

# URI-Based Dialing Enhancements


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## Overview

The URI Dialing feature describes the enhancements that are made to Uniform Resource Identifier (URI)-based dialing on Cisco Unified Border Element (CUBE) for Session Initiation Protocol (SIP) calls. The URI-Based Dialing Enhancements feature includes support for call routing on CUBE when the User Part of the incoming Request-URI is non-E164 (for example, INVITE sip:user@abc.com).

Cisco Unified Communications Manager supports dialing using directory Uniform Resource Identifiers (URIs) for call addressing. Directory URIs follow the username@host format where the host portion is an IPv4 address or a fully qualified domain name. Use a directory URI to identify a directory number. Assign that directory number to a phone, so that Unified Communications Manager can route calls to that phone using the directory URI. URI dialing is available for Session Initiation Protocol (SIP) and Signaling Connection Control Part (SCCP) endpoints that support directory URIs.

The URI Dialing feature extends support for CUBE URI routing of calls. With these enhancements CUBE supports:

- URI routing when the User Part of the incoming Request-URI is non-E164 (for example, INVITE sip:user@abc.com).
- URI routing when the User Part is not present. The User Part is an optional parameter in the URI (for example, INVITE sip: abc.com).
- Copying the outgoing Request-URI and To header from the inbound Request-URI and To header respectively.
- Deriving (optionally) the session target for the outbound dial peer from the host portion of the inbound URI.
- URI routing for 302, Refer, and Bye Also scenarios.
- Call hunting where the subsequent dial peer is selected based on URI.
- Pass through of 302, with the host part of Contact: unmodified.

**Note** The minimum supported release of Cisco IOS required for URI-based call routing on dial-peers is Cisco IOS XE Gibraltar Release 16.12. You must configure the 'call-route-url' on the outgoing dial-peers to properly route the refer-to headers based on the URI matching.

# Feature Information

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

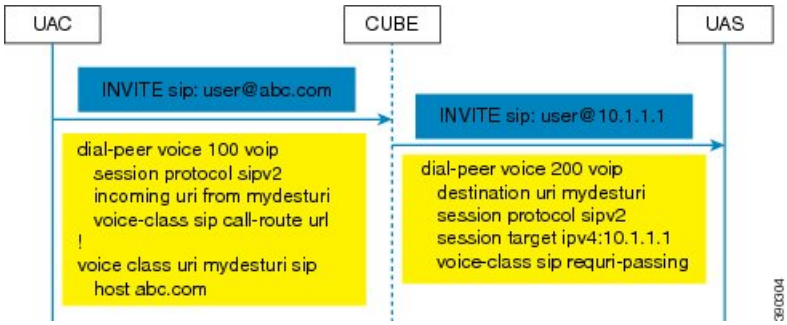
Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

***Table 1: Feature Information for URI-Based Dialing Enhancements***

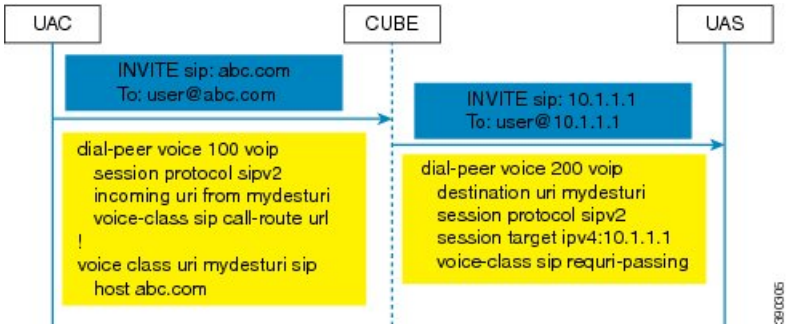
| Feature Name | Releases | Feature Information |
|---|---|---|
| URI-Based Dialing Enhancements | | The following commands were introduced or modified: **contact-passing**, **requri-passing**, **session target sip-uri** and **voice-class sip requri-passing** |

# Call Flows for URI-Based Dialing Enhancements

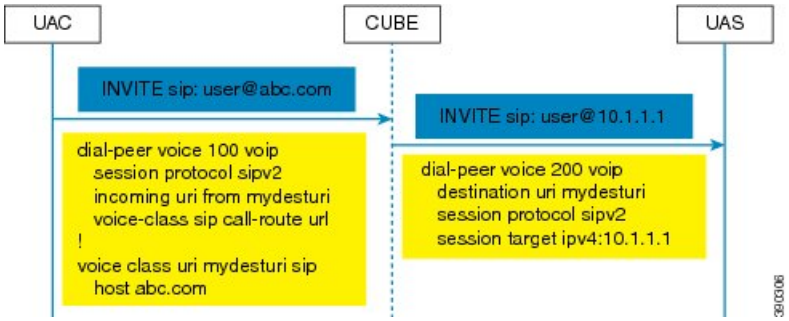
Case1: URI dialing with username being E164 or non-E164 number and Request-URI host copied from the inbound leg.



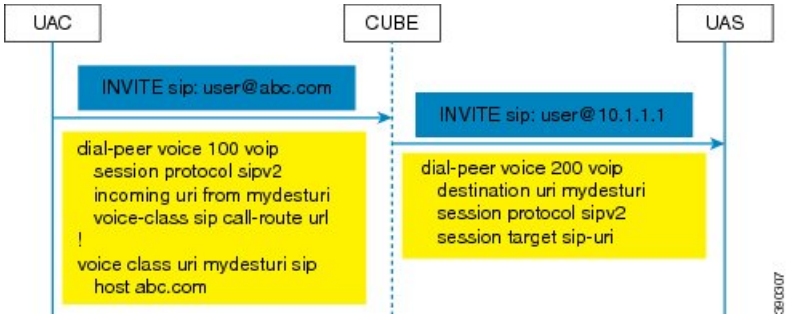

Case 2: Incoming Request-URI does not contain user part. The To: header information is also copied from the peer leg when the **requri-passing** command is enabled.



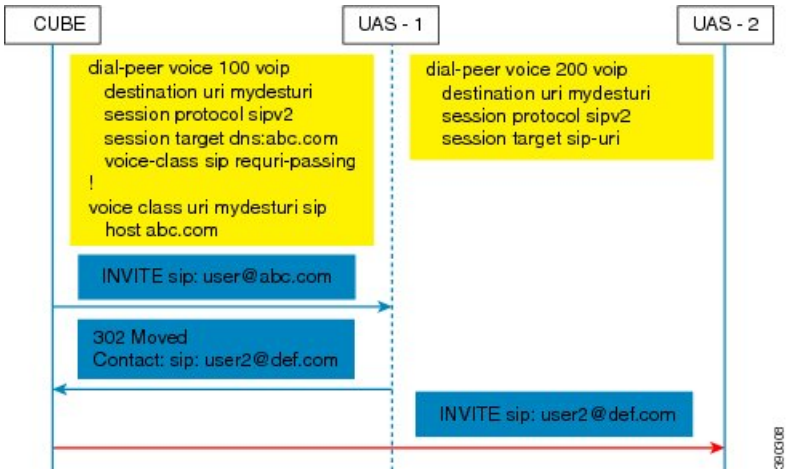

Case 3: The old behavior of setting the outbound Request-URI to session target is retained when the **requri-passing** command is not enabled.



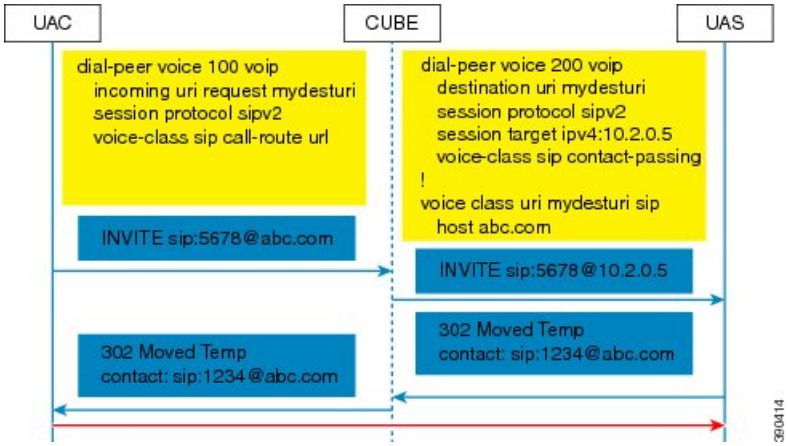

Case 4: The session target derived from the host part of the URI. The outgoing INVITE is sent to resolved IP address of the host part of the URI.



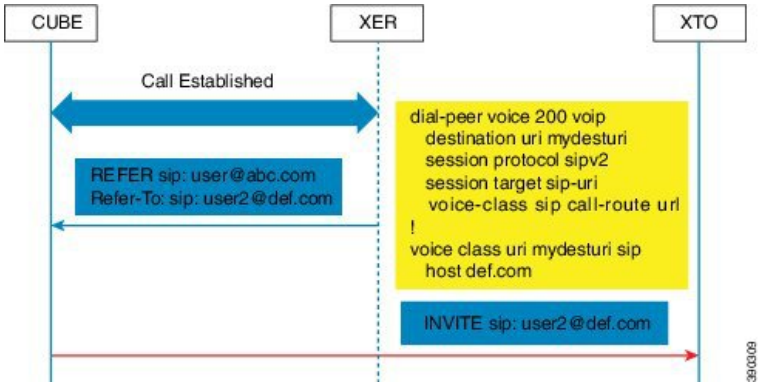

Case 5: Pass through of contact URI to request URI.



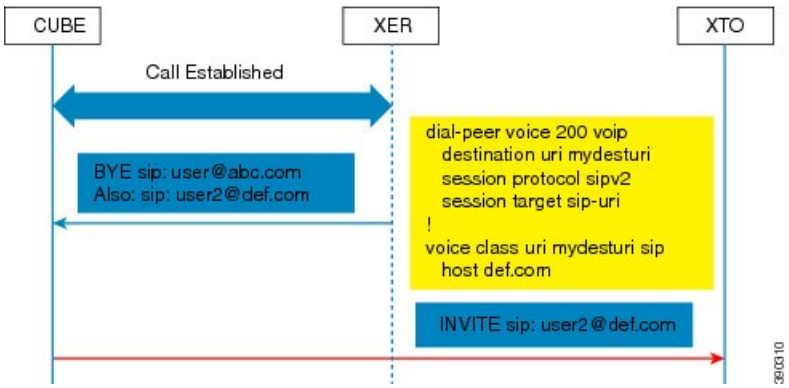

Case 6: In 302 pass-through, contact header can be passed through from one leg to another by using the **contact-passing** command.




Case 7: Pass through of refer-to URI to request URI.




Case 8: URI routing based on BYE Also header.




# Configure URI Dialing

## Configure Pass Through of SIP URI Headers

Perform these tasks to configure the pass through of the host part of the Request-Uniform Resource Identifier (URI) and To Session Initiation Protocol (SIP) headers. By default, CUBE sets the host part of the URI to the value configured under the session target of the outbound dial peer. For more information, see Case 1 in the "Call Flows for URI Dialing" section.

### Configure Pass Though of Request URI and To Header URI (Global Level)

#### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice service voip**
4. **sip**
5. **requri-passing**
6. **end**

#### DETAILED STEPS

**Procedure**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br>**Example:**<br>`Device> enable` | Enables privileged EXEC mode.<br>• Enter your password if prompted. |
| **Step 2** | **configure terminal**<br>**Example:**<br>`Device# configure terminal` | Enters global configuration mode. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 3** | **voice service voip**<br>**Example:**<br>`Device(config)# voice service voip` | Specifies VoIP encapsulation and enters voice service configuration mode. |
| **Step 4** | **sip**<br>**Example:**<br>`Device(conf-voi-serv)# sip` | Enters the Session Initiation Protocol (SIP) configuration mode. |
| **Step 5** | **requri-passing**<br>**Example:**<br>`Router(conf-serv-sip)# requri-passing` | Enables pass through of the host part of the Request-URI and To SIP headers. By default, CUBE sets the host part of the URI to the value configured under the session target of the outbound dial peer. |
| **Step 6** | **end**<br>**Example:**<br>`Router(conf-serv-sip)# end` | Ends the current configuration session and returns to privileged EXEC mode. |

## Configure Pass Though of Request URI and to Header URI (Dial Peer Level)

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice class uri** *tag* **sip**
4. **host** *hostname-pattern*
5. **exit**
6. **dial-peer voice** *tag* **voip**
7. **session protocol sipv2**
8. **destination uri** *tag*
9. **session target ipv4:***ip-address*
10. **voice-class sip requri-passing** [**system**]
11. **end**

### DETAILED STEPS

**Procedure**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br>**Example:**<br>`Device> enable` | Enables privileged EXEC mode.<br>• Enter your password if prompted. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 2** | **configure terminal**<br>**Example:**<br>`Device# configure terminal` | Enters global configuration mode. |
| **Step 3** | **voice class uri** *tag* **sip**<br>**Example:**<br>`Device(config)# voice class uri mydesturi sip` | Creates a voice class for matching dial peers to a Session Initiation Protocol (SIP) and enters voice URI class configuration mode. |
| **Step 4** | **host** *hostname-pattern*<br>**Example:**<br>`Device(config-voice-uri-class)# host example.com` | Matches a call based on the host field in a SIP Uniform Resource Identifier (URI). |
| **Step 5** | **exit**<br>**Example:**<br>`Device(config-voice-uri-class)# exit` | Exits voice URI class configuration mode. |
| **Step 6** | **dial-peer voice** *tag* **voip**<br>**Example:**<br>`Device(config)# dial-peer voice 22 voip` | Defines a VoIP dial peer and enters dial peer configuration mode. |
| **Step 7** | **session protocol sipv2**<br>**Example:**<br>`Device(config-dial-peer)# session protocol sipv2` | Specifies a session protocol for calls between local and remote routers using the Internet Engineering Task Force (IETF) SIP. |
| **Step 8** | **destination uri** *tag*<br>**Example:**<br>`Device(config)# destination uri mydesturi` | Specifies the voice class that is used to match a dial peer to the destination URI of an outgoing call. |
| **Step 9** | **session target ipv4:***ip-address*<br>**Example:**<br>`Device(config-dial-peer)# session target ipv4:10.1.1.2` | Designates a network-specific address to receive calls from a VoIP. |
| **Step 10** | **voice-class sip requri-passing** [**system**]<br>**Example:**<br>`Device(config-dial-peer)# voice-class sip requri-passing system` | Enables the pass through of SIP URI headers. |
| **Step 11** | **end**<br>**Example:**<br>`Device(config-dial-peer)# end` | Ends the current configuration session and returns to privileged EXEC mode. |

# Configure Pass Through of 302 Contact Header

## Configure Pass Through of 302 Contact Header (Global Level)

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice service voip**
4. **sip**
5. **contact-passing**
6. **end**

### DETAILED STEPS

**Procedure**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br>**Example:**<br>`Device> enable` | Enables privileged EXEC mode.<br>• Enter your password if prompted. |
| **Step 2** | **configure terminal**<br>**Example:**<br>`Device# configure terminal` | Enters global configuration mode. |
| **Step 3** | **voice service voip**<br>**Example:**<br>`Device(config)# voice service voip` | Specifies VoIP encapsulation and enters voice service configuration mode. |
| **Step 4** | **sip**<br>**Example:**<br>`Device(conf-voi-serv)# sip` | Enters voice service SIP configuration mode. |
| **Step 5** | **contact-passing**<br>**Example:**<br>`Router(conf-serv-sip)# contact-passing` | Enables pass through of the contact header from one leg to the other leg in 302 pass through scenario. |
| **Step 6** | **end**<br>**Example:**<br>`Router(conf-serv-sip)# end` | Ends the current configuration session and returns to privileged EXEC mode. |

# Configure Pass Through of 302 Contact Header (Dial Peer Level)

## SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice class uri** *destination-tag* **sip**
4. **user-id** *id-tag*
5. **exit**
6. **voice service voip**
7. **allow-connections sip to sip**
8. **dial-peer voice** *tag* **voip**
9. **session protocol sipv2**
10. **destination uri** *destination-tag*
11. **voice-class sip contact-passing**
12. **end**

## DETAILED STEPS

**Procedure**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br>**Example:**<br>`Device> enable` | Enables privileged EXEC mode.<br>• Enter your password if prompted. |
| **Step 2** | **configure terminal**<br>**Example:**<br>`Device# configure terminal` | Enters global configuration mode. |
| **Step 3** | **voice class uri** *destination-tag* **sip**<br>**Example:**<br>`Device(config)# voice class uri mydesturi sip` | Creates a voice class for matching dial peers to a Session Initiation Protocol (SIP) and enters voice URI class configuration mode. |
| **Step 4** | **user-id** *id-tag*<br>**Example:**<br>`Device(config-voice-uri-class)# user-id 5678` | Matches a call based on the User ID portion of the Uniform Resource Identifier (URI). |
| **Step 5** | **exit**<br>**Example:**<br>`Device(config-voice-uri-class)# exit` | Exits voice URI class configuration mode. |
| **Step 6** | **voice service voip**<br>**Example:**<br>`Device(config)# voice service voip` | Specifies Voice over IP (VoIP) as the voice encapsulation type and enters voice service configuration mode. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 7** | **allow-connections sip to sip**<br>**Example:**<br>`Device(conf-voi-serv)# allow-connections sip to sip` | Allows connections between SIP endpoints in a VoIP network. |
| **Step 8** | **dial-peer voice** *tag* **voip**<br>**Example:**<br>`Device(config)# dial-peer voice 200 voip` | Defines a VoIP dial peer and enters dial peer configuration mode. |
| **Step 9** | **session protocol sipv2**<br>**Example:**<br>`Device(config-dial-peer)# session protocol sipv2` | Specifies a session protocol for calls between local and remote routers using the Internet Engineering Task Force (IETF) SIP. |
| **Step 10** | **destination uri** *destination-tag*<br>**Example:**<br>`Device(config-dial-peer)# destination uri mydesturi` | Specifies the voice class used to match a dial peer to the destination URI of an outgoing call. |
| **Step 11** | **voice-class sip contact-passing**<br>**Example:**<br>`Device(config-dial-peer)# voice-class sip contact-passing` | Enables pass through of the contact header from one leg to the other leg in 302 pass through scenario. |
| **Step 12** | **end**<br>**Example:**<br>`Device(config-dial-peer)# end` | Ends the current configuration session and returns to privileged EXEC mode. |

# Derive the Session Target from URI

Perform this task to derive the session target from the host part of the Uniform Resource Identifier (URI). The outgoing INVITE is sent to the resolved IP address of the host part of the URI. For more information, see Case 4 in the "Call Flows for URI-Based Dialing Enhancements" section.

## SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **voice class uri** *destination-tag* **sip**
4. **host** *hostname-pattern*
5. **exit**
6. **dial-peer voice** *tag* **voip**
7. **session protocol sipv2**
8. **destination uri** *destination-tag*
9. **session target sip-uri**
10. **exit**

11. **voice class uri** *source-tag* **sip**
12. **host** *hostname-pattern*
13. **end**

## DETAILED STEPS

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br>**Example:**<br>`Device> enable` | Enables privileged EXEC mode.<br>• Enter your password if prompted. |
| **Step 2** | **configure terminal**<br>**Example:**<br>`Device# configure terminal` | Enters global configuration mode. |
| **Step 3** | **voice class uri** *destination-tag* **sip**<br>**Example:**<br>`Device(config)# voice class uri mydesturi sip` | Creates or modifies a voice class for matching dial peers to a Session Initiation Protocol (SIP) or telephone (TEL) Uniform Resource Identifier (URI) and enters voice URI class configuration mode. |
| **Step 4** | **host** *hostname-pattern*<br>**Example:**<br>`Device(config-voice-uri-class)# host destination.com` | Matches a call based on the host field in a SIP URI. |
| **Step 5** | **exit**<br>**Example:**<br>`Device(config-voice-uri-class)# exit` | Exits voice URI class configuration mode. |
| **Step 6** | **dial-peer voice** *tag* **voip**<br>**Example:**<br>`Device(config)# dial-peer voice 25 voip` | Defines a VoIP dial peer and enters dial peer configuration mode. |
| **Step 7** | **session protocol sipv2**<br>**Example:**<br>`Device(config-dial-peer)# session protocol sipv2` | Specifies a session protocol for calls between local and remote routers using the Internet Engineering Task Force (IETF) SIP. |
| **Step 8** | **destination uri** *destination-tag*<br>**Example:**<br>`Device(config-dial-peer)# destination uri mydesturi` | Specifies the voice class used to match a dial peer to the destination URI of an outgoing call. |
| **Step 9** | **session target sip-uri**<br>**Example:** | Derives session target from incoming URI. |

| | Command or Action | Purpose |
|---|---|---|
| | `Device(config-dial-peer)# session target sip-uri` | |
| **Step 10** | **exit**<br>**Example:**<br>`Device(config-dial-peer)# exit` | Exits dial peer voice configuration mode. |
| **Step 11** | **voice class uri** *source-tag* **sip**<br>**Example:**<br>`Device(config)# voice class uri mysourceuri sip` | Creates or modifies a voice class for matching dial peers to a SIP or TEL URI and enters voice URI class configuration mode. |
| **Step 12** | **host** *hostname-pattern*<br>**Example:**<br>`Device(config-voice-uri-class)# host abc.com` | Matches a call based on the host field in a SIP URI. |
| **Step 13** | **end**<br>**Example:**<br>`Device(config-voice-uri-class)# end` | Ends the current configuration session and returns to privileged EXEC mode. |

# Example: Deriving Session Target from URI

```
Device> enable
Device# configure terminal
Device(config)# voice class uri mydesturi sip
Device(config-voice-uri-class)# host destination.com
Device(config-voice-uri-class)# exit
!
Device(config)# dial-peer voice 25 voip
Device(config-dial-peer)# session protocol sipv2
Device(config-dial-peer)# destination uri mydesturi
Device(config-dial-peer)# session target sip-uri
Device(config-dial-peer)# exit
!
Device(config)# voice class uri mysourceuri sip
Device(config-voice-uri-class)# host abc.com
Device(config-voice-uri-class)# end
```

# Example: Configuring Pass Though of Request URI and To Header URI

## Example: Configuring Pass Though of Request URI and To Header URI (Global Level)

```
Device> enable
Device# configure terminal
Device(config)# voice service voip
Device(conf-voi-serv)# sip
Device(conf-serv-sip)# requri-passing
Device(conf-serv-sip)# end
```

### Example: Configuring Pass Though of Request URI and To Header URI (Dial Peer Level)

```
! Configuring URI voice class destination
Device(config)# voice class uri mydesturi sip
Device(config-voice-uri-class)# host xyz.com
Device(config-voice-uri-class)# exit

! Configuring outbound dial peer
Device(config)# dial-peer voice 13 voip
Device(config-dial-peer)# session protocol sipv2
Device(config-dial-peer)# destination uri mydesturi
Device(config-dial-peer)# session target ipv4:10.1.1.1
Device(config-dial-peer)# voice-class sip requri-passing system
Device(config-dial-peer)# end
```

## Example: Configuring Pass Through of 302 Contact Header

### Example: Configuring Pass Through of 302 Contact Header (Global Level)

```
Device> enable
Device# configure terminal
Device(config)# voice service voip
Device(conf-voi-serv)# sip
Device(conf-serv-sip)# contact-passing
Device(conf-serv-sip)# end
```

### Example: Configuring Pass Through of 302 Contact Header (Dial Peer Level)

```
! Configuring URI voice class destination
Device> enable
Device# configure terminal
Device(config)# voice class uri mydesturi sip
Device(config-voice-uri-class)# user-id 5678
Device(config-voice-uri-class)# exit

! Configuring outbound dial peer
Device(config)# voice service voip
Device(conf-voi-serv)# allow-connections sip to sip
Device(conf-voi-serv)# dial-peer voice 200 voip
Device(config-dial-peer)# session protocol sipv2
Device(config-dial-peer)# destination uri mydesturi
Device(config-dial-peer)# voice-class sip contact-passing
Device(config-dial-peer)# end
```

## Configuration Examples for URI-Based Dialing Enhancements

## Example: Deriving Session Target from URI

```
Device> enable
Device# configure terminal
Device(config)# voice class uri mydesturi sip
Device(config-voice-uri-class)# host destination.com
```

```
Device(config-voice-uri-class)# exit
!
Device(config)# dial-peer voice 25 voip
Device(config-dial-peer)# session protocol sipv2
Device(config-dial-peer)# destination uri mydesturi
Device(config-dial-peer)# session target sip-uri
Device(config-dial-peer)# exit
!
Device(config)# voice class uri mysourceuri sip
Device(config-voice-uri-class)# host abc.com
Device(config-voice-uri-class)# end
```

# Additional References for URI-Based Dialing Enhancements

### Related Documents

| Related Topic | Document Title |
|---|---|
| Voice commands | Cisco IOS Voice Command Reference |
| Cisco IOS commands | Cisco IOS Command List, All Releases |
| SIP configuration tasks | SIP Configuration Guide, Cisco IOS Release 15M&T |

### Technical Assistance

| Description | Link |
|---|---|
| The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.<br>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.<br>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password. | http://www.cisco.com/support |