



# Dial Peer Enhancements

---

This feature module describes the Dial Peer Enhancements for Cisco IOS Release 12.1(1)T. It includes information on the benefits of the new feature, supported platforms, related documents, and more.

This document includes the following sections:

- Feature Overview, page 1
- Supported Platforms, page 3
- Supported Standards, MIBs, and RFCs, page 3
- Prerequisites, page 3
- Configuration Tasks, page 4
- Monitoring and Maintaining Digit Manipulation and Translation, page 9
- Configuration Examples, page 7
- Command Reference, page 9
- Debug Commands, page 21
- Glossary, page 21

## Feature Overview

The following enhancements to dial peer configuration lower complexity of dial planning and reduces the amount of effort in creating dial peer entries:

- Additional Dial String Symbols

These new dial string symbols are added: Percent, plus, question mark, period, brackets, and parenthesis.

**Table 1** *Symbols Used in Dial Peer and Regular Expression Comparison*

<b>Symbol</b>	<b>Description</b>	<b>Regular Expression/ Dial Peer</b>
%	Indicates a previous digit/pattern occurred zero or multiple times; similar to a wild card "*" used in a regular expression rule.	Yes / Yes
+	Indicates a sequence one or more matches of the pattern.	Yes / Yes <sup>1</sup>

**Table 1 Symbols Used in Dial Peer and Regular Expression Comparison (continued)**

Symbol	Description	Regular Expression/ Dial Peer
?	Indicates a pattern followed by “?” matching zero or one time.	Yes / Yes
.	Indicates a single character.	Yes / Yes
[ ]	Indicates a range. A range is a sequence of characters enclosed in “[ ]” and only numeric characters “0” - “9” is allowed in the range; similar to a regular expression rule. <sup>2</sup>	Yes / Yes
()	Indicates a pattern.	Yes / Yes

1. The “+” symbol can be part of dialing numbers in some countries, where “+” is always be a leading digit in the dialed number. However, this does not conflict with the regular expression rule; “+” in regular expressions will never be a leading symbol.
2. In the syntax description above, the square brackets indicate optional values. When using this command, do not include these square brackets as part of the syntax. They are not valid parameters in the **rule** command.

- Translation Rule Implementation

When configuring your dial peers, you are provided with an option called the translation rule. This rule applies a translation rule to a calling party number [Automatic Number Identification (ANI)] or a called party number [Dial Number Information Service (DNIS)] for both incoming and outgoing calls within Cisco H.323 voice-enabled gateways. Also, the rule allows translation of the *type of number*. Refer to the Q.931 ITU specification for details.

- Number-Type Matching

To match on a number type for a dial peer call leg, the **numbering-type** command is used in dial-peer configuration mode.

- Digit Strip Option

When a called number is received and matched to a POTS dial peer, the matched digits are stripped and the remaining digits are forwarded to the voice interface. A new command called **digit strip** makes this default behavior an option.

## Benefits

### Reduced Number of Dial Peers

Currently, dial peer configuration needs multiple dial peers to support a dialing plan. This feature reduces the amount of effort in producing dial peer entries, improves VoIP system performance significantly because of less dial peer search, and uses less memory.

### Digit Manipulation

When a called number is received and matched to a POTS dial peer, the matched digits are stripped and the remaining digits are forwarded to the voice interface. A new command called the digit strip makes this default behavior an option. This means you can easily get caller ID and restriction information, and you also don't have to make long-distance calls between small, neighboring countries.

## Restrictions

- The H.323 gateway feature and supporting software applications in Cisco IOS Release 12.1(1)T require Vcware 5.08 or later.

- Cisco Secure 2.1.8.4 or higher is required if H.323 accounting is being used.

## Related Documents

Voice over IP for the Cisco 2600/3600 Series

Voice over IP for the Cisco AS5300

## Supported Platforms

This feature is supported on the following platforms:

- Cisco 1750
- Cisco 2600 series
- Cisco 3600 series
- Cisco 7200 series
- Cisco 7500 series
- Cisco AS5300

## Supported Standards, MIBs, and RFCs

### Standards

No new or modified standards are supported by this feature.

### MIBs

No new or modified MIBs are supported by this feature.

For descriptions of supported MIBs and how to use MIBs, see the Cisco MIB web site on CCO at <http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>.

### RFCs

No new or modified RFCs are supported by this feature.

## Prerequisites

Before you can configure your platform to serve as an H.323 VoIP gateway, you must first:

- Establish a working IP network. For more information about configuring IP, refer to the “IP Overview,” “Configuring IP Addressing,” and “Configuring IP Services” chapters in the Cisco IOS Release 12.0 *Network Protocols Configuration Guide, Part 1*.
- Install the one-slot or two-slot (NM-1V/NM-2V) voice network module into the appropriate bay of your Cisco router. For more information about the physical characteristics of the voice network module, or how to install it, refer to the installation documentation, *Voice Network Module and Voice Interface Card Configuration Note*, that came with your voice network module.

- Configure Voice over IP. For more information about configuring Voice over IP, refer to the chapter “Configuring Voice over IP” in the Cisco IOS Release 12.1 *Cisco IOS Multiservice Applications Configuration Guide*.

## Configuration Tasks

To configure a Cisco router to perform as an H.323 VoIP gateway using RAS, perform the following tasks:

- Configuring Numbering-Type Matching
- Configuring the Digit Strip
- Configuring Dial Peer Call Legs Using Digit Translation Rules

### Configuring Numbering-Type Matching


Numbering-type matching is used in dial-peer configuration mode to match on a number type for a dial peer call leg. To configure numbering-type matching using the **numbering-type** command in dial-peer configuration mode, enter the following commands starting in global configuration mode:

	Command	Purpose
Step 1	Router# <b>configure terminal</b>	Enters global configuration mode.
Step 2	Router(config)# <b>dial-peer voice 100 pots</b>	Enters the dial peer configuration mode to configure a VoIP or POTS peer.
Step 3	Router(config-dial-peer)# <b>numbering-type international</b>	Specifies number type. Number types are: <ul style="list-style-type: none"> <li>• International</li> <li>• Abbreviated</li> <li>• National</li> <li>• Network</li> <li>• Reserved</li> <li>• Subscriber</li> <li>• Unknown</li> </ul>

### Configuring the Digit Strip

When a called number is received and matched to a POTS dial peer, the matched digits are stripped and the remaining digits are forwarded to the voice interface. A new command called the digit strip option makes this behavior an option. Digit stripping is enabled by default.

To disable digit strip for a dial peer, enter the following commands in global configuration mode:

	Command	Purpose
Step 1	<pre>5300(config)# dial-peer voice 100 pots 5300(config-dial-peer)# destination-pattern 525... 5300(config-dial-peer)# direct-inward dial 5300(config-dial-peer)# no digit strip 5300(config-dial-peer)# port0:D</pre>	Enters the dial peer configuration mode to configure a POT's peer.   <b>Note</b> In this example, the dialed number is 525-1234 and the dial string matches dial-peer tag 100. The destination-pattern is 525..., strip match yields 1234, prefix 525 yields 525-1234.
Step 2	<pre>5300(config-dial-peer)# no digit strip</pre>	Disables digit strip.

## Configuring Dial Peer Call Legs Using Digit Translation Rules

A dial peer defines the characteristics associated with a call leg. Dial peers are used to apply attributes to call legs and to identify call origin and destination. Attributes applied to a call leg include QoS, codec, VAD, and fax rate. A call leg is a discrete segment of a call connection that lies between two points in the connection. All of the call legs for a particular connection have the same connection ID.

There are two different types of dial peers:

- **POTS**—POTS dial peers describe the line characteristics usually associated with a traditional telephony network. POTS dial peers point to a particular voice port on a network device. On the Cisco AS5300, POTS dial peers point to a specific voice port on the Cisco AS5300 through which voice traffic will travel to the rest of the voice network.
- **VoIP**—VoIP dial peers describe the line characteristics usually associated with a packet network connection (in the case of VoIP, this is an IP network). VoIP peers define the line characteristics between VoIP devices (the routers and access servers carrying voice traffic in this voice network).

A POTS dial peer points to a voice-port on the router, and the destination of a VoIP dial peer points to the destination IP address of the voice-router that terminates the call.

Complete the following procedures to configure call legs using the **translation-rule** command:



### Timesaver

You should configure your translation rules before you apply rules to your dial peer call legs.

- Step 1** To enter the translation-rule configuration mode and specify a rule, enter the following commands in global configuration mode:

	Command	Purpose
<b>Step 1</b>	5300(config)# <b>translation-rule 5</b>	Defines a translation-rule tag number and enters translation-rule configuration mode. All subsequent commands that you enter in this mode before you exit will apply to this translation-rule tag.
<b>Step 2</b>	5300(config-translate)# <b>rule 1 213% 510 national international</b>	Specifies translation rules. This command can be entered multiple times and is applied to the translation-rule defined in Step 1.



**Note** Applying translation rules to more than one dial peer call leg in your end-to-end call is not recommended.

- Step 2** To apply a rule to an inbound POTS call leg, enter the following commands in global configuration mode:

	Command	Purpose
<b>Step 1</b>	Router(config)# <b>voice-port 0:D</b>	Specifies the voice port.
<b>Step 2</b>	Router(config-voiceport)# <b>translate called 5</b>	Specifies the translation tag for inbound called or calling number.

- Step 3** To apply a rule to an outbound VoIP call leg, enter the following commands in global configuration mode:

	Command	Purpose
<b>Step 1</b>	Router(config)# <b>dial-peer voice 100 voip</b>	Enters the dial-peer configuration mode to configure a VoIP peer.
<b>Step 1</b>	Router(config-dial-peer)# <b>session target ipv:10.1.2.2</b>	Specifies a destination IP address for this dial peer.
<b>Step 2</b>	Router(config-voiceport)# <b>translate-outgoing calling 5</b>	Translates outbound calling number.

- Step 4** To apply a rule to a VoIP call that originates from an H.323 node, enter the following global command:



**Note** There can only be one global voip-incoming translation-rule.

	Command	Purpose
Step 1	Router(config)# <b>voip-incoming translation-rule called 5</b>	Specifies the translation tag for the VoIP inbound call leg.

**Step 5** To apply a translation rule to an outbound POTS call leg, enter the following commands in global configuration mode:

	Command	Purpose
Step 1	Router(config)# <b>dial-peer voice 100 pots</b>	Enters the dial-peer configuration mode to configure a POTS dial peer.
Step 1	Router(config-dial-peer)# <b>port 0:D</b>	Specifies the voice port.
Step 2	Router(config-dial-peer)# <b>translate-outgoing called 5</b>	Specifies the translation tag for inbound called or calling number.

## Verifying Digit Translation

**Step 1** Enter the **test translation-rule** command.

```
Router# test translation-rule
translation-rule 21
  Rule 1 527.% 1408527 subscriber international
  Rule 2 7.% 1408527 abbreviated international

Router#test translation-rule 21 45678 abbreviated
Router#
*Jan 19 16:39:14.578:The replace number 45614085278
Router#
```

## Configuration Examples

This section contains the following configuration examples:

- Configuring an H.323 Gateway
- Configuring a RAS Gatekeeper

## Configuring an H.323 Gateway

The following example shows how to configure a Cisco 3600 series router as an H.323 gateway:

```

! Configure the voice-port parameters.
! This voice-port is an analog E&M-wink port using 4-wire, type 5 interface
!
voice-port 2/0/0
  operation 4-wire
  type 5
!
! Setup a pots dial peer to direct calls incoming VoIP calls to the voice-port.
! This dial peer defines that the RAS initiated call will be received with a tech
! prefix of 13#
!
dial-peer voice 13200 pots
  destination-pattern 13#13200
  port 2/0/0
!
! Setup a VoIP dial-peer to direct calls originated from a local voice-port
! into the VoIP cloud. In this example, the session target indicates
! that the destination target is determined by querying the RAS gatekeeper.
! The tech-prefix command means that the H.323 gateway will ask the RAS gatekeeper to
! direct calls using the technology prefix of 14#.
!
dial-peer voice 14 voip
  destination-pattern 14...
  tech-prefix 14#
  session target ras
!
! Enable Gateway functionality with global config command.
!
gateway
!
! Choose an interface to be this gateway's H.323 interface. In this example, the
! gateway is directed toward a specific host. Then define this gateway's H.323 ID, and
! configure any tech prefixes that this gateway should register with the gatekeeper.
! In this example, gateway GW13 tells gatekeeper GK15 to route any calls with a pattern
! than begins with 13# to GW13. Dial-peer 14 expects that some other gateway has
! register tech-prefix 14#.
!
interface Ethernet0/0
  ip address 172.9.53.13 255.255.255.0
  h323-gateway voip interface
  h323-gateway voip id GK15.cisco.com ipaddr 172.9.53.15 1719
  h323-gateway voip h323-id GW13@cisco.com
  h323-gateway voip tech-prefix 13#
!

```

## Configuring a RAS Gatekeeper

- For RAS to work on an H.323 gateway, you need to configure a corresponding RAS gatekeeper. The following example shows a Cisco 3600 series router configured as a RAS gatekeeper. For more information about configuring gatekeepers, refer to the chapter “Configuring Voice over IP for the Service Provider Environment” in the Cisco IOS Release 12.1 *Cisco IOS Multiservice Applications Configuration Guide*.

```
! Define this Ethernet port as the RAS gatekeeper.
interface Ethernet0/0
 ip address 172.9.53.15 255.255.255.0
!
gatekeeper
!
! Specify the name of the local zone that this gatekeeper managers. Specify the IP
! address that the gatekeeper advertises.
zone local GK15.cisco.com cisco.com 172.9.53.15
!
! Statically define a remote zone and the associated gatekeeper's IP address.
zone remote GK21.cisco.com cisco.com 172.9.74.21 1719
!
! Statically define the E.164 prefixes that a remote zone handles. This causes GK15 to
! direct any call with a called number that matches 22* (22 and any number of trailing
! digits) to GK21. This is not the same as a tech prefix. If a call comes in with an
! E.164 pattern of (220) 555-1234, it will be routed to GK21 because the pattern
! matches 22*.
zone prefix GK21.cisco.com 22*
zone prefix GK21.cisco.com 23*
!
! Statically define a tech prefix routing. Any call that comes in to the gatekeeper
! with a technology prefix of 88# (the * catches any following E.164 address), is
! directed to the gateway at IP address 172.9.53.13. This is a static technology prefix
! definition. The gateway can also dynamically register its tech-prefixes with the
! gatekeeper.
gw-type-prefix 88#* gw ipaddr 172.9.53.13 1720
!
! Activate the gatekeeper function by activating the port.
no shutdown
!
```

## Monitoring and Maintaining Digit Manipulation and Translation

Command	Purpose
5300# <b>show translation-rule</b> <i>name-tag</i>	Displays information about the rules that have been configured for a specific translation name.

## Command Reference

This section documents new or modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.0 command reference publications.

- digit strip**
- numbering-type**

- **rule**
- **show translation-rule**
- **test translation-rule**
- **translation-rule**
- **voip-incoming translation-rule**

# digit strip

To enable digit stripping on a dial peer call leg, use the **digit strip** command. To disable digit stripping, use the **no** form of this command.

**digit strip**

**no digit strip**

## Syntax Description

There are no arguments or keywords for this command.

## Command Modes

Dial peer configuration mode.

## Defaults

Digit stripping is enabled.

## Command History

Release	Modification
12.0(7)XR1	This command was introduced for the Cisco AS5300.
12.1(1)T	This command was introduced for multiple platforms.

## Usage Guidelines

When a called number is received and matched to a POTS dial peer, the matched digits are stripped and the remaining digits are forwarded to the voice interface.

## Examples

The following example disables digit stripping:

```
Router(config)# dial-peer voice 100 pots
Router(config-dial-peer)# no digit strip
```

## Related Commands

Command	Description
<b>numbering-type</b>	Specifies number type for the VoIP or POTS dial peer.
<b>show translation-rule</b>	Displays the contents of all the rules that have been configured for a specific translation name.
<b>test translation-rule</b>	Tests the execution of the translation rules on a specific name-tag.
<b>translation-rule</b>	Applies a translation rule to a calling party number or a called party number for both incoming and outgoing calls
<b>voip-incoming translation-rule</b>	Captures calls that originate from H.323-compatible clients.

# numbering-type

To match on a number type for a dial peer call leg, use the **numbering-type** command.

```
numbering-type { international | abbreviated | national | network | reserved | subscriber |
unknown }
```

## Syntax Description

<b>numbering-type</b>	Specifies number type for the VoIP or POTS dial peer. Number types are: <ul style="list-style-type: none"> <li>• International</li> <li>• Abbreviated</li> <li>• National</li> <li>• Network</li> <li>• Reserved</li> <li>• Subscriber</li> <li>• Unknown</li> </ul>
-----------------------	---

## Command Modes

Dial peer configuration mode.

## Command History

Release	Modification
12.0(7)XR1	This command was introduced for the Cisco AS5300.
12.1(1)T	This command was introduced for multiple platforms.

## Examples

The following example shows to configure the POTS dial peer for network usage:

```
Router(config)# dial-peer voice 100 pots
Router(config-dial-peer)# numbering-type network
```

## Related Commands

Command	Description
<b>show translation-rule</b>	Displays the contents of all the rules that have been configured for a specific translation name.
<b>test translation-rule</b>	Tests the execution of the translation rules on a specific name-tag.
<b>translation-rule</b>	Applies a translation rule to a calling party number or a called party number for both incoming and outgoing calls
<b>voip-incoming translation-rule</b>	Captures calls that originate from H.323-compatible clients.

# rule

To apply a translation rule to a calling party number or a called party number for both incoming and outgoing calls, use the **translation-rule** global configuration command. To disable, use the **no** form of this command.

```
translation-rule name-tag precedence input-searched-pattern substituted-pattern
[ match-type | substituted-type ]
```

```
no translation-rule name-tag precedence input-searched-pattern substituted-pattern
[ match-type | substituted-type ]
```

## Syntax Description

<i>name-tag</i>	The tag number by which the rule set will be referenced. This is an arbitrarily chosen number. Range is 1 through 2147483647.
<i>precedence</i>	The order in which the rules are to be applied and executed. Range 1 through 10.
<i>input-searched-pattern</i>	The input string of digits for which a pattern matching is performed.
<i>substituted-pattern</i>	The replacement digit string that results after a pattern matching is performed. Regular expressions are used to carry out this process.
<i>match-type</i>	Optional command. The choices for this field are international, national, subscriber, abbreviated, unknown, and any.
<i>substituted-type</i>	Optional command. The choices for this field are international, national, subscriber, abbreviated, and unknown.



### Note

In the syntax description above, the square brackets indicate optional values. When using this command, do not include these square brackets as part of the syntax. They are not valid parameters in the **rule** command. The square brackets can only be used in actual syntax for such commands as the **destination-pattern** and **incoming called-number** commands, where the syntax specifically allows this delimiter.

## Defaults

No default behavior or values.

## Command Modes

Global configuration.

## Command History

Release	Modification
12.0(7)XR1	This command was introduced for the Cisco AS5300.
12.1(1)T	This command was introduced for multiple platforms.

**Usage Guidelines**

When configuring your dial peers, you are provided with an option called the translation rule. This applies a translation rule to a calling party number [Automatic Number Identification (ANI)] or a called party number [Dial Number Information Service (DNIS)] for both incoming and outgoing calls within Cisco H.323 voice-enabled gateways. Also, the rule allows translation of the *type of number*.

**Examples**

The following example applies a translation-rule. If a called number starts with 5272205 or 72205, then the translation-rule 21 will use the rule command to forward the number to 14085272205 instead.

```
Router(config)# translation-rule 21
Router(translation-rule)# rule 1 527.% 1408527 subscriber international
Router(translation-rule)# rule 2 7.% 1408527 abbreviated international
```

In the next example, if a called number is either 14085272205 or 014085272205, then after the execution of the translation-rule 345, the forwarding digits will be 72205. If the match-type is configured and the type is not “unknown,” then the dial peer matching will be required to match input string numbering type.

```
Router(config)# translation-rule 345
Router(translation-rule)# rule 1 .%527.% 7 any abbreviated
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>numbering-type</b>	Specifies number type for the VoIP or POTS dial peer.
<b>show translation-rule</b>	Displays the contents of all the rules that have been configured for a specific translation name.
<b>test translation-rule</b>	Tests the execution of the translation rules on a specific name-tag.
<b>voip-incoming translation-rule</b>	Captures calls that originate from H.323-compatible clients.

# show translation-rule

To display the contents of all the rules that have been configured for a specific translation name, use the **show translation-rule** global configuration command.

```
show translation-rule { name-tag }
```

<b>Syntax Description</b>	<i>name-tag</i>	The tag number by which the rule set will be referenced. This is an arbitrarily chosen number. Range is 1 through 2147483647.
---------------------------	-----------------	---

**Command Modes** Privileged EXEC.

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	12.0(7)XR1	This command was introduced for the Cisco AS5300.
	12.1(1)T	This command was introduced for multiple platforms.

**Usage Guidelines** This command gives detailed information about the configured rules under this rule name. If the name tag is not entered, a complete display of all the configured rules will be shown.

**Examples** The following example shows output for the **show translation-rule** command:

```
Router# sh translation-rule
Translation rule address:0x61AB94F8
Tag name:21
Translation rule in_used 1
**** Xrule rule table ****
  Rule :1
  in_used state:1
  Match pattern:527.%
  Sub pattern:1408527
  Match type:subscriber
  Sub type:international
**** Xrule rule table ****
  Rule :2
  in_used state:1
  Match pattern:8.%
  Sub pattern:1408527
  Match type:abbreviated
  Sub type:international
Translation rule address:0x61C2E6D4
Tag name:345
Translation rule in_used 1
**** Xrule rule table ****
  Rule :1
  in_used state:1
  Match pattern:.%527.%
  Sub pattern:7
  Match type:ANY
  Sub type:abbreviated
```

**show translation-rule**

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>numbering-type</b>	Specifies number type for the VoIP or POTS dial peer.
	<b>test translation-rule</b>	Tests the execution of the translation rules on a specific name-tag.
	<b>translation-rule</b>	Applies a translation rule to a calling party number or a called party number for both incoming and outgoing calls
	<b>voip-incoming translation-rule</b>	Captures calls that originate from H.323-compatible clients.

# test translation-rule

To test the execution of the translation rules on a specific name tag, use the **test translation-rule** global configuration command. To disable, use the **no** form of this command.

```
test translation-rule name-tag input-number [ input-numbering-type ]
```

```
no test translation-rule name-tag input-number [ input-numbering-type ]
```

Syntax Description		
<i>name-tag</i>		The tag number by which the rule set will be referenced. This is an arbitrarily chosen number. Range is 1 through 2147483647.
<i>input-number</i>		The input string of digits for which a pattern matching is performed.
<i>input-numbering-type</i>		Optional command. The choices for this field are international, national, subscriber, abbreviated, unknown, and any.

**Defaults** No default behavior or values.

**Command Modes** Global configuration.

Command History	Release	Modification
	12.0(7)XR1	This command was introduced for the Cisco AS5300.
	12.1(1)T	This command was introduced for multiple platforms.

**Examples** The following shows output for the **test translation-rule** command:

```
Router# translation-rule 21
  Rule 1 527.% 1408527 subscriber international
  Rule 2 8.% 1408527 abbreviated international

Router# test translation-rule 21 45678 abbreviated
Router#
*Jan 19 16:39:14.578:The replace number 45614085278
Router#
```

Related Commands	Command	Description
	<b>numbering-type</b>	Specifies number type for the VoIP or POTS dial peer.
	<b>show translation-rule</b>	Displays the contents of all the rules that have been configured for a specific translation name.
	<b>translation-rule</b>	Applies a translation rule to a calling party number or a called party number for both incoming and outgoing calls
	<b>voip-incoming translation-rule</b>	Captures calls that originate from H.323-compatible clients.

# translation-rule

To apply a translation rule to a calling party number or a called party number for both incoming and outgoing calls, use the **translation-rule** global configuration command. To disable, use the **no** form of this command.

**translation-rule** *name-tag precedence input-searched-pattern substituted-pattern*  
 [ *match-type* | *substituted-type* ]

**no translation-rule** *name-tag precedence input-searched-pattern substituted-pattern*  
 [ *match-type* | *substituted-type* ]

## Syntax Description

<i>name-tag</i>	The tag number by which the rule set will be referenced. This is an arbitrarily chosen number. Range is 1 through 2147483647.
<i>precedence</i>	The order in which the rules are to be applied and executed. Range 1 through 10.
<i>input-searched-pattern</i>	The input string of digits for which a pattern matching is performed.
<i>substituted-pattern</i>	The replacement digit string that results after a pattern matching is performed. Regular expressions are used to carry out this process.
<i>match-type</i>	Optional command. The choices for this field are international, national, subscriber, abbreviated, unknown, and any.
<i>substituted-type</i>	Optional command. The choices for this field are international, national, subscriber, abbreviated, and unknown.



## Note

In the syntax description above, the square brackets indicate optional values. When using this command, do not include these square brackets as part of the syntax. They are not valid parameters in the **translation-rule** command. The square brackets can only be used in actual syntax for such commands as the **destination-pattern** and **incoming called-number** commands, where the syntax specifically allows this delimiter.

## Defaults

No default behavior or values.

## Command Modes

Global configuration.

## Command History

Release	Modification
12.0(7)XR1	This command was introduced for the Cisco AS5300.
12.1(1)T	This command was introduced for multiple platforms.

**Usage Guidelines**

When configuring your dial peers, you are provided with an option called the translation rule. This applies a translation rule to a calling party number [Automatic Number Identification (ANI)] or a called party number [Dial Number Information Service (DNIS)] for both incoming and outgoing calls within Cisco H.323 voice-enabled gateways. Also, the rule allows translation of the *type of number*.

**Examples**

The following example applies a translation-rule. If a called number starts with 5272205 or 72205, then the translation-rule 21 will use the rule command to forward the number to 14085272205 instead.

```
Router(config)# translation-rule 21
Router(translation-rule)# rule 1 527.% 1408527 subscriber international
Router(translation-rule)# rule 2 7.% 1408527 abbreviated international
```

In the next example, if a called number is either 14085272205 or 014085272205, then after the execution of the translation-rule 345, the forwarding digits will be 72205. If the match-type is configured and the type is not “unknown,” then the dial peer matching will be required to match input string numbering type.

```
Router(config)# translation-rule 345
Router(translation-rule)# rule 1 .%527.% 7 any abbreviated
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>numbering-type</b>	Specifies number type for the VoIP or POTS dial peer.
<b>show translation-rule</b>	Displays the contents of all the rules that have been configured for a specific translation name.
<b>test translation-rule</b>	Tests the execution of the translation rules on a specific name-tag.
<b>voip-incoming translation-rule</b>	Captures calls that originate from H.323-compatible clients.

# voip-incoming translation-rule

For calls that originate from H.323-compatible clients, use the **voip-incoming translation-rule** global configuration command. To disable, use the **no** form of this command.

**voip-incoming translation-rule** *name-tag* { **calling-number** | **called-number** }

**no voip-incoming translation-rule** *name-tag* { **calling-number** | **called-number** }

## Syntax Description

<i>name-tag</i>	The tag number by which the rule set will be referenced. This is an arbitrarily chosen number. Range is 1 through 2147483647.
<b>calling-number</b>	The ANI number, or the number of the calling party.
<b>called-number</b>	The DNIS (Dial Number Information Service) number, or the number of the called party.

## Defaults

No default behavior or values.

## Command Modes

Global configuration.

## Command History

Release	Modification
12.0(7)XR1	This command was introduced for the Cisco AS5300.
12.1(1)T	This command was introduced for multiple platforms.

## Usage Guidelines

With this command, all IP-based calls will be captured and handled, depending on either the calling or called number to the specified tag-name.

## Examples

The following example identifies the rule set for calls that originate from H.323-compatible clients:

```
Router(config)# voip-incoming translation-rule 5 called
```

## Related Commands

Command	Description
<b>numbering-type</b>	Specifies number type for the VoIP or POTS dial peer.
<b>show translation-rule</b>	Displays the contents of all the rules that have been configured for a specific translation name.
<b>test translation-rule</b>	Tests the execution of the translation rules on a specific name-tag.
<b>translation-rule</b>	Applies a translation rule to a calling party number or a called party number for both incoming and outgoing calls

# Debug Commands

There are no new or modified debug commands for this feature.

## Glossary

**AAA**—Authentication, Authorization, and Accounting. AAA is a suite of network security services which provides the primary framework through which access control can be set up on your Cisco router or access server.

**ANI**—Automatic number identification.

**ARQ**—Admission request.

**CAS**—Channel associated signaling.

**CCAPI**—Call Control Application Programming Interface

**CLI**—Command Language Interpreter. The basic Cisco IOS configuration and management interface.

**dial peer**—An addressable call endpoint. In Voice over IP (VoIP), there are two types of dial peers: POTS and VoIP.

**DNS**—Domain name system used to address translation to convert H.323 IDs, URLs, or e-mail IDs to IP addresses. DNS is also used to assist in the location of remote gatekeepers and to reverse-map raw IP addresses to host names of administrative domains.

**endpoint**—An H.323 terminal or gateway. An endpoint can call and be called. It generates and/or terminates the information stream.

**gatekeeper**—A gatekeeper maintains a registry of devices in the multimedia network. The devices register with the gatekeeper at startup, and request admission to a call from the gatekeeper.

The gatekeeper is an H.323 entity on the LAN that provides address translation and controls access to the LAN for H.323 terminals and gateways. The gatekeeper may provide other services to the H.323 terminals and gateways, such as bandwidth management and locating gateways.

**gateway**—A gateway allows H.323 terminals to communicate with non-H.323 terminals by converting protocols. A gateway is the point at which a circuit-switched call is encoded and repackaged into IP packets.

A H.323 gateway is an endpoint on the LAN that provides real-time, two-way communications between H.323 terminals on the LAN and other ITU-T terminals in the WAN, or to another H.323 gateway.

**H.323**—An International Telecommunication Union (ITU-T) standard that describes packet-based video, audio, and data conferencing. H.323 is an umbrella standard that describes the architecture of the conferencing system, and refers to a set of other standards (H.245, H.225.0, and Q.931) to describe its actual protocol.

**H.323 RAS**—Registration, admission, and status. The RAS signaling function performs registration, admissions, bandwidth changes, status and disengage procedures between the VoIP gateway and the gatekeeper.

**IVR**—Integrated voice response. When someone dials in, it responds with a prompt to get a personal identification number (PIN), and so on.

**multicast**—A process of transmitting PDUs from one source to many destinations. The actual mechanism (that is, IP multicast, multi-unicast, and so forth) for this process might be different for LAN technologies.

**multipoint-unicast**—A process of transferring PDUs (Protocol Data Units) where an endpoint sends more than one copy of a media stream to different endpoints. This might be necessary in networks which do not support multicast.

**node**—A H.323 entity that uses RAS to communicate with the gatekeeper. For example, an endpoint such as a terminal, proxy, or gateway.

**POTS**—Plain old telephone service. Basic telephone service supplying standard single line telephones, telephone lines, and access to the PSTN.

**PSTN**—Public switched telephone network. PSTN refers to the local telephone company.

**QoS**—Quality of service, which refers to the measure of service quality provided to the user.

**RAS**—Registration, admission, and status protocol. This is the protocol that is used between endpoints and the gatekeeper to perform management functions.

**TDM**—Time-division multiplexing. Technique in which information from multiple channels can be allocated bandwidth on a single wire based on preassigned time slots. Bandwidth is allocated to each channel regardless of whether the station has data to transmit.

**VoIP**—Voice over IP. The ability to carry normal telephone-style voice over an IP-based internet with POTS-like functionality, reliability, and voice quality. VoIP is a blanket term which generally refers to Cisco's standards based (for example, H.323) approach to IP voice traffic.

**VTSP**—Voice telephony service provider.

**zone**—A collection of all terminals (tx), gateways (GW), and Multipoint Control Units (MCU) managed by a single gatekeeper (GK). A zone includes at least one terminal, and can include gateways or multipoint control units (MCUs). A zone has only one gatekeeper. A zone may be independent of LAN topology and can be comprised of multiple LAN segments which are connected using routes or other devices.