CHAPTER 6

Provisioning Dial Plans

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Introduction

This chapter provides detailed instructions for configuring Cisco BTS 10200 Softswitch configuration dial plans using the Command Line Interface (CLI) and the Cisco Extensible Provisioning and Operations Manager (EPOM). The following subjects are discussed:

- Provisioning a Dial Plan with the Command Line Interface
- Provisioning a Dial Plan with the Extensible Provisioning and Operations Manager

Provisioning a Dial Plan with the Command Line Interface

This section provides the detailed instructions for managing dial plans in the Cisco BTS 10200 Softswitch configuration using the CLI. The CLI also allows you to perform show, add, change, and delete dial plans. The following subjects are discussed:

- Dial Plan
- Dial Plan Profile
- International Dial Plan
- International Dial Plan Profile
- Custom Dial Plan
- Custom Dial Plan Profile

Dial Plan

Dial plans analyze, screen, and route calls based on dialed digits. The Dial Plan (dial-plan) table holds dial plan information for a specific type of call. It defines valid dialing patterns and determines call routing. All records that share a common dial-plan-profile id are considered a dial plan. For additional Dial Plan table information, refer to the "Dial Plan" section on page 1-45.

Dial Plan Profile

The Dial Plan Profile (dial-plan-profile) table creates dial-plan-profile ids before they are assigned to subscribers or trunk groups. The dial-plan-profile id links digit-string entries in the Dial Plan table within a dial plan. Different dial-plan-profile ids are assigned to subscribers and trunk groups. A dial-plan-id must be created in this table before entries can be added to the Dial Plan table. For additional Dial Plan Profile information, refer to the "Dial Plan Profile" section on page 1-37.

International Dial Plan

The International Dial Plan (intl-dial-plan) table holds international dial plan information for calls to regions outside the North American Numbering Plan (NANP). It contains the country code, minimum and maximum digits, the country name, and the route-grp-id. For additional International Dial Plan table information, refer to the "International Dial Plan" section on page 1-50.

International Dial Plan Profile

The International Dial Plan Profile (intl-dial-plan-profile) table is used to create unique IDs for international dial plans. This ID must be created before provisioning the International Dial Plan table. For additional International Dial Plan Profile table information, refer to the "International Dial Plan Profile" section on page 1-42.

Custom Dial Plan

The Custom Dial Plan (custom-dial-plan) table translates Centrex calls. If the result of a custom dial plan (CDP) is a POTS access code, call processing uses the POTS Dial Plan table to translate the digits dialed after the POTS access code. Speed call codes are provisioned in this table as nod=speed-call and fname=SC1D (or SC2D). Screening does not apply to speed dialing.

Table Name: CUSTOM_DIAL_PLAN

Table Containment Area: EMS, FSPTC

Command Types

add, audit, change, delete, help, show, sync

Caution Sync is a restricted command and is intended for repairing data only. Improper use may corrupt database and disrupt call processing. Use with caution.

Examples

```
show custom-dial-plan id=cisco plan; digit-string=4xx;
add custom-dial-plan id=cisco plan; digit-string=9; nod=pots-access;
cat-string=1111111111;
change custom-dial-plan id=cisco plan; digit-string=4xx; nod=vsc; fname=CFUA;
delete custom-dial-plan id=cisco plan; digit-string=*72;
```

Usage Guidelines

Primary Key Token(s): ID, DIGIT_STRING

Foreign Key Token(s): id, fname

Related Commands

AUTO_REFRESH	Description: Specifies whether to display cached data on the screen. Valid only for the show command. CHAR(1): Y/N (Default = Y). Y--Queries the database for the most current data. N--Queries the database for the most current data only if the cached data is unavailable. Valid for Command: show Default Value: Y Possible Value: Y, N Parser: BooleanParser
CAT_STRING	Valid for Command: add, change, audit, sync, show Possible Value: [1_16] Parser: TextParser
DIGIT_STRING	Description: Primary key. NDC-EC-XXXX to be assigned to a region. VARCHAR(14): 1-14 numeric characters. Valid for Command: add, change, show, delete, audit, sync Mandatory: add, change, delete Possible Value: [1_7] Parser: TextParser
DISPLAY	Description: Specifies what token information to display on the screen. Valid only for the show command. VARCHAR(1024): 1-1024 (Default = all tokens are displayed). Permitted values are any valid token that can be shown for this command. Multiple tokens can be entered by separating with a comma. Valid for Command: show Possible Value: [1_1024] Parser: TextParser

FNAME	Description: Primary key. Foreign key: Feature table. Type of screening feature. VARCHAR(16): 1-16 ASCII characters. Permitted values are: SCR--Selective call rejection SCF--Selective call forwarding SCA--Selective call acceptance DRCW--Distinctive ringing NSA--No Solicitation Valid for Command: add, change, audit, sync, show Possible Value: [1_16] Parser: TextNoCaseParser
ID	Description: Network ID of a specific CA or FS. Valid for the download to Standby CA or FS command. VARCHAR(8):1-8 ASCII characters consisting of any valid, provisioned CA, FSPTC, or FSAIN ID. Valid for Command: add, change, show, delete, audit, sync Mandatory: add, change, delete Possible Value: [1_16] Parser: TextParser
LIMIT	Description: Specifies the number of rows to display on the screen. Valid only for the show command. INTEGER: 1-100000000 (Default = 100000000). Valid for Command: show Default Value: 100000000 Possible Value: [1_100000000] Parser: DecimalParser
MASTER	Valid for Command: sync Mandatory: sync Possible Value: [1_10] Parser: TextParser
NOD	Description: Primary key. Foreign key: Nature of Dial table. Nature of dial. VARCHAR(16): 1-16 ASCII characters. Valid for Command: add, change, audit, sync, show Mandatory: add Possible Value: VSC, ATTENDANT_ACCESS, POTS_ACCESS, EXTENSION, SPEED_CALL Parser: TextParser

ORDER	Description: Specifies whether to display data on the screen in a sorted order. Valid only for the show command. VARCHAR(51200): 1-51200 (Default = all rows are displayed). Permitted values are any valid token that can be shown for this command. Multiple tokens can be entered by separating with a comma. Valid for Command: show Possible Value: [1_1024] Parser: TextParser
PLATFORM_STATE	Description: State of an active or standby system shared memory database; use to audit an active or standby system shared memory database. Valid for the audit database and audit table name commands. VARCHAR(7): 1-7 ASCII characters. Permitted values are: ACTIVE (Default)--System is active (currently running). STANDBY--System is in standby mode. EMS--Audits the active EMS to the standby EMS. Valid for Command: sync, audit Default Value: ACTIVE Possible Value: ACTIVE, STANDBY Parser: TextParser
START_ROW	Description: Specifies to begin displaying data on the screen at a specific row. Valid only for the show command. INTEGER: 1-100000000 (Default = 1). Valid for Command: show Default Value: 1 Possible Value: [1_100000000] Parser: DecimalParser
TARGET	Description: Specifies the network element to receive the request. VARCHAR(5): 1-5 ASCII characters. Permitted values are: CA--Network identifier of a Call Agent. FSPTC (POTS/Tandem/Centrex Feature Server)--Network identifier of a specific Feature Server. FSAIN (AIN Feature Server)--Network identifier of AIN Feature Servers. Valid for Command: sync Mandatory: sync Possible Value: [1_10] Parser: TextParser

Custom Dial Plan Profile

The Custom Dial Plan Profile (custom-dial-plan-profile) table defines custom dial plan IDs (CDP IDs) assigned to Centrex groups.

Table Name: CUSTOM_DIAL_PLAN_PROFILE

Table Containment Area: EMS

Command Types

add, change, delete, help, show

Examples

```
show custom-dial-plan-profile id=cisco plan;
add custom-dial-plan-profile id=cisco plan;
change custom-dial-plan-profile id=cisco plan; description=main dialing plan for cisco;
delete custom-dial-plan-profile id=cisco plan;
```

Usage Guidelines

Primary Key Token(s): ID

Delete Rules: ID does not exist in any custom-dial-plan::id

Syntax Description

AUTO_REFRESH	Description: Specifies whether to display cached data on the screen. Valid only for the show command. CHAR(1): Y/N (Default = Y). Y--Queries the database for the most current data. N--Queries the database for the most current data only if the cached data is unavailable. Valid for Command: show Default Value: Y Possible Value: Y, N Parser: BooleanParser
DESCRIPTION	Description: Described by the service provider. VARCHAR(64): 1-64 ASCII characters. Valid for Command: add, change, audit, sync, show Possible Value: [1_64] Parser: TextParser

DISPLAY	Description: Specifies what token information to display on the screen. Valid only for the show command. VARCHAR(1024): 1-1024 (Default = all tokens are displayed). Permitted values are any valid token that can be shown for this command. Multiple tokens can be entered by separating with a comma. Valid for Command: show Possible Value: [1_1024] Parser: TextParser
ID	Description: Network ID of a specific CA or FS. Valid for the download to Standby CA or FS command. VARCHAR(8):1-8 ASCII characters consisting of any valid, provisioned CA, FSPTC, or FSAIN ID. Valid for Command: add, change, show, delete, audit, sync Mandatory: add, change, delete Possible Value: [1_16] Parser: TextParser
LIMIT	Description: Specifies the number of rows to display on the screen. Valid only for the show command. INTEGER: 1-100000000 (Default = 100000000). Valid for Command: show Default Value: 100000000 Possible Value: [1_100000000] Parser: DecimalParser
MASTER	Valid for Command: sync Mandatory: sync Possible Value: [1_10] Parser: TextParser
ORDER	Description: Specifies whether to display data on the screen in a sorted order. Valid only for the show command. VARCHAR(51200): 1-51200 (Default = all rows are displayed). Permitted values are any valid token that can be shown for this command. Multiple tokens can be entered by separating with a comma. Valid for Command: show Possible Value: [1_1024] Parser: TextParser

PLATFORM_STATE	Description: State of an active or standby system shared memory database; use to audit an active or standby system shared memory database. Valid for the audit database and audit table name commands. VARCHAR(7): 1-7 ASCII characters. Permitted values are: ACTIVE (Default)--System is active (currently running). STANDBY--System is in standby mode. EMS--Audits the active EMS to the standby EMS. Valid for Command: sync, audit Default Value: ACTIVE Possible Value: ACTIVE, STANDBY Parser: TextParser
START_ROW	Description: Specifies to begin displaying data on the screen at a specific row. Valid only for the show command. INTEGER: 1-100000000 (Default = 1). Valid for Command: show Default Value: 1 Possible Value: [1_100000000] Parser: DecimalParser
TARGET	Description: Specifies the network element to receive the request. VARCHAR(5): 1-5 ASCII characters. Permitted values are: CA--Network identifier of a Call Agent. FSPTC (POTS/Tandem/Centrex Feature Server)--Network identifier of a specific Feature Server. FSAIN (AIN Feature Server)--Network identifier of AIN Feature Servers. Valid for Command: sync Mandatory: sync Possible Value: [1_10] Parser: TextParser

Provisioning a Dial Plan with the Extensible Provisioning and Operations Manager

This section provides the detailed instructions for adding a dial plan to the Cisco BTS 10200 Softswitch configuration using the Extensible Provisioning and Operations Manager (EPOM). Additionally, detailed instructions are provided for using EPOM to manage configured dial plans. The EPOM also allows you to perform add, delete, and edit commands on multiple dial plans with a single operation. The following subjects are discussed:

- Adding a Dial Plan to the Cisco BTS 10200 Softswitch Configuration
- Applying an EPOM Template to a Selected Dial Plan
- Editing a Dial Plan in the Cisco BTS 10200 Softswitch Configuration
- Deleting a Dial Plan from the Cisco BTS 10200 Softswitch Configuration
- Adding Multiple Dial Plans to a Cisco BTS 10200 Softswitch Configuration
- Editing Multiple Dial Plans in the Cisco BTS 10200 Softswitch Configuration
- Deleting Multiple Dial Plans in the Cisco BTS 10200 Softswitch Configuration

For additional details on using the EPOM, refer to the *Cisco Extensible Provisioning and Operations Manager Getting Started Guide*.

Adding a Dial Plan to the Cisco BTS 10200 Softswitch Configuration

Tip Make sure that you have the configuration information for the component that you want to add to the Cisco EPOM inventory.

Add components to the Cisco EPOM inventory to build a managed network. The device information includes static and dynamic selections to other parts of the configuration. Follow this example to add a dial plan.

Step 1 From the Domain window, select the *domain* > **BTS10200s** > the *Cisco BTS 10200 Softswitch EMS server.*

Step 2 Click **Config**.

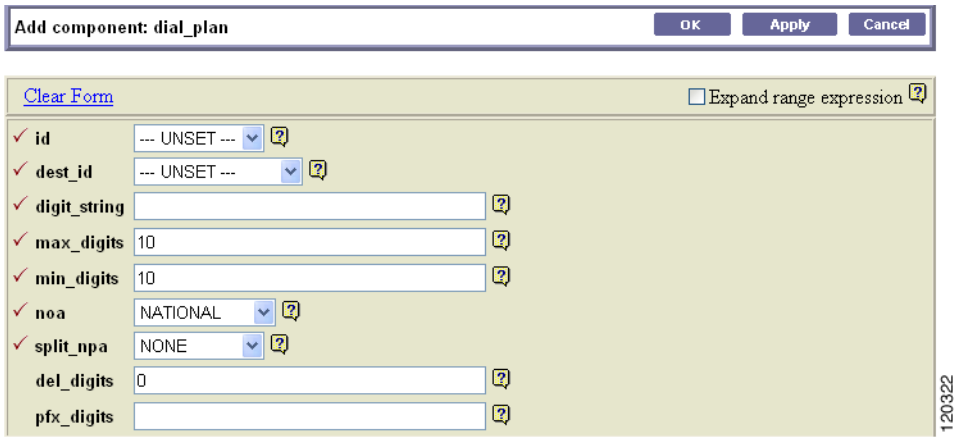
The Cisco BTS 10200 Softswitch Component Status window opens.

Step 3 In the Configuration tree, choose **Office Tables > dial_plan**.

The Cisco BTS 10200 Softswitch Component window opens showing a list of dial plans. If this is the first dial plan (or device of this type) that you are adding, the list is empty.

Step 4 Click **Add**.

The Cisco BTS 10200 Softswitch Component Add window opens.



Step 5 Define the device. Required fields are identified with a red check mark.

Step 6 Click **OK** or **Apply**.

- When you click **OK**, the component is added and the list of components in the Component: *name* window appears.
- When you click **Apply**, the component is added, but you remain in the Add component window for further tasks.

You return to the Cisco BTS 10200 Softswitch Component window. The new dial plan is added to the list.

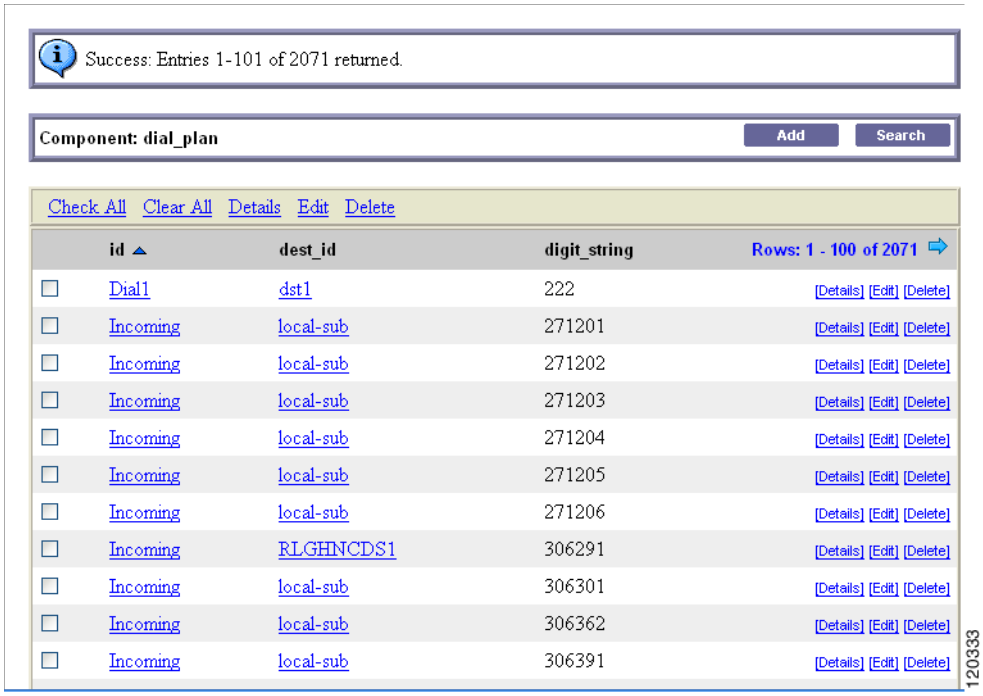
To edit a single component, see the ""Editing a Dial Plan in the Cisco BTS 10200 Softswitch Configuration" section on page 6-12; to delete a single component, see the ""Deleting a Dial Plan from the Cisco BTS 10200 Softswitch Configuration" section on page 6-14.

Applying an EPOM Template to a Selected Dial Plan

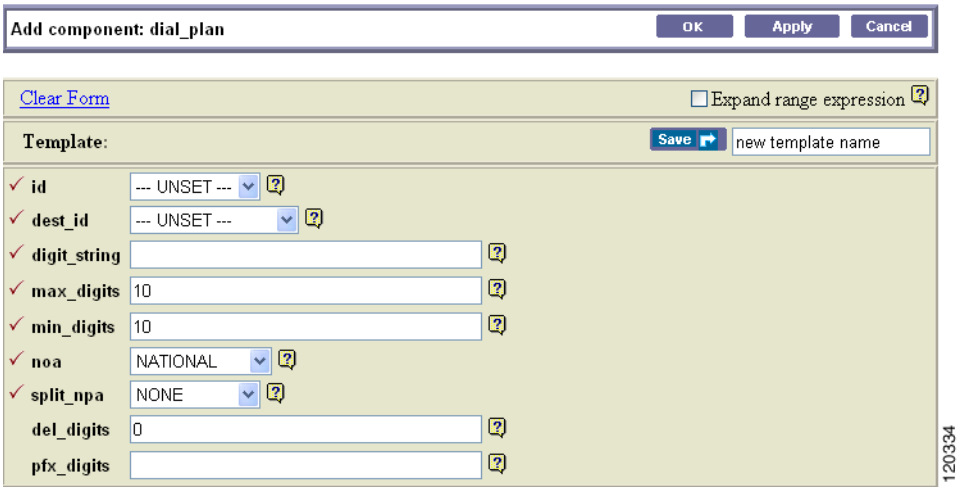
Step 1 In a Domain view, select the **desired domain > BTS10200s > the desired Cisco BTS 10200 Softswitch EMS server**.

Step 2 Click **Config**. The Cisco BTS 10200 Softswitch Component Status view opens.

Step 3 In the Configuration tree, select **Office Tables > dial_plan**. The Cisco BTS 10200 Softswitch Component view opens showing a list of dial plans. If this is the first dial plan (or device of this type) that you are adding, the list is empty.



Step 4 Click **Add**. The Cisco BTS 10200 Softswitch Component Add view opens.



Step 5 Select a template from the list.

Step 6 Click **Load**.

Click **OK** or **Apply**.

- When you click **OK**, the component is added and the list of components in the Component name window is displayed.
- When you click **Apply**, the component is added, but you remain in the Add component window for further operations. The new dial plan is added to the list when you return to the Cisco BTS 10200 Softswitch Component view.

Note The ID field is unique to each device and cannot be repeated among devices. Assign a unique ID for the device before adding it to the Cisco EPOM inventory. You can either specify a value in the ID field to be used as a prefix, or leave a blank field that forces the user to specify a valid, unique ID.

To create a new template from this screen, make changes to the existing component details and save the resulting dial plan as a template by entering a template name and clicking **Save**.

Editing a Dial Plan in the Cisco BTS 10200 Softswitch Configuration

Step 1 From the Domain window, choose the *domain* > **BTS10200s** > the *Cisco BTS 10200 Softswitch EMS server*.

Step 2 Click **Config**.

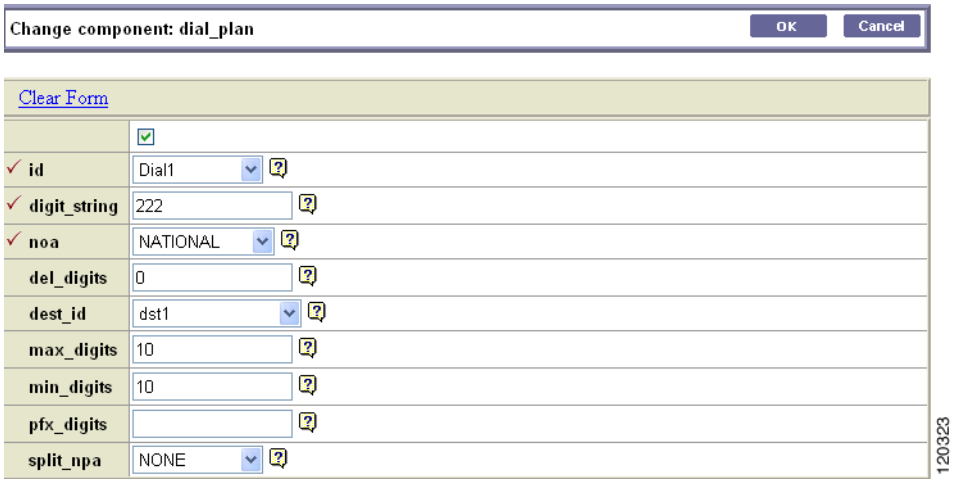
The Cisco BTS 10200 Softswitch Component Status window opens.

Step 3 In the Configuration tree, choose **Office Tables** > **dial_plan**.

The Cisco BTS 10200 Softswitch Component window shows a list of currently configured dial plans.

Step 4 Select the row that you wish to edit and click **Edit**.

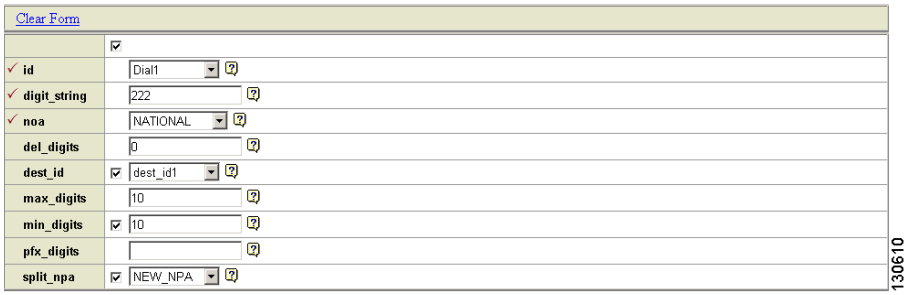
The Change component window appears.



Note The first (blank) row with the checked box indicates that the component identified in the window title was selected for displaying details, editing, or deletion.

Step 5 Make the required changes to the attribute fields. To make changes follow the steps mentioned below.

a. Enter the new value in the text field or select a new value from the drop down box. This action displays a check box against the changed field. This check box is enabled by default.

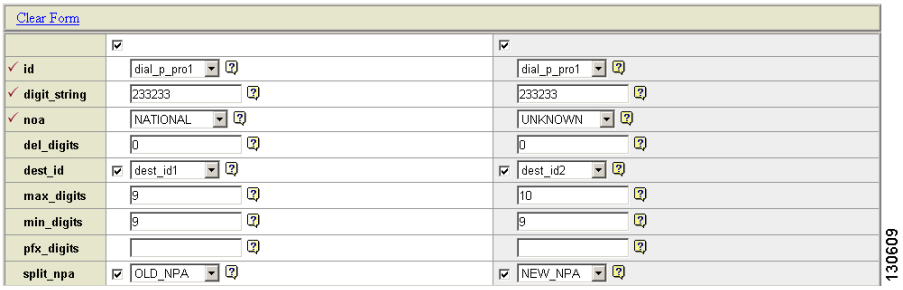


b. Click **OK** to save changes. EPOM will send only the checked elements along with the mandatory fields to Cisco BTS 10200 Softswitch, instead of sending whole edit page elements. This will update the Cisco BTS 10200 Softswitch Server with the new values along with the mandatory attributes.

Note Mandatory attributes cannot be edited, hence no check box will be displayed against it when the user tries to change its value.

Caution If the user decides to revert back and retain the old values then it has be to done before saving. It can be done by un checking the check box. This way the same old values are send to the database when the user clicks **OK** to save the changes.

Step 6 EPOM provides the option to edit multiple nouns in a single instance. Select the nouns which needs to be updated in template and click **Edit**. The browser displays multiple templates.



Note EPOM provides option to edit multiple nouns in a single instance. Select the nouns which needs to be updated in template and click **Edit**. The browser displays multiple templates.

Step 7 Click **OK**.

You return to the Cisco BTS 10200 Softswitch Component window. The edited dial plan appears in the list.

To add a single component, see the ""Adding a Dial Plan to the Cisco BTS 10200 Softswitch Configuration" section on page 6-9; to delete a single component, see the ""Deleting a Dial Plan from the Cisco BTS 10200 Softswitch Configuration" section on page 6-14.

Deleting a Dial Plan from the Cisco BTS 10200 Softswitch Configuration

Step 1 Choose the *domain* > **BTS10200s** > the *Cisco BTS 10200 Softswitch EMS server* from the Domain window.

Step 2 Click **Config**.

The Cisco BTS 10200 Softswitch Component Status window opens.

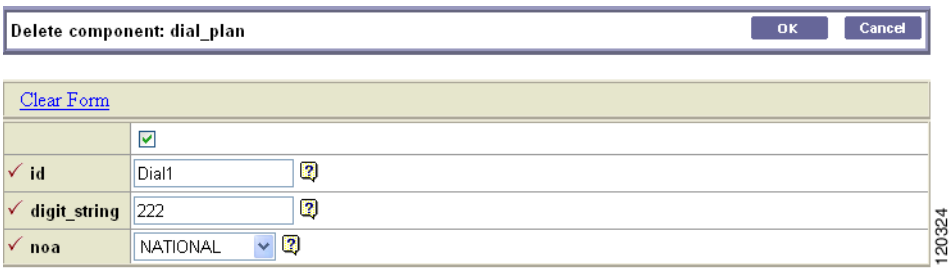
Step 3 In the Configuration tree, choose **Office Tables** > **dial_plan**.

The Cisco BTS 10200 Softswitch Component window shows a list of currently configured dial plans.

Step 4 In the Component: *name* window, select one or more dial plans to delete.

Step 5 Click **Delete**.

The Delete component window with the requested deletion appears.



Note The first (blank) row with the checked box indicates that the component identified in the banner title was selected for displaying details, editing, or deletion.

Step 6 Click **OK**.

To add a single component, see the ""Adding a Dial Plan to the Cisco BTS 10200 Softswitch Configuration" section on page 6-9; to edit a single component, see the ""Editing a Dial Plan in the Cisco BTS 10200 Softswitch Configuration" section on page 6-12.

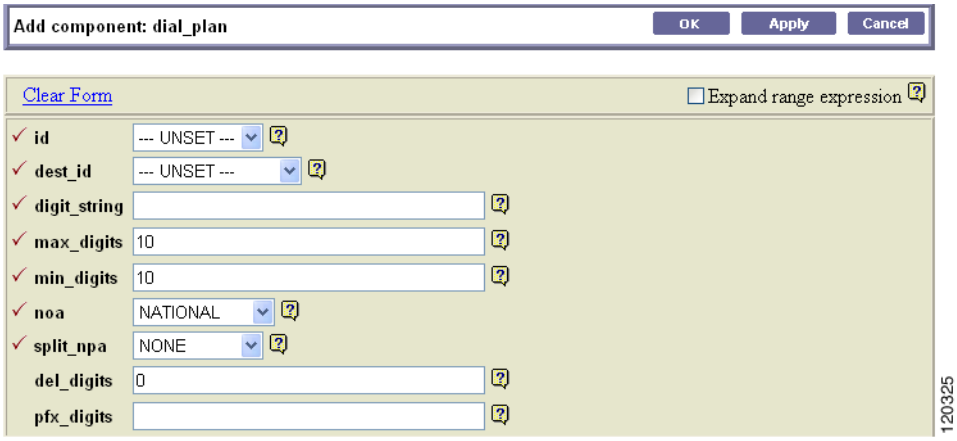
Adding Multiple Dial Plans to a Cisco BTS 10200 Softswitch Configuration

Step 1 In the ems-server window left pane, click a component.

The Component: *name* window appears.

Step 2 Click **Add**.

The Add component window appears.



Step 3 Select the **Expand range expression** check box.

If you fail to select this check box, you get an error message when you enter a range expression.

Tip For information on acceptable range expressions, move your cursor over the "?" symbol next to the Expand range expression field.

Step 4 In the id field, enter a range expression in square brackets [ ].

For example, to add a group of 10 dial plans with the id prefix dp001_new, enter dp001_new[01-10]. Doing so adds dial plans dp001_new01, dp001_new02, through dp001_new10.

Step 5 Enter information in the remaining attribute fields.

Step 6 Click **OK** or **Apply**.

- When you click **OK**, the component is added and the list of components in the Component: *name* window appears.

- When you click **Apply**, the component is added, but you remain in the Add component window for further operations.

You have now added multiple dial plans to the Cisco BTS 10200 Softswitch EMS network.

Editing Multiple Dial Plans in the Cisco BTS 10200 Softswitch Configuration

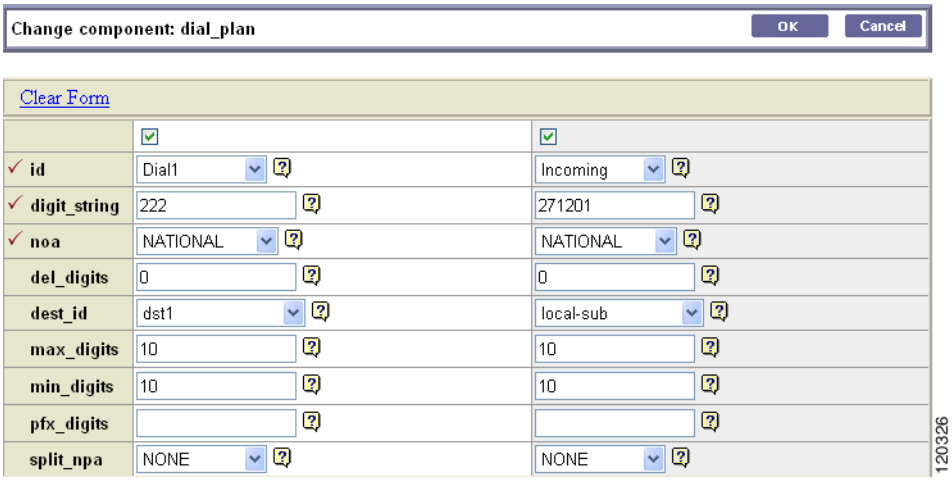
Step 1 In the ems-server window left pane, click a component.

The Component: *name* window appears.

Step 2 In the Component: *name* window, select one or more components that you want to edit.

Step 3 Click **Edit**.

The Change component window appears.



Note The first (blank) row with the checked box indicates that the component in the window title was selected for displaying details, editing, or deletion.

Step 4 Make the required changes to the attribute fields.

Step 5 Click **OK**.

Step 6 You have now edited multiple components in the Cisco BTS 10200 Softswitch EMS network.

Deleting Multiple Dial Plans in the Cisco BTS 10200 Softswitch Configuration

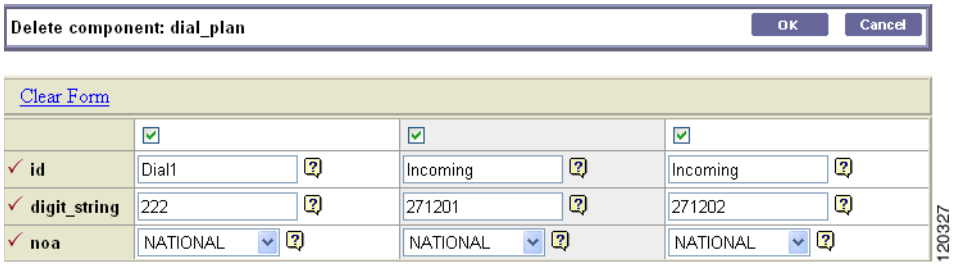
Step 1 Step 1 In the ems-server window left pane, click a component.

The Component: *name* window appears.

Step 2 In the Component: *name* window, select one or more components that you want to delete.

Step 3 Click **Delete**.

The Delete component window appears with the requested deletions.



The first (blank) row with the checked box indicates that this component was selected for displaying details, editing, or deletion.

Step 4 Click **OK**.

You have now deleted multiple dial plans in the Cisco BTS 10200 Softswitch EMS network.