

Avaya Solution & Interoperability Test Lab

Application Notes for Microsoft Exchange Unified Messaging 2010 with Avaya Communication Server 1000 Release 7.5 – Issue 1.1

Abstract

These Application Notes describe a solution comprised of SIP Trunk interoperability between Microsoft Exchange Unified Messaging 2010 System and Avaya Communication Server 1000 Release 7.5.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the configuration steps required to integrate Microsoft Exchange Server 2010 Unified Messaging (UM) with Avaya Communication Server 1000 (CS 1000). Exchange UM is a voice mail system that combines voice messaging, fax, and e-mail into one inbox, which can be accessed from a telephone or computer. UM subscribers can have their calls cover to voicemail and can retrieve their messages from a telephone by calling into a voice mailbox, or from a PC via the Play-on-Phone feature available with Outlook Web Access (OWA). In addition, Exchange UM can control the Message Waiting Indicator (MWI) on a user's telephone to notify the user of new voicemail messages. The focus of these Application Notes is on the Exchange UM component of Microsoft Exchange Server 2010.

2. General Test Approach and Test Results

The general test approach was to exercise the features of Exchange UM and verifying the appropriate behavior. All test cases were performed manually.

2.1. Interoperability Compliance Testing

The interoperability compliance test covered the following features:

- Calls to Exchange UM from subscribers and non-subscribers.
- Calls to UM subscribers covered to Exchange UM on no-answer and the appropriate greeting was played to the caller. Voicemail was left for the UM subscriber.
- Subscribers logging into Exchange UM.
- MWI lamp of a subscriber's phone was turned on when a new voicemail message existed.
- UM subscriber was able to retrieve voicemail messages from a phone, which would extinguish the MWI.
- UM subscriber was able to use Play-on-Phone via OWA to listen to voicemail messages.
- UM subscriber was able to navigate Exchange UM using the Voice User Interface or Telephony User Interface.
- Call transfer from Exchange UM to another subscriber.
- Calls to the UM Auto Attendant.
- G.711 and G.723 codec support.
- Call answering rules to do a "Find Me" or "Transfer" to another number.
- Calls to Exchange UM with SIP TLS.
- Calls to Exchange UM with SIP TLS and secure media.

2.2. Test Results

All test cases were successful, except for the following observations:

• Unlike Exchange 2007 UM, Exchange 2010 UM requires an external fax server, which wasn't available during testing. The T.38 negotiation would have been between SIP Gateway and a 3rd party fax server. The scope of Fax T.38 testing was to verify that

Exchange UM returns the correct URL of the external fax server in the REFER message when it detects a fax tone, which was verified successfully.

• Call Transfer from Exchange UM back to CS 1000 phone gets disconnected. This issue was reported to the CS 1000 development team and is under investigation.

2.3. Support

Technical support of Microsoft Exchange Server 2010 Unified Messaging is available at Microsoft TechNet at <u>http://technet.microsoft.com/en-us/library/bb125141.aspx</u>. Additional support options are also covered on this webpage.

3. Reference Configuration

Figure 1 illustrates the network diagram configuration used during the compliance testing between the Avaya Communication Server 1000 and Microsoft Exchange Unified Messaging 2010.



Figure 1: Reference Network Configuration

4. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment	Software
Avaya Communication Server 1000E CPPM	SW Version 7.50Q With DepList 1
Avaya IP Unistim Phone 2004P1	0602B76
Avaya IP Unistim Phone 1110	0623C8A
Avaya IP Unistim Phone 1140E	0625C8A
Microsoft Exchange 2010	Version 14.01.0359.00
Microsoft Exchange Server Operating System	Windows Server 2008 64-bit Service
	Pack 2

5. Configure Avaya Communication Server 1000

This document assumes that the Avaya Communication Sever 1000 system was properly installed and configured as per the product documents. This section provides the steps on how to provision the CS1000 to work with Exchange UM. For more information about how to install and configure Communication Sever 1000, please refer to **Section 11**.

The following summarizes the tasks which need to be done on the CS1000 System:

- Configure SIP Trunk between CS 1000 SIP GW and Exchange UM server.
- Configure D-Channel for SIP Trunk.
- Configure Zone for Route and Trunk.
- Configure SIP Route.
- Configure IP Trunks.
- Configure CDP Dialing plan.

5.1. Configure SIP Trunk between CS1000 SIP Gateway and Exchange UM Server

To configure SIP Trunk between CS1000 SIP GW and Exchange UM, follow the procedures below:

Launch the Unified Communication Management (UCM) managing the CS1000 system that needs to be configured. Enter the username "admin" and its password in the **User ID** and **Password** boxes and click on the **Login** button.

			Αλίαλία	
This computer system and network is PRIVATE and PROPRIETARY of [company name] and may only be accessed by authorized users. Unauthorized use of this computer system or network is strictly prohibited and may be subject to criminal prosecution, employee discipline up to and including discharge, or the termination of the vendor/service contracts. The owner, or its agents, may monitor any activity or communication on the communication or	User ID: Password:	admin •••••• Log In		1%

Figure 2: UCM Login window

On right-hand side of UCM homepage, click on Element Name "*EM_on_cpppm3*" link that manages the SIP Gateway used to connect to Exchange UM.

🔶 🔅 🖉 Unified Communications Ma	nagement		e de la companya de la) • 📾 • 🖨 • [Page • ③ Tools •	
Αναγα	Avaya Unified Co	ommunicati	ons Manage	ment	<u>Help</u> <u>Loqout</u>	
— Network Elements	Host Name: car2-sipl-ucm.b	vwdev.com Soft	tware Version: 02.20	0.0013.00(4488) Us	er Name admin	
 CS 1000 Services IPSec Patches SNMP Profiles Secure FTP Token Software Deployment User Services Administrative Users External Authentication Password Security Roles Policies Certificates Active Sessions Tools Logs Data 	Elements New elements are registered into the security framework, or may be added as simple hyperlinks. Click an element name to launch its management service. You can optionally filter the list by entering a search term. Search Reset					
	Add Edit Element Name 1 EM on car2-cores 2 EM on car2-sso- carrier	Delete Element Type ▲ CS1000 CS1000	<u>Release</u> 7.5 7.5	Address 135.10.97.90 135.10.97.90	E 22 ↔ Description ▲ New element. New element.	
	3 EM on cpppm3 4 cpppm3.bwwdev.com (member) 5 sip176.bwwdev.com (member)	CS1000 Linux Base Linux Base	7.5 7.5 7.5	135.10.97.78 135.10.97.150 135.10.97.136	New element. Base OS element. Base OS element.	
	Copyright 2002-2010 Avaya In	c. All rights reserved		😜 Internet	🔍 100% 🔹 💡	

Figure 3: UCM Home Page

Figure 4 displays homepage of CS1000 Element Manager.

😭 🕸 🌈 Element Manager	🖄 🔹 🗟 👻 🖶 🛃 🖓 Tage 🗸 🎲 Tage	s • »
AVAYA cs	S1000 Element Manager Help Log	gout
- UCM Network Services - Home - Links - Virtual Terminals - System - Alarms - Maintenance - Core Equipment - Peripheral Equipment - Peripheral Equipment - Interfaces - Engineered Values - Emergency Services - Geographic Redundancy - Software - Customers - Routes and Trunks - Dialing and Numbering Plans - Phones - Tools - Backup and Restore - Date and Time + Logs and reports	Managing: <u>135.10.97.78</u> Username: admin System Overview IP Address: 135.10.97.78 Type: Awaya Communication Server 1000E CPPM Linux Version: 4121 Release: 750 Q +	

Figure 4: CS1000 Element Manager Home Page

On left-hand side tree menu of the Element Manager window, navigate to System > IP Network > Nodes: Servers and Media Cards, IP Telephony Nodes displays in the right-hand side of the window.

Click on Node ID "511" which has the **SIPGw** application enabled and used to connect to Exchange UM.

AVAYA	CS10	000 Elem	ient Mana	ger				Help Logout
- UCM Network Services	Manaç	ging: 135.10.97 System » elephony	.78 Username: a IP Network » IP Tel Nodes	admin lephony Nodes 				
- System + Alarms - Maintenance	Ad	the Node ID to	t Export	Delete				<u>Print</u> <u>Refresh</u>
- Peripheral Equipment - IP Network - Nodes: Servers, Media Cards Maintenance and Reports		Node ID	Components 1 1	Enabled Applications LTPS, Gateway (SIPGw SIP Line	ELAN IP	<u>Node/TLAN IPv4</u> 135.10.97.149 135.10.97.187	<u>Node/TLAN IPv6</u>	Status Synchronized Synchronized
– Maintenance and Reports – Media Gateways – Zones – Host and Route Tables	Show	w: 🔽 Nodes	Compone	ent servers and cards	✓ IPv6 addre	ss		Stremonized
– Network Address Translation – QoS Thresholds – Personal Directories – Unicode Name Directory								
+ Interfaces - Engineered Values + Emergency Services	Copyri <u>c</u>	ght © 2002-2011	Avaya Inc. All rig	hts reserved.				
						😜 I	nternet	🔍 100% 🔻 💡

Figure 5: IP Telephony Nodes Page

Node Details (ID: 511 - LTPS, Gateway (SIPGw)) page displays.

Αναγα	CS1000 Element Manager	Help Logout
- UCM Network Services - Home - Links - Virtual Terminals	Managing: 135.10.97.78 Username: admin System » IP Network » I <u>P Telephony Nodes</u> » Node Details Node Details (ID: 511 - LTPS, Gateway (SIPGw))	^
- system + Alarms - Maintenance + Core Equipment - Peripheral Equipment - IP Network - Nodes: Servers. Media Cards	Node ID: 511 * (0-9999) Call server IP address: 135.10.97.78 * TLAN address type: IPv4 only IPv4 and IPv6	
 Maintenance and Reports Media Gateways Zones Host and Route Tables Network Address Translation ORS Thresholds 	Embedded LAN (ELAN) Telephory LAN (TLAN) Gateway IP address: 135.10.97.65 * Node IPv4 address: 135.10.97.149 * Subnet mask: 255.255.255.192 * Subnet mask: 255.255.255.192 *	
- Personal Directories - Unicode Name Directory + Interfaces - Engineered Values + Emergency Services	Node IPv6 address:	Save Cancel
+ Geographic Redundancy + Software	Copyright © 2002-2011 Avaya Inc. All rights reserved.	► 100% ▼

Figure 6: Node Details (ID: 511 - LTPS, Gateway (SIPGw)) Page

Scroll down to Applications section and click on Gateway (SIPGw) link.

avaya	С	S1000 Element Manager		Help Logout
- UCM Network Services - Home - Links - Virtual Terminals - System	*	Node Details (ID: 511 - LTPS, Gateway (SIPG Subnet mask: [255.255.255.192] *	W)) Subnet mask: 255.255.255.192 *	
+ Alarms - Maintenance + Core Equipment - Peripheral Equipment - IP Network - Nodes: Servers, Media Cards - Maintenance and Reports - Media Cateways - Zones - Host and Route Tables - Network Address Translation - QoS Thresholds		IP Telephony Node Properties Voice Gateway (VGW) and Codecs Quality of Service (QoS) LAN SNTP Numbering Zones MCDN Aternative Routing Treatment (MALT) Causes	Node IPv6 address: Applications (click to edit configura SIP Line Terminal Proxy Server (TPS) Gateway (SIPGM) Personal Directories (PD) Presence Publisher IP Media Services	stion)
- Personal Directories - Unicode Name Directory + Interfaces Seriesered Voluce	~	 Required Value. I Copyright © 2002-2011 Avaya Inc. All rights reserved. 	nu	Save Car
			😜 Internet	🔍 100% 🔻

Figure 7: List of Applications in Node Details

Node ID: 511 – Virtual Trunk Gateway Configuration Details page displays. Enter information for **General** section:

- SIP domain name: enter IP address of Exchange UM "131.107.5.62".
- Local SIP port: "5060".
- Gateway Endpoint Name: "cpppm3".
- Gateway password: Leave it blank.
- Application Node ID: "511".

Αναγα	С	S1000 Element Mana	ger		Help Logout
- UCM Network Services	•	Managing: 135.10.97.78 Username: System » IP Network » IP T Node ID: 511 - Virtual Tru	admin elephony Nodes » Node Details » Vir Ink Gateway Configurat	irtu ti c	ual Trunk Gateway Configuration
- System		General SIP Gateway Settings	SIP Gateway Services		
Alaints Aaintenance Core Equipment Perinberal Equipment		Vtr	k gateway application: 🔽 Enabl	le	e gateway service on this node
- IP Network		General		١	Virtual Trunk Network Health Monitor
 <u>Nodes: Servers, Media Cards</u> Maintenance and Reports Media Cateways 		Vtrk gateway application:	SIP Gateway (SIPGw) 🖌][Monitor IP addresses (listed below)
– Zones – Host and Route Tables		SIP domain name:	131.107.5.62 *		Information will be captured for the IP addresses listed below.
– Network Address Translation – QoS Thresholds		Local SIP port:	5060 * (1 - 65535)		Monitor IP: Add
 Personal Directories Unicode Name Directory Interfaces 		Gateway endpoint name:	срррт3 *		Monitor addresses:
- Engineered Values + Emergency Services		Gateway password:	*		Remove
+ Geographic Redundancy + Software		Application node ID:	511 * (0-9999)		
- Customers					
- Routes and Trunks		Enable failsafe NRS:			
- Routes and Trunks - D-Channels				Ц	
		Convright @ 2002-2011 Aveva Inc. All ri	nhts reserved		
Done		copyright o 2002-2011 Arraya Inc. Alth	gino recerred.		😜 Internet 🔍 100% 🔻 💥

Figure 8: Node ID: 511 – Virtual Trunk Gateway Configuration Details Page

Scroll down to section **SIP Gateway Settings** (not shown), in **Proxy Or Redirect Server** subsection of this section, enter information for this section:

- Primary TLAN IP address: enter IP address of Exchange UM "131.107.5.62".
- **Port**: *"5060"*.
- Transport protocol: "TCP".

AVAYA	C	S1000 Element Manager Help Logout
- UCM Network Services - Home - Links - Virtual Terminals	^	Managing: 135.10.97.78 Username: admin System » IP Network » I <u>P Telephony Nodes</u> » <u>Node Details</u> » Virtual Trunk Gateway Configuration Node ID: 511 - Virtual Trunk Gateway Configuration Details
- System + Alarms - Maintenance + Core Equipment		General SIP Gateway Settings SIP Gateway Services Transport protocol: TCP Provy Or Redirect Server:
 Peripheral Equipment IP Network <u>Nodes: Servers, Media Cards</u> Maintenance and Reports Media Gateways 		Proxy Server Route 1: Primary TLAN IP address: 131.107.5.62 <== The IP address can have either IPv4 or IPv6 format based on the value of "TLAN address tune"
– Zones – Host and Route Tables – Network Address Translation – QoS Thresholds – Personal Directories		Port: 5060 <==
 Unicode Name Directory Interfaces Engineered Values Emergency Services Geographic Redundancy 		Options: Support registration
Cocyapine redundancy + Software - Customers Durdee and Trimbee	•	Copyright © 2002-2011 Avaya Inc. All rights reserved.
		😜 Internet 🔍 100% 🔹

Figure 9: The SIP Gateway Setting of Telephony Node

Scroll down to **SIP URI Map** of **SIP Gateway Settings** section, in **Private domain names**, leave CDP field as blank. If there is any text presented in the CDP field, delete it.

AVAYA	C	S1000 Element Man	ager				Help Lo <u>c</u>	jout	_
- UCM Network Services - Home - Links - Virtual Terminals - System	^ N - 	Managing: 135.10.97.78 Username: System » IP Network » IP Tr Node ID: 511 - Virtual Tru	admin _{elephony Nodes} » <u>Node Deta</u> nk Gateway Config	<u>ils » Virtual Tr</u> guration [unk Gateway Configuration Details			_	<
Alarms Alarms Maintenance Core Equipment Peripheral Equipment IP Network Nodes: Servers, Media Cards Mointenance and Reporte	=	<u>General SIP Gateway Settings </u>	SIP Gateway Services Subscriber (SN): 0 National (NN): 0 International: 0		<pre><ccc><area <="" code="" pre=""/><ccc><nn> <international num<="" p=""></international></nn></ccc></ccc></pre>	 > <sn> ber></sn>	2	•	111
Mainternance and Reports Media Gateways Zones Host and Route Tables Network Address Translation QoS Thresholds Personal Directories Historie Directories		SIP URI Map: Public E.164 o National: Subscriber:	lomain names		Private dor UDP: ==> CDP:	nain names udp			
- Unicode Name Directory + Interfaces - Engineered Values + Emergency Services + Geographic Redundancy + Software - Customers		Special number: Unknown:	PublicSpecial PublicUnknown		Speciai number: Vacant number: Unknown:	PrivateSpecial PrivateUnknown			*
Routes and Trunks	• < c	, iopyright © 2002-2011 Avaya Inc. All rig	ghts reserved.	1111		🔪 Internet	a 100%	>	

Figure 10: SIP URI Map Configuration Page

Scroll down to **SIP Gateway Services** section of **Node ID: 511 - Virtual Trunk Gateway Configuration Details** page.



Figure 11: SIP Gateway Services Section

In the **SIP Gateway Services** section, scroll down to **Microsoft Unified Messaging** subsection and enter information:

- MWI Application DN: enter number "73100" which is defined in Section 5.6.2
- **MWI dialing plan**: select "*CDP*" in dropdown menu.

🚖 🕸 🌈 Element Manager	🛐 🔹 🗟 👘 🖶 Page 🗸 🎯 Tools 🗸 🎽
AVAYA c:	S1000 Element Manager Help Logout
- UCM Network Services - Home - Links - Virtual Terminals - System	Managing: 135-10.97.78 Username: admin System > IP Network > IP Telephony Nodes > Node Details > Virtual Trunk Gateway Configuration Node ID: 511 - Virtual Trunk Gateway Configuration Details
+ Alarms - Maintenance + Core Equipment - Peripheral Equipment - IP Network - <u>Nodes: Servers, Media Cards</u> - Maintenance and Reports - Media Gateways - Zones	Microsoft Unified Messaging: MWI application DN: 73100 MWI dialing plan: CDP V Options: Enable softkeys Enable secure media
 Host and Route Tables Network Address Translation QoS Thresholds Personal Directories Unicode Name Directory Interfaces Engineered Values Emergency Services Geographic Redundancy 	Subscriber Access Service Add Remove Access Number Use Insert Number 73100 Access Number is DN Copyright © 2002-2011 Avaya Inc. All rights reserved.
	😜 Internet 🔍 100% 🔹 💡

Figure 12: Microsoft Unified Messaging

Scroll down to Subscriber Access Service and Auto Attendant Service of SIP Gateway Services section, click on Add button in each service to add number "73100" for subscriber access and number "73200" for auto attendant. <u>Note</u>: The number "73100" and "73200" will be defined in Section 5.6.2.

AVAYA	с	S1000 Element Manager	Help L	ogou	t
- UCM Network Services - Home - Links - Virtual Terminals - System	л м П	anaging: 135.10.97.78 Username: admin System » IP Network » <u>IP Telephony Nodes » Node Details</u> » Virtual Trunk Gateway Configuration Jode ID: 511 - Virtual Trunk Gateway Configuration Details		_	
+ Alarms - Maintenance + Core Equipment - Perinheral Equipment	3	General SIP Gateway Settings SIP Gateway Services Subscriber Access Service Add Remove		^	
 IP Network Nodes: Servers, Media Cards Maintenance and Reports Media Cateways 		Access Number Access Number Use Insert Number 73100 <==			
– Zones – Host and Route Tables – Network Address Translation – OoS Threeholds					
 Personal Directories Unicode Name Directory Interfaces 		Auto Attendant Service <==			
 Engineered values Emergency Services Geographic Redundancy Software 		Add Remove Auto Number Use Insert Number			
- Customers - Routes and Trunks - Routes and Trunks	~ <	73200 <== Auto Number is DN			
Channels >	Co	pyright © 2002-2011 Avaya Inc. All rights reserved.	a 1009	/0 *	

Figure 13: Subscriber Access Service and Auto Attendant Service

Click on the Save button at the bottom of Node ID: 511 - Virtual Trunk Gateway Configuration Details page (not shown) to save the changes in the Node ID: 511, the Node ID 511 - Virtual Trunk Gateway Configuration Detail page, which will be closed and returned back to the Node Details (ID: 511 - LTPS, Gateway (SIPGw)) page. Click on Save button in this page and the Node Saved window displays as shown in Figure 14.

Αναγα	CS1000 Element Manager	Help Logout
- UCM Network Services - Home - Links - Virtual Terminals - System	Managing: 135.10.97.78 Username: admin System » IP Network » IP Telephony Nodes » Node Saved Node Saved	
+ Alarms - Maintenance + Core Equipment - Peripheral Equipment - IP Network - <u>Nodes: Servers, Media Cards</u>	Node ID: 511 has been saved on the call server. The new configuration must also be transferred to associated servers and media cards. Transfer Now You will be given an option to select individual servers, or transfer to all.	
 Maintenance and reports Media Gateways Zones Host and Route Tables Network Address Translation QoS Thresholds Personal Directories 	Show Nodes You may initiate a transfer manually at a later time.	
- Unicode Name Directory + Interfaces	Copyright © 2002-2011 Avaya Inc. All rights reserved.	€ 100% ·

Figure 14: Node Saved Page

Click on the **Transfer Now...** button in **Figure 14** to display the **Synchronize Configuration Files (Node ID)** page. Click on associated signaling server "*cpppm3*" that the new configurations need to be transferred to and click on the **Start Sync** button to start transferring the changes to Call Server.

<u>Note</u>: The process of saving, transferring and synchronizing need to be applied if any change is made in the **Node ID** - **Virtual Trunk Gateway Configuration Detail** page.

AVAYA CS1	000 Element Manager		Help Logout
- UCM Network Services - Home - Links - Virtual Terminals - System + Alarms - Maintenance + Core Equipment - Peripheral Equipment - IP Network - Nodes: Servers, Media Cards - Maintenance and Reports - Media Gateways - Zones - Host and Route Tables - Network Address Translation - QoS Thresholds	Managing: 135.10.97.78 Username: admin System » IP Network » IP Telephony Nodes » Sy Synchronize Configuration Files (Node Note: Select components to synchronize their configur components, and requires a restart* of applications or Start Sync Cancel Restart Application W Hostname Type Coppm3 Signaling_Server * Application restart is only required for initial system config H323 Gateway settings, network connectivity related param servers.	Applications NONE uration or if changes have been of the ports and IP address, efforts address, efforts and IP address, efforts and IP address, efforts and IP address, efforts address addres	a. This process transfers server IN nplete. Synchronization Status Sync required made to general LAN configurations, Sh nabling or disabling services, or adding

Figure 15: Synchronize Configuration Files (Node ID <551>) page

5.2. Configure D-Channel for SIP Trunk

Configure a D-Channel for SIP Trunk. From the Element Manager homepage, navigate to **Routes and Trunks > D-Channels** and select the **D-Channels** tab. The **D-Channels** page displays in the right-hand side of the page.

In the **Configuration** section of this page, select D-Channel number "4" which is available in the **Choose a D-Channels Number** dropdown list, select the type of D-Channel as **DCH** and click on the **to Add** button.

AVALYA	CS1000 Element Ma	nager			Help Logout
- UCM Network Services - Home - Links - Virtual Terminals - System - System	Managing: 135.10.97.78 Username Routes and Trunks » D-Ch D-Channels	e: admin nannels			
Additis Maintenance Core Equipment Peripheral Equipment IP Network Interfaces Engineered Values Emergency Services Geographic Redundancy Software Customers	Maintenance D-Channel Diagnosi Network and Periphe MSDL Diagnostics (L TMDI Diagnostics (L D-Channel Expansic Configuration	<u>ites</u> (LD 96) eral Equipment (LD 32, Vi LD 96) D 96) en Diagnostics (LD 48)	tual D-Channels)		
- Routes and Trunks - Routes and Trunks - D-Channels - Digital Trunk Interface	Choose a D-Channel Num	ber: 4 💌 and type:	DCH 👻 to Add		
- Dialing and Numbering Plans	- Channel: 1	Type: DCH	Card Type: DCIP	Description: SIP	Edit
- Flexible Code Restriction - Incoming Digit Translation	- Channel: 2	Type: DCH	Card Type: TMDI	Description: RIs6	Edit
- Phones - Templates	- Channel: 3	Type: DCH	Card Type: DCIP	Description: SIPLine	Edit
- Reports - Views	Copyright © 2002-2011 Avaya Inc. A	All rights reserved.			

Figure 16: D-Channels Page

D-Channels 4 Property Configuration page displays. Enter information for **Basic Configuration** section:

- D channel Card Type: select "D-Channel is over IP (DCIP)".
- Designator: type "SIP".
- Interface type for D-channel: select "Meridian Meridian 1 (SL1)".
- And keep other value of this section at default.



Figure 17: Basic Configuration Section of D-Channel

Scroll down and expand **Basic options (BSCOPT)** subsection of the **Basic Configuration** Section. Click on **Edit** button in the **Remote Capabilities** field.



Figure 18: Basic Options (BSCOPT) Page

The **Remote Capability Configuration** page is displayed. Select "*Network name display method 2 (ND2)*" and keep other values unchecked. Click on **Return-Remote Capability** button at the bottom to return back to the **D-Channel 4 Property Configuration** page.



Figure 18: Remote Capabilities Configuration Page of D-Channel

Keep other sections of **D-Channel 4 Property Configuration** page at default and click on **Submit** button to complete creation for D-Channel "4".

Αναγα	CS1000 Element Manager	Help Logout
- UCM Network Services	D-Channel PRI loop number:	~
- Home	Primary Rate Interface: more PRI	
– Links – Virtual Terminals	Secondary PRI2 loops:	
- System	Meridian 1 node type: Slave to the controller (USR)	
+ Alarms – Maintenance	Release ID of the switch at the far end: 25 🔽	
+ Core Equipment	Central Office switch type: 100% compatible with Bellcore standard (STD) 🗸	
+ IP Network + Interfaces	Integrated Services Signaling Link Maximum: 200 Range: 1 - 4000	
- Engineered Values	Signalling server resource capacity: 3700 Range: 0 - 3700	
+ Emergency services + Geographic Redundancy	+ Basic options (BSCOPT)	
+ Software	+Advanced options (ADVOPT)	
- Customers - Routes and Trunks - Routes and Trunks - D-Channels	+ Feature Packages	
 Digital Trunk Interface Dialing and Numbering Plans Electronic Switched Network Elexible Code Restriction 	==> Submit Refresh Delete Cancel	~
Incoming Digit Tranclation	Copyright © 2002-2011 Avaya Inc. All rights reserved.	100%

Figure 19: D-Channel 4 Property Configuration Page

5.3. Configure Bandwidth Zone

Configure a bandwidth zone. From the Element Manager homepage, navigate to menu System > IP Network > Zones and select the Zones tab. The Zones page displays in the right-hand side. Click on the Bandwidth Zones link.



Figure 20: Zones Page

The Bandwidth Zones page displays. Click on Add button to create a new zone.

avaya	CS	\$1000 Elen	nent Mar	ager					Help L	.ogou	ıt
- UCM Network Services - Home - Links - Virtual Terminals		Managing: <u>135.10.</u> System : Bandwidt	97.78 Usernar » IP Network » <u>Z</u> h Zones	ne: admin <u>ones</u> » Bandwidti <==	n Zones						<
- System + Alarms - Maintenance + Core Equipment - Baritheord Fouriement	==>	Add	Edit Imp	ort Expor	t Maintena	nce) Dele	te		Refres	<u>:h</u>	III
– Penpheral Equipment – IP Network – Nodes: Servers, Media Card	is	Zone 🔺	<u>Intrazone</u> <u>Bandwidth</u>	Intrazone Strategy	<u>Interzone</u> <u>Bandwidth</u>	<u>Interzone</u> <u>Strategy</u>	<u>Resource</u> <u>Type</u>	<u>Zone</u> Intent	Description	^	
- Maintenance and Reports		1 🔘 1	1000000	BQ	1000000	BQ	SHARED	MO			
- Media Gateways		2 🔿 2	1000000	BQ	1000000	BQ	SHARED	VTRK			
- Host and Route Tables	~	3 🔿 3	1000000	BQ	1000000	BQ	SHARED	MO			¥
<pre></pre>	>	Copyright @ 2002-:	2011 Avaya Inc.	All rights reserve	d.						
							😜 Inter	net	🔍 100°	% •	.::

Figure 21: Bandwidth Zones Page

The **Zone Basic Property and Bandwidth Management** page is displayed. Enter information as below:

- Zone Number (Zone): enter "4".
- Zone Intent (ZBRN): select "VTRK (VTRK)". Due to this zone is for virtual trunk.
- Description (ZDES): enter "VTRK".
- And keep other fields at default.

Click on Save button to complete.

AVAYA c	S1000 Element Manager	Help Logout
- UCM Network Services - Home - Links - Virtual Terminals - System + Alarms	Managing: <u>135.10.97.78</u> Username: admin System » IP Network » <u>Zones</u> » <u>Bandwidth Zones</u> » Zone Basic F Zone Basic Property and Bandwidth Ma	Property and Bandwidth Management
- Maintenance	Input Description	Input Value
- Peripheral Equipment	Zone Number (ZONE): 4 <==	• (1-8000)
 IP Network Nodes: Servers, Media Cards Maintenance and Reports Media Gateways 	Intrazone Bandwidth (INTRA_BW): 10000 Intrazone Strategy (INTRA_STGY): Best G	00 (0 - 10000000) Quality (BQ) V <==
- Zones	Interzone Bandwidth (INTER_BW): 10000	00 (0-1000000)
 Host and Route Tables Network Address Translation 	Interzone Strategy (INTER_STGY): Best G	Quality (BQ)
– QoS Thresholds – Personal Directories	Resource Type (RES_TYPE): Share	d (SHARED) 🐱
 Unicode Name Directory Interfaces 	Zone Intent (ZBRN): VTRK	(VTRK) 🗸 <==
- Engineered Values + Emergency Services + Geographic Redundancy	Description (ZDES): VTRK	
+ Software	* Required value	Save Cancel
- Customers		
	Copyright ⊚ 2002-2011 Avaya Inc. All rights reserved.	
Done		😌 Internet 🔍 100% 🔻 👷

Figure 22: Zone Basic Property and Bandwidth Management

5.4. Configure SIP Route

Configure a SIP Route. From the Element Manager homepage, navigate to **Routes and Trunks** > **Routes and Trunks**. The **Routes and Trunks** page is displayed in the right-hand side.

Identify customer to which the new route is going to be added (for this test there is just one customer, Customer 0, in the CS 1000 system) and click on the **Add route** button.

AVAYA	cs	1000 Element Manag	jer		Help Logout
- UCM Network Services - Home - Links	^	Managing: <u>135.10.97.78</u> Username: Routes and Trunks » Routes	admin s and Trunks		
- Virtual Terminals		Routes and Trunks			
- Customers					
- Routes and Trunks <== - D-Channels		+ Customer: 0 <==	Total routes: 6	Total trunks: 119	Add route <==
– Digital Trunk Interface – Dialing and Numbering Plans					
 Electronic Switched Network Flexible Code Restriction Incoming Digit Translation 					
- Phones - Templates					
- Reports	~	Copyright © 2002-2011 Avaya Inc. All	rights reserved.		
				😝 Internet	🔍 100% 🔻 🛒

Figure 23: Routes and Trunks Page

The Customer 0, New Route Configuration page displays with 5 sections: Basic Configuration, Basic Route Options, Network Options, General Options, and Advanced Configurations.

🚖 🏟 🎉 Element Manager	🐴 • 🗟 • 🖶 Page • 🎯 T <u>o</u> ols • *
AVAYA cs	1000 Element Manager Help Logout
- UCM Network Services - Home - Links - Virtual Terminals	Managing: 135.10.97.66 Username: admin Routes and Trunks » <u>Routes and Trunks</u> » Customer 0, New Route Configuration
+ System - Customers - Routes and Trunks - Routes and Trunks - D-Channels - Digital Trunk Interface - Dialing and Numbering Plans - Electronic Switched Network - Flexible Code Restriction - Incoming Digit Translation + Phones	+ Basic Configuration + Basic Route Options + Network Options + General Options + Advanced Configurations
+ Tools + Security	* Required value. Save Cancel

Figure 24: New Route Configuration Page

Expand the **Basic Configuration** section and enter information for this section as below:

- **Route number (ROUT)**: select available rout number "*1*" in dropdown menu.
- Designator field for trunk (DES): type "SIP".
- Trunks type (TKTP): select "TIE trunk data block (TIE)".
- Incoming and outgoing trunk (ICOG): select "Incoming and Outgoing (IAO)".
- Access code for the trunk route (ACOD): type "8001". <u>Note</u>: This number belongs to the directory number in CS 1000 system; it can be any number but must be unique and followed by dialing plan.
- The route if for a virtual trunk route (VTRK): Checked
- Zone ID for codec selection and bandwidth management (ZONE): type "4" as defined in Section 5.3.
- Node ID of signaling server of this route (NODE): type "511". This is Node ID of SIP Gateway.
- **Integrated services digital network option (ISDN)**: Check on this checkbox, the next figure will display options of this feature.
- Calling number dialing plan (CPND): select "*Coordinated dialing plan (CDP*)" as CDP dialing plan is used for this route.

AVAYA cs	\$1000 Element Manager	Help Logout
- UCM Network Services - Home	Customer 0, New Route Configu	ration <==
- Links - Virtual Terminals	- Basic Configuration <==	
+ System - Customers	Route data block (RDB) (TYPE) :	RDB
- Routes and Trunks - Routes and Trunks	Customer number (CUST) :	0
- D-Channels	Route number (ROUT) :	1 × ×
- Dialing and Numbering Plans	Designator field for trunk (DES) :	SIP
- Electronic Switched Network - Flexible Code Restriction	Trunk type (TKTP) :	TIE trunk data block (TIE) *
 Incoming Digit Translation Phones 	Access code for the trunk route (ACOD) :	
– Templates – Reports	Trunk type M911P (M911P) :	
-Views -Lists	The route is for a virtual trunk route (VTRK) :	
- Properties - Migration	- Zone for codec selection and bandwidth management (ZONE) :	4 (0 - 8000)
- Tools + Backup and Restore	- Node ID of signaling server of this route (NODE) :	511 (0 - 9999)
 Date and Time Logs and reports 	- Protocol ID for the route (PCID) :	SIP (SIP)
- Security	- Print correlation ID in CDR for the route (CRID) :	
+ Policies	Integrated services digital network option (ISDN) :	□<==
+ Login Options	Calling number dialing plan (CNDP) :	Coordinated dialing plan (CDP) 🐱
	+ Basic Route Options	×
	Copyright © 2002-2011 Avaya Inc. All rights reserved.	
		😜 Internet 🔍 100% 🔻 🛒

Figure 25: Basic Configuration Section of New Route

The Integrated services digital network option (ISDN) subsection displays. Enter information as below:

- Mode of Operation (MODE): select "Route uses ISDN Signaling Link (ISLD)".
- D Channel number (DCH): select "4" as defined in Section 6.2.
- Interface Time For Route (IFC): select "Meridian 1 (SL1)".
- Private Network Identifier (PNI): type "1".
- Network Calling Name Allowed (NCNA): Checked.
- Network call redirection (NCRD): Checked.
- Call type for outgoing direct dialed TIE route: select "Coordinated Dialing Plan (CDP)".
- And keep other fields at default.

AVAYA cs	1000 Element Manager Her	p Logout
- UCM Network Services - Home	- Print correlation ID in CDR for the route (CRID) :	<u>^</u>
– Links – Virtual Terminals	Integrated services digital network option (ISDN) : 🔽 <==	
+ System	- Mode of operation (MODE) : Route uses ISDN Signaling Link (ISLD) 🛛 👻	
- Customers - Routes and Trunks	- D channel number (DCH) : 4 <== (0 - 254)	
- Routes and Trunks	- Interface type for route (IFC) : Meridian M1 (SL1)	
– D-Channels – Digital Trunk Interface	- Private network identifier (PNI) : 1 (0 - 32700)	
- Dialing and Numbering Plans	- Network calling name allowed (NCNA) : 🔽	
- Flexible Code Restriction	- Network call redirection (NCRD) : 🔽	_
– Incoming Digit Translation	Trunk route optimization (TRO) : 🔲	
- Phones - Templates - Reports	- Recognition of DTI2 ABCD FALT signal for ISL (FALT) :	
- Views	- Channel type (CHTY) : B-channel (BCH) 🛛 🗸	
– Lists – Properties	- Call type for outgoing direct dialed TIE route (CTYP) :	=
- Migration - Tools	- Insert ESN access code (INAC) : 🔲	
+ Backup and Restore	- Integrated service access route (ISAR) : 🔲	
 Date and Time Logs and reports 	- Display of access prefix on CLID (DAPC) : 🔲	
- Security	- Mobile extension route (MBXR) : 🔲	
+ Passwords + Policies	- Mobile extension outgoing type (MBXOT) : National number (NPA) 🛛 🔽	_
+ Login Options	- Mobile extension timer (MBXT) : 0 (0 - 8000 milliseconds)	
	Calling number dialing plan (CNDP) : Coordinated dialing plan (CDP) 🔽	
	+Basic Route Options	~
	Copyright © 2002-2011 Avaya Inc. All rights reserved.	
	Sector Se	100% 🝷 🙀

Figure 26: ISDN Option Page

Scroll down and expand the **Basic Route Options** section and keep all fields at default.

AVAYA	C٤	S1000 Element Manager	Help	Logout
- UCM Network Services	^	-Basic Route Options <==		^
- Tione - Links		Attendant announcement (ATAN) : No Attendant Announcement. (NO)	¥	
- Virtual Terminals		Billing number required (BILN)		
+ System				
- Customers		Call detail recording (CDR) :		
- Routes and Trunks		North American toll scheme (NATL) : 🔽		
- <u>Routes and Trunks</u> - D-Channels		Controls or timers (CNTL) :		
– Digital Trunk Interface		Conventional (Tie trunk only) (CNVD :		
- Dialing and Numbering Plans - Electronic Switched Network - Flexible Code Restriction		Incoming DID digit conversion on this route (IDC) :		
- Incoming Digit Translation		Multifrequency compelled or MFC signaling (MFC) :		
– Templates – Reports		Process notification networked calls (PNNC) : 📃		
- Views		+ Network Options		
– Lists – Properties		+ General Options		
- Migration		+ Advanced Configurations		~
- Tools + Backup and Restore	~	Copyright © 2002-2011 Avaya Inc. All rights reserved.		
		😜 Internet	a 100	D% • 🧮

Figure 27: Basic Route Options of New Route

Expand the Network Options section and keep all fields at default.

AVAYA	CS	1000 Element Manager	Help Logout
- UCM Network Services	^	- Network Options <==	^
- Home		Electronic switched network pad control (ESN) : 📃	
– LINKS – Virtual Terminals		Signaling arrangement (SIGO) : Standard (STD)	~
+ System		Route class (RCLS) : Route Class marked as external (EXT) 🔽	
- Customers - Routes and Trunks		Off-hook queuing (OHQ) :	
- Routes and Trunks		Off-hook queue threshold (OHQT) : 0 🔽	
– D-Channels – Digital Trunk Interface		Call back queuing (CBQ) :	
- Dialing and Numbering Plans		Number of digits (NDIG) : 2 🗸	
 Electronic Switched Network Flexible Code Restriction 		Authcode (AUTH) :	
– Incoming Digit Translation		+ General Options	
- Phones - Templates - Reports - Views		+ Advanced Configurations	
– Lists – Properties		* Required value. Save	Cancel 🗸
- migration	~	Copyright © 2002-2011 Avaya Inc. All rights reserved.	🔍 100% 🔹 💡

Figure 28: Network Options of New Route

Expand the **General Options** section and keep all fields at default.

AVAYA	CS1000 Element Manager	Help Logout
- UCM Network Services - Home - Links - Virtual Terminals - System - Customers - Routes and Trunks - D-Channels - Digital Trunk Interface - Dialing and Numbering Plans - Electronic Switched Network - Flexible Code Restriction - Incoming Digit Translation - Phones Tamplataa	CS1000 Element Manager General Options <== M1 is the only controlling party on incoming calls (CPDC): Dial tone on originating calls (DLTN): Hold failure threshold (HOLD): Trunk access restriction group (TARG): Alternate trunk route for outgoing trunks (STEP): (0 - 511) Actual outgoing toll digits to be ignored for code restriction (OABS): Display IDC name (DNAM): Enable equal access restrictions (EQAR):	Help Logout
- Reports - Views - Lists - Properties - Migration	ACD DNIS route (DNIS) :	 •
	See The second s	🔍 100% 🔻 🕌

Figure 29: General Options of New Route

Keep all fields at default in the Advanced Configurations section.

Click on Save button to complete creating the SIP route "1".

 Links Virtual Terminals System Customers Routes and Trunks Beneral Options General Options General Options Advanced Configurations <== Digital Trunk Interface Digital Trunk Interface Electronic Switched Network Flexible Code Restriction Incoming Digit Translation 	avaya	S1000 Element Manager	Help Logout
- Dialing and Numbering Plans - Electronic Switched Network - Flexible Code Restriction - Incoming Digit Translation - Incoming Digit Translation	- Links - Virtual Terminals + System - Customers - Routes and Trunks - Routes and Trunks - D-Channels - Dicital Trunk Interface	 + Basic Route Options + Network Options + General Options + Advanced Configurations <== 	
- Phones - Templates Copyright © 2002-2011 Avaya Inc. All rights reserved.	Dialing and Numbering Plans Electronic Switched Network Flexible Code Restriction Incoming Digit Translation Phones Templates	Copyright © 2002-2011 Avaya Inc. All rights reserved.	Save Cancel

Figure 30: Advanced Configuration Section

5.5. Configure IP Trunks

Configure IP Trunks, from the Element Manager homepage, navigate to **Routes and Trunks** > **Routes and Trunks**. The **Routes and Trunks** page displays in the right-hand side. Expand Customer number (Customer 0) and click on **Add trunk** button on the left of **Route 1** which is created in **Section 5.4** above.



Figure 31: Routes and Trunks Page

The Customer 0, Route 1, Trunk type TIE trunk data block page displays with two sections: Basic Configuration and Advanced Trunk Configuration.

AVAYA	CS1000 Element Manager	Help Logout
- UCM Network Services - Home - Links	Managing: <u>135.10.97.78</u> Username: admin Routes and Trunks » <u>Routes and Trunks</u> » Customer 0, Route 1	^
- Virtual Terminals + System	Customer 0, Route 1, Trunk type TIE trunk data block <==	
- Customers - Routes and Trunks - Routes and Trunks - D-Channels - Digital Trunk Interface	+ Basic Configuration + Advanced Trunk Configurations	
 Dialing and Numbering Plans Electronic Switched Network Flexible Code Restriction Incoming Digit Translation 	Required value. Save Copyright © 2002-2011 Avaya Inc. All rights reserved.) Cancel 🗸

Figure 32: Trunk Type TIE Trunk Data Block Page

Expand the **Basic Configuration** section, enter information as below:

- Trunk data block: select "IP Trunk (IPTI)".
- Multiple trunk input number: type "32". 32 IP Trunks will be created.
- **Terminal number**: type "100 0 0 0". Note: This is virtual terminal card, make sure virtual super loop 100 is already configured in your system and it is available for creating these IP Trunks.
- **Designator field for trunk**: type "SIP".
- **Member number**: enter "*1*". Input as "1" if this is first trunk in this route, in case there are existent trunks in the route, this number should be next number of last trunk. This number is automatically incremented from 1 to 32 as 32 multiple trunks entered in the **Multiple trunk input number** field.
- Start arrangement Incoming: select "Immediate (IMM)".
- Start arrangement Outgoing: select "Immediate (IMM)".
- Trunk group access restriction: enter "1".
- **Channel ID for this trunk**: enter "*1*". This channel ID should be unique for IP trunks located in same route. This number is also automatically incremented from 1 to 32.
- Click on **Edit** button in **Class of Server** field. The next figure will show detailed class of service for IP trunk.

AVAYA	CS1000 Element Manager	Help Logout
- UCM Network Services - Home - Links	- Basic Configuration <== Multiple trunk input number: 32 Range: 2 - 3700	<u>^</u>
- Virtual Terminals + System - Customers - Routes and Trunks	Auto increment member number: Trunk data block: P Trunk (IPTI)	
 <u>Routes and Trunks</u> D-Channels Digital Trunk Interface 	Designator field for trunk: SIP	
- Dialing and Numbering Plans - Electronic Switched Network - Flexible Code Restriction - Incoming Digit Translation	Member number: 1 Level 3 Signaling:	*
 - Phones - Templates - Reports - Views 	Card density: Card density: Start arrangement Incoming : Immediate (IMM)	
- Lists - Properties - Migration	Start arrangement Outgoing: Immediate (IMM) Trunk group access restriction: 1	~
 Fools + Backup and Restore - Date and Time + Logs and reports - Security 	Class of Service: Edit <== + Advanced Trunk Configurations	
+ Passwords + Policies + Login Options	* Required value. Save Copyright © 2002-2011 Avaya Inc. All rights reserved.	e Cancel 🚽
	😜 Internet	🔍 100% 🔻 📑

Figure 33: Basic Configuration of New Trunk

The Class of Service Configuration page displays.

- **Media Security**: select "*Media Security Never (MSNV)*". This field will be changed to "Media Security Best Try (MSBT)" when SIP TLS and secure media are tested.
- **Restriction level**: "Unrestricted (UNR)".
- Keep other fields at default and click on **Return Class of Service** button to go back to the **Customer 0, Route 1, Trunk type TIE trunk data block** page.

Αναγα α	CS1000 Element Manager	Help Logout
	- Hong Kong DTL.	<u>^</u>
- UCM Network Services	- Loop Break Supervised COT	<u> </u>
- Home		
- LINKS		
- viituai reminiais	pulse.	
- System	- Manual Incoming:	
- Maintenance	-Media Security: Media Security Never (MSNV) 🗸 <==	
+ Core Equipment	-Network Hook Elash Over	
- Peripheral Equipment	M911P	
+ IP Network		
+ Interfaces	- Folaniy.	
- Engineered Values	– Priority:	
+ Emergency Services	- Restriction level: Unrestricted (UNR)	
+ Software		
- Customers	- Reversed Ear Piece:	
- Routes and Trunks	- Short or long line:	
- Routes and Trunks	- Transmission Class of	
- D-Channels	Service:	
– Digital Trunk Interface	Worring Tops:	
- Dialing and Numbering Plans	- waining rone.	
- Electronic Switched Network	- Reversed Ear Piece:	=
- Flexible Code Restriction	- ARE Supervised COT	
- Incoming Digit Translation		
- Phones		
- Templates		
- Kepolits - Views		
- Lists	==> Return Class of Service Cancel	
- Properties		*
- Migration	Copyright © 2002-2011 Avaya Inc. All rights reserved.	
Done		🔍 100% 🔻 🖉

Figure 34: Class of Service of New Trunk

Keep all fields at default in the **Advanced Trunks Configurations** section. And then click on **Save** button to complete creating these IP virtual trunks.

AVAYA	CS1000 Element Manager Help Logout	
- UCM Network Services - Home - Links - Virtual Terminals + System - Customers - Routes and Trunks - Po-Channels - Digital Trunk Interface - Digital Trunk Interface - Dialing and Numbering Plans - Electronic Switched Network - Flexible Code Restriction - Incoming Digit Translation - Phones - Templates	Card density: Start arrangement lncoming: Immediate (IMM) Start arrangement Outgoing: Immediate (IMM) Trunk group access restriction: 1 Channel ID for this trunk: 1 Class of Service: Edit +Advanced Trunk Configurations <== * Required value. Save Cancel	< III III III III III III III III III I
- Reports	Copyright @ 2002-2011 Avaya inc. All rights reserved.	

Figure 35: Class of Service of New Trunk (cont)

AVAYA CS10	000 Element Man	ager		Help Logout
UCM Network Services	- Customer: 0	Total routes: 6	Total trunks: 119	Add route
Home	- Route: 1	Type: TIE	Description: SIP	Edit Add trunk
- Virtual Terminals	T1 00	Tatal taun lus 00		
System	- Trunk: 1 - 32	Total trunks: 32		
+ Alarms	- Trunk: 1	TN: 100 0 00 00	Description: SIP	Edit Multi - Del
- Maintenance				
+ Core Equipment	- Trunk: 2	TN: 100 U UU U1	Description: SIP	Edit
- Peripheral Equipment	- Trunk: 3	TN: 100 0 00 02	Description: SIP	Edit
+ IP Network	Trainin o	114. 100 0 00 02	Description: on	Edit
+ Interfaces	- Trunk: 4	TN: 100 0 00 03	Description: SIP	Edit
+ Emergency Services	Townload	TH: 400.000.04		
+ Geographic Redundancy	– Trunk: 5	TN: 100 0 00 04	Description: SIP	Edit
+ Software	- Trunk: 6	TN: 100 0 00 05	Description: SIP	Edit
Customers		114. 100 0 00 00	Description. on	
Routes and Trunks	- Trunk: 7	TN: 100 0 00 06	Description: SIP	Edit
- Routes and Trunks	T			
- D-Channels	– Trunk: 8	TN: 100 0 00 07	Description: SIP	Edit
- Digital Trunk Interface	- Trunk: 9	TN: 100 0 00 08	Description: SIP	Edit
Dialing and Numbering Plans	- 11 units. 2	114. 100 0 00 00	Description, on-	
- Electronic Switched Network	- Trunk: 10	TN: 100 0 00 09	Description: SIP	Edit
- Flexible Code Restriction				
Incoming Digit Translation	- Trunk: 11	TN: 100 0 00 10	Description: SIP	Edit
hones	Truski 40	TN: 100 0 00 11	Departmention: CID	(Fait)
- Templates	- 11UNK; 12	TN: 100 0 00 Th	Description: SIF	Ear
- Repons - Viewe	- Trunk: 13	TN: 100 0 00 12	Description: SIP	Edit
- Lists				
- Properties	- Trunk: 14	TN: 100 0 00 13	Description: SIP	Edit
- Migration	Trumki 46	TN: 400.0.00.14	Departmention: CID	
Tools	- 11UNN: 15	TIN: 100 0 00 14	Description, or	Ear
+ Backup and Restore	- Trunk: 16	TN: 100 0 00 15	Description: SIP	Edit
- Date and Time				
+ Logs and reports	- Trunk: 17	TN: 100 0 00 16	Description: SIP	Edit
Security Cor	nvright © 2002-2011 Avaya Inc.	All rights reserved.	ı	

Figure 36: 32 New IP Trunks Created

5.6. Configure CDP Dialing Plan

This section provides the steps on how to create a new Route List Index (RLI) and new Distant Steering Codes (DSC) for Exchange UM in CS 1000 system.

5.6.1. Configure Route List Block Index (RLI)

Configure a Route List Block Index. From the Element Manger homepage, navigate to **Dialing** and **Numbering Plan > Electronic Switched Network**. The **Electronic Switched Network** (ESN) page displays.

AVAYA CS10	00 Element Manager	Help Logout
- UCM Network Services - Home - Links - Virtual Terminals + System	Managing: <u>136.10.97.78</u> Username: admin Dialing and Numbering Plans » Electronic Switched Network (ESN) Electronic Switched Network (ESN) <==	
- Customers + Routes and Trunks - Dialing and Numbering Plans - Electronic Switched Network <== - Flexible Code Restriction - Incoming Digit Translation + Phones + Tools + Security	 Customer 00 Network Control & Services Coordinated Dialing Plan (CDP) Numbering Plan (NET) Access Code 1 Access Code 2 	
	Copyright © 2002-2011 Avaya Inc. All rights reserved.	🔍 100% 🔻 💡

Figure 37: Electronic Switched Network (ESN) Page

Expand Network Control & Services and click on Route List Block (RLB) link.



Figure 38: Network Control & Services Section

The **Route List Blocks** page is displayed. Enter "1"which is free number in **Please enter a route list index** box and then click on **to Add** button.

AVAYA CS1	DOO Element Manager Help Lo	gout
- UCM Network Services - Home - Links - Virtual Terminals + System	Managing: <u>135.10.97.78</u> Username: admin Dialing and Numbering Plans » <u>Electronic Switched Network (ESN)</u> » Customer 00 » Network Control & Services » Route List Blocks Route List Blocks <==	<
- Customers - Routes and Trunks - Dialing and Numbering Plans - Electronic Switched Network - Flexible Code Restriction - Incoming Digit Translation + Phones - Tools - Desemble	Please enter a route list index 1 <== (0 - 1999) to Add <== + Route List Block Index 2 Edit + Route List Block Index 3 Edit	
+ Security	+ Route List Block Index 4 Edit + Route List Block Index 5 Edit + Route List Block Index 6 Edit Copyright © 2002-2011 Avaya Inc. All rights reserved.	

Figure 39: Route List Blocks page

The **Rout List Block** page of route list index "*1*" page displays. In the **Options** section, select route "*1*" which is the SIP Route created in **Section 5.4** in **Route Number** dropdown menu. Keep other fields at default and click on **Submit** button to complete creating the new route list block index "*1*".

Αναγα	CS1000 Element Manager	Help Logout
- UCM Network Services - Home	Options <==	^
- Home - Links - Virtual Terminals + System - Customers + Routes and Trunks - Dialing and Numbering Plans - Electronic Switched Network - Flexible Code Restriction - Incoming Digit Translation + Phones + Tools + Security	Local Termination entry: Route Number: 1 Skip Conventional Signaling: Display Originator's Information: Use Tone Detector: Conversion to LDN: Conversion to LDN: Expensive Route: Strategy on Congestion: No Reroute (NRR) - QSIG Alternate Routing Cause: QSIG Alternate Routing Cause 1 Preferred Routing: Preferred Route 1 ISDN Drop Back Busy: Drop Back Disabled (DBD) ISDN Off-Hook Queuing Option: Off-Hook Queuing Allowed:	~
	Call Back Queuing Allowed: VNS Options Entry is a VNS Route: Copyright © 2002-2011 Avaya Inc. All rights reserved.	Cancel

Figure 40: Detail of Route List Block Page

Figure 41 below shows the new route list block index "1" is created.



Figure 41: The new route list index "1" created

5.6.2. Configure Distant Steering Code (DSC)

Configure new distant steering code, from the Element Manager homepage, navigate to **Dialing** and Numbering Plans > Electronic Switched Network > Coordinated Dialing Plan (CDP) and select Distant Steering Code (DSC).

AVAYA CS1000 Element Manager		Help Logout	
- UCM Network Services - Home - Links - Virtual Terminals + System - Customers	Managing: <u>135.10.97.78</u> Username: admin Dialing and Numbering Plans » Electronic Switched Network (ESN) Electronic Switched Network (ESN)		
+ Routes and Trunks - Dialing and Numbering Plans - Electronic Switched Network - Flexible Code Restriction - Incoming Digit Translation + Phones + Tools + Security	 Customer 00 Network Control & Services Coordinated Dialing Plan (CDP) Local Steering Code (LSC) Distant Steering Code (DSC) Trunk Steering Code (TSC) Numbering Plan (NET) 		
	Copyright © 2002-2011 Avaya inc. Air rights reserved.	🔍 100% 🔹	

Figure 42: Distant Steering Code List page

The **Distant Steering Code List** page is displayed. Select **Add** in the dropdown menu and enter distant steering code number "73100" which is used as the UM subscriber number in **Please** enter a distant steering code box and click on to Add button.

AVAYA CS10	00 Element Manager Help Logout
- UCM Network Services - Home - Links - Virtual Terminals	Managing: <u>135.10.97.78</u> Username: admin Dialing and Numbering Plans » <u>Electronic Switched Network (ESN)</u> » Customer 00 » Coordinated Dialing Plan (CDP) » Distant Steering Code List
+ System - Customers + Routes and Trunks - Dialing and Numbering Dians	Add <==
- Electronic Switched Network - Flexible Code Restriction - Incoming Digit Translation	Please enter a distant steering code 73100 to Add <==
+ Tools + Security	Copyright © 2002-2011 Avaya Inc. All rights reserved.
Done	😜 Internet 🔍 100% 🔻 🛒

Figure 43: Distant Steering Code List Page

The **Distant Steering Code** of new code "73001" page displays. Enter information as below:

- Flexible Length number of digits: enter "5". Due to 5 digits will be dialled.
- Route List to be accessed for trunk steering code: select "*l*" from dropdown menu list. This is the route list block index "1" created in Section 5.6.1 above.
- Keep other fields at default and click on **Submit** button complete.

AVAYA cs	1000 Element Manager Help Logout
- UCM Network Services - Home - Links - Vietual Terminala	Managing: 135.10.97.78 Username: admin Dialing and Numbering Plans » <u>Electronic Switched Network (ESN)</u> » Customer 00 » Coordinated Dialing Plan (CDP) » <u>Distant Steering Code List</u> » Distant Steering Code
- Vinda Ferminais + System - Customers - Routes and Trunks	Distant Steering Code
- Dialing and Numbering Plans - Electronic Switched Network	Distant Steering Code: 73100
– Flexible Code Restriction – Incoming Digit Translation	Flexible Length number of digits: 5 (0 - 10) <==
+ Phones + Tools	Display: Local Steering Code (LSC)
+ Security	Route List to be accessed for trunk steering code: 1 🗸 <==
	Collect Call Blocking:
	Maximum 7 digit NX code allowed:
	==> Submit Cancel 🚽
	Copyright © 2002-2011 Avaya Inc. All rights reserved.
Done	😜 Internet 🔍 100% 🔻 🛒

Figure 44: Distant Steering Code page

Repeat the same procedure above to create another distant steering code "73200" which is used as Auto Attendant number.

KP; Reviewed;	Solution & Interoperability Test Lab Application Notes	29 of 73
SPOC 2/1/2012	©2012 Avaya Inc. All Rights Reserved.	UM2010-CS1K75

6. Configure Microsoft Exchange Unified Messaging 2010

This document assumes that the Microsoft Exchange UM 2010 server was properly installed and configured by a Microsoft engineer. This section provides the steps on how to configure Microsoft Exchange UM to work with an Avaya Communication Server 1000 system.

The following summarizes the tasks which need to be done on the Exchange UM:

- Configure a new UM Dial Plan.
- Configure a new UM IP Gateway.
- Configure a new UM IP Mailbox Policy.
- Configure a new UM Auto Attendant.

6.1. Configure a New UM Dial Plan

Configure a new UM dial plan on the Exchange UM, from the Exchange UM server; navigate to the menu Start > All Programs > Microsoft Exchange Server 2010 > Exchange Management Console, the Exchange Management Console displays.

In the Exchange Management Console, navigate to Microsoft Exchange > Microsoft Exchange On-Premise > Organization Configuration, right-click on Unified Messaging item and select New UM Dial Plan.

😹 Exchange Management Console				_	
File Action View Help					
🗢 🔿 🖄 💼					
🔀 Microsoft Exchange	📲 Unified Messaging		2 objects	Actions	
🖃 🔯 Microsoft Exchange On-Premise	UM Dial Plans	/s LIM Mailbox Policies LLM	Auto Attendants	Unified Messaging	
Grganization Configuration				Now UM Dial Diap	_
	Y Create Filter				
	Name 🔺	# Digits	Associated UM Servers	m New UM IP Gateway	
👬 Unified Messaging	CM-SM-5diait	5	EXCH-A-873,EXCH-A-755	🔟 New UM Mailbox Policy	
Server Configuration New	UM Dial Plan	5	EXCH-A-873	🔣 New UM Auto Attendant	
Client Access New	UM Mailbox Policy			Export List	
Hub Transport New	UM Auto Attendant				
🔚 Unified Messagin				View	
Expo	ort List			🖸 🖸 Refresh	
Mailbox View	•			7 Help	
Mail Contact Refr	esh			- .	
Disconnected Ma					
Move Request					
🕋 Toolbox					
			Ŀ		
New UM Dial Plan					

Figure 45: Exchange Management Console Window

The **New UM Dial Plan** window is displayed. Enter information for the new dial plan in the **Introduction** section as below:

- Name: type "CS1K_CDP_5Digit".
- Number of digits in extension numbers: enter "5".
- URI: select "Telephone Extension".
- VoIP Security: select "unsecured".

Click on the Next button to go to Set UM Servers section.

New U	I <mark>M Dial Plan</mark>
Introduction Set LIM Servers	Introduction This wizard helps you create a UM dial plan for use by Microsoft Exchange Unified Messaging, A dial plan is a grouping of unique telephone extension numbers
 New UM Dial Plan Completion 	Name: [CS1K_CDP_5Digit Number of digits in extension numbers: 5 URI type: Telephone Extension VoIP security: Unsecured Country/Region code: 1
Help	< Back Next > Cancel

Figure 46: New UM Dial Plan Window

The **Set UM Servers** section of **New UM Dial Plan** window is displayed, click on **Add** button on right-hand of the window to add a new UM server.

	Set UM Servers Associate the dial pl	an with UM servers.	
Set UM Servers New UM Dial Plan	⇒ 🛟 A <u>d</u> d ×	Dit	Venter
Completion	Name	Kole	Version

Figure 47: New UM Dial Plan Window (cont)

The Select UM Server window displays with two Exchange servers, select "*EXCH-A-873*" is Exchange UM 2010 server, select this server and then click **OK** button to complete and close the Select UM Server window.

🍕 Select UM Server		
<u>F</u> ile ⊻iew		
<u>S</u> earch:	Find Now Clear	
Name 🔺	Role	Version
EXCH-A-755	Hub Transport, Client Access,	Version 8.3 (Build 83.6)
EXCH-A-873	Hub Transport, Client Access,	Version 14.1 (Build 218.15)
l		
		OK Cancel
1 object(s) selected.		2 object(s) found. 💥

Figure 48: Select UM Server window

Return to the **Set UM Servers** section of **New UM Dial Plan** window with the Exchange UM server selected. Click on **Next** button to continue.

New U	M Dial Plan
Introduction Set UM Servers New UM Dial Plan	Set UM Servers Associate the dial plan with UM servers.
Completion	Name Hole Version EXCH-A-873 Hub Transport, Client Acce Version 14.1 (Build 218.15)
Help	< <u>B</u> ack <u>N</u> ext > Cancel

Figure 49: New UM Dial Plan Window (cont)

The **New UM Dial Plan** section of **New UM Dial Plan** window displays configuration summary of the new UM dial plan.

Click on **New** button to go to continue.

New U	IM Dial Plan
 Introduction Set UM Servers New UM Dial Plan Completion 	New UM Dial Plan The wizard will use the configuration below. Click New to continue. Configuration Summary: CS1K_CDP_5Digit Name: 'CS1K_CDP_5Digit' NumberOfDigitsInExtension: '5' URIType: 'TelExtn' VolPSecurity: 'Unsecured' CountryOrRegionCode: '1'
	The UM dial plan will be associated with the following server: 'EXCH-A-873'.
Help	To copy the contents of this page, press CTRL+C. Key Cancel

Figure 50: New UM Dial Plan Window (cont)

The **Completion** section displays the new UM dial plan is successfully created. Click on **Finish** button to complete and close the **New UM Dial Plan** window.

New UK	M Dial Plan
 Introduction Set UM Servers New UM Dial Plan Completion 	Completion The wizard completed successfully. Click Finish to close this wizard. Elapsed time: 00:00:00 Summary: 2 item(s). 2 succeeded, 0 failed. Image: CS1K_CDP_5 CS1K_CDP_5 Exchange Management Shell command completed: New-UMDialPlan -Name 'CS1K_CDP_5' -Number0/DigitsInExtension '5' -URIType 'TelExtn' -VolPSecurity 'Unsecured' -CountryOrRegionCode '1' Elapsed Time: 00:00:00 Image: Exchange Management Shell command completed: Set-UmServer -Identity 'EXCH-A-873' -DialPlans 'CS1K_CDP_5Digit', 'CM-SM-5digit', 'CS1K_CDP_5' Elapsed Time: 00:00:00
<u>H</u> elp	To copy the contents of this page, press CTRL+C.

Figure 51: New UM Dial Plan Window (cont)
Figure 52 shows the new "CS1K_CDP_5Digit" UM dial plan is created.

😸 Exchange Management Console					
<u>File Action View H</u> elp					
🗢 🔿 🞽 🖬					
🔀 Microsoft Exchange 📃	🔐 Unified Messaging	1		2 objects	Actions
Microsoft Exchange On-Prem Organization Configuration	UM Dial Plans UM IP Gatewa	ys UM Mailbox Policies UM A	uto Attendants	-	Unified Messa 🔺 📥
A Mailbox	Treate Filter				new UM D
Client Access	Name 🔺	# Diaits	Associated LIM Servers	Associated I	👕 New UM I
	CM-SM-5digit	5	EXCH-A-873,EXCH-A-755	CM-SM	🎼 New UM M
 Server Configuration Mailbox 	CS1K_CDP_5Digit	5	EXCH-A-873	CS1K75	🔏 New UM A
					😹 Export Lis
🔤 Hub Transport					View +
E SRecipient Configuration					Q Refresh
Mailbox					Help
Mail Contact					C51K CDP 5D ▲
Disconnected Mailbo:					× Remove
				▶	Properties

Figure 52: Exchange Management Console with the new UM Dial Plan created

Right-click on the "*CS1K_CDP_5Digit*" UM dial plan created above as shown in **Figure 52**, and then select **Properties** (not shown). The **CS1K_CDP_5Digit Properties** window displays. Select **Subscriber Access** tab, enter number "73100" which is defined in **Section 5.1** and **5.6.2** in **Telephone number to associate** box and then click on the **Add** button to add this number to list of telephone number associate.

Click **Apply** button to save the change and click OK to close the **CS1K_CDP_5Digit Properties** window.

TK_CDP_SDigi	t Properties			
Settings General	Dialing Ru Subscriber Acce	le Groups ess	Dialin Dial Codes	g Restrictions Features
Welcome Gree	etings			
Welcome gree	eting:			
Use default g	reeting			M <u>o</u> dify
Informational a	announcement:			
Informational	announcement is disa	bled		Modify
Associated Su	ibscriber Access Num	bers		
<u>T</u> elephone nu	mber to associate:			
73100				
🛟 A <u>d</u> d 🧷 (<u>E</u> dit 🔀			

Figure 53: CS1K_CDP_5Digit UM Dial Plan Properties Window

6.2. Configure a New UM IP Gateway

Configure a new UM IP gateway on the Exchange UM, from the Exchange Management Console, navigate to Microsoft Exchange > Microsoft Exchange On-Premise > Organization Configuration, right-click on Unified Messaging item and select New UM IP Gateway.

😣 Exchange Management Console					
File Action View Help					
🗢 🔿 🖄 🖬 🛛 🖬					
🔀 Microsoft Exchange	👫 Unified Messaging	1	2 objects	Actions	
Microsoft Exchange On-Premise	UM Dial Plans UM IP Gateway	VS UM Mailbox Policies UM A	uto Attendants	Unified Messaging	•
A Mailbox	V Create Filter			🕞 New UM Dial Plan	
Client Access	I CLOUCO I NON			Rew LIM IP Gateway	
👸 Hub Transport	Name A	Address	Status		
Unified Mess New UM Di.	ial Plan	SM100	Enabled	New UM Mailbox Policy	
Berver Conrigura New UM IP	9 Gateway <==	135.10.97.149	Enabled	🔣 New UM Auto Attendant	
Client Acces: New UM Ma	lailbox Policy			📑 Export List	
Hub Transpo	uto Attendant			View	•
Export List				Defend	
Mailbox View	•				
				R Help	
Mail Contact		UM Dial Plans	Pilot Identifier		
Disconnecter Help					
Toolbox		ere are no idenis to snow in this	• view.		
New UM IP Gateway					

Figure 54: New UM IP Gateway Selected

The **New UM IP Gateway** window displays. Enter information for the new UM IP Gateway as below:

- Name: enter "*CS1K75*"
- IP address: enter "135.10.97.149". This is Node IP of CS 1000 SIP gateway
- **Dial Plan**: click on **Browser** button and select the dial plan "*CS1K_CDP_5Digit*" created above.

Click on **New** button to continue.

New UN	IP Gateway
 New UM IP Gateway Completion 	New UM IP Gateway This wizard helps you create a UM IP gateway for use by Microsoft Exchange Unified Messaging. UM IP gateways represent the connection between a physical gateway or IP PBX and Unified Messaging. Name: [CS1K75] IP address: [135.10.97.149 Example: 192.168.10.10 Equily qualified domain name (FQDN): Example: ipgateway1.contoso.com Dial plan: [CS1K_CDP_5Digit If a dial plan is selected, a default hunt group will be created to associate this new UM IP gateway to the specified dial plan. If no dial plan is selected, a hunt group must be created manually.
Help	< <u>B</u> ack <u>N</u> ew Cancel

Figure 55: New UM IP Gateway Window

The **Completion** section displays the new UM IP Gateway has been successfully created. Click on **Finish** button to complete and close the window.

New UM	IP Gateway
🛄 New UM IP Gateway	Completion The wizard completed successfully. Click Finish to close this wizard.
Completion	Elapsed time: 00:00:00
	Summary: 1 item(s). 1 succeeded, 0 failed.
	👕 C51K7 🕜 Completed 🗙
	Exchange Management Shell command completed: New-UMIPGateway -Name 'CS1K7' -UMDialPlan 'CS1K_CDP_5Digit' -Address '135.10.97.148'
	Elapsed Time: 00:00:00
	To copy the contents of this page, press CTRL+C.
<u>H</u> elp	< <u>B</u> ack Finish Cancel

Figure 56: New UM IP Gateway Window (cont)

6.3. Configure a New UM Mailbox Policy

The new default UM Mailbox Policy "*CS1K_CDP_5Digit Default Policy*" is automatically created after the UM Dial Plan "CS1K_CDP_5Digit" created. **Figure 57** below displays the new default UM Mailbox Policy.

😹 Exchange Management Console					
<u>File Action View H</u> elp					
🗢 🔿 🗡 🖬 🚺 🖬					
Microsoft Exchange	📲 Unified Messaging			2 objects	Actions
Microsoft Exchange On-Premise	UM Dial Plans UM IP Gateways Uf	M Mailbox Policies UM Auto At	tendants		Unified Messa 🔺 📥
Mailbox	Y Create Filter				📄 New UM D
Client Access	Name A	Associated LIM Dial Plan	Min PIN Length		🕋 New UM I
	CM-SM-5digit Default Policy	CM-SM-5digit	6		🧾 New UM M
🖃 📋 Server Configuration	CS1K_CDP_5Digit Default Policy	CS1K_CDP_5Digit	6	Ę	🕵 New UM A
Mailbox					Export Lis
🛃 Hub Transport					
🔚 Unified Messaging					view r
🕀 👗 Recipient Configuration					🧟 Refresh 📃
					🕜 Help
				Þ	C51K_CDP_5D ▲

Figure 57: The Default UM Mailbox Policy

Right-click on the "*CS1K_CDP_5Digit Default Policy*" policy and select **Properties** (not shown), the **CS1K_CDP_5Digit Default Policy Properties** window displays. In the **General** tab, features of mailbox can be enabled by checking on individual checkbox.

CS1K_CDP_5Digit Default	Policy Properties	×				
General Message Text F	PIN Policies Dialing Restrictions Pro	otected Voice Mail				
	Digit Default Policy					
Associated UM dial plan:	: CS1K_CDP_5Digit					
Modified:	Thursday, December 01, 2011 1:13	3:26 PM				
Maximum greeting durati	on (minutes):	5				
Allow missed call not	tifications					
🔽 Allow Message <u>W</u> ait	ting Indicator					
Allow inbound faxes						
Partner fax <u>s</u> erver UR	}l:					
sip:fax.avaya.com:50	060;transport=tcp					
(Examples: sip:fax3.e sip:rfx.it.litware.com:5	ng.contoso.com:5060;transport=tcp, i061;transport=tls)					
🔽 Allow <u>V</u> oice Mail Pre	view					
🔽 Allow Ou <u>t</u> look Voice	Access					
Allow Play on Phone	Allow Play on Phone					
Allow users to config	gure call answering <u>r</u> ules					
5	DK Cancel <u>A</u> pply	Help				

Figure 58: Mailbox Policy Properties Window

6.4. Configure a New Auto Attendant

Configure a new auto attendant on the Exchange UM, from Exchange Management Console window, navigate to Microsoft Exchange > Microsoft Exchange On-Premise > Organization Configuration, right-click on Unified Messaging item and select New UM Auto Attendant.

🔀 Exchange Management Console				
File Action View Help				
🗢 🔿 🙍 🖬				
Microsoft Exchange	👫 Unified Messaging		2 objects	Actions
Microsoft Exchange On-Premise	UM Dial Plans UM IP Gateways UM Mailbox	Policies UM Auto Attendants		Unified Messaging
	Create Filter			🙀 New UM Dial Plan
Client Access	,	1		Rew UM IP Gateway
Hub Transport	Name A	UM Dial Plan	Pilot Identifier	Manu LIM Mailhau Daliau
Server Configuratio	UM Dial Plan	CS1K_CDP_5Digit	73200	New OM Mailbox Policy
Mailbox New	UM IP Gateway	Chromodigic	29500	New UM Auto Attendant
Client Access New	UM Mailbox Policy			🛃 Export List
Hub Transport New	UM Auto Attendant <==			View
Recipient Configura	ort List			Refrect
Mailbox View	•			
🐴 Distribution Gro				K Help
Mail Contact Rem	esh			C51K UM Auto Attendant 🔺
Move Request				🔘 Disable
ia Toolbox				× Remove
				V Properties
				🛛 Help
			F	
New UM Auto Attendant				
)

Figure 59: New UM Auto Attendant Option Selected

The **New UM Auto Attendant** window displays. Enter information for this new UM auto attendant as below:

- Name: enter "CS1K Auto Attendant".
- Select associated dial plan: click on Browser button and select the "CS1K_CDP_5Digit" dial plan created in Section 6.1.
- **Pilot identifier list**: enter number "73200" as defined in Section 5.6.2 and click on Add button to add this number to the list.
- Create auto attendant as enabled: Checked.
- Create auto attendant as speech-enabled: Checked.

Click on **New** button to continue.

New	UM Auto Attendant				
New UM Auto Attendant	New UM Auto Attendant This wizard helps you create a new UM auto attendant for use by Microsoft Exchange				
Completion	auto attendant with a dial plan. You can also enter the extension number or numbers that callers will use to access this auto attendant.				
	Name: CS1K Auto Attendant				
	Select a <u>s</u> sociated dial plan.				
	CS1K_CDP_5Digit Browse				
	73200				
	Add / Edit X				
	 Create auto attendant as enabled Create auto attendant as speech-enabled 				
Help	< <u>B</u> ack <u>N</u> ew Cancel				

Figure 60: New UM Auto Attendant Window

The **Completion** section displays the new UM auto attendant with name "*CS1K Auto Attendant*" has been successfully created.

New UM	Auto Attendant
 New UM Auto Attendant Completion 	Completion The wizard completed successfully. Click Finish to close this wizard. Elapsed time: 00:00:00
	Summary: 1 item(s). 1 succeeded, 0 failed. CS1K Auto Attendant Completed
	Exchange Management Shell command completed: New-UMAutoAttendant -Name 'CS1K Auto Attendant' -UMDialPlan 'CS1K_CDP_5Digit' -Status 'Enabled' -SpeechEnabled \$true -PilotIdentifierList @()
	Elapsed Time: 00:00:00
	To copy the contents of this page, press CTBL+C
Help	< Back Finish Cancel

Figure 61: New UM Auto Attendant Window

7. Configure SIP TLS on CS 1000 SIP Gateway

The Communication Server 1000 system might have many SIP Signaling Gateways; these SIP Gateways are managed by a Unified Communication Management (UCM) application. This section provides the procedure for setting up SIP TLS on a specific SIP Gateway that was used to connect to Exchange UM 2010 server:

- Create a self certificate for SIP Gateway.
- Add Exchange UM 2010 Certificate to Certificate Authorities on the CS 1000 Unified Communication Management server.
- Download a certificate from Communication Server 1000 Unified Communication Management (UCM) Private Authority Certificate.
- Enable SIP TLS in SIP Gateway.
- Enable Secure Media in SIP Gateway.
- Add A Host Entry For Exchange UM in SIP Gateway.
- Configure Secure Media in System and Phone Station.

7.1. Create a Self Certificate for CS 1000 SIP Gateway

From the homepage of Communication Server 1000 UCM, navigate to Security > Certificate.

😭 🏟 🌈 Unified Communications Mana	agement			🟠 • 🖻 • 🖶 • 🗗	Page \star \textcircled{O} Tools \star $\overset{\circ}{}$	
Αναγα	Avaya Unified Comm	unications M	anagement		<u>Help</u> <u>Loqout</u>	
— Network Elements	Host Name: car2-sipl-ucm.bvwdev.	com Software Ver	sion: 02.20.0013.00(4488)	User Name admin	^	
 — CS 1000 Services IPSec 	Elements					
Patches SNMP Profiles Secure FTP Token	New elements are registered into the security framework, or may be added as simple hyperlinks. Click an element name to launch its management service. You can optionally filter the list by entering a search term.					
– User Services		Search Rese	ət			
Administrative Users External Authentication	Add Edit Delete				<u>≣ ¤</u> ↔	
Password	Element Name	Element Type	Release	Address	Description	
Roles	1 EM on car2-cores	CS1000	7.5	135.10.97.90	New element.	
Certificates	2 EM on car2-ssq-carrier	CS1000	7.5	135.10.97.90	New element.	
Active Sessions — Tools	3 EM on cpppm3	CS1000	7.5	135.10.97.78	New element.	
Logs Data	4 car2-mas.bvwdev.com (member)	Linux Base	7.5	135.10.97.171	Base OS element.	
	5 car2-ssg2.bvwdev.com (member)	Linux Base	7.5	135.10.97.157	Base OS element.	
	6 car2-sps.bvwdev.com (member)	Linux Base	7.5	135.10.97.172	Base OS element.	
	7 car2-ssq- carrier.bvwdev.com (member)	Linux Base	7.5	135.10.97.167	Base OS element.	
	8 car2-cores.bvwdev.com (member)	Linux Base	7.5	135.10.97.169	Base OS element.	
	9 car2-sipl-ucm.bvwdev.com	Linux Base	7.5	135.10.97.163	Base OS 🔄 💌	
	Copyright 2002-2010 Avaya Inc. All rig	hts reserved.				
				😜 Internet	🔍 100% 🔹 🛒	

Figure 62: Certificate Section in UCM Home Page

The **Certificate Management** page displays on right-hand side of UCM window, navigate to **Certificate Endpoint** section and select SIP Gateway member that needs to create a self certificate, in this example that is "135.10.97.150" with Element Name "*cpppm3.belleville.com*"

😤 🏟 🎉 Unified Communications Mar	nagement		<u></u>	🔪 🔊 🔹 🖶 🔹 🔂 Page 🕶 🌀	Tools •
avaya	Avaya Unified Com	munications M	lanagement	<u>Help</u>	<u>Loqout</u>
 Network Elements CS 1000 Services IPSec Patches SNMP Profiles Secure FTP Token 	Host Name: car2-sipl-ucm.bwvd Certificate Manage Distribute and maintain Web SS	ev.com Software Ve ment L and SIP TLS security Search Re	rsion: 02.20.0013.00(4488) User Name add certificates, and manage the Private Certificate eset	min Authority.	
Software Deployment — User Services	Certificate Endpoints		Private Certificate Authority	1	
Administrative Users External Authentication Password	Display the details of a certific on a single base server, only t	ate endpoint by selectin he base endpoint is sh	g the radio button associated with that endpoir own.	nt. When multiple logical elements	reside
- Security	Endpoint Address	Element Type	Element Name	Number of Service Profiles	=
Roles	5 0 135.10.97.169	Linux Base	car2-cores.bvwdev.com (member)	4	<u>^</u>
Certificates	6 🔿 135.10.97.163	Linux Base	car2-sipl-ucm.bvwdev.com (primary)	4	
Active Sessions	7 () 135.10.97.150	Linux Base	cpppm3.bvwdev.com (member)	4	=
- Tools	8 🔿 135.10.97.136	Linux Base	sipI75.bvwdev.com (member)	4	~
Data	Endpoint Details Details for the selected endpo Certificates	int.			
	Service Profile	Status	Friendly name	Expiration date	
	1 Default Certificate	signed	cpppm3	Jan 17, 2021	
	2 DTLS	none			
	4 SIP TLS	none			
					~
	<				
	Copyright 2002-2010 Avaya Inc. Al	I rights reserved.			
				😜 Internet 🔍 1	00% 🔹 🔡

Figure 63: Certificate Management Page

When the SIP Signaling Gateway "*cpppm3.belleville.com*" member is selected in the **Certificate Endpoints** section, their detailed certificates is displayed in **Endpoint Details** section and under **Certificates** subsection.

Click on **SIP TLS** in **Service Profile** column of the **Certificates** subsection to generate a self certificate for this SIP Gateway.

Αναγα	Avaya Unified Comn	nunications Ma	anagemen	nt		<u>Help</u> <u>Loqout</u>
— Network Elements	Host Name: car2-sipl-ucm.bvwde	v.com Software Vers	ion: 02.20.0013.	.00(4488) User Name admin		
- CS 1000 Services	5 🔿 135.10.97.169	Linux Base	car2-cores.b	ovwdev.com (member)	4	<u> </u>
IPSec Patches	6 🔿 135.10.97.163	Linux Base	car2-sipl-ucr	m.bvwdev.com (primary)	4	
SNMP Profiles	7 💽 135.10.97.150	Linux Base	cpppm3.bvw	vdev.com (member)	4	
Secure FTP Token	8 🔿 135.10.97.136	Linux Base	sipl75.bvwd	ev.com (member)	4	~
Software Deployment	En de ciné Deteile	1				
Administrative Users	Endpoint Details					
External Authentication	Details for the selected enupoin	t				
Password	Certificates					
- Security	Service Profile	Status	Friendly na	ime	Expiration date	
Policies	1 Default Certificate	signed	cpppm3		Jan 17, 2021	
Certificates	2 DTLS	none				
Active Sessions	3 Web SSL	none				
- Tools	4 011-120	none				
Data						
	Certificate Authorities	ŝ				
	Add Enable Trust	Disable Trust	Delete U	pdate CRL		
	Friendly name	Expiration date	Trusted I	Issued by	Last CRL Update	
	1 O car2-sipl-ucm.bvwd	Feb 1, 2035	yes /	/O=avaya/ST=ON/L=Belleville/	Nov 17, 2011	
	2 O MSUM	Mar 22, 2016	yes /	/DC=com/DC=microsoft/DC=n		
						×
						<u> </u>
	Copyright 2002-2010 Avaya Inc. All ri	.ghts reserved.				

Figure 64: Certificate of SIP Gateway Member

Server Certificate page pops up, select option "*Create a new certificate, signed by local Certificate Authority*" and Click **Next** button to continue.

🖉 car2-sipl-ucm.bvwdev.com - Certificate Management Wizard 🔳 🗖 🔀
😢 https://car2-sipl-ucm.bvwdev.com/pki-adminconsole/jsp/options.jsp?el 💙 😵 Certificate Error
Server Certificate
These are the methods for assigning a certificate to your server.
 Create a new certificate, signed by local private Certificate Authority
O Import a certificate and its private key from a file
Assign an existing certificate
O Create a new self-signed certificate
O Create a new certificate request to be signed by third party Certificate Authority
Next > Cancel
Done 😜 Internet 🔍 100% 👻 🛒

Figure 65: Server Certificate Window

Name and Security Settings section displays. Enter the name "SIPGW-TLS" in Friendly Name box and select Bit Length as "1024" (Default value). Click on Next button to continue.



Figure 66: Server Certificate Window (cont)

The **Organization Information** section displays. Enter "*Solution and Interoperability*" in **Organization** box and "*BvwDevConnect*" in **Organization Unit**. Click on **Next** button to continue.

🖉 car2-sipl-ucm.bvwdev.com - Certificate Management Wizard 🔳 🗖 🔀
🙋 https://car2-sipl-ucm.bvwdev.com/pki-adminconsole/jsp/orginfo.jsp?el 💙 😵 Certificate Error
Organization Information
Your certificate must include information about your organization that distinguishes it from others.
Organization : Solution and Interoperability
Organization Unit : D. D. O
BwDevConnect
Type the name of your organizational unit. This is typically the legal name of your division or department.
- Dark Neutra Connel
< Back Next > Cancel
Done 🔍 🗌 🤤 Internet 🔍 100% 🔻 💡

Figure 67: Server Certificate Window (cont)

Your Server's Common Name section displays. Enter "*cpppm3.bvwdev.com*" in Common Name box and select "*None*" in Subject At Name dropdown menu. Click on Next button to continue.



Figure 67: Server Certificate Window (cont)

The Geographic Organization section displays. Select "*CANADA*" in Country/Region dropdown menu, "*ON*" in State/Province box, and "*Belleville*" in City/Locality. Click on Next button to continue.

🖉 car2-sipl-ucm.bvwdev.com - Certificate Management Wizard	💶 🗖 🔀
🙋 https://car2-sipl-ucm.bvwdev.com/pki-adminconsole/jsp/geoinfo.jsp?e 💙 😵	Certificate Error
Geographical Information	
The certificate requires the following geographical information.	
Country/Persion : CANADA	
	•
State/Province : ON	
City/Locality : Belleville	
State/Province and City/Locality must be complete, offi	cial
names and must not contain abbreviations.	
<back next=""></back>	Cancel
Done 😜 Internet	🔍 100% 🔻 🛒

Figure 68: Server Certificate Window (cont)

Certificate Request Summary section displays summary information of the self certificate. Click on **Commit** button to start generating the certificate.

🖉 car2-sipl-ucm. bvwdev. com - Certificate Management Wizard 🔳 🗖 🗙
💋 https://car2-sipl-ucm.bvwdev.com/pki-adminconsole/jsp/summreq.jsp? 🌱 😵 Certificate Error
Certificate Request Summary
Your certificate contains the following information:
Friendly Name : SIPGW-TLS
Common Name : cpppm3.bvwdev.com
Organization : Solution and Interoperability
Organization Unit : BvwDevConnect
Country/Region : CA
State/Province : ON
City/Locality : Belleville
Subject Alt Name :
On Commit, your request will be processed to generate a certificate in X.509 format.
< Back Commit Cancel
Done 😌 Internet 🔍 100% 👻 🛒

Figure 69: Server Certificate Window (cont)

Click on **Finish** button to complete and close the page.

🖉 car2-sipl-ucm. bvwdev.com - Certificate Management Wizard 🔳 🔲 🗙
💋 https://car2-sipl-ucm.bvwdev.com/pki-adminconsole/jsp/summcert.jsp 💙 🔇 Certificate Error
Certificate Summary
The following certificate has been installed on your server.
<u>Certificate Detail:</u>
Friendly Name : SIPGW-TLS
Expiration Date : Dec 1 21:13:00 2021 GMT
Issued To : /C=CA/ST=ON/L=Belleville/CN=cpppm3.bvwdev.com/ O=Solution and Interoperability/OU=BvwDevConnect
Issued By : /O=avaya/ST=ON/L=Belleville/C=CA/CN=car2-sipl- ucm.bwwdev.com/OU=devconnect
To reflect the changes in home page, click Finish.
Finish
Done 😌 100% 👻

Figure 70: Server Certificate Window (cont)

Figure 71 shows the new certificate for SIP TLS has been created with status as "signed".

Αναγα	Avaya	Unified Comr	nunications	Management	He	lp <u>Logout</u>
 Network Elements CS 1000 Services IPSec 	Host Nam Details	e: car2-sipl-ucm.bvwde for the selected endpoir	v.com Software 1 nt.	Version: 02.20.0013.00(4488) User Name	admin	
Patches	Certi	Region Profile	Status	Friendly nome	Evaluation data	
SNMP Profiles		Service Prolite	Status	Friendly name	Expiration date	
Secure FTP Token	1	Default Certificate	signed	cpppm3	Jan 4, 2021	
Software Deployment	2	DTLS	none			
- User Services	3	WebSSL	none		D == 4,0004	
External Authentication Password — Security	Certi	ficate Authorities	5			
Roles Policies	Ad	d Enable Trust	Disable Trust	Delete Update CRL		
Certificates		Friendly name	Expiration date	Trusted Issued by	Last CRL Update	
Active Sessions — Tools	1 0) car2-sipl-ucm.bvwd	Feb 1, 2035	yes /O=avaya/ST=ON/L=Belle	eville/ Dec 4, 2011	
Logs						~
Data	<					
	Copyright	2002-2010 Avaya Inc. All i	ights reserved.			
Done					😌 Internet	🔍 100% 🔻 💡

Figure 71: The New Certificate Generated for SIP TLS

7.2. Add Exchange UM Certificate to SIP Gateway Certificate Authorities

From **Certificate Authorities** section of certificate endpoints "*135.10.97.150*", click on **Add** button to import Exchange UM certificate.

Αναγα	Ava	aya l	Jnified Comn	nunications I	Manageme	ent	He	elp L	<u>oqout</u>
— Network Elements — CS 1000 Services	Host De	t Name: etails for	car2-sipl-ucm.bvwde the selected endpoir	v.com Software V it.	ersion: 02.20.001	3.00(4488) User Name admir	1		<u>^</u>
IPSec	C	Certifi	cates						
SNIMP Profiles			Service Profile	Status	Friendly r	name	Expiration date		
Secure FTP Token		1	Default Certificate	signed	cpppm3		Jan 4, 2021		
Software Deployment		2	DTLS	none					
- User Services		3	Web SSL	none					
Administrative Users		4	SIP TLS	signed	SIPGW-T	LS	Dec 1, 2021		
External Authentication									
Password									
- Security	C	Certifi	cate Authorities	6					
Roles Policies	==>	Add	. Enable Trust	Disable Trust	Delete	Update CRL			Ξ
Certificates			Friendly name	Expiration date	Trusted	d Issued by	Last CRL Update		
Active Sessions		10	car2-sipl-ucm.bvwd	Feb 1, 2035	yes	/O=avaya/ST=ON/L=Belleville/	Dec 4, 2011		
— Tools									
Logs									~
Data	<				1111				>
	Com	vright 20	02 2010 Avava Inc. All r	inhte received					
	copy	yrigilt 20	22-2010 Avaya IIIC. AIT	igina reaciveu.					
Done						😝 In	ternet	at 100% مع	•

Figure 72: Certificate Authorities of SIP Gateway member

A new page pops up. In "*Add a CA to the Service*" section, enter "*MSUM*" in **Friendly Name** box, paste Exchange UM certificate into the blank box and then click on **Submit** button to install this certificate. <u>Note</u>: The Exchange UM certificate is provided by Microsoft UM Team and it can be opened by Microsoft Notepad application and use "copy" and "paste" command to copy and paste the certificate.

🖉 car2-sipl-ucm. bvwdev.com - Certificate Authority Add Wizard 🔳 🗖 🗙
💋 https://car2-sipl-ucm.bvwdev.com/pki-adminconsole/jsp/addCa.jsp?ele 💙 🔇 Certificate Error
Add a CA to the Service
Enter a unique Friendly name. Copy the content of the certificate authority's X.509 certificate and paste in to the text area below.
Friendly Name : MSUM
format including the Begin Certificate and End Certificate lines.
BEGIN CERTIFICATE MIIFITCCBAmgAwIBAgIQR5JeEMvVE49DstJDXTmM8TANBgkqhkiG
MRMwEQYKCZImiZPyLGQBGRYDY29tMRkwFwYKCZImiZPyLGQBGRYJ bWljcm9zb2Z0 MRYwFAYKCZImiZPyLGQBGRYGbnR0ZXN0MRowGAYKCZImiZPyLGQB
GRYKULRDVEVT VERPTTEQMA4GA1UEAxMHRWFzdExhYjAeFw0wMzAxMTAyMjIyMDVa Fw0xNjAzMjIy MadAUNFEMINYFEADBECCIKizIk/LoZDEZECNIb20wCTAVEccIkizI
To install the above CA into your server, click Submit.
Submit Cancel
😜 Internet 🔍 100% 🔻

Figure 73: Add a CA to the Service Page

Figure 74 shows the Exchange UM certificate is successfully imported to the Certificate Authorities.

Αναγα	Avay	a Unified Com	munications N	Management		He	lp Lo	gout
 Network Elements CS 1000 Services IPSec 	Host Nat Details	me: car2-sipl-ucm.bvwde s for the selected endpoi	ev.com Software Ve int.	ersion: 02.20.0013.00(4488) User Name admin			^
Patches	Cer	tificates						
SNMP Profiles		Service Profile	Status	Friendly name		Expiration date		
Secure FTP Token	1	Default Certificate	signed	cpppm3		Jan 17, 2021		
Software Deployment	2	DTLS	none					
- User Services	3	Web SSL	none					
Administrative Users	4	SIP TLS	signed	SIPGW-TLS		Dec 1, 2021		
External Authentication Recoverd								
- Security								
Roles	Cer	tificate Authoritie	S					
Policies	A	dd Enable Trust	Disable Trust	Delete Update Cl	RL			
Certificates		Friendly name	Expiration date	Trusted Issued b	у	Last CRL Update		
Active Sessions — Tools	1	car2-sipl-ucm.bvwd	Feb 1, 2035	yes /O=avaya	/ST=ON/L=Belleville/	Nov 17, 2011		
Logs	2	O MSUM	Mar 22, 2016	yes /DC=con	n/DC=microsoft/DC=n			
Data	<							> ×
	Copyrigh	nt 2002-2010 Avaya Inc. All	rights reserved.					
Done					😜 Inter	net	🔍 100%	•

Figure 74: The Exchange UM Certificate Imported

7.3. Download a Private Authority Certificate

From the **Certification Management** page, click on **Private Certificate Authority** tab and detail of the certificate is displayed in **Private Certificate Authority Details** section.

Click on **Download** button to save the certificate.

Αναγα	Avaya Unified Comm	nunications Manageme	ent		Help I Logout
Network Elements OS 1000 Services IPSec Patches SINIP Profiles Secure FTP Token	Host Name: car2-sipI-ucm.bwwdev Certificate Managem Distribute and maintain Web SSL	Com Software Version: 02.20.00 Tent and SIP TLS security certificates, and Search Reset	13.00(4488) Use manage the Privat	r Name admin a Certificate Authority	
Software Deployment — User Services	Certificate Endpoints	Priva	te Certificate	Authority	
Exertisal Autorentication Password — Security Roles Policies Certificates Active Sessions — Tools Logs Data	Private Certificate Autil Click the download button to sav Subject OU=devo Expiration date: Feb 1, 20 Fingerprint: 0a:d4:7f:0 Contents: Download Certificates Revoke	hority Details re the certificate contents. It can be lat iconnect.CNiccar2-sipI-ucm.bwdev.cor 155 06:d7:a0:64:36:50:60:31:ec:f8:67:37:8 load	er imported into the n,C=CA,L=Belleville 2	.Trusted Root Certificate Authorities o a,ST≈ON,O≈avaya	f your client.
	Serial Number	Subject DN	Status	Expiration date	
	15 1130/04232	OO=devcormed; O=avaya;	valid	Jan 17, 2021	
	16 2436348174	OU=devconnect, O=avaya,	valid	Feb 1, 2021	
	17 8310655438	OU=devconnect, O=avaya,	valid	Apr 10, 2021	
	18 27127235626	OU=DevConnect, O=Lab1,	valid	Nov 14, 2021	
	19 27580004356	C=CA,ST=ON,L=Belleville,	valid	Nov 19, 2021	
	20 🗹 28620390004	C=CA,ST=ON,L=Belleville,	valid	Dec 1, 2021	× ×
	Copyright 2002-2010 Avaya Inc. All ri	ights reserved.			
				😜 Internet	💐 100% 🔹

Figure 75: Private Certificate Authority Page

The **File Downlo**ad window pops up, click on **Save** button to save the certificate. This certificate will be imported to Exchange UM server.



Figure 76: File Download Window of Private Certificate

7.4. Enable SIP TLS on SIP Gateway

From the UCM home page, navigate to Network > Element > Element Name (in this example, "CPPPM3_ON_EM") > System > IP Network > Nodes: Servers and Media Cards > Node ID (in this example, 511) > Node Details (ID: 511 - LTPS, Gateway (SIPGw)) > Gateway (SIPGw) > Node ID: 511 - Virtual Trunk Gateway Configuration Details.

Scroll down to **SIP Gateway Settings** section, select "Secure End to End" in **TLS Security** dropdown menu, enter "5061" in **Port** box, and check on "Client authentication" and "X509 certificate authority" checkboxes.

UCM Network Services Home Home Links Virtual Terminals System » IP Network » IP Telephony Nodes » Node Details » Virtual Trunk Gateway Configuration Node ID: 511 - Virtual Trunk Gateway Configuration Details Virtual Terminals System Adams Adams Haintenance Core Equipment - IP Network Nodes: Servers. Media Cards Maintenance and Reports Maintenance and Reports Maintenance and Reports Number of byte re-negotiation: Options: ♥ Client authentication Port: 5061 (1 - 65535) Number of byte re-negotiation: ♥ X509 certificate authority ♥ X509 certificate authority	Αναγα	CS1000 Element Manager	⊧lp Logout
Haintenance and Reports Media Gateways Zones Host and Route Tables Host and Route Tables Network Address Translation (NAT QoS Thresholds Perts onal Directories Unicode Name Directory	- UCM Network Services - Home - Links - Virtual Terminals - System - Alarms - Maintenance + Core Equipment - Peripheral Equipment - Peripheral Equipment - Peripheral Equipment - Peripheral Equipment	Managing: 135.10.97.78 Username: admin System » IP Network » IP Telephony Nodes » Node Details » Virtual Trunk Gateway Configuration Node ID: 511 - Virtual Trunk Gateway Configuration Details General SIP Gateway Settings TLS Security: Secure End to End	
Copyright © 2002-2011 Avaya Inc. All rights reserved.	Maintenance and Reports Media Gateways Zones Hous and Route Tables Network Address Translation (NA QoS Thresholds Personal Directories Unicode Name Directory	Port: 5061 (1 - 65535) Number of byte re-negotiation: 0 V Options: Client authentication X509 certificate authority Copyright © 2002-2011 Avaya Inc. All rights reserved.	~

Figure 77: SIP Gateway Settings With TLS

Scroll down to Proxy and Redirect Server of SIP Gateway Settings section, enter IP address of Exchange UM server "131.107.5.62" in Primary TLAN IP address box, "5061" in Port box and select "TLS" in Transport protocol.

Αναγα	cs	1000 Element Manager Help Logout
- UCM Network Services	^	Managing: 135.10.97.78 Username: admin Svstem » IP Network » IP Telephony Nodes » Node Details » Virtual Trunk Gateway Configuration
- Home		Node (D: 511 - Virtual Trunk Gateway Configuration Details
- Virtual Terminals		Note D. of Foundation and Salesway Configuration Deallo
- System		Conoral I SIP Cateway Settings I SIP Cateway Services
+ Alarms		
- Maintenance		Proxy Or Redirect Server:
- Peripheral Equipment		Proxy Server Route 1:
- IP Network	_	Primary TLAN IP address: 131.107.5.62 <==
 <u>Nodes: Servers, Media Cards</u> 		The IP address can ha r IPv4 or IPv6 format based on the value of "TLAN
- Maintenance and Reports		address type"
- Media Galeways		Port 6061 (4 65535)
- Host and Route Tables		
- Network Address Translation (NA	T,	Transport protocol: TLS v <==
- QoS Thresholds		Ontions: Support tration
- Unicode Name Directory		
+ Interfaces		Primary CDS proxy
- Engineered Values		
Contractor Continue	>	Copyright © 2002-2011 Avaya Inc. All rights reserved.
		😜 Internet 🔍 100% 👻

Figure 78: Proxy Or Redirect Server Settings

7.5. Enable Secure Media on SIP Gateway

The secure media can be only applied when SIP TLS is established. To enable secure media, on the Node ID: 511 - Virtual Trunk Gateway Configuration Details page scroll down to SIP Gateway services (not shown) section and under Microsoft Unified Messaging subsection check on "Enable Secure Media" check box.

avaya	cs	1000 Element Manager	Help Logout
- UCM Network Services -Home -Links - Virtual Terminals -System +Alarms -Maintenance +Core Equipment -Preipheral Equipment -IP Network -Nodes: Servers, Media Card -Maintenance and Reports -Media Gateways -Zones -Host and Route Tables -Network Address Translatio	s ls	Node ID: 511 - Virtual Trunk Gateway Configuration Details General SIP Gateway Settings SIP Gateway Services Microsoft Unified Messaging: MWI application DN: 73100 MWI dialing plan: CDP Options: Enable softkeys V Enable secure media Subscriber Access Service Add Remove	
- Personal Directories - Unicode Name Directory Interfaces Engineered Values Emergency Services + Geographic Redundancy + Software	~	Access Number Access Number Use Insert Number 73100 Access Number is DN	×
Cone		Copyright © 2002-2011 Avaya Inc. All rights reserved.	🔍 100% 🔻 📊

Figure 79: Enable Secure Media on SIP Gateway

The process of save, transfer and synchronization need to be applied as described in Section 5.1 for the changes take effect.

KP; Reviewed;	Solution & Interoperability Test Lab Application Notes	55 of 73
SPOC 2/1/2012	©2012 Avaya Inc. All Rights Reserved.	UM2010-CS1K75

7.6. Add a Host Entry For Exchange UM In SIP Gateway

This is important step of setting up SIP TLS, due to SIP TLS uses Full qualified domain name (FQDN) to negotiate and handshake, make sure CS 1000 SIP Gateway is able to resolve the IP address of Exchange UM to its FQDN and vice versa. This can be approached by adding a host entry in the SIP Gateway, from homepage of UCM, click on member "*cpppm3.bvwdev.com* (*member*)" of SIP Gateway.

avaya	Avaya Unified Commu	nications Man	agement		<u>Help</u> <u>L</u>	<u>oqout</u>
— Network Elements	Host Name: car2-sipl-ucm.bvwdev.co	m Software Version:	02.20.0013.00(4488) User I	Name admin		
CS 1000 Services IPSec Patches SNMP Profiles Secure FTP Token	Elements New elements are registered into the management service. You can option:	security framework, or n ally filter the list by enteri	nay be added as simple hyperli ng a search term.	nks. Click an element name to	launch its	
Outware Deployment User Services Administrative Users		Search Reser				
External Authentication Password	Add Edit Delete	Element Type +	Release	Address	E Z ↔	
— Security Roles	(member) 8 car2-cores.bvwdev.com	Linux Base	7.5	135.10.97.169	element. Base OS	_
Policies Certificates Active Sessions	(member) g car2-sipl-ucm.bvwdev.com (primary)	Linux Base	7.5	135.10.97.163	element. Base OS element.	
— Tools	10 cpppm3.bvwdev.com <==	Linux Base	7.5	135.10.97.150	Base OS element.	
Data	11 Sipl75.bwwdev.com (member)	Linux Base	7.5	135.10.97.136	Base OS element.	
	12 🔲 Locate911	Non CS1000 Manual Device	7.5	135.10.97.30	etelemetry emergency server	=
	13 🔲 135.10.97.81	Media Gateway Controller	7.5	135.10.97.81	New element.	~
	Copyright 2002-2010 Avaya Inc. All rights	reserved.				

Figure 80: UCM Homepage with Linux Member

The **Base Manager** page displays. On the left-hand tree menu, click on **DNS and Hosts**. The **Domain Name Server (DNS)** displays on right-hand side of **Base Manager** page, in the **Hosts** section, click on **Add** button to add a new host.

Αναγα	Ва	se Manago	er				<u>Help</u> <u>Loqout</u>
«UCM Network Services	Mana	ging: 135.10.97.15 Base System	0 (Member UCM serve) » Networking » Domain I	e r) Name Server			
 BaseSystem Networking 	Dor	nain Name S	erver (DNS)				
Network Identity	Prim	ary and Seconda	y servers are set mani	Jally.			
DNS and Hosts <==	DNS	IP addresses					Edit
Route Table							
Explicit Congestion Notification					Primary: 135.10.98.60		
Date and Time				Se	econdary: 0.0.0.0		
SSH Keys							
— Software							
Applications	Hos	ets					
Patches	Host	IP address confi	ruration				
Application		dd Delete					Refresh
OAM		<u>Host ID</u> •	IP Address	<u>Host Name</u>		<u>Domain</u>	
		1	135.10.97.163	car2-sipl-ucm		bwwdev.com	
	Copy	right © 2009,2010 .	Avaya Inc. All rights reser	ved.			
						😜 Internet	🔍 100% 🔻 🛒

Figure 81: Base Manager of SIP Gateway

The New Host page displays. Enter IP "131.107.5.62" in IP address box, "*EXCH-A-873*" in Host name box and domain name "*DFPYXV-dom.extest.microsoft.com*" in Domain box. Click on Save button to complete adding new host for Exchange UM.

Αναγα	Base Manager	<u>Help</u> <u>Loqout</u>
«UCM Network Services — BaseSystem — Networking	Managing: 135.10.97.150 (Member UCM server) Base System » Networking » DNS and Hosts » New Host New Host	
Network Identity DNS and Hosts Route Table Explicit Congestion Notification Date and Time	IP address: 131.107.5.62 * <== Host name: EXCH-A-873 * <== Domain: extest.microsoft.com * <==	
SSH Keys — Software	*Required value. ==> [Save Cancel
Applications Patches		
— Tools — Logs		
Application OAM		
	Copyright @2009.2010 Avaya Inc. All rights reserved.	🔍 100% 🔻 📑

Figure 82: New Host Page

Figure 83 below shows the new host of Exchange UM server is successfully added to the SIP Gateway.

Αναγα	Base Manage	r		Help Logout
 «UCM Network Services — BaseSystem — Networking Network Identity DNS and Hosts <== 	Managing: 135.10.97.150 Base System Domain Name Se Primary and Secondary DNS IP addresses	(Member UCM serv <u>» Networking</u> » Domain erver (DNS) / servers are set mar	er) Name Server Wally.	Fdit
Route Table Explicit Congestion Notification Date and Time SSH Keys — Software			Primary: 135.10.98.60 Secondary: 0.0.0.0	
Applications Patches — Tools — Logs	Hosts Host IP address config Add Delete	uration.		Refresh
Application OAM ==>	Host ID▲ 1 2	I <u>P Address</u> 135.10.97.163 131.107.5.62	HostName car2-sipI-ucm EXCH-A-873	Domain bwwdev.com DFPYXV-dom.extest.microsoft.com
Done	Copyright @ 2009,2010 A	waya inc. All rights rest	srveu.	🌒 Internet 🔍 100% 👻

Figure 83: New Host of Exchange UM Added

7.7. Configure Secure Media in System and Phone Station

Enable secure media in **Section 7.5** above is just first step for enabling secure media on CS 1000 to Exchange UM server. This section provides the configuration on Call Server for enabling secure media in the system and Phone station. Log in to the Call Server as administrator and issue following overlay commands.

Overlay LD 17 to enable media security for system. The media security of system can be Media Security Always (MSAW), Media Security Best Try (MSBT) or Media Security Never (MSNV). When media security in system is enabled, all IP phone station has media security class of service matched with media security in the system will be effective.

LD 17		
REQ CHG		
Type PARM		
MSEC ON		
MSSD MSBT		
NKEY 31		
TKEY 24		

Figure 84: Enable Media Security In The System

Overlay LD 20 to enable media security class of service for IP phone station. The media security class of server in the phone station should be matched with media security set in the system, in this testing that is MSBT (Media Security Best Try).

In the configuration below, the IP Phone 1140E is set to Media Security System Default (MSSD), whatever type of media security is set in the system; the media security of IP Phone 1140E is going to be matched.

LD 20	
REQ: CHG	
TYPE: 1140	
TN 96 0 4 1	
ECHG yes	
ITEM cls MSSD	

Figure 85: Enable Media Security Class of Service on IP Phone

Overlay LD 14 to enable media security class of service for IP Trunks, these are SIP IP Trunks defined in the CS 1000 system used for carrying SIP to Exchange UM. It's different than phone station; IP Trunks only accept Media Security Best Try (MSBT) and Media Security Never (MSNV) and it does not accept MSSD or MSAW.

LD 14 BEO cha	
TYPE IPTI	
TN 100 0 0 0 CLS MSBT	

Figure 86: Enable Media Security Class of Service on IP Trunks

8. Configure SIP TLS on Exchange UM 2010

This section provides the procedure for setting up:

- Export a trusted authority certificate on Exchange UM 2010 server.
- Import the CS1000 UCM private authority certificate that was downloaded and saved as mentioned in Section 7.3 to Exchange UM 2010 server.
- Check TLS on Exchange UM 2010 Server.
- Configure SIP Secured on UM Dial Plan.
- Configure VoIP Secured on UM Dial Plan.

8.1. Export a trusted authority certificate

Open Certificates Management Console on the Exchange UM 2010 server, by navigating to menu Start >Run (mmc) > menu File > Add/Remove Snap-in > Add Certificates (local computer).

Select Certificates folder under Trusted Root Certification Authorities folder, list of certificates displays on right-hand side of Certificate Console.

Name of certificate needs to be imported in this list is "*EastLab*", this certificate is created by Microsoft Exchange UM Team.

🚟 Console1 - [Console Root\Certificates (Local	Computer)\Trusted Root Certification Autho	rities\Certificates]			
File Action View Favorites Window He	lp				_ 8 ×
Console Root	Issued To 🔺	Issued By	Expiration Date	Actions	
 Console Root Certificates (Local Computer) Personal Certificates Trusted Root Certification Authorities Enterprise Trust Intermediate Certification Authorities Certificates Certificates Trusted Publishers Untrusted Certificates Certificates Third-Party Root Certification Authorities Certificates Trusted People Remote Desktop Certificate Enrollment Requests Smart Card Trusted Roots 	Issued To Class 3 Public Primary Certification Authority Class 3 Public Primary Certificate Authority Class 3 Public Primary Certificate Authority Equifax Secure Certificate Authority Microsoft Code Signing PCA Microsoft Root Authority Microsoft Root Certificate Authority Microsoft Root Certificate Authority Microsoft Time-Stamp Service Microsoft Time-Stamp Service Microsoft Time-Stamp Service Microsoft Root Certificate Authority SIP Product Certificate Authority SIP Product Certificate Authority SIP Product Certificate Authority Siss Si30-sm100. avaya.com Thawte Timestamping CA VeriSign Trust Network VeriSign Trust Network	Issued By car2-sipl-ucm.bvwdev.com Class 3 Public Primary Certification A Class 3 Public Primary Certification A Copyright (c) 1997 Microsoft Corp. default EastLab Equifax Secure Certificate Authority GTE CyberTrust Global Root Microsoft Root Authority Nicrosoft Root Authority No LIABILITY ACCEPTED, (c)97 Veri pbxgw.avaya.com SIP Product Certificate Authority Thawte Timestamping CA VeriSign Trust Network VeriSign Trust Network	Expiration Date 1/31/2035 8/1/2004 1/3/2004 12/30/1999 9/24/2021 3/22/2016 8/22/2018 8/13/2018 8/13/2018 8/24/2012 3/7/2011 12/30/2020 5/9/2021 7/25/2013 9/14/2019 1/7/2004 12/19/2019 1/7/2004 12/19/2019 8/16/2027 9/27/2013 12/31/2020 5/18/2018 8/1/2028	Actions Certificates More Actions EastLab More Actions	. ,
I Trusted Root Certification Authorities store contains 22	certificates.			J	

Figure 87: Certificate Console

Right-click on the "*EastLab*" certificate, select **All Task > Export**.

File Action Year Actions Image: State St	File Action Year Taylor Action Image: State of the	🚟 Console1 - [Console Root\Certificates (Local	Computer)\Trusted Root Certification Author	rities\Certificates]			_ 🗆 X
Image: Second	Image: Solution of the stand standard standa	🚡 File Action View Favorites Window He	łp				_ 8 ×
Issued To Issued By Expiration Date Concrole Root Issued To Issued By Expiration Date Actions Concrole Root Car2-siplucm.bwwdev.com 1/31/2005 Actions Car2-siplucm.bwwdev.com 1/31/2005 Car2-siplucm.bwwdev.com Car2-siplucm.bwwdev.com 1/31/2005 Actions More Actions More Actions Cartificates Cartificates Copyright (c) 1997 Microsoft Corp. Car2-siplucm.brwdev.com 1/31/2005 More Actions More Actions Cartificates Copyright (c) 1997 Microsoft Corp. Carsis 3 Public Primary Certification Authority Gass 3 Public Primary Certificate Authority Gass 3 Public Primary Certificate Authority Bitasks Size/2016 Bast ab Cartificates Cartificate Revocation List Cartificate Revocation List Equifax Secure Certificate Authority Bitasks Size/2016 Bitasks Microsoft Code Signing PCA Microsoft Code Signing PCA Microsoft Cardificate Authority Bitasks Doen Microsoft Cardificate Authority Size/2013 Microsoft Cardificate Authority Size/2013 Microsoft Cardificate Authority Size/2013 Microsoft Cardificate Authority Size/2013 Microsoft Root Authority Size/2013 Micr	Issued To Issued To Issued By Expiration Date Actions Image: Certificates (Local Computer) Image: Certificates Certification Authority Car2-sipl-ucm.bwwdev.com 1/31/2028 Actions Image: Certificates Certificates All Computer) Cars 3 Public Primary Certification Authority Fastlab Sized To More Actions Fastlab Image: Certificate Revocation List Certificate Revocation List Certificate Authority Sized Sign PCA Sized Sign PCA Sized Sign PCA More Actions Fastlab Sized Size Fastlab Fastlab Fastlab Fastlab Fastlab Fastlab Fastlab	🗢 🔿 🙋 📷 🖌 🖬 🗙 🖬 🔒					
Image: Certificates (Local Computer) Image: Certificates (Local Computer) <td>□ Certificates (Local Computer) □ <</td> <td>Console Root</td> <td>Issued To 🔺</td> <td>Issued By</td> <td>Expiration Date</td> <td>Actions</td> <td></td>	□ Certificates (Local Computer) □ <	Console Root	Issued To 🔺	Issued By	Expiration Date	Actions	
Certificates Certificates Cass 3 Public Prinary Certification Authority Cass 3 Public Prinary Certificate Authority Secure Certifi	Image: Class 3 public Prinary Certification Authority Class 3 Public Prinary Certification A.uthority More Actions More Actions Image: Certificates Certificates Secure Certificate number of the secure certificate authority Cass 3 Public Prinary Certification A.uthority Cass 3 Public Prinary Certification A.uthority East 1able Sizz/2016 Image: Certificates Certificates Secure Certificate Authority Global Root Sizz/2016 East 1able Sizz/2016 Image: Certificates Certificates Open Global Root Sizz/2016 East 1able Sizz/2016 Image: Certificates Gertificates Open Global Root Sizz/2016 East 1able Sizz/2016 Image: Certificates Gertificates Open Global Root Sizz/2016 East 1able Sizz/2016 Image: Certificates Gertificates Microsoft Code Signing PCA Sizz/2018 Microsoft Root Authority Sizz/2018 Microsoft Timestamping PCA Sizz/2018 Microsoft Timestamping PCA Sizz/2013 Microsoft Timestamping PCA Sizz/2013 Microsoft Timestamping PCA Sizz/2013 Microsoft Timestamping PCA Sizz/22013 Microsoft Timestamping PCA Sizz/22013 Microsoft Timestamping PCA <td>Gertificates (Local Computer) Personal</td> <td>Class 2 Dublis Drivery Cartification Authority</td> <td>car2-sipl-ucm.bvwdev.com Class 2 Public Primary Cortification A</td> <td>1/31/2035</td> <td>Certificates</td> <td>*</td>	Gertificates (Local Computer) Personal	Class 2 Dublis Drivery Cartification Authority	car2-sipl-ucm.bvwdev.com Class 2 Public Primary Cortification A	1/31/2035	Certificates	*
Image: Construction Authorities	 Trusted Root Certification Authorities Certificates Microsoft Code Signing PCA Microsoft Root Authority Delete Microsoft Root Authority Microsoft Root Authority<	Certificates	Class 3 Public Primary Certification Authority	Class 3 Public Primary Certification A	1/7/2004	More Actions	•
Certificate Revocation List Microsoft Code Signing PCA Microsoft Code Signing PCA Microsoft Root Authority Revocation List Microsoft Root Certificate Authority Sinart Card Trusted Roots Smart Card Trusted Roots Microsoft Timestamping CA Thave Revork Werking Trust Network VerSign Trust Network <	Image: Secure Secure Certificate Revocation List Image: Secure Certificate Authority Status Status<	Trusted Root Certification Authorities	Copyright (c) 1997 Microsoft Corp.	Copyright (c) 1997 Microsoft Corp.	12/30/1999 9/24/2021	EastLab	*
Certificate Revocation List Gertificates Gertificate Gertificates Gertificates Gertificate	Certificate Revocation List Certificates Ce	Enterprise Trust Intermediate Certification Authorities	EastLab	EastLab	3/22/2016	More Actions	•
		Certificate Revocation List	Legurax Secure Certificate Aut Open All Tasks All Tasks Microsoft Code Signing PCA Microsoft Code Signing PCA Microsoft Root Certificate Aut Properties Microsoft Root Certificate Aut Properties Microsoft Time-Stamp Service Help Microsoft Timestamping PCA Microsoft Timestamping PCA SISP Product Certificate Authority VeriSign Trust Network VeriSign Trust Network	Equirax Secure Certificate Authority Open Global Root Hicode(tm) Root Au Export Microsoft Root Authority Microsoft Root Authority Microsoft Root Authority Microsoft Root Authority NO LIABILITY ACCEPTED, (c)97 Veri ptxgw.avaya.com SIP Product Certificate Authority default Thavte Timestamping CA VeriSign Trust Network VeriSign Trust Network	8/22/2018 8/13/2018 12/31/1999 8/24/2012 3/7/2011 12/30/2020 5/9/2021 7/25/2013 9/14/2019 1/7/2004 12/19/2019 9/14/2018 8/11/2020		

Figure 88: Certificate Console (cont)

Certificate Export Wizard displays. Click on Next button to continue.



Figure 89: Certificate Export Wizard Window

Select option "*Base-64 encoded X.509 (.CER)*" in **Export File Format** section. Click on **Next** button to continue.

Certificate Export Wizard
Export File Format Certificates can be exported in a variety of file formats.
Select the format you want to use:
O <u>D</u> ER encoded binary X.509 (.CER)
Base-64 encoded X.509 (.CER)
Cryptographic Message Syntax Standard - PKCS #7 Certificates (.P7B)
Include all certificates in the certification path if possible
C Personal Information Exchange - PKC5 #12 (.PFX)
Indude all certificates in the certification path if possible
\square Delete the private <u>key</u> if the export is successful
Export all extended properties
C Microsoft Serialized Certificate Store (.55T)
Learn more about <u>certificate file formats</u>
< <u>B</u> ack <u>N</u> ext > Cancel

Figure 90: Certificate Export Wizard (cont)

Type the name "*ExchangeUM2010Cert*" in **File name** box. Click **Next** button to continue.

tificate Export Wizard	
File to Export Specify the name of the file you want to	export
Eile name:	
ExchangeUM2010Cert	Browse

Figure 91: Certificate Export Wizard (cont)

Completing the Certificate Export Wizard section displays with summary settings. Click **Finish** button to complete.



Figure 92: Certificate Export Wizard (cont)

<u>Note:</u> This certificate is used to import to Certificates Authorities of CS1000 SIP Gateway member in **Section 7.2**.

8.2. Import the CS1000 UCM private authority certificate to Exchange Certificate Console

From Actions column in the Certificates window of Trusted Root Certification Authorities folder, navigate to More Actions > All Tasks > Import.

😹 Console 1 - [Console Root\Certificates (Local Computer)\Trusted Root Certification Authorities\Certificates]						
🚡 File Action View Favorites Window He	4p			_ 8 ×		
🔶 🔿 🙍 🖬 📋 🙆 🗟 🖬						
Console Root	Issued To 🔺	Issued By	Expiration Date	Actions	1	
🖃 🛜 Certificates (Local Computer)	ar2-sipl-ucm.bvwdev.com	car2-sipl-ucm.bvwdev.com	1/31/2035	Certificates		
Personal	Glass 3 Public Primary Certification Authority	Class 3 Public Primary Certification A	8/1/2028	Maria Ankiana h	All Tacks N	Import
Certificates	Class 3 Public Primary Certification Authority	Class 3 Public Primary Certification A	1/7/2004	More Actions	All tasks	Import
Certificates	Copyright (c) 1997 Microsoft Corp.	Copyright (c) 1997 Microsoft Corp.	12/30/1999		View 🕨	
Enterprise Trust	default	default	9/24/2021		New Window from Here	
Intermediate Certification Authorities	EastLab	EastLab	3/22/2016		New Tasknad View	
Certificate Revocation List	Equifax Secure Certificate Authority	Equifax Secure Certificate Authority	8/22/2018	1		
Certificates	GIE Cyber Irust Global Root	GTE Cyber Irust Global Root	8/13/2018		Refresh	
Trusted Publishers	inficrosoft Authenticode(tm) Root Authority	Microsoft Authenticode(tm) Root Au	12/31/1999	1	Export List	
Untrusted Certificates	Microsoft Code Signing PCA	Microsoft Root Authority	8/24/2012		Help	
Certificates		Microsoft Code Signing PCA	12/2011	1		
Third-Party Root Certification Authorities	Microsoft Root Cartificate Authority	Microsoft Root Cartificate Authority	12/30/2020 E/0/2021			
Certificates	Microsoft Time Stamp Service	Microsoft Timestamping PC0	7/9/2021	1		
Indiced People Remote Deckton	Microsoft Timestamping RCA	Microsoft Root Authority	9/14/2019			
Certificates	SNO LIABILITY ACCEPTED (c)97 VeriSign Toc	NO LIABILITY ACCEPTED (c)97 Veri	1/7/2004			
Certificate Enrolment Requests	Sphyder avava com	physical and the state of the s	12/19/2019	1		
Smart Card Trusted Roots	SIP Product Certificate Authority	SIP Product Certificate Authority	8/16/2027			
	sm5030-sm100. avava. com	default	9/27/2013	1		
	Thawte Timestamping CA	Thawte Timestamping CA	12/31/2020	1		
	VeriSign Trust Network	VeriSign Trust Network	5/18/2018			
	VeriSian Trust Network	VeriSign Trust Network	8/1/2028	1		
			F		1	
0 dd a cavtificata ta a ctora				,		
Autra cerunicate to a store				J		

Figure 93: Export a Certificate

Certificate Import Wizard window displays. Click on Next button to continue.



Figure 94: Certificate Export Wizard

In **File name** box, click on **Browse** button to upload the CS 1000 UCM certificate as downloaded and saved in **Section 7.3**.

Certificate Import Wizard 🛛 🗙
File to Import
Specify the file you want to import.
Eile name:
C:\UCM_C51K_CA.cer
Note: More than one certificate can be stored in a single file in the following formats:
Personal Information Exchange- PKCS #12 (.PFX,.P12)
Cryptographic Message Syntax Standard- PKCS #7 Certificates (.P7B)
Microsoft Serialized Certificate Store (.SST)
Learn more about <u>certificate file formats</u>
< <u>B</u> ack <u>N</u> ext > Cancel

Figure 95: Export a Certificate (cont)

Select option Place all certificates in following store and make sure in Certificates Store field it should be Trusted Root Certification Authorities.

Certificate Import Wizard	×
Certificate Store	
Certificate stores are system areas where certificates are kept.	
Windows can automatically select a certificate store, or you can specify a location for the certificate.	
\odot Automatically select the certificate store based on the type of certificate	
Place all certificates in the following store	
Certificate store:	
Trusted Root Certification Authorities Browse	
Learn more about <u>certificate stores</u>	
< <u>B</u> ack <u>N</u> ext > Cance	.

Figure 96: Export a Certificate (cont)

Click on **Finish** button to complete the import of CS 1000 UCM certificate to the Exchange UM server.

Certificate Import Wizard		×
	Completing the Certif Wizard The certificate will be imported after	Ficate Import
	You have specified the following set	tings:
	Certificate Store Selected by User Content	Trusted Root Certifica Certificate
	File Name	C:\UCM_CS1K_CA.ce
	•	
	< <u>B</u> ack F	inish Cancel

Figure 97: Export a Certificate (cont)

Figure 98 shows the CS 1000 UCM certificate has been imported to the Exchange server under Trusted Root Certification Authorities and Certificates.



Figure 98: The UCM Certificate Imported to Exchange UM

8.3. Enable TLS on Exchange UM Server Setting

From the Exchange Management Console window, navigate to Microsoft Exchange > Microsoft Exchange On-Premise > Server Configuration > Unified Messaging. The name of Exchange server (EXCH-A-873) displays in right-hand side of the window.

😹 Exchange Management Console				
<u>File Action View H</u> elp				
🗢 🔿 🙍 🖬 🛛 🖬				
Microsoft Exchange	🌆 Unified Messaging	q	1 object	Actions
🖃 🔯 Microsoft Exchange On-Premise	Crosto Eiltor			Unified Messa 🔺 📥
Grganization Configuration	A Cleare Liner			Den auf Lie
Cliept Access	Name 🔺	Role	Version	Export Lis
	EXCH-A-873	Hub Transport, Client Access, Mail	Version 14.1 (Build 218.	View 🕨
🔐 Unified Messaging				Refresh
🖃 📋 Server Configuration				
🔁 Mailbox				
Client Access				EXCH-A-873 🔺
Unified Messaging				ы Manage M
🕀 🤱 Recipient Configuration				🛓 Manage Cl
a Toolbox				Par Manage H
	•		Þ	Manage Di
	·			

Figure 99: Server UM Settings

Double-click on this name of Exchange UM server, properties window of this sever displays. Click on **UM Settings** tab, under **Associated Dial Plans** box, select "*CS1K_CDP_5Digit*" dial plan that belongs to CS 1000 UM IP Gateway, make sure **TLS** is selected in **Startup Mode** dropdown menu.

EXCH-A-873 Properties
General System Settings UM Settings
Associated Dial Plans
🖨 Add 🗙
Name
CM-SM-5digit
ES1K_CDP_5Digit
Miscellaneous Configuration
Prompt languages: English (United States)
Startup mode:
 The service must be restarted for these changes to take effect.
M Maximum concurrent caller
Cancel Apply Help

Figure 100: UM Server Properties Window

From Exchange Management Console, navigate to **Organization Configuration > Unified Messaging > UM IP Gateway** tab, and double-click on the "*CS1K75*" UM IP Gateway, the **CS1K Properties** Window displays, select radio option **Full quailed domain name (FQDN)** and enter "*cpppm3.bvwdev.com*" which is FQDN of SIP Gateway in the text box. Click on **Apply** button to save the change and click **OK** button to close the window.

C51K75 Properties	×
General	
5 CS1K75	
Status: Enabled	
Modified: Thursday, December 08, 2011 5:31:18 PM	
C I <u>P</u> address:	
135.10.97.149	
Example: 192.168.10.10	
Eully qualified domain name (FQDN):	
cpppm3.bvwdev.com	
Example: ipgateway1.contoso.com	
Allow outgoing calls through this UM IP gateway	
Allow Message Waiting Indicator	
	-
OK Cancel Apply Help	

Figure 101: UM IP Gateway Properties Window

In order to SIP TLS working, the IP address of CS 1000 SIP Gateway also needs to be resolved to its FQDN in Exchange UM server. Open the hosts file in Exchange UM server to add an entry for the SIP Gateway.

📕 hosts - Notepad	
<u>File E</u> dit F <u>o</u> rmat <u>V</u> iew <u>H</u> elp	
🖌 Copyright (c) 1993-2006 Microsoft Corp.	<u> </u>
# This is a sample HOSTS file used by Microsoft TCP/IP for windows.	
# This file contains the mappings of IP addresses to host names. Each # entry should be kept on an individual line. The IP address should # be placed in the first column followed by the corresponding host name. # The IP address and the host name should be separated by at least one # space.	
# Additionally, comments (such as these) may be inserted on individual # lines or following the machine name denoted by a '#' symbol. # # For example: #	
# 102.54.94.97 rhino.acme.com # source server # 38.25.63.10 x.acme.com # x client host	
127.0.0.1 localhost ::1 localhost #10.196.228.43 pbxgw.avaya.com #205.168.62.77 pbxgw.avaya.com #205.168.62.77 sm5030-sm100.avaya.com 131.107.5.62 EXCH-A-873.DFPYXV-dom.extest.microsoft.com 135.10.97.149 cpppm3.bvwdev.com <== 205.168.62.77 sM100	

Figure 102: SIP Gateway Entry added in Hosts File

By default, Exchange UM is using port 5060 for SIP TCP, when SIP TLS is enabled the port 5060 has to change from 5060 to port 0 by using command line "Set-UMIPGateway –Port 0" in **Exchange Management Console**.



Figure 103: Exchange Management Console

8.4. Configure SIP Secured on the UM Dial Plan

From the Exchange Management Console window, navigate to Microsoft Exchange > Microsoft Exchange On-Premise > Organization Configuration > Unified Messaging. List of UM dial plans displays in the UM Dial Plan tab, right-click on "*CS1K_CDP_5Digit*" dial plan and select Properties.

Exchange Management Console		- O ×
File Action View Help		
Image: Second State	2 objects Policies UM Auto Attendants) Associated UM Servers EXCH-A-873, EXCH-A-755 EXCH-A-873	Actions Unified Messaging Image: State St
		Help

Figure 104: Properties Menu of UM Dial Plan

Select **General** tab in "*CS1K_CDP_5Digit Properties*" window, make sure **SIP Secured** is selected in **VoIP Security** dropdown menu. <u>Note</u>: "*SIP Secured*" selected in **VoIP Security** field means Exchange UM 2010 is just configured to work with TLS for negotiating SIP message but media is not encrypted.

51K_CDP_5Digit Properties	×
Settings Dialing Ru General Subscriber Acc	ule Groups Dialing Restrictions ess Dial Codes Features
CS1K_CDP_5Digit	
Associated UM servers:	EXCH-A-873
Associated UM IP gateways:	CS1K75
URI type:	Telephone Extension
Number of digits in the extension:	5
Modified:	Friday, December 02, 2011 3:39:18 PM
 Allow users to receive <u>faxes</u> Allow users to configure call and 	swering jules
<u>V</u> oIP security:	SIP Secured
Б	Cancel <u>Apply</u> Help

Figure 105: UM Dial Plan Properties Window

8.5. Configure VoIP Secured on UM Dial Plan

Apply the same procedures in Section 8.4 however select Secured in the VoIP Security dropdown menu. With this selection, Exchange UM server will work with SIP TLS and its media is also secured on the "CS1K_CDP_5Digit" UM dial plan.

Settings General Su	Dialing Rule bscriber Acces: Digit	Groups s [Dialin Dial Codes	g Restrictions Feature:
CS1K_CDP_5	iDigit			
Associated UM servers:		EXCH-A-873		
Associated UM IP gateways:		CS1K75		
URI type:		Telephone Extension		
Number of digits in the extension:		5		
Modified:	F	riday, Decer	mber 02, 2011 :	3:39:18 PM
 Allow users to confi Allow users to confi 	igure call answi	ering <u>r</u> ules		
on occurry.		Joecared		

Figure 106: UM Dial Plan Properties Window with Secured Selected

Any change is made on UM Dial Plan or UM IP Gateway, Exchange UM Service needs to restart. This can be done by going to the Services application in Administration Tools and restart the Exchange UM service.



Figure 107: Services Windows with Exchange UM service.

9. Verification Steps

The following steps can be used to verify the integration of ...:

- Verify that users can dial the UM pilot number and that the proper greeting is played. If Exchange UM is called by a UM subscriber, the user should not be prompted for the extension, only the password.
- Place a call to a UM subscriber and let the call cover to voicemail. Verify that the proper greeting is played.
- Leave a voice message for a UM subscriber and verify that the MWI of the user's telephone is illuminated.
- Log on to Exchange UM to retrieve voice messages from a telephone. Use the telephone or voice interface to navigate through the menu. Verify that the voice message is heard by the user.
- Retrieve voice messages from Outlook Web Access (OWA). Enter https://<ip-addr>/owa, where <ip-addr> is the IP address of the Exchange 2010 server, as the URL in an Internet browser and log on. Use the Play-on-Phone feature to play the messages on a telephone.
- Delete the voice messages and verify that the MWI lamp is extinguished.
- Verify that users can dial the UM pilot number with SIP TLS and secure media, if secure media is enabled, there is a secure icon displayed on IP Unistim Phone.

10. Conclusion

These Application Notes have described the configuration steps required to integrate Microsoft Exchange Server 2010 Unified Messaging with Avaya Communication Server 1000. Observations are noted in Section 2.2.

11. Additional References

Product documentation for Avaya CS 1000 products may be found at: <u>https://support.avaya.com/css/Products/</u>

Product document for Microsoft Exchange 2010 product may be found at: <u>http://www.microsoft.com/exchange/en-us/default.aspx</u>

[1] Avaya Communication Server 1000 Documents:

Avaya Communication Server 1000E Installation and Commissioning, Doc# NN43041-310, Issue 05.06, Date Nov 2011.

Avaya CS 1000 Co-resident Call Server and Signaling Server Fundamentals, Doc# NN43001-509, Issue 03.03, Date Aug 2011.

Avaya CS 1000 Element Manager System Reference – Administration, Doc# NN43001-632, Issue 05.13, Date Nov 2011.

Avaya Communication Server 1000 Security Management Fundamentals Release 7.5, Doc# NN43001-604, Issue 05.05, Date May 2011.
©2012 Avaya Inc. All Rights Reserved.

Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by \mathbb{R} and TM are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at <u>devconnect@avaya.com</u>.