Application Note

tw telecom: Connecting Cisco Unified Communications Manager Express 9.1 using SIP

Document Version 1.3

Testing was conducted at TekVizion labs.

6/11/13- Version 1.3

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Introduction

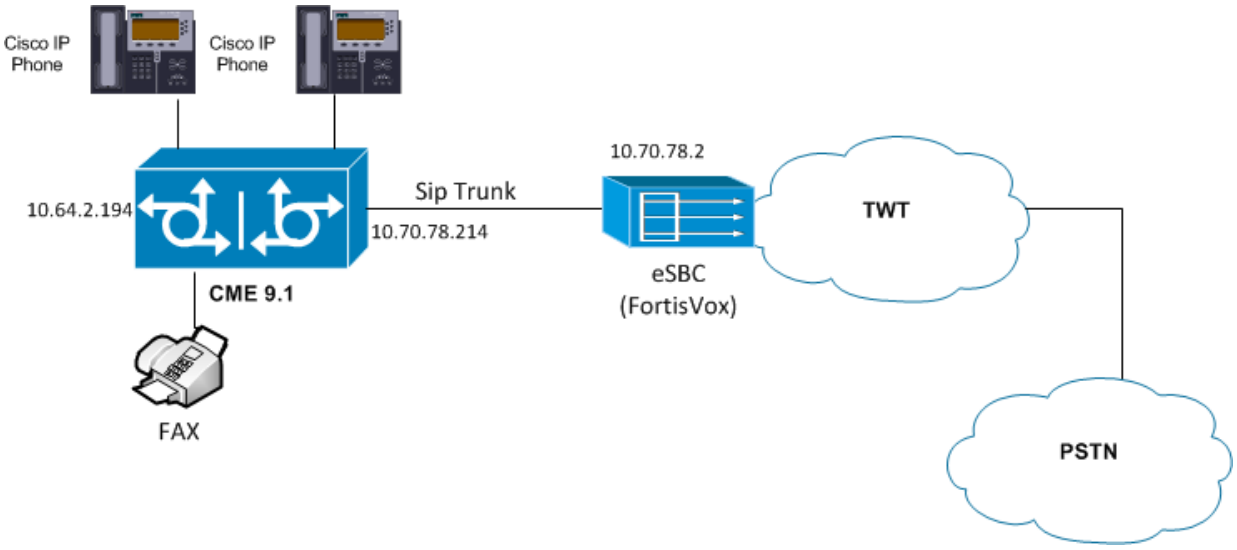
This application note describes how to configure Cisco Unified Communications Manager Express (Cisco Unified CME) version 9.1[Cisco Unified Border Element (Cisco UBE), version 9.1] for connectivity to tw telecom SIP trunk provider via the FortisVox SBC. The deployment model covered in this application note is CPE to PSTN. This document does not address 911 emergency outbound calls. For 911 feature service details contact tw telecom, directly.

- Testing was performed in accordance to Cisco's SIP Trunk Test Plan and all features were verified. Key features verified are:
  - CPE outbound to SP Offnet gateway(PSTN) (G.711 is offered first)
  - SP Offnet gateway(PSTN) inbound to CPE (G.711 offered first)
  - CPE to CPE (place call out to the SP network and back) (G.711 is offered first)
  - CPE Calling number privacy
  - CPE Telephone Number Support – digit translations
  - CPE Calling Name Delivery
  - CPE Offnet Call Conference
  - CPE Intra-Site Call Conference
  - CPE Intra-Site Attended Call Transfer
  - CPE Intra-Site Unattended Call Transfer
  - CPE Intra-Site Blind Call Transfer
  - CPE Call Hold and Resume (call hold is always done on the IP PBX side)
  - CPE Voice Mail
  - CPE Find Me (CFU)
  - Simultaneous Calls
  - CPE Auto Attendant
  - CPE Find Me (Call Forward On Busy)
  - CPE Find Me (Call Forward Don't Answer)
  - PRACK with SDP (early-media cut-through with DTMF (RFC2833) navigation before 200OK)) - call 800-864-8331 - United Airlines
- The Cisco Unified CME/Cisco Unified Border Element configuration detailed in this document is based on a lab environment with simple dial-plan configurations used to ensure proper interoperability between TW Telecom SIP network and Cisco Unified Communications. The configuration described in this document details the important commands that need to be enabled for interoperability to be successful and care must be taken, by the network administrator deploying Cisco UBE, to ensure these commands are set per each dial-peer requiring interoperating with the FortisVox.

Network Topology

The network topology includes the CUBE used in the Cisco Unified CME mode, connected to the FortisVox SBC via a SIP trunk. tw telecom was used as the service provider.

Figure 1. Basic Test Environment



System Components

Hardware Components

- CUBE as Cisco Unified CME – Cisco 3925
- PSTN GW – Cisco 3845
- Switch – Cisco 6509
- Cisco Phones – 7975(SCCP) and 7941(SIP)
- FortisVox SBC
- tw telecom Trunk (Third Party SIP Trunk Provider)

Software Requirements

- Cisco Unified CME version 9.1
- Cisco 7975 version SIP75.9-2-1S
- Cisco 7941version SCCP41.9-2-1S
- FortisVox version 5.0.3-2
- Cisco UCM version 9.1

Features

Features Supported

- Call from/to PSTN to/from CPE – Basic and International calls , digit translations
- Call Hold/Resume
- Calling party number presentation and restriction
- Calling name presentation
- DTMF
- Call transfers – attended, unattended, blind
- Call Forwarding (CFU,CFB,CFNA)
- Support for early media
- Fax using G.711 pass-through

Features Not Supported

- G729 codec.
- T.38 fax relay.

Caveats

- CLID updates are not observed on call transfer scenarios.
- tw telecom doesn’t support G729 calls. Hence all calls were tested with G711ulaw.
- Scenarios that include Phone 3 at second PBX site were tested with the Phone 3 registered to a Cisco UCM and not another Cisco Unified CME.
- FortisVox SBC does not support/implement PRACK. Hence the Cisco Unified CME doesn't send a PRACK. Early media was still verified.

Configuration

Configuring Cisco Unified Border Element

Show version:

```
Cisco IOS Software, C3900e Software (C3900e-UNIVERSALK9-M), Version 15.2(4)M1, RELEASE
SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2012 by Cisco Systems, Inc.
Compiled Fri 27-Jul-12 00:20 by prod_rel_team

ROM: System Bootstrap, Version 15.1(1r)T, RELEASE SOFTWARE (fc1)

cube uptime is 20 minutes
System returned to ROM by power-on
System restarted at 11:55:41 CST Wed Mar 6 2013
System image file is "flash0:c3900e-universalk9-mz.SPA.152-4.M1.bin"
Last reload type: Normal Reload
Last reload reason: power-on



This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
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http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

If you require further assistance please contact us by sending email to
export@cisco.com.

Cisco CISCO3925-CHASSIS (revision 1.0) with C3900-SPE200/K9 with 752640K/295936K bytes of
memory.
Processor board ID FHK1406F15E
4 FastEthernet interfaces
4 Gigabit Ethernet interfaces
1 Virtual Private Network (VPN) Module
DRAM configuration is 72 bits wide with parity enabled.
256K bytes of non-volatile configuration memory.
254464K bytes of ATA System CompactFlash 0 (Read/Write)


License Info:

License UDI:

-------------------------------------------------
Device#   PID                   SN
-------------------------------------------------
*0        C3900-SPE200/K9       FOC14034Z5C
```

```
Technology Package License Information for Module:'c3900e'

------------------------------------------------------------------
Technology    Technology-package          Technology-package
              Current       Type          Next reboot
------------------------------------------------------------------
ipbase        ipbasek9      Permanent     ipbasek9
security      securityk9    Permanent     securityk9
uc            uck9          Permanent     uck9
data          datak9        Permanent     datak9

Configuration register is 0x2104
```

Running Configuration on Cisco Unified CME:

```
CUBE#show run
!
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname cube
!
boot-start-marker
warm-reboot
boot-end-marker
!
!
logging buffered 9999999
no logging console
logging monitor errors
!
no aaa new-model
clock timezone CST -6 0
!
!
!
!
!
!
!
no ip domain lookup
ip host cube.lynclabkm2013.local 10.64.2.194
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
```

```
voice-card 0
 dsp services dspfarm
!
!
!
voice service voip
 ip address trusted list
  ipv4 10.64.1.72
  ipv4 10.64.2.195
  ipv4 174.46.0.196
  ipv4 10.64.2.196
  ipv4 10.64.1.37
  ipv4 10.70.18.17
  ipv4 10.70.18.2
  ipv4 0.0.0.0
  ipv4 0.0.0.0 0.0.0.0
  ipv4 10.70.72.10
  ipv4 10.70.12.5
 allow-connections sip to sip
 supplementary-service h450.12
 no supplementary-service sip moved-temporarily
 no supplementary-service sip refer
 fax protocol t38 version 0 ls-redundancy 0 hs-redundancy 0 fallback none
 h323
 sip
  min-se 180 session-expires 180
  session refresh
  header-passing
  registrar server expires max 1200 min 300
  midcall-signaling passthru
!
voice class codec 4
 codec preference 1 g711ulaw
 codec preference 2 g729r8
!
voice class codec 1
 codec preference 1 g729r8
 codec preference 2 g711ulaw
!
voice class sip-profiles 102[1]
 request INVITE sip-header From modify "<sip:2142425923@" "<sip:2144450305@"
 request INVITE sip-header Remote-Party-ID modify "<sip:2142425923@" "<sip:2144450305@"
!
voice register global
 mode cme
 source-address 10.64.2.194 port 5060
 max-dn 10
 max-pool 10
 load 7975 SIP75.9-2-1S
 load 7961 SIP41.9-2-1S
 load 7941 SIP41.9-2-1S
 voicemail 0305
 tftp-path flash:
 file text
 create profile sync 0395063811524953
!
!
```

1 Sip-profile config required for call forwarding or call transfer scenarios – PSTN- CME-PSTN2.This is applied to the outgoing dial peer for Cisco Unified CME-TWTELECOM calls.

```
voice register dn 5
 number 0311
 name SIP_0311
 huntstop
 label SIP0311
 mwi
!
voice register pool  1
 id mac 001C.5856.CFE6
 type 7961
 number 1 dn 5
 no digit collect kpml
 dtmf-relay rtp-nte
 username 0311 password 0311
 codec g711ulaw
!
!
voice translation-rule 3
 rule 1 /\(1..........\)/ /+\1/
!
voice translation-rule 8
 rule 1 /\(2145450305\)/ /2144450305/
 rule 2 /\(2145450308\)/ /2144450308/
 rule 3 /\(2145450309\)/ /2144450309/
 rule 4 /\(9728520306\)/ /2144450306/
 rule 5 /\(9728520311\)/ /2144450311/
!
voice translation-rule 9
 rule 1 /\(2144450304\)/ /0304/
 rule 2 /\(2144450305\)/ /0305/
 rule 3 /\(2144450306\)/ /0306/
 rule 4 /\(2144450307\)/ /0307/
 rule 5 /\(2144450311\)/ /0311/
 rule 6 /\(2144450308\)/ /0308/
 rule 7 /\(2144450309\)/ /0309/
!
voice translation-rule 10
 rule 1 /0306/ /2144450306/
 rule 2 /0311/ /2144450311/
 rule 3 /0307/ /2144450307/
!
voice translation-profile TESTC3[2]
 translate called 8
!
voice translation-profile CMEExtn[3]
 translate called 9
!
voice translation-profile tendigit[4]
 translate calling 10
!
```

2 *Voice translation rule with Digit Translation used for PBX-PBX call to ensure call reaches the provider and it routed back to Cisco Unified CME.*
3 *Voice translation rule with Digit translation used to convert 10-digit called number to 4- digit Cisco Unified CME extensions.*
4 *Voice translation rule with Digit translation to convert - digit calling extension to a 10- digit calling extension that provider identifies.*

```
http client cache memory pool 15000
http client cache memory file 1500
http client cache query
http client cache refresh 864000
no http client connection persistent
http client connection timeout 60
http client response timeout 30
ivr prompt memory 15000
ivr asr-server rtsp://asr-en-us/media/speechrecognizer
ivr tts-server rtsp://tts-en-us/media/speechsynthesizer
!
!
mrcp client rtpsetup enable
license udi pid C390-SPE200/K9 sn FOC14034Z5C
!
hw-module pvdm 0/0
!
redundancy
!
!
translation-rule 5
 Rule 1 9728520306 2144450306
 Rule 2 9728520311 2144450311
 Rule 3 9728520307 2144450307
 Rule 4 9728520305 2144450305
!
interface GigabitEthernet0/0
 description To SIP server providers
 ip address 10.70.78.214 255.255.255.0
 duplex full
 speed 100
!
interface GigabitEthernet0/1
 ip address 10.64.2.194 255.255.0.0
 duplex full
 speed 100
!
interface GigabitEthernet0/2
 no ip address
 shutdown
 duplex auto
 speed auto
!
interface GigabitEthernet0/3
 no ip address
 shutdown
 duplex auto
 speed auto
!
interface FastEthernet0/0/0
 no ip address
!
interface FastEthernet0/0/1
 no ip address
!
interface FastEthernet0/0/2
 no ip address
```

```
!
interface FastEthernet0/0/3
 no ip address
!
interface Vlan1
 no ip address
!
!
ip default-gateway 10.70.78.1
ip forward-protocol nd
!
ip http server
no ip http secure-server
!
ip route 0.0.0.0 0.0.0.0 97.79.185.129
ip route 10.0.0.0 255.0.0.0 GigabitEthernet0/1
ip route 10.70.78.0 255.255.255.0 GigabitEthernet0/0
!
!
nls resp-timeout 1
cpd cr-id 1
!
tftp-server flash:apps75.9-2-1TH1-13.sbn
tftp-server flash:cnu75.9-2-1TH1-13.sbn
tftp-server flash:cvm75sip.9-2-1TH1-13.sbn
tftp-server flash:dsp75.9-2-1TH1-13.sbn
tftp-server flash:jar75sip.9-2-1TH1-13.sbn
tftp-server flash:SIP75.9-2-1S.loads
tftp-server flash:term75.default.loads
tftp-server flash:SIP41.9-2-1S.loads
tftp-server flash:apps41.9-2-1TH1-13.sbn
tftp-server flash:cnu41.9-2-1TH1-13.sbn
tftp-server flash:cvm41sip.9-2-1TH1-13.sbn
tftp-server flash:dsp41.9-2-1TH1-13.sbn
tftp-server flash:jar41sip.9-2-1TH1-13.sbn
tftp-server flash:term41.default.loads
tftp-server flash:term61.default.loads
tftp-server flash:SCCP41.9-2-1S.loads
tftp-server flash:jar41sccp.9-2-1TH1-13.sbn
tftp-server flash:cvm41sccp.9-2-1TH1-13.sbn
tftp-server flash:SCCP75.9-2-1S.loads
tftp-server flash:cvm75sccp.9-2-1TH1-13.sbn
tftp-server flash:jar75sccp.9-2-1TH1-13.sbn
!
control-plane
!
voice-port 0/1/0[5]
 station-id name test fax
 station-id number 2144450308
!
voice-port 0/1/1[6]
 station-id name Test Fax FVX-TW
 station-id number 2144450309
 !
```

5 *Provisioning/configuration of fax port for all fax calls.*
6 *Provisioning/configuration of fax port for CPE-CPE Fax calls.*

```
mgcp profile default
!
sccp local GigabitEthernet0/1
sccp ccm 10.64.2.194 identifier 1 version 4.0
!
dial-peer voice 506 voip[7]
 description from CUCM to CUBE
 translate-outgoing called 3
 session protocol sipv2
 incoming called-number .%
 voice-class codec 4 offer-all
 dtmf-relay rtp-nte
 no vad
!

dial-peer voice 510 voip[8]
 description Incoming TW-Telecom
 translation-profile incoming CMEExtn
 huntstop
 preference 1
 destination-pattern 21444503..
 session protocol sipv2
 session target ipv4:10.70.78.2:5060
 incoming called-number 214445....
 voice-class codec 1 offer-all
 dtmf-relay rtp-nte
 no vad
!
!
!
dial-peer voice 511 voip[9]
 description Incoming TM-CUBE to CUCM
 destination-pattern 214445030[489]
 session protocol sipv2
 session target ipv4:10.70.19.3:5060
 voice-class codec 4 offer-all
 dtmf-relay rtp-nte
 no vad
!
!
!
dial-peer voice 512 voip[10]
 description from CUCM to CME
 session protocol sipv2
 incoming called-number .%
 voice-class codec 4 offer-all
 dtmf-relay rtp-nte
 no vad
!
!
!
```

7 *Dial peer for call from Cisco UCM that hosts Phone 3 to Cisco Unified CME.*
8 *Incoming dial peer for calls from TWTELECOM to Cisco Unified CME. Translates 10 digit called number to 4 digit extensions.*
9 *Incoming dial peer for calls from TWTELECOM to Cisco UCM via CUBE for Phone3 extensions.*
10 *Incoming dial peer for calls from Cisco UCM to Cisco Unified CME.*

```
dial-peer voice 513 voip[11]
 description Outbound trunk to tw telecom
 translation-profile outgoing tendigit
 destination-pattern ..........
 session protocol sipv2
 session target ipv4:10.70.78.2:5060
 voice-class codec 1 offer-all
 voice-class sip profiles 102
 dtmf-relay rtp-nte
 no vad
!
dial-peer voice 514 voip[12]
 description Outbound Call TC 3
 translation-profile outgoing tendigit
 preference 1
 destination-pattern 972852....
 translate-outgoing called 5
 session protocol sipv2
 session target ipv4:10.70.78.2:5060
 incoming called-number 97285203..
 voice-class codec 4 offer-all
 dtmf-relay rtp-nte
 no vad
!
!
dial-peer voice 1800 voip[13]
 description dial-peer for routing early media number
 translation-profile outgoing tendigit
 huntstop
 preference 1
 destination-pattern 1800.......
 session protocol sipv2
 session target ipv4:10.70.78.2:5060
 voice-class codec 1 offer-all
 voice-class sip dtmf-relay force rtp-nte
 no voice-class sip pass-thru content sdp
 dtmf-relay rtp-nte
 no vad
!
!
dial-peer voice 308 pots[14]
 destination-pattern 0308
 port 0/1/0
!
dial-peer voice 309 pots[15]
 destination-pattern 0309
 port 0/1/1
```

11 *Outgoing dial peer for calls from Cisco Unified CME to PSTN via TWTELECOM. Converts 4 digit calling extensions to 10 digit numbers using the translation profile. Also uses sip-profile that modifies the sip header such that the original and remote party id is modified to a TWTELECOM identifiable number.*

12 *Outgoing dial peer for CPE-CPE calls. Translates local 10digit dialed number to 10digit TWTELECOM number that maps to 4 digit Cisco Unified CME extensions.*

13 *Outgoing dial peer for routing early media numbers (1800 numbers)*

14 *Incoming dial peer for fax calls.*

15 *Incoming dial peer for CPE-CPE fax.*

```
dial-peer voice 517 voip[16]
 description FAX Outbound trunk to tw telecom
 destination-pattern 2142425999
 session protocol sipv2
 session target ipv4:10.70.78.2:5060
 voice-class codec 1 offer-all
 dtmf-relay rtp-nte
 fax rate 9600
 no vad
!
!
!
dial-peer voice 11 voip[17]
 description dial peer for Intnl calls
 destination-pattern 011.T
 session protocol sipv2
 session target ipv4:10.70.78.2:5060
 incoming called-number .%
 voice-class codec 4 offer-all
 dtmf-relay rtp-nte
!
!
dial-peer voice 518 voip[18]
 description Incoming TW-Telecom FAX call
 translation-profile incoming CMEExtn
 huntstop
 preference 1
 shutdown
 destination-pattern 2144450309
 session protocol sipv2
 session target ipv4:10.70.78.2:5060
 incoming called-number 2144450309
 voice-class codec 1 offer-all
 dtmf-relay rtp-nte
 fax rate 9600
 no vad
!
!
!
gateway
 timer receive-rtp 1200
!
sip-ua
 mwi-server ipv4:10.70.12.5[19] expires 86400 port 5060 transport udp unsolicited
 sip-server ipv4:10.70.78.214:5060
!
!
```

16 *Outgoing dial peer for fax calls from Cisco Unified CME to PSTN.*
17 *Outgoing dial peer for International calls with prefix 011.*
18 *Incoming dial peer for Fax calls from PSTN.*
19 *Voicemail server IP that sends MWI.*

```
telephony-service
 conference transfer-pattern
 no auto-reg-ephone
 max-ephones 15
 max-dn 15
 ip source-address 10.64.2.194 port 2000
 auto assign 1 to 10
 caller-id block code *67
 load 7941 SCCP41.9-2-1S
 load 7975 SCCP75.9-2-1S
 voicemail 0305[20]
 mwi relay
 max-conferences 12 gain -6
 call-park system application
 call-forward pattern .T
 moh "flash:/music-on-hold.au"
 web admin system name admin password admin
 dn-webedit
 time-webedit
 transfer-system full-blind[21]
 transfer-pattern .T blind
 create cnf-files version-stamp 7960 Mar 01 2013 18:06:54
!
!
!
ephone-dn  4  dual-line
 number 0305
 preference 1
 huntstop channel
 no huntstop
!
!
ephone-dn  5
 number 2301 secondary 2300
 mwi on-off
!
!
ephone-dn  6
 number 2301....
 mwi on
!
!
ephone-dn  7
 number 2300....
 mwi off
!
!
ephone-dn  8
 number 0306
 label Phone1_0306
!
!
```

20 *Configuring the voice mail number.*

21 Configuring the transfer type- consultative or blind. Blind Transfer can be executed only by SCCP phones.

```
ephone-dn  9  dual-line
 number 0307
 label Phone1_0312
 call-forward busy 9728520306
 call-forward noan 9728520306 timeout 5
!
!
!
ephone  4
 device-security-mode none
 vm-device-id CME9-VI1
 button  1:4
!
!
!
ephone  8
 privacy off
 no multicast-moh
 device-security-mode none
 mac-address FCFB.FBCA.22FE
 busy-trigger-per-button 2
 username "0306" password 0306
 type 7975
 mwi-line 1
 button  1:8
!
!
!
ephone  9
 privacy off
 no multicast-moh
 device-security-mode none
 mac-address FCFB.FBCA.22A0
 busy-trigger-per-button 1
 username "0307" password 0307
 type 7975
 mwi-line 1
 button  1:9
!
!
!
!
line con 0
 login local
line aux 0
line vty 0 4
 exec-timeout 0 0
 login local
 transport input telnet ssh
line vty 5 15
 exec-timeout 0 0
 login local
 transport input telnet ssh
!
scheduler allocate 20000 1000
ntp server 10.10.10.5
!
end
```

Configuring Cisco Unified CME

```
voice register global
 mode cme[1]
 source-address 10.64.2.194[2] port 5060
 max-dn 10[3]
 max-pool 10[4]
 load 7975 SIP75.9-2-1S[5]
 load 7961 SIP41.9-2-1S
 load 7941 SIP41.9-2-1S
 voicemail 0305[6]
 tftp-path flash:[7]
 file text
create profile[8]

!

!

!

voice register dn 5[9]
 number 0311
 name SIP_0311
 huntstop
 label SIP0311
 mwi
!
!
!
voice register pool  1[10]
 id mac 001C.5856.CFE6
 type 7961
 number 1 dn 5
 no digit collect kpml
 dtmf-relay rtp-nte
 username 0311 password 0311
 codec g711ulaw
!
!
!
```

1 *Configuring CUBE to operate in Cisco Unified CME mode.*
2 *LAN IP of CUBE.*
3 *Specifies the maximum number of DNs that can be configured and assigned on this Cisco Unified CME for SIP phones.*
4 *Specifies the maximum number of pools that can be configured and assigned on this Cisco Unified CME as SIP Phones.*
5. *Specifies the load for the specific device type that can register to Cisco Unified CME.*
6 *Configures the voicemail number.*
7 *tftp-path flash- specifies the path where the files required by a phone to register are located.*
8 *create-profile – creates a profile for the phones to download from Cisco Unified CME and register to it when a new phone is added into the Cisco Unified CME VLAN.*
9 *Configures a directory number that can be assigned to a SIP Phone. Also configures the mwi to be on line 1 on this phone to indicate a voicemail.*

10 Sample config - Configures a SIP Phone of type 7961. Requires mac-id of phone that requires to be registered. Assigns line 1 on this phone with the dn 5 configured earlier.

```
telephony-service
 conference transfer-pattern
 no auto-reg-ephone
 max-ephones 15[11]
 max-dn 15[12]
 ip source-address 10.64.2.194 port 2000
 auto assign 1 to 10
 caller-id block code *67
 load 7941 SCCP41.9-2-1S[13]
 load 7975 SCCP75.9-2-1S
 voicemail 0305[14]
 mwi relay
 max-conferences 12 gain -6
 call-park system application
 call-forward pattern .T
 moh "flash:/music-on-hold.au"
 web admin system name admin password admin
 dn-webedit
 time-webedit
 transfer-system full-blind
 transfer-pattern .T blind
 create cnf-files[15]
!
ephone-dn  4  dual-line[16]
 number 0305
 preference 1
 huntstop channel
 no huntstop
!
ephone-dn  5
 number 2301 secondary 2300
 mwi on-off
!
!
ephone-dn  6
 number 2301....
 mwi on
!
!
ephone-dn  8
 number 0306
 label Phone1_0306
!
!
ephone-dn  9[17]
 number 0307
 label Phone1_0307
 call-forward busy 9728520306[18]
 call-forward noan 9728520306 timeout 5[19]
!
```

11 Specifies the maximum number of phones that can be configured and assigned on this Cisco Unified CME as SCCP phones
12 Specifies the maximum number of DNs that can be configured and assigned on this Cisco Unified CME for SCCP phones
13 Specifies the build versions for the device types registering as SCCP phones.
14 Configures voicemail.
15 Creates configuration files for SCCP phones.
16 Configuration of voice mail dn.
17 Sample config for SCCP Phone - Configures a SCCP Phone
18 Configures call forward-busy to a number (9728520306)

19 *Configures call forward-no answer to a number (9728520306) after a timer of 5 seconds.*

```
ephone  4[20]
 device-security-mode none
 vm-device-id CME9-VI1
 button  1:4
!
!
!
ephone  8[21]
 privacy off
 no multicast-moh
 device-security-mode none
 mac-address FCFB.FBCA.22FE
 busy-trigger-per-button 2
 username "0306" password 0306
 type 7975
 mwi-line 1
 button  1:8
!
!
!
ephone  9
 privacy off
 no multicast-moh
 device-security-mode none
 mac-address FCFB.FBCA.22A0
 busy-trigger-per-button 1
 username "0307" password 0307
 type 7975
 mwi-line 1
 button  1:9
!
```

20 *Integration with Voicemail. The Device ID must match the device id configured on Unity Connection..*
21 *Sample config - Configures a SCCP Phone of type 7975. Requires mac-id of phone that requires to be registered. Assigns line 1 on this phone with the dn 8 configured earlier.*

Acronyms

Acronym	Definitions
CUBE	Cisco Unified Border Element
Cisco UCM	Cisco Unified Communications Manager
Cisco Unified CME	Cisco Unified Communications Manager Express
PSTN	Public Switched Telephone Network
SIP	Session Initiation Protocol

Important Information

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Appendix A: Test Results (Test results will be kept on file at Cisco, but will be stripped out of the application note before publishing to Cisco.com.)

TWT_SIP_CUCME_9.1_Test_Plan.xlsx

Testing was conducted at TekVizion labs.

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