

ThinkTel



THINKTEL COMMUNICATIONS

CISCO C881 VOICE 15.3(3)M5

SIP-TRUNK Configuration

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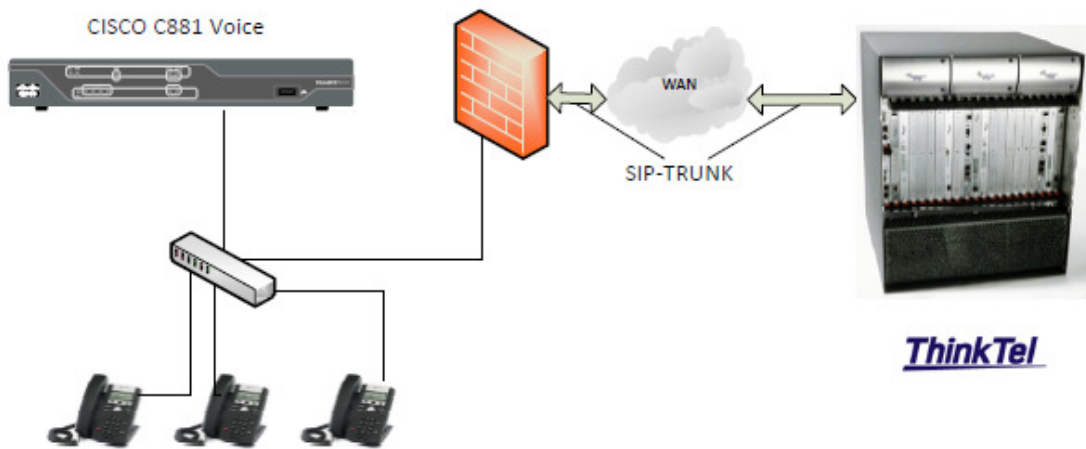
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1 INTRODUCTION

1.1 INTRODUCTION

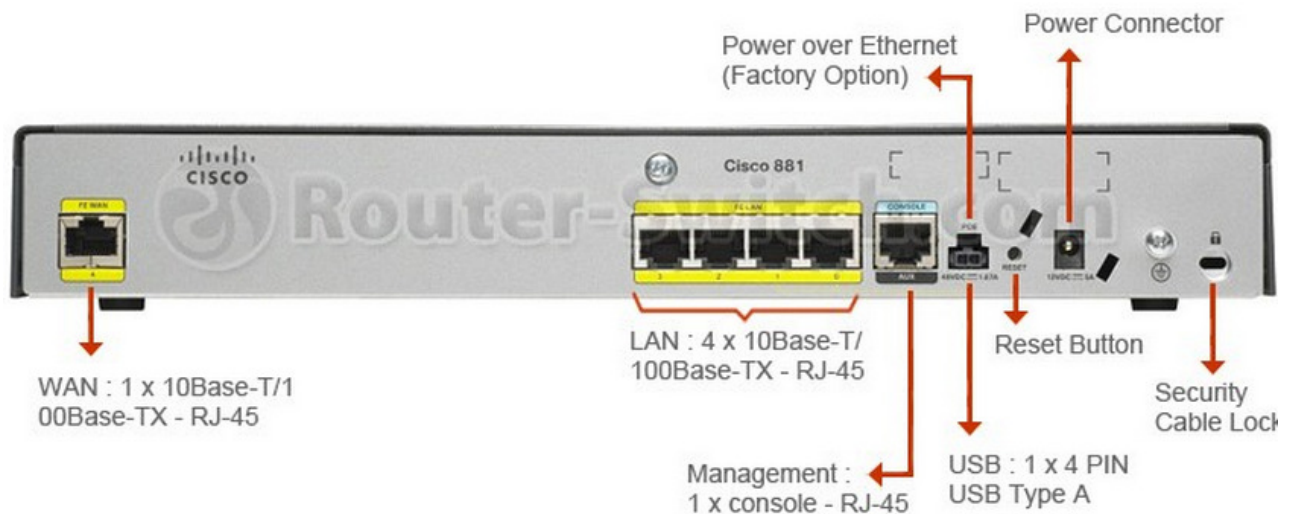
This Chapter explains how to configure the SIP-TRUNK connection between the CISCO C881 Voice ISR and the telephone service provider THINKTEL COMMUNICATIONS.

THINKTEL COMMUNICATIONS as a VOIP Provider gives you an account with accompanying credentials (username - password - Proxy IP Address)



2 SETTING UP C881 VOICE

2.1 CONNECTING THE CONSOLE PORT TO A PC

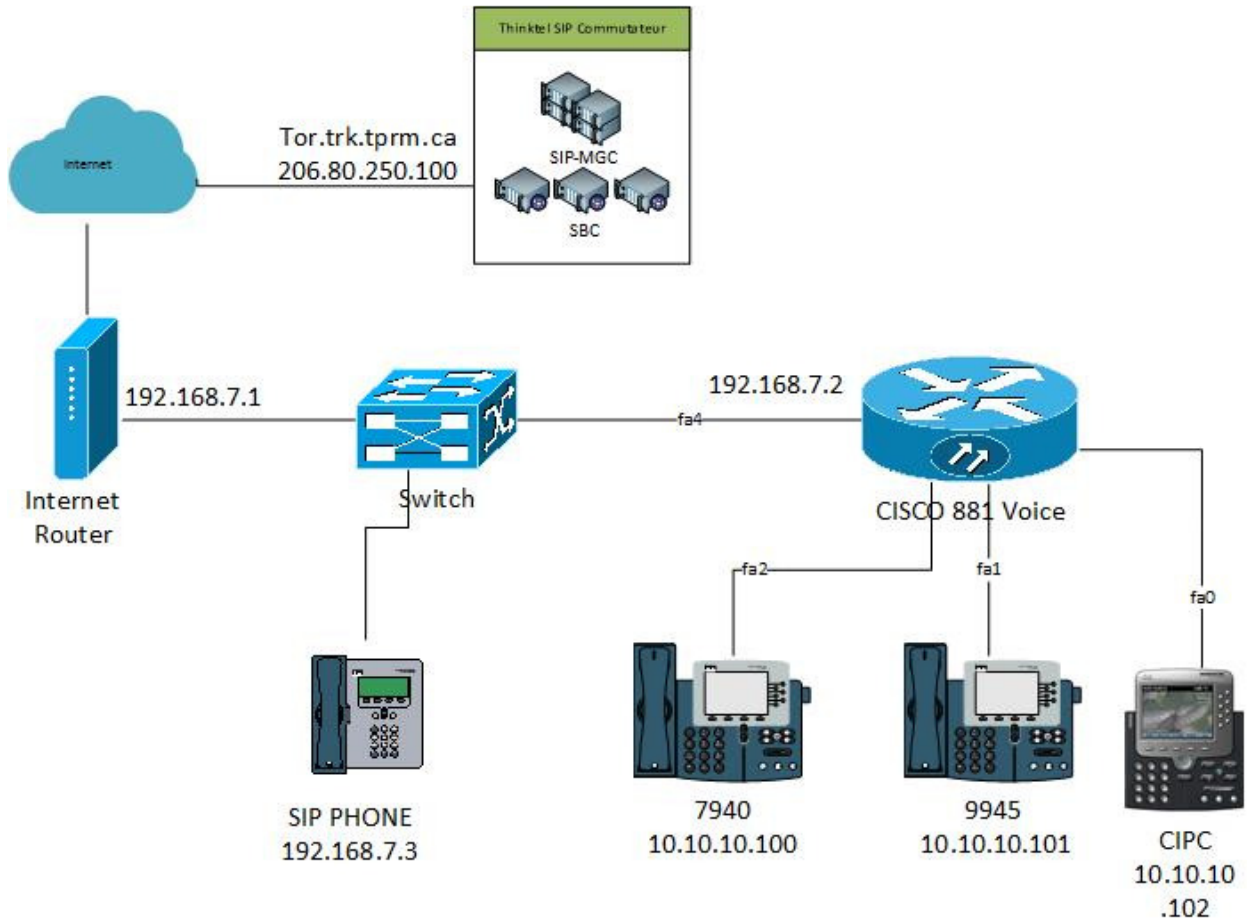


The Console Cable required for this connection is included with the Router. Follow these steps to connect the router to a PC running terminal emulation software:

1. Locate the console port on the back of the router
2. Connect the console cable port to the Router (RJ-45) and to the PC (DB9 connector)
3. Install HyperTerminal Software on your PC
4. On the Port Settings tab, enter the following settings :
 - Speed 9600
 - Data Bits 8
 - Parity none
 - Stop bits 1
 - Flow Control none
5. Click OK to make the connection

2.2 CONFIGURE BASIC SETUP

2.2.1 IP ADDRESSES LIST



- ISR 881 Router vlan1 (LAN) : 10.10.10.1
- ISR 881 Router WAN : 192.168.7.2
- Internet Router (LAN) : 192.168.7.1
- ThinkTel Proxy Server : 206.80.250.100
- ThinkTel SIP Domain Name : tor.trk.tprm.ca
- CISCO IP PHONE 1 (Skinny) : 10.10.10.100
- CISCO IP PHONE 2 (Skinny) : 10.10.10.101
- CISCO CIPC (Skinny) : 10.10.10.102
- SIP PHONE (SIP) : 192.168.7.3
- Public IP Address : vvv.xxx.yyy.zzz

2.2.2 CONFIGURE TELNET & CONSOLE ROUTER

```
router#
router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
router(config)# hostname cisco881
cisco881(config)# enable secret class
cisco881(config)# line console 0
cisco881(config-line)# password cisco
cisco881(config-line)# login
cisco881(config-line)# line vty 0 15
cisco881(config-line)# password cisco
cisco881(config-line)# login
cisco881(config-line)# exit
```

2.2.3 CONFIGURE VLAN1 (LAN)

```
Cisco881# configure terminal
cisco881(config)#interface vlan 1
cisco881(config-if)# ip address 10.10.10.1 255.255.255.0
cisco881(config-if)# description $ETH_LAN$
cisco881(config-if)# ip nat inside
cisco881(config-if)# no shutdown
cisco881(config-if)# exit
```

2.2.4 CONFIGURE FASTETHERNET4 (WAN)

```
Cisco881# configure terminal
cisco881(config)# interface FastEthernet4
cisco881(config-if)# ip address 192.168.7.2 255.255.255.0
cisco881(config-if)# description $ETH_WAN$
cisco881(config-if)# ip nat outside
cisco881(config-if)# no shutdown
cisco881(config-if)# exit
cisco881(config)# exit
```

2.2.5 CONFIGURE DHCP

```
Cisco881# configure terminal
cisco881(config)# ip dhcp pool ccp-pool
cisco881(dhcp-config)# network 10.10.10.0 255.255.255.0
```

```
cisco881(dhcp-config)# import all
cisco881(dhcp-config)# default-router 10.10.10.1
cisco881(dhcp-config)# dns-server 192.168.7.1 8.8.8.8
cisco881(dhcp-config)# option 150 ip 10.10.10.1
cisco881(dhcp-config)# lease 0 2
cisco881(dhcp-config)# exit
cisco881(config)# ip dhcp excludes-address 10.10.10.1 10.10.10.99
cisco881(config)# exit
```

2.2.6 CONFIGURE NAT

```
Cisco881# configure terminal
cisco881(config)# access-list 101 permit ip 10.10.10.0 0.0.0.0 any
cisco881(config)# ip nat inside source list 101 interface FastEthernet4 over load
cisco881(config)# exit
```

2.2.7 CONFIGURE DEFAULT ROUTE

```
Cisco881# configure terminal
cisco881(config)# ip route 0.0.0.0 0.0.0.0 192.168.7.1
cisco881(config)# exit
```

2.2.8 ENABLING DNS LOOKUP

```
Cisco881# configure terminal
cisco881(config)# ip domain-lookup
cisco881(config)# exit
```

3 TELEPHONY-SERVICE

3.1 CONFIGURE TELEPHONY-SERVICE

```
Cisco881# configure terminal
cisco881(config)# telephony-service
cisco881(config-telephony)# no auto-reg-ephone
```

- Before any IP Phone can register with the system, the maximum number allowed to register must be set

```
cisco881(config-telephony)# max-ephone 5
cisco881(config-telephony)# max-dn 50
```

- set the IP Address used by the C881

```
cisco881(config-telephony)# ip source-address 10.10.10.1
cisco881(config-telephony)# end
```

3.2 CONFIGURE DIRECTORY NUMBERS

```
Cisco881# configure terminal
cisco881(config)# ephone-dn 1 dual-line
cisco881(config-ephone-dn)# number 6000
cisco881(config-ephone-dn)# name Tom James
cisco881(config-ephone-dn)# exit
cisco881(config)# ephone-dn 2 dual-line
cisco881(config-ephone-dn)# number 6001
cisco881(config-ephone-dn)# name Eric Beaulieu
cisco881(config-ephone-dn)# exit
cisco881(config)# ephone-dn 3 dual-line
cisco881(config-ephone-dn)# number 6002
cisco881(config-ephone-dn)# name CIPC
cisco881(config-ephone-dn)# exit
```

- Get the MAC Address of the IP Phones and the PC for the CIPC

```
Cisco881# configure terminal
cisco881(config)# ephone 1
cisco881(config-ephone)# mac-address 0013.7FDD.3B42
cisco881(config-ephone)# type 7940
cisco881(config-ephone)# button 1:1
```



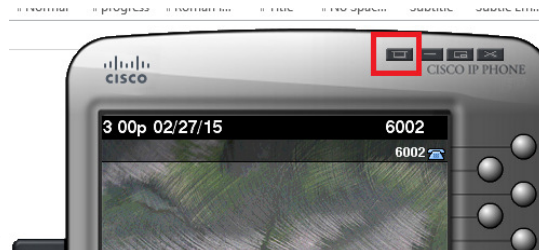
```
cisco881(config-ephone)#exit
cisco881(config)# ephone 2
cisco881(config-ephone)# mac-address 0023.339D.78C3
cisco881(config-ephone)# type 7945
cisco881(config-ephone)# button 1:2 2:1
cisco881(config-ephone)#exit
cisco881(config)# ephone 3
cisco881(config-ephone)# mac-address 14FE.B5C5.F527
cisco881(config-ephone)# type CIPC
cisco881(config-ephone)# button 1:3
cisco881(config-ephone)# end
```

3.3 CONFIGURE SCCP IP PHONES

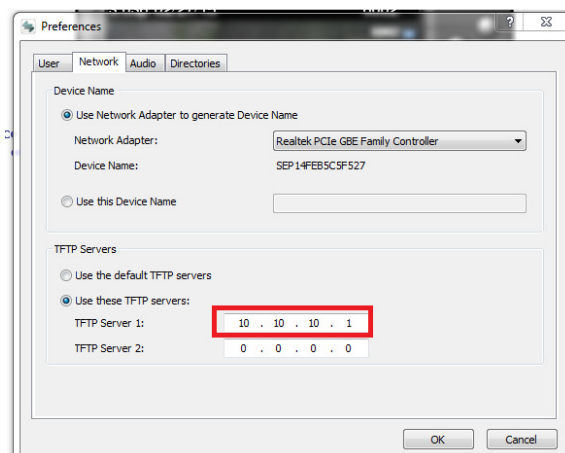
- Just plug the SCCP IP Phones in any FastEthernet (0-3) , the Phone request service from C881 , the registrar confirm the username then the phone accesses its configuration profile on the local TFTP server and puts the phone number on the phone console display

3.4 CONFIGURE SCCP CISCO IP COMMUNICATOR (CIPC)

- Install the CIPC Software on your PC



- Click on “Menu”



- Choose Preferences >> Network

- Enter the Vlan1 IP Address for TFTP Server 1 and Click on “OK”



3.5 CONFIGURE VOICE SERVICE VOIP & SIP

```
Cisco881# configure terminal
cisco881(config)# voice service voip
cisco881(conf-voi-serv)# allow-connections h323 to h323
cisco881(conf-voi-serv)# allow-connections h323 to sip
cisco881(conf-voi-serv)# allow-connections sip to h323
cisco881(conf-voi-serv)# allow-connections sip to sip
cisco881(conf-voi-serv)# sip
cisco881(conf-serv-sip)# bind control source-interface FastEthernet4
cisco881(conf-serv-sip)# bind media source-interface FastEthernet4
cisco881(conf-serv-sip)# registrar server
cisco881(conf-serv-sip)# early-offer forced
cisco881(conf-serv-sip)# end
```

NB: Voice Register global configurations for SIP are similar to telephony-service configuration parameters for SCCP Phones

```
Cisco881# configure terminal
cisco881(config)# voice register global
cisco881(config-register-global)# mode cme
cisco881(config-register-global)# source-address 10.10.10.1 port 5060
cisco881(config-register-global)# max-dn 50
cisco881(config-register-global)# max-pool 5
cisco881(config-register-global)# end
```

3.6 CONFIGURE SIP IP PHONES

```
Cisco881# configure terminal
cisco881(config)# voice register dn 1
cisco881(config-register-dn)# number 6015
cisco881(config-register-dn)# name Rick James
cisco881(config-register-dn)# label line1
cisco881(config-register-dn)# exit
cisco881(config)# voice register dn 2
cisco881(config-register-dn)# number 6016
cisco881(config-register-dn)# name John Smith
cisco881(config-register-dn)# label line2
cisco881(config-register-dn)# exit
cisco881(config)# voice register pool 1
cisco881(config-register-pool)# id mac 000E.08D7.9621
cisco881(config-register-pool)# type ATA
cisco881(config-register-pool)# number 1 dn 1
cisco881(config-register-pool)# dtmf-relay rtp-nte
cisco881(config-register-pool)# username user1 password password1
cisco881(config-register-pool)# codec g711ulaw
cisco881(config-register-pool)#exit
cisco881(config)# voice register pool 2
cisco881(config-register-pool)# id mac 14FE.B5C5.F527
cisco881(config-register-pool)# type ATA
cisco881(config-register-pool)# number 1 dn 2
cisco881(config-register-pool)# dtmf-relay rtp-nte
cisco881(config-register-pool)# username user2 password password2
cisco881(config-register-pool)# codec g711ulaw
cisco881(config-register-pool)# end
```

3.7 CONFIGURE SIP TRUNK REGISTRATION

3.7.1 CREDENTIALS PROVIDED BY THINKTEL

- Username : Pilot number e.g. : 4389382331
- Password : xxxxxxxx
- Sip Domain Name : tor.trk.tprm.ca or edm.trk.tprm.ca
- Sip Proxy Server : 206.80.250.100 or 208.68.17.52

3.7.2 CONFIGURE THE SIP TRUNK

```
Cisco881# configure terminal
cisco881(config)# sip-ua
cisco881(config-sip-ua)# credentials username 4389682331 password xxxxxxxx realm tor.trk.tprm.ca
cisco881(config-sip-ua)# authentication username 4389682331 password xxxxxxxx realm tor.trk.tprm.ca
cisco881(config-sip-ua)# retry invite 2
cisco881(config-sip-ua)# registrar ipv4:206.80.250.100 expires 3600
cisco881(config-sip-ua)# end
```

3.7.3 CONFIGURE THE LOOPBACK INTERFACE

In my Lab the C881 was not able to accept OPTIONS request or INVITE request because of presence of the Public IP address in OPTIONS and INVITE Requests

```
206.80.250.10-> 174.138.217.138 SIP Request: OPTIONS sip:metaswitch@174.138.217.138:5060;transport=udp
Vvv.xxx.yyy.zzz -> 206.80.250.100 SIP Status: 400 Bad Request - 'Invalid IP Address'
```

In order to solve this problem create a loopback interface with the Public IP Address

```
Cisco881# configure terminal
cisco881(config)# interface loopback 1000
cisco881(config-if)# ip address vvv.xxx.yyy.zzz 255.255.255.255
cisco881(config-if)# end
```

3.8 CONFIGURE IP TRUSTED LIST

```
Cisco881# configure terminal
cisco881(config)# voice service voip
cisco881(conf-voi-serv)# ip address trusted list
cisco881(cfg-iptrust-list)# ipv4 206.80.250.100 255.255.255.255
cisco881(cfg-iptrust-list)# ipv4 208.68.17.32 255.255.255.224
cisco881(cfg-iptrust-list)# ipv4 206.68.17.32 255.255.255.224
cisco881(cfg-iptrust-list)# ipv4 209.197.133.0 255.255.255.192
cisco881(cfg-iptrust-list)# end
```

3.9 CONFIGURE DIAL-PEER FOR FXS PORTS

```
Cisco881# configure terminal
cisco881(config)# dial-peer voice 100 pots
cisco881(config-dial-peer)# destination-pattern 6010
cisco881(config-dial-peer)# port 3
cisco881(config-dial-peer)# exit
cisco881(config)# dial-peer voice 101 pots
cisco881(config-dial-peer)# destination-pattern 6011
cisco881(config-dial-peer)# port 4
cisco881(config-dial-peer)# exit
cisco881(config)# dial-peer voice 102 pots
cisco881(config-dial-peer)# destination-pattern 6012
cisco881(config-dial-peer)# port 5
cisco881(config-dial-peer)# exit
cisco881(config)# dial-peer voice 103 pots
cisco881(config-dial-peer)# destination-pattern 6013
cisco881(config-dial-peer)# port 6
cisco881(config-dial-peer)# end
```

3.10 CONFIGURE DIAL-PEER FOR SIP TRUNK

```
Cisco881# configure terminal
cisco881(config)# dial-peer voice 180 voip
cisco881(config-dial-peer)# description $outgoing thinktel sip trunk 10 digit$
cisco881(config-dial-peer)# destination-pattern [2-9]..[2-9].....
cisco881(config-dial-peer)# session protocol sipv2
cisco881(config-dial-peer)# no digit-strip
cisco881(config-dial-peer)# session target dns:tor.trk.tprm.ca
cisco881(config-dial-peer)# codec g711ulaw
```

3.11 CONFIGURE DIAL-PEER FOR PSTN TRUNK FAILOVER

In this configuration the dial peers directing calls to the SIP TRUNK , you can prioritize calls to use the SIP TRUNK when it is available by using “preference” command on the dial peers pointing to these trunks , for our case the dial peer “180” (SIP TRUNK) has “preference 0” and the dial “181” (FXO) has “preference 1”

```
Cisco881# configure terminal
cisco881(config)# dial-peer voice 181 pots
cisco881(config-dial-peer)# description $fxo failover trunk$
cisco881(config-dial-peer)# preference 1
```

```
cisco881(config-dial-peer)# destination-pattern [2-9]..[2-9].....  
cisco881(config-dial-peer)# no digit-strip  
cisco881(config-dial-peer)# port 7  
cisco881(config-dial-peer)# end
```

3.12 CONFIGURE DID

For our example we are using the number expansion command to replace the DID number with a local extension

```
Cisco881# configure terminal  
cisco881(config)#num-exp 4389682331 6015
```

4 USEFUL CMD

4.1 SHOW DIAL PLAN NUMBER

This command displays the dial-peer that is matched by a string of digits, for our case 2 dial-peers can be matched, they are both shown in the order in which they are matched

```
Cisco881# show dialplan number xxxxxx i.e. (5145750014)
```

```
Cisco881# show dialplan number 5145750014 voice
VoiceOverIpPeer180 (dial-peer 180 as main target)
  peer type = voice, system default peer = FALSE, information type = voice,
  description = '$outgoing thinktel sip trunk 10 digit$',
  tag = 180, destination-pattern = '[2-9]..[2-9].....',
.
.
.
Matched: 5145750014 Digits: 2 Matched pattern: [2-9]..[2-9].....
Target: dns:tor.trk.tprm.ca
```

```
VoiceEncapPeer181(dial-peer 181 as failover trunk)
  peer type = voice, system default peer = FALSE, information type = voice,
  description = '$fxo failover trunk$',
  tag = 181, destination-pattern = '[2-9]..[2-9].....',
Matched: 5145750014 Digits: 2 Matched pattern: [2-9]..[2-9].....
Target:
```

4.2 SHOW EPHONE (SCCP PHONES)

This CMD is used to display the status of all SCCP phones

```
cisco881#show ephone
```

```
ephone-1[0] Mac:0013.7FDD.3B42 TCP socket:[-1] activeLine:0 whisperLine:0 UNREGISTERED
mediaActive:0 whisper_mediaActive:0 startMedia:0 offhook:0 ringing:0 reset:0 reset_sent:0 paging 0 debug:0
caps:0
IP:0.0.0.0* 0 Unknown 0 keepalive 0 max_line 0 available_line 0
button 1: cw:1 ccw:(0 0)
  dn 1 number 6000 CH1 IDLE      CH2 IDLE
Preferred Codec: g711ulaw
Lpcor Type: none
```



```
ePhone-2[1] Mac:0023.339D.78C3 TCP socket:[1] activeLine:0 whisperLine:0 REGISTERED in SCCP ver 22/17
max_streams=5
mediaActive:0 whisper_mediaActive:0 startMedia:0 offhook:0 ringing:0 reset:0 reset_sent:0 paging 0 debug:0
caps:9
IP:10.10.10.101 * 52351 7945 keepalive 13314 max_line 2 available_line 2
button 1: cw:1 ccw:(0 0)
  dn 2 number 6001 CH1 IDLE      CH2 IDLE
button 2: cw:1 ccw:(0 0)
  dn 1 number 6000 CH1 IDLE      CH2 IDLE
Preferred Codec: g711ulaw
Lpcor Type: none after-hour exempt
```

```
ePhone-3[2] Mac:14FE.B5C5.F527 TCP socket:[-1] activeLine:0 whisperLine:0 DECEASED
mediaActive:0 whisper_mediaActive:0 startMedia:0 offhook:0 ringing:0 reset:0 reset_sent:0 paging 0 debug:0
caps:10
IP:10.10.10.103 * 49412 CIPC keepalive 1265 max_line 8 available_line 8
button 1: cw:1 ccw:(0 0)
  dn 3 number 6002 CH1 DOWN      CH2 DOWN
Preferred Codec: g711ulaw
Lpcor Type: none
```

4.3 SHOW VOICE REGISTER ALL (SIP PHONES)

This CMD is used to display the status of all SIP phones

```
cisco881#show voice register all
VOICE REGISTER GLOBAL
=====
CONFIG [Version=10.0]
=====
Version 10.0
Mode is cme
Max-pool is 5
Max-dn is 50
Outbound-proxy is enabled and will use global configured value
Security Policy: DEVICE-DEFAULT
Forced Authorization Code Refer is enabled
Source-address is 10.10.10.1 port 5060
Time-format is 12
Date-format is M/D/Y
Time-zone is 5
Hold-alert is disabled
Mwi stutter is disabled
```




Mwi registration for full E.164 is disabled
Forwarding local is enabled
Video is disabled
Camera is disabled
Privacy is enabled
Privacy-on-hold is disabled
Conference hardware is disabled
Dst auto adjust is enabled
 start at Apr week 1 day Sun time 02:00
 stop at Oct week 8 day Sun time 02:00
Max redirect number is 5
IP QoS DSCP:
 ef (the MS 6 bits, 46, in ToS, 0xB8) for media
 cs3 (the MS 6 bits, 24, in ToS, 0x60) for signal
 af41 (the MS 6 bits, 34, in ToS, 0x88) for video
 default (the MS 6 bits, 0, in ToS, 0x0) for service
Telnet Level: 0
Tftp path is flash:/its
Generate text file is disabled
Tftp files are created, current syncinfo 0005741809662991
OS79XX.TXT is not created
timeout interdigit 10
network-locale[0] US (This is the default network locale for this box)
network-locale[1] US
network-locale[2] US
network-locale[3] US
network-locale[4] US
user-locale[0] US (This is the default user locale for this box)
user-locale[1] US
user-locale[2] US
user-locale[3] US
user-locale[4] US
MWI unsolicited notify is disabled
Active registrations : 1

Total SIP phones registered: 1
Total Registration Statistics
 Registration requests : 3680
 Registration success : 4
 Registration failed : 3676
 unRegister requests : 3
 unRegister success : 3
 unRegister failed : 0
 Attempts to register



after last unregister : 1876
Last register request time : *23:53:05.352 UTC Tue Mar 3 2015
Last unregister request time : *12:05:51.629 UTC Mon Mar 2 2015
Register success time : *11:05:51.629 UTC Mon Mar 2 2015
Unregister success time : *12:05:51.629 UTC Mon Mar 2 2015

VOICE REGISTER DN

=====

Dn Tag 1

Config:

Number is 6015
Preference is 0
Huntstop is disabled
Name Rick James
Auto answer is disabled
Label is line1
Pool 1 has this DN configured for line 1

Dn Tag 2

Config:

Number is 6016
Preference is 0
Huntstop is disabled
Name John Smith
Auto answer is disabled
Label is line2
Pool 2 has this DN configured for line 1

VOICE REGISTER TEMPLATE

=====

VOICE REGISTER DIALPLAN

=====

VOICE REGISTER POOL

=====

Pool Tag 1

Config:

Mac address is 000E.08D7.9621
Type is ATA
Number list 1 : DN 1
Proxy Ip address is 0.0.0.0
Current Phone load version is Linksys/SPA942-6.1.5(a)



DTMF Relay is enabled, rtp-nte
Call Waiting is enabled
DnD is disabled
Video is disabled
Camera is disabled
Busy trigger per button value is 0
keep-conference is enabled
registration expires timer max is 3600 and min is 60
username elie password Elie123
Lpcor Type is none

Transport type is udp
service-control mechanism is not supported
registration Call ID is 54e8f1a-57dd6015@192.168.7.3
Registration method: per line
Privacy feature is not configured.
Privacy button is disabled
active primary line is: 6015

contact IP address: 192.168.7.3 port 5060

conference admin: no
conference add mode: all
conference drop mode: never
paging-dn: config 0 [multicast] effective 0 [multicast]

Dialpeers created:

Dial-peers for Pool 1:

dial-peer voice 40001 voip
destination-pattern 6015\$
session target ipv4:192.168.7.3:5060
session protocol sipv2
dtmf-relay rtp-nte
codec g711ulaw bytes 160
after-hours-exempt FALSE

Statistics:

Active registrations : 1

Total SIP phones registered: 1

Total Registration Statistics

Registration requests : 3



Registration success : 3
Registration failed : 0
unRegister requests : 2
unRegister success : 2
unRegister failed : 0
Attempts to register
 after last unregister : 0
Last register request time : *17:16:55.615 UTC Sat Feb 28 2015
Last unregister request time : *16:38:41.872 UTC Sat Feb 28 2015
Register success time : *17:16:55.619 UTC Sat Feb 28 2015
Unregister success time : *16:38:41.872 UTC Sat Feb 28 2015

Pool Tag 2

Config:

Mac address is 14FE.B5C5.F527
Number list 1 : DN 2
Proxy Ip address is 0.0.0.0
Current Phone load version is eyeBeam release 1102q stamp 51814
DTMF Relay is enabled, rtp-nte
Call Waiting is enabled
DnD is disabled
Video is disabled
Camera is disabled
Busy trigger per button value is 0
keep-conference is enabled
registration expires timer max is 3600 and min is 60
username elie2 password elie2
Lpcor Type is none

Transport type is udp
service-control mechanism is not supported
registration Call ID is YjdkMGE0MWY4YzlkMjg1MjVlNWl5ZDMwNzU2MwQ1ZDE.
Registration method: per line
Privacy feature is not configured.
Privacy button is disabled
active primary line is: 6016

contact IP address: 10.10.10.102 port 61330

conference admin: no
conference add mode: all
conference drop mode: never
Reason for unregistered state:



No registration request since last reboot/unregister

paging-dn: config 0 [multicast] effective 0 [multicast]

Dialpeers created:

Dial-peers for Pool 2:

Statistics:

Active registrations : 0

Total SIP phones registered: 1

Total Registration Statistics

Registration requests : 1

Registration success : 1

Registration failed : 0

unRegister requests : 1

unRegister success : 1

unRegister failed : 0

Attempts to register

after last unregister : 0

Last register request time : *11:05:51.629 UTC Mon Mar 2 2015

Last unregister request time : *12:05:51.629 UTC Mon Mar 2 2015

Register success time : *11:05:51.629 UTC Mon Mar 2 2015

Unregister success time : *12:05:51.629 UTC Mon Mar 2 2015

4.4 DEBUG CCSIP (ALL , ERROR , EVENTS , INFO & STATES)

i.e.

```
cisco881#debug ccsip calls
```

```
SIP Call statistics tracing is enabled
```

```
cisco881#terminal monitor
```

```
cisco881#
```

```
SIP: Trying to parse unsupported attribute at media level
```

```
*Mar 4 16:16:51.168: //32314/AEBF292B8280/SIP/Call/sipSPICallInfo:
```

```
The Call Setup Information is:
```

```
Call Control Block (CCB) : 0x0x8B430560
```

```
State of The Call : STATE_DEAD
```

```
TCP Sockets Used : NO
```

```
Calling Number : 5149200223
```

```
Called Number : 6015
```



Source IP Address (Sig): 192.168.7.2
Destn SIP Req Addr:Port : 192.168.7.3:5060
Destn SIP Resp Addr:Port : 192.168.7.3:5060
Destination Name : 192.168.7.3

*Mar 4 16:16:51.168: //32314/AEBF292B8280/SIP/Call/sipSPIMediaCallInfo:

Number of Media Streams: 1
Media Stream : 1
Negotiated Codec : No Codec
Negotiated Codec Bytes : 0
Nego. Codec payload : 255 (tx), 255 (rx)
Negotiated Dtmf-relay : 0
Dtmf-relay Payload : 0 (tx), 0 (rx)
Source IP Address (Media): 192.168.7.2
Source IP Port (Media): 20360
Destn IP Address (Media): -
Destn IP Port (Media): 0
Orig Destn IP Address:Port (Media): [-]:0

*Mar 4 16:16:51.168: //32314/AEBF292B8280/SIP/Call/sipSPICallInfo:

Disconnect Cause (CC) : 16
Disconnect Cause (SIP) : 487

*Mar 4 16:16:51.188: //32313/AEBF292B8280/SIP/Call/sipSPICallInfo:

The Call Setup Information is:
Call Control Block (CCB) : 0x0x8B429F58
State of The Call : STATE_DEAD
TCP Sockets Used : NO
Calling Number : 5149200223
Called Number : 4389682331
Source IP Address (Sig): 192.168.7.2
Destn SIP Req Addr:Port : 206.80.250.100:5060
Destn SIP Resp Addr:Port : 206.80.250.100:5060
Destination Name : 206.80.250.100

*Mar 4 16:16:51.188: //32313/AEBF292B8280/SIP/Call/sipSPIMediaCallInfo:

Number of Media Streams: 1
Media Stream : 1
Negotiated Codec : g711ulaw
Negotiated Codec Bytes : 160
Nego. Codec payload : 0 (tx), 0 (rx)
Negotiated Dtmf-relay : 0
Dtmf-relay Payload : 0 (tx), 0 (rx)
Source IP Address (Media): 192.168.7.2



Source IP Port (Media): 20358
Destn IP Address (Media): 206.80.250.102
Destn IP Port (Media): 42178
Orig Destn IP Address:Port (Media): [-]:0

*Mar 4 16:16:51.188: //32313/AEBF292B8280/SIP/Call/sipSPICallInfo:
Disconnect Cause (CC) : 16
Disconnect Cause (SIP) : 487

*Mar 4 16:16:55.768: TFTP: Server request for port 52769, socket_id 0x8817C188 for process 191
*Mar 4 16:16:55.768: TFTP: read request from host 10.10.10.100(52769) via Vlan1
*Mar 4 16:16:55.768: TFTP: Looking for CTLSEP00137FDD3B42.tlv
*Mar 4 16:16:55.768: TFTP: Sending error 1 No such file
*Mar 4 16:16:55.828: TFTP: Server request for port 52770, socket_id 0x8817C188 for process 191
*Mar 4 16:16:55.828: TFTP: read request from host 10.10.10.100(52770) via Vlan1
*Mar 4 16:16:55.828: TFTP: Looking for SEP00137FDD3B42.cnf.xml
*Mar 4 16:16:55.828: TFTP: Opened flash:/its/vrf1/XMLDefault7940.cnf.xml, fd 0, size 1057 for process 191
*Mar 4 16:16:55.828: TFTP: Sending block 1 (retry 0), len 512, socket_id 0x8817C188
*Mar 4 16:16:55.832: TFTP: Received ACK for block 1, socket_id 0x8817C188
*Mar 4 16:16:55.832: TFTP: Sending block 2 (retry 0), len 512, socket_id 0x8817C188
*Mar 4 16:16:55.832: TFTP: Received ACK for block 2, socket_id 0x8817C188
*Mar 4 16:16:55.832: TFTP: Sending block 3 (retry 0), len 33, socket_id 0x8817C188
*Mar 4 16:16:55.836: TFTP: Received ACK for block 3, socket_id 0x8817C188
*Mar 4 16:16:55.836: TFTP: Finished flash:/its/vrf1/XMLDefault7940.cnf.xml, time 00:00:00 for process 191

4.5 SHOW RUNNING-CONFIG

```
cisco881#show running-config  
Building configuration...
```

```
Current configuration : 7143 bytes  
!  
! Last configuration change at 02:55:19 UTC Wed Mar 4 2015 by student  
version 15.3  
no service pad  
service timestamps debug datetime msec  
service timestamps log datetime msec  
no service password-encryption  
!  
hostname cisco881  
!
```



```
boot-start-marker
boot-end-marker
!
aqm-register-fnf
!
enable secret 5 $1$U0f.$kXc5eY672TpcbIM/0atMl1
!
no aaa new-model
network-clock-participate wic 0
!
crypto pki trustpoint TP-self-signed-109105622
  enrollment selfsigned
  subject-name cn=IOS-Self-Signed-Certificate-109105622
  revocation-check none
  rsakeypair TP-self-signed-109105622
!
!
crypto pki certificate chain TP-self-signed-109105622
  certificate self-signed 01
    30820229 30820192 A0030201 02020101 300D0609 2A864886 F70D0101 05050030
    30312E30 2C060355 04031325 494F532D 53656C66 2D536967 6E65642D 43657274
    69666963 6174652D 31303931 30353632 32301E17 0D313530 32323131 35343131
    385A170D 32303031 30313030 30303030 5A303031 2E302C06 03550403 1325494F
    532D5365 6C662D53 69676E65 642D4365 72746966 69636174 652D3130 39313035
    36323230 819F300D 06092A86 4886F70D 01010105 0003818D 00308189 02818100
    9112DA3B 543D38D7 12FE38F5 61D5DE51 C2365BDB 2D03394A 5FD7F53F 3C116462
    BBF91F83 16929B98 DD3448E7 D87CF106 58EF903B E789A022 CD8C67B6 19D5F40E
    88CE53B8 294D0938 DD48F8F3 6E3E3116 1AF1B02F DBB9F39A 05025062 ADBA9187
    064507C8 5EF4AA6E 202847C9 92EAC9C9 1166FEFB 870BE4CE 71B49839 93D5EB79
    02030100 01A35330 51300F06 03551D13 0101FF04 05300301 01FF301F 0603551D
    23041830 16801447 57D87219 335077BB 538B79C0 59C6B38E 04C47130 1D060355
    1D0E0416 04144757 D8721933 5077BB53 8B79C059 C6B38E04 C471300D 06092A86
    4886F70D 01010505 00038181 0011FD7E 1851EA72 85E93438 DA55B2DA A9AF8FD9
    BE945039 A5F461FB B3953CC5 8896E97E 76D35684 7FDF2795 F5A00F48 86E8AFAA
    7D7976E9 27E9D6C7 A5CCCE05 77B5225D 3F9852D9 19BE250A 3119EB7D BE693E59
    D646D88F 0EE6D8A0 54A59D0C 4712B6A0 66E31350 E81F842A B8F213F1 CFCDDDB1
    D7E3C82C 1B010955 78B43754 F0
  quit
!
!
!
ip dhcp excluded-address 10.10.10.1 10.10.10.99
!
ip dhcp pool ccp-pool
```




```
import all
network 10.10.10.0 255.255.255.0
default-router 10.10.10.1
dns-server 192.168.7.1 8.8.8.8
option 150 ip 10.10.10.1
lease 0 2
!
!
!
ip cef
no ipv6 cef
!
!
!
!
!
multilink bundle-name authenticated
!
!
!
voice service voip
ip address trusted list
ipv4 135.19.239.21
ipv4 206.80.250.100 255.255.255.255
ipv4 208.68.17.32 255.255.255.224
ipv4 206.68.17.32 255.255.255.224
ipv4 209.197.133.0 255.255.255.192
ipv4 10.10.10.0 255.255.255.0
dtmf-interworking rtp-nte
allow-connections h323 to h323
allow-connections h323 to sip
allow-connections sip to h323
allow-connections sip to sip
no supplementary-service h450.2
no supplementary-service h450.3
no supplementary-service h450.7
no supplementary-service sip handle-replaces
sip
bind control source-interface FastEthernet4
bind media source-interface FastEthernet4
registrar server
early-offer forced
!
voice class codec 1
```



```
codec preference 1 g729r8
!
!
!
voice register global
mode cme
source-address 10.10.10.1 port 5060
max-dn 50
max-pool 5
tftp-path flash:
create profile sync 0005741809662991
!
voice register dn 1
number 6015
name Rick James
label line1
!
voice register dn 2
number 6016
name John Smith
label line2
!
voice register pool 1
id mac 000E.08D7.9621
type ATA
number 1 dn 1
dtmf-relay rtp-nte
username elie password Elie123
codec g711ulaw
!
voice register pool 2
id mac 14FE.B5C5.F527
number 1 dn 2
dtmf-relay rtp-nte
username elie2 password elie2
codec g711ulaw
!
!
!
voice-card 0
!
license udi pid C881-V-K9 sn FGL19012145
!
!
```



```
username student privilege 15 secret 5 $1$D3UT$IcgqHHGLoQliE/ARpls48/
!
!
!
!
!
zone security wan
!
!
!
!
!
!
!
!
!
!
!
interface Loopback1000
 ip address 174.138.217.138 255.255.255.255
!
interface BR1
 no ip address
!
interface BR12
 no ip address
!
interface FastEthernet0
 no ip address
!
interface FastEthernet1
 no ip address
!
interface FastEthernet2
 no ip address
!
interface FastEthernet3
 no ip address
!
interface FastEthernet4
 description $ETH_WAN$
 ip address 192.168.7.2 255.255.255.0
 ip nat outside
 ip virtual-reassembly in
 duplex auto
```



```
speed auto
!
interface Vlan1
description $ETH_LAN$
ip address 10.10.10.1 255.255.255.0
ip nat inside
ip virtual-reassembly in
ip tcp adjust-mss 1452
!
ip forward-protocol nd
ip http server
ip http authentication local
ip http secure-server
!
!
ip nat inside source list 101 interface FastEthernet4 overload
ip route 0.0.0.0 0.0.0.0 192.168.7.1
!
!
access-list 101 permit ip 10.10.10.0 0.0.0.255 any
!
control-plane
!
!
voice-port 1
!
voice-port 2
!
voice-port 3
description fxs1
station-id name 5145750014
station-id number 6010
!
voice-port 4
description fxs2
station-id name 5143177838
station-id number 6011
!
voice-port 5
!
voice-port 6
!
voice-port 7
!
```



```
!  
mgcp behavior rsip-range tgcp-only  
mgcp behavior comedia-role none  
mgcp behavior comedia-check-media-src disable  
mgcp behavior comedia-sdp-force disable  
!  
mgcp profile default  
!  
!  
dial-peer voice 100 pots  
destination-pattern 6010  
port 3  
!  
dial-peer voice 101 pots  
destination-pattern 6011  
port 4  
!  
dial-peer voice 161 voip  
incoming called-number .  
codec g711ulaw  
!  
dial-peer voice 450 pots  
destination-pattern 4..  
no digit-strip  
port 7  
!  
dial-peer voice 180 voip  
description $outgoing thinktel sip trunk 10 digit$  
destination-pattern [2-9]..[2-9].....  
session protocol sipv2  
session target dns:tor.trk.tprm.ca  
codec g711ulaw  
!  
dial-peer voice 181 pots  
description $fxo failover trunk$  
preference 1  
destination-pattern [2-9]..[2-9].....  
no digit-strip  
port 7  
!  
dial-peer voice 102 pots  
destination-pattern 6012  
port 5  
!
```



```
dial-peer voice 103 pots
destination-pattern 6013
port 6
!
dial-peer voice 250 voip
!
!
num-exp 4389682331 6015
sip-ua
credentials username 4389682331 password 7 01362A0D5E5A352E2C4D7C284B realm tor.trk.tprm.ca
authentication username 4389682331 password 7 01362A0D5E5A352E2C4D7C284B realm tor.trk.tprm.ca
retry invite 2
timers trying 150
!
!
telephony-service
no auto-reg-ephone
max-ephones 5
max-dn 50
ip source-address 10.10.10.1 port 2000
cnf-file location flash:
max-conferences 0 gain -6
web admin system name student secret 5 $1$6w.L$im3e.SEXCkftGfX3HL2DH1
transfer-system full-consult
transfer-pattern 5.....
night-service code *1234
create cnf-files version-stamp Jan 01 2002 00:00:00
!
!
ephone-dn 1 dual-line
number 6000
name Tom James
!
!
ephone-dn 2 dual-line
number 6001
name Eric Beaulieu
!
!
ephone-dn 3 dual-line
number 6002
name CIPC
!
!
```



```
ephone 1
device-security-mode none
mac-address 0013.7FDD.3B42
type 7940
button 1:1
!
!
!
ephone 2
no multicast-moh
device-security-mode none
mac-address 0023.339D.78C3
after-hours exempt
mtp
type 7945
button 1:2 2:1
night-service bell
!
!
!
ephone 3
device-security-mode none
mac-address 14FE.B5C5.F527
type CIPC
button 1:3
!
!
!
line con 0
password cisco
login
no modem enable
line aux 0
line vty 0 4
password cisco
login local
transport input telnet ssh
line vty 5 15
password cisco
login local
transport input telnet ssh
!
!
end
```