly disallows ACQ:

```
change destination dest-id=dest_sub_itu; ACQ-LNP-QUERY=NO-LNP-QUERY;
```

In the following example, the destination defers to the call type entry for the LNP ACQ decision:

Step 1 Destination indicates that the call-type entry (or omission of call-type entry) determines whether ACQ occurs:

```
change destination dest-id=dest_sub_itu; call-type=PREMIUM;
ACQ-LNP-QUERY=ACQ-BASED-ON-CALL-TYPE;
```

Step 2

- Omission of call-type entry implicitly indicates that no query will be performed. For example, call-type=EMG need not be added to block queries on emergency calls.
- Call type explicitly prevents ACQ for this call type:

```
add call-type-profile call-type=PREMIUM; lnp-query=N;
```

- Call type allows ACQ on this call:

```
add/change call-type-profile call-type=PREMIUM; lnp-query=Y;
```

Outgoing Carrier Call LNP ACQ Query Control

Some operators may prefer to NOT perform ACQ LNP queries on subscriber originated outbound calls to a carrier, or alternatively, may desire to allow queries on all, or specified, carrier calls. Outgoing carrier calls may be dialed explicitly by dialing a digit prefix which translates via the dial plan to a destination with route-type=carrier and a carrier ID specified. Or, for a destination with call-type of intralata or interlata, the default carrier from the calling party's subscriber table entry may be used (PIC1 or PIC2).

Regardless of the method for determining the carrier (and its associated carrier data), for an LNP ACQ query to be performed on a outbound carrier call, the destination arrived at via the dial plan translation must allow a query. If a query is allowed in the destination table (ACQ-LNP-QUERY=PERFORM-LNP-QUERY or NA, or ACQ-BASED-ON-CALL-TYPE with call-type table LNP-QUERY=Y), then the applicable carrier table is used to further determine whether a query is allowed or not.

If the carrier indicates USE-DIAL-PLAN=Y, then the carrier entry is not used as criteria for an LNP query. Otherwise, if USE-DIAL-PLAN=N, then the carrier entry LNP-QUERY=Y/N is used to determine whether or not a query is allowed on the carrier call. Note that, for an ACQ query to be allowed, ACQ must be allowed at all levels, including the LNP Profile table ALL-CALL-QUERY=Y, incoming trunk group PERFORM-LNP-QUERY=Y (if it is an incoming trunk call), destination, and carrier (if applicable, as described above).



Note

For a call that uses a pre-subscribed PIC2 carrier, the caller must have a POP assigned (for example, in the Subscriber Profile table), and the associated Pop table entry must have ITP=Y.

Provisioning Notes/Caveats

- Ported-office-code is not currently used for ITU Local LNP.
- Subscriber dial-plan (used for subscriber originations), and associated digit-map normally should not allow a regular subscriber to dial a routing number prefix. The only exception is for countries where there is overlap between the RN and DN prefix (for example, RN may be 4001, and some DNs may start with 4001, such that the Nature of Address, or NoA, must be used to distinguish between the two).
- NOA routing is not required for LNP but is recommended for the following cases:
 - If the RN and min/max-digit length combination does not uniquely identify the routing. For example, in Hungary, some DNs start with a prefix that is the same as some NoA, so it is not possible to unambiguously identify the route. Therefore, NOA routing allows the Nature of Address value for ported numbers to be used to select a separate RN dial-plan with routes for RNs. The regular subscriber/trunk dial-plan has routes based on DNs, and for a ported number NoA, NOA routing selects an RN dial-plan with routes for RNs.
 - If All Call Query (ACQ) is required for some calls, but not others, then the Destination table (resulting from digit translation) ACQ-LNP-QUERY value controls whether a query is performed or not. The regular subscriber/trunk dial-plan for certain digit-string values routes to destinations that may allow an LNP query. However, for DNs that are ported, for which a database query has returned an RN, then NoA routing is used to select an RN dial-plan, and this dial-plan selects destinations that do not allow a (second) LNP query.

- All Call Query (ACQ) criteria: An ACQ will only result if a query is allowed at all applicable levels. That is, the LNP Profile must indicate ALL-CALL-QUERY-Y, and the destination obtained as a result of digit translation must allow a query (either in the Destination, or Call Type table entry, if applicable). Furthermore, if the call has a trunk origination, then ACQ must also be allowed by the incoming trunk group (PERFORM-LNP-QUERY-Y).
- If LNP criteria for a query is met, but a query to the FSAIN feature server is not requested (Service Switching Function, SSF, does not generate Invite with Notify towards FSAIN), check the ca-config type=DEFAULT-OFFICE-SERVICE-ID and its associated service, ca-config type=DEFAULT-LNP-PROFILE-ID, and LNP Profile values (see above).
- If digit translation fails to find a match in the dial-plan for a digit-string which is configured in the dial-plan, check the dial-plan-profile nanp-dial-plan=N (for non-North America dial-plans), and check that the dial-plan entry has noa=unknown.
- The ISUP hop count may be the only protection from routing loops in some cases. For example, with ODBR or QoR, during the transition period of the "porting window", it is possible that calls will be misrouted due to inconsistencies in the timing of provisioning changes in the donor switch, recipient switch, and central database (if applicable). Normally this situation will be temporary, until the appropriate changes are configured on all the network nodes. However, it is suggested that the ss7_q761_tg_profile hop-count be set to a relatively low value, such as 5 or less, which will minimize the consequences of routing loops.
- If a DN is allowed to port from one operator or exchange to another, and then port again, the dn2subscriber table status token should only be set to PORTED-OUT on the first exchange, that is, the exchange owning the DN number block prefix of the DN being ported. On an exchange for which the DN is porting out, which is not the original donor exchange, the following procedure is recommended for exchanges that perform ODBR or QoR queries. During the porting transition phase, the subscriber record can be set to status=TEMP_DISCONNECTED, or taken out of service, to prevent routing loops. After the porting window is over, the subscriber and dn2subscriber records can be deleted. Routing loops, although unlikely if proper procedures are used and the timing of changes on various networks nodes are synchronized, may be possible for example if two exchanges both mark the DN as ported-out, and each exchange does a query and retrieves the RN or the other switch.

Multi-Line Hunt Group

Multi-line Hunt Group (MLHG) is a telecommunications channel between two points, such as a telephone company CO/switching center and a call center, PBX, or key system. Typically, a business has more stations (telephones) than lines, and hunting features allow sharing of a group of lines by many individual stations for both incoming and outgoing calls. A hunt group is a series of lines organized in such a way that if the first line is busy, the next line is hunted, and so on, until a free line is found. This arrangement is often used on a group of incoming lines.



Tip

For a complete description of this feature, see [Multi Line Hunt Group](#) in the *Network and Subscriber Feature Descriptions*.

See [Centrex, MLHG, and Voicemail Provisioning, page 8-1](#), for directions for provisioning a MLHG.

Multiline Variety Package

This section describes the various provisioning steps along with examples that need to be followed to provision the MVP feature for a group of subscribers. The BTS 10200 uses a custom dial-plan for provisioning the MVP feature for group of subscribers. This custom dial-plan can be shared by all MVP groups (that is, by subscribers that belong to different MVP groups).

Step 1 The first step in using the MVP features on the BTS 10200 is to create a custom Dial-Plan-Profile and Dial-Plan(s) entries.

- a. Define a custom dial-plan ID as required by MVP feature.

```
add custom_dial_plan_profile id=MVPcdp;
```

- b. Define a custom dial-plan to access a plain old telephone service (POTS) line. A new nature of dial (NOD) has been defined, which indicates that it has POTS access but without any prefix (such as dial 9). In the following example, if the dialed digit string is any digits (i.e. [0–9], specified by “xxxxxxx” in the digit string), the usual PSTN dial-plan is used to route the call.

```
add cdp id=MVPcdp; digit_string=xxxxxxx; nod=MVP_POTS_ACCESS;
```

- c. Define the VSC codes for features that are used by the MVP subscribers. In the example below dialed digit *52 is mapped to the call-hold feature, *58 is mapped to the call-park feature, and *59 is mapped to the call-retrieve feature.

```
add cdp id=MVPcdp; digit_string=*52; nod=VSC; fname=CHD
add cdp id=MVPcdp; digit_string=*58; nod=VSC; fname=CPRK
add cdp id=MVPcdp; digit_string=*59; nod=VSC; fname=CPRK_RET
```

- d. Define the digit-strings used as extensions. In the following example, both single digit and multiple-digit extension codes are defined. Depending upon the size of the group these extensions can be mapped to a particular subscriber within the MVP group. Also note that *0 is us defined as ATTENDANT-ACCESS and can be used to provide operator access to the MVP subscribers.

```
add cdp id=MVPcdp; digit_string=*2; nod=EXTENSION;
add cdp id=MVPcdp; digit_string=*3; nod=EXTENSION;
add cdp id=MVPcdp; digit_string=*4; nod=EXTENSION;
add cdp id=MVPcdp; digit_string=*5; nod=EXTENSION;
add cdp id=MVPcdp; digit_string=*6; nod=EXTENSION;
add cdp id=MVPcdp; digit_string=*7; nod=EXTENSION;
add cdp id=MVPcdp; digit_string=*8; nod=EXTENSION;
add cdp id=MVPcdp; digit_string=*9; nod=EXTENSION;

add cdp id=MVPcdp; digit_string=*2x; nod=EXTENSION;
add cdp id=MVPcdp; digit_string=*3x; nod=EXTENSION;
add cdp id=MVPcdp; digit_string=*4x; nod=EXTENSION;

add cdp id=MVPcdp; digit_string=*0; nod=ATTENDANT-ACCESS;
```



Note

Only *2x, *3x, and *4x can be used as extension codes, limiting the maximum number of extension to 30 for 2-digit extension code for the MVP group. The rest of the values conflicts with the VSC codes and should not be used as extension codes.

Step 2 Modify the existing Digit Map used by the subscribers to include *0 to reach the operator. Typically, the only addition to the regular digit map used by the subscribers is *0.

```
add digit_map id=digit-map; description=Digit Map for MVP subscribers;
digit_pattern==0T|00|[2-9]11|[2-9]xx[2-9]xxxxxx|1[2-9]xx[2-9]xxxxxx|0[2-9]xx[2-9]xxxxxx|01
1xxxxxx.T|101xxxx|#|*[2-9]x|11xx|[2-9]#|[2-4]x#|[2-9]T|[2-4]xT|01[2-9]xxxxxx.T|*0.
```

**Note**

The same digit-map can be used for subscribers assigned to an MVP group and for subscribers not assigned to any MVP group. For MVP subscribers, calls can be routed to an operator when the subscriber dials *0. For subscribers that do not belong to an MVP group, the call will get the invalid dialed number treatment. In the case where the functionality to route calls to the operator on dialing *0 is not needed, this change is not required.

- Step 3** Create a Subscriber Profile to be shared by all subscribers in multiple MVP groups. In the case where a subscriber profile exists for the subscribers that are associated with the MVP group, this step can be omitted.

```
add subscriber_profile id=SubProfile; digit_map_id=digit-map;
dial_plan_id=PSTN DIAL-PLAN;
```

- Step 4** Creating the MVP group requires the two steps. First a main subscriber for each MVP group should be created and second a Centrex group needs to be created for the main-subscriber that uses the custom dial-plan defined in Step 1. The commands in this step need to be repeated for each MVP group to be created on the BTS 10200.

```
add subscriber id=MainSubMVPgrp1; sub-profile-id=SubProfile;

add centrex_grp id=MVPgrp1; cdp_id=MVPcdp; call_agent_id=CA146 main_sub_id=MainSubMVPgrp1;

add cpsg id=MVPgrp1; ctxg_id=MVPgrp1; CPRK-FDN=12345
```

**Note**

The last command creates a Call Park Subscriber Group and is required only if CALL-PARK feature is assigned to the MVP group (through custom-dial-plan defined in Step 1).

- Step 5** The following commands can be used to associate the existing subscribers to the MVP group defined in Step 4.

- a. In the following example, three subscribers SubA, SubB, and SubC (existing subscribers) on BTS 10200 are assigned to the MVP group 1 created in Step 4.

```
change subscriber id=SubA; sub_profile_id=SubProfile category=CTXG_INDIVIDUAL;
ctxg_id=MVPgrp1;

change subscriber id=SubB; sub_profile_id=SubProfile category=CTXG_INDIVIDUAL;
ctxg_id=MVPgrp1;

change subscriber id=SubC; sub_profile_id=SubProfile category=CTXG_INDIVIDUAL;
ctxg_id=MVPgrp1;
```

- b. Create Extensions for the SubA, SubB, and SubC to enable extension dialing between the MVP group members.

```
add ext2subscriber ext=*4001; sub_id=SubA; ctxg_id=MVPgrp1; cpsg_id=MVPgrp1;

add ext2subscriber;ext=*4002; sub_id=SubB; ctxg_id=MVPgrp1; cpsg_id=MVPgrp1;

add ext2subscriber ext=*4003; sub_id=SubC; ctxg_id=MVPgrp1; cpsg_id=MVPgrp1;
```

Multi-Lingual Support for Interactive Voice Response and Announcements

The Multi-Lingual Support (MLS) for Interactive Voice Response (IVR) and Announcements feature allows subscribers to choose which language (English, French, Spanish) to hear.

The following subsections identify the necessary steps to provision the MLS for IVR and announcements feature.

Office Provisioning

-
- Step 1** Create the MLS feature:
- ```
add feature fname=MLS; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE; ttype=R;
feature_server_id=FSPTC325
```
- Step 2** Add service to the MLS feature:
- ```
add service id=mls; fname1=MLS;
```
- Step 3** Add * code for MLS feature:
- ```
add vsc digit-string=*56; fname=MLS;
```
- 

## Provisioning Resources

- 
- Step 1** Add media server:
- ```
add mgw-profile id=ms_profile; vendor=Cisco; silent-suppress-suppress=N; rbk-on-conn-suppress=N;
packet-type=IP; AAL1=N; AAL2=N; AAL5=N; PVC=N; SVC=N; SPVC=N; EC=N; SDP-ORIGFIELD-SUPP=N;
SDP-SESSIONNAME-SUPP=N; SDP-EMAIL-SUPP=N; SDP-PHONE-SUPP=N; SDP-URI-SUPP=N;
SDP-BANDWIDTH-SUPP=N; SDP-INFO-SUPP=N; SDP-TIME-SUPP=N; SDP-ATTRIB-SUPP=N;
MGCP-ERQNT-SUPP=N; MGCP-HAIRPIN-SUPP=N; MGCP-3WAY-HSHAKE-SUPP=Y;
MGCP-CONN-ID-AT-GW-SUPP=Y; MGCP-CMD-SEQ-SUPP=N; MGCP-VMWI-SUPP=N; TERMINATION-PREFIX=ann/;
PORT-START=0; MGCP-VERSION=MGCP_1_0; MGCP-RSVP-SUPP=N;
```
- Step 2** Add media gateway:
- ```
add mgw id=ipunity_ms; tsap-addr=<ip addr of MS MGCP>; call-agent-id=CA166;
mgw-profile-id=ms_profile; rgw=n; tgw=y; call-agent-control-port=0; ans=n; ivr=y; nas=n;
pbx=n;
```
- Step 3** Add IVR trunks:
- ```
add/change annnc-tg-profile; id=annnc_tg_p; annnc=N; ivr=Y; auto_answer=Y;
```
- Step 4** Add termination:
- ```
add termination prefix=annnc/; port-start=0; port-end=30; type=trunk; mgw-id=ipunity_ms;
```
- Step 5** Add trunk group:
- ```
add trunk-grp id=1; call-agent-id=CA146; tg_type=annnc; mgw-id=ipunity_ms;
tg-profile-id=annnc_tg_p; mgcp-pkg-type=AUDIO;
```
- Step 6** Add trunk:
- ```
add trunk cic-start=1; ; cic-end=30; tgn-id=1; termination-prefix=annnc/;
termination-port-start=0; termination-port-end=29; mgw-id=ipunity_ms;
```

**Step 7** Add route:

```
add route id=rt_annc; tgn1-id=1; tg-selection=LCR;
```

**Step 8** Add route guide:

```
add route-guide id=rg_annc; policy-type=ROUTE; policy-id=rt_annc;
```

**Step 9** Add an IVR script profile for MLS:

```
add ivr-script-profile fname=MLS; ivr-access-mode=ivr; ivr-route-guide-id=ivr_rg;
ivr-script-pkg-type=BAU;
```

---

## Announcement Provisioning

---

**Step 1** Add the default language identification:

```
add language id=def;
```

**Step 2** Add the languages to the language table:

```
add language id=eng; announcement-file-prefix=eng_; announcement-number-prefix=1; add
language id=fra; announcement-file-prefix=fra_; announcement-number-prefix=2; add language
id=spa; announcement-file-prefix=spa_; announcement-number-prefix=3;
```

**Step 3** Add audio segments for MLS \* code functionality:

```
add audio-segment; id=WELCOME; type=PHYSICAL; url=file://welcome.wav; description=Welcome;
add audio-segment; id=YouAreAbout; type=PHYSICAL; url=file://YouAreAbout.wav;
description=You are about to change your language of choice;
add audio-segment; id=FOR; type=PHYSICAL; url=file://for.wav; description=For;
add audio-segment; id=ENGLISH; type=PHYSICAL; url=file://english.wav; description=English;
add audio-segment; id=PRESS; type=PHYSICAL; url=file://Press.wav; description=Press;
add audio-segment; id=SPANISH; type=PHYSICAL; url=file://spanish.wav; description=Spanish;
add audio-segment; id=FRENCH; type=PHYSICAL; url=file://french.wav; description=French;
add audio-segment; id=var_audio; type=VARIABLE; var-type=str; description=audio file;
add audio-segment; id=YouHaveSelected; type=PHYSICAL; url=file://YouHaveSelected.wav;
description=You have selected;
add audio-segment; id=AsYourLanguageOfChoice; type=PHYSICAL;
url=file://AsYourLanguageOfChoice.wav; description=As your language of choice;
add audio-segment; id=ToConfirm; type=PHYSICAL; url=file://ToConfirmYourChoice.wav;
description=To confirm your choice;
add audio-segment; id=ToExit; type=PHYSICAL; url=file://ToCancelWithoutSaving.wav;
description=To cancel without saving;
add audio-segment; id=YourLanguageOfChoice; type=PHYSICAL;
url=file://yourlanguageofchoiceisnow.wav; description=Your language of choice is now;
add audio-segment; id=var_digits; type=VARIABLE; var-type=dig; var-subtype=gen;
description=string;
add audio-segment; id=var_sign; type=VARIABLE; var-type=str; description=sign(*,#);
add audio-segment; id=var_number; type=VARIABLE; var-type=num; var-subtype=crd;
description=number;
add audio-segment; id=var_time; type=VARIABLE; var-type=tme; var-subtype=t24;
description=time;
add audio-segment; id=var_day; type=VARIABLE; var-type=wkd; description=weekday;
add audio-segment; id=var_audio; type=VARIABLE; var-type=str; description=audio file;
```

**Step 4** Add MLS audio sequences:

```
add audio_seq id=MLS_WELCOME; language_id=def;
seq=WELCOME, YouAreAbout, FOR, ENGLISH, PRESS, var_digits, FOR, SPANISH, PRESS, var_digits, FOR,
FRENCH, PRESS, var_digits; description=Welcome. You are about to change your language of
choice. For English press <d>. For Spanish press <d>. For French, press <d>.
```

```
add audio_seq id=MLS_RECONFIRM;language_id=def;
seq=YouHaveSelected,var_audio,AsYourLanguageOfChoice,ToConfirm,PRESS,var_digits,ToExit,
PRESS,var_digits; description=You have selected <lang> as your language of choice. To
confirm your choice, press <d>. To cancel without saving, press <d>.
add audio_seq id=MLS_RELEASE;language_id=def; seq=YourLanguageChoice,var_audio;
description=Your language of choice is now <lang>.
```

**Step 5** Add MLS configuration parameters:

```
add feature-config; fname=MLS; type=RESTART-KEY; datatype=string; value=*;
add feature-config; fname=MLS; type=RETURN-KEY; datatype=string; value=#;
add feature-config; fname=MLS; type=FDT-TIMER; datatype=integer; value=50;
add feature-config; fname=MLS; type=NUM-ATTEMPTS; datatype=integer; value=3;
description=number of attempts;
```

## Subscriber Provisioning

The following steps detail how to add a subscriber for the MLS feature.

**Step 1** Add a subscriber:

```
add subscriber id=sub_1; sub-profile-id=subprof_1; DN1=4692550260; language-id=spa;
```

**Step 2** Assign the MLS service to the subscriber:

```
add subscriber-service-profile sub_id=sub_1; service-id=mls;
```

## Centrex Provisioning

For this feature, Centrex subscriber provisioning is similar to the provisioning of a POTS subscriber.

## MLHG Provisioning

For this feature, MLHG provisioning is similar to subscriber provisioning.

## Multiple Directory Number

The Multiple Directory Number (MDN) feature allows 5 or more directory numbers (DN) to be assigned to your single telephone line. Each individual DN is recognized using a special alerting pattern. One DN is designated as a primary DN during subscription.



**Tip**

For a complete description of this feature, see [Multiple Directory Number](#) in the *Network and Subscriber Feature Descriptions*.



**Note**

When this feature is enabled for a subscriber, any CALEA provisioning should include both the main number and all virtual numbers to accomplish bi-directional (incoming and outgoing) surveillance.

The following subsections identify necessary steps for the MDN feature to be offered.

## Office Provisioning

---

**Step 1** Create a feature for MDN:

```
add feature FNAME=MDN; TDP1=TERMINATION_ATTEMPT_AUTHORIZED;
TID1=TERMINATION_ATTEMPT_AUTHORIZED; TTYPE1=R; FEATURE_SERVER_ID=FSPTC235;
DESCRIPTION=MDN;
```

**Step 2** Add a service with the feature:

```
add service id=1; FNAME1=MDN;
```

---

## Subscriber Provisioning

---

**Step 1** Add a subscriber entry for the subscriber, this adds an entry to the subscriber table and automatically updates the dn2subscriber table:

```
add subscriber data sub_id = subscriber_1 fdn=4692553008; ring_type = 1; cwt_type=1;
```

**Step 2** Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=1;
```

**Step 3** Add a secondary DN to the subscriber.

```
ADD DN2SUBSCRIBER SUB_ID=SUBSCRIBER_1; FDN=4692550009; RING_TYPE=2; CWT_TYPE=2;
```

---

## Centrex Provisioning

For the feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber.

MLHG provisioning is similar to subscriber provisioning as described above.

## Provisioning Notes/Caveats

One of the three FDN values assigned in sub-feature-data must be the subscriber's primary DN.

If the number of DNs is less than the number of available ring or call waiting tones, be sure the tone for the primary DN is different from the secondary DN tone during configuration.

## No Solicitation Announcement

The NSA feature allows subscribers to play a message telling callers that they do not accept solicitation (telemarketing) calls. The feature does not forcibly release the call, but the expectation is that any solicitation caller will hang up.

**Tip**

---

For a complete description of this feature, see [No Solicitation Announcement](#) in the *Network and Subscriber Feature Descriptions*.

---

The following subsections identify necessary steps for the feature to be offered.

## Office Provisioning

- 
- Step 1** Create the NSA Activation (NSA\_ACT) feature:
- ```
add feature fname=NSA_ACT; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYTYPE1=R; FEATURE_SERVER_ID=FSPTC325;
```
- Step 2** Create the NSA feature, and include NSA_ACT as a subfeature:
- ```
add feature fname=NSA; TDP1=TERMINATION_ATTEMPT_AUTHORIZED;
TID1=TERMINATION_ATTEMPT_AUTHORIZED; TTYTYPE1=R; FEATURE_SERVER_ID=FSPTC325; FNAME1=NSA_ACT;
```
- Step 3** Add a VSC for NSA\_ACT:
- ```
add vsc fname=NSA_ACT; DIGIT_STRING=*94;
```
- Step 4** Add a custom dial plan (CDP) if the feature is used for a Centrex group:
- ```
add cdp id=cdp1; fname=NSA_ACT; DIGIT_STRING=*94; nod=VSC; CAT_STRING=1111111111111111;
```
- Step 5** Create or modify the Screen List Editing (SLE) feature:
- ```
add feature fname=SLE;
```
- Step 6** Add the NSA feature to a service:
- ```
add service id=nsa; fname1=NSA;
```
- Step 7** (Optional) Reset the limit of DN's that the subscriber can place on the NSA bypass list. The default value is 31.
- ```
add ca-config type=SLE-LIST-SIZE; datatype=INTEGER; value=25;
```
-

Provisioning Resources

This section explains how to provision the interface to the IVR server, the IVR announcement trunks, and route to the IVR server for the NSA feature.

-
- Step 1** Add a media server:
- ```
add mgw-profile ID=ms_profile; VENDOR=Cisco; SILENT-SUPPRESS-SUPP=N; RBK-ON-CONN-SUPP=N;
PACKET-TYPE=IP; AAL1=N; AAL2=N; AAL5=N; PVC=N; SVC=N; SPVC=N; EC=N; SDP-ORIGFIELD-SUPP=N;
SDP-SESSIONNAME-SUPP=N; SDP-EMAIL-SUPP=N; SDP-PHONE-SUPP=N; SDP-URI-SUPP=N;
SDP-BANDWIDTH-SUPP=N; SDP-INFO-SUPP=N; SDP-TIME-SUPP=N; SDP-ATTRIB-SUPP=N;
MGCP-ERQNT-SUPP=N; MGCP-HAIRPIN-SUPP=N; MGCP-QLOOP-SUPP=N; MGCP-3WAY-HSHAKE-SUPP=Y;
MGCP-CONN-ID-AT-GW-SUPP=Y; MGCP-CMD-SEQ-SUPP=N; MGCP-VMWI-SUPP=N; TERMINATION-PREFIX=ann/;
PORT-START=0; MGCP-VERSION=MGCP_1_0; MGCP-RSVP-SUPP=N;
```



### Note

Not all fields in the mgw-profile table are noted in this section. However, fields pertaining to the feature are noted.

---

- Step 2** Add a media gateway:



```
add mgw id=ipunity_ms; tsap-addr=<ip addr of MS MGCP>; call-agent-id=CA166;
mgw-profile-id=ms_profile; rgw=n; tgw=y; call-agent-control-port=0; ans=n; ivr=y; nas=n;
pbx=n;
```

**Step 3** Add IVR trunks:

```
add annc-tg-profile id=annc_tg_p; annc=N; ivr=Y; auto_answer=Y;
```

**Step 4** Add a termination:

```
add termination prefix=ann/; port-start=0; port-end=30; type=trunk; mgw-id=ipunity_ms;
```

**Step 5** Add a trunk group:

```
add trunk-grp id=1; call-agent-id=CA146; tg_type=annc; mgw-id=ipunity_ms;
tg-profile-id=annc_tg_p; mgcp-pkg-type=AUDIO;
```

**Step 6** Add a trunk:

```
add trunk cic-start=1; cic-end=30; tgn-id=1; termination-prefix=ann/;
termination-port-start=0; termination-port-end=29; mgw-id=ipunity_ms;
```

**Step 7** Add a route:

```
add route id=rt_annc; tgn1-id=1; tg-selection=LCR;
```

**Step 8** Add a route guide:

```
add route id=rt_annc; tgn1-id=1; tg-selection=LCR;
```

**Step 9** Add an IVR script profile for the NSA and NSA\_ACT features:

```
add ivr-script-profile FNAME=NSA; IVR_ACCESS_MODE=IVR; IVR_ROUTE_GUIDE_ID=ivr_rg;
IVR_SCRIPT_PKG_TYPE=BAU;
```

```
add ivr-script-profile FNAME=NSA_ACT; IVR_ACCESS_MODE=IVR; IVR_ROUTE_GUIDE_ID=ivr_rg;
IVR_SCRIPT_PKG_TYPE=BAU;
```

**Step 10** Place the trunks and other resources out of service (OOS):

```
control trunk-termination tgn-id=20; cic=all; mode=forced; target-state=OOS;
```

```
unequip trunk-termination tgn-id=20; cic=all;
control trunk-grp id=20; mode=forced; target-state=OOS;
```

```
control mgw id=ipunity_ms; mode=forced; target-state=OOS;
```

**Step 11** Place the trunks and other resources in service (INS):

```
control mgw id=ipunity_ms; mode=forced; target-state=INS;
```

```
control trunk-grp id=20; mode=forced; target-state=INS;
```

```
equip trunk-termination tgn-id=20; cic=all;
```

```
control trunk-termination tgn-id=20; cic=all; mode=forced; target-state=INS;
```

**Step 12** Verify the status of the resources:

```
status mgw id=ipunity_ms;
status trunk-grp id=20;
status tt tgn-id=20; cic=all;
```

## Announcement Provisioning

This section explains how to specify the audio segments and audio sequences played by the IVR server.

### Step 1 If not available, add the default language ID:

```
add language id=def;
```

### Step 2 Add common audio segments:

```
add audio-segment; id=NSA; type=PHYSICAL; url=file://nsa.wav; description=No Solicitation;

add audio-segment; id=AGAIN; type=PHYSICAL; url=file://again.wav; description=again

add audio-segment; id=ANONYMOUS; type=PHYSICAL; url=file://anonymous.wav;
description=anonymous;

add audio-segment; id=ARE; type=PHYSICAL; url=file://are.wav; description=are;

add audio-segment; id=DIAL; type=PHYSICAL; url=file://dial.wav; description=dial;

add audio-segment; id=ENTRIES; type=PHYSICAL; url=file://entries.wav; description=entries;

add audio-segment; id=ENTRY; type=PHYSICAL; url=file://entry.wav; description=entry;

add audio-segment; id=EXTENSION; type=PHYSICAL; url=file://extension.wav;
description=extension;

add audio-segment; id=FROM; type=PHYSICAL; url=file://from.wav; description=from;

add audio-segment; id=INCLUDING; type=PHYSICAL; url=file://including.wav;
description=including;

add audio-segment; id=IS; type=PHYSICAL; url=file://is.wav; description=is;

add audio-segment; id=NEXT; type=PHYSICAL; url=file://next.wav; description=next;

add audio-segment; id=NO; type=PHYSICAL; url=file://no.wav; description=no;

add audio-segment; id=OFF; type=PHYSICAL; url=file://off.wav; description=off;

add audio-segment; id=ON; type=PHYSICAL; url=file://on.wav; description=on;

add audio-segment; id=REPEATING; type=PHYSICAL; url=file://repeating.wav;
description=repeating;

add audio-segment; id=THERE; type=PHYSICAL; url=file://there.wav; description=there;

add audio-segment; id=TO; type=PHYSICAL; url=file://to.wav; description=to;

add audio-segment; id=WILDCARD; type=PHYSICAL; url=file://wildcard.wav;
description=wildcard;

add audio-segment; id=YOUR; type=PHYSICAL; url=file://your.wav; description=Your;
```

### Step 3 Add NSA audio segments:

```
add audio-segment; id=NSA_1; type=PHYSICAL; url=file://nsa_1.wav; description=You have
reached a number that does not accept solicitations. If you are a solicitor, please add
this number to your do-not-call list and hang up now. Otherwise, press;

add audio-segment; id=NSA_2; type=PHYSICAL; url=file://nsa_2.wav; description=or stay on
the line;
```

```

add audio-segment; id=var_digits; type=VARIABLE; var-type=dig; var-subtype=gen;
description=string;

add audio-segment; id=var_sign; type=VARIABLE; var-type=str; description=sign(*,#);

add audio-segment; id=var_number; type=VARIABLE; var-type=num; var-subtype=crd;
description=number;

add audio-segment; id=var_time; type=VARIABLE; var-type=tme; var-subtype=t24;
description=time;

add audio-segment; id=var_day; type=VARIABLE; var-type=wkd; description=weekday;

add audio-segment; id=var_audio; type=VARIABLE; var-type=str; description=audio file;

```

#### Step 4 Add NSA\_ACT authentication audio segment:

```

add audio-segment; id=AUTH_1; type=PHYSICAL; url=file://auth_1.wav; description=Please
enter your password now;

add audio-segment; id=AUTH_2; type=PHYSICAL; url=file://auth_2.wav; description=We are
sorry, the password you entered is incorrect. Please hang up and try your call later;

add audio-segment; id=AUTH_3; type=PHYSICAL; url=file://auth_3.wav; description=You must
now change your password. Please enter a new password now

add audio-segment; id=AUTH_4; type=PHYSICAL; url=file://auth_4.wav; description=Your
password has been changed to

add audio-segment; id=AUTH_5; type=PHYSICAL; url=file://auth_5.wav; description=If you are
satisfied with this password please press

add audio-segment; id=AUTH_6; type=PHYSICAL; url=file://auth_6.wav; description=now. To
reenter the password, please press

add audio-segment; id=AUTH_7; type=PHYSICAL; url=file://auth_7.wav; description=Press <d>
to reset your password or dial

```

#### Step 5 .Add NSA\_ACT SLE audio segment:

```

add audio-segment; id=SLE_1_1; type=PHYSICAL; url=file://sle_1_1.wav; description=service
is currently;

add audio-segment; id=SLE_1_2; type=PHYSICAL; url=file://sle_1_2.wav; description=on your
list;

add audio-segment; id=SLE_1_3; type=PHYSICAL; url=file://sle_1_3.wav; description=You may
dial during the announcements for faster service. When you have finished, hang up;

add audio-segment; id=SLE_3_1; type=PHYSICAL; url=file://sle_3_1.wav; description=To turn
this service;

add audio-segment; id=SLE_3_2; type=PHYSICAL; url=file://sle_3_2.wav; description=To add
an entry, press

add audio-segment; id=SLE_3_3; type=PHYSICAL; url=file://sle_3_3.wav; description=To
remove one or more entries, press

add audio-segment; id=SLE_3_4; type=PHYSICAL; url=file://sle_3_4.wav; description=To hear
the entries on your list, press

add audio-segment; id=SLE_3_5; type=PHYSICAL; url=file://sle_3_5.wav; description=To hear
these instructions repeated, dial

```

```

add audio-segment; id=SLE_3_6; type=PHYSICAL; url=file://sle_3_6.wav; description=Please
dial now.

add audio-segment; id=SLE_7; type=PHYSICAL; url=file://sle_7.wav; description=We are
sorry. The number you have dialed is incorrect;

add audio-segment; id=SLE_8; type=PHYSICAL; url=file://sle_8.wav; description=We are
sorry, the digits dialed are not a valid command;

add audio-segment; id=SLE_11_1; type=PHYSICAL; url=file://sle_11_1.wav;
description=service is now;

add audio-segment; id=SLE_11_2; type=PHYSICAL; url=file://sle_11_2.wav; description=Please
continue, dial;

add audio-segment; id=SLE_11_3; type=PHYSICAL; url=file://sle_11_3.wav; description=for
instructions or hang up;

add audio-segment; id=SLE_13_1; type=PHYSICAL; url=file://sle_13_1.wav; description=To
turn on this service, you must add an entry to your list. To add an entry, please press;

add audio-segment; id=SLE_13_2; type=PHYSICAL; url=file://sle_13_2.wav; description=If you
wish to hear this announcement repeated, please dial;

add audio-segment; id=SLE_14_1; type=PHYSICAL; url=file://sle_14_1.wav; description=Dial
the number to be added, then press;

add audio-segment; id=SLE_14_2; type=PHYSICAL; url=file://sle_14_2.wav; description=To add
the last calling party, press;

add audio-segment; id=SLE_14_3; type=PHYSICAL; url=file://sle_14_3.wav; description=then
press the

add audio-segment; id=SLE_14_4; type=PHYSICAL; url=file://sle_14_4.wav; description=To add
an extension, press

add audio-segment; id=SLE_14_5; type=PHYSICAL; url=file://sle_14_5.wav; description=To add
a wildcard, press

add audio-segment; id=SLE_15_1; type=PHYSICAL; url=file://sle_15_1.wav; description=Dial
the number to be removed, then press

add audio-segment; id=SLE_15_2; type=PHYSICAL; url=file://sle_15_2.wav; description=To
remove all entries, dial

add audio-segment; id=SLE_15_3; type=PHYSICAL; url=file://sle_15_3.wav; description=To
remove just the anonymous entries, dial

add audio-segment; id=SLE_15_4; type=PHYSICAL; url=file://sle_15_4.wav; description=To
remove an extension, press

add audio-segment; id=SLE_15_5; type=PHYSICAL; url=file://sle_15_5.wav; description=To
remove a wildcard, press

add audio-segment; id=SLE_16_1; type=PHYSICAL; url=file://sle_16_1.wav; description=We are
sorry. The number of the last calling party is not available;

add audio-segment; id=SLE_16_2; type=PHYSICAL; url=file://sle_16_2.wav; description=Please
start again, or dial;

add audio-segment; id=SLE_16_3; type=PHYSICAL; url=file://sle_16_3.wav; description=for
instructions;

```

```
add audio-segment; id=SLE_17; type=PHYSICAL; url=file://sle_17.wav; description=The number
you have added is an anonymous entry;

add audio-segment; id=SLE_18; type=PHYSICAL; url=file://sle_18.wav; description=The number
you have added is;

add audio-segment; id=SLE_19; type=PHYSICAL; url=file://sle_19_1.wav; description=We are
sorry. Your list is full. You must remove an entry before adding another. Please try other
options or dial;

add audio-segment; id=SLE_20_1; type=PHYSICAL; url=file://sle_20_1.wav; description=We are
sorry. Please try adding the number in a few minutes;

add audio-segment; id=SLE_20_2; type=PHYSICAL; url=file://sle_20_2.wav; description=Please
continue or dial;

add audio-segment; id=SLE_21_1; type=PHYSICAL; url=file://sle_21_1.wav; description=We are
sorry. The number you have dialed is not a valid number. Please try again later.;

add audio-segment; id=SLE_22; type=PHYSICAL; url=file://sle_22.wav; description=We are
sorry. There are no entries on your list. Please try other options or dial

add audio-segment; id=SLE_23; type=PHYSICAL; url=file://sle_23.wav; description=The number
you have removed is an anonymous entry;

add audio-segment; id=SLE_24; type=PHYSICAL; url=file://sle_24.wav; description=The number
you have removed is;

add audio-segment; id=SLE_25; type=PHYSICAL; url=file://sle_25.wav; description=There are
no more entries on your list. Please continue, dial;

add audio-segment; id=SLE_26; type=PHYSICAL; url=file://sle_26.wav; description=There are
no more anonymous entries on your list. Please continue, dial;

add audio-segment; id=SLE_27; type=PHYSICAL; url=file://sle_27.wav; description=on your
list. Please try other options, or dial;

add audio-segment; id=SLE_28_1; type=PHYSICAL; url=file://sle_28_1.wav; description=To
delete an entry, dial

add audio-segment; id=SLE_28_2; type=PHYSICAL; url=file://sle_28_2.wav; description=as
soon as you hear it

add audio-segment; id=SLE_29; type=PHYSICAL; url=file://sle_29.wav; description=This is
the end of your list;

add audio-segment; id=SLE_30; type=PHYSICAL; url=file://sle_30.wav; description=The first
entry on your list is;

add audio-segment; id=SLE_38; type=PHYSICAL; url=file://sle_38.wav; description=The number
is already on your list as an anonymous entry;

add audio-segment; id=SLE_39; type=PHYSICAL; url=file://sle_39.wav; description=This
number is already on your list;

add audio-segment; id=SLE_40; type=PHYSICAL; url=file://sle_40.wav; description=The number
to be removed is not on your list. Please start again, dial

add audio-segment; id=SLE_41; type=PHYSICAL; url=file://sle_41.wav; description=This is
the end of your list. Your list is now empty;
```

#### Step 6 Add NSA\_ACT Time of Day Schedule audio segments:

```

add audio-segment; id=SLE_TOD; type=PHYSICAL; url=file://sle_tod.wav; description=To
schedule this service, press;
add audio-segment; id=SLE_TOD_ON; type=PHYSICAL; url=file://sle_tod_on.wav; description=on
based on the time-of-day schedule;
add audio-segment; id=SLE_TOD_OFF; type=PHYSICAL; url=file://sle_tod_off.wav;
description=off based on the time-of-day schedule;
add audio-segment; id=TIME_MGMT_01; type=PHYSICAL; url=file://time_mgmt_01.wav;
description=Now is;
add audio-segment; id=TIME_MGMT_02; type=PHYSICAL; url=file://time_mgmt_02.wav;
description=service is scheduled to be on;
add audio-segment; id=TIME_MGMT_03; type=PHYSICAL; url=file://time_mgmt_03.wav;
description=If you are satisfied with this schedule, please press;
add audio-segment; id=TIME_MGMT_04; type=PHYSICAL; url=file://time_mgmt_04.wav;
description=now. To set a different time-of-day-schedule, press;
add audio-segment; id=TIME_MGMT_05; type=PHYSICAL; url=file://time_mgmt_05.wav;
description=Please dial now;

add audio-segment; id=TIME_MGMT_06; type=PHYSICAL; url=file://time_mgmt_06.wav;
description=Please enter the start time in 24 hour format;

add audio-segment; id=TIME_MGMT_07; type=PHYSICAL; url=file://time_mgmt_07.wav;
description=Please enter the end time in 24 hour format;

add audio-segment; id=TIME_MGMT_08; type=PHYSICAL; url=file://time_mgmt_08.wav;
description=Please enter the start weekday, 0 stands for Sunday, 6 stands for Saturday;

add audio-segment; id=TIME_MGMT_09; type=PHYSICAL; url=file://time_mgmt_09.wav;
description=Please enter the end weekday, 0 stands for Sunday, 6 stands for Saturday;

add audio-segment; id=TIME_MGMT_10; type=PHYSICAL; url=file://time_mgmt_10.wav;
description=That is not a valid time, the time value should be between 0 to 2359, the end
time must be later than the start time;

add audio-segment; id=TIME_MGMT_11; type=PHYSICAL; url=file://time_mgmt_11.wav;
description=That is not a valid day, the day value should be between 0 to 6;

add audio-segment; id=TIME_MGMT_12; type=PHYSICAL; url=file://time_mgmt_12.wav;
description=The new schedule is now applicable;

```

#### Step 7 Add the NSA audio sequence:

```

add audio_seq id=NSA_INVOCATION; language_id=def; seq=NSA_1,var_digits,NSA_2;
description=You have reached a number that does not accept solicitations. If you are a
solicitor, please add this number to your do-not-call list and hang up now. Otherwise,
press <d> or stay on the line;

```

#### Step 8 Add NSA\_ACT Authentication audio sequence:

```

add audio_seq id=AUTH_START; language_id=def; seq=AUTH_1; description=Please enter your
password now;

add audio_seq id=AUTH_INVALID_PIN; language_id=def; seq=AUTH_2; description=We are sorry,
the password you entered is incorrect. Please hang up and try your call later;

add audio_seq id=AUTH_NEW_PIN; language_id=def; seq=AUTH_3; description=You must now
change your password. Please enter a new password now;

add audio_seq id=AUTH_REPLAY_PIN; language_id=def;
seq=AUTH_4,var_digits,AUTH_5,var_digits,AUTH_6,var_digits; description=Your password has
been changed to <ds>. If you are satisfied with this password please press <d> now. To
reenter the password, please press <d>;

add audio_seq id=AUTH_END; language_id=def; seq=AUTH_4,var_digits; description=Your
password has been changed to <d>;

```

**Step 9** Add NSA\_ACT SLE audio sequence:

```

add audio_seq id=GR220_1_ALL_PUB; language_id=def;
seq=YOUR,var_audio,SLE_1_1,var_audio,THERE,var_audio,var_number,var_audio,SLE_1_2,SLE_1_3;
description=Your <NSA> service is currently <on/off/tod-on/tod-off>. There <is/are>
<no/num> <entry/entries> on your list. You may dial during the announcements for faster
service. When you have finished, hang up;

add audio_seq id=GR220_1_ALL_ANM; language_id=def;
seq=YOUR,var_audio,SLE_1_1,var_audio,THERE,var_audio,var_number,ANONYMOUS,var_audio,SLE_1_
2,SLE_1_3; description=Your <NSA> service is currently <on/off/tod-on/tod-off>. There
<is/are> <num> anonymous <entry/entries> on your list. You may dial during the
announcements for faster service. When you have finished, hang up;

add audio_seq id=GR220_1_MIXED; language_id=def;
seq=YOUR,var_audio,SLE_1_1,var_audio,THERE,var_audio,var_number,var_audio,SLE_1_2,INCLUDIN
G,var_number,ANONYMOUS,var_audio,SLE_1_3; description=Your <NSA> service is currently
<on/off/tod-on/tod-off>. There <is/are> <no/num> <entry/entries> on your list, including
<num> anonymous <entry/entries>. You may dial during the announcements for faster service.
When you have finished, hang up;

add audio_seq id=GR220_3; language_id=def;
seq=SLE_3_1,var_audio,DIAL,var_digits,SLE_3_2,var_sign,SLE_3_3,var_sign,SLE_3_4,var_digits
,SLE_3_5,var_digits,SLE_3_6; description=To turn this service <on/off>, dial <d>. To add
an entry, press <sign>. To remove one or more entries, press <sign>. To hear the entries
on your list, press <d>. To hear the instructions repeated, dial <d>. Please dial now;

add audio_seq id=GR220_3_TOD; language_id=def;
seq=SLE_3_1,var_audio,DIAL,var_digits,SLE_TOD,var_digits,SLE_3_2,var_sign,SLE_3_3,var_sign
,SLE_3_4,var_digits,SLE_3_5,var_digits,SLE_3_6; description=To turn this service <on/off>,
dial <d>. To schedule this service, press <d>, To add an entry, press <sign>. To remove
one or more entries, press <sign>. To hear the entries on your list, press <d>. To hear
the instructions repeated, dial <d>. Please dial now;

add audio_seq id=GR220_7_OTHER; language_id=def;
seq=SLE_7,SLE_16_2,var_digits,SLE_16_3; description=We are sorry. The number you have
dialed is incorrect. Please start again or dial <d> for instructions.;

add audio_seq id=GR220_7_ACTV; language_id=def;
seq=SLE_7; description=We are sorry. The number you have dialed is incorrect;

add audio_seq id=GR220_8; language_id=def;
seq=SLE_8; description=We are sorry, the digits dialed are not a valid command;

add audio_seq id=GR220_11; language_id=def;
seq=YOUR,var_audio,SLE_11_1,OFF,SLE_11_2,var_digits,SLE_11_3; description=Your <NSA>
service is now off. Please continue, dial <d> for instructions or hang up;

add audio_seq id=GR220_12; language_id=def;
seq=YOUR,var_audio,SLE_11_1,ON,SLE_11_2,var_digits,SLE_11_3; description=Your <NSA>
service is now on. Please continue, dial <d> for instructions or hang up;

add audio_seq id=GR220_13; language_id=def; seq=SLE_13_1,var_sign,SLE_13_2,var_digits;
description=To turn on this service, you must add an entry to your list. To add an entry,
please press <sign>. If you wish to hear this announcement repeated, please dial <d>;

add audio_seq id=GR220_14; language_id=def;
seq=SLE_14_1,var_sign,AGAIN,SLE_14_2,var_digits,SLE_14_3,var_sign,AGAIN,SLE_14_5,var_digiti
s,SLE_14_1,var_sign,AGAIN,SLE_3_6; description=Dial the number to be added, then press
<sign> again. To add the last calling party, press <d>, then press the <sign> again. To
add a wildcard, press <d>, dial the number to be added, then press <sign> again. Please
dial now;

```

```

add audio_seq id=GR220_14_EXT; language_id=def;
seq=SLE_14_1,var_sign,AGAIN,SLE_14_2,var_digits,SLE_14_3,var_sign,AGAIN,SLE_14_4,var_digits,
SLE_14_1,var_sign,AGAIN,SLE_14_5,var_digits,SLE_14_1,var_sign,AGAIN,SLE_3_6;
description=Dial the number to be added, then press <sign> again. To add the last calling
party, press <d>, then press the <sign> again. To add an extension, press <d>, dial the
number to be added, then press <sign> again. To add a wildcard, press <d>, dial the number
to be added, then press <sign> again. Please dial now;

add audio_seq id=GR220_15; language_id=def;
seq=SLE_15_1,var_sign,SLE_15_2,var_digits,SLE_14_3,var_sign,AGAIN,SLE_15_3,var_digits,SLE_
14_3,var_sign,AGAIN,SLE_15_5,var_digits,SLE_14_3,var_sign,AGAIN,SLE_3_5,var_digits,SLE_3_6
; description=Dial the number to be removed, then press <sign>. To remove all entries,
dial <dd>, then press the <sign> again. To remove just the anonymous entries, dial <dd>,
then press the <sign> again. To remove a wildcard, dial <dd>, then press <sign> again. To
hear these instructions repeated, dial <d>. Please dial now;

add audio_seq id=GR220_15_EXT; language_id=def;
seq=SLE_15_1,var_sign,SLE_15_2,var_digits,SLE_14_3,var_sign,AGAIN,SLE_15_3,var_digits,SLE_
14_3,var_sign,AGAIN,SLE_15_4,var_digits,SLE_14_3,var_sign,AGAIN,SLE_15_5,var_digits,SLE_14
_3,var_sign,AGAIN,SLE_3_5,var_digits,SLE_3_6; description=Dial the number to be removed,
then press <sign>. To remove all entries, dial <dd>, then press the <sign> again. To
remove just the anonymous entries, dial <dd>, then press the <sign> again. To remove an
extension, dial <dd>, then press <sign> again. To remove a wildcard, dial <dd>, then press
<sign> again. To hear these instructions repeated, dial <d>. Please dial now;

add audio_seq id=GR220_16_OTHER; language_id=def;
seq=SLE_16_1; description=We are sorry. The number of the last calling party is not
available.

add audio_seq id=GR220_16_ACTV; language_id=def;
seq=SLE_16_1,SLE_16_2,var_digits,SLE_16_3; description=We are sorry. The number of the
last calling party is not available. Please start again or dial <d> for instructions.

Add audio_seq id=GR220_17_OTHER; language_id=def; seq=SLE_17; description=The number you
have added is an anonymous entry.

add audio_seq id=GR220_17_ACTV; language_id=def;
seq=SLE_17,SLE_11_2,var_digits,SLE_11_3; description=The number you have added is an
anonymous entry. Please continue, dial <d> for instruction, or hang up.

add audio_seq id=GR220_18_OTHER; language_id=def;
seq=SLE_18,var_audio,var_digits; description=The number you have added is
<silence/extension> <d>;

add audio_seq id=GR220_18_ACTV; language_id=def;
seq=SLE_18,var_audio,var_digits,SLE_11_2,var_digits,SLE_11_3; description=The number you
have added is <silence/extension> <d>. Please continue, dial <d> for instructions, or hang
up.;

add audio_seq id=GR220_19; language_id=def;
seq=SLE_19,var_digits,SLE_16_3; description=We are sorry. Your list is full. You must
remove an entry before adding another. Please try other options or dial <d> for
instructions;

add audio_seq id=GR220_20_OTHER; language_id=def;
seq=SLE_20_1; description=We are sorry. Please try adding the number in a few minutes;

add audio_seq id=GR220_20_ACTV; language_id=def;
seq=SLE_20_1,SLE_20_2,var_digits,SLE_16_3; description=We are sorry. Please try adding the
number in a few minutes. Please continue, or dial <d> for instructions;

add audio_seq id=GR220_21_OTHER; language_id=def;
seq=SLE_21_1; description=We are sorry. The number you have dialed is not a valid number.
Please try again later.;

```



```
add audio_seq id=GR220_21_ACTV; language_id=def;
seq=SLE_21_1,SLE_20_2,var_digits,SLE_16_3; description=We are sorry. The number you have
dialed is not a valid number. Please try again later. Please continue, or dial <d> for
instructions;

add audio_seq id=GR220_22; language_id=def;
seq=SLE_22,var_digits,SLE_16_3; description=We are sorry. There are no entries on your
list. Please try other options or dial <d> for instructions;

add audio_seq id=GR220_23; language_id=def;
seq=SLE_23,SLE_11_2,var_digits,SLE_11_3; description=The number you have removed is an
anonymous entry. Please continue, dial <d> for instructions, or hang up;

add audio_seq id=GR220_24; language_id=def;
seq=SLE_24,var_audio,var_digits; description=The number you have removed is
<silence/wildcard/extension> <ds>;

add audio_seq id=GR220_25; language_id=def;
seq=SLE_25,var_digits,SLE_11_3; description=There are no more entries on your list. Please
continue, dial <d> for instructions, or hang up;

add audio_seq id=GR220_26; language_id=def;
seq=SLE_26,var_digits,SLE_11_3; description=There are no more anonymous entries on your
list. Please continue, dial <d> for instructions, or hang up;

add audio_seq id=GR220_27; language_id=def;
seq=THERE,var_audio,var_number,ANONYMOUS,var_audio,SLE_27,SLE_16_3; description=There
<is/are> <one/num> anonymous <entry/entries> on your list. Please try other options, or
dial <d> for instructions;

add audio_seq id=GR220_28_PUB; language_id=def;
seq=THERE,var_audio,var_number,var_audio,SLE_1_2,SLE_28_1,var_digits,SLE_28_2;
description=There <is/are> <one/num> <entry/entries> on your list. To delete an entry,
dial <dd> as soon as you hear it;

add audio_seq id=GR220_28_ANM; language_id=def;
seq=THERE,var_audio,var_number,var_audio,SLE_1_2,INCLUDING,var_number,ANONYMOUS,var_audio,
SLE_28_1,var_digits,SLE_28_2; description=There <is/are> <one/num> <entry/entries> on your
list, including <one/num> anonymous <entry/entries>. To delete an entry, dial <dd> as soon
as you hear it;

add audio_seq id=GR220_29; language_id=def; seq=SLE_29; description=This is the end of
your list;

add audio_seq id=GR220_30; language_id=def; seq=SLE_30,var_audio,var_digits;
description=The first entry on your list is <silence/extension> <ds>;

add audio_seq id=GR220_31; language_id=def; seq=NEXT,var_audio,var_digits;
description=Next, <silence/extension> <ds>;

add audio_seq id=GR220_38; language_id=def; seq=SLE_38,SLE_11_2,var_digits,SLE_11_3;
description=The number is already on your list as an anonymous entry. Please continue,
dial <d> for instructions, or hang up;

add audio_seq id=GR220_39; language_id=def;
seq=SLE_39,var_audio,var_digits,SLE_11_2,var_digits,SLE_11_3; description=This number is
already on your list. <silence/extension> <ds>. Please continue, dial <d> for
instructions, or hang up;

add audio_seq id=GR220_40; language_id=def; seq=SLE_40,var_digits,SLE_11_3;
description=The number to be removed is not on your list. Please start again, dial <d> for
instructions, or hang up;
```

```
add audio_seq id=GR220_41; language_id=def; seq=SLE_41; description=This is the end of
your list. Your list is now empty;
```

```
add audio_seq id=GR220_42; language_id=def; seq=REPEATING,var_audio,var_digits;
description=Repeating, <silence/extension>, <ds>;
```

#### Step 10 Add NSA\_ACT time of day schedule audio-sequence:

```
add audio_seq id=TOD_START; language_id=def;
seq=TIME_MGMT_01,var_day,var_time,YOUR,var_audio,TIME_MGMT_02,FROM,var_day,var_time,TO,var
_day,var_time,TIME_MGMT_03,var_digits,TIME_MGMT_04,var_digits,TIME_MGMT_05;
description=Now is <day><time>. Your <fname> service is scheduled to be on from <day>
<time> to <day> <time>. If you are satisfied with this schedule, please press <d> now. To
set a different time-of-day schedule, press <d>. Please dial now.
```

```
add audio_seq id=TOD_START_TIME; language_id=def; seq=TIME_MGMT_06; description=Please
enter the start time in 24 hour format;
```

```
add audio_seq id=TOD_STOP_TIME; language_id=def; seq=TIME_MGMT_07; description=Please
enter the end time in 24 hour format;
```

```
add audio_seq id=TOD_START_DAY; language_id=def; seq=TIME_MGMT_08; description=Please
enter the start weekday, 0 stands for Sunday, 6 stands for Saturday;
```

```
add audio_seq id=TOD_STOP_DAY; language_id=def; seq=TIME_MGMT_09; description=Please enter
the end weekday, 0 stands for Sunday, 6 stands for Saturday;
```

```
add audio_seq id=TOD_INVALID_TIME; language_id=def; seq=TIME_MGMT_10;
description=That is not a valid time, the time value should be between 0 to 2359, the end
time must be later than the start time;
```

```
add audio_seq id=TOD_INVALID_DAY; language_id=def; seq=TIME_MGMT_11; description=That is
not a valid day, the day value should be between 0 to 6;
```

```
add audio_seq id=TOD_CONFIRM; language_id=def;
seq=TIME_MGMT_12,SLE_11_2,var_digits,SLE_11_3;
description=The new schedule is now applicable.Please continue, dial <d> for instructions,
or hang up;
```

## Provisioning Feature Control Options for the IVR Interactions

This section explains how to provision certain controls for the interactions between the subscriber and the IVR server.

#### Step 1 Add feature configuration for NSA:

```
add feature-config; fname=NSA; type=INVOKE-DIGITS; datatype=digits; value=1;
add feature-config; fname=NSA; type=REESTART-KEY; datatype=string; value="*";
add feature-config; fname=NSA; type=RETURN-KEY; datatype=string; value="#";
add feature-config; fname=NSA; type=FDT-TIMER; datatype=digits; value=50;
add feature-config; fname=NSA; type=IDT-TIMER; datatype=digits; value=50;
```

#### Step 2 Add feature configuration for NSA\_ACT:

```
add feature-config; fname=NSA_ACT; type=RESTART-KEY; datatype=string; value="*";
description=restart key;
add feature-config; fname=NSA_ACT; type=RETURN-KEY; datatype=string; value="#";
description=return key;
add feature-config; fname=NSA_ACT; type=NUM-ATTEMPTS; datatype=integer; value=1;
description=number of attempts;
```

```
add feature-config; fname=NSA_ACT; type=T-SESSION; datatype=integer; value=600;
description=session timer in 1/10 second;
```

**Step 3** Add feature configuration for NSA\_ACT authentication:

```
add feature-config; fname=NSA_ACT; type=AUTH-ENABLED; datatype=string; value="Y";
description=whether to enable authentication for NSA_ACT or not;
```

```
add feature-config; fname=NSA_ACT; type=AUTH-REPLAY-PIN-OP-CONFIRM; datatype=digits;
value=1;
add feature-config; fname=NSA_ACT; type=AUTH-REPLAY-PIN-OP-REENTER; datatype=digits;
value=2;
```

**Step 4** Add feature configuration for NSA\_ACT time management:

```
add feature-config; fname=NSA_ACT; type=TOD-ENABLED; datatype=string; value="Y";
description=whether to enable TOD for NSA_ACT or not;
```

```
audio-sequence LE_MS_ON/LE_MS_OFF
add feature-config; fname=NSA_ACT; type=TOD-SET-OLD; datatype=digits; value=1;
add feature-config; fname=NSA_ACT; type=TOD-SET-NEW; datatype=digits; value=2;
```

**Step 5** Add feature configuration for SLE:

```
add feature-config; fname=SLE; type=T1-TIMER; datatype=integer; value=40; description=T1
defines how long the SPCS waits for the customer to confirm an existing remote DN or
indicate that the remote DN should be changed. T1 shall be settable between 2 and 10
seconds with an interval of 1 second and a suggested value of 4 seconds;
```

```
add feature-config; fname=SLE; type=T2-TIMER; datatype=integer; value=40; description=T2
defines how long the SPCS waits for the customer to specify a new remote DN. T2 defines
how long the SPCS waits for the customer to specify a new remote DN;
```

```
add feature-config; fname=SLE; type=T3-TIMER; datatype=integer; value=40; description=T3
defines how long the SPCS waits for the customer to specify "#", "12", or "0" when a DN
must be added to the list during feature activation. T3 shall be settable between 2 and 10
seconds with an interval of 1 second and a suggested value of 4 seconds;
```

```
add feature-config; fname=SLE; type=T4-TIMER; datatype=integer; value=40; description=T4
defines how long the SPCS waits for the customer to specify a DN when adding or deleting
an entry. T4 shall be settable between 2 and 10 seconds with an interval of 1 second and a
suggested value of 4 seconds;
```

```
add feature-config; fname=SLE; type=T5-TIMER; datatype=integer; value=30; description=T5
specifies the time the originating SPCS waits for a response to the initial query sent to
the Screened DN.s SPCS. T5 shall be settable between 2 and 4 seconds with an interval of 1
second and a suggested value of 3 seconds.
```

```
add feature-config; fname=SLE; type=T6-TIMER; datatype=integer; value=25; description=T6
defines how long the SPCS waits for the customer to specify an option after an entry on
the list has been voiced back during list review. For DTMF customers, T6 shall be settable
between 2 and 3 seconds with an interval of 0.5 second and a suggested value of 2.5
seconds. For dial pulse customers, it shall be settable between 3 and 4 seconds with an
interval of 0.5 second and a suggested value of 3.5 seconds;
```

```
add feature-config; fname=SLE; type=IDT-TIMER; datatype=integer; value=40;
description=Interdigit timer, the interdigit timing shall be settable between 2 and 9
seconds with an interval of 1 second and a suggested value of 4 seconds;
```

```
add feature-config; fname=SLE; type=REPEAT-INSTRUCTION; datatype=digits; value=0;
add feature-config; fname=SLE; type=LIST-REVIEW; datatype=digits; value=1;
add feature-config; fname=SLE; type=TOD; datatype=digits; value=2;
add feature-config; fname=SLE; type=CHANGE-STATUS; datatype=digits; value=3;
add feature-config; fname=SLE; type=ADD-ENTRY; datatype=string; value="#";
add feature-config; fname=SLE; type=DELETE-ENTRY; datatype=string; value="*";
```

```

add feature-config; fname=SLE; type=ADD-ENTRY-RETURN-KEY; datatype=string; value="*";
add feature-config; fname=SLE; type=DELETE-ENTRY-RETURN-KEY; datatype=string; value="#*";
add feature-config; fname=SLE; type=LAST-CALLING-PARTY; datatype=digits; value=01;
add feature-config; fname=SLE; type=INTERCOM-DIALING-CODE; datatype=digits; value=02;
add feature-config; fname=SLE; type=WILDCARD; datatype=digits; value=03;
add feature-config; fname=SLE; type=DELETE-VOICED-BACK-ENTRY; datatype=digits; value=07;
add feature-config; fname=SLE; type=DELETE-ALL-ENTRIES; datatype=digits; value=08;
add feature-config; fname=SLE; type=DELETE-ALL-ANONYMOUS-ENTRIES; datatype=digits;
value=09;
add feature-config; fname=SLE; type=LIST-EDITING-RETURN-KEY; datatype=digits; value="#*";
add feature-config; fname=SLE; type=NUM-ATTEMPTS; datatype=integer; value=1;
description=number of attempts, not in GR-220;
add feature-config; fname=SLE; type=T-SESSION; datatype=integer; value=600;
description=default session timer, not in GR-220;

```

## Subscriber Provisioning

This section describes the steps required to provision subscribers, assign the NSA service, and perform initial setup of the PIN.

### Step 1 If not available, add a subscriber entry for subscriber:

```
add subscriber id=sub_1; sub-profile-id=subprof_1; DN1=4692553008;
```

### Step 2 Assign the service to the subscriber:

```
add subscriber-service-profile sub_id=subscriber_1; service-id=nsa;
```

```
add subscriber-feature-data sub-id=sub_1_1; fname=NSA_ACT; type1=PINTYPE; value1=NEWPIN;
```



### Caution

You must enter the following command after turning on authentication. Otherwise, the customer will be prompted for the PIN, but will always be denied access to the management menu. (Authentication for NSA\_ACT is turned on by default and is provisionable using the add/change feature-config command as described in the [“Provisioning Feature Control Options for the IVR Interactions”](#) section on [page 7-108](#).)

### Step 3 Add subscriber-feature-data for initial setup of the PIN:

```
add subscriber-feature-data sub-id=sub_1_1; fname=NSA_ACT; type1=PINTYPE; value1=NEWPIN;
```

### Step 4 Add subscriber-tod-schedule to set options for scheduling when the NSA feature will be active:

```
add subscriber-tod-schedule sub-id=johnsmith; fname=nsa;
```

```
add subscriber-tod-schedule sub-id=johnsmith; fname=nsa; begin-dow=THU; end-dow=FRI;
begin-tod=14:00; end-tod=17:00;
```

## Centrex Provisioning

In addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber.

## MLHG Provisioning

MLHG provisioning is similar to subscriber provisioning.

## Provisioning Notes/Caveats

- One of the three FDN values assigned in sub-feature-data must be the subscriber's primary DN.

## On-Net Routing and Local Number Portability for Inter-PacketCable Cable Management Server Routing

The following subsections provide example scenarios for provisioning the On-Net Routing and Local Number Portability (LNP) for Inter-PacketCable Cable Management Server (CMS) Routing feature.

**Note**

See [Local Number Portability for ANSI/North America, page 7-81](#) for detailed information on provisioning LNP.

## Provisioning LNP Queries

For all Destinations resulting from dial plan translations for which an LNP query may be allowed, use the Destination NANP-LNP-QUERY default value NA. For all Carrier entries, use LNP-QUERY default value N.

Specify the NANP-LNP-QUERY value either implicitly using add destination without specifying NANP-LNP-QUERY parameter, or explicitly set it.

For example:

```
change destination dest-id=local_call; nanp-lnp-query=NA;
```

Specify Carrier LNP-QUERY = N implicitly by omitting the LNP-QUERY parameter, or explicitly.

For example:

```
change carrier id=0333; lnp-query=N;
```

## Provisioning an LNP Query on a Carrier Call

For all destinations resulting from dial plan translations which could result in Carrier routing (e.g., Destination call-type INTERLATA, TOLL, or CARRIER), the destination NANP-LNP-QUERY should have value PERFORM-LNP-QUERY or NA. If value NA is used, then the appropriate Carrier entry should have either USE-DIAL-PLAN=Y or LNP-QUERY = Y.

For example,

Either:

```
add destination dest-id=dest_carrier; call-type=INTERLATA; route-type=ROUTE;
route-guide-id=carrier_rg; nanp-lnp-query=PERFORM-LNP-QUERY; description=Allow LNP query
on Carrier calls;
```

Or

```

add destination dest-id=dest_carrier; call-type=INTERLATA; route-type=ROUTE;
route-guide-id=carrier_rg; description=nanp-lnp-query has default value NA!;

add carrier id=0333; inter=Y; intra=Y; intl=Y; use-dial-plan=N; route-guide-id=dpcl-rg;
cut-thru=N; status=INS; lnp-query=Y; description=Allow an LNP query on calls to this
carrier;

add ported-office-code digit-string=703-484;

add dial-plan id=dp_nanp_sub; digit-string=703-484; min-digits=10; max-digits=10;
dest-id=dest_carrier;

```

## Provisioning Carrier Bypass (On-Net Route)—No LNP Queries

The Cisco BTS 10200 Softswitch will route this call to the carrier unless the called DN is a subscriber assigned on this switch and not in a porting transition state. For this scenario, the operator wants carrier bypass for local subscribers, but does not want to incur the overhead of LNP queries for DNs which are in the process of porting in or porting out (LNP-TRIGGER=Y). The operator might know that either A) there are no transition DNs in this switch (or perhaps all are ported-out), or B) there are very few, and the operator would prefer that the Carrier do the LNP query, and route calls back to our switch for a very few calls.

The destination has call-type INTERLATA for Carrier routing, SUB-ONLY to allow carrier bypass for local subs, and NO-LNP-QUERY to force calls needing a query to go to the carrier.

For example:

```

add destination dest-id=carrier_or_sub; call-type=INTERLATA; route-type=SUB;
bypass-carrier-routing=SUB-ONLY; nanp-lnp-query=NO-LNP-QUERY; description=Carrier route
unless SUB assigned (no query);

```

## Provisioning Carrier Bypass (On-Net Route)—LNP Queries

The Cisco BTS 10200 Softswitch routes this call to the carrier unless the called DN is a subscriber assigned on this switch. This includes DNs which are in the process of either porting in or porting out. For these transition DNs requiring an "unconditional" (ATIS document terminology), which are marked with Dn2subscriber LNP-TRIGGER=Y, will get an LNP query before the routing decision is made. For the transition DNs for which there is an LNP query, the LNP query results determine whether the call is routed to the Carrier or bypasses the carrier if the subscriber is in this switch.

The Destination has call-type INTERLATA for Carrier routing, SUB-ONLY to allow carrier bypass for local subs, and UNCONDITIONAL-LNP-TRIGGER-QUERY to allow a query for DNs during the transition period.

For example:

```

add destination dest-id=carr_or_sub_lnp; call-type=INTERLATA; route-type=SUB;
bypass-carrier-routing=SUB-ONLY; nanp-lnp-query=UNCONDITIONAL-LNP-TRIGGER-QUERY;
description=Carrier unless local SUB (query DNs during porting transition);

```

# Mark DN 703-765-4449 as a 'transition DN' in the process of porting in or porting out

```

change dn2subscriber office-code-index=1; dn=4449; lnp-trigger=Y;

```

## Provisioning Carrier Bypass (On-Net Route)—Multi-Cisco BTS 10200 Softswitches

The Destination NANP-LNP-QUERY PERFORM-LNP-QUERY value is used to ensure that an LNP query is done before on-net routing. Of course, this query is still conditional, depending on whether the Ported Office Code entry exists and other related criteria. The destination call-type is either INTERLATA or TOLL, and the BYPASS-CARRIER-ROUTING value is ALL-CALLS. Three routing scenarios are possible:

1. Route to carrier for off-net call.
2. Route using destination for on-net call to another on-net switch.
3. Route on-net to subscriber in the same switch. Ignore carrier and destination routes.

For example:

```
add destination dest-id=carrier_or_bypass; call-type=INTERLATA; route-type=ROUTE;
route-guide-id=on_net_rg; nanp-lnp-query=PERFORM-LNP-QUERY;
bypass-carrier-routing=ALL-CALLS; description=LNP query, and route to carrier, or on-net;
```

## Provisioning Inter-CMS—Subscriber Origination (if no NRS), or Trunk Origination on MGC or Terminating CMS (ALL-CALLS + LNP Query)

The provisioning for this scenario is identical to [Provisioning Carrier Bypass \(On-Net Route\)—Multi-Cisco BTS 10200 Softswitches](#).

## Provisioning Inter-CMS with NRS—Same Cisco BTS 10200 Softswitch Acting as CMS and MGC

The key to understanding this configuration is realizing that for a subscriber origination, the subscriber dial plan will result in a Destination which does not allow an LNP query and may have an on-net route to the NRS. But for a trunk origination on the same Cisco BTS 10200 Softswitch, the incoming trunk dial plan, for the same DN, has a different destination, which will allow an LNP query, and will not bypass the Carrier for calls to the PSTN.

For example:

# Subscriber Destination and Dial Plan; 703-484 is on-net, 301-444 is off-net;

# 703-484 may have DNs ported-out (needs queries).

# 301-444 (off-net) has no ported-in DNs Cisco BTS 10200 Softswitch, and does not need dial-plan entry (always carrier routing)

```
add destination dest-id=cms_sub_nrs; call-type=INTERLATA; route-type=ROUTE;
route-guide-id=nrs_rg; bypass-carrier-routing=ALL-CALLS; nanp-lnp-query=NO-LNP-QUERY;
description=Route all sub originations to NRS with no LNP query;
```

```
add dial-plan id=dp_nanp_sub; digit-string=703-484; min-digits=7; max-digits=10;
dest-id=cms_sub_nrs;
```

# Incoming Trunk Group Destination and Dial Plan:

```
add destination dest-id=carrier_or_bypass; call-type=INTERLATA; route-type=ROUTE;
route-guide-id=on_net_rg; nanp-lnp-query=PERFORM-LNP-QUERY;
bypass-carrier-routing=ALL-CALLS; description=LNP query, and route to carrier, or on-net;
```

```
add destination dest-id=dest_carrier; call-type=INTERLATA; route-type=ROUTE;
route-guide-id=on_net_rg; nanp-lnp-query=NO-LNP-QUERY; bypass-carrier-routing=ALL-CALLS;
description=Carrier will do LNP query;
```

```

add ported-office-code digit-string=703-484

add dial-plan id=dp_nanp_sub; digit-string=703-484; min-digits=7; max-digits=10;
dest-id=carrier_or_bypass;

add dial-plan id=dp_nanp_sub; digit-string=301-444; min-digits=7; max-digits=10;
dest-id=dest_carrier;

```

## Selectively Provisioning LNP Queries (Allow or Disallow) for a Particular Call Type

A Call Type Profile entry with LNP-QUERY = Y can be added to allow an LNP query for a particular call-type, for example, WEATHER. However, by changing destination LNP criteria, it is possible to allow a query for some weather calls, but not others.

For example:

### Allow a query on Weather DN 703-569-2198

```

add call-type-profile call-type=WEATHER; lnp-query=Y;

add destination dest-id=weather_query; call-type=WEATHER; route-type=ROUTE;
route-guide-id=dpc2-rg; nanp-lnp-query=NA;

add dial-plan id=dp-1; digit-string=703-569-2198; min-digits=10; max-digits=10;
dest-id=weather_query;

add ported-office-code digit-string=703-569-2198;

```

### Do Not Allow a query on Weather DN 703-569-2197

```

add destination dest-id=weather_no_query; call-type=WEATHER; route-type=ROUTE;
route-guide-id=dpc2-rg; nanp-lnp-query=NO-LNP-QUERY;

add dial-plan id=dp-1; digit-string=703-569-2197; min-digits=10; max-digits=10;
dest-id=weather_no_query;

```

## Outgoing Call Barring

Outgoing Call Barring (OCB) is a superset of Class Of Service screening and includes all provisioning steps of COS. However, COS functionality itself in OCB is optional and need not be provisioned.



### Tip

For a complete description of this feature, see [Outgoing Call Barring](#) in the *Network and Subscriber Feature Descriptions*.

### Step 5

Provision the call-type screening exception list. Enter as many call-types (records) against OCB as desired.

```
add/change nod-restrict-list fname1=OCB; call-type=EMG;
```



### Note

This feature can be assigned to any of the fnameN tokens.

## Office Provisioning

The following is an office provisioning example for OCB.



**Step 1** Register the OCB feature in the office:

```
add feature FNAME=OCB; tdp1=COLLECTED-INFORMATION; tid1=COS-TRIGGER; ttype1=R;
feature_server_id=FSPTC235; description=Outgoing Call Barring; grp_feature=N;
```

**Step 2** Register the OCB activation, deactivation, and interrogation features into the office:

```
add feature FNAME=OCBx; tdp1=COLLECTED-INFORMATION; tid1=VERTICAL-SERVICE-CODE; ttype1=R;
feature_server_id=FSPTC235; description=OCB act/deact/interr; grp_feature=N;
```

**Note**

For the steps of this procedure, OCB activation (OCBA), OCB deactivation (OCBD), and OCB interrogation (OCBI) are referred to interchangeably as OCBx.

**Step 3** Register the COS feature in the office.**Note**

See the provisioning notes for COS screening. This step is optional and is required only under two circumstances:

- COS screening functionality is required as a subset of OCB.
- BW-list screening functionality of OCB needs to be offered to the subscriber even if OCB is in a deactivated state.

**Step 4** Add/change the vsc code for OCBA.

```
add vsc fname=OCBA; digit-string=*54*;
```

**Step 5** Add/change the vsc code for OCBD.

```
add vsc fname=OCBD; digitstring=#54*;
```

**Step 6** Add/change the vsc code for OCBI.

```
add vsc fname=OCBI; digit-string=#54#;
```

**Step 7** Provision the OCB features as a service package.

```
add service id=ocb; FNAME1=OCB; FNAME2=OCBA; FNAME3=OCBD; FNAME4=OCBI
```

**Step 8** Provision feature parameters if required.

```
add feature fname=OCB; type1=pin-len; value1=5; type2=to; value2=20; type3=fail-cnt;
value3=4; type4=lock-out; value4=60;
```

**Step 9** Provision a nature-of-dial screening exception list. Enter as many nature-of-dial records for OCB as required.

```
add nod-restrict-list fname=OCB; call-type=local;
```

**Step 10** Provision OCB feature parameters using the OCB-PROFILE if required.

```
add ocb-profile Id=ocb_prof; Max-k-values=5; All-calls-restrict-k-value=5; Fail-cnt=3;
Pin-len=5; Lock-out=30; Time-out=30; Deactivation-option=K-VALUE-MATCH; Free-select-pin=Y;
```

**Step 11** Provision the OCB-K-VALUE if required.

```
add ocb-k-value Ocb-profile-id=ocb_prof; k-value=1; call-type=local, call-type=intl;
```



**Note** For the call-type option, you can specify multiple call types.

**Step 12** Provision base OCB behavior for the office.

```
add ca-config Type=DEFAULT-OCB-PROFILE-ID; Datatype=STRING; Value=ocb_prof;
```

**Step 13** Provision OCB behavior for the POP level.

```
add pop Id=<subscriber corresponding pop id>; Ocb-profile-id=ocb_prof;
```

## Subscriber Provisioning

The following is a subscriber provisioning example:

**Step 1** Add the service to the subscriber's service profile:

```
add subscriber-service-profile sub-id=sub1_plano.com; service-id=ocb;
```

**Step 2** Add an initial password for the subscriber. This step is optional.

```
add subscriber-feature-data sub-id=sub1_plano.com; fname=OCB; type1=PASSWD; value1=1234;
```

## Alternate Activation and Deactivation Method

This feature is deactivated by default when it is assigned to a subscriber. OCB can be activated and deactivated alternately by creating an entry in the Subscriber-feature-data table.

Use a CLI command similar to the following to activate OCB:

```
add subscriber-feature-data sub-id=sub_1; active=Y; fname=OCB; type1=K_VALUE;
value1=1; type2=PASSWD; value2=1234;
```



**Note** The value can be in the range 1 through 9.

Use a CLI command similar to the following to deactivate OCB:

```
add subscriber-feature-data sub-id=sub_1; active=N; fname=OCB;
```

## Provisioning Notes and Caveats

- The K-VALUE for the subscriber in the Subscriber-feature-data table will be recorded by the system when the subscriber uses the OCBA feature.
- The COUNT and TIME fields in the Subscriber-feature-data table are used by the operator to manually reset a locked-out subscriber. To unlock a locked-out subscriber, set both fields to '0'.
- The PASSWD provisioned in the Subscriber-feature-data table can be optional if FREE-SELECT-PIN=Y.

## Outgoing Call Barring—Activation, Deactivation, and Interrogation

The following subsections identify necessary steps for the OCBA, OCBD, and OCBI features to be offered.



### Note

In this section, OCB activation (OCBA), deactivation (OCBD), and interrogation (OCBI) are interchangeably referred to as OCBx.

## Office Provisioning

**Step 1** Register the feature in the Office:

```
add feature FNAME=OCBx; tdp1=COLLECTED-INFORMATION; tid1=VERTICAL-SERVICE-CODE; ttype1=R;
feature_server_id=FSPTC235; description=OCB act/deact/interr; grp_feature=N;
```

**Step 2** Add the VSC code for OCBA:

```
add vsc fname=OCBA; digit-string=*54*;
```

**Step 3** Add the VSC code for OCBD:

```
add vsc fname=OCBD; digit-string=#54*;
```

**Step 4** Add the vsc code for OCBI:

```
add vsc fname=OCBI; digit-string=*#54*;
```

**Step 5** Add the service with these features:

```
add service id=1; FNAME1=OCB; FNAME2=OCBA; FNAME3=OCBD; FNAME4=OCBI;
```

**Step 6** Provision feature parameters, if required.

```
add/change feature fname=OCB; pin-len=5; to=20; fail-cnt=4; lock-out=60
```

## Subscriber Provisioning

**Step 1** Add the service to the subscriber's service profile:

```
add/change subscriber-service-profile sub-id=sub1_plano.com; service-id=special-srv;
```

**Step 2** Add the initial password for the subscriber:

```
add/change subscriber-feature-data sub-id=sub1_plano.com; fname=OCB; type1=PASSWD;
value1=1234;
```

## Centrex Provisioning

For the feature, in addition to basic Centrex office provisioning, the Centrex subscriber requires similar provisioning as a POTS subscriber. In addition, the following step must be performed.

**Step 1** Add the feature into the custom-dial-plan table for the Centrex group:

```
add/change custom-dial-plan ID=cdp1; DIGIT-STRING=*54*; NOD=VSC; FNAME=OCBA;
CAT-STRING=1111111111111111;
```

```
add/change custom-dial-plan ID=cdp1; DIGIT-STRING=#54*; NOD=VSC; FNAME=OCBD;
CAT-STRING=1111111111111111;
```

```
add/change custom-dial-plan ID=cdp1; DIGIT-STRING=*#54*; NOD=VSC; FNAME=OCBI;
CAT-STRING=1111111111111111;
```

MLHG provisioning is similar to subscriber provisioning as described above.

## Provisioning Notes/Caveats

- The K-VALUE for the subscriber in the Subscriber-feature-data table will be recorded by the system when the subscriber uses the OCBA and OCBD feature.
- The COUNT and TIME fields in the Subscriber-feature-data table are system internal and should not be manipulated by the Operator.

## Alternate Activation and Deactivation Method

This feature is deactivated by default when it is assigned to a subscriber. OCB can alternately be activated and deactivated by creating an entry in the Subscriber-feature-data table.

Use a CLI command similar to the following to activate OCB:

```
add subscriber-feature-data sub-id=sub_1; active=Y; fname=OCB; type1=K_VALUE;
value1=1; type2=PASSWD; value2=1234;
```



### Note

The value can equal 1, 2, or 3 as necessary.

Use a CLI command similar to the following to deactivate OCB:

```
add subscriber-feature-data sub-id=sub_1; active=N; fname=OCB;
```

## Outgoing Simulated Facility Group

The following subsections identify necessary steps to provision the OSGF feature.

## Office Provisioning

### Step 1 Provision the Feature table:

```
add feature FNAME=OSFG; TDP1=ROUTE_SELECTED; TID1=ROUTE_SELECTED; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC235; GRP_FEATURE=N; DESCRIPTION=Outgoing Simulated Facility Group
Feature;
```

### Step 2 Provision the Service table:

```
add service id=2; FNAME1=OSFG;
```

## Centrex Provisioning

---

**Step 1** Provision the subscriber-service-profile:

```
add subscriber-service-profile
sub_id=sub_1; service-id=2;
```

**Step 2** Change the CTXG to facilitate OSFG:

```
change ctxg ID=ctxg1; SFG_CONTROL=Y; IN_SFG_COUNT=3; OUT_SFG_COUNT=3; BOTH_SFG_COUNT=4;
```

---

This feature is only applicable to MLHG-CTX. MLHG provisioning is similar to Centrex provisioning as described above.

## Own Calling Number Announcement

This section explains the steps required to provision the Own Calling Number Announcement (OCNA) feature.

## Office Provisioning

---

**Step 1** Provision the Announcement table for the OCNA feature:

```
add announcement ID=903; TYPE=system; SEND_ANSWER=N; NUM_REPEAT=1;
ROUTE_GUIDE_ID=annc5_rg; ANNOUNCEMENT_TIMER=180; ANNOUNCEMENT_NUMBER=92;
```

**Step 2** Add/change the dial plan:

```
ADD/CHANGE DIAL_PLAN ID=dp1; DIGIT_STRING=4692550002; DEST_ID=DEST_CALLING_NUM;
SPLIT_NPA=NONE; DEL_DIGITS=0; MIN_DIGITS=10; MAX_DIGITS=10; NOA=NATIONAL;
```

**Step 3** Add/change the Destination table:

```
ADD/CHANGE DESTINATION DEST_ID=DEST_CALLING_NUM; CALL_TYPE=LOCAL; ROUTE_TYPE=ANNC;
ANNC_ID=903;
```

---

You can also provision the OCNA feature through the DN2 Subscriber table.

---

**Step 1** Provision the Announcement table for the OCNA feature:

```
add announcement ID=903; TYPE=system; SEND_ANSWER=N; NUM_REPEAT=1;
ROUTE_GUIDE_ID=annc5_rg; ANNOUNCEMENT_TIMER=180; ANNOUNCEMENT_NUMBER=92;
```

**Step 2** Add/change the dial plan:

```
ADD/CHANGE DIAL_PLAN ID=DP1; DIGIT_STRING=4692550002; DEST_ID=DEST_CALLING_NUM;
SPLIT_NPA=NONE; DEL_DIGITS=0; MIN_DIGITS=10; MAX_DIGITS=10; NOA=NATIONAL;
```

**Step 3** Add/change the Destination table:

```
ADD/CHANGE DESTINATION DEST_ID=DEST_CALLING_NUM; CALL_TYPE=LOCAL; ROUTE_TYPE=SUB;
```

**Step 4** Add/change the DN2 Subscriber table:

---

```
ADD/CHANGE DN2SUBSCRIBER OFFICE_CODE_INDEX=11; DN=0002; STATUS=ANNC; ANNC_ID=9003;
```

---

## Provisioning From a VSC

In Release 5.0, MR1, you can provision the OCNA feature from a VSC. This section explains the steps required to provision the OCNA from a VSC.



### Note

The OCNA feature does not use a preprovisioned Telcordia-based VSC. You can provision the OCNA feature with any unused \*xx, \*2xx, or \*3xx VSC.

---

### Step 1 Add the OCNA feature to the Feature Server:

```
add feature fname=OCNA;TDP1=COLLECTED_INFORMATION;TID1=VERTICAL_SERVICE_CODE;
TTYPE1=R;FEATURE-SERVER-ID=FSPTC235;
DESCRIPTION=Own Calling Number Announcement;GRP-FEATURE=N;
```

### Step 2 Add star code to the OCNA feature:

```
add VSC DIGIT-STRING=*nnn;FNAME=OCNA;
```

### Step 3 Add the announcement to the Announcement table:

```
add annc id=903;announcement_number=92;route_guide_id=10012;
type=SYSTEM;num_repeat=1;send_answer=N;
```

### Step 4 Associate the release cause code with the announcement id:

```
add release-cause id=1360; annc-id=903;
```

---

## Centrex Provisioning

If you are a Centrex subscriber, you must perform the next step to provision the custom dial plan (CDP) table.

### Step 1 Provision the CDP table:

```
add cdp ID=tb106-18;DIGIT_STRING=*nnn;NOD=VSC;FNAME=OCNA;CAT_STRING=11111111111;
```

---

## Privacy Screening

The Privacy Screening (PS) feature enables a subscriber to accept or reject an anonymous call based on a short message recorded by the caller. The following subsections enable the feature to be offered.



### Tip

For detailed information on this feature, see [Privacy Screening](#) in the *Network and Subscriber Feature Descriptions*.

---

## Office Provisioning

### Step 1 Create a feature for Privacy Screening:

```
add/change feature FNAME=PS; TDP1=TERMINATION_ATTEMPT_AUTHORIZED;
TID1=TERMINATION_ATTEMPT_AUTHORIZED; TTYPE1=R; FEATURE_SERVER_ID=FSPTC235;
```

### Step 2 Create a feature for the Privacy Screening Manager:

```
add/change feature FNAME=PS_MANAGE; TDP1=COLLECTED_INFORMATION;
TID1=VERTICAL_SERVICE_CODE; TTYPE1=R; FEATURE_SERVER_ID=FSPTC235;
```

### Step 3 Create a feature for the PS\_O feature:

```
add/change feature FNAME=PS_O; TDP1=COLLECTED_INFORMATION; TID1=PS_TRIGGER; TTYPE1=R;
FEATURE_SERVER_ID=FSPTC235;
```

### Step 4 Do the SIP trunk provisioning, and assign this feature to the subscriber:

```
add softsw-tg-profile id=10;protocol-type=SIP;

add trunk-grp id=21;softsw-tsap-addr=<ip address of the PS AS IPUnity box>:5060;
call-agent-id=CA146;tg-type=softsw; tg-profile-id=10; dial-plan-id=dpl;

add subscriber id=PS_AS;category=PBX;dn1=469-255-2001; tgn-id=21; sub-profile-id=sp1;
term-type=TG;
```



#### Note

This should match the APP\_SERVER\_DN in the app-server table for PS.

```
add service; id=PS_O; fname1=PS_O;

add trunk-grp-service-profile; tgn-id=21; service-id=PS_O ;

add trunk-grp id=22;softsw-tsap-addr=<domain name of the PS AS IPUnity Box>:5060;
call-agent-id=CA146;tg-type=softsw; tg-profile-id=10;dial-plan-id=dpl;

add subscriber id=PS_MANAGE_AS;category=PBX; dn1=469-255-2002; tgn-id=22;
sub-profile-id=sp1; term-type=TG;
```



#### Note

This should match the APP\_SERVER\_ACCESS\_DN in the app-server table for PS.

### Step 5 Define VSC codes for these features:

```
add/change vsc; fname=PS_MANAGE; DIGIT_STRING=*94;
```

### Step 6 Combine the features defined above into a service:

```
add/change service id=PS; FNAME1=PS; FNAME2=PS_MANAGE;
```

### Step 7 Specify in the feature-config table whether the calls with privacy as UNKNOWN should be treated as anonymous or not. The default is not anonymous.

```
Add/change feature_config Fname=PS; TYPE=PRIVACY-UNKNOWN-TREATMENT;
VALUE=[ANONYMOUS|PUBLIC];
```

## Provisioning Resources

Create the PS table and assign to the subscriber, sub-profile, pop, and ca-config.

---

**Step 1** Create the APP\_SERVER Table:

```
add/change app-server id=PS; APP_SERVER_DN=469-255-2001;
APP_SERVER_ACCESS_DN=469-255-2002; DESCRIPTION=PS AS; APP_SERVER_TYPE=PM;
```

**Step 2** Assign PS to the subscriber via the Subscriber table:

```
Change sub; id=<sub>; PRIVACY_MANAGER_ID=PS;
```

**Step 3** Assign PS to the subscriber via the sub-profile table:

```
Change sub-profile; id=<sub-profile>; PRIVACY_MANAGER_ID=PS;
```

**Step 4** Assign PS to the subscriber via the pop table:

```
Change pop; id=<pop>; PRIVACY_MANAGER_ID=PS;
```

**Step 5** Assign PS to the subscriber via the office (ca-config) table:

```
Add ca-config; TYPE=default-privacy-manager-id; VALUE=PS;
```

---

## Subscriber Provisioning

---

**Step 1** Assign the service a subscriber:

```
add/change sub-service-profile sub-id=[sub]; service-id=PS;
```

---

## Centrex Provisioning

---

**Step 1** Define the star codes in the CDP table for Centrex subscribers:

```
add/change cdp; fname=PS_MANAGE; DIGIT_STRING=*94; nod=VSC; CAT_STRING=1111111111111111;
```

---

## MLHG Provisioning

MLHG provisioning is the same as subscriber provisioning.

## REFER

The following subsections identify necessary steps to provision the Refer feature.



**Note**

---

For detailed information on this feature, see the [SIP REFER Message Processing](#) section of the *SIP Feature and Provisioning Guide*.

---



## Office Provisioning

---

**Step 1** Provision the Feature table:

```
add feature FNAME=REFER; TDP1=O_MID_CALL; TID1=REFER_TRIGGER; TTYPE1=R; TDP2=T_MID_CALL;
TID2=REFER_TRIGGER; TTYPE2=R; FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=SIP REFER;
```

**Step 2** Provision the Service table:

```
add/change service id=999; FNAME1=REFER;
```

**Step 3** Provision the CA-config table:

```
add/change ca-config TYPE=DEFAULT-OFFICE-SERVICE-ID; DATATYPE=STRING; VALUE=999;
```

---

## Provisioning Notes/Caveats

The Refer feature is applicable only for SIP subscribers.

## Remote Activation of Call Forwarding and PIN\_Change

Remote Call Forwarding Activation (RACF) allows you to manipulate your CFU (Call Forwarding - Unconditional) feature remotely. This feature ensures you can always be reached regardless of your location and movements, provided RACF is used at your location.

**Tip**

---

For a complete description of this feature, see [Remote Activation of Call Forwarding](#) in the *Network and Subscriber Feature Descriptions*.

---

The following subsections identify necessary steps for the feature RACF and RACF PIN change to be offered.

## Office Provisioning

---

**Step 1** The IVR DN value here must be the same number as the IVR virtual subscriber. It is used for this and SLE activation features:

```
add ca-config TYPE=IVR-DN; DATATYPE=DIGITS; VALUE=9727892000;
```

---

## Resource Provisioning (IVR)

---

**Step 1** Add the media server:

Follow the steps in the **IVR Provisioning** section for [Screen List Editing: SCF, SCR, SCA, and DRCW](#), [page 7-127](#).

- Step 2** Add the RACF Virtual Subscriber. All RACF subscribers will call 972-789-1000 for remote access to call forwarding. Subscribers will interact with the IVR subscriber when using the RACF PIN change feature:

```
add subscriber ID=racf_annnc_sub; CATEGORY=RACF; NAME=racf_annnc_sub; STATUS=ACTIVE;
dn1=972-789-1000; PRIVACY=NONE; RING-TYPE-DN1=1; TGN-ID=1; USAGE-SENS=N;
SUB-PROFILE-ID=sp; TERM-TYPE=ROUTE; POLICY-ID=rt_annnc;
```

---

## Feature Provisioning

- Step 1** Define the RACF feature:

```
add feature fname=RACF; description=Remote Activation of Call Forwarding;
feature_server_id=<feature server ID>;
```

- Step 2** Define the internal IVR feature:

```
add feature fname=IVR; tdp1=T_ANSWER; tid1=T_ANSWER; ttyp1=R; description=Internal IVR
feature; feature_server_id=<feature server ID>;
```

- Step 3** Define the RACF PIN change feature:

```
add feature fname=RACF_PIN; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE;
ttyp1=R; description=RACF PIN change; feature_server_id=<feature server ID>;
```



### Note

Do not provision T\_Answer.

---

- Step 4** Add the RACF service for subscribers with a non-unique PIN:

```
add service id=1; fname1=RACF;
```

- Step 5** Assign the RACF\_PIN to the IVR virtual subscriber:

```
add service id=2; fname1=RACF_PIN;
```

- Step 6** Add the RACF and Pin Change service for subscribers with a unique PIN:

```
add service id=3; fname1=RACF; fname2=RACF_PIN;
```

- Step 7** Add the service for the subscribers of IVR and RACF categories:

```
add service id=IVR_SVC; fname1=IVR;
```

- Step 8** Add a VSC for subscribers changing their PIN:

```
add vsc digit_string=*98; fname=RACF_PIN;
```

---

## Provisioning Notes/Caveats

- The RACF\_PIN feature should only be assigned to those RACF subscribers who have unique PINs.

- A unique PIN is identified in the subscriber feature data entry for RACF as PINTYPE=PIN or PINTYPE=NEWPIN. (The NEWPIN type indicates that the subscriber has not yet changed his PIN from the default one assigned by the service provider. To be able to use the RACF feature, the subscriber must first change his PIN at least once from his home number. Once he does this, the PINTYPE in feature data will be changed to PIN).
- If a subscriber has a non-unique PIN, he is not allowed to change it. It can only be changed through the CLI. For non-unique PIN validation, an authcode should be provisioned, and the PINTYPE should be set to AUTHCODE.
- Non-unique PINs are typically assigned to a group of subscribers sharing the same PIN, that is, in a Centrex environment.

## Subscriber Provisioning

- 
- Step 1** Assign the RACF feature to the RACF virtual subscriber:
- ```
add sub-service-profile sub-id=racf_annc_sub; service-id=3;
```
- Step 2** Assign the IVR feature to the RACF virtual subscriber. Only the RACF virtual subscriber has this service assigned:
- ```
add sub-service-profile sub-id=racf_annc_sub; service-id=IVR_SVC;
```
- Step 3** The RACF\_PIN feature must be assigned to the IVR virtual subscriber. Only this feature and SCA\_ACT, SCR\_ACT DRCW\_ACT, and SCF\_ACT features are assigned to this subscriber:
- ```
add sub-service-profile sub-id=ivr_annc_sub; service-id=3;
```
- Step 4** Assign the IVR feature to the IVR virtual subscriber. Only the IVR virtual subscriber has this service assigned:
- ```
add sub-service-profile sub-id=ivr_annc_sub; service-id=IVR_SVC;
```
- Step 5** This is for regular subscribers with RACF having non-unique PIN so the authcode is used. RACF\_PIN change feature is not assigned to this subscriber (sub1):
- ```
add sub-service-profile sub-id=sub1; service-id=1;
```
- ```
add subscriber-feature-data sub-id=sub1; fname=RACF; type1=PINTYPE; value1=AUTHCODE;
```
- Step 6** This subscriber (sub2) has a unique PIN. The pintype of "NEWPIN" indicates that he is required to change it from his home/base phone before he can use the RACF feature:
- ```
add sub-service-profile sub-id=sub2; service-id=3;
```
- ```
add subscriber-feature-data sub-id=sub2; fname=RACF; type1=PINTYPE; value1=NEWPIN;
```
- ```
type2=PIN; value2=99999;
```
-

Auth Code Provisioning

Use the following subsections to provision the auth code group and auth code for non-unique PIN subscribers.

-
- Step 1** Add an auth code group:
- ```
add auth-code-grp id=DEFAULT_ACGROUP; description=authorization codes;
```

**Step 2** Add an auth code:

```
add cos-restrict id=NO_RESTRICTION; casual-restrict-type=ALL-CICS ALLOWED;
national-restrict-type=ALL-NANP-CALLS; national-wb-list=NONE;
intl-restrict-type=ALL-CC-ALLOWED; ii-restrict=NONE; block-900=N; block-976=N; block-da=N;
block-nanp-oper-assist=N; block-intl-oper-assist=N; acct-code-allow=Y; acct-code-length=4;
auth-code-allow=Y; auth-code-length=5; auth-code-grp-id=DEFAULT_ACGROUP;
```

**Step 3** Assign AUTH-CODE 12345 to be used as PIN for RACF access by non-unique PIN subscribers:

```
add auth-code auth-code-grp-id=DEFAULT_ACGROUP; id=12345; active=Y;
```

## Remote Call Forwarding

Remote Call Forwarding (RCF) allows incoming calls to be routed automatically to a remote DN.

**Tip**

For a complete description of this feature, see [Remote Call Forwarding](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the RCF feature to be offered.

**Note**

By default, the multiple call forwarding (MCF) flag is set to Y for both CFU and RCF. For illustration purposes, this flag is included in the CFU and RCF examples below. The flag must be set to Y for both CFU and RCF to allow multiple calls to be forwarded simultaneously by the RCF feature.

## Office Provisioning

**Step 1** Create a feature for CFU:

```
add feature FNAME=CFU; TDP1=TERMINATION_ATTEMPT_AUTHORIZED;
TID1=TERMINATION_ATTEMPT_AUTHORIZED; TTYPE1=R; FNAME1=CFUA; FNAME2=CFUD; FNAME3=CFUI;
FEATURE_SERVER_ID=FSPTC235; TYPE1=MCF; VALUE1=Y; DESCRIPTION=CFU; GRP_FEATURE=N;
```

**Step 2** Add the RCF feature:

```
add feature FNAME=RCF; TDP1=TERMINATION_ATTEMPT_AUTHORIZED;
TID1=TERMINATION_ATTEMPT_AUTHORIZED; TTYPE1=R; FNAME1=CFU; FEATURE_SERVER_ID=FSPTC235;
TYPE1=MCF; VALUE1=Y; DESCRIPTION=Remote Call Forwarding;
```

**Step 3** Add a service with these features:

```
add service id=1; FNAME1=RCF;
```

## Subscriber Provisioning

**Step 1** Add the subscriber:

```
add subscriber id=subscriber_1; sub-profile-id=profile2; dn1=972-555-2222;
billing-dn=972-555-2222; term-type=NONE;
```

**Note**

The subscriber phone number (dn1 in the above command) must be assigned to the subscriber, but it does not need to be associated with a physical telephone.

**Step 2** Assign the service to the subscriber:

```
add subscriber-service-profile sub-id=subscriber_1; service-id=1;
```

**Step 3** Set the CFU feature as permanently active for the subscriber along with the call forwarding number:

```
add subscriber-feature-data sub-id=subscriber_1; fname=CFU; active=Y; type1=FDN1;
value1=4692550000; type2=RR; value2=N;
```

Centrex and MLHG provisioning is similar to subscriber provisioning as described above.

## Replace

The following subsections identify necessary steps to offer the Replace feature.

### Office Provisioning

**Step 1** Provision the feature table:

```
add/change feature FNAME=REPLACE; TDPI=TERMINATION_ATTEMPT_AUTHORIZED; TID1=REPLACE
TRIGGER; TTYPE1=R; TDPI=TERMINATION_ATTEMPT_AUTHORIZED; TID2=REPLACE_TRIGGER; TTYPE2=R;
FEATURE_SERVER_ID=FSPTC325; DESCRIPTION=SIP REPLACE;
```

**Step 2** Provision the service table:

```
add/change service id=999; FNAME=REPLACE;
```

**Step 3** Provision the ca-config table:

```
add/change ca-config; TYPE=DEFAULT-OFFICE-SERVICE-ID; DATATYPE=STRING; VALUE=999
```

### Provisioning Notes/Caveats

The Replace feature is only applicable for SIP subscribers.

## Screen List Editing: SCF, SCR, SCA, and DRCW

The following subsections identify necessary steps for the features Selective Call Forwarding (SCF), Selective Call Rejection (SCR), Selective Call Acceptance (SCA), and Distinctive Ringing Call Waiting (DRCW) to be offered with the ability for a subscriber to provision them through IVR.

**Note**

The DRCW feature is only for playing a distinctive ringing or distinctive call-waiting tone and does not affect the activation of the call-waiting features (CW, CWD, or CIDCW). A subscriber must have CW, CWD, or CIDCW provisioned and activated in order to receive call-waiting treatment.

**Tip**

For a complete description of these features, see [Subscriber-Controlled Services and Screening List Editing](#) in the *Network and Subscriber Feature Descriptions*.

## Office Provisioning

**Step 1** The IVR DN value here must be the same number as the IVR virtual subscriber:

```
add ca-config TYPE=IVR-DN; DATATYPE=DIGITS; VALUE=9727892000;
add ca-config TYPE=SLE-LIST-SIZE; DATATYPE=INTEGER; VALUE=31;
add ca-config TYPE=SLE-DE-THRESHOLD; DATATYPE=INTEGER; VALUE=3
add ca-config TYPE=SLE-TO-THRESHOLD; DATATYPE=INTEGER; VALUE=3
add ca-config TYPE=SLE-TIMER-T1; DATATYPE=INTEGER; VALUE=4
add ca-config TYPE=SLE-TIMER-T2; DATATYPE=INTEGER; VALUE=4
add ca-config TYPE=SLE-TIMER-T3; DATATYPE=INTEGER; VALUE=4
add ca-config TYPE=SLE-TIMER-T4; DATATYPE=INTEGER; VALUE=4
add ca-config TYPE=SLE-TIMER-T5; DATATYPE=INTEGER; VALUE=3
add ca-config TYPE=SLE-TIMER-T6; DATATYPE=INTEGER; VALUE=25
add ca-config TYPE=SLE-TIMER-T7; DATATYPE=INTEGER; VALUE=4
```

## Resource Provisioning (IVR)

**Step 1** Add the media server:

```
add mgw-profile ID=ms_profile; VENDOR=Cisco; SILENT-SUPPRESS-SUPP=N; RBK-ON-CONN-SUPP=N;
PACKET-TYPE=IP; AAL1=N; AAL2=N; AAL5=N; PVC=N; SVC=N; SPVC=N; EC=N; SDP-ORIGFIELD-SUPP=N;
SDP-SESSION-NAME-SUPP=N; SDP-EMAIL-SUPP=N; SDP-PHONE-SUPP=N; SDP-URI-SUPP=N;
SDP-BANDWIDTH-SUPP=N; SDP-INFO-SUPP=N; SDP-TIME-SUPP=N; SDP-ATTRIB-SUPP=N;
MGCP-ERQNT-SUPP=N; MGCP-HAIRPIN-SUPP=N; MGCP-QLOOP-SUPP=N; MGCP-3WAY-HSHAKE-SUPP=Y;
MGCP-CONN-ID-AT-GW-SUPP=Y; MGCP-CMD-SEQ-SUPP=N; MGCP-VMWI-SUPP=N; TERMINATION-PREFIX=ann/;
PORT-START=0; MGCPVERSION=MGCP_0_1; MGCP-RSVP-SUPP=N;
```

**Step 2** Add the media gateway:

```
add mgw id=ipunity_ms; tsap-addr=<ip addr of MS MGCP>; call-agent-id=CA166;
mgw-profile-id=ms_profile; rgw=n; tgw=y; call-agent-control-port=0; ans=n; ivr=y;
nas=n; pbx=n;
```

**Step 3** Add IVR trunks:

```
add ann-c-tg-profile id=annc_tg_p; ann-c=N; ivr=Y; auto_answer=Y;
```

**Step 4** Add the termination:

```
add termination prefix=ann/; port-start=0; port-end=30; type=trunk; mgw-id=ipunity_ms;
```

**Step 5** Add the trunk group:

```
add trunk-grp id=1; call-agent-id=CA146; tg_type=ann-c; tg-profile-id=annc_tg_p;
mgcp-pkg-type=AUDIO; qos-id=qos123;
```

**Note**

The qos-id token must be provisioned to match the qos-id for the trunk in the Quality of Service table. If two MGWs are involved in a call, there are additional QoS requirements applicable for the trunk groups on each MGW. See the hptime and lptime token descriptions in the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide Quality of Service table*.

**Step 6** Add the trunk:

```
add trunk cic-start=1; cic-end=30; tgn-id=1; termination-prefix=ann/;
termination-port-start=0; termination-port-end=29; mgw-id=ipunity_ms;
```

**Step 7** Add the IVR virtual subscriber:

```
add ndc digit-string=972;
```

**Step 8** Add the exchange code:

```
add exchange-code ndc=972; ec=789;
```

**Step 9** Add the office code:

```
add office-code ndc=972; ec=789; dn-group=xxxx; call-agent-id=CA146;
```

**Step 10** Add the destination:

```
add destination dest-id=ivr; call-type=LOCAL; route-type=sub;
```

**Step 11** Add the dial plan:

```
add dial-plan id=dp; digit-string=972-789; reqd-digits=10; dest-id=ivr;
```

**Step 12** Add the POP:

```
add pop id=1; state=tx; country=usa; timezone=CST;
```

**Step 13** Add the subscriber profile:

```
add subscriber-profile id=sp; dial-plan-id=dp; pop-id=1;
```

**Step 14** Add the route:

```
add route id=rt_annc; tgn1-id=1; tg-selection=LCR;
```

**Step 15** Add the subscriber:

```
add subscriber ID=ivr_annc_sub; CATEGORY=IVR; NAME=ivr_annc_sub; STATUS=ACTIVE;
dn1=972-789-2000; PRIVACY=NONE; RING-TYPE-DN1=1; TGN-ID=1; USAGE-SENS=N;
SUB-PROFILE-ID=sp; TERM-TYPE=ROUTE; POLICY-ID=rt_annc;
```

**Step 16** Change the trunk group:

```
change trunk_grp id=1; call-agent-id=CA146; main-sub-id=ivr_annc_sub;
```

**Step 17** Add the route guide:

```
add route-guide id=rg_annc; policy-type=ROUTE; policy-id=rt_annc;
```

## Feature Provisioning

### Step 1 Define the SCF feature:

```
add feature fname=SCF; tdp1=TERMINATION_ATTEMPT_AUTHORIZED;
tid1=TERMINATION_ATTEMPT_AUTHORIZED; ttype1=R; description=Selective Call Forwarding;
feature_server_id=<feature server ID>;
```

### Step 2 Define the SCF Activation feature:

```
add feature fname=SCF_ACT; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE;
ttype1=R; description=Selective Call Fwd Activation; feature_server_id=<feature server ID>;
```

### Step 3 Define the SCR feature:

```
add feature fname=SCR; tdp1=TERMINATION_ATTEMPT_AUTHORIZED;
tid1=TERMINATION_ATTEMPT_AUTHORIZED; ttype1=R; description=Selective Call Rejection;
feature_server_id=<feature server ID>;
```

### Step 4 Define the SCR Activation feature:

```
add feature fname=SCR_ACT; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE;
ttype1=R; description=Selective Call Rejection Act; feature_server_id=<feature server ID>;
```

### Step 5 Define the SCA feature:

```
add feature fname=SCA; tdp1=TERMINATION_ATTEMPT_AUTHORIZED;
tid1=TERMINATION_ATTEMPT_AUTHORIZED; ttype1=R; description=Selective Call Acceptance;
feature_server_id=<feature server ID>;
```

### Step 6 Define the SCA Activation feature:

```
add feature fname=SCA_ACT; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE;
ttype1=R; description=Selective Call Acceptance Act; feature_server_id=<feature server ID>;
```

### Step 7 Define the DRCW feature:

```
add feature fname=DRCW; tdp1=TERMINATION_ATTEMPT_AUTHORIZED;
tid1=TERMINATION_ATTEMPT_AUTHORIZED; ttype1=R; description=Distinctive Ring CW;
feature_server_id=<feature server ID>;
```

### Step 8 Define the DRCW Activation feature:

```
add feature fname=DRCW_ACT; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE;
ttype1=R; description=Distinctive Ring CW Act; feature_server_id=<feature server ID>;
```

### Step 9 Define the internal IVR feature:

```
add feature fname=IVR; tdp1=T_ANSWER; tid1=T_ANSWER; ttype1=R; description=Internal IVR
feature; feature_server_id=<feature server ID>;
```

### Step 10 Add full SLE features with activation ability for regular subscribers:

```
add service id=1; fname1=SCF; fname2=SCF_ACT; fname3=SCR; fname4=SCR_ACT; fname5=SCA;
fname6=SCA_ACT; fname7=DRCW; fname8=DRCW_ACT; description=Full SLE features for
subscriber;
```

### Step 11 Add SLE activation services to the IVR virtual subscriber only:

```
add service id=2; fname1=SCF_ACT; fname2=SCR_ACT; fname3=SCA_ACT; fname4=DRCW_ACT;
description=SLE activations for IVR virtual sub;
```

### Step 12 Add the Internal IVR feature service ID to be assigned to IVR category subscribers:



```
add service id=IVR_SVC; fname1=IVR;
```

**Step 13** Add vertical service codes for SLE activation features:

```
add vsc digit_string=*63; fname=SCF_ACT;
add vsc digit_string=*60; fname=SCR_ACT;
add vsc digit_string=*64; fname=SCA_ACT;
add vsc digit_string=*61; fname=DRCW_ACT;
```

---

## Subscriber Provisioning

**Step 1** Add SLE activation features to the IVR virtual subscriber. Only these features and RACF\_PIN can be assigned to this subscriber:

```
add sub-service-profile sub-id=ivr_annc_sub; service-id=2;
```

**Step 2** Add the IVR feature to the IVR virtual subscriber only:

```
add sub-service-profile sub-id=ivr_annc_sub; service-id=IVR_SVC;
```

**Step 3** Add SLE features to a local subscriber (for example, sub1):

```
add sub-service-profile sub-id=sub1; service-id=1;
```

---

Centrex and MLHG provisioning is similar to subscriber provisioning as described above.

## Provisioning Notes/Caveats

Subscribers who are assigned DRCW will need CW, CIDCW, or CWD for the Call-Waiting portion of DRCW to work.

## Non-IVR Activation and Deactivation of SCA, SCF, SCR, and DRCW

Configuring this feature requires provisioning eight related features. There is an activation and deactivation VSC for each of the SCA, SCR, SCF, and DRCW features.

The DRCW feature is only for playing a distinctive ringing or distinctive call-waiting tone and does not affect the activation of the call-waiting features (CW, CWD, or CIDCW). A subscriber must have CW, CWD, or CIDCW provisioned and activated in order to receive call-waiting treatment.

**Step 1** Add feature definitions.

Example:

```
CLI> ADD FEATURE FNAME=SCR_NOIVR_ACT; TDP1=COLLECTED_INFORMATION;
TID1=VERTICAL_SERVICE_CODE; TTYPE1=R; DESCRIPTION=SELECTIVE CALL REJECT ACTIVATION WITH NO
IVR; FEATURE_SERVER_ID=FSPTC235;
```

Defines the eight features.

Repeat this step for the following features:

SCR\_NOIVR\_DEACT

SCA\_NOIVR\_ACT  
 SCA\_NOIVR\_DEACT  
 SCF\_NOIVR\_ACT  
 SCF\_NOIVR\_DEACT  
 DRCW\_NOIVR\_ACT  
 DRCW\_NOIVR\_DEACT

**Step 2** Add feature.

Example:

```
CLI> ADD FEATURE FNAME=SCA; TDP1=TERMINATION_ATTEMPT_AUTHORIZED;

TID1=TERMINATION_ATTEMPT_AUTHORIZED; TTYPE1=R; FEATURE_SERVER_ID=FSPTC235; FNAME1=SCA_ACT;

FNAME2=SCA_NOIVR_ACT; FNAME3=SCA_NOIVR_DEACT;
```

Combines the set of activation, deactivation, and base features.

Repeat this step for SCR, SCF, and DRCW.

**Step 3** Add service.

Example:

```
CLI> ADD SERVICE ID=SLE; FNAME1=SCF; FNAME2=SCR; FNAME3=SCA; FNAME4=DRCW; DESCRIPTION=FULL

SLE FEATURES FOR SUBSCRIBER;
```

Adds full SLE features with activation ability for regular subscribers.

**Step 4** Add VSC.

Example:

```
CLI> ADD VSC DIGIT_STRING=*236; FNAME=SCA_NOIVR_ACT; DIGIT_STRING=*236;

FNAME=SCA_NOIVR_DEACT;
```

Adds the e VSCs.

Add a VSC for each feature added in Step 1.

**Note**

We recommend the convention of using codes \*235-\*242. However, the Cisco BTS 10200 Softswitch will allow the operator to define any VSC.

**Step 5** Add SUB\_SERVICE\_PROFILE.

Example:

```
CLI> ADD SUB_SERVICE_PROFILE; SUB_ID=IVR_ANNC_SUBSCRIBER; SERVICE_ID=SLE;
```

Adds the set of SLE features to the subscriber.

**Step 6** Add ANNC.

Example:

```
CLI> ADD ANNC ID=613; TYPE=SYSTEM; SEND_ANSWER=N NUM_REPEAT=1;

ANNOUNCEMENT_FILE=ann_id_613.au; ROUTE_GUIDE_ID=ANNC1; ANNOUNCEMENT_NUMBER=613;

ANNOUNCEMENT_TIMER=180;
```

Configures the announcement IDs.

First, add an announcement id and associate it with an announcement audio file.

**Step 7** Add RELEASE\_CAUSE.

Example:

```
CLI> ADD RELEASE_CAUSE ID=1311; ANNC-ID=590;
```

Defines the announcement ID to be used for the release cause code.

Repeat these two steps for each of the 12 cause code.

- Step 8** Replace \*XX in the applicable digit map with \*[4-9]X|\*[2-3]XX.  
This step is necessary to allow 3-digit VSCs.
- Step 9** Verify that REFRESH\_DIGIT\_MAP=Y in the MGW\_PROFILE Table for the media gateway to which the subscriber is associated.
- Step 10** Enter the following commands to verify provisioning:
- ```
show feature fname=sca_noivr_act
show feature fname=sca
show service id=sle
show digit-map
show release-cause id=1311
show annc id=590
show mgw-profile
```

Alternate Activation and Deactivation Method

The following procedure provides an alternative method for activating, deactivating, and provisioning the SCF, SCR, SCA, and DRCW features. The example below activates DRCW:

- Step 1** Add a service for the feature, for example, DRCW:
- ```
add service id=10; fname1=DRCW
```
- Step 2** Add the service to the local subscriber:
- ```
Add sub-service-profile sub-id=sub1; service-id=10;
```
- Step 3** Activate/deactivate the feature:
- ```
Add sub-feature-data sub-id=sub1; fname=DRCW; active=Y/N;
```
- Step 4** Add the feature associated DN to the Sle table:
- ```
add sle sub-id=sub1; fname=DRCW; dn=9726712355;
```
- Step 5** (Optional) For SCF, change the subscriber feature data to define the forward-to number:
- ```
change sub-feature-data sub-id=sub1; fname=SCF; type1=FDN1; value1=469-575-4567;
```

## Seasonal Suspend Provisioning for MR1 and Earlier

This section explains how to provision the Seasonal Suspend feature.



### Note

For complete CLI parameter descriptions, see the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide*.

## Office Provisioning

You can use the following procedure create the seasonal suspend and CoS features and to provisions a special cos-restriction ID for the Seasonal Suspend feature. You can also set up announcements for the seasonal suspend line.

**Step 1** Add the Seasonal Suspend feature (SEAS) to the feature table.

```
add feature fname=SEAS; tdp1=COLLECTED_INFORMATION; tid1=COS_TRIGGER; ttype1=R;
tdp2=TERMINATION_ATTEMPT_AUTHORIZED; tid2=TERMINATION_ATTEMPT_AUTHORIZED; ttype2=R;
feature-server-id=FSPTC235; description=Seasonal Suspend; grp-feature=N;
```

**Step 2** If not already done, add the class of service (CoS) feature to the feature table.

```
add feature fname=COS; tdp1=COLLECTED_INFORMATION; tid1=COS_TRIGGER; ttype1=R;
feature-server-id=FSPTC235; description=Class Of Service; grp-feature=N;
```

**Step 3** Add the CoS feature to a service. This service is assigned to the subscriber later in this procedure.

```
add service id=ServiceForCOS; fname1=COS; description=Service with COS feature;
```

**Step 4** To enable SEAS at the switch level, add it to the default office service ID. The system makes all the features in the default office service ID available to all subscribers on the switch.

a. Display the default-office-service-id.

```
show ca-config type=default-office-service-id;
```

(In this example, assume that the system displays the default-office-service-id as **offc999**.)

b. Display the features and feature numbers in the default-office-service-id. (Use the value determined in [Substep e](#) for the value of **id** in the following command.)

```
show service id=offc999;
```

c. If <fnameX> is not already present in the list displayed in Substep [b](#)., add SEAS to the default-office-service-id. (The system allows a maximum of 10 <fnameX> entries in the service table.)

```
change service id=offc999; fnameX=SEAS;
```

where fnameX is a previously unused feature-number parameter in this service table.



### Caution

Use a new <fnameX> (one that is not currently used). If you use an <fnameX> that is already used for another feature, you cause that other feature to be dropped from the default office service ID.

d. Verify that the SEAS feature is included in the default-office-service-id.

```
show service id=offc999;
```

**Step 5** Add a cos-restrict table entry and customize restriction behavior as needed. Be sure to set the national-wb-list parameter to white. We recommend that you create a special cos-restrict specifically for the Seasonal Suspend feature.

```
add cos-restrict id=special_cos_1; national-wb-list=white; block-900=Y; block-976=Y;
block-nanp-oper-assist=Y; block-intl-oper-assist=Y; acct-code-allow=N; auth-code-allow=N;
nod-wb-list=none;
```

**Step 6** Add digit strings to the national-wb-list to allow outbound dialing to desired DN, such as 611 (or a customer support DN), voice-mail pilot number, and so forth.

**Caution**

If you are provisioning a long-distance number for the digit-string, do not enter a leading digit 1. That could cause the call to be denied. Subscribers will be able to call the long-distance number with or without the 1, depending on the provisioning in the dial-plan table.

```
add national-wb-list cos-restrict-id=special_cos_1; digit-string=611;

add national-wb-list cos-restrict-id=special_cos_1; digit-string=972-555-1234;
```

**Step 7**

Link the Seasonal Suspend feature to the CoS restriction ID. This step enforces the CoS restriction for the Seasonal Suspend feature.

```
add feature-config fname=SEAS; type=cos-restrict-id; datatype=string; value=special_cos_1;
```

**Note**

You can enter any valid cos-restrict-id for the value. You can also use the customized cos-restrict-id for the Seasonal Suspend feature.

**Step 8**

Apply any additional nature of dial (NoD) types for which the CoS feature should not be triggered or invoked.

**Note**

Provisioning in the trigger-nod-escape-list applies to the CoS feature in general and is independent of subscriber status.

```
add trigger-nod-escape-list tid=COS_TRIGGER; nod=EMG;
add trigger-nod-escape-list tid=COS_TRIGGER; nod=REPAIR;
add trigger-nod-escape-list tid=COS_TRIGGER; nod=FIRE;
add trigger-nod-escape-list tid=COS_TRIGGER; nod=AMBULANCE;
add trigger-nod-escape-list tid=COS_TRIGGER; nod=POLICE;
```

**Step 9**

Set up release cause to announcement mappings. Use values for annc-id that match the announcement IDs in your system.

```
add release-cause id=1272; annc-id=629;
add release-cause id=1273; annc-id=630;
add release-cause id=1274; annc-id=631;
add release-cause id=1275; annc-id=632;
```

**Step 10**

Set up announcements for seasonal suspend. Use values for announcement-file that match actual audio files on your announcement server. The .au files must be recorded and uploaded to the announcement server and must be accessible to the BTS 10200.

```
add announcement id=629; announcement-file=ann_id_orig_generic.au; route-guide-id=annc1;
announcement-number=629;
add announcement id=630; announcement-file=ann_id_orig_generic_plus_dn.au;
route-guide-id=annc1; announcement-number=630;
add announcement id=631; announcement-file=ann_id_term_generic.au; route-guide-id=annc1;
announcement-number=631;
add announcement id=632; announcement-file=ann_id_term_generic_plus_dn.au;
route-guide-id=annc1; announcement-number=632;
```

## Subscriber Provisioning

Use the following procedure to assign the CoS and Seasonal Suspend features to the subscriber.

- 
- Step 1** To apply the CoS feature to the subscriber, provision the subscriber service profile.
- ```
add sub-service-profile sub-id=sub1; service-id=ServiceForCOS;
```
- Step 2** Verify that the system displays the new service-id (ServiceForCOS in this example).
- ```
show sub-service-profile sub-id=sub1;
```
- Step 3** To provide seasonal suspend treatment to the subscriber, set the status field to seasonal-suspend and enter the desired cos-restrict ID.
- ```
change subscriber id=sub1; status=seasonal-suspend; cos-restrict-id=special_cos_1;
```
- Step 4** Verify that the system displays the new status and cos-restrict-id for this subscriber.
- ```
show subscriber id=sub1;
```
- 

## Provisioning Options for Inbound Call Treatment

This section explains how to provision inbound call treatment options.

### Add a Referral DN to Inbound Seasonal Suspend Announcement

You can use this command to add a referral DN to the subscriber-feature-data table. If you do that, the system plays a seasonal suspend announcement that includes the referral DN, entered as value1 in this command. The value for value1 must be a valid DN and must be entered without any dashes (hyphens). If you do not enter this command, the system still plays the generic inbound seasonal suspend message.

```
add/change subscriber-feature-data sub-id=sub1; fname=SEAS; active=Y; type1=FDN1; value1=7895552345;
```



**Note** If status=seasonal-suspend in the subscriber table, the system does not check the active flag in the subscriber-feature-data table.

---

### Route to VMA Instead of Seasonal Suspend

You can provision the system to route *all inbound calls* to voicemail with the VMA feature. To enable this feature, you must take the following steps:

- Verify that the VMA feature is activated before you set the subscriber status to seasonal suspend. (VMA can be activated or deactivated only when the subscriber status is active.)
- For specific VMA provisioning commands, see the [VMA provisioning procedure](#) in the *Cisco BTS 10200 Softswitch Provisioning Guide*.



#### Caution

If VMA is assigned and active, it takes precedence over the Seasonal Suspend feature for inbound calls, and the system does not provide any seasonal suspend treatment for inbound calls. However, the system can still provide seasonal suspend treatment for outbound calls if provisioned to do so.

---

## Provisioning Options for Outbound Call Treatment

Provision the Seasonal Suspend feature either to provide an announcement on disallowed outbound call attempts or to route disallowed outbound calls to the customer support DN. The parameters for these options are in the feature-config table:

- The default value of route-to-cust-support-dn is N, which means that the call is given to the seasonal suspend announcement and is not routed to the customer support DN. The announcement server (if capable) includes the customer support DN in the announcement if this DN is provisioned as the value for cust-support-dn. However, if the DN is not provisioned, the system provides a generic seasonal suspend announcement.
- If the value of route-to-cust-support-dn is provisioned as Y, the call is routed to the customer support DN if this DN is provisioned as the value for cust-support-dn. However, if route-to-cust-support-dn=Y and the DN is not provisioned, the system plays the generic seasonal suspend announcement.



### Note

For these commands the cust-support-dn value must be a valid DN entered without any dashes (hyphens). You can provision a local 10-digit number, as shown in the examples below, or a toll or toll-free number.



### Note

The value for cust-support-dn applies globally to all customers that have the SEAS feature. Therefore, only one DN can be provisioned for this purpose.

### Route to Seasonal Suspend Announcement

```
add feature-config fname=SEAS; type=route-to-cust-support-dn; datatype=boolean; value=N;
add feature-config fname=SEAS; type=cust-support-dn; datatype=string; value=3455555555;
```

### Route to Customer Support DN

```
add feature-config fname=SEAS; type=route-to-cust-support-dn; datatype=boolean; value=Y;
add feature-config fname=SEAS; type=cust-support-dn; datatype=string; value=3455555555;
```

## Turning Off (Deactivating) Seasonal Suspend

To turn off the seasonal suspend status for a subscriber, change the status to active and restore the original cos-restrict-id that was assigned to the subscriber prior to the seasonal suspend period. If you want to remove the seasonal suspend cos-restrict-id without replacing it, enter cos-restrict-id=NULL.

```
change subscriber id=sub1; status=active; cos-restrict-id=<original ID>;
```

## Troubleshooting, MR1 and Earlier

This section explains how to troubleshoot the following conditions:

- [Problems with Inbound Calls](#)
- [Problems with Outbound Calls](#)

## Problems with Inbound Calls

If inbound calls are not routed to the seasonal suspend announcement, make sure that the Seasonal Suspend feature (fname=<n>=SEAS) has been assigned to the default office service ID.

If an inbound call is supposed to receive an announcement but that does not happen, verify that the routing to the server is properly provisioned in the BTS 10200, that the server is in service, and that the appropriate announcement files are loaded on the server.

If an inbound call is supposed to receive an announcement that specifies the referral DN (a DN at which the subscriber can be reached), but the referral DN is not included in the announcement, verify that the subscriber-feature-data table has the following parameters provisioned for fname=SEAS:

- type1=FDN1.
- value1 is a valid DN and is entered without any dashes (hyphens).

## Problems with Outbound Calls

After the subscriber status is set to seasonal-suspend, outbound calls should receive the seasonal suspend announcement. If this does not occur, make sure that you have also provisioned the correct CoS restriction (cos-restrict-id=special\_cos\_1 in the previous examples) in the feature-config table.

If the announcement for the outbound call is supposed to include the customer support DN but this DN is not included, check the provisioning in the feature-config table. Make sure that you have set route-to-cust-support-dn=N and that you have provisioned the correct DN for cust-support-dn.

If outbound calls are supposed to be routed to the customer support DN but they are not being routed properly, check the provisioning in the feature-config table. Make sure that you have set route-to-cust-support-dn=Y and that you have provisioned the correct DN for cust-support-dn. The value for cust-support-dn must be a valid DN and must be entered without any dashes (hyphens).

If outbound calls are supposed to receive an announcement but this does not occur, verify that the routing to the server is properly provisioned in the BTS 10200, that the server is in service, and that the appropriate announcement files are loaded on the server.

## Seasonal Suspend Provisioning for MR1.1 and Later

This section explains how to provision the Seasonal Suspend feature for MR1.1 and Later.



### Note

For complete CLI parameter descriptions, see the *Cisco BTS 10200 Softswitch CLI Database*.

## Office Provisioning

You can use the following procedure to create the seasonal suspend and CoS features and to provision a special cos-restriction ID for the Seasonal Suspend feature. You can also set up announcements for the seasonal suspend line.

**Step 1** Add the Seasonal Suspend feature (SEAS) to the feature table.

```
add feature fname=SEAS; tdp1=COLLECTED_INFORMATION; tid1=COS_TRIGGER; ttype1=R;
tdp2=TERMINATION_ATTEMPT_AUTHORIZED; tid2=TERMINATION_ATTEMPT_AUTHORIZED; ttype2=R;
feature-server-id=FSPTC235; description=Seasonal Suspend; grp-feature=N;
```



- Step 2** To enable SEAS at the switch level, add it to the default office service ID. The system makes all the features in the default office service ID available to all subscribers on the switch.
- e. Display the default-office-service-id.
 

```
show ca-config type=default-office-service-id;
```

(In this example, assume that the system displays the default-office-service-id as **offc999**.)
  - f. Display the features and feature numbers in the default-office-service-id. (Use the value determined in [Substep e](#) for the value of **id** in the following command.)
 

```
show service id=offc999;
```
  - g. If <fnameX> is not already present in the list displayed in Substep f., add SEAS to the default-office-service-id. Use an <fnameX> value that is not used yet. (The system allows a maximum of 10 <fnameX> entries in the service table.)
 

```
change service id=offc999; fnameX=SEAS;
```

where fnameX is a previously unused feature-number parameter in this service table.

**Caution**

Use a new <fnameX> (one that is not currently used). If you use an <fnameX> that is already used for another feature, you cause that other feature to be dropped from the default office service ID.

- h. Verify that the SEAS feature is included in the default-office-service-id.
 

```
show service id=offc999;
```

- Step 3** Add a cos-restrict table entry and customize restriction behavior as needed. Be sure to set the national-wb-list parameter to white. We recommend that you create a special cos-restrict specifically for the Seasonal Suspend feature.

```
add cos-restrict id=special_cos_1; national-wb-list=white; block-900=Y; block-976=Y;
block-nanp-oper-assist=Y; block-intl-oper-assist=Y; acct-code-allow=N; auth-code-allow=N;
nod-wb-list=none;
```

- Step 4** Add digit strings to the national-wb-list to allow outbound dialing to desired DNs, such as 611 (or a customer support DN), voice-mail pilot number, and so forth.

**Caution**

If you are provisioning a long-distance number for the digit-string, do not enter a leading digit 1. That could cause the call to be denied. Subscribers will be able to call the long-distance number with or without the 1, depending on the provisioning in the dial-plan table.

```
add national-wb-list cos-restrict-id=special_cos_1; digit-string=611;

add national-wb-list cos-restrict-id=special_cos_1; digit-string=972-555-1234;
```

- Step 5** (Optional) If you want to block toll-free numbers for seasonal suspend subscribers, change the provisioning in the cos-restrict table to set nod-wb-list as black. You can allow subscribers to call *specific* toll-free numbers (for example a toll-free customer service or repair line or a toll-free voice-mail pilot number) by including the digit string (without the leading digit 1) in the national-wb-list and provisioning the national-wb-list as white.
- a. 

```
change cos-restrict id=special_cos_1; nod-wb-list=black;
```
  - b. 

```
add nod-wb-list cos-restrict-id=special_cos_1; nod=toll-free;
```
  - c. 

```
add national-wb-list cos-restrict-id=special_cos_1; digit-string=800-555-5555;
```

**Caution**

If you are provisioning a toll-free number for the digit-string, do not enter a leading digit 1. That could cause the call to be denied. Subscribers will be able to call the long-distance number with or without the 1, depending on the provisioning in the dial-plan table.

**Step 6**

Link the Seasonal Suspend feature to the CoS restriction ID. This step enforces the COS restriction for the Seasonal Suspend feature.

```
add feature-config fname=SEAS; type=cos-restrict-id; datatype=string; value=special_cos_1;
```

**Note**

You can enter any valid cos-restrict-id for the value. You can also use the customized cos-restrict-id for the Seasonal Suspend feature.

**Step 7**

Apply any additional nature of dial (NoD) types for which the CoS feature should not be triggered or invoked.

**Note**

Provisioning in the trigger-nod-escape-list applies to the CoS feature in general and is independent of subscriber status.

```
add trigger-nod-escape-list tid=COS_TRIGGER; nod=EMG;
add trigger-nod-escape-list tid=COS_TRIGGER; nod=REPAIR;
add trigger-nod-escape-list tid=COS_TRIGGER; nod=FIRE;
add trigger-nod-escape-list tid=COS_TRIGGER; nod=AMBULANCE;
add trigger-nod-escape-list tid=COS_TRIGGER; nod=POLICE;
```

**Step 8**

Set up release cause to announcement mappings. Use values for annnc-id that match the announcement IDs in your system.

```
add release-cause id=1272; annnc-id=629;
add release-cause id=1273; annnc-id=630;
add release-cause id=1274; annnc-id=631;
add release-cause id=1275; annnc-id=632;
```

**Step 9**

Set up announcements for seasonal suspend. Use values for announcement-file that match actual audio files on your announcement server. The .au files must be recorded and uploaded to the announcement server and must be accessible to the BTS 10200.

```
add announcement id=629; announcement-file=ann_id_orig_generic.au; route-guide-id=annnc1;
announcement-number=629;
add announcement id=630; announcement-file=ann_id_orig_generic_plus_dn.au;
route-guide-id=annnc1; announcement-number=630;
add announcement id=631; announcement-file=ann_id_term_generic.au; route-guide-id=annnc1;
announcement-number=631;
add announcement id=632; announcement-file=ann_id_term_generic_plus_dn.au;
route-guide-id=annnc1; announcement-number=632;
```

## Subscriber Provisioning

Use the following procedure to assign the CoS and Seasonal Suspend features to the subscriber:

**Step 1**

To provide seasonal suspend treatment to the subscriber, set the status field to seasonal-suspend.

```
change subscriber id=sub1; status=seasonal-suspend;
```

**Step 2** Verify that the system displays the new status for this subscriber.

```
show subscriber id=sub1;
```

---

## Provisioning Options for Inbound Call Treatment

This section explains how to provision inbound call treatment options.

### Add a Referral DN to Inbound Seasonal Suspend Announcement

You can use this command to add a referral DN to the subscriber-feature-data table. If you do that, the system plays a seasonal suspend announcement that includes the referral DN, entered as value1 in this command. The value for value1 must be a valid DN and must be entered without any dashes (hyphens). If you do not enter this command, the system still plays the generic inbound seasonal suspend message.

```
add/change subscriber-feature-data sub-id=sub1; fname=SEAS; active=Y; type1=FDN1;
value1=7895552345;
```



**Note**

If status=seasonal-suspend in the subscriber table, the system does not check the active flag in the subscriber-feature-data table.

---

### Route to VMA Instead of Seasonal Suspend

You can provision the system to route *all inbound calls* to voicemail with the Voice Mail Always (VMA) feature. To enable this feature, you must take the following steps:

- Verify that the VMA feature is activated before you set the subscriber status to seasonal suspend. (VMA can be activated or deactivated only when the subscriber status is active.)
- For specific VMA provisioning commands, see the [VMA provisioning procedure](#) in the *Cisco BTS 10200 Softswitch Provisioning Guide*.



**Caution**

If VMA is assigned and active, it takes precedence over the Seasonal Suspend feature for inbound calls, and the system does not provide any seasonal suspend treatment for inbound calls. However, the system can still provide seasonal suspend treatment for outbound calls if provisioned to do so.

---

## Provisioning Options for Outbound Call Treatment

Provision the Seasonal Suspend feature either to provide an announcement on disallowed outbound call attempts or to route disallowed outbound calls to the customer support DN. The parameters for these options are in the feature-config table:

- The default value of route-to-cust-support-dn is N, which means that the call is given to the seasonal suspend announcement and is not routed to the customer support DN. The announcement server (if capable) includes the customer support DN in the announcement if this DN is provisioned as the value for cust-support-dn. However, if the DN is not provisioned, the system provides a generic seasonal suspend announcement.

- If the value of route-to-cust-support-dn is provisioned as Y, the call is routed to the customer support DN if this DN is provisioned as the value for cust-support-dn. However, if route-to-cust-support-dn=Y and the DN is not provisioned, the system plays the generic seasonal suspend announcement.

**Note**

For these commands the cust-support-dn value must be a valid DN entered without any dashes (hyphens). You can provision a local 10-digit number, as shown in the examples below, or a toll or toll-free number.

**Note**

The value for cust-support-dn applies globally to all customers that have the SEAS feature. Therefore, only one DN can be provisioned for this purpose.

## Route to Seasonal Suspend Announcement

```
add feature-config fname=SEAS; type=route-to-cust-support-dn; datatype=boolean; value=N;
add feature-config fname=SEAS; type=cust-support-dn; datatype=string; value=3455555555;
```

## Route to Customer Support DN

```
add feature-config fname=SEAS; type=route-to-cust-support-dn; datatype=boolean; value=Y;
add feature-config fname=SEAS; type=cust-support-dn; datatype=string; value=3455555555;
```

## Turning Off (Deactivating) Seasonal Suspend

To turn off the seasonal suspend status for a subscriber, change the status to active) or any status other than seasonal-suspend).

```
change subscriber id=sub1; status=active;
```

## Troubleshooting, MR1.1 and Later

This section explains how to troubleshoot the following conditions:

- [Problems with Inbound Calls](#)
- [Problems with Outbound Calls](#)

### Problems with Inbound Calls

If inbound calls are not routed to the seasonal suspend announcement, make sure that the Seasonal Suspend feature (fname<n>=SEAS) has been assigned to the default office service ID.

If an inbound call is supposed to receive an announcement but that does not happen, verify that the routing to the server is properly provisioned in the BTS 10200, that the server is in service, and that the appropriate announcement files are loaded on the server.

If inbound calls should receive an announcement that specifies the referral DN (a DN at which the subscriber can be reached) but the referral DN is not included in the announcement, verify that the subscriber-feature-data table has the following parameters provisioned for fname=SEAS:

- type1=FDN1.

- value1 is a valid DN and is entered without any dashes (hyphens).

## Problems with Outbound Calls

After the subscriber status is set to seasonal-suspend, outbound calls should receive the seasonal suspend announcement. If this does not occur, make sure that you have also provisioned the correct CoS restriction (cos-restrict-id=special\_cos\_1 in the previous examples) in the feature-config table.

If the announcement for the outbound call is supposed to include the customer support DN but this DN is not included, check the provisioning in the feature-config table. Make sure that you have set route-to-cust-support-dn=N and that you have provisioned the correct DN for cust-support-dn.

If outbound calls are supposed to be routed to the customer support DN but they are not being routed properly, check the provisioning in the feature-config table. Make sure that you have set route-to-cust-support-dn=Y and that you have provisioned the correct DN for cust-support-dn. The value for cust-support-dn must be a valid DN and must be entered without any dashes (hyphens).

If outbound calls are supposed to receive an announcement but this does not occur, verify that the routing to the server is properly provisioned in the BTS 10200, that the server is in service, and that the appropriate announcement files are loaded on the server.

## SIP Triggers

The following subsections provide the necessary steps to provision Session Initiation Protocol (SIP) Triggers for NCS and MGCP subscribers.

Beginning in Release 5.0, Maintenance Release 1 (MR1), these provisioning steps are also applicable for SIP endpoints (SIP subscribers).



### Note

The Off-Hook Delay Trigger (OHD) is not supported for SIP endpoints. Only the Termination Attempt Trigger (TAT) is supported for SIP endpoints. When you provision SIP triggers for SIP endpoints, exclude any OHD-related provisioning.



### Tip

For detailed information on SIP Triggers, see [SIP Triggers](#) in *Network and Subscriber Feature Descriptions*.

## Office Provisioning

- 
- Step 1** Add required flag to the call agent (ca-config) table:
- ```
add ca-config TYPE=EMG-ROUTE-TO-AS; DATATYPE=BOOLEAN;value=Y
```
- Step 2** Configure the SIP timer profile:
- ```
add SIP_TIMER_PROFILE ID=STP;MIN_SE=200;SESSION_EXPIRES_DELTA_SECS=500;
```
- Step 3** Configure the Softswitch trunk group profile:
- ```
add softsw_tg_profile ID=trigger; PROTOCOL_TYPE=SIP; SESSION_TIMER_ALLOWED=Y;
SIP_TIMER_PROFILE_ID=STP; USE_PAI_HDR_FOR_ANI=Y; ENABLE_SIP_TRIGGER=Y;REFER-ALLOWED=Y
```
- Step 4** Configure the SIP trunk group:

```
add trunk_grp ID=965;TG_TYPE=SOFTSW;SOFTSW_TSAP_ADDR=sia-SYS92CA146.ipclab.cisco.com;
dial_plan_id=tb92; TG_PROFILE_ID=trigger; POP_ID=tb92; CALL_AGENT_ID=CA146;
ROUTE_HEADER_HOSTNAME_PART=sj-prica21; ENABLE_ROUTE_HEADER=Y
```

Step 5 Configure the route ID:

```
add route ID=SS_RTE_965;TGN_1_ID=965;
```

Step 6 Configure the route guide ID:

```
add route_guide ID=SS_RTE_GUIDE_965;POLICY_TYPE=ROUTE;POLICY_ID=SS_RTE_965;
```

Step 7 Configure the destinations:

```
add destination DEST_ID=DEST_965; CALL_TYPE=LOCAL; ROUTE_TYPE=ROUTE;
ROUTE_GUIDE_ID=SS_RTE_GUIDE_965;
```

Step 8 Configure the control in service state (INS):

```
control trunk_grp id=965;mode=forced;target-state=ins;
```

Step 9 Configure the SIP element:

```
add sip_element tsap_addr=sia-SYS92CA146.ipclab.cisco.com
```

Step 10 Configure the SIP trigger profile IDs:

```
add sip-trigger-profile id=vdial+noivr; route_guide_id=60001;
AS_ROUTE_HEADER_USER=vdial+noivr;
NEXT_ROUTE_HEADER_HOSTNAME=sia-SYS92CA146.ipclab.cisco.com
add sip-trigger-profile id=vdial+refer; route_guide_id=965;
AS_ROUTE_HEADER_USER=vdial+refer;
NEXT_ROUTE_HEADER_HOSTNAME=sia-SYS92CA146.ipclab.cisco.com
add sip-trigger-profile id=vdial+refer_sub; route_guide_id=965;
AS_ROUTE_HEADER_USER=vdial+refer_sub;
NEXT_ROUTE_HEADER_HOSTNAME=sia-SYS92CA146.ipclab.cisco.com
add sip-trigger-profile id=vdial+norm_media; route_guide_id=965;
AS_ROUTE_HEADER_USER=vdial+normal_media;
NEXT_ROUTE_HEADER_HOSTNAME=sia-SYS92CA146.ipclab.cisco.com
add sip-trigger-profile id=sc; route_guide_id=965; AS_ROUTE_HEADER_USER=sc;
NEXT_ROUTE_HEADER_HOSTNAME=sia-SYS92CA146.ipclab.cisco.com
```

Step 11 Configure the Off-Hook Delay Trigger (OHD):

```
add feature fname=OHD; tdp1=collected_information; tid1=ohd_trigger; ttype1=R;
tdp2=o_exception; tid2=reroute_trigger; ttype2=R; tdp3=collected_information;
tid3=vertical_service; ttype3=R; feature_server_id=FSPTC235;
```

**Note**

Only TDP= COLLECTED_INFORMATION is supported.

Step 12 Configure the Termination Attempt Trigger (TAT):

```
add feature fname=TAT_1; tdp1=TERMINATION_ATTEMPT_AUTHORIZED;tid1=
TERMINATION_ATTEMPT_AUTHORIZED; ttype1=R;feature-server-id=FSPTC235;
```

```
add feature fname=TAT_2; tdp1=TERMINATION_ATTEMPT_AUTHORIZED;tid1=
TERMINATION_ATTEMPT_AUTHORIZED; ttype1=R;feature-server-id=FSPTC235;
```

**Note**

TAT_1 takes higher precedence over TAT_2, and only TDP=TERMINATION_ATTEMPT_AUTHORIZED is supported.

Step 13 Configure the OHD and TAT triggers in the service table:

```
add service id=svc_ohd; fname1=OHD;
add service id=svc_tat; fname1=TAT_1; fname2=TAT2_2
```

Subscriber Provisioning

**Note**

You must provision the route-guide-id in the Route Guide table before you configure the sip-trigger-profile.

**Note**

Step 1 applies only if you are provisioning SIP endpoints (SIP subscribers). If you are provisioning SIP endpoints, ignore any OHD-related provisioning in Step 2.

Step 1 Configure the TAT for SIP endpoints (SIP subscribers):

```
add subscriber ID=sub_1; CATEGORY=INDIVIDUAL; NAME=SipSub1; STATUS=ACTIVE;
LANGUAGE=english;
BILLING-DN=469-555-1111; DN1=469-555-1111; RING-TYPE-DN1=1; SUB-PROFILE-ID=sub_profile;
TERM-TYPE=SIP; AOR-ID=4695551111@cisco.com; privacy=user;
```

Step 2 Configure the SIP triggers for subscribers:

```
change subscriber id=sub_1; offhook_trigger_type=ohd; OHD_TIMERr=5;

add sip-trigger-profile id=test;
route_guide_id=SS_RTE_GUIDE_965;CA_ROUTE_HEADER_HOSTNAME_PART=sia-sysCA21CA1460.sfanbts.
cisco.com;NO_RESPONSE_TIMER=5

add subscriber-sip-trigger-profile fname=OHD; sip_trigger_profile_id=test;sub_id=sub_1;
add subscriber-sip-trigger-profile fname=TAT_1; sip_trigger_profile_id=test;sub_id=sub_1;
add subscriber-sip-trigger-profile fname=TAT_2; sip_trigger_profile_id=test;sub_id=sub_1;

add sub-service-profile sub_id=sub_1; service_id=svc_tat
add sub-service-profile sub_id=sub_1; service_id=svc_ohd
```

Provisioning Resources

IVR Provisioning

With the SIP triggers feature, an IVR resource must be provisioned. The steps below provide an example of provisioning IVR capability on the Cisco BTS 10200 Softswitch.

Step 1 To create an IVR trunk group, enter the following commands:

```
add mgw-profile ID=ms_profile; VENDOR=IPUnity; PACKET-TYPE=IP; AAL1=N; AAL2=N; AAL5=N;
PVC=N; SVC=N; SPVC=N; MGCP-VERSION=MGCP_1_0;TERMINATION-PREFIX=ivr/;

add mgw id=ipunity_ms; tsap-addr=ms-ipunity2.ipclab.cisco.com; call-agent-id=CA146;
mgw-profile-id=ms_profile;call-agent-control-port=2427;type=twg;

add annc-tg-profile id=annc_tg_p; annc=N; ivr=Y; auto_answer=Y; LOCAL_TRUNK_SELECTION=N;
```

```

add trunk-grp id=20; call-agent-id=CA146; tg_type=annc;
tg-profile-id=annc_tg_p;MGCP-PKG-TYPE=ANNC_CABLE_LABS;

add termination prefix=ivr/; port-start=1; port-end=30; type=trunk;mgw-id=ipunity_ms;

add trunk cic-start=1; cic-end=30; tgn-id=20; termination-prefix=ivr/;
termination-port-start=1; termination-port-end=30; mgw-id=ipunity_ms;

control mgw; mode=forced; target-state=INS; id=ipunity_ms;

control trunk-grp; id=20; mode=forced; target-state=INS;
equip trunk-termination; tgn-id=20; cic=all;

control trunk-termination; tgn-id=20; cic=all; mode=forced; target-state=INS;

```

Step 2 To create a route to the IVR trunk group, enter the following commands:

```

add route id=ivr_rte; tgnl-id=20;

add route-guide id=def_ivr_rg; policy_id=ivr_rte; policy_type=ROUTE;

add ca-config type=DEFAULT-IVR-ROUTE-GUIDE-ID; datatype=string; value=def_ivr_rg;

```

Step 3 To create an IVR prompt/announcement, enter the following commands:



Note

The BTS provides a generic prompt that says: “We are sorry. Your premier voice service is unavailable. You may dial a number at anytime or hangup.”

This recording is stored as an audio file with the filename 'sip_trigger_barge_in.wav' which is used in the last step of this example.

```

add ivr_script_profile FNAME=OHD; IVR_ACCESS_MODE=IVR; IVR_ROUTE_GUIDE_ID=def_ivr_rg;
IVR_SCRIPT_PKG_TYPE=BAU;

add language id=def;

add audio_seq id=GFL_INVOCATION; LANGUAGE_ID=def; SEQ=sip_trig_barge_in;

add audio_segment id=sip_trig_barge_in; TYPE=PHYSICAL;
URL=file:///sip_trigger_barge_in.wav; description=We are sorry. Your premier voice service
is unavailable. You may dial a number at any time or hangup;

```

Centrex Provisioning

The SIP triggers feature is not supported for Centrex subscribers.

MLHG Provisioning

MLHG provisioning is similar to subscriber provisioning.

Speed Call (1-Digit and 2-Digit) and Activation

Speed Call (SC) allows you to dial selected numbers by assigning either a one digit or two digit abbreviated code to frequently called numbers. One-digit speed dialing accomodates eight numbers (2 through 9) for POTS and basic business group (BBG) customers, while two-digit speed dialing accomodates thirty numbers (20 through 49) for long distance, local, international, or emergency numbers.



Tip

For a complete description of these features, see [Speed Call](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the Speed Call feature to be offered.

Office Provisioning

Step 1 Provision the Feature table. Add the 1 Digit Speed Call Activation feature.

```
add feature fname=SC1D_ACT; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE;
ttype1=R; description=One Digit Speed Call Activation; feature_server_id=FSPTC235;
```

Step 2 Provision the Feature table. Add the 2 Digit Speed Call Activation feature.

```
add feature fname=SC2D_ACT; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE;
ttype1=R; description=Two Digit Speed Call Activation; feature_server_id=FSPTC235;
```

Step 3 Provision the Feature table: Add the 1 Digit Speed Call feature.

```
add feature fname=SC1D; tdp1=COLLECTED_INFORMATION; tid1=SC1D_TRIGGER; ttype1=R;
description=One Digit Speed Call; feature_server_id=FSPTC235;
```

Step 4 Provision the Feature table: Add the 2 Digit Speed Call feature.

```
add feature fname=SC2D; tdp1=COLLECTED_INFORMATION; tid1=SC2D_TRIGGER; ttype1=R;
description=Two Digit Speed Call; feature_server_id=FSPTC235;
```

Step 5 Provision the VSC table for 1- Digit Activation:

```
add vsc digit_string=*74;fname=SC1D_ACT;
```

Step 6 Provision the VSC table for 2-Digit Activation:

```
add vsc digit_string=*75;fname=SC2D_ACT;
```

Step 7 Provision the Service table. Create a service with all the speed call features:

```
add service id=499; fname1=SC1D_ACT; fname2=SC2D_ACT; fname3=SC1D; fname4=SC2D;
```

Step 8 Provision the Digit Map table. Add [2-9]#[24]x#[29]T|[2-4]xT to the existing Digit Map:

```
change digit-map id=default; digit-pattern=0T|00|[2-9]11|[2-9]xx[2-9]xxxxxx|
1[2-9]xx[2-9]xxxxxx|0[2-9]xx[2-9]xxxxxx|011xxxxxx.T|01xxxxxx.T|101xxxx|#[*xx|11xx|
xxxxxxxxxxxxxxxxxxxx|[2-9]#[24]x#[29]T|[2-4]xT;
```

Subscriber Provisioning

Step 1 Provision the Subscriber Service Profile table. Add the service to the subscriber:

```
add sub-service-profile sub-id=sub_1_4; service-id=499; priority=4;
```

Centrex and MLHG provisioning is similar to subscriber provisioning as described above.

Alternate Provisioning Method

SC1D can alternately be provisioned or removed by creating an entry in the SC1D table.

Use a CLI command similar to the following to provision the SC1D code:

```
add sc1d sub-id=sub_1; dnx=4692551001;
```

Use a CLI command similar to the following to remove provisioning for the SC1D code:

```
add sc1d sub-id=sub_1; dnx=NULL;
```



Note

dnx can be one of {dn1, dn2, dn3, ..., dn9}. For a Centrex subscriber, it can only be one of {dn2, dn3, ..., dn7}



Note

For a Centrex user, the sub-id should be the main subscriber id defined in the Centrex-grp table.

SC2D can alternately be provisioned or removed by creating an entry in the SC2D table.

Use a CLI command similar to the following to provision the SC2D code:

```
add sc2d sub-id=sub_1; dnx=4692551001;
```

Use a CLI command similar to the following to remove provisioning for the SC2D code:

```
add sc2d sub-id=sub_1; dnx=NULL;
```



Note

dnx can be one of {dn20, dn21, ..., dn49}.



Note

For a Centrex user, the sub-id should be the main subscriber id defined in the Centrex-grp table.

Split Numbering Plan Area

This feature allows the conversion of a specific Numbering Plan Area (NPA) or a NPA-NXX to a new NPA via a series of 4 command steps, as described below. This feature was designed to facilitate the operation of dividing an area served by one NPA into smaller areas served by different NPAs (such action is required when an area is running out of telephone numbers based on a particular NPA and new NPAs are introduced).

For the Split NPA procedure to be initiated, first a permissive period is established. During this period, the numbers that are scheduled to be served by a new NPA should be able to be reached using both the old NPA and the new NPA. Once the permissive period ends, these numbers should be reached only through the new NPA (these numbers cannot be reached via the old NPA, and the old NPA dialing plan becomes vacant and available for assignment to different subscribers).

**Tip**

For a complete description of this feature, see [Split NPA](#) in the *Network and Subscriber Feature Descriptions*.

In the following example, we split 972-516 to 214-516:

Step 1 Add the split NPA into the system, and give start and end dates for the split.

```
add split-npa old-npa=972-516; new-npa=214-516; start-date=2003-10-01;
end-date=2003-12-01;
```

Step 2 Perform the duplicate_records action on the NPA. Tables that contain records whose digit strings are like the old NPA have an additional record created.

```
change split-npa old-npa=972-516; duplicate_records=Y;
```

Step 3 After the start date, perform the update-ani action to change duplicate records to reflect the new NPA:

```
change split-npa old-npa=972-516; update-ani=Y;
After the end date, perform the cleanup action to delete records with the old NPA.
change split-npa old-npa=972-516; cleanup=Y;
```

T.38 Fax Relay

The T.38 Fax Relay feature provides standards-based fax relay protocol support on Cisco 3600 series, and Cisco MC3810 series and C5850 multiservice gateways. The Cisco proprietary fax relay solution is sometimes not an ideal solution for enterprise and service provider customers who have implemented a mixed vendor network. Because the T.38 Fax Relay protocol is standards based, Cisco gateways and gatekeepers will not be able to interoperate with third-party T.38-enabled gateways and gatekeepers in a mixed vendor network where realtime fax relay capabilities are required.

This section explains how to configure T.38 fax relay call agent mode across several interfaces.

**Note**

These tasks include examples of CLI commands that illustrate how to provision the specific feature. Most of these tables have additional tokens that are not included in the examples. For a complete list of all CLI tables and tokens, see the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide*.

**Tip**

For detailed information on this feature, see [T.38 Fax Relay, Modem, and TDD Handling](#) in *Network and Subscriber Feature Descriptions*.

Configuring T.38 Fax Relay

This section describes the steps required to configure T.38 fax relay for different trunk groups, gateways and tables.

Administrator may configure profile information on the Cisco BTS 10200 for each managed MGCP/NCS endpoint to:

- Handle fax using existing audio media (fax pass-through).
- Handle fax using Cisco-proprietary Gateway mode. (Only if supported on the endpoint. Cisco currently does not support this in context of the FXR Package).
- Handle fax using T.38-Loose mode for fax handling, as defined by the MGCP FXR package.
- Allow Cisco BTS 10200 to determine the fax procedure to apply based on the capabilities of the two remote endpoints involved in the fax.

CLI Examples

	Command or Action	Purpose
Step 1	For the MGCP / NCS / TGCP Interface T38_FXR_LOOSE_SUPP, if the Ternary flag in MGW-PROFILE table is 'Y': • Cisco BTS 10200 indicates to endpoint during call setup to use T.38 CA-control mode with 'T.38 Loose' procedure. • Cisco BTS 10200 requests notification of T.38 fax events. If 'N': • Endpoints pre-configured to handle fax using pass-through or some local gateway mode outside of FXR. • Cisco BTS 10200 is unaware of fax transmission. FUTURE USE: FAX_INBAND_METHOD flag will define what to do in this case. T.38 fax transmission is still possible if the fax-detection occurred at the other endpoint.	Provisioning MGCP / NCS / TGCP Interface T38_FXR_LOOSE_SUPP
Step 2	For the MGCP / NCS / TGCP Interface T38_FXR_LOOSE_SUPP: • 'Auto' (default) internally sets 'Y' or 'N' depending if endpoint supports T.38 fax as indicated by audit endpoint acknowledgement. • If endpoint supports T.38 FXR package, but does not support advertising this in audit acknowledgement, the Cisco BTS 10200 assumes it is not supported.	Provisioning MGCP / NCS / TGCP Interface T38_FXR_LOOSE_SUPP

	Command or Action	Purpose
Step 3	For the MGCP / NCS / TGCP Interface, SDP-CAP-ENCODE-TYPE: - In MGW Profile table: - This parameter enables selection of what format to encode the SDP capabilities attributes towards the endpoint when the attributes are received. 'Cisco' - Cisco proprietary method of encoding SDP capability parameters using "x-" extension prefix. 'STD' - Encode using the format detailed in RFC-3407. 'Auto' (default) - Encode the format that was received from the remote end. Therefore, no changes. Cisco BTS 10200 SIP interface always encodes using RFC-3407.	For the MGCP / NCS / TGCP Interface, SDP-CAP-ENCODE-TYPE.
Step 4	QOS Table FAX_T38_ENABLED Binary flag (Y/N) with default = 'Y'. QOS is optional for endpoints and trunks. If no QOS, or this flag set all 'Y' (default), then this flag does not change T.38 Fax feature behavior. MGCP/TGCP/NCS/H.323 endpoints: If either endpoint in the call (including SIP) has a QOS entry and this flag set to 'N', then BTS will indicate to each MGCP/H.323 endpoint to NOT use T.38 procedures regardless of T.38 loose flag set in MGW profile. MGCP type endpoints may still perform T.38 fax transmission if the other end is detecting fax and is off-net SIP. SIP-to-SIP and H.323-to-H.323 calls ignore this flag.	

Provisioning the MGCP / NCS / TGCP Interface T38_FXR_LOOSE_SUPP

- Step 1** In MGW Profile table:
- This parameter enables selection of what format to encode the SDP capabilities attributes towards the endpoint when the attributes are received.
- Step 2** 'Cisco'

- Cisco proprietary method of encoding SDP capability parameters using “x-” extension prefix.
- Step 3** ‘STD’
- Encode using the format detailed in RFC-3407.
- Step 4** ‘Auto’ (default)
- Encode the format that was received from the remote end. Therefore, no changes.
 - ‘Auto’ (default) internally sets ‘Y’ or ‘N’ depending if endpoint supports T.38 fax as indicated by audit endpoint acknowledgement.
 - If endpoint supports T.38 FXR package but does not support advertising this in audit acknowledgement, the Cisco BTS 10200 assumes it is not supported.
- Cisco BTS 10200 SIP interface always encodes using RFC-3407.
-

Provisioning the MGCP / NCS / TGCP Interface SDP-CAP-ENCODE-TYPE

- Step 1** In MGW Profile table:
- This parameter enables selection of what format to encode the SDP capabilities attributes towards the endpoint when the attributes are received.
- Step 2** ‘Cisco’
- Cisco proprietary method of encoding SDP capability parameters using “x-” extension prefix.
- Step 3** ‘STD’
- Encode using the format detailed in RFC-3407.
- Step 4** ‘Auto’ (default)
- Encode the format that was received from the remote end. Therefore, no changes.
- Cisco BTS 10200 SIP interface always encodes using RFC-3407.
-

Provisioning the QoS Table

- Step 1** FAX_T38_ENABLED
- Step 2** Binary flag (Y/N) with default = ‘Y’.
- Step 3** QOS is optional for endpoints and trunks.
- Step 4** If no QOS, or this flag set all ‘Y’ (default), then this flag does not change T.38 Fax feature behavior.
- Step 5** MGCP/TGCP/NCS/H.323 endpoints:
- If either endpoint in the call (including SIP) has a QOS entry and this flag set to ‘N’, then BTS will indicate to each MGCP/H.323 endpoint to NOT use T.38 procedures regardless of T.38 loose flag set in MGW profile.
 - MGCP type endpoints may still perform T.38 fax transmission if the other end is detecting fax and is off-net SIP.
- Step 6** SIP-to-SIP and H.323-to-H.323 calls ignore this flag.
-

Provisioning H.323 Interface

-
- Step 1** To provision the H.323 Interface, use the REMOTE_FAX_PORT_RETRIEVAL_MSG Field in H323-TG-Profile and H323-TERM-Profile.
- H.323 gateway can report UDP port for T.38 fax transmission in either H.245 OLC (default) or OLC ACK.
 - Indicates which field BTS should look into for this value.
 - Cisco IOS H323 GW report in OLC.
-

Provisioning H.323 Interface: CA-CONFIG Table

-
- Step 1** Cisco BTS 10200 global values are used by H.323 interface to negotiate the T.38 fax connection during voice call establishment when inter-working with a non-H323 endpoint.
- Step 2** T38_MAX_BIT_RATE:
Default 14.4
- Step 3** T38_MAX_BUFFER_SIZE:
Default 200
- Step 4** T38_MAX_DATAGRAM_SIZE:
Default 72
-

Provisioning CA-CONFIG Table

-
- Step 1** CODEC-T38-PTIME
T.38 codec packetization period.
Default = 20.
-

Temporary Disconnect

The Temporary Disconnect (TDISC) feature allows a service provider to temporarily disconnect a subscriber from the phone service for non-payment or other special reasons.



Note

For a complete description of this feature, see [Temporarily Disconnected Subscriber Status and Soft Dial Tone](#) in *Network and Subscriber Feature Descriptions*.

The following procedure performs a TDISC for a subscriber.

-
- Step 1** Add a cos-restrict table entry and customize restriction behavior as needed:
- ```
add/change cos-restrict id=tdisc-restricts;
```

**Step 2** Associate cos-restrict to a POP.

```
add/change pop id=new; temp-disc-cos-restrict-id=tdisc-restricts;
```

**Step 3** Configure service-denial behavior as needed.

```
add/change pop id=new; temp-disc-service-allowed=N;
```

**Step 4** Optionally, apply any additional call-types other than as described in R-1070 for which COS feature should not be triggered/invoked.**Note**


---

This behavior applies to COS feature in general, independent of subscribers operational status.

---

```
add/change trigger-nod-escape-list tid=COS_TRIGGER; nod=EMG;
```

**Step 5** Setup release-cause to announcement mappings

```
add release-cause id=1270; ann-id=570;
add release-cause id=151; ann-id=20;
```

**Step 6** Setup announcements for TDISC:

```
add announcement ID=570; TYPE=SYSTEM; SEND_ANSWER=N; NUM_REPEAT=1;
ANNOUNCEMENT_FILE=ann_id_570.au; ROUTE_GUIDE_ID=anncl; ANNOUNCEMENT_NUMBER=20;
ANNOUNCEMENT_TIMER=180;
```

```
add announcement ID=20; TYPE=SYSTEM; SEND_ANSWER=N; NUM_REPEAT=1;
ANNOUNCEMENT_FILE=ann_id_20.au; ROUTE_GUIDE_ID=anncl; ANNOUNCEMENT_NUMBER=20;
ANNOUNCEMENT_TIMER=180;
```

**Step 7** In general for TDISC feature capability at switch level, configure the COS feature as part of default Office service ID.

If "office-service" is the name for the default office-service configured in CA-CONFIG, ensure availability of the COS feature in the default office service.

```
change service id=office-service; fname1=COS;
```

---

## Subscriber Provisioning

**Step 1** Set subscriber status as necessary. To achieve a TDISC on a subscriber, set the status field as TEMP-DISCONNECTED. To undo the TDISC status, change the TDISC status to another appropriate permissible value.

```
Add/change subscriber id=sub1; status=TEMP-DISCONNECTED;
```

---

## Centrex Provisioning

Centrex provisioning is similar to subscriber provisioning and basic Centrex provisioning.

## MLHG Provisioning

MLHG provisioning is similar to subscriber provisioning



## Terminal and Group Make Busy Services

Use the following procedure to configure the TMB and GMB features. The procedure assumes you have already provisioned the MLHG.



### Note

For information on the TMB and GMB features, refer to the *Cisco BTS 10200 Softswitch Network and Subscriber Feature Description Guide*.

- Step 1** Add the feature to the MLHG. The following samples are scripts for each of the TMB and GMB services.
- ```
fname=TMBA;TDP1=COLLECTED_INFORMATION;TID1=VERTICAL_SERVICE_CODE;TTYPE1=R;FEATURE-SERVER-ID=FSPTC235;GRP_FEATURE=N;DESCRIPTION=Terminal Make Busy Activation for MLHG

fname=TMBD;TDP1=COLLECTED_INFORMATION;TID1=VERTICAL_SERVICE_CODE;TTYPE1=R;FEATURE-SERVER-ID=FSPTC235;GRP_FEATURE=N;DESCRIPTION=Terminal Make Busy Deactivation for MLHG

fname=GMBA;TDP1=COLLECTED_INFORMATION;TID1=VERTICAL_SERVICE_CODE;TTYPE1=R;FEATURE-SERVER-ID=FSPTC235;GRP_FEATURE=Y;DESCRIPTION=Group Make Busy Activation for MLHG

fname=GMBD;TDP1=COLLECTED_INFORMATION;TID1=VERTICAL_SERVICE_CODE;TTYPE1=R;FEATURE-SERVER-ID=FSPTC235;GRP_FEATURE=Y;DESCRIPTION=Group Make Busy Deactivation for MLHG
```
- Step 2** Add the vertical service code to the feature.
- ```
add vsc fname=TMBA;DIGIT_STRING=*53;
add vsc fname=TMBD;DIGIT_STRING=*54;
add vsc fname=GMBA;DIGIT_STRING=*55;
add vsc fname=GMBD;DIGIT_STRING=*56;
```
- Step 3** Add a custom dial plan to each digit string.
- ```
add cdp id=tb14-18;digit-string=*53;nod=vsc;fname=TMBA;cat-string=1111111111111111;
add cdp id=tb14-18;digit-string=*54;nod=vsc;fname=TMBD;cat-string=1111111111111111;
add cdp id=tb14-18;digit-string=*55;nod=vsc;fname=GMBA;cat-string=1111111111111111;
add cdp id=tb14-18;digit-string=*56;nod=vsc;fname=GMBD;cat-string=1111111111111111;
```
- Step 4** Add the subscriber service to define services and features.
- ```
add service id=mbz;fname1=TMBA;fname2=TMBD;fname3=GMBA;fname4=GMBD;
```
- Step 5** Add the subscriber service profile to associate the subscriber DN with the services.
- ```
add subscriber-service-profile sub-id=214-624-1809;service-id=mbz;
add subscriber-service-profile sub-id=214-624-1810;service-id=mbz;
add subscriber-service-profile sub-id=214-625-1813;service-id=mbz;
add subscriber-service-profile sub-id=214-622-1801;service-id=mbz;
add subscriber-service-profile sub-id=214-623-1805;service-id=mbz;
add subscriber-service-profile sub-id=214-623-1806;service-id=mbz;
```

Three-Way Calling

Three-Way Calling(TWC) is a service that permits three people at three different locations to talk together at the same time. Whether you make or receive the initial call, you can use TWC to add a third person to the call. You can continue the call if either of the other parties hangs up. However, when you hang up, the other two people will be disconnected because you control the TWC service.

Once a TWC is initiated, all the parties in the call can simultaneously hear what the other parties are communicating.



Tip

For a complete description of this feature, see [Three-Way Calling](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the TWC feature to be offered.

Office Provisioning

Step 1 Provision the Feature table:

```
add feature FNAME=TWC; TDP1=O_MID_CALL; TID1=O_SWITCH_HOOK_FLASH_IMMEDIATE; TTYPE1=R;
TDP2=T_MID_CALL; TID2=T_SWITCH_HOOK_FLASH_IMMEDIATE; TTYPE2=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=Three-Way Calling Feature;
```

Step 2 Provision the Service table:

```
add service id=2; FNAME1=TWC;
```

Subscriber Provisioning

Step 1 Provision the subscriber-service-profile:

```
add subscriber-service-profile sub_id=sub_1; service-id=2;
```

Centrex and MLHG provisioning is similar to subscriber provisioning as described above.

Three-Way Calling Deluxe

Three-Way Calling Deluxw (TWCD) allows a user to add a third party to an existing two party conversation without operator assistance. The user subscribed to TWCD can use this feature regardless of which party originated the two-party call.



Tip

For a complete description of this feature, see [Three-Way Calling Deluxe](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the TWCD feature to be offered.

Office Provisioning

Step 1 Provision the Feature table:

```
add feature FNAME=TWCD; TDP1=O_MID_CALL; TID1=O_SWITCH_HOOK_FLASH_IMMEDIATE; TTYPE1=R;
TDP2=T_MID_CALL; TID2=T_SWITCH_HOOK_FLASH_IMMEDIATE; TTYPE2=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=Residential Three-Way Calling Deluxe Feature;
```

Step 2 Provision the Service table:

```
add service id=2; FNAME1=TWCD;
```

Subscriber Provisioning

Step 1 Provision the subscriber-service-profile:

```
add subscriber-service-profile sub_id=sub_1; service-id=2;
```

Centrex and MLHG provisioning is similar to subscriber provisioning as described above.

Usage Sensitive Three-Way Calling

Usage Sensitive Three-Way Calling (USTWC) allows a user to add a third party to an existing two party conversation. It provides all the functionality of TWC without requiring the user to subscribe to the service.



Tip

For a complete description of this feature, see [Usage Sensitive Three-Way Calling](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the USTWC feature to be offered.

Office Provisioning

Step 1 Provision the Feature table:

```
add feature FNAME=USTWC; TDP1=O_MID_CALL; TID1=O_SWITCH_HOOK_FLASH_IMMEDIATE; TTYPE1=R;
TDP2=T_MID_CALL; TID2=T_SWITCH_HOOK_FLASH_IMMEDIATE; TTYPE2=R;
FEATURE_SERVER_ID=FSPTC235; DESCRIPTION=Usage Sensitive Three-Way Calling Feature;
```

Step 2 Provision the Service table:

```
add service id=999; FNAME1=USTWC;
```

Step 3 Provision the CA-config table:

```
add ca-config TYPE=DEFAULT-OFFICE-SERVICE-ID; DATATYPE=STRING; VALUE=999;
```

Subscriber Provisioning

-
- Step 1** Change the subscriber's Usage Sensitivity feature applicability flag:
- ```
change subscriber id=sub_1@abcd; USAGE-SENS=Y;
```
- Step 2** (Optional) Customize the feature denied flag for the subscriber as per individual requirements:
- ```
change subscriber-feature-data sub-id=subscriber_1; fname=USTWC; type1=DENIED value1=Y;
```
-

Centrex and MLHG provisioning is similar to subscriber provisioning as described above.

Voice Mail, Voice Mail Always, and Voice Mail Access

The stand-alone call redirection to voice mail feature forwards calls when a subscriber is either busy, away from the phone, or sends calls directly to voice mail where the caller can record a message. The subscriber may later retrieve the message from the voice mail server.



Note

For a complete description of this feature, see [Voice Mail and Voice Mail Always](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for this feature to be offered

Office Provisioning Voice Mail Activation (VM_ACT), Deactivation (VM_DEACT), and Access (VM_ACCESS)

-
- Step 1** Create a feature for VM_ACT:
- ```
add/change feature FNAME=VM_ACT; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE; TTYPE1=R; FEATURE_SERVER_ID=FSPTC235;
```
- Step 2** Create a feature for VM\_DEACT:
- ```
add/change feature FNAME=VM_DEACT; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE; TTYPE1=R; FEATURE_SERVER_ID=FSPTC235;
```
- Step 3** Create a feature for VM_ACCESS:
- ```
add/change feature FNAME=VM_ACCESS; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE; TTYPE1=R; FEATURE_SERVER_ID=FSPTC235;
```
- Step 4** Create a feature for VM:
- ```
add/change feature FNAME=VM; TDP1=T_BUSY; TID1=T_BUSY; TTYPE1=R; TDP2=CALL_ACCEPTED; TID2=CALL_ACCEPTED; TTYPE2=R; TYPE1=TO; VALUE1=30; TYPE2=MCF; VALUE2=Y; FNAME1=VM_ACT; FNAME2=VM_DEACT; FEATURE_SERVER_ID=FSPTC235;
```
- Step 5** Define VSC codes for these features:
- ```
add/change vsc; fname=VM_ACT; DIGIT_STRING=*210;
```
- ```
add/change vsc; fname=VM_DEACT; DIGIT_STRING=*211;
```
- ```
add/change vsc; fname=VM_ACCESS; DIGIT_STRING=*222;
```

**Step 6** Combine the features defined above into a service:

```
add/change service id=vm_busy_na; FNAME1=VM; fname2=VM_ACCESS;
```

---

## Office Provisioning Voice Mail Always

**Step 1** Create a feature for VMA\_ACT:

```
add/change feature FNAME=VMA_ACT; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYPE1=R; FEATURE_SERVER_ID=FSPTC235;
```

**Step 2** Create a feature for VMA\_DEACT:

```
add/change feature FNAME=VMA_DEACT; TDP1=COLLECTED_INFORMATION;
TID1=VERTICAL_SERVICE_CODE; TTYPE1=R; FEATURE_SERVER_ID=FSPTC235;
```

**Step 3** Create a feature for VMA:

```
add/change feature FNAME=VMA; TDP1=TERMINATION_ATTEMPT_AUTHORIZED;
TID1=TERMINATION_ATTEMPT_AUTHORIZED; TTYPE1=R; TYPE1=MCF; VALUE1=Y; FNAME1=VMA_ACT;
FNAME2=VMA_DEACT; FEATURE_SERVER_ID=FSPTC235;
```

**Step 4** Define VSC codes for these features:

```
add/change vsc; fname=VMA_ACT; DIGIT_STRING=*220;

add/change vsc; fname=VMA_DEACT; DIGIT_STRING=*221;
```

**Step 5** Combine the features defined above into a service:

```
add/change service id=vm_always;
FNAME1=VMA; fname2=VM_ACCESS;
```

---

## Provisioning Resources

The following table shows how to create the app-server table for a subscriber. The next step shows the multiple ways by which this can be associated to the subscriber. The app-server can be associated to the subscriber through four tables:

- Subscriber table: by populating the VOICE\_MAIL\_ID with the app-server id.
- Subscriber-profile table: by populating the VOICE\_MAIL\_ID with the app-server id
- Pop table: by populating the VOICE\_MAIL\_ID with the app-server id
- Ca-config table

**Step 1** Created the VM table entry:

```
add app-server; id=vm_as; APP_SERVER_TYPE=VM; APP_SERVER_DN=9722331287;
APP_SERVER_ACCESS_DN=9722331287; DESCRIPTION=VM App Server;
```

**Step 2** Associate the app-server to the sub via the subscriber table:

```
change sub; id=<sub>; VOICE_MAIL_ID=vm_as;
```

**Step 3** Associate the app-server to the sub via the sub-profile table:

```
change sub-profile; id=<sub-profile>; VOICE_MAIL_ID=vm_as;
```

**Step 4** Associate the app-server to the sub via the pop table:

```
change pop; id=<pop>; VOICE_MAIL_ID=vm-as;
```

**Step 5** Associate the app-server to the sub via the ca-config table:

```
Add ca-config; type=default-voice-mail-id; value=vm-as;
```

---

## Subscriber Provisioning

**Step 1** Assign the service to a subscriber:

```
add/change sub-service-profile; sub-id=[sub]; service-id=vm_always;
```

**Step 2** Assign the service to a subscriber:

```
add/change sub-service-profile; sub-id=[sub]; service-id=vm_busy_na;
```

---

## Centrex Provisioning

**Step 1** Define the star codes in the CDP table for Centrex subscribers:

```
add/change cdp; id=[cdp-id]; fname=VM_ACT; DIGIT_STRING=*210; nod=VSC;
CAT_STRING=1111111111111111;
```

```
add/change cdp; id=[cdp-id]; fname=VM_DEACT; DIGIT_STRING=*211; nod=VSC;
CAT_STRING=1111111111111111;
```

```
add/change cdp; id=[cdp-id]; fname=VM_ACCESS; DIGIT_STRING=*222; nod=VSC;
CAT_STRING=1111111111111111;
```

**Step 2** Define the star codes in the CDP table for Centrex subscribers:

```
add/change cdp; fname=VMA_ACT; DIGIT_STRING=*220; nod=VSC; CAT_STRING=1111111111111111;
```

```
add/change cdp; fname=VMA_DEACT; DIGIT_STRING=*221; nod=VSC; CAT_STRING=1111111111111111;
```

---

## Alternate Way of Activating and Deactivating VM and VMA

**Step 1** Activate VM (Busy, No Answer) for the subscriber:

```
add/change sub-feature-data; sub-id=sub1; fname=VM; ACTIVE=Y;
```

**Step 2** Deactivate VM (Busy, No Answer) for the subscriber:

```
add/change sub-feature-data; sub-id=sub1; fname=VM; ACTIVE=N;
```

**Step 3** Activate VM (Always) for the subscriber:

```
add/change sub-feature-data; sub-id=sub1; fname=VMA; ACTIVE=Y
```

**Step 4** Deactivate VM (Always) for the subscriber:

```
add/change sub-feature-data; sub-id=sub1; fname=VMA; ACTIVE=N;
```

---

## Warmline

The Warmline feature is a combination of a hotline and a regular telephone line.



### Tip

For a complete description of this feature, see [Warmline Service](#) in the *Network and Subscriber Feature Descriptions*.

The following subsections identify necessary steps for the Warmline feature to be offered.

## Office Provisioning

**Step 1** Register the feature in the Office:

```
add feature FNAME=WARMLINE; tdp1=O_ATTEMPT_AUTHORIZED; tid1=O_ATTEMPT_AUTHD; ttype1=R;
feature_server_id=FSPTC235; description=Warmline; grp_feature=N;
```

**Step 2** Provision the service in the Office:

```
add service id=special-srv; fname1=WARMLINE;
```



### Note

This feature may be assigned to any of the fnameN tokens

**Step 3** Change the warmline dial-tone timeout parameter, if required.

```
change feature FNAME=WARMLINE; type1=TO; value1=6;
```

## Provisioning Resources

**Step 1** The mgw-profile of the media gateway to which the subscriber line is associated must have its MGCP version set as “non-0.1”:

```
add mgw-profile id=plano-iad; mgcp-version=MGCP_1_0;
```



### Note

MGCP 0.1 version does not support TO signal completion report.

**Step 2** Set the dial tone timeout as a supported feature by the MGW:

```
Add/change mgw-profile id=plano-iad; mgcp-to-supp=Y;
```

## Subscriber Provisioning

**Step 1** Add the service to the subscriber’s service profile:

```
add subscriber-service-profile sub-id=sub1_plano.com; service-id=special-srv;
```

**Step 2** Add the warmline timeout target DN to the subscriber’s feature data:

```
add subscriber-feature-data sub-id=sub1_plano.com; fname=WARMLINE; type1=FDN1;
value1=9726712355;
```

Centrex and MLHG provisioning is similar to subscriber provisioning as described above.

## Time and Weather Number

To set up a time and weather number, complete the following steps:

- Step 1** A time and weather dial plan must be created for the feature to work. To add a dial plan for time and weather, enter the following command:
- ```
add dial-plan id=dp1; digit-string=301=844; REQ_DIGITS=10; DEST_ID=inter-rte-3333;
```
-  **Note** A dial plan profile must be added before you can add a dial plan.
- Step 2** To add a special call type for time and weather (TW), enter the following command:
- ```
add special-call-type digit-string=844; call-type=TW; description=Time and Weather;
```
- Step 3** Verify that a digit-string for time and weather was added with a call type of TW by entering the following command:
- ```
CLI> show special-call-type digit_string=844;
```
- Reply: Success: 1 entry found.
- ```
DIGIT_STRING=844;
CALL_TYPE=TW
DESCRIPTION=Time and Weather
```

## Provision an Office Service ID for a POP

If office-service-id is not provisioned in the POP table, the system uses the default-office-service-id provisioned in the Ca-config table.



### Tip

For a complete description of this feature, see [Office Service ID and Default Office Service ID](#) in the *Network and Subscriber Feature Descriptions*.

Use the following procedure to provision a specific office service ID for an individual POP:

- Step 1** Add the service ID by entering a command similar to the following:
- ```
add service id=noLNP; fname1-8xx; fname2=911; fname3=USTWC;
```
- Step 2** Add the office service ID to the POP:
- ```
change pop id=pop1; office-service-id=noLNP;
```





## CHAPTER 8

# Centrex, MLHG, and Voice Mail Provisioning

Revised: May 31, 2010, OL-12777-12

This chapter describes how to provision a Centrex group and a multiline hunt group (MLHG) and how to add subscribers. It also describes how to provision voice mail and the automated attendant. This chapter is organized into the following sections:

- [Provisioning a Centrex Group, page 8-1](#)
- [Provisioning a Multiline Hunt Group, page 8-9](#)
- [Provisioning Voice Mail, page 8-11](#)

For a more detailed description of all Cisco BTS 10200 Softswitch tables, tokens, and value ranges, refer to the [Cisco BTS 10200 Softswitch Command Line Interface Reference Guide](#).

## Provisioning a Centrex Group

[Table 8-1](#) provides an example of the steps required to provision a Centrex group and add subscribers to it and provides example commands with mandatory tokens. Click on each step for a description of the step.

**Table 8-1**      *Centrex Provisioning Steps*

|        | Description                                              | CLI Command                                                                                 |
|--------|----------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Step 1 | <a href="#">Add a Media Gateway Profile, page 8-2</a>    | add mgw-profile id=IAD2421; vendor=cisco;                                                   |
| Step 2 | <a href="#">Add a Media Gateway, page 8-3</a>            | add mgw id=c2421.192; call-agent-id=CA101;<br>mgw-profile-id=IAD2421; type=rgw              |
| Step 3 | <a href="#">Add a Termination, page 8-3</a>              | add termination prefix=aaln/S1/; port-start=1; port-end=16;<br>type=line; mgw-id=c2421.192; |
| Step 4 | <a href="#">Add a Custom Dial Plan Profile, page 8-4</a> | add custom-dial-plan-profile id=Cisco_Plan;                                                 |
| Step 5 | <a href="#">Add a Custom Dial Plan, page 8-4</a>         | add custom-dial-plan id=cdp1; digit-string=7; nod=pots-access;<br>cat-string=11111111;      |
| Step 6 | <a href="#">Add a Digit Map, page 8-4</a>                | add digit-map id=ctxg1; digit-pattern=0 3xx 9 *xx;                                          |

**Table 8-1 Centrex Provisioning Steps (continued)**

|                | Description                                                 | CLI Command                                                                                                                                                                                                                             |
|----------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 7</b>  | <a href="#">Add a Subscriber Profile, page 8-4</a>          | add subscriber-profile id=ctxgspf; digit-map-id=ctxgl;<br>dial-plan-id=dp1; pop-id=1;                                                                                                                                                   |
| <b>Step 8</b>  | <a href="#">Change the Point of Presence, page 8-5</a>      | change pop id=1; cnam_option=local                                                                                                                                                                                                      |
| <b>Step 9</b>  | <a href="#">Add the Main Subscriber, page 8-5</a>           | add subscriber id=sub1; category=CTXG; name=main-sub;<br>dn1=123-456-7890; sub-profile-id=ctxgspf;                                                                                                                                      |
| <b>Step 10</b> | <a href="#">Add a Centrex Group, page 8-5</a>               | add centrex-grp id=cisco-ctxg; cdp-id=cdp1;<br>call-agent-id=CA101;main-sub-id=sub1;                                                                                                                                                    |
| <b>Step 11</b> | <a href="#">Change the Main Subscriber, page 8-6</a>        | change subscriber id=sub1; ctxg-id=cisco-ctxg;                                                                                                                                                                                          |
| <b>Step 12</b> | <a href="#">Add a Service, page 8-6</a>                     | add service id=3; fname1=CDP; fname2=CFU;                                                                                                                                                                                               |
| <b>Step 13</b> | <a href="#">Add a Subscriber Service Profile, page 8-6</a>  | add subscriber-service-profile sub-id=sub1; service-id=3;                                                                                                                                                                               |
| <b>Step 14</b> | <a href="#">Add a Subscriber, page 8-6</a>                  | add subscriber id=sub2; category=ctxg-individual;<br>name=Richardson2; dn1=469-255-1231; term-id=aaln/S1/4;<br>mgw-id=c2421.192; sub-profile-id=ctxgspf; ctxg-id=cisco-ctxg;<br><b>Note</b> Each subscriber must have a unique term-id. |
| <b>Step 15</b> | <a href="#">Add an Extension for a Subscriber, page 8-7</a> | add ext2subscriber ctxg-id=cisco-ctxg; ext=332; sub-id=sub2;                                                                                                                                                                            |
| <b>Step 16</b> | <a href="#">Add a Subscriber Service Profile, page 8-7</a>  | add subscriber-service-profile sub-id=sub2;service-id=3;                                                                                                                                                                                |
| <b>Step 17</b> | <a href="#">Add a Call Park Subscriber Group, page 8-7</a>  | add cpsg id=cisco; tcprk=100; ctxg-id=cisco-ctxg;                                                                                                                                                                                       |
| <b>Step 18</b> | <a href="#">Control a Media Gateway, page 8-8</a>           | control mgw id=C2421.192; target-state=INS; mode=forced;                                                                                                                                                                                |
| <b>Step 19</b> | <a href="#">Equip a Subscriber Termination, page 8-8</a>    | equip subscriber-termination id=c2421.192;                                                                                                                                                                                              |
| <b>Step 20</b> | <a href="#">Control a Subscriber Termination, page 8-9</a>  | control subscriber-termination id=c2421.192;                                                                                                                                                                                            |

## Add a Media Gateway Profile

A media gateway (MGW) profile provides a template for provisioning one or more media gateways by vendor. It identifies the specifications and settings necessary for communications between the Call Agent and each type of media gateway.

Several tokens have values that can be overwritten after the Call Agent queries the media gateway for supported capabilities. If the media gateway returns a value different from the value you originally provisioned, the returned value automatically replaces the originally provisioned value.

| Command                                   | Purpose                      |
|-------------------------------------------|------------------------------|
| add mgw-profile id=IAD2421; vendor=cisco; | Adds a media gateway profile |

## Add a Media Gateway

The Media Gateway (mgw) table holds information about each media gateway managed by the Call Agent. The media gateway can be uniquely addressed by domain name, an IP address, or the TSAP address.

The Media Gateway table has two associated commands: RGW and TGW. The RGW command provisions a gateway as only a residential gateway, with the type token automatically set to RGW. The TGW command provisions a gateway as a trunking gateway only, with the type token automatically set to TGW. Both of these commands provision the Media Gateway table, but a service provider can use these commands to provide user security to certain individuals based on their roles.

| Command                                                                                       | Purpose              |
|-----------------------------------------------------------------------------------------------|----------------------|
| <code>add mgw id=c2421.192; call-agent-id=CA101;<br/>mgw-profile-id=IAD2421; type=rgw;</code> | Adds a media gateway |

**Note**

The RGW command could also be used to provision the media gateway in this instance. Refer to the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* for detailed information about the RGW and TGW commands.

## Add a Termination

The Termination (termination) table holds information about each termination/endpoint managed by the Call Agent. Termination structure uniformly addresses analog ports, DS0 ports, ISDN circuits, and allows termination groupings for ISDN PRI and multiline hunt groups (MLHGs) for a single subscriber. Termination events and signals are grouped into packages, which are groupings of events and signals supported by a particular type of endpoint. For instance, one package supports a certain group of events and signals for analog access lines, while another package supports another group of events and signals for video lines. One or more packages can exist for a given endpoint type. The package type is determined by the gateway used.

This table can use commands that do not match command-to-field of the database. If the prefix token is used during provisioning, the termination ID is generated by concatenating prefix and port-start value and incrementing the termination port number until the port number value reaches port-end. The prefix, port-start, and port-end are not in the table as individual fields.

The user enters:

prefix: 1–32 ASCII characters

port-start: 0000–9999 (1–4 numeric characters) (default = 1)

port-end: 0000–9999 (1–4 numeric characters) (default = 24)

| Command                                                                                                      | Purpose            |
|--------------------------------------------------------------------------------------------------------------|--------------------|
| <code>add termination prefix=aaln/S1/<br/>port-start=1; port-end=16; type=line;<br/>mgw-id=c2421.192;</code> | Adds a termination |

## Add a Custom Dial Plan Profile

The Custom Dial Plan Profile (custom-dial-plan-profile) table defines custom dial plan IDs (CDP IDs) assigned to Centrex groups.

| Command                                                      | Purpose                         |
|--------------------------------------------------------------|---------------------------------|
| <code>add custom-dial-plan-profile<br/>id=Cisco_Plan;</code> | Adds a custom dial plan profile |

## Add a Custom Dial Plan

The Custom Dial Plan (custom-dial-plan) table translates dialed digits to specific destinations for Centrex calls. If the result of a custom dial plan (CDP) is a POTS access code, call processing uses the POTS Dial Plan table to translate the digits dialed after the POTS access code.

| Command                                                                                                | Purpose                 |
|--------------------------------------------------------------------------------------------------------|-------------------------|
| <code>add custom-dial-plan<br/>id=cdp1;digit-string=7;nod=pots-access;<br/>cat-string=11111111;</code> | Adds a custom dial plan |

## Add a Digit Map

The Digit Map (digit-map) table tells a media gateway (MGW) how to collect and report dialed digits. The Call Agent uses a default digit map ID for normal digit collection unless a specific digit map ID is assigned to the subscriber. POTS subscribers use a public dialing plan. Centrex subscribers use a customized dialing plan.

| Command                                                             | Purpose          |
|---------------------------------------------------------------------|------------------|
| <code>add digit-map id=ctxg1;<br/>digit-pattern=0 3xx 9 *xx;</code> | Adds a digit map |

## Add a Subscriber Profile

The Subscriber Profile (subscriber-profile) table groups properties that are shared by a group of subscribers. For example, a Centrex group consisting of several subscribers can share a subscriber profile. Because a Call Agent consists of several points of presence (POPs), and POP is one of the tokens in the subscriber profile, POP-specific subscriber profiles must be created.

| Command                                                                                                 | Purpose                   |
|---------------------------------------------------------------------------------------------------------|---------------------------|
| <code>add subscriber-profile id=ctxgspf;<br/>digit-map-id=ctxg1; dial-plan-id=dp1;<br/>pop-id=1;</code> | Adds a subscriber profile |

## Change the Point of Presence

If Centrex group members subscribe to the Calling Name Delivery (CNAM) feature and require name delivery, the `cnam-option` token must be specified in the Point of Presence (POP) table. Use the `cnam-option` values as follows:

- `cnam-option=local`—Display the name from the calling party's Subscriber table, if present.
- `cnam-option=local-or-lidb`—Set this option if external line information database (LIDB) CNAM queries are desired when the calling party's name is not present in the Subscriber table, for example, from an outside caller with no Subscriber table record.
- If external LIDB CNAM queries are to be allowed for non-Centrex group calls, set `centrex-group internal-cnd-only=n` and POP `cnam_option=local-or-lidb`.

| Command                                         | Purpose                                                                 |
|-------------------------------------------------|-------------------------------------------------------------------------|
| <code>change pop id=1; cnam_option=local</code> | Displays the name from the calling party's Subscriber table, if present |

## Add the Main Subscriber

The Subscriber (subscriber) table defines the characteristics of a subscriber or group of subscribers in a Call Agent. All termination numbers reached by a directory number (DN) must be set up as a subscriber. Any termination that can originate in the primary Call Agent must be set up as a subscriber (residential, PBX, business, or Centrex). All terminations to customers, such as MLHG and Centrex, must be defined as well.

When the `send-bdn-as-cpn` token in the Subscriber table is set to Y, the subscriber can send the billing DN as the CPN. All terminations in the hunt group will send the same DN as the Main-Subscriber in the MLHG.

| Command                                                                                                              | Purpose           |
|----------------------------------------------------------------------------------------------------------------------|-------------------|
| <code>add subscriber id=sub1; category=CTXG;<br/>name=main-sub; dn1=123-456-7890;<br/>sub-profile-id=ctxgspf;</code> | Adds a subscriber |

## Add a Centrex Group

Both the Call Agent and POTS/Centrex/Tandem (PTC) Feature Server share the Centrex Group (`centrex-grp`) table. A Centrex group is typically assigned to a business group. Subscribers within a Centrex group can reach each other by intercom (extension) dialing. A Centrex group is an emulation of a PBX by a Class 5 switch. The Centrex Group table defines Centrex groups and their associated Call Agents. The PTC Feature Server provides Centrex group functionality. The properties assigned to the main subscriber ID are applicable to the whole Centrex group.

If external line information database (LIDB) Calling Name Delivery (CNAM) queries are to be allowed for non-Centrex group calls, set `internal-cnd-only=n` and the POP `cnam-option=local-or-lidb`. See [Change the Point of Presence, page 8-5](#).

| Command                                                                                                 | Purpose              |
|---------------------------------------------------------------------------------------------------------|----------------------|
| <code>add centrex-grp id=cisco-ctxg;<br/>cdp-id=cdp1; call-agent-id=CA101;<br/>main-sub-id=sub1;</code> | Adds a Centrex group |

## Change the Main Subscriber

After the Centrex group is created, you must add subscribers to it.

| Command                                                         | Purpose                                |
|-----------------------------------------------------------------|----------------------------------------|
| <code>change subscriber id=sub1;<br/>ctxg-id=cisco-ctxg;</code> | Adds a subscriber to the Centrex group |

## Add a Service

The Service (service) table defines services and features. A service is a collection of one or more features. Each feature within a service can have one or more triggers. A service is invoked when a trigger is reached. Services can be dynamically created within the Cisco BTS 10200 Softswitch. The service provider defines a service and the features associated with it. Up to ten commonly used features can be grouped into a service, and up to fifty services can be provisioned per subscriber. The subscriber is then provisioned with a service ID instead of individual features.

| Command                                                | Purpose        |
|--------------------------------------------------------|----------------|
| <code>add service id=3; fname1=CDP; fname2=CFU;</code> | Adds a service |

## Add a Subscriber Service Profile

The Subscriber Service Profile (subscriber-service-profile) table links services to subscribers.

| Command                                                                    | Purpose                           |
|----------------------------------------------------------------------------|-----------------------------------|
| <code>add subscriber-service-profile<br/>sub-id=sub1; service-id=3;</code> | Adds a subscriber service profile |

## Add a Subscriber

The Subscriber (subscriber) table defines the characteristics of a subscriber or group of subscribers in a Call Agent. All termination numbers reached by a DN must be set up as subscribers. Any termination that can originate in the primary Call Agent must be set up as a subscriber (residential, PBX, business, or Centrex). All terminations to customers, such as MLHG and Centrex, must be defined as well.

[Table 8-2](#) lists the required tokens for each category.

| Command                                                                                                                                                                               | Purpose                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| add subscriber id=sub2;<br>category=ctxg-individual;<br>name=Richardson2; dn1=469-255-1231;<br>term-id=aaln/S1/4; mgw-id=c2421.192;<br>sub-profile-id=ctxgspf;<br>ctxg-id=cisco-ctxg; | Adds a subscriber<br><br><b>Note</b> Each subscriber must have a unique term-id. |

**Table 8-2** Required Tokens per Category

| Token    | Value           | Required Tokens                             |
|----------|-----------------|---------------------------------------------|
| Category | INDIVIDUAL      | TERM-ID, MGW-ID                             |
|          | MLHG            | MLHG-ID                                     |
|          | MLHG-INDIVIDUAL | TERM-ID, MGW-ID, MLHG-ID                    |
|          | MLHG-PREF-INDIV | TERM-ID, MGW-ID, MLHG-ID, MLHG-PREF-LIST-ID |
|          | CTXG-MLHG       | MLHG-ID, CTXG-ID                            |
|          | CTXG            | CTXG-ID                                     |
|          | CTXG-INDIVIDUAL | TERM-ID, MGW-ID, CTXG-ID                    |
|          | CTXG-TG         | CTXG-ID, TGN-ID                             |
|          | PBX             | TGN-ID                                      |

## Add an Extension for a Subscriber

The Ext2subscriber (ext2subscriber) table is populated when a Centrex subscriber is created to map extensions to subscriber IDs.

| Command                                                         | Purpose                           |
|-----------------------------------------------------------------|-----------------------------------|
| add ext2subscriber ctxg-id=cisco-ctxg;<br>ext=332; sub-id=sub2; | Adds an extension to a subscriber |

## Add a Subscriber Service Profile

The Subscriber Service Profile (subscriber-service-profile) table links services to subscribers.

| Command                                                     | Purpose                           |
|-------------------------------------------------------------|-----------------------------------|
| add subscriber-service-profile<br>sub-id=sub2;service-id=3; | Adds a subscriber service profile |

## Add a Call Park Subscriber Group

The Call Park Subscriber Group (CPSG) table defines the Centrex-specific call park subscriber group identification and the call park timeout timer. Call park is similar to placing a call on hold, but the call is retrieved by dialing a call rather than by pressing a line button.

| Command                                                            | Purpose                           |
|--------------------------------------------------------------------|-----------------------------------|
| <code>add cpsg id=cisco; tcprk=100;<br/>ctxg-id=cisco-ctxg;</code> | Adds a call park subscriber group |

## Control a Media Gateway

The control command sets the administrative state (OOS, INS) of media gateways, subscriber terminations, trunks, and trunk groups.

| Command                                                                   | Purpose                   |
|---------------------------------------------------------------------------|---------------------------|
| <code>control mgw id=c2421.192; target-state=INS;<br/>mode=forced;</code> | Places the MGW in-service |

The status command displays the state of media gateways, subscriber terminations, trunks, and trunk groups.

Enter the following CLI command to verify that the media gateway is in-service:

```
status mgw id=<mgw id>;
```

Reply example:

Reply : Success:

```
MGW ID -> c2421.192
RESULT -> ADM configure result in success
REASON -> ADM executed successful
ADMIN STATE -> ADMIN_INS
OPER STATE -> Media gateway in working status
```

## Equip a Subscriber Termination

The equip command enables the subscriber trunk termination to be placed in-service. [Table 8-3](#) lists and defines trunk termination states.

| Command                                                 | Purpose                                                        |
|---------------------------------------------------------|----------------------------------------------------------------|
| <code>equip subscriber-termination id=c2421.192;</code> | Enables a subscriber trunk termination to be placed in-service |

**Table 8-3**      **Subscriber Trunk Termination States**

| State       | Definition       |
|-------------|------------------|
| ADMIN-INS   | In Service       |
| ADMIN-OOS   | Out of Service   |
| ADMIN-MAINT | Maintenance Mode |



## Control a Subscriber Termination

The control command sets the administrative state (OOS, INS) of media gateways, subscriber terminations, trunks, and trunk groups.

| Command                                                       | Purpose                                      |
|---------------------------------------------------------------|----------------------------------------------|
| <code>control subscriber-termination<br/>id=c2421.192;</code> | Places the subscriber termination in-service |

Enter the following CLI command to verify that the subscriber termination is in-service:

```
status subscriber-termination id=<subscriber-termination id>;
```

## Provisioning a Multiline Hunt Group

This section explains how to provision a MLHG and a preferential hunt list for the MLHG.

### Provisioning an MLHG

Table 8-4 provides an example of the steps required to provision a multiline hunt group and add subscribers to it. It lists example CLI commands with mandatory tokens.



#### Tip

For a detailed description of the MLHG features and functions, and detailed guidance on certain provisionable parameters, see the “[MLHG feature](#)” section in the *Cisco BTS 10200 Softswitch Network and Subscriber Feature Descriptions* document.

To see a list of all provisionable values for the MLHG, MLHG Terminal, and MLHG Preference List tables, see the “[Multiline Hunt Group](#)” chapter of the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide*.

**Table 8-4**      **Multiline Hunt Group Provisioning Steps**

|               | Description          | CLI Command                                                                                                                                                                                                                                         |
|---------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Prerequisites        | Enter the appropriated commands to provision the following entities in your network: <ul style="list-style-type: none"> <li>• pop</li> <li>• mgw-profile</li> <li>• dial-plan-profile</li> <li>• dial-plan</li> <li>• subscriber-profile</li> </ul> |
| <b>Step 2</b> | add a media gateway. | add mgw id=c2421.192; call-agent-id=CA146;<br>mgw-profile-id=IAD2421; type=rgw;                                                                                                                                                                     |

**Table 8-4** *Multiline Hunt Group Provisioning Steps (continued)*

|               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CLI Command                                                                                                                                                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 3</b> | Add a set of terminations that will be used for the terminals of the MLHG.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | add termination prefix=aaln/S1/; port-start=1; port-end=16;<br>type=line; mgw-id=c2421.192;                                                                                                                                                               |
| <b>Step 4</b> | Add the main subscriber for the MLHG. Setting category = mlhg identifies this subscriber as the main subscriber of a MLHG.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | add subscriber id=sub1; sub-profile-id=mlhgprof;<br>name=mlhg1-main; dn1=212-555-7777; term-type=none;<br>category=mlhg;<br><br><b>Note</b> The system does not allow you to assign the mlhg-id yet. This will be done in a later step in this procedure. |
| <b>Step 5</b> | Add the MLHG and assign the main subscriber.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | add mlhg id=mlhg1; call-agent-id=CA146; main-sub-id=sub1;                                                                                                                                                                                                 |
| <b>Step 6</b> | Link the main subscriber record to the MLHG.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | change subscriber id=sub1; mlhg-id=mlhg1;                                                                                                                                                                                                                 |
| <b>Step 7</b> | Add a terminal (a physical line) to the MLHG.<br><br>Additional considerations: <ul style="list-style-type: none"> <li>You can provision category as mlhg-individual or mlhg-pref-indiv. The system treats these settings identically.</li> <li>Any termination reachable through an individual DN must be set up as a subscriber, and any termination to a physical line must be defined with a unique term-id.</li> <li>For a termination to make outgoing calls, it must be set up as a subscriber.</li> </ul> <b>Note</b> For detailed guidance on certain provisionable parameters, see the <a href="#">“MLHG feature” section</a> in the Cisco BTS 10200 Softswitch Network and Subscriber Feature Descriptions document. | add subscriber id=sub2; category=mlhg-individual; grp=y;<br>name=Richardson2; dn1=972-555-1232; term-id=aaln/S1/4;<br>mgw-id=c2421.192; sub-profile-id=mlhgprof; mlhg-id=mlhg1;                                                                           |
| <b>Step 8</b> | Add MLHG terminals.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | add mlhg-terminal mlhg-id=mlhg1; terminal=17;<br>term-id=aaln/S1/4; mgw-id=c2421.192;<br><br>add mlhg-terminal mlhg-id=mlhg1; terminal=102;<br>term-id=aaln/S1/5; mgw-id=c2421.192;                                                                       |
| <b>Step 9</b> | Control an MGW in service.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | control mgw id=c2421.192; target-state=INS; mode=forced;                                                                                                                                                                                                  |

**Table 8-4** Multiline Hunt Group Provisioning Steps (continued)

|                | Description                                  | CLI Command                                                                      |
|----------------|----------------------------------------------|----------------------------------------------------------------------------------|
| <b>Step 10</b> | Equip a subscriber termination.              | equip subscriber-termination id=*@c2421.192;                                     |
| <b>Step 11</b> | Control a subscriber termination in service. | control subscriber-termination id=*@c2421.192;<br>target-state=INS; mode=forced; |

## Provisioning a Preferential Hunt List

[Table 8-5](#) provides an example of the steps required to provision a preferential hunt list and add subscribers to it. It lists example CLI commands with mandatory tokens.

**Table 8-5** Preferential Hunt List Provisioning Steps

|               | Description                                                                      | CLI Command                                                                                     |
|---------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Prerequisites                                                                    | Enter the appropriated commands to provision the MLHG as shown in <a href="#">Table 8-4</a> .   |
| <b>Step 2</b> | Add a MLHG preferential hunt list.                                               | add mlhg-pref-list id=prefhuntlist33; mlhg-id=mlhg1;                                            |
| <b>Step 3</b> | Assign subscribers to the preferential hunt list.                                | change subscriber id=sub2; mlhg-pref-list-id=prefhuntlist33;                                    |
| <b>Step 4</b> | Assign relative terminal positions to each terminal of a preferential hunt list. | change mlhg-pref-list id=prefhuntlist33; mlhg-id=mlhg1;<br>rel-terminal1=102; rel-terminal2=17; |

## Provisioning Voice Mail

[Table 8-6](#) provides an example of the steps required to provision the Cisco BTS 10200 Softswitch to support voice mail and the automated attendant. It lists example CLI commands with mandatory tokens. Click on each step for a description of the step.

**Table 8-6** Voice Mail Provisioning Steps

|               | Description                                                     | CLI Command                                                                                                                                             |
|---------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | <a href="#">Add a Softswitch Trunk Group Profile, page 8-12</a> | add softsw-tg-profile id=10; protocol-type=SIP;                                                                                                         |
| <b>Step 2</b> | <a href="#">Add Trunk Groups, page 8-12</a>                     | add trunk-grp id=21;<br>softsw-tsap-addr=ipunity.ipclab.cisco.com;5060;<br>call-agent-id=CA146; tg-type=softsw; tg-profile-id=10;<br>dial-plan-id=cdp1; |

**Table 8-6 Voice Mail Provisioning Steps**

|               | Description                                                       | CLI Command                                                                                        |
|---------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| <b>Step 3</b> | <a href="#">Add a Voice Mail Subscriber, page 8-12</a>            | add subscriber id=VM; category=PBX; dn1=972-789-3000; tgn-id=21; sub-profile-id=sp1; term-type=TG; |
| <b>Step 4</b> | <a href="#">Add the Automated Attendant Subscriber, page 8-13</a> | add subscriber id=AA; category=PBX; dn1=972-789-4000; tgn-id=22; sub-profile-id=sp1; term-type=tg; |

## Add a Softswitch Trunk Group Profile

The Softswitch Trunk Group Profile (softsw-tg-profile) table holds all the information specific to a Softswitch trunk, such as ID, protocol, indicators, and echo suppression. The softsw-tg-profile record can be shared by multiple softswitch trunk groups. An ID must be created in this table before entries can be added to the Softswitch Trunk Group table.

| Command                                               | Purpose                                |
|-------------------------------------------------------|----------------------------------------|
| add softsw-tg-profile<br>id=10;<br>protocol-type=SIP; | Adds a softswitch trunk group profile. |

## Add Trunk Groups

The Trunk Group (trunk-grp) table identifies the trunk group and maps it to the associated media gateway.

| Command                                                                                                                                                 | Purpose           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| add trunk-grp id=21;<br>softsw-tsap-addr=ipunity.ipclab.cisco.com;5060; call-agent-id=CA146;<br>tg-type=softsw; tg-profile-id=10;<br>dial-plan-id=cdpl; | Adds trunk groups |

## Add a Voice Mail Subscriber

The Subscriber (subscriber) table defines the characteristics of a subscriber or group of subscribers in a Call Agent. All termination numbers reached by a DN must be set up as subscribers. Any termination that can originate in the primary Call Agent must be set up as a subscriber (residential, PBX, business, and Centrex). All terminations to customers, such as MLHG and Centrex, must be defined as well.

| Command                                                                                                  | Purpose                      |
|----------------------------------------------------------------------------------------------------------|------------------------------|
| add subscriber id=VM; category=PBX;<br>dn1=972-789-3000; tgn-id=21;<br>sub-profile-id=sp1; term-type=TG; | Adds a voice mail subscriber |

## Add the Automated Attendant Subscriber

An automated attendant helps manage the flow of incoming calls by automatically answering them without the intervention of a live operator.

| Command                                                                                                  | Purpose                      |
|----------------------------------------------------------------------------------------------------------|------------------------------|
| add subscriber id=AA; category=PBX;<br>dn1=972-789-4000; tgn-id=22;<br>sub-profile-id=sp1; term-type=tg; | Adds the automated attendant |





## CHAPTER 9

# Route Provisioning

Revised: May 31, 2010, OL-12777-12

This chapter describes how to provision the Cisco BTS 10200 Softswitch to communicate with another Cisco BTS 10200 Softswitch, a Cisco public switched telephone network (PSTN) gateway, or another call agent. This chapter contains the following sections:

- [Provisioning Trunk Routing, page 9-1](#)
- [Provisioning Policy Routing, page 9-3](#)
- [Provisioning Equal Access Routing, page 9-10](#)

For a more detailed description of all Cisco BTS 10200 Softswitch tables, tokens, and value ranges, refer to the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide*.

## Provisioning Trunk Routing

[Table 9-1](#) provides an example of the steps required to provision the Cisco BTS 10200 Softswitch to communicate with an another Cisco BTS 10200 Softswitch, a Cisco PSTN gateway, or another call agent and lists example CLI commands with mandatory tokens. Click on each step for a description of the step.

Softswitch trunk group routing is being used in this example of basic trunk group routing. Other trunk group types, for example, SS7 or ISDN, could be used.

**Table 9-1**      **Trunk Routing Provisioning Steps**

|        | Description                                                    | CLI Command                                                                                                                                                             |
|--------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | <a href="#">Add a Softswitch Trunk Group Profile, page 9-2</a> | add softsw-tg-profile id=softprf1; protocol-type=sip-t;<br>sipt-isup-ver=Q761_HONGKONG;                                                                                 |
| Step 2 | <a href="#">Add a Trunk Group, page 9-2</a>                    | add trunk-grp id=1;<br>softsw-tsap-addr=sia-trn2CA102.trnglab.cisco.com:5060;<br>call-agent-id=CA101; tg-type=softsw; tg-profile-id=sspf1;<br>cost=3; dial-plan-id=dp1; |
| Step 3 | <a href="#">Add a Route, page 9-2</a>                          | add route id=siprt1; tgn1-id=1;                                                                                                                                         |
| Step 4 | <a href="#">Add a Destination, page 9-2</a>                    | add destination dest-id=sip1; call-type=toll;<br>route-type=route; route-guide-id=siprg1;                                                                               |

**Table 9-1**      **Trunk Routing Provisioning Steps (continued)**

|               | Description                                     | CLI Command                                                                   |
|---------------|-------------------------------------------------|-------------------------------------------------------------------------------|
| <b>Step 5</b> | <a href="#">Add a Dial Plan, page 9-3</a>       | add dial-plan id=sub; digit-string=469-255; noa=national; dest-id=local_call; |
| <b>Step 6</b> | <a href="#">Control a Trunk Group, page 9-3</a> | control trunk-gp id=1; mode=forced; target-state=ins;                         |

## Add a Softswitch Trunk Group Profile

The Softswitch Trunk Group Profile (softsw-tg-profile) table holds all the information specific to a Cisco BTS 10200 Softswitch trunk, such as id, protocol, indicators, and echo suppression. The softsw-tg-profile record can be shared by multiple softswitch trunk groups.

| Command                                                                                    | Purpose                               |
|--------------------------------------------------------------------------------------------|---------------------------------------|
| add softsw-tg-profile id=softprfl;<br>protocol-type=sip-t;<br>sipt-isup-ver=Q761_HONGKONG; | Adds a softswitch trunk group profile |

## Add a Trunk Group

The Trunk Group (trunk-grp) table identifies the trunk group and maps it to the associated media gateway.

Refer to the Trunk Group table in Chapter 2 of the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* to determine if specific tokens are mandatory or optional for each trunk group type.

| Command                                                                                                                                                                     | Purpose            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| add trunk-grp id=1;<br>softsw-tsap-addr=sia-trn2CA102.trnglab.cisco.<br>com:5060; call-agent-id=CA101;<br>tg-type=softsw; tg-profile-id=sspf1; cost=3;<br>dial-plan-id=dp1; | Adds a trunk group |

## Add a Route

The Route (route) table contains a list of up to ten trunk groups to route a call. If all the trunk groups are busy or not available, call processing uses the alt-route-id (if specified) to route the call. The Element Management System (EMS) provisions the Call Agent ID field based on the Trunk Group table.

| Command                         | Purpose      |
|---------------------------------|--------------|
| add route id=siprt1; tgn1-id=1; | Adds a route |

## Add a Destination

The Destination (destination) table defines the call type and the routing information for the dialed digits. Multiple digit strings in the Dial Plan table can use the same destination ID.



| Command                                                                                                     | Purpose            |
|-------------------------------------------------------------------------------------------------------------|--------------------|
| <code>add destination dest-id=sip1;<br/>call-type=toll; route-type=route;<br/>route-guide-id=siprg1;</code> | Adds a destination |

## Add a Dial Plan

Dial plans analyze, screen, and route calls based on dialed digits. The Dial Plan (dial-plan) table holds dial plan information for a specific type of call. It defines valid dialing patterns and determines call routing. All records that share a common dial-plan-profile-id are considered a dial plan.

| Command                                                                                            | Purpose          |
|----------------------------------------------------------------------------------------------------|------------------|
| <code>add dial-plan id=sub;<br/>digit-string=469-255; noa=national;<br/>dest-id=local_call;</code> | Adds a dial plan |

**Note**

A dial plan profile must be added before adding the dial plan unless you use one that has already been added. Refer to [Add a Dial Plan, page 9-3](#), for more information about adding a dial plan profile.

## Control a Trunk Group

The command-line interface (CLI) control command displays and modifies the status of a Cisco BTS 10200 Softswitch trunk group.

| Command                                                              | Purpose                         |
|----------------------------------------------------------------------|---------------------------------|
| <code>control trunk-gp<br/>id=1;mode=forced;target-state=ins;</code> | Places a trunk group in-service |

**Note**

There are no trunk terminations associated with Cisco BTS 10200 Softswitch trunk groups because these are virtual trunks over IP.

## Provisioning Policy Routing

[Table 9-2](#) provides an example of the steps required to provision policy routing and lists example CLI commands with mandatory tokens. Click on each step for a description of the step

**Table 9-2 Policy Routing Provisioning Steps**

|         | Description                                                               | CLI Command                                                                                                                                                                                                                                                             |
|---------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1  | <a href="#">Add a Route, page 9-2</a>                                     | add route id=dallas1; tgn1-id=dallas-tg; pfx-digits1=972; del-digits1=0;                                                                                                                                                                                                |
| Step 2  | <a href="#">Add a Region Profile, page 9-4</a>                            | add region-profile id=e911; digit-string=210-470; region=sanantonio;                                                                                                                                                                                                    |
| Step 3  | <a href="#">Add Policy Origin Dependent Routing, page 9-5</a>             | add policy-odr id=odr_ID; digit-string=512; policy-type=tod; policy-id=tod102;                                                                                                                                                                                          |
| Step 4  | <a href="#">Add Policy Originating Line Information Routing, page 9-5</a> | add policy-oli id=normalroute; oli=00; policy-type=tod; policy-id=holiday;                                                                                                                                                                                              |
| Step 5  | <a href="#">Add Policy Percent Routing, page 9-5</a>                      | add policy-percent id=texaspercent; begin-range1=1; end-range1=90; policy-type1=tod; policy-id1=tod001;                                                                                                                                                                 |
| Step 6  | <a href="#">Add Policy Point of Presence Routing, page 9-5</a>            | add policy-pop id=car9999; pop-id=dallaspop; policy-type=tod; policy-id=tod101;                                                                                                                                                                                         |
| Step 7  | <a href="#">Add Policy Prefix Routing, page 9-6</a>                       | add policy-prefix id=standard; prefix1=national; policy-type1=tod; policy-id1=tod01;                                                                                                                                                                                    |
| Step 8  | <a href="#">Add Policy Region Routing, page 9-6</a>                       | add policy-region id=ca200; region=sanantonio; policy-type=tod; policy-id=tod101;                                                                                                                                                                                       |
| Step 9  | <a href="#">Add Policy Time of Day Routing, page 9-6</a>                  | add policy-tod id=basictime; doy1=03-01; doy1-policy-type=route; doy1-policy-id=dallasaustin; start-dow1=mon; stop-dow1=fri; start-time1=07:00; stop-time1=17:00; policy-type1=per; policy-id1=texaspercent; default-policy-type=route; default-policy-id=dallasaustin; |
| Step 10 | <a href="#">Add Policy NXX Routing, page 9-7</a>                          | add policy-nxx id=normalroute;                                                                                                                                                                                                                                          |
| Step 11 | <a href="#">Add a Route Guide, page 9-7</a>                               | add route-guide id=rg200; policy-type=tod; policy-id=tod101;                                                                                                                                                                                                            |
| Step 12 | <a href="#">Add a Destination, page 9-7</a>                               | add destination dest-id=dallasaustin; call-type=toll; route-type=route; route-guide-id=rg10;                                                                                                                                                                            |
| Step 13 | <a href="#">Add a Dial Plan, page 9-7</a>                                 | add dial-plan id=sub; digit-string=972-671; noa=national; dest-id=richardson;                                                                                                                                                                                           |

## Add a Route

Refer to [Add a Route, page 9-2](#), for instructions for adding a route.

## Add a Region Profile

The Region Profile (region-profile) table groups North American Numbering Plan (NANP) digits to an originating region. You can have many ID and digit-string combinations to a given region. In this conceptual relationship, a number of digit patterns (digit-strings) can belong to a given region, and a number of originating regions comprise a region profile (id). Use the value specified in the ca-config record as the default region where type=default-region.

A region can be specified for a subscriber using the REGION token in the Subscriber Profile table.

| Command                                                                               | Purpose               |
|---------------------------------------------------------------------------------------|-----------------------|
| <code>add region-profile id=e911;<br/>digit-string=210-470; region=sanantonio;</code> | Adds a region profile |

## Add Policy Origin Dependent Routing

The Policy Origin Dependent Routing (policy-odr) table is used for origin dependent routing. The Numbering Plan Area (NPA) (or NPA-NXX) of the calling party number selects a route. If no match is found based on the calling party number, the route marked as default routes the call.

| Command                                                                                             | Purpose         |
|-----------------------------------------------------------------------------------------------------|-----------------|
| <code>add policy-odr id=odr_ID;<br/>digit-string=512; policy-type=tod;<br/>policy-id=tod102;</code> | Adds policy ODR |

## Add Policy Originating Line Information Routing

The Policy Originating Line Information (policy-oli) table performs routing based on the originating line information of the calling party number.

| Command                                                                                     | Purpose                 |
|---------------------------------------------------------------------------------------------|-------------------------|
| <code>add policy-oli id=normalroute; oli=00;<br/>policy-type=tod; policy-id=holiday;</code> | Adds policy OLI routing |

## Add Policy Percent Routing

The Policy Percent (policy-percent) table distributes traffic based on percent allocation. This type of traffic distribution is used primarily for local 8XX routing and Tandem applications.

| Command                                                                                                                      | Purpose                     |
|------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| <code>add policy-percent id=texaspercent;<br/>begin-range1=1; end-range1=90;<br/>policy-type1=tod; policy-id1=tod001;</code> | Adds policy percent routing |

## Add Policy Point of Presence Routing

The Policy Point of Presence (policy-pop) table routes a call to the nearest trunk group when there are multiple trunk groups. There are several situations where a policy POP can be used. If a Call Agent serves several POPs, each POP can have its own announcement server. A POP-specific announcement server can be more efficient than a centralized announcement server. InterLATA carriers also have a point of presence in each POP. Route interLATA or international calls to the nearest carrier location using policy POP routing.

| Command                                                                                              | Purpose                 |
|------------------------------------------------------------------------------------------------------|-------------------------|
| <code>add policy-pop id=car9999;<br/>pop-id=dallaspop; policy-type=tod;<br/>policy-id=tod101;</code> | Adds policy POP routing |

## Add Policy Prefix Routing

The Policy Prefix (policy-prefix) table provides information for call routing based on the prefix (type of call). Typical call types include 1+ dialing, international calls, and toll-free. This table is used mainly for carrier routing.

| Command                                                                                                   | Purpose                    |
|-----------------------------------------------------------------------------------------------------------|----------------------------|
| <code>add policy-prefix id=standard;<br/>prefix1=national; policy-type1=tod;<br/>policy-id1=tod01;</code> | Adds policy prefix routing |

**Note**

If you cannot use an 800 number carrier to route an operator call (00), provision the 800 number carrier and the translated number in the Policy-NXX table.

## Add Policy Region Routing

The Policy Region (policy-region) table performs region-based routing. The region is derived using the Region Profile table from the Route Guide table and the calling party number automatic number identification (ANI). If ANI is not available or the Region Profile table is not provisioned, the region assigned to the trunk group is used for trunk origination. If a record cannot be found based on the region, the record with region=default (if provisioned) is used for routing.

| Command                                                                                                | Purpose                    |
|--------------------------------------------------------------------------------------------------------|----------------------------|
| <code>add policy-region id=ca200;<br/>region=sanantonio; policy-type=tod;<br/>policy-id=tod101;</code> | Adds policy region routing |

## Add Policy Time of Day Routing

The Policy Time of Day (policy-tod) table provides routing information based on the following values, in order of preference (highest preference to lowest):

- Day of year
- Day of week
- Time of day

| Command                                                                                                                                                                                                                                                                                                        | Purpose                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <pre>add policy-tod id=basictime; doy1=03-01;<br/>doy1-policy-type=route;<br/>doy1-policy-id=dallasaustin;<br/>start-dow1=mon; stop-dow1=fri;<br/>start-time1=07:00; stop-time1=17:00;<br/>policy-type1=per; policy-id1=texaspercent;<br/>default-policy-type=route;<br/>default-policy-id=dallasaustin;</pre> | Adds policy TOD routing |

## Add Policy NXX Routing

The Policy-NXX (policy-nxx) table is used when a number services call results in a translated number, carrier ID, translated number and a carrier ID, or a route ID.

| Command                                   | Purpose                 |
|-------------------------------------------|-------------------------|
| <pre>add policy-nxx id=normalroute;</pre> | Adds policy nxx routing |

## Add a Route Guide

The Route Guide (route-guide) table holds routing information based on policy-type.

| Command                                                                     | Purpose            |
|-----------------------------------------------------------------------------|--------------------|
| <pre>add route-guide id=rg200; policy-type=tod;<br/>policy-id=tod101;</pre> | Adds a route guide |

## Add a Destination

The Destination (destination) table defines the call type and the routing information for the dialed digits. Multiple digit strings in the Dial Plan table can use the same destination ID.

| Command                                                                                                         | Purpose            |
|-----------------------------------------------------------------------------------------------------------------|--------------------|
| <pre>add destination dest-id=dallasaustin;<br/>call-type=toll; route-type=route;<br/>route-guide-id=rg10;</pre> | Adds a destination |

## Add a Dial Plan

Dial plans analyze, screen, and route calls based on dialed digits. The Dial Plan (dial-plan) table holds dial plan information for a specific type of call. It defines valid dialing patterns and determines call routing. All records that share a common dial-plan-profile-id are considered a dial plan.

| Command                                                                                          | Purpose          |
|--------------------------------------------------------------------------------------------------|------------------|
| <pre>add dial-plan id=sub;<br/>digit-string=972-671; noa=national;<br/>dest-id=richardson;</pre> | Adds a dial plan |

**Note**

If you have not already provisioned a dial plan profile, do so before provisioning this table. Refer to [Add a Dial Plan, page 9-3](#), for more information about adding a dial plan profile.

## Provisioning 911 Region (County) Routing

911 region (county) routing connects subscribers' 911 calls to the correct emergency authority based on the physical location of the calling subscriber. The following procedure provides an example of the steps required to provision 911 region (county) routing and lists example CLI commands with mandatory tokens.

**Step 1** Add an emergency route for each county and a default 911 route.

```
add route id=e911-county1; tgn1-id=1;
add route id=e911-county2; tgn1-id=2;
add route id=e911-county3; tgn1-id=3;
add route id=e911-default; tgn1-id=4;
```

**Step 2** Create a route guide for 911 region routing.

```
add route-guide id=e911rg; policy-type=region; policy-id=e911county;
region-profile-id=e911;
```

**Step 3** Provision policy region routing for each county and the default route.

```
add policy-region id=e911county; region=county1; policy-type=route;
policy-id=e911-county1;

add policy-region id=e911county; region=county2; policy-type=route;
policy-id=e911-county2;

add policy-region id=e911county; region=county3; policy-type=route;
policy-id=e911-county3;

add policy-region id=e911county; region=default; policy-type=route;
policy-id=e911-default;
```

**Step 4** Add a destination.

```
add destination dest-id=e911dest; call-type=emg; route-type=route; route-guide-id=e911rg;
```

**Step 5** Add a dial plan.

```
add dial-plan id=sub; digit-string=911; noa=national; dest-id=e911dest;
```

**Step 6** Add a subscriber profile for each county.

```
Add subscriber-profile id=subpf1; dial-plan-id=sub; pop-id=1; region=county1;
Add subscriber-profile id=subpf2; dial-plan-id=sub; pop-id=1; region=county2;
Add subscriber-profile id=subpf3; dial-plan-id=sub; pop-id=1; region=county3;
```

**Note**

In the example above, county is assigned as calling region. This can easily be replaced by any other value, if desired. For example, if zip code based routing is required, then zip code values can be assigned to Region.

If the Region token is not available, then Region can be derived from the Calling Party Number using the following procedure:

**Step 1** Create a route guide.

```
add route-guide id=e911rg; policy-type=region; policy-id=e911county;
region-profile-id=e911;
```

**Step 2** Add a region profile for each NPA, NPA-NXX or full 10 digit DN.

```
add region-profile id=e911; digit-string=214; region=dallas;
add region-profile id=e911; digit-string=281; region=houston;
add region-profile id=e911; digit-string=817; region=fortworth;
add region-profile id=e911; digit-string=972; region=dallas;
add region-profile id=e911; digit-string=469; region=dallas;
add region-profile id=e911; digit-string=469-255; region=richardson;
add region-profile id=e911; digit-string=469-255-0603; region=rcdn5;
```

## Provisioning Origin Dependent Routing (ODR)

The BTS also supports ODR based routing, where the call is routed based on the calling party number at NPA, NPA-NXX, or NPA-NXX-X(X)(X)(X).

Perform the following steps to provision ODR based routing:

**Step 1** Create a route guide.

```
add route-guide id=e911rg; policy-type=odr; policy-id=e911odr;
```

**Step 2** Add an emergency route for each NPA.

```
add route id=e911npa214; tgn1-id=1;
add route id=e911npa817; tgn1-id=2;
add route id=e911npa281; tgn1-id=3;
```

**Step 3** Add origin dependent routing for each NPA.

```
add policy-odr id=e911odr; digit-string=214; policy-type=route; policy-id= e911npa214;
add policy-odr id=e911odr; digit-string=817; policy-type=route; policy-id= e911npa817;
add policy-odr id=e911odr; digit-string=281; policy-type=route; policy-id= e911npa281;
```

## Combining ODR and Region Based Routing

In addition to simple ODR based routing or REGION based routing, the two policies can be combined to perform complex routing, as illustrated by the following example.

**Step 1** Set up ODR based routing.

```
add route-guide id=e911rg; policy-type=odr; policy-id=e911odr;
```

**Step 2** Provision calls originating from 214 area code to be routed based on county.

```
add policy-odr id=e911odr; digit-string=214; policy-type=region; policy-id= e911county;
```

**Step 3** Provision policy region routing for each county specific route.

```
add policy-region id=e911county; region=county1; policy-type=route;
policy-id=e911-county1;

add policy-region id=e911county; region=county2; policy-type=route;
policy-id=e911-county2;

add policy-region id=e911county; region=county3; policy-type=route;
policy-id=e911-county3;
```

---

## Provisioning Equal Access Routing

This section defines how to set up a subscriber and the Cisco BTS 10200 Softswitch for equal access dialing based on interexchange carrier (IXC) carrier PIC. This applies to direct dial domestic (DDD) and international direct dial domestic (IDDD) dialing and dial plans. This procedure can also be applied to local service provider equal access using the PIC2 field in the Cisco BTS 10200 Softswitch Subscriber table.

This procedure assumes that all residential gateways, trunking gateways, and all other translations support the commands below.

For general carrier and U.S. domestic dialing information, see <http://www.nanpa.com>.

To set up a subscriber for equal access routing, complete the following steps:

- 
- Step 1** Add the carrier ID. This sets up the carrier and puts it in-service.  

```
add CARRIER ID=0288; STATUS=INS; INTER=Y; INTRA=Y; INTL=Y; CASUAL=Y; CUT-THRU=Y;
OP-SERVICES=Y; SEND-CN=N; SEND-CSP=Y; USE-DIAL-PLAN=N;
```
  - Step 2** Change PIC1 to the appropriate interlata and international carrier PIC. This presubscribes a subscriber to a carrier so the subscriber does not have to dial 101+4 digit carrier code + the number to make the call.  

```
change subscriber; id=motfb4/1;name=John Doe;PIC1=0288;PIC2=NONE;PIC3=NONE;
```
  - Step 3** Add an interlata dummy route. This is required to set up a dial plan.  

```
add route id=EA-IXC;lcr=n;tgnt1-id=null;
```
  - Step 4** Add a route guide. This is required to set up a dial plan.  

```
add route-guide id=EA-IXC;policy-type=route;policy-id=EA-IXC;
```
  - Step 5** Add a destination for interlata calls. This is required to set up a dial plan.  

```
add destination dest-id=Interlata-IXC;call-type=InterLata;route-type=route;
route-guide-id=EA-IXC;
```
  - Step 6** Add dial plan entries for all U.S.-supported NPAs. This allows verification that a subscriber can call a particular NPA.  

```
add dial-plan id=dp-mot;digit-string=201;reqd-digits=10;dest-id=Interlata-IXC
```
  - Step 7** Add an international dummy route. This is required to set up an international dial plan.  

```
add route id=INTL-IXC;lcr=n;tgnt1-id=null
```
  - Step 8** Add the international route guide. This is required to set up an international dial plan.  

```
add route-guide id=INTL-IXC;policy-type=route;policy-id=INTL-IXC;
```



**Step 9** Add the international destination. This is required to set up an international dial plan.

```
add destination dest-id=INTL-IXC;call-type=INTL;route-type=route;route-guide-id=INTL-IXC;
```

**Step 10** Add international dial plans for all supported country codes. This allows verification that a subscriber can call a particular country.

```
add INTL-DIAL-PLAN ID=RTP01; CC=34; MIN-DIGITS=6; MAX-DIGITS=16;dest-id=INTL-IXC
```

**Step 11** Add the SS7 Feature Group D (FGD) equal access trunk group to the IXC switch. This builds a trunk to the next service provider.

```
add ss7-tg-profile id=IXC-FGD; type= A7; cot-orig=y; cot-freq=10;T-IAM=20;
add trunk-grp id=205;call-agent-id=CA146; tg-type=ss7;
dpc=214-110-205;traffic-type=tandem;
sel-policy=DSC;glare=all;tg-profile-id=IXC-FGD;dial-plan-id=Incoming;No-answer-tmr=240;CLL
I=RLGHIXC;
```



**Note** Consult GR-394 for SS7 parameters that must be sent in SS7 messages through the FGD interface.

**Step 12** Add the SS7 trunks to the IXC switch. This sets up the actual bearer channel.

```
add trunk cic-start=1; cic-end=24; tgn-id=205; mgw-id=C0201_VISM5;
termination-prefix=vism/t1-1/; termination-port-start=1; termination-port-end=24;
equip trunk-termination tgn-id=205; cic=1-48;
```



**Note** This assumes that the trunks will be controlled in service when ready.

**Step 13** Add the route to the IXC switch. This provides the path to the service provider providing equal access.

```
add route id=SS7-IXC;lcr=N;tgn1-id=205;
```

**Step 14** Add the route guide to the IXC switch. This is required to route to a service provider.

```
add route-guide id=SS7-IXC;policy-type=route;policy-id=SS7-IXC;
```

**Step 15** Add the route guide to the Carrier table. This provides the path to route directly to a service provider.

```
change CARRIER ID=0288; STATUS=INS; INTER=Y; INTRA=Y; INTL=Y; CASUAL=Y; CUT-THRU=Y;
OP-SERVICES=Y; SEND-CN=Y; SEND-CSP=Y; USE-DIAL-PLAN=N; route-guide-id=SS7-IXC;
```



**Note** The parameters datafilled above may differ based on the IXC carrier, however, this should be typical data fill for most IXCs.

**Step 16** Add the circuit code (only if the TNS parameter is required).

```
add circuit-code tgn-id=205; nat-cc=9; opr-cc=14; nat-opr-cc=14; sac-cc=9; da-cc=9;
```



**Note** The parameters datafilled above may differ based on the IXC carrier; however, this table is datafilled only if there are special requirements. The Cisco BTS 10200 Softswitch default values work for most IXCs.





## CHAPTER 10

# Announcement Server Provisioning

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Revised: May 31, 2010, OL-12777-12

The Cisco BTS 10200 Softswitch supports announcement features by sending announcement requests to a customer-supplied announcement server. An announcement request can be generated by the Cisco BTS 10200 Softswitch in response to either of the following conditions:

- A call was released (did not go through), and an accompanying release cause code is activated on the Cisco BTS 10200 Softswitch. The Cisco BTS 10200 Softswitch, in turn, signals the announcement server to play a designated audio file.
- The service provider has provisioned all calls to the target DN to be routed automatically to a designated announcement.

The announcement server accesses prerecorded audio files that can be played to the caller. The audio files are provided by one of the following servers:

- Cisco AS54xx series Announcement Server
- Cognitronics CX500 Media Resource Server



---

**Note** Contact Cisco Systems for details about these servers. The announcement server is customer supplied.

---

Announcements are tied to cause codes. A call release (internal cause code) triggers a specific announcement. The Call Agent controls announcement playback via Media Gateway Control Protocol (MGCP).

## Release Cause Codes

Industry-standard release cause code specifications are available in the following documents:

- [ANSI document *T1.650-1995, ISDN—Usage of the Cause Information Element in Digital Subscriber Signaling System Number 1 (DSS1)*]
- ITU-T Recommendation Q.850, *Usage of Cause and Location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN User Part*

The service provider can link any of the supported cause codes to any announcement ID, and each announcement ID can be linked to a specific audio file. The system triggers the appropriate recording to play when a cause code is activated in the system. [Appendix A, “Release Cause Codes and](#)

[Announcement IDs](#)” shows the default mapping of cause codes to announcement IDs and announcement files. The service provider can use command-line interface (CLI) commands to provision the following changes to the default mapping:

- Use the **change release-cause** command to change the mapping of release cause codes to announcement IDs.
- Use the **change announcement** command to change the mapping of announcement IDs to audio files.



**Note** If no announcement is available for a specific cause code, a reorder tone is played to the calling party.



**Tip**

With the Cisco AS54xx series Announcement Server, service providers can enter new announcement file names and use their own audio announcement files. The announcement files must be in 8-bit mu-Law encoded, Next/Sun AU format (.au extension).

## Directory Numbers Provisioned for Routing to Announcement

The service provider can provision all calls to a specific directory number (DN) to be routed automatically to a designated announcement. This is provisioned using CLI commands in the DN2Subscriber table, as follows:

- Change the administrative status of the announcement service by setting the **status** token to **annc**.
- Designate the announcement to be played by setting the **annc-id** token to the appropriate announcement id. The announcement ID must be one that is listed in [Appendix A, “Release Cause Codes and Announcement IDs”](#).

## Provisioning Announcements

[Table 10-1](#) describes the steps required to provision announcements and associated tables and lists example CLI commands with mandatory tokens. Click on each step for a complete description of the step.

For a more detailed description of all Cisco BTS 10200 Softswitch tables, tokens, and value ranges, refer to the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide*.

**Table 10-1**      **Announcement Server Provisioning Steps**

|               | Description                                                        | CLI Command                                                                                                      |
|---------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | <a href="#">Add a Media Gateway Profile, page 10-3</a>             | add mgw-profile id-as5400; vendor=Cisco;<br>description=Announcements;                                           |
| <b>Step 2</b> | <a href="#">Add a Media Gateway, page 10-4</a>                     | add mgw id=c5400.131; tsap-addr=AnnGW DNS/IP;<br>call-agent-id=CA101; mgw-profile-id=as5400; type=twg;<br>ans=y; |
| <b>Step 3</b> | <a href="#">Add an Announcement Trunk Group Profile, page 10-4</a> | add annc-tg-profile id=1;ANNC=Y;IVR=N;<br>LOCAL_TRUNK_SELECTION=Y;                                               |

**Table 10-1**      **Announcement Server Provisioning Steps (continued)**

|         | Description                                            | CLI Command                                                                                                                                             |
|---------|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 4  | <a href="#">Add a Trunk Group, page 10-4</a>           | add trunk-grp id=999; call-agent-id=CA166;<br>tg_type=ANNC; cost=1;<br>MGCP_PKG_TYPE=TCL_CISCO; tg-profile-id=1;                                        |
| Step 5  | <a href="#">Add a Termination, page 10-5</a>           | add termination prefix=S0/DS1-2/; port-start=1;<br>port-end=24; type=trunk; mgw-id=c5400.131;                                                           |
| Step 6  | <a href="#">Add a Trunk, page 10-5</a>                 | add trunk termination-prefix=S0/DS1-1/;<br>termination-port_start=1; termination-port_end=24;<br>cic_start=1; cic_end=24; tgn-id=999; mgw-id=c5400.131; |
| Step 7  | <a href="#">Add a Route, page 10-6</a>                 | add route id=rt1_annc; lcr=y; tgn1-id=999;                                                                                                              |
| Step 8  | <a href="#">Add a Route Guide, page 10-6</a>           | add route-guide id=annc1_rg; policy-type=ROUTE;<br>policy-id=rt1_annc;                                                                                  |
| Step 9  | <a href="#">Add an Announcement Trunk, page 10-6</a>   | add annc-trunk tgn-id=999; term-id=S0/DS1-1/1;<br>mgw-id=c5400.131; remote-term-id=S0/DS1-1/1;<br>remote-mgw-id=c5400.131;                              |
| Step 10 | <a href="#">Add an Announcement, page 10-6</a>         | add announcement id=500; type=SYSTEM;<br>announcement-file=iann_id_500.au;<br>route-guide-id=annc1_rg;                                                  |
| Step 11 | <a href="#">Add a Release Cause, page 10-7</a>         | add release-cause id=1110; annc-id=0500;                                                                                                                |
| Step 12 | <a href="#">Control a Media Gateway, page 10-7</a>     | control mgw id=5400.131; target-state=INS;<br>mode=FORCED;<br>status mgw id=c5400.131;                                                                  |
| Step 13 | <a href="#">Control a Trunk Group, page 10-7</a>       | control trunk-gp id=1; mode=forced; target-state=ins;                                                                                                   |
| Step 14 | <a href="#">Equip a Trunk Termination, page 10-8</a>   | equip trunk-termination tgn-id=13; cic=all;                                                                                                             |
| Step 15 | <a href="#">Control a Trunk Termination, page 10-8</a> | control trunk-termination tgn-id=13; cic=all;<br>target-state=INS; mode=FORCED;<br><br>status trunk-termination tgn-id=13; cic=all;                     |

## Add a Media Gateway Profile

A media gateway (MGW) profile provides a template for provisioning one or more media gateways by vendor. It identifies the specifications and settings necessary for communications between the Call Agent and each type of media gateway.

Several tokens have values that can be overwritten after the Call Agent queries the media gateway for supported capabilities. If the media gateway returns a value different from the value you originally provisioned, the returned value automatically replaces the originally provisioned value.

| Command                                                                | Purpose                      |
|------------------------------------------------------------------------|------------------------------|
| add mgw-profile id-as5400; vendor=Cisco;<br>description=Announcements; | Adds a media gateway profile |

**Tip**

The `mgcp-max1-retries` and `mgcp-max2-retries` tokens in the `mgw-profile` table can be adjusted, if necessary, to improve response if there are network bandwidth or reliability issues, or if an MGW is slow in responding to commands from the CA. For a detailed explanation of how these and other parameters affect the audit-endpoint and keepalive processes, see the applicable appendix ([Release 5.0 Keepalive](#)) in the *Cisco BTS 10200 Softswitch Troubleshooting Guide*.

## Add a Media Gateway

The Media Gateway (`mgw`) table holds information about each media gateway managed by the Call Agent. The media gateway can be uniquely addressed by domain name, an IP address, or the TSAP address.

The Media Gateway table has two associated commands: `RGW` and `TGW`. The `RGW` command provisions a gateway as only a residential gateway, with the `type` token automatically set to `RGW`. The `TGW` command provisions a gateway as a trunking gateway only, with the `type` token automatically set to `TGW`. Both of these commands provision the Media Gateway table, but a service provider can use these commands to provide user security to certain individuals based on their roles.

| Command                                                                                                                         | Purpose              |
|---------------------------------------------------------------------------------------------------------------------------------|----------------------|
| <code>add mgw id=c5400.131; tsap-addr=AnnGW<br/>DNS/IP; call-agent-id=CA101;<br/>mgw-profile-id=as5400; type=twg; ans=y;</code> | Adds a media gateway |

**Note**

The `RGW` command could also be used to provision the media gateway in this instance. Refer to the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* for detailed information about the `RGW` and `TGW` commands.

## Add an Announcement Trunk Group Profile

The Announcement Trunk Profile (`annc-tg-profile`) table is required for interactive voice response (IVR) trunks.

| Command                                                                          | Purpose                                  |
|----------------------------------------------------------------------------------|------------------------------------------|
| <code>add annc-tg-profile id=1;ANNC=Y;IVR=N;<br/>LOCAL_TRUNK_SELECTION=Y;</code> | Adds an announcement trunk group profile |

## Add a Trunk Group

The Trunk Group (`trunk-grp`) table identifies the trunk group and maps it to the associated media gateway.

**Note**

Refer to the Trunk Group table in Chapter 2 of the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide for Release 5.0* to determine if specific tokens are mandatory or optional for each trunk group type.

| Command                                                                                                           | Purpose            |
|-------------------------------------------------------------------------------------------------------------------|--------------------|
| add trunk-grp id=999;<br>call-agent-id=CA166;tg_type=ANNC;<br>cost=1;MGCP_PKG_TYPE=TCL_CISCO;<br>tg-profile-id=1; | Adds a trunk group |

## Add a Termination

The Termination (termination) table holds information about each termination/endpoint managed by the Call Agent. Termination structure uniformly addresses analog ports, DS0 ports, ISDN circuits, and allows termination groupings for ISDN PRI and multiline hunt groups (MLHGs) for a single subscriber. Termination events and signals are grouped into packages, which are groupings of events and signals supported by a particular type of endpoint. For instance, one package supports a certain group of events and signals for analog access lines, while another package supports another group of events and signals for video lines. One or more packages can exist for a given endpoint type. The package type is determined by the gateway used.

This table can use commands that do not match command-to-field of the database. If the prefix token is used during provisioning, the termination ID is generated by concatenating prefix and port-start value and incrementing the termination port number until the port number value reaches port-end. The prefix, port-start, and port-end are not in the table as individual fields.

The user enters:

prefix: 1–32 ASCII characters

port-start: 0000–9999 (1–4 numeric characters) (default = 1)

port-end: 0000–9999 (1–4 numeric characters) (default = 24)

| Command                                                                                          | Purpose            |
|--------------------------------------------------------------------------------------------------|--------------------|
| add termination prefix=S0/DS1-2/;<br>port-start=1; port-end=24; type=trunk;<br>mgw-id=c5400.131; | Adds a termination |

## Add a Trunk

The Trunk (trunk) table identifies the trunk group and maps it to the associated media gateway. It also specifies the Circuit Identification Code (CIC) range and terminations.

| Command                                                                                                                                                    | Purpose      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| add trunk termination-prefix=S0/DS1-1/;<br>termination-port_start=1;<br>termination-port_end=24; cic_start=1;<br>cic_end=24; tgn-id=999; mgw-id=c5400.131; | Adds a trunk |



### Note

When a service affecting test is in progress on trunks, the trunks are not blocked, and any incoming call attempts on that trunk will fail. If the far-end switch on a trunk does not use a trunk selection algorithm to choose the next trunk, all incoming call attempts will fail.

## Add a Route

The Route (route) table contains a list of up to ten trunk groups to route a call. If all the trunk groups are busy or not available, call processing uses the alt-route-id (if specified) to route the call. The Element Management System (EMS) provisions the Call Agent ID field based on the Trunk Group table.

| Command                                                 | Purpose      |
|---------------------------------------------------------|--------------|
| <code>add route id=rtl_annc; lcr=y; tgn1-id=999;</code> | Adds a route |

## Add a Route Guide

The Route Guide (route-guide) table holds routing information based on policy-type.

| Command                                                                              | Purpose            |
|--------------------------------------------------------------------------------------|--------------------|
| <code>add route-guide id=annc1_rg;<br/>policy-type=ROUTE; policy-id=rtl_annc;</code> | Adds a route guide |

## Add an Announcement Trunk

The Announcement Trunk (annc-trunk) table is used when an announcement server is required in an ATM network.

| Command                                                                                                                                       | Purpose                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| <code>add annc-trunk tgn-id=999;<br/>term-id=S0/DS1-1/1; mgw-id=c5400.131;<br/>remote-term-id=S0/DS1-1/1;<br/>remote-mgw-id=c5400.131;</code> | Adds an announcement trunk |

## Add an Announcement

The Announcement (annc) table holds the routing information to get to an announcement. An announcement message is played if a call cannot be connected. The system comes with preprogrammed (default) announcement audio files, but a service provider can create custom announcement files and load them into the system. System and custom files are saved in a specified format and stored on the service provider's announcement server. Additionally, intercept announcements can be used for playing messages from the service provider's announcement server when calls require special treatment.

| Command                                                                                                               | Purpose              |
|-----------------------------------------------------------------------------------------------------------------------|----------------------|
| <code>add announcement id=500; type=SYSTEM;<br/>announcement-file=iann_id_500.au;<br/>route-guide-id=annc1_rg;</code> | Adds an announcement |

Repeat this command once for each announcement.

**Note**

Announcement file names must be typed with an underscore ( \_ ) or the command will not execute correctly.



## Add a Release Cause

The Release Cause (release-cause) table is an internal table used by call processing to map an SS7 release cause value to an announcement ID. This table is preprovisioned, but the service provider can modify it.

| Command                                               | Purpose              |
|-------------------------------------------------------|----------------------|
| <code>add release-cause id=1110; annc-id=0500;</code> | Adds a release cause |

## Control a Media Gateway

The control command sets the administrative state (OOS, INS) of media gateways, subscriber terminations, trunks, and trunk groups.

| Command                                                                  | Purpose                   |
|--------------------------------------------------------------------------|---------------------------|
| <code>control mgw id=5400.131; target-state=INS;<br/>mode=FORCED;</code> | Places the MGW in-service |
| <code>status mgw id=c5400.131;</code>                                    |                           |

The status command displays the state of media gateways, subscriber terminations, trunks, and trunk groups.

Enter the following CLI command to verify that the media gateway is in-service:

```
status mgw id=<mgw id>;
```

Reply example:

```
Reply : Success:
```

```
MGW ID -> c2421.192
RESULT -> ADM configure result in success
REASON -> ADM executed successful
ADMIN STATE -> ADMIN_INS
OPER STATE -> Media gateway in working status
```

## Control a Trunk Group

The command-line interface (CLI) control command displays and modifies the status of a Cisco BTS 10200 Softswitch trunk group.

| Command                                                              | Purpose                         |
|----------------------------------------------------------------------|---------------------------------|
| <code>control trunk-gp<br/>id=1;mode=forced;target-state=ins;</code> | Places a trunk group in-service |

## Equip a Trunk Termination

The `equip` command enables the trunk termination to be placed in-service. [Table 10-2](#) lists and defines trunk termination states.

| Command                                                                  | Purpose                                              |
|--------------------------------------------------------------------------|------------------------------------------------------|
| <code>equip trunk-termination tgn-id=13;</code><br><code>cic=all;</code> | Enables a trunk termination to be placed in-service. |

**Table 10-2**      *Subscriber Trunk Termination States*

| State       | Definition       |
|-------------|------------------|
| ADMIN-INS   | In Service       |
| ADMIN-OOS   | Out of Service   |
| ADMIN-MAINT | Maintenance Mode |

## Control a Trunk Termination

The `control` command places the administrative state of a subscriber termination in-service.

| Command                                                                                                   | Purpose                               |
|-----------------------------------------------------------------------------------------------------------|---------------------------------------|
| <code>control trunk-termination tgn-id=13;</code><br><code>cic=all; target-state=INS; mode=FORCED;</code> | Places a trunk termination in-service |

Verify that the trunk termination is in-service by entering a CLI command similar to the following:

```
status trunk-termination tgn-id13
```



# CHAPTER 11

## Provisioning Channel-Associated Signaling

Revised: May 31, 2010, OL-12777-12

This chapter describes how to provision channel-associated signaling (CAS) on the Cisco BTS 10200 Softswitch.

### CAS Provisioning

[Table 11-1](#) provides an example of the steps required to provision CAS trunk groups on the Cisco BTS 10200 Softswitch and lists example CLI commands with mandatory tokens. Click on each step for a description of the step.

For a more detailed description of all Cisco BTS 10200 Softswitch tables, tokens, and value ranges, refer to the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide*.

**Table 11-1** CAS Trunk Group Provisioning Steps

|        | Description                                            | CLI Command                                                                                                                                                  |
|--------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | <a href="#">Add an NDC, page 11-3</a>                  | <b>add ndc digit-string=214;</b>                                                                                                                             |
| Step 2 | <a href="#">Add an Exchange Code, page 11-3</a>        | <b>add exchange-code ndc=214; ec=575;</b>                                                                                                                    |
| Step 3 | <a href="#">Add a Pop, page 11-3</a>                   | add pop id=1; state=tx; country=usa;<br>digit-map-id=DIGITMAP1; itp=N; zero-minus=LEC;<br>block-eawopic=Y; pic2-reqd=N; timezone=CDT;                        |
| Step 4 | <a href="#">Add a Dial Plan Profile, page 11-3</a>     | add dial-plan-profile id=dp1; description=dialing plan<br>profile ID 1;                                                                                      |
| Step 5 | <a href="#">Add an Office Code, page 11-4</a>          | <b>add office-code dn-group=XXXX; ndc=214; ec=575;</b><br><b>call-agent-id=CA146;</b>                                                                        |
| Step 6 | <a href="#">Add a Subscriber Profile, page 11-4</a>    | <b>add subscriber-profile id=CasDT; dial-plan-id=dp1;</b><br><b>pop-id=1;</b>                                                                                |
| Step 7 | <a href="#">Add a Media Gateway Profile, page 11-4</a> | <b>add mgw-profile id=Cas_DTPProfile; vendor=Cisco;</b>                                                                                                      |
| Step 8 | <a href="#">Add a Media Gateway, page 11-4</a>         | add mgw ID=DTCas; TSAP-ADDR=64.101.150.181;<br>CALL-AGENT-ID=CA146;<br>MGW-PROFILE-ID=Cas_DTPProfile; STATUS=INS;<br>CALL-AGENT-CONTROL-PORT=2427; type=RGW; |

**Table 11-1 CAS Trunk Group Provisioning Steps (continued)**

|         | Description                                   | CLI Command                                                                                                                                                                                                                                                                                     |
|---------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 9  | Add a CAS Trunk Group Profile, page 11-5      | add cas-tg-profile id=Cas_dt; OSS_SIG=Y;<br>sig-type=MF;                                                                                                                                                                                                                                        |
| Step 10 | Add a Trunk Group, page 11-5                  | add trunk-grp id=1000; call-agent-id=CA146;<br>tg-type=CAS; dial-plan-id=dp1; tg-profile-id=Cas_dt;<br>MGCP_PKG_TYPE=DT;                                                                                                                                                                        |
| Step 11 | Add a Termination, page 11-5                  | add termination prefix=S2/DS1-0/; port_start=1;<br>port_end=2; MGW-ID=DTCas; TYPE=TRUNK;                                                                                                                                                                                                        |
| Step 12 | Add a Route, page 11-6                        | add route id=Cas_dt_1000; tgn1-id=1000;                                                                                                                                                                                                                                                         |
| Step 13 | Add a Route Guide, page 11-6                  | add route_guide id=Cas_rg_dt_1000;<br>policy-type=ROUTE; policy-id=Cas_dt_1000;                                                                                                                                                                                                                 |
| Step 14 | Add a Subscriber, page 11-6                   | add subscriber ID=Cas_sub_dt_1000;<br>CATEGORY=PBX; NAME=Smith; STATUS=ACTIVE;<br>BILLING_DN=214-575-9111; TERM-ID=S2/DS1-0/1;<br>MGW-ID=DTCas; TGN-ID=1000;<br>SUB-PROFILE-ID=CasDT; TERM-TYPE=ROUTE;<br>POLICY-ID=Cas_dt_1000;<br><br><b>Note</b> Each subscriber must have a unique term-id. |
| Step 15 | Change a Trunk Group, page 11-7               | change trunk_grp id=1000; call-agent-id=CA146;<br>main-sub-id=Cas_sub_dt_1000;                                                                                                                                                                                                                  |
| Step 16 | Add CAS Trunks, page 11-7                     | add trunk termination-prefix=S2/DS1-0/;<br>termination-port_start=1; termination-port_end=2;<br>cic_start=1; cic_end=2; tgn-id=1000; mgw-id=DTCas;                                                                                                                                              |
| Step 17 | Change a Termination, page 11-7               | change termination id=S2/DS1-0/1; mgw-id=DTCas;<br>trunk-id=1; tgn-id=1000;                                                                                                                                                                                                                     |
| Step 18 | Add a Destination, page 11-7                  | add destination DEST-ID=Cas_dest_dt_1000;<br>CALL-TYPE=LOCAL; ROUTE-TYPE=ROUTE;<br>ZERO-PLUS=N; INTRA-STATE=N;<br>DESCRIPTION=CAS destination;<br>route-guide-id=Cas_rg_dt_1000;                                                                                                                |
| Step 19 | Add a Dial Plan, page 11-8                    | add dial_plan id=dp1; digit-string=214-575;<br>dest-id=Cas_dest_dt_1000; min-digits=7;<br>max-digits=10; NOA=NATIONAL;                                                                                                                                                                          |
| Step 20 | Control the Media Gateway, page 11-8          | control mgw id=DTCas; mode=forced; target-state=ins;                                                                                                                                                                                                                                            |
| Step 21 | Control the Trunk Group, page 11-8            | control trunk-grp id=1000; call-agent-id=CA146;<br>mode=forced; target-state=ins;                                                                                                                                                                                                               |
| Step 22 | Equip the CAS Trunk Terminations, page 11-9   | equip trunk-termination tgn-id=1000; cic=all;                                                                                                                                                                                                                                                   |
| Step 23 | Control the CAS Trunk Terminations, page 11-9 | control trunk-termination tgn-id=1000; mode=forced;<br>cic=all; target-state=ins;                                                                                                                                                                                                               |

## Add an NDC

The National Destination Code (ndc) table defines the home area codes supported by the Call Agent.

| Command                                | Purpose      |
|----------------------------------------|--------------|
| <code>add ndc digit-string=214;</code> | Adds an NDC. |

## Add an Exchange Code

The Exchange Code (exchange-code) table specifies the office codes assigned to a particular Call Agent. This table defines the office-code-index (normalized office code) that is used as an index in the DN2Subscriber table.

| Command                                         | Purpose                |
|-------------------------------------------------|------------------------|
| <code>add exchange-code ndc=214; ec=575;</code> | Adds an exchange code. |

## Add a Pop

The Cisco BTS 10200 Softswitch Call Agent can serve several geographical regions or Metropolitan Statistical Areas (MSAs) simultaneously. Each geographical region is referred to as a point of presence (POP). Each POP has its own unique dialing and routing characteristics. The Point of Presence (POP) table contains the default dialing and routing characteristics. Each originating entity (subscriber or trunk group) is assigned to a POP. The POP also performs policy routing, for example, to route the call to the nearest announcement server in the POP, or to the nearest interLATA carrier location within a POP.

| Command                                                                                                                                                  | Purpose     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| <code>add pop id=1; state=tx; country=usa;<br/>digit-map-id=DIGITMAP1; itp=N;<br/>zero-minus=LEC; block-eawopic=Y;<br/>pic2-reqd=N; timezone=CDT;</code> | Adds a POP. |

## Add a Dial Plan Profile

The Dial Plan Profile (dial-plan-profile) table creates dial-plan-profile ids before they are assigned to subscribers or trunk groups. The dial-plan-profile id links digit-string entries in the Dial Plan table within a dial plan. Different dial-plan-profile ids are assigned to subscribers and trunk groups. A dial-plan-id must be created in this table before entries can be added to the Dial Plan table.

| Command                                                                               | Purpose                   |
|---------------------------------------------------------------------------------------|---------------------------|
| <code>add dial-plan-profile id=dp1;<br/>description=dialing plan profile ID 1;</code> | Adds a dial plan profile. |

## Add an Office Code

The Office Code (office-code) table specifies the office codes assigned to a particular Call Agent. The office codes defined in this table normally terminate to a subscriber. This table defines the office-code-index (normalized office code) that is used as an index in the DN2Subscriber table.

| Command                                                                               | Purpose              |
|---------------------------------------------------------------------------------------|----------------------|
| <code>add office-code dn-group=XXXX; ndc=214;<br/>ec=575; call-agent-id=CA146;</code> | Adds an office code. |

## Add a Subscriber Profile

The Subscriber Profile (subscriber-profile) table groups properties that are shared by a group of subscribers. For example, a Centrex group consisting of several subscribers can share a subscriber-profile. Because a Call Agent consists of several point of presences (POPs), and POP is one of the tokens in the subscriber profile, POP-specific subscriber profiles must be created.

| Command                                                                       | Purpose                    |
|-------------------------------------------------------------------------------|----------------------------|
| <code>add subscriber-profile id=CasDT;<br/>dial-plan-id=dpl; pop-id=1;</code> | Adds a subscriber profile. |

## Add a Media Gateway Profile

A media gateway (MGW) profile provides a template for provisioning one or more media gateways by vendor. It identifies the specifications and settings necessary for communications between the Call Agent and each type of media gateway.

Several tokens have values that can be overwritten after the Call Agent queries the media gateway for supported capabilities. If the media gateway returns a value different from the value you originally provisioned, the returned value automatically replaces the originally provisioned value.

| Command                                                           | Purpose                      |
|-------------------------------------------------------------------|------------------------------|
| <code>add mgw-profile id=Cas_DTPProfile;<br/>vendor=Cisco;</code> | Adds a media gateway profile |



Tip

The `mgcp-max1-retries` and `mgcp-max2-retries` tokens in the `mgw-profile` table can be adjusted, if necessary, to improve response if there are network bandwidth or reliability issues, or if an MGW is slow in responding to commands from the CA. For a detailed explanation of how these and other parameters affect the audit-endpoint and keepalive processes, see the applicable appendix ([Release 5.0 Keepalive](#)) in the *Cisco BTS 10200 Softswitch Troubleshooting Guide*.

## Add a Media Gateway

The Media Gateway (`mgw`) table holds information about each media gateway managed by the Call Agent. The media gateway can be uniquely addressed by domain name, an IP address, or the TSAP address.

The Media Gateway table has two associated commands: RGW and TGW. The RGW command provisions a gateway as only a residential gateway, with the type token automatically set to RGW. The TGW command provisions a gateway as a trunking gateway only, with the type token automatically set to TGW. Both of these commands provision the Media Gateway table, but a service provider can use these commands to provide user security to certain individuals based on their roles.

| Command                                                                                                                                                                      | Purpose              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| <code>add mgw ID=DTCas; TSAP-ADDR=64.101.150.181;<br/>CALL-AGENT-ID=CA146;<br/>MGW-PROFILE-ID=Cas_DTPProfile; STATUS=INS;<br/>CALL-AGENT-CONTROL-PORT=2427; type=RGW;</code> | Adds a media gateway |



**Note**

The RGW command could also be used to provision the media gateway in this instance. Refer to the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* for detailed information about the RGW and TGW commands.

## Add a CAS Trunk Group Profile

The Channel Associated Signaling (CAS) Trunk Group Profile (cas-tg-profile) table holds common information about a CAS trunk group. It supports the following signaling types: DTMF loopstart, DTMF groundstart, MF imstart, MF winkstart, DTMF imstart, DTMF winkstart. A cas-tg-profile record can be shared by multiple CAS trunk groups.

Use oss-sig=y only if you are defining a CAS Operator Services trunk group. Do not use oss-sig=y for 911 or E911 trunk groups or regular CAS trunk groups. Use e911=y only if defining a CAS trunk group to be used for E911.

| Command                                                                | Purpose              |
|------------------------------------------------------------------------|----------------------|
| <code>add cas-tg-profile id=Cas_dt; OSS_SIG=Y;<br/>sig-type=MF;</code> | Adds a media gateway |

## Add a Trunk Group

The Trunk Group table defines common information based on the trunk group type. It identifies the trunk group and maps it to the associated media gateway. The Cisco BTS 10200 Softswitch supports announcement, CAS, ISDN, SS7 and SOFTSW trunk group profiles.

| Command                                                                                                                                | Purpose             |
|----------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| <code>add trunk-grp id=1000; call-agent-id=CA146;<br/>tg-type=CAS; dial-plan-id=dpl;<br/>tg-profile-id=Cas_dt;MGCP_PKG_TYPE=DT;</code> | Adds a trunk group. |

## Add a Termination

The Termination (termination) table holds information about each termination/endpoint managed by the Call Agent. Termination structure uniformly addresses analog ports, DS0 ports, ISDN circuits, and allows termination groupings for ISDN PRI and multiline hunt groups (MLHGs) for a single subscriber. Termination events and signals are grouped into packages, which are groupings of events and signals supported by a particular type of endpoint. For instance, one package supports a certain group of events

and signals for analog access lines, while another package supports another group of events and signals for video lines. One or more packages can exist for a given endpoint type. The package type is determined by the gateway used.

This table can use commands that do not match command-to-field of the database. If the prefix token is used during provisioning, the termination ID is generated by concatenating prefix and port-start value and incrementing the termination port number until the port number value reaches port-end. The prefix, port-start, and port-end are not in the table as individual fields.

The user enters:

prefix: 1–32 ASCII characters

port-start: 0000–9999 (1–4 numeric characters) (default = 1)

port-end: 0000–9999 (1–4 numeric characters) (default = 24)

| Command                                                                                                   | Purpose            |
|-----------------------------------------------------------------------------------------------------------|--------------------|
| <code>add termination prefix=S2/DS1-0;<br/>port_start=1; port_end=2; MGW-ID=DTCas;<br/>TYPE=TRUNK;</code> | Adds a termination |

## Add a Route

The Route (route) table contains a list of up to ten trunk groups to route a call. If all the trunk groups are busy or not available, call processing uses the alt-route-id (if specified) to route the call. The Element Management System (EMS) provisions the Call Agent ID field based on the Trunk Group table.

| Command                                              | Purpose      |
|------------------------------------------------------|--------------|
| <code>add route id=Cas_dt_1000; tgn1-id=1000;</code> | Adds a route |

## Add a Route Guide

The Route Guide (route-guide) table holds routing information based on policy-type.

| Command                                                                                       | Purpose            |
|-----------------------------------------------------------------------------------------------|--------------------|
| <code>add route-guide id=Cas_rg_dt_1000;<br/>policy-type=ROUTE; policy-id=Cas_dt_1000;</code> | Adds a route guide |

## Add a Subscriber

The Subscriber (subscriber) table defines the characteristics of a subscriber or group of subscribers in a Call Agent. All termination numbers reached by a directory number (DN) must be set up as a subscriber. Any termination that can originate in the primary Call Agent must be set up as a subscriber (Residential, PBX, Business, Centrex, and so on). All terminations to customers, such as multiline hunt (MLH), Centrex, must be defined as well.



| Command                                                                                                                                                                                                                                            | Purpose                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| <code>add subscriber ID=Cas_sub_dt_1000;<br/>CATEGORY=PBX; NAME=Smith; STATUS=ACTIVE;<br/>BILLING_DN=214-575-9111;<br/>TERM-ID=S2/DS1-0/1; MGW-ID=DTCas;<br/>TGN-ID=1000; SUB-PROFILE-ID=CasDT;<br/>TERM-TYPE=ROUTE; POLICY-ID=Cas_dt_1000;</code> | Adds a subscriber<br><br><b>Note</b> Each subscriber must have a unique term-id. |

## Change a Trunk Group

| Command                                                                                          | Purpose                                        |
|--------------------------------------------------------------------------------------------------|------------------------------------------------|
| <code>change trunk_grp id=1000;<br/>call-agent-id=CA146;<br/>main-sub-id=Cas_sub_dt_1000;</code> | Associates the subscriber with the trunk group |

## Add CAS Trunks

The Trunk (trunk) table identifies a trunk group and maps it to the associated media gateway. It also specifies the Circuit Identification Code (CIC) range and terminations.

| Command                                                                                                                                                               | Purpose          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| <code>add trunk termination-prefix=S2/DS1-0/;<br/>termination-port_start=1;<br/>termination-port_end=2; cic_start=1;<br/>cic_end=2; tgn-id=1000; mgw-id=DTCas;</code> | Adds CAS trunks. |

## Change a Termination

| Command                                                                                   | Purpose |
|-------------------------------------------------------------------------------------------|---------|
| <code>change termination id=S2/DS1-0/1;<br/>mgw-id=DTCas; trunk-id=1; tgn-id=1000;</code> |         |

## Add a Destination

The Destination (destination) table defines the call type and the routing information for the dialed digits. Multiple digit strings in the Dial Plan table can use the same destination ID.

| Command                                                                                                                                                                                       | Purpose            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| <code>add destination DEST-ID=Cas_dest_dt_1000;<br/>CALL-TYPE=LOCAL; ROUTE-TYPE=ROUTE;<br/>ZERO-PLUS=N; INTRA-STATE=N; DESCRIPTION=CAS<br/>destination; route-guide-id=Cas_rg_dt_1000;</code> | Adds a destination |

## Add a Dial Plan

Dial plans analyze, screen, and route calls based on dialed digits. The Dial Plan (dial-plan) table holds dial plan information for a specific type of call. It defines valid dialing patterns and determines call routing. All records that share a common dial-plan-profile id are considered a dial plan.

| Command                                                                                                                 | Purpose          |
|-------------------------------------------------------------------------------------------------------------------------|------------------|
| <b>add dial_plan id=dp1; digit-string=214-575; dest-id=Cas_dest_dt_1000; min-digits=7; max-digits=10; NOA=NATIONAL;</b> | Adds a dial plan |

## Control the Media Gateway

The control command sets the administrative state (OOS, INS) of media gateways, subscriber terminations, trunks, and trunk groups.

| Command                                                     | Purpose                    |
|-------------------------------------------------------------|----------------------------|
| <b>control mgw id=DTCas; mode=forced; target-state=ins;</b> | Places the MGW in-service. |

The status command displays the state of media gateways, subscriber terminations, trunks, and trunk groups. Enter the following CLI command to verify that the media gateway is in-service:

```
status mgw id=10.89.227.161;
```

Reply Example:

```
Reply :Success:Entry 1 of 1 returned.
```

```
MGW_ID -> DTCAS
RESULT -> ADM configure result in success
REASON -> ADM executed successful
ADMIN_STATE -> ADMIN_INS
OPER_STATE -> Media gateway in down status
```

## Control the Trunk Group

| Command                                                                               | Purpose                   |
|---------------------------------------------------------------------------------------|---------------------------|
| <b>control trunk_grp id=1000; call-agent-id=CA146; mode=forced; target-state=ins;</b> | Places the MGW in-service |

After controlling the trunk group in-service, enter the following command to verify its status:

```
status trunk-grp id=1000;
```

Reply example:

```
TGN_ID -> 1000
RESULT -> ADM configure result in success
REASON -> ADM executed successful
ADMIN_STATE -> ADMIN_INS
```

```
OPER_STATE -> Trunk group in-service
PRIMARY_OPER_STATE -> NOT USED
BACKUP_OPER_STATE -> NOT USED
```

Reply :Success:Entry 1 of 1 returned.

## Equip the CAS Trunk Terminations

The equip command enables the subscriber trunk terminations to be placed in-service.

| Command                                                  | Purpose                       |
|----------------------------------------------------------|-------------------------------|
| <b>equip trunk-termination tgn-id=1000;<br/>cic=all;</b> | Equips CAS trunk terminations |



**Note**

This example equips all circuit identification codes (CICs) on the trunk termination.

## Control the CAS Trunk Terminations

| Command                                                                                   | Purpose                             |
|-------------------------------------------------------------------------------------------|-------------------------------------|
| <b>control trunk-termination tgn-id=1000;<br/>mode=forced; cic=all; target-state=ins;</b> | Controls the CAS trunk terminations |

Verify the trunk termination status.

```
status trunk-termination tgn-id=1000; cic=all;
```

Reply Example:

Reply :Success: Entries 1-24 of 24 returned.

```
TGN_ID -> 1000
CIC -> 1
RESULT -> ADM configure result in success
REASON -> ADM executed successful
TERM_ADMIN_STATE -> ADMIN_INS
TERM_OPER_STATE -> Termination is idle
TERM_REASON -> No fault reason available
TRUNK_STATIC_STATE -> ACTV
TRUNK_DYNAMIC_STATE -> IDLE
TRUNK_REASON -> NON_FAULTY
```

```
TGN_ID -> 1000
CIC -> 2
RESULT -> ADM configure result in success
REASON -> ADM executed successful
TERM_ADMIN_STATE -> ADMIN_INS
TERM_OPER_STATE -> Termination is idle
TERM_REASON -> No fault reason available
TRUNK_STATIC_STATE -> ACTV
TRUNK_DYNAMIC_STATE -> IDLE
TRUNK_REASON -> NON_FAULTY
...
```

```
TGN_ID -> 1000
CIC -> 24
```

```
RESULT -> ADM configure result in success
REASON -> ADM executed successful
TERM_ADMIN_STATE -> ADMIN_INS
TERM_OPER_STATE -> Termination is idle
TERM_REASON -> No fault reason available
TRUNK_STATIC_STATE -> ACTV
TRUNK_DYNAMIC_STATE -> IDLE
TRUNK_REASON -> NON_FAULTY
```



---

**Note** This status applies to all corresponding circuits in the CAS trunk group (for example, 1 to 24).

---

The CAS trunk group circuits are ready to originate and receive calls.



# CHAPTER 12

## SS7 Provisioning

Revised: May 31, 2010, OL-12777-12

This chapter describes how to provision the Cisco BTS 10200 Softswitch to communicate with an SS7 PSTN network and contains the following sections:

[Provisioning SS7, page 12-1](#)

[ISUP Transparency on the BTS-PGW Interface, page 12-11](#)

## Provisioning SS7

[Table 12-1](#) provides an example of the steps required and lists example CLI commands with mandatory tokens. Click on each step for a complete description of the step.

For a more detailed description of all Cisco BTS 10200 Softswitch tables, tokens, and value ranges, see the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide*.

**Table 12-1**      **SS7 Provisioning**

|        | Description                                                | CLI Command                                                                                                                                                                           |
|--------|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | <a href="#">Add a Signaling Gateway, page 12-3</a>         | add sg id=sg1;<br>add sg id=sg2;                                                                                                                                                      |
| Step 2 | <a href="#">Add a Signaling Gateway Group, page 12-3</a>   | add sg-grp id=sg-grp1; sg1-id=sg1; sg2-id=sg2;                                                                                                                                        |
| Step 3 | <a href="#">Add a Signaling Gateway Process, page 12-3</a> | add sgp id=sgp1; sg-id=sg1;<br>add sgp id=sgp2; sg-id=sg2;                                                                                                                            |
| Step 4 | <a href="#">Add an Origination Point Code, page 12-3</a>   | add opc id=opc1; point-code=1-1-1;                                                                                                                                                    |
| Step 5 | <a href="#">Add a Destination Point Code, page 12-4</a>    | add dpc id=dpc1; point-code=1-1-2;<br>add dpc id=stp1; point-code=1-1-3;                                                                                                              |
| Step 6 | <a href="#">Add an SCTP Association Profile, page 12-4</a> | add sctp-assoc-profile id=sctp-prof1;                                                                                                                                                 |
| Step 7 | <a href="#">Add an SCTP Association, page 12-4</a>         | add sctp-assoc id=sgp1-sctp; sgp-id=sgp1;<br>sctp-assoc-profile-id=sctp-prof1; platform-id=CA146;<br>remote-port=2905; remote-tsap-addr=10.0.1.30;<br>remote-tsap-addr2=10.128.1.230; |

Table 12-1 SS7 Provisioning (continued)

|         | Description                                    | CLI Command                                                                                                                                                                                                     |
|---------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 8  | Add a User Part Variant, page 12-4             | add user-part-variant id=ANSISS7_GR317;                                                                                                                                                                         |
| Step 9  | Add a Routing Key, page 12-5                   | add routing-key id=rk1; opc-id=opc1; sg-grp-id=sg-grp1;<br>si=ISUP; rc=1; platform-id=CA146;                                                                                                                    |
| Step 10 | Add a Call Control Route, page 12-5            | add call-ctrl-route id=dpc1-route; dpc-id=dpc1;<br>routing-key-id=rk1; si=ISUP;<br>user-part-variant-id=ANSISS7_GR317;<br><b>Note</b> The call-ctrl-route must be associated with a specific signaling gateway. |
| Step 11 | Add a Media Gateway Profile, page 12-5         | add mgw-profile id=3660; vendor=Cisco; description=Cisco 3660;                                                                                                                                                  |
| Step 12 | Add a Media Gateway, page 12-5                 | add mgw id=c3660-1; call-agent-id=CA146;<br>tsap-addr=c3660-1.lab.cisco.com; mgw-profile-id=3660;<br>type=twg;                                                                                                  |
| Step 13 | Add a Termination, page 12-6                   | add termination prefix=S1/DS1-0/; port-start=1; port-end=24;<br>mgw-id=c3660-1; type=trunk;                                                                                                                     |
| Step 14 | Add an SS7 ANSI Trunk Group Profile, page 12-6 | add ss7-ansi-tg-profile id=ss7-prof1;                                                                                                                                                                           |
| Step 15 | Add an SS7 Trunk Group, page 12-7              | add trunk-grp id=1; call-agent-id=CA146; tg-type=SS7;<br>num_of_trunks=24; tg-profile=ss7-prof1;<br>call-ctrl-route-id=dpc1-route;                                                                              |
| Step 16 | Add a Trunk, page 12-7                         | add trunk cic-start=1; cic-end=24; tgn-id=1; mgw-id=c3660-1;<br>termination-prefix=S1/DS1-0/; termination-port-start=1;<br>termination-port-end=24;                                                             |
| Step 17 | Add a Route, page 12-7                         | add route id=ss7rt; tgn1-id=1;                                                                                                                                                                                  |
| Step 18 | Add a Route Guide, page 12-7                   | add route-guide id=ss7rg; policy-type=ROUTE; policy-id=ss7rt;                                                                                                                                                   |
| Step 19 | Add a Destination, page 12-8                   | add destination dest-id=ss7dest; call-type=toll; route-type=route;<br>route-guide-id=ss7rg;                                                                                                                     |
| Step 20 | Add a Dial Plan, page 12-8                     | add dial-plan id=dp1; digit-string=813565; noa-national;<br>dest-id=ss7dest;                                                                                                                                    |
| Step 21 | Change Point of Presence, page 12-8            | change pop id=1; opc-id=opc;                                                                                                                                                                                    |
| Step 22 | Add an SCCP Network, page 12-8                 | add sccp-nw id=1; net-ind=NATIONAL; sub-svc=NATIONAL;<br>hop-count=3;                                                                                                                                           |
| Step 23 | Add a Subsystem Group, page 12-9               | add subsystem-grp id=SSN_LNP; platform-id=FSAIN205;<br>tcap-version=ANS-92;                                                                                                                                     |
| Step 24 | Add a Subsystem, page 12-9                     | add subsystem id=SSN_LNP; opc-id=opc; local-ssn=247;<br>remote-ssn=247; sccp-nw-id=1; sccp-version=ANS92;<br>tcap-version=ANS92; application-version=AIN01;                                                     |
| Step 25 | Add a Routing Key, page 12-9                   | add routing-key id=rk_lnp; opc-id=opc1; ssn-id=SSN_LNP;<br>sg-grp-id=sg-grp1; si=SCCP; rc=2; platform-id=FSAIN205;                                                                                              |
| Step 26 | Add an SCCP Route, page 12-9                   | add sccp-route subsystem-grp-id=SSN_LNP; opc-id=opc1;<br>dpc-id=stp1; rk-id=rk_lnp;                                                                                                                             |

**Table 12-1 SS7 Provisioning (continued)**

|                | Description                                                       | CLI Command                                                                                                          |
|----------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Step 27</b> | <a href="#">Add a Service Logic Host Route Profile, page 12-9</a> | add slhr-profile id=slhr_lnp;                                                                                        |
| <b>Step 28</b> | <a href="#">Add a Service Logic Host Route, page 12-10</a>        | add slhr id=slhr_lnp; opc-id=opc; dpc-id=stp1;<br>subsystem-grp-id=SSN_LNP; gtt-req=Y; tt=11;<br>gtt-addr-type=CDPN; |
| <b>Step 29</b> | <a href="#">Add a Call Agent Configuration, page 12-10</a>        | add ca-config type=DEFAULT-LNP-SLHR-ID; datatype=string;<br>value=slhr_lnp;                                          |
| <b>Step 30</b> | <a href="#">Control the SCTP Association, page 12-10</a>          | control sctp-assoc id=sgp1-sctp; target-state=INS;<br>mode=FORCED;                                                   |
| <b>Step 31</b> | <a href="#">Control the Subsystem, page 12-10</a>                 | control subsystem id=SSN_LNP; target-state=UIS;<br>mode=FORCED;                                                      |
| <b>Step 32</b> | <a href="#">Control the Subsystem Group, page 12-11</a>           | control subsystem-grp id=SSN_LNP; target-state=UIS;<br>mode=FORCED;                                                  |

## Add a Signaling Gateway

The Signaling Gateway (sg) table identifies all the signaling gateways managed by the Call Agent.

| Command                          | Purpose                  |
|----------------------------------|--------------------------|
| add sg id=sg1;<br>add sg id=sg2; | Adds a signaling gateway |

## Add a Signaling Gateway Group

A Signaling Gateway Group (sg-grp) table associates two signaling gateways.

| Command                                           | Purpose                        |
|---------------------------------------------------|--------------------------------|
| add sg-grp id=sg-grp1; sg1-id=sg1;<br>sg2-id=sg2; | Adds a signaling gateway group |

## Add a Signaling Gateway Process

The Signaling Gateway Process (sgp) table identifies all the signaling gateway processes associated with each signaling gateway.

| Command                                                    | Purpose                          |
|------------------------------------------------------------|----------------------------------|
| add sgp id=sgp1; sg-id=sg1;<br>add sgp id=sgp2; sg-id=sg2; | Adds a signaling gateway process |

## Add an Origination Point Code

The Origination Point Code (opc) table stores information for all of the system origination point codes.

| Command                                         | Purpose     |
|-------------------------------------------------|-------------|
| <code>add opc id=opc1; point-code=1-1-1;</code> | Adds an OPC |

## Add a Destination Point Code

The Destination Point Code (dpc) table stores information for all the destination point codes in the system.

| Command                                         | Purpose    |
|-------------------------------------------------|------------|
| <code>add dpc id=dpc1; point-code=1-1-2;</code> | Adds a DPC |
| <code>add dpc id=stp1; point-code=1-1-3;</code> |            |

## Add an SCTP Association Profile

The Stream Control Transmission Protocol (SCTP) Association Profile (sct-assoc-profile) table defines each SCTP association and stores the configuration parameters that can be referenced by any SCTP association.

| Command                                            | Purpose                          |
|----------------------------------------------------|----------------------------------|
| <code>add sctp-assoc-profile id=sctp-prof1;</code> | Adds an SCTP association profile |

## Add an SCTP Association

The SCTP Association (sctp-assoc) table identifies the association between local and remote signaling gateway platforms (SGPs). Two index trees are needed. You must add one SCTP association for the Call Agent and one for the Feature Server.

| Command                                                | Purpose                  |
|--------------------------------------------------------|--------------------------|
| <code>add sctp-assoc id=sgp1-sctp; sgp-id=sgp1;</code> | Adds an SCTP association |
| <code>sctp-assoc-profile-id=sctp-prof1;</code>         |                          |
| <code>platform-id=CA146; remote-port=2905;</code>      |                          |
| <code>remote-tsap-addr=10.0.1.30;</code>               |                          |
| <code>remote-tsap-addr2=10.128.1.230;</code>           |                          |

## Add a User Part Variant

The User Part Variant (user-part-variant) table contains all supported SS7 User Part variants and their associated protocol families. It is a two-part process. The User Part Variant Base (user-part-variant-base) table defines all the supported variants and the values of the optional parameters. When a variant is added, the values of the optional parameters are populated from the User Part Variant Base table.

| Command                                              | Purpose                  |
|------------------------------------------------------|--------------------------|
| <code>add user-part-variant id=ANSISS7_GR317;</code> | Adds a user part variant |



## Add a Routing Key

A routing key is the unique routing data that identifies an application server. The Routing Key (routing-key) table holds the information for all the MTP3-User Adaptation Layer (M3UA) and SCCP-User Adaptation Layer (SUA) routing keys.

| Command                                                                                                        | Purpose            |
|----------------------------------------------------------------------------------------------------------------|--------------------|
| <code>add routing-key id=rk1; opc-id=opc1;<br/>sg-grp-id=sg-grp1; si=ISUP; rc=1;<br/>platform-id=CA146;</code> | Adds a routing key |

## Add a Call Control Route

The Call Control Route (call-ctrl-route) table identifies call control routes defined between the OPCs, DPCs, and signaling gateway (SG) groups.

| Command                                                                                                                               | Purpose                   |
|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <code>add call-ctrl-route id=dpc1-route;<br/>dpc-id=dpc1; routing-key-id=rk1; si=ISUP;<br/>user-part-variant-id=ANSISS7_GR317;</code> | Adds a call control route |

## Add a Media Gateway Profile

A media gateway (MGW) profile provides a template for provisioning one or more media gateways by vendor. It identifies the specifications and settings necessary for communications between the Call Agent and each type of media gateway.

Several tokens have values that can be overwritten after the Call Agent queries the media gateway for supported capabilities. If the media gateway returns a value different from the value you originally provisioned, the returned value automatically replaces the originally provisioned value.

| Command                                                                         | Purpose                      |
|---------------------------------------------------------------------------------|------------------------------|
| <code>add mgw-profile id=3660; vendor=Cisco;<br/>description=Cisco 3660;</code> | Adds a media gateway profile |



**Tip**

The `mgcp-max1-retries` and `mgcp-max2-retries` tokens in the `mgw-profile` table can be adjusted, if necessary, to improve response if there are network bandwidth or reliability issues, or if an MGW is slow in responding to commands from the CA. For a detailed explanation of how these and other parameters affect the audit-endpoint and keepalive processes, see the applicable appendix ([Release 5.0 Keepalive](#) or [Release 5.0 Keepalive](#)) in the *Cisco BTS 10200 Softswitch Troubleshooting Guide*.

## Add a Media Gateway

The Media Gateway (mgw) table holds information about each media gateway managed by the Call Agent. The media gateway can be uniquely addressed by domain name, IP address, or TSAP address.

The Media Gateway table has two associated commands: RGW and TGW. The RGW command provisions a gateway as only a residential gateway, with the type token automatically set to RGW. The TGW command provisions a gateway as a trunking gateway only, with the type token automatically set to TGW. Both of these commands provision the Media Gateway table, but a service provider can use these commands to provide user security to certain individuals based on their roles.

| Command                                                                                                        | Purpose              |
|----------------------------------------------------------------------------------------------------------------|----------------------|
| add mgw id=c3660-1; call-agent-id=CA146;<br>tsap-addr=c3660-1.lab.cisco.com;<br>mgw-profile-id=3660; type=tgw; | Adds a media gateway |

**Note**

The TGW command could also be used to provision the media gateway in this instance. See the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* for detailed information about the RGW and TGW commands.

## Add a Termination

The Termination (termination) table holds information about each termination/endpoint managed by the Call Agent. Termination structure uniformly addresses analog ports, DS0 ports, ISDN circuits, and allows termination groupings for ISDN PRI and multiline hunt groups (MLHGs) for a single subscriber. Termination events and signals are grouped into packages, which are groupings of events and signals supported by a particular type of endpoint. For instance, one package supports a certain group of events and signals for analog access lines, while another package supports another group of events and signals for video lines. One or more packages can exist for a given endpoint type. The package type is determined by the gateway used.

This table can use commands that do not match command-to-field of the database. If the prefix token is used during provisioning, the termination ID is generated by concatenating prefix and port-start value and incrementing the termination port number until the port number value reaches port-end. The prefix, port-start, and port-end are not in the table as individual fields.

The user enters:

prefix: 1–32 ASCII characters

port-start: 0000–9999 (1–4 numeric characters) (default = 1)

port-end: 0000–9999 (1–4 numeric characters) (default = 24)

| Command                                                                                       | Purpose            |
|-----------------------------------------------------------------------------------------------|--------------------|
| add termination prefix=S1/DS1-0/<br>port-start=1; port-end=24; mgw-id=c3660-1;<br>type=trunk; | Adds a termination |

## Add an SS7 ANSI Trunk Group Profile

The Signaling System 7 ANSI Trunk Group Profile (ss7-ansi-tg-profile) table holds common information regarding an SS7 trunk group such as continuity test (COT). This table can be shared by multiple SS7 trunk groups. You can add either an ANSI, Q.760, or Q.767 trunk group profile, depending on the ISUP variant being used.

| Command                                            | Purpose                              |
|----------------------------------------------------|--------------------------------------|
| <code>add ss7-ansi-tg-profile id=ss7-profl;</code> | Adds an SS7 ANSI trunk group profile |

## Add an SS7 Trunk Group

The Trunk Group (trunk-grp) table identifies a trunk group and maps it to the associated media gateway.

| Command                                                                                                                                               | Purpose                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <code>add trunk-grp id=1; call-agent-id=CA146;<br/>tg-type=SS7; num_of_trunks=24;<br/>tg-profile=ss7-profl;<br/>call-ctrl-route-id=dpc1-route;</code> | Adds an SS7 trunk group |



### Note

Refer to the section for the Trunk Group table in Chapter 2 of the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* to determine if specific tokens are mandatory or optional for each trunk group type.

## Add a Trunk

The Trunk (trunk) table identifies the trunk group and maps it to the associated media gateway. It also specifies the Carrier Identification Code (CIC) range and terminations.

| Command                                                                                                                                                                    | Purpose      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <code>add trunk cic-start=1; cic-end=24;<br/>tgn-id=1; mgw-id=c3660-1;<br/>termination-prefix=S1/DS1-0/;<br/>termination-port-start=1;<br/>termination-port-end=24;</code> | Adds a trunk |



### Note

When a service affecting test is in progress on trunks, the trunks are not blocked, and any incoming call attempts on that trunk will fail. If the far-end switch on a trunk does not use a trunk selection algorithm to choose the next trunk, all incoming call attempts will fail.

## Add a Route

The Route (route) table contains a list of up to ten trunk groups to route a call. If all the trunk groups are busy or not available, call processing uses the alt-route-id (if specified) to route the call. The Element Management System (EMS) provisions the Call Agent ID field based on the Trunk Group table.

| Command                                     | Purpose      |
|---------------------------------------------|--------------|
| <code>add route id=ss7rt; tgn1-id=1;</code> | Adds a route |

## Add a Route Guide

The Route Guide (route-guide) table holds routing information based on policy-type.

| Command                                                                        | Purpose            |
|--------------------------------------------------------------------------------|--------------------|
| <code>add route-guide id=ss7rg;<br/>policy-type=ROUTE; policy-id=ss7rt;</code> | Adds a route guide |

## Add a Destination

The Destination (destination) table defines the call type and the routing information for the dialed digits. Multiple digit strings in the Dial Plan table can use the same destination ID.

| Command                                                                                                       | Purpose            |
|---------------------------------------------------------------------------------------------------------------|--------------------|
| <code>add destination dest-id=ss7dest;<br/>call-type=toll; route-type=route;<br/>route-guide-id=ss7rg;</code> | Adds a destination |

## Add a Dial Plan

Dial plans analyze, screen, and route calls based on dialed digits. The Dial Plan (dial-plan) table holds dial plan information for a specific type of call. It defines valid dialing patterns and determines call routing. All records that share a common dial-plan-profile-id are considered a dial plan.

| Command                                                                                    | Purpose          |
|--------------------------------------------------------------------------------------------|------------------|
| <code>add dial-plan id=dp1; digit-string=813565;<br/>noa-national; dest-id=ss7dest;</code> | Adds a dial plan |

## Change Point of Presence

The Cisco BTS 10200 Softswitch Call Agent can serve several geographical regions or Metropolitan Statistical Areas (MSAs) simultaneously. Each geographical region is referred to as a point of presence (POP). Each POP has its own unique dialing and routing characteristics. The Point of Presence (pop) table contains the default dialing and routing characteristics. Each originating entity (subscriber or trunk group) is assigned to a POP. The POP also performs policy routing, for example, to route the call to the nearest announcement server in the POP, or to the nearest interLATA carrier location within a POP.

| Command                                   | Purpose    |
|-------------------------------------------|------------|
| <code>change pop id=1; opc-id=opc;</code> | Adds a POP |

## Add an SCCP Network

The SCCP Network (sccp-nw) table contains the attributes associated with an SS7 network. Each network is associated with one point code. There is one-to-one mapping, which is subject to supporting multiple point codes. Two idx trees are needed.

| Command                                                                             | Purpose              |
|-------------------------------------------------------------------------------------|----------------------|
| <code>add sccp-nw id=1; net-ind=NATIONAL;<br/>sub-svc=NATIONAL; hop-count=3;</code> | Adds an SCCP network |

## Add a Subsystem Group

The Subsystem Group (subsystem-grp) table defines all valid SSN-IDs at a global (Cisco BTS 10200 Softswitch) level for multiple origination point code (OPC) support. A subsystem group id must be created in this table before entries can be added to the Subsystem table.

| Command                                                                                  | Purpose                |
|------------------------------------------------------------------------------------------|------------------------|
| <code>add subsystem-grp id=SSN_LNP;<br/>platform-id=FSAIN205;tcap-version=ANS-92;</code> | Adds a subsystem group |

## Add a Subsystem

The Subsystem (subsystem) table contains information for all the subsystems using SCCP. Because the Cisco BTS 10200 Softswitch supports up to 30 OPCs, the combined OPC-ID and SSN-ID is used as a primary key to determine subsystem information.

| Command                                                                                                                                                    | Purpose          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| <code>add subsystem id=SSN_LNP; opc-id=opc;<br/>local-ssn=247; remote-ssn=247;<br/>sccp-nw-id=1; sccp-version=ANS92;<br/>application-version=AIN01;</code> | Adds a subsystem |

## Add a Routing Key

The Routing Key (routing-key) table holds information for all of the M3UA / SUA routing keys.

| Command                                                                                                                              | Purpose            |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| <code>add routing-key id=rk_lnp; opc-id=opc1;<br/>ssn-id=SSN_LNP; sg-grp-id=sg-grp1; si=SCCP;<br/>rc=2; platform-id=FSAIN205;</code> | Adds a routing key |

## Add an SCCP Route

The Signaling Connection Control Part Route (sccp-route) table contains the attributes associated with an SS7 network. The SCCP Route table takes care of the redundancy of routes to signaling gateways. A backup point code for ISUP can also be specified here.

| Command                                                                                           | Purpose            |
|---------------------------------------------------------------------------------------------------|--------------------|
| <code>add sccp-route subsystem-grp-id=SSN_LNP;<br/>opc-id=opc1; dpc-id=stpl; rk-id=rk_lnp;</code> | Adds an SCCP route |

## Add a Service Logic Host Route Profile

The Service Logic Host Route Profile (slhr-profile) table identifies an SLHR. An slhr-profile id must be created in this table before entries can be added to the SLHR table.

| Command                                    | Purpose                                 |
|--------------------------------------------|-----------------------------------------|
| <code>add slhr-profile id=slhr_lnp;</code> | Adds a service logic host route profile |

## Add a Service Logic Host Route

The Service Logic Host Route (slhr) table contains the information necessary to route a Trigger Detection Point (TDP) request message to a service control point (SCP).

| Command                                                                                                                             | Purpose                         |
|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| <code>add slhr id=slhr_lnp; opc-id=opc; dpc-id=stp1;<br/>subsystem-grp-id=SSN_LNP; gtt-req=Y; tt=11;<br/>gtt-addr-type=CDPN;</code> | Adds a service logic host route |

## Add a Call Agent Configuration

The Call Agent Configuration (ca-config) table defines the defaults for each Call Agent. The defaults are prepopulated at installation. Only change and show commands are valid. See the *Cisco BTS 10200 Softswitch Command Line Interface Guide*, [Appendix A, “Call Agent and Feature Server Configurable Parameters,”](#) for a complete list of configurable parameters.

| Command                                                                                   | Purpose                         |
|-------------------------------------------------------------------------------------------|---------------------------------|
| <code>add ca-config type=DEFAULT-LNP-SLHR-ID;<br/>datatype=string; value=slhr_lnp;</code> | Adds a call agent configuration |

## Control the SCTP Association

The control command sets the administrative state (OOS, INS) of the SCTP association.

| Command                                                                          | Purpose                                 |
|----------------------------------------------------------------------------------|-----------------------------------------|
| <code>control sctp-assoc id=sgp1-sctp;<br/>target-state=INS; mode=FORCED;</code> | Places the SCTP association in-service. |

Enter the following command to verify that the SCTP association is in-service:

```
status sctp-assoc id=sgp1-sctp;
```

## Control the Subsystem

The control command sets the administrative state of the subsystem.

| Command                                                                       | Purpose                          |
|-------------------------------------------------------------------------------|----------------------------------|
| <code>control subsystem id=SSN_LNP;<br/>target-state=UIS; mode=FORCED;</code> | Places the subsystem in-service. |

Enter the following command to verify that the subsystem is in-service:

```
status subsystem id=SSN_LNP;
```

## Control the Subsystem Group

The subsystem-grp table has a status associated with it. You can control a subsystem group in or out of service. Controlling the subsystem group out of service has the same affect as controlling all the subsystems in the subsystem group out of service. Controlling the subsystem group in service puts all subsystems in the group in service. The following CLI command controls all subsystem/OPC combinations out of service:

| Command                                                                           | Purpose                          |
|-----------------------------------------------------------------------------------|----------------------------------|
| <code>control subsystem-grp id=SSN_LNP;<br/>target-state=UIS; mode=FORCED;</code> | Places the subsystem in-service. |

## ISUP Transparency on the BTS-PGW Interface

ISUP transparency provides the capability to transfer Generic Transparency Descriptor (GTD) messages and information elements from a Cisco BTS 10200 Softswitch across an IP network to a Cisco PSTN Gateway (PGW) 2200. The PGW maps the GTD messages to ISUP messages, repackages them, and sends them out to the PSTN/SS7 network.

The ISUP Transparency on the BTS-PGW Interface feature passes normalized parameters to expedite mapping at the PSTN interconnect side and any feature invocation necessary on either the PGW or the BTS. It adds support for GTD attachments to SIP-T trunk messages to allow the BTS to interwork with the Cisco PGW 2200 for interconnection to the PSTN.

## Configuring the Cisco BTS 10200 Softswitch

The following procedure provides an example of the steps required to provision ISUP transparency on the Cisco BTS 10200 Softswitch and lists example CLI commands with mandatory tokens.

**Step 1** Set the connection parameters to support SIP-GTD calls:

```
ADD SOFTSW-TG-PROFILE ID=SIPGTD_PROFILE; PROTOCOL_TYPE=SIP_T; SIPT_ISUP_VER=GTD;
GTD_PARMS=ALL;
```

**Step 2** Add a dial plan:

```
ADD DIAL_PLAN ID=CDP1; DIGIT_STRING=703001; DEST_ID=local_sub; SPLIT_NPA=NONE;
DEL_DIGITS=0; MIN_DIGITS=10; MAX_DIGITS=10; NOA=NATIONAL;
```

**Step 3** Add a SIP-GTD trunk group.



**Note**

The SOFTSW-TSAP-ADDR must match the IP address and port provisioned on the Cisco PGW.

```
ADD TRUNK-GRP ID=1000; CALL-AGENT-ID=CA146; TG-TYPE=SOFTSW;
SOFTSW_TSAP_ADDR=10.0.5.125:5060; TG-PROFILE-ID=SIPGTD_PROFILE; STATUS=INS;
DIRECTION=BOTH; SEL_POLICY=ASC; GLARE=SLAVE; ALT_ROUTE_ON_CONG=N; SIGNAL_PORTED_NUMBER=N;
POP_ID=69; DIAL-PLAN-ID=cdp1; DEL_DIGITS=0; OPER_STATUS=NF; TRAFFIC_TYPE=LOCAL;
ANI_BASED_ROUTING=N; MGCP_PKA_TYPE=NA; ANI_SCREENING=N; SEND_RDN_AS_CPN=N;
```

## Configuring the Cisco PGW 2200

The following example script adds a SIP-GTD trunk to the Cisco PGW 2200:

```
prov-sta::srcver="active",dstver="neurolink_sip",confirm

;
; Set DNS parameters for MGC
;
prov-add:DNSPARAM: CacheSize="500", DnsServer1="10.102.6.247",DnsServer2="171.16.2.133",
KeepAlive="30",Policy="HIERARCHY",QueryTimeout="1000",TTL="3600"

;
; SIPPATH and SIPLNK(s) used for all SIP traffic on PGW
;
prov-add:SIPPATH:NAME="sip-path",DESC="SIP path",MDO="IETF_SIP",ORIGLABEL="", TERMLABEL=""
prov-add:SIPLNK:NAME="sip-link1", DESC="SIP link 1", SVC="sip-path",IPADDR="IP_Addr1",
PORT=5060,PRI=1

;
; Define GTD Parameters
;
prov-add:gtdparam:name="t1",GTDPARAMSTRING="ALL"

;
; Incoming SIP Trunk Group
;
prov-add:trnkgrp:name="9000",svc="sip-path",type="SIP_IN"
prov-ed:trnkgrpprop:name="9000",CustGrpID="1111"

; Set MGCP domain
prov-add:trnkgrpprop:name="9000",MGCdomain="10.0.1.247"

; Turn on REL100 feature to enable acknowledgements to provisional responses
prov-add:trnkgrpprop:name="9000",SupportReliable100="TRUE"

; Set MIME Body Support to GTD (2)
prov-add:trnkgrpprop:name="9000",SipMimeBodySupport="2"

; Select compact GTD message format
prov-add:trnkgrpprop:name="9000",GtdCapTypeProp="t1"

;
; Outgoing SIP Trunk Group
;
prov-add:trnkgrp:name="506",svc="sip-path",type="IP_SIP"
prov-ed:trnkgrpprop:name="506",CustGrpID="1111"

; Set MGCP domain
prov-add:trnkgrpprop:name="506",MGCdomain="10.0.1.247"

; Turn on REL100 feature to enable acknowledgements to provisional responses
prov-add:trnkgrpprop:name="506",SupportReliable100="TRUE"

; Set MIME Body Support to GTD (2)
prov-add:trnkgrpprop:name="506",SipMimeBodySupport="2"

; Select the GTD Parameters to use
prov-add:trnkgrpprop:name="506",GtdCapTypeProp="t1"

; Select compact GTD message format
prov-add:trnkgrpprop:name="506",GtdMsgFmt="c"
```



```
;
; SIP Routing Trunk Group, Routing Trunk, and Routing List to BTS
;
; Set URL to IP address of BTS CA used for SIP
; Set SIPPROXYPORT to default SIP port number (5060)
prov-add:siprtrtrnkgrp: name="506",url="10.0.6.138",svrwr=0,sipproxyport=5060,
version="2.0", cutthrough=1, extsupport=1

prov-add:rtrtrnk:weightedTG="OFF",name="rt506", trnkgrpnum=506
prov-add:rtlist:name="rtlist506", rtname="rt506", distrib="OFF"

;
; Dial Plan
;
numan-add:resultset:custgrpID="1111",name="rslt506"
numan-add:resulttable:custgrpID="1111",name="506",resultttype="ROUTE", dwl="rtlist506",
setname="rslt506"
numan-add:bdigtree:CustGrpID="1111",callside="originating",digitstring="506",
setname="rslt506"

prov-cpy
prov-stp
```





# CHAPTER 13

## H.323 Provisioning

Revised: May 31, 2010, OL-12777-12s

This chapter describes how to provision the Cisco BTS 10200 Softswitch to communicate with an H.323 network for both outgoing and incoming calls. This chapter contains the following sections:

- [Provisioning H.323 Support, page 13-1](#)
- [H.323 Annex E UDP Support, page 13-7](#)
- [Interoperability with Cisco CallManager, page 13-9](#)

For a more detailed description of all Cisco BTS 10200 Softswitch tables, tokens, and value ranges, refer to the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide*.

## Provisioning H.323 Support

[Table 13-1](#) provides an example of the steps required to provision the Cisco BTS 10200 Softswitch to support H.323 traffic and lists example CLI commands with mandatory tokens. Click on each step for a description of the step.

**Table 13-1**      **H.323 Provisioning Steps**

|        | Description                                                     | CLI Command                                                                        |
|--------|-----------------------------------------------------------------|------------------------------------------------------------------------------------|
| Step 1 | <a href="#">Add an H.323 Trunk Group Profile, page 13-2</a>     | add h323-tg-profile id=ras-tg; ras=y;                                              |
| Step 2 | <a href="#">Add a Service Provider, page 13-2</a>               | add service-provider id=ACME;                                                      |
| Step 3 | <a href="#">Add a Technical Prefix Group Profile, page 13-3</a> | add tech-prefix-grp-profile id=tech1;                                              |
| Step 4 | <a href="#">Add a Technical Prefix Group, page 13-3</a>         | add tech-prefix-grp id=tech1; sp-id=ACME; tech-prefix=111#;                        |
| Step 5 | <a href="#">Add a Cause Code Map Profile, page 13-3</a>         | add cause-code-map-profile id=H323;                                                |
| Step 6 | <a href="#">Add a Cause Code Map, page 13-3</a>                 | add cause-code-map id=H323; cause-code-type=GTD; recv-cause-code=34; action=retry; |
| Step 7 | <a href="#">Add a Dial Plan Profile, page 13-4</a>              | add dial-plan-profile id=h323in;                                                   |

**Table 13-1** H.323 Provisioning Steps (continued)

|                | Description                                                 | CLI Command                                                                           |
|----------------|-------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Step 8</b>  | <a href="#">Add an H323 Trunk Group, page 13-4</a>          | add trunk-grp id=4091; tg-type=h323;<br>tg-profile-id=h323ras; call-agent-id=CA101;   |
| <b>Step 9</b>  | <a href="#">Add an H.323 Gateway, page 13-4</a>             | add h323-gw id=TB01-GW;<br>gw-h225-port=1720; tgn-id=4091;                            |
| <b>Step 10</b> | <a href="#">Change a Trunk Group, page 13-4</a>             | change TRUNK-GRP id=4091; call-agent-id=CA101;<br>H323-gw-id=TB01-GW                  |
| <b>Step 11</b> | <a href="#">Add a Gatekeeper, page 13-5</a>                 | add h323-gw2gk h323-gw-id=TB01-GW1;<br>gk-id=Metro-GK;                                |
| <b>Step 12</b> | <a href="#">Add a Digit Manipulation Profile, page 13-5</a> | add digman-profile id=gtd-tb09;                                                       |
| <b>Step 13</b> | <a href="#">Add Digit Manipulation, page 13-5</a>           | add digman id-gtd_tb09; rule=2;                                                       |
| <b>Step 14</b> | <a href="#">Add a Route, page 13-5</a>                      | add route id=h323-4091; tgn1-id=4091;                                                 |
| <b>Step 15</b> | <a href="#">Add a Destination, page 13-6</a>                | add destination dest-id=4091; call-type=local;<br>route-type=rid; route-id=h323-4091; |
| <b>Step 16</b> | <a href="#">Add a Route Guide, page 13-6</a>                | add route-guide id=rg-local; policy-type=route;<br>policy-id=rt-h323-local;           |
| <b>Step 17</b> | <a href="#">Add a Dial Plan, page 13-6</a>                  | add dial-plan<br>id=H323in; digit-string=703-484; dest-id=h323in1;                    |
| <b>Step 18</b> | <a href="#">Control a Trunk Group, page 13-6</a>            | control trunk-grp id=4091; mode=forced; target-state=ins;<br>call-agent-id=CA101;     |
| <b>Step 19</b> | <a href="#">Control an H.323 Gateway, page 13-7</a>         | control h323-gw id=TB01-GW; target-state=ins;                                         |

## Add an H.323 Trunk Group Profile

The H.323 Trunk Group Profile (h323-tg-profile) table defines the characteristics of each H.323 trunk. An h323-tg-profile id must be created in this table before H.323 trunk group entries can be provisioned.

| Command                               | Purpose                           |
|---------------------------------------|-----------------------------------|
| add h323-tg-profile id=ras-tg; ras=y; | Adds an H.323 trunk group profile |

## Add a Service Provider

The Service Provider (service-provider) table is used when there are multiple service providers furnishing service via a single logical Call Agent.

| Command                       | Purpose                 |
|-------------------------------|-------------------------|
| add service-provider id=ACME; | Adds a service provider |

## Add a Technical Prefix Group Profile

The Technical Prefix Group Profile (tech-prefix-grp-profile) table identifies the IDs used for the Technical Prefix Group table. These IDs must be created in this table before entries can be added to the Technical Prefix Group table.

| Command                                            | Purpose                               |
|----------------------------------------------------|---------------------------------------|
| <code>add tech-prefix-grp-profile id=tech1;</code> | Adds a technical prefix group profile |

## Add a Technical Prefix Group

The Technical Prefix Group (tech-prefix-grp) table provides a list of technical prefixes supported by a gateway. The same tech-prefix-list ID can be shared by multiple gateways. Each gateway must register the tech-prefixes supported to their respective gatekeepers. Technical prefixes allow the inclusion of special characters in a called number.

| Command                                                                      | Purpose                       |
|------------------------------------------------------------------------------|-------------------------------|
| <code>add tech-prefix-grp id=tech1; sp-id=ACME;<br/>tech-prefix=111#;</code> | Adds a technical prefix group |

## Add a Cause Code Map Profile

The Cause Code Map Profile (cause-code-map-profile) table defines cause code map IDs, default mappings to a standard cause code (Q.850), and default actions to take. If the cause code ID is assigned to a trunk group, then default-std-cause-code and default-action are not used. If the default cause code ID is based on a particular protocol, or a protocol variant is chosen, then default-std-cause-code and default-action are used by the protocol adapter for mapping to a standard cause code. These IDs must be provisioned before provisioning either the Cause Code table or the Trunk Group table.

| Command                                          | Purpose                       |
|--------------------------------------------------|-------------------------------|
| <code>add cause-code-map-profile id=H323;</code> | Adds a cause code map profile |

## Add a Cause Code Map

The Cause Code Map (cause-code-map) table processes cause codes received from an outgoing interface, and also when sending cause codes to a previous switch over an incoming interface. It also specifies why a call was released.

When used for an outgoing interface, this table serves the following purposes:

- Determines what action the Cisco BTS 10200 Softswitch takes for cause codes received over an outgoing interface
- Maps received cause codes to normalized cause codes

When used for an incoming interface, the table maps normalized cause codes to a cause code sent over the incoming interface. If no entry is found in the table, the Cisco BTS 10200 Softswitch uses the cause code as is.

| Command                                                                                                     | Purpose               |
|-------------------------------------------------------------------------------------------------------------|-----------------------|
| <code>add cause-code-map id=H323;<br/>cause-code-type=GTD; recv-cause-code=34;<br/>action=reattempt;</code> | Adds a cause code map |

## Add a Dial Plan Profile

The Dial Plan Profile (dial-plan-profile) table creates dial plan profile IDs before they are assigned to subscribers or trunk groups. The dial plan profile ID links digit-string entries in the Dial Plan table within a dial plan. Different dial-plan-profile-ids are assigned to subscribers and trunk groups. A dial plan ID must be created in this table before entries can be added to the Dial Plan table.

| Command                                       | Purpose                  |
|-----------------------------------------------|--------------------------|
| <code>add dial-plan-profile id=h323in;</code> | Adds a dial plan profile |

## Add an H323 Trunk Group

The Cisco BTS 10200 Softswitch supports the following trunk group types: announcement, CAS, ISDN, SS7 and SOFTSW. The Trunk Group Profile table defines common information based on the trunk group type. The Cisco BTS 10200 Softswitch supports announcement, CAS, ISDN, SS7 and SOFTSW trunk group profiles.

The Trunk Group (trunk-grp) table identifies the trunk group and maps it to the associated media gateway.

| Command                                                                                           | Purpose            |
|---------------------------------------------------------------------------------------------------|--------------------|
| <code>add trunk-grp id=4091; tg-type=h323;<br/>tg-profile-id=h323ras; call-agent-id=CA101;</code> | Adds a trunk group |



### Note

Refer to the Trunk Group table in Chapter 2 of the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide* to determine if specific tokens are mandatory or optional for each trunk group type.

## Add an H.323 Gateway

The H.323 Gateway (h323-gw) table defines the capabilities of each H.323 protocol gateway. There can be four instances of an H.323 gateway running on the Call Agent at any one time.

| Command                                                                  | Purpose               |
|--------------------------------------------------------------------------|-----------------------|
| <code>add h323-gw id=TB01-GW;<br/>gw-h225-port=1720; tgn-id=4091;</code> | Adds an H.323 gateway |

## Change a Trunk Group

Route the trunk group to the appropriate gateway.

| Command                                                                             | Purpose                                           |
|-------------------------------------------------------------------------------------|---------------------------------------------------|
| <code>change TRUNK-GRP id=4091;<br/>call-agent-id=CA101; H323-gw-id=TB01-GW;</code> | Routes the trunk group to the appropriate gateway |

## Add a Gatekeeper

The H323 Gateway to Gatekeeper (h323-gw2gk) table describes gatekeeper characteristics for each gateway in an H.323 network. Multiple gateways can have the same gatekeeper, or there can be a different gatekeeper for each gateway. However, a gateway can be registered to only one gatekeeper *at a time*. A gatekeeper identifies, controls, counts, and supervises gateway traffic, including, but not limited to, gateway registration, address resolution, bandwidth control, and admission control.

| Command                                                              | Purpose           |
|----------------------------------------------------------------------|-------------------|
| <code>add h323-gw2gk h323-gw-id=TB01-GW1;<br/>gk-id=Metro-GK;</code> | Adds a gatekeeper |

## Add a Digit Manipulation Profile

The Digit Manipulation Profile (digman-profile) table is used to create unique IDs for digit manipulation. This ID must be created before provisioning the Digit Manipulation table.

| Command                                      | Purpose                           |
|----------------------------------------------|-----------------------------------|
| <code>add digman-profile id=gtd-tb09;</code> | Adds a digit manipulation profile |

## Add Digit Manipulation

The Digit Manipulation (digman) table is used to perform digit and nature of address (NOA) manipulation.

| Command                                      | Purpose                 |
|----------------------------------------------|-------------------------|
| <code>add digman id=gtd_tb09; rule=2;</code> | Adds digit manipulation |

## Add a Route

The Route (route) table contains a list of up to ten trunk groups to route a call. If all the trunk groups are busy or not available, call processing uses the alt-route-id (if specified) to route the call. The EMS provisions the Call Agent ID field based on the Trunk Group table.

| Command                                            | Purpose      |
|----------------------------------------------------|--------------|
| <code>add route id=h323-4091; tgn1-id=4091;</code> | Adds a route |

## Add a Destination

The Destination (destination) table defines the call type and the routing information for the dialed digits. Multiple digit strings in the Dial Plan table can use the same destination ID.

| Command                                                                                               | Purpose            |
|-------------------------------------------------------------------------------------------------------|--------------------|
| <pre>add destination dest-id=4091;<br/>call-type=local; route-type=rid;<br/>route-id=h323-4091;</pre> | Adds a destination |

## Add a Route Guide

The Route Guide (route-guide) table holds routing information based on policy-type.

| Command                                                                                 | Purpose            |
|-----------------------------------------------------------------------------------------|--------------------|
| <pre>add route-guide id=rg-local;<br/>policy-type=route; policy-id=rt-h323-local;</pre> | Adds a route guide |

## Add a Dial Plan

Dial plans analyze, screen, and route calls based on dialed digits. The Dial Plan (dial-plan) table holds dial plan information for a specific type of call. It defines valid dialing patterns and determines call routing. All records that share a common dial-plan-profile-id are considered a dial plan.

| Command                                                                           | Purpose                                   |
|-----------------------------------------------------------------------------------|-------------------------------------------|
| <pre>add dial-plan<br/>id=H323in;digit-string=703-484;<br/>dest-id=h323in1;</pre> | Adds a dial plan for incoming H.323 calls |

## Control a Trunk Group

The control command sets the administrative state (OOS, INS) of media gateways, subscriber terminations, trunks, and trunk groups.

| Command                                                                                       | Purpose                         |
|-----------------------------------------------------------------------------------------------|---------------------------------|
| <pre>control trunk-grp id=4091; mode=forced;<br/>target-state=ins; call-agent-id=CA101;</pre> | Places a trunk group in-service |

The status command displays the state of media gateways, subscriber terminations, trunks, and trunk groups.

Enter the following CLI command to verify that the media gateway is in-service:

```
status trunk-grp id=4091;
```



## Control an H.323 Gateway

The control command sets the administrative state (OOS, INS) of media gateways, subscriber terminations, trunks, and trunk groups.

| Command                                                        | Purpose                            |
|----------------------------------------------------------------|------------------------------------|
| <code>control h323-gw id=TB01-GW;<br/>target-state=ins;</code> | Places an H.323 gateway in-service |

Enter the following CLI command to verify that the H.323 gateway is in ==service:

```
status h323gw id=tb01-gw;
```

## H.323 Annex E UDP Support

[Annex E implementation allows H.323 signaling to be transported between the Cisco BTS 10200 Softswitch and the far-end H.323 endpoint using User Datagram Protocol (UDP) (connectionless) signaling instead of TCP (connection-oriented) signaling.

This section highlights the special parameters that must be provisioned to support Annex E functionality.

For basic H.323 provisioning, refer to [Provisioning H.323 Support, page 13-1](#).



### Caution

In the following steps, the changes for Annex E support in the H323-GW table will not take effect until the H323-GW is controlled out of service (OOS) and then in service (INS). Therefore, it is recommended that you perform these steps during a maintenance window.

**Step 1** Log in to a CLI session on the Cisco BTS 10200 Softswitch.

**Step 2** To provision Annex E support for the H.323 GW instance on the Cisco BTS 10200 Softswitch, enter the following command.

```
change h323-gw id=citylgw; annexe-supp=Y; call-start-mode=FAST-START;
annexe-udp-port=2517; annexe-retransmit-timer=500; annexe-retransmit-multiplier=2;
annexe-retransmit-attempts=8;
```

where:

- **h323-gw id**—The name used to identify the H.323 GW instance. This value must be a string from 1 to 16 ASCII characters, assigned by the service provider.
- **annexe-supp**—Indicates whether this H.323 GW instance supports Annex E. The default value is Y (yes). This value must be kept as Y to support Annex E. If the remote H.323 endpoint does not support Annex E UDP signaling, the Cisco BTS 10200 Softswitch automatically adjusts and uses TCP signaling toward that endpoint.
  - If the Cisco BTS 10200 Softswitch H323-GW instance is configured as Annex E enabled (**annexe-supp=Y**), the Cisco BTS 10200 Softswitch indicates its Annex E capabilities while registering with the H.323 gatekeeper (GK).
  - For RAS routed calls, the GK negotiates all Annex E capabilities between the Cisco BTS 10200 Softswitch and the far-end H.323 endpoint, and notifies the originating endpoint to use Annex E.

- If the Cisco BTS 10200 Softswitch H323-GW instance is Annex E enabled (*annexe-supp=Y*), but the far-end H.323 endpoint is not, the Cisco BTS 10200 Softswitch can still complete calls using regular TCP mode.
- If the Cisco BTS 10200 Softswitch H323-GW instance is configured as Annex E disabled (*annexe-supp=N*), the Cisco BTS 10200 Softswitch will not receive any inbound Annex E UDP calls. It will receive inbound calls using TCP signaling only.
- **call-start-mode**—Specifies the preferred call start mode for outgoing H.323 calls. Possible values are FAST-START (default value) and SLOW-START. *This parameter must be set to FAST-START to use Annex E functionality.* If the remote H.323 endpoint does not support fast-start parameters, the Cisco BTS 10200 Softswitch automatically adjusts and uses slow-start mode toward that endpoint. The fast-start parameter is based on the fast-connect procedures described in ITU-T Standard H.323.
- **annexe-udp-port**—Specifies the port to be used to receive incoming Annex E messages. The default value is 2517, but a unique value must be assigned to each H.323 GW instance on the Cisco BTS 10200 Softswitch.
- **annexe-retransmit-timer**—The initial value of the retransmit timer which determines when to resend Annex E packets if an ACK message has not been received. All subsequent retransmissions will be based on exponential back-off algorithm using *annexe-retransmit-multiplier*. The valid range is a number from 1 to 30,000 (in milliseconds). The default value is 500.
- **annexe-retransmit-multiplier**—The multiplication factor of previous retransmit interval used for subsequent Annex E packet retransmissions. The valid range is 1 to 10, and the default value is 2.
- **annexe-retransmit-attempts**—Specifies how many attempts to resend a message to the remote entity before dropping the message. The valid range is 1 to 10. The default value is 8.

**Step 3** Control the H323-GW instance OOS (if necessary), and then INS.



**Caution**

The changes to the *annexe-supp* parameter and other configurations in the *h323-gw* table do not take effect until H323-GW is controlled out of service (OOS), then in service (INS). Use this step to control the H323-GW OOS (if currently INS), and then INS.

- a. To display the service status of the H323-GW instance, enter the following command
 

```
status h323-gw id=city1gw;
```
- b. View the display to see the status of the H323-GW instance.
- c. If the displayed status is OOS, skip steps [d.](#) and [e.](#) If the status is INS continue with step [d.](#)
- d. To place the H323-GW instance OOS, enter the following command:



**Caution**

This step will clear all calls on this H323-GW instance.

```
control h323-gw id=city1gw; target-state=OOS;
```

- e. To verify that the status of the H323-GW instance is displayed as OOS, enter the following command:
 

```
status h323-gw id=city1gw;
```
- f. To place the H323-GW instance in service, enter the following command:
 

```
control h323-gw id=city1gw; target-state=INS;
```

- g. To verify that the status of the H323-GW instance is displayed as INS, enter the following command:

```
status h323-gw id=citylgw;
```

- Step 4** To provision Annex E support on the outgoing H.323 trunk groups (TGs), enter the following command.

```
change h323-tg-profile id=h323tg01; ras=Y; annexe-supp=Y; transport-pref-mode=UDP-MODE;
```

where

- **h323-tg-profile id**—The unique ID for this H323-TG-PROFILE. The value is 1 to 16 ASCII characters, assigned by the service provider.
- **ras**—Specifies whether RAS signaling to H.323 gatekeeper (GK) is supported. The allowed values are Y (yes) and N (no). Default value is Y. Set this value to Y to enable communications with the GK.
- **annexe-supp**—This flag indicates whether this H323-TG-PROFILE supports Annex E. The default value is Y (yes). This value must be kept as Y (yes) to support Annex E. If the remote H.323 endpoint does not support Annex E UDP signaling, the Cisco BTS 10200 Softswitch automatically adjusts and uses TCP signaling toward that endpoint.
- **transport-pref-mode**—Specifies what transport layer protocol to use to transmit H.323 signaling messages. Valid values are as follows:
  - TCP-MODE—Use TCP to transport messages.
  - UDP-MODE (default value)—Use Annex E UDP-based message transport facility. If the remote H.323 endpoint does not support UDP, the Cisco BTS 10200 Softswitch will adjust automatically to use TCP mode. This token must be set to UDP-MODE before **annexe-supp** can be set to Y.

- Step 5** If not already done, enable Annex E support on the far-end H.323 endpoint.



**Note**

To enable Annex E support for a particular H.323 TG, you must enable Annex E for the H.323 GW instance on the Cisco BTS 10200 Softswitch, and also enable Annex E support for the far-end H.323 endpoint.

## Interoperability with Cisco CallManager

Provision the Cisco BTS 10200 Softswitch interface to Cisco CallManager as you would for any H.323 gateway (see [Add an H.323 Gateway, page 13-4](#)). In addition, perform the following provisioning tasks to support interoperability between the two switches:

- [Assign a Main Subscriber ID to the Trunk Group \(Optional\), page 13-10](#)
- [Provision a QoS Codec Type on the Trunk Group, page 13-10](#)
- [Disable GTD, page 13-11](#)

## Assign a Main Subscriber ID to the Trunk Group (Optional)

The Cisco BTS 10200 Softswitch connects to Cisco CallManager via an H.323 trunk group. Assign a main subscriber ID only if Cisco CallManager is used as a PBX. This subscriber ID is used to perform screening and routing. If Cisco CallManager is not used as a PBX, do not assign a main subscriber ID, and the system uses the TG properties to perform screening and routing.

**Caution**

Assign a main subscriber ID only if Cisco CallManager is used as a PBX.

Verify that a main subscriber ID is provisioned on the trunk groups connecting the Cisco BTS 10200 Softswitch to Cisco CallManager.

- 
- Step 1** Log in to a CLI session on the Cisco BTS 10200 Softswitch.
- Step 2** To find out if a main subscriber ID is already assigned to the trunk group toward Cisco CallManager, enter the following command:
- ```
show trunk-grp id=TG001;
```
- Step 3** View the system response and note the displayed value of the main subscriber ID parameter (MAIN-SUB-ID).
- Step 4** If no value has been provisioned for MAIN-SUB-ID, enter the appropriate value using a command similar to the following:
- ```
change trunk-grp id=TG001; main-sub-id=CallManager001;
```
- 

## Provision a QoS Codec Type on the Trunk Group

Verify that an appropriate codec is provisioned on the trunk groups toward Cisco CallManager.

- 
- Step 1** Log in to a CLI session on the Cisco BTS 10200 Softswitch.
- Step 2** To find the QoS ID applicable to the trunk group toward Cisco CallManager, enter the following command:
- ```
show trunk-grp id=TG001;
```
- Step 3** View the system response and note the displayed value of the QoS ID parameter. If the QoS ID is present, go to step 5.
- Step 4** If the trunk group Qos ID parameter is not present, a default value is used. To set the trunk group Qos_ID to the value specified in the QoS table, enter the following command:
- ```
change trunk-grp id=TG001; qos_id=gold3;
```
- Step 5** To display the codec associated with this QOS ID, enter the following command:
- ```
show qos id=gold3;
```
- Step 6** View the system response and determine the value of the CODEC-TYPE parameter.
- If the value is different than the CODEC-TYPE required by your local work order, change the value by entering the following command:
- ```
change qos id=gold3; codec-type=PCMU;
```

- b. If the value is the same as the CODEC-TYPE required by your local work order, no further action is required on this QOS ID.

**Step 7** Repeat [Step 2](#) to verify that CODEC-TYPE is set to the desired value.

**Step 8** Repeat [Step 2](#) through [Step 7](#) for any additional trunk groups toward Cisco CallManager.

---

## Disable GTD

Cisco recommends that generic transport descriptor (GTD) be disabled on the trunk groups toward Cisco CallManager. This can be done either by disabling the GTD at the Call Agent (CA) level or at the trunk group level.



### Caution

If you disable GTD at the CA level, this disables GTD completely for the Cisco BTS 10200 Softswitch. If you disable GTD only on the trunk groups toward Cisco CallManagers, the Cisco BTS 10200 Softswitch can still use GTD toward other H.323 GWs that are GTD compatible.

---

## Option to Disable GTD at CA Level

If specified in your local work order, you can disable GTD at the CA level. However, if your local work order requires GTD to be disabled only for certain trunks, skip these steps and go to [Option to Disable GTD at TG Level, page 13-11](#).



### Caution

After disabling GTD at the CA level, you cannot enable GTD on any trunk groups.

---

**Step 1** Log in to a CLI session on the Cisco BTS 10200 Softswitch.

**Step 2** To display the GTD support status in the Call Agent Profile table, enter the following command:

```
show call-agent-profile id=CA146;
```

**Step 3** View the system response and determine the value of GTD-SUPP.

- a. If the value is Y (yes), change it to N (no) by entering the following command:

```
change call-agent-profile id=CA146; gtd-supp=N;
```

- b. If the value is already set to N, GTD is already disabled and no change is required on GTD.

**Step 4** Repeat [Step 2](#) to verify that GTD-SUPP is set to N.

---

## Option to Disable GTD at TG Level

If specified in your local work order, you can disable GTD at the individual trunk group level.

---

**Step 1** Log in to a CLI session on the Cisco BTS 10200 Softswitch.

**Step 2** To display the GTD support status in the H323 Trunk Group Profile table, enter the following command:

```
show h323-tg-profile id=TG501;
```

- Step 3** View the system response and determine the value of GTD-SUPP.
- If the value is Y (yes), change it to N (no) by entering the following command:  

```
change h323-tg-profile id=TG501; gtd-supp=N;
```
  - If the value is N (no), GTD is already disabled for this H323-TG-PROFILE and no further action is required.
- Step 4** Repeat [Step 2](#) to verify that GTD-SUPP is set to N in the H323-TG-PROFILE table.
- Step 5** Repeat [Step 2](#) through [Step 4](#) for any additional Cisco BTS 10200 Softswitch H.323 trunk groups toward other Cisco CallManagers.
-



# CHAPTER 14

## SIP Subscriber Provisioning

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Revised: May 31, 2010, OL-12777-12

This chapter explains how to provision a SIP subscriber.

In this document, SIP subscriber means a SIP phone that is registered directly to the BTS 10200 and for which the BTS 10200 maintains subscriber information. The BTS 10200 supports SIP subscribers on SIP phones that are compliant with RFC 3261 or RFC 2543.



### Note

For details related to SIP signaling, see the [Cisco BTS 10200 Softswitch SIP Feature and Provisioning Guide](#).

---

Only the CLI commands for certain tables specific to SIP subscribers are provided in this procedure. The CLI commands for other tables, such a sub\_service\_profile, dial\_plan, which are required for the subscriber, are not described here.

---

### Step 1 Add the AUTH\_REALM.

```
add auth_realm
id = ciscolab; description=sample_authrealm;
```

### Step 2 Add the SERVING\_DOMAIN\_NAME.

Add the domain name or the IP address in the DomainName field. If authentication is required on the phones, set AUTH\_REQD=Y.

```
add serving-domain-name domain_name=domainname.com; auth_reqd=y; auth_realm_id=ciscolab;
description=sample_name;
```

### Step 3 Add a SIP subscriber.

```
add subscriber
ID=sip_sub1; CATEGORY=INDIVIDUAL; NAME=SipSub1; STATUS=ACTIVE; LANGUAGE=english;
BILLING-DN=469-555-1111; DN1=469-555-1111; RING-TYPE-DN1=1; SUB-PROFILE-ID=sub_profile;
TERM-TYPE=SIP; AOR-ID=4695551111@cisco.com; privacy=user;
```



### Note

Setting the privacy parameter to user directs the system to apply the user-provided privacy information. This setting (privacy=user) applies only to SIP endpoints that are capable of including privacy information.

---

### Step 4 Add the USER\_AUTH entry.

This is used only if Auth-Reqd in the serving\_domain\_name is set to Y.

```
add user_auth
auth_user=sipsub1; auth_realm_id=ciscolab; aor_id=4695551111@domainname.com;
password=cisco_sipsub1;
```

- Step 5** In a lab environment, if the device is not capable of registering itself, a static contact can be used.

```
add static_contact
static_contact_host=172.16.33.77; static_contact_port=5060;
aor_id=4695551111@domainname.com; user_type=phone;
```

- Step 6** Provision CA-CONFIG to provide min, max, and default values for register expiration. If you do not enter values for these parameters, the default value for each parameter is used. (For default values, see the CA-CONFIG values in the [Cisco BTS 10200 Softswitch CLI Database](#).)

```
add ca-config
type=SIA_REG_MIN_EXPIRES_SECS; datatype=INTEGER; value=1800;

add ca-config
type=SIA_REGISTER_DEFAULT_EXPIRES; datatype=INTEGER; value=3600;

add ca-config
type=SIA_REG_MAX_EXPIRES_SECS; datatype=INTEGER; value=36000;
```

- Step 7** Put the AOR in service (INS).

```
change aor2sub
aor_id=4695551111@domainname.com; status=INS;
```

---





# CHAPTER 15

## ENUM Provisioning

---

Revised: May 31, 2010, OL-12777-12

This chapter explains how to configure the local DNS servers and BTS 10200 for the ENUM feature. It contains the following sections:

- [Configuring Local DNS Servers and BTS 10200](#)

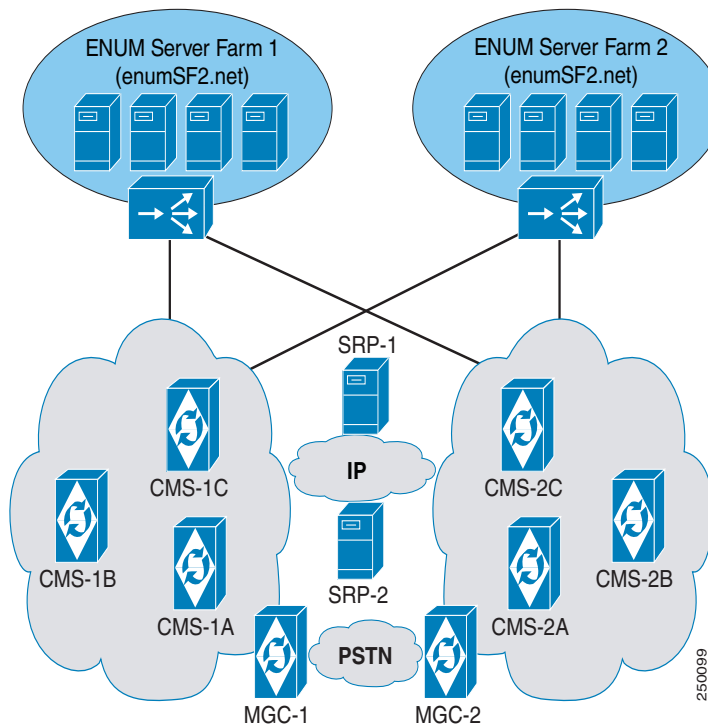
## Configuring Local DNS Servers and BTS 10200

The following sample procedure shows how to configure the local DNS servers and BTS 10200 for the ENUM feature. For a complete list of all CLI tables and tokens, see the *Cisco BTS 10200 Softswitch Command Line Interface Reference Guide*.

The ENUM feature can be enabled on the system as needed. In the sample procedure shown here, the following assumptions are made about the network architecture:

- There are two ENUM server farms, enumSF1 and enumSF2.
- BTS nodes in Region 1 nodes use enumSF1 as primary and enumSF2 as secondary.
- BTS nodes in Region 2 nodes use enumSF2 as primary and enumSF1 as secondary.
- Calls within the same region is to be routed directly to the appropriate BTS node.
- Calls between the regions are routed by SIP route proxy.
- Calls to other service providers are routed via the PSTN network.

[Figure 15-1](#) shows the system configuration on which the example procedure is based.

**Figure 15-1 Configuration for BTS 10200 with Local DN Servers**

The following sample procedure comprises two main steps:

- [Configuring the DNS](#)
- [Provisioning BTS10200 ENUM](#)

## Configuring the DNS

The local DNS server must be configured with the information for the ENUM servers with which the BTS 10200 node (or nodes) communicate. The BTS 10200 determines the IP address of the ENUM servers from SRV records configured in the local DNS servers.

In this example, the BTS 10200 nodes in region1 communicate with enumSF1 in normal circumstances and send the ENUM queries to enumSF2 when the ENUM servers pointed to by enumSF1 are not available.

|                |     |    |   |             |
|----------------|-----|----|---|-------------|
| region1.enumSF | SRV | 10 | 0 | enumSF1.com |
|                | SRV | 20 | 0 | enumSF2.com |

The BTS 10200 performs load balancing for ENUM queries among multiple ENUM servers within the ENUM server farm.

## Provisioning BTS10200 ENUM

### Provisioning the ENUM Profile Table

The BTS 10200 uses the ENUM PROFILE table to discover which ENUM servers to send the ENUM queries and the parameters used to format the ENUM queries.

The ENUM-SERVER-DOMAIN field in the ENUM-PROFILE table identifies the ENUM server groups to which the query is sent. The TOP-LEVEL-DOMAIN field identifies the enum-root that is used while the query is formatted. The DEL-DIGITS field specifies the digits to delete. The PFX-DIGITS field specifies the digits to be added, for a country code for example.

```
CLI > add enum-profile id=privateENUM;
ENUM_SERVER_DOMAIN=region1.enumSF;
ENUM_SERVER_DOMAIN_TTL=5
TOP_LEVEL_DOMAIN=e164.sp.com
PFX-DIGITS=1;
DEL-DIGITS=0;
ENUM_QUERY_TIMEOUT=300
TEST_QUERY_INTERVAL=30
```

BTS10200 can resend the enum-query using an alternate enum-profile when a "no record found" result is received. The user can specify this capability provisioning the additional enum-profile records and pointing the NEXT\_ENUM\_PROFILE field in the enum-profile table to a new record. For example, BTS10200 can be configured to resend the query using the enum-profile carrierENUM when the response from privateENUM signifies "no record found" for the following query:

```
CLI> add enum-profile id=carrierENUM; ENUM_SERVER_DOMAIN=region1.enumSF;
TOP_LEVEL_DOMAIN=e164.sp2.com
CLI > change enum-profile id=privateENUM;NEXT_ENUM_PROFILE=carrierENUM
```

The NEXT\_ENUM\_PROFILE field should point to a different ENUM-profile record that specifies a different top-level-domain or enum-server domain. This will resend the query using an alternate top-level-domain or toward a different enum-server.

### Provisioning the DEFAULT-ENUM-PROFILE in the CA-CONFIG Table

The DEFAULT-ENUM-PROFILE in the CA-CONFIG table specifies the profile used for ENUM queries.

```
CLI > add CA-CONFIG type=default-enum-profile;value=privateENUM;
```

The BTS 10200 also allows the user to specify the ENUM-PROFILE-ID in the destination table. If the ENUM-PROFILE-ID in the destination table is set to NULL, the DEFAULT-ENUM-PROFILE ID specified in the CA-CONFIG table is used.

### Enabling ENUM Routing in Destination Table

Use the following step to enable the ENUM dip for the destination. This step should be repeated for each destination record for which ENUM routing needs to be performed.

```
CLI > change DESTINATION DEST-ID=Local;PERFORM-ENUM-ROUTING=y;ENUM-PROFILE-ID=NULL;
```

If a different top-level domain needs to be used for the above destination (that is, the digit string identified by this destination), multiple ENUM-PROFILES should be defined and records in the destination table should be configured to point to the appropriate ENUM-PROFILE.

## Retrieving LNP Information from the ENUM Servers

Use this step only when the ENUM database is capable of providing LNP information. By setting this flag in the BTS 10200, the TCAP-based interface is automatically prevented from retrieving LNP information from the SCP database.

```
CLI > change CA-CONFIG type=ENUM-DB-LNP-CAPABLE;value=y;
```

The following table summarizes the configuration options for using the BTS 10200 ENUM LNP capability or ENUM routing capability, or both.

| <b>Destination Table</b> | <b>CA-CONFIG<br/>ENUM-DB-LNP-CAPABLE=Y<br/>(DISABLE TCAP FOR LNP)</b>                                                   | <b>CA-CONFIG<br/>ENUM-DB-LNP-CAPABLE=N<br/>(ENABLE TCAP FOR LNP)</b>                                                               |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| PERFORM-ENUM-ROUTING =Y  | Get URI and LNP information from the ENUM server.<br>Perform domain-based routing.<br>If it fails, use LRN for routing. | Get URI from ENUM server and LNP from SCP using TCAP interface.<br>Perform domain-based routing. If it fails, use LRN for routing. |
| PERFORM-ENUM-ROUTING =N  | Get LNP information from the ENUM server.<br>Perform routing based on the received LRN.                                 | Get LNP information from the SCP database using TCAP interface server.<br>Perform routing based on the received LRN.               |

## Specifying the Domain-Based Routing Policy for the ENUM Responses

The commands shown in this section specify the domain-based routing on BTS1 for Region 1 where calls to BTS1-B and BTS1-C are routed over the direct SIP routes. Calls to Region 2 are routed by means of the route to the SIP route proxy. Calls to other service providers are routed to the PSTN interface.

These commands are based on the assumption that routes ROUTE-BTS-1B, ROUTE-BTS-1C, ROUTE-SCP, ROUTE-MGC, and all of their associated trunk group records are already defined.

- Route calls to BTS-1B if the domain part of the ENUM response has bts-1b.region1.sp.net and towards BTS-1C in case the domain part of the ENUM response has bts-1c.region1.sp.net.

```
CLI > add domain2route domain=bts-1b.region1.sp.net;route-type=RID;route_id=ROUTE-BTS1B
CLI > add domain2route domain=bts-1c.region1.sp.net;route-type=RID;route_id=ROUTE-BTS1B
```

- Route calls toward the SRP if the domain part of the ENUM response has region2.sp.net.

```
CLI > add domain2route domain=region2.sp.net;route-type=RID;route_id=ROUTE-SRP
```

To distribute the traffic toward multiple SIP Route Proxies (SRPs) for a particular domain based on an existing policy-based routing feature, such as percentage-based routing, set route-type to RG and define appropriate policies with the RG.

- Route calls toward the MGC if the domain part of the ENUM response has region10.sp.net. This step is unnecessary if the route specified in the DESTINATION table is the same as ROUTE-MGC.

```
CLI > add domain2route domain=region10.sp.net;route-type=RID;route_id=ROUTE-MGC
```

## Enabling the ENUM at the Call Agent Level

Enable the ENUM feature on BTS-A at the call agent level by setting the ENUM-SUPP field in the CALL-AGENT-PROFILE table to **Yes**.

```
CLI > change CALL-AGENT-PROFILE ID=region1cms-1A;ENUM-SUPP=y;
```





# APPENDIX A

## Release Cause Codes and Announcement IDs

Revised: May 31, 2010, OL-12777-12

[Table A-1](#) lists the Announcement IDs that are valid for the Cisco BTS 10200 Softswitch and shows the default mapping of release cause codes to announcement IDs and filenames.

For all Cisco Announcement Servers (Cisco AS5xxx series), the announcement ID is the same as the number in the announcement filename, except where specifically noted.

The text listed in the Description column is supplied by Cisco, ThinkEngine, and IP Unity Announcement Servers unless alternative text is also listed. Alternative text is prefaced by (c) for ThinkEngine-supplied text and by (i) for IPUnity-supplied text.

The default tone listed in the last column is the tone the user will hear instead of the announcement text if an announcement is not provisioned for the release cause code. The default tone is not provisionable and cannot be changed.



### Note

The release cause code to announcement mappings provided in this appendix are valid for Release 5.0. Third party vendors may change their announcement text and numbering at any time without notice. Check with your vendor or with the Cisco account team for updates.



### Caution

You must enter the Cisco-supplied announcement filenames with an underscore (\_) as shown or the command will not process correctly.

**Table A-1**      **Announcement IDs**

| Release Cause Number | Cisco BTS 10200 Cause Designation         | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/ IPUnity Ann ID | Description                                                                                                                                                      | Default Tone |
|----------------------|-------------------------------------------|--------|----------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1                    | CA_CCITT_NE_CAUSE_UNALLOCATED_NUM         | 18     | ann_id_18.au                     | 18                           | The number you dialed is not in service. Please check the number and dial again.                                                                                 | Reorder      |
| 2                    | CA_CCITT_NE_CAUSE_TRANSITNW_ROUTE_UNAVAIL | 57     | ann_id_57.au                     | 69                           | We're sorry, the long-distance company you have selected is unable to complete your call at this time. Please contact your long-distance company for assistance. | Reorder      |

Table A-1 Announcement IDs (continued)

| Release Cause Number | Cisco BTS 10200 Cause Designation      | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/IPUnity Ann ID | Description                                                                                                         | Default Tone |
|----------------------|----------------------------------------|--------|----------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------|--------------|
| 3                    | CA_CCITT_NE_CAUSE_DEST_ROUTE_UNAVAIL   | 17     | ann_id_17.au                     | 17                          | We're sorry, your call cannot be completed as dialed. Please check the number and dial again.                       | Reorder      |
| 4                    | CA_ANSI_NE_CAUSE_VACANT_CODE           | 18     | ann_id_18.au                     | 18                          | The number you dialed is not in service. Please check the number and dial again.                                    | Reorder      |
| 5                    | CA_CCITT_NE_CAUSE_TRUNKPREF_MISDIAL    |        |                                  |                             | Not used                                                                                                            | Reorder      |
| 6                    | CA_Q931_NE_CAUSE_CHANNEL_UNACCEPT      | 12     | ann_id_12.au                     | 12                          | We're sorry, your call did not go through. Please try your call later.                                              | Reorder      |
| 7                    | CA_CCITT_NE_CAUSE_CALL_AWARDED         |        |                                  |                             | Not used                                                                                                            | Reorder      |
| 8                    | CA_ANSI_NE_CAUSE_PREFIX_0_ERROR        | 14     | ann_id_14.au                     | 14                          | We're sorry, it is not necessary to dial a 1 or 0 when calling this number. Please hang up and try your call again. | Reorder      |
| 9                    | CA_ANSI_NE_CAUSE_PREFIX_1_ERROR        | 14     | ann_id_14.au                     | 14                          | We're sorry, it is not necessary to dial a 1 or 0 when calling this number. Please hang up and try your call again. | Reorder      |
| 10                   | CA_ANSI_NE_CAUSE_PREFIX_1_ABSENT       | 15     | ann_id_15.au                     | 15                          | We're sorry, you must first dial a 1 or 0 when calling this number. Please hang up and try your call again.         | Reorder      |
| 11                   | CA_ANSI_NE_CAUSE_EXCESS_DIGITS_WARNING |        |                                  |                             | Not used                                                                                                            | Reorder      |
| 12                   | Not used                               |        |                                  |                             |                                                                                                                     |              |
| 13                   | CA_GRBAF_NS_SERVICE_DENIED             |        |                                  |                             | Not used                                                                                                            | Reorder      |
| 14                   | Not used                               |        |                                  |                             |                                                                                                                     |              |
| 15                   | Not used                               |        |                                  |                             |                                                                                                                     |              |
| 16                   | CA_CCITT_NE_CAUSE_NORMAL_CLEARING      |        |                                  |                             | Not used                                                                                                            | None         |
| 17                   | CA_CCITT_NE_CAUSE_USER_BUSY            |        |                                  |                             | Not used                                                                                                            | Busy         |
| 18                   | CA_CCITT_NE_CAUSE_NO_USERRESP          |        |                                  |                             | Not used                                                                                                            | Reorder      |
| 19                   | CA_CCITT_NE_CAUSE_ALERT_NOANSWER       |        |                                  |                             | Not used                                                                                                            | Reorder      |



Table A-1 Announcement IDs (continued)

| Release Cause Number | Cisco BTS 10200 Cause Designation       | Ann ID | Cisco AS5xxx Ann ID and Filename                       | Think Engine/IPUnity Ann ID | Description                                                                                                                                                                                                                                                                                                                                                                                                            | Default Tone |
|----------------------|-----------------------------------------|--------|--------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 20                   | CA_CCITT_NE_SUBSCRIBER_ABSENT           | 19     | ann_id_19.au                                           | 59                          | We're sorry, you have reached a number that has been disconnected or is no longer in service. If you feel you have reached this recording in error, please check the number and try your call again.                                                                                                                                                                                                                   | Reorder      |
| 21                   | CA_CCITT_NE_CAUSE_CALL_REJECTED         | 65     | ann_id_65.au                                           | 65                          | Due to network difficulties, your call cannot be completed at this time. Please try your call again later.                                                                                                                                                                                                                                                                                                             | Reorder      |
| 22                   | CA_CCITT_NE_CAUSE_NUM_CHANGED           | 118    | ann_id_18.au<br><b>Note</b> Cisco AS5xxx Ann ID is 118 | (c) 301<br><br>300, 59      | The number you dialed is not in service. Please check the number and dial again.<br><br>(c) The number you have reached OLD NUMBER has been changed. The new number is NEW NUMBER. Please make a note of it. OLD NUMBER has been changed. The new number is NEW NUMBER.<br><br><b>Note</b> Cisco prefers 301 to be the main announcement. If 301 is not provisioned, 300 or 59 can be used as the backup announcement. | Reorder      |
| 23                   | CA_ANSI_NE_DEST_NUMBER_UNALLOCATED      | 18     | ann_id_18.au                                           | 18                          | The number you dialed is not in service. Please check the number and dial again.                                                                                                                                                                                                                                                                                                                                       | Reorder      |
| 24                   | CA_ANSI_NE_BUSINESS_GRP_UNDEFINED       |        |                                                        |                             | Not used                                                                                                                                                                                                                                                                                                                                                                                                               | Reorder      |
| 25                   | CA_ANSI_NE_CAUSE_EXCHG_ROUTE_ERROR      |        |                                                        |                             | Not used                                                                                                                                                                                                                                                                                                                                                                                                               | Reorder      |
| 26                   | CA_ANSI_NE_CAUSE_MISROUTED_2_PORTED_NUM |        |                                                        |                             | Not used                                                                                                                                                                                                                                                                                                                                                                                                               | Reorder      |
| 27                   | CA_CCITT_NE_CAUSE_DEST_OUTOFORDER       | 12     | ann_id_12.au                                           | 12                          | We're sorry, your call did not go through. Please try your call later.                                                                                                                                                                                                                                                                                                                                                 | Reorder      |
| 28                   | CA_CCITT_NE_CAUSE_ADDRESS_INCOMPLETE    | 17     | ann_id_17.au                                           | 17                          | We're sorry, your call cannot be completed as dialed. Please check the number and dial again.                                                                                                                                                                                                                                                                                                                          | Reorder      |
| 29                   | CA_CCITT_NE_CAUSE_FACILITY_REJECTED     | 12     | ann_id_12.au                                           | 12                          | We're sorry, your call did not go through. Please try your call later.                                                                                                                                                                                                                                                                                                                                                 | Reorder      |
| 30                   | CA_Q931_NE_CAUSE_STATUSENQ_RESP         |        |                                                        |                             | Not used                                                                                                                                                                                                                                                                                                                                                                                                               | Reorder      |

Table A-1 Announcement IDs (continued)

| Release Cause Number | Cisco BTS 10200 Cause Designation           | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/ IPUnity Ann ID | Description                                                                                                | Default Tone |
|----------------------|---------------------------------------------|--------|----------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------|--------------|
| 31                   | CA_CCITT_NE_CAUSE_UNSPECIFIED               | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later.                                     | Reorder      |
| 32                   | Not used                                    |        |                                  |                              |                                                                                                            |              |
| 33                   | Not used                                    |        |                                  |                              |                                                                                                            |              |
| 34                   | CA_CCITT_NRU_CAUSE_CIRCUIT_UNAVAIL          | 11     | ann_id_11.au                     | 11                           | We're sorry, all circuits are busy now. Please try your call again later.                                  | Reorder      |
| 35                   | CA_GRBAF_NRU_REQUESTED_VPCI_VCI_UNAVAIL     |        |                                  |                              | Not used                                                                                                   | Reorder      |
| 36                   | CA_GRBAF_NRU_VPCI_VCI_ASSIGN_FAILURE        |        |                                  |                              | Not used                                                                                                   | Reorder      |
| 37                   | CA_GRBAF_NRU_USR_CELLRATE_UNAVAIL           |        |                                  |                              | Not used                                                                                                   | Reorder      |
| 38                   | CA_CCITT_NRU_CAUSE_NET_OUTOFORDER           | 11     | ann_id_11.au                     | 11                           | We're sorry, all circuits are busy now. Please try your call again later.                                  | Reorder      |
| 39                   | CA_CCITT_NRU_CAUSE_PVC_OUTOFORDER           |        |                                  |                              | Not used                                                                                                   | Reorder      |
| 40                   | Not used                                    |        |                                  |                              |                                                                                                            |              |
| 41                   | CA_CCITT_NRU_CAUSE_TEMP_FAILURE             | 65     | ann_id_65.au                     | 65                           | Due to network difficulties, your call cannot be completed at this time. Please try your call again later. | Reorder      |
| 42                   | CA_CCITT_NRU_CAUSE_SWITCH EQUIP_CONGEST     | 13     | ann_id_13.au                     | 11                           | We're sorry, all circuits are busy now. Please try your call again later.                                  | Reorder      |
| 43                   | CA_CCITT_NRU_CAUSE_ACCESSINFO_DISCARDED     |        |                                  |                              | Not used                                                                                                   | Reorder      |
| 44                   | CA_CCITT_NRU_CAUSE_REQUESTEDCIRCUIT_UNAVAIL | 65     | ann_id_65.au                     | 65                           | Due to network difficulties, Your call cannot be completed at this time. Please try your call again later. | Reorder      |
| 45                   | CA_GRBAF_NRU_VPCI_VCI_UNAVAIL               |        |                                  |                              | Not used                                                                                                   | Reorder      |
| 46                   | CA_CCITT_NRU_PRECEDENCE_CALL_BLOCKED        |        |                                  |                              | Not used                                                                                                   | Reorder      |
| 47                   | CA_CCITT_NRU_CAUSE_UNSPECIFIED              | 65     | ann_id_65.au                     | 65                           | Due to network difficulties, Your call cannot be completed at this time. Please try your call again later. | Reorder      |
| 48                   | Not used                                    |        |                                  |                              |                                                                                                            |              |

Table A-1 Announcement IDs (continued)

| Release Cause Number | Cisco BTS 10200 Cause Designation             | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/ IPUnity Ann ID | Description                                                            | Default Tone |
|----------------------|-----------------------------------------------|--------|----------------------------------|------------------------------|------------------------------------------------------------------------|--------------|
| 49                   | CA_GRBAF_SNA_QOS_UNAVAIL                      |        |                                  |                              | Not used                                                               | Reorder      |
| 50                   | CA_CCITT_SNA_FAC_NOT_SUBSCRIBED               |        |                                  |                              | Not used                                                               | Reorder      |
| 51                   | CA_ANSI_SNA_BC_INCOMPATIBLE_SERV_REQ          |        |                                  |                              | Not used                                                               | Reorder      |
| 52                   | Not used                                      |        |                                  |                              |                                                                        |              |
| 53                   | CA_CCITT_SNA_OUT_CUG_CALL_BARRED              |        |                                  |                              | Not used                                                               | Reorder      |
| 54                   | CA_ANSI_SNA_GRP_RESTRICTED_CALL_BLOCKED       |        |                                  |                              | Not used                                                               | Reorder      |
| 55                   | CA_CCITT_SNA_IN_CUG_CALL_BARRED               |        |                                  |                              | Not used                                                               | Reorder      |
| 56                   | Not used                                      |        |                                  |                              |                                                                        |              |
| 57                   | CA_CCITT_SNA_CAUSE_BEARERCAP_UNAUTHORIZED     | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 58                   | CA_CCITT_SNA_CAUSE_BEARERCAP_CURRENTLYUNAVAIL | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 59 through 61        | Not used                                      |        |                                  |                              |                                                                        |              |
| 62                   | CA_CCITT_SNA_CAUSE_SERVICE_INCONSISTENCY      |        |                                  |                              | Not used                                                               | Reorder      |
| 63                   | CA_CCITT_SNA_CAUSE_UNSPECIFIED                |        |                                  |                              | Not used                                                               | Reorder      |
| 64                   | Not used                                      |        |                                  |                              |                                                                        |              |
| 65                   | CA_CCITT_SNI_CAUSE_BEARERCAP_UNIMPLEMENTED    | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 66                   | CA_CCITT_SNI_CAUSE_CHANNELTYPE_UNIMPLEMENTED  | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 67                   | Not used                                      |        |                                  |                              |                                                                        |              |
| 68                   | Not used                                      |        |                                  |                              |                                                                        |              |
| 69                   | CA_CCITT_SNI_CAUSE_REQFACILITY_UNIMPLEMENTED  |        |                                  |                              | Not used                                                               | Reorder      |

Table A-1 Announcement IDs (continued)

| Release Cause Number | Cisco BTS 10200 Cause Designation                              | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/IPUnity Ann ID | Description                                                            | Default Tone |
|----------------------|----------------------------------------------------------------|--------|----------------------------------|-----------------------------|------------------------------------------------------------------------|--------------|
| 70                   | CA_CCITT_SNI_CAUSE<br>_RESTDIGITAL<br>_BEARERCAP<br>_ONLYAVAIL |        |                                  |                             | Not used                                                               | Reorder      |
| 71                   | Not used                                                       |        |                                  |                             |                                                                        |              |
| 72                   | Not used                                                       |        |                                  |                             |                                                                        |              |
| 73                   | CA_GRBAF_SNI_<br>TRAFFIC_PARAM_<br>COMBO_UNSupport             |        |                                  |                             | Not used                                                               | Reorder      |
| 74 through 77        | Not used                                                       |        |                                  |                             |                                                                        |              |
| 78                   | CA_GRBAF_SNI_AAL_<br>PARAM_UNSupport                           |        |                                  |                             | Not used                                                               | Reorder      |
| 79                   | CA_CCITT_SNI_CAUSE<br>_UNSPECIFIED                             |        |                                  |                             | Not used                                                               | Reorder      |
| 80                   | Not used                                                       |        |                                  |                             |                                                                        |              |
| 81                   | CA_CCITT_IM_CAUSE<br>_INVALID_CALLREF                          | 12     | ann_id_12.au                     | 12                          | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 82                   | CA_CCITT_IM_CAUSE<br>_IDENTIFIEDCHAN<br>_NOTEXIST              | 12     | ann_id_12.au                     | 12                          | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 83                   | CA_CCITT_IM_CAUSE<br>_SUSP_CALLID<br>_NOTEXIST                 | 12     | ann_id_12.au                     | 12                          | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 84                   | CA_CCITT_IM_CAUSE<br>_CALLID_INUSE                             | 12     | ann_id_12.au                     | 12                          | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 85                   | CA_CCITT_IM_CAUSE<br>_NOCALL_SUSPENDED                         | 12     | ann_id_12.au                     | 12                          | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 86                   | CA_CCITT_IM_CAUSE<br>_CALLID_CLEARED                           | 12     | ann_id_12.au                     | 12                          | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 87                   | CA_CCITT_IM_CAUSE<br>_USER_NOT_CUG<br>_MEMBER                  | 12     | ann_id_12.au                     | 12                          | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 88                   | CA_CCITT_IM_CAUSE<br>_INCOMPAT_DEST                            | 12     | ann_id_12.au                     | 12                          | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 89                   | CA_GRBAF_IM_CAUSE<br>_INVALID_ENDPOINT<br>_REFERENCE           | 12     | ann_id_12.au                     | 12                          | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 90                   | CA_CCITT_IM_CAUSE<br>_CUG_NOT_EXIST                            | 12     | ann_id_12.au                     | 12                          | We're sorry, your call did not go through. Please try your call later. | Reorder      |

Table A-1 Announcement IDs (continued)

| Release Cause Number | Cisco BTS 10200 Cause Designation              | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/ IPUnity Ann ID | Description                                                            | Default Tone |
|----------------------|------------------------------------------------|--------|----------------------------------|------------------------------|------------------------------------------------------------------------|--------------|
| 91                   | CA_CCITT_IM_CAUSE_INVALID_TNS                  | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 92                   | CA_GRBAF_SNI_TOOMANY_PENDING_ADDPARTY_REQ      | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 93                   | Not used                                       |        |                                  |                              |                                                                        |              |
| 94                   | Not used                                       |        |                                  |                              |                                                                        |              |
| 95                   | CA_CCITT_IM_CAUSE_UNSPECIFIED                  | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 96                   | CA_CCITT_PE_CAUSE_MANDIE_MISSING               | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 97                   | CA_CCITT_PE_CAUSE_MSGTYPE_NOTEXIST             | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 98                   | CA_CCITT_PE_CAUSE_MSGTYPE_NOTCOMPAT            | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 99                   | CA_CCITT_PE_CAUSE_IE_NOTEXIST                  | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 100                  | CA_CCITT_PE_CAUSE_IECONTENT_INVALID            | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 101                  | CA_CCITT_PE_CAUSE_MSG_NOTCOMPAT                | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 102                  | CA_CCITT_PE_CAUSE_RECOVER_TIMEREXPIRY          | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 103                  | CA_CCITT_PE_CAUSE_NOTEXIST_UNIMPL_PARAM_PASSON | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 104                  | CA_GRBAF_PE_INCORRECT_MSG_LEN                  | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 105 through 109      | Not used                                       |        |                                  |                              |                                                                        |              |
| 110                  | CA_CCITT_PE_CAUSE_UNRECOGNIZE_PARAM_DISCARD    | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 111                  | CA_CCITT_PE_CAUSE_UNSPECIFIED                  | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 112 through 126      | Not used                                       |        |                                  |                              |                                                                        |              |
| 127                  | CA_CCITT_IW_CAUSE_UNSPECIFIED                  | 12     | ann_id_12.au                     | 12                           | We're sorry, your call did not go through. Please try your call later. | Reorder      |
| 128 through 150      | Not used                                       |        |                                  |                              |                                                                        |              |

Table A-1 Announcement IDs (continued)

| Release Cause Number | Cisco BTS 10200 Cause Designation  | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/IPUnity Ann ID | Description                                                                                                                                                                         | Default Tone |
|----------------------|------------------------------------|--------|----------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 151                  | CA_CP_NUM_TEMP_DISCONNECTED        | 20     | ann_id_20.au                     | 20                          | The party you are calling has temporarily disconnected their service.                                                                                                               | Reorder      |
| 152                  | CA_CP_CAUSE_RECEIVER_OFFHOOK       | 10     | ann_id_10.au                     | 10                          | If you'd like to make a call, please hang up and try again. If you need help, hang up and then dial your operator.                                                                  | Reorder      |
| 153                  | CA_CP_TG_OVERFLOW                  | 11     | ann_id_11.au                     | 11                          | We're sorry, all circuits are busy now. Please try your call again later.                                                                                                           | Reorder      |
| 154                  | CA_CP_ANM_OVERFLOW                 | 12     | ann_id_12.au                     | 12                          | We're sorry, your call did not go through. Please try your call later.                                                                                                              | Reorder      |
| 155                  | CA_CP_DID_TG_OVERFLOW              | 11     | ann_id_11.au                     | 11                          | We're sorry, all circuits are busy now. Please try your call again later.                                                                                                           | Reorder      |
| 156                  | CA_CP_CAUSE_PREFIX1_ABSENT         | 15     | ann_id_15.au                     | 15                          | We're sorry, you must first dial a 1 or 0 when calling this number. Please hang up and try your call again.                                                                         | Reorder      |
| 157                  | CA_CP_CAUSE_PREFIX1_PRESENT        | 14     | ann_id_14.au                     | 14                          | We're sorry, it is not necessary to dial a 1 or 0 when calling this number. Please hang up and try your call again.                                                                 | Reorder      |
| 158                  | CA_CP_CAUSE_PREFIX_ERROR           | 17     | ann_id_17.au                     | 17                          | We're sorry, your call cannot be completed as dialed. Please check the number and dial again.                                                                                       | Reorder      |
| 159                  | CA_CP_CAUSE_HNPA_ACODE_ABSENT      | 16     | ann_id_16.au                     | 16                          | We're sorry. When placing a local call it is now necessary to dial an area code followed by the 7-digit local number. Please hang up and redial using the complete 10-digit number. | Reorder      |
| 160                  | CA_CP_CAUSE_CAC_PRESENT            | 23     | ann_id_23.au                     | 23                          | We're sorry, it is not necessary to dial a long- distance company access code for the number you have dialed. Please hang up and try your call again.                               | Reorder      |
| 161                  | CA_CP_CAUSE_CAC_ABSENT             | 52     | ann_id_52.au                     | 52                          | We're sorry, a long- distance company access code is required for the number you have dialed. Please dial your call again with the access code.                                     | Reorder      |
| 162                  | CA_CP_CAUSE_INVALID_CAC_REC'D      | 50     | ann_id_50.au                     | 50                          | We're sorry, your call cannot be completed with the access code you dialed. Please check the code and try again, or call your long- distance company for assistance.                | Reorder      |
| 163                  | CA_CP_CAUSE_FEATURE_NOT_SUBSCRIBED | 315    | ann_id_315.au                    | 315                         | We're sorry. But the service you are trying to use is not available on this line.                                                                                                   | Reorder      |

Table A-1 Announcement IDs (continued)

| Release Cause Number | Cisco BTS 10200 Cause Designation | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/ IPUnity Ann ID | Description                                                                                                                                                                                                                           | Default Tone |
|----------------------|-----------------------------------|--------|----------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 164                  | FS_CAUSE_AUTH_CODE_INVALID        | 25     | ann_id_25.au                     | 837                          | (c) The authorization code you have dialed is not valid. Please hang up, check the number and try again.<br><br>(i) The authorization code you have dialed is not valid. Please hang up, check the authorization code, and try again. | Reorder      |
| 165                  | CA_CP_CAUSE_CAC_TEMP_OOS          | 112    | ann_id_112.au                    | 51                           | We're sorry, the long-distance company you have dialed is experiencing a temporary service problem. Please try your call again later.                                                                                                 | Reorder      |
| 166                  | CA_CP_CAUSE_EMG_TG_OVERFLOW       | 21     | ann_id_21.au                     | 21                           | We are experiencing 911 difficulties. Please hang up and dial 0 to reach an operator for emergency assistance.                                                                                                                        |              |
| 167                  | CA_CP_CAUSE_CAC_OOS               | 57     | ann_id_57.au                     | 69                           | We're sorry, the long-distance company you have selected is unable to complete your call at this time. Please contact your long-distance company for assistance.                                                                      | Reorder      |
| 168                  | CA_CP_CAUSE_CUTTHRU_NOT_SUPPORTED | 57     | ann_id_57.au                     | 69                           | We're sorry, the long-distance company you have selected is unable to complete your call at this time. Please contact your long-distance company for assistance.                                                                      | Reorder      |
| 169                  | CA_CP_CAUSE_CTX_STATION_OOS       | 19     | ann_id_19.au                     | 59                           | We're sorry, you have reached a number that has been disconnected or is no longer in service. If you feel you have reached this recording in error, please check the number and try your call again.                                  | Reorder      |
| 170                  | CA_CP_CAUSE_COLL_DIGIT_TMO        | 10     | ann_id_10.au                     | 10                           | If you'd like to make a call, please hang up and try again. If you need help, hang up and then dial your operator.                                                                                                                    | Reorder      |
| 171                  | CA_CP_CAUSE_ONHOOK_DETECTED       |        |                                  |                              | Not used                                                                                                                                                                                                                              | Reorder      |
| 172                  | CA_CP_CAUSE_HOOKFLASH_DETECTED    |        |                                  |                              | Not used                                                                                                                                                                                                                              | Reorder      |
| 173                  | CA_CP_CAUSE_TG_CONGESTED          | 13     | ann_id_13.au                     | 11                           | We're sorry, all circuits are busy now. Please try your call again later.                                                                                                                                                             | Reorder      |

Table A-1 Announcement IDs (continued)

| Release Cause Number       | Cisco BTS 10200 Cause Designation                                                           | Ann ID      | Cisco AS5xxx Ann ID and Filename | Think Engine/IPUnity Ann ID                                                                                                                                                                        | Description                                                                                   | Default Tone |
|----------------------------|---------------------------------------------------------------------------------------------|-------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------|
| 174                        | CA_CP_CAUSE_PREFIX0_PRESENT<br><br><b>Note</b> This announcement is obsolete in Release 4.5 |             |                                  |                                                                                                                                                                                                    | Not used                                                                                      | Reorder      |
| 175                        | CA_CP_CAUSE_NEW_NPA_BEFORE_START_DATE                                                       | 17          | ann_id_17.au                     | 17                                                                                                                                                                                                 | We're sorry, your call cannot be completed as dialed. Please check the number and dial again. | Reorder      |
| 176                        | CA_CP_CAUSE_OLD_NPA_AFTER_END_DATE                                                          | 17          | ann_id_17.au                     | 17                                                                                                                                                                                                 | We're sorry, your call cannot be completed as dialed. Please check the number and dial again. | Reorder      |
| 178                        | CA_CP_CAUSE_RECONNECT_TIMEOUT                                                               |             |                                  |                                                                                                                                                                                                    | Not used                                                                                      | Reorder      |
| 179 through 1002 Not used  |                                                                                             |             |                                  |                                                                                                                                                                                                    |                                                                                               |              |
| 1003                       | FS_CAUSE_SERVICE_DENIED                                                                     | <b>Note</b> | <b>Note</b>                      | This release cause can be mapped to an announcement using the Add release-cause command. However, there is no default mapping.<br><br>Example (optional): add release-cause id=1003; annc-id=0315; |                                                                                               | Reorder      |
| 1004                       | FS_CAUSE_SERVICE_UNAVAIL                                                                    | <b>Note</b> | <b>Note</b>                      | This release cause can be mapped to an announcement using the Add release-cause command. However, there is no default mapping.<br><br>Example (optional): add release-cause id=1004; annc-id=0315; |                                                                                               | Reorder      |
| 1005 not used              |                                                                                             |             |                                  |                                                                                                                                                                                                    |                                                                                               |              |
| 1006                       | FS_CAUSE_PLAY_REORDER_ANNC                                                                  | 625         | ann_id_625.au                    | 625                                                                                                                                                                                                | <b>Note</b> Customer defines the announcement based on their market requirement               |              |
| 1007                       | FS_CAUSE_PLAY_PST_ANSWERING_MACHINE                                                         | 626         | ann_id_626.au                    | 626                                                                                                                                                                                                | <b>Note</b> Customer defines the announcement based on their market requirement.              |              |
| 1008                       | FS_CAUSE_USER_BUSY                                                                          | 627         | ann_id_627.au                    | 627                                                                                                                                                                                                | <b>Note</b> Customer defines the announcement based on their market requirement.              |              |
| 1009 through 1049 Not used |                                                                                             |             |                                  |                                                                                                                                                                                                    |                                                                                               |              |
| 1050                       | FS_CAUSE_CODE_INVALID_DEACT                                                                 | 80          | ann_id_80.au                     | 330                                                                                                                                                                                                | The feature is already successfully deactivated.                                              | Reorder      |
| 1051                       | FS_CAUSE_CODE_RESOURCES_UNAVAILABLE                                                         | 12          | ann_id_12.au                     | 12                                                                                                                                                                                                 | We're sorry, your call did not go through. Please try your call later.                        | Reorder      |



Table A-1 Announcement IDs (continued)

| Release Cause Number       | Cisco BTS 10200 Cause Designation | Ann ID | Cisco AS5xxx Ann ID and Filename                        | Think Engine/ IPUnity Ann ID | Description                                                                                                                                                                                                                                                                                                                      | Default Tone |
|----------------------------|-----------------------------------|--------|---------------------------------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1052                       | FS_CAUSE_CODE_INVALID_ENTRY       | 124    | ann_id_24.au<br><b>Note</b> Cisco AS5xxx Ann ID is 124. | 353                          | We're sorry, your call cannot be completed as dialed. Please check your instruction manual or call the business office for assistance.<br><br>(c) (i) We're sorry. The service or option requested is not available. Please check your instruction manual or call the business office for assistance.                            | Reorder      |
| 1053                       | FS_CAUSE_CODE_ANONYMOUS_CALL      | 61     | ann_id_61.au                                            | 299                          | We're sorry. The party you are calling does not wish to talk to callers who block their numbers. If you wish to reach this party please hang up and place your call again without blocking your number.                                                                                                                          | Reorder      |
| 1054 through 1060 Not used |                                   |        |                                                         |                              |                                                                                                                                                                                                                                                                                                                                  |              |
| 1061                       | FS_CAUSE_COT_ANN_TRACE_DN_IS_OU   | 75     | ann_id_75.au                                            | 291                          | This is the customer originated trace feature. A trace cannot be performed because the calling number is out of our service area.<br><br>(i) We're sorry, the trace cannot be performed. The calling number is out of our service area.                                                                                          | Reorder      |
| 1062                       | FS_CAUSE_COT_ANN_TRACE_SUCCESS    | 70     | ann_id_70.au                                            | 293                          | Your call has been traced. If you wish to investigate further, contact your telephone company annoyance call center with the date and time of the trace.<br><br>(i) The last call has been traced. If you wish to investigate further, contact your telephone company annoyance call center with the date and time of the trace. | Confirm      |
| 1063                       | FS_CAUSE_COT_ANN_TRACE_DENIED     | 71     | ann_id_71.au                                            | 315                          | We're sorry, but the service you are trying to use is not available on this line.                                                                                                                                                                                                                                                | Reorder      |
| 1064                       | FS_CAUSE_COT_ANN_TRACE_TRY_AGAIN  | 72     | ann_id_72.au                                            | 312                          | We're sorry. Due to telephone company facility trouble your call cannot be completed at this time. Will you try your call again later?<br><br>(i) We're sorry. Due to the telephone company facility trouble your trace cannot be completed at this time. Please try again later.                                                | Reorder      |

**Table A-1**      **Announcement IDs (continued)**

| <b>Release Cause Number</b> | <b>Cisco BTS 10200 Cause Designation</b> | <b>Ann ID</b> | <b>Cisco AS5xxx Ann ID and Filename</b> | <b>Think Engine/ IPUnity Ann ID</b> | <b>Description</b>                                                                                                                                                                                                                                    | <b>Default Tone</b> |
|-----------------------------|------------------------------------------|---------------|-----------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 1065                        | FS_CAUSE_COT_ANN_TRACE_BUFFER_EMPTY      | 73            | ann_id_73.au                            | 355                                 | We're sorry. The trace cannot be performed. The number of the last person who called you is not available.                                                                                                                                            | Reorder             |
| 1066                        | FS_CAUSE_COT_ANN_TRACE_ALREADY_DONE      | 74            | ann_id_74.au                            | 356                                 | We're sorry, but the last call has already been successfully traced.                                                                                                                                                                                  | Reorder             |
| 1067 through 1070 Not used  |                                          |               |                                         |                                     |                                                                                                                                                                                                                                                       |                     |
| 1071                        | FS_CAUSE_SCA_REJECTION                   | 81            | ann_id_81.au                            | 210                                 | The party you called has its selective call acceptance feature activated. Your number is not on the call acceptance list.                                                                                                                             | Reorder             |
| 1072                        | FS_CAUSE_SCR_REJECTION                   | 82            | ann_id_82.au                            | 878                                 | The party you are calling is not currently accepting calls. Please call back at another time.                                                                                                                                                         | Reorder             |
| 1073                        | FS_CAUSE_RJC_ACT_SUCC                    | 92            | ann_id_92.au                            | 357                                 | The last calling number has been successfully added to your selective call rejection list.                                                                                                                                                            | Confirm             |
| 1074 through 1080 Not used  |                                          |               |                                         |                                     |                                                                                                                                                                                                                                                       |                     |
| 1081                        | FS_CAUSE_AR_DEACT_ANN                    | 83            | ann_id_83.au                            | 287                                 | All outstanding automatic recall requests have been deactivated.                                                                                                                                                                                      | Confirm             |
| 1082                        | FS_CAUSE_AR_SHORT_TERM_DENIAL_ANN        | 84            | ann_id_84.au                            | 544                                 | We're sorry. Your automatic recall request cannot be processed at this time. Please try again or dial directly.                                                                                                                                       | Reorder             |
| 1083                        | FS_CAUSE_AR_LONG_TERM_DENIAL_ANN         | 85            | ann_id_85.au                            | 285                                 | The number you are trying to reach cannot be handled by the automatic recall features. Please dial directly.<br><br>(i)(c) The number you are trying to reach cannot be handled by the automatic recall and call back features. Please dial directly. | Reorder             |
| 1084                        | FS_CAUSE_AR_ANONY_DN_DENIAL_ANN          | 86            | ann_id_86.au                            | 283                                 | We're sorry. The number you are trying to reach is private and cannot be called using the automatic recall feature.                                                                                                                                   | Reorder             |

Table A-1 Announcement IDs (continued)

| Release Cause Number       | Cisco BTS 10200 Cause Designation | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/ IPUnity Ann ID | Description                                                                                                                                                                                                                                                                                                                              | Default Tone |
|----------------------------|-----------------------------------|--------|----------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1085                       | FS_CAUSE_RESUME_SCAN_ANN          | 87     | ann_id_87.au                     | 286                          | We're sorry. Your called party has just become busy. The system will continue checking the line. You will be notified by ringing when the party is free.<br><br>(c) (i) We're sorry. Your called party has just become busy. The system will continue checking the line. You will be notified by special ringing when the party is free. | Confirm      |
| 1086                       | FS_CAUSE_DELAYED_SCAN_ANN         | 88     | ann_id_88.au                     | 288                          | The number you are calling is busy. The system will check the line for the next 30 minutes. You will be notified by ringing when the party is free.<br><br>(c) (i) The number you are calling is busy. The system will check the line for the next 30 minutes. You will be notified by special ringing when the party is free.           | Confirm      |
| 1087 through 1090 Not used |                                   |        |                                  |                              |                                                                                                                                                                                                                                                                                                                                          |              |
| 1091                       | FS_CAUSE_AC_DEACT_ANN             | 89     | ann_id_89.au                     | 284                          | All outstanding automatic callback requests have been deactivated.                                                                                                                                                                                                                                                                       | Confirm      |
| 1092                       | FS_CAUSE_AC_SHORT_TERM_DENIAL_ANN | 90     | ann_id_90.au                     | 545                          | We're sorry. Your automatic callback request cannot be processed at this time. Please try again or dial directly.                                                                                                                                                                                                                        | Reorder      |
| 1093                       | FS_CAUSE_AC_LONG_TERM_DENIAL_ANN  | 91     | ann_id_91.au                     | 285                          | The number you are trying to reach cannot be handled by the automatic recall and callback features. Please dial directly.                                                                                                                                                                                                                | Reorder      |
| 1094 through 1100 Not used |                                   |        |                                  |                              |                                                                                                                                                                                                                                                                                                                                          |              |
| 1101                       | FS_CAUSE_DND_ACT_SUCC             | 30     | ann_id_30.au                     | 358                          | Your do not disturb feature has been activated. All calls to you will be blocked until you deactivate this feature.                                                                                                                                                                                                                      | Confirm      |
| 1102                       | FS_CAUSE_DND_ACT_FAIL             | 31     | ann_id_31.au                     | 359                          | We're sorry, the do not disturb feature could not be activated.                                                                                                                                                                                                                                                                          | Reorder      |
| 1103                       | FS_CAUSE_DND_DEACT_SUCC           | 32     | ann_id_32.au                     | 360                          | Your do not disturb feature has been deactivated. Calls to you will no longer be blocked.                                                                                                                                                                                                                                                | Confirm      |
| 1104                       | FS_CAUSE_DND_DEACT_FAIL           | 33     | ann_id_33.au                     | 361                          | We're sorry, the do not disturb feature could not be deactivated.                                                                                                                                                                                                                                                                        | Reorder      |

Table A-1 Announcement IDs (continued)

| Release Cause Number       | Cisco BTS 10200 Cause Designation                   | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/IPUnity Ann ID | Description                                                                                                                                                                                                                                                                                                            | Default Tone |
|----------------------------|-----------------------------------------------------|--------|----------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1105                       | FS_CAUSE_DND_REJ_CALL                               | 34     | ann_id_34.au                     | 3                           | We're sorry, the customer you are trying to reach cannot be disturbed. Will you please hang up and try your call again later.<br><br>(i) The party you are trying to call has the do not disturb feature currently activated. Please try your call again later.                                                        | Reorder      |
| 1106 through 1109 Not used |                                                     |        |                                  |                             |                                                                                                                                                                                                                                                                                                                        |              |
| 1110                       | FS_CAUSE_INVALID_FEATURE_USAGE                      | 500    | ann_id_500.au                    | (c) 500<br>(i)30000         | Then feature you have tried has been used incorrectly. Please try again.<br><br>(i) You have attempted an invalid usage of the feature. Please try again.                                                                                                                                                              | Reorder      |
| 1111                       | FS_CAUSE_PASSWD_NOT_PROVISIONED                     | 501    | ann_id_501.au                    | (c) 501<br>(i)30001         | The password required by this feature is not provided on your line. Please contact your telephone service provider to setup a password                                                                                                                                                                                 | Reorder      |
| 1112                       | FS_CAUSE_INDEFINITELY_LOCKEDOUT                     | 502    | ann_id_502.au                    | (c) 502<br>(i)30002         | The feature you have used is permanently locked up due to repeated password entry failures. Please contact your telephone service provider to remove this feature.<br><br>(i) The feature you have used is permanently locked due to repeated password entry failures. Please contact your telephone service provider. | Reorder      |
| 1113                       | FS_CAUSE_TEMPORARILY_LOCKEDOUT                      | 503    | ann_id_503.au                    | (c) 503<br>(i)30003         | The feature you have used is temporarily locked up due to repeated password entry failures. You may retry the feature again later.<br><br>(i) The feature you have used is permanently locked due to repeated password entry failures. You may retry the feature again later.                                          | Reorder      |
| 1114                       | FS_CAUSE_OCB_K0                                     | 504    | ann_id_504.au                    | (c) 504<br>(i)30004         | You have no restrictions placed on outgoing calls.                                                                                                                                                                                                                                                                     | Confirm      |
| 1115                       | FS_CAUSE_OCB_K1                                     | 505    | ann_id_505.au                    | (c) 505<br>(i)30005         | You are not permitted to place any calls on this line due to outgoing call restrictions. However you may still place emergency calls.                                                                                                                                                                                  | Confirm      |
|                            | Starting in Release 4.3, the following is optional: | 581    | ann_id_581.au                    | 556                         | Your outgoing call barring feature is active with barring level 1.                                                                                                                                                                                                                                                     | Confirm      |

Table A-1 Announcement IDs (continued)

| Release Cause Number | Cisco BTS 10200 Cause Designation                   | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/ IPUnity Ann ID | Description                                                                                                                                                       | Default Tone |
|----------------------|-----------------------------------------------------|--------|----------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1116                 | FS_CAUSE_OCB_K2                                     | 506    | ann_id_506.au                    | (c) 506<br>(i)30006          | You are only permitted to place local calls on this line. National and International calls may not be made due to call restrictions.                              | Confirm      |
|                      | Starting in Release 4.3, the following is optional: | 582    | ann_id_582.au                    | 557                          | Your outgoing call barring feature is active with barring level 2.                                                                                                | Confirm      |
| 1117                 | FS_CAUSE_OCB_K3                                     | 507    | ann_id_507.au                    | (c) 507<br>(i)30007          | You are only permitted to place local and long-distance calls on this line. International calls may not be made due to call restrictions.                         | Confirm      |
|                      | Starting in Release 4.3, the following is optional: | 583    | ann_id_583.au                    | 558                          | Your outgoing call barring feature is active with barring level 3.                                                                                                | Confirm      |
| 1118                 | FS_CAUSE_HOTVA_BARRED                               | 508    | ann_id_508.au                    | (c) 508<br>(i)30008          | You are not permitted to program emergency or other special calls for hotline service. Please retry programming to any other line.                                | Reorder      |
| 1119                 | Not used                                            |        |                                  |                              |                                                                                                                                                                   |              |
| 1120                 | Not used                                            |        |                                  |                              |                                                                                                                                                                   |              |
| 1121                 | FS_CAUSE_CF_ACT_SUCC                                | 510    | ann_id_510.au                    | 510                          | Call forwarding has been successfully activated through your phone.                                                                                               | Confirm      |
| 1122                 | FS_CAUSE_CF_DEACT_SUCC                              | 511    | ann_id_511.au                    | (c) 511<br>(i)30011          | Call forwarding has been successfully deactivated for your phone.                                                                                                 | Confirm      |
| 1123                 | FS_CAUSE_CF_INT_SUCC                                | 512    | ann_id_512.au                    | (c) 512<br>(i)30012          | Call forwarding is activated to the number you have dialed.                                                                                                       | Confirm      |
| 1124                 | FS_CAUSE_CF_ACT_FAIL                                | 513    | ann_id_513.au                    | (c) 513<br>(i)30013          | Call forwarding could not be activated for your phone.                                                                                                            | Reorder      |
| 1125                 | FS_CAUSE_CF_DEACT_FAIL                              | 514    | ann_id_514.au                    | (c) 514<br>(i)30014          | Call forwarding could not be deactivated for your phone.                                                                                                          | Reorder      |
| 1126                 | FS_CAUSE_CF_INT_FAIL                                | 515    | ann_id_515.au                    | (c) 515<br>(i)30015          | Call forwarding is not activated for this phone.                                                                                                                  | Reorder      |
| 1127                 | FS_CAUSE_CF_ALREADY_ACT                             | 516    | ann_id_516.au                    | 516                          | Call forwarding has already been activated for your phone.                                                                                                        | Reorder      |
| 1128                 | FS_CAUSE_CF_ALREADY_DEACT                           | 517    | ann_id_517.au                    | 517                          | Call forwarding is already deactivated for your phone.                                                                                                            | Reorder      |
| 1129                 | FS_CAUSE_CF_FWD_NUM_RESTRICTED                      | 518    | ann_id_518.au                    | (c) 518<br>(i)3018           | You are trying to program call forwarding to an invalid or restricted number.<br><br>(c) You are trying to program forwarding to an invalid or restricted number. | Reorder      |

Table A-1 Announcement IDs (continued)

| Release Cause Number       | Cisco BTS 10200 Cause Designation | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/ IPU nity Ann ID | Description                                                                                                                                                     | Default Tone |
|----------------------------|-----------------------------------|--------|----------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1130                       | FS_CAUSE_CF_INT_DIFF_NUM          | 519    | ann_id_519.au                    | (c) 519<br>(i)3019            | Call forwarding is activated but the number is not programmed.                                                                                                  | Reorder      |
| 1131 through 1140 Not used |                                   |        |                                  |                               |                                                                                                                                                                 |              |
| 1141                       | FS_CAUSE_CWD_ACT_SUCC             | 520    | ann_id_520.au                    | (c) 520<br>(i)3020            | You have successfully activated call waiting deluxe.                                                                                                            | Confirm      |
| 1142                       | FS_CAUSE_CWD_DEACT_SUCC           | 521    | ann_id_521.au                    | (c) 521<br>(i)3021            | You have successfully deactivated call waiting deluxe.                                                                                                          | Confirm      |
| 1143                       | FS_CAUSE_CWD_INT_SUCC             | 522    | ann_id_522.au                    | (c) 522<br>(i)3022            | Your call waiting deluxe has been successfully activated                                                                                                        | Confirm      |
| 1144                       | FS_CAUSE_CWD_ACT_FAIL             | 523    | ann_id_523.au                    | (c) 523<br><br>(i)3023        | You are not successful in activating call waiting deluxe. Please try again.<br><br>(i) You did not successfully activate call waiting deluxe. Please try again. | Reorder      |
| 1145                       | FS_CAUSE_CWD_DEACT_FAIL           | 524    | ann_id_524.au                    | (c) 524<br>(i)3024            | You did not successfully deactivate call waiting deluxe. Please try again.                                                                                      | Reorder      |
| 1146                       | FS_CAUSE_CWD_INT_FAIL             | 525    | ann_id_525.au                    | (c) 525<br>(i)3025            | Your call waiting deluxe is not activated. Please activate call waiting deluxe, then try again.                                                                 | Reorder      |
| 1147                       | FS_CAUSE_FEATURE_ACT_SUCC         | 526    | ann_id_526.au                    | 526                           | Your activation attempt was successful.<br><br>(c) Your activation attempt was successfully completed.                                                          | Confirm      |
| 1148                       | FS_CAUSE_FEATURE_ACT_FAIL         | 527    | ann_id_527.au                    | 527                           | Your activation attempt failed.                                                                                                                                 | Reorder      |
| 1149                       | FS_CAUSE_FEATURE_DEACT_SUCC       | 528    | ann_id_528.au                    | 528                           | Your deactivation attempt was successful.<br><br>(c) Your deactivation attempt was successfully completed.                                                      | Confirm      |
| 1150                       | FS_CAUSE_FEATURE_DEACT_FAIL       | 529    | ann_id_529.au                    | 529                           | Your deactivation attempt failed.                                                                                                                               | Reorder      |
| 1151                       | FS_CAUSE_FEATURE_INT_SUCC         | 530    | ann_id_530.au                    | 530                           | Your interrogation attempt was successful.<br><br>(c) Your interrogation attempt was successfully completed.                                                    | Confirm      |
| 1152                       | FS_CAUSE_FEATURE_INT_FAIL         | 531    | ann_id_531.au                    | 531                           | Your interrogation attempt failed.                                                                                                                              | Reorder      |
| 1153                       | FS_CAUSE_INVALID_STAR_CODE        | 532    | ann_id_532.au                    | 532                           | We're sorry, your call cannot be completed as dialed. Please check the feature code and dial again.                                                             | Reorder      |

Table A-1 Announcement IDs (continued)

| Release Cause Number       | Cisco BTS 10200 Cause Designation               | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/ IPUnity Ann ID | Description                                                                                                                                                                                                                                                                                                                                                                                                   | Default Tone |
|----------------------------|-------------------------------------------------|--------|----------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1161                       | FS_CAUSE_ACR_ACT_SUCC                           | 540    | ann_id_540.au                    | 208<br>(c)362                | Your Anonymous Call Rejection service is now on. All incoming calls will be checked for number privacy before they are allowed to complete to your line.<br><br>(c) Your Anonymous Call Rejection service is now on. Incoming calls will be checked for number privacy before they are allowed to complete. Callers who block their numbers will get a recording saying that you do not accept blocked calls. | Confirm      |
| 1162                       | FS_CAUSE_ACR_ACT_FAIL                           | 541    | ann_id_541.au                    | 541                          | Anonymous Call Rejection service cannot be activated on your line. Please check with your service provider and try again.                                                                                                                                                                                                                                                                                     | Reorder      |
| 1163                       | FS_CAUSE_ACR_DEACT_SUCC                         | 542    | ann_id_542.au                    | 209<br>(c)364                | Your Anonymous Call Rejection service is now off. Incoming calls will not be checked for number privacy status.<br><br>Your Anonymous Call Rejection service is now off. Incoming calls will not be checked for number privacy status. Callers who block their numbers can now reach you.                                                                                                                     | Confirm      |
| 1164                       | FS_CAUSE_ACR_DEACT_FAIL                         | 543    | ann_id_543.au                    | 543                          | Anonymous Call Rejection service cannot be deactivated on your line. Please check with your service provider and try again.                                                                                                                                                                                                                                                                                   | Reorder      |
| 1165 through 1169 Not used |                                                 |        |                                  |                              |                                                                                                                                                                                                                                                                                                                                                                                                               |              |
| 1170                       | FS_CAUSE_VM_BUSY_N<br>O_ANS_ACT_SUCC            | 600    | ann_id_600.au                    |                              | Voice Mail service has been successfully activated on your phone when your phone is either busy or you do not answer your phone.                                                                                                                                                                                                                                                                              | Confirmation |
| 1171                       | FS_CAUSE_VM_BUSY_N<br>O_ANS_ACT_FAIL            | 601    | ann_id_601.au                    |                              | Voice Mail service could not be successfully activated on your phone when your phone is either busy or you do not answer your phone.                                                                                                                                                                                                                                                                          | Reorder      |
| 1172                       | FS_CAUSE_VM_BUSY_N<br>O_ANS_ACT_ALREADY_<br>ACT | 602    | ann_id_602.au                    | 628                          | Voice Mail service is already activated on your phone.                                                                                                                                                                                                                                                                                                                                                        | Reorder      |

**Table A-1**      **Announcement IDs (continued)**

| Release Cause Number       | Cisco BTS 10200 Cause Designation                   | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/ IPUity Ann ID | Description                                                                                                                            | Default Tone |
|----------------------------|-----------------------------------------------------|--------|----------------------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1173                       | FS_CAUSE_VM_BUSY_N<br>O_ANS_DEACT_SUCC              | 603    | ann_id_603.au                    |                             | Voice Mail Service has been successfully deactivated on your phone when your phone is either busy or you do not answer your phone.     | Confirmation |
| 1174                       | FS_CAUSE_VM_BUSY_N<br>O_ANS_DEACT_FAIL              | 604    | ann_id_604.au                    |                             | Voice Mail service could not be successfully deactivated on your phone when your phone is either busy or you do not answer your phone. | Reorder      |
| 1175                       | FS_CAUSE_VM_BUSY_N<br>O_ANS_DEACT_ALREA<br>DY_DEACT | 605    | ann_id_605.au                    |                             | Voice Mail service is already deactivated on your phone.                                                                               | Reorder      |
| 1176 through 1179 Not used |                                                     |        |                                  |                             |                                                                                                                                        |              |
| 1180                       | FS_CAUSE_VM_ALWAYS<br>_ACT_SUCC                     | 606    | ann_id_606.au                    |                             | Voice Mail service has been successfully activated on your phone. All calls to your phone will be sent to Voice Mail.                  | Confirmation |
| 1181                       | FS_CAUSE_VM_ALWAYS<br>_ACT_FAIL                     | 607    | ann_id_607.au                    |                             | Voice Mail service could not be successfully activated on your phone.                                                                  | Reorder      |
| 1182                       | FS_CAUSE_VM_ALWAYS<br>_ACT_ALREADY_ACT              | 608    | ann_id_608.au                    |                             | Voice Mail service is already activated on your phone.                                                                                 | Reorder      |
| 1183                       | FS_CAUSE_VM_ALWAYS<br>_DEACT_SUCC                   | 609    | ann_id_609.au                    |                             | Voice Mail service has been successfully deactivated on your phone.                                                                    | Confirmation |
| 1184                       | FS_CAUSE_VM_ALWAYS<br>_DEACT_FAIL                   | 610    | ann_id_610.au                    |                             | Voice Mail service could not be successfully deactivated on your phone.                                                                | Reorder      |
| 1185                       | FS_CAUSE_VM_ALWAYS<br>_DEACT_ALREADY_DE<br>ACT      | 611    | ann_id_611.au                    |                             | Voice Mail service is already deactivated on your phone.                                                                               |              |
| 1186 through 1189 Not used |                                                     |        |                                  |                             |                                                                                                                                        |              |
| 1190                       | VS_CAUSE_VM_ACCESS<br>_FAIL                         | 612    | ann_id_612.au                    |                             | Voice Mail service cannot be accessed currently. Please try your call later.                                                           | Reorder      |
| 1191 through 1199 Not used |                                                     |        |                                  |                             |                                                                                                                                        |              |
| 1200                       | FS_CAUSE_PS_FAIL                                    | 601    | ann_id_571.au                    |                             | Privacy Screening could not be accessed at this time. Please try your call later.                                                      | Reorder      |
| 1201 through 1219 Not used |                                                     |        |                                  |                             |                                                                                                                                        |              |
| 1220                       | FS_CAUSE_COS_IVR_<br>FAIL                           | 571    | ann_id_571.au                    | 571                         | Your call cannot be completed due to a temporary problem. Please try again later.                                                      |              |
| 1230                       | FS_CAUSE_OCB_K4                                     | 559    | ann_id_559.au                    | 559                         | Your outgoing call barring feature is active with barring level 4.                                                                     | Confirmation |



Table A-1 Announcement IDs (continued)

| Release Cause Number | Cisco BTS 10200 Cause Designation | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/ IPUity Ann ID | Description                                                                                                       | Default Tone |
|----------------------|-----------------------------------|--------|----------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------|--------------|
| 1231                 | FS_CAUSE_OCB_K5                   | 560    | ann_id_560.au                    | 560                         | Your outgoing call barring feature is active with barring level 5.                                                | Confirm      |
| 1232                 | FS_CAUSE_OCB_K6                   | 561    | ann_id_561.au                    | 561                         | Your outgoing call barring feature is active with barring level 6.                                                | Confirm      |
| 1233                 | FS_CAUSE_OCB_K7                   | 562    | ann_id_562.au                    | 562                         | Your outgoing call barring feature is active with barring level 7.                                                | Confirm      |
| 1234                 | FS_CAUSE_OCB_K8                   | 563    | ann_id_563.au                    | 563                         | Your outgoing call barring feature is active with barring level 8.                                                | Confirm      |
| 1235                 | FS_CAUSE_OCB_K9                   | 564    | ann_id_564.au                    | 564                         | Your outgoing call barring feature is active with barring level 9.                                                | Confirm      |
| 1236                 | FS_CAUSE_OCB_DEACT_K_MISMATCH     | 565    | ann_id_565.au                    | 565                         | Deactivating outgoing call barring failed. The barring level you have entered does not match that in your record. | Reorder      |
| 1237                 | FS_CAUSE_OCB_ALREADY_ACT_SAME_K   | 566    | ann_id_566.au                    | 566                         | Your outgoing call barring feature is already activated with the K-level you just entered.                        | Confirm      |
| 1238                 | FS_CAUSE_OCB_ALREADY_DEACT        | 567    | ann_id_567.au                    | 567                         | Your outgoing call barring feature is already deactivated.                                                        | Confirm      |
| 1239                 | FS_CAUSE_OCB_ACT_REGIST_PIN_SUCC  | 568    | ann_id_568.au                    | 568                         | You have successfully setup your password and activated outgoing call barring feature.                            | Confirm      |
| 1240                 | FS_CAUSE_OCB_ACT_REGIST_PIN_FAIL  | 569    | ann_id_569.au                    | 569                         | You cannot activate outgoing call barring feature without setting up your password. Please try again.             | Reorder      |
| 1241                 | FS_CAUSE_OCB_INV_K1               | 572    | ann_id_572.au                    | 572                         | Your outgoing call barring feature is active with barring level 1 to block this call.                             | Reorder      |
| 1242                 | FS_CAUSE_OCB_INV_K2               | 573    | ann_id_573.au                    | 573                         | Your outgoing call barring feature is active with barring level 2 to block this call.                             | Reorder      |
| 1243                 | FS_CAUSE_OCB_INV_K3               | 574    | ann_id_574.au                    | 574                         | Your outgoing call barring feature is active with barring level 3 to block this call.                             | Reorder      |
| 1244                 | FS_CAUSE_OCB_INV_K4               | 575    | ann_id_575.au                    | 575                         | Your outgoing call barring feature is active with barring level 4 to block this call.                             | Reorder      |
| 1245                 | FS_CAUSE_OCB_INV_K5               | 576    | ann_id_576.au                    | 576                         | Your outgoing call barring feature is active with barring level 5 to block this call.                             | Reorder      |

Table A-1 Announcement IDs (continued)

| Release Cause Number       | Cisco BTS 10200 Cause Designation  | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/IPUnity Ann ID | Description                                                                                                                                                | Default Tone     |
|----------------------------|------------------------------------|--------|----------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1246                       | FS_CAUSE_OCB_INV_K6                | 577    | ann_id_577.au                    | 577                         | Your outgoing call barring feature is active with barring level 6 to block this call.                                                                      | Reorder          |
| 1247                       | FS_CAUSE_OCB_INV_K7                | 578    | ann_id_578.au                    | 578                         | Your outgoing call barring feature is active with barring level 7 to block this call.                                                                      | Reorder          |
| 1248                       | FS_CAUSE_OCB_INV_K8                | 579    | ann_id_579.au                    | 579                         | Your outgoing call barring feature is active with barring level 8 to block this call.                                                                      | Reorder          |
| 1249                       | FS_CAUSE_OCB_INV_K9                | 580    | ann_id_580.au                    | 580                         | Your outgoing call barring feature is active with barring level 9 to block this call.                                                                      | Reorder          |
| 1250 through 1259 Not used |                                    |        |                                  |                             |                                                                                                                                                            |                  |
| 1260                       | FS_CAUSE_CFC_ACT_SU<br>CC          | 650    | ann_id_650.au                    |                             | Call Forwarding Combination feature has successfully been activated on your phone.                                                                         | Confirm<br>ation |
| 1261                       | FS_CAUSE_CFC_ACT_FA<br>IL          | 651    | ann_id_651.au                    |                             | Call Forwarding Combination could not be activated on your phone.                                                                                          | Reorder          |
| 1262                       | FS_CAUSE_CFC_DEACT_<br>SUCC        | 652    | ann_id_652.au                    |                             | Call Forwarding Combination feature has been deactivated on your phone.                                                                                    | Confirm<br>ation |
| 1263                       | FS_CAUSE_CFC_DEACT_<br>FAIL        | 653    | ann_id_653.au                    |                             | Call Forwarding Combination could not be deactivated on your phone.                                                                                        | Reorder          |
| 1264                       | FS_CAUSE_CFCI_NO_DN<br>_VRFY_SUCC  | 654    | ann_id_654.au                    |                             | Call Forwarding Combination is active on your phone.                                                                                                       | Confirm<br>ation |
| 1265                       | FS_CAUSE_CFCI_NO_DN<br>_VRFY_FAIL  | 655    | ann_id_655.au                    |                             | Call Forwarding Combination is not active on your phone.                                                                                                   | Reorder          |
| 1266                       | FS_CAUSE_CFCI_SUCC                 | 656    | ann_id_656.au                    |                             | Call Forwarding Combination is active on your phone to the number entered.                                                                                 | Confirm<br>ation |
| 1267                       | FS_CAUSE_CFCI_FAIL                 | 657    | ann_id_657.au                    |                             | Call Forwarding Combination is either not active on your phone or active to a different number.                                                            | Reorder          |
| 1268 through 1269 Not used |                                    |        |                                  |                             |                                                                                                                                                            |                  |
| 1270                       | FS_CAUSE_SUB_TEMP_<br>DISCONNECTED | 570    | ann_id_570.au                    | 570                         | Your line is temporarily disconnected. Please contact customer service.<br><br>(c) Your line is temporarily disconnected. Please contact customer service. | Reorder          |

Table A-1 Announcement IDs (continued)

| Release Cause Number       | Cisco BTS 10200 Cause Designation              | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/ IPUnity Ann ID | Description                                                                                                                                                                                                        | Default Tone |
|----------------------------|------------------------------------------------|--------|----------------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1271                       | FS_CAUSE_SUB_TEMP_DISCONNECTED_ANNC_DN         | 628    | ann_id_628.au                    |                              | Your line is temporarily disconnected. Please contact customer service.                                                                                                                                            | Reorder      |
| 1272                       | FS_CAUSE_ORIG_SUB_SEASONAL_SUSPEND             | 629    | ann_id_629.au                    | 629                          | Your line is temporarily suspended. Please contact customer service.                                                                                                                                               | Reorder      |
| 1273                       | FS_CAUSE_ORIG_SUB_SEASONAL_SUSPEND_ANNC_DN     | 630    | ann_id_630.au                    | 630                          | Your line is temporarily suspended. Please contact customer service at[%d].                                                                                                                                        | Reorder      |
| 1274                       | FS_CAUSE_TERM_SUB_SEASONAL_SUSPEND             | 631    | ann_id_631                       | 631                          | The party you are calling has temporarily suspended their service.                                                                                                                                                 | Reorder      |
| 1275                       | FS_CAUSE_TERM_SUB_SEASONAL_SUSPEND_REFERRAL_DN | 632    | ann_id_632                       | 632                          | The party you are trying to reach is available at another number. Please hang up and dial [%d].                                                                                                                    | Reorder      |
| 1281                       | FS_CAUSE_UNASSIGNED_SPEED_CODE                 | 589    | ann_id_589.au                    | 589                          | We're sorry. You have dialed a speed calling code that has not been assigned or is invalid. Please check with your service provider and try again.                                                                 | Reorder      |
| 1282 through 1299 Not used |                                                |        |                                  |                              |                                                                                                                                                                                                                    |              |
| 1300                       | FS_CAUSE_LCD_INVALID_ACCOUNT                   | 581    | ann_id_581.au                    | 581                          | We're sorry. You are not allowed to make a call on this line. Please contact your service provider.<br><b>Note</b> The corresponding H.323 return code (returned by the external prepaid or postpaid server) is 1. | Reorder      |
| 1301                       | FS_CAUSE_LCD_ZERO_BALANCE                      | 582    | ann_id_582.au                    | 582                          | We're sorry. Your call cannot be completed because of zero balance in your account.<br><b>Note</b> The corresponding H.323 return code (returned by the external prepaid or postpaid server) is 4.                 | Reorder      |
| 1302                       | FS_CAUSE_LCD_OVER_LIMIT                        | 583    | ann_id_583.au                    | 583                          | We're sorry. Your call cannot be completed because you have exceeded the allowed credit.<br><b>Note</b> The corresponding H.323 return code (returned by the external prepaid or postpaid server) is 6.            | Reorder      |

Table A-1 Announcement IDs (continued)

| Release Cause Number       | Cisco BTS 10200 Cause Designation  | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/IPUnity Ann ID | Description                                                                                                                                                                                                                                                                                         | Default Tone |
|----------------------------|------------------------------------|--------|----------------------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1303                       | FS_CAUSE_LCD_MISC_FAILURE          | 584    | ann_id_584.au                    | 584                         | Due to network difficulties, your call cannot be completed at this time.<br><br><b>Note</b> The corresponding H.323 return code (returned by the external prepaid or postpaid server) is are 2, 3, 5, 10, 11, and 14.                                                                               | Reorder      |
| 1304                       | FS_CAUSE_LCD_SERVICE_UNAVAILABLE   | 585    | ann_id_585.au                    | 585                         | We're sorry, The service is temporarily unavailable. Please try your call later.<br><br>(c) We are sorry. The service is temporarily unavailable. Please try your call later on.<br><br><b>Note</b> The corresponding H.323 return code (returned by the external prepaid or postpaid server) is 8. | Reorder      |
| 1305                       | FS_CAUSE_LCD_CALLED_NUMBER_BLOCKED | 586    | ann_id_586.au                    | 586                         | We're sorry. You are not permitted to place a call to this number.<br><br>(c) We are sorry. You are not permitted to place a call to this called number.<br><br><b>Note</b> The corresponding H.323 return code (returned by the external prepaid or postpaid server) is 9.                         | Reorder      |
| 1306                       | FS_CAUSE_LCD_INSUFFICIENT_BALANCE  | 587    | ann_id_587.au                    | 587                         | We're sorry. Your call cannot be completed because of insufficient balance in your account.<br><br><b>Note</b> The corresponding H.323 return code (returned by the external prepaid or postpaid server) is 12                                                                                      | Reorder      |
| 1307                       | FS_CAUSE_LCD_CALL_CUST_SERVICE     | 588    | ann_id_588.au                    | 588                         | We're sorry. Your call cannot be completed at this time . Please contact your service provider.<br><br><b>Note</b> The corresponding H.323 return code (returned by the external prepaid or postpaid server) are 7 and 52.                                                                          | Reorder      |
| 1308 through 1310 Not used |                                    |        |                                  |                             |                                                                                                                                                                                                                                                                                                     |              |
| 1311                       | FS_CAUSE_SCR_NI_ACT_SUCC           | 613    | ann_id_613.au                    |                             | Your selective call rejection service is now on.                                                                                                                                                                                                                                                    | Confirm      |
| 1312                       | FS_CAUSE_SCR_NI_DEACT_SUCC         | 614    | ann_id_614.au                    |                             | Your selective call rejection service is now off.                                                                                                                                                                                                                                                   | Confirm      |

Table A-1 Announcement IDs (continued)

| Release Cause Number       | Cisco BTS 10200 Cause Designation | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/ IPUnity Ann ID | Description                                                                                                                              | Default Tone |
|----------------------------|-----------------------------------|--------|----------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1313                       | FS_CAUSE_SCR_NI_ACT_FAIL          | 615    | ann_id_615.au                    |                              | There are no entries on your list to selectively reject. Your selective call rejection service cannot be activated.                      | Reorder      |
| 1314                       | FS_CAUSE_SCF_NI_ACT_SUCC          | 616    | ann_id_616.au                    |                              | Your selective call forwarding service is now on.                                                                                        | Confirm      |
| 1315                       | FS_CAUSE_SCF_NI_DEA_CT_SUCC       | 617    | ann_id_617.au                    |                              | Your selective call forwarding service is now off.                                                                                       | Confirm      |
| 1316                       | FS_CAUSE_SCF_NI_ACT_FAIL          | 618    | ann_id_618.au                    |                              | There are no entries on your list to call forward. Your call forwarding service cannot be activated.                                     | Reorder      |
| 1317                       | FS_CAUSE_SCA_NI_ACT_SUCC          | 619    | ann_id_619.au                    |                              | Your selective call acceptance service is now on.                                                                                        | Confirm      |
| 1318                       | FS_CAUSE_SCA_NI_DEA_CT_SUCC       | 620    | ann_id_620.au                    |                              | Your selective call acceptance service is now off.                                                                                       | Confirm      |
| 1319                       | FS_CAUSE_SCA_NI_ACT_FAIL          | 621    | ann_id_621.au                    |                              | There are no entries on your list to selectively accept. Your selective call acceptance service cannot be activated.                     | Reorder      |
| 1320                       | FS_CAUSE_DRCW_NI_A_CT_SUCC        | 622    | ann_id_622.au                    |                              | Your distinctive ringing service is now on.                                                                                              | Confirm      |
| 1321                       | FS_CAUSE_DRCW_NI_D_EACT_SUCC      | 623    | ann_id_623.au                    |                              | Your distinctive ringing service is now off.                                                                                             | Confirm      |
| 1322                       | FS_CAUSE_DRCW_NI_A_CT_FAIL        | 624    | ann_id_624.au                    |                              | There are no entries on your list to provide distinctive ringing. Your distinctive ringing for call waiting service cannot be activated. | Confirm      |
| 1323                       | FS_CAUSE_GFL_AS_UNAVAILABLE       | 585    | ann_id_585.au                    | 585                          | We are sorry. The service is temporarily unavailable. Please try your call again later.                                                  |              |
| 1324                       | FS_CAUSE_GFL_AS_REFUSE            | 315    | ann_id_315.au                    | 315                          | We are sorry. The service you are trying to use is not available at this time.                                                           |              |
| 1325 Through 1349 Not used |                                   |        |                                  |                              |                                                                                                                                          |              |
| 1350                       | FS_CAUSE_CALL_FORWARD_FAILURE     | 700    | ann_id_700.au                    | 700                          | We're sorry. Your call cannot be completed due to call-forwarding restrictions associated with the subscriber you are trying to reach.   |              |
| 1351 Through 1399 Not used |                                   |        |                                  |                              |                                                                                                                                          |              |
| 1400                       | FS_SCP_CAUSE_OUT_OF_BAND          | 550    | ann_id_550.au                    | (c) 550                      | We're sorry, you cannot reach this number from the area you are calling.                                                                 | Reorder      |

**Table A-1**      **Announcement IDs (continued)**

| Release Cause Number | Cisco BTS 10200 Cause Designation                                                                             | Ann ID | Cisco AS5xxx Ann ID and Filename | Think Engine/ IPUnity Ann ID | Description                                                                         | Default Tone |
|----------------------|---------------------------------------------------------------------------------------------------------------|--------|----------------------------------|------------------------------|-------------------------------------------------------------------------------------|--------------|
| 1401                 | FS_SCP_CAUSE_REORDER_ANNOUNCEMENT                                                                             |        |                                  |                              | Not used                                                                            |              |
| 1402                 | FS_SCP_CAUSE_AUDIBLE_RING                                                                                     |        |                                  |                              | Not used                                                                            |              |
| <b>Note</b>          | The two following announcements are played during parked calls, not as the result of the call being released. |        |                                  |                              |                                                                                     |              |
| none                 | CPRK_ANN                                                                                                      | 901    | ann_id_901.au                    | 323                          | The person you are waiting for will answer your call soon. Please stay on the line. |              |
| none                 | CPRK_CLEAR_ANN                                                                                                | 902    | ann_id_902.au                    | 320                          | The person you are calling is busy. Please try again later.                         |              |
| none                 | OWN_CALLING_NUM                                                                                               | 903    |                                  | 92                           | DIGIT STRING number announced.                                                      |              |



# APPENDIX B

## USE-DIAL-PLAN Token Routing Impact

Revised: May 31, 2010, OL-12777-12

When a subscriber makes a call to an interLATA number, the Cisco BTS 10200 Softswitch routes the call via the interLATA Carrier (PIC1) assigned to the subscriber. The call is then routed via the route guide ID provisioned in the CARRIER Table. If the Service Provider (SP) is also providing the long distance service, the SP can make use of the USE-DIAL-PLAN token in the CARRIER Table. When USE-DIAL-PLAN flag is set in the CARRIER Table, the Cisco BTS 10200 Softswitch bypasses the CARRIER routing and instead routes the call based on the route specified in the DESTINATION Table.

If the NPA-NXX-(X) of the dialed number is defined in the PORTED-OFFICE-CODE Table and the dialed number is not defined locally on the BTS 10200 Softswitch, then the BTS 10200 Softswitch launches an LNP Query. If the LNP Query returns an LRN, the call is routed based on the LRN. Otherwise, the call is routed based on the route specified in the DESTINATION Table for the original dialed number. If policy based routing is required, the DESTINATION Table is provisioned with the ROUTE-GUIDE-ID. Otherwise, it is provisioned with a ROUTE-ID.

Table B-1 shows how the USE-DIAL-PLAN token in the Carrier table impacts routing.

**Table B-1**      **Impact of the USE-DIAL-PLAN Token on Routing**

| Type of Call                           | USE-DIAL-PLAN=Y                                                                                                                                                                                                                                                         | USE-DIAL-PLAN=N               |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| NAT<br>1+ Call                         | Route based on dial plan.                                                                                                                                                                                                                                               | Route based on Carrier table. |
| OPR<br>101XXXX+0-,<br>00 Operator Call | Based on EA-USE-PIC1 flag in the Subscriber Profile table. If the EA-USE-PIC1 flag is set to N, the call is routed to the LEC OSS, else use PIC1.<br><br>If a Carrier supports operator services, use the route guide defined in the Carrier table, else use LECOSS-RG. | Same as<br>USE-DIAL-PLAN=Y    |
| NAT-OPR<br>(101XXXX) 0+<br>call        | Based on EA-USE-PIC1 flag in the Subscriber Profile table. If the EA-USE-PIC1 flag is set to N, the call is routed to the LEC OSS, else use PIC1.<br><br>If a Carrier supports operator services, use the route guide defined in the Carrier table, else use LECOSS-RG. | Same as<br>USE-DIAL-PLAN=Y    |
| SAC<br>SAC call (500,<br>700, 900)     | Route based on dial plan.                                                                                                                                                                                                                                               | Route based on Carrier table. |

**Table B-1** *Impact of the USE-DIAL-PLAN Token on Routing (continued)*

| Type of Call                                                                   | USE-DIAL-PLAN=Y                                                                                                                                                                                                                                                         | USE-DIAL-PLAN=N               |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| DA<br>Directory assistance (DA, DA-TOLL)                                       | Route based on dial plan.                                                                                                                                                                                                                                               | Route based on Carrier table. |
| TOLL-FREE<br>Toll-free call (8XX)                                              | Route based on dial plan.                                                                                                                                                                                                                                               | Route based on Carrier table. |
| INTL<br>(101XXXX)<br>011+<br>International call                                | Route based on international dial plan.                                                                                                                                                                                                                                 | Route based on Carrier table. |
| INTL-OPR<br>(101XXXX) 01+<br>international operator call                       | Based on EA-USE-PIC1 flag in the Subscriber Profile table. If the EA-USE-PIC1 flag is set to N, the call is routed to the LEC OSS, else use PIC1.<br><br>If a Carrier supports operator services, use the route guide defined in the Carrier table, else use LECOSS-RG. | Same as USE-DIAL-PLAN=Y       |
| CUT-THRU<br>101XXXX+#                                                          | Use Carrier information; use the route guide defined in the Carrier table.                                                                                                                                                                                              | Same as USE-DIAL-PLAN=Y       |
| COIN/Hotel-Motel<br>Coin line (OLI = 23, 27, 70)<br>Hotel motel line (OLI = 6) | Treated as an operator call. If a Carrier supports operator services, use the route guide defined in the Carrier table, else use LECOSS-RG.                                                                                                                             | Same as USE-DIAL-PLAN=Y       |





## APPENDIX **C**

# National Call Type Processing

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**Revised: May 31, 2010, OL-12777-12**

This appendix details how to determine national call type usage. The national call type allows the Call Agent to consolidate multiple dial plans into a Master Dial Plan. All destination IDs can be provisioned with the same Call Type = National. (A Non Conforming Equal Access End Office can also use this call type.) The following tables are needed for proper Call Type determination:

- LSA
- LATA (LATA attributes)
- LATA-MAP (convert digit-string to LATA)

Call Processing first checks if the called number appears in the LSA table. If it appears in the LSA table, the call type is changed to *local*.

If the LATA tables are populated, call processing reads the calling LATA and called LATA tables. If the LATA values are the same, the call type is converted to *toll*. If the LATA values are different, the call type is converted to *interlata*.

Call processing also compares the state values from the calling LATA and called LATA tables. If the state values match, the call is intrastate; otherwise, the call is interstate.



### Note

As the name implies, only use the *national* call type domestic NPA/NXX. Call processing does not convert the call type to *intl* if the LATAs are in different countries (for example, the United States and Canada).

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# APPENDIX D

## Factory-Installed Scripts

Revised: May 31, 2010, OL-12777-12

This appendix details the factory-set scripts for the Feature Server and various media gateways.

### Feature Provisioning Scripts

The features in [Table D-1](#) are preprovisioned during installation. Note that the feature-server-id token is replaced with the actual Feature Server ID.

**Table D-1**      **Factory Installed Feature Scripts**

| Feature Name                           | Provisioning Script                                                                                                                                                                                                                                                              |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Anonymous Call Rejection               | add feature fname=ACR; tdp1=TERMINATION_ATTEMPT_AUTHORIZED; tid1=TERMINATION_ATTEMPT_AUTHORIZED; ttype1=R; description=Anonymous Call Rejection; feature_server_id=FSPTC719;                                                                                                     |
| Call Forwarding Busy                   | add feature fname=CFB; tdp1=T_BUSY; tdp2=COLLECTED_INFORMATION; tid1=T_BUSY; tid2=VERTICAL_SERVICE_CODE; ttype1=R; fname1=CFBVA <sup>1</sup> ; fname2=CFBVD; description=Call Forwarding Busy; feature_server_id=FSPTC719;                                                       |
| Call Forwarding Busy Activation        | add feature fname=CFBVA; vsc=*90; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE; ttype1=R; type1=INTL; value1=Y; description=Call Forwarding Busy Activation; feature_server_id=FSPTC719;                                                                               |
| Call Forwarding Busy Deactivation      | add feature fname=CFBVD; vsc=*91; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE; ttype1=R; description=Call Forwarding Busy Deactivation; feature_server_id=FSPTC719;                                                                                                   |
| Call Forwarding No Answer              | add feature fname=CFNA; tdp1=CALL_ACCEPTED; tdp2=COLLECTED_INFORMATION; tid1=CALL_ACCEPTED; tid2=VERTICAL_SERVICE_CODE; ttype1=R; fname1=CFNAVA <sup>2</sup> ; fname2=CFNAVD; type1=TO; value1=30; description=Call Forwarding No Answer TO=Timeout; feature_server_id=FSPTC719; |
| Call Forwarding No Answer Activation   | add feature fname=CFNAVA; vsc=*92; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE; ttype1=R; type1=INTL; value1=Y; description=CFNA Variable Activation; feature_server_id=FSPTC719;                                                                                     |
| Call Forwarding No Answer Deactivation | add feature fname=CFNAVD; vsc=*93; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE; ttype1=R; description=Call Forwarding No Answer Variable Deactivation; feature_server_id=FSPTC719;                                                                                    |

**Table D-1**      **Factory Installed Feature Scripts (continued)**

| Feature Name                               | Provisioning Script                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Call Forwarding Unconditional              | add feature fname=CFU; tdp1=TERMINATION_ATTEMPT_AUTHORIZED; tdp2=COLLECTED_INFORMATION; tid1=TERMINATION_ATTEMPT_AUTHORIZED; tid2=VERTICAL_SERVICE_CODE; ttype1=R; fname1=CFUA; fname2=CFUD; type1=MCF; value1=Y; type2=RR; value2=Y; description=Call Forwarding Unconditional MCF=multiple call forwarding allowed, RR=ring reminder; feature_server_id=FSPTC719; |
| Call Forwarding Unconditional Activation   | add feature fname=CFUA; vsc=*72; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE; ttype1=R; type1=INTL; value1=Y; description=CFU Activation, INTL=CF to international DN allowed; feature_server_id=FSPTC719;                                                                                                                                               |
| Call Forwarding Unconditional Deactivation | add feature fname=CFUD; vsc=*73; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE; ttype1=R; description=Call Forwarding Unconditional Deactivation; feature_server_id=FSPTC719;                                                                                                                                                                              |
| Call Hold                                  | add feature fname=CHD; tdp1=O_MID_CALL; tdp2=T_MID_CALL; tid1=O_SWITCH_HOOK_FLASH_IMMEDIATE; tid2=T_SWITCH_HOOK_FLASH_IMMEDIATE; ttype1=R; description=Call Hold; feature_server_id=FSPTC719;                                                                                                                                                                       |
| Call Transfer                              | add feature fname=CT; tdp1=O_MID_CALL; tdp2=T_MID_CALL; tid1=O_SWITCH_HOOK_FLASH_IMMEDIATE; tid2=T_SWITCH_HOOK_FLASH_IMMEDIATE; ttype1=R; description=Call Transfer; feature_server_id=FSPTC719;                                                                                                                                                                    |
| Call Waiting                               | add feature fname=CW; tdp1=T_BUSY; tid1=T_BUSY; ttype1=R; description=Call Waiting; feature_server_id=FSPTC719;                                                                                                                                                                                                                                                     |
| Caller ID with Call Waiting                | add feature fname=CIDCW; tdp1=T_BUSY; tid1=T_BUSY; ttype1=R; description=Caller Id with Call Waiting; feature_server_id=FSPTC719;                                                                                                                                                                                                                                   |
| Calling Identity Delivery                  | add feature fname=CIDS; vsc=*82; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE; ttype1=R; description=Calling Identity Delivery; feature_server_id=FSPTC719;                                                                                                                                                                                               |
| Calling Name Delivery                      | add feature fname=CNAM; tdp1=FACILITY_SELECTED_AND_AVAILABLE; tid1=TERMINATION_RESOURCE_AVAILABLE; ttype1=R; description=Calling Name; feature_server_id=FSPTC719;                                                                                                                                                                                                  |
| Calling Name Delivery Blocking             | add feature fname=CNAB; vsc=*95; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE; ttype1=R; description=Calling Name Delivery Blocking; feature_server_id=FSPTC719;                                                                                                                                                                                          |
| Calling Number Delivery                    | add feature fname=CND; tdp1=FACILITY_SELECTED_AND_AVAILABLE; tid1=TERMINATION_RESOURCE_AVAILABLE; ttype1=R; description=Calling number delivery; feature_server_id=FSPTC719;                                                                                                                                                                                        |
| Calling Number Delivery Blocking           | add feature fname=CNDB; vsc=*67; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE; ttype1=R; description=Calling Number Delivery Blocking (toggles the privacy indicator)'; feature_server_id=FSPTC719;                                                                                                                                                       |
| Cancel Call Waiting                        | add feature fname=CCW; vsc=*70; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE; ttype1=R; description=Cancel Call Waiting; feature_server_id=FSPTC719;                                                                                                                                                                                                      |
| Class of Service Screening                 | add feature fname=COS; tdp1=COLLECTED_INFORMATION; tid1=COS_TRIGGER; ttype1=R; description=Class of service screening; feature_server_id=FSPTC719;                                                                                                                                                                                                                  |

**Table D-1**      **Factory Installed Feature Scripts (continued)**

| Feature Name                         | Provisioning Script                                                                                                                                                                                                           |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Customized Dial Plan                 | add feature fname=CDP; tdp1=COLLECTED_INFORMATION;<br>tid1=CUSTOMIZE_DIALING_PLAN; ttype1=R; description=Customize Dial Plan;<br>feature_server_id=FSPTC719;                                                                  |
| Emergency Service                    | add feature fname=911; tdp1=COLLECTED_INFORMATION; tid1=911_TRIGGER;<br>ttype1=R; description=Emergency Service; feature_server_id=FSPTC719;                                                                                  |
| Incoming SFG                         | add feature fname=ISFG; tdp1=TERMINATION_ATTEMPT_AUTHORIZED;<br>tid1=TERMINATION_ATTEMPT_AUTHORIZED; ttype1=R; description=Incoming SFG;<br>feature_server_id=FSPTC719;                                                       |
| LIDB query                           | add feature fname=LIDB; tdp1=TERMINATION_ATTEMPT; tid1=CNAM; ttype1=R;<br>description= LIDB query for the CNAM feature; feature_server_id=FSAIN205;                                                                           |
| Local Number Portability             | add feature fname=LNP; tdp1=COLLECTED_INFORMATION; tid1=LNP_TRIGGER;<br>ttype1=R; description=Local Number Portability; feature_server_id=FSAIN519;                                                                           |
| Outgoing SFG                         | add feature fname=OSFG; tdp1=ROUTE_SELECTED; tid1=ROUTE_SELECTED; ttype1=R;<br>description=Outgoing SFG; feature_server_id=FSPTC719;                                                                                          |
| Three-Way Call                       | add feature fname=TCW; tdp1=O_MID_CALL; tdp2=T_MID_CALL;<br>tid1=O_SWITCH_HOOK_FLASH_IMMEDIATE;<br>tid2=T_SWITCH_HOOK_FLASH_IMMEDIATE; ttype1=R; description=Three way call;<br>feature_server_id=FSPTC719;                   |
| Toll-Free Service                    | add feature fname=8XX; tdp1=COLLECTED_INFORMATION;<br>tid1=SPECIFIC_DIGIT_STRING; ttype1=R; description=Toll Free Number;<br>feature_server_id=FSAIN519;                                                                      |
| Usage Sensitive<br>Three-Way Calling | add feature fname=USTWC; tdp1=O_MID_CALL; tdp2=T_MID_CALL;<br>tid1=O_SWITCH_HOOK_FLASH_IMMEDIATE;<br>tid2=T_SWITCH_HOOK_FLASH_IMMEDIATE; ttype1=R; description=Usage Sensitive<br>Three Way Call; feature_server_id=FSPTC719; |

1. Do not provision fname1 and fname2 if CFB Variable Activation / Deactivation are not to be allowed.
2. Do not provision fname1 and fname2 if CFNA Variable Activation / Deactivation are not to be allowed.

## Media Gateway Profile Scripts

This section details media gateway hardware factory-set profiles.

### Cisco UBR Profile

The Cisco UBR is used as a residential gateway. The UBR has two terminations.

```
add mgw-profile ID=Ubr1;
VENDOR=Cisco;
SILENT-SUPPRESS-SUPP=Y;
MGCP-VARIANT=MGCP_0_1;
RBK-ON-CONN-SUPP=N;
PACKET-TYPE=IP;
AAL1=N;
AAL2=N;
AAL5=N;
PVC=N;
```

```

SVC=N;
SPVC=N;
EC=N;
MPARTY-CONFERENCE=N;#not used
MPARTY-3WAY=N;#not used
NUM-PER-MPARTY=1;#not used
NUM-OF-MPARTY=1;#not used
LPTIME=10;
HPTIME=20;
ISDN=N;
DTMF=N;
MF=N;
FXO=N;
FXS=N;
FGD=N;
BACKHAUL-TYPE=RUDP;
SDP-ORIGFIELD-UNSUPP=Y;
SDP-SESSNAME-UNSUPP=Y;
SDP-EMAIL-UNSUPP=Y;
SDP-PHONE-UNSUPP=Y;
SDP-URI-UNSUPP=Y;
SDP-BANDWIDTH-UNSUPP=Y;
SDP-INFO-UNSUPP=Y;
SDP-TIME-UNSUPP=Y;
SDP-ATTRIB-UNSUPP=Y;
MGCP-ERQNT-UNSUPP=Y;
MGCP-HAIRPIN-UNSUPP=Y;
MGCP-QLOOP-UNSUPP=Y;
MGCP-3WAY-HSHAKE-UNSUPP=N;
MGCP-CONN-ID-AT-GW-UNSUPP=Y;
MGCP-CMD-SEQ-UNSUPP=Y;
TERMINATION-PREFIX=aaln/;
PORT-START=0;
DESCRIPTION=Cisco UBR;

```

## Cisco 2600 Profile

The Cisco 2600 router is used as a residential gateway.

```

add mgw-profile id=Cisco2600;
vendor=Cisco;
packet-type=IP;
mgcp-variant=MGCP_0_1;
aal1=n;
aal2=n;
aal5=n;
pvc=n;
svc=n;
spvc=n;
ec=n;
mparty-3way=n;#not used
mparty-conference=n;#not used
lptime=10;
hptime=20;
silent-suppress-supp=n;
rbk-on-conn-supp=n;
isdn=n;
dtmf=n;
mf=n;
fxo=n;
fgd=n;
mgcp-erqnt-unsupp=y;

```

```
mgcp-hairpin-unsupp=y;
mgcp-cmd-seq-unsupp=y;
description=cisco 2600 residential gateways

Cisco MC 3810 profile
The Cisco Multiservice Access Concentrator MC 3810 is used as a residential gateway.
add mgw-profile id=cisco_3810;
vendor=cisco;
packet-type=ip;
mgcp-variant=MGCP_0_1;
aal1=no;
aal2=no;
aal5=no;
pvc=no;
svc=no;
spvc=no;
ec=n;
mparty-3way=n;#not used
mparty-conference=n;#not used
lptime=10;
hptime=20;
silent-suppress-supp=n;
rbk-on-conn-supp=n;
isdn=n;
dtmf=y;
mf=n;
fxo=n;
fgd=n;
mgcp-erqnt-unsupp=y;
mgcp-hairpin-unsupp=y;
mgcp-cmd-seq-unsupp=y;
description=cisco multiservice access concentrator - mc3810
```

## Cisco AS5400 Profile

The Cisco AS5400 Media Gateway is used as a trunking gateway as well as an announcement server. The default profile applies to both types of gateways.

```
add mgw-profile id=as5400;
vendor=Cisco;
packet-type=IP;
mgcp-variant=MGCP_0_1;
aal1=n;
aal2=n;
aal5=n;
pvc=n;
svc=n;
spvc=n;
ec=n;
mparty-3way=n; #not used
mparty-conference=n;#NOT USED
lptime=10;
hptime=20;
silent-suppress-supp=n;
rbk-on-conn-supp=n;
isdn=n;
dtmf=n;
mf=n;
fxo=n;
fgd=n;
mgcp-erqnt-unsupp=y;
```

```
mgcp-hairpin-unsupp=y;
mgcp-cmd-seq-unsupp=y;
mgcp-rsipstar-supp=y
description=cisco access server as5400 tgw profile
```

## Telogy Profile

The Telogy is used as a residential gateway. The Telogy box supports two terminations.

```
add mgw-profile id=Telogy1;
VENDOR=Telogy;
SILENT-SUPPRESS-SUPP=Y;
MGCP-VARIANT=NCS_1_0;
RBK-ON-CONN-SUPP=N;
PACKET-TYPE=IP;
AAL1=N;
AAL2=N;
AAL5=N;
PVC=N;
SVC=N;
SPVC=N;
EC=N;
MPARTY-CONFERENCE=N;
MPARTY-3WAY=N;
NUM-PER-MPARTY=1;
NUM-OF-MPARTY=1;
LPTIME=10;
HPTIME=20;
ISDN=N;
DTMF=N;
MF=N;
FXO=N;
FXS=N;
FGD=N;
BACKHAUL-TYPE=RUDP;
SDP-ORIGFIELD-UNSUPP=Y;
SDP-SESSNAME-UNSUPP=Y;
SDP-EMAIL-UNSUPP=Y;
SDP-PHONE-UNSUPP=Y;
SDP-URI-UNSUPP=Y;
SDP-BANDWIDTH-UNSUPP=Y;
SDP-INFO-UNSUPP=Y;
SDP-TIME-UNSUPP=Y;
SDP-ATTRIB-UNSUPP=Y;
MGCP-ERQNT-UNSUPP=Y;
MGCP-HAIRPIN-UNSUPP=Y;
MGCP-QLOOP-UNSUPP=Y;
MGCP-3WAY-HSHAKE-UNSUPP=N;
MGCP-CONN-ID-AT-GW-UNSUPP=N;
MGCP-CMD-SEQ-UNSUPP=N;
TERMINATION-PREFIX=aaln/;
PORT-START=1;
DESCRIPTION=Telogy;
```

## Voice Interworking Service Module Profile

The following media gateway profile provides an example for gateways with a voice interworking service module (VISM):



```
ID=C0401-VISM21
VENDOR=Cisco
SILENT-SUPPRESS_SUPP=N
MGCP-VARIANT=NONE
RBK-ON-CONN_SUPP=Y
PACKET-TYPE=IP
AAL1=N
AAL2=N
AAL5=N
PVC=N
SVC=N
SPVC=N
EC=Y
MPARTY-CONFERENCE=Y
MPARTY-3WAY=Y
NUM-PER-MPARTY=3
NUM-OF-MPARTY=3
LPTIME=20
HPTIME=20
ISDN=N
DTMF=N
MF=Y
FXO=N
FXS=N
FGD=N
BACKHAUL-TYPE=RUDP
SDP-ORIGFIELD-UNSUPP=N
SDP-SESSNAME-UNSUPP=N
SDP-EMAIL-UNSUPP=N
SDP-PHONE-UNSUPP=N
SDP-URI-UNSUPP=N
SDP-BANDWIDTH-UNSUPP=N
SDP-INFO-UNSUPP=N
SDP-TIME-UNSUPP=N
SDP-ATTRIB-UNSUPP=N
MGCP-ERQNT-UNSUPP=N
MGCP-HAIRPIN-UNSUPP=Y
MGCP-QLOOP-UNSUPP=N
MGCP-3WAY-HSHAKE-UNSUPP=N
MGCP-CONN-ID-AT-GW-UNSUPP=N
MGCP-CMD-SEQ-UNSUPP=Y
MGCP-VMWI-UNSUPP=Y
PORT-START=0
MGCP-VERSION=MGCP-1-0
MGCP-RSVP-UNSUPP=Y
MGCP-RSIPSTAR-UNSUPP=N
MGCP-TERM-INIT-LEVEL=0
IPTOS-RTP-LOWDELAY=Y
IPTOS-RTP-THROUGHPUT=N
IPTOS-RTP-RELIABILITY=N
IPTOS-RTP-PRECEDENCE=CRITICAL
MGCP-HAIRPIN-Z2-UNSUPP=Y
DTMF-CISCO-RTP=Y
DTMF-CISCO-NSE=Y
DTMF-NTE=Y
DTMF-GW-NTE=Y
DTMF-OOB=N
R-G=Y
R-BE=Y
R-CL=Y
MGW-TYPE=MGX8850
OSI-UNSUPP=Y
MGCP-PSTTONE-UNSUPP=Y
MGCP-DIALTONE-TO-UNSUPP=Y
```

```

MGCP-MWI-UNSUPP=N
SPARE1-UNSUPP=Y
SPARE2-UNSUPP=Y
IPTOS-RTP-UNSUPP=N
MGCP-NAS-UNSUPP=Y
MGCP-FAX-UNSUPP=Y
MGCP-ES-UNSUPP=Y
FAX-T38-GWMODE-SUPP=Y
FAX-T38-CAMODE-SUPP=N
FAX-INBAND-SUPP=Y
FAX-PREF-MODE=FAX-T38-GWMODE
USE-STATIC-PROFILE=N
REFRESH-DIGIT-MAP=N
MGCP-XDLCX-UNSUPP=Y
MGCP-CAS-BLOCK-UNSUPP=Y
CODEC-NEG-UNSUPP=Y
MGCP-DQOS-UNSUPP=Y
MGCP-PC-SEC-UNSUPP=Y
DOMAIN-NAME-CACHING-UNSUPP=N

```

## Voice Interworking Service Module Trunking Gateway Profile

The following trunking gateway profile provides an example for gateways with a voice interworking service module (VISM).

```

[
ID=RALEIGHDS1-505B
TYPE=A7
HOP-COUNTER=20
CFN-SUPP=N
COT-ORIG=N
COT-FREQ=0
COT-TONE=4W-TO-4W
COT-DURATION=1
ECHO-SUPP-REQUIRED=N
SATELLITE-CIRCUIT=N
INBAND-INFO=N
SEND-CIP=N
SEND-CPN=Y
SEND-OCN=Y
SEND-REDIR-NUM=Y
SEND-ATP=Y
SEND-GAP=Y
SEND-GN=N
SEND-JIP=Y
T-IAM=20
T-REL=6
T-RSC=15
T-GRS=15
T-CGB=15
T-BLO=6
T-8=15
T-CCR-R=12
T-COT-R=20
T-COT-L=300
FAST-ANSWER-SUPP=N
SEND-HOPCOUNTER=Y
SEND-CIP-NONGEO=N
SEND-CPN-PRES=N
SEND-REDIRINFO=Y
REDIR-MAX=5

```

```

T-9=255
ALARM-CARRIER=UNKNOWN
ALLOW-EXM=Y
ALLOW-CRMCRA=Y
CCT-GRP-CARRIER=DIGITAL
DEFAULT-CHGNOA=NOTUSED
DEFAULT-CHGNPI=NOTUSED
DEFAULT-OLI=NOTUSED
SEND-CHNOLIP=N
SEND-CHN-NONGEO=N
SEND-NOTIFICATION=N
SEND-SERVICECODE=N
SEND-TRANSREQ=N

```

## Default Digit Maps

This section provides provisioning examples for 7- and 10-digit dialing.

### 7-Digit Local Dialing

The following default digit map is provisioned in the Call Agent if 7-digit local dialing is supported:

```

add digit-map id=default; digit-pattern
=0T|00|[2-9]11|1[2-9]11|[2-9]xxxxxx|1[2-9]xx[2-9]xxxxxx|0[2-9]xx[2-9]xxxxxx|011xxxxxx.T|01
xxxxxx.T|101xxxx|#|*xx|xxxxxxxxxxxxxxxxxxxx; description=default digit map for 7 digit
local dialing;

```

The string is interpreted as follows:

| String               | Description                                                                        |
|----------------------|------------------------------------------------------------------------------------|
| 0T                   | Local operator (4-second timing after 0) (see notes 1 and 2)                       |
| 00                   | InterLATA operator based on PIC (or dialed carrier access code)                    |
| [2-9]11              | N11 calls (411, 911, and so on)                                                    |
| 1[2-9]11             | N11 toll calls (for example, 1+411)                                                |
| [2-9]xxxxxx          | 7D local calls (no timing after 7)                                                 |
| 1[2-9]xx[2-9]xxxxxx  | 1+10D interLATA / intraLATA calls                                                  |
| 0[2-9]xx[2-9]xxxxxx  | 0+10D local / toll calls                                                           |
| 011xxxxxx.T          | International call (4-second timing after 6 digits following 011)                  |
| 01xxxxxx.T           | Operator-assisted international call (4-second timing after 6 digits following 01) |
| 101xxxx              | Casual dialing                                                                     |
| #                    | Cut-through call if dialed after 101xxxx                                           |
| *xx                  | Vertical service codes                                                             |
| xxxxxxxxxxxxxxxxxxxx | Used to collect a maximum of 16 digits                                             |

**Note**

- (1) The interdigit timeout period is 16 seconds.
- (2) If the character “T” is specified, the interdigit timeout period is changed to 4 seconds at the media gateway.

## 10-Digit Local Dialing

The following default digit map is provisioned in the Call Agent if 10-digit local dialing is supported.

```
add digit-map id=default;
digit-pattern=0T|00|[2-9]11|1[2-9]11|[2-9]xx[2-9]xxxxxx|1[2-9]xx[2-9]xxxxxx|0[2-9]xx[2-9]xxxxxx|011xxxxxx.T|01xxxxxx.T|101xxxx|#|*xx|xxxxxxxxxxxxxxxxxxxx; description=default digit map for 10 digit local dialing;
```

The string is interpreted as follows:

| String               | Definition                                                                         |
|----------------------|------------------------------------------------------------------------------------|
| 0T                   | Local operator (4-second timing after 0) (see notes 1 and 2)                       |
| 00                   | InterLATA operator based on PIC (or dialed carrier access code)                    |
| [2-9]11              | N11 calls (411, 911, and so on)                                                    |
| 1[2-9]11             | N11 toll calls (for example, 1+411)                                                |
| [2-9]xx[2-9]xxxxxx   | 10D local calls                                                                    |
| 1[2-9]xx[2-9]xxxxxx  | 1+10D interLATA / intraLATA calls                                                  |
| 0[2-9]xx[2-9]xxxxxx  | 0+10D local / toll calls                                                           |
| 011xxxxxx.T          | International call (4-second timing after 6 digits following 011)                  |
| 01xxxxxx.T           | Operator-assisted International call (4-second timing after 6 digits following 01) |
| 101xxxx              | Casual dialing                                                                     |
| #                    | Cut-through call if dialed after 101xxxx                                           |
| *xx                  | Vertical service codes                                                             |
| xxxxxxxxxxxxxxxxxxxx | Used to collect a maximum of 16 digits                                             |

**Note**

- (1) The interdigit timeout period is 16 seconds.
- (2) If the character “T” is specified, the interdigit timeout period is changed to 4 seconds at the media gateway.

## 7- or 10-Digit Local Dialing

The following default digit map is provisioned in the Call Agent if both 7- or 10-digit local dialing is supported.

```
add digit-map id=default;
digit-pattern=0T|00|[2-9]11|1[2-9]11|[2-9]xxxxxxT|[2-9]xx[2-9]xxxxxx|1[2-9]xx[2-9]xxxxxx|0
[2-9]xx[2-9]xxxxxx|011xxxxxx.T|01xxxxxx.T|101xxxx|#|*xx|xxxxxxxxxxxxxxxxxxxxxx;
description=default digit map for 10 digit local dialing;
```

The string is interpreted as follows:

| String                 | Description                                                                        |
|------------------------|------------------------------------------------------------------------------------|
| 0T                     | Local operator (4-second timing after 0) (see notes)                               |
| 00                     | InterLATA operator based on PIC (or dialed carrier access code)                    |
| [2-9]11                | N11 calls (411, 911, and so on)                                                    |
| 1[2-9]11               | N11 toll calls (for example, 1+411)                                                |
| [2-9]xxxxxxT           | 7-digit local with 4-second timing after 7 digits                                  |
| [2-9]xx[2-9]xxxxxx     | 10-digit local calls                                                               |
| 1[2-9]xx[2-9]xxxxxx    | 1+10D interLATA / intraLATA calls                                                  |
| 0[2-9]xx[2-9]xxxxxx    | 0+10D local / toll calls                                                           |
| 011xxxxxx.T            | International call (4-second timing after 6 digits following 011)                  |
| 01xxxxxx.T             | Operator-assisted International call (4-second timing after 6 digits following 01) |
| 101xxxx                | Casual dialing                                                                     |
| #                      | Cut-through call if dialed after 101xxxx                                           |
| *xx                    | Vertical service codes                                                             |
| xxxxxxxxxxxxxxxxxxxxxx | Used to collect a maximum of 16 digits.                                            |



#### Note

- (1) The interdigit timeout period is 16 seconds.
- (2) If character “T” is specified, the interdigit timeout period is changed to 4 seconds at the media gateway.





# APPENDIX E

## Defined Cause Codes

Revised: May 31, 2010, OL-12777-12

For reference purposes, defined cause codes are listed in [Table E-1](#) through [Table E-7](#).

**Table E-1** Cisco BTS 10200 Softswitch Defined Cause Codes—Normal Events

| Generic Cause Code  | SS7<br>A.2.4.3/GR-905-CORE               | ISDN<br>TABLE I.2/Q.931                                       | MGCP                           |
|---------------------|------------------------------------------|---------------------------------------------------------------|--------------------------------|
| <b>Normal Event</b> |                                          |                                                               |                                |
| 1. [Note 1]         | 1. Unallocated number                    | 1. Unallocated (Unassigned) number                            | N/A                            |
| 2.                  | 2. No route to specified transit network | 2. No route to specified transit network                      | N/A                            |
| 3. [Note 1]         | 3. No route to destination               | 3. No route to destination                                    | N/A                            |
| 4. [Note 2]         | N/A                                      | 6. Channel unacceptable                                       |                                |
| 5. [Note 3]         | N/A                                      | 7. Call awarded and being delivered in an established channel |                                |
| 6.                  | 16. Normal clearing                      | 16. Normal call clearing                                      | N/A                            |
| 7.                  | 17. User busy                            | 17. User busy                                                 | 401. Phone is already off hook |
|                     | —                                        | —                                                             | 402. Phone is already on hook  |
| 8.                  | 18. No user responding                   | 18. No user responding                                        | Notified event                 |
| 9.                  | 19. User alerting, no answer             | 19. User alerting, no answer                                  | Notified event                 |
| 10. [Usr->Nw]       | 21. Call rejected                        | 21. Call rejected                                             |                                |
| 11. [Note 1]        | 22. Number changed                       | 22. Number changed                                            |                                |

**Table E-1 Cisco BTS 10200 Softswitch Defined Cause Codes—Normal Events (continued)**

| <b>Generic Cause Code</b> | <b>SS7<br/>A.2.4.3/GR-905-CORE</b>                                          | <b>ISDN<br/>TABLE I.2/Q.931</b>               | <b>MGCP</b>                                                                |
|---------------------------|-----------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------|
| 12. <sup>1</sup>          | 26. Misrouted call to a ported number                                       | N/A                                           |                                                                            |
| 13. [Note 3]              | N/A                                                                         | 26. Nonselected user clearing                 |                                                                            |
| 14. <sup>2</sup>          | 27. Query on Release (QoR) number not found (No procedures for US networks) |                                               |                                                                            |
| 15.                       | 27. Destination out of order                                                | 27. Destination out of order                  | 520                                                                        |
| 16. [Note 1]              | 28. Address incomplete                                                      | 28. Invalid number format (incomplete number) | N/A                                                                        |
| 17. [nw->usr]             |                                                                             | 29. Facility rejected                         | N/A                                                                        |
| 18. [Note 4]              |                                                                             | 30. Response to STATUS ENQUIRY                | N/A                                                                        |
|                           |                                                                             |                                               | 500. The transaction could not be executed because the endpoint is unknown |
| 19. [Note 5]              | 31. Unspecified (default)                                                   | 31. Unspecified (default)                     |                                                                            |

1. ANSI Standard cause only

2. ANSI Standard cause only

**Table E-2 Cisco BTS 10200 Softswitch Defined Cause Codes—Network Resource Unavailable**

| <b>Generic Cause Code</b>           | <b>SS7<br/>A.2.4.3/GR-905-CORE</b>            | <b>ISDN<br/>TABLE I.2/Q.931</b>    | <b>MGCP</b>                                           |
|-------------------------------------|-----------------------------------------------|------------------------------------|-------------------------------------------------------|
| <b>Network resource unavailable</b> |                                               |                                    |                                                       |
| 31.                                 | 34. No Circuit available                      | 34. No circuit/channel available   |                                                       |
| 32.                                 |                                               | 38. Network out of order           | Can not reach MGW, network interface down             |
| 33.                                 | 41. Temporary failure                         | 41. Temporary failure              | 400. Transaction not completed due to transient error |
| 34.                                 | 42. Switching congestion                      | 42. Switching equipment congestion | N/A                                                   |
| 35. [Note 6]                        | 43. Access information discarded <sup>1</sup> | 43. Access information discarded   |                                                       |



**Table E-2 Cisco BTS 10200 Softswitch Defined Cause Codes—Network Resource Unavailable**

| Generic Cause Code | SS7<br>A.2.4.3/GR-905-CORE         | ISDN<br>TABLE I.2/Q.931                     | MGCP                                            |
|--------------------|------------------------------------|---------------------------------------------|-------------------------------------------------|
| 36.                | Circuit Reservation Rejected (CMJ) | 44. Requested circuit/channel not available | 501. Endpoint not ready                         |
| 37.                | 47. Resource unavailable (default) | 47. Resource unavailable, unspecified       | 502. Endpoint does not have sufficient resource |

1. ANSI standard cause value

**Table E-3 Cisco BTS 10200 Softswitch Defined Cause Codes—Service Or Option Not Available**

| Generic Cause Code                     | SS7<br>A.2.4.3/GR-905-CORE                    | ISDN<br>TABLE I.2/Q.931                          | MGCP |
|----------------------------------------|-----------------------------------------------|--------------------------------------------------|------|
| <b>Service or option not available</b> |                                               |                                                  |      |
| 41.                                    | 57. Bearer capability not authorized          | 57. Bearer capability not authorized             | N/A  |
| 42.                                    | 58. Bearer capability not presently available | 58. Bearer capability not presently available    | N/A  |
| 43.                                    | 63. Service/Option not available (default)    | 63. Service or option not available, unspecified | N/A  |

**Table E-4 Cisco BTS 10200 Softswitch Defined Cause Codes—Service/Option Not Implemented**

| Generic Cause Code                    | SS7<br>A.2.4.3/GR-905-CORE                   | ISDN<br>TABLE I.2/Q.931                                                | MGCP |
|---------------------------------------|----------------------------------------------|------------------------------------------------------------------------|------|
| <b>Service/option not implemented</b> |                                              |                                                                        |      |
| 51.                                   | 65. Bearer capability not implemented        | 65. Bearer capability not implemented                                  | N/A  |
| 52.                                   |                                              | 66. Channel type not implemented                                       | N/A  |
| 53.                                   |                                              | 69. Requested facility not implemented                                 | N/A  |
| 54.                                   |                                              | 70. Only restricted digital information bearer capability is available | N/A  |
| 55.                                   | 79. Service/Option not implemented (default) | 79. Service or option not implemented, unspecified                     | N/A  |

**Table E-5 Cisco BTS 10200 Softswitch Defined Cause Codes—Invalid Message**

| <b>Generic cause code</b>                        | <b>SS7<br/>A.2.4.3/GR-905-CORE</b>    | <b>ISDN<br/>TABLE I.2/Q.931</b>                              | <b>MGCP</b>                       |
|--------------------------------------------------|---------------------------------------|--------------------------------------------------------------|-----------------------------------|
| <b>Invalid message (local significance only)</b> |                                       |                                                              |                                   |
| 61.                                              |                                       | 81. Invalid call reference value                             | 516                               |
| 62.                                              |                                       | 82. Identified channel does not exist                        | 500. Unknown endpoint             |
| 63.                                              |                                       | 83. A suspended call exists, but this call identity does not |                                   |
| 64.                                              |                                       | 84. Call identity in use                                     |                                   |
| 65.                                              |                                       | 85. No call suspended                                        |                                   |
| 66.                                              |                                       | 86. Call having the requested call identity has been cleared | 402. The phone is already on hook |
| 67.                                              | 88. Incompatible destination          | 88. Incompatible destination                                 |                                   |
| 68.                                              | 91. Invalid transit network selection | 91. Invalid transit network selection                        |                                   |
| 69.                                              | 95. Invalid message (default)         | 95. Invalid message, unspecified                             |                                   |
| 70.                                              |                                       | 96. Mandatory information element is missing                 |                                   |
| 71.                                              |                                       | 97. Message type nonexistent or not implemented              |                                   |

**Table E-6 Cisco BTS 10200 Softswitch Defined Cause Codes—Protocol Error**

| <b>Generic Cause Code</b>                       | <b>SS7<br/>A.2.4.3/GR-905-CORE</b>              | <b>ISDN<br/>TABLE I.2/Q.931</b>                                                                                   | <b>MGCP</b> |
|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------|
| <b>Protocol error (local significance only)</b> |                                                 |                                                                                                                   |             |
| 81.                                             | 97. Message type nonexistent or not implemented | 98. Message not compatible with call state or message type nonexistent or not implemented or 41 Temporary failure |             |

**Table E-6 Cisco BTS 10200 Softswitch Defined Cause Codes—Protocol Error (continued)**

| Generic Cause Code | SS7<br>A.2.4.3/GR-905-CORE                           | ISDN<br>TABLE I.2/Q.931                                                        | MGCP                             |
|--------------------|------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------|
| 82.                | 99. Parameter not existent or implemented—discarded  | 99. Information element nonexistent or not implemented or 41 Temporary failure |                                  |
| 83.                |                                                      | 100. Invalid information element contents                                      |                                  |
| 84.                | 101. Parameter not existent or implemented—passed on | 101. Message not compatible with call state or 41 Temporary failure            |                                  |
| 85.                | 102. Recovery on timer expiry                        | 102. Recovery on time expiry                                                   |                                  |
| 86.                | 111. Protocol error (default)                        | 111. Protocol error, unspecified or 41 Temporary failure                       | 510. Protocol Error was detected |

**Table E-7 Cisco BTS 10200 Softswitch Defined Cause Codes—Interworking**

| Generic Cause Code  | SS7<br>A.2.4.3/GR-905-CORE              | ISDN<br>TABLE I.2/Q.931        | MGCP |
|---------------------|-----------------------------------------|--------------------------------|------|
| <b>Interworking</b> |                                         |                                |      |
| 91.                 | 127. interworking—unspecified (default) | 127. Interworking, unspecified |      |

The numbered notes are listed below:

1. If, following the receipt of a SETUP message or during overlap sending, the network determines that the call information received from the user is invalid, (for example, an invalid number), then the network follows the procedures for a cause such as one of the following:  
*#1—Unassigned (unallocated) number*  
*#3—No route to destination*  
*#22—Number changed*  
*#28—Invalid number format (incomplete number)*
2. The SETUP message can specify the channel identification information element (IE) for B-channel selection preference indicating preferred channel and alternative channel. If there is no B-channel available for the given criteria, this cause code is sent.
3. In the case of call offering, where multiple terminating exchanges are served with SETUP messages and they in turn respond back with CONNECT messages, the network sends a RELEASE message to the selected users with the cause code call awarded and being delivered in an established channel (#7), and with cause code nonselected user clearing (#26).
4. Upon receipt of a STATUS ENQUIRY message, the receiver responds with a STATUS message, reporting the current call state (the current state of an active call or a call in progress, or the null state if the call reference does not relate to an active call or to a call in progress) and cause #30, as a response to the STATUS ENQUIRY.

5. The terminating exchange can interpret an unspecified cause code as normal clearing (#16), and the originating exchange during the call setup procedure can interpret it as call rejected (#21).
6. IEs with a length exceeding the maximum length are treated as an IE with content error. But for access IEs (for example, a user to user information element or a called-party subaddress IE), cause #43, access information discarded, is used instead of cause No. 100, invalid IE contents.



## APPENDIX **F**

# Admission Reject Cause Code Mapping

Revised: May 31, 2010, OL-12777-12

If the Cisco BTS 10200 Softswitch receives an admission reject (ARJ) when placing an H.323 call, the ARJ maps the cause code received from the gatekeeper to the standard cause codes as shown in [Table F-1](#).

**Table F-1**      **ARJ Cause Code Mappings**

| Admission Reject Reason   | ISDN Cause Code/H.225 Release Complete Reason | Cause Code Description                    |
|---------------------------|-----------------------------------------------|-------------------------------------------|
| CalledPartyNotRegistered  | 21                                            | call rejected                             |
| InvalidPermission         | 21                                            | call rejected                             |
| RequestDenied             | 21                                            | call rejected                             |
| UndefinedReason           | 63                                            | service/option not available, unspecified |
| CallerNotRegistered       | 21                                            | call rejected                             |
| RouteCallToGatekeeper     | 3*                                            | no route to destination                   |
| InvalidEndpointIdentifier | 21                                            | call rejected                             |
| ResourceUnavailable       | 47**                                          | quality of service unavailable            |
| SecurityDenial            | 21                                            | call rejected                             |





## APPENDIX **G**

# H.323 Trunk Group Cause Code Mapping

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Table G-1 shows the defaults for mapping H.323 trunk groups.

**Table G-1** Defaults for H.323 Trunk Groups

| Received Cause Codes | Standard Cause Codes | Actions       | Cause Code Description            | Action Description                                                                                             |
|----------------------|----------------------|---------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------|
| 001                  | 001                  | REATTEMPT     | Unassigned number                 | Reattempt the call by requerying the gatekeeper.                                                               |
| 003                  | 003                  | REATTEMPT     | No route to the destination       | Reattempt the call by requerying the gatekeeper.                                                               |
| 021                  | 021                  | REATTEMPT     | Call rejected                     | Reattempt the call by requerying the gatekeeper.                                                               |
| 031                  | 031                  | REATTEMPT     | Normal, Unspecified               | Reattempt the call by requerying the gatekeeper.                                                               |
| 034                  | 034                  | REATTEMPT     | No circuit available              | Reattempt the call by requerying the gatekeeper.                                                               |
| 038                  | 038                  | REATTEMPT     | Network is out of order           | Reattempt the call by requerying the gatekeeper.                                                               |
| 041                  | 041                  | REATTEMPT     | Temporary failure                 | Reattempt the call by requerying the gatekeeper.                                                               |
| 042                  | 042                  | REATTEMPT     | Switch is congested               | Reattempt the call by requerying the gatekeeper.                                                               |
| 047                  | 034                  | ROUTE-ADVANCE | Resource Unavailable, Unspecified | If additional routes are available in the route table, route advance to the next trunk group within the route. |
| 049                  | 049                  | REATTEMPT     | QoS is not available              | Reattempt the call by requerying the gatekeeper.                                                               |
| 063                  | 063                  | REATTEMPT     | Service or option not available   | Reattempt the call by requerying the gatekeeper.                                                               |







## APPENDIX **H**

# Session Initiation Protocol Cause Code Mapping

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A cause code identifies why a call is released. A Session Initiation Protocol (SIP) call can fail due to an internal failure event rather than in response to an event received from the telephone side. This is analogous to the IP Leg (H.323) Call Clearing section.

The following error codes are generated when the call is released by the SIP interface:

- 127 - Interworking, unspecified
  - Acknowledgment not received on final or reliable provisional response to a SIP 'Invite' or 'Re-Invite' sent.
  - When the Session Description Protocol (SDP) is not received in a SIP 'Ack' request and is expected.
  - When 200 class response to an initial 'Invite' is sent or received and SDP is expected but not available.
- 41 - Temporary failure
  - Request timeout on initial SIP 'Invite' sent.
  - Failure to interpret an ISUP attachment from a received SIP-T provisionable response.
- 102 - Recovery of timer expiry
  - Final response timeout when not sending a final response to an initial SIP 'Invite' within acceptable duration.
  - No response to a 'Re-Invite' or 'Update' request sent during an active call.

[Table H-1](#) maps standard cause codes to SIP response codes.

**Table H-1**      **Standard Cause Codes Mapped to SIP Response Codes**

| Standard Cause Code | Description                            | SIP Response Code | Description         |
|---------------------|----------------------------------------|-------------------|---------------------|
| 1                   | Unallocated Number                     | 404               | Not Found           |
| 2                   | No Route To Network                    | 404               | Not Found           |
| 3                   | No Route To Destination                | 404               | Not Found           |
| 4                   | Vacant Code (ANSI)                     | 404               | Not Found           |
| 5                   | Misdialed Trunk Prefix (ANSI)          | 404               | Not Found           |
| 8                   | 0 Prefix Dialed But Not Allowed (ANSI) | 488               | Not Acceptable Here |

**Table H-1** Standard Cause Codes Mapped to SIP Response Codes (continued)

| Standard Cause Code | Description                                          | SIP Response Code | Description                                            |
|---------------------|------------------------------------------------------|-------------------|--------------------------------------------------------|
| 9                   | 1 Prefix Dialed But Not Allowed (ANSI)               | 488               | Not Acceptable Here                                    |
| 10                  | 1 Prefix Absent                                      | 488               | Not Acceptable Here                                    |
| 16                  | Normal Clearing                                      |                   |                                                        |
| 17                  | User Busy                                            | 486               | Busy Here                                              |
| 18                  | No User Responding                                   | 408               | Request Timeout                                        |
| 19                  | No Answer From the User                              | 480               | Temporarily Unavailable                                |
| 20                  | Subscriber Absent                                    | 480               | Temporarily Unavailable                                |
| 21                  | Call Rejected                                        | 403<br>603        | Forbidden<br>Decline                                   |
| 22                  | Number Changed                                       | 410               | Gone                                                   |
| 22                  | Number Changed                                       | 301               | Moved Permanently (Contact has number from diagnostic) |
| 23                  | Redirection to New Destination                       | 410               | Gone                                                   |
| 26                  | Nonselected User Clearing or Misrouted Ported Number | 404               | Not Found                                              |
| 27                  | Destination Out of Order                             | 502               | Bad Gateway                                            |
| 28                  | Address Incomplete                                   | 484               | Address Incomplete                                     |
| 29                  | Facility Rejected                                    | 501               | Not Implemented                                        |
| 31                  | Normal Unspecified                                   | 480               | Temporarily Unavailable                                |
| 34                  | No Circuit Available                                 | 503               | Service Unavailable                                    |
| 38                  | Network Out of Order                                 | 503               | Service Unavailable                                    |
| 41                  | Temporary Failure                                    | 503               | Service Unavailable                                    |
| 42                  | Switching Equipment Congestion                       | 503               | Service Unavailable                                    |
| 44                  | Requested Circuit Not Available                      | 503               | Service Unavailable                                    |
| 47                  | Resource Unavailable                                 | 503               | Service Unavailable                                    |
| 55                  | Incoming Calls Barred with CUG                       | 403               | Forbidden                                              |
| 57                  | Bearer Capability Not Authorized                     | 403               | Forbidden                                              |
| 58                  | Bearer Capability Not Presently Available            | 503               | Service Unavailable                                    |
| 63                  | Service/Option Not Available                         | 503               | Service Unavailable                                    |
| 65                  | Bearer Capability Not Implemented                    | 488               | Not Acceptable Here                                    |
| 69                  | Requested Facility Not Implemented                   | 606               | Not Acceptable                                         |
| 70                  | Only Restricted Digit Available                      | 488               | Not Acceptable Here                                    |
| 79                  | Service or Option Not Implemented                    | 501               | Not Implemented                                        |

**Table H-1** Standard Cause Codes Mapped to SIP Response Codes (continued)

| Standard Cause Code   | Description              | SIP Response Code | Description           |
|-----------------------|--------------------------|-------------------|-----------------------|
| 87                    | User Not a Member of CUG | 403               | Forbidden             |
| 88                    | Incompatible Destination | 503               | Service Unavailable   |
| 95                    | Invalid Message          | 503               | Service Unavailable   |
| 102                   | Recovery On Timer Expiry | 504               | Gateway Timeout       |
| 111                   | Protocol error           | 500               | Server Internal Error |
| 127                   | Interworking Unspecified | 500               | Server Internal Error |
| All Other Cause Codes |                          | 500               | Server Internal Error |

Table H-2 maps SIP response codes to standard cause codes.

**Table H-2** SIP Response Code to Standard Cause Code Mapping

| SIP Response Code | Description                     | Standard Cause Code | Description                    |
|-------------------|---------------------------------|---------------------|--------------------------------|
| 400               | Bad Request                     | 41                  | Temporary Failure              |
| 401               | Unauthorized                    | 21                  | Call Rejected                  |
| 402               | Payment Required                | 21                  | Call Rejected                  |
| 403               | Forbidden                       | 21                  | Call Rejected                  |
| 404               | Not Found                       | 1                   | Unallocated Number             |
| 405               | Method Not Allowed              | 63                  | Service or Option Unavailable  |
| 406               | Not Acceptable                  | 79                  | Service/Option Not Implemented |
| 407               | Proxy Authentication Required   | 21                  | Call Rejected                  |
| 408               | Request Timeout                 | 102                 | Recovery On Timer Expiry       |
| 409               | Conflict                        |                     |                                |
| 410               | Gone                            | 22                  | Number Changed (no diagnostic) |
| 411               | Length Required                 |                     |                                |
| 413               | Request Entry Too Long          | 127                 | Interworking Unspecified       |
| 414               | Request URI Too Long            | 127                 | Interworking Unspecified       |
| 415               | Unsupported Media Type          | 79                  | Service/Option Not Implemented |
| 416               | Unsupported URI Scheme          | 127                 | Interworking Unspecified       |
| 420               | Bad Extension                   | 127                 | Interworking Unspecified       |
| 421               | Extension Required              | 127                 | Interworking Unspecified       |
| 423               | Interval Too Brief              | 127                 | Interworking Unspecified       |
| 480               | Temporarily Unavailable         | 18                  | User Not Responding            |
| 481               | Call Transaction Does Not Exist | 41                  | Temporary Failure              |
| 482               | Loop Detected                   | 25                  | Exchange Routing Error         |
| 483               | Too Many Hops                   | 25                  | Exchange Routing Error         |
| 484               | Address Incomplete              | 28                  | Invalid Number Format          |

**Table H-2** SIP Response Code to Standard Cause Code Mapping (continued)

| SIP Response Code     | Description             | Standard Cause Code | Description                    |
|-----------------------|-------------------------|---------------------|--------------------------------|
| 485                   | Ambiguous               | 1                   | Unallocated Number             |
| 486                   | Busy Here               | 17                  | Busy Here                      |
| 487                   | Request Terminated      |                     |                                |
| 488                   | Not Acceptable          |                     |                                |
| 500                   | Server Internal Error   | 41                  | Temporary Failure              |
| 501                   | Not Implemented         | 79                  | Service/Option Not Implemented |
| 502                   | Bad Gateway             | 38                  | Network Out of Order           |
| 503                   | Service Unavailable     | 41                  | Temporary Failure              |
| 504                   | Server Timeout          | 102                 | Recovery On Timer Expiry       |
| 505                   | Version Not Supported   | 127                 | Interworking Unspecified       |
| 513                   | Message Too Long        | 127                 | Interworking Unspecified       |
| 600                   | Busy Everywhere         | 17                  | Busy Here                      |
| 603                   | Decline                 | 21                  | Decline                        |
| 604                   | Does Not Exist Anywhere | 1                   | Unallocated Number             |
| 606                   | Not Acceptable          |                     |                                |
| Any Other Status Code |                         | 31                  | Normal Unspecified             |



## Sample Asia Provisioning Script

**Revised: May 31, 2010, OL-12777-12**

The following sample script shows example provisioning for a Cisco BTS 10200 Softswitch Call Agent and Feature Server for Asia.

```
#####
Add Call Agent and Feature Servers
#####

add call-agent id=CA146; mgw-monitoring-enabled=Y;
tsap-addr-sidea=sim-CBTSCA.CiscoBTS.SCUniVoice.net;

add feature-server id=FSAIN205; type=AIN;
tsap-addr-sidea=asm-CBTSAIN.CiscoBTS.SCUniVoice.net;

add feature-server id=FSPTC235; type=POTS;
tsap-addr-sidea=pots-CBTSPTC.CiscoBTS.SCUniVoice.net;

#####
Add NDC EC
#####

add ndc DIGIT_STRING=028;
add ndc digit-string=0816;
add ndc digit-string=0838;

add exchange-code ndc=028; ec=8293;
add exchange-code ndc=0816; ec=681;
add exchange-code ndc=0838; ec=681;

add office-code ndc=028; ec=8293; dn-group=xxxx;
add office-code ndc=0816; ec=681; dn-group=xxxx;
add office-code ndc=0838; ec=681; dn-group=xxxx;

#####
Add digit manipulation
#####

Add mgw ID=30994; TSAP_ADDR=172.28.255.56; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30999; TSAP_ADDR=172.28.255.160; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
```

```

Add mgw ID=30712; TSAP_ADDR=172.16.1.3; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30710; TSAP_ADDR=172.16.1.7; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30718; TSAP_ADDR=172.16.1.48; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30722; TSAP_ADDR=172.16.1.1; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30724; TSAP_ADDR=172.16.1.49; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30728; TSAP_ADDR=172.16.1.45; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30716; TSAP_ADDR=172.16.1.54; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30794; TSAP_ADDR=172.16.1.43; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30790; TSAP_ADDR=172.16.1.46; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=36702; TSAP_ADDR=172.20.0.2; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=36739; TSAP_ADDR=172.20.0.20; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=36797; TSAP_ADDR=172.20.0.11; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=36762; TSAP_ADDR=172.20.0.32; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=36765; TSAP_ADDR=172.20.0.34; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=36782; TSAP_ADDR=172.20.0.42; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=36788; TSAP_ADDR=172.20.0.46; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=36700; TSAP_ADDR=172.20.0.1; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=36704; TSAP_ADDR=172.20.0.3; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=36707; TSAP_ADDR=172.20.0.4; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=36703; TSAP_ADDR=172.20.0.5; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;

Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30994
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =30999
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =30712
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =30710
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =30718
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =30722
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =30724
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =30728
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =30716
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =30794
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =30790
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =36702
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=36700;
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=36704;
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=36707;
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=36703;
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=36739;
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=36797;
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=36762;
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=36765;
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=36782;
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=36788;

```

```

add digit-map ID=CD-local;
DIGIT_PATTERN=0[1-9]|100x|11x|12[0-2]|12[3-9]x.T|13xxxxxxxx|16[0-9]x.T|17[0-8]|179x0|180|
186[0,1]|18[7-9]|19[0-9]x.T|[2-7]xxxxxxxx|800xxxxxxxx|8[1-9]xxxxxx|9[5-6]xxx|*[1-9][0-9]*|*[
1-9][0-9]#|#[1-9][0-9]#|#[1-9][0-9]*|;

add digit-map ID=CD-int;
DIGIT_PATTERN=00[1-9]xxxxxxxx.T|0[1-9]xxxxx.T|010xxxxxxxx|013xxxxxxxx|02[0-8]xxxxxxxx|029
xxxxxxxx|0[3-4]xxxxxxxx|051[0-1]xxxxxxxx|0512xxxxxxxx|051[3-9]xxxxxxxx|05[2-6]xxxxxxxx|0570x
xxxxxxxx|0571xxxxxxxx|057[2-3]xxxxxxxx|0574xxxxxxxx|057[5-6]xxxxxxxx|0577xxxxxxxx|057[8-9]xxxx
xxx|06xxxxxxxx|07[0-4]xxxxxxxx|075[0-4]xxxxxxxx|0755xxxxxxxx|075[6-9]xxxxxxxx|08[0-8]xxxxxxxx
x|089[0-7]xxxxxxxx|0898xxxxxxxx|0899xxxxxxxx|09xxxxxxxx|100x|11x|12[0-2]|12[3-9]x.T|13xxxx
xxxx|16[0-9]x.T|17[0-8]|179x0|179x1x.T|180|186[0,1]|18[7-9]|19[0-9]x.T|[2-7]xxxxxxxx|800xxx
xxxx|8[1-9]xxxxxx|9[5-6]xxx|*[1-9][0-9]*|*[1-9][0-9]#|#[1-9][0-9]#|#[1-9][0-9]*|;

add digit-map ID=CD-nat;
DIGIT_PATTERN=0[1-9]xxxx.T|010xxxxxxxx|013xxxxxxxx|02[0-8]xxxxxxxx|029xxxxxxxx|0[3-4]xxxx
xxxx|051[0-1]xxxxxxxx|0512xxxxxxxx|051[3-9]xxxxxxxx|05[2-6]xxxxxxxx|0570xxxxxxxx|0571xxxxxxxx
|057[2-3]xxxxxxxx|0574xxxxxxxx|057[5-6]xxxxxxxx|0577xxxxxxxx|057[8-9]xxxxxxxx|06xxxxxxxx|07[
0-4]xxxxxxxx|075[0-4]xxxxxxxx|0755xxxxxxxx|075[6-9]xxxxxxxx|08[0-8]xxxxxxxx|089[0-7]xxxxxxxx|0
898xxxxxxxx|0899xxxxxxxx|09xxxxxxxx|100x|11x|12[0-2]|12[3-9]x.T|13xxxxxxxx|16[0-9]x.T|17[
0-8]|179x0|179x1x.T|180|186[0,1]|18[7-9]|19[0-9]x.T|[2-7]xxxxxxxx|800xxxxxxxx|8[1-9]xxxxxx|9
[5-6]xxx|*[1-9][0-9]*|*[1-9][0-9]#|#[1-9][0-9]#|#[1-9][0-9]*|;

add dial-plan-profile id=CD01;
add dial-plan-profile id=CD02;
add dial-plan-profile id=CD03;

add pop ID=1;
STATE=CD;COUNTRY=PRC;TIMEZONE=PRC;DIGIT_MAP_ID=CD-int;LOCAL_7D_DIALING=Y;ITP=N;ZERO_MINUS=
LEC;BLOCK_EAWOPIC=Y;CNAM_OPTION=NONE;PIC2_REQD=N; TREAT_IMS_ANONYMOUS=N;

add sub-profile ID=CD-local; DIGIT_MAP_ID=CD-local;DIAL_PLAN_ID=CD03;
LOCAL_PFX1_OPT=NR;TOLL_PFX1_OPT=RQ;POP_ID=1; OLI=0; EA_USE_PIC1=Y;

add sub-profile ID=CD-nat; DIGIT_MAP_ID=CD-nat; DIAL_PLAN_ID=CD02;LOCAL_PFX1_OPT=NR;
TOLL_PFX1_OPT=RQ; POP_ID=1; OLI=0; EA_USE_PIC1=Y;

add sub-profile
ID=CD-int;DIGIT_MAP_ID=CD-int;DIAL_PLAN_ID=CD01;LOCAL_PFX1_OPT=NR;TOLL_PFX1_OPT=RQ;POP_ID=
1;OLI=0;EA_USE_PIC1=Y;

Add sub ID=30710; CATEGORY=INDIVIDUAL; BILLING_DN=02882930710; DN1=02882930710;
TERM_ID=a001; MGW_ID=30710; SUB_PROFILE_ID=CD-local;
Add sub ID=30711; CATEGORY=INDIVIDUAL; BILLING_DN=02882930711; DN1=02882930711;
TERM_ID=a002; MGW_ID=30710; SUB_PROFILE_ID=CD-local;
Add sub ID=30712; CATEGORY=INDIVIDUAL; BILLING_DN=02882930712; DN1=02882930712;
TERM_ID=a001; MGW_ID=30712; SUB_PROFILE_ID=CD-local;
Add sub ID=30713; CATEGORY=INDIVIDUAL; BILLING_DN=02882930713; DN1=02882930713;
TERM_ID=a002; MGW_ID=30712; SUB_PROFILE_ID=CD-local;
Add sub ID=30716; CATEGORY=INDIVIDUAL; BILLING_DN=02882930716; DN1=02882930716;
TERM_ID=a001; MGW_ID=30716; SUB_PROFILE_ID=CD-local;
Add sub ID=30717; CATEGORY=INDIVIDUAL; BILLING_DN=02882930717; DN1=02882930717;
TERM_ID=a002; MGW_ID=30716; SUB_PROFILE_ID=CD-local;
Add sub ID=30718; CATEGORY=INDIVIDUAL; BILLING_DN=02882930718; DN1=02882930718;
TERM_ID=a001; MGW_ID=30718; SUB_PROFILE_ID=CD-local;
Add sub ID=30719; CATEGORY=INDIVIDUAL; BILLING_DN=02882930719; DN1=02882930719;
TERM_ID=a002; MGW_ID=30718; SUB_PROFILE_ID=CD-local;
Add sub ID=30722; CATEGORY=INDIVIDUAL; BILLING_DN=02882930722; DN1=02882930722;
TERM_ID=a001; MGW_ID=30722; SUB_PROFILE_ID=CD-local;
Add sub ID=30723; CATEGORY=INDIVIDUAL; BILLING_DN=02882930723; DN1=02882930723;
TERM_ID=a002; MGW_ID=30722; SUB_PROFILE_ID=CD-local;
Add sub ID=30724; CATEGORY=INDIVIDUAL; BILLING_DN=02882930724; DN1=02882930724;
TERM_ID=a001; MGW_ID=30724; SUB_PROFILE_ID=CD-nat;

```

```

Add sub ID=30725; CATEGORY=INDIVIDUAL; BILLING_DN=02882930725; DN1=02882930725;
TERM_ID=a002; MGW_ID=30724; SUB_PROFILE_ID=CD-nat;
Add sub ID=30728; CATEGORY=INDIVIDUAL; BILLING_DN=02882930728; DN1=02882930728;
TERM_ID=a001; MGW_ID=30728; SUB_PROFILE_ID=CD-local;
Add sub ID=30729; CATEGORY=INDIVIDUAL; BILLING_DN=02882930729; DN1=02882930729;
TERM_ID=a002; MGW_ID=30728; SUB_PROFILE_ID=CD-local;
Add sub ID=30790; CATEGORY=INDIVIDUAL; BILLING_DN=02882930790; DN1=02882930790;
TERM_ID=a001; MGW_ID=30790; SUB_PROFILE_ID=CD-local;
Add sub ID=30791; CATEGORY=INDIVIDUAL; BILLING_DN=02882930791; DN1=02882930791;
TERM_ID=a002; MGW_ID=30790; SUB_PROFILE_ID=CD-local;
Add sub ID=30794; CATEGORY=INDIVIDUAL; BILLING_DN=02882930794; DN1=02882930794;
TERM_ID=a001; MGW_ID=30794; SUB_PROFILE_ID=CD-local;
Add sub ID=30795; CATEGORY=INDIVIDUAL; BILLING_DN=02882930795; DN1=02882930795;
TERM_ID=a002; MGW_ID=30794; SUB_PROFILE_ID=CD-local;
Add sub ID=30994; CATEGORY=INDIVIDUAL; BILLING_DN=02882930994; DN1=02882930994;
TERM_ID=a001; MGW_ID=30994; SUB_PROFILE_ID=CD-int;
Add sub ID=30999; CATEGORY=INDIVIDUAL; BILLING_DN=02882930999; DN1=02882930999;
TERM_ID=a001; MGW_ID=30999; SUB_PROFILE_ID=CD-int;
Add sub ID=36702; CATEGORY=INDIVIDUAL; BILLING_DN=02882936702; DN1=02882936702;
TERM_ID=a001; MGW_ID=36702; SUB_PROFILE_ID=CD-nat;
Add sub ID=36709; CATEGORY=INDIVIDUAL; BILLING_DN=02882936709; DN1=02882936709;
TERM_ID=a002; MGW_ID=36702; SUB_PROFILE_ID=CD-nat;
Add sub ID=36700; CATEGORY=INDIVIDUAL; BILLING_DN=02882936700; DN1=02882936700;
TERM_ID=a001; MGW_ID=36700; SUB_PROFILE_ID=CD-local;
Add sub ID=36701; CATEGORY=INDIVIDUAL; BILLING_DN=02882936701; DN1=02882936701;
TERM_ID=a001; MGW_ID=36700; SUB_PROFILE_ID=CD-local;
Add sub ID=36704; CATEGORY=INDIVIDUAL; BILLING_DN=02882936704; DN1=02882936704;
TERM_ID=a001; MGW_ID=36704; SUB_PROFILE_ID=CD-local;
Add sub ID=36705; CATEGORY=INDIVIDUAL; BILLING_DN=02882936705; DN1=02882936705;
TERM_ID=a002; MGW_ID=36704; SUB_PROFILE_ID=CD-local;
Add sub ID=36707; CATEGORY=INDIVIDUAL; BILLING_DN=02882936707; DN1=02882936707;
TERM_ID=a001; MGW_ID=36707; SUB_PROFILE_ID=CD-local;
Add sub ID=36706; CATEGORY=INDIVIDUAL; BILLING_DN=02882936706; DN1=02882936706;
TERM_ID=a002; MGW_ID=36707; SUB_PROFILE_ID=CD-local;
Add sub ID=36703; CATEGORY=INDIVIDUAL; BILLING_DN=02882936703; DN1=02882936703;
TERM_ID=a001; MGW_ID=36703; SUB_PROFILE_ID=CD-local;
Add sub ID=36799; CATEGORY=INDIVIDUAL; BILLING_DN=02882936799; DN1=02882936799;
TERM_ID=a002; MGW_ID=36703; SUB_PROFILE_ID=CD-local;
Add sub ID=36739; CATEGORY=INDIVIDUAL; BILLING_DN=02882936739; DN1=02882936739;
TERM_ID=a001; MGW_ID=36739; SUB_PROFILE_ID=CD-local;
Add sub ID=36738; CATEGORY=INDIVIDUAL; BILLING_DN=02882936738; DN1=02882936738;
TERM_ID=a002; MGW_ID=36739; SUB_PROFILE_ID=CD-local;
Add sub ID=36797; CATEGORY=INDIVIDUAL; BILLING_DN=02882936797; DN1=02882936797;
TERM_ID=a001; MGW_ID=36797; SUB_PROFILE_ID=CD-local;
Add sub ID=36798; CATEGORY=INDIVIDUAL; BILLING_DN=02882936798; DN1=02882936798;
TERM_ID=a002; MGW_ID=36797; SUB_PROFILE_ID=CD-local;
Add sub ID=36762; CATEGORY=INDIVIDUAL; BILLING_DN=02882936762; DN1=02882936762;
TERM_ID=a001; MGW_ID=36762; SUB_PROFILE_ID=CD-local;
Add sub ID=36761; CATEGORY=INDIVIDUAL; BILLING_DN=02882936761; DN1=02882936761;
TERM_ID=a002; MGW_ID=36762; SUB_PROFILE_ID=CD-local;
Add sub ID=36765; CATEGORY=INDIVIDUAL; BILLING_DN=02882936765; DN1=02882936765;
TERM_ID=a001; MGW_ID=36765; SUB_PROFILE_ID=CD-local;
Add sub ID=36766; CATEGORY=INDIVIDUAL; BILLING_DN=02882936766; DN1=02882936766;
TERM_ID=a002; MGW_ID=36765; SUB_PROFILE_ID=CD-local;
Add sub ID=36782; CATEGORY=INDIVIDUAL; BILLING_DN=02882936782; DN1=02882936782;
TERM_ID=a001; MGW_ID=36782; SUB_PROFILE_ID=CD-local;
Add sub ID=36783; CATEGORY=INDIVIDUAL; BILLING_DN=02882936783; DN1=02882936783;
TERM_ID=a002; MGW_ID=36782; SUB_PROFILE_ID=CD-local;
Add sub ID=36788; CATEGORY=INDIVIDUAL; BILLING_DN=02882936788; DN1=02882936788;
TERM_ID=a001; MGW_ID=36788; SUB_PROFILE_ID=CD-local;
Add sub ID=36789; CATEGORY=INDIVIDUAL; BILLING_DN=02882936789; DN1=02882936789;
TERM_ID=a002; MGW_ID=36788; SUB_PROFILE_ID=CD-local;

```



```

Equip subscriber-termination ID=30710;
Equip subscriber-termination ID=30711;
Equip subscriber-termination ID=30712;
Equip subscriber-termination ID=30713;
Equip subscriber-termination ID=30716;
Equip subscriber-termination ID=30717;
Equip subscriber-termination ID=30718;
Equip subscriber-termination ID=30719;
Equip subscriber-termination ID=30722;
Equip subscriber-termination ID=30723;
Equip subscriber-termination ID=30724;
Equip subscriber-termination ID=30725;
Equip subscriber-termination ID=30728;
Equip subscriber-termination ID=30729;
Equip subscriber-termination ID=30790;
Equip subscriber-termination ID=30791;
Equip subscriber-termination ID=30794;
Equip subscriber-termination ID=30795;
Equip subscriber-termination ID=30994;
Equip subscriber-termination ID=30999;
Equip subscriber-termination ID=36702;
Equip subscriber-termination ID=36709;
Equip subscriber-termination ID=36700;
Equip subscriber-termination ID=36701;
Equip subscriber-termination ID=36704;
Equip subscriber-termination ID=36705;
Equip subscriber-termination ID=36707;
Equip subscriber-termination ID=36706;
Equip subscriber-termination ID=36703;
Equip subscriber-termination ID=36799;
Equip subscriber-termination ID=36739;
Equip subscriber-termination ID=36738;
Equip subscriber-termination ID=36797;
Equip subscriber-termination ID=36798;
Equip subscriber-termination ID=36762;
Equip subscriber-termination ID=36761;
Equip subscriber-termination ID=36765;
Equip subscriber-termination ID=36766;
Equip subscriber-termination ID=36782;
Equip subscriber-termination ID=36783;
Equip subscriber-termination ID=36788;
Equip subscriber-termination ID=36789;

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```

Add dial-plan ID=CD03; DIGIT_STRING=8293071; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=8293072; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=8293079; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=8293096; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=82930994; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=82930999; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=82936702; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=82936709; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;

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Add dial-plan ID=CD01; DIGIT_STRING=8293071; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD01; DIGIT_STRING=8293072; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD01; DIGIT_STRING=8293079; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD01; DIGIT_STRING=8293096; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD01; DIGIT_STRING=82930994; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD01; DIGIT_STRING=82930999; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD01; DIGIT_STRING=82936702; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD01; DIGIT_STRING=82936709; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;

Add dial-plan ID=CD02; DIGIT_STRING=8293071; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=8293072; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=8293079; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=8293096; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=82930994; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=82930999; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=82936702; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=82936709; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;

Control mgw id=30994; mode=forced; target-state=oos;
Control mgw id=30999; mode=forced; target-state=oos;
Control mgw id=30712; mode=forced; target-state=oos;
Control mgw id=30710; mode=forced; target-state=oos;
Control mgw id=30718; mode=forced; target-state=oos;
Control mgw id=30722; mode=forced; target-state=oos;
Control mgw id=30724; mode=forced; target-state=oos;
Control mgw id=30728; mode=forced; target-state=oos;
Control mgw id=30716; mode=forced; target-state=oos;
Control mgw id=30794; mode=forced; target-state=oos;
Control mgw id=30790; mode=forced; target-state=oos;
Control mgw id=36702; mode=forced; target-state=oos;

Control mgw id=30994; mode=forced; target-state=ins;
Control mgw id=30999; mode=forced; target-state= ins;
Control mgw id=30712; mode=forced; target-state= ins;
Control mgw id=30710; mode=forced; target-state= ins;
Control mgw id=30718; mode=forced; target-state= ins;
Control mgw id=30722; mode=forced; target-state= ins;
Control mgw id=30724; mode=forced; target-state= ins;
Control mgw id=30728; mode=forced; target-state= ins;
Control mgw id=30716; mode=forced; target-state= ins;
Control mgw id=30794; mode=forced; target-state= ins;
Control mgw id=30790; mode=forced; target-state= ins;
Control mgw id=36702; mode=forced; target-state= ins;
Control mgw id=36700; mode=forced; target-state=ins;
Control mgw id=36704; mode=forced; target-state=ins;

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Control mgw id=36707; mode=forced; target-state=ins;
Control mgw id=36703; mode=forced; target-state=ins;
Control mgw id=36739; mode=forced; target-state=ins;
Control mgw id=36797; mode=forced; target-state=ins;
Control mgw id=36762; mode=forced; target-state=ins;
Control mgw id=36765; mode=forced; target-state=ins;
Control mgw id=36782; mode=forced; target-state=ins;
Control mgw id=36788; mode=forced; target-state=ins;
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Control subscriber-termination mode=forced; target-state=ins; ID=30710;
Control subscriber-termination mode=forced; target-state=ins; ID=30711;
Control subscriber-termination mode=forced; target-state=ins; ID=30712;
Control subscriber-termination mode=forced; target-state=ins; ID=30713;
Control subscriber-termination mode=forced; target-state=ins; ID=30716;
Control subscriber-termination mode=forced; target-state=ins; ID=30717;
Control subscriber-termination mode=forced; target-state=ins; ID=30718;
Control subscriber-termination mode=forced; target-state=ins; ID=30719;
Control subscriber-termination mode=forced; target-state=ins; ID=30722;
Control subscriber-termination mode=forced; target-state=ins; ID=30723;
Control subscriber-termination mode=forced; target-state=ins; ID=30724;
Control subscriber-termination mode=forced; target-state=ins; ID=30725;
Control subscriber-termination mode=forced; target-state=ins; ID=30728;
Control subscriber-termination mode=forced; target-state=ins; ID=30729;
Control subscriber-termination mode=forced; target-state=ins; ID=30790;
Control subscriber-termination mode=forced; target-state=ins; ID=30791;
Control subscriber-termination mode=forced; target-state=ins; ID=30794;
Control subscriber-termination mode=forced; target-state=ins; ID=30795;
Control subscriber-termination mode=forced; target-state=ins; ID=30994;
Control subscriber-termination mode=forced; target-state=ins; ID=30999;
Control subscriber-termination mode=forced; target-state=ins; ID=36702;
Control subscriber-termination mode=forced; target-state=ins; ID=36709;
Control subscriber-termination mode=forced; target-state=ins; ID=36700;
Control subscriber-termination mode=forced; target-state=ins; ID=36701;
Control subscriber-termination mode=forced; target-state=ins; ID=36704;
Control subscriber-termination mode=forced; target-state=ins; ID=36705;
Control subscriber-termination mode=forced; target-state=ins; ID=36707;
Control subscriber-termination mode=forced; target-state=ins; ID=36706;
Control subscriber-termination mode=forced; target-state=ins; ID=36703;
Control subscriber-termination mode=forced; target-state=ins; ID=36799;
Control subscriber-termination mode=forced; target-state=ins; ID=36739;
Control subscriber-termination mode=forced; target-state=ins; ID=36738;
Control subscriber-termination mode=forced; target-state=ins; ID=36797;
Control subscriber-termination mode=forced; target-state=ins; ID=36798;
Control subscriber-termination mode=forced; target-state=ins; ID=36762;
Control subscriber-termination mode=forced; target-state=ins; ID=36761;
Control subscriber-termination mode=forced; target-state=ins; ID=36765;
Control subscriber-termination mode=forced; target-state=ins; ID=36766;
Control subscriber-termination mode=forced; target-state=ins; ID=36782;
Control subscriber-termination mode=forced; target-state=ins; ID=36783;
Control subscriber-termination mode=forced; target-state=ins; ID=36788;
Control subscriber-termination mode=forced; target-state=ins; ID=36789;
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Add sub-service-profile service-id=123; sub-id=30710;
Add sub-service-profile service-id=123; sub-id=30711;
Add sub-service-profile service-id=123; sub-id=30712;
Add sub-service-profile service-id=123; sub-id=30713;
Add sub-service-profile service-id=123; sub-id=30716;
Add sub-service-profile service-id=123; sub-id=30717;
Add sub-service-profile service-id=123; sub-id=30718;
Add sub-service-profile service-id=123; sub-id=30719;
Add sub-service-profile service-id=123; sub-id=30722;
Add sub-service-profile service-id=123; sub-id=30723;
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Add sub-service-profile service-id=123; sub-id=30724;
Add sub-service-profile service-id=123; sub-id=30725;
Add sub-service-profile service-id=123; sub-id=30728;
Add sub-service-profile service-id=123; sub-id=30729;
Add sub-service-profile service-id=123; sub-id=30790;
Add sub-service-profile service-id=123; sub-id=30791;
Add sub-service-profile service-id=123; sub-id=30794;
Add sub-service-profile service-id=123; sub-id=30795;
Add sub-service-profile service-id=123; sub-id=30994;
Add sub-service-profile service-id=123; sub-id=30999;
Add sub-service-profile service-id=123; sub-id=36702;
Add sub-service-profile service-id=123; sub-id=36709;
Add sub-service-profile service-id=123; sub-ID=36700;
Add sub-service-profile service-id=123; sub-ID=36701;
Add sub-service-profile service-id=123; sub-ID=36704;
Add sub-service-profile service-id=123; sub-ID=36705;
Add sub-service-profile service-id=123; sub-ID=36707;
Add sub-service-profile service-id=123; sub-ID=36706;
Add sub-service-profile service-id=123; sub-ID=36703;
Add sub-service-profile service-id=123; sub-ID=36799;
Add sub-service-profile service-id=123; sub-ID=36739;
Add sub-service-profile service-id=123; sub-ID=36738;
Add sub-service-profile service-id=123; sub-ID=36797;
Add sub-service-profile service-id=123; sub-ID=36798;
Add sub-service-profile service-id=123; sub-ID=36762;
Add sub-service-profile service-id=123; sub-ID=36761;
Add sub-service-profile service-id=123; sub-ID=36765;
Add sub-service-profile service-id=123; sub-ID=36766;
Add sub-service-profile service-id=123; sub-ID=36782;
Add sub-service-profile service-id=123; sub-ID=36783;
Add sub-service-profile service-id=123; sub-ID=36788;
Add sub-service-profile service-id=123; sub-ID=36789;

Add dial-plan ID=CD01; DIGIT_STRING=8293670; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=8293670; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=8293670; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;

Add dial-plan ID=CD01; DIGIT_STRING=8293679; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=8293679; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=8293679; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;

Add dial-plan ID=CD01; DIGIT_STRING=8293673; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=8293673; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=8293673; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;

Add dial-plan ID=CD01; DIGIT_STRING=8293679; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=8293679; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=8293679; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;

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Add dial-plan ID=CD01; DIGIT_STRING=8293676; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=8293676; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=8293676; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;

Add dial-plan ID=CD01; DIGIT_STRING=8293678; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=8293678; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=8293678; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;

Add mgw ID=30730; TSAP_ADDR=172.16.1.2; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30736; TSAP_ADDR=172.16.1.40; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30848; TSAP_ADDR=172.16.1.51; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30800; TSAP_ADDR=172.16.1.44; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30836; TSAP_ADDR=172.16.1.30; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=36710; TSAP_ADDR=172.20.0.6; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;

Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30730
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30736
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30848
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30800
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30836
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=36710

Add sub ID=30730; CATEGORY=INDIVIDUAL; BILLING_DN=02882930730; DN1=02882930730;
TERM_ID=a001; MGW_ID=30730; SUB_PROFILE_ID=CD-int;
Add sub ID=30731; CATEGORY=INDIVIDUAL; BILLING_DN=02882930731; DN1=02882930731;
TERM_ID=a002; MGW_ID=30730; SUB_PROFILE_ID=CD-int;
Add sub ID=30736; CATEGORY=INDIVIDUAL; BILLING_DN=02882930736; DN1=02882930736;
TERM_ID=a001; MGW_ID=30736; SUB_PROFILE_ID=CD-local;
Add sub ID=30737; CATEGORY=INDIVIDUAL; BILLING_DN=02882930737; DN1=02882930737;
TERM_ID=a002; MGW_ID=30736; SUB_PROFILE_ID=CD-local;
Add sub ID=30848; CATEGORY=INDIVIDUAL; BILLING_DN=02882930848; DN1=02882930848;
TERM_ID=a001; MGW_ID=30848; SUB_PROFILE_ID=CD-local;
Add sub ID=30849; CATEGORY=INDIVIDUAL; BILLING_DN=02882930849; DN1=02882930849;
TERM_ID=a002; MGW_ID=30848; SUB_PROFILE_ID=CD-local;
Add sub ID=30800; CATEGORY=INDIVIDUAL; BILLING_DN=02882930800; DN1=02882930800;
TERM_ID=a001; MGW_ID=30800; SUB_PROFILE_ID=CD-local;
Add sub ID=30801; CATEGORY=INDIVIDUAL; BILLING_DN=02882930801; DN1=02882930801;
TERM_ID=a002; MGW_ID=30800; SUB_PROFILE_ID=CD-local;
Add sub ID=30836; CATEGORY=INDIVIDUAL; BILLING_DN=02882930836; DN1=02882930836;
TERM_ID=a001; MGW_ID=30836; SUB_PROFILE_ID=CD-local;
Add sub ID=30837; CATEGORY=INDIVIDUAL; BILLING_DN=02882930837; DN1=02882930837;
TERM_ID=a002; MGW_ID=30836; SUB_PROFILE_ID=CD-local;
Add sub ID=36710; CATEGORY=INDIVIDUAL; BILLING_DN=02882936710; DN1=02882936710;
TERM_ID=a001; MGW_ID=36710; SUB_PROFILE_ID=CD-local;
Add sub ID=36711; CATEGORY=INDIVIDUAL; BILLING_DN=02882936711; DN1=02882936711;
TERM_ID=a002; MGW_ID=36710; SUB_PROFILE_ID=CD-local;

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Equip subscriber-termination ID=30730;
Equip subscriber-termination ID=30731;
Equip subscriber-termination ID=30736;
Equip subscriber-termination ID=30737;
Equip subscriber-termination ID=30848;
Equip subscriber-termination ID=30849;
Equip subscriber-termination ID=30800;
Equip subscriber-termination ID=30801;
Equip subscriber-termination ID=30836;
Equip subscriber-termination ID=30837;
Equip subscriber-termination ID=36710;
Equip subscriber-termination ID=36711;

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Control mgw id=30730; mode=forced; target-state=ins;
Control mgw id=30736; mode=forced; target-state=ins;
Control mgw id=30848; mode=forced; target-state=ins;
Control mgw id=30800; mode=forced; target-state=ins;
Control mgw id=30836; mode=forced; target-state=ins;
Control mgw id=36710; mode=forced; target-state=ins;

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Control subscriber-termination mode=forced; target-state=ins; ID=30730;
Control subscriber-termination mode=forced; target-state=ins; ID=30731;
Control subscriber-termination mode=forced; target-state=ins; ID=30736;
Control subscriber-termination mode=forced; target-state=ins; ID=30737;
Control subscriber-termination mode=forced; target-state=ins; ID=30848;
Control subscriber-termination mode=forced; target-state=ins; ID=30849;
Control subscriber-termination mode=forced; target-state=ins; ID=30800;
Control subscriber-termination mode=forced; target-state=ins; ID=30801;
Control subscriber-termination mode=forced; target-state=ins; ID=30836;
Control subscriber-termination mode=forced; target-state=ins; ID=30837;
Control subscriber-termination mode=forced; target-state=ins; ID=36710;
Control subscriber-termination mode=forced; target-state=ins; ID=36711;

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Add sub-service-profile service-id=123; sub-ID=30730;
Add sub-service-profile service-id=123; sub-ID=30731;
Add sub-service-profile service-id=123; sub-ID=30736;
Add sub-service-profile service-id=123; sub-ID=30737;
Add sub-service-profile service-id=123; sub-ID=30848;
Add sub-service-profile service-id=123; sub-ID=30849;
Add sub-service-profile service-id=123; sub-ID=30800;
Add sub-service-profile service-id=123; sub-ID=30801;
Add sub-service-profile service-id=123; sub-ID=30836;
Add sub-service-profile service-id=123; sub-ID=30837;
Add sub-service-profile service-id=123; sub-ID=36710;
Add sub-service-profile service-id=123; sub-ID=36711;

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Add dial-plan ID=CD01; DIGIT_STRING=8293073; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD01; DIGIT_STRING=8293084; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD01; DIGIT_STRING=8293080; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD01; DIGIT_STRING=8293083; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=8293073; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=8293084; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=8293080; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;

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Add dial-plan ID=CD02; DIGIT_STRING=8293083; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=8293073; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=8293084; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=8293080; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=8293083; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;

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Add mgw ID=30742; TSAP_ADDR=172.16.1.12; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30732; TSAP_ADDR=172.16.1.8; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30750; TSAP_ADDR=172.16.1.19; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30772; TSAP_ADDR=172.16.1.24; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30740; TSAP_ADDR=172.16.1.27; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30764; TSAP_ADDR=172.16.1.28; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30754; TSAP_ADDR=172.16.1.16; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30758; TSAP_ADDR=172.30.1.5; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30770; TSAP_ADDR=172.16.1.32; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30774; TSAP_ADDR=172.16.1.33; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30744; TSAP_ADDR=172.16.1.17; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30777; TSAP_ADDR=172.30.1.4; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30792; TSAP_ADDR=172.16.1.35; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=kom7; TSAP_ADDR=172.28.255.248; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;

```

```

Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30742
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30732
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30750
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30772
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30740
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30764
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30754
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30758
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30770
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30774
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30744
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30777
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30792
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=kom7

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```

Add sub ID=30742; CATEGORY=INDIVIDUAL; BILLING_DN=02882930742; DN1=02882930742;
TERM_ID=a001; MGW_ID=30742; SUB_PROFILE_ID=CD-int;

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Add sub ID=30743; CATEGORY=INDIVIDUAL; BILLING_DN=02882930743; DN1=02882930743;
TERM_ID=a002; MGW_ID=30742; SUB_PROFILE_ID=CD-int;
Add sub ID=30732; CATEGORY=INDIVIDUAL; BILLING_DN=02882930732; DN1=02882930732;
TERM_ID=a001; MGW_ID=30732; SUB_PROFILE_ID=CD-local;
Add sub ID=30733; CATEGORY=INDIVIDUAL; BILLING_DN=02882930733; DN1=02882930733;
TERM_ID=a002; MGW_ID=30732; SUB_PROFILE_ID=CD-local;
Add sub ID=30750; CATEGORY=INDIVIDUAL; BILLING_DN=02882930750; DN1=02882930750;
TERM_ID=a001; MGW_ID=30750; SUB_PROFILE_ID=CD-local;
Add sub ID=30751; CATEGORY=INDIVIDUAL; BILLING_DN=02882930751; DN1=02882930751;
TERM_ID=a002; MGW_ID=30750; SUB_PROFILE_ID=CD-local;
Add sub ID=30772; CATEGORY=INDIVIDUAL; BILLING_DN=02882930772; DN1=02882930772;
TERM_ID=a001; MGW_ID=30772; SUB_PROFILE_ID=CD-local;
Add sub ID=30773; CATEGORY=INDIVIDUAL; BILLING_DN=02882930773; DN1=02882930773;
TERM_ID=a002; MGW_ID=30772; SUB_PROFILE_ID=CD-local;
Add sub ID=30740; CATEGORY=INDIVIDUAL; BILLING_DN=02882930740; DN1=02882930740;
TERM_ID=a001; MGW_ID=30740; SUB_PROFILE_ID=CD-local;
Add sub ID=30741; CATEGORY=INDIVIDUAL; BILLING_DN=02882930741; DN1=02882930741;
TERM_ID=a002; MGW_ID=30740; SUB_PROFILE_ID=CD-local;
Add sub ID=30764; CATEGORY=INDIVIDUAL; BILLING_DN=02882930764; DN1=02882930764;
TERM_ID=a001; MGW_ID=30764; SUB_PROFILE_ID=CD-local;
Add sub ID=30765; CATEGORY=INDIVIDUAL; BILLING_DN=02882930765; DN1=02882930765;
TERM_ID=a002; MGW_ID=30764; SUB_PROFILE_ID=CD-local;
Add sub ID=30754; CATEGORY=INDIVIDUAL; BILLING_DN=02882930754; DN1=02882930754;
TERM_ID=a001; MGW_ID=30754; SUB_PROFILE_ID=CD-local;
Add sub ID=30755; CATEGORY=INDIVIDUAL; BILLING_DN=02882930755; DN1=02882930755;
TERM_ID=a002; MGW_ID=30754; SUB_PROFILE_ID=CD-local;
Add sub ID=30758; CATEGORY=INDIVIDUAL; BILLING_DN=02882930758; DN1=02882930758;
TERM_ID=a001; MGW_ID=30758; SUB_PROFILE_ID=CD-local;
Add sub ID=30759; CATEGORY=INDIVIDUAL; BILLING_DN=02882930759; DN1=02882930759;
TERM_ID=a002; MGW_ID=30758; SUB_PROFILE_ID=CD-local;
Add sub ID=30770; CATEGORY=INDIVIDUAL; BILLING_DN=02882930770; DN1=02882930770;
TERM_ID=a001; MGW_ID=30770; SUB_PROFILE_ID=CD-local;
Add sub ID=30771; CATEGORY=INDIVIDUAL; BILLING_DN=02882930771; DN1=02882930771;
TERM_ID=a002; MGW_ID=30770; SUB_PROFILE_ID=CD-local;
Add sub ID=30774; CATEGORY=INDIVIDUAL; BILLING_DN=02882930774; DN1=02882930774;
TERM_ID=a001; MGW_ID=30774; SUB_PROFILE_ID=CD-local;
Add sub ID=30775; CATEGORY=INDIVIDUAL; BILLING_DN=02882930775; DN1=02882930775;
TERM_ID=a002; MGW_ID=30774; SUB_PROFILE_ID=CD-local;
Add sub ID=30744; CATEGORY=INDIVIDUAL; BILLING_DN=02882930744; DN1=02882930744;
TERM_ID=a001; MGW_ID=30744; SUB_PROFILE_ID=CD-local;
Add sub ID=30745; CATEGORY=INDIVIDUAL; BILLING_DN=02882930745; DN1=02882930745;
TERM_ID=a002; MGW_ID=30744; SUB_PROFILE_ID=CD-local;
Add sub ID=30777; CATEGORY=INDIVIDUAL; BILLING_DN=02882930777; DN1=02882930777;
TERM_ID=a001; MGW_ID=30777; SUB_PROFILE_ID=CD-local;
Add sub ID=30776; CATEGORY=INDIVIDUAL; BILLING_DN=02882930776; DN1=02882930776;
TERM_ID=a002; MGW_ID=30777; SUB_PROFILE_ID=CD-local;
Add sub ID=30792; CATEGORY=INDIVIDUAL; BILLING_DN=02882930792; DN1=02882930792;
TERM_ID=a001; MGW_ID=30792; SUB_PROFILE_ID=CD-local;
Add sub ID=30793; CATEGORY=INDIVIDUAL; BILLING_DN=02882930793; DN1=02882930793;
TERM_ID=a002; MGW_ID=30792; SUB_PROFILE_ID=CD-local;
Add sub ID=kom7_1; CATEGORY=INDIVIDUAL; BILLING_DN=08386810001; DN1=08386810001;
TERM_ID=a001; MGW_ID=kom7; SUB_PROFILE_ID=CD-int;
Add sub ID=kom7_2; CATEGORY=INDIVIDUAL; BILLING_DN=08386810002; DN1=08386810002;
TERM_ID=a002; MGW_ID=kom7; SUB_PROFILE_ID=CD-int;
Add sub ID=kom6_1; CATEGORY=INDIVIDUAL; BILLING_DN=08166810001; DN1=08166810001;
TERM_ID=a001; MGW_ID=kom6; SUB_PROFILE_ID=CD-int;
Add sub ID=kom6_2; CATEGORY=INDIVIDUAL; BILLING_DN=08166810002; DN1=08166810002;
TERM_ID=a002; MGW_ID=kom6; SUB_PROFILE_ID=CD-int;

Equip subscriber-termination ID=30742;
Equip subscriber-termination ID=30743;
Equip subscriber-termination ID=30732;

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Equip subscriber-termination ID=30733;
Equip subscriber-termination ID=30750;
Equip subscriber-termination ID=30751;
Equip subscriber-termination ID=30772;
Equip subscriber-termination ID=30773;
Equip subscriber-termination ID=30740;
Equip subscriber-termination ID=30741;
Equip subscriber-termination ID=30764;
Equip subscriber-termination ID=30765;
Equip subscriber-termination ID=30754;
Equip subscriber-termination ID=30755;
Equip subscriber-termination ID=30758;
Equip subscriber-termination ID=30759;
Equip subscriber-termination ID=30770;
Equip subscriber-termination ID=30771;
Equip subscriber-termination ID=30774;
Equip subscriber-termination ID=30775;
Equip subscriber-termination ID=30744;
Equip subscriber-termination ID=30745;
Equip subscriber-termination ID=30777;
Equip subscriber-termination ID=30776;
Equip subscriber-termination ID=30792;
Equip subscriber-termination ID=30793;

```

```

Control mgw id=30742; mode=forced; target-state=ins;
Control mgw id=30732; mode=forced; target-state=ins;
Control mgw id=30750; mode=forced; target-state=ins;
Control mgw id=30772; mode=forced; target-state=ins;
Control mgw id=30740; mode=forced; target-state=ins;
Control mgw id=30764; mode=forced; target-state=ins;
Control mgw id=30754; mode=forced; target-state=ins;
Control mgw id=30758; mode=forced; target-state=ins;
Control mgw id=30770; mode=forced; target-state=ins;
Control mgw id=30774; mode=forced; target-state=ins;
Control mgw id=30744; mode=forced; target-state=ins;
Control mgw id=30777; mode=forced; target-state=ins;
Control mgw id=30792; mode=forced; target-state=ins;

```

```

Control subscriber-termination mode=forced; target-state=ins; ID=30742;
Control subscriber-termination mode=forced; target-state=ins; ID=30743;
Control subscriber-termination mode=forced; target-state=ins; ID=30732;
Control subscriber-termination mode=forced; target-state=ins; ID=30733;
Control subscriber-termination mode=forced; target-state=ins; ID=30750;
Control subscriber-termination mode=forced; target-state=ins; ID=30751;
Control subscriber-termination mode=forced; target-state=ins; ID=30772;
Control subscriber-termination mode=forced; target-state=ins; ID=30773;
Control subscriber-termination mode=forced; target-state=ins; ID=30740;
Control subscriber-termination mode=forced; target-state=ins; ID=30741;
Control subscriber-termination mode=forced; target-state=ins; ID=30764;
Control subscriber-termination mode=forced; target-state=ins; ID=30765;
Control subscriber-termination mode=forced; target-state=ins; ID=30754;
Control subscriber-termination mode=forced; target-state=ins; ID=30755;
Control subscriber-termination mode=forced; target-state=ins; ID=30758;
Control subscriber-termination mode=forced; target-state=ins; ID=30759;
Control subscriber-termination mode=forced; target-state=ins; ID=30770;
Control subscriber-termination mode=forced; target-state=ins; ID=30771;
Control subscriber-termination mode=forced; target-state=ins; ID=30774;
Control subscriber-termination mode=forced; target-state=ins; ID=30775;
Control subscriber-termination mode=forced; target-state=ins; ID=30744;
Control subscriber-termination mode=forced; target-state=ins; ID=30745;

```

```
Control subscriber-termination mode=forced; target-state=ins; ID=30777;
Control subscriber-termination mode=forced; target-state=ins; ID=30776;
Control subscriber-termination mode=forced; target-state=ins; ID=30792;
Control subscriber-termination mode=forced; target-state=ins; ID=30793;
```

```
Add sub-service-profile service-id=123; sub-ID=30742;
Add sub-service-profile service-id=123; sub-ID=30743;
Add sub-service-profile service-id=123; sub-ID=30732;
Add sub-service-profile service-id=123; sub-ID=30733;
Add sub-service-profile service-id=123; sub-ID=30750;
Add sub-service-profile service-id=123; sub-ID=30751;
Add sub-service-profile service-id=123; sub-ID=30772;
Add sub-service-profile service-id=123; sub-ID=30773;
Add sub-service-profile service-id=123; sub-ID=30740;
Add sub-service-profile service-id=123; sub-ID=30741;
Add sub-service-profile service-id=123; sub-ID=30764;
Add sub-service-profile service-id=123; sub-ID=30765;
Add sub-service-profile service-id=123; sub-ID=30754;
Add sub-service-profile service-id=123; sub-ID=30755;
Add sub-service-profile service-id=123; sub-ID=30758;
Add sub-service-profile service-id=123; sub-ID=30759;
Add sub-service-profile service-id=123; sub-ID=30770;
Add sub-service-profile service-id=123; sub-ID=30771;
Add sub-service-profile service-id=123; sub-ID=30774;
Add sub-service-profile service-id=123; sub-ID=30775;
Add sub-service-profile service-id=123; sub-ID=30744;
Add sub-service-profile service-id=123; sub-ID=30745;
Add sub-service-profile service-id=123; sub-ID=30777;
Add sub-service-profile service-id=123; sub-ID=30776;
Add sub-service-profile service-id=123; sub-ID=30792;
Add sub-service-profile service-id=123; sub-ID=30793;
```

```
Add dial-plan ID=CD01; DIGIT_STRING=829307; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=829307; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=829307; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
```

```
Delete dial-plan ID=CD01; DIGIT_STRING=8293071; NOA=UNKNOWN;
Delete dial-plan ID=CD01; DIGIT_STRING=8293072; NOA=UNKNOWN;
Delete dial-plan ID=CD01; DIGIT_STRING=8293073; NOA=UNKNOWN;
Delete dial-plan ID=CD01; DIGIT_STRING=8293079; NOA=UNKNOWN;
```

```
Delete dial-plan ID=CD02; DIGIT_STRING=8293071; NOA=UNKNOWN;
Delete dial-plan ID=CD02; DIGIT_STRING=8293072; NOA=UNKNOWN;
Delete dial-plan ID=CD02; DIGIT_STRING=8293073; NOA=UNKNOWN;
Delete dial-plan ID=CD02; DIGIT_STRING=8293079; NOA=UNKNOWN;
```

```
Delete dial-plan ID=CD03; DIGIT_STRING=8293071; NOA=UNKNOWN;
Delete dial-plan ID=CD03; DIGIT_STRING=8293072; NOA=UNKNOWN;
Delete dial-plan ID=CD03; DIGIT_STRING=8293073; NOA=UNKNOWN;
Delete dial-plan ID=CD03; DIGIT_STRING=8293079; NOA=UNKNOWN;
```

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```
Add mgw ID=30738; TSAP_ADDR=172.16.1.37; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30808; TSAP_ADDR=172.16.1.13; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30810; TSAP_ADDR=172.16.1.5; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
```

```
Add mgw ID=30816; TSAP_ADDR=172.16.1.10; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30818; TSAP_ADDR=172.16.1.6; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30854; TSAP_ADDR=172.16.1.4; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30862; TSAP_ADDR=172.30.1.26; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30866; TSAP_ADDR=172.16.1.38; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30780; TSAP_ADDR=172.30.1.104; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
Add mgw ID=30870; TSAP_ADDR=172.16.1.57; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
CALL_AGENT_CONTROL_PORT=2728; RGW=Y;
```

```
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30738
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30808
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30810
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30816
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30818
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30854
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30862
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30866
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30780
Add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30870
```

```
Add sub ID=30738; CATEGORY=INDIVIDUAL; BILLING_DN=02882930738; DN1=02882930738;
TERM_ID=a001; MGW_ID=30738; SUB_PROFILE_ID=CD-int;
Add sub ID=30739; CATEGORY=INDIVIDUAL; BILLING_DN=02882930739; DN1=02882930739;
TERM_ID=a002; MGW_ID=30738; SUB_PROFILE_ID=CD-int;
Add sub ID=30808; CATEGORY=INDIVIDUAL; BILLING_DN=02882930808; DN1=02882930808;
TERM_ID=a001; MGW_ID=30808; SUB_PROFILE_ID=CD-local;
Add sub ID=30809; CATEGORY=INDIVIDUAL; BILLING_DN=02882930809; DN1=02882930809;
TERM_ID=a002; MGW_ID=30808; SUB_PROFILE_ID=CD-local;
Add sub ID=30810; CATEGORY=INDIVIDUAL; BILLING_DN=02882930810; DN1=02882930810;
TERM_ID=a001; MGW_ID=30810; SUB_PROFILE_ID=CD-local;
Add sub ID=30811; CATEGORY=INDIVIDUAL; BILLING_DN=02882930811; DN1=02882930811;
TERM_ID=a002; MGW_ID=30810; SUB_PROFILE_ID=CD-local;
Add sub ID=30816; CATEGORY=INDIVIDUAL; BILLING_DN=02882930816; DN1=02882930816;
TERM_ID=a001; MGW_ID=30816; SUB_PROFILE_ID=CD-local;
Add sub ID=30817; CATEGORY=INDIVIDUAL; BILLING_DN=02882930817; DN1=02882930817;
TERM_ID=a002; MGW_ID=30816; SUB_PROFILE_ID=CD-local;
Add sub ID=30818; CATEGORY=INDIVIDUAL; BILLING_DN=02882930818; DN1=02882930818;
TERM_ID=a001; MGW_ID=30818; SUB_PROFILE_ID=CD-local;
Add sub ID=30819; CATEGORY=INDIVIDUAL; BILLING_DN=02882930819; DN1=02882930819;
TERM_ID=a002; MGW_ID=30818; SUB_PROFILE_ID=CD-local;
Add sub ID=30854; CATEGORY=INDIVIDUAL; BILLING_DN=02882930854; DN1=02882930854;
TERM_ID=a001; MGW_ID=30854; SUB_PROFILE_ID=CD-local;
Add sub ID=30855; CATEGORY=INDIVIDUAL; BILLING_DN=02882930855; DN1=02882930855;
TERM_ID=a002; MGW_ID=30854; SUB_PROFILE_ID=CD-local;
Add sub ID=30862; CATEGORY=INDIVIDUAL; BILLING_DN=02882930862; DN1=02882930862;
TERM_ID=a001; MGW_ID=30862; SUB_PROFILE_ID=CD-local;
Add sub ID=30863; CATEGORY=INDIVIDUAL; BILLING_DN=02882930863; DN1=02882930863;
TERM_ID=a002; MGW_ID=30862; SUB_PROFILE_ID=CD-local;
Add sub ID=30866; CATEGORY=INDIVIDUAL; BILLING_DN=02882930866; DN1=02882930866;
TERM_ID=a001; MGW_ID=30866; SUB_PROFILE_ID=CD-local;
Add sub ID=30867; CATEGORY=INDIVIDUAL; BILLING_DN=02882930867; DN1=02882930867;
TERM_ID=a002; MGW_ID=30866; SUB_PROFILE_ID=CD-local;
Add sub ID=30780; CATEGORY=INDIVIDUAL; BILLING_DN=02882930780; DN1=02882930780;
TERM_ID=a001; MGW_ID=30780; SUB_PROFILE_ID=CD-local;
Add sub ID=30781; CATEGORY=INDIVIDUAL; BILLING_DN=02882930781; DN1=02882930781;
TERM_ID=a002; MGW_ID=30780; SUB_PROFILE_ID=CD-local;
```

```
Add sub ID=30870; CATEGORY=INDIVIDUAL; BILLING_DN=02882930870; DN1=02882930870;
TERM_ID=a001; MGW_ID=30870; SUB_PROFILE_ID=CD-local;
Add sub ID=30871; CATEGORY=INDIVIDUAL; BILLING_DN=02882930871; DN1=02882930871;
TERM_ID=a002; MGW_ID=30870; SUB_PROFILE_ID=CD-local;
```

```
Equip subscriber-termination ID=30738;
Equip subscriber-termination ID=30739;
Equip subscriber-termination ID=30808;
Equip subscriber-termination ID=30809;
Equip subscriber-termination ID=30810;
Equip subscriber-termination ID=30811;
Equip subscriber-termination ID=30816;
Equip subscriber-termination ID=30817;
Equip subscriber-termination ID=30818;
Equip subscriber-termination ID=30819;
Equip subscriber-termination ID=30854;
Equip subscriber-termination ID=30855;
Equip subscriber-termination ID=30862;
Equip subscriber-termination ID=30863;
Equip subscriber-termination ID=30866;
Equip subscriber-termination ID=30867;
Equip subscriber-termination ID=30780;
Equip subscriber-termination ID=30781;
Equip subscriber-termination ID=30870;
Equip subscriber-termination ID=30871;
```

```
Control mgw id=30738; mode=forced; target-state=ins;
Control mgw id=30808; mode=forced; target-state=ins;
Control mgw id=30810; mode=forced; target-state=ins;
Control mgw id=30816; mode=forced; target-state=ins;
Control mgw id=30818; mode=forced; target-state=ins;
Control mgw id=30854; mode=forced; target-state=ins;
Control mgw id=30862; mode=forced; target-state=ins;
Control mgw id=30866; mode=forced; target-state=ins;
Control mgw id=30780; mode=forced; target-state=ins;
Control mgw id=30870; mode=forced; target-state=ins;
```

```
Control subscriber-termination mode=forced; target-state=ins; ID=30738;
Control subscriber-termination mode=forced; target-state=ins; ID=30739;
Control subscriber-termination mode=forced; target-state=ins; ID=30808;
Control subscriber-termination mode=forced; target-state=ins; ID=30809;
Control subscriber-termination mode=forced; target-state=ins; ID=30810;
Control subscriber-termination mode=forced; target-state=ins; ID=30811;
Control subscriber-termination mode=forced; target-state=ins; ID=30816;
Control subscriber-termination mode=forced; target-state=ins; ID=30817;
Control subscriber-termination mode=forced; target-state=ins; ID=30818;
Control subscriber-termination mode=forced; target-state=ins; ID=30819;
Control subscriber-termination mode=forced; target-state=ins; ID=30854;
Control subscriber-termination mode=forced; target-state=ins; ID=30855;
Control subscriber-termination mode=forced; target-state=ins; ID=30862;
Control subscriber-termination mode=forced; target-state=ins; ID=30863;
Control subscriber-termination mode=forced; target-state=ins; ID=30866;
Control subscriber-termination mode=forced; target-state=ins; ID=30867;
Control subscriber-termination mode=forced; target-state=ins; ID=30780;
Control subscriber-termination mode=forced; target-state=ins; ID=30781;
Control subscriber-termination mode=forced; target-state=ins; ID=30870;
Control subscriber-termination mode=forced; target-state=ins; ID=30871;
```

```
Add sub-service-profile service-id=123; sub-ID=30738;
Add sub-service-profile service-id=123; sub-ID=30739;
```

```

Add sub-service-profile service-id=123; sub-ID=30808;
Add sub-service-profile service-id=123; sub-ID=30809;
Add sub-service-profile service-id=123; sub-ID=30810;
Add sub-service-profile service-id=123; sub-ID=30811;
Add sub-service-profile service-id=123; sub-ID=30816;
Add sub-service-profile service-id=123; sub-ID=30817;
Add sub-service-profile service-id=123; sub-ID=30818;
Add sub-service-profile service-id=123; sub-ID=30819;
Add sub-service-profile service-id=123; sub-ID=30854;
Add sub-service-profile service-id=123; sub-ID=30855;
Add sub-service-profile service-id=123; sub-ID=30862;
Add sub-service-profile service-id=123; sub-ID=30863;
Add sub-service-profile service-id=123; sub-ID=30866;
Add sub-service-profile service-id=123; sub-ID=30867;
Add sub-service-profile service-id=123; sub-ID=30780;
Add sub-service-profile service-id=123; sub-ID=30781;
Add sub-service-profile service-id=123; sub-ID=30870;
Add sub-service-profile service-id=123; sub-ID=30871;

Add dial-plan ID=CD01; DIGIT_STRING=829308; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=829308; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=829308; DEST_ID= lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;

Delete dial-plan ID=CD01; DIGIT_STRING=8293083; NOA=UNKNOWN;
Delete dial-plan ID=CD01; DIGIT_STRING=8293084; NOA=UNKNOWN;
Delete dial-plan ID=CD02; DIGIT_STRING=8293083; NOA=UNKNOWN;
Delete dial-plan ID=CD02; DIGIT_STRING=8293084; NOA=UNKNOWN;
Delete dial-plan ID=CD03; DIGIT_STRING=8293083; NOA=UNKNOWN;
Delete dial-plan ID=CD03; DIGIT_STRING=8293084; NOA=UNKNOWN;

add dial-plan digit-string=8293070; dest-id=02; MIN_DIGITS=8; MAX_DIGITS=8; NOA=UNKNOWN;
id=CD01
add dial-plan digit-string=8293098; dest-id=02; MIN_DIGITS=8; MAX_DIGITS=8; NOA=UNKNOWN;
id=CD01
add dial-plan digit-string=8293097; dest-id=02; MIN_DIGITS=8; MAX_DIGITS=8; NOA=UNKNOWN;
id=CD01
add dial-plan digit-string=8293070; dest-id=02; MIN_DIGITS=8; MAX_DIGITS=8; NOA=UNKNOWN;
id=CD02
add dial-plan digit-string=8293098; dest-id=02; MIN_DIGITS=8; MAX_DIGITS=8; NOA=UNKNOWN;
id=CD02
add dial-plan digit-string=8293097; dest-id=02; MIN_DIGITS=8; MAX_DIGITS=8; NOA=UNKNOWN;
id=CD02
add dial-plan digit-string=8293070; dest-id=02; MIN_DIGITS=8; MAX_DIGITS=8; NOA=UNKNOWN;
id=CD03
add dial-plan digit-string=8293098; dest-id=02; MIN_DIGITS=8; MAX_DIGITS=8; NOA=UNKNOWN;
id=CD03
add dial-plan digit-string=8293097; dest-id=02; MIN_DIGITS=8; MAX_DIGITS=8; NOA=UNKNOWN;
id=CD03

Delete dial-plan id=CD01; DIGIT_STRING=8293095; noa=UNKNOWN;
Delete dial-plan id=CD01; DIGIT_STRING=8293096; noa=UNKNOWN;
Delete dial-plan id=CD01; DIGIT_STRING=8293097; noa=UNKNOWN;
Delete dial-plan id=CD01; DIGIT_STRING=8293098; noa=UNKNOWN;
Delete dial-plan id=CD01; DIGIT_STRING=82930994; noa=UNKNOWN;
Delete dial-plan id=CD01; DIGIT_STRING=82930999; noa=UNKNOWN;

Delete dial-plan id=CD02; DIGIT_STRING=8293095; noa=UNKNOWN;
Delete dial-plan id=CD02; DIGIT_STRING=8293096; noa=UNKNOWN;

```

```

Delete dial-plan id=CD02; DIGIT_STRING=8293097; noa=UNKNOWN;
Delete dial-plan id=CD02; DIGIT_STRING=8293098; noa=UNKNOWN;
Delete dial-plan id=CD02; DIGIT_STRING=82930994; noa=UNKNOWN;
Delete dial-plan id=CD02; DIGIT_STRING=82930999; noa=UNKNOWN;

Delete dial-plan id=CD03; DIGIT_STRING=8293095; noa=UNKNOWN;
Delete dial-plan id=CD03; DIGIT_STRING=8293096; noa=UNKNOWN;
Delete dial-plan id=CD03; DIGIT_STRING=8293097; noa=UNKNOWN;
Delete dial-plan id=CD03; DIGIT_STRING=8293098; noa=UNKNOWN;
Delete dial-plan id=CD03; DIGIT_STRING=82930994; noa=UNKNOWN;
Delete dial-plan id=CD03; DIGIT_STRING=82930999; noa=UNKNOWN;

Add dial-plan ID=CD01; DIGIT_STRING=829309; DEST_ID=lchina028; MIN_DIGITS=8; MAX_DIGITS=8;
NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=829309; DEST_ID=lchina028; MIN_DIGITS=8; MAX_DIGITS=8;
NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=829309; DEST_ID=lchina028; MIN_DIGITS=8; MAX_DIGITS=8;
NOA=UNKNOWN;

Add dial-plan ID=CD01; DIGIT_STRING=8293671; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD02; DIGIT_STRING=8293671; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;
Add dial-plan ID=CD03; DIGIT_STRING=8293671; DEST_ID=lchina028; MIN_DIGITS=8;
MAX_DIGITS=8; NOA=UNKNOWN;

change sub id=30776; sub-profile-id=CD-nat;
change sub id=30777; sub-profile-id=CD-nat

add mgw ID=30768; TSAP_ADDR=172.16.1.104;
CALL_AGENT_ID=CA146;MGW_PROFILE_ID=komodo;CALL_AGENT_CONTROL_PORT=2728;
RGW=Y;TGW=N;NAS=N;IAD=N;PBX=N;ANS=N;IVR=N;MGW_MONITORING_ENABLED=Y;OPER_STATUS=NF;

add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30768;

add subscriber
ID=30769;CATEGORY=INDIVIDUAL;STATUS=ACTIVE;COUNTRY=CHN;BILLING_DN=02882930769;DN1=02882930
769;PRIVACY=NONE;RING_TYPE_DN1=1;TERM_ID=a002;MGW_ID=30768;PIC1=NONE;PIC2=NONE;PIC3=NONE;G
RP=N;USAGE_SENS=Y;SUB_PROFILE_ID=CD-nat;TERM_TYPE=TERM;IMMEDIATE_RELEASE=N;TERMINATING_IMM
EDIATE_REL=N;

add subscriber
ID=30768;CATEGORY=INDIVIDUAL;STATUS=ACTIVE;COUNTRY=USA;BILLING_DN=02882930768;DN1=02882930
768;PRIVACY=NONE;RING_TYPE_DN1=1;TERM_ID=a001;MGW_ID=30768;PIC1=NONE;PIC2=NONE;PIC3=NONE;G
RP=N;USAGE_SENS=Y;SUB_PROFILE_ID=CD-nat;TERM_TYPE=TERM;IMMEDIATE_RELEASE=N;TERMINATING_IMM
EDIATE_REL=N;

add mgw ID=30966;
TSAP_ADDR=172.28.255.246;CALL_AGENT_ID=CA146;MGW_PROFILE_ID=komodo;STATUS=INS;CALL_AGENT_C
ONTROL_PORT=2728;RGW=Y;TGW=N;NAS=N;IAD=N;PBX=N;ANS=N;IVR=N;MGW_MONITORING_ENABLED=Y;OPER_S
TATUS=NF;

add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id=30966;

add sub
ID=30966;CATEGORY=INDIVIDUAL;STATUS=ACTIVE;BILLING_DN=02882930966;DN1=02882930966;PRIVACY=
NONE;TERM_ID=a001;MGW_ID=30966;PIC1=NONE;PIC2=NONE;PIC3=NONE;GRP=N;USAGE_SENS=Y;SUB_PROFIL
E_ID=CD-nat;TERM_TYPE=TERM;IMMEDIATE_RELEASE=N;TERMINATING_IMMEDIATE_REL=N;

```

```

add sub
ID=30967;CATEGORY=INDIVIDUAL;STATUS=ACTIVE;BILLING_DN=02882930967;DN1=02882930967;PRIVACY=
NONE;TERM_ID=a002;MGW_ID=30966;PIC1=NONE;PIC2=NONE;PIC3=NONE;GRP=N;USAGE_SENS=Y;SUB_PROFIL
E_ID=CD-nat;TERM_TYPE=TERM;IMMEDIATE_RELEASE=N;TERMINATING_IMMEDIATE_REL=N;

add mgw ID=30760; TSAP_ADDR=172.16.1.114; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
STATUS=INS; CALL_AGENT_CONTROL_PORT=2728; RGW=Y; TGW=N; NAS=N; IAD=N; PBX=N; ANS=N; IVR=N;
MGW_MONITORING_ENABLED=Y; OPER_STATUS=NF;

add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =30760

add subscriber ID=30760; CATEGORY=INDIVIDUAL; STATUS=ACTIVE; BILLING_DN=02882930760;
DN1=02882930760; PRIVACY=NONE; TERM_ID=a001; MGW_ID=30760; PIC1=NONE; PIC2=NONE;
PIC3=NONE; GRP=N; USAGE_SENS=Y; SUB_PROFILE_ID=CD-local; TERM_TYPE=TERM;
IMMEDIATE_RELEASE=N; TERMINATING_IMMEDIATE_REL=N;

add subscriber ID=30761; CATEGORY=INDIVIDUAL; STATUS=ACTIVE; BILLING_DN=02882930761;
DN1=02882930761; PRIVACY=NONE; TERM_ID=a002; MGW_ID=30760; PIC1=NONE; PIC2=NONE;
PIC3=NONE; GRP=N; USAGE_SENS=Y; SUB_PROFILE_ID=CD-local; TERM_TYPE=TERM;
IMMEDIATE_RELEASE=N; TERMINATING_IMMEDIATE_REL=N;

add mgw ID=30824; TSAP_ADDR=172.16.1.118; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
STATUS=INS; CALL_AGENT_CONTROL_PORT=2728; RGW=Y; TGW=N; NAS=N; IAD=N; PBX=N; ANS=N; IVR=N;
MGW_MONITORING_ENABLED=Y; OPER_STATUS=NF;

add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =30824;

add subscriber ID=30824; CATEGORY=INDIVIDUAL; STATUS=ACTIVE; BILLING_DN=02882930824;
DN1=02882930824; PRIVACY=NONE; TERM_ID=a001; MGW_ID=30824; PIC1=NONE; PIC2=NONE;
PIC3=NONE; GRP=N; USAGE_SENS=Y; SUB_PROFILE_ID=CD-local; TERM_TYPE=TERM;
IMMEDIATE_RELEASE=N; TERMINATING_IMMEDIATE_REL=N;

add subscriber ID=30825; CATEGORY=INDIVIDUAL; STATUS=ACTIVE; BILLING_DN=02882930825;
DN1=02882930825; PRIVACY=NONE; TERM_ID=a002; MGW_ID=30824; PIC1=NONE; PIC2=NONE;
PIC3=NONE; GRP=N; USAGE_SENS=Y; SUB_PROFILE_ID=CD-local; TERM_TYPE=TERM;
IMMEDIATE_RELEASE=N; TERMINATING_IMMEDIATE_REL=N;

add mgw ID=36750; TSAP_ADDR=172.20.0.10; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
STATUS=INS; CALL_AGENT_CONTROL_PORT=2728; RGW=Y; TGW=N; NAS=N; IAD=N; PBX=N; ANS=N; IVR=N;
MGW_MONITORING_ENABLED=Y; OPER_STATUS=NF;

add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =36750;

add subscriber ID=36750; CATEGORY=INDIVIDUAL; STATUS=ACTIVE; BILLING_DN=02882936750;
DN1=02882936750; PRIVACY=NONE; TERM_ID=a001; MGW_ID=36750; PIC1=NONE; PIC2=NONE;
PIC3=NONE; GRP=N; USAGE_SENS=Y; SUB_PROFILE_ID=CD-nat; TERM_TYPE=TERM;
IMMEDIATE_RELEASE=N; TERMINATING_IMMEDIATE_REL=N;

add subscriber ID=36756; CATEGORY=INDIVIDUAL; STATUS=ACTIVE; BILLING_DN=02882936756;
DN1=02882936756; PRIVACY=NONE; TERM_ID=a002; MGW_ID=36750; PIC1=NONE; PIC2=NONE;
PIC3=NONE; GRP=N; USAGE_SENS=Y; SUB_PROFILE_ID=CD-local; TERM_TYPE=TERM;
IMMEDIATE_RELEASE=N; TERMINATING_IMMEDIATE_REL=N;

add mgw ID=36767; TSAP_ADDR=172.20.0.35; CALL_AGENT_ID=CA146; MGW_PROFILE_ID=komodo;
STATUS=INS; CALL_AGENT_CONTROL_PORT=2728; RGW=Y; TGW=N; NAS=N; IAD=N; PBX=N; ANS=N; IVR=N;
MGW_MONITORING_ENABLED=Y; OPER_STATUS=NF;

add termination port-start=1; port-end=2; prefix=a00; type=line; mgw-id =36767;

add subscriber ID=36767; CATEGORY=INDIVIDUAL; STATUS=ACTIVE; BILLING_DN=02882936767;
DN1=02882936767; PRIVACY=NONE; TERM_ID=a001; MGW_ID=36767; PIC1=NONE; PIC2=NONE;
PIC3=NONE; GRP=N; USAGE_SENS=Y; SUB_PROFILE_ID=CD-local; TERM_TYPE=TERM;
IMMEDIATE_RELEASE=N; TERMINATING_IMMEDIATE_REL=N;

```

```
add subscriber ID=36768; CATEGORY=INDIVIDUAL; STATUS=ACTIVE; BILLING_DN=02882936768;
DN1=02882936768; PRIVACY=NONE; TERM_ID=a002; MGW_ID=36767; PIC1=NONE; PIC2=NONE;
PIC3=NONE; GRP=N; USAGE_SENS=Y; SUB_PROFILE_ID=CD-local; TERM_TYPE=TERM;
IMMEDIATE_RELEASE=N; TERMINATING_IMMEDIATE_REL=N;
```





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