



# Cisco Unity Express Networking with DNS-based Addressing

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This document consists of the following sections:

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## Introduction

This document provides a configuration example for Cisco Unity Express voice mail Voice Profile for Internet Mail (VPIM) networking between four sites. Two of the sites are Cisco CallManager Express (CME) sites, while the other two are under control of a central Cisco CallManager. Your network may be exclusively Cisco CME or exclusively Cisco CallManager. To model your network after this configuration, refer to the examples that match your intended deployment. The configuration scenario enables voice mail networking between all four sites. The configuration has the following characteristics:

- Meshed network—All sites can send and receive voice messages from all other sites. Up to 500 Cisco Unity Express sites can be meshed in a network.
- VPIM networking between the sites uses Domain Name System (DNS) addressing. You can also use direct IP addressing to set up these configurations, but that is not shown in this configuration example.
- The network defines both a four-digit and ten-digit fixed-length dialing plan. For example, IP phones at Site 2 are assigned 2001 or 2xx.yyy.2001 and 2002 or 2xx.yyy.2002; IP phones at Site 3 are assigned 3001 or 3xx.yyy.3001 and 3002 or 3xx.yyy.3002. Refer to the [“Document Conventions” section on page 3](#) for more details about numbering and addressing used in this publication. IP phones at the same site can reach each other by dialing either the four-digit or ten-digit number. Calls between IP Phones at different sites require dialing the 10-digit number. These requirements are not limitations of the products or the architecture, they are applied here to simplify the network configuration example.
- Voice mail networking between the sites is configured to use 10-digit extension addressing.

- Network location IDs for the sites are the same as the site number. For example, Site 2's location ID is 2, while Site 3's location ID is 3.
- There is no PSTN connectivity shown in the configurations of the four sites as this has no relevance to the Cisco Unity Express networking configuration. Real offices networked together include this additional component.

## Prerequisites

The following sections provide information important to understand this configuration example. Read these sections before you continue with the configuration example:

- [Requirements, page 2](#)
- [Components Used, page 2](#)
- [Related Products, page 3](#)
- [Document Conventions, page 3](#)

## Requirements

There are no specific requirements for this document.

## Components Used

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

- At Site 2, a Cisco 3725 router running Cisco CME and Cisco Unity Express
- At Site 3, a Cisco 2691 router running Cisco CME and Cisco Unity Express
- At Site 4, a Cisco 3725 router running Cisco Secure Survivable Remote Site Telephony (SRST) and Cisco Unity Express
- At Site 6, a Cisco 3725 router running Cisco SRST and Cisco Unity Express
- Cisco IOS Release 12.3(11)T
- Cisco CME 3.2
- Cisco Unity Express 2.0
- IP Voice Cisco IOS feature set

All sites are Ethernet connected to the IP network. All sites have two Cisco 7960 IP Phones. For the Cisco CME sites (Sites 2 and 3), the IP phones and dial plan is under control of Cisco CME. For the other two sites (Sites 4 and 6), the IP phones and dial plan are under control of a central Cisco CallManager and the routers are configured for SRST operation.

The information presented 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.

## Related Products

This configuration can also be used with the following hardware and software:

- Cisco 2800 series routers
- Cisco 3800 series routers
- For Cisco 2800 series routers, Cisco IOS Release 12.3(8)T4 or later releases. For Cisco 3800 series routers, Cisco IOS Release 12.3(11)T and later releases.

## Document Conventions

Where applicable, this document uses the conventions in [Table 1](#).

**Table 1** Cisco Unity Express Configuration Example Document Conventions

Convention	Description
<b>boldfaced</b> text	Boldfaced text is used for: <ul style="list-style-type: none"> <li>• Key and button names. (Example: Click OK.)</li> <li>• Information that you enter. (Example: Enter Administrator in the User Name box.)</li> </ul>
< > (angle brackets)	Angle brackets are used around parameters for which you supply a value. (Example: In the Command Prompt window, enter ping <IP address>.)
- (hyphen)	Hyphens separate keys that must be pressed simultaneously. (Example: Press Ctrl-Alt-Delete.)
> (right angle bracket)	A right angle bracket is used to separate selections that you make: <ul style="list-style-type: none"> <li>• On menus. (Example: On the Windows Start menu, click Settings &gt; Control Panel &gt; Phone and Modem Options.)</li> <li>• In the navigation bar of the Cisco Unity Administrator. (Example: Go to the System &gt; Configuration &gt; Settings page.)</li> </ul>
The letter <i>a</i> used in the high-order address range for an IP V4-formatted address. Example: <i>a</i> .23.10.224	Represents a public Class A Internet address or network. Used for illustrative purposes only in order to prevent the use of public numbers.
The letters <i>x</i> and <i>y</i> used within phone numbers Example: 2 <i>xx</i> . <i>yyy</i> .1234	Represents the area code and prefix for a telephone number. Used for illustrative purposes only in order to prevent the use of public numbers.

The document also uses the following general conventions:



**Note**

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Means reader take note. Notes contain helpful suggestions or references to material not covered in the document.

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**Caution**

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Means reader be careful. In this situation, you might do something that could result in equipment damage or loss of data.

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# Configure

In this section, you are presented with the information to configure the features described in this document.

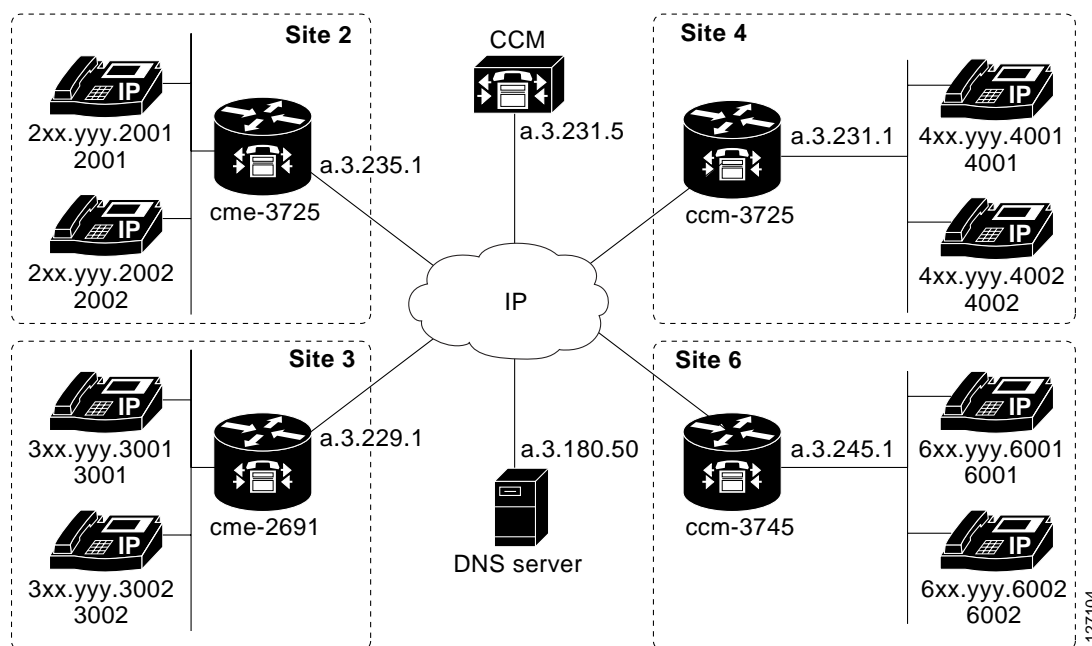
Configuration tips:

- Make sure you can **ping** between sites before making calls.
- Make sure that you can make calls between sites before attempting Cisco Unity Express networking.
- Make sure you can **ping** between the Cisco Unity Express nodes at each site.

## Network Diagram and Environment Description

This document uses the network setup shown [Figure 1](#).

**Figure 1** Network Diagram (DNS-based Addressing)



The Site 2 location uses a Cisco 3725 router with these characteristics:

- IP network access via IP address a.3.235.1
- Cisco CME configuration with 2 IP Phones, with 4-digit extensions 2001 and 2002
- Cisco CME configuration with 2 IP Phones, with 10-digit extensions 2xx.yyy.2001 and 2xx.yyy.2002
- PSTN area code 2xx
- NM-CUE
- Cisco Unity Express IP address a.3.235.128
- Network location ID 2
- Cisco Unity Express DNS domain name is ch2.cue.cisco.com

The Site 3 location uses a Cisco 2691 router with these characteristics:

- IP network access via IP address a.3.229.1
- Cisco CME configuration with 2 IP Phones, with 4-digit extensions 3001 and 3002
- Cisco CME configuration with 2 IP Phones, with 10-digit extensions 3xx.yyy.3001 and 3xx.yyy.3002
- PSTN area code 3xx
- NM-CUE
- Cisco Unity Express IP address a.3.229.128
- Network location ID 3
- Cisco Unity Express DNS domain name is ch3.cue.cisco.com

The Site 4 location uses a Cisco 3725 router with these characteristics:

- IP network access via IP address a.3.231.10
- Cisco CallManager/SRST configuration with 2 IP Phones, with 4-digit extensions 4001 and 4002
- Cisco CME configuration with 2 IP Phones, with 10-digit extensions 4xx.yyy.4001 and 4xx.yyy.4002
- PSTN area code 4xx
- NM-CUE
- Cisco Unity Express IP address a.3.231.128
- Network location ID 4
- Cisco Unity Express DNS domain name is ch4.cue.cisco.com

The Site 6 location uses a Cisco 3745 router with these characteristics:

- IP network access via IP address a.3.245.1
- Cisco CallManager/SRST configuration with 2 IP Phones, with 4-digit extensions 6001 and 6002
- Cisco CME configuration with 2 IP Phones, with 10-digit extensions 6xx.yyy.6001 and 6xx.yyy.6002
- PSTN area code 6xx
- NM-CUE
- Cisco Unity Express IP address a.3.245.128
- Network location ID 6
- Cisco Unity Express DNS domain name is ch6.cue.cisco.com

## Configurations

This document uses the following configurations:

- [Site 2 Configuration \(Cisco 3725/Cisco CME Router\), page 7\)](#)
- [Site 3 Configuration \(Cisco 2691/Cisco CME router\), page 13\)](#)
- [Site 4 Configuration \(Cisco 3725 SRST router\), page 18\)](#)
- [Site 6 Configuration \(Cisco 3745 SRST router\), page 23\)](#)

### Site 2 Configuration (Cisco 3725/Cisco CME Router)

Relevant extracts of the router's configuration are shown below:

```
cme-3725# show running-config

Building configuration...

Current configuration : 8184 bytes
!
! Last configuration change at 11:01:46 PST Fri Nov 5 2004
! NVRAM config last updated at 08:29:05 PST Fri Nov 5 2004
!
version 12.3
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname cme-3725
!
boot-start-marker
boot system flash:c3725-ipvoice-mz.123-10.3.P15
boot-end-marker
!
! Allow intersite H.323 calls to reach Cisco Unity Express
!
voice service voip
  allow-connections h323 to sip
!
!
! IP address of the router
!
interface FastEthernet0/0
  ip address a.3.235.1 255.255.0.0
  duplex auto
  speed auto
  no cdp enable
!
interface FastEthernet0/1
  ip address a.1.1.100 255.255.0.0
  speed auto
  half-duplex
  no cdp enable
!
! IP address of Cisco Unity Express
!
interface Service-Engine1/0
  ip unnumbered FastEthernet0/0
  service-module ip address a.3.235.128 255.255.0.0
  service-module ip default-gateway a.3.235.1
```

```

hold-queue 60 out
!
ip classless
ip route a.3.235.128 255.255.255.255 Service-Engine1/0
!
! Dial-peer to allow calls to forward from Cisco CME to Cisco Unity Express
!
dial-peer voice 2100 voip
 destination-pattern 21..
 session protocol sipv2
 session target ipv4:a.3.235.128
 dtmf-relay sip-notify
 codec g711ulaw
 no vad
!
dial-peer voice 2101 voip
 description VM-AA-PSTN
 translation-profile outgoing to_cue
 destination-pattern 2xxyyy21..
 session protocol sipv2
 session target ipv4:a.3.235.128
 dtmf-relay sip-notify
 codec g711ulaw
 no vad
!
! Dial-peers to direct intersite calls
!
dial-peer voice 3000 voip
 destination-pattern 3xxyyy3...
 session target ipv4:a.3.229.1
 dtmf-relay h245-alphanumeric
 codec g711ulaw
 no vad
!
dial-peer voice 4000 voip
 destination-pattern 4xxyyy4...
 session target ipv4:a.3.231.5
 dtmf-relay h245-alphanumeric
 codec g711ulaw
 no vad
!
dial-peer voice 6000 voip
 destination-pattern 6xxyyy6...
 session target ipv4:a.3.231.5
 dtmf-relay h245-alphanumeric
 codec g711ulaw
 no vad
!
!
telephony-service
 load 7960-7940 P00303020214
 max-ephones 50
 max-dn 120
 ip source-address a.1.1.100 port 2000
 time-format 24
 date-format dd-mm-yy
 auto assign 1 to 5
 timeouts interdigit 20
 timeouts ringing 120
 system message CME-3725
 create cnf-files version-stamp 7960 Sep 27 2004 12:31:02
 dialplan-pattern 1 2xxyyy2... extension-length 4 no-reg
 voicemail 2105
 max-conferences 8

```

```

call-forward pattern .T
moh music-on-hold.au
web admin system name admin password cisco
web admin customer name custlogin password custpswd
dn-webedit
time-webedit
transfer-system full-consult
transfer-pattern 3...
transfer-pattern 2...
directory last-name-first
!
!
! Extension definitions
!
ephone-dn 1 dual-line
number 2001 secondary 2xxyyy2001
label Alice
description Alice Davidson
name Alice Davidson
call-forward max-length 4
call-forward busy 2105
call-forward noan 2105 timeout 10
!
!
ephone-dn 2 dual-line
number 2002 secondary 2xxyyy2002
label Aaron
description Aaron Wilkins
name Aaron Wilkins
call-forward max-length 8
call-forward busy 2105
call-forward noan 2105 timeout 10
!
!
! Dial-peers for MWI
!
ephone-dn 51
number 8000....
mwi on
!
!
ephone-dn 52
number 8001....
mwi off
!
!
! IP phone definitions
!
ephone 1
ephone-template 1
username "adavidson"
mac-address 0003.6BAA.D1F8
type 7960
button 1:1
!
!
!
ephone 2
ephone-template 1
username "awilkins"
mac-address 0003.6BAA.D362
type 7960
button 1:2

```

Cisco Unity Express's configuration is shown below:

```
cue-cme3725# show running-config

Generating configuration:

clock timezone America/Los_Angeles

hostname cue-cme3725

ip domain-name localdomain

! Definition of the DNS server
ip name-server a.3.180.50

ntp server a.3.135.1

software download server url "ftp://127.0.0.1/ftp" credentials hidden
"6u/dKTN/hsEuSAEfw40XlF2eFHnZfyUTSd8ZZNgd+Y9J3xlk2B35j0nfGWTYHfmPSd8ZZNgd+Y9J3xlk2B35jwAAA
AA="

groupname Administrators create
groupname Broadcasters create
groupname Sales create

username adavidson create
username awilkins create
username acoley create
username awyant create
username amcdougal create
username admin create

groupname Sales phonenumberE164 "2xxyyy2050"
groupname Sales phonenumber "2050"

username adavidson phonenumberE164 "2xxyyy2001"
username awilkins phonenumberE164 "2xxyyy2002"
username acoley phonenumberE164 "2xxyyy2003"
username awyant phonenumberE164 "2xxyyy2004"
username amcdougal phonenumberE164 "2xxyyy2005"
username adavidson phonenumber "2001"
username awilkins phonenumber "2002"
username acoley phonenumber "2003"
username awyant phonenumber "2004"
username amcdougal phonenumber "2005"

groupname Administrators member admin
groupname Sales member acoley
groupname Sales member awilkins
groupname Administrators privilege superuser
groupname Administrators privilege ManagePrompts

backup server url "ftp://a.3.231.201/cme3725/" credentials hidden
"1SDP4vScNKcZiy6dHQHfnl4zvlbuAn9Sd8ZZNgd+Y9J3xlk2B35j0nfGWTYHfmPSd8ZZNgd+Y9J3xlk2B35jwAAA
AA="

ccn application autoattendant
description "autoattendant"
enabled
maxsessions 8
script "aa.aef"
parameter "MaxRetry" "3"
parameter "operExtn" "0"
```

```

parameter "welcomePrompt" "AAWelcome.wav"
end application

ccn application ciscoawiapplication
description "ciscoawiapplication"
enabled
maxsessions 8
script "setmwi.aef"
parameter "strMWI_OFF_DN" "8001"
parameter "strMWI_ON_DN" "8000"
parameter "CallControlGroupID" "0"
end application

ccn application custom-aa
description "custom-aa"
enabled
maxsessions 8
script "sl_main-officehours.aef"
parameter "MainOperExt" "2001"
end application

ccn application promptmgmt
description "promptmgmt"
enabled
maxsessions 1
script "promptmgmt.aef"
end application

ccn application voicemail
description "voicemail"
enabled
maxsessions 8
script "voicebrowser.aef"
parameter "logoutUri" "http://localhost/voicemail/vxmlscripts/mbxLogout.jsp"
parameter "uri" "http://localhost/voicemail/vxmlscripts/login.vxml"
end application

ccn engine
end engine

ccn subsystem jtapi
ccm-manager address
end subsystem

ccn subsystem sip
gateway address "a.3.235.1"
end subsystem

ccn trigger sip phonenum 2100
application "custom-aa"
enabled
locale "en_US"
maxsessions 8
end trigger

ccn trigger sip phonenum 2102
application "autoattendant"
enabled
locale "en_US"
maxsessions 8
end trigger

ccn trigger sip phonenum 2105
application "voicemail"

```

```

enabled
idletimeout 5000
locale "en_US"
maxsessions 8
end trigger

ccn trigger sip phonenumber 2106
application "promptmgmt"
enabled
idletimeout 5000
locale "en_US"
maxsessions 1
end trigger

! Definitions of the four networking sites

network location id 2
  abbreviation "S2"
  email domain ch2.cue.cisco.com
  name "site2-cme-3725"
end location

network location id 3
  abbreviation "S3"
  email domain ch3.cue.cisco.com
  name "site3-cme-2691"
end location

network location id 4
  abbreviation "S4"
  email domain ch4.cue.cisco.com
  name "site4-ccm-3725"
end location

network location id 6
  abbreviation "S6"
  email domain ch6.cue.cisco.com
  name "site6-ccm-3745"
end location

! Definition of this site's location ID

network local location id 2

voicemail default expiration time 30
voicemail default language en_US
voicemail default mailboxsize 5520
voicemail recording time 900
voicemail default messagesize 60
voicemail operator telephone 2001
voicemail capacity time 6000
voicemail mailbox owner "Sales" size 5520
  description "Sales mailbox"
  zerooutnumber "2100"
end mailbox

voicemail mailbox owner "acoley" size 5520
  description "acoley mailbox"
  zerooutnumber "2100"
end mailbox

voicemail mailbox owner "adavidson" size 5520
  description "adavidson mailbox"
  zerooutnumber "2100"

```

```

end mailbox

voicemail mailbox owner "amcdougal" size 5520
description "amcdougal mailbox"
zerooutnumber "2100"
end mailbox

voicemail mailbox owner "awilkins" size 5520
description "awilkins mailbox"
zerooutnumber "2100"
end mailbox

voicemail mailbox owner "awyant" size 5520
description "awyant mailbox"
zerooutnumber "2100"
end mailbox

```

## Site 3 Configuration (Cisco 2691/Cisco CME router)

Relevant extracts of the router's configuration are shown below:

```

cme-2691# show running-config

Building configuration...

Current configuration : 4868 bytes
!
! Last configuration change at 07:35:10 PST Fri Oct 22 2004
! NVRAM config last updated at 12:07:37 PST Fri Oct 22 2004
!
version 12.3
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname cme-2691
!
boot-start-marker
boot system flash:c2691-ipvoice-mz.123-10.3.PI5
boot-end-marker
!
! Allow intersite H.323 calls to reach Cisco Unity Express
!
voice service voip
  allow-connections h323 to sip
!
! IP address of the router
!
interface FastEthernet0/0
  ip address a.3.229.1 255.255.0.0
  no ip mroute-cache
  load-interval 30
  duplex auto
  speed auto
!
interface FastEthernet0/1
  ip address a.10.1.100 255.255.0.0
  no ip mroute-cache
  duplex auto
  speed auto
!
! IP address of Cisco Unity Express
!

```

```

interface Service-Engine1/0
 ip unnumbered FastEthernet0/0
 service-module ip address a.3.229.128 255.255.0.0
 service-module ip default-gateway a.3.229.1
 !
 ip classless
 ip route a.3.229.128 255.255.255.255 Service-Engine1/0
 !
 ip http server
 ip http path flash:
 !
 ! Dial-peer to allow calls to forward from Cisco CME to Cisco Unity Express
 !
 dial-peer voice 3100 voip
 description VM-AA
 destination-pattern 31..
 session protocol sipv2
 session target ipv4:a.3.229.128
 dtmf-relay sip-notify
 codec g711ulaw
 no vad
 i
 dial-peer voice 3101 voip
 description VM-AA-PSTN
 translation-profile outgoing to_cue
 destination-pattern 3xxyyy31..
 session protocol sipv2
 session target ipv4:a.3.229.128
 dtmf-relay sip-notify
 codec g711ulaw
 no vad
 !
 ! Dial-peers to direct intersite calls
 !
 !
 dial-peer voice 2001 voip
 destination-pattern 2xxyyy2...
 session target ipv4:a.3.235.1
 dtmf-relay h245-alphanumeric
 codec g711ulaw
 no vad
 !
 dial-peer voice 4001 voip
 destination-pattern 4xxyyy4...
 session target ipv4:a.3.231.5
 dtmf-relay h245-alphanumeric
 codec g711ulaw
 no vad
 !
 dial-peer voice 6001 voip
 destination-pattern 6xxyyy6...
 session target ipv4:a.3.231.5
 dtmf-relay h245-alphanumeric
 codec g711ulaw
 no vad
 !
 telephony-service
 load 7960-7940 P00303020214
 max-ephones 48
 max-dn 192
 ip source-address a.10.1.100 port 2000
 system message CME-2691
 create cnf-files version-stamp 7960 Jul 15 2003 13:48:12
 dialplan-pattern 1 3xxyyy3... extension-length 4 no-reg

```

```

voicemail 3105
max-conferences 8
call-forward pattern .T
web admin system name admin password cisco
dn-webedit
time-webedit
transfer-system full-consult
transfer-pattern 3...
transfer-pattern 2...
!
! Extension definitions
!
ephone-dn 1 dual-line
number 3001 secondary 3xyyy3001
description 3xyyy3001
name User1
call-forward busy 3105
call-forward noan 3105 timeout 10
!
!
ephone-dn 2 dual-line
number 3002 secondary 3xyyy3002
description 3xyyy3002
name User2
call-forward busy 3105
call-forward noan 3105 timeout 10
!
ephone-dn 2 dual-line
number 3002
description User2
name User2
call-forward busy 3105
call-forward noan 3105 timeout 10
!
!
! Dial-peers for MWI
!
ephone-dn 51
number 8000....
mwi on
!
!
ephone-dn 52
number 8001....
mwi off
!
! IP phone definitions
!
ephone 1
username "User1" password null
mac-address 0009.B7F7.5793
button 1:1
!
!
!
ephone 2
username "User2" password null
mac-address 0002.FD06.D959
button 1:2

```

Cisco Unity Express's configuration is shown below:

```

cue-nm-2691# show running-config

Generating configuration:

clock timezone America/Los_Angeles

hostname cue-nm-2691

ip domain-name localdomain

! Definition of the DNS server
ip name-server a.3.180.50

ntp server a.3.229.1

software download server url "ftp://127.0.0.1/ftp" credentials hidden
"6u/dKTN/hsEuSAEfw40XlF2eFHnZfyUTSd8ZZNgd+Y9J3x1k2B35j0nfGWTYHfmPSd8ZZNgd+Y9J3x1k2B35jwAAA
AA="

groupname Administrators create
groupname customer-service create

username admin create
username User1 create
username User2 create
username User3 create
username User4 create
username User5 create
username User6 create

groupname customer-service phonenumberE164 "4xxyyy3050"
groupname customer-service phonenumber "3050"

username User1 phonenumberE164 "3xxyyy3001"
username User2 phonenumberE164 "3xxyyy3002"
username User1 phonenumber "3001"
username User2 phonenumber "3002"
username User3 phonenumber "3003"
username User4 phonenumber "3004"
username User5 phonenumber "3005"
username User6 phonenumber "3006"

groupname Administrators member admin
groupname customer-service member User2
groupname customer-service member User3
groupname Administrators privilege superuser
groupname Administrators privilege ManagePrompts

backup server url "ftp://a.3.231.201/cme2691_4nov04/" credentials hidden
"xxOaioWv/uC5WSZLs/L2XY/frZzvmJ2MSd8ZZNgd+Y9J3x1k2B35j0nfGWTYHfmPSd8ZZNgd+Y9J3x1k2B35jwAAA
AA="

ccn application autoattendant
description "autoattendant"
enabled
maxsessions 8
script "aa.aef"
parameter "MaxRetry" "3"
parameter "operExtn" "0"
parameter "welcomePrompt" "AAgreeting.wav"
end application

ccn application ciscomwiapplication

```

```

description "ciscoMWIapplication"
enabled
maxsessions 8
script "setmwi.aef"
parameter "strMWI_OFF_DN" "8001"
parameter "strMWI_ON_DN" "8000"
parameter "CallControlGroupID" "0"
end application

ccn application promptmgmt
description "promptmgmt"
enabled
maxsessions 1
script "promptmgmt.aef"
end application

ccn application voicemail
description "voicemail"
enabled
maxsessions 8
script "voicebrowser.aef"
parameter "logoutUri" "http://localhost/voicemail/vxmlscripts/mbxLogout.jsp"
parameter "uri" "http://localhost/voicemail/vxmlscripts/login.vxml"
end application

ccn engine
end engine

ccn subsystem jtapi
ccm-manager address
end subsystem

ccn subsystem sip
gateway address "a.3.229.1"
end subsystem

ccn trigger sip phonenumber 3100
application "autoattendant"
enabled
maxsessions 8
end trigger

ccn trigger sip phonenumber 3105
application "voicemail"
enabled
maxsessions 8
end trigger

ccn trigger sip phonenumber 3106
application "promptmgmt"
enabled
maxsessions 1
end trigger

! Definitions of the four networking sites

network location id 2
abbreviation "S2"
email domain ch2.cue.cisco.com
name "site2-cme-3725"
end location

network location id 3
abbreviation "S3"

```

```

email domain ch3.cue.cisco.com
name "site3-cme-2691"
end location

network location id 4
abbreviation "S4"
email domain ch4.cue.cisco.com
name "site4-ccm-3725"
end location

network location id 6
abbreviation "S6"
email domain ch6.cue.cisco.com
name "site6-ccm-3745"
end location

! Definition of this site's location ID

network local location id 3

voicemail default expiration time 60
voicemail default language en_US
voicemail default mailboxsize 5520
voicemail recording time 900
voicemail default messagesize 60
voicemail operator telephone 0
voicemail capacity time 6000
voicemail mailbox owner "User1" size 5520
end mailbox

voicemail mailbox owner "User2" size 5520
end mailbox

voicemail mailbox owner "User3" size 5520
end mailbox

voicemail mailbox owner "User4" size 5520
end mailbox

voicemail mailbox owner "User5" size 5520
end mailbox

voicemail mailbox owner "User6" size 5520
end mailbox

voicemail mailbox owner "customer-service" size 5520
description "customer-service mailbox"
zerooutnumber "3101"
end mailbox

end
cue-nm-2691#

```

## Site 4 Configuration (Cisco 3725 SRST router)

Relevant extracts of the router's configuration are shown below:

```

ccm_3725# show running-config

Building configuration...

Current configuration : 2278 bytes
!
```

```

! Last configuration change at 07:11:44 PST Wed Nov 10 2004
! NVRAM config last updated at 07:11:52 PST Wed Nov 10 2004
!
version 12.3
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname ccm_3725
!
boot-start-marker
boot system flash:c3725-ipvoice-mz.123-10.3.PI5
boot-end-marker
!
! Allow intersite H.323 calls to reach Cisco Unity Express during SRST
!
voice service voip
  allow-connections h323 to sip
!

! IP address of the router
!
interface FastEthernet0/0
  ip address a.3.231.10 255.255.0.0
  speed auto
  half-duplex
!
interface FastEthernet0/1
  no ip address
  shutdown
  duplex auto
  speed auto
!
! IP address of Cisco Unity Express
!
interface Service-Engine1/0
  ip unnumbered FastEthernet0/0
  service-module ip address a.3.231.128 255.255.0.0
  service-module ip default-gateway a.3.231.10
!
ip classless
ip route a.3.231.128 255.255.255.255 Service-Engine1/0
!
ip http server
ip http path flash:
!
! Dial-peer to allow calls to forward from Cisco SRST to Cisco Unity Express
!
dial-peer voice 4100 voip
  destination-pattern 41..
  session protocol sipv2
  session target ipv4:a.3.231.128
  dtmf-relay sip-notify
  codec g711ulaw
  no vad
!
! SRST definition to ensure Cisco Unity Express and IP Phone operation during Cisco
CallManager unavailability
!
call-manager-fallback
  max-conferences 8
  ip source-address a.3.231.5 port 2000
  max-ephones 24
  max-dn 48

```

```
voicemail 4105
call-forward busy 4105
call-forward noan 4105 timeout 7
```

Cisco Unity Express's configuration is shown below:

```
cue-ccm3725# show running-config
```

Generating configuration:

```
clock timezone America/Adak

hostname cue-ccm3725

ip domain-name localdomain

! Definition of the DNS server
ip name-server a.3.180.50

ntp server a.3.231.10

software download server url "ftp://127.0.0.1/ftp" credentials hidden
"6u/dKTN/hsEuSAEfw40XlF2eFHnZfyUTSd8ZZNgd+Y9J3xlk2B35j0nfGWTYHfmPSd8ZZNgd+Y9J3xlk2B35jwAAA
AA="

groupname Administrators create

username admin create
username Bob create
username anders create
username zacks create
username Bob phonenumberE164 "4xxyyy4002"
username anders phonenumberE164 "4xxyyy4001"
username Bob phonenumber "4002"
username anders phonenumber "4001"

groupname Administrators member admin
groupname Administrators member anders
groupname Administrators privilege superuser
groupname Administrators privilege ManagePrompts

backup server url "ftp://a.3.231.244/ccm3725_8nov/" credentials hidden
"GixGRq8cUmFqrOHVxftjAknfGWTYHfmPSd8ZZNgd+Y9J3xlk2B35j0nfGWTYHfmPSd8ZZNgd+Y9J3xlk2B35jwAAA
AA="

ccn application abccorp
description "abccorp"
enabled
maxsessions 8
script "sample_aa.aef"
parameter "prompt_ABCWelcome" "prompt_ABCWelcome.wav"
parameter "extn_Operator" "4002"
parameter "extn_Sales" "4002"
parameter "prompt_Operator" "prompt_Operator.wav"
parameter "extn_UserEntered" "2002"
parameter "prompt_Support" "prompt_support.wav"
parameter "prompt_Hours" "prompt_Hours.wav"
parameter "extn_Support" "91877yyy2121"
parameter "prompt_Extension" "prompt_Extension.wav"
parameter "prompt_Sales" "prompt_Sales.wav"
end application
```

```

ccn application autoattendant
description "autoattendant"
enabled
maxsessions 8
script "aa.aef"
parameter "MaxRetry" "3"
parameter "operExtn" "0"
parameter "welcomePrompt" "AAWelcome.wav"
end application

ccn application ciscoawiapplication
description "ciscoawiapplication"
enabled
maxsessions 8
script "setmwi.aef"
parameter "strMWI_OFF_DN" "8001"
parameter "strMWI_ON_DN" "8000"
parameter "CallControlGroupID" "0"
end application

ccn application promptmgmt
description "promptmgmt"
enabled
maxsessions 1
script "promptmgmt.aef"
end application

ccn application voicemail
description "voicemail"
enabled
maxsessions 8
script "voicebrowser.aef"
parameter "logoutUri" "http://localhost/voicemail/vxmlscripts/mbxLogout.jsp"
parameter "uri" "http://localhost/voicemail/vxmlscripts/login.vxml"
end application

ccn engine
end engine

ccn subsystem jtapi
ctiport 4901 4902 4903 4904
ccm-manager address a.3.231.5
ccm-manager credentials hidden
"QiUfMZRFsRBqrOHVxftjAknfGWTYHfmPSd8ZZNgd+Y9J3x1k2B35j0nfGWTYHfmPSd8ZZNgd+Y9J3x1k2B35jwAAA
AA="
end subsystem

ccn subsystem sip
gateway address "a.3.231.10"
end subsystem

ccn trigger jtapi phonenumber 4100
application "autoattendant"
enabled
locale "en_US"
maxsessions 8
end trigger

ccn trigger jtapi phonenumber 4101
application "abccorp"
enabled
locale "en_US"
maxsessions 8
end trigger

```

```
ccn trigger jtapi phonenumber 4105
  application "voicemail"
  enabled
  locale "en_US"
  maxsessions 8
end trigger

ccn trigger jtapi phonenumber 4106
  application "promptmgmt"
  enabled
  locale "en_US"
  maxsessions 1
end trigger

ccn trigger sip phonenumber 4100
  application "autoattendant"
  enabled
  locale "en_US"
  maxsessions 8
end trigger

ccn trigger sip phonenumber 4101
  application "abccorp"
  enabled
  locale "en_US"
  maxsessions 8
end trigger

ccn trigger sip phonenumber 4105
  application "voicemail"
  enabled
  locale "en_US"
  maxsessions 8
end trigger

ccn trigger sip phonenumber 4106
  application "promptmgmt"
  enabled
  locale "en_US"
  maxsessions 1
end trigger

! Definitions of the four networking sites

network location id 2
  abbreviation "S2"
  email domain ch2.cue.cisco.com
  name "site2-cme-3725"
end location

network location id 3
  abbreviation "S3"
  email domain ch3.cue.cisco.com
  name "site3-cme-2691"
end location

network location id 4
  abbreviation "S4"
  email domain ch4.cue.cisco.com
  name "site4-ccm-3725"
end location

network location id 6
```

```

abbreviation "S6"
email domain ch6.cue.cisco.com
name "site6-ccm-3745"
end location

! Definition of this site's location ID

network local location id 4

voicemail default expiration time 30
voicemail default language en_US
voicemail default mailboxsize 3000
voicemail recording time 900
voicemail default messagesize 60
voicemail operator telephone 0
voicemail capacity time 6000
voicemail mailbox owner "Bob" size 3000
end mailbox

voicemail mailbox owner "anders" size 3000
end mailbox

voicemail mailbox owner "zacks" size 3000
end mailbox

end

```

## Site 6 Configuration (Cisco 3745 SRST router)

Relevant extracts of the router's configuration are shown below:

Relevant extracts of the router's configuration are shown below:  
 ccm\_3745# **show running-config**

Building configuration...

```

Current configuration : 3295 bytes
!
! Last configuration change at 02:46:54 UTC Fri Apr 12 2002
! NVRAM config last updated at 17:20:53 UTC Thu Apr 11 2002
!
version 12.3
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname ccm_3745
!
boot-start-marker
boot system flash:c3745-ipvoice-mz.123-10.3.PI5
boot-end-marker
!
!
! Allow intersite H.323 calls to reach Cisco Unity Express during SRST
!
voice service voip
  allow-connections h323 to sip
!

! IP address of the router
!
interface FastEthernet0/0
  ip address a.3.245.1 255.255.0.0

```

```

speed auto
half-duplex
no mop enabled
!
interface FastEthernet0/1
ip address 172.19.153.31 255.255.0.0
duplex auto
speed auto
!
! IP address of Cisco Unity Express
!
interface Service-Engine1/0
ip unnumbered FastEthernet0/0
service-module ip address a.3.245.128 255.255.0.0
service-module ip default-gateway a.3.245.1
!
!
ip classless
ip route a.3.245.128 255.255.255.255 Service-Engine1/0
!
ip http server
ip http path flash:
!
!
! Dial-peer to allow calls to forward from Cisco SRST to Cisco Unity Express
!
dial-peer voice 6100 voip
destination-pattern 61..
session protocol sipv2
session target ipv4:a.3.245.128
dtmf-relay sip-notify
codec g711ulaw
no vad
!
! SRST definition to ensure Cisco Unity Express and IP Phone operation during Cisco
CallManager unavailability
!
call-manager-fallback
max-conferences 8
ip source-address a.3.231.5 port 2000
max-ephones 24
max-dn 48
voicemail 6105
call-forward busy 6105

```

Cisco Unity Express's configuration is shown below:

```
cue-ccm3745# show running-config
```

Generating configuration:

```

clock timezone America/Los_Angeles

hostname cue-ccm3745

ip domain-name localdomain

! Definition of the DNS server
ip name-server a.3.180.50

ntp server a.3.233.100

```

```

software download server url "ftp://127.0.0.1/ftp" credentials hidden
"6u/dKTN/hsEuSAEfw40XlF2eFHnZfyUTSd8ZZNgd+Y9J3x1k2B35j0nfGWTYHfmPSd8ZZNgd+Y9J3x1k2B35jwAAA
AA="

groupname Administrators create
groupname Broadcasters create

username admin create
username Yvon create
username Zack create
username Yvon phonenumberE164 "6xyyyy6001"
username Zack phonenumberE164 "6xyyyy6002"
username Yvon phonenumber "6001"
username Zack phonenumber "6002"

groupname Administrators member admin
groupname Administrators member Yvon
groupname Administrators privilege superuser
groupname Administrators privilege ManagePrompts

backup server url "ftp://a.3.231.243/ccm3745_5nov/" credentials hidden
"GixGRq8cUmFqrOHVxftjAknfGWTYHfmPSd8ZZNgd+Y9J3x1k2B35j0nfGWTYHfmPSd8ZZNgd+Y9J3x1k2B35jwAAA
AA="

ccn application autoattendant
description "autoattendant"
enabled
maxsessions 8
script "aa.aef"
parameter "MaxRetry" "3"
parameter "operExtn" "0"
parameter "welcomePrompt" "AAWelcome.wav"
end application

ccn application ciscozwiapplication
description "ciscozwiapplication"
enabled
maxsessions 8
script "setmwi.aef"
parameter "strMWI_OFF_DN" "8001"
parameter "strMWI_ON_DN" "8000"
parameter "CallControlGroupID" "0"
end application

ccn application promptmgmt
description "promptmgmt"
enabled
maxsessions 1
script "promptmgmt.aef"
end application

ccn application voicemail
description "voicemail"
enabled
maxsessions 8
script "voicebrowser.aef"
parameter "logoutUri" "http://localhost/voicemail/vxmlscripts/mbxLogout.jsp"
parameter "uri" "http://localhost/voicemail/vxmlscripts/login.vxml"
end application

ccn engine
end engine

ccn subsystem jtapi

```

```

ctiport 6901 6902 6903 6904
ccm-manager address a.3.231.5
ccm-manager credentials hidden
"1anJW38IVSZld67dzhL9pEnfGWTYHfmPSd8ZZNgd+Y9J3x1k2B35j0nfGWTYHfmPSd8ZZNgd+Y9J3x1k2B35jwAAA
AA="
end subsystem

ccn subsystem sip
gateway address "a.3.45.1"
end subsystem

ccn trigger jtapi phonenumber 6100
application "autoattendant"
enabled
locale "en_US"
maxsessions 8
end trigger

ccn trigger jtapi phonenumber 6105
application "voicemail"
enabled
locale "en_US"
maxsessions 8
end trigger

ccn trigger jtapi phonenumber 6106
application "promptmgmt"
enabled
locale "en_US"
maxsessions 1
end trigger

ccn trigger sip phonenumber 6100
application "autoattendant"
enabled
locale "en_US"
maxsessions 8
end trigger

ccn trigger sip phonenumber 6105
application "voicemail"
enabled
locale "en_US"
maxsessions 8
end trigger

ccn trigger sip phonenumber 6106
application "promptmgmt"
enabled
locale "en_US"
maxsessions 1
end trigger

! Definitions of the four networking sites

network location id 2
abbreviation "S2"
email domain ch2.cue.cisco.com
name "site2-cme-3725"
end location

network location id 3
abbreviation "S3"
email domain ch3.cue.cisco.com

```

```
name "site3-cme-2691"
end location

network location id 4
  abbreviation "S4"
  email domain ch4.cue.cisco.com
  name "site4-ccm-3725"
end location

network location id 6
  abbreviation "S6"
  email domain ch6.cue.cisco.com
  name "site6-ccm-3745"
end location

! Definition of this site's location ID

network local location id 6

voicemail default expiration time 30
voicemail default language en_US
voicemail default mailboxsize 3000
voicemail recording time 900
voicemail default messagesize 60
voicemail operator telephone 0
voicemail capacity time 6000
voicemail mailbox owner "Yvon" size 3000
  end mailbox

voicemail mailbox owner "Zack" size 3000
  end mailbox

end
```

# Verify

This section provides information you can use to confirm your configuration is working properly. The verification process includes:

- [Verify DNS Server Connectivity, page 28](#))
- [Verify Site-to-Site Connectivity, page 28](#))
- [Verify Networking Configuration, page 29](#))
- [Verify Message Send VPIM Activity, page 30](#))

## Verify DNS Server Connectivity

This section provides instructions for verifying that your configuration works properly. Verify that you can ping between all the Cisco Unity Express locations and the DNS server.

The following is an output example for the ping command, performed on the Cisco Unity Express command-line interface (CLI) of the Site 2 system to the DNS server. Repeat this command on each Cisco Unity Express site.

```
cue-cme3725# ping a.3.180.50

PING a.3.180.50 (a.3.180.50) 56(84) bytes of data.
64 bytes from a.3.180.50: icmp_seq=1 ttl=125 time=2.86 ms
64 bytes from a.3.180.50: icmp_seq=2 ttl=125 time=0.957 ms
64 bytes from a.3.180.50: icmp_seq=3 ttl=125 time=0.905 ms
64 bytes from a.3.180.50: icmp_seq=4 ttl=125 time=0.744 ms
64 bytes from a.3.180.50: icmp_seq=5 ttl=125 time=0.872 ms

--- a.3.180.50 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 10ms
rtt min/avg/max/mdev = 0.744/1.268/2.865/0.802 ms, ipg/ewma 2.504/2.036 ms
```

## Verify Site-to-Site Connectivity

This section provides instructions for verifying that your configuration works properly. Verify that you can ping between all the Cisco Unity Express locations at the various sites.

The following is an output example for the ping command, performed on the Cisco Unity Express CLI of the Site 2 system to the Site 3 Cisco Unity Express.

```
cue-cme3725# ping a.3.229.128

PING a.3.229.128 (a.3.229.128) 56(84) bytes of data.
64 bytes from a.3.229.128: icmp_seq=1 ttl=62 time=1.22 ms
64 bytes from a.3.229.128: icmp_seq=2 ttl=62 time=0.271 ms
64 bytes from a.3.229.128: icmp_seq=3 ttl=62 time=0.263 ms
64 bytes from a.3.229.128: icmp_seq=4 ttl=62 time=0.262 ms
64 bytes from a.3.229.128: icmp_seq=5 ttl=62 time=0.263 ms

--- a.3.229.128 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4ms
rtt min/avg/max/mdev = 0.262/0.456/1.224/0.384 ms, ipg/ewma 1.094/0.827 ms
```

The following is an output example for the ping command, performed on the Cisco Unity Express CLI of the Site 2 system to the Site 4 Cisco Unity Express.

```

cue-cme3725# ping a.3.231.128

PING a.3.231.128 (a.3.231.128) 56(84) bytes of data.
64 bytes from a.3.231.128: icmp_seq=1 ttl=62 time=1.03 ms
64 bytes from a.3.231.128: icmp_seq=2 ttl=62 time=0.262 ms
64 bytes from a.3.231.128: icmp_seq=3 ttl=62 time=0.257 ms
64 bytes from a.3.231.128: icmp_seq=4 ttl=62 time=0.256 ms
64 bytes from a.3.231.128: icmp_seq=5 ttl=62 time=0.257 ms

--- a.3.231.128 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4ms
rtt min/avg/max/mdev = 0.256/0.412/1.032/0.310 ms, ipg/ewma 1.048/0.711 ms

```

The following is an output example for the ping command, performed on the Cisco Unity Express CLI of the Site 2 system to the Site 4 Cisco Unity Express.

```

cue-cme3725# ping a.3.231.128

PING a.3.231.128 (a.3.231.128) 56(84) bytes of data.
64 bytes from a.3.231.128: icmp_seq=1 ttl=62 time=1.03 ms
64 bytes from a.3.231.128: icmp_seq=2 ttl=62 time=0.262 ms
64 bytes from a.3.231.128: icmp_seq=3 ttl=62 time=0.257 ms
64 bytes from a.3.231.128: icmp_seq=4 ttl=62 time=0.256 ms
64 bytes from a.3.231.128: icmp_seq=5 ttl=62 time=0.257 ms

--- a.3.231.128 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4ms
rtt min/avg/max/mdev = 0.256/0.412/1.032/0.310 ms, ipg/ewma 1.048/0.711 ms

```

## Verify Networking Configuration

This section provides instructions for verifying that your configuration works properly. Certain show commands are supported by the Output Interpreter Tool (registered customers only), which allows you to view an analysis of show command output. In summary, use these commands:

- **show network locations**
- **show network detail location id <location-id>**
- **show network detail local location**

The following is an output example for the show network locations command, performed on the Cisco Unity Express CLI of the Site 2 system.

```

cue-cme3725# show network locations

ID          NAME                               ABBREV DOMAIN
2           'site2-cme-3725'                   S2     ch2.cue.cisco.com
3           'site3-cme-2691'                   S3     ch3.cue.cisco.com
4           'site4-ccm-3725'                   S4     ch4.cue.cisco.com
6           'site6-ccm-3745'                   S6     ch6.cue.cisco.com

```

```
Local location id: 2
```

The following is an output example for the show network detail location id 4 command, performed on the Cisco Unity Express CLI of the Site 2 system.

```

cue-cme3725# show network detail location id 4

Name:                               site4-ccm-3725

```

```

Abbreviation:                S4
Email domain:                 ch4.cue.cisco.com
Minimum extension length:    2
Maximum extension length:    15
Phone prefix:
VPIM encoding:               dynamic
Send spoken name:            enabled
Sent msg count:              0
Received msg count:          0

```

The following is an output example for the `show network detail local` command, performed on the Cisco Unity Express CLI of the Site 2 system.

```

cue-cme3725# show network detail local

Location Id:                 2
Name:                        site2-cme-3725
Abbreviation:                S2
Email domain:                 ch2.cue.cisco.com
Minimum extension length:    2
Maximum extension length:    15
Phone prefix:
VPIM encoding:               dynamic
Send spoken name:            enabled

```

## Verify Message Send VPIM Activity

This section provides instructions for verifying that your configuration works properly.

Certain show commands are supported by the Output Interpreter Tool (registered customers only), which allows you to view an analysis of show command output.

Send a voice message from Site 2 addressed to one or more of the other sites. The moment you hit # to send the message, enter the `show network queues` command on the Cisco Unity Express system of the sending system. Keep repeating the display of this command until all the VPIM messages have been sent, or until the MWI lights of the destination phones are lit.

The following is an output example for the `show network queues` command, performed at the Site 2 Cisco Unity Express system after sending a message from Site 2 extension 2001 addressed to Site 3 extension 3xyyy3001, Site 4 extension 4xyyy4001, and Site 6 extension 6xyyy6002.

```

cue-cme3725# show network queues

Running Job Queue
=====

ID    TYPE TIME          RETRY SENDER          RECIPIENT
33    VPIM 10:22:40         0    adavidson        3xyyy3001@ch3.cue.cisco.com
34    VPIM 10:22:40         0    adavidson        4xyyy4001@ch4.cue.cisco.com

Urgent Job Queue
=====

ID    TYPE TIME          RETRY SENDER          RECIPIENT
No entries

Normal Job Queue
=====

ID    TYPE TIME          RETRY SENDER          RECIPIENT
35    VPIM 10:22:40         0    adavidson        6xyyy6002@ch6.cue.cisco.com

```

# Troubleshoot

This section provides information you can use to confirm that your configuration is working properly.

## Troubleshooting Commands

The following trace commands can be issued on the sending or receiving Cisco Unity Express system to monitor SMTP and VPIM activity between them.

- **trace networking smtp all**—Monitors SMTP events
- **trace networking vpim all**—Monitors VPIM events
- **show trace buffer tail**—Displays contents of the trace buffer on the screen

The following is an example of output for the trace commands for the sending site (Site 3) when sending a message from Site 3 extension 3001 to Site 2 extension 2xxyyy2002.

```
cue-nm-2691# trace networking smtp all
cue-nm-2691# trace networking vpim all
cue-nm-2691# show trace buffer tail

Press <CTRL-C> to exit...
7751 10/26 14:20:59.146 netw smtp 5 221 closing channel
2833 10/26 16:00:55.154 netw smtp 2
2833 10/26 16:00:55.174 netw smtp 1
8386 10/26 16:00:55.193 netw smtp 3 ch2.cue.cisco.com
8386 10/26 16:00:55.204 netw smtp 4
8386 10/26 16:00:55.218 netw smtp 6 220 ch2.cue.cisco.com Simple Mail Transfer Service
Ready
8386 10/26 16:00:55.218 netw smtp 5 EHLO
8386 10/26 16:00:55.223 netw smtp 6 250-ch2.cue.cisco.com (Cisco Unity Express)
8386 10/26 16:00:55.224 netw smtp 6 250-X-VPIM-Wave
8386 10/26 16:00:55.225 netw smtp 6 250-X-Broadcast
8386 10/26 16:00:55.227 netw smtp 6 250-DSN NOTIFY
8386 10/26 16:00:55.229 netw smtp 6 250 SIZE
2833 10/26 16:00:55.239 netw smtp 2
8387 10/26 16:00:55.269 netw smtp 3 ch3.cue.cisco.com
2834 10/26 16:00:55.272 netw smtp 2
2834 10/26 16:00:55.276 netw smtp 3 socket hostName: cue-nm-2691.localdomain, hostAddress:
a.3.229.128
2834 10/26 16:00:55.307 netw smtp 3 Resolved to domain: ch3.cue.cisco.com
8387 10/26 16:00:55.309 netw smtp 4
8388 10/26 16:00:55.325 netw smtp 5 Initial connection message
2834 10/26 16:00:55.328 netw smtp 1
8387 10/26 16:00:55.329 netw smtp 6 220 ch3.cue.cisco.com Simple Mail Transfer Service
Ready
8387 10/26 16:00:55.329 netw smtp 5 EHLO
8388 10/26 16:00:55.331 netw smtp 6 UNKNOWN: EHLO ch3.cue.cisco.com
8388 10/26 16:00:55.332 netw smtp 5 250-ch3.cue.cisco.com
8387 10/26 16:00:55.332 netw smtp 6 250-ch3.cue.cisco.com (Cisco Unity Express)
8387 10/26 16:00:55.332 netw smtp 6 250-X-VPIM-Wave
8387 10/26 16:00:55.334 netw smtp 6 250-X-Broadcast
8387 10/26 16:00:55.335 netw smtp 6 250-DSN NOTIFY
8387 10/26 16:00:55.336 netw smtp 6 250 SIZE
8386 10/26 16:00:55.724 netw smtp 5 MAIL FROM 3001@ch3.cue.cisco.com
8386 10/26 16:00:55.738 netw smtp 6 250 ok
8386 10/26 16:00:55.739 netw smtp 5 RCPT TO 2xxyyy2002@ch2.cue.cisco.com
8386 10/26 16:00:55.744 netw smtp 6 250 ok
8386 10/26 16:00:55.746 netw smtp 5 DATA
8386 10/26 16:00:55.750 netw smtp 6 354 Start mail input; end with <CRLF>.<CRLF>
```

```

8386 10/26 16:00:55.755 netw vpim 3 VPIM
8386 10/26 16:00:55.775 netw vpim 3 VPIM: To: <2xxyyy2002@ch2.cue.cisco.com>
8386 10/26 16:00:55.777 netw vpim 3 VPIM: From: User One<3001@ch3.cue.cisco.com>
8386 10/26 16:00:55.779 netw vpim 3 VPIM: Date: Tue, 26 Oct 2004 16:00:54 -0700 (PDT)
8386 10/26 16:00:55.779 netw vpim 3 VPIM: MIME-Version: 1.0 (Voice 2.0)
8386 10/26 16:00:55.779 netw vpim 3 VPIM: Content-Type: Multipart/Voice-Message;
Version=2.0;
8386 10/26 16:00:55.780 netw vpim 3 VPIM:      Boundary="==VpimMsg==1098831655752"
8386 10/26 16:00:55.780 netw vpim 3 VPIM: Content-Transfer-Encoding: 7bit
8386 10/26 16:00:55.780 netw vpim 3 VPIM: Message-ID: <1098831654914_0@ch3.cue.cisco.com>
8386 10/26 16:00:55.780 netw vpim 3 VPIM:
8386 10/26 16:00:55.781 netw vpim 3 VPIM: ---VpimMsg==1098831655752
8386 10/26 16:00:55.782 netw vpim 3 VPIM: Content-Type: text/directory; charset=us-ascii;
profile=vCard
8386 10/26 16:00:55.782 netw vpim 3 VPIM: Content-Transfer-Encoding: 7bit
8386 10/26 16:00:55.782 netw vpim 3 VPIM: Content-Disposition: attachment; filename="User
One.vcf"
8386 10/26 16:00:55.782 netw vpim 3 VPIM:
8386 10/26 16:00:55.783 netw vpim 3 VPIM: BEGIN:vCard
8386 10/26 16:00:55.783 netw vpim 3 VPIM: FN:User One
8386 10/26 16:00:55.783 netw vpim 3 VPIM:
EMAIL;TYPE=INTERNET;TYPE=VPIM:3001@ch3.cue.cisco.com
8386 10/26 16:00:55.783 netw vpim 3 VPIM: TEL:3001
8386 10/26 16:00:55.784 netw vpim 3 VPIM: VERSION: 3.0
8386 10/26 16:00:55.784 netw vpim 3 VPIM: END:vCard
8386 10/26 16:00:55.784 netw vpim 3 VPIM:
8387 10/26 16:00:55.843 netw smtp 5 MAIL FROM 3001@ch3.cue.cisco.com
8388 10/26 16:00:55.848 netw smtp 6 EHLO : MAIL FROM: <3001@ch3.cue.cisco.com>
8388 10/26 16:00:55.852 netw smtp 5 250 ok
8387 10/26 16:00:55.852 netw smtp 6 250 ok
8387 10/26 16:00:55.854 netw smtp 5 RCPT TO 3xxyyy3002@ch3.cue.cisco.com
8388 10/26 16:00:55.856 netw smtp 6 MAIL FROM:: RCPT TO: <3xxyyy3002@ch3.cue.cisco.com>
8388 10/26 16:00:55.856 netw smtp 5 250 ok
8387 10/26 16:00:55.856 netw smtp 6 250 ok
8387 10/26 16:00:55.858 netw smtp 5 DATA
8388 10/26 16:00:55.860 netw smtp 6 RCPT TO:: DATA
8388 10/26 16:00:55.860 netw smtp 5 354 Start data
8387 10/26 16:00:55.861 netw smtp 6 354 Start mail input; end with <CRLF>.<CRLF>
8387 10/26 16:00:55.865 netw vpim 3 VPIM
8387 10/26 16:00:55.884 netw vpim 3 VPIM: To: <3xxyyy3002@ch3.cue.cisco.com>
8387 10/26 16:00:55.885 netw vpim 3 VPIM: From: User One<3001@ch3.cue.cisco.com>
8387 10/26 16:00:55.887 netw vpim 3 VPIM: Date: Tue, 26 Oct 2004 16:00:54 -0700 (PDT)
8387 10/26 16:00:55.888 netw vpim 3 VPIM: MIME-Version: 1.0 (Voice 2.0)
8387 10/26 16:00:55.888 netw vpim 3 VPIM: Content-Type: Multipart/Voice-Message;
Version=2.0;
8387 10/26 16:00:55.888 netw vpim 3 VPIM:      Boundary="==VpimMsg==1098831655863"
8387 10/26 16:00:55.888 netw vpim 3 VPIM: Content-Transfer-Encoding: 7bit
8387 10/26 16:00:55.889 netw vpim 3 VPIM: Message-ID: <1098831654914_0@ch3.cue.cisco.com>
8387 10/26 16:00:55.889 netw vpim 3 VPIM:
8387 10/26 16:00:55.890 netw vpim 3 VPIM: ---VpimMsg==1098831655863
8387 10/26 16:00:55.890 netw vpim 3 VPIM: Content-Type: text/directory; charset=us-ascii;
profile=vCard
8387 10/26 16:00:55.890 netw vpim 3 VPIM: Content-Transfer-Encoding: 7bit
8387 10/26 16:00:55.891 netw vpim 3 VPIM: Content-Disposition: attachment; filename="User
One.vcf"
8387 10/26 16:00:55.891 netw vpim 3 VPIM:
8387 10/26 16:00:55.891 netw vpim 3 VPIM: BEGIN:vCard
8387 10/26 16:00:55.891 netw vpim 3 VPIM: FN:User One
8387 10/26 16:00:55.891 netw vpim 3 VPIM:
EMAIL;TYPE=INTERNET;TYPE=VPIM:3001@ch3.cue.cisco.com
8387 10/26 16:00:55.892 netw vpim 3 VPIM: TEL:3001
8387 10/26 16:00:55.892 netw vpim 3 VPIM: VERSION: 3.0
8387 10/26 16:00:55.892 netw vpim 3 VPIM: END:vCard
8387 10/26 16:00:55.892 netw vpim 3 VPIM:

```

```

8386 10/26 16:00:55.901 netw vpim 3 VPIM: ---=VpimMsg==1098831655752
8386 10/26 16:00:55.902 netw vpim 3 VPIM: Content-Type: Audio/x-wav
8386 10/26 16:00:55.906 netw vpim 3 VPIM: Content-Transfer-Encoding: Base64
8386 10/26 16:00:55.906 netw vpim 3 VPIM: Content-Disposition: inline;
voice=Originator-Spoken-Name
8386 10/26 16:00:55.910 netw vpim 3 VPIM:
8388 10/26 16:00:55.938 netw vpim 4 VPIM: To: <3xyyy3002@ch3.cue.cisco.com>
8388 10/26 16:00:55.939 netw vpim 4 VPIM: From: User One<3001@ch3.cue.cisco.com>
8388 10/26 16:00:55.941 netw vpim 4 VPIM: Date: Tue, 26 Oct 2004 16:00:54 -0700 (PDT)
8388 10/26 16:00:55.943 netw vpim 4 VPIM: MIME-Version: 1.0 (Voice 2.0)
8388 10/26 16:00:55.945 netw vpim 4 VPIM: Content-Type: Multipart/Voice-Message;
Version=2.0;Boundary=="=VpimMsg==1098831655863"
8388 10/26 16:00:55.946 netw vpim 4 VPIM: Content-Transfer-Encoding: 7bit
8388 10/26 16:00:55.948 netw vpim 4 VPIM: Message-ID: <1098831654914_0@ch3.cue.cisco.com>
8388 10/26 16:00:55.949 netw vpim 4 VPIM:
8388 10/26 16:00:55.951 netw vpim 4 VPIM: ---=VpimMsg==1098831655863
8387 10/26 16:00:55.967 netw vpim 3 VPIM: ---=VpimMsg==1098831655863
8387 10/26 16:00:55.967 netw vpim 3 VPIM: Content-Type: Audio/x-wav
8387 10/26 16:00:55.968 netw vpim 3 VPIM: Content-Transfer-Encoding: Base64
8387 10/26 16:00:55.968 netw vpim 3 VPIM: Content-Disposition: inline;
voice=Originator-Spoken-Name
8387 10/26 16:00:55.968 netw vpim 3 VPIM:
8388 10/26 16:00:55.983 netw vpim 1 Message
8388 10/26 16:00:55.986 netw vpim 4 VPIM: Content-Type: text/directory; charset=us-ascii;
profile=vCard
8388 10/26 16:00:55.987 netw vpim 4 vCard: Content-Transfer-Encoding: 7bit
8388 10/26 16:00:55.988 netw vpim 4 vCard: Content-Disposition: attachment; filename="User
One.vcf"
8388 10/26 16:00:55.990 netw vpim 4 vCard:
8388 10/26 16:00:55.991 netw vpim 4 vCard: BEGIN:vCard
8388 10/26 16:00:55.992 netw vpim 4 vCard: FN:User One
8388 10/26 16:00:56.003 netw vpim 4 vCard:
EMAIL;TYPE=INTERNET;TYPE=VPIM:3001@ch3.cue.cisco.com
8388 10/26 16:00:56.005 netw vpim 4 vCard: TEL:3001
8388 10/26 16:00:56.006 netw vpim 4 vCard: VERSION: 3.0
8388 10/26 16:00:56.007 netw vpim 4 vCard: END:vCard
8388 10/26 16:00:56.008 netw vpim 4 vCard:
8388 10/26 16:00:56.010 netw vpim 4 vCard: ---=VpimMsg==1098831655863
8388 10/26 16:00:56.012 netw vpim 4 VPIM: Content-Type: Audio/x-wav
8388 10/26 16:00:56.014 netw vpim 4 VPIM: Content-Transfer-Encoding: Base64
8388 10/26 16:00:56.015 netw vpim 4 VPIM: Content-Disposition: inline;
voice=Originator-Spoken-Name
8388 10/26 16:00:56.020 netw vpim 5 25802
8387 10/26 16:00:56.148 netw vpim 3 VPIM:
UklGRjI3AABXQVZFZm10IBIAAAAHAAEAQB8AAEAfAAABAAgAAABmYWN0BAAAAA3AABkYXRhADcA
APT6/fr6+/19eXZ4e3l4eXt9/fv9fX37/f/9/f/7/X17eXt5eH37/f34+vv7+Pv/+/v7/339//99
eHh7e3l4fX3//Xt9/33//3//v6+Pb7/fv9//99/317e3t9/319/310eHn//3t9ff/9+Pj//r0
9vb2+/99/319/Xl2/319//9//99e//9fX19ffv//fv9v9vj6+vv/ff99fX12dnh5fXt9+//9
+33//f//eXh7+/39+v/9+vr6+/v9ff99//r//v9/fr7+/v/e3h5e3h2eHh5/f17//v//97//j6
...

```

The following is an example of output for the trace commands for the receiving site (Site 2) when sending a message from Site 3 extension 3001 to Site 2 extension 2xyyy2002.

```

cue-cme3725# trace networking smtp all
cue-cme3725# trace networking vpim all
cue-cme3725# show trace buffer tail

```

Press <CTRL-C> to exit...

```

9301 11/12 14:24:02.058 netw smtp 5 221 closing channel
3384 11/12 14:26:10.899 netw smtp 2
3384 11/12 14:26:10.902 netw smtp 3 socket hostName: a.3.229.128, hostAddress: a.3.229.128
3384 11/12 14:26:10.903 netw smtp 3 hostname: a.3.229.128 found in good address cache
3384 11/12 14:26:10.915 netw smtp 1

```

```

9312 11/12 14:26:10.920 netw smtp 5 Initial connection message
9312 11/12 14:26:10.926 netw smtp 6 UNKNOWN: EHLO ch3.cue.cisco.com
9312 11/12 14:26:10.926 netw smtp 5 250-ch2.cue.cisco.com
9312 11/12 14:26:11.431 netw smtp 6 EHLO : MAIL FROM: <3001@ch3.cue.cisco.com>
9312 11/12 14:26:11.437 netw smtp 5 250 ok
9312 11/12 14:26:11.446 netw smtp 6 MAIL FROM:: RCPT TO: <2xyyy2002@ch2.cue.cisco.com>
9312 11/12 14:26:11.447 netw smtp 5 250 ok
9312 11/12 14:26:11.452 netw smtp 6 RCPT TO:: DATA
9312 11/12 14:26:11.453 netw smtp 5 354 Start data
9312 11/12 14:26:11.513 netw vpim 4 VPIM: To: <2xyyy2002@ch2.cue.cisco.com>
9312 11/12 14:26:11.516 netw vpim 4 VPIM: From: User One<3001@ch3.cue.cisco.com>
9312 11/12 14:26:11.520 netw vpim 4 VPIM: Date: Tue, 26 Oct 2004 16:00:54 -0700 (PDT)
9312 11/12 14:26:11.524 netw vpim 4 VPIM: MIME-Version: 1.0 (Voice 2.0)
9312 11/12 14:26:11.527 netw vpim 4 VPIM: Content-Type: Multipart/Voice-Message;
Version=2.0;Boundary="==VpimMsg==1098831655752"
9312 11/12 14:26:11.531 netw vpim 4 VPIM: Content-Transfer-Encoding: 7bit
9312 11/12 14:26:11.534 netw vpim 4 VPIM: Message-ID: <1098831654914_0@ch3.cue.cisco.com>
9312 11/12 14:26:11.537 netw vpim 4 VPIM:
9312 11/12 14:26:11.540 netw vpim 4 VPIM: ---VpimMsg==1098831655752
9312 11/12 14:26:11.552 netw vpim 1 Message
9312 11/12 14:26:11.558 netw vpim 4 VPIM: Content-Type: text/directory; charset=us-ascii;
profile=vCard
9312 11/12 14:26:11.561 netw vpim 4 vCard: Content-Transfer-Encoding: 7bit
9312 11/12 14:26:11.564 netw vpim 4 vCard: Content-Disposition: attachment; filename="User
One.vcf"
9312 11/12 14:26:11.568 netw vpim 4 vCard:
9312 11/12 14:26:11.571 netw vpim 4 vCard: BEGIN:vCard
9312 11/12 14:26:11.574 netw vpim 4 vCard: FN:User One
9312 11/12 14:26:11.577 netw vpim 4 vCard:
EMAIL;TYPE=INTERNET;TYPE=VPIM:3001@ch3.cue.cisco.com
9312 11/12 14:26:11.580 netw vpim 4 vCard: TEL:3001
9312 11/12 14:26:11.583 netw vpim 4 vCard: VERSION: 3.0
9312 11/12 14:26:11.586 netw vpim 4 vCard: END:vCard
9312 11/12 14:26:11.589 netw vpim 4 vCard:
9312 11/12 14:26:11.612 netw vpim 4 vCard: ---VpimMsg==1098831655752
9312 11/12 14:26:11.618 netw vpim 4 VPIM: Content-Type: Audio/x-wav
9312 11/12 14:26:11.622 netw vpim 4 VPIM: Content-Transfer-Encoding: Base64
9312 11/12 14:26:11.625 netw vpim 4 VPIM: Content-Disposition: inline;
voice=Originator-Spoken-Name
9312 11/12 14:26:11.633 netw vpim 5 34010
9312 11/12 14:26:11.962 netw vpim 4 VPIM audio:
UklGRjI3AABXQVZFZm10IBIAAAAHAAEQB8AAEAFAAABAAgAAABmYWN0BAAAAAA3AABkYXRhADcA
9312 11/12 14:26:11.963 netw vpim 4 VPIM audio:
APT6/fr6+/19eXZ4e3l4eXt9/fv9fX37/f/9/f/7/X17eXt5eH37/f34+vv7+Pv+/v7/339//99
9312 11/12 14:26:11.965 netw vpim 4 VPIM audio:
eHh7e3l4fX3//Xt9/33//3//v6+Pb7/fv9//99/317e3t9/319/310eHn//3t9ff/9+Pj///r0
9312 11/12 14:26:11.967 netw vpim 4 VPIM audio:
9vb2+/99/319/X12/319//9//99e//9fX19ffv/ffv//fv69vj6+vv/ff99fX12dnh5fXt9//9
9312 11/12 14:26:11.968 netw vpim 4 VPIM audio:
+33//E//eXh7+/39+v/9+vr6+/v9ff99//r//v9/fr7+/v/e3h5e3h2eHh5/f17//v//97//j6
...

```