Cisco BTS 10200 Softswitch Provisioning Guide, Release 7.0

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Preface

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Introduction

This document is the *Provisioning Guide* for the Cisco BTS 10200 Softswitch, Release 7.0.

Organization

This guide has the following chapters:s

- Chapter 1, "Overview and Scripts"—Provides an overview of BTS provisioning and tools
- Chapter 2, "Call Agents and Feature Servers"—Describes how to provision BTS Call Agents (CAs) and Feature Servers (FSs)
- Chapter 3, "Subscribers"—Explains how to provision the BTS to communicate with different subscriber types
- Chapter 4, "CALEA"—Explains how to provision BTS interfaces to support the Communications Assistance for Law Enforcement Act (CALEA)
- Chapter 5, "Features"—Shows you how to add features to BTS subscribers using CLI commands
- Chapter 6, "Announcements, Centrex, MLHG, Voice Mail, and ENUM"—Discusses the announcement Centrex, MLHG, Voice Mail, and ENUM features supported by the BTS 10200
- Chapter 7, "Routes"— Describes how to provision the BTS 10200 to communicate with another BTS, PSTN gateway, or another call agent.
- Chapter 8, "Release Cause Codes and Announcement IDs"—Discusses the release cause codes and announcement IDs supported by the BTS 10200.
- Chapter 9, "Signaling"— Explains how to set up BTS signaling.

Document Change History

This table provides the revision history for the *Cisco BTS 10200 Softswitch Provisioning Guide, Release 7.0*.

Table 1 Revision History

Version Number	Issue Date	Status	Reason for Change
OL-23040-01	July 2010	Initial	Initial document for Release 7.0.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.

CHAPTER 1

Overview and Scripts

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Introduction

This chapter provides an overview of BTS provisioning and tools. Before provisioning:

- Plan your network configuration using a detailed network diagram.
- Set up your system hardware and install all required software. For more information, refer to:
  - Cisco BTS 10200 Softswitch Cabling Procedures
  - Cisco BTS 10200 Softswitch Application Installation
  - Cisco BTS 10200 Softswitch Release 7.0 Jumpstart Server Set Up and Procedures

Interfacing with the BTS

The BTS Element Management System (EMS) has many major operator interfaces available:

- 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 through the Common Object Request Broker Architecture (CORBA), SOAP, and PacketCable Subscriber Provisioning (PSCP) interfaces.
- Bulk provisioning connects to the EMS through an SFTP over SSH. The EMS manages these interfaces and forwards information to external devices over Telnet/SSH, SFTP.

Secure Shell

Secure shell (SSH) is the default method of access to the BTS command-line interface (CLI). SSH provides encrypted communication between a remote machine and the EM or Call Agent (CA) for executing CLI commands. The SSH server runs on the EMSs and CAs of the BTS. 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 BTS.

SSH is an optional login choice. Use the BTS 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 BTS supports both versions 1 and 2.

Step 1 Use a text editor to open /opt/BTSossh/etc/sshd_config and change “Version 2” to “Version 2,1”.

Step 2 At the command prompt, enter:

```
/etc/init.d/sshd down
```

Step 3 Enter:

```
/etc/init.d/sshd start
```

Provisioning Paths

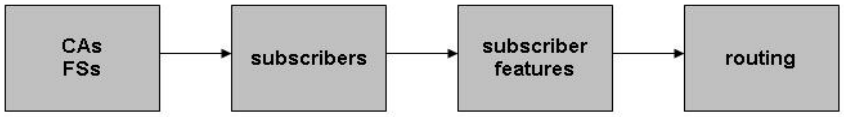
Refer to the *Cisco BTS 10200 Softswitch System Description* for BTS architecture, components, and features.

The order of provisioning varies depending on your configuration. However, some tasks must be performed before others. The following shows the recommended provisioning sequence:

1. CAs and FSs

2. Subscribers
3. Subscriber features
4. Routing

Figure 1-1 BTS Order of Provisioning



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

The BTS provides two provisioning paths:

- OSS-EMS—This interface is used by external (CORBA, SOAP, PCSP) provisioning applications. PCSP is limited to 1-20 sessions per individual user, with the default being 10
- 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 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

The Operations, Administration, Maintenance, and Provisioning (OAM&P) element of the BTS 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 CA or FS.

Control and status commands are executed independently of provisioning commands and use different paths to the CA. 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;
```

The BTS has the ability to refine the CLI command show transaction-queue to display transactions according to their state. The following command shows all transactions in the transaction queue that have a status of pending:

```
show transaction-queue status=pending;
```

Bulk Provisioning

Prepare batch files, calledscripts. Forward scripts using SFTP to the EMS. Execute those files at the EMS.

Tip Intersperse the **show transaction-queue** command during large provisioning to ensure commands have been performed before proceeding with further commands.

Step 1 Connect to the EMS using SFTP.

Step 2 Go to the /opt/ems/ftp/deposit directory.

Step 3 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.

Step 4 Go here to review the report file: https://ems<MachineName or IP address>.

Executing Scripts

When you order a BTS, a complete script file is created and delivered in both hard and soft copies. Modify this script or create additional scripts using ASCII.

A script has a maximum of 10,000 command lines. Have separate scripts, one for provisioning and one for status and control. Otherwise, the BTS might try to control a trunk group, trunk, or termination in services that have not yet been provisioned in the system.

Tip Use many smaller scripts instead of one large script to avoid complications that might result in frequent switchovers.

Step 1 Establish a secure Telnet session to the EMS.

Step 2 Log in as root.

Step 3 Go to the directory with the bulk provisioning file; for example, filename.txt in the opt/ems/ftp/scripts directory.

Step 4 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 5 To view the report, open an Internet browser and go to https://ems<MachineName or IP address>.

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.

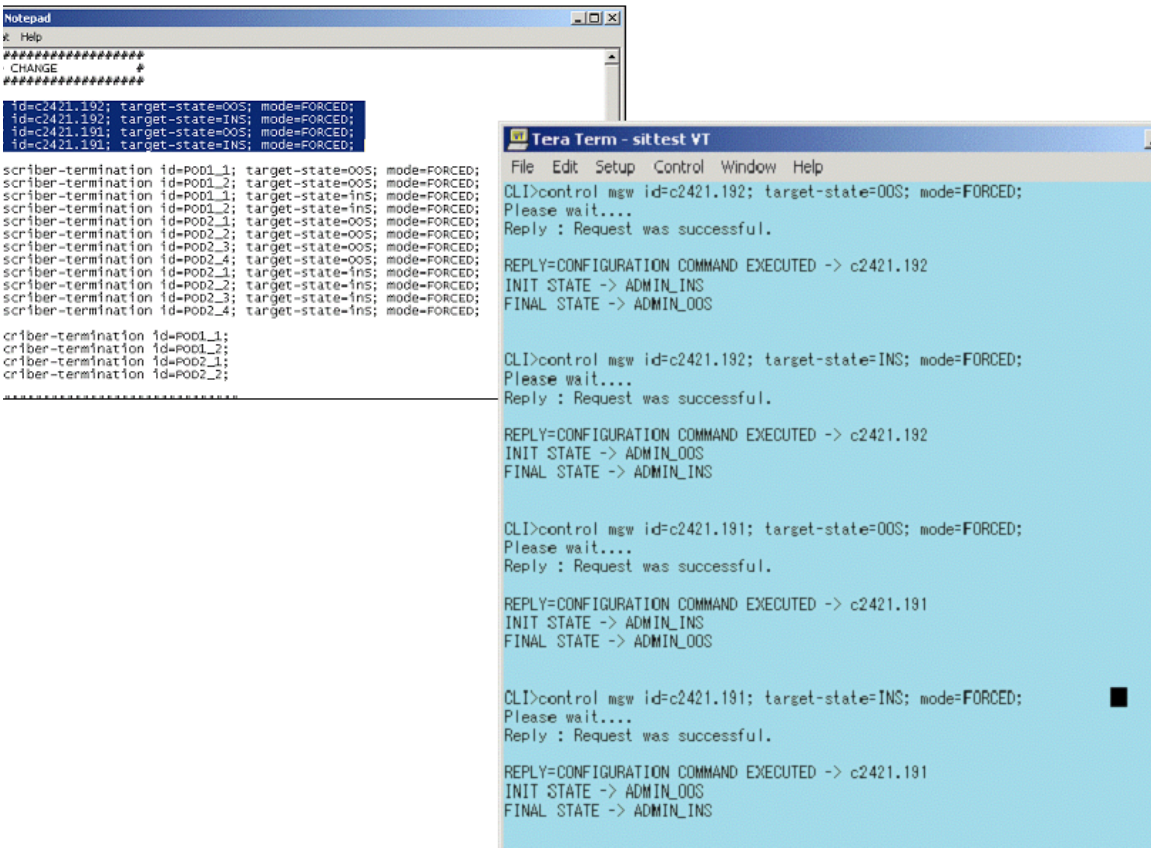
To confirm that a bulk provisioning script has executed, verify the system has generated an output file by going to https://ems<MachineName or IP address>.

All command information is stored in the activity log. To access it use the **show activity-summary** CLI command.

Copy and Paste Provisioning

Figure 1-2 illustrates copy and paste provisioning, executed by copying commands from a text file into the system at the CLI prompt. No report generates, but all command information is stored in the activity log.

Figure 1-2 Copy and Paste Provisioning



Factory-Installed Scripts

The features in Table 1-1 are preprovisioned during installation. Note that the feature-server-id token is replaced with the actual FS ID.

Table 1-1 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; 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;`

Table 1-1 Factory Installed Feature Scripts (continued)

Feature Name	Provisioning Script
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; 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;
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;

Table 1-1 Factory Installed Feature Scripts (continued)

Feature Name	Provisioning Script
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;`
Customized Dial Plan	`add feature fname=CDP; tdp1=COLLECTED_INFORMATION; tid1=CUSTOMIZE_DIALING_PLAN; ttype1=R; description=Customize Dial Plan; feature_server_id=FSPTC719;`
Emergency Service	`add feature fname=911; tdp1=COLLECTED_INFORMATION; tid1=911_TRIGGER; ttype1=R; description=Emergency Service; feature_server_id=FSPTC719;`
Incoming SFG	`add feature fname=ISFG; tdp1=TERMINATION_ATTEMPT_AUTHORIZED; tid1=TERMINATION_ATTEMPT_AUTHORIZED; ttype1=R; description=Incoming SFG; feature_server_id=FSPTC719;`
LIDB query	`add feature fname=LIDB; tdp1=TERMINATION_ATTEMPT; tid1=CNAM; ttype1=R; description= LIDB query for the CNAM feature; feature_server_id=FSAIN205;`
Local Number Portability	`add feature fname=LNP; tdp1=COLLECTED_INFORMATION; tid1=LNP_TRIGGER; ttype1=R; description=Local Number Portability; feature_server_id=FSAIN519;`
Outgoing SFG	`add feature fname=OSFG; tdp1=ROUTE_SELECTED; tid1=ROUTE_SELECTED; ttype1=R; description=Outgoing SFG; feature_server_id=FSPTC719;`
Three-Way Call	`add feature fname=TWC; tdp1=O_MID_CALL; tdp2=T_MID_CALL; tid1=O_SWITCH_HOOK_FLASH_IMMEDIATE; tid2=T_SWITCH_HOOK_FLASH_IMMEDIATE; ttype1=R; description=Three way call; feature_server_id=FSPTC719;`
Toll-Free Service	`add feature fname=8XX; tdp1=COLLECTED_INFORMATION; tid1=SPECIFIC_DIGIT_STRING; ttype1=R; description=Toll Free Number; feature_server_id=FSAIN519;`
Usage Sensitive Three-Way Calling	`add feature fname=USTWC; tdp1=O_MID_CALL; tdp2=T_MID_CALL; tid1=O_SWITCH_HOOK_FLASH_IMMEDIATE; tid2=T_SWITCH_HOOK_FLASH_IMMEDIATE; ttype1=R; description=Usage Sensitive Three Way Call; feature_server_id=FSPTC719;`

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 shows 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 shows 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 CA 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|xxxxxxxxxxxxxxxxxx; 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+10 digit interLATA/intraLATA calls
0[2-9]xx[2-9]xxxxxx	0+10 digit 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
xxxxxxxxxxxxxxxx	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 CA 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]x
xxxxx|011xxxxxx.T|01xxxxxx.T|101xxxx|#|*xx|xxxxxxxxxxxxxxxxxx; 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	10 digit local calls
1[2-9]xx[2-9]xxxxxx	1+10 digit interLATA/intraLATA calls
0[2-9]xx[2-9]xxxxxx	0+10 digit 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
xxxxxxxxxxxxxxxxxx	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 CA 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|xxxxxxxxxxxxxxxxxx;
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+10 digit interLATA/intraLATA calls
0[2-9]xx[2-9]xxxxxx	0+10 digit 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
xxxxxxxxxxxxxxxxxx	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.

Asia Provisioning Script

The following script shows example provisioning for a BTS CA and FS for Asia:

```
######################################################################
# Add CA and FSs
######################################################################

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|13xxxxxxxxx|16[0-9]x.T|17[0-8]|179x0|180|
186[0,1]|18[7-9]|19[0-9]x.T|[2-7]xxxxxxx|800xxxxxxx|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|013xxxxxxxxx|02[0-8]xxxxxxxx|029
xxxxxxx|0[3-4]xxxxxxxxx|051[0-1]xxxxxxx|0512xxxxxxxx|051[3-9]xxxxxxx|05[2-6]xxxxxxxx|0570x
xxxxxx|0571xxxxxxxx|057[2-3]xxxxxxx|0574xxxxxxxx|057[5-6]xxxxxxx|0577xxxxxxxx|057[8-9]xxxx
xxx|06xxxxxxxxx|07[0-4]xxxxxxxx|075[0-4]xxxxxxx|0755xxxxxxx|075[6-9]xxxxxxx|08[0-8]xxxxxxx
x|089[0-7]xxxxxxx|0898xxxxxxxx|0899xxxxxxx|09xxxxxxxxx|100x|11x|12[0-2]|12[3-9]x.T|13xxxxx
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]xxxxxxx|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|013xxxxxxxxx|02[0-8]xxxxxxxx|029xxxxxxx|0[3-4]xxxxx
xxxx|051[0-1]xxxxxxx|0512xxxxxxxx|051[3-9]xxxxxxx|05[2-6]xxxxxxxx|0570xxxxxxx|0571xxxxxxxx
|057[2-3]xxxxxxx|0574xxxxxxxx|057[5-6]xxxxxxx|0577xxxxxxxx|057[8-9]xxxxxxx|06xxxxxxxxx|07[
0-4]xxxxxxxx|075[0-4]xxxxxxx|0755xxxxxxx|075[6-9]xxxxxxx|08[0-8]xxxxxxxx|089[0-7]xxxxxxx|0
898xxxxxxxx|0899xxxxxxx|09xxxxxxxxx|100x|11x|12[0-2]|12[3-9]x.T|13xxxxxxxxx|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]xxxxxxx|800xxxxxxx|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=a002; 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;
```

```
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;

-------
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;

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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;
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```
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;
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;


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;


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;
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;

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;
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```
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;


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;



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;


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;

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;
```

```
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;
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
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```
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


Add sub ID=30742; CATEGORY=INDIVIDUAL; BILLING_DN=02882930742; DN1=02882930742;
TERM_ID=a001; MGW_ID=30742; SUB_PROFILE_ID=CD-int;
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;
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;


****************************************
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;

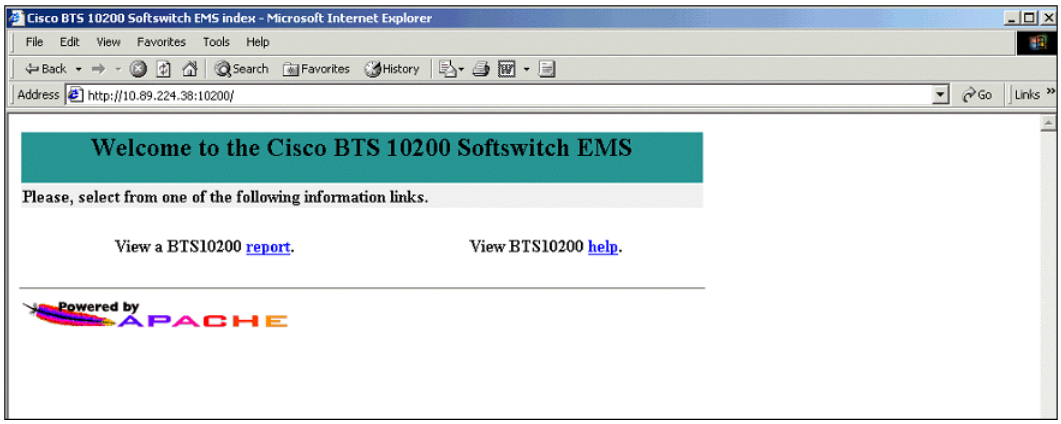
add subscriber ID=36767; CATEGORY=INDIVIDUAL; STATUS=ACTIVE; BILLING_DN=02882936767;
DN1=02882936767; PRIVACY=NONE; TERM_ID=a001; MGW_ID=36767; PIC1=NONE; PIC2=NONE;
PIC3=NONE; GRP=N; USAGE_SENS=Y; SUB_PROFILE_ID=CD-local; TERM_TYPE=TERM;
IMMEDIATE_RELEASE=N; TERMINATING_IMMEDIATE_REL=N;

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;
```

Report Files

Report files are available through XHTML web pages. The URL to the main report menu is the Primary EMS DNS or IP address, for example, https://ems<MachineName or IP address>.

Figure 1-3 Main Report/Help Menu



From the main window:

- Click **report** to display all reports generated.
- Click **help** for help on the BTS. The help files provide information on commands, tokens, and parameters.

The BTS 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. The following example shows how to collect call processing measurement data:

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

CHAPTER 2

Call Agents and Feature Servers

Revised: July 2010, OL-23040-01

Introduction

This chapter describes how to provision BTS Call Agents (CAs) and Feature Servers (FSs).

Call Agents

The CA provides signaling and call processing (call setup and teardown) for the BTS. This section describes adding the CA and associated office tables to the BTS. The following table provides example steps to provision the CA and lists examples of CLI commands with mandatory tokens. For all available tokens, see the Cisco BTS 10200 Softswitch CLI Database.

Step	Task	Description and CLI Command
Step 1	Adding CAs.	The Call Agent (call-agent) table has the domain name and tsap addresses of the CA as well as the primary and secondary IP addresses of the EMS. `add call-agent id=CA101; tsap-addr=sim-SYS04CA146.ipclab.cisco.com:9146;`
Step 2	Adding CA profiles.	The Call Agent Profile (ca-agent-profile) table defines the properties (functionality) of the CA. The CA reads this table once every 20 calls. This means that when the CA processes 20 calls per second, changes to this table take effect in one second. `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	Task	Description and CLI Command

Step 3	Changing CA configurations.	The Call Agent Configuration (ca-config) table defines the defaults for each CA. The defaults are prepopulated at installation. Only change and show commands are valid.
		`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.
		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. Information in the Call Agent Configuration Base table must match the information in the Call Agent Configuration table.

Step 4	Adding home area codes.	The National Destination Code (ndc-code) table defines the home area codes supported by the CA. `add ndc digit-string=469;`
Step 5	Adding exchange codes.	The Exchange Code (exchange-code) table specifies the exchange codes assigned to a particular CA. `add exchange-code ndc=469; ec=255;`
Step 6	Adding office codes.	The Office Code (office-code) table specifies the office codes assigned to a particular CA. 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. `add office-code call-agent-id=CA146; ndc=469; ec=255; dn-group=xxxx;`

Step	Task	Description and CLI Command

Step 7	Adding digit maps.	The Digit Map (digit-map) table tells a media gateway (MGW) how to collect and report dialed digits. The CA 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.
		`add 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|011xxxxxxxxxxxxx.T|101xxxx|#|*[4-9]x|*[2-3]xx|11xx|[2-9]#|[2-4]x#|[2-9]T|[2-4]xT|01xxxxxxxxxxx;`
		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 digits. For example:
		*2-3xxx
		*4-9xx

Step 8	Adding points of presence.	The CA 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. `add pop id=1; state=tx; country=usa; timezone=CST;`

Feature Servers

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

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

The following table lists the steps for provisioning a BTS FS and provides commands with mandatory tokens.

For all available tokens, see the Cisco BTS 10200 Softswitch CLI Database.

Note When adding an FS, add the entries to the CA as well as the FS tables in the respective FSs. The POTS FS has the Feature Server table, but the AIN FS does not.

	Description	Description and CLI Command
Step 1	Adding FSs.	The Feature Server (feature-server) table identifies the location and type of FS (POTS or AIN). It also identifies the IP address of the primary and secondary EMS and MGWs used by the FS. It is updated at both the CA and the applicable FS. The FS can be prepopulated during installation using a script, and it is used to automatically provision the Service Trigger table. `add feature-server id=FSAIN201; tsap-addr-sidea= trn1AIN.trnglab.cisco.com:11205; type=AIN;`
Step 2	Adding features.	The Feature (feature) table defines characteristics for the features supported by the BTS. Repeat this step for each feature you want to add to the system. `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	Adding VSCs.	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. `add vsc digit-string=*72; fname=CFUA;`
Step 4	Adding services.	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 BTS 10200. 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. `add service id=1; fname1=CFU; fname2=CFB; fname3=CFNA; fname4=CW;`

The following table lists the service types and features available on a POTS or Centrex or Tandem FS.

Service Type	Feature Name
Class of Service Restrictions	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	Selective Call Forwarding
	Selective Call Acceptance
	Selective Call Rejection, Call Block
	Distinctive Ringing/Call Waiting
POTS	Analog Direct Inward Dial (DID) for PBX (FXO)
	Direct Outward Dial (DOD) for PBX
	Multiple Directory Numbers (Teen Service)

Service Type	Feature Name
Common (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

Service Type	Feature Name
Basic Centrex	Customized Dialing Plan
	Intercom Dialing
	Semi/Fully Restricted Lines
	DID
	Distinctive Alerting/Call Waiting Indication on DID
	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	ANI Screening

Timezones

Table 2-1 lists the various world timezones that the BTS currently supports. Valid time zone values and their associated descriptions are also given.

Table 2-1 Supported Timezones

ID	Description	Billing Field Value	GMT Offset Hours	GMT Offset Minutes	Daylight Start 2004	Daylight End 2004
LOCAL	Local System Time (BDMS)	0				
NWE	Northwestern Europe	1	+0	0	03-28-01-00	10-31-02-00
WA	Western Africa	2	+0	0		
WE	Western Europe	3	+1	0	03-28-02-00	10-31-03-00
WCA	West Central Africa	4	+1	0		
MAL	Malta	5	+1	0	03-28-02-00	10-31-03-00
NAM	Namibia	6	+1	0	09-05-02-00	04-04-02-00
CE	Central Europe	7	+1	0	03-28-03-00	10-31-04-00
ECA	East Central Africa	8	+2	0		
ECE	East Central Europe	9	+2	0	03-28-02-00	10-31-03-00
EGY	Egypt	10	+2	0	04-30-00-00	10-01-00-00
GAZ	Gaza	11	+2	0	04-16-00-00	10-15-00-00
ISR	Israel	12	+2	0	04-07-01-00	09-22-01-00
JOR	Jordan	13	+2	0	03-25-00-00	10-22-01-00

Table 2-1 Supported Timezones (continued)

ID	Description	Billing Field Value	GMT Offset Hours	GMT Offset Minutes	Daylight Start 2004	Daylight End 2004
LEB	Lebanon	14	+2	0	03-28-00-00	10-31-00-00
SYR	Syria	15	+2	0	04-01-00-00	10-01-00-00
WB	West Bank	16	+2	0	04-07-01-00	09-22-01-00
EA	Eastern Africa	17	+3	0		
PG	Persian Gulf	18	+3	0		
GEO	Georgia	19	+3	0	03-28-00-00	10-31-00-00
IRQ	Iraq	20	+3	0	04-01-03-00	10-01-04-00
RUS2	Russia Zone 2	21	+3	0	03-28-02-00	10-31-03-00
IRA	Iran	22	+3	30	03-21-00-00	09-21-00-00
AZE	Azerbaijan	23	+4	0	03-28-01-00	10-31-01-00
WIO	Western Indian Ocean	24	+4	0		
ME	Middle East	25	+4	0		
WAS	Western Asia	26	+4	0	03-28-02-00	10-31-03-00
AFG	Afghanistan	27	+4	30		
KYR	Kyrgystan (also Kyrgyzstan)	28	+5	0	03-28-02-30	10-31-02-30
ECAS	Eastern Central Asia	29	+5	0		
IO	Indian Ocean	30	+5	0		
WCAS	West Central Asia	31	+5	0	03-28-02-00	10-31-03-00
IND	India	32	+5	30		
NEP	Nepal	33	+5	45		
CAS	Central Asia	34	+6	0	03-28-02-00	10-31-03-00
SAS	Southern Asia	35	+6	0		
BC	Burma – Cocos	36	+6	30		
RUS6	Russia Zone 6	37	+7	0	03-28-02-00	10-31-03-00
SEAS	South Eastern Asia	38	+7	0		
EAS	Eastern Asia	39	+8	0		
MON	Mongolia	40	+8	0	03-27-02-00	09-25-03-00
RUS7	Russia Zone 7	41	+8	0	03-28-02-00	10-31-03-00
WAU	Western Australia	42	+8	0		
FEAS	Far Eastern Asia	43	+9	0		
RUS8	Russia Zone 8	44	+9	0	03-28-02-00	10-31-03-00
NAU	Northern Australia	45	+9	30		
SAU	Southern Australia	46	+9	30	10-31-02-00	03-28-03-00
EAU	Eastern Australia	47	+10	0	10-31-02-00	03-28-03-00
QUE	Queensland Australia	48	+10	0		

Table 2-1 Supported Timezones (continued)

ID	Description	Billing Field Value	GMT Offset Hours	GMT Offset Minutes	Daylight Start 2004	Daylight End 2004
RUS9	Russia Zone 9	49	+10	0	03-28-02-00	10-31-03-00
TAS	Tasmania	50	+10	0	10-03-02-00	03-28-03-00
WP	Western Pacific	51	+10	0		
LAU	Lord Howe Island – Australia	52	+10	30	10-31-02-00	03-28-02-00
RUS10	Russia Zone 10	53	+11	0	03-28-02-00	10-31-03-00
WCP	Western Central Pacific	54	+11	0		
NOR	Norfolk Island	55	+11	30		
NZ	New Zealand	56	+12	0	10-03-02-00	03-21-03-00
RUS11	Russia Zone 11	57	+12	0	03-28-02-00	10-31-03-00
SPO	Southern Pacific Ocean	58	+12	0		
CI	Chatham Island	59	+12	45	10-03-02-45	03-21-03-45
SEPO	South Eastern Pacific Ocean	60	+13	0		
LI	Line Islands	61	+14	0		
SMO	Samoa	62	-11	0		
HAW	Hawaii	63	-10	0		
AI	Aleutian Islands	64	-10	0	04-04-02-00	10-31-02-00
GI	Gambier Islands	65	-9	0		
MI	Marquesas Islands	66	-9	30		
ALA	Alaska	67	9	0	04-04-02-00	10-31-02-00
SON	Sonora Mexico	68	-8	0		
PI	Pitcairn Islands	69	-8	0		
PAC	North American Pacific	70	-8	0	04-04-02-00	10-31-02-00
EBC	Eastern British Columbia	71	-8	0		
MNT	North American Mountain	72	-7	0	04-04-02-00	10-31-02-00
ARI	Arizona	73	-7	0		
SASK	Saskatechewan	74	-6	0		
GAL	Galapagos Islands	75	-6	0		
EI	Easter Island	76	-6	0	10-09-10-00	03-13-10-00
CA	Central America	77	-6	0		
CEN	North American Central	78	-6	0	04-04-02-00	10-31-02-00
WSAM	Western South America	79	-5	0		
WCAR	Western Caribbean	80	-5	0		
SOU	Southampton Canada	81	-5	0		
IDA	Indiana	82	-5	0		
EST	North American Eastern	83	-5	0	04-04-02-00	10-31-02-00

Table 2-1 Supported Timezones (continued)

ID	Description	Billing Field Value	GMT Offset Hours	GMT Offset Minutes	Daylight Start 2004	Daylight End 2004
CUB	Cuba	84	-5	0	03-28-00-00	10-31-01-00
BAH	Bahamas	85	-5	0	04-04-02-00	10-31-02-00
ACR	Acre Brazil	86	-5	0		
SAM	Central South America	87	-4	0		
PAR	Paraguay	88	-4	0	09-05-00-00	04-04-00-00
FI	Falkland Islands	89	-4	0	09-05-02-00	04-18-02-00
CHI	Chile	90	-4	0	10-10-00-00	03-14-00-00
CG	Central Greenland	91	-4	0		
CAR	Caribbean	92	-4	0		
ATL	North American Atlantic	93	-4	0	04-04-02-00	10-31-02-00
NWF	Newfoundland Canada	94	-3	30	04-04-12-01	10-31-12-01
ELAB	Eastern Labrador Canada	95	-3	30	04-04-02-00	10-31-02-00
SPM	St.Pierre and Miquelon	96	-3	0	04-04-02-00	10-31-02-00
SBRZ	Southern Brazil	97	-3	0	10-17-00-00	02-15-00-00
ESAM	Eastern South America	98	-3	0		
EG	Eastern Greenland	99	-3	0		
EBRZ	Eastern Brazil	100	-2	0		
FEG	Far Eastern Greenland	101	-1	0		
CV	Cape Verde	102	-1	0		
AZO	Azores	103	-1	0	03-28-00-00	10-31-01-00
ICE	Iceland	104	+0	0		

Timezone Localities

Table 2-2 describes the localities covered by the various world timezones that the BTS supports.

Table 2-2 Time zone Localities

ID	Description	Locality Served
LOCAL	Local System Time	
NWE	Northwestern Europe	Faroe Islands, Guernsey, Ireland, Isle of Man, Portugal, Canary Islands, United Kingdom
WA	Western Africa	Burkina Faso, Cote d'Ivore, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Morocco, Sao Tome and Principe, Senegal, Sierra Leone, St.Helena, Togo, Western Sahara

Table 2-2 Time zone Localities (continued)

ID	Description	Locality Served
WE	Western Europe	Albania, Andorra, Austria, Belgium, Bosnia and Herzegovina, Croatia, Czech Republic, Denmark, France, Germany, Gibraltar, Hungary, Italy, Lichtenstein, Luxembourg, Macedonia, Monaco, Netherlands, Norway, Poland, San Marino, Serbia, Montenegro, Kosovo, Slovakia, Slovenia, Spain, Sweden, Switzerland, Vatican City
WCA	West Central Africa	Algeria, Angola, Benin, Cameroon, Central African Republic, Chad, Congo, Democratic Republic of Congo (west), Equatorial Guinea, Gabon, Niger, Nigeria, Tunisia
MAL	Malta	Malta
NAM	Namibia	Namibia
CE	Central Europe	Bulgaria, Cyprus, Estonia, Finland, Latvia, Lithuania, Moldova, Romania, Turkey, Ukraine
ECA	East Central Africa	Botswana, Burundi, Democratic Republic of Congo (east), Lesotho, Libya, Malawi, Mozambique, Rwanda, South Africa, Swaziland, Zambia, Zimbabwe
ECE	East Central Europe	Belarus, Greece, Russia (Zone1)
EGY	Egypt	Egypt
GAZ	Gaza	Gaza Strip
ISR	Israel	Israel
JOR	Jordan	Jordan
LEB	Lebanon	Lebanon
SYR	Syria	Syria
WB	West Bank	West Bank
EA	Eastern Africa	Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mayotte, Somalia, Sudan, Tanzania, Uganda
PG	Persian Gulf	Bahrain, Kuwait, Qatar, Saudi Arabia, Yemen
GEO	Georgia	Georgia
IRQ	Iraq	Iraq
RUS2	Russia Zone 2	Russia (Zone2)
IRA	Iran	Iran
AZE	Azerbaijan	Azerbaijan
WIO	Western Indian Ocean	Mauritius, Reunion, Seychelles
ME	Middle East	Oman, United Arab Emirates
WAS	Western Asia	Armenia, Kazakhstan (West), Russia (Zone3)
AFG	Afghanistan	Afghanistan
KYR	Kyrgystan	Kyrgystan
ECAS	Eastern Central Asia	Pakistan, Tajikistan, Turkmenistan, Uzbekistan
IO	Indian Ocean	Kerguelen, Maldives
WCAS	West Central Asia	Kazakhstan (Central), Russia (Zone4)

Table 2-2 Time zone Localities (continued)

ID	Description	Locality Served
IND	India	India
NEP	Nepal	Nepal
CAS	Central Asia	Kazakhstan (East), Russia (Zone5)
SAS	Southern Asia	Bangladesh, Bhutan, Sri Lanka
BC	Burma – Cocos	Burma, Cocos (Keeling) Islands
RUS6	Russia Zone 6	Russia (Zone6)
SEAS	South Eastern Asia	Christmas Island, Cambodia, Indonesia (West), Laos, Thailand, Vietnam
EAS	Eastern Asia	Brunei Darussalem, China, Hong Kong, Indonesia (Central), Macau, Malaysia, Philippines, Singapore, Taiwan
MON	Mongolia	Mongolia
RUS7	Russia Zone 7	Russia (Zone7)
WAU	Western Australia	Australia (Western Australia)
FEAS	Far Eastern Asia	Indonesia (East), Japan, North Korea, South Korea, Palau, Timor-Leste
RUS8	Russia Zone 8	Russia (Zone8)
NAU	Northern Australia	Australia (Northern Territory)
SAU	Southern Australia	Australia (South Australia)
EAU	Eastern Australia	Australia (New South Wales, Victoria, Capital Territory)
QUE	Queensland Australia	Australia (Queensland)
RUS9	Russia Zone 9	Russia (Zone9)
TAS	Tasmania	Australia (Tasmania)
WP	Western Pacific	Guam, Micronesia (Chuuk Islands), Northern Mariana Islands, Papua New Guinea
LAU	Lord Howe Island – Australia	Australia (Lord Howe Island)
RUS10	Russia Zone 10	Russia (Zone10)
WCP	Western Central Pacific	Micronesia (Senyavin Islands), New Caledonia, Solomon Islands, Vanuatu
NOR	Norfolk Island	Norfolk Island
NZ	New Zealand	New Zealand
RUS11	Russia Zone 11	Russia (Zone11)
SPO	Southern Pacific Ocean	Fiji, Kiribati (Gilbert Islands), Marshall Islands, Nauru, Tuvalu, Wallis and Futuna
CI	Chatham Island	Chatham Island
SEPO	South Eastern Pacific Ocean	Kiribati (Phoenix Islands), Tonga
LI	Line Islands	Kiribati (Line Islands)
SMO	Samoa	American Samoa, Niue, Samoa
HAW	Hawaii	Cook Islands, French Polynesia (Society Archipelago, Tuamotu Archipelago, Tubuai Islands), US (Hawaii)
AI	Aleutian Islands	US (Aleutian Islands)

Table 2-2 Time zone Localities (continued)

ID	Description	Locality Served
GI	Gambier Islands	French Polynesia (Gambier Islands)
MI	Marquesas Islands	French Polynesia (Marquesas Islands)
ALA	Alaska	US (Alaska)
SON	Sonora Mexico	Mexico (Sonora)
PI	Pitcairn Islands	Pitcairn Islands
PAC	North American Pacific	Canada (Yukon, British Columbia), Mexico (Baja California), US (Washington, Oregon, Idaho-Northern, California, Nevada)
EBC	Eastern British Columbia	Canada (Eastern British Columbia)
MNT	North American Mountain	Canada (Northwest Territory, Nunavut-Western, British Columbia-Southeast, Alberta, Saskatchewan-West), Mexico (Baja California Sur, Chihuahua, Sinaloa, Nayarit), US (Oregon-East, Idaho-Southern, Montana, Wyoming, North Dakota-Southwest, South Dakota-West, Nebraska-West, Kansas-West, Utah, Arizona-Navajo Reservation, Colorado, New Mexico, Texas-Far West)
ARI	Arizona	Arizona
SASK	Saskatchewan	Canada (Saskatchewan)
GAL	Galapagos Islands	Ecuador (Galapagos Islands)
EI	Easter Island	Easter Island
CA	Central America	Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua
CEN	North American Central	Canada (Nunavut-Central, Ontario-Western, Saskatchewan-East, Manitoba), Mexico (Coahuila, Nuevo Leon, Tamaulipas, Zacatecas, Jalisco, San Luis Potosi, Guanajuato, Aquascalientes, Queretara, Yucatan, Quintana Roo, Campeche, Tabasco, Chiapas, Oaxaca, Veracruz, Guerrero, Michoacan, Colima, Morelos, Tlaxacala, Durango, Edo de Mexico, Hidalgo, Puebla, Federal District), US (North Dakota, South Dakota-Eastern, Nebraska-Eastern, Kansas-Eastern, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Michigan-Western Upper Peninsula, Oklahoma, Texas, Arkansas, Louisiana, Indiana-Southwestern, Indiana-Northwestern, Kentucky-Western, Tennessee-Western, Mississippi, Florida-Far Western)
WSAM	Western South America	Columbia, Ecuador, Peru
WCAR	Western Caribbean	Cayman Islands, Grand Cayman, Haiti, Jamaica, Panama
SOU	Southampton Canada	Canada (Nunavut-Southampton)
IDA	Indiana	US (Indiana)
EST	North American Eastern	Canada (Nunavut-Eastern, Quebec, Ontario-Eastern), Turks and Caicos Islands, US (Michigan, New York, Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, Indiana-Southeastern, Kentucky-Eastern, Tennessee-Eastern, Ohio, Pennsylvania, Virginia, North Carolina, New Jersey, Delaware, Maryland, Washington DC, West Virginia, Alabama, South Carolina, Georgia, Florida)
CUB	Cuba	Cuba
BAH	Bahamas	Bahamas
ACR	Acre Brazil	Brazil (Acre)

Table 2-2 Time zone Localities (continued)

ID	Description	Locality Served
SAM	Central South America	Argentina (Mendoza, San Juan), Bolivia, Brazil (Amazonas, Rondonia, Roraima, Mato Grosso, Para-West, Mato Grosso Do Sul), Guyana, Venezuela
PAR	Paraguay	Paraguay
FI	Falkland Islands	UK (Falkland Islands)
CHI	Chile	Chile
CG	Central Greenland	Denmark (Central Greenland)
CAR	Caribbean	Anguilla, Antigua and Barbuda, Aruba, Barbados, British Virgin Islands, Dominican Republic, Dominica, Grenada, Guadeloupe, Martinique, Montserrat, Netherlands Antilles, Puerto Rico, St.Kitts and Nevis, St. Lucia, St Vincent and The Grenadines, Trinidad and Tobago, US Virgin Islands
ATL	North American Atlantic	Bermuda, Canada (Labrador, New Brunswick, Nova Scotia, Prince Edward Island)
NWF	Newfoundland Canada	Canada (Newfoundland)
ELAB	Eastern Labrador Canada	Canada (Labrador-Far Eastern)
SPM	St Pierre and Miquelon	France (St Pierre and Miquelon)
SBRZ	Southern Brazil	Brazil (Minas Gerais, Goias, Distrito Federal, Parana, Espirito Santo, Rio De Janeiro, Sao Paulo, Rio Grande Do Sul, Santa Catarina)
ESAM	Eastern South America	French Guiana, Suriname, Uruguay, Brazil (Para-Eastern, Amapa, Maranhao, Tocantins, Piaui, Ceara, Rio Grande Do Norte, Paraiba, Alagoas, Sergipe, Bahia), Argentina (Buenos Aires, Catamarca, Chaco, Chubut, Cordoba, Corrientes, Entre Rios, Formosa, Jujuy, La Pampa, La Rioja, Misiones, Neuquen, Rio Negro, Salta, San Luis, Santa Cruz, Santa Fe, Santiago del Estero, Tierra del Fuego, Tucuman)
EG	Eastern Greenland	Denmark (Greenland-Eastern)
EBRZ	Eastern Brazil	Brazil (Pernambuco, Fernando de Noronha)
FEG	Far Eastern Greenland	Denmark (Greenland-Far Eastern)
CV	Cape Verde	Cape Verde
AZO	Azores	Portugal (Azores)
ICE	Iceland	Iceland

Timezone Recommendations

Table 2-2 lists recommended timezones per region.

Caution Do not use settings like GMT_MINUS5 or GMT_PLUS5.

If your timezone is not listed, please contact your Cisco representative.

Table 2-3 Timezone Recommendations

BTS Setting	Solaris Setting
US_ALASKA	US/Alaska
US_ALEUTIAN	US/Aleutian
US_ARIZONA	US/Arizona
US_CENTRAL	US/Central Use this instead of CST or CDT.
US_EAST_INDIANA	US/East-Indiana
US_EASTERN	US/Eastern Use this instead of EST or EDT.
US_HAWAII	US/Hawaii
US_MICHIGAN	US/Michigan
US_MOUNTAIN	US/Mountain Use this instead of MST or MDT.
US_PACIFIC	US/Pacific Use this instead of PST or PDT.
US_SAMOA	US/Samoa
Canada	
CANADA_ATLANTIC	Canada/Atlantic Use this instead of AST or ADT.
CANADA_EAST_SASKATCHEWAN	Canada/East-Saskatchewan
CANADA_MOUNTAIN	Canada/Mountain
CANADA_PACIFIC	Canada/Pacific
CANADA_CENTRAL	Canada/Central
CANADA_EASTERN	Canada/Eastern
CANADA_NEWFOUNDLAND	Canada/Newfoundland
CANADA_YUKON	Canada/Yukon

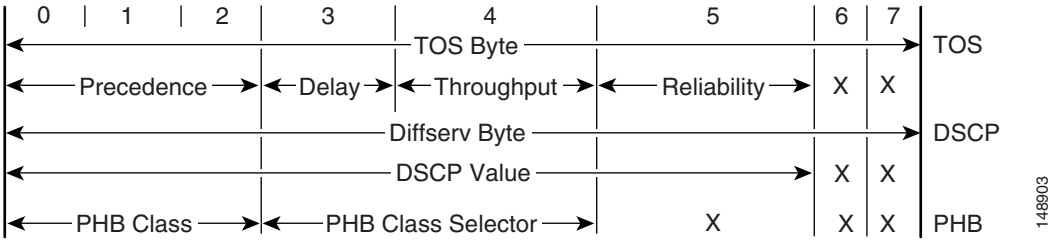
TOS, DSCP, and PHB

This section describes how BTS supports Type of Service (TOS), Differentiated Services Codepoint (DSCP), and Per-Hop Behavior (PHB). For more information, see the following IETF documents:

- TOS—*RFC 791, Internet Protocol*
- DSCP—*RFC 2474, Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers*
- PHB—*RFC 2597, Assured Forwarding PHB Group*, and *RFC 3246, An Expedited Forwarding PHB (Per-Hop Behavior)*

Figure 2-1 shows how the TOS, DSCP, and PHB standards are related.

Figure 2-1 Relationship of TOS, DSCP, and PHB Standards



On the BTS, the parameters for TOS, DSCP, and PHB are provisioned differently depending on the token.

Caution Restart or swtichover the CA to effect changes you make in the ca-config table.

TOS

If the BTS requires TOS parameters as precedence strings, provision tokens as follows:

- PRECEDENCE = NETCONTROL, INTERNETCONTROL, CRITICAL, FLASHOVERRIDE, FLASH, IMMEDIATE, PRIORITY, or ROUTINE
- LOWDELAY = Y or N
- THROUGHPUT = Y or N
- RELIABILITY = Y or N

Diffserv

If the BTS requires Diffserv parameters as bytes, provision a single token as an integer, 0 - 255. The Diffserv byte is based on 8 bits, 2 more bits than the DSCP value. For example, if you want a DSCP value of 24, provision it with 96.

DSCP

If the system requires parameters to be provisioned in the DSCP value format, provision a single token as an integer between 0 and 63. The DSCP value is the decimal equivalent of the first 6 bits of the Diffserv byte.

PHB

If the system requires parameters to be provisioned in the PHB format, provision a single token as one of the following values: CS0, CS1, CS2, CS3, CS4, CS5, CS6, CS7, AF11, AF12, AF13, AF21, AF22, AF23, AF31, AF32, AF33, AF41, AF42, AF43, EF, DEFAULT.

Note Entering the value “DEFAULT” has the same effect as entering “CS0.” These values are included in Table 2-5.

Combined PHB/DSCP Format

Some tokens can be provisioned in either the alphanumeric PHB format or the numeric DSCP value format. In this case provision the token as one of the following values: an integer between 0 and 63, CS0, CS1, CS2, CS3, CS4, CS5, CS6, CS7, AF11, AF12, AF13, AF21, AF22, AF23, AF31, AF32, AF33, AF41, AF42, AF43, EF, DEFAULT.

Refer to RFC 791 for additional information on the PRECEDENCE values. The relationship between PRECEDENCE and CSx values is as follows: NETCONTROL=CS7, INTERNETCONTROL=CS6, CRITICAL=CS5, FLASHOVERRIDE=CS4, FLASH=CS3, IMMEDIATE=CS2, PRIORITY=CS1, ROUTINE=CS0/DEFAULT.

Allowed and Default Values

This section lists the provisionable TOS, DSCP, and PHB tokens applicable to each protocol.

Caution Cisco recommends against using any value other than the default. Changing these values from their defaults can significantly impact network performance. Contact Cisco TAC for further information.

Caution If you change any parameters in the ca-config table, these changes do not take effect until the CA platform switches over or restarts.

MGCP Signaling

The MGCP-SIG-DSCP parameter from the CA_CONFIG table is used for signaling between the BTS 10200 and MGWs.

SIP Signaling

The SIA-TRUNK-GRP-LEVEL-SIG-TOS parameter from the CA_CONFIG table applies to SIP signaling. For its changes to take effect, you must performa switchover.

- Y: Use the value provisioned for SIP-SIG-DSCP in the SIP-ELEMENT table for the applicable SIP trunk group.
- N: Use the value provisioned for the system-wide parameter SIA-SIG-DSCP in the CA-CONFIG table.

The SIA-SIG-DSCP parameter from the CA_CONFIG table defines system-level DSCP for SIP calls.

The SIP-SIG-DSCP parameter in the SIP_ELEMENT table applies to trunk-level SIP signaling.

CA to FS Signaling

TheSIM-SIG-DSCP parameter from the CA_CONFIG table applies.

FS to CA Signaling

The following values from the CA_CONFIG table apply:

- The FSAIN-SIG-DSCP value is used for internal AIN Feature Server (FSAIN) to CA signaling.
- The FSPTC-SIG-DSCP value is used for internal POTS/Tandem/Centrex Feature Server (FSPTC) to CA signaling.

DQoS Signaling

DQoS signaling uses the Common Open Policy Service (COPS) protocol. The RTP-DSCP from the QOS table applies.

H.323 Signaling

The SIG-DSCP parameter from the H323_GATEWAY table applies.

COPS and RADIUS Signaling

This section lists the tokens used in provisioning COPS and RADIUS signaling from the QOS and CA_CONFIG tables.

Tip The tokens in this section are provisioned using values between 0 and 255. For an explanation of how to calculate these values, see the "Diffserv" section on page 2-16.

The QOS table contains the following token (applicable to voice traffic):

- DQOS-CMTS-DSCP-TOS—This value is used for the packets about to enter a provider backbone from the CMTS.
- DQOS-DSCP-TOS-BITMASK—This token specifies particular bits within the IPv4 DSCP/TOS byte.
- DOCSIS-DSCP-TOS—Identifies the DSCP/TOS value that must be matched for packets to be classified onto the IP flow.
- DOCSIS-DSCP-TOS-BITMASK—This token determines what bits in the DSCP/TOS byte are to be used as filters in classifying packets.

Table 2-4 lists the allowed values and default value for each of these tokens.

Table 2-4 COPS Signaling Parameters (from QoS Table)

Token	Allowed Values	Default Value
DQOS-CMTS-DSCP-TOS	0–255	160
DQOS-DSCP-TOS-BITMASK	0–255	224
DOCSIS-DSCP-TOS	0–255	160
DOCSIS-DSCP-TOS-BITMASK	0–255	224

The following parameters from the CA_CONFIG table apply:

- COPS-DSCP-TOS—This value is used for the signaling packets on COPS interfaces between the CMS and the CMTS.
- RADIUS-DSCP-TOS—This value is used for the signaling packets on RADIUS interfaces between the CMS and the RKS, and the CMS and the DF server.

Table 2-5 lists the allowed value and default value for each of these tokens.

Table 2-5 COPS and RADIUS Signaling Parameters (from CA-CONFIG Table)

Value	Allowed Values	Default Value
COPS-DSCP-TOS	0–255	96
RADIUS-DSCP-TOS	0–255	96

Stream Control Transmission Protocol Signaling

The SCTP-DSCP parameter from the CA_CONFIG table applies. Table 2-6 lists the allowed values and default value for this token.

Table 2-6 SCTP-DSCP Signaling Parameters (from CA-CONFIG Table)

Token	Allowed Values	Default Value
SCTP-DSCP	DEFAULT, CS1, CS2, CS3, CS4, CS5, CS6, CS7, AF11, AF12, AF13, AF21, AF22, AF23, AF31, AF32 AF33, AF41, AF42, AF43, EF	CS3

Note The value “DEFAULT” is mapped to a value of “CS0” as shown in Table 2-5.

ISDN Signaling

The following parameters from the BACKHAUL_SET table apply:

- SIG-TOS-LOWDELAY
- SIG-TOS-PRECEDENCE
- SIG-TOS-RELIABILITY
- SIG-TOS-SUPP—Allowed values are Y/N; default is N.

- SIG-TOS-THROUGHPUT

Table 2-7 lists the allowed values and default value for the -PRECEDENCE, -LOWDELAY, -THROUGHPUT, and -RELIABILITY tokens.

Table 2-7 SIG-TOS Values (from BACKHAUL-SET Table)

Token	Allowed Values	Default Value
SIG-TOS-LOWDELAY	Y/N	N
SIG-TOS-PRECEDENCE	NETCONTROL INTERNETCONTROL CRITICAL FLASHOVERRIDE FLASH IMMEDIATE PRIORITY ROUTINE	CRITICAL
SIG-TOS-RELIABILITY	Y/N	N
SIG-TOS-THROUGHPUT	Y/N	N

Mapping of Provisionable TOS, DSCP, and PHB Values

Table 2-8 shows how the provisionable values in the PHB format are mapped to the values in TOS and DSCP formats.

Caution Cisco recommends using the combinations of values in the table. BTS accepts other combinations, depending on format; however, the combinations shown have been tested by Cisco.

Note Binary and Hex values are informational and not used for provisioning.

Table 2-8 Mapping of Provisionable Values in PHB Format to TOS and DSCP Formats[1]

Value in PHB Format	Value of TOS PRECEDENCE Bits			Other Provisionable TOS Bits			Binary	DSCP Value Format	Diffserv Byte Format	Hex Value [2]
	Binary [3]	TOS String Format, Based On RFC 791	TOS Integer Format	D [4]	T	R				
CS0 or **DEFAULT**	**000**	**ROUTINE**	**0**	**N**	**N**	**N**	**000 000 00**	**0**	**0**	**0x0**

Table 2-8 Mapping of Provisionable Values in PHB Format to TOS and DSCP Formats[1] (continued)

Value in PHB Format	Value of TOS PRECEDENCE Bits			Other Provisionable TOS Bits			Binary	DSCP Value Format	Diffserv Byte Format	Hex Value [2]
	Binary [3]	TOS String Format, Based On RFC 791	TOS Integer Format	D [4]	T	R				
CS1	**001**	**PRIORITY**	**1**	**N**	**N**	**N**	**001 000 00**	**8**	**32**	**0x20**
AF11				N	Y	N	001 010 00	10	40	0x28
AF12				Y	N	N	001 100 00	12	48	0x30
AF13				Y	Y	N	001 110 00	14	56	0x38
CS2	**010**	**IMMEDIATE**	**2**	**N**	**N**	**N**	**010 000 00**	**16**	**64**	**0x40**
AF21				N	Y	N	010 010 00	18	72	0x48
AF22				Y	N	N	010 100 00	20	80	0x50
AF23				Y	Y	N	010 110 00	22	88	0x58
CS3	**011**	**FLASH**	**3**	**N**	**N**	**N**	**011 000 00**	**24**	**96**	**0x60**
AF31				N	Y	N	011 010 00	26	104	0x68
AF32				Y	N	N	011 100 00	28	112	0x70
AF33				Y	Y	N	011 110 00	30	120	0x78
CS4	**100**	**FLASHOVERRIDE**	**4**	**N**	**N**	**N**	**100 000 00**	**32**	**128**	**0x80**
AF41				N	Y	N	100 010 00	34	136	0x88
AF42				Y	N	N	100 100 00	36	144	0x90
AF43				Y	Y	N	100 110 00	38	152	0x98
CS5	**101**	**CRITICAL**	**5**	**N**	**N**	**N**	**101 000 00**	**40**	**160**	**0xA0**
EF				Y	Y	N	101 110 00	46	184	0xB8
CS6	**110**	**INTERNETWORK CONTROL**	**6**	**N**	**N**	**N**	**110 000 00**	**48**	**192**	**0xC0**
CS7	**111**	**NETWORK CONTROL**	**7**	**N**	**N**	**N**	**111 000 00**	**56**	**224**	**0xE0**

1.Cisco recommends that you use the combinations of values shown in the table. The system will accept certain other combinations of values, depending on the format; however, the combinations shown in the table have been tested by Cisco for proper behavior.

2.Hexadecimal equivalent. This value is listed for convenience. It is not used in provisioning the BTS.

3.Binary equivalent. This value is listed for convenience. It is not used in provisioning the BTS.

4.D = Delay, T = Throughput, R = Reliability. To provision these tokens, enter N for 0 or Y for 1.

CHAPTER 3

Subscribers

Revised: July 2010, OL-23040-01

Introduction

This chapter explains how to provision the BTS to communicate with different subscriber types.

IAD Subscribers

The following table has steps to provision the BTS to communicate with an integrated access device (IAD) subscriber and example CLI commands with required tokens.

Table 3-1 IAD Subscriber Provisioning

	Task	Description and CLI Command
Step 1	Adding MGW profiles.	A profile is a template for provisioning MGWs by vendor. It has settings for communications between the CA and each type of MGW. Several tokens have values that can be overwritten after the CA queries the MGW for supported capabilities. If the MGW returns a different value from that provisioned, the returned value automatically replaces it. If necessary, change the value of other keepalive tokens in the mgw-profile table. `add mgw-profile id=IAD2421; vendor=cisco;`

Step 2	Adding MGWs.	The MGW table has information about each MGW the CA manages. Address the MGW uniquely by domain name, IP address, or TSAP address. The MGW table has the following associated commands:
		
		• **RGW**—provisions a residential gateway, with the type token set to RGW.
		
		• **TGW**—provisions a trunking gateway, with the type token set to TGW.
		
		Both commands provision the MGW table, but you can use them to provide user security to individuals.
		
		`add mgw id=c2421.192;`
		`tsap-addr=c2421.192.trnglab.cisco.com;`
		`call-agent-id=CA101; mgw-profile-id=IAD2421; type=rgw;`

Step 3	Adding terminations.	The Termination (termination) table has information about each termination the CA manages. Terminations include analog ports, DS0 ports, ISDN circuits, ISDN PRI, and multiline hunt groups (MLHGs).
		
		Termination events and signals are grouped into packages supported by termination types. The gateway determines the package type.
		
		If you enter the prefix token, the termination ID is generated by concatenating prefix and port-start values and incrementing the termination port number until the port number values reach port-end. The prefix, port-start, and port-end tokens are not in the table as individual fields. Enter:
		
		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)
		
		`add termination prefix=aaln/S1/; port-start=1;`
		`port-end=16; type=line; mgw-id=c2421.192;`

Table 3-1 IAD Subscriber Provisioning (continued)

	Task	Description and CLI Command
Step 4	Adding call types and routing for dialed digits.	The Destination (destination) table defines call type and routing information for dialed digits. Multiple digit strings in the Dial Plan table can use the same destination ID. `add destination dest-id=local-call; call-type=local; route-type=sub;`
Step 5	Adding dial plan profiles.	A profile is a template for provisioning dial plans. 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. Assign different dial-plan-profile-ids to subscribers and trunk groups. `add dial-plan-profile id=dp1; description=dialing plan profile id;`
Step 6	Adding dial plans.	Dial plans analyze, screen, and route calls using dialed digits. The Dial Plan (dial-plan) table has information for a specific call type; it defines valid dialing patterns and determines call routing. `add dial-plan id=sub; digit-string=469255; noa=national; dest-id=local_call;`
Step 7	Adding subscriber profiles.	The Subscriber Profile (subscriber-profile) table groups shared subscriber properties. Because CAs have several points of presence (POPs), and POPs are a subcriber profile token, you must create POP-specific subscriber profiles. `add subscriber-profile id=subpf1; dial-plan-id=dp1; pop-id=1;`
Step 8	Adding subscribers.	The Subscriber (subscriber) table defines subscribers and subscriber groups on a CA. `add subscriber id=sub1; category=individual; name=Richardson1; term-id=aaln/S1/3/; mgw-id=c2421.192; dn1=4692551231; sub-profile-id=subpf1;` Table 3-6 lists subscriber types and their required tokens. Each subscriber must have a unique term-id. Do not use double quotation marks (""), single quotation marks (’), dashes (-), or underscores (_) in subscriber names. For PBX-DID subscribers, manually provision the PBXDID table. See the PBX-DID Subscribers, page 3-4 for more details. Also set up the following as subscribers: • Termination numbers reached by DNs • Termination numbers originating in the CA • Termination numbers to customers, such as MLHG or Centrex See the “PBX-DID Subscribers” section on page 4 for more information.

Table 3-1 IAD Subscriber Provisioning (continued)

	Task	Description and CLI Command
Step 9	Changing subscriber DNs.	The EMS automatically generates the DN2Subscriber table. This table determines the subscriber ID of a DN during termination processing; it populates when a subscriber DN is added to the Subscriber table. When a called number is translated by the dial plan, this table is queried; it maps a DN to a subscriber. You can view data or change the Status field to VACANT if it is in the disconnected (DISC) or connected (CN) state. `add dn2subscriber office-code-index=1;dn=1321; status=assigned;`
Step 10	Changing subscribers profiles.	Prefix screening tokens 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. • TOLL_PFX1_OPT—Controls interLATA and toll calls. Valid values are RQ (required), NR (not required), and OPT (optional). `change subscriber-profile ID=sp1; DIAL_PLAN_ID=cdp1; LOCAL_RFX1_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, subscribers must dial 1. The flags LOCAL_PFX1_OPT, INTERLATA_PFX1_OPT, and TOLL_PFX1_OPT, do not affect such calls.
Step 11	Placing MGWs in service.	`control mgw id=c2421.192; target-state=INS; mode=forced;`
Step 12	Preparing subscriber trunk terminations for service.	`equip subscriber-termination ID=sp1;`
Step 13	Placing subscriber trunk terminations in service.	`control subscriber-termination ID=sp1; target-state=INS; mode=FORCED;`

PBX-DID Subscribers

Table 3-2 has steps to provision the Cisco BTS 10200 to communicate with a DID trunk board in the PBX over an analog DID one-way trunk.

Note that you need to have provisoned trunk group profile, trunk groups, routes, and dial plan before provisioning the PBXDID table. See the "Trunk Routing" section on page 7-1 for more details.

Now, perform the following steps to provision the PBX-DID feature.

Table 3-2 PBX-DID Subscriber Provisioning

	Task	Description and CLI Command
Step 1	Adding National Destination Code.	The national destination code (ndc) table defines the home area codes supported by the CA. Setup the NDC for the DN as shown below. `add ndc digit_string=420;`
Step 2	Adding Exchange Code.	Setup the EC for the DN as shown below. `add exchange_code ndc=420; ec=255; office_code_index=48888;`
Step 3	Adding Office Code.	The Office Code (office-code) table specifies the office codes assigned to a particular CA. 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. add office_code ndc=420; ec=255; call_agent_id=CA146; dn_group=xxxx;
Step 4	Adding Subscriber Profile.	The Subscriber Profile (subscriber-profile) table groups shared subscriber properties. Because CAs have several points of presence (POPs), and POPs are a subscriber profile token, you must create POP-specific subscriber profiles. `add subscriber-profile id=subpf1; dial-plan-id=dp1; pop-id=1;`
Step 5	Adding Subscriber.	The Subscriber (subscriber) table defines subscribers and subscriber groups on a CA. `add subscriber ID=pbx1sub; category=PBX; name=pbx1; TGN_ID=17; SUB_PROFILE_ID=subpf1; TERM_TYPE=TG;` Each subscriber must have a unique term-id. Do not use double quotation marks (""), single quotation marks (’), dashes (-), or underscores (_) in subscriber names. For PBX-DID subscribers, manually provision the PBXDID table. The PBXDID table supports groups of 10, 100, 1000, or 10,000 DNs. The DN format is nnnn, where n = 0–9. For a range of DNs, replace n with lowercase x. If the last digit is replaced with a lowercase x, it represents a group of 10 DNs. 100 = xx, 1000 = xxx, and 10,000 = xxxx.
Step 6	Configuring PBX-DID.	The PBXDID table determines the subscriber ID for a range of DNs during termination processing. After creating a subscriber with category=PBX, the PBXDID table is provisioned to define range (or ranges) of DNs assigned to the subscriber. `add pbxdid id=4202553xxx; from_fdn=4202553000; to_fdn=4202553025; status=ASSIGNED; sub_id=pbx1@ipcell.com;`

Note See the Cisco BTS 10200 Softswitch CLI Database for more details on the PBXDID command and tokens.

ATA 18x Residential Subscribers

.Table 3-3 has steps to provision the BTS to communicate with a Cisco Analog Telephone Adaptors (ATAs) as residential gateway and support local subscribers.

Table 3-3 ATA 18X Residential Susbscriber Provisioning

	Task	Description and CLI Command
Step 1	Adding MGW profiles.	A profile is a template for provisioning MGWs by vendor. It has settings for communications between the BTS Call Agent (CA) and each type of MGW. Several tokens have values that can be overwritten after the CA queries the MGW for supported capabilities. If the MGW returns a different value from that provisioned, the returned value automatically replaces it. If necessary, change the value of other keepalive tokens in the mgw-profile table. `add mgw-profile id=ATA186; vendor=cisco; packet-type=IP; mgcp-version=mgcp_1_0; description=Cisco ATA186;` **Tip** See the *Cisco BTS 10200 Softswitch Troubleshooting Guide* for how tokens impact audit-endpoint and keepalive processes.
Step 2	Adding MGWs.	The MGW table has information about each MGW the CA manages. Address the MGW uniquely by domain name, IP address, or TSAP address. The MGW table has the following associated commands: • **RGW**—provisions a residential gateway, with the type token set to RGW • **TGW**—provisions a trunking gateway, with the type token set to TGW. Both commands provision the MGW table, but you can use them to provide user security to individuals. `add mgw id=ATA1; tsap-addr=ATA1.trnglab.cisco.com; call-agent-id=CA101; mgw-profile-id=ATA186; type=rgw;`

Table 3-3 ATA 18X Residential Susbscriber Provisioning (continued)

	Task	Description and CLI Command
Step 3	Adding terminations.	The Termination (termination) table has information about each termination the CA manages. Terminations include analog ports, DS0 ports, ISDN circuits, ISDN PRI, and multiline hunt groups (MLHGs). Termination events and signals are grouped into packages supported by termination types. The gateway determines the package type. If you enter the prefix token, 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. Enter: 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) `add termination prefix=aaln/; port-start=1; port-end=2; mgw-id=ATA-1; type=line;`
Step 4	Adding call types and routing for dialed digits.	The Destination (destination) table defines call type and routing information for dialed digits. Multiple digit strings in the Dial Plan table can use the same destination ID. `add destination dest-id=local-call; call-type=local; route-type=sub;`
Step 5	Adding dial plan profiles.	A profile is a template for provisioning dial plans. 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. Assign different dial-plan-profile-ids to subscribers and trunk groups. `add dial-plan-profile id=dp1; description=dialing plan profile id;`
Step 6	Adding dial plans.	Dial plans analyze, screen, and route calls using dialed digits. The Dial Plan (dial-plan) table has information for a specific call type; it defines valid dialing patterns and determines call routing. `add dial-plan id=sub; digit-string=469-255; noa=national; dest-id=local_call;`
Step 7	Adding subscriber profiles.	The Subscriber Profile (subscriber-profile) table groups shared subscriber properties. Because CAs have several points of presence (POPs), and POPs are a subcriber profile token, you must create POP-specific subscriber profiles. `add subscriber-profile id=subpf1; dial-plan-id=dp1; pop-id=1;`

Table 3-3 ATA 18X Residential Susbscriber Provisioning (continued)

	Task	Description and CLI Command
Step 8	Adding subscribers.	The Subscriber (subscriber) table defines subscribers and subscriber groups on a CA. `add subscriber id=sub1; category=individual; name=Richardson1; term-id=aaln/S1/3/; mgw-id=c2421.192; dn1=4692551231; sub-profile-id=subpf1;` Table 3-6 lists subscriber types and their required tokens. Each subscriber must have a unique term-id. Do not use double quotation marks (""), single quotation marks (’), dashes (-), or underscores (_) in subscriber names. For PBX-DID subscribers, manually provision the PBXDID table. The PBXDID table supports groups of 10, 100, 1000, or 10,000 DNs. The DN format is nnnn, where n = 0–9. For a range of DNs, replace n with lowercase x. If the last digit is replaced with a lowercase x, it represents a group of 10 DNs. 100 = xx, 1000 = xxx, and 10,000 = xxxx. Also set up the following as subscribers: • Termination numbers reached by DNs • Termination numbers originating in the CA • Termination numbers to customers, such as MLHG or Centrex
Step 9	Viewing subscribers DN status.	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 3-7 lists the possible administrative states of the DN.
Step 10	Placing MGWs in service.	`control mgw id=ATA-1; target-state=INS; mode=forced;`
Step 11	Preparing subscriber trunk terminations for service.	`equip subscriber-termination ID=sub2;`
Step 12	Placing subscriber trunk terminations in service.	`control subscriber-termination id=sub2; target-state=INS; mode=FORCED;`

Cable Subscribers

Table 3-4 has steps to provision the BTS to communicate with a cable subscriber.

Tip For information on BTS network elements that support PacketCable-based features and protocols, refer to the *Cisco BTS 10200 PacketCable and Event Message Guide.*

Table 3-4 Cable Subscriber Provisioning

	Description	CLI Command
Step 1	Adding MGW profiles.	A profile is a template for provisioning MGWs by vendor. It has settings for communications between the BTS Call Agent (CA) and each type of MGW. Several tokens have values that can be overwritten after the CA queries the MGW for supported capabilities. If the MGW returns a different value from that provisioned, the returned value automatically replaces it. If necessary, change the value of other keepalive tokens in the mgw-profile table. `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;` **Tip** See the *Cisco BTS 10200 Softswitch Troubleshooting Guide* for how tokens impact audit-endpoint and keepalive processes.
Step 2	Adding MGWs.	The MGW table has information about each MGW the CA manages. Address the MGW uniquely by domain name, IP address, or TSAP address. The MGW table has the following associated commands: • RGW—provisions a residential gateway, with the type token set to RGW • TGW—provisions a trunking gateway, with the type token set to TGW. Both commands provision the MGW table, but you can use them to provide user security to individuals. `add mgw id=<MGW ID>; tsap-addr=<TSAP-ADDR>; call-agent-id=<CA ID>; mgw-profile-id=UBR925; type=rgw; aggr-id=aggr01;`

Table 3-4 Cable Subscriber Provisioning (continued)

	Description	CLI Command
Step 3	Adding terminations.	The Termination (termination) table has information about each termination the CA manages. Terminations include analog ports, DS0 ports, ISDN circuits, ISDN PRI, and multiline hunt groups (MLHGs). Termination events and signals are grouped into packages supported by termination types. The gateway determines the package type. If you enter the prefix token, 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. Enter: 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) `add termination prefix=aaln/; port-start=0; port-end=1; mgw-id=<MGW ID>; type=line;`
Step 4	Adding call types and routing for dialed digits.	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. `add destination dest-id=local-call; route-type=sub; call-type=local;`
Step 5	Adding dial plan profiles.	A profile is a template for provisioning dial plans. 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. Assign different dial-plan-profile-ids to subscribers and trunk groups. `add dial-plan-profile id=dp1; description=NA_Default;`
Step 6	Adding dial plans.	Dial plans analyze, screen, and route calls using dialed digits. The Dial Plan (dial-plan) table has information for a specific call type; it defines valid dialing patterns and determines call routing. `add dial-plan id=dp1; digit-string=919-392; dest-id=sub; noa=national;`
Step 7	Adding subscriber profiles.	The Subscriber Profile (subscriber-profile) table groups shared subscriber properties. Because CAs have several points of presence (POPs), and POPs are a subcriber profile token, you must create POP-specific subscriber profiles. `add subscriber-profile id=subpf1; dial-plan-id=dp1; pop-id=1;`

Table 3-4 Cable Subscriber Provisioning (continued)

	Description	CLI Command
Step 8	Adding subscribers.	The Subscriber (subscriber) table defines subscribers and subscriber groups on a CA. `add subscriber id=sub1; category=individual; name=Richardson1; term-id=aaln/S1/3/; mgw-id=c2421.192; dn1=4692551231; sub-profile-id=subpf1;` Table 3-6 lists subscriber types and their required tokens. Each subscriber must have a unique term-id. Do not use double quotation marks (""), single quotation marks (’), dashes (-), or underscores (_) in subscriber names. For PBX-DID subscribers, manually provision the PBXDID table. The PBXDID table supports groups of 10, 100, 1000, or 10,000 DNs. The DN format is nnnn, where n = 0–9. For a range of DNs, replace n with lowercase x. If the last digit is replaced with a lowercase x, it represents a group of 10 DNs. 100 = xx, 1000 = xxx, and 10,000 = xxxx. Also set up the following as subscribers: • Termination numbers reached by DNs • Termination numbers originating in the CA • Termination numbers to customers, such as MLHG or Centrex
Step 9	Setting subscriber rings.	Assign one of the following rings: 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 `change subscriber id=sub11; sub-profile-id=subpf1; ring_type_dn1=3;`
Step 10	Placing MGWs in service.	`control mgw id=<MGW ID>; target-state=INS; mode=FORCED;`
Step 11	Preparing subscriber trunk terminations for service.	`equip subscriber-termination id=sub11;`
Step 12	Placing subscriber trunk terminations in service.	`control subscriber-termination id=sub11; target-state=INS; mode=FORCED;`

SIP Subscribers

SIP subscribers are SIP phones registered directly to the BTS and for which the BTS maintains subscriber information.

The following table has steps to provision the BTS to communicate with SIP subscriber and example CLI commands with required tokens. Only commands for tables specific to SIP subscribers are in this procedure. Commands for other tables, such a sub_service_profile, dial_plan, which are required for the subscriber, are not included.

Table 3-5 SIP Subscriber Provisioning

	Task	Description and CLI Command
Step 1	Adding authentication realm IDs.	The Authentication Realm (AUTH-REALM) table defines supported authentication realm IDs. BTS uses realm-based authentication when another network entity challenges it for information.Assign auth-realm-ids to subscribers using the Serving Domain Name table. All SIP subscribers in a serving domain share an auth-realm-id. `add auth_realm id=ciscolab; description=sample_authrealm;`
Step 2	Adding serving domains.	The Serving Domain Name (SERVING-DOMAIN-NAME) table defines serving domain names the BTS supports. This table also lists authentication requirements for subscribers served by serving domains. **Note** TheDNS must resolve the domain name value to logical IP addresses assigned by the SIP adaptor during BTS installation. The resolution for the serving domain must match the resolution of the fully-qualified domain name (FQDN) specified as the BTS contact. Add the domain name or IP address as the DomainName. If the SIP phones require authentication, set AUTH_REQD=Y. `add serving-domain-name domain_name=domainname.com; auth_reqd=y; auth_realm_id=ciscolab; description=sample_name;`
Step 3	Adding SIP subscribers.	`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** Set privacy=user to have the BTS apply user-provided privacy information. This works for SIP endpoints capable of displaying privacy information.

Table 3-5 SIP Subscriber Provisioning (continued)

	Task	Description and CLI Command

Step 4	Assigning off-hook service to SIP subscribers.	This trigger allows a SIP subscriber's device to tell the BTS which type of off-hook service the subscriber has. From the BTS' perspective, it is dealing with a SIP user agent (UA); this is true whether the subscriber's device is a SIP eMTA, ATA, or PAP2.
		
		Sample OHD provisioning:
		
		`add feature fname=OHD; tdp1=COLLECTED_INFORMATION; tid1=OHT_TRIGGER; TTYPE1=R; tdp2=O_EXCEPTION; tid2=REROUTE_TRIGGER`
		`add service id=oht; fname1=OHD;`
		`add subscriber-service-profile sub-id=206-722-1804; service-id=oht;`
		`add sip-trigger-profile id=siptrgprof_ohd; NEXT_ROUTE_HEADER_HOSTNAME=sia-SYS106CA146.ipclab.cisco.com; route-guide-id=ss_rg_5565;`
		`add subscriber-sip-trigger-profile fname=OHD; sip-trigger-profile-id=siptrgprof_ohd; sub-id=206-722-1804;`
		`change subscriber id=206-722-1804; privacy=none; offhook-trigger-type=OHD;`
		
		Note ohd-timer is not relevant for SIP subscribers, because the provisioning on the subscriber's device tracks the OHD timer.
		
		Sample usage-based (subscriber manually enters the VSC from their device) VSC provisioning:
		
		`add feature fname=OHD; tdp1=COLLECTED_INFORMATION; tid1=OHT_TRIGGER; TTYPE1=R; tdp2=O_EXCEPTION; tid2=REROUTE_TRIGGER`
		`add vsc fname=OHD; digit-string=*40;`
		`add sip-trigger-profile id=siptrgprof_ohd; NEXT_ROUTE_HEADER_HOSTNAME=sia-SYS106CA146.ipclab.cisco.com; route-guide-id=ss_rg_5565;`
		`add subscriber-sip-trigger-profile fname=OHD; sip-trigger-profile-id=siptrgprof_ohd; sub-id=206-722-1804;`
		`change subscriber id=206-722-1804; privacy=none; offhook-trigger-type=none;`

Table 3-5 SIP Subscriber Provisioning (continued)

	Task	Description and CLI Command
Step 5	Adding subscriber AORs.	The User Authentication (USER-AUTH) table identifies subscriber address of record (AOR) based on authentication credentials supplied by the user during registration or call setup. When a SIP user attempts to register or setup a call, the BTS challenges the SIP REQUEST specifying the AUTH-REALM ID on the Serving Domain Name table, if the Serving Domain Name Table indicates that authorization is required. If the BTS receives valid credentials, the user ID in those credentials is used to look up the AOR ID in from this table. The AOR ID is then used to look up the subscriber from the AOR2SUB table. 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 6	Setting REGISTER expiration timers.	If you do not enter values, BTS uses defaults. See Cisco BTS 10200 Softswitch CLI Database > CA-CONFIG.
		`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	Placing AORs in service.	`change aor2sub aor_id=4695551111@domainname.com; status=INS;`

Tokens and States

Table 3-6 Subscriber Type and Required Tokens

Subscriber Type	Required Tokens
INDIVIDUAL	TERM-ID, MGW-ID
MLHG	MLHG-ID
MLHG-INDIVIDUAL	TERM-ID, MGW-ID, MLGH-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

Table 3-6 Subscriber Type and Required Tokens (continued)

Subscriber Type	Required Tokens
CTXG-TG	CTXG-ID, TGN-ID
PBX	TGN-ID

Table 3-7 DN Administrative States

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).

Table 3-8 Subscriber Trunk Termination States

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

CHAPTER 4

CALEA

Revised: July 2010, OL-23040-01

Introduction

This chapter explains how to provision BTS interfaces to support the Communications Assistance for Law Enforcement Act (CALEA). The BTS supports two architectures, Cisco Service Independent Intercept (SII) and PacketCable.

CALEA Administrators

Electronic surveillance server (ESS) commands require users with high privilege levels. Use workgroups to manage those users. Table 4-1 has steps to provision the workgroup and example CLI commands with required tokens.

Table 4-1 CALEA Administrator Provisioning

	Task	Description and CLI Command
Step 1	Adding workgroups.	`change command-table noun=ess; verb=add; work-groups=<Workgroup Name>;`
Step 2	Assigning users to workgroups.	`change user name=<someUser>; work-groups=<Workgroup Name>;`

CALEA on Networks

Table 4-2 has steps to provision CALEA on (Service Independent Interception) SII and PacketCable networks example CLI commands with required tokens.

Table 4-2 CALEA Provisioning

	Task	Description and CLI Command
Step 1	Adding Call Agent Profile entries.	`add call-agent-profile id=<CAid>; cms-id=1234; feid=4321;` **Note** CMS-ID=xxxx, FEID=xxxx are mandatory settings for CALEA.

Step 2	Provisioning Electronic Surveillance Server tables.	This table identifies the Delivery Function (DF) server to the BTS.
		`add ess cdc-df-address = <IP address of DF CDC application>;`
		`cdc-df-port = < Destination Port for call-data info >;`
		`ccc-df-address = <IP address of DF CCC application >;`
		`ccc-df-port = < Destination Port for call-content info >;`
		`em-protocol-major=< 11 or 15 (default) >;`
		`em-protocol-minor=<00 (default) to 99>`
		
		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.

Table 4-2 CALEA Provisioning (continued)

	Task	Description and CLI Command

Step 3	Provisioning Aggregation tables and Media Gateway tables.	These steps are necessary if an aggregation router (CMTS) supports CALEA, and CALEA is enabled on it.
		a. Provisioning Aggregation tables.
		`change aggr id=<er1>; es-supp=y; es-event-supp=y;`
		b. Ensuring the CMTS is identified by the *aggr-id* token in the Media Gateway table.
		`show mgw id=<mgw id for the MTA>;`
		c. If there is no valid value displayed for *aggr-id*, enter it using the following command:
		`change mgw id=<mgw id>; aggr-id=<Aggregation router (CMTS) ID>`
		d. Repeat Steps b and c to verify *aggr-id* on all MTAs (MGWs) connected to the CMTS (aggregation router).
		Note CALEA must be enabled on each TGW and aggregation router used for CALEA. See TGW and aggregation router vendor documentation.

Step 4	Ensuring BTS functionality matches that at the other end	**a.** Set the ES-SUPP flag in the Aggregation Profile table, which the Aggregation (aggr) table points to for a specific Aggregation record, only if the Cable Modem Termination System (CMTS) supports CALEA requirements. **b.** Set the ENABLE_P_DCS_LAES_HEADER flag in the Softswitch Trunk Group Profile table only if the BTS can send P-DCS-LAES header on the soft-switch trunk group for this profile. **c.** Set the SEND_LAES_IN_RESPONSE flag in the Softswitch Trunk Group Profile table only if the BTS can send P-DCS-LAES header in SIP 18X or 200 OK messages on the soft-switch trunk group for this profile. **d.** Set the ENABLE_ES_EVENTS and ENABLE_SIP_TRIGGER flag in the Softswitch Trunk Group Profile only if the soft-switch trunk group for this profile is connected to an Application Server.

CHAPTER 5

Features

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Introduction

This chapter shows you how to add features to BTS subscribers using CLI commands. Before using the procedures in this chapter complete the following tasks:

Table 5-1 Pre-Provisioning Checklist

Tasks	
☐	CAs have basic provisioning.
☐	FSs have basic provisioning.
☐	MGWs have basic provisioning.
☐	Trunks have basic provisioning.
☐	Terminations have basic provisioning.
☐	Subscribers have basic provisioning, like dial plans. For complete information on dial plans, see the *Cisco BTS 10200 Softswitch Dial Plan Guide*.
☐	You understand the BTS features. For complete information on each feature, see *Cisco BTS 10200 Softswitch Network and Subscriber Feature Descriptions*.
☐	You are using the *Cisco BTS 10200 Softswitch CLI Database* for complete information on each table and token. CLI examples in this guide are for stand-alone illustrative purposes.

Each feature has the following sections:

- Office Provisioning—Office level requirements are one-time procedures performed during initial BTS configuration.
- Provisioning Resources—Network resource (CAs, FSs, MGWs, trunks, terminations) level requirements are performed during initial BTS configuration.
- Alternate Activation and Deactivation Method—Ways to activate and deactivate a feature.

Vertical Service Codes

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 5-2
- Non-NANP Dial Plan VSC Provisioning for Subscriber and Centrex, page 5-3

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 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 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|11xx|[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|11xx|[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=plano1; digit-map-id=digit-map=1;
add/change sub-profile id=plano1; 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=11111111111; 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=plano1; digit-map-id=digit-map-1;

add/change sub-profile id=plano1; 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=11111111111;
nod=VSC;
```

Subscriber Defaults

You can create defaults for subscribers, this does the following:

- 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 BTS factory default settings

This feature is automatically enabled after BTS 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 Optional Token Defaults

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 Default Values

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 Defaults using Command Alias

You can use a command alias 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 succesfully
```

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 Factory Defaults

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 Factory Defaults

BTS 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 features on the BTS.

Note If your network uses an ISUP variant other than ANSI ISUP:
--- For call-waiting features, BTS supports CWD, but not CW or CIDCW
--- For three-way-calling features, BTS supports TWCD, but not TWC or USTWC

8XX (Toll-Free Calling)

Office Provisioning

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 FNAMEn 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 FNAMEn 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;
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; subsystem_grp_id=SSN_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; subsystem_grp_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

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=tgw;
```

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 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 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.

Emergency ANI

The Emergency ANI feature allows the service provider to provision a E911 number, which can be different from the subscriber DN or the billing DN. To provision the specific ANI for E911 calls for a subscriber, use the EMERGENCY-ANI table. The emergency ANI specified in this table overrides any subscriber settings made for outbound calling ID on E911 calls.

The EMERGENCY_ANI table contains two tokens—SUB-ID and EMG-ANI.

- The subscriber ID (SUB-ID) token indicates the ID of the subscriber for whom the emergency ANI has to be specified. The EMG-ANI token specifies the value (number) for ANI to be sent for emergency calls for the specified subscriber ID.
- If the subscriber ID exists in the EMERGENCY-ANI table, the EMG-ANI specified in this table is sent as the calling party number (caller ID) for an emergency call.
- If the subscriber ID is not present in this table, and if the SEND_BDN_FOR_EMG token in the Subscriber table is set to Y, the billing DN is sent as the calling party number. Otherwise, DN1 in the Subscriber table is sent as the calling party number for emergency calls.

Note For a complete list of tokens used with the EMERGENCY-ANI table, see the Cisco BTS 10200 Softswitch CLI Database.

Use the following sample steps to add an emergency ANI-specific number to a subscriber. In the steps given below, when a call is made for E911, the BTS 10200 checks to see if the calling subscriber (212-222-2801) is configured in the EMERGENCY-ANI table. The BTS 10200 then replaces the calling number ID with the EMG-ANI number (212-111-1111).

Step 1 Follow the steps to add a subscriber to the BTS 10200. See the *Cisco BTS 10200 Softswitch Provisioning Guide* and the Cisco BTS 10200 Softswitch CLI Database for complete information on how to add subscribers.

Step 2 Add the EMG-ANI for the subscriber in the EMERGENCY-ANI table.

```
add sub-id=<sub-id>; EMG-ANI=<number>;

add sub-id=212-222-2801; EMG-ANI=212-111-1111;
```

In the above example, the subscriber ID (212-222-2801) needs to be configured in the subscriber table before it is specified in the EMERGENCY-ANI table.

Emergency Callback

Use the following procedure to provision the Emergency Callback feature.

Step 1 Add ECB to the feature table.

```
add feature fname=ECB; tdp1=TERMINATION_ATTEMPT_AUTHORIZED; tid1=ECB_TRIGGER; ttype1=R;
description=Emergency Callback; feature_server_id=FSPTC235;
```

Step 2 Add ECB to the list of features available to the subscriber as part of the office-based services. ECB is available to all subscribers associated with the service ID.

```
add service id=499;fname9=ECB
```

Step 3 Provision the PSAP emergency list by specifying the PSAP line DN.

```
add emergency_number_list digit_string=2145551212
```

Emergency Call Display

Some command examples for the Emergency Call Display feature are given below:

The following are the CLI interface examples for different **query call-count** command scenarios.

Scenario 1:

```
CLI> query call-count call-type=emergency;

Response:
10 calls of Call-type Emergency.
```

Scenario 2:

```
CLI> query call-count call-type=all-emergency; tgn-id=123;

Response:
10 calls of Call-type Emergency on tgn-id=123.
```

Scenario 3:

```
CLI> query call-count call-type=police;

Response:
10 calls of Call-type Police.
```

Scenario 4:

```
CLI> query call-count call-type=all-emergency;

Response:
10 calls of Call-type Emergency.
5 calls of Call-type Police.
1 calls of Call-Type Ambulance.

16 Total Emergency calls.
```

Scenario 5:

```
CLI> query call-count call-type=all;

Response:
2600 calls of Call-type All.
```

Scenario 6:

```
CLI> query call-count call-type=all; tgn-id=234;

Response:
614 calls of Call-type All on tgn-id = 234.
```

Hostage Negotiation LEA

This section explains how to provision, delete, and modify the Hostage Negotiation LEA feature.

Provisioning the Hostage Negotiation LEA Feature

The following steps are the logical sequence for you to follow to provision the Hostage Negotiation LEA feature:

Step 1 Add the hostage negotiation feature.

```
CLI> add feature fname=HN; tdp1=TERMINATION_ATTEMPT; tid1=TRIGGER_HOSTAGE; ttype1=R;
tdp2=COLLECTED_INFO;tid2=TRIGGER_HOSTAGE;ttyp2=R;description=Hostage Negotiation;
feature_server_id=FSPTC235;
```

Step 2 Add the hostage negotiation feature service.

```
CLI> add service id=HN;fname1=HN;
```

Step 3 Add the hostage subscriber.

```
CLI> add subscriber-service-profile sub id=hostage;service-id=HN;
```

Step 4 Add hostage information.

```
CLI> add hostage-info sub-id=hostage; HN-OUTBOUND-DN=outbound_dn; HN-FWD-DN=Forwar_dn;
HN-SCA-DN1=allowed_dn1….; HN-SCA-DN5=allowed_dn5
```

In the sample script above, HN-SCA-DN1... represents an entry in the HN-SCA list.

Deleting the Hostage Subscriber

The subscriber remains designated as a subscriber hostage until you delete the subscriber. Use the following command to delete a hostage subscriber:

```
CLI> delete subscriber-service-profile
```

Changing the Hostage Subscriber Information

Use the following command to change hostage subscriber information:

```
CLI> change hostage_info sub_id=hostage; HN_FWD_DN=forward_dn1;
HN_OUTBOUND_DN1=outbound_dn1; HN_SCA_DN1=allowed_dn6;
```

Showing a Hostage Subscriber

Use the following command to query hostage subscriber information:

```
show hostage_info sub_id=hostage
```

For a Centrex subscriber, you must specify all outbound DNs in the following format:

```
<POTS_ACCESS><DN>
```

Viewing Active Calls

This feature allows the display of 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=<tgn-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

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

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

Office Provisioning

Step 1 Create a feature for AC activation:

```
add feature fname=AC_ACT; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE;
ttype1=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;
ttype1=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;
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; subsystem_grp_id=SSN_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; subsystem_grp_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

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;
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; subsystem_grp_id=SSN_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;subsystem_grp_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_ti
me,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_ba
ck_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_anynomous_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

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;

Note On some voice gateways, ring back tone maybe heard when targeting an idle end-point. If the Voice call send-alert statement is added to the router config file, ring back tone is not transmitted to the verifying party.

Call Block—Reject Caller

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 5-131, for directions for provisioning SCR.

Billing Enhancement for Business Digital Voice Subscribers

This section explains how to provision the Billing Enhancement for Business Digital Voice Subscriber feature. Perform these tasks in the sequence shown in this section.

Note Ensure that you have added MGW, terminations, and dial-plan before adding subscriber-profile and subscribers. Refer to the *Provisioning Guide, Release 6.0.x* for more information about adding subscribers.

Note The commands shown in this section are examples; you should provision value that are appropriate for your network and service offerings. CLI syntax allows you to enter commands in uppercase or lowercase. It also allows you to enter hyphens (-) or underscores (_) interchangeably in most cases (exceptions, if any, are noted in the procedures).

A complete list of tokens for each CLI table, as well as the allowed values, default values, and detailed descriptions for each token, is provided in the Cisco BTS 10200 Softswitch CLI database.

SUMMARY STEPS

1. **add subscriber-profile**
2. **add subscriber**

DETAILED STEPS

	Command	Purpose
Step 1	`add subscriber-profile id=subpf1; dial-plan-id=dp1; pop-id=1;`	Adding subscriber profiles. The Subscriber Profile (subscriber-profile) table groups shared subscriber properties. Because CAs have several points of presence (POPs), and POPs are a subscriber profile token, you must create POP-specific subscriber profiles.
Step 2	`add subscriber id=sub1; category=individual; name=Richardson1; term-id=aaln/S1/3/; mgw-id=c2421.192; dn1=4692551231; sub-profile-id=subpf1; SUB_TYPE=BUSINESS`	Adding subscribers. The Subscriber (subscriber) table defines subscribers and subscriber groups on a CA. Set the **sub_type** token to BUSINESS. Default value of this token is RESIDENTIAL.

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

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;
```

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;
```

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;
```

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

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

Note If a call originates on a phone connected to Cisco CallManager toward a DN subscribed to the Cisco BTS Softswitch, the Cisco BTS 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 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.

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;
```

Caution To block call-forwarding to an emergency (EMG) DN, such as 911, 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 Not Reachable

This section describes how to provision the CFNR feature.

Note For information on Call Forward Busy provisioning, see the *Cisco BTS 10200 Softswitch Provisioning Guide*.

Feature Provisioning

Step 1 Create a feature for CFNR-Activation:

```
add feature fname=CFNRVA; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE;
ttype1=R; feature-server-id=FSPTC235; type1=INTL; value1=N; description=CFNR V Activation;
grp-feature=N;
```

Step 2 Create a feature for CFNR-Deactivation:

```
add feature fname=CFNRVD; tdp1=COLLECTED_INFORMATION; tid1=VERTICAL_SERVICE_CODE;
ttype1=R; feature-server-id=FSPTC235; type1=INTL; value1=N; description=CFNR V
Deactivation; grp-feature=N;
```

Step 3 Create a feature for CFNR. Include the associated CFNRVA and CFNRVD features:

```
add feature fname=CFNR; tdp1=T_EXCEPTION; tid1=T_NOT_REACHABLE; ttype1=R; fname1=CFNRVA;
fname2=CFNRVD; fname3=CFNRI; feature-server-id=FSPTC235; description=Call Forward Not
Reachable; grp-feature=N;
```

Step 4 Add a VSC code for CFNR-A:

```
add vsc fname=CFNRVA; digit-string=*310;
```

Step 5 Add a VSC code for CFNR-D:

```
add vsc fname=CFNRVD; digit-string=*311;
```

Step 6 Add a service with these features:

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

Step 7 Customize the multiple call forwarding capability as required:

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

Step 8 Customize for the second stage dial-tone:

```
change feature fname=CFNRVA; TYPE2=SDT; VALUE2=STUTTER-DIAL-TONE;
```

Step 9 Customize for the final-stage dial-tone:

```
change feature fname=CFNRVA/CFNRVD; TYPE4=FDT; VALUE4=DIAL-TONE;
```

Step 10 Add the applicable NODs to be restricted for the CFNR feature as mandated by your local requirements:

```
add nod-restrict-list fname=CFNR; nod=EMG;
add nod-restrict-list fname=CFNR; nod=FIRE;
add nod-restrict-list fname=CFNR; nod=AMBULANCE;
add nod-restrict-list fname=CFNR; nod=POLICE;
```

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, CFC, and CFNR) in the NOD-RESTRICT-LIST. In this way you comply with the rule in Telcordia document GR-580, which says that 911 should not be a permitted forward-to number.

Subscriber Provisioning

Assign the service to the subscriber:

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

Centrex Provisioning

For the CFNR feature, the Centrex user requires basic Centrex office provisioning and Centrex subscriber provisioning. The latter is similar to the provisioning done for a POTS subscriber. In addition, the following step is required.

Add a feature into the custom-dial-plan table for the Centrex group:

```
add/change custom-dial-plan ID=cdp1; DIGIT-STRING=*310; NOD=VSC; FNAME=CFNRVA;
CAT-STRING=1111111111111111;

add custom-dial-plan ID=cdp1; DIGIT-STRING=*311; NOD=VSC; FNAME=CFNRVD;
CAT-STRING=1111111111111111;
```

MLHG Provisioning

MLHG provisioning is similar to the subscriber provisioning as described above.

Provisioning Notes/Caveats

- Changing the second stage dial tone (SDT) option has 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 has no effect on the delivery of the final dial tone for SIP subscribers. For SIP phones, an announcement is always delivered because because there is no option for the playing of a dial tone and the collecting of further digits.

Alternate Activation and Deactivation Method

This feature is deactivated by default when it is assigned to a subscriber. CFNR can alternately be activated and deactivated by the creation of an entry in the subscriber-feature-data table.

Step 1 Use a CLI command similar to the following to activate CFNR to a specific forward-to number:

```
add subscriber-feature-data sub-id=sub_1; active=Y; fname=CFNR; type1=FDN1;
value1=4695551001;
```

Step 2 Use a CLI command similar to the following to deactivate CFNR:

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

Call Forward Redirection

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

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;
```

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.

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 Forwarding Enhancement

This section explains how to activate CF on a new DN without deactivating on the old DN.

Step 1 On the BTS, enter the following command:

```
cli> add ca_config type=CF-RE-ACTIVATION;value=y;
```

Note For complete CLI information, see the Cisco BTS 10200 Softswitch Command Line Interface Database.

Provisioning CF Checking Enhancements

This section explains how to let subscribers hear an announcement of their DNs with CF.

Step 1 On the BTS, enter the following command:

```
cli> add ca_config type=CF-INTERROG-WITHOUT-NUM;value=y;
```

Announcements

These features require the following cause codes, included in the 6.0 MR1 upgrade onwards:

- FS_CAUSE_CF_ACT_DN_PLAY_SUCC
- FS_CAUSE_CF_INT_DN_PLAY_SUCC

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.

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

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 Pickup (CPU)

This section explains how to provision the Call Pickup (CPU) feature. Perform these tasks in the sequence shown here:

Note The commands shown in this section are examples; you should provision values that are appropriate for your network and service offerings. CLI syntax allows you to enter commands in uppercase or lowercase. It also allows you to enter hyphens (-) or underscores (_) interchangeably in most cases. (Exceptions, if any, are noted in the procedures.)

A complete list of tokens for each CLI table, as well as the permitted range of values, default values, and detailed descriptions for each token, is provided in the Cisco BTS 10200 Softswitch CLI database.

SUMMARY STEPS

1. `add feature`
2. `add service`
3. `add custom-dial-plan profile`
4. `add custom-dial-plan`
5. `add vsc`
6. `add digit-map`
7. `add subscriber-profile`
8. `add subscriber`
9. `add ctxg`
10. `change subscriber`
11. `add ext2subscriber`
12. `add subscriber-service profile`
13. `add cpu-grp`
14. `change ext2subscriber`

DETAILED STEPS

	Command	Purpose
Step 1	`add feature fname=CPU; tdp1=TERMINATION_ATTEMPT_AUTHORIZED; tid1=TERMINATION_ATTEMPT_AUTHORIZED; ttype1=R; tdp2=CALL_ACCEPTED; tid2=CALL_ACCEPTED; ttype2=R;`	Adds the CPU feature.
Step 2	`add service id=3; fname1=CDP; fname2=CPU;`	Adds the service table. The Service (service) table defines services and features. A service is a collection of one or more features.
Step 3	`add custom-dial-plan-profile id=cdp1;`	Adds the custom dial plan profile table. This table defines the custom dial plan IDs (CDP IDs) assigned to Centrex groups.
Step 4	`add custom-dial-plan id=cdp1; DIGIT-STRING=4xxx; NOD=EXTENSION; CAT-STRING=1111111111111111; add custom-dial-plan ID=cdp1; DIGIT-STRING=*xx;NOD=VSC; FNAME=CPU; CAT-STRING=11111111111111;`	Adds the CPU feature to the custom-dial-plan table for the Centrex group.
Step 5	`add vsc DIGIT-STRING=*xx; FNAME=CPU;`	Translates a vertical service code (VSC), also known as a star code (*XX), to the CPU feature. This table is preprovisioned, based on the Feature table customer records, during installation.
Step 6	`add digit-map id=ctxg1; digit-pattern=0|4xx|9|*xx;`	Provisions digit-map table. The Digit Map (digit-map) table tells a media gateway (MGW) how to collect and report dialed digits.
Step 7	`add subscriber-profile id=ctxgspf; digit-map-id=ctxg1; dial-plan-id=dp1; pop-id=1;`	Adds the subscriber profile table.
Step 8	`add subscriber id=sub1; category=CTXG; name=main-sub; dn1=123-456-7890; sub-profile-id=ctxgspf;`	Adding main subscriber.
Step 9	`add ctxg id=cisco-ctxg; cdp-id=cdp1; call-agent-id=CA146; main-sub-id=sub1;`	Defines the centrex group and its associated custom dial plan and main subscriber.
Step 10	`change subscriber id=sub1; ctxg-id=cisco-ctxg;`	Adds the subscriber to the Centrex group.

Step 11	`add ext2subscriber ctxg_id= cisco-ctxg;sub_id=sub2;ext=<xx>;`
	
	`add ext2subscriber ctxg_id= cisco-ctxg;sub_id=sub1;ext=<xx>;`
		Defines each subscriber in the centrex group, including the main subscriber.

Step 12	`add subscriber-service-profile sub-id=sub1; service-id=3;`	Adds the subscriber-service profile.
Step 13	`add cpu-grp id=cpu-grp1; ctxg-id=cisco-ctxg;`	Adds the CPU group to the Centrex group.
Step 14	`change ext2subscriber ctxg-id=cisco-ctxg; cpu-grp-id=cpu-grp1; sub_id=sub1; ext=<xx>;`	Adds the subscriber to the CPU group.

Call Transfer

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 Transfer for Business Groups

To support the Call Transfer for Business Groups feature, following additions to the Cisco BTS 10200 Softswitch CLI Database have been made:

- A new table, CT_PROFILE
- A new token, CT_PROFILE_ID, to the ext2subscriber table

For a full description of the CT_PROFILE table and other CLI database changes, see the Cisco BTS 10200 CLI Database.

This section explains how to perform the following tasks:

- Defining a CT Profile for Individual–Incoming Only–Internal Only
- Defining a CT Profile for Internal Only
- Assigning a CT Profile to a Subscriber
- Adding Subscribers for Various CT Interactions

Defining a CT Profile for Individual, Incoming Only, Internal Only

The following sample command defines a CT profile that enables a CT subscriber to receive an incoming call and transfer it internally only to a business group subscriber.

```
add ct-profile id = InIncOnlyIntOnly; ADD_ON _RESTRICTIONS= ADD_BG_ONLY;
CT_RESTRICTIONS=TRANSFER_TO_BG_ONLY; TWC_RESTRICTIONS=NO_RESTRICTIONS;
```

Defining a CT Profile for Transferring Calls within a Business Group Only

The following sample command defines a CT profile that enables a CT subscriber inside a business group to receive a call from the public data network and transfer that call to a subscriber inside the business group only.

```
add ct-profile id = Internal_Only; ADD_ON _RESTRICTIONS= ADD_BG_ONLY;
CT_RESTRICTIONS=TRANSFER_TO_BG_ONLY; TWC_RESTRICTIONS=USE_CT_RESTRICTIONS;
```

Note For complete CLI information, especially including the new CT_PROFILE table, see the Cisco BTS 10200 Softswitch CLI Database.

Assigning a CT Profile to a Subscriber

To support CT for Business Groups, Cisco added a new token to the ext2subscriber table in the Cisco BTS 10200 CLI database. The value specified for the CT_PROFILE_ID token associates a CT profile with the Centrex subscriber. For a detailed description of the CT_PROFILE_ID token in the ext2subscriber table, see the Cisco BTS 10200 Softswitch CLI Database.

The following sample commands assign the CT profiles defined in the preceding two sections to the CT subscribers. The CT profiles are added to the ext2subscriber table.

```
change ext2subscriber sub_id=229-222-0601; ext=4007; ctxg_id=test1;
ct_profile_id=InIncOnlyIntOnly;

change ext2subscriber sub_id=229-222-0601; ext=4007; ctxg_id=test1;
ct_profile_id=Internal_only;
```

Adding Subscribers for Various CT Interactions

The sample commands in the following section show how to provision business group subscribers for the various possible CT interactions. For a complete description of the CT_PROFILE table, see the Cisco 10200 Softswitch CLI Database.

Provisioning CT for Individual, All Calls, No Restrictions

The following sample command provisions a subscriber for CT, all calls, no restrictions. All other tokens retain their default values.

```
add ct-profile-id id=CT-ALL-NR; description= call transfer all calls no restrictions.
All other tokens use default values.
```

Provision CT for All Calls, Internal Only

The following sample command provisions a subscriber for Call Transfer, all calls, internal only:

```
add ct-profile-id id=CT-ALL-IO; ct-restrictions=INTERNAL-ONLY;description= call
transfer all calls internal only.
```

Provisioning CT for Individual, All Calls, Outside

The following sample command provisions a subscriber for Call Transfer, individual, all calls, outside:

```
add ct-profile-id id=CT-ALL-OUT; ct-restrictions=OUTSIDE-ONLY;description= call
transfer all calls outside only.
```

Provisioning CT for Individual, Incoming Only, No Restrictions

The following sample command provisions a subscriber for Call Transfer, individual, incoming only, no restrictions:

```
add ct-profile-id id=CT-IO-NR; ct-restrictions=NO-RESTRICTIONS;
description= call transfer incoming only.
```

Provisioning CT for Incoming Only, Attendant Only

The following sample command provisions a subscriber for Call Transfer, incoming only, attendant only:

```
add ct-profile-id id=CT-ATTENDANT; ct-restrictions= ATTENDANT-ONLY;
description= call transfer - incoming only - attendant only.
```

Configuring Restrictions

The Cisco BTS 10200 user (for example, a service provider operator) can define how the Call Transfer feature will work for business group subscribers by specifying various combinations of values for the following restriction tokens in the CT_PROFILE table:

- ADD_ON _RESTRICTIONS—The value of this token determines the second-level restriction that is applied when the CT subscriber attempts to add a third party to the call.
- CT_RESTRICTIONS—The value of this token determines the 3rd-level restriction that is applied before a call is transferred.
- TWC_RESTRICTIONS—The value of this token determines the restriction that is applied before the Cisco BTS 10200 permits a call to join a conference.

  The following sample command enables a subscriber to establish a conference call with a third party outside the Centrex group. However, call transfer is not permitted because the transfer is restricted to internal only.

  ```
  add ct-profile-id id=TWC-ALL-NR; twc-restriction=NO-RESTRICTIONS;
  ct-restrictions=INTERNAL-ONLY;description= No restricions on call conference. Call
  transfer all calls internal only.
  ```

Note Recall Dial Tone (RDT) restrictions are not supported in Release 6.0.1 of the Cisco BTS 10200 Softswitch.

By configuring these tokens, a service provider operator can create several different CT profiles, which the operator can apply to a selected group of subscribers or to all subscribers in the group. The operator can associate a CT profile with a Centrex subscriber by including the ID of the profile in the ext2subscriber table.

For a detailed description of the CT_PROFILE table and its restriction tokens, see the Cisco BTS 10200 Softswitch CLI Database.

Table 5-2 shows how the specification of values for the CT restriction tokens determines the way that CT for a business group is processed.

Table 5-2 Call Transfer Restrictions Determine Call Transfer Processing

CT Processing	ADD_ON _RESTRICTIONS	CT_RESTRICTIONS
CT Individual - All Calls - No Restrictions	NO_RESTRICTIONS	NO_RESTRICTIONS
CT Individual - All Calls - Internal Only	ADD_INTERNAL_BG_ ONLY	TRANSFER_TO_BG_ ONLY
CT Individual - All Calls - Outside	ADD_OUTSIDE_BG_ ONLY	TRANSFER_TO_ OUTSIDE_BG_ONLY
CT Individual - Incoming Only	NO_RESTRICTION	NO_RESTRICTION
Call Transfer Individual - Incoming Only - Internal Only	ADD_INTERNAL_BG_ ONLY ADD_ATTENDANT_ ONLY	TRANSFER_TO_BG_ ONLY TRANSFER_TO_ ATTENDANT_ONLY

Call Waiting

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

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

BTS does not invoke forwarding for incoming calls. For the subscriber to have call waiting features (CW or CIDCW) and CFNA active simultaneously, do not assign CHD to the subscriber.

Do not assign call waiting tone CWT_TYPE to SIP subscribers because their endpoint controls the call waiting tone, not the BTS.

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.

Step 1 Assign the service to the subscriber:

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

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;
```

Interaction between CHD and CW for a Centrex Subscriber

When a centrex subscriber has both CHD and CW feature, the centrex subscriber can connect to a waiting call using the only the **Flash** button or **hookswitch** without having to dial the vertical service code (VSC) for CHD to enable CHD.

To provision this feature, set the **type** token in the **feature-config** table to **CW-OVER-CHD** while configuring the feature_config table for the CW feature. **CW-OVER-CHD** can take two values—Y and N.

To set the value of the **CW-OVER-CHD** token to Y, enter the following command:

```
add feature_config fname=CW; type=CW-OVER-CHD; value= Y;
```

Call Waiting Deluxe

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;
TTYPE1=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;
TTYPE1=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;
TTYPE1=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=TO; 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

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.

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.

Calling Name Delivery

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;
```

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; subsystem_grp_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

Office Provisioning

Step 1 Create a feature for CND:

```
add feature FNAME=CND; TDP1=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

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

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

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

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=111111111111111;
```

MLHG provisioning is similar to subscriber provisioning as described above.

Class of Service Screening

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-supp=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 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

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

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

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.

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

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;
```

Note Reminder ring is not supported for SIP subscribers.

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

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

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

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

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

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_ACAR1;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

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; tdp1=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 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

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-ported-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; 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; 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=INS;
```

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 BTS 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; fname1=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 contatenated 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-ported 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 DNs 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;
```

- 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 speficied, 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.

Long Duration Call Cutoff

The LONG-DURATION-CALL-CUTOFF-TMR parameter has been added to the CA-CONFIG table (see Table 5-3).

Table 5-3 CA-CONFIG Table Configurable Parameter Details

Parameter	Data Type	Description
LONG-DURATION-CALL-CUTOFF-TMR	INTEGER (0–48)	Indicates the timer value for the Long Duration Call Cutoff. 0 indicates that timer is not set and the call is not cut off. Any integer value between 1 and 48 indicates that the call is cut off after the specified number of hours. Default value for this timer is 0.

Note For complete CLI information, see the Cisco BTS 10200 Softswitch CLI Database.

Multiline Variety Package

This section describes the provisioning steps that you must complete to provision the MVP feature for a group of subscribers. You must provision a custom dial plan (CDP) for a group of subscribers. Thereafter, all MVP groups can share the single custom dial plan (that is, all subscribers who belong to different MVP groups).

Note If you provision a CDP for an MVP Centrex group, the CDP must be mutually exclusive from any regular Centrex group that you provision.

Step 1 Create a custom Dial-Plan-Profile and Dial-Plan entries.

a. Define a custom dial-plan ID.

```
add custom_dial_plan_profile id=MVPcdp;
```

b. Define a custom dial-plan to access a plain old telephone service (POTS) line. Specify a new nature of dial (NOD) to indicate POTS access but without any prefix (such as a requirement to dial 9). In the following example, the “xxxxxxx” specified for digit string indicates that the dialed digit string can be any digits (0–9) and that the usual PSTN dial-plan is used to route the call.

```
add cdp id=MVPcdp; digit_string=xxxxxxx; nod=MVP_POTS_ACCESS;
```

Note When you provision a CDP for MVP Centrex, you should not specify a NOD with the values EXTENSION, POTS_ACCESS, or ATTENDANT_ACCESS (which are specified for regular Centrex provisioning).

c. Define the digit string for the speed call feature.

```
add cdp id=MVPcdp; digit_string=2; nod=SPEED_CALL; fname=SC1D;
CAT_STRING=1111111111111111

add cdp id=MVPcdp; digit_string=2x; nod=SPEED_CALL; fname=SC2D;
CAT_STRING=1111111111111111
```

d. Define the VSC codes for features that are used by the MVP subscribers. In the example below, dialed digit *72 is mapped to the call-forward-unconditional-activation feature, *73 is mapped to the call-forward-unconditional-deactivation feature.

```
add cdp id=MVPcdp; digit_string=*72; nod=VSC; fname=CFUA; CAT_STRING=1111111111111111

add cdp id=MVPcdp; digit_string=*73; nod=VSC; fname=CFUD; CAT_STRING=1111111111111111
```

e. Define the access code (#) and extension that enables calls to a member of the internal MVP Centrex group.

```
add cdp id=MVPcdp; digit_string=#; nod=MVP_EXTENSION; CAT_STRING=1111111111111111
```

Note MVP provisioning is the reverse of regular Centrex provisioning. A subscriber in a MVP Centrex group must dial an access code (#) and then the extension to call another subscriber within the MVP group. There is no need to dial an access code to place an external call.

If you provision # as the access code for internal calls, you must specify * as the access code for VSC provisioning.

Step 2 Define the digit map to define how media gateways collect digits dialed by the subscribers.

```
add digit-map id=digit-map;
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|011
xxxxxx.T|101xxxx|#x.T|*[4-9]x|*[2-3]xx|11xx|[2-9]#|[2-4]x#|[2-9]T|[2-4]xT|01[2-9]xxxxx.T
```

Step 3 Create a subscriber profile to be shared by all subscribers in multiple MVP groups. If a subscriber profile exists for the subscribers who 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 two steps. First you create a main subscriber for each MVP group. Second you create a Centrex group for the main-subscriber that uses the custom dial-plan defined in Step 1. Repeat the commands in this step for each MVP group you create on the Cisco 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 the CDP defined in Step 1).

Step 5 Issue the following commands 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 the 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;
```

Caution When you specify a value for the EXT (extension) token in the ext2subscriber table, do not include the character * or the character #.

Multi-Line Hunt Group

See Announcements, Centrex, MLHG, Voice Mail, and ENUM, for directions for provisioning a MLHG.

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-supress-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-SESSNAME-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 annc-tg-profile; id=annc_tg_p; annc=N; ivr=Y; auto_answer=Y;
```

Step 4 Addtermination:

```
add termination prefix=annc/; 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_typeannc; mgw-id=ipunity_ms;
tg-profile-id=annc_tg_p; mgcp-pkg-type=AUDIO;
```

Step 6 Add 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 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

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.

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 the 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=1;
```

Step 3 Add a secondary DN to the subscriber:

```
add dn2subscriber sub_id=subscriber_1; fdn=469-255-3009; cwt_type=WT2; ring_type=R2;
```

Step 4 Add a unique call waiting tone for each DN:

```
add dn2subscriber sub_id=subscriber_1; fdn=469-255-3010; cwt_type=WT3; ring_type=R3;
```

Step 5 Add a unique ringing pattern for each DN:

```
add dn2subscriber sub_id=subscriber_1; fdn=469-255-3011; cwt_type=WT4; ring_type=R4;
```

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

Office Provisioning

Step 1 Create the NSA Activation (NSA_ACT) feature:

```
add feature fname=NSA_ACT; TDP1=COLLECTED_INFORMATION; TID1=VERTICAL_SERVICE_CODE;
TTYPE1=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; TTYPE1=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 DNs 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-SESSNAME-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_digit
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_digit
s,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 <sign> again. To add an extension, press <d>, dial the number
to be added, 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_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/extention> <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=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 5-108.)

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 pubscriber 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 5-81 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=dpc1-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-BTSes

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-BTSes.

Provisioning Inter-CMS with NRS—Same BTS Acting as CMS and MGC

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

Step 1 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 OCB*x*.

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.

Overlap Dialing

To enable the Overlap Dialing feature, carry out the instructions provided in the following sections.

Provisioning Overlap Dialing in the DESTINATION Table

The token OVERLAP_SENDING_SUPP is added to the DESTINATION table.

To enable Overlap Dialing, issue the following command:

```
CLI> add destination dest-id=sip1; call-type=toll; route-type=RID; route-id=siprt1;
overlap_sending_supp=Y;
```

To disable Overlap Dialing, issue the following command:

```
CLI> change destination dest-id=sip1; overlap_sending_supp=N;
```

The default value for the OVERLAP_SENDING_SUPP token is N (no). For a description of the OVERLAP_SENDING_SUPP token, see the information on the DESTINATION table in the Cisco BTS 10200 Softswitch CLI Database.

Provisioning Overlap Dialing in the SOFTSW_TG_PROFILE Table

The token OVERLAP_SUPP is added to the SOFTSW-TG-PROFILE table.

To enable Overlap Dialing for a trunk group on the incoming side, issue the following command:

```
CLI> add softsw-tg-profile id=softprf1; protocol-type=sip; overlap_supp=INCOMING;
```

To enable Overlap Dialing for a trunk group on the outgoing side, issue the following command:

```
CLI> add softsw-tg-profile id=softprf1; protocol-type=sip; overlap_supp=OUTGOING;
```

To enable Overlap Dialing for a trunk group on both the incoming side and outgoing side, issue the following command:

```
CLI> add softsw-tg-profile id=softprf1; protocol-type=sip; overlap_supp=BOTH;
```

To disable Overlap Dialing for a trunk group, issue the following command:

```
CLI> change softsw-tg-profile id=softprf1; overlap_supp=NONE;
```

The default value for the OVERLAP_SUPP token is NONE. For a description of the OVERLAP_SUPP token, see the information on the SOFTSW_TG_PROFILE table in the Cisco BTS 10200 Softswitch CLI Database.

Provisioning Overlap Dialing in the CA_CONFIG_BASE Table

To support Overlap Dialing, you must set the following tokens in the CA_CONFIG_BASE table to the values shown:

- TYPE=OVERLAP-CRITICAL-DIGIT-TIMER
- DATATYPE=INTEGER
- FROM_VALUE=2
- TO_VALUE=20
- CHK_POS_VAL=N
- DEFAULT_VALUE=4
- TYPE=OVERLAP-INTER-DIGIT-TIMER
- DATATYPE=INTEGER
- FROM_VALUE=2
- TO_VALUE=24
- CHK_POS_VAL=N
- DEFAULT_VALUE=16

Provisioning Overlap Dialing in the DIAL_PLAN_PROFILE Table

To support Overlap Dialing, you must set the NANP_DIAL_PLAN token in the DIAL_PLAN_PROFILE table to N (NANP_DIAL_PLAN=N).

Provisioning Overlap Dialing in the DIAL_PLAN Table

To support Overlap Dialing, you must set the NOA token in the DIAL_PLAN table to UNKNOWN (NOA=UNKNOWN).

Provisioning Overlap Dialing for the Sending and Receiving Directions

Use the following provisioning steps to configure Overlap Dialing on the Cisco BTS 10200 for both the sending and receiving directions. If the dialed digits match the prefix string 512378, the Cisco BTS 10200 selects the destination ID of sip1, route ID of siprt1, and trunk group of 11, and sends

out the call in an overlapping mode (the OVERLAP_SENDING_SUPP token is set to Yes in the DESTINATION table). On the trunk group side, calls that come in and go out on a trunk group that is associated with a SOFTSW-TG-PROFILE of sspf1 support overlap-sending and overlap-receiving.

Step 1 Add a softswitch trunk group profile with the token OVERLAP_SUPP set to INCOMING. This step enables the Cisco BTS 10200 to receive overlapped digits through the associated trunk group.

```
add softsw-tg-profile id=sspf1; protocol-type=SIP; non-src-transport=UDP_ONLY;
overlap-supp=BOTH; description=Softswitch TG between PODS;
```

Step 2 Add a trunk group that is associated with the softswitch trunk group profile. (That is, notice that the value specified for the TG_PROFILE_ID token matches the value specified for the ID token in the SOFTSW_TG_PROFILE table in Step 1.)

```
add trunk-grp id=11; dial-plan-id=dp11;
softsw-tsap-addr=sia-SJ2CA102.trnglab.cisco.com:5060; call-agent-id=CA101;
tg-type=softsw; tg-profile-id=sspf1; clli=austtxcsco1; pop-id=1;
description=Softswitch Trunk Group to Pod2;
```

Step 3 Add a route that points to the trunk group.

```
add route id=siprt1; tgn1-id=11;
```

Step 4 Add a destination that is associated with the route provisioned in the preceding step. (That is, notice that the value specified for the ROUTE_ID token matches the value specified for the ID token in the ROUTE table in Step 3.) Set the OVERLAP_SENDING_SUPP token to YES to indicate that the Cisco BTS 10200 can send overlapped digits to this destination.

```
add destination dest-id=sip1; call-type=toll; route-type=RID; route-id=siprt1;
overlap-sending-supp=Y;
```

Step 5 Add the dial plan profile.

```
add dial-plan-profile id=dp11; nanp-dial-plan=n; description= non north america local
dial plan profile
```

Note The specification of N for the NANP_DIAL_PLAN token is especially important for the correct operation of Overlap Dialing.

Step 6 Add a dial plan that is associated with destination. (That is, notice that the value specified for the ID token matches the value specified for the ID token in the DIAL_PLAN_PROFILE table in Step 5.)

```
add dial-plan id=dp11; digit-string=512378; noa=unknown; dest-id=sip1; min-digits=6;
max-digits=10;
```

Note The specification of UNKNOWN for the NOA token is especially important for the correct operation of Overlap Dialing.

Provisioning the Dial Plan

To enable the Overlap Dialing feature, you must provision the digit map in the DIGIT_MAP table and the dial plans to work correctly together. The digit map instructs the media gateway (MGW) how to collect and report dialed digits to the gateway adapter. You must provision dial plans to manage the input digits correctly.

For example, the following four subscribers in remote switches are assigned non-fixed telephone number lengths:

- Subscriber 1 has the number of 469-255 at remote switch A.
- Subscriber 2 has the number of 469-256-4 at remote switch B.
- Subscriber 3 has the number of 469-256-5 at remote switch B.
- Subscriber 4 has the number of 469-256-6789 at remote switch B.

You must complete the following provisioning steps to enable overlap dialing.

Step 1 Create a digit map to instruct the MGW to transmit the first 6 digits, which start with the prefix 469.

```
add digit-map id=default; digit-pattern=469xxx;
```

Step 2 Create the softswitch trunk group profiles (softsw-tg-profiles), the trunk groups (trunk-grps), the routes, and destinations for the two remote switches, A and B.

```
add softsw-tg-profile id=sspfA; protocol-type=SIP; non-src-transport=UDP_ONLY;
overlap-supp=NONE; description=Softswitch TG to Switch A with NO Overlap;

add softsw-tg-profile id=sspfB; protocol-type=SIP; non-src-transport=UDP_ONLY;
overlap-supp=BOTH; description=Softswitch TG to Switch B with Overlap;

add trunk-grp id=11; dial-plan-id=dp11; noa=unknown; dest-id=xxxx;
softsw-tsap-addr=sia-switchA.trnglab.cisco.com:5060; call-agent-id=CA101;
tg-type=softsw; tg-profile-id=sspfA; clli=austtxcsco1; pop-id=1;
description=Softswitch Trunk Group to Switch A;

add trunk-grp id=12; dial-plan-id=dp11; noa=unknown; dest-id=xxxx;
softsw-tsap-addr=sia-switchB.trnglab.cisco.com:5060; call-agent-id=CA101;
tg-type=softsw; tg-profile-id=sspfB; clli=austtxcsco2; pop-id=1;
description=Softswitch Trunk Group to Switch B;

add route id=siprt1; tgn1-id=11;

add route id=siprt2; tgn1-id=12;

add destination dest-id=DESTINATION_A; call-type=toll; route-type=RID;
route-id=siprt1; overlap-sending-supp=N;

add destination dest-id=DESTINATION_B; call-type=toll; route-type=RID;
route-id=siprt2; overlap-sending-supp=Y;
```

Step 3 Create dial plans to route the dialed digits to the correct destination.

```
add dial-plan-profile id=dp11; nanp-dial-plan=n; description=non north america local
dial plan profile

add dial-plan id=dp11; digit-string=469255; min_digits=6; max_digits=10; noa=unknown;
dest-id=xxxx; dest-id=DESTINATION_A

add dial-plan id=dp11; digit-string=469256; min_digits=6; max_digits=10; noa=unknown;
dest-id=xxxx; dest-id=DESTINATION_B
```

After you complete the preceding provisioning steps, the Cisco BTS 10200 processes Overlap Dialing according to the following conditions:

- If the user dials 469255, the MGW sends all six digits 469255 to the MGA. The Cisco BTS 10200 routes the digits to DESTINATION_A with no overlap dialing.

- If the user dials 469256-4, the MGW sends 469256 in the first digitmap to the MGA. The Cisco BTS 10200 routes the initial set of digits to DESTINATION_B, and requests more digits from the MGA/MGW if more digits are available. When the MGW transmits the last digit (4), the Cisco BTS 10200 sends it to the same DESTINATION_B.
- If the user dials 469256-6789, the MGW sends the digits 469256 in the first digitmap to the MGA. The Cisco BTS 10200 routes the initial set of digits to DESTINATION_B, and requests more digits from the MGA if more digits are available. When MGW/MGA transmits the remaining digits (6789), the Cisco BTS 10200 sends them one by one to the same DESTINATION_B.

Additional Dial Plan Provisioning

Using the same four subscribers identified in the preceding section, you can create a different digit map and dial plan combination by completing the following steps:

Step 1 Add a digit map that allows the MGW to send either 5 or 6 digits in the initial transmission.

```
add digit-map id=default; digit-pattern=469xx | 469xxx;
```

Step 2 Add more dial plans to handle initial 3-, 4-, and 5-digit strings. This ensures that the 3-, 4-, and 5-digit dialed strings are matched with a dial plan and not dropped.

```
add dial-plan id=dp11; digit-string=469; min_digits=6; max_digits=10;
dest-id=DESTINATION_B;

add dial-plan id=dp11; digit-string=4692; min_digits=6; max_digits=10;
dest-id=DESTINATION_B;

add dial-plan id=dp11; digit-string=46925; min_digits=6; max_digits=10;
dest-id=DESTINATION_B;

add dial-plan id=dp11; digit-string=469255; min_digits=6; max_digits=10;
dest-id=DESTINATION_A;

add dial-plan id=dp11; digit-string=469256; min_digits=6; max_digits=10;
dest-id=DESTINATION_B;
```

After you create the additional dial plans, the Cisco BTS 10200 processes Overlap Dialing according to the following conditions.

- When the Media Gateway sends 469 only to the Media Gateway Adapter (MGA), the Cisco BTS 10200 finds a dial plan match. However, because the value set for min_digits required in the matched dial plan is not reached, the Cisco BTS 10200 does not do anything and waits for the next digit. Therefore, it does not matter what destination was assigned to the dest-id. When the next digit is available, the Cisco BTS 10200 uses the accumulated digits to try again to match the longest dial plan.
- The Cisco BTS 10200 applies the same procedure to find a matched dial plan when it receives 4692 and 46925.
- When the Cisco BTS 10200 receives 469255, it waits for all the digits and routes the call in ENBLOC mode to DESTINATION_A.

Note In ENBLOC mode, the Cisco BTS 10200 transmits all dialed digits together. Overlap Dialing is not supported in this case. That is, the Cisco BTS 10200 does not send the initial set of digits and then the rest of the digits one by one later.

- When the Cisco BTS 10200 receives 469256, it routes the call in overlapping mode to DESTINATION_B. The Cisco BTS 10200 sends the rest of the digits, one by one, to the same DESTINATION_B.

Provisioning an NCS/MGCP Endpoint

To provision an NCS/MGCP endpoint to support Overlap Dialing, issue the following command to provide a value for the TYPE and VALUE tokens in the CA_CONFIG table:

```
add ca-config type=LINE-SIDE-OVERLAP-ENABLED;value=Y
```

Provisioning Precaution

When enabling Overlap Dialing, you must be careful not to misprovision the feature. For example, if you set the token OVERLAP_SENDING_SUPP in the DESTINATION table to Y (yes) and the token OVERLAP_SUPP in the SOFTSW-TG-PROFILE table to NONE or INCOMING, the feature is not provisioned correctly. When the Cisco BTS 10200 attempts to invoke Overlap Dialing for a call, the feature might not transmit all of the dialed digits.

To avoid misprovisioning Overlap Dialing, enable both the DESTINATION and SOFTSW-TG-PROFILE tables to support sending overlapped digits by setting the token OVERLAP_SENDING_SUPP in the DESTINATION table to Y and the token OVERLAP_SUPP in the SOFTSW-TG-PROFILE table to OUTGOING or BOTH.

Alternatively, you can disallow the sending of overlapped digits by setting the token OVERLAP_SENDING_SUPP in the DESTINATION table to N and the token OVERLAP_SUPP in the SOFTSW-TG-PROFILE table to NONE or INCOMING.

For a description of the DESTINATION table and SOFTSW-TG-PROFILE table, see the Cisco BTS 10200 Softswitch CLI Database.

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

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=dp1;

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=dp1;

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

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 5-131.

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_annc_sub; CATEGORY=RACF; NAME=racf_annc_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_annc;
```

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; ttype1=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;
ttype1=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

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; TDP1=TERMINATION_ATTEMPT_AUTHORIZED; TID1=REPLACE
TRIGGER; TTYPE1=R; TDP1=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 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.

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-SESSNAME-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 annc-tg-profile id=annc_tg_p; annc=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=annc; 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 hptime and lptime token descriptions

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 subsriber (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.

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;
```

SIP Triggers

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 BTS.

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=tgw;

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; tgn1-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.

Single Number Reach

This section explains how to provision the Single Number Reach (SNR) feature.

Prerequisites

Single Number Reach requires an IVR and voice mail server.

Provisioning

This section explains how to do the following:

- Office Provisioning
- Resource Provisioning
- Announcement Provisioning
- Feature Control Options for Provisioning IVR Interactions
- Subscriber Provisioning
- SNR_ACT IVR Virtual Subscriber Provisioning

Note For complete CLI information, see the Cisco BTS 10200 Softswitch CLI Database.

Office Provisioning

This section lists the provisioning steps required to complete office provisioning for the Single Number Reach feature. The CFU and VMA features should be provisioned before the subscriber completes the Single Number Reach office provisioning procedure. For details on provisioning the CFU and VMA features, see the *Cisco BTS 10200 Softswitch Provisioning Guide*.

Step 1 Create the Single Number Reach activation (SNR_ACT) feature.

```
add feature fname=SNR_ACT; feature_server_id=FSPTC235; grp_feature=N;
```

Step 2 Create the Single Number Reach feature and include CFU and VMA as subfeatures.

```
add feature fname=SNR; tdp1=TERMINATION_ATTEMPT_AUTHORIZED;
tid1=TERMINATION_ATTEMPT_AUTHORIZED; ttype1=R; feature_server_id=FSPTC235; fname1=CFU;
fname2=VMA; grp_feature=N;
```

Step 3 Add the Single Number Reach feature service.

```
add service id=snr; fname1=SNR;
```

Resource Provisioning

This section lists the provisioning steps required to complete the resource provisioning for the Single Number Reach feature.

Note Only MGW_PROFILE table fields used by Single Number Reach are discussed below. For complete MGW_PROFILE table details, refer to the Cisco BTS 10200 Softswitch CLI Database.

Step 1 Add a media server.

```
add mgw_profile id=ivr_ipunity; vendor=Cisco; packet_type=IP; aal1=N; aal2=N; aal5=N;
pvc=N; svc=N; spvc=N; mgcp_version=MGCP_1_0; termination_prefix=ivr/;
```

Step 2 Add a media gateway.

```
add mgw id=ipunity-227-103; tsap_addr=ms-ipunity.ipclab.cisco.com; call_agent_id=CA146;
mgw_profile_id=ivr_ipunity; type=TGW;
```

Step 3 Add the IVR trunk group profile.

```
add annc_tg_profile id=ivr-ipunity; annc=N; ivr=Y; auto_answer=Y; local_trunk_selection=N;
description=IVR server using IPUnity;
```

Step 4 Add a trunk group.

```
add trunk_grp id=80031; call_agent-id=CA146; tg_profile_id=ivr-ipunity; tg_type=annc;
mgcp_pkg_type=ANNC_CABLE_LABS; pop_id=1; cost=1;
```

Step 5 Add a termination.

```
add termination prefix=ivr/; port_start=1; port_end=30; type=trunk; mgw_id=ipunity_ms;
```

Step 6 Add a trunk.

```
add trunk cic_start=1; cic_end=30; tgn_id=80031; mgw_id=ipunity_ms;
termination_prefix=ivr/; termination_port_start=1; termination_port_end=30;
```

Step 7 Add a route.

```
add route id=rt_ivr; tgn1-id=80031; tg-selection=LCR;
```

Step 8 Add a route guide.

```
add route_guide id=rg_ivr; policy_type=ROUTE; policy_id=rt_ivr;
```

Step 9 Add an IVR script profile for the Single Number Reach and SNR_ACT features.

```
add ivr_script_profile fname=SNR; ivr_access_mode=IVR; IVR_ROUTE_GUIDE_ID=rg_ivr;
IVR_SCRIPT_PKG_TYPE=BAU;

add ivr_script_profile fname=SNR_ACT; ivr_access_mode=IVR; IVR_ROUTE_GUIDE_ID=rg_ivr;
IVR_SCRIPT_PKG_TYPE=BAU;
```

Step 10 Place the trunk group and other resources in service (INS).

```
control mgw id=ipunity_ms; mode=forced; target_state=INS;

control trunk_grp id=80031; mode=FORCED; target_state=INS;

equip trunk_termination tgn_id=80031; cic=all;

control trunk_termination tgn_id=80031; cic=all; mode=FORCED; target_state=INS;
```

Step 11 Verify resource status.

```
status mgw id=ipunity_ms;

status trunk_grp id=80031;

status tt tgn_id=80031; cic=all;
```

Announcement Provisioning

This section lists steps required to complete announcement provisioning for Single Number Reach and SNR_ACT.

Step 1 If you have not already done so, add the default language ID.

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

Step 2 Add the audio segments that are common or shared among multiple menus or features.

```
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;

add audio_segment id=SNR_TO_CONFIRM_PRESS; type=PHYSICAL; url=file://to_confirm_press.wav;
description=To confirm, press

add audio_segment id=SNR_SORRY_NUM_INVALID; type=PHYSICAL;
url=file://SorryNumberInvalid.wav; description=We are sorry. The number you have entered
is incorrect.

add audio_segment id=SNR_SORRY_CMD_INVALID; type=PHYSICAL;
url=file://SorryCommandInvalid.wav; description=We are sorry. The digits entered are not a
valid command.

add audio_segment id=SNR_FORWARDING_TO_NUM; type=PHYSICAL;
url=file://your_calls_currently_fwd_to.wav; description=Your calls are currently being
forwarded to

add audio_segment id=SNR_PLEASE_ENTER_FWD_NUM; type=PHYSICAL;
url=file://PleaseEnterFwdDn.wav; description=Please enter the number to which you want
your calls forwarded, followed by the number sign key.

add audio_segment id=SNR_TO_REPEAT_INSTRUCTIONS; type=PHYSICAL;
url=file://to_hear_instructions_repeated.wav; description=To hear these instructions
repeated, press
```

Step 3 Add the Single Number Reach audio segments.

```
add audio_segment id=SNR_TRYING_TO_REACH_PARTY; type=PHYSICAL;
url=file://trying_to_reach_party.wav; description=We are trying to reach your party.
Please stay on the line.

add audio-segment id=SNR_RING_BACK_TONE; type=PHYSICAL; url=file://ring_back_tone.wav;
description=2 seconds of ringback tone.
```

Step 4 Add the SNR_ACT authentication audio segments.

```
add audio_segment id=SNR_WELCOME; type=PHYSICAL; url=file://snr_welcome.wav;
description=Welcome to the Single Number Reach System.

add audio_segment id=SNR_ENTER_NUM; type=PHYSICAL; url=file://snr_enter_number.wav;
description=Please enter your SNR number, followed by the number sign key.

add audio_segment id=SNR_ADMIN_NUM; type=PHYSICAL; url=file://snr_admin_number.wav;
description=You are about to administer SNR for
```

```
add audio_segment id=SNR_ADMIN_DIFF_NUM; type=PHYSICAL;
url=file://snr_admin_diff_number.wav; description=To administer a different SNR number,
press

add audio_segment id=SNR_INVALID_USER_ID_ABORT; type=PHYSICAL; url=file://hang_up_now.wav;
description=Please hang up now, consult your written instructions, and try again later.

add audio_segment id=SNR_ENTER_PIN; type=PHYSICAL; url=file://please_enter_your_pin.wav;
description=Please enter your pin, followed by the number sign key.

add audio_segment id=SNR_REENTER_PIN; type=PHYSICAL;
url=file://please_reenter_your_pin.wav; description=Please re-enter your pin, followed by
the number sign key.

add audio_segment id=SNR_INCORRECT_PIN; type=PHYSICAL; url=file://snr_incorrect_pin.wav;
description=We are sorry. The pin entered does not match the current PIN for SNR number

add audio_segment id=SNR_PIN_ATTEMPTS; type=PHYSICAL; url=file://snr_pin_attempts.wav;
description=If this is not the desired SNR number, please hang up and retry. The number of
consecutive invalid pin attempts for this account is currently

add audio_segment id=SNR_FOR_YOUR_PROTECTION; type=PHYSICAL;
url=file://for_your_protection.wav; description=For you protection, if this count reaches

add audio_segment id=SNR_ACCESS_WILL_BE_DISABLED; type=PHYSICAL;
url=file://phone_access_will_be_disabled.wav; description=account access via phone will be
disabled.

add audio_segment id=SNR_PHONE_ACCESS_IS_DISABLED; type=PHYSICAL;
url=file://phone_access_is_disabled.wav; description=Phone access for this account is
disabled. To re-enable phone access, please reset your pin via the internet.
```

Step 5 Add the SNR_ACT Main Menu audio segments.

```
add audio_segment id=SNR_FORWARDING_PER_SCHED; type=PHYSICAL;
url=file://your_calls_fwd_per_sched.wav; description=Your calls are currently being
forwarded based upon your forwarding schedule.

add audio_segment id=SNR_FORWARDING_TO_VOICEMAIL; type=PHYSICAL;
url=file://your_calls_fwd_to_voicemail.wav; description=Your calls are currently being
forwarded straight to your voicemail.

add audio_segment id=SNR_NO_FORWARDING_ACTIVE; type=PHYSICAL;
url=file://snr_no_forwarding_active.wav; description=You currently do not have any of your
SNR Call Forwarding Features active.

add audio_segment id=SNR_TO_ACTIVATE_CONFIG_CFU; type=PHYSICAL;
url=file://to_activate_config_fwd_num.wav; description=To activate or configure forwarding
to a single number, press

add audio_segment id=SNR_TO_CONFIG_CFU; type=PHYSICAL; url=file://to_config_fwd_num.wav;
description=To configure forwarding to a single number, press

add audio_segment id=SNR_TO_ACTIVATE_FWD_SCHED; type=PHYSICAL;
url=file://to_activate_fwd_sched.wav; description=To activate Forwarding per your
schedule, press

add audio_segment id=SNR_TO_ACTIVATE_VMA; type=PHYSICAL;
url=file://to_activate_fwd_voicemail.wav; description=To activate Forwarding straight to
Voicemail, press

add audio_segment id=SNR_TO_DEACTIVATE_ALL_SNR; type=PHYSICAL;
url=file://to_deactivate_all_snr_fwd.wav; description=To deactivate all SNR Forwarding
Features, press
```

```
add audio_segment id=SNR_TO_EXIT_TO_VMS; type=PHYSICAL;
url=file://to_exit_snr_to_voicemail.wav; description=To exit this SNR system and connect
to your voicemail, press

add audio_segment id=SNR_TO_EXIT; type=PHYSICAL; url=file://to_exit_snr.wav;
description=To exit this SNR system, hang up or press

add audio_segment id=SNR_EXIT_SYSTEM; type=PHYSICAL; url=file://exit_snr_system.wav;
description=You are now exiting the SNR configuration system. Goodbye.
```

Step 6 Add the SNR_ACT Forwarding per Schedule audio segments.

```
add audio_segment id=SNR_FWD_PER_SCHED_NOT_CONFIG; type=PHYSICAL;
url=file://fwd_per_sched_not_config.wav; description=Forwarding per schedule is not
configured properly. Please contact customer service.

add audio_segment id=SNR_NO_SCHED_ACTIVE; type=PHYSICAL;
url=file://fwd_sched_needs_config.wav; description=Your forwarding schedule needs to be
configured via the internet before it can be activated.
```

Step 7 Add the SNR_ACT Forwarding to Single Number audio segments.

```
add audio_segment id=SNR_CFU_NOT_CONFIG; type=PHYSICAL;
url=file://fwd_to_single_num_not_config.wav; description=Forwarding to a single number is
not configured properly. Please contact customer service.

add audio_segment id=SNR_CFU_NUM_INVALID; type=PHYSICAL;
url=file://fwd_to_num_invalid.wav; description=Your forward-to-number is not set to a
valid number.

add audio_segment id=SNR_CFU_FWD_TO_NUM_IS; type=PHYSICAL; url=file://fwd_to_num_is.wav;
description=Your forward-to number is

add audio_segment id=SNR_TO_FWD_TO_THIS_NUM; type=PHYSICAL;
url=file://to_fwd_to_this_num.wav; description=To forward all calls to this number, press

add audio_segment id=SNR_TO_CHANGE_FWD_TO_NUM; type=PHYSICAL;
url=file://to_change_fwd_to_num.wav; description=To change your forward-to number, press

add audio_segment id=SNR_FWD_TO_NUM_IS_GOING_TO_BE; type=PHYSICAL;
url=file://fwd_num_is_going_to_be.wav; description=Your forward-to number is going to be
changed to

add audio_segment id=SNR_TO_CHANGE_FWD_DIFF_NUM; type=PHYSICAL;
url=file://to_change_fwd_to_diff_num.wav; description=To change your forward-to number to
a different number, press

add audio_segment id=SNR_TO_RETURN_TO_PREV_MENU; type=PHYSICAL;
url=file://to_return_to_previous_menu.wav; description=To return to the previous menu,
press

add audio_segment id=SNR_TO_RETURN_WITHOUT_UPDATE_FWD; type=PHYSICAL;
url=file://to_return_without_update_fwd.wav; description=To return to the previous menu
without updating your forward-to number, press
```

Step 8 Add the SNR_ACT Forwarding to Voicemail audio segments.

```
add audio_segment id=SNR_VMA_NOT_CONFIGURED; type=PHYSICAL;
url=file://fwd_to_voicemail_not_config.wav; description=Forwarding to a voicemail is not
configured properly. Please contact customer service.
```

```
add audio_segment id=SNR_EXIT_TO_VOICEMAIL; type=PHYSICAL;
url=file://exit_snr_to_voicemail.wav; description=You are now exiting the SNR
configuration system and connecting to voicemail.
```

Step 9 Add the SNR_ACT common audio sequences.

```
add audio_seq id=SNR_NUM_INVALID; language_id=def; seq=SNR_SORRY_NUM_INVALID;
description=We are sorry. The number you have entered is incorrect.

add audio_seq id=SNR_CMD_INVALID; language_id=def; seq=SNR_SORRY_CMD_INVALID;
description=We are sorry. The digits entered are not a valid command.
```

Step 10 Add the Single Number Reach announcement audio sequence.

```
add audio_seq id=SNR_ANNC_SEQ; language_id=def; seq=SNR_TRYING_TO_REACH_PARTY;
description=We are trying to reach your party. Please stay on the line.

add audio-seq id=SNR_RINGBK_SEQ; LANGUAGE_ID=def; SEQ=SNR_RING_BACK_TONE;
```

Step 11 Add the SNR_ACT authentication audio sequences.

```
add audio_seq id=SNR_AUTH_WELCOME; language_id=def; seq=SNR_WELCOME; description=Welcome
to the Single Number Reach System.

add audio_seq id=SNR_AUTH_USER_ID; language_id=def; seq=SNR_ENTER_NUM; description=Please
enter your SNR number, followed by the number sign key.

add audio_seq id=SNR_CONFIRM_NUM; language_id=def;
seq=SNR_ADMIN_NUM,var_digits,SNR_TO_CONFIRM_PRESS,var_digits,SNR_ADMIN_DIFF_NUM,var_digits
; description=You are about to administer SNR for <ds>. To confirm, press
<AUTH-USERID-CONFIRM-OP>. To administer a different SNR number, press
<AUTH-USERID-CHANGE-OP>.

add audio_seq id=SNR_INVALID_USER; language_id=def; seq=SNR_SORRY_NUM_INVALID;
description=We are sorry. The number you have entered is incorrect.

add audio_seq id=SNR_INVALID_ABRT; language_id=def; seq=SNR_INVALID_USER_ID_ABORT;
description=Please hang up now, consult your written instructions, and try again later.

add audio_seq id=SNR_ENTER_PIN; language_id=def; seq=var_audio;
description=<SNR_ENTER_PIN/SNR_REENTER_PIN> Please (re)enter your pin, followed by the
number sign key.

add audio_seq id=SNR_INVALID_PIN; language_id=def; seq=SNR_INCORRECT_PIN,var_digits;
description=We are sorry. The pin entered does not match the current PIN for SNR number
<ds>.

add audio_seq id=SNR_PIN_ATTEMPTS; language_id=def;
seq=SNR_PIN_ATTEMPTS,var_number,SNR_FOR_YOUR_PROTECTION,var_number,SNR_ACCESS_WILL_BE_DISA
BLED; description=If this is not the desired SNR number, please hang-up and retry. The
number of consecutive invalid pin attempts for this account is currently <d>. For you
protection, if this count reaches <d>, account access via phone will be disabled.

add audio_seq id=SNR_AUTH_LOCKOUT; language_id=def; seq=SNR_PHONE_ACCESS_IS_DISABLED;
description=Phone access for this account is disabled. To re-enable phone access, please
reset your pin via the internet.
```

Step 12 Add the SNR_ACT Main Menu audio sequences.

```
add audio_seq id=SNR_MAIN_MENU; language_id=def;
seq=var_audio,var_digits,var_audio,var_digits,var_audio,var_digits,var_audio,var_digits,va
r_audio,var_digits,var_audio,var_digits,var_audio,var_digits,SNR_TO_REPEAT_INSTRUCTIONS,va
r_digits;
description=<SNR_FORWARDING_TO_NUM/SNR_FORWARDING_PER_SCHED/SNR_FORWARDING_TO_VOICEMAIL/SN
R_NO_FORWARDING_ACTIVE>,<ds/NULL>,<SNR_TO_CONFIG_CFU/SNR_TO_ACTIVATE_CONFIG_CFU>,<MAIN-ACT
```

```
IVATE-CFU-OP>,<SNR_TO_ACTIVATE_FWD_SCHED/NULL>,
<MAIN-ACTIVATE-FWD-SCHED-OP/NULL>,<SNR_TO_ACTIVATE_VMA/NULL>,<MAIN-ACTIVATE-FWD-VMA-OP/NUL
L>,<SNR_TO_DEACTIVATE_ALL_SNR/NULL>,<MAIN-DEACTIVATE-ALL-FWD-OP/NULL>,<SNR_TO_EXIT_TO_VMS>
,<MAIN-EXIT-TO-VMS-OP/NULL>,<SNR_TO_EXIT>,<MAIN-EXIT-OP/NULL>. To repeat instructions,
press <REPEAT-INSTRUCTION>.

add audio_seq id=SNR_EXITING_SYST; language_id=def; seq=SNR_EXIT_SYSTEM; description=You
are now exiting the SNR configuration system. Goodbye.
```

Step 13 Add the SNR_ACT Forwarding per Schedule audio sequences.

```
add audio_seq id=SNR_SNR_NOT_CFG; language_id=def; seq=SNR_FWD_PER_SCHED_NOT_CONFIG;
description=Forwarding per schedule is not configured properly. Please contact customer
service.

add audio_seq id=SNR_NO_SCHED_ACT; language_id=def; seq=SNR_NO_SCHED_ACTIVE;
description=Your forwarding schedule needs to be configured via the internet before it can
be activated.
```

Step 14 Add the SNR_ACT Forwarding to Single Number audio sequences.

```
add audio_seq id=SNR_CFU_NOT_CFG; language_id=def; seq=SNR_CFU_NOT_CONFIG;
description=Forwarding to a single number is not configured properly. Please contact
customer service.

add audio_seq id=SNR_CFU_MENU; language_id=def;
seq=var_audio,var_digits,var_audio,var_digits,SNR_TO_CHANGE_FWD_TO_NUM,var_digits,SNR_TO_R
ETURN_TO_PREV_MENU,var_digits,SNR_TO_REPEAT_INSTRUCTIONS,var_digits;
description=<SNR_CFU_NUM_INVALID/SNR_CFU_FWD_TO_NUM_IS/SNR_FORWARDING_TO_NUM>,<NULL/ds/ds>
,<NULL/SNR_TO_FWD_TO_THIS_NUM/NULL>,<NULL/CFU-ENABLE-CFU-OP/NULL>,To change your
forward-to number, press <CFU-CHANGE-FWD-TO_NUM-OP>. To return to the previous menu, press
<CFU-RTN-TO-PREV-MENU-OP>. To hear these instructions repeated, press
<REPEAT-INSTRUCTION>.

add audio_seq id=SNR_ENTR_FWD_NUM; language_id=def; seq=SNR_PLEASE_ENTER_FWD_NUM;
description=Please enter the number to which you want your calls forwarded, followed by
the number sign key.

add audio_seq id=SNR_CFU_NUM_CNFM; language_id=def;
seq=SNR_FWD_TO_NUM_IS_GOING_TO_BE,var_digits,SNR_TO_CONFIRM_PRESS,var_digits,SNR_TO_CHANGE
_FWD_DIFF_NUM,var_digits,SNR_TO_RETURN_WITHOUT_UPDATE_FWD,var_digits,SNR_TO_REPEAT_INSTRUC
TIONS,var_digits; description=Your forward-to number is going to be changed to <ds>. To
confirm, press <CFU-CONFIRM-CFU-NUM-OP>. To change your forward-to number to a different
number, press <CFU-CHANGE-FWD-TO-DIFF-NUM-OP>. To return to the previous menu without
updating your forward-to number, press <CFU-RTN-WITHOUT-UPDATE-OP>. To hear these
instructions repeated, press <REPEAT-INSTRUCTION>.
```

Step 15 Add the SNR_ACT Voicemail audio sequences.

```
add audio_seq id=SNR_VMA_NOT_CFG; language_id=def; seq=SNR_VMA_NOT_CONFIGURED;
description=Forwarding to a voicemail is not configured properly. Please contact customer
service.

add audio_seq id=SNR_EXITNG_TO_VM; language_id=def; seq=SNR_EXIT_TO_VOICEMAIL;
description=You are now exiting the SNR configuration system and connecting to voicemail.
```

Feature Control Options for Provisioning IVR Interactions

This section lists the steps required to complete the provisioning for feature control options for the IVR interactions.

Step 1 Add the feature configurations for SNR_ACT.

```
add feature_config fname=SNR_ACT; type=RESTART-KEY; datatype=string; value=*;
description=Key to dial to restart entering the number.

add feature_config fname=SNR_ACT; type=RETURN-KEY; datatype=string; value=#;
description=Key to dial to complete the entry of the number.

add feature_config fname=SNR_ACT; type=REPEAT-INSTRUCTION; value=0; description=Digit to
dial to hear instructions repeated.

add feature_config fname=SNR_ACT; type=T-SESSION; datatype=integer; value=6000;
description=Session timer in 0.1 sec increments.

add feature_config fname=SNR_ACT; type=FDT-TIMER; datatype=integer; value=150;
description=Time to wait for first digit to be dialed, in 0.1 sec increments

add feature_config fname=SNR_ACT; type=IDT-TIMER; datatype=integer; value=70;
description=Time to wait between digits, in 0.1 sec increments.
```

Step 2 Add the feature configurations for SNR_ACT authentication.

```
add feature_config fname=SNR_ACT; type=AUTH-CHECK-FOR-MST-NUM; datatype=boolean; value=Y;
description=Whether to check if call originated from SNR Master Number.

add feature_config fname=SNR_ACT; type=AUTH-PIN-ATTEMPTS-TO-LOCK; datatype=integer;
value=5; description=Number of consecutive invalid pin attempts to lock out IVR user.

add feature_config fname=SNR_ACT; type=AUTH-PIN-ATTEMPTS-TO-WARN; datatype=integer;
value=2; description=Number of pin attempts to start warning they will be locked out.

add feature_config fname=SNR_ACT; type=AUTH-USERID-ATTEMPTS-TO-EXIT; datatype=integer;
value=3; description=Num of consecutive UserID attempts to cause user exit from IVR.

add feature_config fname=SNR_ACT; type=AUTH-USERID-CONFIRM-OP; value=1; description=Digit
to dial to confirm proper SNR number is to be configured.

add feature_config fname=SNR_ACT; type=AUTH-USERID-CHANGE-OP; value=2; description=Digit
to dial to change the SNR number that is to be configured.
```

Step 3 Add the feature configurations for the SNR_ACT Main Menu.

```
add feature_config fname=SNR_ACT; type=MAIN-ACTIVATE-CFU-OP; value=1; description=Digit to
dial from main menu to activate CFU.

add feature_config fname=SNR_ACT; type=MAIN-ACTIVATE-FWD-SCHED-OP; value=2;
description=Digit to dial from main menu to activate fowarding per schedule.

add feature_config fname=SNR_ACT; type=MAIN-ACTIVATE-FWD-VMA-OP; value=3;
description=Digit to dial on main menu to activate forwarding to voicemail.

add feature_config fname=SNR_ACT; type=MAIN-DEACTIVATE-ALL-FWD-OP; value=4;
description=Digit to dial from main menu to deactivate all SNR forwarding.

add feature_config fname=SNR_ACT; type=MAIN-EXIT-TO-VMS-OP; value=5; description=Digit to
dial from main menu to exit to VoiceMail System.

add feature_config fname=SNR_ACT; type=MAIN-EXIT-OP; value=9; description=Digit to dial to
exit IVR.
```

Step 4 Add the feature configurations for the SNR_ACT Forwarding to Single Number menu.

```
add feature_config fname=SNR_ACT; type=CFU-ENABLE-CFU-OP; value=1; description=Digit to
dial from CFU menu to activate CFU.
```

```
add feature_config fname=SNR_ACT; type=CFU-CHANGE-FWD-TO-NUM-OP; value=2;
description=Digit to dial from CFU menu to change CFU forward-to number.

add feature_config fname=SNR_ACT; type=CFU-RTN-TO-PREV-MENU-OP; value=9; description=Digit
to dial from CFU menu to return to previous menu.

add feature_config fname=SNR_ACT; type=CFU-CONFIRM-CFU-NUM; datatype=boolean; value=N;
description=Whether user given extra prompt to confirm new CFU fwd number.

add feature_config fname=SNR_ACT; type=CFU-CONFIRM-CFU-NUM-OP; value=1; description=Digit
to dial from CFU Confirm menu to confirm new CFU number.

add feature_config fname=SNR_ACT; type=CFU-CHANGE-FWD-TO-DIFF-NUM-OP; value=2;
description=Digit to dial from CFU Confirm menu to change CFU fwd-to number.

add feature_config fname=SNR_ACT; type=CFU-RTN-WITHOUT-UPDATE-OP; value=9;
description=Digit to dial from CFU Confirm menu to return without updating.
```

Subscriber Provisioning

This section lists steps required for provisioning subscribers, assigning the Single Number Reach service to the subscriber, and performing the initial setup of the subscriber PIN.

Step 1 If a subscriber entry for the subscriber does not exist, add a subscriber entry for subscriber. For a virtual subscriber, set term_type=none.

```
add subscriber id=222-789-3510; sub_profile_id=subprof_1; DN1=222-789-3510;
voice_mail_id=vm_as
```

Step 2 Assign the Single Number Reach service to the subscriber.

```
add subscriber_service_profile sub_id=222-789-3510; service_id=snr;
```

Step 3 Add the subscriber_feature_data for the initial setup of the SNR_ACT PIN.

```
add subscriber_feature_data sub_id=222-789-3510; fname=SNR_ACT; type1=PINTYPE;
value1=NEWPIN; type2=PIN; value2=3510; type3=PINATTS; value3=0;
```

Step 4 Add the initial subscriber Single Number Reacted schedule. The reacted schedule can be provisioned to make the subscriber handle the call during the Single Number Reach process, for example handling or allowing the calls to ring simultaneously or sequentially, TOD of scheduling the call. The subscriber sets up and configures the Single Number Reacted schedule setup through the XML file.

```
add snr sub_id=222-789-3510; file=/snr.xml;
```

SNR_ACT IVR Virtual Subscriber Provisioning

This section lists the steps required for provisioning SNR_ACT virtual subscribers.

Step 1 Add the SNR_ACT virtual subscriber. All Single Number Reach subscribers will call 2227891000 for IVR access to their SNR_ACT features:

```
add subscriber ID=snr_act_ivr_annc_sub; CATEGORY=IVR; NAME=tb22 snr-act-annc-sub;
STATUS=ACTIVE; dn1=222-789-1000; PRIVACY=NONE; RING-TYPE-DN1=R1; USAGE-SENS=N;
SUB-PROFILE-ID=dp222;TERM-TYPE=ROUTE; POLICY-ID=rt_ivr;
```

Step 2 Define the internal IVR feature.

```
add feature fname=IVR; tdp1=T_ANSWER; tid1=T_ANSWER; ttype1=R; description=Internal IVR
feature; feature_server_id=FSPTC235;
```

Step 3 Add the service for the SNR_ACT IVR virtual subscriber.

```
add service id=SNR_ACT_IVR_SVC; fname1=IVR; fname2=SNR_ACT;
```

Step 4 Assign the SNR_ACT_IVR feature to the SNR_ACT IVR virtual subscriber. Only the IVR virtual subscriber has this service assigned.

```
add sub-service-profile sub-id=snr_act_ivr_annc_sub; service-id=SNR_ACT_IVR_SVC;
```

```
# <!-- Limit the .xml instance to the size Noted in the .xsd schema. -->
```

Sample Single Number Reach XML content.

```
<?xml version="1.0" encoding="UTF-8"?>
<SNR xmlns="urn:ietf:params:xml:ns:cisco:bts:feature:snr"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="urn:ietf:params:xml:ns:cisco:bts:feature:snr snr.xsd">
    <VER>06.00.01.V00</VER>
    <MI>1</MI>
    <ABK>
        <AE>
            <DS>Office Phone</DS>
            <UI>1</UI>
            <UE>
                <DN>4692550901</DN>
            </UE>
        </AE>
        <AE>
            <DS>Soft Client</DS>
            <UI>2</UI>
            <UE>
                <AR>sip:kdong@cisco.com</AR>
            </UE>
        </AE>
        <AE>
            <DS>Mobile Phone</DS>
            <UI>3</UI>
            <UE>
                <DN>2143928649</DN>
            </UE>
        </AE>
        <AE>
            <DS>UseDescriptionWith32CharsMaximum</DS>
            <UI>4</UI>
            <UE>
                <AR>
            123456789@12345678901234567890123456789012345678901234567890.com
                </AR>
            </UE>
        </AE>
    </ABK>
    <FND>
        <TOD>
            <DS>Normal WeekDay TOD Schedule</DS>
```

```
    <ST>1</ST>
    <BT>08:00:00</BT>
    <ET>17:30:00</ET>
    <SC>
        <WD>12345</WD>
    </SC>
    <PA>
        <UI>1</UI>
        <RT>1</RT>
        <RD>0</RD>
    </PA>
    <PA>
        <UI>2</UI>
        <RT>7</RT>
        <RD>3</RD>
    </PA>
    <PA>
        <UI>4</UI>
        <NR>1</NR>
        <RT>1</RT>
        <RD>3</RD>
    </PA>
    <PR>1</PR>
</TOD>
<TOD>
    <DS>WeekEnd TOD Schedule</DS>
    <ST>1</ST>
    <BT>07:30:00</BT>
    <ET>23:59:59</ET>
    <SC>
        <WD>06</WD>
    </SC>
    <PA>
        <UI>2</UI>
        <NR>15</NR>
        <RT>1</RT>
        <RD>0</RD>
    </PA>
    <PA>
        <UI>3</UI>
        <NR>3</NR>
        <RT>1</RT>
        <RD>4</RD>
    </PA>
    <PR>6</PR>
</TOD>
<TOD>
    <DS>Team Training: Send To Voicemail</DS>
    <ST>1</ST>
    <BT>08:00:00</BT>
    <ET>11:59:59</ET>
    <SC>
        <PD>
            <BD>2007-12-17</BD>
            <ED>2007-12-19</ED>
        </PD>
    </SC>
    <PR>5</PR>
</TOD>
<HOL>
    <ST>1</ST>
    <PD>
        <BD>2007-07-03</BD>
        <ED>2007-07-04</ED>
```

```
            </PD>
            <PD>
                <BD>2007-12-25</BD>
                <ED>2008-01-02</ED>
            </PD>
            <PA>
                <UI>1</UI>
                <NR>5</NR>
                <RT>1</RT>
                <RD>0</RD>
            </PA>
            <PA>
                <UI>3</UI>
                <NR>3</NR>
                <RT>1</RT>
                <RD>0</RD>
            </PA>
            <PR>7</PR>
        </HOL>
    </FND>
</SNR>
```

Operations

This section describes the operational interfaces for the Single Number Reach feature. The following interfaces are described:

- Operator CLI Interface
- Subscriber Web-Based Interface
- Subscriber IVR-Based Interface

Operator CLI Interface

To support Single Number Reach, the Single Number Reach and SNR_ACT tokens have been added to the CLI interface. A Single Number Reach table has been added to the CLI interface. For complete CLI information, refer to the Cisco BTS 10200 Softswitch CLI Database.

Single Number Reach Feature-Config and Feature-Config-Base Table

The type-value pairs listed in Table 5-4 are added to the feature-config-base.

Table 5-4 Single Number Reach Feature-Config and Feature-Config-Base Table

Name	Data Type	Value	Default	Description
ALLOW-MULTIPLE-INVOCATION	BOOLEAN	Y/N	N	If ALLOW-MULTIPLE-INVOCATION is set to Y, then multiple invocations is allowed for subscribers which have their Allow-Multiple-Invocation set to 1 in the subscriber's snr_profile (this flag from the snr_profile defaults to 1, if not specified in the snr_profile). If multiple invocations are not allowed, subsequent calls to a subscriber who already has the Single Number Reach feature invoked, is sent to voice mail.

SNR_ACT Feature-Config and Feature-Config-Base Table

The type-value pairs listed in Table 5-5 are added to the feature-config-base.

Table 5-5 SNR_ACT Feature-Config and Feature-Config-Base Table

Name	Data Type	Value	Default	Description
RESTART-KEY	STRING	0–9,*,#	*	Key to dial to restart entering the number.
RETURN-KEY	STRING	0–9,*,#	#	Key to dial to complete the entry of the number.
REPEAT-INSTRUCTION	DIGITS	0–9	0	Digit to dial to hear instructions repeated.
T-SESSION	INTEGER	300–36000	6000	Session timer, in 0.1-second increments.
FDT-TIMER	INTEGER	20–600	50	Time to wait for first digit to be dialed, in 0.1 second increments.
IDT-TIMER	INTEGER	20-600	50	Time to wait between digits, in 0.1 second increments.
AUTH-CHECK-FOR-MST-NUM	BOOLEAN	Y/N	Y	Checks if the call to IVR system is coming from an Single Number Reach master number (and if it is, verify this is the number the subscriber wants to configure.)
AUTH-PIN-ATTEMPTS-TO-LOCK	INTEGER	1–100	5	Number of consecutive invalid PIN attempts before the Single Number Reach number is locked out from IVR usage.

Table 5-5 SNR_ACT Feature-Config and Feature-Config-Base Table (continued)

Name	Data Type	Value	Default	Description
AUTH-PIN-ATTEMPTS-TO-WARN	INTEGER	1–100	2	Number of invalid PIN attempts before warning subscriber that they will be locked from IVR usage.
AUTH-USERID-ATTEMPTS-TO-EXIT	INTEGER	1–100	3	Number of attempts subscriber has to enter a valid Single Number Reach user ID before being booted from the IVR system.
AUTH-USERID-CONFIRM-OP	STRING	0–9	1	Digit to dial to confirm proper Single Number Reach number is to be configured.
AUTH-USERID-CHANGE-OP	STRING	0–9	2	Digit to dial to change the Single Number Reach number that is to be configured.
MAIN-ACTIVATE-CFU-OP	STRING	0–9	1	Digit to dial from main menu to activate CFU.
MAIN-ACTIVATE-FWD-SCHED-OP	STRING	0–9	2	Digit to dial from main menu to activate forwarding per schedule.
MAIN-ACTIVATE-FWD-VMA-OP	STRING	0–9	3	Digit to dial on main menu to activate forwarding to voicemail.
MAIN-DEACTIVATE-ALL-FWD-OP	STRING	0–9	4	Digit to dial from main menu to deactivate all Single Number Reach forwarding.
MAIN-EXIT-OP	STRING	0–9	9	Digit to dial to exit IVR.
CFU-ENABLE-CFU-OP	STRING	0–9	1	Digit to dial from CFU menu to activate CFU.
CFU-CHANGE-FWD-TO-NUM-OP	STRING	0–9	2	Digit to dial from CFU menu to change CFU forward-to number.
CFU-RTN-TO-PREV-MENU-OP	STRING	0–9	9	Digit to dial from CFU menu to return to previous menu.
CFU-CONFIRM-CFU-NUM	BOOLEAN	Y/N	N	To give an extra confirmation prompt to the Single Number Reach IVR subscriber when the subscriber is changing the CFU forward-to number.
CFU-CONFIRM-CFU-NUM-OP	STRING	0–9	1	Digit to dial from CFU Confirm menu to confirm new CFU number.

Table 5-5 SNR_ACT Feature-Config and Feature-Config-Base Table (continued)

Name	Data Type	Value	Default	Description
CFU-CHANGE-FWD-TO-DIFF-NUM-OP	STRING	0–9	2	Digit to dial from CFU Confirm menu to change CFU forward-to number.
CFU-RTN-WITHOUT-UPDATE-OP	STRING	0–9	9	Digit to dial from CFU Confirm menu to return without updating.

Subscriber Feature Data Table

The subscriber-feature-data table stores feature status, failed PIN attempts, PIN status (NEWPIN, LOCKEDPIN, PIN) and access PIN. The subscriber can unlock the PIN if the PIN is locked after repeated failed PIN attempts. The subscriber-feature-data table displays the number of PIN attempts as well. The PIN status for the feature SNR_ACT is saved in the subscriber-feature-data table as a type-value pair. Besides the current values (NEWPIN, PIN) for PIN-TYPE, a new type LOCKEDPIN is needed. A new type-value pair PINATTS (number of consecutive failed pin attempts) is added for SNR_ACT feature.

Table 5-6 lists type-value pairs added or updated in the subscriber-feature-data table.

Table 5-6 Subscriber Feature Data

Feature Name	Type	Value	Default Behavior
SNR_ACT	PINTYPE	NEWPIN, PIN, LOCKEDPIN	LOCKEDPIN
SNR_ACT	PINATTS	Integer	0

SNR Table

The SNR table (Table 5-7) defines the functionality associated with the BTS 10200 Call Agent.

Table Name: SNR

Table Containment Area: Feature Server

Table Contents:

1. SUB-ID
2. Single Number Reach feature profile
3. Token Properties

Table 5-7 Single Number Reach Table

Item Number	Token	PK/FK	Type	Values	M/O
1	SUB-ID Single Number Reach Subscriber ID.	PK FK Subscriber Table	VARCHAR(16)	1 –16 ASCII Characters.	M
2	SNR-Profile XML formatted Single Number Reach feature profile		VARCHAR(8192)		M

The Command Line Actions are: Show, add, change, delete, audit, sync, and help

- show snr sub-id=sub_1;
- add snr sub-id=sub_1; file=snr_sub_1.xml;
- add snr sub-id=sub_1; snr_profile=<Insert XML content for sub_1 here>;
- change snr sub-id=sub_1; file=snr_sub_1.xml
- change snr sub-id=sub_1; snr_profile=<Insert XML content for sub_1 here>;
- delete snr sub-id=sub_1;
- audit snr sub-id=sub_1;
- sync snr sub-id=sub_1; target=FSPTC235; master=EMS
- help snr;

Primary Key Token(s): sub-id

Add Rules: Either the snr_profile or the file field is specified.

Change Rules: Either the snr_profile or the file field is specified.

Delete Rules:

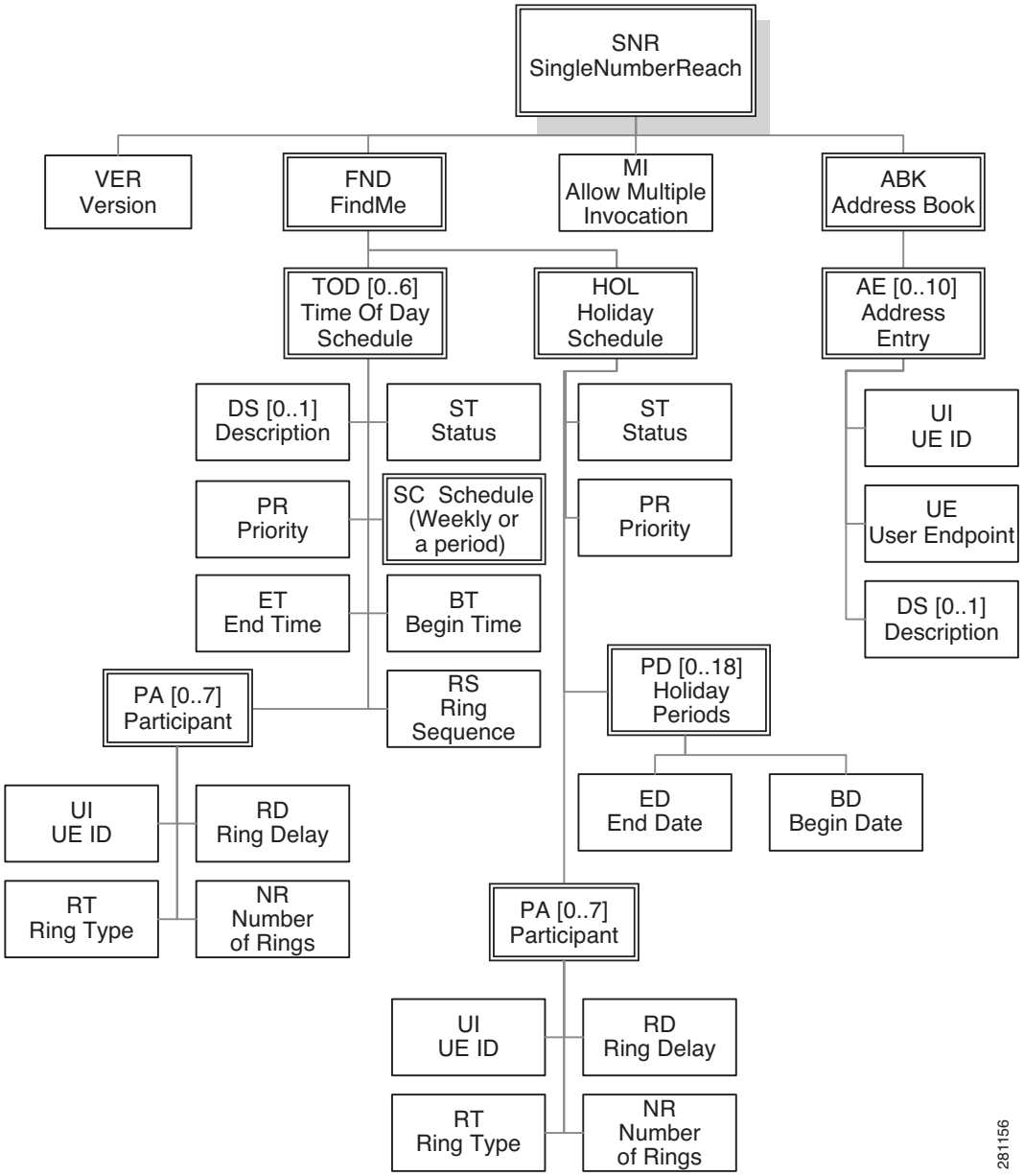
When only the ID is specified, all other entries with the same ID are removed.

Single Number Reach XML Schema

The SNR table stores SNR profile data, as shown in Figure 5-1. When provisioning a subscriber using CLI, the subscriber ID and the corresponding XML file populate the SNR table. When provisioning a subscriber from a third party system, the subscriber ID and the XML content populate the SNR table.

Note The software used to create the XML file must check for valid values and generate the file in proper XML format.

Figure 5-1 Single Number Reach – XML Data Schema



The schema below defines the Single Number Reach profile XML format. The XML format is provided here for raw XML file modification, and has the definitions of different XML segments.

```
<?xml version="1.0" encoding="UTF-8" ?>
<xs:schema
    targetNamespace="urn:ietf:params:xml:ns:cisco:bts:feature:snr"
    xmlns:xs="http://www.w3.org/2001/XMLSchema"
    xmlns:snr="urn:ietf:params:xml:ns:cisco:bts:feature:snr"
    elementFormDefault="qualified" attributeFormDefault="unqualified">
    <xs:annotation>
        <xs:documentation>
            Copyright (c) 2007-2008 Cisco Systems, Inc. All Rights
            Reserved. BTS10200 Single Number Reach Profile Schema.
```

```
        Version: 06.00.01.V00
    </xs:documentation>
    <xs:documentation>
        Note: The corresponding .xml instances should be stripped of
        extra white spacing and tab indentations, to ensure they do
        not exceed the maximum size of 8K (8192) bytes. They should
        also not contain any semicolons or single-quotes anywhere,
        including in the header of the file.
    </xs:documentation>
</xs:annotation>
<xs:simpleType name="tStatus" final="list restriction">
    <xs:restriction base="xs:unsignedByte">
        <xs:minInclusive value="0" />
        <xs:maxInclusive value="1" />
        <xs:enumeration value="0">
            <xs:annotation>
                <xs:documentation>Inactive</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Active</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tMultipleInvocation"
    final="list restriction">
    <xs:restriction base="xs:unsignedByte">
        <xs:minInclusive value="0" />
        <xs:maxInclusive value="1" />
        <xs:enumeration value="0">
            <xs:annotation>
                <xs:documentation>
                    Multiple SNR Invocation disallowed for
                    subscriber. While SNR already invoked for this
                    subscriber, subsequent calls to this subscriber
                    will be sent to voicemail.
                </xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>
                    Allow Multiple SNR Invocation for this
                    subscriber, if the FeatureConfig
                    Allow-Multiple-Invocation=Y. Even if SNR is
                    already invoked for this subscriber, subsequent
                    calls will also try to invoke SNR.
                </xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tDate" final="list restriction">
    <xs:annotation>
        <xs:documentation>
            Date range limited to 2000-01-01 -> 2127-12-31, with no
            time zone offset extension.
        </xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:date">
        <xs:pattern value="2[0-1][0-9]{2}-[0-1][0-9]-[0-3][0-9]"></xs:pattern>
    </xs:restriction>
```

```
</xs:simpleType>
<xs:simpleType name="tTime" final="list restriction">
    <xs:annotation>
        <xs:documentation>
            Time range limited to 00:00:00 -> 23:59:59, with no time
            zone offset extension.
        </xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:time">
        <xs:pattern value="[0-2][0-9]:[0-5][0-9]:[0-5][0-9]"></xs:pattern>
    </xs:restriction>
</xs:simpleType>
<xs:complexType name="tPeriod">
    <xs:sequence>
        <xs:element name="BD" type="snr:tDate" />
        <xs:element name="ED" type="snr:tDate" />
        <xs:any namespace="##any" processContents="skip"
            minOccurs="0" maxOccurs="unbounded">
        </xs:any>
    </xs:sequence>
</xs:complexType>
<xs:simpleType name="tWeekDay" final="list restriction">
    <xs:annotation>
        <xs:documentation>
            List of day numbers, where SUN=0, MON=1, TUE=2, WED=3,
            THU=4, FRI=5, SAT=6. Example: MON,WED,FRI = 135
        </xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string">
        <xs:pattern value="[0-6]{1,7}" />
        <xs:minLength value="1" />
        <xs:maxLength value="7" />
    </xs:restriction>
</xs:simpleType>
<xs:complexType name="tSchedule">
    <xs:choice>
        <xs:element name="WD" type="snr:tWeekDay" />
        <xs:element name="PD" type="snr:tPeriod" />
    </xs:choice>
</xs:complexType>
<xs:simpleType name="tVersion" final="list restriction">
    <xs:restriction base="xs:string">
        <xs:pattern
            value="[0-9]{2}\.[0-9]{2}\.[0-9]{2}\.[A-Za-z][0-9]{2}" />
        <xs:minLength value="12" />
        <xs:maxLength value="12" />
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tPriority" final="list restriction">
    <xs:annotation>
        <xs:documentation>
            The larger value means higher priority.
        </xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:unsignedByte">
        <xs:minInclusive value="1" />
        <xs:maxInclusive value="7" />
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tNumberOfRings" final="list restriction">
    <xs:annotation>
        <xs:documentation>
            A value of 15 means continue ringing indefinitely until a
            system or device timeout is reached.
```

```
            A value of 0 means do not ring this UE at all - this can
            be used to temporarily prevent calling this UE, without
            needing to completely remove the UE from the schedule.
        </xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:unsignedByte">
        <xs:minInclusive value="0" />
        <xs:maxInclusive value="15" />
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tRingDelay" final="list restriction">
    <xs:annotation>
        <xs:documentation>
            The time (in units of number of rings) to wait before
            starting to ring this UE. Since each ring correlates to
            about 6 seconds, a value of 5 means wait about 30
            seconds before start ringing this UE.
        </xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:unsignedByte">
        <xs:minInclusive value="0" />
        <xs:maxInclusive value="15" />
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tRingType" final="list restriction">
    <xs:restriction base="xs:unsignedByte">
        <xs:minInclusive value="0" />
        <xs:maxInclusive value="7" />
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tAOR" final="list restriction">
    <xs:restriction base="xs:anyURI">
        <xs:minLength value="1"></xs:minLength>
        <xs:maxLength value="64"></xs:maxLength>
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tDN" final="list restriction">
    <xs:restriction base="xs:string">
        <xs:pattern value="[0-9]+" />
        <xs:minLength value="1" />
        <xs:maxLength value="26" />
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tDescription" final="list restriction">
    <xs:annotation>
        <xs:documentation>
            SingleQuotes and Semicolons not allowed in the XML.
        </xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string">
        <xs:minLength value="0" />
        <xs:maxLength value="32" />
        <xs:pattern value="[^';]*"></xs:pattern>
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tUeIdx" final="list restriction">
    <xs:restriction base="xs:unsignedByte">
        <xs:minInclusive value="1" />
        <xs:maxInclusive value="10" />
    </xs:restriction>
</xs:simpleType>
<xs:complexType name="tUE">
    <xs:choice>
        <xs:element name="DN" type="snr:tDN" />
```

```
        <xs:element name="AR" type="snr:tAOR" />
    </xs:choice>
</xs:complexType>
<xs:complexType name="tParticipant">
    <xs:sequence>
        <xs:element name="UI" type="snr:tUeIdx" />
        <xs:element name="NR" type="snr:tNumberOfRings"
            minOccurs="0" default="3" />
        <xs:element name="RT" type="snr:tRingType" minOccurs="0"
            default="1" />
        <xs:element name="RD" type="snr:tRingDelay" />
        <xs:any namespace="##any" processContents="skip"
            minOccurs="0" maxOccurs="unbounded" />
    </xs:sequence>
</xs:complexType>
<xs:complexType name="tAddressEntry">
    <xs:sequence>
        <xs:element name="DS" type="snr:tDescription" minOccurs="0"
            default="Description Not Entered" />
        <xs:element name="UI" type="snr:tUeIdx" />
        <xs:element name="UE" type="snr:tUE" />
        <xs:any namespace="##any" processContents="skip"
            minOccurs="0" maxOccurs="unbounded" />
    </xs:sequence>
</xs:complexType>
<xs:complexType name="tAddressBook">
    <xs:sequence>
        <xs:element name="AE" type="snr:tAddressEntry"
            minOccurs="0" maxOccurs="10" />
    </xs:sequence>
</xs:complexType>
<xs:complexType name="tTOD">
    <xs:sequence>
        <xs:element name="DS" type="snr:tDescription" minOccurs="0"
            default="Description Not Entered" />
        <xs:element name="ST" type="snr:tStatus" />
        <xs:element name="BT" type="snr:tTime" />
        <xs:element name="ET" type="snr:tTime" />
        <xs:element name="SC" type="snr:tSchedule" />
        <xs:element name="PA" type="snr:tParticipant" minOccurs="0"
            maxOccurs="7" />
        <xs:element name="PR" type="snr:tPriority" />
        <xs:any namespace="##any" processContents="skip"
            minOccurs="0" maxOccurs="unbounded" />
    </xs:sequence>
</xs:complexType>
<xs:complexType name="tHoliday">
    <xs:sequence>
        <xs:element name="ST" type="snr:tStatus" />
        <xs:element name="PD" type="snr:tPeriod" minOccurs="0"
            maxOccurs="18" />
        <xs:element name="PA" type="snr:tParticipant" minOccurs="0"
            maxOccurs="7" />
        <xs:element name="PR" type="snr:tPriority" />
        <xs:any namespace="##any" processContents="skip"
            minOccurs="0" maxOccurs="unbounded" />
    </xs:sequence>
</xs:complexType>
<xs:complexType name="tFindMe">
    <xs:sequence>
        <xs:element name="TOD" type="snr:tTOD" minOccurs="0"
            maxOccurs="6" />
        <xs:element name="HOL" type="snr:tHoliday" />
        <xs:any namespace="##any" processContents="skip"
```

```
                minOccurs="0" maxOccurs="unbounded" />
            </xs:sequence>
        </xs:complexType>
        <xs:complexType name="tSingleNumberReach">
            <xs:sequence>
                <xs:element name="VER" type="snr:tVersion" />
                <xs:element name="MI" type="snr:tMultipleInvocation"
                    minOccurs="0" default="1" />
                <xs:element name="ABK" type="snr:tAddressBook" />
                <xs:element name="FND" type="snr:tFindMe" />
                <xs:any processContents="skip" minOccurs="0"
                    maxOccurs="unbounded" />
            </xs:sequence>
        </xs:complexType>
        <xs:element name="SNR" type="snr:tSingleNumberReach">
            <xs:unique name="uniqueTodHolPriority">
                <xs:annotation>
                    <xs:documentation>
                        The priorities for all of the TOD and HOL schedules
                        need to be unique. This ensures that when there is
                        an overlap of more than one schedule being
                        applicable at a particular time, the desired higher
                        priority schedule will be chosen.
                    </xs:documentation>
                </xs:annotation>
                <xs:selector xpath="snr:FND/snr:TOD | snr:FND/snr:HOL" />
                <xs:field xpath="snr:PR" />
                <xs:field xpath="snr:ST" />
            </xs:unique>
            <xs:key name="keyUI">
                <xs:selector xpath="snr:ABK/snr:AE" />
                <xs:field xpath="snr:UI" />
            </xs:key>
            <xs:keyref name="keyTodParUIRef" refer="snr:keyUI">
                <xs:annotation>
                    <xs:documentation>
                        Ensure that the specified TOD UIs exist in the
                        address book.
                    </xs:documentation>
                </xs:annotation>
                <xs:selector xpath="snr:FND/snr:TOD/snr:PA" />
                <xs:field xpath="snr:UI" />
            </xs:keyref>
            <xs:keyref name="keyHolParUIRef" refer="snr:keyUI">
                <xs:annotation>
                    <xs:documentation>
                        Ensure that the specified HOL UIs exist in the
                        address book.
                    </xs:documentation>
                </xs:annotation>
                <xs:selector xpath="snr:FND/snr:HOL/snr:PA" />
                <xs:field xpath="snr:UI" />
            </xs:keyref>
        </xs:element>
    </xs:schema>
```

Subscriber Web-Based Interface

The subscriber web-based interface is not provided by Cisco, but by the service provider. The interface can invoke CLI commands to allow the subscriber to configure Single Number Reach options. Subscriber user IDs and passwords, used to control access, are not stored on the BTS 10200, but maintained by the service provider elsewhere.

Subscriber IVR-Based Interface

This section describes the subscriber IVR-based interfaces. It includes the following:

- Accessing the Single Number Reach IVR Menu
- IVR Authentication
- Single Number Reach Main Menu
- Single Number Reach (Forwarding Per Schedule) Activation
- CFU Activation
- VMA Activation
- Single Number Reach Deactivation
- Single Number Reach IVR Prompts

Accessing the Single Number Reach IVR Menu

A Single Number Reach subscriber can set options using an IVR-based interface accessible from any UE. The subscriber calls a known DN (like a toll-free number) and enters the user ID and PIN to hear a configuration menu. Because this interface uses the master number as the user ID, the master number must be a DN and not an AOR.

IVR Authentication

Figure 5-2 shows user ID authentication for Single Number Reach.

Figure 5-3 shows the PIN authentication for the Single Number Reach feature. The detailed IVR prompts are listed in Table 5-8.

Figure 5-2 User ID Authentication

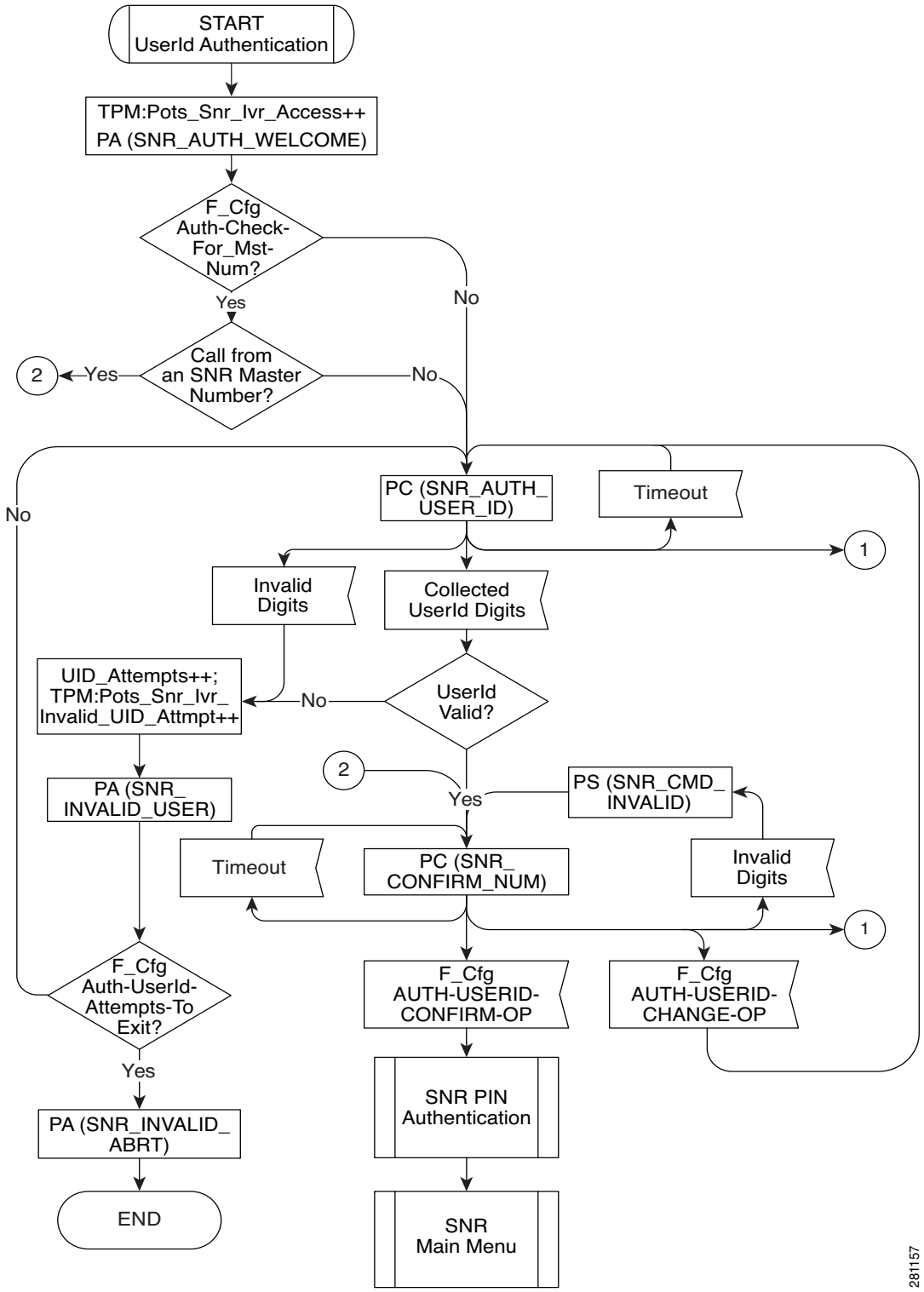
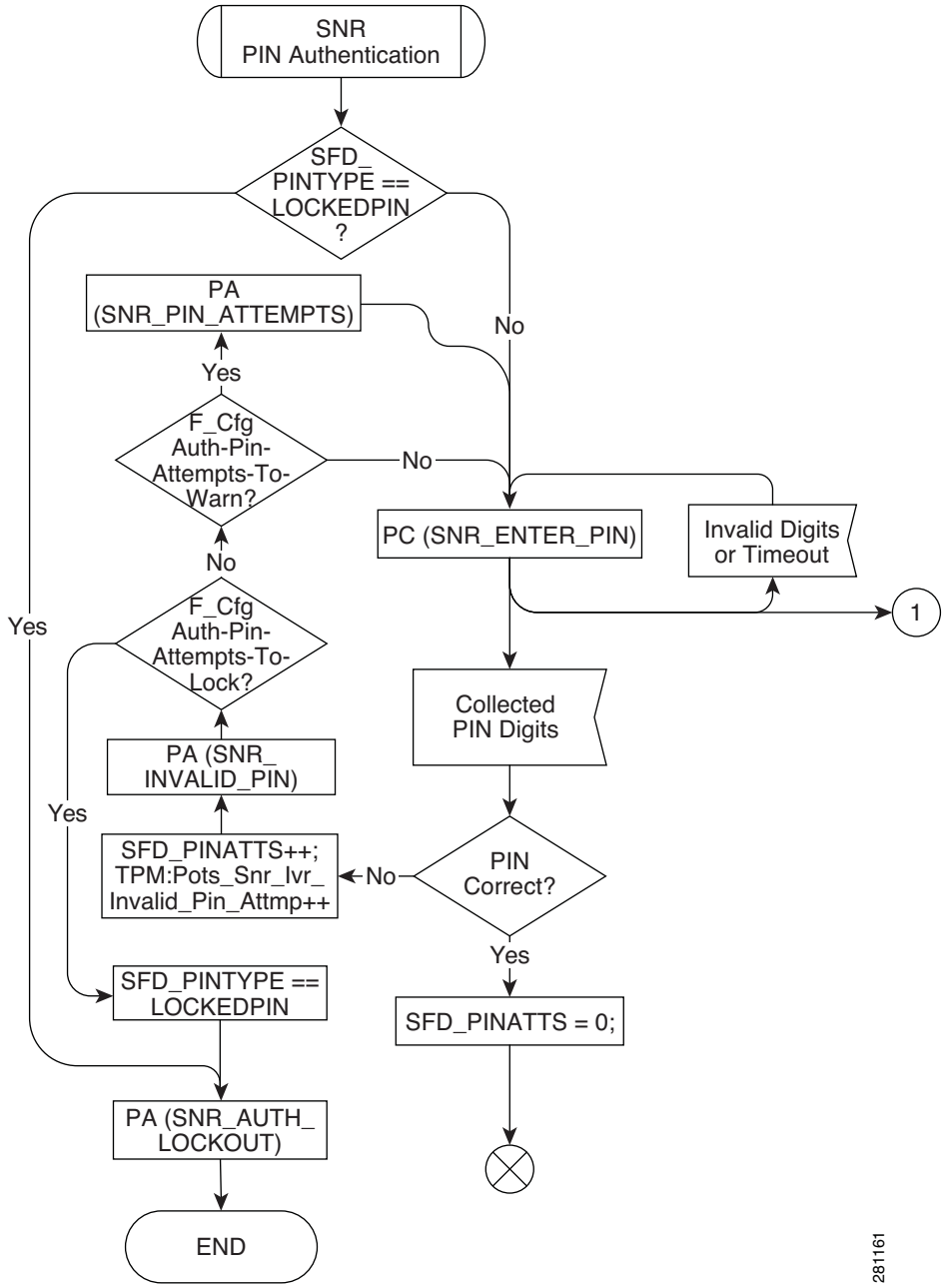


Figure 5-3 PIN Authentication



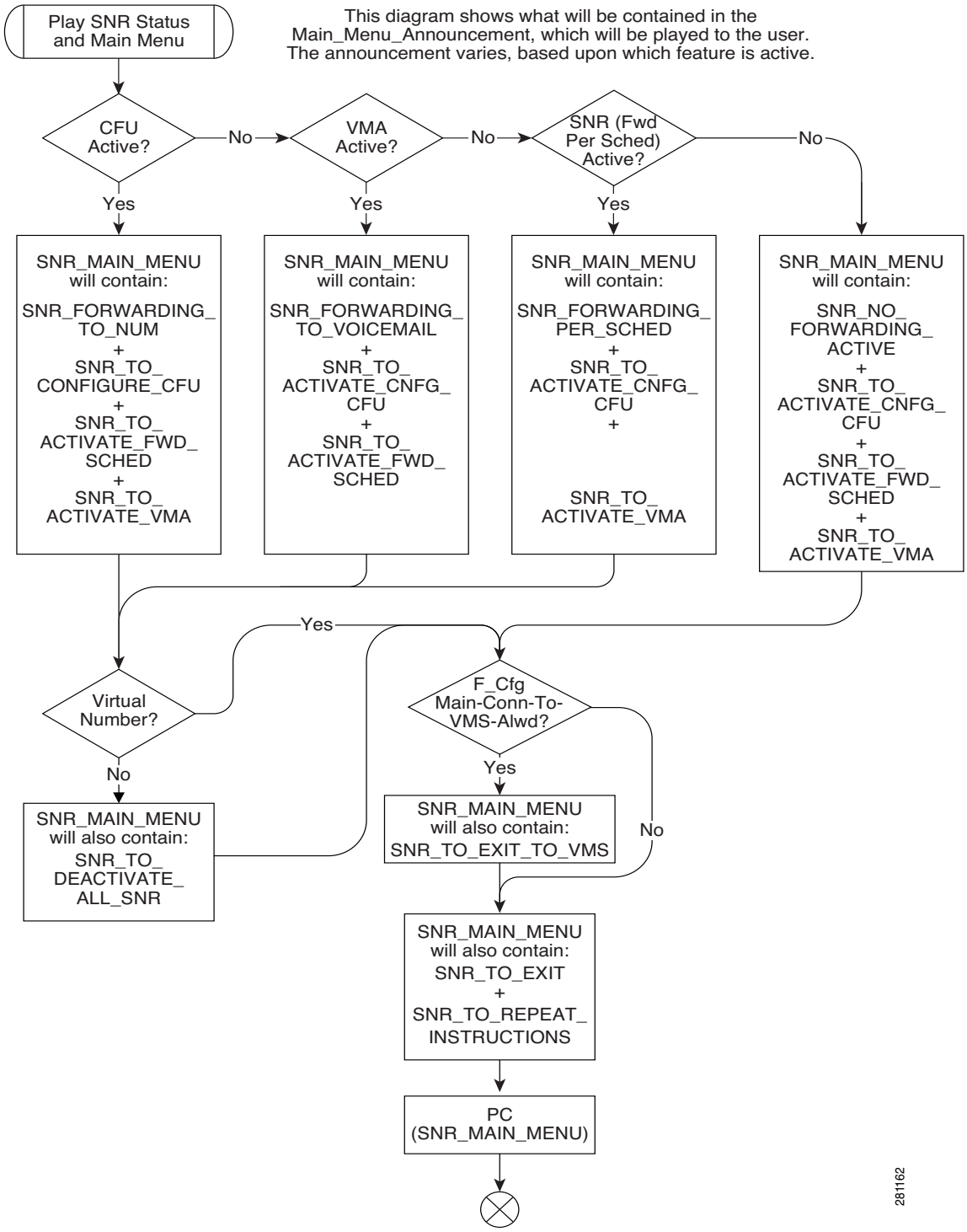
Single Number Reach Main Menu

After the user ID and PIN are authenticated, the subscriber hears a list of options available on the main menu (based on current Single Number Reach status):

```
1. Activate or configure forwarding to a single number
2. Activate forwarding per your schedule
3. Activate forwarding straight to voicemail
4. Deactivate all SNR forwarding features
9. Exit this SNR system
0. To hear these instructions repeated
```

Figure 5-4 details the Single Number Reach main menu options and play Single Number Reach status. Detailed IVR prompts are listed in Table 5-8.

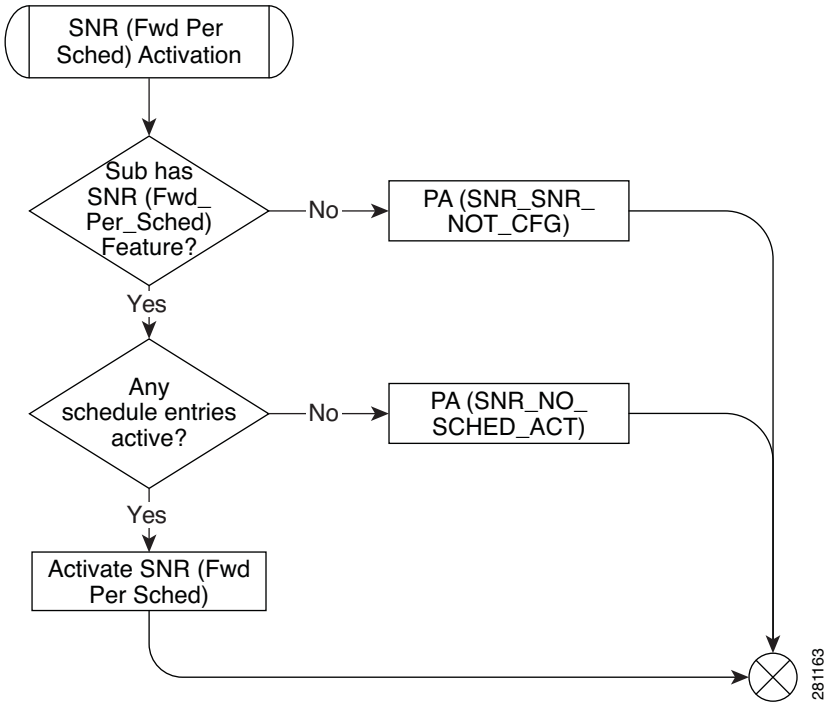
Figure 5-4 Play Single Number Reach Status and Main Menu Options



Single Number Reach (Forwarding Per Schedule) Activation

Figure 5-5 shows the Single Number Reach (find-me) activation. Detailed IVR Prompts are listed in Table 5-8.

Figure 5-5 Single Number Reach (Forwarding Per Schedule) Activation



CFU Activation

After the subscriber chooses 1 to activate CFU, he or she hears the current forward-to number is and submenu choices:

```
1. Forward all calls to this number
2. Change Forward-To number
9. Return to previous menu
0. Repeat this menu
```

A check verifies the CFU number against the dial plan. Speed dial codes are not valid CFU numbers.

VMA Activation

After the subscriber chooses 3 to activate VMA, a check verifies the subscriber has VMA then the feature is activated.

Single Number Reach Deactivation

After the subscriber chooses 4 to deactivate features, Single Number Reach, CFU, and VMA are deactivated.

Single Number Reach IVR Prompts

Table 5-8 gives details about the prompts used in the Single Number Reach IVR menus. The IVR prompts display how to traverse the Single Number Reach IVR tree. The IVR prompts provide important information on how to modify the different parts of Single Number Reach through the IVR system. Some prompts are split into multiple messages or combined into single messages when played. In the IVR prompts, a PIN is used instead of a password. This lets the subscriber know the prompts are for the Single Number Reach IVR PIN instead of the Single Number Reach web interface password and prevents reuse of existing similar password prompts.

Table 5-8 IVR Prompts

	IVR Prompt on Flowchart	IVR Prompt Wording
1	SNR_AUTH_WELCOME	Welcome to the Single Number Reach system.
2	SNR_AUTH_USER_ID	Please enter your SNR number, followed by the number sign key.
3	SNR_CONFIRM_NUM	You are about to administer SNR for <xxx-xxx-xxxx>. To confirm, press <1>. To administer a different SNR number, press <2>.
4	SNR_INVALID_USER	We're sorry. The number you have entered is incorrect.
5	SNR_INVALID_ABRT	Please hang up now, consult your written instructions, and try again later.
6	SNR_ENTER_PIN	Please (re-)enter your pin now, followed by the number sign key.
7	SNR_INVALID_PIN	We're sorry. The pin entered does not match the current PIN for SNR number <xxx-xxx-xxxx>.
8	SNR_PIN_ATTEMPTS	If this is not the desired SNR number, please hang-up and retry. The number of consecutive invalid pin attempts for this account is currently <x>. For your protection, if this count reaches <5>, account access via phone will be disabled.
9	SNR_AUTH_LOCKOUT_ABORT	Phone access for this account is disabled. To re-enable phone access, please reset your pin via the internet.
10	SNR_FORWARDING_PER_SCHED	Your calls are currently being forwarded based upon your forwarding schedule.
11	SNR_FORWARDING_TO_NUM	Your calls are currently being forwarded to <xxx-xxx-xxxx>.
12	SNR_FORWARDING_TO_ VOICEMAIL	Your calls are currently being forwarded straight to your voicemail.
13	SNR_NO_FORWARDING_ACTIVE	You currently do NOT have any of your SNR Call Forwarding Features active.
14	SNR_TO_ACTIVATE_CNFG_CFU	To activate or configure Forwarding to a single number, press <1>.

Table 5-8 IVR Prompts (continued)

	IVR Prompt on Flowchart	IVR Prompt Wording
15	SNR_TO_CONFIGURE_CFU	To configure Forwarding to a single number, press <1>.
16	SNR_TO_ACTIVATE_FWD_SCHED	To activate Forwarding per your schedule, press <2>.
17	SNR_TO_ACTIVATE_VMA	To activate Forwarding straight to Voicemail, press <3>.
18	SNR_TO_DEACTIVATE_ALL_SNR	To deactivate all SNR Forwarding Features, press <4>.
19	SNR_TO_EXIT_TO_VMS	To exit this SNR system and connect to your voicemail, press <5>.
20	SNR_TO_EXIT	To exit this SNR system, hang-up or press <9>.
21	SNR_TO_RETURN_TO_PREV_MENU	To return to the previous menu, press <9>.
22	SNR_TO_REPEAT_INSTRUCTIONS	To hear these instructions repeated, press <0>.
23	SNR_SNR_NOT_CFG	Forwarding per schedule is not configured properly. Please contact customer service.
24	SNR_NO_SCHED_ACT	Your Forwarding schedule needs to be configured via the Internet before it can be activated.
25	SNR_CFU_NOT_CFG	Forwarding to a single number is not configured properly. Please contact customer service.
26	SNR_CFU_NUM_INVALID	Your forward-to number is not set to a valid number.
27	SNR_FWD_TO_NUM_IS	Your forward-to number is <xxx-xxx-xxxx>.
28	SNR_TO_FWD_TO_THIS_NUM	To forward all calls to this number, press <1>.
29	SNR_CFU_NUM_CNFM	Your forward-to number is going to be changed to <xxx-xxx-xxxx>. To confirm, press <1>. To change your forward-to number to a different number, press <2>. To return to the previous menu without updating your forward-to number, press <9>. To hear these instructions repeated, press <0>.
30	SNR_TO_CHANGE_FORWARD_TO_ NUM	To change your forward-to number, press <2>.
31	SNR_VMA_NOT_CFG	Forwarding to voicemail is not configured properly. Please contact customer service.
32	SNR_EXITING_SYST	You are now exiting the SNR configuration system. Goodbye.
33	EXITING_TO_VOICEMAIL	You are now exiting the SNR configuration system and connecting to your voicemail.
34	SNR_ENTR_FWD_NUM	Please enter the number to which you want your calls forwarded, followed by the number sign key.

Table 5-8 IVR Prompts (continued)

	IVR Prompt on Flowchart	IVR Prompt Wording
35	SNR_NUM_INVALID	We're sorry. The number you have entered is incorrect.
36	SNR_CMD_INVALID	We're sorry. The digits entered are not a valid command.

Speed Call (1-Digit and 2-Digit) and Activation

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|
xxxxxxxxxxxxxxxxxx|[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

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;
```

Step 4 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

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

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; annc-id=570;
add release-cause id=151; annc-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=annc1; 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=annc1; 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

Three-Way Calling

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

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

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

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

Provisioning for POTS Subscribers

Step 1 Create the VM table entry for POTS individual subscribers: (APP_SERVER_ACCESS_DN and APP_SERVER_ACCESS_DN both should be 10D)

```
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 individual sub via the subscriber table:

```
change sub; id=<sub>; VOICE_MAIL_ID=vm_as;
```

Step 3 Associate the app-server to the individual 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 individual 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=APP_SERVER;
```

Provisioning for Centrex Subscribers

Step 1 Create the VM table entry for centrex subscribers:(APP_SERVER_DN should be 9+10D and APP_SERVER_ACCESS_DN should be 10D (without 9))

```
add app-server; id=vm_ctx_as; APP_SERVER_TYPE=VM; APP_SERVER_DN=99722331287;
APP_SERVER_ACCESS_DN=9722331287; DESCRIPTION=VM App Server;
```

Step 2 Associate the app-server to the centrex sub via the subscriber table:

```
change sub; id=<sub>; VOICE_MAIL_ID=vm_ctx_as;
```

Step 3 Associate the app-server to the centrex sub via the sub-profile table:

```
change sub-profile; id=<sub-profile>; VOICE_MAIL_ID=vm_ctx_as;
```

Step 4 Associate the app-server to the centrex sub via the pop table:

```
change pop; id=<pop>; VOICE_MAIL_ID=vm_ctx_as;
```

Step 5 Associate the app-server to the sub via the ca-config table:

```
add ca-config; type=default-voice-mail-id; value=APP_SERVER;
```

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

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

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; REQD_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
```

Office Service ID for a 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;
```

Configurable FIM/XML

The BTS supports an FIM/XML (Feature Interaction Module/Extensible Markup Language) file which defines the interaction between features. However, the current FIM/XML format is time consuming because of the large number of configurable parameters you must define. The Configurable FIM/XML feature introduces a new external configurable FIM/XML file which is more efficient because it defines only the interactions between the IMS Service Control Interface (ISC) and Feature Control Protocol (FCP) features. The BTS10200 Softswitch POTS Feature Server manages the ISC and FCP interactions between ISC and FCP features using the parameters defined in the configurable FIM/XML file.

Using an offline tool created by Cisco BTS, you produce the configurable FIM/XML file using the system's FIM/XML file and schema data.

The external FIM/XML file allows you to define the behavior of the external features as they interact with the BTS by

- Adding a new external feature name
- Specifying the list of features inhibited by an external feature
- Defining the list of features that inhibit the external feature
- Specifying the external features' order of precedence order
- Defining error response operations

Generating the New FIM/XML File

Each BTS release includes an original FIM/XML file. The offline FIM/XML tool allows you to define a new external feature or modify existing interactions involving the ISC features.

Tool Requirements

The system must meet the following conditions and requirements for the FIM/XML tool:

- JVM 1.6 or above is installed on the system.
- All three input files are present in the same directory as the tool .jar file.
- The user has writer permission for the directory where the FIM/XML offline tool is located.
- The user has read permission for all the input XML files.

FIM/XML File and Shared iFC File

A Shared Initial Filter Criteria (iFC) file specifies all the data you require to provision a new feature in the Element Management System (EMS). The shared iFC file is analogous to provisioning feature data through the CLI. You can provision all the user commands supported through CLI using the shared iFC.

The BTS supports the following commands through shared iFC:

- Add/change/delete feature
- Add/change/delete feature-config fname
- Add/ change/delete vsc
- Add/change/delete sip-trigger-profile
- Add/Change/delete subscriber-sip-trigger-profile
- Add/Change/Delete service
- Add/Change/Delete subscriber-service-profile

The following conditions apply between the configurable FIM/XML file and the shared iFC file:

- Any property provisionable through FIM/XML cannot be provisioned through the shared iFC file.
- If an external feature name exists in the FIM/XML file but is not defined in EMS, then EMS provisions that external-feature name by reading the FIM/XML file.

For additional information about the shared IFC, refer to BTS XML Support by FTP Adapter Feature Module.

Restrictions and Limitations

You cannot use the FIM/XML to do the following:

- Change the interaction between internal features
- Define feature configuration properties
- Define feature support profile

Each BTS release includes an original FIM/XML file which is installed during system setup and upgrades. Use this file as input, along with the schema, to produce the new FIM/XML file with the offline tool.

Each BTS release includes an original FIM/XML file. The offline FIM/XML tool allows you to define a new external feature or modify existing interactions involving the ISC features.

The system must meet the following conditions and requirements for the FIM/XML tool:

- JVM 1.6 or above is installed on the system.
- All three input files are present in the same directory as the tool .jar file.
- The user has writer permission for the directory where the FIM/XML offline tool is located.
- The user has read permission for all the input XML files.

The following procedure describes how to generate the configureable FIM/XML file using the offline FIM/XML tool.

Step 1 Use any XML editor to create an external FIM/XML file based on the rules from the schema file provided by the BTS during installation. You cannot modify the schema data.

Step 2 Use the XML editor to edit a sample file provided with the tool. This file becomes the offline FIM/XML configuration file used in the next step.

You can edit the FIM/XML file so that emergency features such as 9-1-1, Hostage Negotiation, and Emergency Callback (ECB) cannot be inhibited by the operator after the configurable FIM/XML file is downloaded to the BTS, as shown in the following script:

```
<fcp-features> <feature name=E911 inhibition-allowed=false/>
```

You can also configure the schema path for the configurable FIM/XML file, as shown in the following script:

```
<config-param param=FIMXMLSCHEMA_PATH value=FIMXML.xsd/>
```

If you do not specify a schema path, the BTS will use the following default path: /opt/OptiCall/potsctx/bin/FIMXML.xsd

Step 3 Run the following Java application:

```
java –jar fimxml.jar param1 param2 param3 param4
```

Where

- param1 = name of the external FIM/XML file described in the first step.
- param2 = the name of the original FIM/XML file produced during the BTS installation. Copy this file from the following path: /opt/OptiCall/etc/fimxml/FSPTC235/FIMXMLRules.xml.
- param3 = name of the configuration file described in the second step.
- param4 = the name of the configurable file to be generated (defaults to merged.xml). This parameter is optional.

If the script runs successfully, the tool returns the following message **SUCCESS!! New FIM/XML generated at path <path>** and copies or FTPs the successfully generated configurable FIM/XML file to the EMS.

If the script does not complete successfully, the system returns a non-zero value and generates a log file which is copied to the same directory as the FIM/XML tool .jar file.

Note The tool produces log files for both successful and unsuccessful attempts.

The system returns the following message for schema-related errors:

```
Schema Error: FileName:LineNo:ColumnNo
```

The system returns the following message for feature name-related errors:

```
Error:<Feature Name> <error message>
```

Note You can troubleshoot the errors from the descriptions provided with the error messages.

Step 4 Enter the following command from the EMS:

```
install fimxml file_name=<absolute_path>
```

This command does the following:

- Processes the configurable FIM/XML file on the EMS
- Adds external feature names to the EMS
- Copies the new file to the following path: /opt/OptiCall/etc/fimxml/FSPTC235/FIMXMLRules.xml.

Step 5 Restart the POTS Feature Server on both the CA primary and secondary nodes to load the configurable FIM/XML file.

10/11-Digit Screening

Use the following procedure to provision the BTS 10200 with the 10/11-Digit Screening Feature:

Step 1 Add a digit manipulation profile.

add digman-profile id=*sle-digman***;description=***to normalize the DN for SLE based features*

Step 2 Add a digit manipulation ID.

add digman id=*sle-digman***;rule=***1***;match-string=***^1***;replace-string=***NONE***;description=***to normalize the DN for SLE based features***;**

Step 3 Add the feature.

add feature-config fname=*SLE***;type=***DIGMAN-PROFILE-ID***;value=***sle-digman***;**

Restricting NODs

Use the following example command to specify the NODs restricted for the SLE feature. You must enter the command for each NOD you want restricted.

add nod_restrict_list fname=*SLE***,nod=***INTL***;**
add nod_restrict_list fname=*SLE***,nod=***EMG***;**
add nod_restrict_list fname=*SLE***,nod=***BLV***;**

Seasonal Suspend Provisioning

This section explains how to provision the Seasonal Suspend feature.

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.

c. 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**.)

d. Display the features and feature numbers in the default-office-service-id. (Use the value determined in Substep c for the value of **id** in the following command.)

```
show service id=offc999;
```

e. If <fnameX> is not already present in the list displayed in Substep d., 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.

f. 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 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 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=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 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 this 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;
```

Sh Interface Provisioning

This section explains how to perform provisioning tasks for this feature.

Prerequisites

Table 5-9 lists tasks to complete before you begin provisioning TAS subscribers to work with the HSS.

Table 5-9 Pre-provisioning Checklist.

Tasks	
☐	The BTS 10200 has been installed/upgraded to support the Diameter protocol.
☐	The BTS 10200 and HSS are connected.

Adding Subscribers to HSS

Each TAS HSS subscriber must:

- Belong to a subscriber group, the BTS 10200 stores this as the Subscriber-serving-group-id in the HSS Public-ID table.
- Be assigned an owner BTS 10200, the BTS 10200 stores this as the Table Subscriber-serving-group.

Each TAS HSS subscriber group must have a:

- DNS name—Ensure this matches the AS name in the Initial Filter Criteria.
- CNAME record

Before adding a subscriber to the HSS, ensure the BTS-PUBLIC-ID table is already provisioned with the subscriber group's public-ID.

Table 5-11 describes tables on the BTS 10200 required for HSS subscribers:

Table 5-10 Required HSS Database Tables

Required HSS Database Tables
The following tables are directly required: • SUBSCRIBER_PROFILE • QOS • LANGUAGE • COS_RESTRICT • DN2SUBSCRIBER—Remove any entry here before converting a non-HSS subscriber into a TAS subscriber. • APP_SERVER • VOICE_MAIL_ID • PRIVACY_MANAGER_ID
The following tables are indirectly required: • SIP_TRIGGER_PROFILE • SERVICE • FEATURE • MGW • OFFICE_CODE • NDC • EXCHANGE_CODE

Table 5-11 describes BTS 10200 database tables on the BTS 10200 that point to table entries on the HSS.

Table 5-11 BTS 10200 Database Tables and HSS Database Table Entries

BTS 10200 Database Table Name	HSS Database Table Entry
ANI_SCREENING	dummy non-HSS subscriber
AOR2SUB	non-HSS subscriber
CENTREX_GRP	dummy non-HSS subscriber
DN2SUBSCRIBER	
EMERGENCY_ANI	
EXT2SUBSCRIBER	non-HSS subscriber
H323_TERM	non-HSS subscriber
HSS_PUBLIC_ID	
MAC2SUB	non-HSS subscriber
MLHG	dummy non-HSS subscriber
POP	dummy non-HSS subscriber
SC1D	HSS table
SC2D	HSS table
SIP_TRIGGER_PROFILE	
SLE	HSS table
SNR	
SUBSCRIBER	
SUBSCRIBER_FEATURE_DATA	HSS table
SUBSCRIBER_SERVICE_PROFILE	HSS table
SUBSCRIBER_SIP_TRIGGER_PROFILE	HSS table
SUBSCRIBER_TOD_SCHEDULE	HSS table
TERMINATION	part of Subscriber table + termination table status
TRUNK_GRP	dummy non-HSS subscriber

Step 1 Add the TAS subscriber.

```
CLI> add subscriber id=209-222-3601; category=INDIVIDUAL; term_type=TAS
```

Step 2 Add the BTS 10200 public-ID.

```
CLI> add bts-public-id public-id=abc@cisco.com; sub-id=209-222-3601; ring_type=xxx
```

Step 3 Add the subscriber's group.

```
CLI> add subscriber-serving-group id=g1; owner=CA146;
```

Step 4 Create the HSS public-ID.

```
CLI> create hss-public-id public-id=abc@cisco.com; subscriber-serving-group-id=g1;
first-update=y
```

Step 5 Push the HSS public-ID from the BTS 10200 to the HSS. (optional)

```
CLI> push hss-public-id public-id=abc@cisco.com;
```

Operating the Feature

This section explains how to perform operational tasks for this feature.

- Moving Subscriber Groups from BTS 10200 to BTS 10200
- Purging Subscribers
- Ensuring Data Match
- Auditing and Synching Subscribers

Moving Subscriber Groups from BTS 10200 to BTS 10200

When moving subscribers from one BTS 10200 to another BTS 10200 in the cluster, divide subscribers into groups. Use one of the following criteria that best meets your needs:

- Geography
- Rate Center
- Administrative grouping

When choosing group size, consider the following:

- Large groups mean fewer groups, but large ones.
  - Fewer groups mean less chance of operator error.
  - Fewer groups mean a large amounts of subscribers per group. A disaster suddenly increases the load on the BTS 10200.
- Small groups mean many groups, but small ones.
  - Many groups mean more chances of operator error.
  - Many groups mean smaller amounts of subscribers per group. A disaster results in an even load distribution to multiple BTS 10200s

Step 1 Stop provisioning.

Step 2 On the current BTS 10200, in the table_subscriber_serving_group, change the owner to the future owner BTS 10200.

Step 3 On the future owner BTS 10200, enter the following to pull the data from the HSS:

```
CLI> pull hss-public-id public-id=abc@cisco.com
```

Step 4 On the current BTS 10200, change the DNS Group1 name to point to the future owner BTS 10200:

Step 5 On the future owner BTS 10200, change the owner of Group1 in table subscriber-serving-group to the future owner BTS 10200.

Purging Subscribers

Any BTS 10200 in a cluster can download subscriber data, but one BTS 10200 lacks capacity to store all subscribers in a cluster. When a BTS 10200 reaches maximum capacity it will be unable to pull new subscriber data from the HSS. To avoid this, manually purge all subscribers not owned by this BTS 10200.

Purging an HSS public-ID does the following:

- Removes the public-ID from the HSS-public-id and BTS-public-id tables
- Deletes the public-ID's subscriber-related tables
- Deletes all subscribers referenced by the public-id from the SUBSCRIBER table

To purge an HSS public-ID, enter the following:

```
CLI> purge hss-public-id public-id=xxxx;
```

To delete subscriber-related tables for all subscribers in this serving group:

```
CLI> purge hss-public-id subscriber-serving-group=xxxx;
```

Ensuring Data Match

Before Moving Subscriber Groups from BTS 10200 to BTS 10200 do the following procedure.

Step 1 On the current BTS 10200, create a list of public-ids in Group1.

Step 2 Copy the list to the future owner BTS 10200.

Step 3 Using the list, the future owner BTS 10200 pulls each subscriber's data from the HSS.

Auditing and Synching Subscribers

The BTS 10200's EMS does periodic background audits with the HSS. If the EMS finds an inconsistency, it synchronizes the data. If the BTS 10200 owns the subscriber group, its data overwrites that on the HSS. If the BTS 10200 does not own the subscriber group, the HSS data overwrites that on the BTS.

For each ServingIndication the BTS 10200 sends a User-Data-Request to the HSS. The local subscriber table is compared to the User-Data-Answer and no update is made to HSS-REPOSITORY-DATA table.

If the BTS 10200 owns the subscriber group for this public-id, the BTS 10200 sends a Profile-Update-Request to the HSS for each serving indication.

If the BTS 10200 does not own the subscriber group for this public-id, the BTS 10200 sends a User-Data-Request to the HSS for each subscriber group. If there is a mismatch, the HSS-REPOSITORY-DATA table updates.

To perform a data audit with the HSS, enter the following:

```
CLI> audit hss-public-id public_id=xxxx;
CLI> audit hss-public-id all=Y;
```

To synchronize with the HSS, enter the following:

```
CLI> sync hss-public-id public_id=xxxx;
CLI> sync hss-public-id all=Y
```

For troubleshooting information, see the *Cisco BTS 10200 Softswitch Troubleshooting Guide*.

TAS Provisioning

This section explains how to provision TAS interfaces and subscribers.

Note If the origination information in the incoming S-CSCF SIP message does not match the allowed (provisioned) values in the BTS 10200 database, the BTS 10200 fails the call with a 403 response.

Some of the values shown in this section, such as phone numbers and TSAP addresses, are intended as illustrative examples. You should use values appropriate for your network. In addition, you might need to enter values for some additional optional parameters (not shown here), depending on the requirements of your network. For a complete list and definitions for all parameters, see the Cisco BTS 10200 Softswitch CLI Database.

This procedure assumes that you have provisioned several prerequisite tables, such as call-agent and point of presence (POP), as well as routing and dial-plan tables,

Office Provisioning

Step 1 Add the isc-profile tables for the three types of TAS processing.

```
add isc_profile isc_user_part_route_header=orig; service_type=ORIG_TAS;

add isc_profile isc_user_part_route_header=term; service_type=TERM_TAS;

add isc_profile isc_user_part_route_header=orig+rt; service_type=ORIG_TAS_PLUS_ROUTE;
```

Step 2 Add a SIP-based trunk group profile.

The system default value for use_pai_hdr_for_ani is N, so be sure to set it to Y as shown in this example.

```
add softsw_tg_profile id=SS_PRO_1; protocol_type=SIP; trunk_sub_grp_type=TGID;
auto_p_a_id=N; use_pai_hdr_for_ani=Y;
```

Step 3 Add a SIP element for the TAS.

```
add sip_element tsap_addr=sia-SYS16CA146.ipclab.cisco.com:5060;
```

Step 4 Add a cause code map profile and a cause code map for the TAS. This map links the standard release code 27 with a 404 release code so that the TAS release code behavior is consistent with RFC 3398.

```
add cause_code_map_profile id=TAS_MAP;

add cause_code_map id=TAS_MAP; recv_cause_code=27; cause_code_type=STD;
send_cause_code=404; action=release;
```

Step 5 Add the trunk group and link it to the SIP-based trunk group profile.

Be sure to set tg_type=SOFTSW and poi=ISC_TG as shown. Setting poi=isc-tg causes TAS processing to take precedence over all other call-processing features for this trunk group.

You must also add the cause_code_map_id to reference the applicable cause code map (TAS_MAP in this example).

```
add trunk_grp id=6997; call_agent_id=CA146; tg_type=SOFTSW;
softsw_tsap_addr=sia-SYS16CA146.ipclab.cisco.com:5060; dial_plan_id=tb92;
tg_profile_id=SS_PRO_1; pop_id=tb92; poi=ISC_TG; trunk_sub_grp=for_tas;
cause_code_map_id=TAS_MAP;
```

Step 6 Add serving domain names for the local TAS and local SIP address.

```
add serving_domain_name DOMAIN_NAME=tas-tb92.ipclab.cisco.com;
AUTH_REALM_ID=tb92-ciscolab; AUTH_REQD=N;

add serving_domain_name DOMAIN_NAME=sia-SYS92CA146.ipclab.cisco.com;
AUTH_REALM_ID=tb92-ciscolab; AUTH_REQD=N;
```

Step 7 Control the trunk group in service.

```
control trunk_grp id=6997; mode=FORCED; target_state=ins;
```

Step 8 Control the SIP element in service.

```
control sip_element tsap_addr=sia-SYS16CA146.ipclab.cisco.com:5060; target_state=INS;
```

Step 9 If you want to use the LNP feature, enter the applicable digit string.

```
add ported_office_code digit_string=216-555;
```

Step 10 If you want to use the RACF feature, enter the applicable UAN domain name. The value must match the host part of the public_id parameter in the bts_public_id table for this subscriber (see Step 2 in "Subscriber Provisioning" section on page 5-196).

```
add feature_config fname=RACF; type=uan_domain_name; datatype=string;
value=sia-SYS16CA146.ipclab.cisco.com;
```

Subscriber Provisioning

Note The system does not use the dn2subscriber table for TAS subscribers. You do not need to provision this table.

Step 1 Add subscribers with term-type=tas. You must enter a DN for the subscriber ID.

```
add subscriber id=216-555-2905; sub_profile_id=tb92; term_type=TAS;
```

Step 2 Link the subscriber ID to the subscriber public ID. You can also assign a specific ring type to the subscriber.

```
add bts_public_id sub_id=216-555-2905;
public_id=2165552905@sia-SYS16CA146.ipclab.cisco.com; ring_type=R1;
```

Operations

For a call that involves TAS services, the billing record contains

- The TAS-mode service ID with feature data values indicating origination, termination, or origination + routing processing.
- The IMS Charging Identifier (ICID) in the call detail block. The ICID value is the one that was received in the Invite message of the call.

For detailed billing field descriptions, see the *Billing Guide*.

Terminating White and Black List Provisioning

To provision the Terminating White and Black List for TDISC subscribers, use the following attribute and table:

- terminating-wb-list attribute in cos-restrict table
- terminating-wb-list table

terminating-wb-list attribute in cos-restrict table

To provision the Terminating White and Black List, configure the terminating-wb-list attribute in the cos-restrict table. The TERMINATING-WB-LIST attribute has the following token name, type, and values:

Token	PK/FK	Type	Values
TERMINATING-WB-LIST		CHAR	NONE/ BLACK/ WHITE

If the terminating-wb-list token is set to

- NONE—All incoming calls are blocked.
- WHITE—An incoming call is accepted if the calling number is found in the list. All other incoming numbers are blocked.
- BLACK—An incoming call is blocked if the calling number is found in the list. All other incoming numbers are allowed.

terminating-wb-list table

The terminating-wb-list table has the following tokens:

Token	PK/FK	Type	Values
COS-RESTRICT-ID	PK/FK	CHAR/VAR	
DIGIT-STRING	PK	CHAR	1–14 NUMERIC DIGITS

- The COS-RESTRICT-ID token is the ID of the cos-restrict table that contains the terminating-wb-list attribute.

  After adding the cos-restrict id, you need to associate the id to a POP. See the Provisioning Steps section for more information.
- The DIGIT-STRING token is the DN (1–14 digits) specified to be blocked or accepted.

Provisioning Steps

This feature can be configured only for TDISC subscribers. To provision TDISC subscribers, see the Temporary Disconnect section in the *Cisco BTS 10200 Softswitch Provisioning Guide*.

Step 3 Add the cos-restrict id and the Terminating White List to the cos-restrict table.

```
add cos-restrict id=<cos-res-id>; terminating-wb-list= [NONE | WHITE | BLACK];
```

```
add cos-restrict id=T-COS-R; terminating-wb-list=WHITE;
```

Step 4 Associate cos-restrict to a POP.

```
add pop id=<id>; temp-disc-cos-restrict-id=<cos-res-id>;

add pop id=POP1; temp-disc-cos-restrict-id=T-COS-R;
```

Step 5 Add the cos-restrict-id and the allowed DN to the White List in the terminating-wb-list table.

```
add terminating-wb-list; cos-restrict-id= <cos-res-id>; digit-string=<value>;

add terminating-wb-list; cos-restrict-id= T-COS-R; digit-string=206-622-1801;
```

The cos-restrict-id provisioned in terminating-wb-list table must be the temp-disc-cos-restrict-id specified in the POP table.

Use the following additional CLI commands while provisioning the Terminating White and Black List Screening feature:

- Use the **show** command to verify that the cos-restrict id and digit-string were added to the terminating-wb-list.

  ```
  show terminating-wb-list;
  ```

- Use the **delete** command to delete the provisioned terminating-wb-list table.

  ```
  delete terminating-wb-list; cos-restrict-id=<cos-res-id>; digit-string=<value>;
  ```

- Use the **show**, **add**, **change**, **delete** commands as given below to verify, add, change, or delete the cos-restrict table. For a complete list of CLI commands used with the cos-restrict table, see the Cisco BTS 10200 Softswitch CLI Database.

  ```
  show cos-restrict id=<cos-res-id>;terminating-wb-list= [NONE | WHITE | BLACK];
  add cos-restrict id=<cos-res-id>;terminating-wb-list= [NONE | WHITE | BLACK];
  change cos-restrict id=<cos-res-id>;terminating-wb-list= [NONE | WHITE | BLACK];
  ```

CHAPTER 6

Announcements, Centrex, MLHG, Voice Mail, and ENUM

Revised: July 2010, OL-23040-01

Introduction

This chapter discusses the announcement Centrex, MLHG, Voice Mail, and ENUM features supported by the BTS 10200.

The BTS 10200 supports announcement features by sending requests to a customer-supplied announcement server. The BTS generates a request in response to either of the following:

- A call was released (did not go through), and an accompanying release cause code is activated on the BTS. The BTS 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 for servers details. You supply the announcement server .

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).

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*

You can link any supported cause code to any announcement ID; you can link an announcement ID to an audio file. BTS triggers the recording to play when a cause code activates. *Release Cause Codes and Announcement IDs* shows default mapping of cause codes to announcement IDs and files. Use command-line interface (CLI) commands to provision the following changes to 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).

Announcements

You can provision all calls to a directory number (DN) to be routed 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 *Release Cause Codes and Announcement IDs*.

Table 6-1 has steps to provision the BTS to support an announcement server.

Table 6-1 Announcement Server Provisioning Steps

	Task	Description and CLI Command
Step 1	Adding MGW profiles.	A profile is a template for provisioning MGWs by vendor. It has settings for communications between the BTS Call Agent (CA) and each type of MGW. Several tokens have values that can be overwritten after the CA queries the MGW for supported capabilities. If the MGW returns a different value from that provisioned, the returned value automatically replaces it. If necessary, change the value of other keepalive tokens in the mgw-profile table. `add mgw-profile id-as5400; vendor=Cisco; description=Announcements;`
Step 2	Adding MGWs.	The MGW table has information about each MGW the CA manages. Address the MGW uniquely by domain name, IP address, or TSAP address. The MGW table has the following associated commands: • RGW—provisions a residential gateway, with the type token set to RGW • TGW—provisions a trunking gateway, with the type token set to TGW. Both commands provision the MGW table, but you can use them to provide user security to individuals. `add mgw id=c5400.131; tsap-addr=AnnGW DNS/IP; call-agent-id=CA101; mgw-profile-id=as5400; type=tgw; ans=y;`
Step 3	Adding trunk group profiles.	The Announcement Trunk Profile (annc-tg-profile) table is required for interactive voice response (IVR) trunks. `add annc-tg-profile id=1;ANNC=Y;IVR=N; LOCAL_TRUNK_SELECTION=Y;`
Step 4	Adding trunk groups.	`add trunk-grp id=999; call-agent-id=CA166; tg_type=ANNC; cost=1; MGCP_PKG_TYPE=TCL_CISCO; tg-profile-id=1;`
Step 5	Adding terminations.	`add termination prefix=S0/DS1-2/; port-start=1; port-end=24; type=trunk; mgw-id=c5400.131;`
Step 6	Adding trunks.	`add trunk termination-prefix=S0/DS1-1/; termination-port_start=1; termination-port_end=24; cic_start=1; cic_end=24; tgn-id=999; mgw-id=c5400.131;`
Step 7	Adding routes.	`add route id=rt1_annc; lcr=y; tgn1-id=999;`
Step 8	Adding route guides.	`add route-guide id=annc1_rg; policy-type=ROUTE; policy-id=rt1_annc;`

Table 6-1 Announcement Server Provisioning Steps (continued)

	Task	Description and CLI Command
Step 9	Adding announcements.	The Announcement (annc) table holds routing information to get to an announcement. An announcement plays if a call cannot connect. BTS comes with default announcement audio files, but a you can create and load custom announcement files. Files are saved and stored on the service provider's announcement server. Use intercept announcements when calls need special treatment. **Note** Type underscores (_) for announcement file names. `add announcement id=500; type=SYSTEM; announcement-file=iann_id_500.au; route-guide-id=annc1_rg;`
Step 10	Adding release causes.	The Release Cause (release-cause) table is an internal table call processing uses to map an SS7 release cause to an announcement ID. This table is preprovisioned, but you can modify it. `add release-cause id=1110; annc-id=0500;`
Step 11	Placing MGWs in service.	`control mgw id=5400.131; target-state=INS; mode=FORCED; status mgw id=c5400.131;`
Step 12	Placing trunk groups in service.	`control trunk-gp id=1;mode=forced;target-state=ins;`
Step 13	Preparing subscriber trunk terminations for service.	`equip trunk-termination tgn-id=13; cic=all;`
Step 14	Placing subscriber trunk terminations in service.	`control trunk-termination tgn-id=13; cic=all; target-state=INS; mode=FORCED; status trunk-termination tgn-id=13; cic=all;`

Centrex Group

Table 6-2 has steps to provision the BTS to connect to a Centrex group.

Table 6-2 Centrex Provisioning Steps

	Task	Description and CLI Command
Step 1	Adding MGW profiles.	A profile is a template for provisioning MGWs by vendor. It has settings for communications between the BTS Call Agent (CA) and each type of MGW. Several tokens have values that can be overwritten after the CA queries the MGW for supported capabilities. If the MGW returns a different value from that provisioned, the returned value automatically replaces it. If necessary, change the value of other keepalive tokens in the mgw-profile table. `add mgw-profile id=IAD2421; vendor=cisco;`
Step 2	Adding MGWs.	The MGW table has information about each MGW the CA manages. Address the MGW uniquely by domain name, IP address, or TSAP address. The MGW table has the following associated commands: • RGW—provisions a residential gateway, with the type token set to RGW • TGW—provisions a trunking gateway, with the type token set to TGW. Both commands provision the MGW table, but you can use them to provide user security to individuals. `add mgw id=c2421.192; call-agent-id=CA101; mgw-profile-id=IAD2421; type=rgw`
Step 3	Adding terminations.	`add termination prefix=aaln/S1/; port-start=1; port-end=16; type=line; mgw-id=c2421.192;`
Step 4	Adding custom dial plan profiles.	The Custom Dial Plan Profile (custom-dial-plan-profile) table defines custom dial plan IDs (CDP IDs) assigned to Centrex groups. `add custom-dial-plan-profile id=Cisco_Plan;`
Step 5	Adding custom dial plans.	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. `add custom-dial-plan id=cdp1; digit-string=7; nod=pots-access; cat-string=11111111;`
Step 6	Adding digit maps.	POTS subscribers use a public dialing plan. Centrex subscribers use a customized dialing plan. `add digit-map id=ctxg1; digit-pattern=0|3xx|9|*xx;`
Step 7	Adding subscriber profiles.	`add subscriber-profile id=ctxgspf; digit-map-id=ctxg1; dial-plan-id=dp1; pop-id=1;`

Table 6-2 Centrex Provisioning Steps (continued)

	Task	Description and CLI Command
Step 8	Changing POPs.	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. `change pop id=1; cnam_option=local`
Step 9	Adding main subscribers.	The Subscriber (subscriber) table defines subscriber or subscriber group characteristics in a CA. Set up the following terminations as subscribers: • any termination reached by a DN • any termination that can originate in the primary CA • all terminations to customers When the send-bdn-as-cpn token is Y, the subscriber sends the billing DN as the CPN. All terminations in the hunt group send the same DN as the main subscriber in the MLHG. `add subscriber id=sub1; category=CTXG; name=main-sub; dn1=123-456-7890; sub-profile-id=ctxgspf;`
Step 10	Adding Centrex groups.	Both CAs and POTS/Centrex/Tandem (PTC) FSs 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. `add centrex-grp id=cisco-ctxg; cdp-id=cdp1; call-agent-id=CA101;main-sub-id=sub1;`

Table 6-2 Centrex Provisioning Steps (continued)

	Task	Description and CLI Command
Step 11	Adding subscribers to Centrex groups.	`change subscriber id=sub1; ctxg-id=cisco-ctxg;`
Step 12	Adding services.	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. You can group up to ten features into a service, and up to fifty services per subscriber. `add service id=3; fname1=CDP; fname2=CFU;`
Step 13	Adding subscriber service profiles.	The Subscriber Service Profile (subscriber-service-profile) table links services to subscribers. `add subscriber-service-profile sub-id=sub1; service-id=3;`
Step 14	Adding subscribers.	The Subscriber (subscriber) table defines subscribers and subscriber groups on a CA. Set up the following as subscribers: • termination numbers reached by DNs • termination numbers originating in the CA • termination numbers to customers, such as MLHG or Centrex `add subscriber id=sub2; category=ctxg-individual; name=Richardson2; dn1=469-255-1231; term-id=aaln/S1/4; mgw-id=c2421.192; sub-profile-id=ctxgspf; ctxg-id=cisco-ctxg;` Table 3-6 lists subscriber types and their required tokens. **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.
Step 15	Adding extensions for subscribers.	The Ext2subscriber (ext2subscriber) table is populated when a Centrex subscriber is created to map extensions to subscriber IDs. `add ext2subscriber ctxg-id=cisco-ctxg; ext=332; sub-id=sub2;`
Step 16	Adding subscriber service profiles.	The Subscriber Service Profile (subscriber-service-profile) table links services to subscribers. `add subscriber-service-profile sub-id=sub2;service-id=3;`
Step 17	Adding 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. `add cpsg id=cisco; tcprk=100; ctxg-id=cisco-ctxg;`
Step 18	Placing MGWs in service.	`control mgw id=c2421.192; target-state=INS; mode=forced;`
Step 19	Preparing subscriber trunk terminations for service.	`equip subscriber-termination id=c2421.192;`
Step 20	Placing subscriber trunk terminations in service.	`control subscriber-termination id=c2421.192;`

MLHG

Table 6-3 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.

The following concerns multi-line hunt group operation in a BTS with call forward services:

Table 6-3 Multiline Hunt Group Provisioning Steps

	Task	Description and CLI Command
Step 1	Ensuring prerequisites are provisioned.	Ensure the following are already provisioned your network: • pop • mgw-profile • dial-plan-profile • dial-plan • subscriber-profile
Step 2	Adding MGWs.	The MGW table has information about each MGW the CA manages. Address the MGW uniquely by domain name, IP address, or TSAP address. The MGW table has the following associated commands: • RGW—provisions a residential gateway, with the type token set to RGW • TGW—provisions a trunking gateway, with the type token set to TGW. Both commands provision the MGW table, but you can use them to provide user security to individuals. `add mgw id=c2421.192; call-agent-id=CA146; mgw-profile-id=IAD2421; type=rgw;`
Step 3	Adding MLHG terminations.	`add termination prefix=aaln/S1/; port-start=1; port-end=16; type=line; mgw-id=c2421.192;`
Step 4	Adding main subscribers to the MLHG.	Setting category = mlhg identifies this subscriber as the main subscriber of a MLHG. `add subscriber id=sub1; sub-profile-id=mlhgprof; name=mlhg1-main; dn1=212-555-7777; term-type=none; category=mlhg;`
Step 5	Adding MLHGs and assigning main subscribers.	`add mlhg id=mlhg1; call-agent-id=CA146; main-sub-id=sub1;`
Step 6	Assigning main subscribers to MLHGs.	`change subscriber id=sub1; mlhg-id=mlhg1;`

Table 6-3 Multiline Hunt Group Provisioning Steps (continued)

	Task	Description and CLI Command
Step 7	Addinga terminals (physical lines) to MLHGs.	Additional considerations: • Provision the category as mlhg-individual or mlhg-pref-indiv. • Set up any termination reachable through an individual DN as subscribers. • Set up terminations to physical lines with unique term-ids. • Set up terminations to make outgoing calls as subscribers. `add subscriber id=sub2; category=mlhg-individual; grp=y; name=Richardson2; dn1=972-555-1232; term-id=aaln/S1/4; mgw-id=c2421.192; sub-profile-id=mlhgprof; mlhg-id=mlhg1;`
Step 8	Adding MLHG terminals.	`add mlhg-terminal mlhg-id=mlhg1; terminal=17; term-id=aaln/S1/4; mgw-id=c2421.192;` `add mlhg-terminal mlhg-id=mlhg1; terminal=102; term-id=aaln/S1/5; mgw-id=c2421.192;`
Step 9	Placing MGWs in service.	`control mgw id=c2421.192; target-state=INS; mode=forced;`
Step 10	Preparing subscriber trunk terminations for service.	`equip subscriber-termination id=*@c2421.192;`
Step 11	Placing subscriber trunk terminations in service.	`control subscriber-termination id=*@c2421.192; target-state=INS; mode=forced;`

Hunt List

Table 6-4 provides steps to provision a hunt list and add subscribers to it. It lists example CLI commands with mandatory tokens.

Table 6-4 Preferential Hunt List Provisioning Steps

	Task	Description and CLI Command
Step 1	Adding hunt lists to MLHGs.	`add mlhg-pref-list id=prefhuntlist33; mlhg-id=mlhg1;`
Step 2	Assigning subscribers hunt lists.	`change subscriber id=sub2; mlhg-pref-list-id=prefhuntlist33;`
Step 3	Assigning positions to phones in hunt lists.	`change mlhg-pref-list id=prefhuntlist33; mlhg-id=mlhg1; rel-terminal1=102; rel-terminal2=17;`

Enhanced MLHG Feature Provisioning

This section explains how to provision the Enhanced MLHG feature. Perform the steps detailed in this section in the sequence shown.

Note The commands shown in this section are examples; you should provision values that are appropriate for your network and service offerings. CLI syntax allows you to enter commands in uppercase or lowercase. In most cases, it allows you to enter hyphens (-) or underscores (_) interchangeably (exceptions, if any, are noted in those specific procedures.)

A complete list of tokens for each CLI table, allowed values, default values, and detailed descriptions for each token, are provided in the Cisco BTS 10200 Softswitch CLI Database.

SUMMARY STEPS

Note Ensure that all prerequisites listed in Step 1 of DETAILED STEPS are provisioned.

add mgw

add termination

add subscriber

add mlhg

change subscriber

add mlhg-terminal

control mgw

equip subscriber-termination

control subscriber-termination

DETAILED STEPS

	Command	Purpose
Step 1	Ensure that all prerequisites are provisioned	Ensure the following are already provisioned in your network: • pop • mgw-profile • dial-plan-profile • dial-plan • digit-map • ndc, exchange-code, office-code • subscriber-profile
Step 2	`add mgw id=c2421.192; call-agent-id=CA146; mgw-profile-id=IAD2421; type=rgw; tsap-address=tsap-addr=190.101.100.61`	Adds MGW.
Step 3	`add termination prefix=aaln/S1/; port-start=1; port-end=16; type=line; mgw-id=c2421.192;`	Adds MLHG terminations.
Step 4	`add subscriber id=sub1; sub-profile-id=mlhgprof; name=mlhg1-main; dn1=212-555-7777; term-type=none; category=mlhg;`	Adds main subscriber to the MLHG.

	Command	Purpose
Step 5	`add mlhg id=mlhg1; call-agent-id=CA146; main-sub-id=sub1; start_rollover_timer=Y; num_rings_before_rollover=25; max_rollover_terminals=220; last_term_dn_as_rdn=Y;`	Adds MLHG and specifies parameters for the enhanced MLHG feature. The **start_rollover_timer** parameter enables the hunt for the next idle terminal. This parameter takes a boolean variable (Y or N). The default value for this parameter is N. The **num_rings_before_rollover** parameter specifies the number of rings applied to a terminal; following after BTS 10200 hunts for an idle terminal. This parameter can take values from 1 to 30. The default value for this parameter is 5. The **max_rollover_terminal** parameter specifies the number of idle state terminals that must be hunted before the call is rolled over to voicemail (if this service is configured). The **last_term_dn_as_rdn** parameter specifies the DN of the last hunted terminal to be used as the RDN before rolling over to voicemail (if this service is configured). **NOTE**: BTS 10200 internally determines the ring time (in seconds) of a terminal using the ROLLOVER_INTERVAL parameter. This parameter is calculated as shown below: **num_rings_before_rollover** * 6 The ROLLOVER_INTERVAL can take values from 6-180. The default value of this parameter is 30 seconds. The ROLLOVER_INTERVAL parameter cannot be configured by the user.
Step 6	`change subscriber id=sub1; mlhg-id=mlhg1;`	Assigns main subscribers to MLHGs.
Step 7	`add subscriber id=sub2; category=mlhg-individual; grp=y; name=Richardson2; dn1=972-555-1232; term-id=aaln/S1/4; mgw-id=c2421.192; sub-profile-id=mlhgprof; mlhg-id=mlhg1;`	Adds terminals (physical lines) to MLHGs.
Step 8	`add mlhg-terminal mlhg-id=mlhg1; terminal=17; term-id=aaln/S1/4; mgw-id=c2421.192;` `add mlhg-terminal mlhg-id=mlhg1; terminal=102; term-id=aaln/S1/5; mgw-id=c2421.192;`	Adds MLHG terminals.
Step 9	`control mgw id=c2421.192; target-state=INS; mode=forced;`	Places MGWs in service.
Step 10	`equip subscriber-termination id=*@c2421.192;`	Prepares subscriber trunk terminations for service.
Step 11	`control subscriber-termination id=*@c2421.192; target-state=INS; mode=forced;`	Places subscriber trunk terminations in service.

MLHG Provisioning for SIP Endpoints

This section demonstrates how to provision SIP subscribers to be members of a MLHG. It is similar to the procedure for provisioning MGCP and NCS subscribers in a MLHG, but includes several values specific to SIP subscribers.

Step 1 Office provisioning—If you have not already provisioned the following office parameters on your system, enter commands similar to those in the following examples.

```
add call_agent id=CA146; tsap_addr=prica88;

add dial_plan_profile id=BASIC_DPP;

add pop id=1; state=TX; country=USA; timezone=CST;

add serving_domain_name domain_name=prica88; auth_reqd=N;

add destination dest_id=DEST_LOCAL; call_type=LOCAL; route_type=SUB;

add subscriber_profile id=SUB_PROFILE; pop_id=1; dial_plan_id=BASIC_DPP;
```

Step 2 Office code and dial plan provisioning—If you have not already provisioned office code and dial plan parameters on your system, enter commands similar to those in the following examples.

```
add ndc digit_string=777;

add exchange_code ndc=777; ec=555;

add office_code ndc=777; ec=555; dn_group=xxxx; call_agent_id=CA146;

add dial_plan id=BASIC_DPP; digit_string=777555; min_digits=10; dest_id=DEST_LOCAL;
```

Step 3 Add the main subscriber for the MLHG (the subscriber associated with the pilot number for the MLHG). This command example is for a SIP-based main subscriber.

Note Enter term_type=SIP if you want to have a physical SIP endpoint associated with the pilot number. Enter term_type=NONE if you do not want a physical endpoint associated with the pilot number. Enter category=mlhg to identify this subscriber as the main subscriber for the MLHG. (The system does not allow you to enter the MLHG ID yet. This will be done in a later step.)

```
add subscriber id=7775559900; name=7775559900; billing_dn=7775559900; dn1=7775559900;
sub_profile_id=SUB_PROFILE; term_type=SIP; policy_id=NULL; aor_id=7775559900@prica88;
category=MLHG;
```

Step 4 Add an individual subscriber for the MLHG. This command example is for a SIP-based MLHG individual subscriber. Repeat this command as needed to provision additional subscribers.

Note Enter category=mlhg_individual to identify this subscriber as a member of the MLHG. (The system does not allow you to enter the MLHG ID yet. This is done in a later step.)

```
add subscriber id=7775559901; name=7775559901; billing_dn=7775559901; dn1=7775559901;
sub_profile_id=SUB_PROFILE; term_type=SIP; policy_id=NULL; aor_id=7775559901@prica88;
category=MLHG_INDIVIDUAL;
```

Step 5 Enter the following command to create the MLHG and identify the main subscriber as the subscriber you provisioned in Step 3.

```
add mlhg id=MLGROUP0; call_agent_id=CA146; main_sub_id=7775559900;
```

Step 6 Link the main subscriber record and all of the individual subscriber records to the MLHG.

```
change subscriber id=7775559900; mlhg_id=MLGROUP0;

change subscriber id=7775559901; mlhg_id=MLGROUP0;
```

Step 7 If the main subscriber is associated with a physical endpoint (and you entered term_type=SIP in Step 3), add the terminal. You must enter term_type=SUB_ID and include the specific subscriber ID for the SIP endpoint. (However, if you entered term_type=NONE in Step 3, the main subscriber is virtual and cannot be a terminal; in that case, omit this step and do not add a mlhg-terminal for the main subscriber.)

```
add mlhg_terminal mlhg_id=MLGROUP0; terminal=1; term_type=SUB_ID;
sub_id=7775559900;
```

Step 8 Add a terminal for each MLHG individual. If you entered term_type=SIP in Step 4, you must enter term_type=SUB_ID and include the specific subscriber ID for the SIP endpoint.

```
add mlhg_terminal mlhg_id=MLGROUP0; terminal=2; term_type=SUB_ID;
sub_id=7775559901;
```

Note If you entered term_type=TERM in Step 4 (applicable to MGCP and NCS endpoints but not to SIP endpoints), you can enter either SUB_ID or TERM as the term_type, along with appropriate additional parameters, in the mlhg_terminal table.

Step 9 (Optional) If you want to provision a specific subscriber as a nonhunt line (so that calls to this DN do not invoke a hunt under any conditions), enter a command similar to this:

```
change subscriber id=7775559901; mlhg_id=MLGROUP0; mlhg_non_hunt_terminal=Y;
```

Tip The mlhg_non_hunt_terminal parameter is valid for MGCP, NCS, and SIP subscribers.

Step 10 (Optional) If you want the system to deliver calls to a SIP endpoint even when all MLHG lines are busy, enter a command similar to this:

```
change subscriber id=7775559901; mlhg_id=MLGROUP0; mlhg_sip_deliver_if_busy=Y;
```

Step 11 For each SIP subscriber, place the AOR in service.

```
change aor2sub aor_id=7775559900@prica88; status=INS;

change aor2sub aor_id=7775559901@prica88; status=INS;
```

MLHG Nonhunt

To support the MLHG Nonhunt feature, Cisco added to the Cisco BTS 10200 a new token (MLHG_NON_HUNT_TERMINAL), inserting it in the SUBSCRIBER table. The token MLHG_NON_HUNT_TERMINAL is initialized to N by default. This token only applies for subscribers that belong to the various MLHG categories (the subscriber should have a valid non-NULL MLHG_ID field).

You can set the token MLHG_NON_HUNT_TERMINAL to Y when you initially provision the subscriber or you can change it from the default (N) some time after you initially provision the subscriber.

Table 6-5 provides steps for provisioning a subscriber as a non-hunt subscriber. The table lists sample CLI commands with mandatory tokens.

Table 6-5 MLHG Non Hunt Provisioning Steps

	Task	CLI Command
Step 1	Determine the setting of the token MLHG_NON_HUNT_TERMINAL for the subscriber (sub1).	**show SUBSCRIBER ID=sub1;**
Step 2	Set the subscriber sub1 as a non-hunting subscriber.	**change SUBSCRIBER ID=sub1; MLHG_NON_HUNT_TERMINAL=Y;**
Step 3	Set the subscriber sub1 back to a hunting subscriber.	**change SUBSCRIBER ID=sub1; MLHG_NON_HUNT_TERMINAL=N;**

Note For complete CLI information, see the Cisco BTS 10200 Softswitch CLI Database.
For details on provisioning MLGH, see the *Cisco BTS 10200 Softswitch Provisioning Guide*.
For information on the MLHG feature, see Chapter 3: "Subscriber Features," in the *Cisco BTS 10200 Softswitch Network and Subscriber Feature Descriptions*.

Voice Mail

Table 6-6 provides steps to provision the BTS to support voice mail and automated attendant. It lists example CLI commands with mandatory tokens.

Table 6-6 Voice Mail Provisioning Steps

	Task	Description and CLI Command
Step 1	Adding trunk group profiles.	`add softsw-tg-profile id=10; protocol-type=SIP;`
Step 2	Adding trunk groups.	`add trunk-grp id=21; softsw-tsap-addr=ipunity.ipclab.cisco.com;5060; call-agent-id=CA146; tg-type=softsw; tg-profile-id=10; dial-plan-id=cdp1;`

Table 6-6 Voice Mail Provisioning Steps (continued)

	Task	Description and CLI Command
Step 3	Adding subscribers.	The Subscriber (subscriber) table defines subscribers and subscriber groups on a CA. Set up the following as subscribers: • termination numbers reached by DNs • termination numbers originating in the CA • termination numbers to customers, such as MLHG or Centrex `add subscriber id=VM; category=PBX; dn1=972-789-3000; tgn-id=21; sub-profile-id=sp1; term-type=TG;` Table 3-6 lists subscriber types and their required tokens. **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.
Step 4	Adding automated attendant subscribers.	Automated attendants manage incoming calls by answering them without a live operator. `add subscriber id=AA; category=PBX; dn1=972-789-4000; tgn-id=22; sub-profile-id=sp1; term-type=tg;`

ENUM

Table 6-7 provides steps to provision the BTS to support ENUM. It lists example CLI commands with mandatory tokens.

Table 6-7 ENUM Provisioning Steps

	Task	Description and CLI Command
Step 1	Configuring DNS servers.	Configure local DNS servers with ENUM server information; the BTS determines ENUM server IP addresses using DNS server SRV records. For example, the BTS in region1 normally communicates with enumSF1. The BTS sends ENUM queries to enumSF2 only when the ENUM servers pointed to by enumSF1 are unavailable.

Step 2	Adding ENUM profiles.	The BTS uses the ENUM PROFILE table to find which ENUM servers to communicate with.
		`add enum-profile id=privateENUM;`
		`ENUM_SERVER_DOMAIND=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`

Table 6-7 ENUM Provisioning Steps (continued)

	Task	Description and CLI Command

Step 3	Adding alternative ENUM profiles.	The BTS can resend the enum-query using when it receives a "no record found". Specify this by provisioning enum-profile records and pointing the NEXT_ENUM_PROFILE field in the enum-profile table to a new record.
		`add enum-profile id=carrierENUM; ENUM_SERVER_DOMAIND=region1.enumSF; TOP_LEVEL_DOMAIN=e164.sp2.com`
		`change enum-profile id=privateENUM;NEXT_ENUM_PROFILE=carrierENUM`

Step 4	Adding ENUM query profiles.	The DEFAULT-ENUM-PROFILE in the CA-CONFIG table specifies the profile used for ENUM queries. `add CA-CONFIG type=default-enum-profile;value=privateENUM;` **Note** Specify the ENUM-PROFILE-ID in the destination table. If the ENUM-PROFILE-ID in the destination table is set to NULL, use the DEFAULT-ENUM-PROFILE ID specified in the CA-CONFIG.
Step 5	Enabling ENUM routing.	Enable the ENUM dip for the destination. `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, define multiple ENUM-PROFILEs.
Step 6	Enabling ENUM to provide LNP.	The TCAP-based interface is prevented from retrieving LNP information from the SCP database. `Change CA-CONFIG type=ENUM-DB-LNP-CAPABLE;value=y;` • ENUM-DB-LNP-CAPABLE value=Y—disables TCAP for LNP • PERFORM-ENU M-ROUTING =Y—gets URI and LNP information from the ENUM server. Perform domain-based routing. If it fails, use LRN for routing. Get URI from ENUM server and LNP from SCP using TCAP interface. Perform domain-based routing. If it fails, use LRN for routing. • ENUM-DB-LNP-CAPABLE value=N—enables TCAP for LNP • PERFORM-ENU M-ROUTING =N—gets LNP information from the ENUM server. Perform routing based on the received LRN. Get LNP information from the SCP database using TCAP interface server. Perform routing based on the received LRN.

Table 6-7 ENUM Provisioning Steps (continued)

	Task	Description and CLI Command

Step 7	Specifying domain-based routing for 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.
		
		`add domain2route domain=bts-1b.region1.sp.net;route-type=RID;route_id=ROUTE-BTS1B`
		`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.
		
		`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.
		
		`add domain2route domain=region10.sp.net;route-type=RID;route_id=ROUTE-MGC`

Step 8	Enabling ENUM at the CA level.	`change CALL-AGENT-PROFILE ID=region1cms-1A;ENUM-SUPP=y;`

CHAPTER 7

Routes

Revised: July 2010, OL-23040-01

Introduction

This chapter describes how to provision the Cisco BTS 10200 Softswitch to communicate with another BTS, PSTN gateway, or another call agent.

Trunk Routing

Table 7-1 provides an example of the steps required to provision the BTS to communicate with an another BTS, 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 7-1 Trunk Routing Provisioning Steps

	Task	Description and CLI Command
Step 1	Adding trunk group profiles.	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. (Other trunk groups types use their own profiles.) `add softsw-tg-profile id=softprf1; protocol-type=sip-t; sipt-isup-ver=Q761_HONGKONG;`
Step 2	Adding trunk groups.	The Trunk Group (trunk-grp) table identifies the trunk group and maps it to the associated media gateway. `add trunk-grp id=1; softsw-tsap-addr=sia-trn2CA102.trnglab.cisco.com:5060; call-agent-id=CA101; tg-type=softsw; tg-profile-id=sspf1; cost=3; dial-plan-id=dp1;`

Table 7-1 Trunk Routing Provisioning Steps (continued)

	Task	Description and CLI Command
Step 3	Adding routes.	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. `add route id=siprt1; tgn1-id=1;`
Step 4	Adding call types and routes.	The Destination (destination) table defines call type and the routing information for dialed digits. `add destination dest-id=sip1; call-type=toll; route-type=route; route-guide-id=siprg1;`
Step 5	Adding dial plans.	Dial plans analyze, screen, and route calls based on dialed digits. The Dial Plan (dial-plan) table holds dial plan information types of calls. It defines valid dialing patterns and determines call routing. All records that share a common dial-plan-profile-id are considered a dial plan. `add dial-plan id=sub; digit-string=469-255; noa=national; dest-id=local_call;`
Step 6	Placing a trunk group in service.	`control trunk-gp id=1;mode=forced;target-state=ins;` **Note** There are no trunk terminations associated with BTS trunk groups because these are virtual trunks over IP.

Policy Routing

Table 7-2 provides steps to provision policy routing and lists example CLI commands with mandatory tokens.

Table 7-2 Policy Routing Provisioning Steps

	Task	Description and CLI Command
Step 1	Adding routes.	`add route id=dallas1; tgn1-id=dallas-tg; pfx-digits1=972; del-digits1=0;`
Step 2	Adding region profiles.	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. Digit patterns (digit-strings) can belong to a region, and originating regions make up a region profile (id). Use the value in the ca-config record as the default region where type=default-region. `add region-profile id=e911; digit-string=210-470; region=sanantonio;`

Table 7-2 Policy Routing Provisioning Steps (continued)

	Task	Description and CLI Command
Step 3	Adding 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. `add policy-odr id=odr_ID; digit-string=512; policy-type=tod; policy-id=tod102;`
Step 4	Adding policy originating line routing.	The Policy Originating Line Information (policy-oli) table performs routing based on the originating line information of the calling party number. `add policy-oli id=normalroute; oli=00; policy-type=tod; policy-id=holiday;` **Note** For the latest information on OLI, see http://www.nanpa.com.
Step 5	Adding 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. `add policy-percent id=texaspercent; begin-range1=1; end-range1=90; policy-type1=tod; policy-id1=tod001;`
Step 6	Adding policy POP 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. `add policy-pop id=car9999; pop-id=dallaspop; policy-type=tod; policy-id=tod101;`
Step 7	Adding 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. `add policy-prefix id=standard; prefix1=national; policy-type1=tod; policy-id1=tod01;` **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.

Table 7-2 Policy Routing Provisioning Steps (continued)

	Task	Description and CLI Command
Step 8	Adding 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. `add policy-region id=ca200; region=sanantonio; policy-type=tod; policy-id=tod101;`
Step 9	Adding policy TOD 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 `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	Adding 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. `add policy-nxx id=normalroute;`
Step 11	Adding route guides.	`add route-guide id=rg200; policy-type=tod; policy-id=tod101;`
Step 12	Adding destinations.	`add destination dest-id=dallasaustin; call-type=toll; route-type=route; route-guide-id=rg10;`
Step 13	Adding dial plans.	`add dial-plan id=sub; digit-string=972-671; noa=national; dest-id=richardson;`

911 Region 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.

Table 7-3 provides steps required to provision 911 routing and lists example CLI commands with mandatory tokens.

Table 7-3 911 Routing Provisioning Steps

	Task	Description and CLI Command
Step 1	Adding emergency and default 911 routes.	`add route id=e911-county1; tgn1-id=1;`
Step 2	Adding route guides.	`add route-guide id=e911rg; policy-type=region; policy-id=e911county; region-profile-id=e911;`
Step 3	Adding policy region routing and default routes.	`add policy-region id=e911county; region=county1; policy-type=route; policy-id=e911-county1;` **Note** If region is not available, derive it from the CPN by adding a route guide and adding a region profile for each NPA, NPA-NXX or full 10-digit DN.
Step 4	Adding destinations.	`add destination dest-id=e911dest; call-type=emg; route-type=route; route-guide-id=e911rg;`
Step 5	Adding dial plans.	`add dial-plan id=sub; digit-string=911; noa=national; dest-id=e911dest;`
Step 6	Adding subscriber profiles.	`add subscriber-profile id=subpf1; dial-plan-id=sub;`

Origin Dependent Routing (ODR)

The BTS supports ODR-based routing, where the call is routed using the CPN at NPA, NPA-NXX, or NPA-NXX-X(X)(X)(X). Table 7-4 provides steps required to provision ODR routing and lists example CLI commands with mandatory tokens.

Table 7-4 ODR Routing Provisioning Step

	Task	Description and CLI Command
Step 1	Adding route guides.	`add route-guide id=e911rg; policy-type=odr; policy-id=e911odr;`
Step 2	Adding policy region routing and default routes.	`add route id=e911npa214; tgn1-id=1;`
Step 3	Adding origin dependent routes for each NPA.	`add policy-odr id=e911odr; digit-string=214; policy-type=route; policy-id= e911npa214;`

ODR and Region-Based Routing

Use ODR and region-based routing to perform more complex routing. Table 7-5 provides steps required to provision ODR and region-based routing and lists example CLI commands with mandatory tokens.

Table 7-5 ODR and Region-Based Routing Provisioning Steps

	Task	Description and CLI Command
Step 1	Adding route guides.	`add route-guide id=e911rg; policy-type=odr; policy-id=e911odr;`
Step 2	Adding calls from the 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	Adding policy region routing for each county specific route.	`add policy-region id=e911county; region=county1; policy-type=route; policy-id=e911-county1;`

Equal Access Routing

This section defines how to set up a subscriber and the BTS 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 BTS Subscriber table. This procedure assumes that all residential gateways, trunking gateways, and all other translations support the commands below.

Table 7-6 provides steps required to provision equal access routing and lists example CLI commands with mandatory tokens.

Table 7-6 Equal Access Routing Provisioning Steps

	Task	Description and CLI Command
Step 1	Adding 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	Assigning PIC1 to interlata and international carrier PICs.	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	Adding interlata dummy routes.	`add route id=EA-IXC;lcr=n;tgn1-id=null;`
Step 4	Adding route guides.	`add route-guide id=EA-IXC;policy-type=route;policy-id=EA-IXC;`
Step 5	Adding destinations for interlata calls.	`add destination dest-id=Interlata-IXC;call-type=InterLata;route-type=rout; route-guide-id=EA-IXC;`
Step 6	Adding dial plan entries for 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	Adding international dummy routes.	`add route id=INTL-IXC;lcr=n;tgn1-id=null`

Table 7-6 Equal Access Routing Provisioning Steps (continued)

	Task	Description and CLI Command
Step 8	Adding international route guides.	`add route-guide id=INTL-IXC;policy-type=route;policy-id=INTL-IXC;`
Step 9	Adding international destinations.	`add destination dest-id=INTL-IXC;call-type=INTL;route-type=route;route-guide-id=INTL-IXC;`
Step 10	Adding international dial plans for country codes.	`add INTL-DIAL-PLAN ID=RTP01; CC=34; MIN-DIGITS=6; MAX-DIGITS=16;dest-id=INTL-IXC`

Step 11	Adding SS7 Feature Group D (FGD) equal access trunk groups 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;CLLI=RLGHIXC;`
		Note Consult GR-394 for SS7 parameters that must be sent in SS7 messages through the FGD interface.

Step 12	Adding 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 the trunks will be in service when ready.
Step 13	Adding routes 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	Adding the route guides 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	Adding route guides 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	Adding circuit codes (if 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 above differ based on IXC carrier; however, this table is datafilled only if there are special requirements. BTS default values work for most IXCs.

CHAPTER 8

Release Cause Codes and Announcement IDs

Revised: July 2010, OL-23040-01

Introduction

This chapter discusses release cause codes and announcement IDs supported by BTS 10200.

Table 8-1 lists Announcement IDs and shows default mapping of release cause codes to announcement IDs and filenames. For Cisco Announcement Servers (Cisco AS5xxx series), the announcement ID is the same as the number in the announcement filename, except where noted.

Text 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.

A default tone is what the user hears instead of an announcement if an announcement is not provisioned. You cannot change the default tone.

Note Release cause code to announcement mappings are valid for the current release. Third party vendors may change their announcement text and numbering at any time. Check with your vendor or Cisco account team for updates.

Caution Enter Cisco-supplied announcement filenames with an underscore (_) as shown or the command does not process.

Table 8-1 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
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

Table 8-1 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
18	CA_CCITT_NE_CAUSE_ NO_USERRESP				Not used	Reorder
19	CA_CCITT_NE_CAUSE_ ALERT_NOANSWER				Not used	Reorder
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 **Note** Cisco AS5xxx Ann ID is 118	(c) 301 300, 59	The number you dialed is not in service. Please check the number and dial again. (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. **Note** 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_UNALLOCATE D	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

Table 8-1 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
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
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 _SWITCHEQUIP_ 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

Table 8-1 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
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					
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_ RESTR_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					

Table 8-1 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
68	Not used					
69	CA_CCITT_SNI_CAUSE _REQFACILITY _UNIMPLEMENTED				Not used	Reorder
70	CA_CCITT_SNI_CAUSE _RESTDIGITAL _BEARERCAP _ONLYAVAIL				Not used	Reorder
71	Not used					
72	Not used					
73	CA_GRBAF_SNI_ TRAFFIC_PARAM_ COMBO_UNSUPPORT				Not used	Reorder
74 through 77	Not used					
78	CA_GRBAF_SNI_AAL_ PARAM_UNSUPPORT				Not used	Reorder
79	CA_CCITT_SNI_CAUSE _UNSPECIFIED				Not used	Reorder
80	Not used					
81	CA_CCITT_IM_CAUSE _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 _IDENTIFIEDCHAN _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 _SUSP_CALLID _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 _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 _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 _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 _USER_NOT_CUG _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 _INCOMPAT_DEST	12	ann_id_12.au	12	We're sorry, your call did not go through. Please try your call later.	Reorder

Table 8-1 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
89	CA_GRBAF_IM_CAUSE _INVALID_ENDPOINT _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 _CUG_NOT_EXIST	12	ann_id_12.au	12	We're sorry, your call did not go through. Please try your call later.	Reorder
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

Table 8-1 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
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					
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

Table 8-1 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
162	CA_CP_CAUSE_IVALID_ CAC_RECD	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_FEATUR E_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
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. (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

Table 8-1 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
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
174	CA_CP_CAUSE_ PREFIX0_PRESENT **Note** 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 183 Not used						
184	CA_CP_CAUSE_LONG_D URATION_CALL_ CUTOFF				Not used	None
185 through 1002 Not used						
1003	FS_CAUSE_SERVICE_DE NIED	**Note**	**Note** This release cause can be mapped to an announcement using the Add release-cause command. However, there is no default mapping. Example (optional): add release-cause id=1003; annc-id=0315;			Reorder
1004	FS_CAUSE_SERVICE_UN AVAIL	**Note**	**Note** This release cause can be mapped to an announcement using the Add release-cause command. However, there is no default mapping. Example (optional): add release-cause id=1004; annc-id=0315;			Reorder
1005 not used						
1006	FS_CAUSE_PLAY_REOR DER_ANNC	625	ann_id_625.au	625	**Note** Customer defines the announcement based on their markert requirement	
1007	FS_CAUSE_PLAY_PST_A NNC	626	ann_id_626.au	626	**Note** Customer defines the announcement based on their market requirement.	
1008	FS_CAUSE_USER_BUSY _ANNC	627	ann_id_627.au	627	**Note** Customer defines the announcement based on their market requirement.	
1009 through 1049 Not used						

Table 8-1 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
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
1052	FS_CAUSE_CODE_ INVALID_ENTRY	124	ann_id_24.au **Note** 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. (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. (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. (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

Table 8-1 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
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? (i) We're sorry. Due to the telephone company facility trouble your trace cannot be completed at this time. Please try again later.	Reorder
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. (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 8-1 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. (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. (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 8-1 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. (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 (i)30000	Then feature you have tried has been used incorrectly. Please try again. (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 (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 (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. (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 (i)30003	The feature you have used is temporarily locked up due to repeated password entry failures. You may retry the feature again later. (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 (i)30004	You have no restrictions placed on outgoing calls.	Confirm
1115	FS_CAUSE_OCB_K1	505	ann_id_505.au	(c) 505 (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 8-1 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 (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 (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 (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 (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 (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 (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 (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 (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 (i)3018	You are trying to program call forwarding to an invalid or restricted number. (c) You are trying to program forwarding to an invalid or restricted number.	Reorder

Table 8-1 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
1130	FS_CAUSE_CF_INT_ DIFF_NUM	519	ann_id_519.au	(c) 519 (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 (i)3020	You have successfully activated call waiting deluxe.	Confirm
1142	FS_CAUSE_CWD_ DEACT_SUCC	521	ann_id_521.au	(c) 521 (i)3021	You have successfully deactivated call waiting deluxe.	Confirm
1143	FS_CAUSE_CWD_ INT_SUCC	522	ann_id_522.au	(c) 522 (i)3022	Your call waiting deluxe has been successfully activated	Confirm
1144	FS_CAUSE_CWD_ ACT_FAIL	523	ann_id_523.au	(c) 523 (i)3023	You are not successful in activating call waiting deluxe. Please try again. (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 (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 (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. (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. (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. (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 8-1 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 (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. (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 (c)364	Your Anonymous Call Rejection service is now off. Incoming calls will not be checked for number privacy status. 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 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.	Confirm ation
1171	FS_CAUSE_VM_BUSY_N 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 O_ANS_ACT_ALREADY_ ACT	602	ann_id_602.au	628	Voice Mail service is already activated on your phone	Reorder

Table 8-1 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
1173	FS_CAUSE_VM_BUSY_NO_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_NO_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_NO_ANS_DEACT_ALREADY_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_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_ACT_FAIL	607	ann_id_607.au		Voice Mail service could not be successfully activated on your phone.	Reorder
1182	FS_CAUSE_VM_ALWAYS_ACT_ALREADY_ACT	608	ann_id_608.au		Voice Mail service is already activated on your phone.	Reorder
1183	FS_CAUSE_VM_ALWAYS_DEACT_SUCC	609	ann_id_609.au		Voice Mail service has been successfully deactivated on your phone.	Confirmation
1184	FS_CAUSE_VM_ALWAYS_DEACT_FAIL	610	ann_id_610.au		Voice Mail service could not be successfully deactivated on your phone.	Reorder
1185	FS_CAUSE_VM_ALWAYS_DEACT_ALREADY_DEACT	611	ann_id_611.au		Voice Mail service is already deactivated on your phone.	
1186 through 1189 Not used						
1190	VS_CAUSE_VM_ACCESS_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	629	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_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.	Confirm

Table 8-1 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
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 8-1 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_SUCC	650	ann_id_650.au		Call Forwarding Combination feature has successfully been activated on your phone.	Confirmation
1261	FS_CAUSE_CFC_ACT_FAIL	651	ann_id_651.au		Call Forwarding Combination could not be activated on your phone.	Reorder
1262	FS_CAUSE_CFC_DEACT_SUCC	652	ann_id_652.au		Call Forwarding Combination feature has been deactivated on your phone.	Confirmation
1263	FS_CAUSE_CFC_DEACT_FAIL	653	ann_id_653.au		Call Forwarding Combination could not be deactivated on your phone.	Reorder
1264	FS_CAUSE_CFCI_NO_DN_VRFY_SUCC	654	ann_id_654.au		Call Forwarding Combination is active on your phone.	Confirmation
1265	FS_CAUSE_CFCI_NO_DN_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.	Confirmation
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_DISCONNECTED	570	ann_id_570.au	570	Your line is temporarily disconnected. Please contact customer service. (c) Your line is temporarily disconnected. Please contact customer service.	Reorder

Table 8-1 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_UNASSIGNE D _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. **Note** 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. **Note** 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. **Note** The corresponding H.323 return code (returned by the external prepaid or postpaid server) is 6.	Reorder

Table 8-1 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. **Note** 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_SERVIC E_UNAVAILABLE	585	ann_id_585.au	585	We're sorry, The service is temporarily unavailable. Please try your call later. (c) We are sorry. The service is temporarily unavailable. Please try your call later on. **Note** The corresponding H.323 return code (returned by the external prepaid or postpaid server) is 8.	Reorder
1305	FS_CAUSE_LCD_ CALLED_NUM_ BLOCKED	586	ann_id_586.au	586	We're sorry. You are not permitted to place a call to this number. (c) We are sorry. You are not permitted to place a call to this called number. **Note** The corresponding H.323 return code (returned by the external prepaid or postpaid server) is 9.	Reorder
1306	FS_CAUSE_LCD_INSUFF _BALANCE	587	ann_id_587.au	587	We're sorry. Your call cannot be completed because of insufficient balance in your account. **Note** 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. **Note** 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_DEA CT_SUCC	614	ann_id_614.au		Your selective call rejection service is now off.	Confirm

Table 8-1 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_DEACT_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_DEACT_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_ACT_SUCC	622	ann_id_622.au		Your distinctive ringing service is now on.	Confirm
1321	FS_CAUSE_DRCW_NI_DEACT_SUCC	623	ann_id_623.au		Your distinctive ringing service is now off.	Confirm
1322	FS_CAUSE_DRCW_NI_ACT_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.	
1351Through 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 8-1 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	
Note	The two following announcements are played during parked calls, not as the result of the call being released.					
1406	FS_CAUSE_CF_ACT_ DN_PLAY_SUCC	658	ann_id_658.au		Call forwarding has been successfully activated through your phone. Your calls are being forwarded to [%s].	Confirm
1407	FS_CAUSE_CF_INT_ DN_PLAY_SUCC	659	ann_id_659.au		Call forwarding is activated. Your calls are being forwarded to [%s].	Confirm
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.	

Defined Cause Codes

Defined cause codes are listed in Table 8-2 through Table 8-8.

Table 8-2 Defined Cause Codes—Normal Events

Generic Cause Code	SS7 A.2.4.3/GR-905-CORE	ISDN TABLE I.2/Q.931	MGCP
Normal Event			
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	

Table 8-2 Defined Cause Codes—Normal Events (continued)

Generic Cause Code	SS7 A.2.4.3/GR-905-CORE	ISDN TABLE I.2/Q.931	MGCP
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	
12.[1]	26. Misrouted call to a ported number	N/A	
13. [Note 3]	N/A	26. Nonselected user clearing	
14.[2]	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 8-3 Defined Cause Codes—Network Resource Unavailable

Generic Cause Code	SS7 A.2.4.3/GR-905-CORE	ISDN TABLE I.2/Q.931	MGCP
Network resource unavailable			
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[1]	43. Access information discarded	
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 8-4 Defined Cause Codes—Service Or Option Not Available

Generic Cause Code	SS7 A.2.4.3/GR-905-CORE	ISDN TABLE I.2/Q.931	MGCP
Service or option not available			
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 8-5 Defined Cause Codes—Service/Option Not Implemented

Generic Cause Code	SS7 A.2.4.3/GR-905-CORE	ISDN TABLE I.2/Q.931	MGCP
Service/option not implemented			
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 8-6 Defined Cause Codes—Invalid Message

Generic cause code	SS7 A.2.4.3/GR-905-CORE	ISDN TABLE I.2/Q.931	MGCP
Invalid message (local significance only)			
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	

Table 8-6 Defined Cause Codes—Invalid Message (continued)

70.		96. Mandatory information element is missing	
71.		97. Message type nonexistent or not implemented	

Table 8-7 Defined Cause Codes—Protocol Error

Generic Cause Code	SS7 A.2.4.3/GR-905-CORE	ISDN TABLE I.2/Q.931	MGCP
Protocol error (local significance only)			
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	
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 8-8 Defined Cause Codes—Interworking

Generic Cause Code	SS7 A.2.4.3/GR-905-CORE	ISDN TABLE I.2/Q.931	MGCP
Interworking			
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.

Admission Reject Cause Code Mapping

If the BTS 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 8-9.

[

Table 8-9 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

H.323 Trunk Group Cause Code Mapping

Table 8-10 shows the defaults for mapping H.323 trunk groups.

Table 8-10 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.

SIP Cause Code Mapping

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 8-11 maps standard cause codes to SIP response codes.

Table 8-11 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
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	403 603	Forbidden 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

Table 8-11 Standard Cause Codes Mapped to SIP Response Codes (continued)

Standard Cause Code	Description	SIP Response Code	Description
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
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 8-12 maps SIP response codes to standard cause codes.

Table 8-12 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

Table 8-12 SIP Response Code to Standard Cause Code Mapping (continued)

SIP Response Code	Description	Standard Cause Code	Description
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
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

Enhanced SIP Cause Code Mapping

BTS 10200 has cause code map table entries that:

- allow SIP protocol adapters to alternate between standard and raw cause codes
- allow overriding of standard and raw cause codes

Provisioning Cause Code Mapping

Provision cause code mapping for the one SIP trunk group, all SIP trunks, or all SIP subscribers.

Step 1 Add a cause code to the cause code map profile id.

```
>add cause_code_map_profile id=SIP_CAUSE_CODE;
```

Step 2 Convert cause codes. In the example below, Q.850 cause code 27 converts to SIP response code 503:

```
>add cause_code_map
id=SIP_CAUSE_CODE;recv_cause_code=27;cause_code_type=STD;send_cause_code=503;std_cause_
code=27;action=RELEASE;
```

Step 3 Convert SIP response codes. In the example below, SIP response code 502 converts to SIP response code 503.

```
>add cause_code_map id=SIP_CAUSE_CODE;recv_cause_code=502;std_cause_code=38;
cause_code_type=SIP;send_cause_code=503;action=RELEASE;
```

Step 4 Associate a cause code map id to one trunk group:

```
>add trunk_grp id=1;dial_plan_id=BASIC_DPP;tg_type=SOFTSW;
softsw_tsap_addr=bts10200.cisco.com:5210;tg_profile_id=SS_PRO_1;call_agent_id=CA146;pop
_id=1; cause_code_map_id=SIP_CAUSE_CODE;
```

or:

Associate a cause code map id to all SIP trunks:

```
>add ca_config type=default-sip-cause-code-map-id;datatype=STRING;value=SIP_CAUSE_CODE;
```

or:

Associate a cause code map id to all SIP subscribers:

```
>add ca_config
type=default-sip-sub-cause-code-map-id;datatype=STRING;value=SIP_CAUSE_CODE;
```

Provisioning Q.850 Cause Codes

Enable the SEND_REASON_HDR flag in the (softsw-tg-profile) table:

```
>change softsw_tg_profile id=SS_PRO_1; send_reason_hdr=Y;
```

Provisioning SIP Response Phrases

Add or change SIP response phrases in the SIP Response Code table. For SIP codes resulting from checking the Cause Code Mapping table, the response phrase, is from the sip-response-code table. If a response phrase does not exist, the BTS 10200 generates a default.

```
>add sip_response_code resp_code=510;resp_phrase=Server Internal Error;
```

Enabling send_reason_hdr flag in the softswitch trunk group profile

```
>change softsw_tg_profile id=SS_PRO_1; send_reason_hdr=Y;
```

CHAPTER 9

Signaling

Revised: July 2010, OL-23040-01

Introduction

This chapter explains how to set up BTS signaling.

CAS

Table 9-1 provides example steps to provision channel-associated signaling (CAS) trunk groups on the BTS and lists examples of CLI commands with mandatory tokens.

Table 9-1 CAS Trunk Group Provisioning Steps

	Task	Description and CLI Command
Step 1	Adding NDCs.	The National Destination Code (ndc) table defines the home area codes supported by the Call Agent. `add ndc digit-string=214;`
Step 2	Adding exchange codes.	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. `add exchange-code ndc=214; ec=575;`
Step 3	Adding POPs.	CAs serve several regions or Metropolitan Statistical Areas (MSAs). Each region is a point of presence (POP). Each POP has its own unique dialing and routing characteristics in the Point of Presence (POP) table. Each originating entity (subscriber or trunk group) is assigned to a POP. POPs also performs policy routing, like routing calls to the nearest announcement server in the POP, or to the nearest interLATA carrier in a POP. `add pop id=1; state=tx; country=usa; digit-map-id=DIGITMAP1; itp=N; zero-minus=LEC; block-eawopic=Y; pic2-reqd=N; timezone=CDT;`

Table 9-1 CAS Trunk Group Provisioning Steps (continued)

	Task	Description and CLI Command
Step 4	Adding dial plan profiles.	A profile is a template for provisioning dial plans. 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. Assign different dial-plan-profile-ids to subscribers and trunk groups. `add dial-plan-profile id=dp1;  description=dialing plan profile ID 1;`
Step 5	Adding office codes.	The Office Code (office-code) table specifies the office codes assigned to a particular CA. 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. `add office-code dn-group=XXXX; ndc=214; ec=575; call-agent-id=CA146;`
Step 6	Adding subscriber profiles.	The Subscriber Profile (subscriber-profile) table groups shared subscriber properties. Because CAs have several points of presence (POPs), and POPs are a subcriber profile token, you must create POP-specific subscriber profiles. `add subscriber-profile id=CasDT; dial-plan-id=dp1; pop-id=1;`
Step 7	Adding MGW profiles.	A profile is a template for provisioning MGWs by vendor. It has settings for communications between the BTS Call Agent (CA) and each type of MGW. Several tokens have values that can be overwritten after the CA queries the MGW for supported capabilities. If the MGW returns a different value from that provisioned, the returned value automatically replaces it. If necessary, change the value of other keepalive tokens in the mgw-profile table. `add mgw-profile id=Cas_DTProfile; vendor=Cisco;`
Step 8	Adding MGWs.	The MGW table has information about each MGW the CA manages. Address the MGW uniquely by domain name, IP address, or TSAP address. The MGW table has the following associated commands: • RGW—provisions a residential gateway, with the type token set to RGW • TGW—provisions a trunking gateway, with the type token set to TGW. Both commands provision the MGW table, but you can use them to provide user security to individuals. `add mgw ID=DTCas; TSAP-ADDR=64.101.150.181; CALL-AGENT-ID=CA146; MGW-PROFILE-ID=Cas_DTProfile; STATUS=INS; CALL-AGENT-CONTROL-PORT=2427; type=RGW;`

Table 9-1 CAS Trunk Group Provisioning Steps (continued)

	Task	Description and CLI Command
Step 9	Adding CAS trunk group profiles.	The Channel Associated Signaling (CAS) Trunk Group Profile (cas-tg-profile) table holds common information about a CAS trunk group. Use oss-sig=y to define an Operator Services trunk group. Use e911=y to define an E911 trunk group. `add cas-tg-profile id=Cas_dt; OSS_SIG=Y; sig-type=MF;`
Step 10	Adding trunk groups.	The Trunk Group table defines information based on trunk group type. It maps the trunk group to a media gateway. `add trunk-grp id=1000; call-agent-id=CA146; tg-type=CAS; dial-plan-id=dp1; tg-profile-id=Cas_dt; MGCP_PKG_TYPE=DT;`
Step 11	Adding terminations.	The Termination (termination) table has information about each termination the CA manages. Terminations include analog ports, DS0 ports, ISDN circuits, ISDN PRI, and multiline hunt groups (MLHGs). Termination events and signals are grouped into packages supported by termination types. The gateway determines the package type. If you enter the prefix token, 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. Enter: 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) `add termination prefix=S2/DS1-0/; port_start=1; port_end=2; MGW-ID=DTCas; TYPE=TRUNK;`
Step 12	Adding routes.	The Route (route) table lists 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. `add route id=Cas_dt_1000; tgn1-id=1000;`
Step 13	Adding route guides.	The Route Guide (route-guide) table holds routes based on policy-type. `add route_guide id=Cas_rg_dt_1000; policy-type=ROUTE; policy-id=Cas_dt_1000;`
Step 14	Adding subscribers.	`add subscriber ID=Cas_sub_dt_1000; CATEGORY=PBX; NAME=Smith; STATUS=ACTIVE; BILLING_DN=214-575-9111; TERM-ID=S2/DS1-0/1; MGW-ID=DTCas; TGN-ID=1000; SUB-PROFILE-ID=CasDT; TERM-TYPE=ROUTE; POLICY-ID=Cas_dt_1000;` **Note** Each subscriber must have a unique term-id.

Table 9-1 CAS Trunk Group Provisioning Steps (continued)

	Task	Description and CLI Command
Step 15	Assigning trunk groups to subscribers.	The Trunk (trunk) table maps it to a media gateway and specifies the Circuit Identification Code (CIC) range and terminations. `change trunk_grp id=1000; call-agent-id=CA146; main-sub-id=Cas_sub_dt_1000;`
Step 16	Adding trunks.	Associates the subscriber with the trunk group. `add trunk termination-prefix=S2/DS1-0/; termination-port_start=1; termination-port_end=2; cic_start=1; cic_end=2; tgn-id=1000; mgw-id=DTCas;`
Step 17	Changing terminations.	`change termination id=S2/DS1-0/1; mgw-id=DTCas; trunk-id=1; tgn-id=1000;`
Step 18	Adding call types and routing for dialed digits.	The Destination (destination) table defines call type and routing information for the dialed digits. Multiple digit strings can use the same destination ID. `add destination DEST-ID=Cas_dest_dt_1000; CALL-TYPE=LOCAL; ROUTE-TYPE=ROUTE; ZERO-PLUS=N; INTRA-STATE=N; DESCRIPTION=CAS destination; route-guide-id=Cas_rg_dt_1000;`
Step 19	Adding dial plans.	Dial plans analyze, screen, and route calls using dialed digits. The Dial Plan (dial-plan) table has information for a specific call type; it defines valid dialing patterns and determines call routing. `add dial_plan id=dp1; digit-string=214-575; dest-id=Cas_dest_dt_1000; min-digits=7; max-digits=10; NOA=NATIONAL;`
Step 20	Placing MGWs in service.	`control mgw id=DTCas; mode=forced; target-state=ins;`
Step 21	Placing trunk groups in service.	`control trunk-grp id=1000; call-agent-id=CA146; mode=forced; target-state=ins;`
Step 22	Preparing subscriber trunk terminations for service.	`equip trunk-termination tgn-id=1000; cic=all;` **Note** This example equips all circuit identification codes (CICs) on the trunk termination.
Step 23	Placing subscriber trunk terminations in service.	`control trunk-termination tgn-id=1000; mode=forced; cic=all; target-state=ins;`

SS7

This section describes how to provision the BTS to communicate with an SS7 PSTN network.

Table 9-2 provides example steps to provision SS7 trunk groups on the BTS and lists examples of CLI commands with mandatory tokens.

Table 9-2 SS7 Provisioning Steps

	Task	Description and CLI Command

Step 1	Adding signaling gateways.	The Signaling Gateway (sg) table identifies signaling gateways the CA manages.
		`add sg id=sg1;`
		`add sg id=sg2;`

Step 2	Associating signaling gateways.	A Signaling Gateway Group (sg-grp) table associates two signaling gateways. `add sg-grp id=sg-grp1; sg1-id=sg1; sg2-id=sg2;`

Step 3	Adding signaling gateway processes.	The Signaling Gateway Process (sgp) table identifies signaling gateway processes associated with each signaling gateway.
		`add sgp id=sgp1; sg-id=sg1;`
		`add sgp id=sgp2; sg-id=sg2;`

Step 4	Adding OPCs.	The Origination Point Code (opc) table stores information for origination point codes. `add opc id=opc1; point-code=1-1-1;`

Step 5	Adding DPCs.	The Destination Point Code (dpc) table stores information for all the destination point codes in the system.
		`add dpc id=dpc1; point-code=1-1-2;`
		`add dpc id-stp1; point-code=1-1-3;`

Step 6	Adding SCTP association profiles.	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. `add sctp-assoc-profile id=sctp-prof1;`

Step 7	Adding SCTP associations.	The SCTP Association (sctp-assoc) table identifies the association between local and remote signaling gateway platforms (SGPs). Add one SCTP association for the CA and one for the FS.
		`add sctp-assoc id=sgp1-sctp; sgp-id=sgp1;`
		`sctp-assoc-profile-id=sctp-prof1; platform-id=CA146;`
		`remote-port=2905; remote-tsap-addr=10.0.1.30;`
		`remote-tsap-addr2=10.128.1.230;`

Step 8	Adding user part variant.	The User Part Variant (user-part-variant) table lists SS7 User Part variants and associated protocol families. The User Part Variant Base (user-part-variant-base) table defines supported variants and optional parameter values. When a variant is added, optional parameter values populate from the User Part Variant Base table. `add user-part-variant id=ANSISS7_GR317;`

Step 9	Adding routing keys.	A routing key is unique routing data identifying an application server. The Routing Key (routing-key) table holds the information for MTP3-User Adaptation Layer (M3UA) and SCCP-User Adaptation Layer (SUA) routing keys.
		`add routing-key id=rk1; opc-id=opc1; sg-grp-id=sg-grp1;`
		`si=ISUP; rc=1; platform-id=CA146;`

Table 9-2 SS7 Provisioning Steps (continued)

	Task	Description and CLI Command
Step 10	Adding call control routes.	The Call Control Route (call-ctrl-route) table identifies call control routes between OPCs, DPCs, and signaling gateway (SG) groups. `add call-ctrl-route id=dpc1-route; dpc-id=dpc1; routing-key-id=rk1; si=ISUP; user-part-variant-id=ANSISS7_GR317;` **Note** The call-ctrl-route must be associated with a specific signaling gateway.
Step 11	Adding MGW profiles.	A profile is a template for provisioning MGWs by vendor. It has settings for communications between the BTS Call Agent (CA) and each type of MGW. Several tokens have values that can be overwritten after the CA queries the MGW for supported capabilities. If the MGW returns a different value from that provisioned, the returned value automatically replaces it. If necessary, change the value of other keepalive tokens in the mgw-profile table. `add mgw-profile id=3660; vendor=Cisco; description=Cisco 3660;`
Step 12	Adding MGWs.	The MGW table has information about each MGW the CA manages. Address the MGW uniquely by domain name, IP address, or TSAP address. The MGW table has the following associated commands: • RGW—provisions a residential gateway, with the type token set to RGW • TGW—provisions a trunking gateway, with the type token set to TGW. Both commands provision the MGW table, but you can use them to provide user security to individuals. `add mgw id=c3660-1; call-agent-id=CA146; tsap-addr=c3660-1.lab.cisco.com; mgw-profile-id=3660; type=tgw;`

Table 9-2 SS7 Provisioning Steps (continued)

	Task	Description and CLI Command
Step 13	Adding terminations.	The Termination (termination) table has information about each termination the CA manages. Terminations include analog ports, DS0 ports, ISDN circuits, ISDN PRI, and multiline hunt groups (MLHGs). Termination events and signals are grouped into packages supported by termination types. The gateway determines the package type. If you enter the prefix token, 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. Enter: 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) `add termination prefix=S1/DS1-0/; port-start=1; port-end=24; mgw-id=c3660-1; type=trunk;`
Step 14	Adding SS7 ANSI trunk group profiles.	The Signaling System 7 ANSI Trunk Group Profile (ss7-ansi-tg-profile) table holds information like continuity test (COT). This table can be shared by SS7 trunk groups. `add ss7-ansi-tg-profile id=ss7-prof1;`
Step 15	Adding SS7 trunk groups.	The Trunk Group table defines information based on trunk group type. It maps the trunk group to a media gateway. `add trunk-grp id=1; call-agent-id=CA146; tg-type=SS7; num_of_trunks=24; tg-profile=ss7-prof1; call-ctrl-route-id=dpc1-route;`
Step 16	Adding trunks.	Adds trunks to the trunk group. `add trunk cic-start=1; cic-end=24; tgn-id=1; mgw-id=c3660-1; termination-prefix=S1/DS1-0/; termination-port-start=1; termination-port-end=24;`
Step 17	Adding routes.	The Route (route) table lists 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. `add route id=ss7rt; tgn1-id=1;`
Step 18	Adding route guides.	The Route Guide (route-guide) table holds routes based on policy-type. `add route-guide id=ss7rg; policy-type=ROUTE; policy-id=ss7rt;`
Step 19	Adding call types and routing for dialed digits.	The Destination (destination) table defines call type and routing information for the dialed digits. Multiple digit strings can use the same destination ID. `add destination dest-id=ss7dest; call-type=toll; route-type=route; route-guide-id=ss7rg;`

Table 9-2 SS7 Provisioning Steps (continued)

	Task	Description and CLI Command
Step 20	Adding dial plans.	Dial plans analyze, screen, and route calls using dialed digits. The Dial Plan (dial-plan) table has information for a specific call type; it defines valid dialing patterns and determines call routing. `add dial-plan id-dp1; digit-string=813565; noa-national; dest-id=ss7dest;`
Step 21	Adding POPs.	CAs serve several regions or Metropolitan Statistical Areas (MSAs). Each region is a point of presence (POP). Each POP has its own unique dialing and routing characteristics in the Point of Presence (POP) table. Each originating entity (subscriber or trunk group) is assigned to a POP. POPs also performs policy routing, like routing calls to the nearest announcement server in the POP, or to the nearest interLATA carrier in a POP. `change pop id=1; opc-id=opc;`
Step 22	Adding SCCP networks.	The Signaling Connection Control Part (SCCP) Network (sccp-nw) table has SS7 network attributes. Each network has one point code. There is one-to-one mapping, but it supports multiple point codes. `add sccp-nw id=1; net-ind=NATIONAL; sub-svc=NATIONAL; hop-count=3;`
Step 23	Adding subsystem groups.	The Subsystem Group (subsystem-grp) table defines SSN-IDs at a BTS level to support multiple origination point codes (OPCs). `add subsystem-grp id=SSN_LNP; platform-id=FSAIN205; tcap-version=ANS-92;`
Step 24	Adding subsystems.	The Subsystem (subsystem) table has subsystems that use SCCP. Because the BTS supports up to 30 OPCs, the combined OPC-ID and SSN-ID is the primary key. `add subsystem id=SSN_LNP; opc-id=opc; local-ssn=247; remote-ssn=247; sccp-nw-id=1; sccp-version=ANS92; tcap-version=ANS92; application-version=AIN01;`
Step 25	Adding routing keys.	A routing key is unique routing data identifying an application server. The Routing Key (routing-key) table holds the information for MTP3-User Adaptation Layer (M3UA) and SCCP-User Adaptation Layer (SUA) routing keys. `add routing-key id=rk_lnp; opc-id=opc1; ssn-id=SSN_LNP; sg-grp-id=sg-grp1; si=SCCP; rc=2; platform-id=FSAIN205;`
Step 26	Adding SCCP routes.	The SCCP Route (sccp-route) table provides redundant routes to signaling gateways. You can also specify a backup point code for ISUP. `add sccp-route subsystem-grp-id=SSN_LNP; opc-id=opc1; dpc-id=stp1; rk-id=rk_lnp;`
Step 27	Adding service logic host route profiles.	The Service Logic Host Route Profile (slhr-profile) table identifies an SLHR. `add slhr-profile id=slhr_lnp;`

Table 9-2 SS7 Provisioning Steps (continued)

	Task	Description and CLI Command
Step 28	Adding service logic host routes.	The Service Logic Host Route (slhr) table has information to route a Trigger Detection Point (TDP) request message to a service control point (SCP). `add slhr id=slhr_lnp; opc-id=opc; dpc-id=stp1; subsystem-grp-id=SSN_LNP; gtt-req=Y; tt=11; gtt-addr-type=CDPN;`
Step 29	Adding CA configurations.	The Call Agent Configuration (ca-config) table defines CA defaults populated at installation. Only change and show commands are valid. `add ca-config type=DEFAULT-LNP-SLHR-ID; datatype=string; value=slhr_lnp;`
Step 30	Placing SCTP associations in service.	`control sctp-assoc id=sgp1-sctp; target-state=INS; mode=FORCED;`
Step 31	Placing subsystems in service.	`control subsystem id=SSN_LNP; target-state=UIS; mode=FORCED;`
Step 32	Placing subsystem groups in service.	`control subsystem-grp id=SSN_LNP; target-state=UIS; mode=FORCED;`

BTS-PGW ISUP Transparency

Table 9-3 provides example steps to provision SS7 trunk groups on the BTS and lists examples of CLI commands with mandatory tokens.

See PGW documentation for how to configure ISUP transparency on the PGW.

Table 9-3 BTS and PGW for ISUP Transparency Provisioning Steps

	Task	Description and CLI Command
Step 1	Setting 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	Adding dial plans.	`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	Adding SIP-GTD trunk groups.	`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;` **Note** The SOFTSW-TSAP-ADDR must match the IP address and port provisioned on the Cisco PGW.
Step 4	Configuring PGWs.	http://www.cisco.com/en/US/products/hw/vcallcon/ps2152/products_tech_note09186a008025fa96.shtml

H.323

Table 9-4 provides example steps to provision H.323 support on the BTS and lists examples of CLI commands with mandatory tokens.

Table 9-4 H.323 Provisioning Steps

	Task	Description and CLI Command
Step 1	Adding trunk group profiles.	The H.323 Trunk Group Profile (h323-tg-profile) table defines the characteristics of H.323 trunks. `add h323-tg-profile id=ras-tg; ras=y;`
Step 2	Adding service providers.	The Service Provider (service-provider) table allos multiple service providers to use a single logical CA. `add service-provider id=ACME;`
Step 3	Adding technical prefix group profiles.	The Technical Prefix Group Profile (tech-prefix-grp-profile) table lists IDs for the Technical Prefix Group table. `add tech-prefix-grp-profile id=tech1;`
Step 4	Adding technical prefix groups.	The Technical Prefix Group (tech-prefix-grp) table lists technical prefixes the gateway supports. Gateways can share tech-prefix-list ID. Each gateway must register its tech-prefixes supported to their respective gatekeepers. Technical prefixes allow the inclusion of special characters in a called number. `add tech-prefix-grp id=tech1; sp-id=ACME; tech-prefix=111#;`
Step 5	Adding cause code map profiles.	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. `add cause-code-map-profile id=H323;`

Table 9-4 H.323 Provisioning Steps (continued)

	Task	Description and CLI Command
Step 6	Adding cause code maps.	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 BTS 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 BTS uses the cause code as is. `add cause-code-map id=H323; cause-code-type=GTD; recv-cause-code=34; action=reattempt;`
Step 7	Adding dial plan profiles.	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. `add dial-plan-profile id=h323in;`
Step 8	Adding H.323 trunk groups.	The Trunk Group table defines information based on trunk group type. It maps the trunk group to a media gateway. `add trunk-grp id=4091; tg-type=h323; tg-profile-id=h323ras; call-agent-id=CA101;`
Step 9	Adding H.323 gateways.	The H.323 Gateway (h323-gw) table defines the capabilities of H.323 gateways. One CA supports four H.323 gateways. `add h323-gw id=TB01-GW; gw-h225-port=1720;tgn-id=4091;`
Step 10	Adding trunks to H.323 gateways.	Route the trunk group to the appropriate gateway. `change TRUNK-GRP id=4091; call-agent-id=CA101; H323-gw-id=TB01-GW`
Step 11	Adding H.323 gateways to gatekeepers.	The H.323 Gateway to Gatekeeper (h323-gw2gk) table describes gatekeeper characteristics. Multiple gateways can have the same gatekeeper. However, a gateway can be registered to only one gatekeeper. A gatekeeper identifies, controls, counts, and supervises gateway traffic, including, but not limited to, gateway registration, address resolution, bandwidth control, and admission control. `add h323-gw2gk h323-gw-id=TB01-GW1; gk-id=Metro-GK;`
Step 12	Adding digit manipulation profiles.	The Digit Manipulation Profile (digman-profile) table creates unique IDs for digit manipulation. `add digman-profile id=gtd-tb09;`
Step 13	Adding digit manipulatioms.	The Digit Manipulation (digman) table performs digit and nature of address (NOA) manipulation. `add digman id-gtd_tb09; rule=2;`

Table 9-4 H.323 Provisioning Steps (continued)

	Task	Description and CLI Command
Step 14	Adding routes.	The Route (route) table lists 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. `add route id=h323-4091; tgn1-id=4091;`
Step 15	Adding call types and routing for dialed digits.	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. `add destination dest-id=4091; call-type=local; route-type=rid; route-id=h323-4091;`
Step 16	Adding route guides.	The Route Guide (route-guide) table holds routing information based on policy-type. `add route-guide id=rg-local; policy-type=route; policy-id=rt-h323-local;`
Step 17	Adding dial plans.	Dial plans analyze, screen, and route calls using dialed digits. The Dial Plan (dial-plan) table has information for a specific call type; it defines valid dialing patterns and determines call routing. `add dial-plan id=H323in; digit-string=703-484; dest-id=h323in1;`
Step 18	Placing H.323 trunk groups in service.	`control trunk-grp id=4091; mode=forced; target-state=ins; call-agent-id=CA101;`
Step 19	Placing H.323 gateways in service.	`control h323-gw id=TB01-GW; target-state=ins;`

H.323 UDP

Annex E allows H.323 signaling travel between the BTS and the far-end H.323 endpoint using User Datagram Protocol (UDP) (connectionless) signaling instead of TCP (connection-oriented) signaling.

Caution Provision H.323 UDP only during a maintenance window. Changes do not take effect until the H.323 gateway is taken out of service, then placed back in service.

Step 1 Log in to a CLI session on the BTS.

Step 2 To support UDP, enter:

```
change h323-gw id=city1gw; 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***—Identifies the gateway (1 -16 ASCII characters)
- ***annexe-supp***—Indicates if this H.323 gateway supports Annex E. If the remote H.323 endpoint does not support Annex E UDP signaling, the BTS automatically uses TCP.

  - If the BTS H.323 gateway instance is configured as Annex E enabled (***annexe-supp*=Y**), the BTS indicates so when registering with the gatekeeper.
  - For RAS routed calls, the gatekeeper negotiates capabilities between the BTS and the far-end H.323 endpoint, and notifies the originating endpoint to use Annex E.
  - If the BTS H.323 gateway is configured as Annex E disabled (***annexe-supp*=N**), the BTS 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 BTS automatically uses slow-start mode.
- ***annexe-udp-port***—Specifies the port to receive incoming Annex E messages. The default value is 2517, but you must assign a unique value to each H.323 gateway.
- ***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 1 - 30,000 milliseconds, and the default is 500.
- ***annexe-retransmit-multiplier***—The multiplication factor of previous retransmit interval used for subsequent Annex E packet retransmissions. The valid range is 1 - 10, and the default 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 - 10, and the default is 8.

Step 3 Place the H.323 gateway instance out of service:

```
control h323-gw id=city1gw; target-state=OOS;
```

Step 4 Place the H.323 gateway instance in service.

```
control h323-gw id=city1gw; target-state=INS;
```

Step 5 To provision Annex E support on the outgoing H.323 trunk groups (TGs), enter :

```
change h323-tg-profile id=h323tg01; ras=Y; annexe-supp=Y; transport-pref-mode=UDP-MODE;
```

where

- ***h323-tg-profile id***—Identifies the trunk group (1 -16 ASCII characters)
- ***ras***—Specifies whether RAS signaling to H.323 gatekeeper 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 gatekeeper.
- *annexe-supp*
- ***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 BTS will adjust automatically to use TCP mode. This token must be set to UDP-MODE before ***annexe-supp*** can be set to Y.

Step 6 Enable Annex E support on the far-end H.323 endpoint.

CallManager

Provision the BTS interface to Cisco CallManager as you would for any H.323 gateway, then do the following steps.

Table 9-5 CallManager Provisioning Steps

	Task	Description and CLI Command
Step 1	Assigning main subscriber IDs to the trunk groups. (optional)	If CallManager is acting as a PBX, assign a main subscriber ID to the connecting trunk group. This subscriber ID is used to perform screening and routing. `change trunk-grp id=TG001; main-sub-id=CallManager001;`

Step 2	Provisioning QoS codecs on trunk groups.	**a.** View the Qos_ID .
		`show qos id=gold3;`
		b. Set the Qos value to match that displayed:
		`change trunk-grp id=TG001; qos_id=gold3;`
		c. Set the CODEC-TYPE required by your local work order.
		`change qos id=gold3; codec-type=PCMU;`

Step 3	Disabling GTD.	Cisco recommends disabling generic transport descriptor (GTD) on trunk groups toward CallManager.
		• Disable GTD at the CA level
		`change call-agent-profile id=CA146; gtd-supp=N;`
		• Disable GTD at trunk group level
		`change h323-tg-profile id=TG501; gtd-supp=N;`
		⚠ **Caution** Disabling GTD at the CA level disables GTD for the entire BTS. If you disable GTD only on the trunk groups toward CallManagers, BTS can still use GTD toward other H.323 gateways.