



## CHAPTER 2

# Initial Softswitch Provisioning

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

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

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

## Call Agent Provisioning

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

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

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

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

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

| Step   | Description                                       | CLI Command                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 5 | <a href="#">Add an Exchange Code, page 2-3</a>    | add exchange-code ndc=469; ec=255;                                                                                                                                                                                                                                                                                                                                                                                                             |
| Step 6 | <a href="#">Add an Office Code, page 2-3</a>      | add office-code call-agent-id=CA146; ndc=469; ec=255; dn-group=xxxx;                                                                                                                                                                                                                                                                                                                                                                           |
| Step 7 | <a href="#">Add a Digit Map, page 2-4</a>         | add digit-map id=default;<br>digit-pattern=0Tl00l[2-9]1l[2-9]xx[2-9]xxxxxxl1[2-9]xx[2-9]xxxxxxl0[2-9]xx[2-9]xxxxxxl011xxxxxxxxxxxxxx.Tl101xxxx #l*[4-9]xl*[2-3]xxl1xxl[2-9]#l[2-4]xl[2-9]Tl[2-4]xTl01xxxxxxxxxx;<br><br><b>Note</b> This digit pattern permits the creation of both 2- and 3-digit VSCs. If the first digit is 2 or 3, the length is 3 digits. If first digit is 4–9, the length is 2 digit. For example:<br>*2-3xxx<br>*4-9xx |
| Step 8 | <a href="#">Add a Point of Presence, page 2-4</a> | add pop id=1; state=tx; country=usa; timezone=CST;                                                                                                                                                                                                                                                                                                                                                                                             |

## Add a Call Agent

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

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

## Add a Call Agent Profile

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

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

## Change a Call Agent Configuration

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

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



**Note**

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

## Call Agent Configuration Base Table

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

## Add a National Destination Code

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

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

## Add an Exchange Code

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

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

## Add an Office Code

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

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

## Add a Digit Map

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

| Command                                                                                                                                                                                                                                                 | Purpose          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| <code>add digit-map id=default;<br/>digit-pattern=0Tl00l[2-9]1l[2-9]xx[2-9]xxxxxxl<br/>1[2-9]xx[2-9]xxxxxxl0[2-9]xx[2-9]xxxxxxl011x<br/>xxxxxxxxxxxxx.Tl101xxxxl#l*[4-9]xl*[2-3]xxl11<br/>xxl[2-9]#<br/>l[2-4]x#l[2-9]Tl[2-4]xTl01xxxxxxxxxxxxx;</code> | Adds a digit map |



**Note**

This table is case-sensitive.

## Add a Point of Presence

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

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

## Provisioning a Feature Server

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

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

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

**Table 2-2 Feature Server Provisioning Steps**

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

## Add a Feature Server

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

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

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

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

| <b>Service Type</b>           | <b>Feature Name</b>                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Class of Service Restrictions | Number Blocking<br>Restrictions based on category of service: <ul style="list-style-type: none"> <li>• 900 Blocking</li> <li>• Directory Assistance Blocking</li> <li>• International Blocking</li> <li>• 976 Blocking</li> <li>• National Black/White List</li> <li>• International Black/White List</li> <li>• Casual Black/White List</li> <li>• Account Codes</li> <li>• Authorization Codes</li> </ul> |
| Screening features            | Selective Call Forwarding<br>Selective Call Acceptance<br>Selective Call Rejection, Call Block<br>Distinctive Ringing/Call Waiting                                                                                                                                                                                                                                                                          |
| POTS features                 | Analog DID for PBX (FXO)<br>DOD for PBX<br>Multiple Directory Numbers (Teen Service)                                                                                                                                                                                                                                                                                                                        |

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

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

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

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

**Note**

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

## Add a Feature

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

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

## Add a Vertical Service Code

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



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

## Add a Service

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

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

