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Introduction

This document provides a sample configuration for Cisco Unity Express voice mail Voice Profile for Internet Mail (VPIM) networking between four sites. Two of the sites are Cisco 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

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 versions:

- 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.

Conventions

Where applicable, this document uses the conventions in Table 1 .

Table 1 Cisco Unity Express Configuration Example Document Conventions

Convention	Description
boldfaced text	Boldfaced text is used for: <ul style="list-style-type: none"> • Key and button names. (Example: Click OK.) • Information that you enter. (Example: Enter Administrator in the User Name box.)
< > (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"> • On menus. (Example: On the Windows Start menu, click Settings > Control Panel > Phone and Modem Options.) • In the navigation bar of the Cisco Unity Administrator. (Example: Go to the System > Configuration > Settings page.)

The letter **a** used in the high-order address range for an IP V4-formatted address.

Example: **a** .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 **x** and **y** used within phone numbers

Example: 2 **xx** . **yyy** .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: Means reader take note. Notes contain helpful suggestions or references to material not covered in the document.

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

For more information on document conventions, refer to [Cisco Technical Tips Conventions](#).

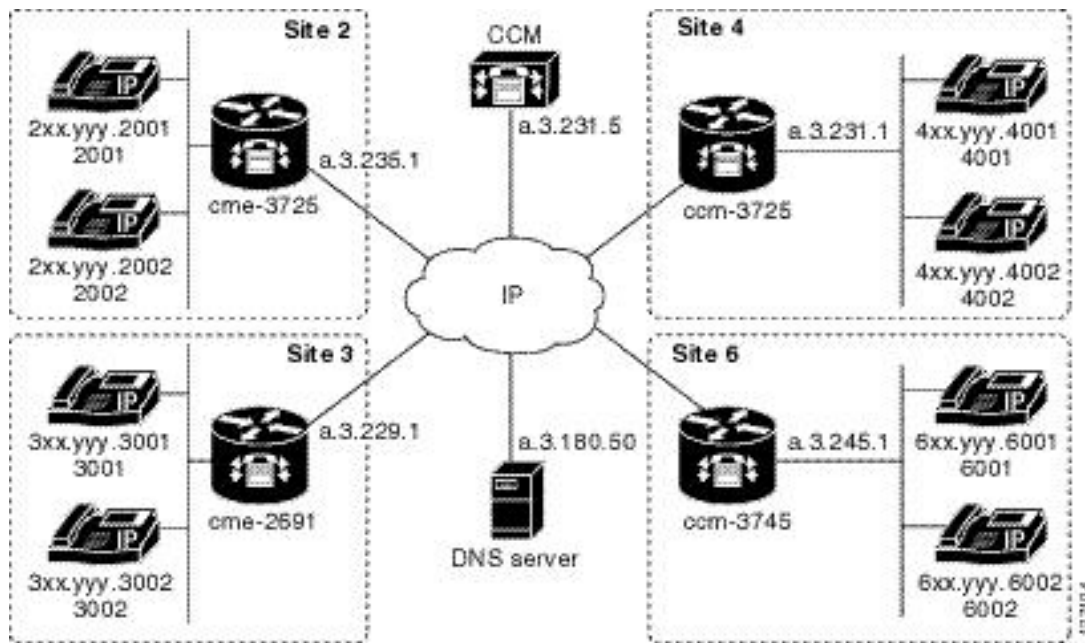
Configure

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

Note: To find additional information on the commands used in this document, use the [Command Lookup Tool \(registered customers only\)](#).

Network Diagram

This document uses the network setup shown in the diagram below .



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

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.

Configurations

This document uses the configurations shown below:

- Site 2 Configuration (Cisco 3725/Cisco CME Router)
- Site 3 Configuration (Cisco 2691/Cisco CME router)
- Site 4 Configuration (Cisco 3725 SRST router)
- Site 6 Configuration (Cisco 3745 SRST router)

Site 2 Configuration (Cisco 3725/Cisco CME Router)

- Router Configuration

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.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.3.235.1 255.255.0.0  
  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 2xyyy21..
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 3xyyy3...
session target ipv4:a.3.229.1
dtmf-relay h245-alphanumeric
codec g711ulaw
no vad
!
dial-peer voice 4000 voip
destination-pattern 4xyyy4...
session target ipv4:a.3.231.5
dtmf-relay h245-alphanumeric
codec g711ulaw
no vad
!
dial-peer voice 6000 voip
destination-pattern 6xyyy6...
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 Configuration

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
+Y9J3x1k2B35j0nfGWTYHfmPSd8ZZNgd+Y9J3x1k2B35jwAAAAA="
groupname Administrators create
groupname Broadcasters create
groupname Sales create
username adavidson create
username awilkins create
username acoley create
username awayant 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 "1SDP4vScNKcZiyM6dHQHfnl4zvlbuAn9Sd8ZZNgd
+Y9J3xlk2B35j0nfgWTYHfmPSd8ZZNgd+Y9J3xlk2B35jwAAAAA="
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 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 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 phonenumber 2100
application "custom-aa"
enabled
locale "en_US"
maxsessions 8
end trigger
ccn trigger sip phonenumber 2102
application "autoattendant"
enabled
locale "en_US"
maxsessions 8
end trigger
ccn trigger sip phonenumber 2105
application "voicemail"
enabled
idletimeout 5000
locale "en_US"
maxsessions 8
end trigger
ccn trigger sip phonenumber 2106
application "promptgmt"
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)

- Router Configuration

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 3xyyy31..  
  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 2xyyy2...  
  session target ipv4:a.3.235.1  
  dtmf-relay h245-alphanumeric  
  codec g711ulaw  
  no vad  
!  
dial-peer voice 4001 voip  
  destination-pattern 4xyyy4...  
  session target ipv4:a.3.231.5  
  dtmf-relay h245-alphanumeric  
  codec g711ulaw  
  no vad  
!  
dial-peer voice 6001 voip  
  destination-pattern 6xyyy6...  
  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 3xyyy3... 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 Configuration

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+Y9J3x1k2B35jwAAAAA="
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 "xx0aioWv/uC5WSZLs/L2XY/frZzvmJ2MSd8ZZNgd
+Y9J3x1k2B35j0nfGWTYHfmPSd8ZZNgd+Y9J3x1k2B35jwAAAAA="
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)

- Router Configuration

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 Configuration

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
+Y9J3x1k2B35j0nfgWTYHfmPSd8ZZNgd+Y9J3x1k2B35jwAAAAA="
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
+Y9J3x1k2B35j0nfgWTYHfmPSd8ZZNgd+Y9J3x1k2B35jwAAAAA="
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 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
ctiport 4901 4902 4903 4904
ccm-manager address a.3.231.5
ccm-manager
credentials hidden "QiUfMZRFsRBqrOHVxftjAknfGWTYHfmPSd8ZZNgd
+Y9J3x1k2B35j0nfGWTYHfmPSd8ZZNgd+Y9J3x1k2B35jwAAAAA="
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)

- Router Configuration

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 Configuration

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
+Y9J3x1k2B35j0nfgWPTYHfmPSd8ZZNgd+Y9J3x1k2B35jwAAAAA="

groupname Administrators create

groupname Broadcasters create

username admin create

username Yvon create

username Zack create

username Yvon phonenumberE164 "6xxyyy6001"

username Zack phonenumberE164 "6xxyyy6002"

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 "GixGRq8cUmFqrOHVxftjAknfGPTYHfmPSd8ZZNgd
+Y9J3x1k2B35j0nfgWPTYHfmPSd8ZZNgd+Y9J3x1k2B35jwAAAAA="

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 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
ctiport 6901 6902 6903 6904
ccm-manager address a.3.231.5
ccm-manager
    credentials hidden "1anJW38IVSZld67dzhL9pEnfGWTYHfmPSd8ZZNgd
+Y9J3x1k2B35j0nfGWTYHfmPSd8ZZNgd+Y9J3x1k2B35jwAAAAA="
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.

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

Step 1 Verify that you can ping between all the Cisco Unity Express locations and the DNS server.

Verify DNS Server Connectivity

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
```

Step 2 Verify that you can ping between all the Cisco Unity Express locations at the various sites.

Verify Site-to-Site Connectivity

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
```

Step 3 Use these commands to verify networking configuration:

Verify Networking Configuration

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

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
```


- Step 4** 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.

Verify Message Send VPIM Activity

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 troubleshoot your configuration.

Troubleshooting Commands

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

Note: Before issuing **debug** commands, refer to [Important Information on Debug 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 vvim 3 VPIM
8386 10/26 16:00:55.775 netw vvim 3 VPIM: To: <2xxyyy2002@ch2.cue.cisco.com>
8386 10/26 16:00:55.777 netw vvim 3 VPIM: From: User One<3001@ch3.cue.cisco.com>
8386 10/26 16:00:55.779 netw vvim 3 VPIM: Date: Tue, 26 Oct 2004 16:00:54 -0700
(PDT)
8386 10/26 16:00:55.779 netw vvim 3 VPIM: MIME-Version: 1.0 (Voice 2.0)
8386 10/26 16:00:55.779 netw vvim 3 VPIM: Content-Type: Multipart/Voice-Message;
Version=2.0;
8386 10/26 16:00:55.780 netw vvim 3 VPIM:
Boundary=="=VvimMsg==1098831655752"
8386 10/26 16:00:55.780 netw vvim 3 VPIM: Content-Transfer-Encoding: 7bit
8386 10/26 16:00:55.780 netw vvim 3 VPIM: Message-ID: <1098831654914_0@ch3.cue.
cisco.com>
8386 10/26 16:00:55.780 netw vvim 3 VPIM:
8386 10/26 16:00:55.781 netw vvim 3 VPIM: ---=VvimMsg==1098831655752
8386 10/26 16:00:55.782 netw vvim 3 VPIM: Content-Type: text/directory;
charset=us-ascii; profile=vCard
8386 10/26 16:00:55.782 netw vvim 3 VPIM: Content-Transfer-Encoding: 7bit
8386 10/26 16:00:55.782 netw vvim 3 VPIM: Content-Disposition: attachment;
filename="User One.vcf"
8386 10/26 16:00:55.782 netw vvim 3 VPIM:
8386 10/26 16:00:55.783 netw vvim 3 VPIM: BEGIN:vCard
8386 10/26 16:00:55.783 netw vvim 3 VPIM: FN:User One
8386 10/26 16:00:55.783 netw vvim 3 VPIM: EMAIL;TYPE=INTERNET;TYPE=VPIM:3001@ch3.
cue.cisco.com
8386 10/26 16:00:55.783 netw vvim 3 VPIM: TEL:3001
8386 10/26 16:00:55.784 netw vvim 3 VPIM: VERSION: 3.0
8386 10/26 16:00:55.784 netw vvim 3 VPIM: END:vCard
8386 10/26 16:00:55.784 netw vvim 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: <3xxyyy3002@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:
UklGRjI3AABXQVZFZm10IBIAAAAHAAEAQB8AAEAfAAABAAgAAABmYWN0BAAAAAA3AABkYXRhADcA
APT6/fr6+/19eXZ4e3l4eXt9/fv9fX37/f/9/f/7/Xl7eXt5eH37/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//9fXl9ffv/ffv//fv69vj6+vv/ff99fXl2dnh5fXt9+//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 2xxyy2002.

```

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: <2xxyyy2002@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 vvim 4 VPIM: To: <2xxyyy2002@ch2.cue.cisco.com>
9312 11/12 14:26:11.516 netw vvim 4 VPIM: From: User One<3001@ch3.cue.cisco.com>
9312 11/12 14:26:11.520 netw vvim 4 VPIM: Date: Tue, 26 Oct 2004 16:00:54 -0700
(PDT)
9312 11/12 14:26:11.524 netw vvim 4 VPIM: MIME-Version: 1.0 (Voice 2.0)
9312 11/12 14:26:11.527 netw vvim 4 VPIM: Content-Type: Multipart/Voice-Message;
Version=2.0;Boundary="==VvimMsg==1098831655752"
9312 11/12 14:26:11.531 netw vvim 4 VPIM: Content-Transfer-Encoding: 7bit
9312 11/12 14:26:11.534 netw vvim 4 VPIM: Message-ID: <1098831654914_0@ch3.cue.
cisco.com>
9312 11/12 14:26:11.537 netw vvim 4 VPIM:
9312 11/12 14:26:11.540 netw vvim 4 VPIM: ---=VvimMsg==1098831655752
9312 11/12 14:26:11.552 netw vvim 1 Message
9312 11/12 14:26:11.558 netw vvim 4 VPIM: Content-Type: text/directory;
charset=us-ascii; profile=vCard
9312 11/12 14:26:11.561 netw vvim 4 vCard: Content-Transfer-Encoding: 7bit
9312 11/12 14:26:11.564 netw vvim 4 vCard: Content-Disposition: attachment;
filename="User One.vcf"
9312 11/12 14:26:11.568 netw vvim 4 vCard:
9312 11/12 14:26:11.571 netw vvim 4 vCard: BEGIN:vCard
9312 11/12 14:26:11.574 netw vvim 4 vCard: FN:User One
9312 11/12 14:26:11.577 netw vvim 4 vCard: EMAIL;TYPE=INTERNET;TYPE=VPIM:3001@ch3.
cue.cisco.com
9312 11/12 14:26:11.580 netw vvim 4 vCard: TEL:3001
9312 11/12 14:26:11.583 netw vvim 4 vCard: VERSION: 3.0
9312 11/12 14:26:11.586 netw vvim 4 vCard: END:vCard
9312 11/12 14:26:11.589 netw vvim 4 vCard:
9312 11/12 14:26:11.612 netw vvim 4 vCard: ---=VvimMsg==1098831655752
9312 11/12 14:26:11.618 netw vvim 4 VPIM: Content-Type: Audio/x-wav
9312 11/12 14:26:11.622 netw vvim 4 VPIM: Content-Transfer-Encoding: Base64
9312 11/12 14:26:11.625 netw vvim 4 VPIM: Content-Disposition: inline;
voice=Originator-Spoken-Name
9312 11/12 14:26:11.633 netw vvim 5 34010
9312 11/12 14:26:11.962 netw vvim 4 VPIM audio:
UklGRjI3AABXQVZFZm10IBIAAAAHAAEAQB8AAEAfAAABAAgAAABmYWN0BAAAAAA3AABkYXRhADcA
9312 11/12 14:26:11.963 netw vvim 4 VPIM audio: APT6/fr6+/19eXZ4e3l4eXt9/fv9fX37/
f/9/f/7/Xl7eXt5eH37/f34+vv7+Pv/+v7/339//99
9312 11/12 14:26:11.965 netw vvim 4 VPIM audio: eHh7e3l4fX3//Xt9/33///3///v6+Pb7/
fv9//99/3l7e3t9/3l9/3l0eHn//3t9ff/9+Pj///r0
9312 11/12 14:26:11.967 netw vvim 4 VPIM audio: 9vb2+/99/3l9/
Xl2/3l9///9//99e//9fXl9ffv/ffv//fv69vj6+vv/ff99fXl2dnh5fXt9+//9
```

9312 11/12 14:26:11.968 netw vpim 4 VPIM audio: +33//f//eXh7+/39+v/9+vr6+/v9ff99//
r//v9/fr7+/v/e3h5e3h2eHh5/f17//v///97//j6

...

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