Configure Dial Rules

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Dial Rules Overview

The Unified CM supports the following types of dial rules:

- **Application Dial Rules**: The administrator uses application dial rules to add and sort the priority of dialing rules for applications such as Cisco web dialer and Cisco Unified Communications Manager Assistant.
- **Directory Lookup Dial Rules**: The administrator uses directory lookup dial rules to transform caller identification numbers and perform a directory search from the assistant console in application such as Cisco Unified Communications Manager Assistant.
- **SIP Dial Rules**: The administrator uses SIP dial rules to perform system digit analysis and routing. The administrator configures SIP dial rules and adds the SIP dial rule to the Cisco Unified IP Phone before the call processing takes place.

Dial Rules Prerequisites

- For SIP dial rules configuration, the devices must be running SIP
- The administrator associates the SIP dial rules with the following devices: Cisco IP Phones 7911, 7940, 7941, 7960, 7961

Dial Rules Configuration Task Flow

Procedure

	Command or Action	Purpose
Step 1	Configure Application Dial Rules, on page 2	Configure application dial rules to add and sort the priority of dialing rules for applications such as Cisco web dialer and Cisco Unified Communications Manager Assistant.
Step 2	Configure Directory Lookup Dial Rules, on page 3	Configure directory lookup dial rules to transform caller identification numbers into numbers that can be looked up in the directory.
Step 3	Configure SIP Dial Rules, on page 3	Use SIP dial rules configuration to configure dial plans for phones that are running SIP.
Step 4	Reprioritize Dial Rule, on page 6	Optional. Change the priority of the dial rules in the Cisco Unified Communications Manager Administration window, if more than one dial rule exists.

Configure Application Dial Rules

Cisco Unified Communications Manager supports application dial rules that allow you to add and sort the priority of dialing rules for applications such as Cisco web dialer and Cisco Unified Communications Manager Assistant. Application dial rules automatically strip numbers from or add numbers to telephone numbers that the user dials. For example, the dial rules automatically add the digit 9 in front of a 7-digit telephone number to provide access to an outside line.

Note Cisco Unified Communications Manager automatically applies application dial rules to all remote destination numbers for CTI remote devices.

Perform the following procedure to add a new application dial rule or update an existing application dial rule.

Procedure

Step 1 From Cisco Unified Communications Manager Administration, choose **Call Routing** > **Dial Rules** > **Application Dial Rules**.

Step 2 In the **Find and List Application Dial Rules** window, perform one of the following steps:

- Click **Add New**.
- Click **Find** and choose an existing application dial rule.

Step 3 Configure the fields in the **Application Dial Rule Configuration** window. For detailed field descriptions, refer to the online help.

Step 4 Click **Save**.

What to do next

Perform the following tasks:

- Configure Directory Lookup Dial Rules, on page 3
- Configure SIP Dial Rules, on page 3

Configure Directory Lookup Dial Rules

Directory lookup dial rules transform caller identification numbers into numbers that can be looked up in the directory. Each rule specifies which numbers to transform, based on the beginning digits and length of the number. For example, you can create a directory lookup dial rule that automatically removes the area code and two prefix digits from a 10-digit telephone, which would transform 4085551212 into 51212.

Perform the following procedure to add a new directory lookup dial rule or update an existing directory lookup dial rule.

Procedure

Step 1 From Cisco Unified Communications Manager Administration, choose **Call Routing** > **Dial Rules** > **Directory Lookup Dial Rules**.

Step 2 In the **Directory Lookup Dial Rule Find and List** window **Directory Lookup Dial Rule Find and List** window, perform one of the following steps:

- Click **Add New**.
- Click **Find** and choose an existing directory lookup dial rule.

Step 3 Configure the fields in the **Directory Lookup Dial Rule Configuration** window. For detailed field descriptions, refer to the online help.

Step 4 Click **Save**.

What to do next

Configure SIP Dial Rules, on page 3

Configure SIP Dial Rules

SIP dial rules provide local dial plans for Cisco IP Phones that are running SIP, so users do not have to press a key or wait for a timer before the call gets processed. The administrator configures the SIP dial rule and applies it to the phone that is running SIP.

Procedure

	Command or Action	Purpose
Step 1	Set Up SIP Dial Rule, on page 5	Configure and update SIP dial rules and associate them with the phones that are running SIP.
Step 2	Reset SIP Dial Rule, on page 5	Reset or restart the phone that is running SIP when the SIP dial rule gets updated, so that the phone is updated with the new SIP dial rule.
Step 3	Synchronize SIP Dial Rules Settings With SIP Phones, on page 6	(Optional) Synchronize a SIP phone with a SIP dial rule that has undergone configuration changes, which applies any outstanding configuration settings in the least intrusive manner possible. For example, a reset or restart may not be required on some affected SIP phones.

Related Topics

Pattern Formats, on page 4

Pattern Formats

Table 1: Pattern Formats for SIP Dial Rules

Dial Rule Pattern	Value
7940_7960_OTHER	• Period (.) matches any character • Pound sign (#) acts as the terminating key, and you can apply termination only after matching hits. Alternatively asterisk (*) can also be used as a terminating key as well. **Note** You must configure the pound sign in the pattern field so that it is valid for 7940_7960_OTHER. • Asterisk (*) matches one or more characters and it gets processed as a wildcard character. You can override this by preceding the * with a backward slash (\) escape sequence, which results in the sequence *. The phone automatically strips the \, so it does not appear in the outgoing dial string. When * is received as a dial digit, it gets matched by the wildcard characters * and period (.). • Comma (,) causes the phone to generate a secondary dial tone. For example, 7.... will match any 4-digit DN that starts with 7. 8,..... will match 8, play secondary dial tone (default value), and then match any 5-digit DN.

Set Up SIP Dial Rule

To configure dial plans for phones that are running SIP.

Procedure

Step 1 From Cisco Unified Communications Manager Administration, choose **Call Routing** > **Dial Rules** > **SIP Dial Rules**.

Step 2 In the **Find and List SIP Dial Rules** window. Perform one of the following steps:

- Click **Add New**
- Click **Find** and choose an existing SIP Dial Rule

Step 3 Configure the fields in the **SIP Dial Rule Configuration** window. For detailed field descriptions, refer to the online help.

Step 4 Click **Save**.

Note
When you add or update a SIP dial rule in Cisco Unified Communications Manager Administration, be aware that the Cisco TFTP service rebuilds all phone configuration files, which may cause CPU to spike on the server where the Cisco TFTP service runs, especially if you have a large system with many phones. To ensure that CPU does not spike, add or update the SIP dial rule during a maintenance window or temporarily stop the Cisco TFTP service in Cisco Unified Serviceability before you make the configuration change. If you stop the Cisco TFTP service, remember to restart the service in Cisco Unified Serviceability after you add or update the SIP dial rule.

What to do next

Reset SIP Dial Rule, on page 5

Related Topics

Pattern Formats, on page 4

Reset SIP Dial Rule

Perform the following procedure to reset or restart the phone that is running SIP when the SIP dial rule gets updated, so the phone gets updated with the new SIP dial rule.

Before you begin

Set Up SIP Dial Rule, on page 5

Procedure

Step 1 From Cisco Unified Communications Manager Administration, choose **Call Routing** > **Dial Rules** > **Application Dial Rules**.

Step 2 In the **Find and List SIP Dial Rules** window, click **Find** and choose an existing SIP dial rule that you want to reset.

Step 3 In the **SIP Dial Rule Configuration** window, click **Reset**.

Step 4 Perform one of the following tasks in the **Device Reset** dialog box:

- To restart the chosen devices without shutting them down and reregister them with Cisco Unified Communications Manager, click **Restart**.
- To shut down, and then restart the device, click **Reset**.
- To close the Device Reset dialog box without performing any action, click **Close**.

After the administrator configures the SIP dial rule and applies it to the phone that is running SIP, the database sends the TFTP server a notification, so it can build a new set of configuration files for the phone that is running SIP. The TFTP server notifies Cisco Unified Communications Manager about the new configuration file, and the updated configuration file is sent to the phone. See **Configure TFTP Servers** for Cisco Unified IP phones that run SIP for more information.

What to do next

Synchronize SIP Dial Rules Settings With SIP Phones, on page 6

Synchronize SIP Dial Rules Settings With SIP Phones

To synchronize a SIP phone with a SIP dial rule that has undergone configuration changes, perform the following procedure.

Before you begin

Reset SIP Dial Rule, on page 5

Procedure

Step 1 From Cisco Unified Communications Manager Administration, choose **Call Routing** > **Dial Rules** > **SIP Dial Rules**.

Step 2 In the **Find and List SIP Dial Rules** window, click **Find** and choose an existing SIP dial rule to which you want to synchronize applicable SIP phones.

Step 3 Make any additional configuration changes and click **Save** in the **SIP Dial Rule Configuration**.

Step 4 Click **Apply Config**.

Step 5 Click **OK**.

Reprioritize Dial Rule

To add and sort the priority of dialing rules in the **Dial Rule Configuration** window.

Procedure

Step 1 From Cisco Unified Communications Manager Administration, choose **Call Routing** > **Dial Rules**.

Step 2 Select one of the following:

- **Application Dial Rules**
- **Directory Lookup Dial Rules**
- **SIP Dial Rules**

Step 3 In the Find and List window, choose a dial rule and click the dial rule name.
The **Dial Rule Configuration** window appears.

Step 4 Use the up and down arrows to move the dial rule up or down the list.

Step 5 After you complete prioritizing the order, click **Save**.

Dial Rules Interactions and Restrictions

SIP Dial Rules Interactions

SIP Dial Rules Interactions

Cisco Unified IP Phone	Interaction
7911, 7941, 7961 that are running SIP	These phones use the 7940_7960_OTHER dial rules patterns. Key Press Markup Language (KPML) allows for the digits to be sent to Cisco Unified Communications Manager digit by digit; SIP dial rules allow for a pattern of digits to be collected locally on the phone prior to sending to Cisco Unified Communications Manager. If SIP dial rules are not configured, KPML is used. To increase the performance of Cisco Unified Communications Manager (increasing the number of calls that get processed), Cisco recommends that administrators configure SIP dial rules.
7940 and 7960 that are running SIP	These phones use the 7940_7960_OTHER dial rules pattern and do not support KPML. If the administrator does not configure a SIP dial plan for these phones, the user must wait a specified time before the digits are sent to Cisco Unified Communications Manager for processing. This delays the processing of the actual call.

Directory Lookup Dial Rules Restrictions

Directory Lookup Dial Rules Restrictions

Field	Restriction
Number Begins With	This field supports only digits and the characters +,*, and #. The length cannot exceed 100 characters.
Number of Digits	This field supports only digits, and the value in this field cannot be less than the length of the pattern that is specified in the pattern field.
Total Digits to be Removed	This field supports only digits, and the value in this field cannot be more than the value in the **Number of Digits** field.
Prefix with Pattern	The prefix it with field supports only digits and the characters +,*, and #. The length cannot exceed 100 characters. **Note** You cannot allow both the **Total Digits to be Removed** field and the **Prefix with Pattern** field to be blank for a dial rule.