



CHAPTER 29

SIP Dial Rule Configuration

The following sections describe SIP dial rules configuration:

- [SIP Dial Rule Configuration Settings, page 29-1](#)
- [Configuring a SIP Dial Rule, page 29-4](#)
- [Resetting a SIP Dial Rule, page 29-6](#)
- [Synchronizing Configuration of a SIP Dial Rule with Affected SIP Phones, page 29-7](#)
- [Related Topics, page 29-8](#)

SIP Dial Rule Configuration Settings

In Cisco Unified Communications Manager Administration, use the **Call Routing > Dial Rules > SIP Dial Rules** menu path to configure SIP dial rules.

The administrator uses SIP dial rules configuration to configure dial plans for phones that are running SIP and associate them with the following phones that are running SIP:

- Cisco Unified IP Phone 7911, 7941, 7961, 7970, and 7971. These phones use the 7940_7960_OTHER dial rules patterns. Key Press Markup Language (KPML) allows the digits to be sent to Cisco Unified Communications Manager digit by digit; SIP Dial Rules allow 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 gets 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.
- Cisco Unified IP Phone 7940 and 7960. These phones use the 7940_7960_OTHER dial rules patterns and do not support KPML. If the administrator does not configure a SIP dial plan for these phones, the user must press the Dial softkey or wait a specified time before digits are sent to Cisco Unified Communications Manager for processing. This extra step for the user delays the actual call from being processed.
- Cisco Unified IP Phone 7905 and 7912. These phones use the 7905_7912 dial rules patterns and do not support KPML. If the administrator does not configure a SIP dial plan for these phones, the user must press the Dial softkey or wait a specified time before digits are sent to Cisco Unified Communications Manager for processing. This extra step for the user delays the actual call from being processed.

If the administrator does not configure a dial plan for a phone that is running SIP, the user must press the Dial softkey unless the phone supports KPML. If the administrator configures SIP dial plans, those dial plans must get associated with a phone that is running SIP, so the dial plans get sent to the device.

**Tip**

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.

Tips About Configuring SIP Dial Rules

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. See [“Configuring a SIP Dial Rule” section on page 4](#) for steps that supplement the standard procedure for configuring or updating a record in Cisco Unified Communications Manager Administration.

Using the GUI

For instructions on how to use the Cisco Unified Communications Manager Administration Graphical User Interface (GUI) to find, delete, configure, or copy records, see the [“Navigating the Cisco Unified Communications Manager Administration Application” section on page 1-13](#) and its subsections, which explain how to use the GUI and detail the functions of the buttons and icons.

Configuration Settings Table

[Table 29-1](#) describes the available settings in the SIP Dial Rules Configuration window. For more information about related procedures, see the [“Related Topics” section on page 29-8](#).

Table 29-1 SIP Dial Rule Configuration Settings

Field	Description
Dial Pattern	Choose the dial pattern that is applicable to the type of phone that is running SIP that you have; for example, dial pattern 7905_7912 applies for Cisco Unified IP Phones 7905 and 7912, and dial pattern 7940_7960_OTHER applies for Cisco Unified IP Phones 7911, 7940, 7941, 7960, 7961, 7970, and 7971. Note Cisco Unified IP Phones 7905, 7912, 7940, and 7960 do not support KPML.
SIP Dial Rule Information	
Name	Enter a name for the SIP dial rule; for example, Long Distance. Enter up to 50 alphanumeric characters including spaces and special characters.
Description	Enter a brief description of the dial rule.
Pattern Information	
Pattern Description	Enter a name for the pattern description; for example, Emergency.
Delete Pattern	Check this check box to delete the dial pattern; then, click the Delete Selected button.

Table 29-1 SIP Dial Rule Configuration Settings (continued)

Field	Description
Dial Parameter	<p>From this drop-down list box, choose the type of parameter for this pattern from the following choices:</p> <ul style="list-style-type: none"> • Pattern—Use this parameter for 7905_7912 and 7940_7960_OTHER dial rules. See the “Pattern Formats” section on page 29-4 for specific pattern formats. • Button—This parameter specifies the line button to which the dial pattern applies. If the user is initiating a call on line button 1, only the dial pattern that is specified for Button 1 applies. If this optional parameter is not configured, the dial pattern applies to all lines. It only applies to the Cisco Unified IP Phones 7940, 7941, 7960, 7961, 7970, and 7971. The administrator must enter a button number as the value. The button number corresponds to the order of the buttons on the side of the screen that is on the phone, from top to bottom, with 1 being on top. The Cisco Unified IP Phones 7940 and 7941 have two line buttons, the 7960 and 7961 have six line buttons, and the 7970 and 7971 have eight line buttons. • Timeout—This parameter specifies the time, in seconds, before the system times out and dials the number as entered by the user. To have the number dial immediately, specify 0. Use this parameter only for 7940_7960_OTHER dial rules. • User—This parameter represents the tag that automatically gets added to the dialed number. Valid values include IP and Phone for this tag that is not case sensitive. Use this parameter only for 7940_7960_OTHER dial rules.
Value	For the dial parameters that this table describes, enter the value for that field here. For example, enter 1 for Button 1 of PLAR, or 8,..... for a 7940_7960_OTHER pattern.
Delete Parameter	Check this check box to delete the dial pattern; then, click the Delete Selected button.
Edit Parameter	Click this button to update an existing parameter.
Add New Parameter	Click this button to add a new parameter to the pattern.
Delete Selected	Click this button to delete a parameter or a pattern.
Pattern Addition	
Pattern Description	Enter a name for a new pattern; for example, Longdistance; then, click the Add Pattern or Add PLAR button.
Add Pattern	Click this button to add the new pattern to the Pattern Information pane.
Add PLAR	Click this button to add the new PLAR pattern to the Pattern Information pane.

Additional Information

See the [“Related Topics” section on page 29-8](#).

Configuring a SIP Dial Rule

Use the standard procedure for configuring or updating a new record when you are configuring or updating a SIP dial rule. The following steps also apply when you configure or update a SIP dial rule. The following subtopics also apply when you configure or update a SIP dial rule:

- [Pattern Formats, page 29-4](#)
- [SIP Dial Rules Examples, page 29-5](#)

Procedure

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- Step 1** From the Dial Pattern drop-down list box, choose either 7905_7912 or 7940_7960_OTHER as the SIP dial rule type.
- Step 2** Click the **Next** button.
The SIP Dial Rule Configuration redisplay with updated information.
- Step 3** Enter a name and description of the Dial Rule that you are creating by using the information as described in [Table 29-1](#). Click **Save**.
The SIP Dial Rule Configuration redisplay with updated information.
- Step 4** Enter a name for the pattern description by using the information as described in [Table 29-1](#).
- Step 5** Depending on the type of dial pattern that you want to create, click **Add Pattern** or **Add PLAR** (Private Line Automatic Ringdown [PLAR]).



Note The Add PLAR button only displays for 7940_7960_OTHER dial rules.

The SIP Dial Rule Configuration redisplay with updated information and an area to configure the dial pattern parameters.

Additional Information

See the [“Related Topics”](#) section on page 29-8.

Pattern Formats

See the following formats for the 7905_7912 and 7940_7960_OTHER patterns.

Value for 7905_7912 Pattern

- Period (.) matches any digit.
- Hyphen (-) means more digits can be entered. If this character is needed, it must appear at the end of an individual rule. For example, 1408t5- is legal, but 1408t5-3... is illegal.
- Pound sign (#) acts as the terminating key, and termination can be applied only after matching hits >#. So >* means that the terminating character specifies the asterisk (*); that is, the terminating key must follow the greater-than sign (>).
- Characters “*tn*” set the timeout to *n* seconds.



Note n equals 0-9, and a-z, which ranges from 0 to 26.

- Characters “ rn ” repeat the last pattern n times.



Note The characters “>#” and “ rn ” specify modifiers, not patterns. n equals 0-9 and a-z, which ranges from 0 to 26. Use the repeat modifier to specify more rules in less space.

- Modifier “S” causes rule-matching to cease (that is, if a rule matches and the modifier “S” is seen, all other rules after that matching rule do not get used for matching).

Value for 7940_7960_OTHER Pattern

- Period (.) matches any character.
- Pound sign (#) acts as the terminating key, and termination can be applied only after matching hits >#. So >* means that the terminating character specifies the asterisk (*); that is, the terminating key must follow the greater-than sign (>).



Note You must configure the pound sign in the pattern field for it to be valid for 7940_7960_OTHER.

- Asterisk (*) matches one or more characters. The * 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.
Example: 7.... will match any 4-digit DN that starts with 7. 8,..... will match 8, play secondary dial tone (default value), then match any 5-digit DN.

SIP Dial Rules Examples

Table 29-2 provides some example SIP dial rules for the 7905_7912 dial rules.

Table 29-2 SIP Dial Rule Examples for 7905_7912 Dial Rules

Pattern String	Effect
.t7>#.....t4-	You must enter at least one digit. After that, the send occurs after 7 seconds. The terminating # character can also be applied after the first digit is entered. After 7 digits are entered, the timeout changes to 4 seconds. The _ character means that more digits can be entered, as long as timeout or # does not terminate the string.
911 and 9911	Send immediately. Configure a SIP dial rule for each of these strings, with the timeout dial parameter set to 0, to ensure that no delay occurs in sending the call. The user does not have to press the Dial softkey to initiate the call, even if the phone does not support Key Press Markup Language (KPML).

Table 29-2 SIP Dial Rule Examples (continued) for 7905_7912 Dial Rules (continued)

Pattern String	Effect
1t7>#.-----t1-	You must enter at least one digit. After that, the send occurs after 7 seconds. The terminating character # can also be applied after the first digit is entered. After 10 digits are entered, the timeout changes to 1 second. The _ character means that more digits can be entered, as long as timeout or # does not terminate the string.
0t4>#.t7-"	After a 0, if no other digit is entered, the send occurs after 4 seconds. If another digit is entered, send occurs after 7 seconds. Again, # acts as the terminating digit.

Table 29-3 provides some example SIP dial rules for the 7940_7960_OTHER dial rules.

Table 29-3 SIP Dial Rule Examples for 7940_7960_OTHER Dial Rules

Pattern String	Effect
123#45#6	The 123#45#6 string gets matched if the user dials 123#45#6. Pressing the pound sign (#) does not cause the phone to dial immediately because # is explicitly specified. For Cisco SIP IP Phones 7940 and 7960, dialing 1# or 123#4# causes the phone to dial immediately.
911 and 9911	Send immediately. Configure a SIP dial rule for each of these strings, with the timeout dial parameter set to 0, to ensure that no delay occurs in sending the call. The user does not have to press the Dial softkey to initiate the call, even if the phone does not support Key Press Markup Language (KPML).
12*345	This example uses the backward slash (\) and asterisk (*) to indicate that the asterisk (*) is a dialed digit. If you omit the backslash (\), the asterisk(*) gets treated as a wildcard pattern match. If you use the backslash (\) with a character other than the asterisk (*), the \ gets ignored, and the \\ character gets matched. If you need to explicitly specify the \ character in a dial plan, use \\. The \ does not get sent out as part of the dialed digit string because the phone removes it before it sends the dial string.

Resetting a 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.

Procedure

- Step 1** From Cisco Unified Communications Manager Administration, choose **Call Routing > Dial Rules > SIP Dial Rules**.
- Step 2** Locate the SIP dial rule that you want to reset. See the [“SIP Dial Rule Configuration Settings” section on page 29-1](#).
- Step 3** Click the SIP dial rule that you want to reset.
The SIP Dial Rule Configuration window displays.
- Step 4** Click **Reset**.

The Device Reset dialog displays.

Step 5 Click one of the following choices:

- **Restart**—Restarts the chosen devices without shutting them down (reregisters the phones with Cisco Unified Communications Manager).
 - **Reset**—Shuts down, then restarts, the device.
 - **Close**—Closes the Device Reset dialog without performing any action.
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Additional Information

See the [“Related Topics” section on page 29-8](#).

Synchronizing Configuration of a SIP Dial Rule with Affected SIP Phones

To synchronize a SIP phone with a SIP Dial Rule that has undergone configuration changes, perform the following procedure, which applies any outstanding configuration settings in the least intrusive manner possible. (For example, a reset/restart may not be required on some affected SIP phones.)

Procedure

Step 1 Choose **Device > Dial Rules > SIP Dial Rule**.

The Find and List SIP Dial Rules window displays.

Step 2 Choose the search criteria to use.

Step 3 Click **Find**.

The window displays a list of SIP Dial Rules that match the search criteria.

Step 4 Click the SIP Dial Rule to which you want to synchronize applicable SIP phones. The SIP Dial Rule Configuration window displays.

Step 5 Make any additional configuration changes.

Step 6 Click **Save**.

Step 7 Click **Apply Config**.

The **Apply Configuration Information** dialog displays.

Step 8 Click **OK**.

Additional Information

See the [“Related Topics” section on page 29-8](#).

Related Topics

- [SIP Dial Rule Configuration](#), page 29-1
- [SIP Dial Rule Configuration Settings](#), page 29-1
- [Configuring a SIP Dial Rule](#), page 29-4
 - [Pattern Formats](#), page 29-4
 - [SIP Dial Rules Examples](#), page 29-5
- [Resetting a SIP Dial Rule](#), page 29-6
- [Synchronizing Configuration of a SIP Dial Rule with Affected SIP Phones](#), page 29-7
- [Dial Rules Overview](#), *Cisco Unified Communications Manager System Guide*