

Add a Prefix to the Missed Call Number

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Introduction

This document describes how to add a prefix to the missed call number in a Cisco CallManager environment. In reality, this procedure adds prefixes to all inbound calling numbers regardless of whether the recipient answers the call.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco CallManager administration
- Cisco IOS® translation rules
- Route patterns

Components Used

The information in this document is based on these software and hardware versions:

- Cisco CallManager version 3.x and later
- IOS translation rules were introduced in Cisco IOS Software Release 12.07XK1 and are available on all Cisco platforms that support voice ports.
- Cisco 7900 IP Phones

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

Background Information

In an enterprise scenario, off-net calls have access codes like 0 or 9 (9 for the United States, 0 for Australia) prepended to the actual Public Switched Telephone Network (PSTN) number. This way, numbers in the missed or received call logs on each phone have a 9 or 0 prefix for each call. When the user selects **Dial**, the initial 9 is used to select an outside line, and the remaining digits dial the external party. When calls are received and are not answered, those PSTN numbers get listed in the missed call list in the directory. These numbers in the missed calls directory do not have the access codes prepended to them. This prevents a user from performing a quick dial of that number using the **Dial** softkey.

Add Prefix to a Missed Call

If the calls from a Cisco IP phone fail when the Dial softkey is selected on missed calls because the calling number does not include the required prefix for outside dialing, you can use the solutions mentioned in this section in order to resolve this issue.

Use All Versions of Cisco CallManager

Complete these steps in order to add two digits as the prefix for a missed call number:

1. Create a partition called **Translate_PT**.
2. Create a Calling Search Space (CSS) called **Translate_CSS**.

Note: The only partition to be assigned to this CSS is Translate_PT.

3. Assign the Translate_CSS to a gateway (see arrow A in Figure 1). As configured in step 2, the gateway can only access the Translate_PT partition and cannot reach any phone directly.

Figure 1 Inbound Calls Configuration on the Gateway

Call Routing Information	
Inbound Calls	
Significant Digits*	All
Calling Search Space ← A	Translate_CSS
AAR Calling Search Space	< None >
Prefix DN	

4. Create a translation pattern with the 20XX pattern, or one that matches the internal dialing plan (see arrow A in Figure 2).
5. Complete these steps in order to configure the translation pattern:
 - a. Choose **Translate_PT** from the **Partition** drop-down list (see arrow B in Figure 2).
 - b. Choose **<None>** from the **Route Filter** drop-down list (see arrow C in Figure 2).
 - c. Choose **Internal_Phones CSS** from the **Calling Search Space** drop-down list.
 - d. Check the **Route this pattern** checkbox (see arrow E in Figure 2).
 - e. Check the **Use Calling Party's External Phone Number Mask** checkbox (see arrow F in Figure 2).
 - f. Under the Calling Party Transformation section, enter **91XXXXXXXXXX** or a pattern that matches the internal dialing plan, in the Calling Party Transform Mask field.

Figure 2 Translation Pattern Configuration

Pattern Definition

Translation Pattern ← A: 20XX

Partition ← B: Translate_PT

Description:

Numbering Plan*: North American Numbering Plan

Route Filter ← C: < None >

Calling Search Space ← D: Internal_Phone_CSS

Route Option: Route this pattern ← E Block this pattern

Provide Outside Dial Tone Urgent Priority

Calling Party Transformations

Use Calling Party's External Phone Number Mask ← F

Calling Party Transform Mask ← G: 91XXXXXXXXXX

Prefix Digits (Outgoing Calls):

Calling Party Presentation: Default

6. In order to verify that no phone can reach this translation pattern, ensure that the CSS assigned to the phones does not include this translation pattern. In this case, **Translate_PT** cannot be included in any CSS which contains phones.

For example, assume the calling number is 123-456-7890 and the called number is 2019. The data flow for these numbers is as such:

- a. Cisco CallManager receives an inbound call with a called number of 2019, and a calling number of 1234567890.
- b. Since 2019 matches translation pattern 20XX, the calling number is translated to 911234567890. Prefix 91 is added to the calling number.
- c. Cisco CallManager rings the phone with the directory number of 2019, with a calling number of **911234567890**.

Use Cisco CallManager Version 3.3(3) SR1 and Later with Q.931 Gateway

With the release of Cisco CallManager version 3.3(3)SR1, there is an alternative solution available for incoming calls that arrive from a Q.931 gateway. Four new parameters (see Figure 3) are added to Cisco CallManager under the Clusterwide Parameters (Device – PRI and MGCP Gateway) section, in the service parameters for Cisco CallManager. They are:

- **National Number Prefix** This parameter defines the number that is prefixed to an incoming national number and provides a means to help identify national numbers, if necessary. This parameter allows you to prefix specified digits to the calling number of an inbound call based on the Type of Number field in an inbound offered call (ISDN SETUP message). For example, a national call from 4085551212 can be assigned the prefix 91. The maximum length is eight digits, and the allowed values are 0 through 9, #, and *.
- **International Number Prefix** This parameter defines the number that is prefixed to an incoming international number and provides a means to help identify international numbers, if necessary. This parameter allows you to prefix specified digits to the calling number of an inbound call based on the Type of Number field in an inbound offered call (ISDN SETUP message). For example, an international call from 456789 can be assigned the prefix 9 011. The maximum length is eight digits, and the allowed values are 0 through 9, #, and *.

- **Subscriber Number Prefix** This parameter defines the number that is prefixed to an incoming subscriber number, and provides a means to help identify subscriber numbers, if necessary. This parameter allows you to prefix specified digits to the calling number of an inbound call based on the Type of Number field in an inbound offered call (ISDN setup message). For example, a subscriber call from 1212 can be assigned the prefix 9. The maximum length is eight digits, and the allowed values are 0 through 9, #, and *.
- **Unknown Number Prefix** This parameter defines the number that is prefixed to an incoming unknown number and provides a means to help identify unknown number types, if necessary. This parameter allows you to prefix specified digits to the calling number of an inbound call based on the Type of Number field in an inbound offered call (ISDN SETUP message). For example, an unknown call from 5550123 can be assigned the prefix 7. The maximum length is eight digits, and the allowed values are 0 through 9, #, and *.

Note: These prefix values are added to numbers in missed or received incoming calls based on the inbound Q.931 call type value. These prefix values always need to match what the Telco requires in order to place the call. This method only applies to Q.931 gateways. As for all other Cisco CallManager versions, the National Number Prefix can be set to 91 and International Number Prefix can be set to 9011.

Figure 3 Cisco CallManager Services Parameter Configuration

National Number Prefix	<input type="text"/>
International Number Prefix	<input type="text"/>
Subscriber Number Prefix	<input type="text"/>
Unknown Number Prefix	<input type="text"/>

Use IOS Translation Rules on the H.323 Gateway

Configure the translation rules, as given in this example, on the H.323 gateway to transform the calling number with the access code prepended. This prefix is applied to calling party numbers from the PSTN as they are forwarded out the Voice over IP (VoIP) dial peer towards Cisco CallManager.

```
Router(config)#
translation-rule 1

Router(config-translate)#Rule 0 ^.% 00 national national

Router(config-translate)#Rule 1 ^.% 000 international international

Router(config-translate)#Rule 2 ^.% 0 subscriber subscriber

Router(config)#dial-peer voice 1 voip

Router(config-dial-peer)#destination-pattern 4...

Router(config-dial-peer)#session target ipv4:10.1.1.1

Router(config-dial-peer)#translate-outgoing calling 1

!--- This translates the outbound calling number.
```


Refer to Using IOS Translation Rules – Creating Scalable Dial Plans for VoIP Networks for more information on how to configure the translation rules.

Use the EditDial SoftKey in the IP Phone

This workaround can be performed from the IP phone:

1. From the Missed Calls directory, choose the number you want to redial.
2. Press the **EditDial** softkey.

This takes the user to the beginning of the number.

3. Insert the **access code** and press the  **(Dial)** key.

Related Information

- [PSTN Line Access With and Without Prefix Dialing](#)
- [Voice Technology Support](#)
- [Voice and Unified Communications Product Support](#)
- [Recommended Reading: Troubleshooting Cisco IP Telephony](#)
- [Technical Support & Documentation – Cisco Systems](#)

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