



## CHAPTER 4

# Operating the BTS

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## Introduction

This chapter tells you how to operate the BTS. This chapter assumes the following are true:

- Connecting components have been correctly installed.
- Connecting components have been successfully started.
- You are a system administrator with past BTS experience.

# Managing Subscribers

**Table 4-1** Managing Subscribers

Task	Sample Command
Activating added subscribers	<pre>control subscriber-termination id=&lt;subscriber id&gt;; target-state=INS; mode=FORCED;</pre>
Deactivating subscribers	<p>Force the subscriber OOS:</p> <pre>control subscriber-termination target-state=oos; mode=forced; id=&lt;subscriber id&gt;;</pre> <p>Force the subscriber's MTA OOS:</p> <pre>control mgw id=&lt;mgw-id&gt;; target-state=oos; mode=forced;</pre> <p>Disassociate the subscriber from VoIP service:</p> <pre>delete subscriber-service-profile sub-id=&lt;subscriber id&gt;; service-id=1;</pre> <p>Remove the subscriber from the BTS database:</p> <pre>delete subscriber id=&lt;subscriber-id&gt;;</pre> <p>Remove VoIP service from the subscriber's MTA:</p> <pre>delete termination prefix=aaln/; port-start=1; port-end=2; mgw_id=&lt;mgw-id&gt;;</pre> <p>Remove the subscriber's MTA from the BTS:</p> <pre>delete mgw id=&lt;mgw-id&gt;;</pre>
Bypassing LNP queries for ported-in numbers	<p>After activating a ported-in number, update the BTS so calls to this number from MTAs on the BTS directly route to the MTA associated with the ported-in number:</p> <pre>change dn2subscriber office-code-index=   &lt;office-code-index of ported TN's NPA-NXX&gt;; dn=&lt;XXXX of the ported TN&gt;; lnp-trigger=N;</pre>
Ensuring LNP queries for ported-out numbers	<p>Update the BTS so calls to this number perform an LNP query:</p> <pre>change dn2subscriber office-code-index=   &lt;office-code-index of ported TN's NPA-NXX&gt;; dn=&lt;XXXX of the ported TN&gt;; lnp-trigger=y;</pre>
Assigning a DN ported-out status	<p><b>Note</b> Wait for the CLEC to confirm the transfer before changing the DN status on the BTS. Initially, calls to the DN may have to route to the porting-out subscriber's MTA using LNP.</p> <pre>change dn2subscriber office-code-index=   &lt;office-code-index of porting TN's NPA-NXX&gt;; dn=&lt;XXXX of the porting TN&gt;; status=ported-out; sub-id=null;</pre>
Disconnecting service to ported subscribers	<ol style="list-style-type: none"> <li>1. Assign time and date to disconnect service.</li> <li>2. Send service disconnection notice to NPAC SMS.</li> <li>3. NPAC SMS broadcasts this to all service providers.</li> <li>4. NPAC SMS removes the ported number from its database.</li> <li>5. All service providers remove the number from their LNP databases.</li> <li>6. Calls to the number route as if it was non-ported.</li> </ol>

**Table 4-1** *Managing Subscribers (continued)*

<b>Task</b>	<b>Sample Command</b>
Viewing subscribers voice mail indicator (VMI) status	<pre>status subscriber ID=278-222-1917</pre> <p><b>Note</b> For MGCP subscribers only.</p>
Resetting subscribers voice mail waiting indicator (VMWI)	<pre>control subscriber ID=278-222-1917; mwi=on</pre> <p>or</p> <pre>control subscriber ID=278-222-1917; mwi=off</pre>
Changing subscribers ring and call waiting tone	<pre>change dn2subscriber DN=4692553010; RING_TYPE=4; CWT_TYPE=4;</pre> <p><b>Note</b> The CWT_TYPE has no effect on SIP subscribers. Their IP phones control how they receive call waiting tones.</p>
Deleting subscribers secondary DNs	<p>Delete one secondary DN for a subscriber:</p> <pre>delete dn2subscriber FDN=4692553010;</pre> <p>Delete all secondary DNs for a subscriber:</p> <pre>delete dn2subscriber SUB_ID=SUBSCRIBER_1; VIRTUAL_DN=Y;</pre>

**Table 4-1** *Managing Subscribers (continued)*

<b>Task</b>	<b>Sample Command</b>
Changing subscribers announcements	Delete the changed-number entry. <code>delete changed-number old-DN=&lt;old-DN&gt;;</code>  Change the status of the old DN to DISC in the dn2subscriber table. <code>change dn2subscriber DN=&lt;old-DN&gt;; status=DISC;</code>

Table 4-1 Managing Subscribers (continued)

Task	Sample Command
Changing subscribers DNs	<p>Change the subscriber DN to the new DN.</p> <pre>change sub id=&lt;id&gt;; dn1=&lt;new-DN&gt;; CN-REFERRAL=Y;</pre> <p>Example:</p> <pre>change sub id=sub1; dn1=206-222-1841; CN-REFERRAL=Y;</pre> <p>The CN-REFERRAL token adds an entry in the changed-number table for the changed subscriber DN. By default, the CN-REFERRAL token is set to Y. If the CN-REFERRAL token is set to N, the changed-number table is not updated with the changed number information.</p> <p>Use the show subscriber command to verify the new DN.</p> <pre>show sub id=&lt;id&gt;</pre> <p>Example:</p> <pre>show sub id=sub1; Dn1 indicates 206-222-1841</pre> <p>Verify that the changed number (old DN) of the subscriber is being tracked in the changed-number table.</p> <pre>show changed-number old-dn=&lt;old-dn&gt;</pre> <p>Example:</p> <pre>show changed-number OLD-DN=206-222-2345</pre> <p>Use the dn2subscriber table to verify that the old DN is in CN state and new DN is in assigned state. Check if the status of the old DN is CN.</p> <pre>show dn2subscriber FDN=&lt;old-DN&gt;;</pre> <p>Example:</p> <pre>show dn2subscriber FDN=206-222-2345;</pre> <p>Check if the status of the new DN is assigned.</p> <pre>show dn2subscriber FDN=&lt;new-DN&gt;;</pre> <p>Example:</p> <pre>show dn2subscriber FDN=206-222-1841;</pre> <p>Place an incoming call to the new DN and verify the call is setup successfully.</p> <p>Place an incoming call to the old DN and verify that the announcement played is "&lt;old DN&gt; has been changed to &lt;new DN&gt;."</p> <p>If an announcement is not played, do the following:</p> <p>Verify if the release cause id maps to annc-id=118.</p> <pre>show release-cause id=22;</pre> <p>Verify if the announcement id maps to announcement-number 301.</p> <pre>show annc id=118;</pre> <p><b>Note</b> If there is no referral number (that is, when CN-REFERRAL is set to N where the new number is private), the BTS 10200 plays a generic announcement indicating that the number has changed. No further information is provided on the new number.</p>

# Viewing Calls

These tasks allows you to view information related to call forwarding features.

If A calls B and the call is forwarded to C:

- Querying A shows A is connected to C and provide C's information.
- Querying C shows C is connected to A and provide A's information.
- Querying B shows A is calling C and the call is forwarded through B.
- Even when the call is forwarded through B, B can originate another call. B can also forward multiple calls.

When viewing Three-Way Call and Call Waiting calls remember the output shows both calls.

**Table 4-2**      **Viewing Calls**


Task	Sample Command
Viewing active calls	<code>query call-trace subscriberDN/FQDN/NPA-NXX-****/aaln/*@*</code>
Viewing call trace summaries, started when subscriber presses *57	<p><code>report call-trace-summary</code></p> <p><b>Note</b>    The report appears on the screen and it does not generate in HTML.</p>

# Using Status and Control Commands

**Table 4-3** *Using Status and Control Commands*

Task	Sample Command
Viewing BTS system status	<code>status system;</code>
Viewing component states	<p><b>status element-manager id=EM01;</b></p> <p>Possible states:</p> <ul style="list-style-type: none"> <li>• <b>STARTUP</b>—During platform startup, the two sides are communicating to determine which side will come up active.               <ul style="list-style-type: none"> <li>– <b>INIT-NORMAL</b>—primary will be active, secondary will be standby; switchover allowed.</li> <li>– <b>INIT-FORCED</b>—primary will be forced to active or standby, secondary will be forced to standby or active; no switchover allowed.</li> </ul> </li> <li>• <b>ACTIVE-NORMAL</b>—primary is active, secondary is standby; switchover allowed.</li> <li>• <b>ACTIVE-FORCED</b>—primary or secondary has been forced to active; no switchover allowed.</li> <li>• <b>STANDBY-NORMAL</b>—primary should be active, secondary should be standby; switchover allowed.</li> <li>• <b>STANDBY-FORCED</b>—primary or secondary has been forced to standby; no switchover allowed.</li> <li>• <b>TRANSITION-TO-ACTIVE-NORMAL</b>—primary is going to active, secondary is going to standby; switchover allowed.</li> <li>• <b>TRANSITION-TO-ACTIVE-FORCED</b>—primary has been forced to active or standby; secondary has been forced to standby or active; no switchover allowed.</li> <li>• <b>TRANSITION-TO-STANDBY-NORMAL</b>—primary is going to standby, secondary is going to standby; switchover allowed.</li> <li>• <b>TRANSITION-TO-STANDBY-FORCED</b>—primary has been forced to active or standby; secondary has been forced to standby or active; no switchover allowed.</li> </ul> <p><b>Tip</b> Use <code>status application</code> for more detailed information.</p>

**Table 4-3** Using Status and Control Commands (continued)

Task	Sample Command
Changing states of component pairs (EMS, BDMS, CA, and FS)	<pre>control call-agent id=CA146; target-state=FORCED-STANDBY-ACTIVE;</pre> <p>Possible states:</p> <ul style="list-style-type: none"> <li>• ACTIVE_STANDBY</li> <li>• STANDBY_ACTIVE</li> <li>• NORMAL—Primary is active and secondary is standby.</li> <li>• FORCED-ACTIVE-STANDBY—Primary has been forced to active and secondary is standby.</li> <li>• FORCED-STANDBY-ACTIVE—Primary has been forced to standby and secondary is active.</li> </ul>
Viewing component application states	<pre>status application id=CA146;</pre>
Changing component applications states (in-service or OOS)	<pre>control application id=CA146; action=star;node=prica06</pre> <p> <b>Caution</b> This negatively impacts the performance of the BTS host.</p>
Activating media gateways	<p>Ensure the MG exists, then enter:</p> <pre>control mgw id=&lt;mgw-id&gt;; target-state=ins; mode=forced;</pre> <p>where</p> <ul style="list-style-type: none"> <li>• <b>mgw id</b>—the voice port on the subscriber's MTA (the voice port's MAC address without hyphens)</li> <li>• <b>target-state</b>—ins to show in service for all activations</li> <li>• <b>mode</b>—forced for all activations</li> </ul>
Setting subsystem groups/OPC in or OOS	<pre>control subsystem_grp id=CNAM; mode=forced; target_state=UOS;</pre> <p>This sets the state of the individual subsystems within the subsystem group as well. If a subsystem/OPC combination is taken OOS individually, the state of the subsystem group may be in service while some members of the group are out of service.</p>
Viewing subsystem groups/OPC status	<pre>status subsystem_grp id=CNAM</pre>

# Using Show and Change Commands


**Table 4-4** Using Show and Change Commands

Task	Sample Command
Viewing subscriber-related batch data: subscribers, terminations, subscriber service profiles	<pre>show subscriber limit=1000; start_row=&lt;next page value&gt;;display=id,sub_service_profile; order=id;</pre> <p>Where</p> <ul style="list-style-type: none"> <li>• <b>limit</b>—Page size for the maximum number of rows (or lines) to display</li> <li>• <b>start_row</b>—Which page to display first</li> <li>• <b>display=id</b>—Sorts data by <b>id</b> column</li> <li>• <b>order=id</b>—Provides a key for ordering or sorting the data</li> </ul>
Viewing database usage statistics	<pre>show db-usage table-name=dial_plan;</pre> <p><b>Note</b> Do not use hyphens in table names; instead use underscores.</p>
Changing database usage statistics	<pre>change db-usage table-name=dial-plan; minor-threshold=70;major-threshold=80; critical-threshold=95;</pre>

## Viewing and Deleting Transactions

The Transaction Queue tracks updates to EMS database, and the shared memory of the CAs and FSs. Entries should remain in the transaction queue for a few seconds, unless an EMS, CA, or FS in an error state. In case of an error state, the transaction queue to stores entries for later updates.

**Table 4-5** Viewing and Deleting Transactions

Task	Sample Command
Viewing transaction queue entries	<pre>show transaction-queue target=CA146</pre> <p>Following is an example of the system response to this command.</p> <pre>TRANSACTION_ID=3910358747849163606 SEQUENCE_NUM=0 TARGET=CA146 STATEMENT=INSERT INTO CARRIER (ID) VALUES ("3434") TIMESTAMP=2007-10-24 16:13:05 ACTIVE_TARGET=Y USERNAME=btsadmin TERMINAL=CMD-1!USR6!priems121 STATUS=PENDING</pre>
Deleting transaction queue entries	<pre>delete transaction-queue target=CA146</pre> <p> <b>Caution</b> This command causes a database inconsistency. Call TAC before using it.</p>

# Scheduling Commands

Schedule a command to execute daily, weekly, or monthly at a specific time. You can remove the command at any time. If the command is scheduled to recur and is currently executing it completes in a normal fashion and is removed from the list going forward. Using start-time and recurrence command tokens, schedule commands at any time and frequency.

**Table 4-6**      *Scheduling Commands*

<b>Task</b>	<b>Sample Command</b>
Viewing scheduled commands	<code>show scheduled-command id=1234;</code>
Adding scheduled commands	<code>add scheduled-command start-time=2001-10-01 12:22:22; noun=database; verb=audit;</code>
Changing scheduled commands	<code>change scheduled-command id=1234; start-time=2001-10-02 20:00:00;</code>
Deleting scheduled commands	<code>delete scheduled-command id=1234;</code>