



Cisco Unified Communications Manager Express 7.1 SIP Configuration Guide

Valcom Session Initiation Protocol (SIP) enabled devices are compatible with Cisco Unified Communications Manager Express (CUCME) systems. The Valcom device is added to the CUCME system as a standard SIP extension.

The following steps show the typical process to add a Valcom SIP-enabled device to a Cisco Unified Communications Manager Express 7.1 system using the Command Line Interface (CLI). This example assumes the CUCME is already configured to support SIP phones. This example is based on the Valcom PagePro IP Paging Server, which has 8 SIP identities that will register on the CUCME system.

1. Login via shell (telnet, SSH, console login, etc.) to your Communications Manager Express system, then use the *enable* command to enter privileged EXEC mode.

```
User Access Verification
```

```
Username: <enter the username>  
Password: <enter the password>
```

```
CME-2801>  
CME-2801> enable  
Password: <enter the enable password here>  
CME-2801#
```

2. Change to global configuration mode:

```
CME-2801# configure terminal  
CME-2801(config)#
```

3. If directory numbers to be used for the Valcom device already exist, skip to Step 4. Otherwise, create new directory numbers. The following example creates 8 directory number entries that will be assigned to the 8 SIP identities of the Valcom Paging Server. The directory numbers chosen should be changed to fit your dial code structure.

```
CME-2801(config)# voice register dn 38                ! create dn 38  
CME-2801(config-register-dn)# number 7238           ! phone number  
CME-2801(config-register-dn)# name VIP-204-Ch-1     ! optional name for dn 38  
CME-2801(config-register-dn)# voice register dn 40  ! create dn 40  
CME-2801(config-register-dn)# number 7240           ! phone number  
CME-2801(config-register-dn)# name VIP-204-Ch-2     ! optional name for dn 40  
CME-2801(config-register-dn)# voice register dn 50  ! create dn 50  
CME-2801(config-register-dn)# number 7250           ! phone number  
CME-2801(config-register-dn)# name VIP-204-Ch-3     ! optional name for dn 50  
CME-2801(config-register-dn)# voice register dn 60  ! create dn 60  
CME-2801(config-register-dn)# number 7260           ! phone number  
CME-2801(config-register-dn)# name VIP-204-Ch-4     ! optional name for dn 60
```



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```
CME-2801(config-register-dn) # voice register dn 90           ! create dn 90
CME-2801(config-register-dn) # number 7290                   ! phone number
CME-2801(config-register-dn) # name VIP-204-Ch-5             ! optional name for dn 90
CME-2801(config-register-dn) # voice register dn 100         ! create dn 100
CME-2801(config-register-dn) # number 7300                   ! phone number
CME-2801(config-register-dn) # name VIP-204-Ch-6             ! optional name for dn 100
CME-2801(config-register-dn) # voice register dn 110         ! create dn 110
CME-2801(config-register-dn) # number 7310                   ! phone number
CME-2801(config-register-dn) # name VIP-204-Ch-7             ! optional name for dn 110
CME-2801(config-register-dn) # voice register dn 120         ! create dn 120
CME-2801(config-register-dn) # number 7320                   ! phone number
CME-2801(config-register-dn) # name VIP-204-Ch-8             ! optional name for dn 120
CME-2801(config-register-dn) # exit                           ! exit dn configuration
CME-2801(config) #
```

4. Create a pool entry for the Valcom device and associate the dn numbers to it. This example uses pool number 4. The actual pool chosen should be an unused pool number included in your current CUCME configuration. The command “show voice register global” can be used to display the max-pool setting. The MAC address of the Valcom unit can be found on a label affixed to the device, or can be viewed on the Summary tab of the VIP-102B IP Solutions Setup tool.

```
CME-2801(config) # voice register pool 4                     ! pool configuration mode
CME-2801(config-register-pool) # id mac 00D0.5F00.36BB       ! Valcom device MAC
CME-2801(config-register-pool) # number 1 dn 38              ! assign dn to first SIP identity
CME-2801(config-register-pool) # number 2 dn 40              ! assign dn to second SIP identity
CME-2801(config-register-pool) # number 3 dn 50              ! assign dn to third SIP identity
CME-2801(config-register-pool) # number 4 dn 60              ! assign dn to fourth SIP identity
CME-2801(config-register-pool) # number 5 dn 90              ! assign dn to fifth SIP identity
CME-2801(config-register-pool) # number 6 dn 100             ! assign dn to sixth SIP identity
CME-2801(config-register-pool) # number 7 dn 110             ! assign dn to seventh SIP identity
CME-2801(config-register-pool) # number 8 dn 120             ! assign dn to eighth SIP identity
CME-2801(config-register-pool) # dtmf-relay rtp-nte          ! set DTMF type
CME-2801(config-register-pool) # codec g711ulaw              ! required codec for Valcom
CME-2801(config-register-pool) # no call-waiting              ! disable call waiting
CME-2801(config-register-pool) # username cisco password valc0m ! set credentials
```



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5. Exit from configuration mode, then save your changes to the startup configuration file.

```
CME-2801(config-register-pool)# end
CME-2801#
CME-2801# copy running-config startup-config
```

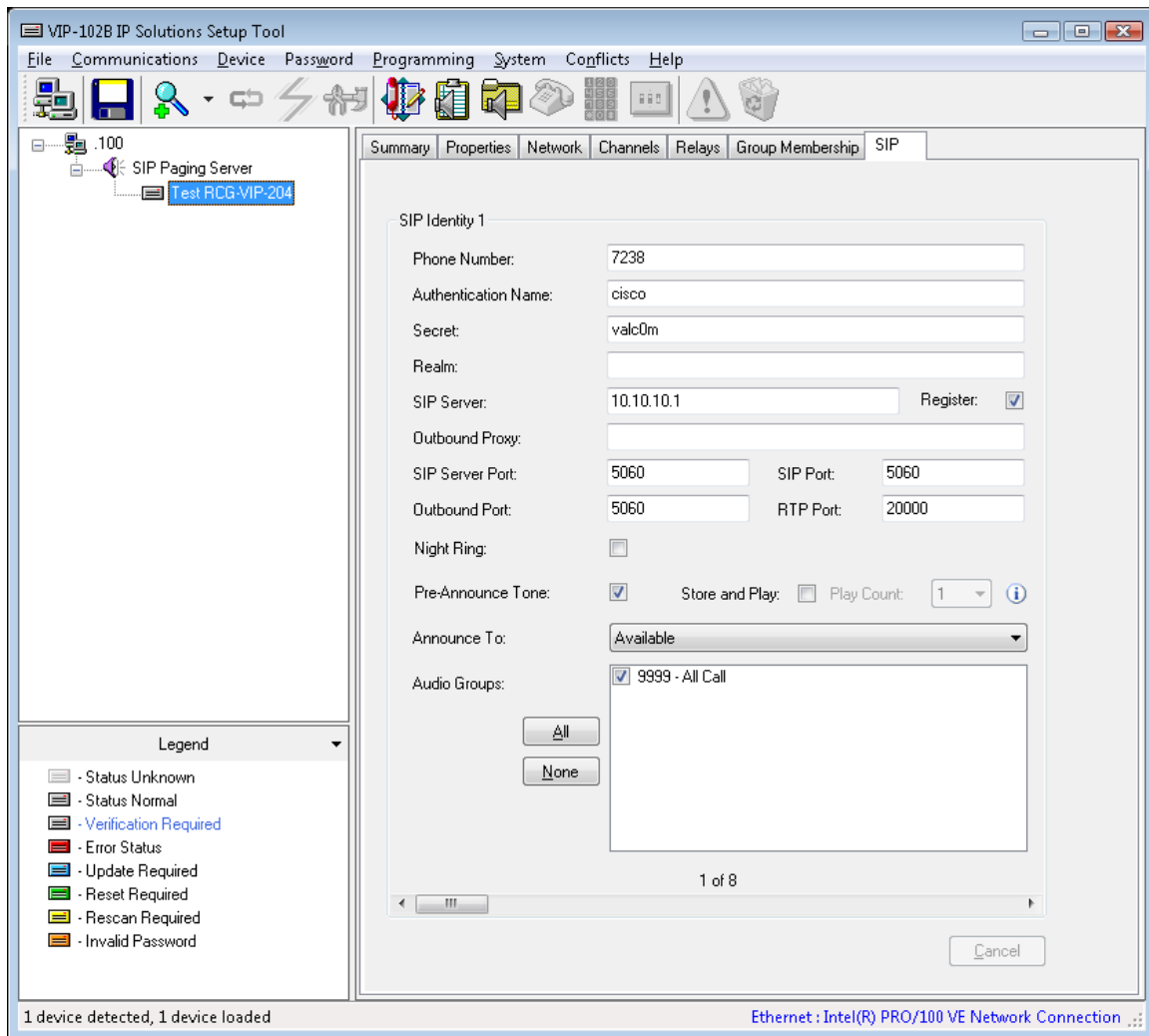
6. Open the VIP-102B IP Solutions Setup Tool interface for the Valcom SIP enabled VIP device.

Note: The information contained in this guide is limited to configuration of the “SIP” tab in the VIP-102B IP Solutions Setup Tool for the Valcom VIP device that is to be registered to the SIP server. More information on Valcom VIP device configuration, such as IP address assignment, relay activation, etc, may be found in the VIP-102B Reference Manual. This document may be downloaded from our website at <http://www.valcom.com>

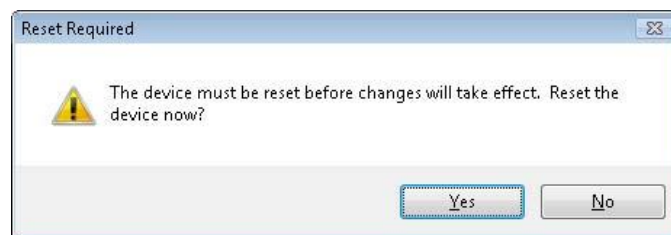
Required Fields: Phone Number, Authentication Name, Secret, SIP Server, Register, SIP Server Port, SIP Port, RTP Port.

The example below shows the first SIP identity configuration. Each of the other 7 SIP identities would be configured similarly, except the Phone Number, SIP Port and RTP Port will be different for each identity.

- *Phone Number (7238) is the same as the phone number assigned in the “voice register dn 38” command, which was subsequently assigned to line 1 in the “voice register pool 4” command.*
- *Authentication Name and Secret are the entries from the “username cisco password valc0m” line in the “voice register pool 4” command.*
- *SIP Server IP address is the same as our CUCME router, “10.10.10.1”, and the checkbox “Register” is checked.*
- *SIP Server Port is the port number on which the CUCME router is listening for SIP data. 5060 is the default.*
- *SIP Port is the port number on which the Valcom VIP device is listening for SIP data. 5060 is the default for the first SIP identity, 5061 is the default for the second, etc.*
- *RTP Port is the port number on which the Valcom VIP device is set to send/receive audio packets. By default this is set for 20000 for the first SIP identity, 20002 for the second identity, etc.*



- When the Valcom VIP device configuration is complete, select the "Update Changed Devices" option from the Communications drop-down menu.
- After updating your VIP device, you will be prompted to reset your device. Select "Yes".



9. To confirm the configuration was successful, use the “show voice register pool” command to review the configuration. In the example output below, the beginning shows the MAC address of the device and the DNs associated with each SIP identity. Near the end of the output, the number of active registrations is shown. This number should match the SIP identities that were configured on the Valcom device. (For simplicity, much of the output has been removed from this example.)

```
CME-2801#show voice register pool 4
Pool Tag 4
Config:
  Mac address is 00D0.5F00.36BB
  Number list 1 : DN 38
  Number list 2 : DN 40
  Number list 3 : DN 50
  Number list 4 : DN 60
  Number list 5 : DN 90
  Number list 6 : DN 100
  Number list 7 : DN 110
  Number list 8 : DN 120
.
.
. (output removed)
.
.
Statistics:
  Active registrations : 8
```

Note concerning VLAN configuration for voice and data.

If using a Valcom VIP device on a network switch that has both a Voice VLAN and a Data VLAN configuration for the switch port, it may be necessary to specifically set the VLAN assignment. For example, a typical port configuration may have the Data VLAN as 1 and the Voice VLAN as 100:

```
interface FastEthernet0/1/0
  switchport access vlan 1
  switchport voice vlan 100
```

For the VIP device, the desired VLAN should be set manually. For SIP-connected devices, it is generally desired to put the VIP device on the same VLAN with the CUCM, telephones, etc. For that situation, it may be necessary to set the Data VLAN to the Voice VLAN number for the VIP device. Using the same VLAN numbers from the previous example, the Voice VLAN entry would be removed and the configuration would be:

```
interface FastEthernet0/1/0
  switchport access vlan 100
```