

Microsoft Live Communication Server 2005 Enterprise Edition with SP1 to Cisco Unified Presence 6.0(1) and Cisco Unified Communications Manager 5.1(1)

July 27, 2007 Initial Version

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Introduction

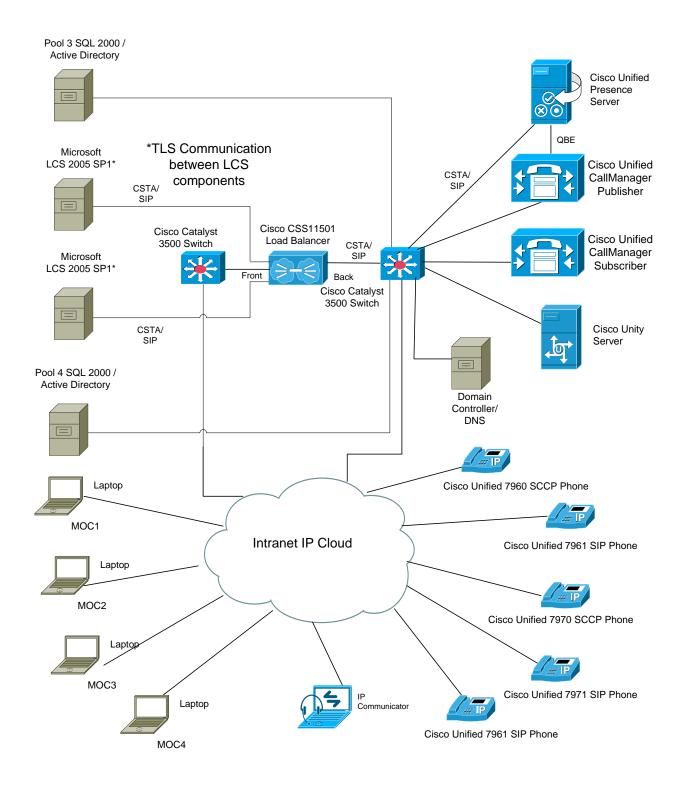
This document was issued to show feature interoperability and to document the steps and configurations necessary for Cisco Unified Communications Manager (CUCM) 5.1.1 and Cisco Unified Presence (CUP) 6.0(1) to interoperate with the Microsoft Live Communication Server (LCS) 2005 Enterprise Edition SP1. These features include Microsoft Office Communicator (MOC) features, Desktop (DTP) or IP Phone features, Cisco Unified Communications Manager (CUCM) administration, configuration and provisioning and CUPS device identification. It aims to provide a good understanding of what works and what does not work in terms of the feature interaction between various components of the CUCM, CUPS and LCS. It also provides guidance to deployment participants of the limitations, expected behaviors as well as known issues. Please note that this document does not address performance and scalability which are part of broader criteria for a deployment-ready solution.

As shown in the Network Topology diagram, interoperability testing was performed between the CUPS and the LCS using multiple LCS pools with a Cisco CSS1501load balancer front-ended to the CUPS.



Network Topology

Figure 1. Network Topology or Test Setup





Limitations

Multiple Point of Presence (MPOP): As of the CUPS release 6.0(1), the MPOP feature where a MOC user is logged in from more than one location is not supported by CUPS. Support for this feature affects other interoperability features between the Cisco CUPS and the Microsoft LCS. The affected features include basic placement and teardown of calls and locations-based call forwarding. These features are inherent to MPOP and without support for this feature, the user experiences loss of device and call control when logged in multiple locations.

Call Forward Setting on DTP or IP Phone: Call forward setting made on the Cisco IP Phone (Desktop) is not recognized and reflected by the MOC GUI. As of the current release of the Microsoft LCS, this feature is not supported. Thus, the MOC overrides any call forward setting manually configured on the DTP.

DTMF Digits: Using the MOC dial pad to enter digits presented an issue when a MOC user enters the digits in a relatively fast manner. Some digits may be dropped during the communication signaling between the CUPS and CCM. As a result, user may experience invalid entry when interacting with devices such as voicemails and IVR systems.

Shared Lines: There are potential unwanted interactions that may occur in shared line scenarios. The CUPS procedure for selecting the device to be controlled by MOC is to login the MOC session. Upon sign-in, both devices associated with shared line will ring and the MOC user must answer the phone the user wishes to control. The unwanted feature interaction in this case include conflict in device and call control and indefinite ringing in cases where the user is away from both devices. This issue is also applicable for devices subscribed to extension mobility where selection of device to control procedures is similar to shared lines.

Do not Disturb (DND): DND is an unsupported feature with respect to CUPS integration. Thus, any MOC client with DND feature enabled, will still have any received call routed to its controlled DTP.

Transport Layer Security (TLS) connection between CUPS and LCS: With TLS enabled between CUPS and LCS server, MOC user is unable to exercise CTI control with hardware loadbalancer installed..

System Components

Hardware Requirements

Cisco hardware including interface card

- Linux Servers
 - i. Cisco Unified Presence (MCS 7825H)
 - ii. Cisco Unified Communications Manager (MCS 7845H)
- b. Cisco Catalyst 3560
- c. Cisco Load Balancer CSS11501
- d. 1 Cisco 7960 IP Phones (SCCP)
- e. 2 Cisco 7961 IP Phones (SIP)
- f. 1 Cisco 7970 IP Phone with CUVA (SCCP)
- g. 1 Cisco 7971 IP Phone with CUVA (SIP)
- h. 2 Cisco Unified Video Advantage Cameras



Micorsoft hardware including interface card

- a. LCS 2005 Enterprise Edition with SP1 MCS 7825H Windows Server 2003 Enterprise, R2 (32 Bit)
- b. Windows Active Directory Node also serves as DNS for LCS MCS 7825H Windows Server 2003 Enterprise R2, w/SP 1
- a. Windows SQL MCS 7825H SQL Server 2000 Enterprise Edition w/Win. 2003 Server SP1

Notebooks for additional MOC Clients running on Windows XP Professional with SP1

Software Requirements

Cisco Unified Communications Manager 5.1.1

Cisco Unfied Presence 6.0(1)

Cisco IOS Release or Cisco CatOS Release (for the gateway)

Cisco Content Switch CSS11501 IOS Version: sg0810106 (08.10.1.06)

Microsoft Live Communication Server 2005 Enterprise Edition SP1

Features Supported

MOC Features

Basic Call Placement / Clearing

Reverse Number Lookup

Basic Call Forwarding

New Number

Phone Settings

Location-based – please refer to Limitations section

Hold / Retrieval of Call

Call Transfer

Unannounced or Blind

Announced or Consultation

Call Conference

Call Conference Establishment

Call Conference to Busy Number

Call Conference to Party with No Answer

Call Conference to Party set to forward all calls to VoiceMail

Desktop or IP Phone Initiated Single Step Transfer of Conference Call

DTMF Digits – please refer to Limitations Section



Consultation Calls

Alternate Call – Call Waiting

Alternate Call – Held Call

Deflect Call

Call per Line Limit

Desktop (DTP) Features

Basic Call Placement / Clearing

Call Transfers

Unannounced or Blind

Announced or Consultation

Call Conference

Cisco Unified Communications Manager (CUCM) Administration, Configuration and Provisioning

Adding Dial Rules

Deleting Dial Rules

Changing Dial Rules

Prefix Dial Rules

Cisco Unified Presence (CUPS) Device Identification

Shared Lines

2 Phone Devices

1 Phone Device and 1 Cisco IP Communicator

CUPS Features

Extension Mobility



Configuration

For more Cisco deployment and installation guides, go to:

http://www.cisco.com/en/US/products/sw/voicesw/ps556/products implementation design guide chapter09186a 008070bc02.html

http://www.cisco.com/en/US/partner/products/ps6837/tsd_products_support_integrated_systems_documentation list.html

Configuration Sequence and Tasks

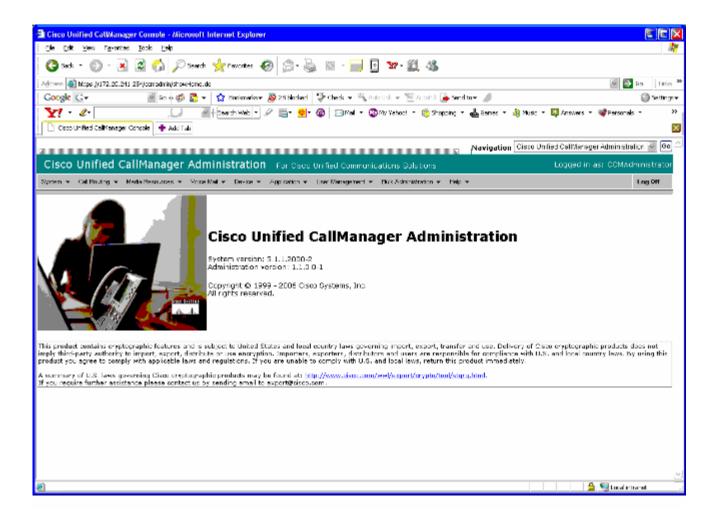
- A. Cisco Unified Communications Manager (CUCM) Configuration
 - 1. Cisco Unified Communications Manager Version
 - Configure the SIP Trunk
 - 3. Configure the Cisco IP Phones
 - 4. Configure the End Users
 - 5. Configure the Licensing Capabilities Assignments
 - 6. Configure the Phone Services
 - 7. Configure the Phone URL Services
 - 8. Configure the Application User
 - 9. Configure the Dial Rules
 - 10. Configure the Conference Bridge
 - 11. Configure the Meet-Me Number
- B. Cisco Unified Presence (CUPS) Configuration
 - 1. CUPS Version
 - Configure the CUPS Method / Event Based Routing 2.
 - 3. Configure the Unified Communications Manager Presence Gateway
 - 4. Configure the CTI Gateway
 - 5. Configure the MOC Assignments
 - Configure the AXL Information
 - Configure the Privacy ACL Entry (Allowed Destination Host)
 - Configure the Proxy ACL Entry (Allowed Incoming Host)
 - 9. Configure the IP Phone Messenger Setting
 - 10. Configure the IP Phone Messenger User
 - 11. Configure the Application User Configuration
- Cisco Content Switch CSS11501 Load Balancer Configuration
- D. LCS Enterprise Edition Configuration
 - 1. Domain Name Server
 - 2. Pool Properties
 - 3. Static Route
 - Authorized Host
 - Server Properties
 - Pool Users 6.
 - User Configuration
 - 8. Micorsoft Office Communicator (MOC) Configuration



Configuration Menus and Commands

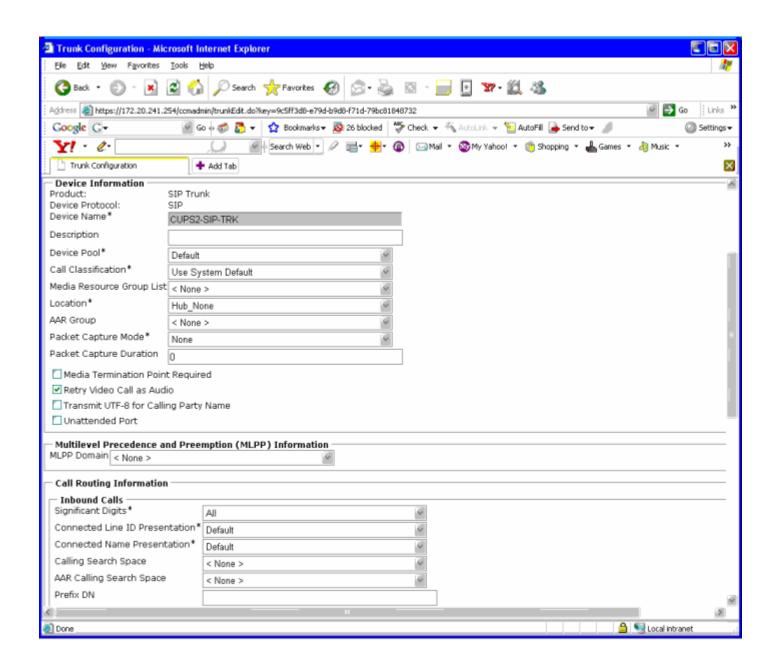
Cisco Unified Communications Manager (CUCM) Configuration

Cisco Unified Communications Manager Version

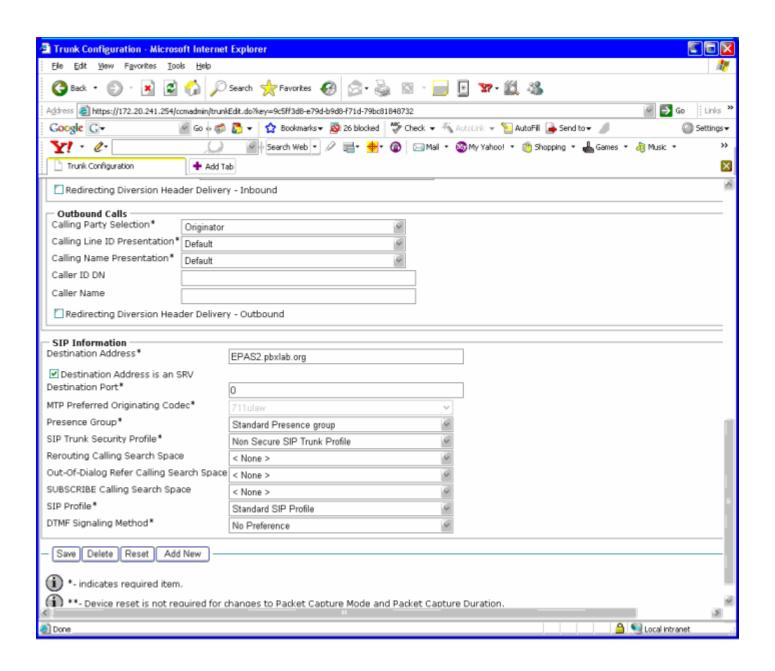




SIP Trunk



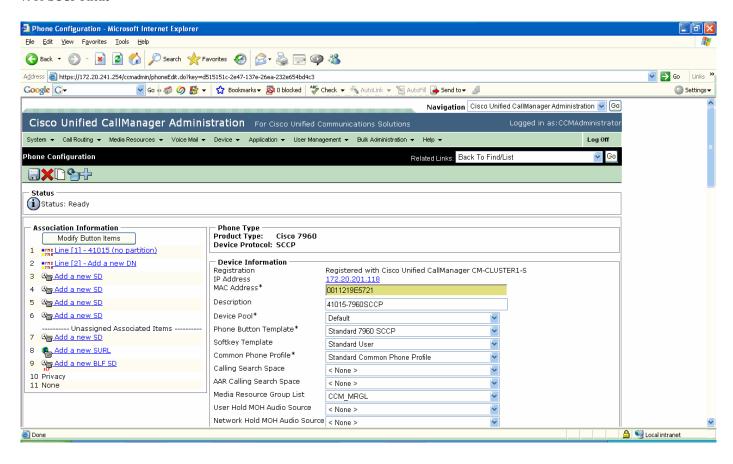




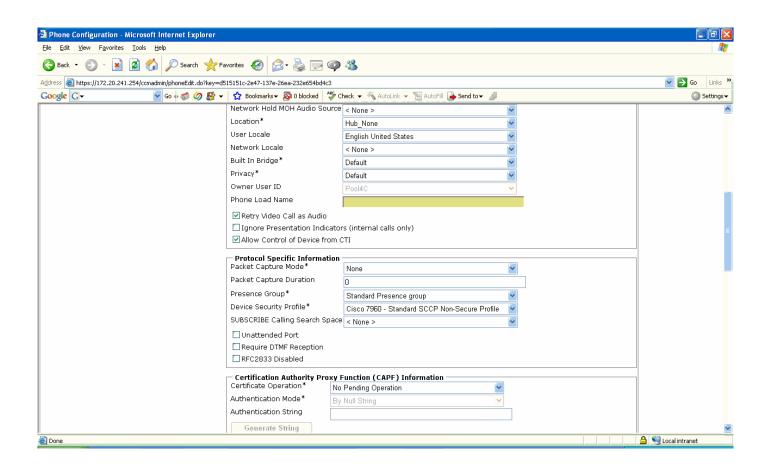


Cisco IP Phone Configuration

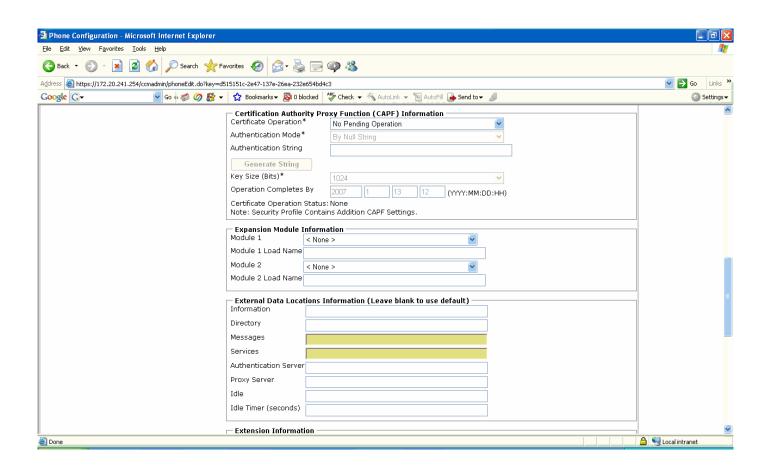
7960 SCCP Phone



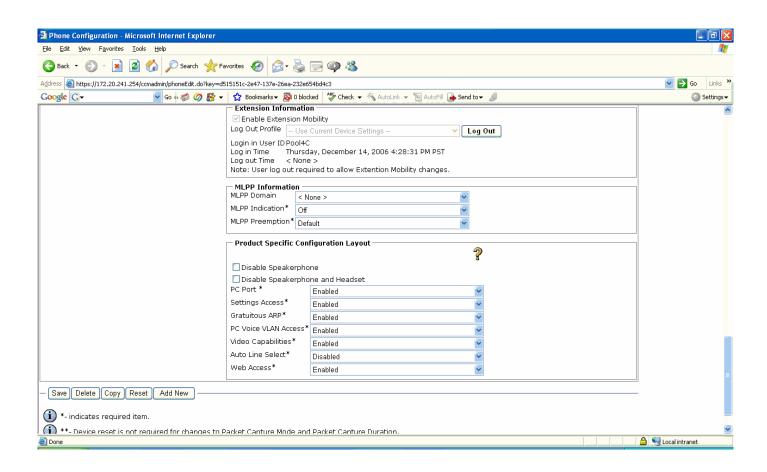




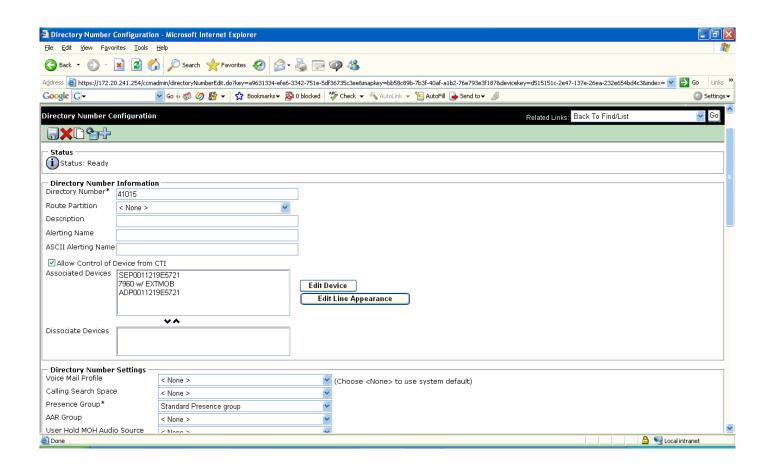




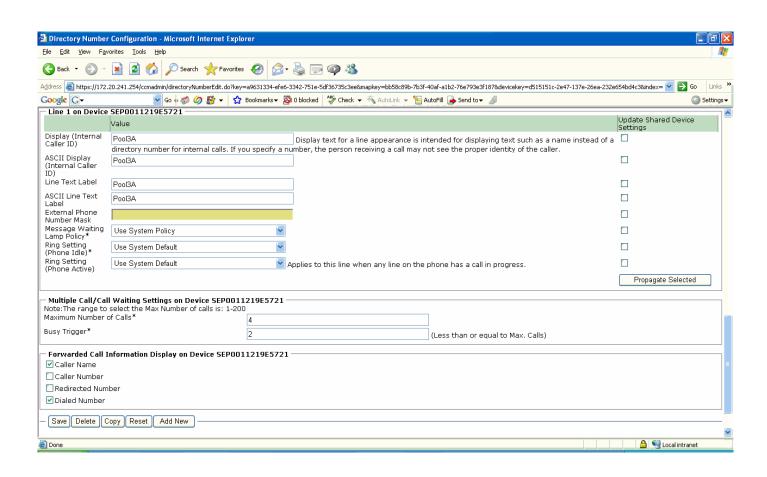






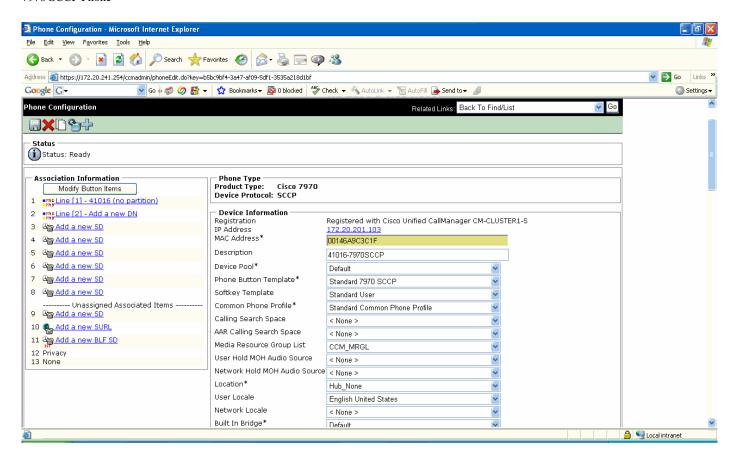




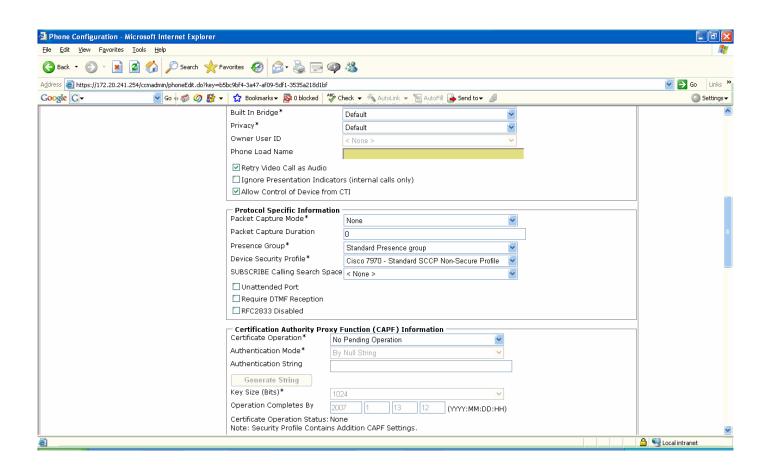




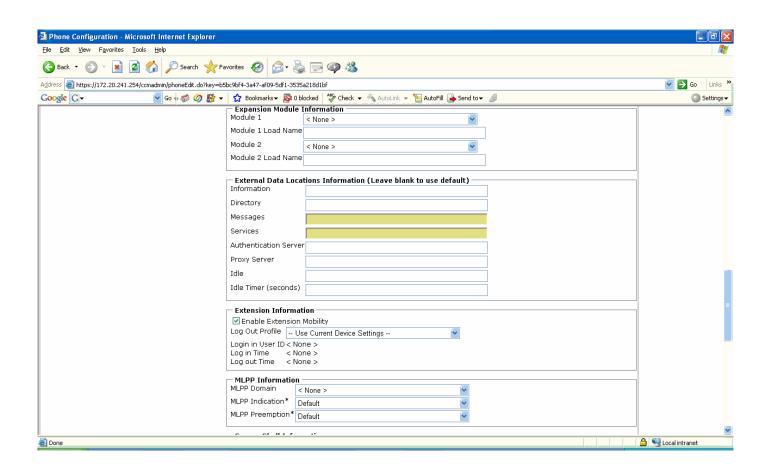
7970 SCCP Phone



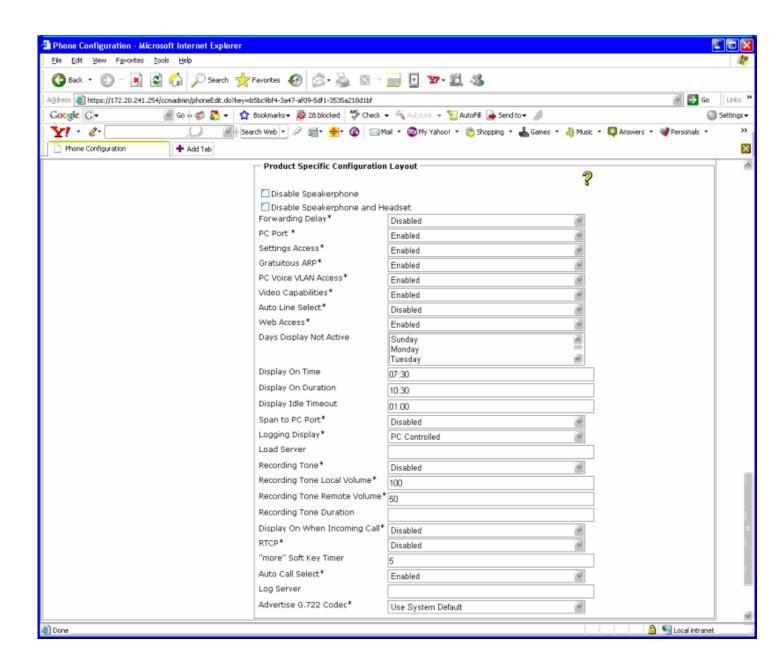




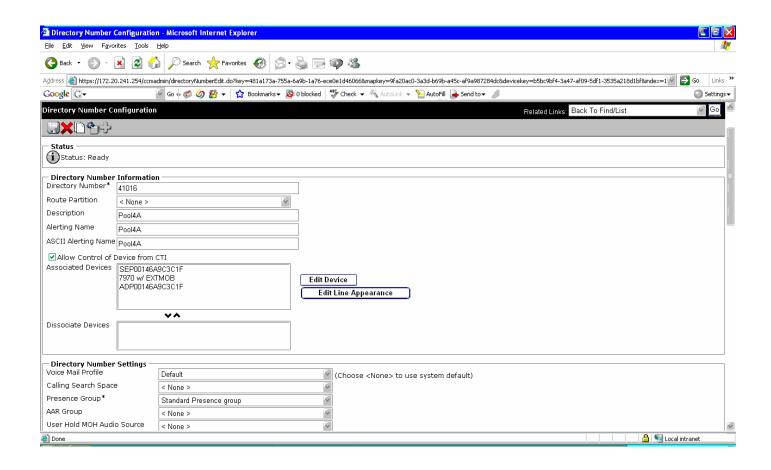




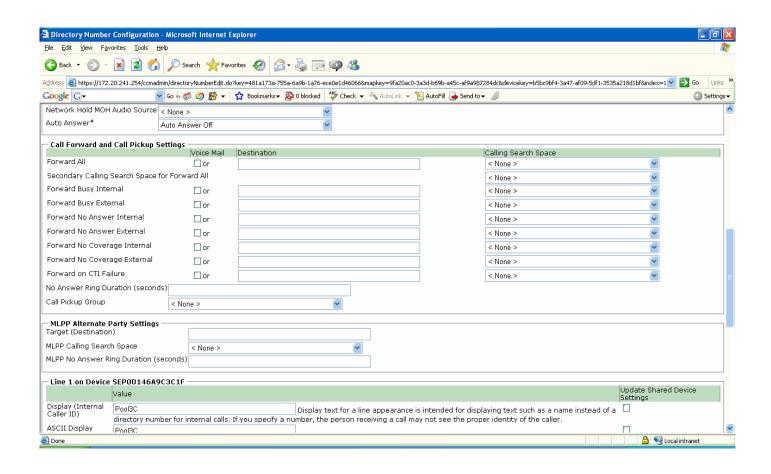




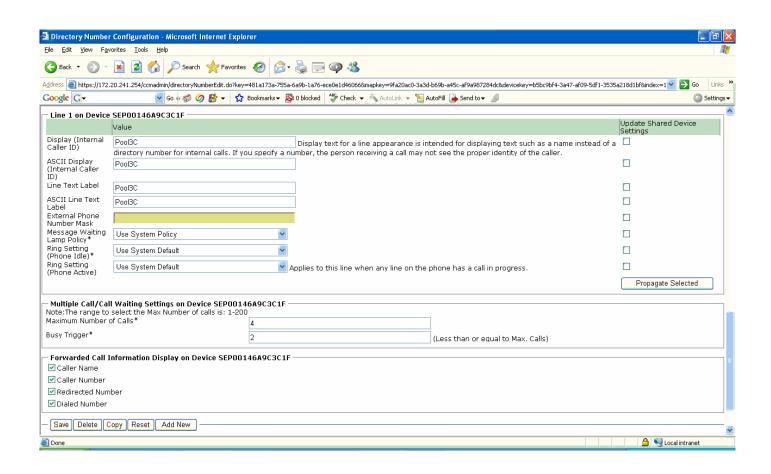






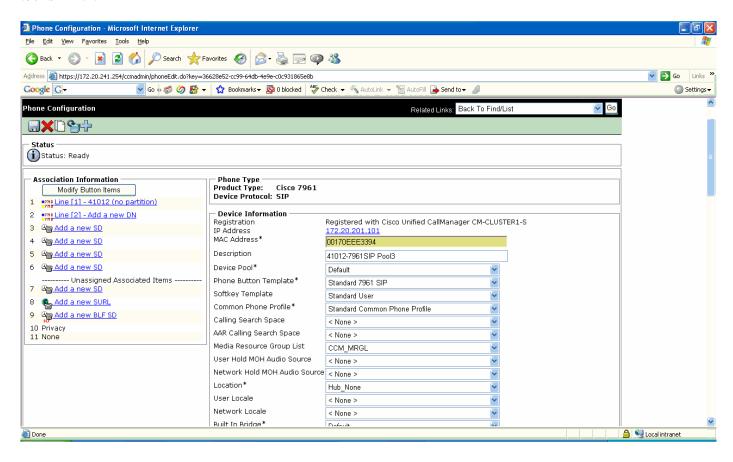




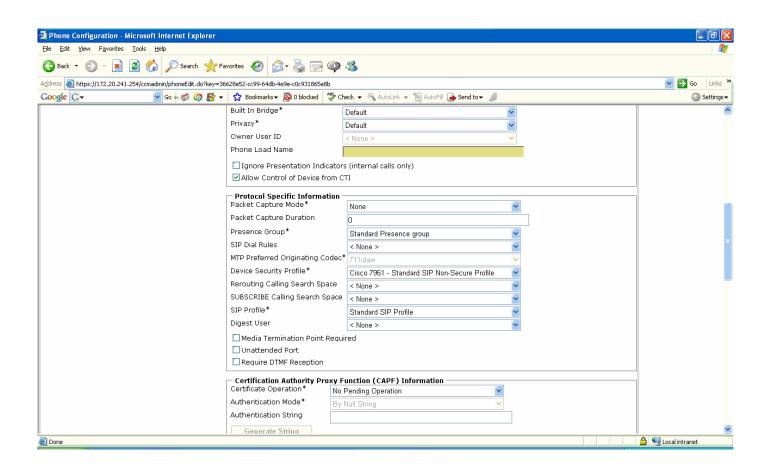




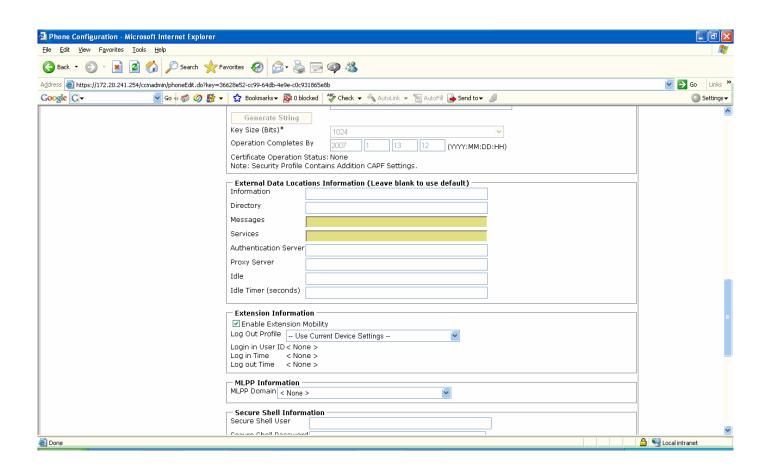
7961 SIP Phone



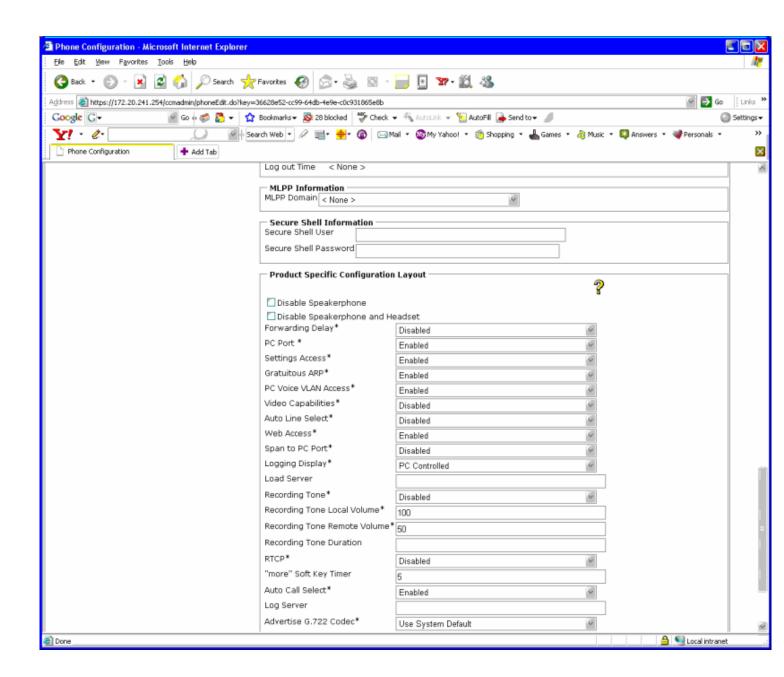




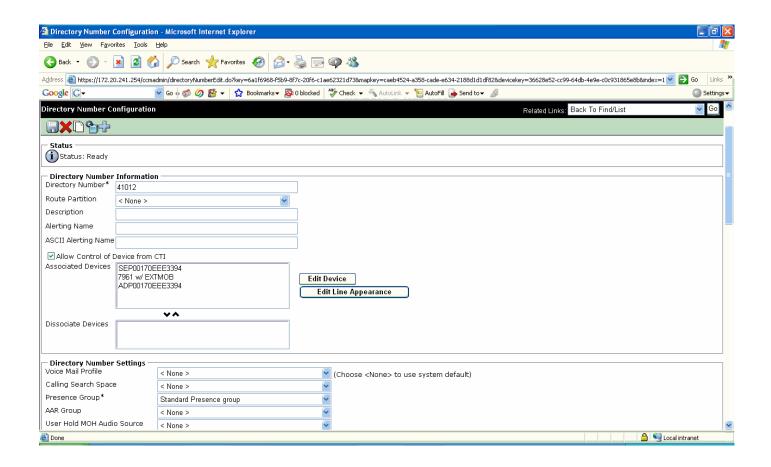




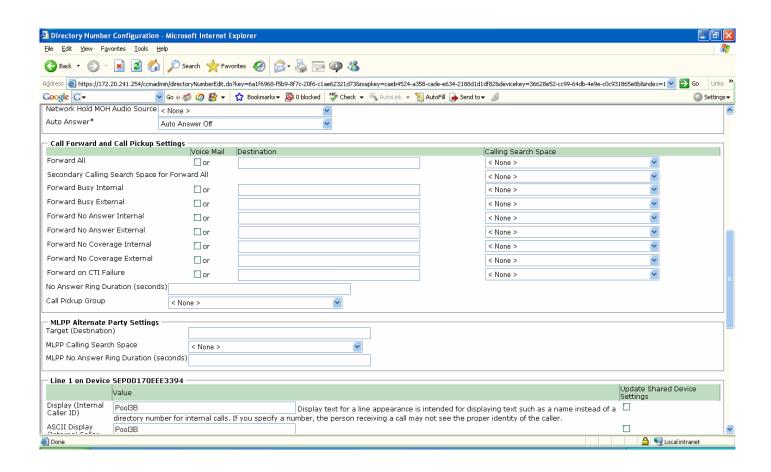




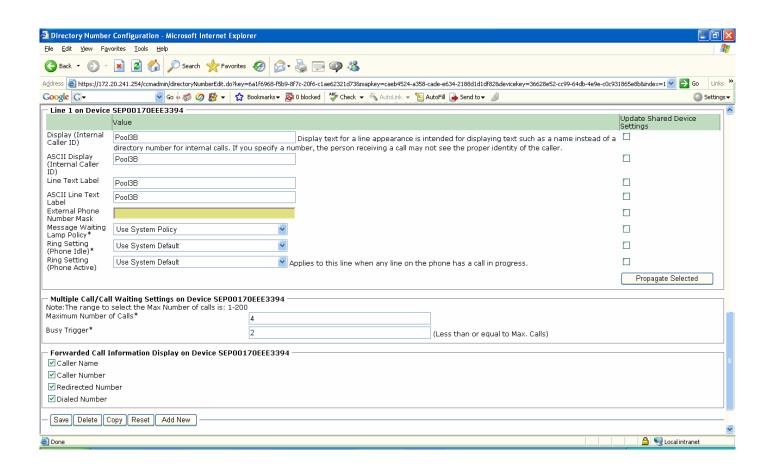




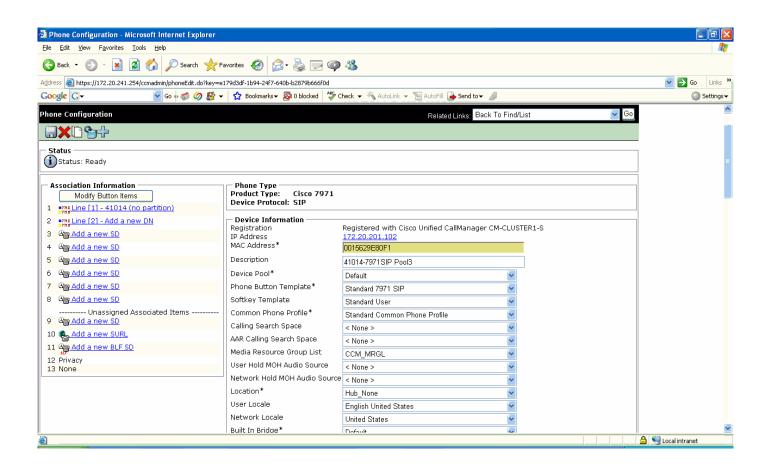




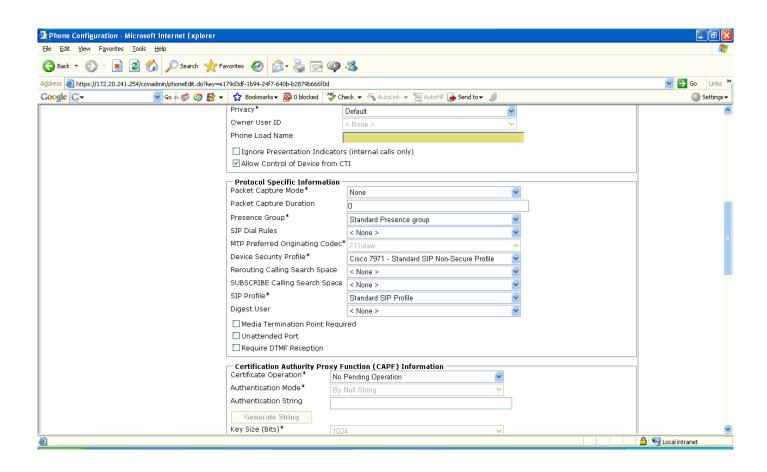




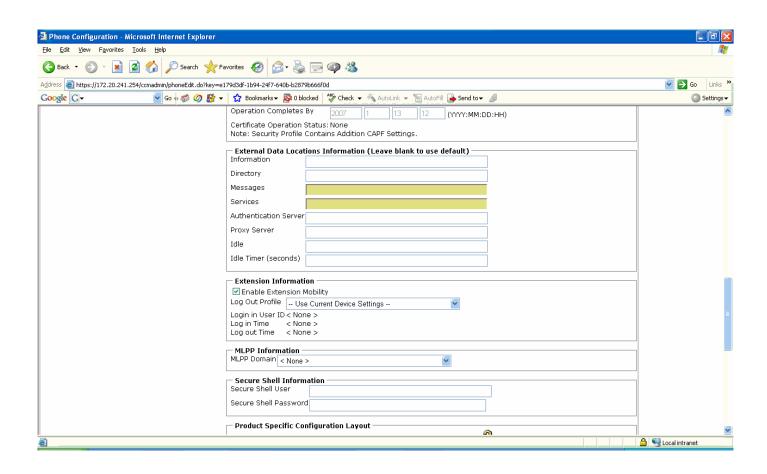




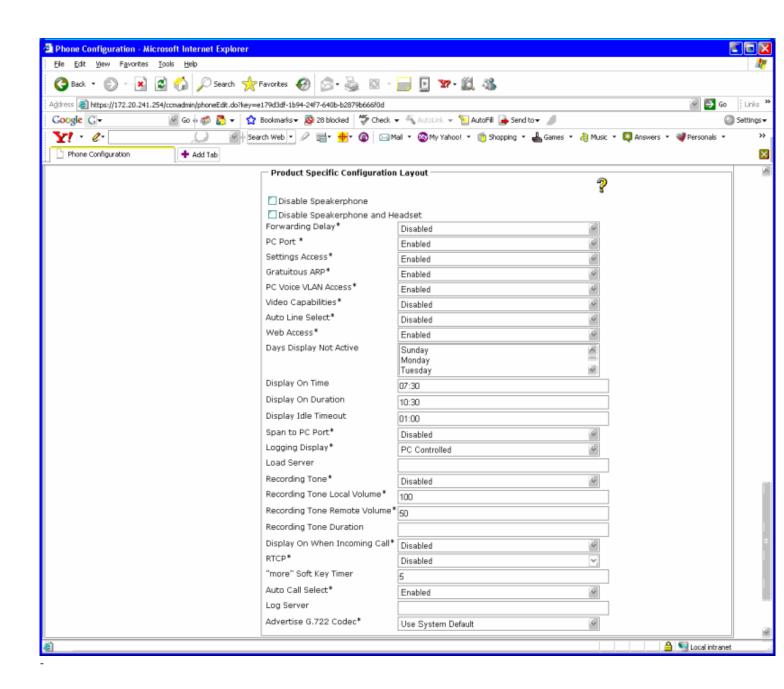




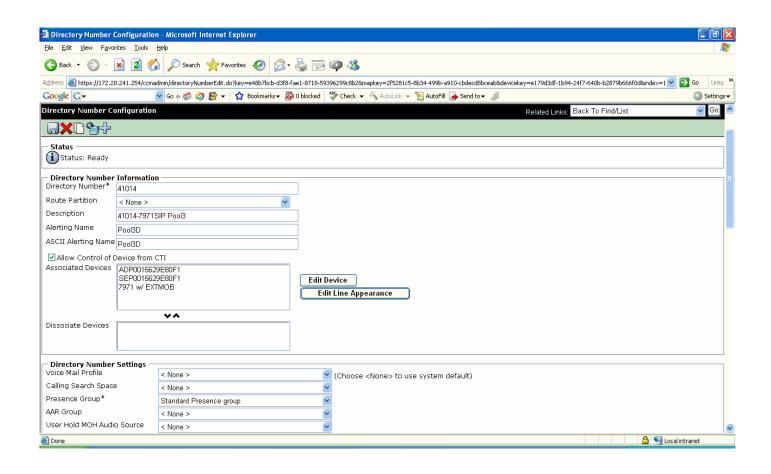




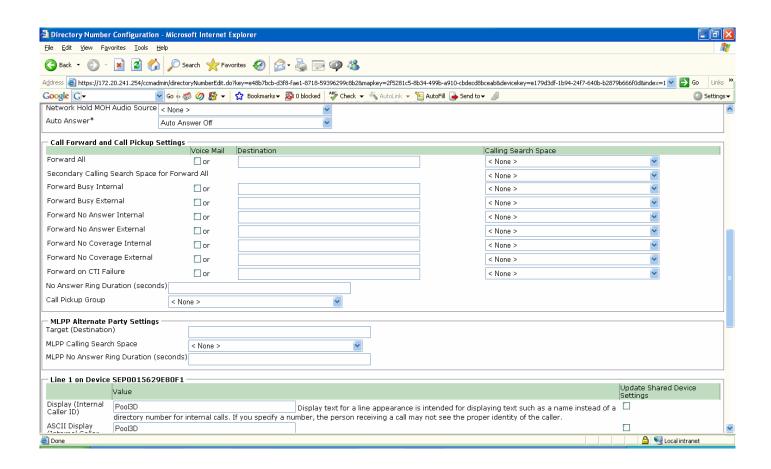




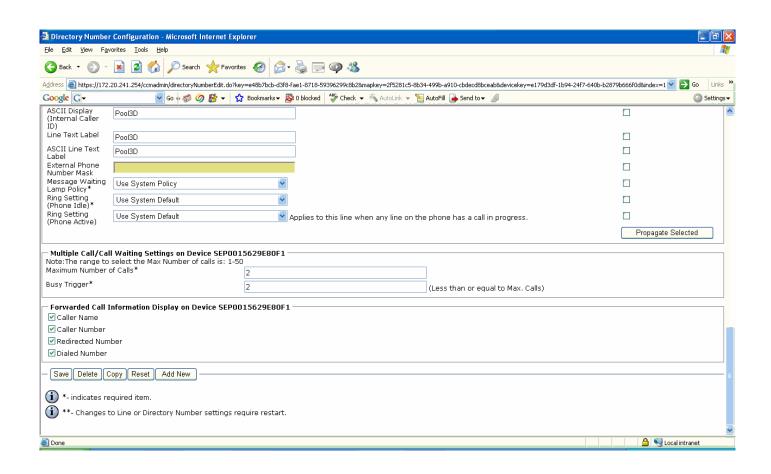






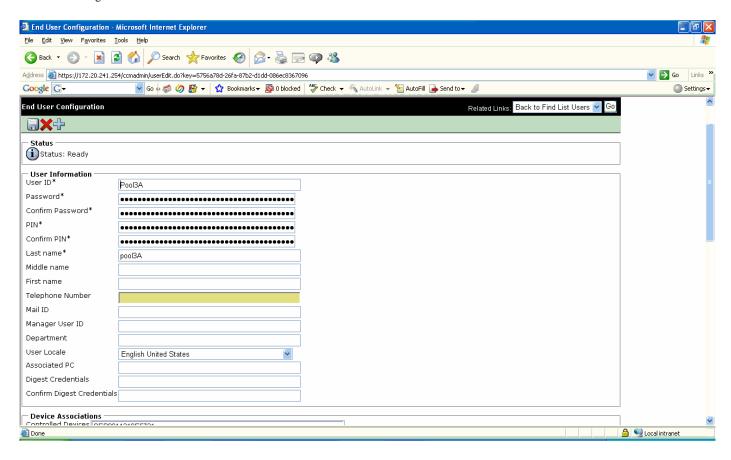




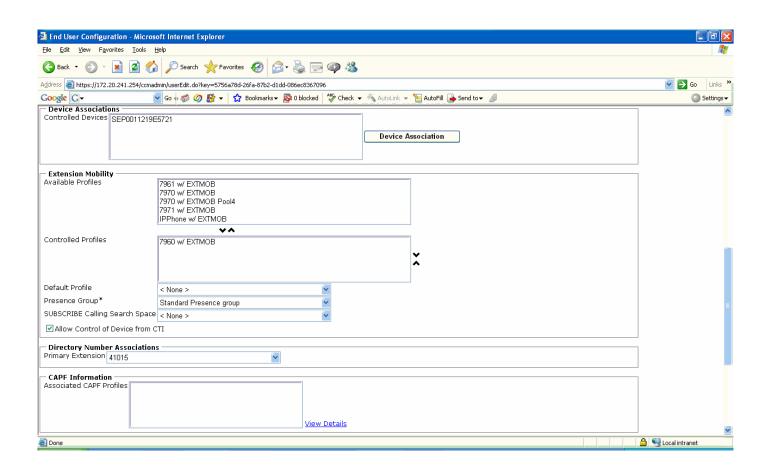




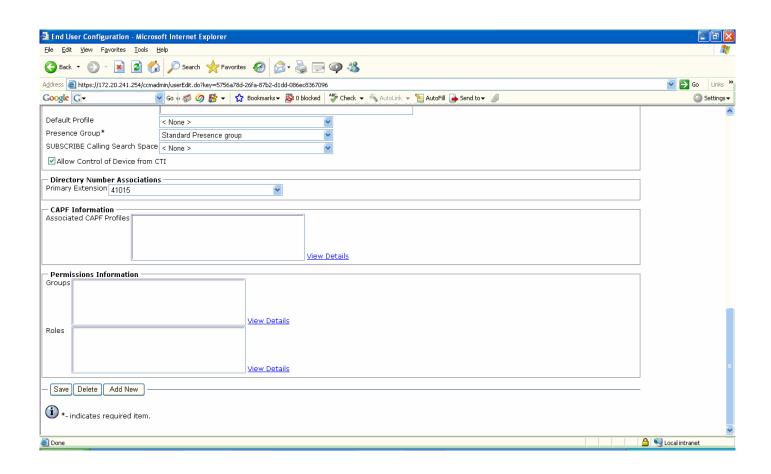
End User Configuration





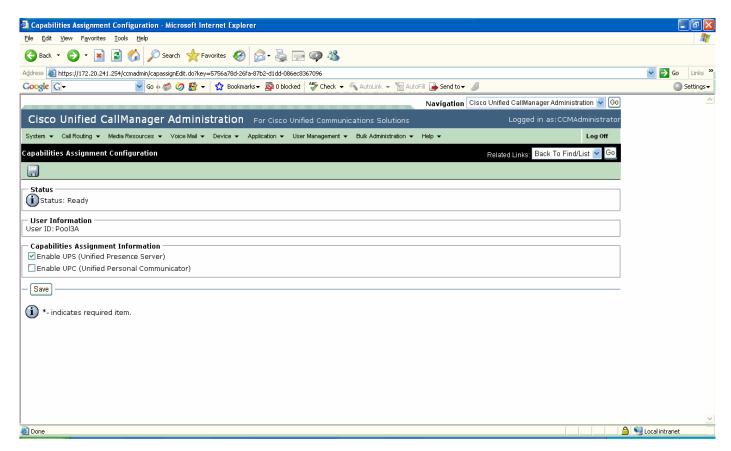






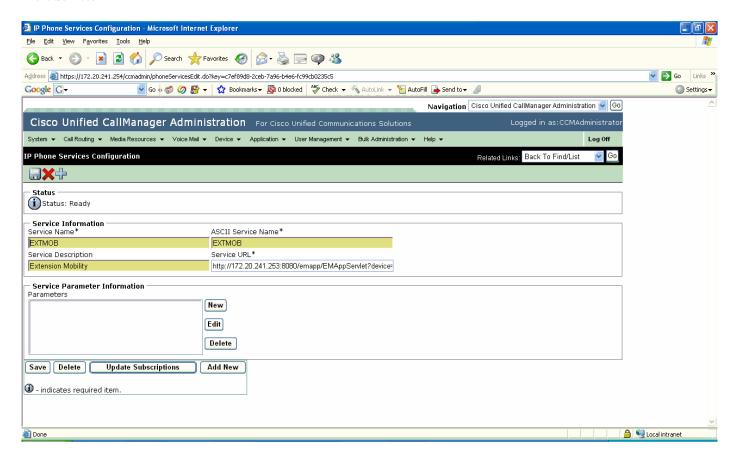


Licensing Capabilities Assignments



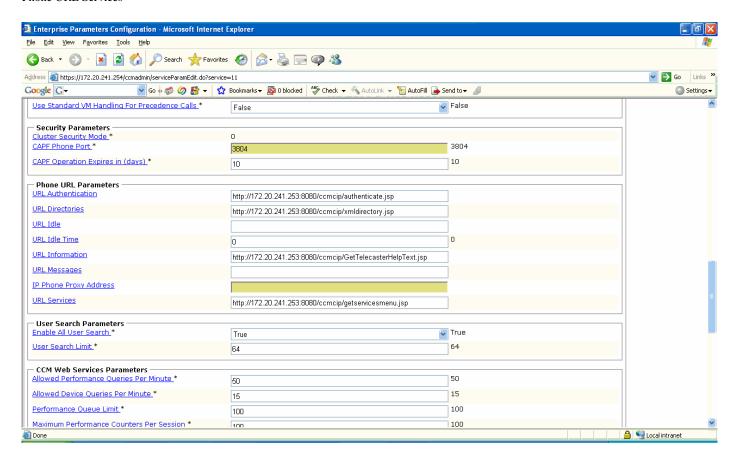


Phone Services



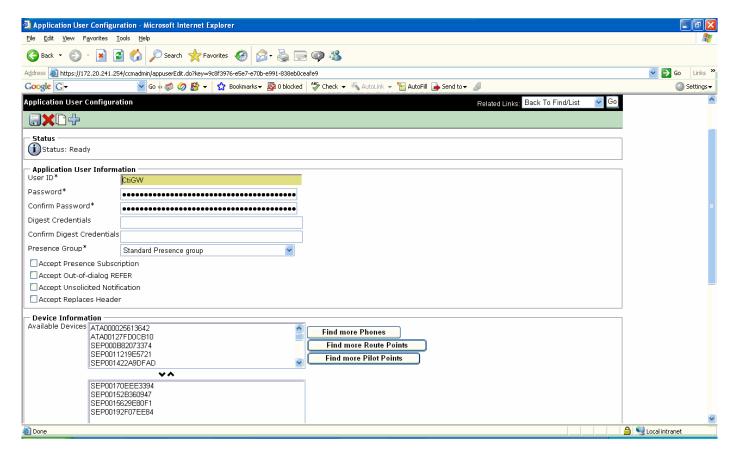


Phone URL Services

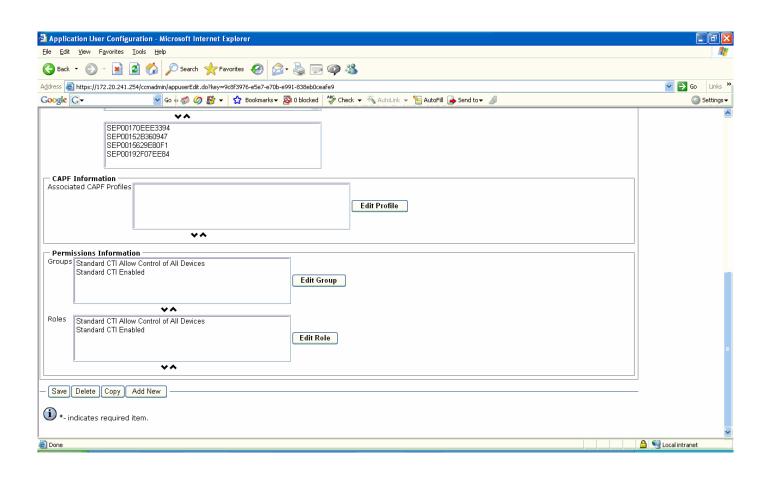




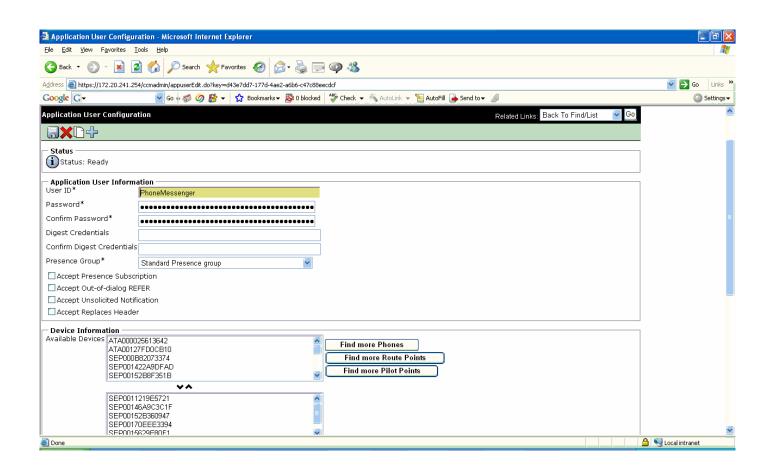
Application User Configuration



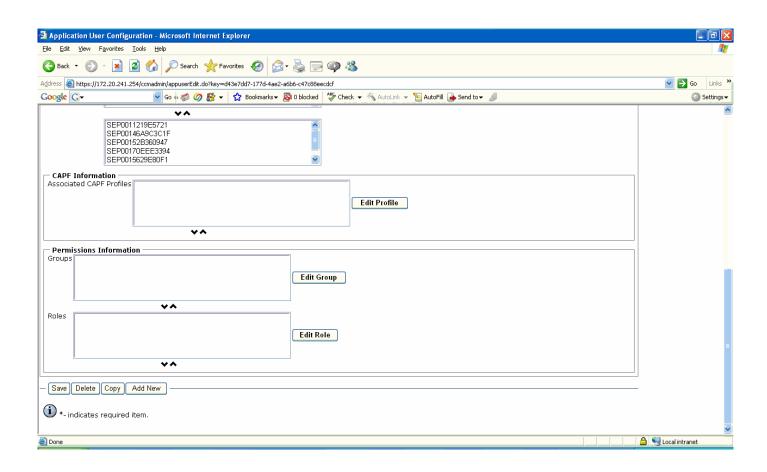






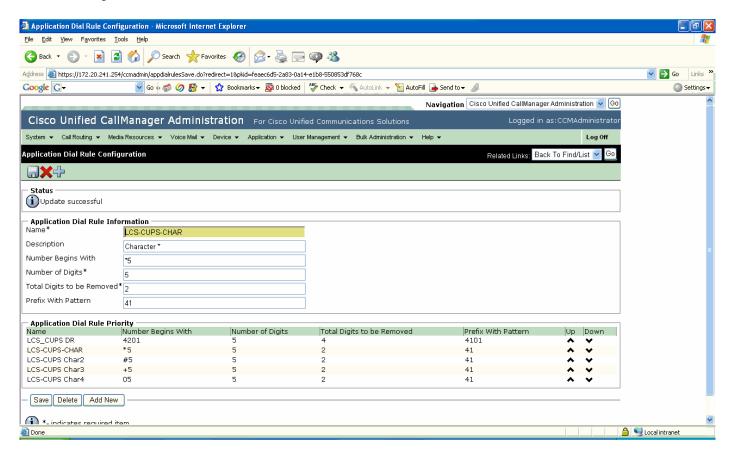






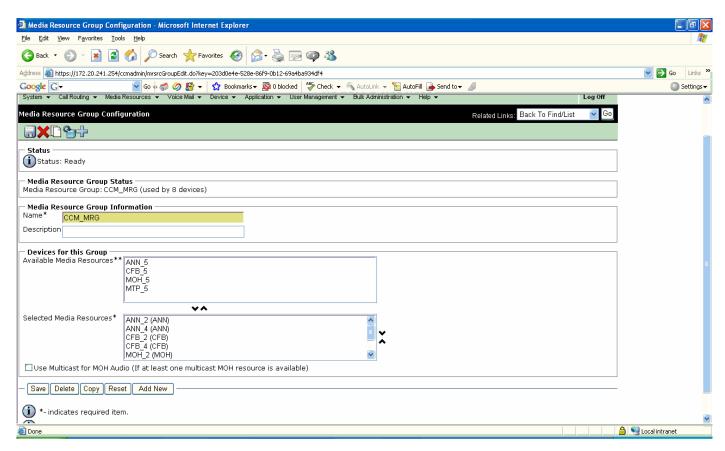


Dial Rules Configuration



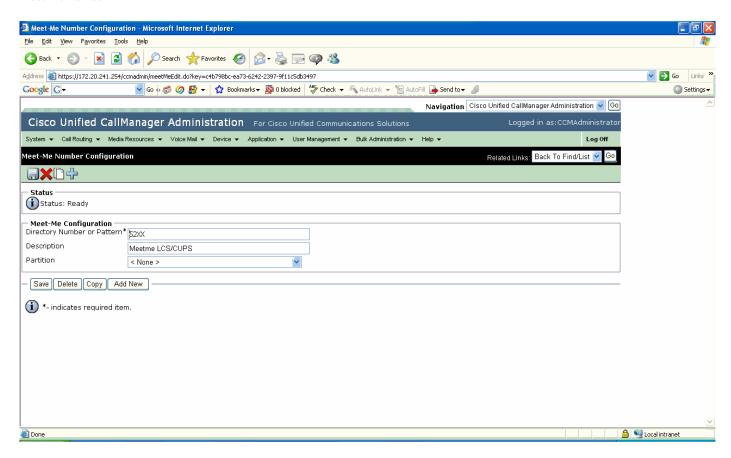


Conference Bridge Configuration





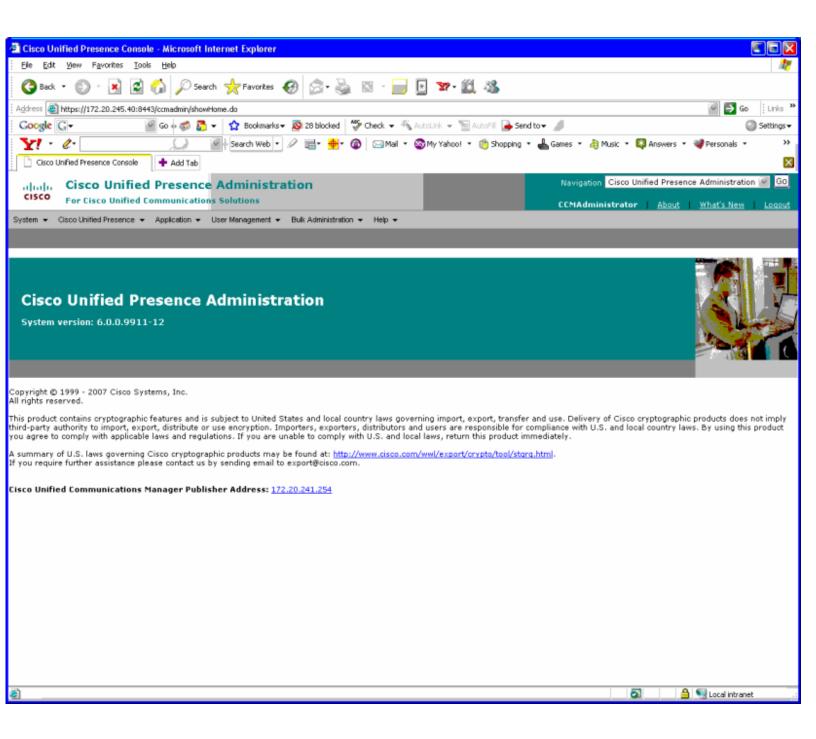
Meet-Me Number





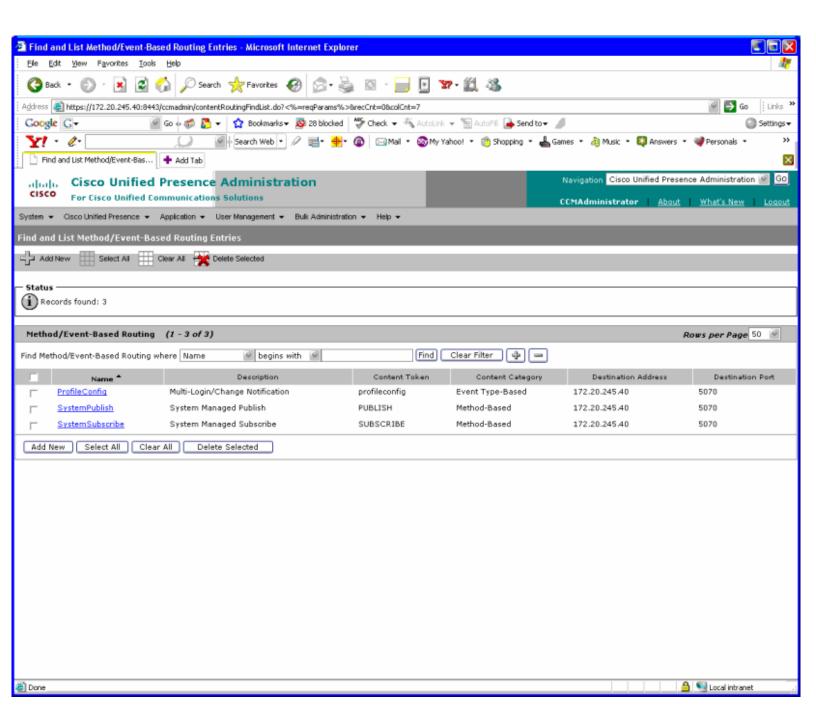
Cisco Unified Presence (CUPS) Configuration

CUPS Version



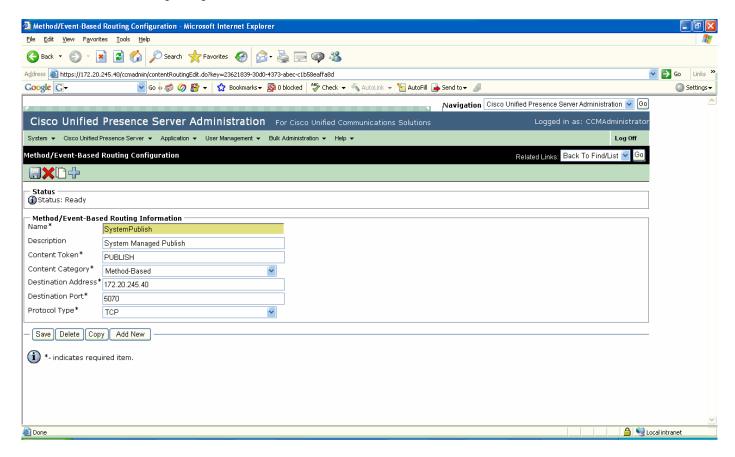


CUPS Method / Event – Based Routing Entries



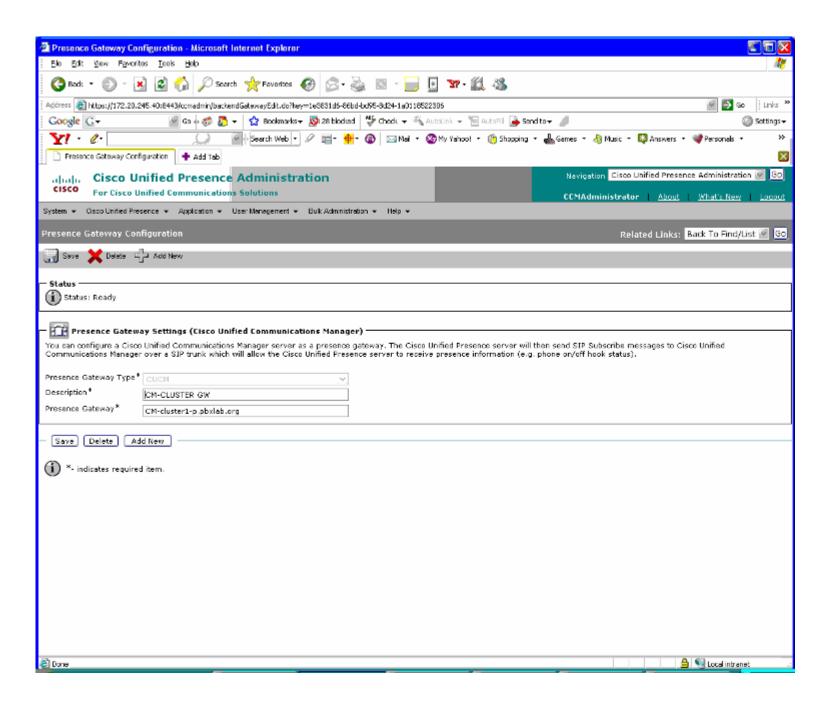


CUPS Method / Event - Based Routing Configuration



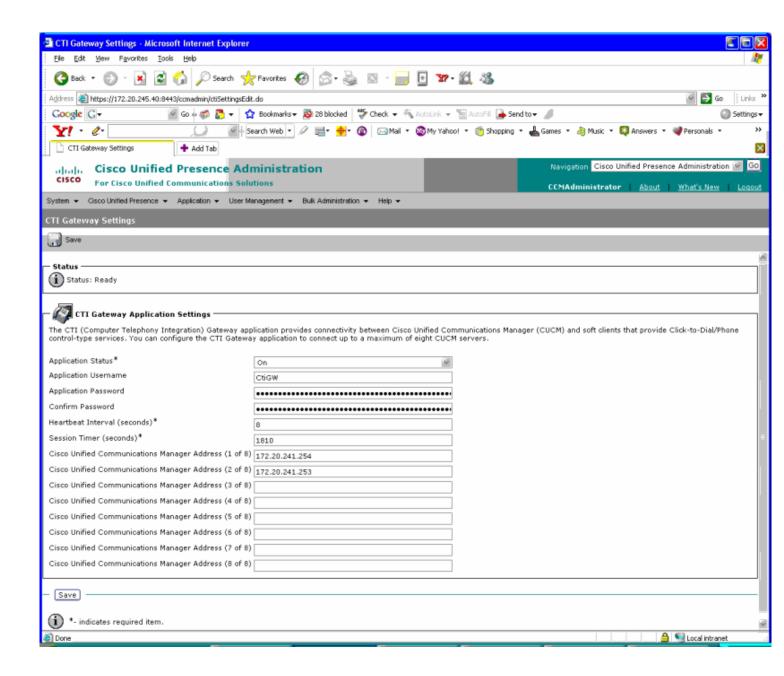


Unified Communications Manager Presence Gateway Configuration



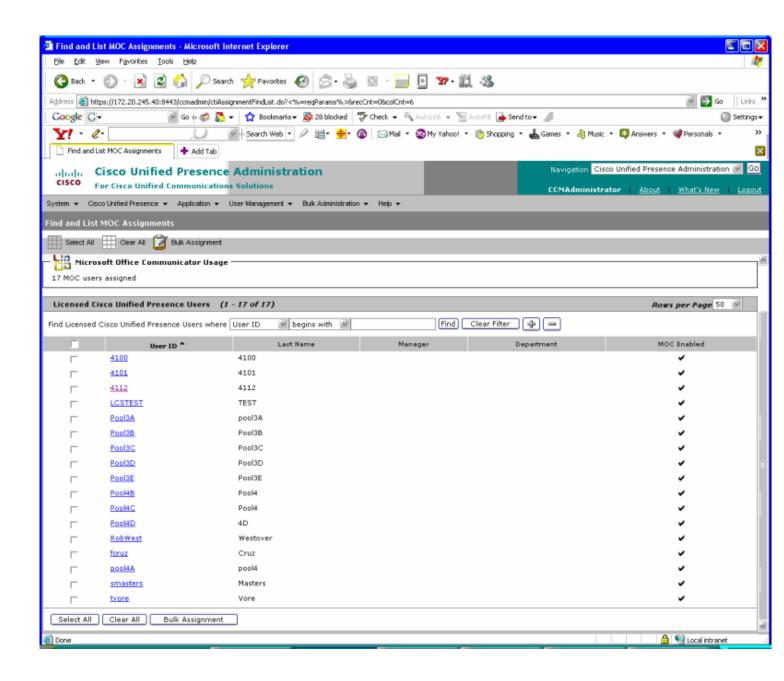


CTI Gateway Configuration



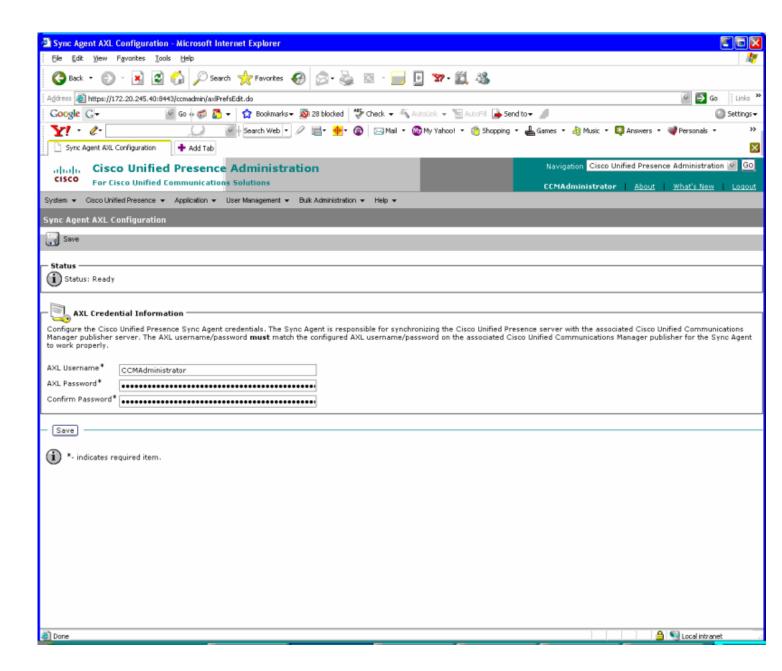


MOC Assignments



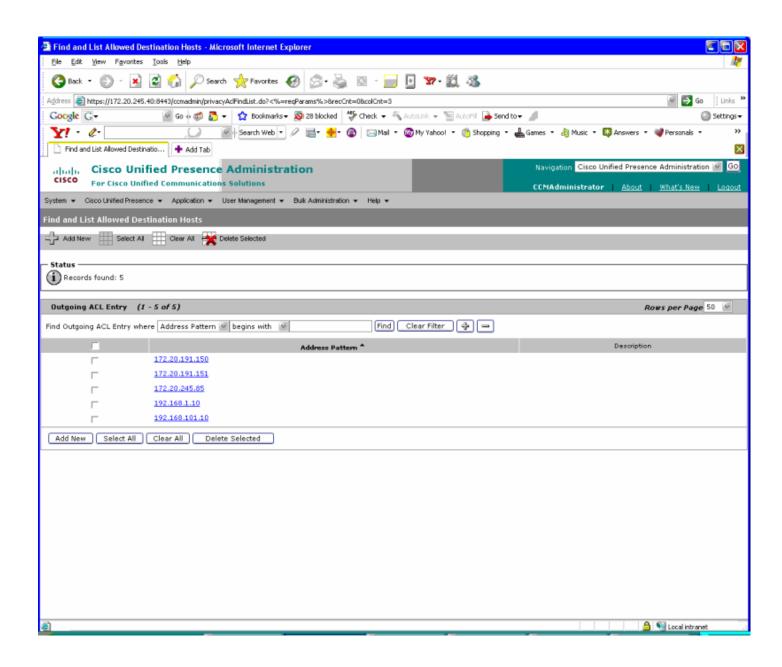


AXL Information



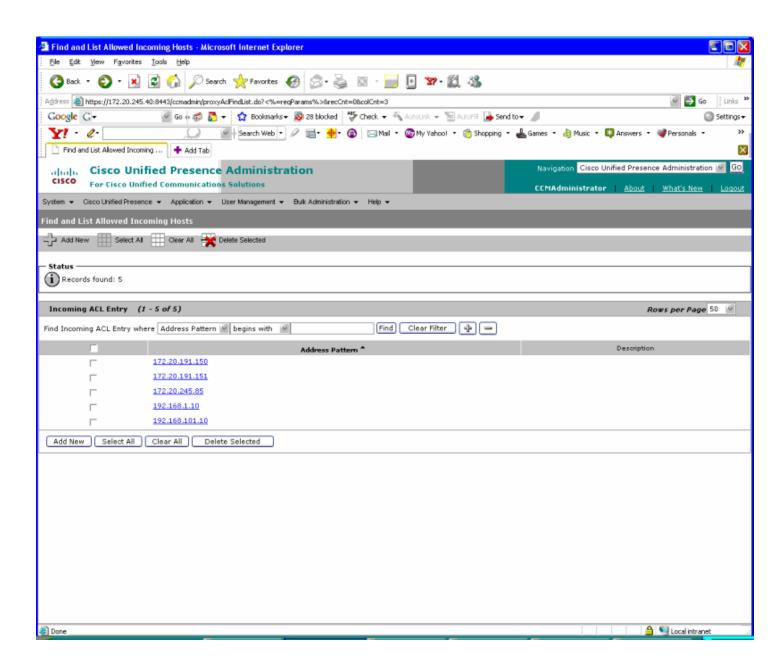


Privacy ACL Entry (Allowed Destination Host)



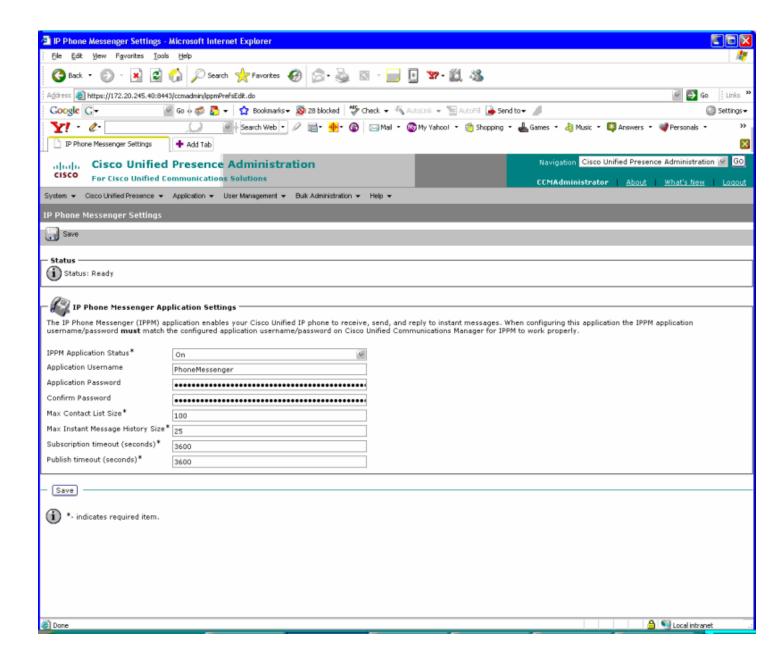


Proxy ACL Entry (Allowed Incoming Host)



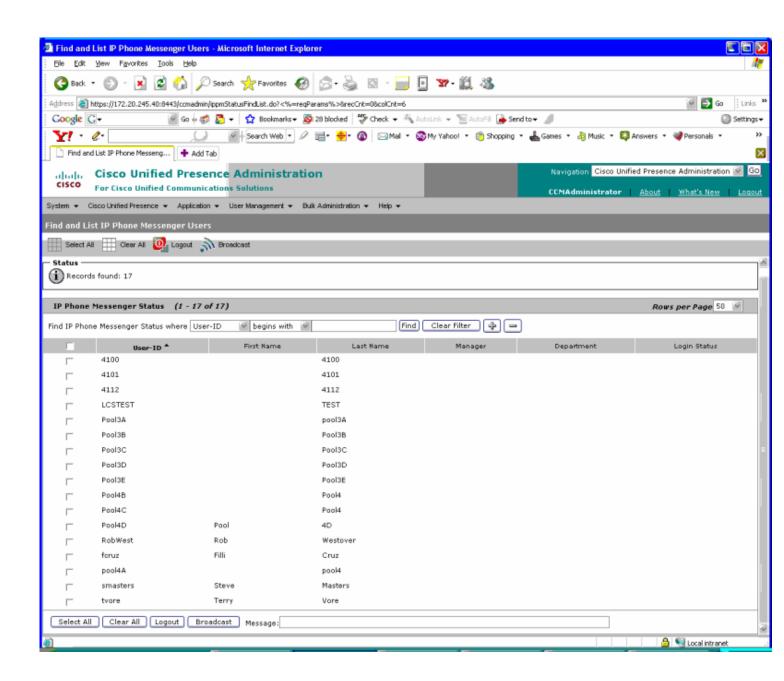


IP Phone Messenger Setting





IP Phone Messenger User





Cisco Content Switch CSS11501 Load Balancer Configuration

CSS11501# sh run
!Generated on 12/29/2006 11:33:39
!Active version: sg0810106
configure
!*************************************
ip management route 172.20.2.0 255.255.255.0 172.20.201.1
ip route 0.0.0.0 0.0.0.0 172.20.191.1 1
!*************************************
interface e1
bridge vlan 5
description "LCS-POOL3"
interface e2
bridge vlan 2
interface e5
bridge vlan 10
description "LCS-POOL4"



interface e8	
description "NETWORK"	
bridge vlan 4	

circuit VLAN5	
ip address 192.168.1.1 255.255.255.0	
circuit VLAN4	
ip address 172.20.191.2 255.255.255.0	
circuit VLAN10	
ip address 192.168.101.1 255.255.255.0	
!*************************************	
service LCSPOOL3_135	
ip address 192.168.1.10	
port 135	
protocol tcp	
keepalive type none	
active	



service LCSPOOL3_5060		
ip address 192.168.1.10		
port 5060		
protocol tcp		
keepalive port 5060		
keepalive type none		
active		
service LCSPOOL3_5061		
ip address 192.168.1.10		
port 5061		
protocol tcp		
keepalive port 5061		
keepalive type none		
active		
service LCSPOOL4_5060		
ip address 192.168.101.10		
port 5060		
protocol tcp		
keepalive type none		
active		
service LCSPOOL4_5061		
ip address 192.168.101.10		



port 5061
protocol tep
keepalive type none
active

owner LCSPOOL3
content LCSPOOL3_135
add service LCSPOOL3_135
port 135
protocol tcp
vip address 172.20.191.10
active
content LCSPOOL3_5060
add service LCSPOOL3_5060
protocol tcp
port 5060
vip address 172.20.191.10
active
content LCSPOOL3_5061
protocol tcp
add service LCSPOOL3_5061



```
port 5061
 vip address 172.20.191.10
 active
owner LCSPOOL4
content LCSPOOL4_5060
 add service LCSPOOL4_5060
 vip address 172.20.191.100
  protocol tcp
 port 5060
 active
content LCSPOOL4_5061
 add service LCSPOOL4_5061
  vip address 172.20.191.100
 protocol tcp
  port 5061
 active
group backend
add service LCSPOOL4_5060
vip address 172.20.191.150
active
```



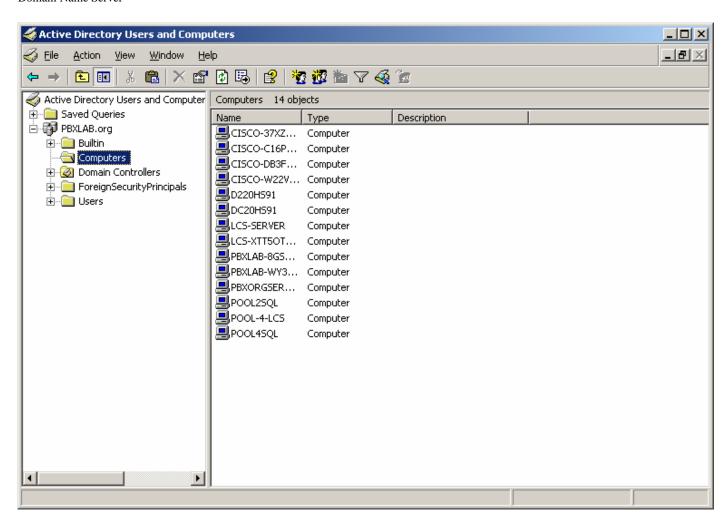
group backend2
add service LCSPOOL3_5060
vip address 172.20.191.151
active
CSS11501#
CSS11501#
CSS11501#
CSS11501# sh ver
Version: sg0810106 (08.10.1.06)
Flash (Locked): 08.10.1.06
Flash (Operational): 08.10.1.06
Type: PRIMARY
Licensed Cmd Set(s): Standard Feature Set
Enhanced Feature Set

CSS11501#



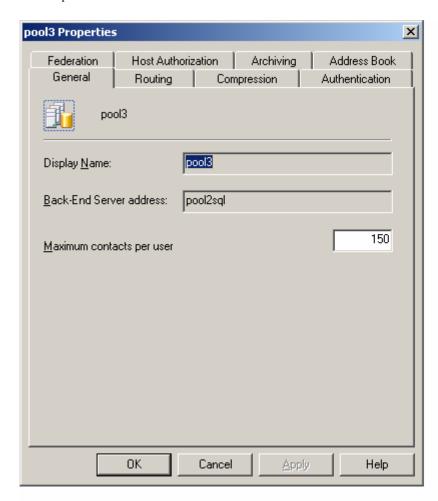
LCS Enterprise Edition Configuration

Domain Name Server

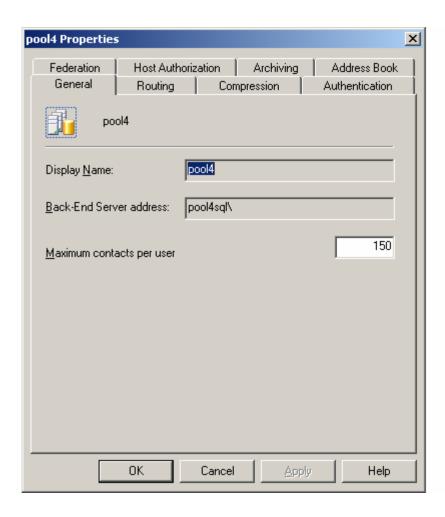




Pool Properties

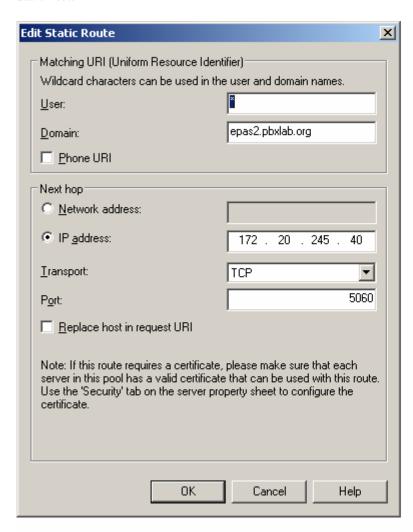






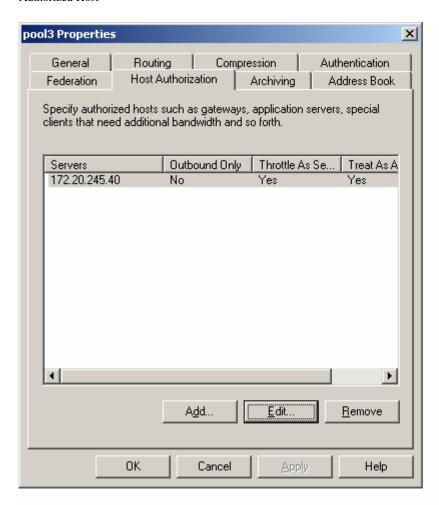


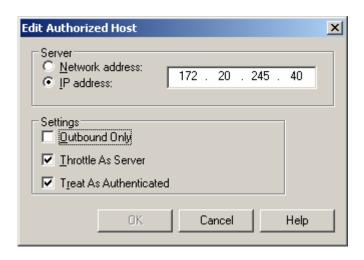
Static Route





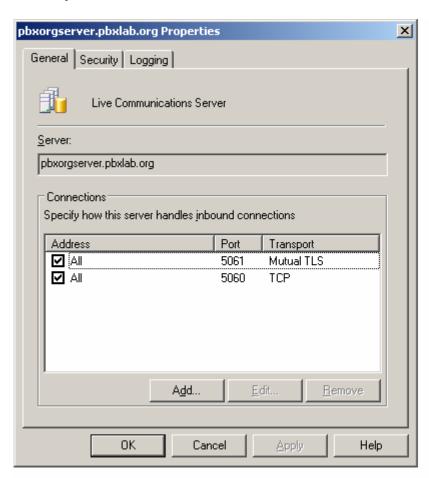
Authorized Host





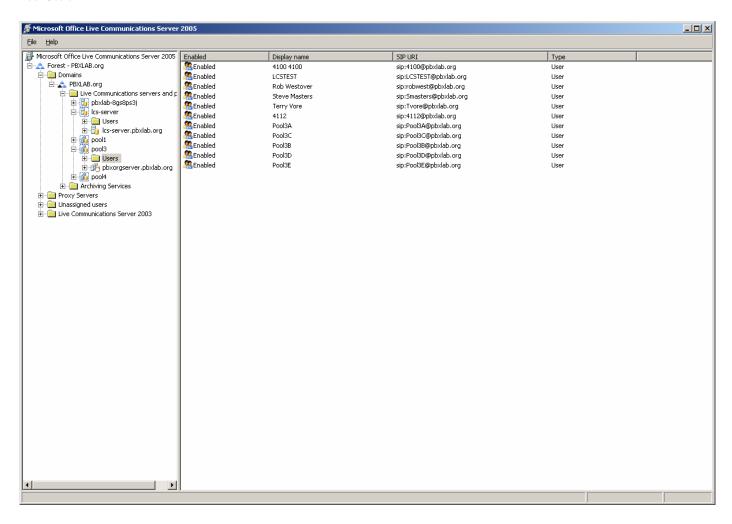


Server Properties



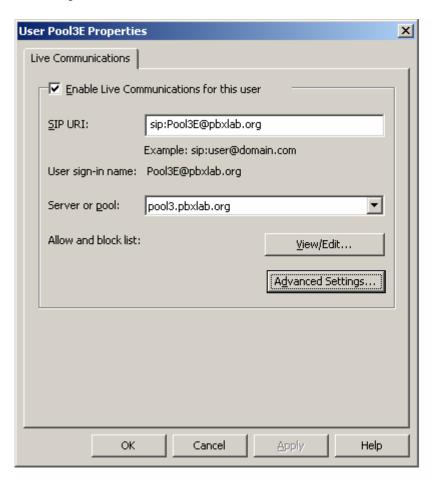


Pool Users

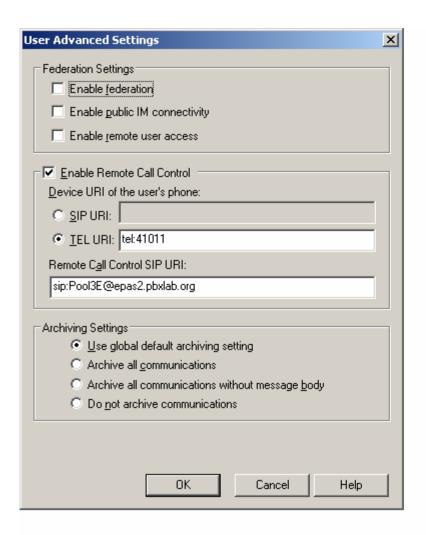




User Configuration

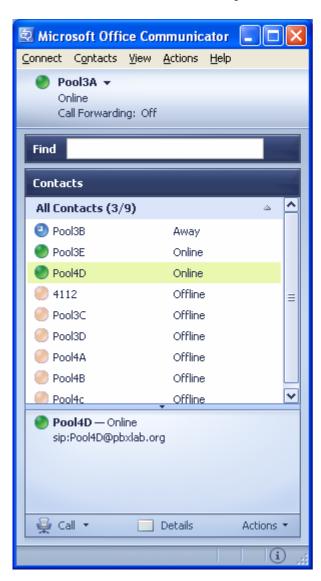




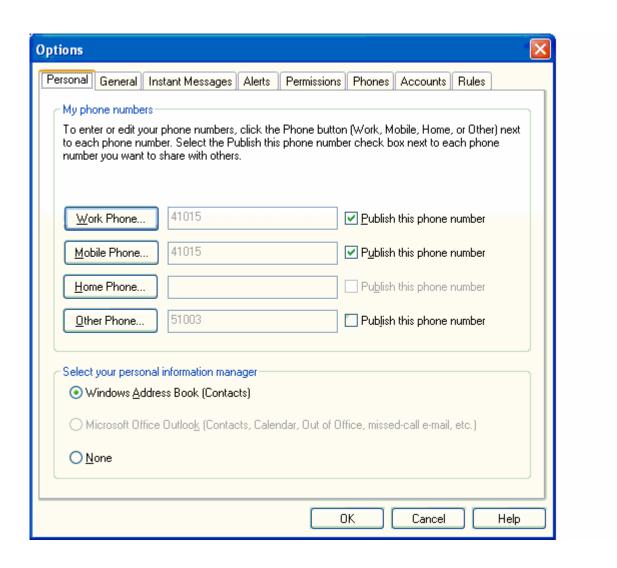




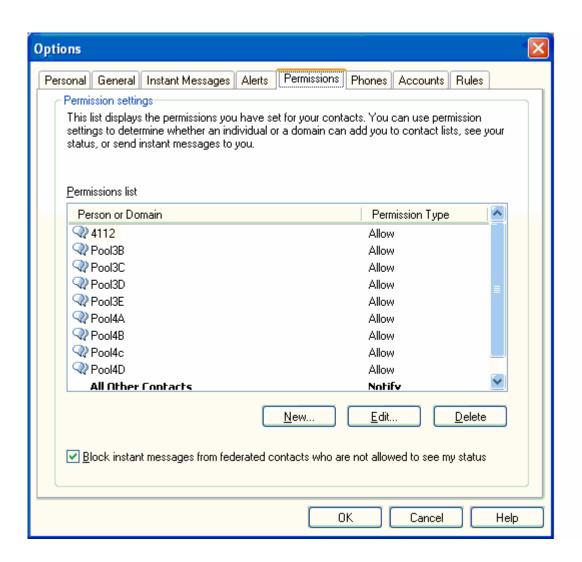
Micorsoft Ofice Communicator (MOC) Configuration



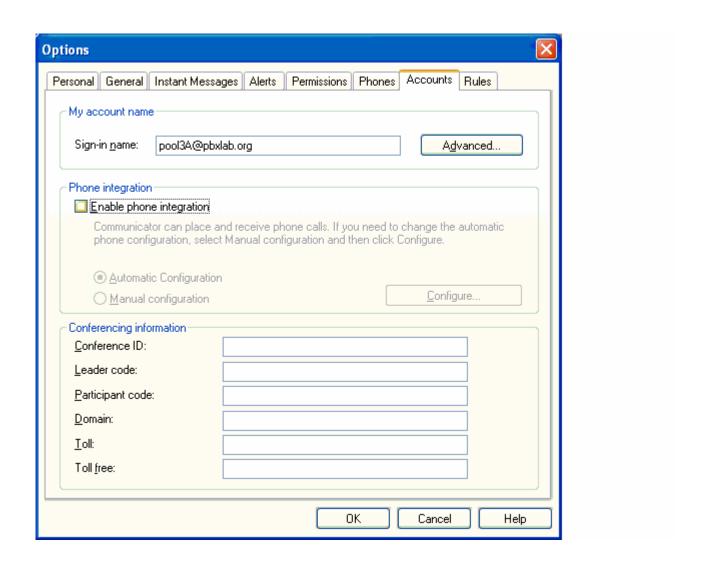




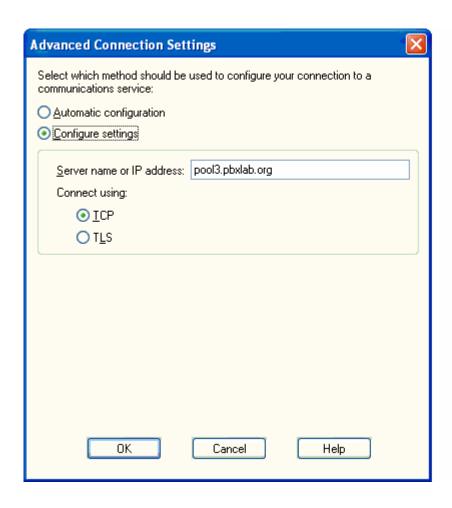














Acronyms

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CUCM	Cisco Unified Communications Manager
CTI	Computer Telephony Interface
CUPS	Cisco Unified Presence
DND	Do-Not-Disturb
DTMF	Dual Tone MultiFrequency
DTP	DeskTop Phone
GUI	Graphical User Interface
IETF	Internet Engineering Task Force
IM	Instant Messaging
IPPM	Internet Protocol Phone Messenger
MS LCS	Microsoft Live Communication Server (EE SP1)
MCS	Multimedia Communication Server
MSN	Microsoft Network
MPOP	Multiple Point Of Presence
SCCP	Skinny Protocol
SIMPLE	SIP Instant Messaging and Presence Levering Extensions
SIP	Session Initiation Protocol
SNMP	Simple Network Management Protocol
TCP	Transmission Control Protocol
TLS	Transport Layer Security
XML	Extensible Markup Language
MOC	Microsoft Office Communicator
QoS	Quality of Service
GW	Gateway
S/W	Software
QBE	Quick Buffer Encoding, Protocol
DB	Database



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