



Dial Rules Overview

This chapter provides information about dial rules. Cisco Unified Communications Manager supports different types of dial rules: Application Dial Rules, Directory Lookup Dial Rules, and SIP 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. 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.

In Cisco Unified Communications Manager Assistant, the assistant can perform a directory search from the assistant console. The assistant can drag and drop the directory entry to the My Calls panel on the assistant console, which invokes a call to the number that is listed in the entry. The dial rules apply to the number that is listed in the entry before the call gets made.

Cisco Unified Communications Manager performs system digit analysis and routing; however, the Cisco Unified IP Phone needs to know when enough digits are collected before call processing takes place, so the administrator configures SIP Dial Rules and adds the SIP dial rule to the phone.

- [Application Dial Rules Configuration Design, page 1](#)
- [Application Dial Rules Configuration Error Checking, page 2](#)
- [Directory Lookup Dial Rules, page 3](#)
- [SIP Dial Rules, page 4](#)

Application Dial Rules Configuration Design

The Application Dial Rule Configuration window includes the following information:

- **Name**-This field comprises a unique name for the dial rule that can contain up to 20 alphanumeric characters and any combination of spaces, periods (.), hyphens (-), and underscore characters (_).
- **Description**-This field comprises a brief description that you enter for the dial rule.
- **Number Begins With**-This field comprises the initial digits of the directory numbers to which you want to apply this application dial rule.
- **Number of Digits**-This required field comprises the initial digits of the directory numbers to which you want to apply this application dial rule.

- **Total Digits to be Removed**-This required field comprises the number of digits that you want Cisco Unified Communications Manager to remove from directory numbers that apply to this dial rule.
- **Prefix With Pattern**-This required field comprises the pattern to prepend to directory numbers that apply to this application dial rule.
- **Application Dial Rule Priority**-This field displays when you enter the Prefix With Pattern information. The field allows you to set the priority order of the application dial rules.

The following example provides a dial rule condition and the consequence when a dial rule is created.

Condition

- **If the phone number begins with (the field is blank)**-This condition leaves blank one or more digits at the beginning of the number that the user dialed. For example, if the user dialed 1, 1500, or 1500555, each would match the dial number 15005556262.
- **and the number of digits is (the field is blank)**-This condition leaves blank the total number of digits in the telephone number that the user dialed. For example, if the dial number is 915005556262, the number of digits equals 12.

Consequence

- **Remove blank digits from the beginning**-The application deletes this number of digits from the front of the dialed number. For example, if 4 is specified, and the dialed number is 15005556262, the application removes 1500, leaving 5556262.
- **and prefix it with (this field is blank)**-After removing the specified number of digits, the application adds this string of numbers to the front of the dialed number. For example, if 9 was specified, the application adds 9 to the front of the dialed number (could be specifying an outside line).

Application Dial Rules Configuration Error Checking

The application dial rules perform the following error checking in the Dial Rule Creation section of the Dial Rules Configuration window:

- The phone number begins with field supports only digits and the characters +*#. The length cannot exceed 100 characters.
- The Number of Digits field supports digits between 1 and 100, as well as the plus sign (+), the asterisk (*), and the number sign (#). Enter the number of digits of the dialed numbers to which you want to apply this application dial rule. You cannot allow this field to be blank for a dial rule.
- The remove digits field supports only digits, and the value in this field cannot be more than the value in the number of digits is field.
- The prefix it with field supports only digits and the characters +*#. The length cannot exceed 100 characters.
- Ensure that dial rules are unique.
- You cannot allow the remove digits field and the prefix it with field both to be blank for a dial rule.

Directory Lookup Dial Rules

The Directory Lookup Dial Rule Configuration window allows you to enter the following information for each dial rule:

- **Name**-This field comprises a unique name for the dial rule that can contain up to 20 alphanumeric characters and any combination of spaces, periods (.), hyphens (-), and underscore characters (_).
- **Description**-This field comprises a brief description that you enter for the dial rule.
- **Number Begins With**-This field comprises the initial digits of the directory numbers to which you want to apply this application dial rule.
- **Number of Digits**-This required field comprises the length of the directory numbers to which you want to apply this directory lookup dial rule.
- **Total Digits to be Removed**-This required field comprises the number of digits that you want Cisco Unified Communications Manager to remove from directory numbers that apply to this dial rule.
- **Prefix With Pattern**-This required field comprises the pattern to prepend to directory numbers that apply to this dial rule.

Directory Lookup Dial Rule Example

You can create a directory lookup rule that automatically adds 40852 to 5-digit numbers beginning with 5. Using this rule, the number 56666 becomes 4085256666. If 4085256666 matches a user in the directory, Cisco Unified Communications Manager displays the name in the Call Details window.

To create this rule, enter the following information on the Directory Lookup Dial Rules window:

- In the **Number Begins With** field, enter “5,” so the dial rule applies to numbers that begin with the number 5.
- In the **Number of Digits** field, enter the number of digits “5,” so the dial rule applies to numbers that contain 5 digits.
- In the **Prefix With Pattern** field, enter “40852,” so the dial rules prepends 40852 to numbers that apply to this dial rule.

Limitations

When creating a directory lookup rule, consider the following limitations:

- The **phone number begins with** field supports only digits and the characters +*#. The length cannot exceed 100 characters.
- The **number of digits is** 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.
- The **remove digits** field supports only digits, and the value in this field cannot be more than the value in the **number of digits is** field.
- The **prefix it with** field supports only digits and the characters +*#. The length cannot exceed 100 characters.
- You cannot allow both the **remove digits** field and the **prefix it with** field to be blank for a dial rule.

SIP Dial Rules

The administrator uses SIP dial rule 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 Phones 7911, 7941, 7961, 7970, and 7971 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 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 Phones 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 digits are sent to Cisco Unified Communications Manager for processing. This delays the actual call from being processed.
- Cisco Unified IP Phones 7905 and 7912 that are running SIP. These phones use the 7905_7912 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 digits are sent to Cisco Unified Communications Manager for processing. This delays the actual call from being processed.

Although SIP dial rules are optional, if they are configured, you must add them to the phone that is running SIP by using the Phone Configuration window of Cisco Unified Communications Manager Administration. (If the administrator configures SIP dial plans, those dial plans must get associated with a phone device that is running SIP, so the dial plans get sent to the device configuration file.) Leave the SIP Dial Rules field in the Phone Configuration window set to <None> if you do not want dial rules applied to the Cisco Unified IP Phone.

After the administrator configures the SIP dial rule and applies it to the phone that is running SIP by pressing Reset, 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 gets sent to the phone. See [Configure TFTP for Cisco Unified IP Phones That Run SIP](#) for more information.

To accommodate Cisco Extension Mobility users, so they can use SIP dial rules, the administrator must configure the SIP dial rule on the phone that will allow extension mobility users to log on.

SRST does not support KPML; however, the phone that is running SIP will continue to use the Dial Rules that it received from Cisco Unified Communications Manager when it is in SRST mode.

Administrators use the SIP Dial Rules Configuration window to configure dial rule patterns and the parameters for the pattern.

SIP Dial Rule Patterns

Two types of dial rule patterns exist in the SIP Dial Rules Configuration window:

- 7905_7912-Use this dial rule pattern for Cisco Unified IP Phones 7905 and 7912.
- 7940_7960_OTHER-Use this dial rule pattern for Cisco Unified IP Phones 7911, 7940, 7941, 7960, 7961, 7970, and 7971.

After the appropriate dial rule pattern gets chosen, the administrator configures the dial rule parameters for the dial rule pattern.

Configure SIP Dial Rule Parameters

After the administrator defines the dial pattern, the SIP Dial Rule Information pane displays, so the administrator can configure the dial pattern parameters such as timeouts, buttons, or Private Line Automatic Ringdown (PLAR).

Ensure all pattern information has a name; for example, PLAR1 or 911. After you name the pattern information, you need to configure the parameters for the pattern. The SIP Dial Rules Configuration window displays an area for the pattern information. The administrator chooses the type of pattern parameter from a drop-down list box that displays on the configuration window. See [Configure TFTP for Cisco Unified IP Phones That Run SIP](#), for a description of the dial parameters.

These dial patterns get sent to the TFTP server, which creates the proper configuration file that contains the dial pattern information.

The following examples illustrate how to configure a dial rule for 911 and a pattern for any 4-digit extension beginning with the digit 2.

Sample Dial Rule for 911 on Cisco Unified IP Phone 7905

The administrator wants a dial rule pattern for 911 on the Cisco Unified IP Phone 7905.

Procedure

- Step 1** Create a 7905_7912 SIP dial rule.
- Step 2** Create a pattern called 911 for 7905.
- Step 3** Enter a pattern description called 911.
- Step 4** Enter 911 in the dial parameter value field.

Figure 1: 05_12 911 Dial Rule Pattern

System ▾ Call Routing ▾ Media Resources ▾ Voice Mail ▾ Device ▾ Application ▾ User Management ▾ Bulk Administration ▾ Help ▾

SIP Dial Rule Configuration Related Links: [Back To Find/Link](#)

Status
i Status: Ready

SIP Dial Rule Information

Name*

Description

Dial Pattern 7905_7912

Pattern Information		Delete Pattern Dial Parameter	Value	Delete Parameter
Description				
911	<input type="checkbox"/>	<input type="button" value="v"/>	911	<input type="button" value="Add New Parameter"/> <input type="button" value="Delete"/>

Pattern Addition

Pattern Description

i *- indicates required item.

Done Internet

Sample Dial Rule for Extension

The administrator wants a dial rule pattern for any 4-digit extension beginning with the digit 2 on a Cisco Unified IP Phone 7961.

Procedure

- Step 1** Create a 7940_7960_OTHER SIP dial rule.
- Step 2** Create a pattern called 4-digit extension.
- Step 3** Enter a pattern description called SIP extension.
- Step 4** Enter 2 followed by three dots (2...) in the dial parameter value field.

Figure 2: 7940_7960_OTHER Dial Rule Pattern

System ▾ Call Routing ▾ Media Resources ▾ Voice Mail ▾ Device ▾ Application ▾ User Management ▾ Bulk Administration ▾ Help ▾

SIP Dial Rule Configuration Related Links: [Back To](#)

Status
 Update successful

SIP Dial Rule Information

Name*
 Description
 Dial Pattern 7940_7960_OTHER

Pattern Information	Description	Delete Pattern	Dial Parameter	Value	Delete Parameter
<input type="checkbox"/>	SIP extension	<input type="checkbox"/>	Button ▾	2	<input type="checkbox"/>

*- indicates required item.

202211

Private Line Automatic Ringdown (PLAR)

Configure a phone that is running SIP for Private Line Automatic Ringdown (PLAR), so when the user goes off hook (or the NewCall softkey or line key gets pressed), the phone immediately dials a preconfigured number. The phone user cannot dial any other number from the phone line that gets configured for PLAR. Because PLAR gets configured in Cisco Unified Communications Manager Administration as an empty pattern, it does not get associated with a device or line. To make the Cisco Unified IP Phone support PLAR, an empty pattern gets configured in the SIP Dial Rules for a specific line, and the dial rule then gets applied to the Cisco Unified IP Phone by using Phone Configuration in Cisco Unified Communications Manager Administration.

