C H A P T E R 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:

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, Release 6.0.4* 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.
```

ENUM Query for N11 Services

Use the following procedure to provision an ENUM query for N11 services:

Step 1 Add the ENUM profile for the call type.

```
add/change enum_profile id=privateENUM;ENUM_SERVER_DOMAIN=
enum.ipclab.cisco.com;TOP_LEVEL_DOMAIN= ipclab.cisco.com;
TEST_QUERY_STRING= testqry.e164.sp.com;ENUM_QUERY_TIMEOUT= 300;USE_ANI_FOR_ENUM=
Y;ENUM_SERVER_DOMAIN_TTL= 10;
PFX_DIGITS= 1;DEL_DIGITS= 0;TEST_QUERY_INTERVAL= 30;NEXT_ENUM_PROFILE_ID= carrierenum
```

Step 2 Control the ENUM profile and bring it to a working state.

```
control enum_profile id=privateENUM;mode=FORCED;target_state=INS;
```

Step 3 Change the ENUM profile ID.

```
add CA-CONFIG default-enum-profile id=privateENUM
```

Step 4 Change the destination

```
change destination dest_id=tbhrn17;
Call_type=NON_EMG;route_type=ROUTE;route_guide_id=n11;enum_profile_id=privateENUM;perform_
enum_routing=Y;enum_query_type=ENUM;
```

Step 5 Change the call agent profile.

```
change call_agent_profile id=CA146;enum_supp=Y;
```

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_anonomous_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=11111111111111111;
```

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 5-124, for directions for provisioning SCR.

Block All Inbound Calls

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

The following steps explain how to provision this feature:

Step 1   Create subscriber without DN1, but with billing DN.

```
add subscriber id=sub_1; sub-profile-id=subprof_1; BILLING_DN=4692550260;
```

Step 2   Add dn2subscriber entry for the billing DN assigned to the subscriber, but point it to an announcement ID.

```
add dn2subscriber FDN=4692550260; status=ANNC; ANNC_ID=998;
```

Call Forward Busy

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 Forward Multiple Redirection

Step 1   Add CFMR.

```
add/change feature fname =CFMR ; tdp1=T_EXCEPTION; tid1= CFMR_TRIGGER;
ttype1=R;feature_server_id=FSPTC235;grp_feature = N
```

Step 2   Assign CFMR to service and trunk groups:

```
add service id= cfmr;fname1=CFMR;
add trunk_grp_service_profile tgn_id=<id>;service_id=cfmr;
```

Step 3   Allow CMFR routing on SIP trunks:

```
add softsw_tg_profile id=<id>;CFMR_SUPPORT=Y;
```

Step 4   Add type of feature configuration:

```
add feature_config type=MAX_CFMR_SUPPORT_CONTACTS;value=<>
```

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:

- 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 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	TRANSFER_TO_BG_ ONLY
	ADD_ATTENDANT_ 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;
```

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=1111111111111111;
```

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; tsap-addr=central777.cisco.com:1819;
server-type=prepaid;

add radius-profile id=rad-prof-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;
```

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-id=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;
```

Step 9   Add radius server address in CA-CONFIG table:

```
add ca_config type=RADIUS-SERVER-ADDRESS;value=central777.cisco.com:1819;
```

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 , 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;
```

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```
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 5-105.)

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 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.

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 5-124.

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, Release 6.0.4*.

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@123456789012345678901234567890123456789012345678 90.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.

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

Name	Data Type	Value	Default	Description
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.
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.

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

Name	Data Type	Value	Default	Description
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.
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>
```
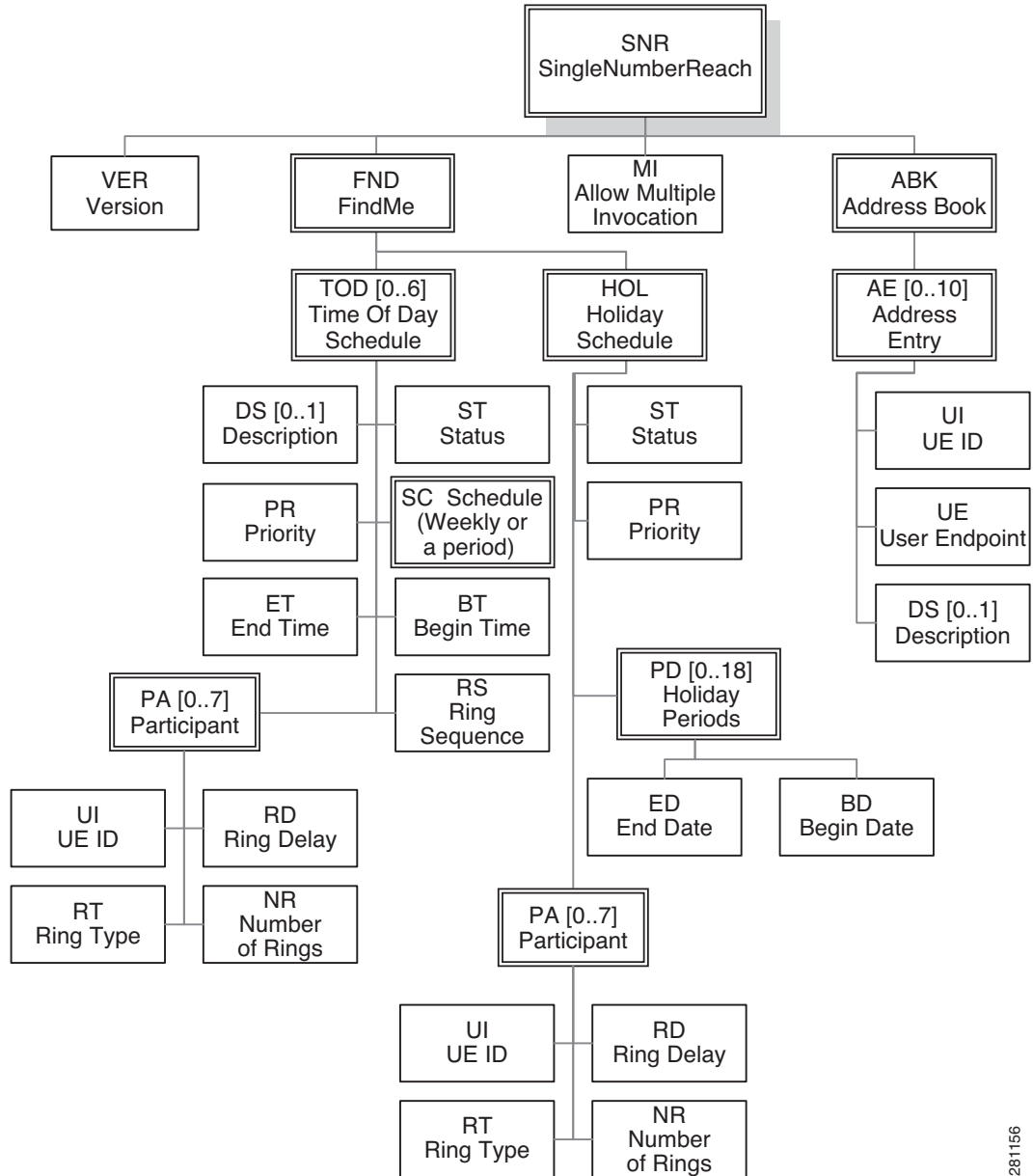
```
            </xs:simpleType>
            <xs:simpleType name="tTime" final="list restriction">
                <xs:annotation>
                    <xs:documentation>
                        Time range limited to 00:00:00 -> 23:59:59, with no time
                        zone offset extension.
                    </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

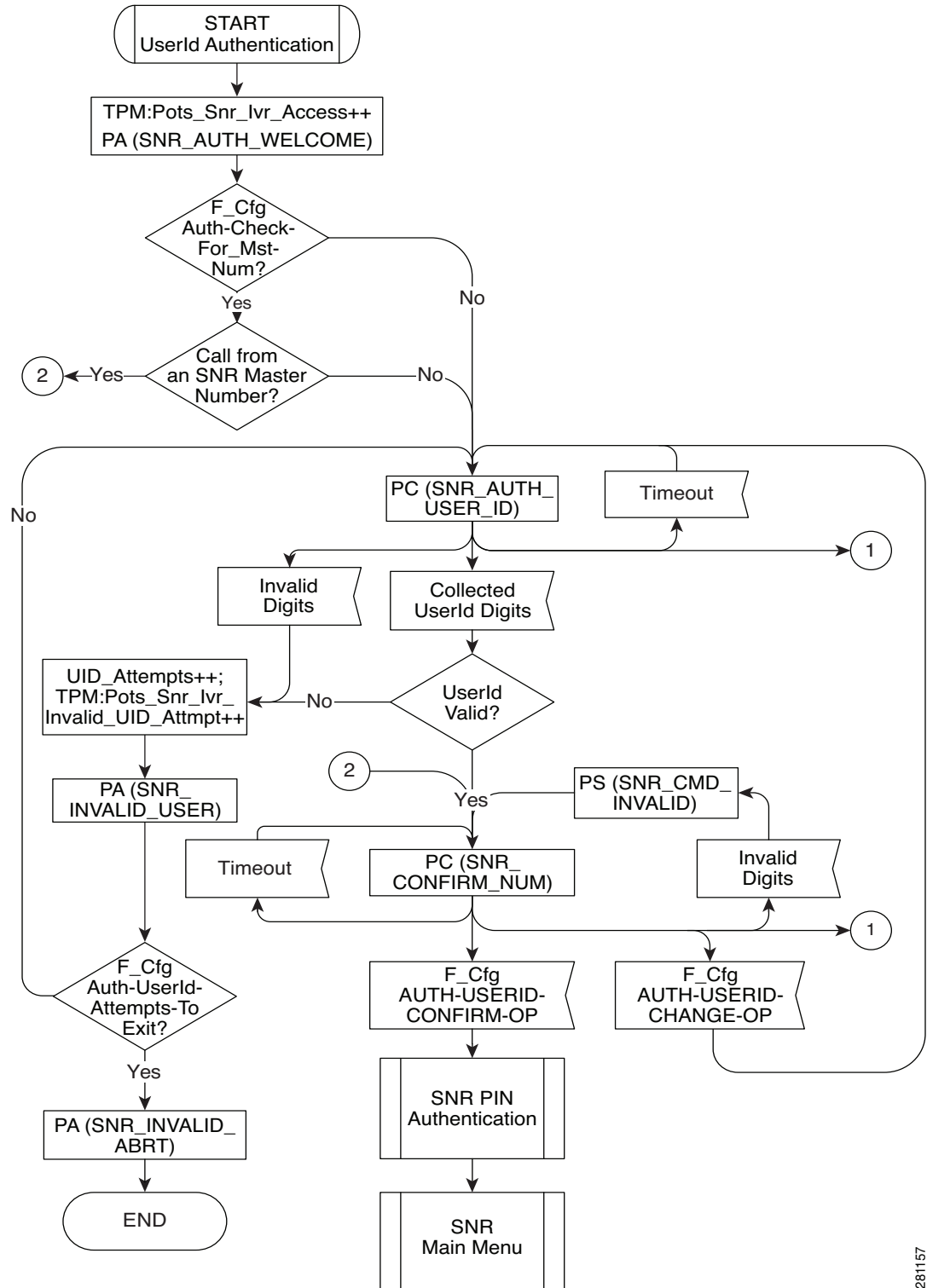### Accessing the Single Number Reach IVR Menu

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

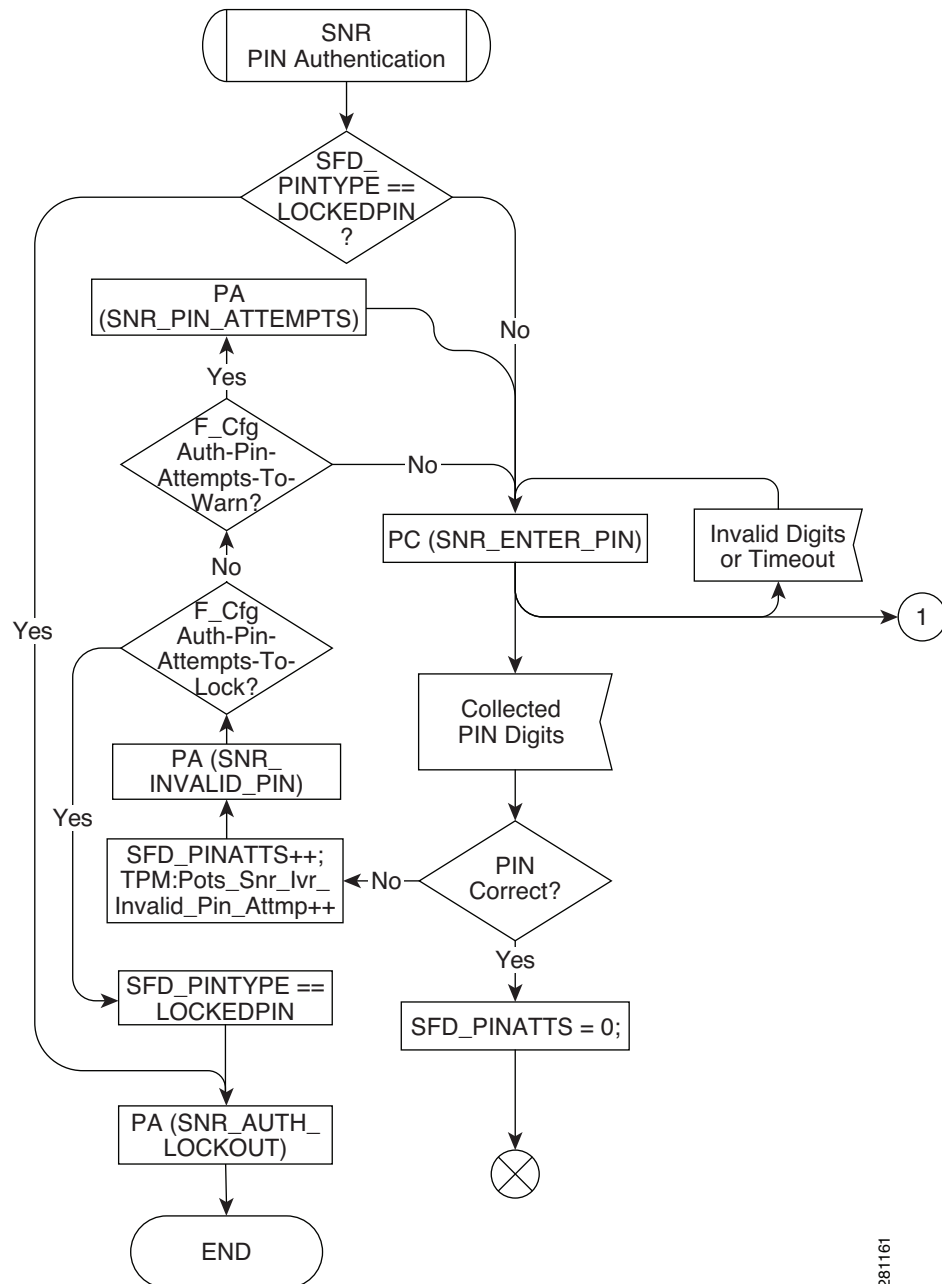Figure 5-2 shows user ID authentication for Single Number Reach.

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

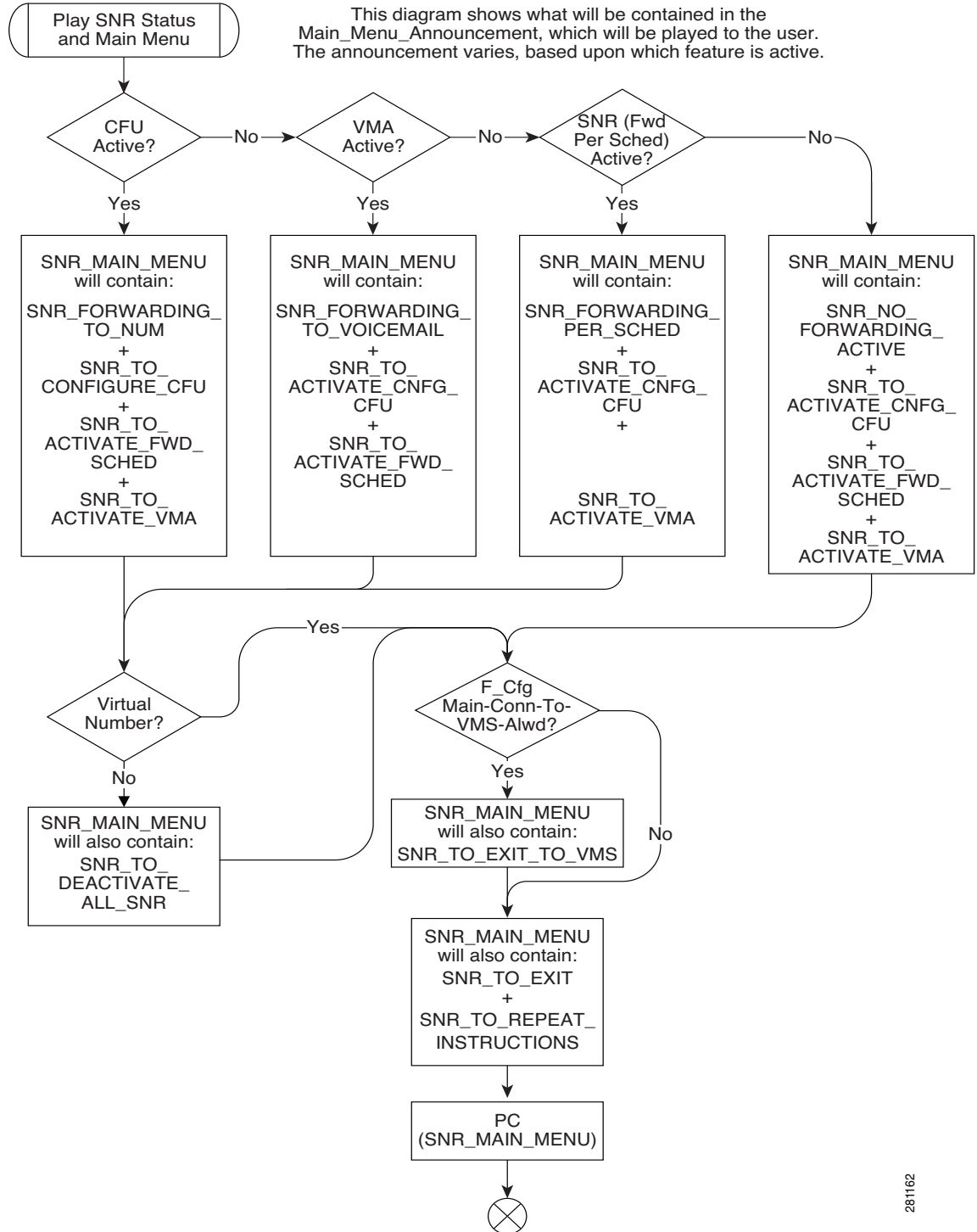
281157

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.

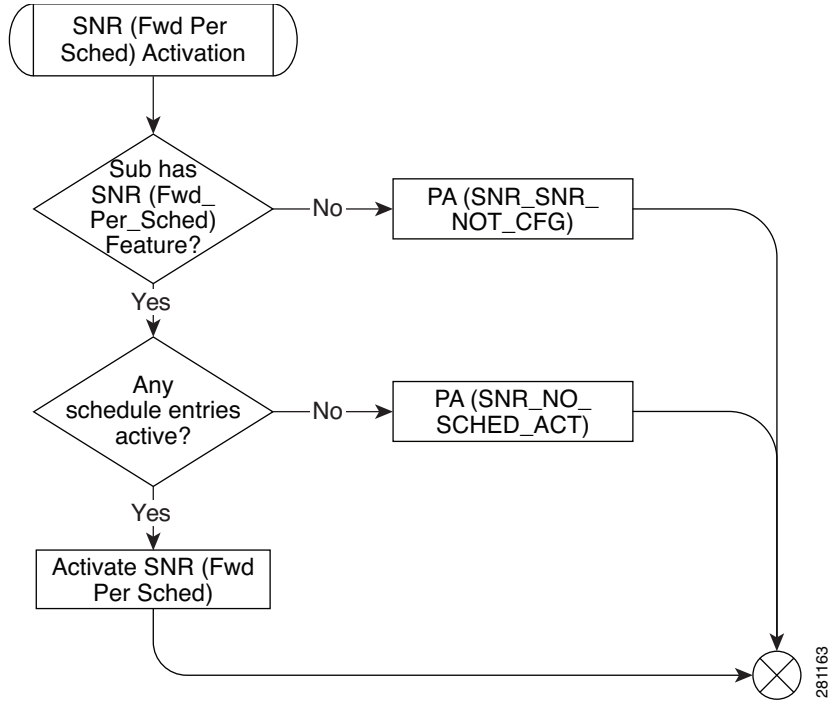*Figure 5-4   Play Single Number Reach Status and Main Menu Options*

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 5-188).

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, Release 6.0.4*.

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];
```