

Cisco 统一通信管理器Express : SIP实施指南

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简介

本文为设置独立Cisco Unified Communications Manager Express (CME)该用途SIP电话提供逐步指导。本文略述一个Cisco Unified Communications Manager Express系统用四个SIP电话，有设置的Cisco Unified Communications Manager Express系统和SIP电话配置的。

注意： 虽则本文包括配置步骤准许Cisco Unified Communications Manager Express与Cisco Unity Express兼容，Cisco Unity Express配置是在范围本文外面。参考[Cisco CallManager Express /Cisco Unity Express配置示例](#)关于Cisco Unified Communications Manager Express和Cisco Unity Express配置的更多信息。

先决条件

要求

本文档没有任何特定的要求。

使用的组件

本文档中的信息基于以下硬件版本：

- Cisco运行Cisco Unified Communications Manager Express 4.2以Cisco IOS软件版本

12.4(11)XW2的2801

- 9波尔特两倍范围10/100BASE-T以太网交换机HWIC
- 思科7970个SIP电话
- 思科3911 SIP电话

本文档中的信息根据这些固件版本：

- 7970个IP电话(SIP) — SIP70.8-2-1S
- 3911个IP电话(SIP) — SIP3951.8-0-2-9

参考的[Cisco Unified CME](#)和[Cisco IOS软件版本兼容性矩阵](#)为了确定适当的SIP固件使用每个Cisco Unified Communications Manager Express版本。因为使用Cisco Unified Communications Manager Express 4.2，参考[Cisco Unified Communications Manager Express 4.2规格链路](#)。

SIP phoneloads可以从这些位置下载：

- [软件下载IP电话固件\(仅限注册用户\)](#) — 7970电话下载SIP电话的装载cmterm-7970_7971-sip.8-2-1.zip文件并且解压缩文件到您的TFTP文件夹。
- [软件下载统一SIP电话3911/51固件\(仅限注册用户\)](#) — 电话下载cmterm-3951-sip.8-0-2.zip文件并且解压缩文件到您的TFTP文件夹的3911的。**注意：** 3911个和3951个电话使用同样固件，因此您不需要关系到文件名反射3951电话。

在您解两个压缩在您的TFTP文件夹后的压缩文件，请复制在Cisco Unified Communications Manager Express闪存上的所有固件文件与您的TFTP server。确保您复制在闪存上的所有这些文件。

```
SIP3951.8-0-2-9.loads  
SIP3951.8-0-2-9.zz  
DSP3951.0-0-0-1.zz  
BOOT3951.0-0-0-9.zz  
SIP70.8-2-1S.loads  
term70.default.loads  
term71.default.loads  
apps70.8-0-2-55.sbn  
cnu70.8-2-0-55.sbn  
cvm70.sip.8-2-0-55.sbn  
dsp70.8-2-0-55.sbn  
jar70.sip.8-0-2-25.sbn
```

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

配置

本部分提供有关如何配置本文档所述功能的信息。

这些表概述在此设置使用的编址方案。

目的	VLAN	网络	接口	接口地址
----	------	----	----	------

语音	192	192.168.1 0.0/24	VLAN 192	192.168.10.1/24
数据	100	10.10.10.0 /24	VLAN 100	10.10.10.1/24
协议	电话类型	分机号	电话号码外部掩码	
SIP	7970	101	4085251001	
SIP	7970	102	4085251002	
SIP	3911	103	4085251003	
SIP	3911	104	4085251004	
语音邮件实验号码	100	AA试验	110	
MWI	800	MWI	801	

注意： 请使用为了得到关于用于此部分的命令的更多信息。

网络图

本文档使用以下网络设置：

系统配置

本文档使用以下配置：

配置 DHCP

配置两个独立的DHCP池是必要的;IP电话使用语音DHCP池和仅供PC使用数据DHCP池。IP电话需要Use DHCP选项150为了提供TFTP server的IP地址。

如果有任何设备在任何一个池用静态IP地址，请确保这些地址从DHCP池被排除为了避免地址冲突。寻址从路由器的IP电话和PCs接收的您能使用**show ip dhcp binding**命令为了验证。

DHCP 配置
<pre>ip dhcp excluded-address 10.10.10.1 10.10.10.10 ip dhcp excluded-address 192.168.10.1 192.168.10.10 ! ip dhcp pool data network 10.10.10.0 255.255.255.0 default-router 10.10.10.1 ! ip dhcp pool voice network 192.168.10.0 255.255.255.0 option 150 ip 192.168.10.1 default-router 192.168.10.1</pre>

配置快速以太网接口和连接孔

在此部分，您配置数据和语音VLAN的VLAN接口并且分配连接孔到他们的各自的VLAN。

注意： 在VLAN的配置之前，请务必添加上一个VLAN对VLAN数据库用这些命令：

快速以太网接口和交换端口配置

```
CME-SIP#vlan database
% Warning: It is recommended to configure VLAN from
config mode,
  as VLAN database mode is being deprecated. Please
consult user
  documentation for configuring VTP/VLAN in config mode.

CME-SIP(vlan)#vlan 100
VLAN 100 modified:
CME-SIP(vlan)#vlan 192
VLAN 192 modified:
CME-SIP(vlan)#exit
APPLY completed.
Exiting....
CME-SIP#
```

配置将连接的连接孔对语音和数据VLAN。IP电话自动地分配到分配到数据VLAN直接地连接到switchport或连接的语音VLAN和PCs到在IP电话的switchport。

DHCP 配置

```
CME-SIP#vlan database
% Warning: It is recommended to configure VLAN from
config mode,
  as VLAN database mode is being deprecated. Please
consult user
  documentation for configuring VTP/VLAN in config mode.

CME-SIP(vlan)#vlan 100
VLAN 100 modified:
CME-SIP(vlan)#vlan 192
VLAN 192 modified:
CME-SIP(vlan)#exit
APPLY completed.
Exiting....
CME-SIP#
```

配置TFTP

此配置准许Cisco Unified Communications Manager Express为IP电话他们的固件服务。

注意： 此配置是必须。

TFTP 配置

```
CME-SIP#vlan database
% Warning: It is recommended to configure VLAN from
config mode,
  as VLAN database mode is being deprecated. Please
consult user
  documentation for configuring VTP/VLAN in config mode.

CME-SIP(vlan)#vlan 100
VLAN 100 modified:
CME-SIP(vlan)#vlan 192
VLAN 192 modified:
```

```
CME-SIP(vlan)#exit
APPLY completed.
Exiting....
CME-SIP#
```

配置基本电话功能

配置语音服务参数

配置系统允许呼叫从SIP到SIP终端和启用SIP管理员。

注意： 此配置是必须。

语音服务参数配置

```
CME-SIP#vlan database
% Warning: It is recommended to configure VLAN from
config mode,
  as VLAN database mode is being deprecated. Please
consult user
  documentation for configuring VTP/VLAN in config mode.

CME-SIP(vlan)#vlan 100
VLAN 100 modified:
CME-SIP(vlan)#vlan 192
VLAN 192 modified:
CME-SIP(vlan)#exit
APPLY completed.
Exiting....
CME-SIP#
```

配置语音寄存器全局参数

在此部分，您配置语音寄存器全局参数。

注意： 语音SIP的寄存器全局配置类似于SCCP电话的telephony-service配置参数。

注意： 此配置是必须。

语音寄存器全局参数配置

```
CME-SIP#vlan database
% Warning: It is recommended to configure VLAN from
config mode,
  as VLAN database mode is being deprecated. Please
consult user
  documentation for configuring VTP/VLAN in config mode.

CME-SIP(vlan)#vlan 100
VLAN 100 modified:
CME-SIP(vlan)#vlan 192
VLAN 192 modified:
CME-SIP(vlan)#exit
APPLY completed.
Exiting....
CME-SIP#
```

这是链路到在解释步骤 注册有Cisco Unified Communications Manager Express的一个IP电话的 [Cisco支持社区](#)的一个视频(CME)使用SIP协议，：

[注册一个79xx系列IP电话使用在CUCME的SIP协议](#)

配置对Cisco Unity Express的连接

配置必要的dial-peer和MWI ephone-dn与Cisco Unity Express兼容。为了Cisco Unified Communications Manager Express能兼容与Cisco Unity Express，紧接配置SIP Cisco Unified Communications Manager Express作为一个用户代理(B2BUA)是必要的，因此意味着所有信令和RTP数据流通过Cisco Unified Communications Manager Express。此配置要求为了启用连接到Cisco Unity Express。

Cisco Unity Express连接配置

```
CME-SIP#vlan database
% Warning: It is recommended to configure VLAN from
config mode,
as VLAN database mode is being deprecated. Please
consult user
documentation for configuring VTP/VLAN in config mode.

CME-SIP(vlan)#vlan 100
VLAN 100 modified:
CME-SIP(vlan)#vlan 192
VLAN 192 modified:
CME-SIP(vlan)#exit
APPLY completed.
Exiting....
CME-SIP#
```

配置Cisco Unity Express叫牌的MWI支持为了启用SIP电话的MWI。

Cisco Unity Express MWI配置

```
CME-SIP#vlan database
% Warning: It is recommended to configure VLAN from
config mode,
as VLAN database mode is being deprecated. Please
consult user
documentation for configuring VTP/VLAN in config mode.

CME-SIP(vlan)#vlan 100
VLAN 100 modified:
CME-SIP(vlan)#vlan 192
VLAN 192 modified:
CME-SIP(vlan)#exit
APPLY completed.
Exiting....
CME-SIP#
```

配置分机和参数

配置语音寄存器dn为了创建ephone的分机号。在上一个网络拓扑里，有四扩展，需要创建如给此处

。

注意： 此配置是必须。

分机配置

```
CME-SIP#vlan database
% Warning: It is recommended to configure VLAN from
config mode,
as VLAN database mode is being deprecated. Please
consult user
documentation for configuring VTP/VLAN in config mode.

CME-SIP(vlan)#vlan 100
VLAN 100 modified:
CME-SIP(vlan)#vlan 192
VLAN 192 modified:
CME-SIP(vlan)#exit
APPLY completed.
Exiting....
CME-SIP#
```

配置SIP电话

配置语音寄存器每SIP电话的池参数。

注意： 语音SIP电话的寄存器池与SCCP电话的ephone是相同的。

注意： 此配置是必须。

语音寄存器池参数配置

```
CME-SIP#vlan database
% Warning: It is recommended to configure VLAN from
config mode,
as VLAN database mode is being deprecated. Please
consult user
documentation for configuring VTP/VLAN in config mode.

CME-SIP(vlan)#vlan 100
VLAN 100 modified:
CME-SIP(vlan)#vlan 192
VLAN 192 modified:
CME-SIP(vlan)#exit
APPLY completed.
Exiting....
CME-SIP#
```

注意： DTMF的多种方法可以配置在语音有在Cisco Unity Express的一语音信箱的寄存器池下，但是为每SIP电话，配置dtmf-relay SIP通知、。

configure提前参数

在此部分，您配置SIP电话的先进的参数例如在线状态以忙碌闪亮指示领域(BLF)状态。与BLF的在线状态允许SCCP电话或SIP电话监控另一SIP扩展状况，启用在电话之间的在场信息。

注意： 这是可选配置。

这些电话技术支持SIP在Cisco Unified Communications Manager Express的在线状态服务。

限制

BLF Call-List

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

BLF Speed-Dial

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

内部线路的Enable (event)在线状态

完成这些步骤为了使路由器接受从内部观察员和SIP中继的流入在线状态请求。

BLF Call-List

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

BLF Speed-Dial

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

启用内部线路的在线状态

BLF Call-List

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

BLF Speed-Dial

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

启用将观看的目录号

完成这些步骤为了启用用目录号关联的线路将监控由电话注册对Cisco Unified通信Express路由器。当presentity和电话能订阅到其线路状态通过BLF呼叫列表和BLG快速拨号功能，线路启用。没有在其线路受监视电话的种类的限制;所有线路在任何IP电话或在支持的语音网关的一个模拟电话可以是presentity。

BLF Call-List

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

BLF Speed-Dial

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

启用将观看的目录号

BLF Call-List

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

BLF Speed-Dial

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

注意： 重复需要观看的每个分机号的此配置。此步骤已经被实行了，当您第一配置了语音寄存器dns。

使SIP电话监控快速拨号和呼叫列表的BLF状态

观察员能监控用内部和外部目录号关联的线路状况(presentities)通过BLF快速拨号和BLF呼叫列表在线状态功能。完成这些步骤为了启用在SIP电话的BLF通知功能：

BLF Call-List

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

BLF Speed-Dial

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

使SIP电话监控快速拨号和呼叫列表的BLF状态

BLF Call-List

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

BLF Speed-Dial

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

注意： 在您更改SIP电话配置时候，请务必进行**重新启动**。

注意： 参考[如何配置在线状态服务](#)关于SIP在线状态服务的配置的更多信息。

配置并行搜索组

在此部分，扩展102，103和104分配到一个并行搜索组。一个并行搜索组是在组中同时敲响所有成员的搜索组。

并行搜索组配置

BLF Call-List

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

BLF Speed-Dial

Supported only on Cisco Unified IP Phone 7941G, 7941GE, 7961G, 7961GE, 7970G, and 7971GE.

CME- SIP实施：配置示例

此部分为使用SIP电话的设置—独立Cisco Unified Communications Manager Express提供完整配置示例。

CME- SIP实施：配置示例

```
CME-SIP#show version
Cisco IOS Software, 2801 Software (C2801-IPVOICE-M),
Version 12.4(11)XW2, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Mon 02-Jul-07 19:10 by prod_rel_team

ROM: System Bootstrap, Version 12.3(8r)T6, RELEASE
SOFTWARE (fc1)
```

```
CME-SIP uptime is 18 hours, 55 minutes
System returned to ROM by reload at 17:01:34 UTC Wed Oct
3 2007
System image file is "flash:c2801-ipvoice-mz.124-
11.XW2.bin"
```

```
Cisco 2801 (revision 4.1) with 235520K/26624K bytes of
memory.
Processor board ID FHK084510HS
11 FastEthernet interfaces
1 terminal line
2 Voice FXO interfaces
3 DSPs, 48 Voice resources
1 cisco service engine(s)
DRAM configuration is 64 bits wide with parity disabled.
191K bytes of NVRAM.
62720K bytes of ATA CompactFlash (Read/Write)
```

```
Configuration register is 0x2102
```

```
CME-SIP#show running-config
```

```
Building configuration...
```

```
Current configuration : 6227 bytes
```

```
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname CME-SIP
!
boot-start-marker
boot-end-marker
!
logging buffered 999999
no logging console
enable password cisco
!
no aaa new-model
ip cef
!
!
no ip dhcp use vrf connected
ip dhcp excluded-address 10.10.10.1 10.10.10.10
ip dhcp excluded-address 192.168.10.1 192.168.10.10
!
ip dhcp pool data
    network 10.10.10.0 255.255.255.0
    default-router 10.10.10.1
!
ip dhcp pool voice
    network 192.168.10.0 255.255.255.0
    option 150 ip 192.168.10.1
    default-router 192.168.10.1
!
!
no ip domain lookup
multilink bundle-name authenticated
!
!
!
voice service voip
    allow-connections sip to sip
```

```
sip
  registrar server expires max 1200 min 300
!
!
!
!
!
voice register global
  mode cme
  source-address 192.168.10.1 port 5060
  max-dn 20
  max-pool 10
  load 7970 SIP70.8-2-1S
  load 3911 SIP3951.8-0-2-9
  authenticate register
  authenticate realm cisco.com
  voicemail 100
  tftp-path flash:
  create profile sync 0000589556325309
!
voice register dn 1
  number 101
  call-forward b2bua noan 100 timeout 20
  allow watch
  name Phone1
  label 4085251001
!
voice register dn 2
  number 102
  call-forward b2bua noan 100 timeout 20
  allow watch
  name Phone2
  label 4085251002
!
voice register dn 3
  number 103
  call-forward b2bua noan 100 timeout 20
  allow watch
  name Phone3
  label 4085251003
!
voice register dn 4
  number 104
  call-forward b2bua noan 100 timeout 20
  allow watch
  name Phone4
  label 4085251004
!
voice register pool 1
  id mac 0016.47CD.9BD7
  type 7970
  number 1 dn 1
  presence call-list
  dtmf-relay sip-notify
  username user1 password cisco
  codec g711ulaw
  blf-speed-dial 2 102 label "Phone2"
  blf-speed-dial 3 103 label "3911-1"
  blf-speed-dial 4 104 label "3911-2"
!
voice register pool 2
  id mac 0014.6948.1D52
  type 7970
  number 1 dn 2
```

```
dtmf-relay sip-notify
username user2 password cisco
codec g711ulaw
!
voice register pool 3
id mac 001A.A11B.4FCE
type 3911
number 1 dn 3
dtmf-relay sip-notify
username user3 password cisco
codec g711ulaw
!
voice register pool 4
id mac 001A.A11B.500E
type 3911
number 1 dn 4
dtmf-relay sip-notify
username user4 password cisco
codec g711ulaw
!
voice hunt-group 1 parallel
final 100
list 102,103,104
pilot 180
!
!
!
!
voice-card 0
!
!
!
archive
log config
hidekeys
!
!
!
interface Loopback0
ip address 10.1.10.2 255.255.255.0
!
interface FastEthernet0/0
no ip address
shutdown
duplex auto
speed auto
!
interface Service-Engine0/0
ip unnumbered Loopback0
service-module ip address 10.1.10.1 255.255.255.0
service-module ip default-gateway 10.1.10.2
!
interface FastEthernet0/1
no ip address
shutdown
duplex auto
speed auto
!
interface FastEthernet0/3/0
description 7970 Phone
switchport trunk native vlan 100
switchport mode trunk
switchport voice vlan 192
spanning-tree portfast
```

```
!  
interface FastEthernet0/3/1  
  description 7970 Phone  
  switchport trunk native vlan 100  
  switchport mode trunk  
  switchport voice vlan 192  
  spanning-tree portfast  
!  
interface FastEthernet0/3/2  
  description 3911 Phone  
  switchport trunk native vlan 100  
  switchport mode trunk  
  switchport voice vlan 192  
  spanning-tree portfast  
!  
interface FastEthernet0/3/3  
  description 3911 Phone  
  switchport trunk native vlan 100  
  switchport mode trunk  
  switchport voice vlan 192  
  spanning-tree portfast  
!  
interface FastEthernet0/3/4  
  description Phone  
  switchport trunk native vlan 100  
  switchport mode trunk  
  switchport voice vlan 192  
  spanning-tree portfast  
!  
interface FastEthernet0/3/5  
  description Phone  
  switchport trunk native vlan 100  
  switchport mode trunk  
  switchport voice vlan 192  
  spanning-tree portfast  
!  
interface FastEthernet0/3/6  
  description Phone  
  switchport access vlan 192  
  switchport trunk native vlan 100  
  switchport mode trunk  
  switchport voice vlan 192  
  spanning-tree portfast  
!  
interface FastEthernet0/3/7  
  description Phone  
  switchport access vlan 192  
  switchport trunk native vlan 100  
  switchport mode trunk  
  switchport voice vlan 192  
  spanning-tree portfast  
!  
interface FastEthernet0/3/8  
  switchport access vlan 192  
!  
interface Vlan1  
  no ip address  
!  
interface Vlan100  
  ip address 10.10.10.1 255.255.255.0  
!  
interface Vlan192  
  ip address 192.168.10.1 255.255.255.0  
!
```

```
ip route 10.1.10.1 255.255.255.255 Service-Engine0/0
!
!
ip http server
!
!
!
tftp-server flash:BOOT3951.0-0-0-9.zz
tftp-server flash:SIP3951.8-0-2-9.zz
tftp-server flash:DSP3951.0-0-0-1.zz
tftp-server flash:SIP3951.8-0-2-9.loads
tftp-server flash:SIP70.8-2-1S.loads
tftp-server flash:term70.default.loads
tftp-server flash:term71.default.loads
tftp-server flash:apps70.8-0-2-55.sbn
tftp-server flash:cnu70.8-2-0-55.sbn
tftp-server flash:cvm70.sip.8-2-0-55.sbn
tftp-server flash:dsp70.8-2-0-55.sbn
tftp-server flash:jar70.sip.8-0-2-25.sbn
!
control-plane
!
!
!
voice-port 0/1/0
!
voice-port 0/1/1
!
!
!
!
!
dial-peer voice 2 voip
description ** cue voicemail pilot number **
translation-profile outgoing PSTN_CallForwarding
destination-pattern 100
b2bua
session protocol sipv2
session target ipv4:10.1.10.1
dtmf-relay sip-notify
codec g711ulaw
no vad
!
dial-peer voice 3 voip
description ** cue auto attendant number **
translation-profile outgoing PSTN_CallForwarding
destination-pattern 110
b2bua
session protocol sipv2
session target ipv4:10.1.10.1
dtmf-relay sip-notify
codec g711ulaw
no vad
!
!
presence
presence call-list
max-subscription 120
!
sip-ua
presence enable
!
!
telephony-service
```

```
max-ephones 24
max-dn 72
ip source-address 10.100.100.10 port 2000
system message CME1
time-zone 5
voicemail 100
max-conferences 8 gain -6
call-forward pattern .T
web admin system name cisco secret 5
$1$4FC/$CMer08o/KELF1VrhL5QRO0
dn-webedit
time-webedit
transfer-system full-blind
transfer-pattern 9.T
!
!
ephone-dn 11
  number 800
  mwi on
!
!
ephone-dn 12
  number 801
  mwi off
!
!
line con 0
line aux 0
line 66
  no activation-character
  no exec
  transport preferred none
  transport input all
  transport output pad telnet rlogin lapb-ta mop udptn
v120
line vty 0 4
  password cisco
  login
!
scheduler allocate 20000 1000
end
CME-SIP#
```

[验证](#)

当前没有可用于此配置的验证过程。

[故障排除](#)

本部分提供的信息可用于对配置进行故障排除。

[SIP IP电话不获得拨号音](#)

不能获得拨号音的SIP IP电话的一个常见原因是存在同一分机的另一个电话。自Cisco Unified Communications Manager Express 4.2，SIP电话不支持共享线路。因此，SIP电话不能共享同一分机在多个电话。另外，请确保SIP电话配置有一适当的分机。

为了解决此问题，请确保这些发生：

- SIP电话有配置的分机，并且分机在SIP电话显示。
- 没有另一个SIP或SCCP电话配置与同一分机。

IP电话不能升级到最新的固件

疏忽的很可能原因能升级电话未命中在Cisco Unified Communications Manager Express闪存或丢失tftp-server命令放置的固件文件。

设法这些步骤为了解决此问题：

- 检查必要的固件文件在闪存存储。执行dir flash：发出命令为了检查闪存文件。
- 确认是否更新OS79XX.TXT文件反射正确固件。79XX电话检查此文件为了装载适当的固件和从SCCP变成SIP。
- 检查确保，正确tftp-server语句为每个固件文件被添加。请参阅[配置TFTP](#)部分。
- 确保load命令下面语音寄存器全局为SIP电话的每种类型被添加。请参阅[配置语音寄存器全局参数](#)部分。

为了排除故障进一步，请收集这些调试为了发现电话是否能从Cisco Unified Communications Manager Express闪存获得适当的电话负载。

```
CME-SIP#show version
```

```
Cisco IOS Software, 2801 Software (C2801-IPVOICE-M), Version 12.4(11)XW2, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Mon 02-Jul-07 19:10 by prod_rel_team
```

```
ROM: System Bootstrap, Version 12.3(8r)T6, RELEASE SOFTWARE (fc1)
```

```
CME-SIP uptime is 18 hours, 55 minutes
System returned to ROM by reload at 17:01:34 UTC Wed Oct 3 2007
System image file is "flash:c2801-ipvoice-mz.124-11.XW2.bin"
```

```
Cisco 2801 (revision 4.1) with 235520K/26624K bytes of memory.
Processor board ID FHK084510HS
11 FastEthernet interfaces
1 terminal line
2 Voice FXO interfaces
3 DSPs, 48 Voice resources
1 cisco service engine(s)
DRAM configuration is 64 bits wide with parity disabled.
191K bytes of NVRAM.
62720K bytes of ATA CompactFlash (Read/Write)
```

```
Configuration register is 0x2102
```

```
CME-SIP#show running-config
```

```
Building configuration...
```

```
Current configuration : 6227 bytes
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
```



```
hostname CME-SIP
!
boot-start-marker
boot-end-marker
!
logging buffered 999999
no logging console
enable password cisco
!
no aaa new-model
ip cef
!
!
no ip dhcp use vrf connected
ip dhcp excluded-address 10.10.10.1 10.10.10.10
ip dhcp excluded-address 192.168.10.1 192.168.10.10
!
ip dhcp pool data
    network 10.10.10.0 255.255.255.0
    default-router 10.10.10.1
!
ip dhcp pool voice
    network 192.168.10.0 255.255.255.0
    option 150 ip 192.168.10.1
    default-router 192.168.10.1
!
!
no ip domain lookup
multilink bundle-name authenticated
!
!
!
voice service voip
    allow-connections sip to sip
    sip
        registrar server expires max 1200 min 300
!
!
!
!
!
voice register global
    mode cme
    source-address 192.168.10.1 port 5060
    max-dn 20
    max-pool 10
    load 7970 SIP70.8-2-1S
    load 3911 SIP3951.8-0-2-9
    authenticate register
    authenticate realm cisco.com
    voicemail 100
    tftp-path flash:
    create profile sync 0000589556325309
!
voice register dn 1
    number 101
    call-forward b2bua noan 100 timeout 20
    allow watch
    name Phone1
    label 4085251001
!
voice register dn 2
    number 102
    call-forward b2bua noan 100 timeout 20
```

```
allow watch
name Phone2
label 4085251002
!
voice register dn 3
number 103
call-forward b2bua noan 100 timeout 20
allow watch
name Phone3
label 4085251003
!
voice register dn 4
number 104
call-forward b2bua noan 100 timeout 20
allow watch
name Phone4
label 4085251004
!
voice register pool 1
id mac 0016.47CD.9BD7
type 7970
number 1 dn 1
presence call-list
dtmf-relay sip-notify
username user1 password cisco
codec g711ulaw
blf-speed-dial 2 102 label "Phone2"
blf-speed-dial 3 103 label "3911-1"
blf-speed-dial 4 104 label "3911-2"
!
voice register pool 2
id mac 0014.6948.1D52
type 7970
number 1 dn 2
dtmf-relay sip-notify
username user2 password cisco
codec g711ulaw
!
voice register pool 3
id mac 001A.A11B.4FCE
type 3911
number 1 dn 3
dtmf-relay sip-notify
username user3 password cisco
codec g711ulaw
!
voice register pool 4
id mac 001A.A11B.500E
type 3911
number 1 dn 4
dtmf-relay sip-notify
username user4 password cisco
codec g711ulaw
!
voice hunt-group 1 parallel
final 100
list 102,103,104
pilot 180
!
!
!
!
voice-card 0
!
```

```
!  
!  
archive  
  log config  
  hidekeys  
!  
!  
!  
interface Loopback0  
  ip address 10.1.10.2 255.255.255.0  
!  
interface FastEthernet0/0  
  no ip address  
  shutdown  
  duplex auto  
  speed auto  
!  
interface Service-Engine0/0  
  ip unnumbered Loopback0  
  service-module ip address 10.1.10.1 255.255.255.0  
  service-module ip default-gateway 10.1.10.2  
!  
interface FastEthernet0/1  
  no ip address  
  shutdown  
  duplex auto  
  speed auto  
!  
interface FastEthernet0/3/0  
  description 7970 Phone  
  switchport trunk native vlan 100  
  switchport mode trunk  
  switchport voice vlan 192  
  spanning-tree portfast  
!  
interface FastEthernet0/3/1  
  description 7970 Phone  
  switchport trunk native vlan 100  
  switchport mode trunk  
  switchport voice vlan 192  
  spanning-tree portfast  
!  
interface FastEthernet0/3/2  
  description 3911 Phone  
  switchport trunk native vlan 100  
  switchport mode trunk  
  switchport voice vlan 192  
  spanning-tree portfast  
!  
interface FastEthernet0/3/3  
  description 3911 Phone  
  switchport trunk native vlan 100  
  switchport mode trunk  
  switchport voice vlan 192  
  spanning-tree portfast  
!  
interface FastEthernet0/3/4  
  description Phone  
  switchport trunk native vlan 100  
  switchport mode trunk  
  switchport voice vlan 192  
  spanning-tree portfast  
!  
interface FastEthernet0/3/5
```

```
description Phone
switchport trunk native vlan 100
switchport mode trunk
switchport voice vlan 192
spanning-tree portfast
!
interface FastEthernet0/3/6
description Phone
switchport access vlan 192
switchport trunk native vlan 100
switchport mode trunk
switchport voice vlan 192
spanning-tree portfast
!
interface FastEthernet0/3/7
description Phone
switchport access vlan 192
switchport trunk native vlan 100
switchport mode trunk
switchport voice vlan 192
spanning-tree portfast
!
interface FastEthernet0/3/8
switchport access vlan 192
!
interface Vlan1
no ip address
!
interface Vlan100
ip address 10.10.10.1 255.255.255.0
!
interface Vlan192
ip address 192.168.10.1 255.255.255.0
!
ip route 10.1.10.1 255.255.255.255 Service-Engine0/0
!
!
ip http server
!
!
!
tftp-server flash:BOOT3951.0-0-0-9.zz
tftp-server flash:SIP3951.8-0-2-9.zz
tftp-server flash:DSP3951.0-0-0-1.zz
tftp-server flash:SIP3951.8-0-2-9.loads
tftp-server flash:SIP70.8-2-1S.loads
tftp-server flash:term70.default.loads
tftp-server flash:term71.default.loads
tftp-server flash:apps70.8-0-2-55.sbn
tftp-server flash:cnu70.8-2-0-55.sbn
tftp-server flash:cvm70.sip.8-2-0-55.sbn
tftp-server flash:dsp70.8-2-0-55.sbn
tftp-server flash:jar70.sip.8-0-2-25.sbn
!
control-plane
!
!
!
voice-port 0/1/0
!
voice-port 0/1/1
!
!
!
```

```
!  
!  
dial-peer voice 2 voip  
  description ** cue voicemail pilot number **  
  translation-profile outgoing PSTN_CallForwarding  
  destination-pattern 100  
  b2bua  
  session protocol sipv2  
  session target ipv4:10.1.10.1  
  dtmf-relay sip-notify  
  codec g711ulaw  
  no vad  
!  
dial-peer voice 3 voip  
  description ** cue auto attendant number **  
  translation-profile outgoing PSTN_CallForwarding  
  destination-pattern 110  
  b2bua  
  session protocol sipv2  
  session target ipv4:10.1.10.1  
  dtmf-relay sip-notify  
  codec g711ulaw  
  no vad  
!  
!  
presence  
  presence call-list  
  max-subscription 120  
!  
sip-ua  
  presence enable  
!  
!  
telephony-service  
  max-ephones 24  
  max-dn 72  
  ip source-address 10.100.100.10 port 2000  
  system message CME1  
  time-zone 5  
  voicemail 100  
  max-conferences 8 gain -6  
  call-forward pattern .T  
  web admin system name cisco secret 5 $1$4FC/$CMer08o/KELF1VrhL5QRO0  
  dn-webedit  
  time-webedit  
  transfer-system full-blind  
  transfer-pattern 9.T  
!  
!  
ephone-dn 11  
  number 800  
  mwi on  
!  
!  
ephone-dn 12  
  number 801  
  mwi off  
!  
!  
line con 0  
line aux 0  
line 66  
  no activation-character  
  no exec
```

```
transport preferred none
transport input all
transport output pad telnet rlogin lapb-ta mop udptn v120
line vty 0 4
password cisco
login
!
scheduler allocate 20000 1000
end
```

CME-SIP#

[无法设置电话](#)

的很可能原因能设置是电话是电话没有与TFTP server选项的适当的IP地址。

- 确认电话收到IP地址和正确的TFTP服务器IP地址。
- 确保所有适当的语音寄存器global命令被添加。请参阅[配置语音寄存器全局](#)参数部分。
- 检查您使用在每语音寄存器池配置下的正确MAC地址。

[相关信息](#)

- [Cisco Unified SIP 电话 3911](#)
- [Cisco Unified Communications Manager Express 系统管理员指南](#)
- [Cisco Unified CME文档](#)
- [语音技术支持](#)
- [语音和统一通信产品支持](#)
- [Cisco IP 电话故障排除](#)
- [技术支持和文档 - Cisco Systems](#)