



# SIP Dial Rule Setup

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This chapter provides information about SIP dial rules configuration.

For additional information, see topics related to dial rules in the *Cisco Unified Communications Manager System Guide*.

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## About SIP Dial Rule Setup

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

You can use 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, 7971, 9951 and 9971. 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 you do 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 you do 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 you do 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 you configure SIP dial plans, those dial plans must be associated with a phone that is running SIP, so the dial plans are 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.

### SIP Dial Rules Configuration Tips

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 topics related to configuring a SIP dial rule for steps that supplement the standard procedure for configuring or updating a record in Cisco Unified Communications Manager Administration.

## SIP Dial Rules Settings

The following table describes the available settings in the SIP Dial Rules Configuration window.

**Table 1: SIP Dial Rule Settings**

Field	Description
Dial Pattern	Choose the dial pattern that is applicable to the type of SIP phone that you have; for example, dial pattern 7905_7912 applies to Cisco Unified IP Phones 7905 and 7912, and dial pattern 7940_7960_OTHER applies to Cisco Unified IP Phones 7911, 7940, 7941, 7960, 7961, 7970, and 7971.  <b>Note</b> 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.

Field	Description
Pattern Information	
Description	Enter a name for the pattern description; for example, Emergency or Line 1.
Delete Pattern	Check this check box to delete the dial pattern; then, click the Delete Selected button.
Dial Parameter	<p>From this drop-down list box, add parameters for this pattern. Add each of the following parameters only once for each pattern:</p> <ul style="list-style-type: none"> <li>• <b>Pattern</b>—Use this parameter for 7905_7912 and 7940_7960_OTHER dial rules.</li> <li>• <b>Button</b>—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.</li> <li>• <b>Timeout</b>—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.</li> <li>• <b>User</b>—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.</li> </ul> <p>If you want to configure multiple patterns, you must create a separate Description for each pattern and then add the parameters.</p>
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.

Field	Description
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, Long distance; 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.

## Set Up 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.

### 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 1: SIP Dial Rule Settings, on page 2](#). 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 1: SIP Dial Rule Settings, on page 2](#).
- 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.

## Pattern Formats

Formats are provided 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 “tn” 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

The following table provides some example SIP dial rules for the 7905\_7912 dial rules.

**Table 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).
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.

The following table provides some example SIP dial rules for the 7940\_7960\_OTHER dial rules.

**Table 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.

Pattern String	Effect
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.

## 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.

### Procedure

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- 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.
- 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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# Synchronize SIP Dial Rule Settings with 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

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- 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.
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