

# Voice Translation Rules

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## Introduction

This document discusses how to define voice translation rules.

**Note:** The syntax used throughout this document is:

- *rule precedence /match pattern/ /replacement pattern/*

**Note:** / -- / delimits the whole number.

## Prerequisites

### Requirements

There are no specific requirements for this document.

### Components Used

This document is not restricted to specific software and hardware versions.

### Conventions

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

## Simple Match and Replace

## Example 1

This example replaces the first occurrence of the number "123" with "456".

```
voice translation-rule 1
rule 1 /123/ /456/
```

These are **test voice translation-rule** examples:

```
router#test voice translation-rule 1 123
Matched with rule 1
Original number: 123      Translated number: 456

router#test voice translation-rule 1 1234
Matched with rule 1
Original number: 1234    Translated number: 4564

router#test voice translation-rule 1 6123
Matched with rule 1
Original number: 6123    Translated number: 6456

router#test voice translation-rule 1 6123123
Matched with rule 1
Original number: 6123123      Translated number: 6456123
Original number type: none    Translated number type: none
Original number plan: none    Translated number plan: none
```

In this example, the rule matches the first occurrence of the number that contains the pattern "123" anywhere in the number. Specifically, you can use the start and end of number indicators. The Example 2 and Example 3 sections show this.

## Example 2

This example shows how to replace any occurrence of "123" at the start of a number with "456".

```
voice translation-rule 1
rule 1 /^123/ /456/
```

These are **test voice translation-rule** examples.

```
router#test voice translation-rule 1 123
Matched with rule 1
Original number: 123      Translated number: 456

router#test voice translation-rule 1 1234
Matched with rule 1
Original number: 1234    Translated number: 4564

router#test voice translation-rule 1 6123
6123 Didn't match with any of rules
```

## Example 3

If you want only the match of an exact number, specify both the start and end number indicators:

```
voice translation-rule 1
rule 1 /^123$/ /456/

router#test voice translation-rule 1 123
```

```
Matched with rule 1
Original number: 123   Translated number: 456
```

```
router#test voice translation-rule 1 1234
1234 Didn't match with any of rules
```

```
router#test voice translation-rule 1 6123
6123 Didn't match with any of rules
```

## Pattern Match with Wildcards

These tables define wildcard and wildcard combinations and show some examples.

| Wildcard   | Definition                              |
|------------|-----------------------------------------|
| .          | Any single digit                        |
| 0 to 9,*,# | Any specific character                  |
| [0-9]      | Any range or sequence of characters     |
| *          | Modifier match none or more occurrences |
| +          | Modifier match one or more occurrences  |
| ?          | Modifier match none or one occurrence   |

| Wildcard Combination | Definition                                                                                    |
|----------------------|-----------------------------------------------------------------------------------------------|
| .*                   | Any digit followed by none or more occurrences. This is effectively anything, including null. |
| .+                   | Any digit followed by one or more occurrences. This is effectively anything, except null.     |
| ^\$                  | No digits, null                                                                               |

### Example 1

This example replaces any five-digit number that begins with "40" with the number "6666000".

```
voice translation-rule 1
  rule 1 /^40.../ /6666000/

router#test voice translation-rule 1 40123
Matched with rule 1
Original number: 40123   Translated number: 6666000
```

### Example 2

This example replaces all numbers with "5554000".

```
voice translation-rule 2
  rule 1 /.*/ /5554000/

router#test voice translation-rule 2 123
```

```

Matched with rule 1
Original number: 123    Translated number: 5554000

router#test voice translation-rule 2 86573
Matched with rule 1
Original number: 86573    Translated number: 5554000

router#test voice translation-rule 2 ""
Matched with rule 1
Original number:    Translated number: 5554000

```

### Example 3

This example replaces all numbers, except null, with "5554000".

```

voice translation-rule 2
rule 1 /.+ /5554000/

router#test voice translation-rule 2 123
Matched with rule 1
Original number: 123    Translated number: 5554000

router#test voice translation-rule 2 ""
Didn't match with any of rules

```

### Example 4

This example replaces any number that starts with a combination of zeros (0, 00, and so forth) with "909".

```

voice translation-rule 5
rule 1 /^0+ /909/

router#test voice translation-rule 5 0123456
Matched with rule 1
Original number: 0123456    Translated number: 909123456

router#test voice translation-rule 5 00123456
Matched with rule 1
Original number: 00123456    Translated number: 909123456

router#test voice translation-rule 5 000123456
Matched with rule 1
Original number: 000123456    Translated number: 909123456

router#test voice translation-rule 5 123456
123456 Didn't match with any of rules

```

## Number Slice

You can use number slice when you need to copy parts of a matched number across to the replacement number. You slice the matched number into sets that you can keep or ignore.

| Character | Description                                                           |
|-----------|-----------------------------------------------------------------------|
| \         | In the match pattern, indicates where to slice up the number.         |
| \         | In the replacement pattern, indicates where to copy the sets to keep. |

|     |                                                     |
|-----|-----------------------------------------------------|
| ( ) | Indicates which sets in the matched number to keep. |
|-----|-----------------------------------------------------|

| Character Usage | Description                                     |
|-----------------|-------------------------------------------------|
| (a\)            | Keep expression "a".                            |
| b\              | Ignore expression "b".                          |
| \1              | Copy the first set into the replacement number. |

## Generic Example

This example provides a general explanation.

```
/ (x\ ) y\ (z\ ) / /w\1\2/
```

Split the matched number into three sets of *x*, *y*, and *z*. The backward slash (\) indicates the places to slice up the number. The brackets ( ) indicate which sets you want to reuse in the replacement pattern. The *w* represents additional digits to insert into the replacement number.

- Set 1 becomes expression *x*.
- Set 2 becomes expression *z*.
- Expression *y* is ignored.

The replacement number is a concatenated number: *wxz*.

## Specific Example

This example provides further detail:

```
voice translation-rule 1
rule 1 /^(12\ )3\ (45\ )$/ /6\1\2/
```

- **Set 1:** 12
- **Set 2:** 45
- **Ignore:** 3

```
router#test voice translation-rule 1 12345
Matched with rule 1
Original number: 12345          Translated number: 61245
```

## Number Type and Plan

You can restrict matches to particular number or plan types. Also, you can alter the replacement plan or type.

### Example 1

In this example, if a number starts with "4" and the type is "national", the rule adds "90" as a prefix. If the type is "international", the rule adds "900" as the prefix.

```
voice translation-rule 7
rule 1 /^4/ /904/ type national national
rule 2 /^4/ /9004/ type international international
```

```

router#test voice translation-rule 7 493456567 type national
Matched with rule 1
Original number: 493456567      Translated number: 90493456567
Original number type: national  Translated number type: national
Original number plan: none      Translated number plan: none

```

```

router#test voice translation-rule 7 493456567 type international
Matched with rule 2
Original number: 493456567      Translated number: 900493456567
Original number type: international  Translated number type: international
Original number plan: none        Translated number plan: none

```

This is useful when telephone companies (Telcos) remove access codes on national and international numbers. You can add the correct prefix with the number type as a basis.

## Example 2

This example changes the number type and plan.

```

voice translation-rule 8
rule 1 /^2\(...$\)/ /01779345\1/ type unknown national plan unknown isdn

```

This rule matches any four-digit number that starts with "2". The rule removes the "2", adds the number "01779345" as a prefix, and sets the plan to "isdn" and the type to "national".

```

router#test voice translation-rule 8 2001 type unknown plan unknown
Matched with rule 1
Original number: 2001      Translated number: 01779345001
Original number type: unknown  Translated number type: national
Original number plan: unknown  Translated number plan: isdn

```

## Reject Calls

Use the **reject** keyword to reject calls that match. This example rejects all calls that start with "234".

```

rule 1 reject /^234/

router#test voice translation-rule 10 1234
1234 Didn't match with any of rules

router#test voice translation-rule 10 2345
blocked on rule 1

```

## Apply Rules

Voice Translation Rules are applied to Voice Translation Profiles. These profiles are then applied to dial peers or voice ports. Profiles can be applied to VoIP or POTS dial peers or voice ports, and can be applied to inbound or outbound calls. A profile can translate Called, Calling, or Redirecting numbers.

```

voice translation-rule 3
rule 1 /123/ /456/

voice translation-profile profile1
translate calling 3

dial-peer voice 10 pots
translation-profile outgoing profile1

```

# More Examples

## Truncate Numbers Down to the Last Two Digits

```
rule 1 /^.*\(..\) / \1/
```

This is a number divided into one set and one ignored statement.

- **Ignored:** ^.\* None or more digits from the beginning of number

**Set 1:** .. two digits

The replacement statement specifies Set 1. This rule copies the last two digits of the number.

```
router#test voice translation-rule 9 12345
Matched with rule 1
Original number: 12345 Translated number: 45

router#test voice translation-rule 9 123456
Matched with rule 1
Original number: 123456 Translated number: 56
```

## Remove Unwanted Digits in a Number

This example is useful because certain Telcos have been known to insert hypens into calling party numbers. Since this is against standards, it causes the calling party number to be ignored. The Telco sends the calling numbers in two formats, with one hyphen and sometimes with two. Two rules are required in the voice translation rule. Additionally, the first format can have five or six digit numbers after the hyphen. You can match both of these conditions using one rule with the '?' character (match none or one occurrence).

Notes on special characters:

- The hyphen character is used to indicate a range in a match pattern, for example [0–9]. In order to indicate in this rule that you want to match on the hyphen character, it is necessary to use the '\' character to escape its meaning. This is because the hyphen character is a special character. The '\-' characters really means hyphen. The trailing '\' indicates that the number is sliced here.
- If you type ? directly, IOS thinks it is a request for help. You must type **Control-V** then ?.

```
voice translation-rule 12
rule 1 /^\(01..\)\-\(\.....?\$\) / \1\2/
rule 2 /^\(0[12]..\)\-\(\.....\$\) / \1\2\3/
```

**Rule 1:** The number is sliced into three sequences, with two sets to be kept.

- **Set 1:** 01...

**Ignore:** –

**Set 2:** ..... or .....

**Rule 2:** The number is sliced into five sequences with three sets to be kept.

- **Set 1:** 0[12]..

**Ignore: –**

**Set 2: ...**

**Ignore: –**

**Set 3: ....**

```
router#test voice translation-rule 12 "01208-333444"  
Matched with rule 1  
Original number: 01208-333444   Translated number: 01208333444
```

```
router#test voice translation-rule 12 "01208-72345"  
Matched with rule 1  
Original number: 01208-72345   Translated number: 0120872345
```

```
router#test voice translation-rule 12 "0161-333-4444"  
Matched with rule 2  
Original number: 0161-333-4444   Translated number: 01613334444
```

```
router#test voice translation-rule 12 "0208-123-4567"  
Matched with rule 2  
Original number: 0208-123-4567   Translated number: 02081234567
```

## NetPro Discussion Forums – Featured Conversations

Networking Professionals Connection is a forum for networking professionals to share questions, suggestions, and information about networking solutions, products, and technologies. The featured links are some of the most recent conversations available in this technology.

|                                                             |
|-------------------------------------------------------------|
| NetPro Discussion Forums – Featured Conversations for Voice |
| Service Providers: Voice over IP                            |
| Voice & Video: Voice over IP                                |
| Voice & Video: IP Telephony                                 |
| Voice & Video: IP Phone Services for End Users              |
| Voice & Video: Unified Communications                       |
| Voice & Video: IP Phone Services for Developers             |
| Voice & Video: General                                      |

## Related Information

- **The rule (voice translation–rule) section of Cisco IOS Voice Commands**
- **Voice Technology Support**
- **Voice and Unified Communications Product Support**
- **Recommended Reading: Troubleshooting Cisco IP Telephony**
- **Technical Support & Documentation – Cisco Systems**

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