



Cisco Unified Contact Center Express IPv6 Configuration

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Introduction

The purpose of this document is to describe the configuration of Cisco Unified Contact Center Express (Unified CCX), Cisco Unified Communications Manager (Unified Communications Manager), Cisco Unified Communications Manager IM and Presence Service (IM and Presence Service), Phones, Gateway, and Cisco Unified Border Element (CUBE) in a dual stack environment.

To test the various call flow combinations, change the common device configuration to V4 & V6, V6 only, and V4 only for phones. The trunk to Unified Communications Manager and IM and Presence Service is set as V4 & V6 for all combinations.

Design

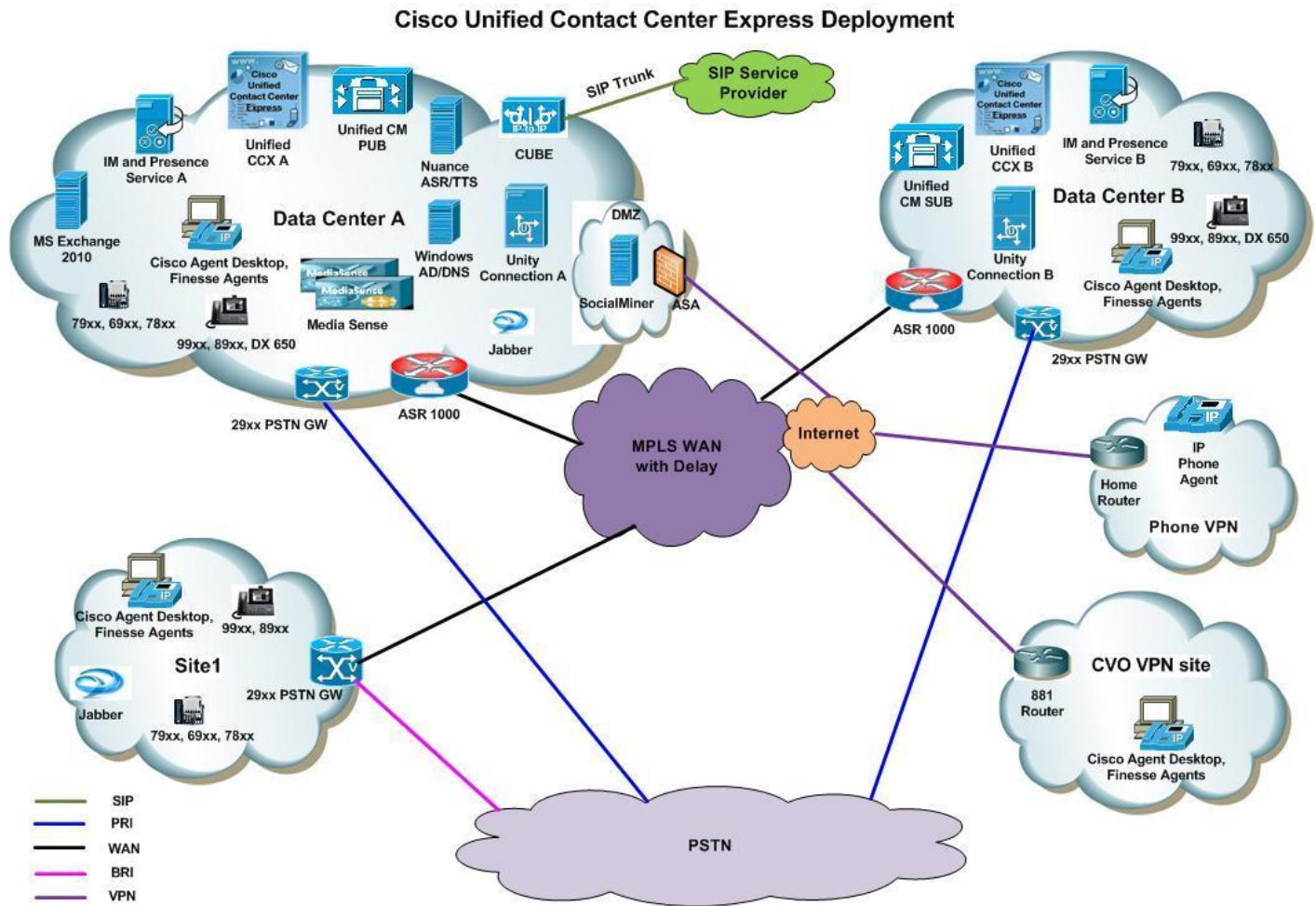
For information about design considerations and guidelines to deploy Cisco Unified Contact Center Express, see:

- Cisco Unified Contact Center Express Design Guide, Release 10.5(1), IPv6 Support
- Cisco Unified Contact Center Express Design Guide, Release 10.5(1), Deployment Models chapter

Topologies

This section provides information about the Cisco Unified Contact Center Express deployment. In the test bed, various components were tested. The deployment adheres to principles and designs documented in the Cisco Unified Contact Center Express Design Guide, Release 10.5(1).

Component Deployment



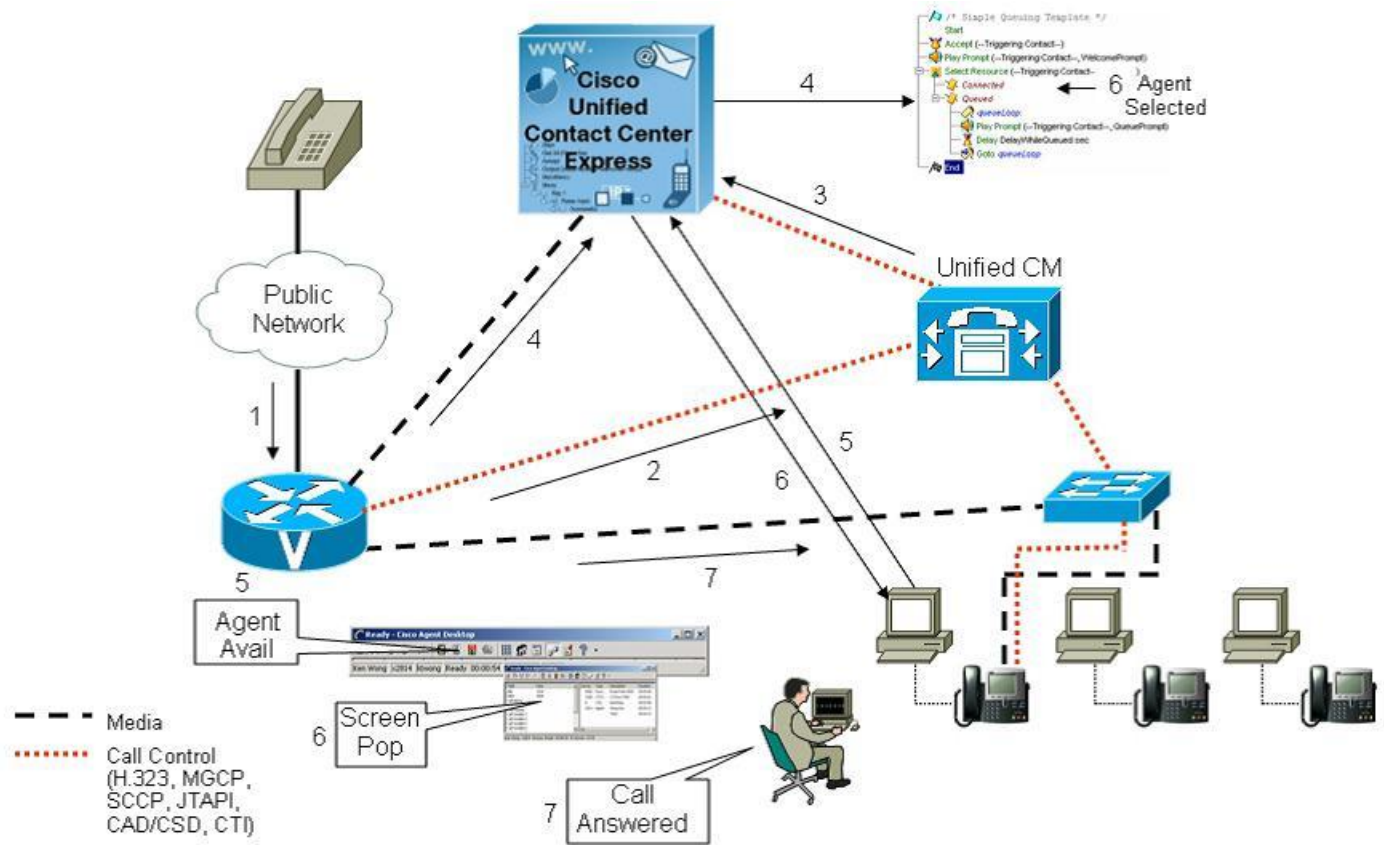
Software Versions Used

The Unified CCX IPv6 deployment uses the following software versions for testing:

- Unified Communications Manager: 10.5.1.10000-7
- Unified CCX: 10.5.1.10000-20
- IM and Presence Service: 10.5.1.10000-9
- Cisco IOS: 15.3(3)M2.9,15.3(3)M3

Call Flow Diagram

Customer Call > PRI Gateway > Voice Gateway or Unified Border Element > Unified Communications Manager > Unified CCX > Cisco Finesse Agent or Phone



Configuration

This section provides the high-level tasks and related information for configuring a Unified CCX deployment for IPv6:

The following table provides this information:

- **Configure IOS**
- **Configure Unified CCX**
- **Configure Unified Communications Manager**

Configure IOS

Step 1 Enable IPv6 on the gateway.

```

ip cef
ipv6 unicast-routing
ipv6 multicast rpf use-bgp
ipv6 cef
interface GigabitEthernet0/0
description "connected to PBL-DC1-c6506-gig3/14"
ip address 10.31.11.67 255.255.255.192
duplex auto
speed auto
ipv6 address 2001:10:31:11::67/122
ipv6 enable
ipv6 eigrp 23
    
```

Configuration

```
no keepalive
!  
ipv6 router eigrp 23
```

Step 2 Enable dual stack on the gateway.

```
voice service voip  
sip  
call service stop  
sip-ua  
protocol mode dual-stack preference ipv6  
voice service voip  
sip  
no call service stop
```

Step 3 Add Unified CM IPv6 and ANAT configuration in dial peer configuration.

```
dial-peer voice 32 voip  
description automation connection of sip-trunk-to-uccx  
translation-profile outgoing change-to-7-digit  
preference 1  
destination-pattern 0191660....  
session protocol sipv2  
session target ipv6:[2001:10:31:11::75]:5068 session transport udp/tcp  
voice-class codec 4 [i.e. codec preference g711ulaw]  
voice-class sip anat  
voice-class sip bind control source-interface GigabitEthernet0/0  
voice-class sip bind media source-interface GigabitEthernet0/0  
dtmf-relay rtp-nte h245-signal h245-alphanumeric  
dtmf-interworking rtp-nte  
no supplementary-service sip refer  
!
```

Configure Unified CCX

For information on how to configure IPv6 for Unified CCX, see [Cisco Unified Communications Operating System Administration Guide for Cisco Unified CCX and Cisco Unified IP IVR, Release 10.5\(1\)](#).

Configure Unified Communications Manager

Step 1 To enable IPv6 from Cisco Unified Operating System Administration, choose **Settings > IP > Ethernet IPv6**. Check the **Enable IPv6** check box and enter IPv6 information. Click **Save**.

The screenshot shows the Cisco Unified Operating System Administration interface for IPv6 configuration. At the top, there is a navigation menu with options: Show, Settings, Security, Software Upgrades, Services, and Help. The main heading is "Ethernet Ipv6 Configuration". Below this is a "Save" button with a floppy disk icon. A "Status" section contains a warning icon and the text: "Warning: Changing the IPv6 ethernet settings with reboot option causes an immediate system restart". The "IPv6 Information" section includes a checked checkbox for "Enable IPv6". Under "Address Source", there are three radio buttons: "Router Advertisement", "DHCP", and "Manual Entry" (which is selected). Below these are input fields for "IPv6 Address" (2001:10:31:11::75), "Prefix Length" (122), and "Default Gateway" (2001:10:31:11::65). There is also an unchecked checkbox for "Update with Reboot". A "Save" button is located at the bottom of the configuration area.

Step 2 To add IPv6 to all servers in Unified Communications Manager cluster, from Cisco Unified CM Administrator, choose **System > Server**. Add IPv6 address to all Unified Communications Manager and IM and Presence Service nodes as shown in images.



Cisco Unified CM Administration

For Cisco Unified Communications Solutions

System ▾ Call Routing ▾ Media Resources ▾ Advanced Features ▾ Device ▾ Application ▾

Server Configuration

 Save  Delete  Add New

Status

 Status: Ready

Server Information

Server Type	CUCM Voice/Video
Database Replication	Publisher
Host Name/IP Address*	<input type="text" value="ccm-pub"/>
IPv6 Address (for dual IPv4/IPv6)	<input type="text" value="2001:10:31:11::75"/>
MAC Address	<input type="text"/>
Description	<input type="text"/>

Location Bandwidth Management Information

LBM Intercluster Replication Group

System ▾ Call Routing ▾ Media Resources ▾ Advanced Features ▾ Device ▾ Application ▾

Server Configuration

Save
 Delete
 Add New

Status

Status: Ready

Server Information

Server Type	CUCM IM and Presence
Database Replication	Publisher
Fully Qualified Domain Name/IP Address*	uccx-cup-a
IPv6 Address (for dual IPv4/IPv6)	2001:10:31:11::78
Description	uccx-cup-a

IM and Presence Server Information

Presence Redundancy Group [DefaultCUPSubcluster](#)

Assigned Users [13 users](#)

[Presence Server Status](#)

Step 3 To set the media and signaling preferences, choose **System > Enterprise Parameters**. Complete **IPv6** information as shown in image.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

System ▾ Call Routing ▾ Media Resources ▾ Advanced Features ▾ Device ▾ Application ▾ User Management ▾ Bulk Administration ▾ Help ▾

Enterprise Parameters Configuration

Set to Default
 Reset
 Apply Config

[Cisco Support Use 1](#)

[Cisco Support Use 2](#)

IPv6

Enable IPv6 *	True ▾	False
IP Addressing Mode Preference for Media *	IPv6 ▾	IPv4
IP Addressing Mode Preference for Signaling *	IPv6 ▾	IPv4

Step 4 To create common device configuration, choose **Device > Device Settings > Common Device Configuration**. Complete **Common Device Configuration Information** as shown in image.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

System ▾ Call Routing ▾ Media Resources ▾ Advanced Features ▾ Device ▾ Application ▾ User Management ▾ Bulk Administration ▾

Common Device Configuration

Save Delete Copy Reset Apply Config Add New

Status
Status: Ready

Common Device Configuration Information
Common Device Configuration: v4andv6 (29 members**)

Common Device Configuration Information

Name*	v4andv6
Softkey Template	-- Not Selected --
User Hold MOH Audio Source	< None >
Network Hold MOH Audio Source	< None >
User Locale	< None >
IP Addressing Mode*	IPv4 and IPv6
IP Addressing Mode Preference for Signaling*	Use System Default

Step 5 Associate **Common Device Configuration** to phones, CTI route point, trunk, CTI ports, and so on. Complete **Device Information** as shown in image.

Cisco Unified CM Administration
For Cisco Unified Communications Solutions

System ▾ Call Routing ▾ Media Resources ▾ Advanced Features ▾ Device ▾ Application ▾ User Management ▾ Bulk Administration ▾ Help ▾

Phone Configuration Related Links: Back To Find/List

Save Delete Copy Reset Apply Config Add New

Device Information

- Device is Active
- Device is trusted

MAC Address*	A0CF5B80E450
Description	phone
Device Pool*	DP_A View Details
Common Device Configuration	v6only View Details
Phone Button Template*	v6only
Softkey Template	< None >
Common Phone Profile*	v4andv6
Calling Search Space	v4only
AAR Calling Search Space	Standard Common Phone Profile View Details
Media Resource Group List	NormalUserCSS
User Hold MOH Audio Source	< None >

Step 6 From the Cisco Unified IM and Presence Operating System Administration page, check the **Enable IPv6** check box. Then click **Manual Entry** and enter the **IPv6 Address** for IM and Presence Service as shown in image.

Note: If DHCP is configured, you can use it as the Address Source.

The screenshot shows the Cisco Unified IM and Presence Operating System Administration interface. At the top, there is a navigation menu with options: Show, Settings, Security, Software Upgrades, Services, and Help. Below the menu is the title "Ethernet Ipv6 Configuration". A "Save" button is visible. A warning message states: "Warning: Changing the IPv6 ethernet settings with reboot option causes an immediate system restart". Under the "IPv6 Information" section, the "Enable IPv6" checkbox is checked. The "Address Source" is set to "Manual Entry". The "IPv6 Address" field contains "2001:10:31:11::78" and the "Prefix Length" field contains "122". The "Default Gateway" field contains "2001:10:31:11::65". The "Update with Reboot" checkbox is unchecked. A "Save" button is located at the bottom of the configuration area.

Step 7 To create and enable ANAT SIP profile for Unified Communications Manager, choose **Device > Device Settings > SIP Profile**. Complete **SIP Profile Information** as shown in image.

SIP Profile Configuration

Save ✖ Delete Copy Reset Apply Config Add New

SIP Profile Information

Name*	<input type="text" value="ANAT SIP Profile"/>
Description	<input type="text" value="Default SIP Profile"/>
Default MTP Telephony Event Payload Type*	<input type="text" value="101"/>
Early Offer for G.Clear Calls*	<input type="text" value="Disabled"/>
User-Agent and Server header information*	<input type="text" value="Send Unified CM Version Information as User-Ager"/>
Version in User Agent and Server Header*	<input type="text" value="Major And Minor"/>
Dial String Interpretation*	<input type="text" value="Phone number consists of characters 0-9, *, #, and"/>
Confidential Access Level Headers*	<input type="text" value="Disabled"/>

- Redirect by Application
- Disable Early Media on 180
- Outgoing T.38 INVITE include audio mline
- Use Fully Qualified Domain Name in SIP Requests
- Assured Services SIP conformance

SDP Information

SDP Session-level Bandwidth Modifier for Early Offer and Re-invites*	<input type="text" value="TIAS and AS"/>
SDP Transparency Profile	<input type="text" value="Pass all unknown SDP attributes"/>
Accept Audio Codec Preferences in Received Offer*	<input type="text" value="Default"/>

- Require SDP Inactive Exchange for Mid-Call Media Change
- Allow RR/RS bandwidth modifier (RFC 3556)

SIP Profile Configuration

Save ✖ Delete Copy Reset Apply Config Add New

SIP Rel1XX Options*	Disabled
Video Call Traffic Class*	Mixed
Calling Line Identification Presentation*	Default
Session Refresh Method*	Invite
Early Offer support for voice and video calls*	Disabled (Default value)

- Enable ANAT
- Deliver Conference Bridge Identifier
- Allow Passthrough of Configured Line Device Caller Information
- Reject Anonymous Incoming Calls
- Reject Anonymous Outgoing Calls
- Send ILS Learned Destination Route String

SIP OPTIONS Ping





- Enable OPTIONS Ping to monitor destination status for Trunks with Service Type "None (Default)"

Ping Interval for In-service and Partially In-service Trunks (seconds)*	60
Ping Interval for Out-of-service Trunks (seconds)*	120
Ping Retry Timer (milliseconds)*	500
Ping Retry Count*	6

SDP Information

Step 8 To associate the ANAT SIP profile to the trunk, from Trunk Configuration page, add the V4 and V6 IPs of the gateway or Unified Border Element to the trunk in Unified Communications Manager as shown in image. Also, choose the **ANAT SIP Profile** from the **SIP Profile** drop-down list.

Trunk Configuration

 Save
  Delete
  Reset
  Add New

SIP Information

Destination

Destination Address is an SRV

	Destination Address	Destination Address IPv6	Destination Port	Status
1*	10.31.11.67	2001:10:31:11::67	5060	up

MTP Preferred Originating Codec*

BLF Presence Group*

SIP Trunk Security Profile*

Rerouting Calling Search Space

Out-Of-Dialog Refer Calling Search Space

SUBSCRIBE Calling Search Space



SIP Profile* [View Details](#)

DTMF Signaling Method*

Normalization Script

Normalization Script

Enable Trace

	Parameter Name	Parameter Value
1	<input type="text"/>	<input type="text"/>  

Recording Information

Related Documentation

- [Cisco Unified Contact Center Express Design Guide, Release 10.5\(1\)](#)
- [Cisco Unified Communications Operating System Administration Guide for Cisco Unified CCX and Cisco Unified IP IVR, Release 10.5\(1\)](#)

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation* at: <http://www.cisco.com/c/en/us/td/docs/general/whatsnew/whatsnew.html>.

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