CHAPTER 10

Announcement Server Provisioning

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The Cisco BTS 10200 Softswitch supports announcement features by sending announcement requests to a customer-supplied announcement server. An announcement request can be generated by the Cisco BTS 10200 Softswitch in response to either of the following conditions:

- A call was released (did not go through), and an accompanying release cause code is activated on the Cisco BTS 10200 Softswitch. The Cisco BTS 10200 Softswitch, in turn, signals the announcement server to play a designated audio file.
- The service provider has provisioned all calls to the target DN to be routed automatically to a designated announcement.

The announcement server accesses prerecorded audio files that can be played to the caller. The audio files are provided by one of the following servers:

- Cisco AS54xx series Announcement Server
- Cognitronics CX500 Media Resource Server

Note Contact Cisco Systems for details about these servers. The announcement server is customer supplied.

Announcements are tied to cause codes. A call release (internal cause code) triggers a specific announcement. The Call Agent controls announcement playback via Media Gateway Control Protocol (MGCP).

Release Cause Codes

Industry-standard release cause code specifications are available in the following documents:

- [ANSI document *T1.650-1995, ISDN—Usage of the Cause Information Element in Digital Subscriber Signaling System Number 1 (DSS1)*
- ITU-T Recommendation Q.850, *Usage of Cause and Location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN User Part*

The service provider can link any of the supported cause codes to any announcement ID, and each announcement ID can be linked to a specific audio file. The system triggers the appropriate recording to play when a cause code is activated in the system. Appendix A, "Release Cause Codes and

Announcement IDs" shows the default mapping of cause codes to announcement IDs and announcement files. The service provider can use command-line interface (CLI) commands to provision the following changes to the default mapping:

- Use the **change release-cause** command to change the mapping of release cause codes to announcement IDs.
- Use the **change announcement** command to change the mapping of announcement IDs to audio files.

Note If no announcement is available for a specific cause code, a reorder tone is played to the calling party.

Tip With the Cisco AS54xx series Announcement Server, service providers can enter new announcement file names and use their own audio announcement files. The announcement files must be in 8-bit mu-Law encoded, Next/Sun AU format (.au extension).

Directory Numbers Provisioned for Routing to Announcement

The service provider can provision all calls to a specific directory number (DN) to be routed automatically to a designated announcement. This is provisioned using CLI commands in the DN2Subscriber table, as follows:

- Change the administrative status of the announcement service by setting the **status** token to **annc.**
- Designate the announcement to be played by setting the **annc-id** token to the appropriate announcement id. The announcement ID must be one that is listed in Appendix A, "Release Cause Codes and Announcement IDs".

Provisioning Announcements

Table 10-1 describes the steps required to provision announcements and associated tables and lists example CLI commands with mandatory tokens. Click on each step for a complete description of the step.

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

Table 10-1 Announcement Server Provisioning Steps

	Description	CLI Command
Step 1	Add a Media Gateway Profile, page 10-3	add mgw-profile id-as5400; vendor=Cisco; description=Announcements;
Step 2	Add a Media Gateway, page 10-4	add mgw id=c5400.131; tsap-addr=AnnGW DNS/IP; call-agent-id=CA101; mgw-profile-id=as5400; type=tgw; ans=y;
Step 3	Add an Announcement Trunk Group Profile, page 10-4	add annc-tg-profile id=1;ANNC=Y;IVR=N; LOCAL_TRUNK_SELECTION=Y;

Table 10-1 Announcement Server Provisioning Steps (continued)

	Description	CLI Command
Step 4	Add a Trunk Group, page 10-4	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	Add a Termination, page 10-5	add termination prefix=S0/DS1-2/; port-start=1; port-end=24; type=trunk; mgw-id=c5400.131;
Step 6	Add a Trunk, page 10-5	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	Add a Route, page 10-6	add route id=rt1_annc; lcr=y; tgn1-id=999;
Step 8	Add a Route Guide, page 10-6	add route-guide id=annc1_rg; policy-type=ROUTE; policy-id=rt1_annc;
Step 9	Add an Announcement Trunk, page 10-6	add annc-trunk tgn-id=999; term-id=S0/DS1-1/1; mgw-id=c5400.131; remote-term-id=S0/DS1-1/1; remote-mgw-id=c5400.131;
Step 10	Add an Announcement, page 10-6	add announcement id=500; type=SYSTEM; announcement-file=iann_id_500.au; route-guide-id=annc1_rg;
Step 11	Add a Release Cause, page 10-7	add release-cause id=1110; annc-id=0500;
Step 12	Control a Media Gateway, page 10-7	control mgw id=5400.131; target-state=INS; mode=FORCED; status mgw id=c5400.131;
Step 13	Control a Trunk Group, page 10-7	control trunk-gp id=1;mode=forced;target-state=ins;
Step 14	Equip a Trunk Termination, page 10-8	equip trunk-termination tgn-id=13; cic=all;
Step 15	Control a Trunk Termination, page 10-8	control trunk-termination tgn-id=13; cic=all; target-state=INS; mode=FORCED; status trunk-termination tgn-id=13; cic=all;

Add a Media Gateway Profile

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

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

Command	Purpose
`add mgw-profile id-as5400; vendor=Cisco; description=Announcements;`	Adds a media gateway profile

Tip The mgcp-max1-retries and mgcp-max2-retries tokens in the mgw-profile table can be adjusted, if necessary, to improve response if there are network bandwidth or reliability issues, or if an MGW is slow in responding to commands from the CA. For a detailed explanation of how these and other parameters affect the audit-endpoint and keepalive processes, see the applicable appendix (Release 4.4.x Keepalive or Release 4.5.x Keepalive) in the *Cisco BTS 10200 Softswitch Troubleshooting Guide*.

Add a Media Gateway

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

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

Command	Purpose
`add mgw id=c5400.131; tsap-addr=AnnGW DNS/IP; call-agent-id=CA101; mgw-profile-id=as5400; type=tgw; ans=y;`	Adds a media gateway

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

Add an Announcement Trunk Group Profile

The Announcement Trunk Profile (annc-tg-profile) table is required for interactive voice response (IVR) trunks.

Command	Purpose
`add annc-tg-profile id=1;ANNC=Y;IVR=N; LOCAL_TRUNK_SELECTION=Y;`	Adds an announcement trunk group profile

Add a Trunk Group

The Trunk Group (trunk-grp) table identifies the trunk group and maps it to the associated media gateway.

Note Refer to the Trunk Group table in Chapter 2 of the *Cisco BTS 10200 Softswitch Command Line Inferface Reference Guide for Release 4.1* to determine if specific tokens are mandatory or optional for each trunk group type.

Command	Purpose
`add trunk-grp id=999; call-agent-id=CA166;tg_type=ANNC; cost=1;MGCP_PKG_TYPE=TCL_CISCO; tg-profile-id=1;`	Adds a trunk group

Add a Termination

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

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

The user enters:

prefix: 1–32 ASCII characters

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

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

Command	Purpose
`add termination prefix=S0/DS1-2/; port-start=1; port-end=24; type=trunk; mgw-id=c5400.131;`	Adds a termination

Add a Trunk

The Trunk (trunk) table identifies the trunk group and maps it to the associated media gateway. It also specifies the Circuit Identification Code (CIC) range and terminations.

Command	Purpose
`add trunk termination-prefix=S0/DS1-1/; termination-port_start=1; termination-port_end=24; cic_start=1; cic_end=24; tgn-id=999; mgw-id=c5400.131;`	Adds a trunk

Note When a service affecting test is in progress on trunks, the trunks are not blocked, and any incoming call attempts on that trunk will fail. If the far-end switch on a trunk does not use a trunk selection algorithm to choose the next trunk, all incoming call attempts will fail.

Add a Route

The Route (route) table contains a list of up to ten trunk groups to route a call. If all the trunk groups are busy or not available, call processing uses the alt-route-id (if specified) to route the call. The Element Management System (EMS) provisions the Call Agent ID field based on the Trunk Group table.

Command	Purpose
`add route id=rt1_annc; lcr=y; tgn1-id=999;`	Adds a route

Add a Route Guide

The Route Guide (route-guide) table holds routing information based on policy-type.

Command	Purpose
`add route-guide id=annc1_rg; policy-type=ROUTE; policy-id=rt1_annc;`	Adds a route guide

Add an Announcement Trunk

The Announcement Trunk (annc-trunk) table is used when an announcement server is required in an ATM network.

Command	Purpose
`add annc-trunk tgn-id=999; term-id=S0/DS1-1/1; mgw-id=c5400.131; remote-term-id=S0/DS1-1/1; remote-mgw-id=c5400.131;`	Adds an announcement trunk

Add an Announcement

The Announcement (annc) table holds the routing information to get to an announcement. An announcement message is played if a call cannot be connected. The system comes with preprogrammed (default) announcement audio files, but a service provider can create custom announcement files and load them into the system. System and custom files are saved in a specified format and stored on the service provider's announcement server. Additionally, intercept announcements can be used for playing messages from the service provider's announcement server when calls require special treatment.

Command	Purpose
add announcement id=500; type=SYSTEM; announcement-file=iann_id_500.au; route-guide-id=annc1_rg;	Adds an announcement

Repeat this command once for each announcement.

Note Announcement file names must be typed with an underscore (_) or the command will not execute correctly.

Add a Release Cause

The Release Cause (release-cause) table is an internal table used by call processing to map an SS7 release cause value to an announcement ID. This table is preprovisioned, but the service provider can modify it.

Command	Purpose
`add release-cause id=1110; annc-id=0500;`	Adds a release cause

Control a Media Gateway

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

Command	Purpose

`control mgw id=5400.131; target-state=INS; mode=FORCED;`
 	
`status mgw id=c5400.131;`
	Places the MGW in-service

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

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

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

Reply example:

```
Reply : Success:

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

Control a Trunk Group

The command-line interface (CLI) control command displays and modifies the status of a Cisco BTS 10200 Softswitch trunk group.

Command	Purpose
control trunk-gp id=1;mode=forced;target-state=ins;	Places a trunk group in-service

Equip a Trunk Termination

The equip command enables the trunk termination to be placed in-service. Table 4-4 lists and defines trunk termination states.

Command	Purpose
`equip trunk-termination tgn-id=13; cic=all;`	Enables a trunk termination to be placed in-service.

Table 10-2 Subscriber Trunk Termination States

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

Control a Trunk Termination

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

Command	Purpose
`control trunk-termination tgn-id=13; cic=all; target-state=INS; mode=FORCED;`	Places a trunk termination in-service

Verify that the trunk termination is in-service by entering a CLI command similar to the following:

```
status trunk-termination tgn-id13
```