

Appendix C: Cisco BCS Verified Designs Configuration Example

This appendix shows an example of a Cisco BCS Verified Designs configuration file. Descriptive statements are included for each subsection in the configuration file.

Building configuration...

```
Current configuration : 11927 bytes
!
version 12.3
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname Cisco_2801a
!
boot-start-marker
boot system flash:c2801-ipvoice-mz.123_11_T6.bin
boot system flash:
boot system flash:c2801-sp-servicek9-mz.2005-05-16.ESE_20050516_123_11_T6.bin
boot system flash:
boot-end-marker
!
enable password cisco
!
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmsnmp-timeout 180
no aaa new-model
ip subnet-zero
ip cef
!
!
ip dhcp excluded-address 10.1.31.1 10.1.31.20
ip dhcp excluded-address 10.1.51.1 10.1.51.20
ip dhcp excluded-address 10.1.71.1 10.1.71.20
!
```

! The commands below define DHCP for data, voice, and wireless LAN. Option 150 should point to voice mail.

```
!
ip dhcp pool Data
network 10.1.31.0 255.255.255.0
default-router 10.1.31.1
!
ip dhcp pool Voice
network 10.1.51.0 255.255.255.0
default-router 10.1.51.1
option 150 ip 10.1.51.1
!
ip dhcp pool WLAN
network 10.1.71.0 255.255.255.0
default-router 10.1.71.1
!
!
no ip domain lookup
no ftp-server write-enable
!
```

```

!
!
! The statements below enable H.323 to H.323, H.323 to SIP, in Cisco IOS software so that
H.323 calls to IP phones at this site can roll over to voice mail.

voice service voip
  allow-connections h323 to h323
  allow-connections h323 to sip
  allow-connections sip to h323
  supplementary-service h450.12
  h323
! Translation rules manipulate digits of calling- or called-numbers (depending on how they
are referred to in the subsequent "voice translation-profile" command).

! Translation rules use regular expressions to state what numbers, or patterns, should be
substituted for what other numbers and can be much more sophisticated than the basic ones
used below.

voice translation-rule 101
  rule 1 /^101/ /1/
  rule 2 /^202/ /2/
  rule 3 /^252/ /2/
  rule 4 /^303/ /3/
  rule 5 /^353/ /3/
  rule 6 /^404/ /4/
  rule 7 /^454/ /4/
  rule 8 /^505/ /5/
  rule 9 /^555/ /5/
!
!
voice translation-profile 101
  translate called 101
!
!
!
!
!
!
!
!
interface Loopback0
  ip address 10.1.10.2 255.255.255.255
  h323-gateway voip interface
  h323-gateway voip bind srcaddr 10.1.10.1
!
interface FastEthernet0/0
  no ip address
  duplex auto
  speed auto
!
interface FastEthernet0/0.31
  encapsulation dot1Q 31
  ip address 10.1.31.1 255.255.255.0
!
interface FastEthernet0/0.51
  encapsulation dot1Q 51
  ip address 10.1.51.1 255.255.255.0
!
interface FastEthernet0/0.71
  encapsulation dot1Q 71
  ip address 10.1.71.1 255.255.255.0
!

```

```

interface Service-Engine0/0
 ip unnumbered FastEthernet0/0.31
 service-module ip address 10.1.31.2 255.255.255.0
 service-module ip default-gateway 10.1.31.1
 !
interface FastEthernet0/1
 no ip address
 shutdown
 duplex auto
 speed auto
 !
interface Serial0/3/0
 bandwidth 512
 ip address 192.168.1.2 255.255.255.252
 encapsulation frame-relay
 !
router eigrp 100
 network 10.0.0.0
 network 192.168.1.0
 no auto-summary
 !
ip classless
 !
 !
ip http server
 no ip http secure-server
 ip http path flash:
 !
 ! The statements below define the TFTP server for the IP phone loads.
 !
tftp-server flash:ATA030100SCCP040211A.zup
tftp-server flash:CP7902040000SCCP040701A.sbin
tftp-server flash:CP7905040000SCCP040701A.sbin
tftp-server flash:P00403020214.bin
tftp-server flash:CP7912040000SCCP040701A.sbin
tftp-server flash:S00103020002.bin
tftp-server flash:P00503010100.bin
tftp-server flash:cmterm_7936.3-3-5-0.bin
tftp-server flash:P00303020214.bin
tftp-server flash:P00305000301.sbn
tftp-server flash:cmterm_7920.3.3-01-08.bin
 !
control-plane
 !
 !
 !
voice-port 0/3/0
 !
voice-port 0/3/1
 !
 sccp local FastEthernet0/0.31
 sccp ccm 10.1.31.1 identifier 1
 sccp
 !
 sccp ccm group 1
 associate ccm 1 priority 1
 associate profile 1 register mtp001121fb0366
 !

```

```

dspfarm profile 1 transcode
  codec g711ulaw
  codec g711alaw
  codec g729ar8
  codec g729abr8
  codec gsmfr
  maximum sessions 5
  associate application SCCP
!
! 1 is the Cisco Unity Express pilot number and 1980 is the voice-mail pilot number. Calls
to these numbers are directed via SIP to Cisco Unity Express at its IP address. The
translation rule defined earlier is used here to translate DID numbers to the extensions
before the call is routed to Cisco Unity Express. DTMF relay to Cisco Unity Express must
be via SIP-Notify, and G.711 "no vad" must be configured on this dial-peer.
!
dial-peer voice 1 voip
  description ** cue voicemail pilot number **
  destination-pattern 1480
  session protocol sipv2
  session target ipv4:10.1.31.2
  dtmf-relay sip-notify
  codec g711ulaw
  no vad
!

dial-peer voice 2 voip
  description ** cue auto attendant number **
  destination-pattern 1490
  session protocol sipv2
  session target ipv4:10.1.31.2
  dtmf-relay sip-notify
  codec g711ulaw
  no vad
!

dial-peer voice 102 voip
  description Call to Cisco_2811a
  translation-profile outgoing 101
  destination-pattern 15....
  session target ipv4:10.1.32.1
  dtmf-relay h245-alphanumeric
!

dial-peer voice 103 voip
  description Call to Cisco_2821a
  translation-profile outgoing 101
  destination-pattern 20....
  session target ipv4:10.1.33.1
  dtmf-relay h245-alphanumeric
!

dial-peer voice 106 voip
  description Call to Cisco_2851a
  translation-profile outgoing 101
  destination-pattern 35....
  session target ipv4:10.1.36.1
  dtmf-relay h245-alphanumeric
!

dial-peer voice 108 voip
  description Call to Cisco_3825a
  translation-profile outgoing 101
  destination-pattern 45....
  session target ipv4:10.1.38.1

```

```

dtmf-relay h245-alphanumeric
codec g771ulaw
!

dial-peer voice 104 voip
description Call to Callmanager
translation-profile outgoing 101
destination-pattern 25...
session target ipv4:10.1.33.97
dtmf-relay h245-alphanumeric
no vad
!

dial-peer voice 4980 voip
description Unity Voice Mail
destination-pattern 4980
session target ipv4:10.1.38.1
dtmf-relay h245-alphanumeric
!
! The commands below following the "telephony-service" keyword is the main Cisco CME
configuration for this router. Key considerations include the following:
! - The "load" command associates a type of Cisco IP phone with a phone firmware file.
! - The "max-ephones" and "max-dn" commands specify the maximum number of phones and
extensions supported on this system.
! - The "source-address" provides the IP address and port through which IP phones
communicate with the Cisco CME router.
! - The "system message" ??.
! - The "sdspfarm" commands ??.
! - The "create cnf-files" command generates the XML configuration files required for IP
phones.
! - The "voicemail" command defines the voice mail pilot number as 1480.
! - The "max-conferences" command specifies that the maximum number of three-party
conferences simultaneously supported by this Cisco CME system is eight.
! - The "web admin" commands define the Cisco CME system administrator and customer
administrator accounts.
! - The "dn-webedit" and "time-webedit" commands enable the ability to add extensions
(ephone-dns) and allow
! - The "transfer-system" command defines the types of transfer (blind and consult)
supported by the Cisco CME system.
! - The "secondary dialtone" command defines the ?? by the Cisco CME system.

telephony-service
load 7960-7940 P00303020214
load 7920 cmterm_7920.3.3-01-08.bin
load 7912 CP7912040000SCCP040701A.sbin
max-ephones 24
max-dn 72
ip source-address 10.1.31.1 port 2000
system message CME on 2801
sdspfarm units 5
sdspfarm transcode sessions 10
sdspfarm tag 1 mtp001121fb0366
create cnf-files version-stamp Jan 01 2002 00:00:00
voicemail 1480
max-conferences 8
web admin system name cmeadmin password cmeadmin
dn-webedit
time-webedit
transfer-system full-consult
secondary-dialtone 9
!
!
! The definitions of the Cisco CME IP phone extensions (ephone-dn) start below. Key
considerations include the following:

```

! - The "dual-line" designation ensures that transfers and conferences can be done on the phone.
! - The "number" keyword provides the extension digits, and the "secondary" field ensures that DID numbers for this extension are also matched to this ephone-dn.
! - The "name" keyword provides the name that will be used on the phone display.
! - The "call-forward busy and noan" keywords provide the voice-mail pilot number (1480) where calls must be forwarded when the user is busy on the phone or when the call is not answered (after a timeout of the given number of seconds).

```
ephone-dn 1 dual-line
  number 1000
  label 1000
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
!
!
ephone-dn 2 dual-line
  number 1001
  label 1001
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
!
!
ephone-dn 3 dual-line
  number 1002
  label 1002
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
!
!
ephone-dn 4 dual-line
  number 1003
  label 1003
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
!
!
ephone-dn 5 dual-line
  number 1004
  label 1004
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
!
!
```

```
ephone-dn 6 dual-line
  number 1005
  label 1005
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
  !
  !
ephone-dn 7 dual-line
  number 1006
  label 1006
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
  !
  !
ephone-dn 8 dual-line
  number 1007
  label 1007
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
  !
  !
ephone-dn 9 dual-line
  number 1008
  label 1008
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
  !
  !
ephone-dn 10 dual-line
  number 1009
  label 1009
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
  !
  !
ephone-dn 11 dual-line
  number 1010
  label 1010
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
  !
  !
ephone-dn 12 dual-line
  number 1011
  label 1011
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
  !
  !
```

```
ephone-dn 13 dual-line
number 1012
label 1012
description First Last Name
name First Last Name
call-forward busy 1480
call-forward noan 1480 timeout 10
!
!
ephone-dn 14 dual-line
number 1013
label 1013
description First Last Name
name First Last Name
call-forward busy 1480
call-forward noan 1480 timeout 10
!
!
ephone-dn 15 dual-line
number 1014
label 1014
description First Last Name
name First Last Name
call-forward busy 1480
call-forward noan 1480 timeout 10
!
!
ephone-dn 16 dual-line
number 1015
label 1015
description First Last Name
name First Last Name
call-forward busy 1480
call-forward noan 1480 timeout 10
!
!
ephone-dn 17 dual-line
number 1016
label 1016
description First Last Name
name First Last Name
call-forward busy 1480
call-forward noan 1480 timeout 10
!
!
ephone-dn 18 dual-line
number 1017
label 1017
description First Last Name
name First Last Name
call-forward busy 1480
call-forward noan 1480 timeout 10
!
!
ephone-dn 19 dual-line
number 1018
label 1018
description First Last Name
name First Last Name
call-forward busy 1480
call-forward noan 1480 timeout 10
!
!
```

```
ephone-dn 20 dual-line
  number 1019
  label 1019
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
!
!
ephone-dn 21 dual-line
  number 1020
  label 1020
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
!
!
ephone-dn 22 dual-line
  number 1021
  label 1021
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
!
!
ephone-dn 23 dual-line
  number 1022
  label 1022
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
!
!
ephone-dn 24 dual-line
  number 1023
  label 1023
  description First Last Name
  name First Last Name
  call-forward busy 1480
  call-forward noan 1480 timeout 10
!
!
ephone-dn 25
  number 1488....
  mwi on
!
!
ephone-dn 26
  number 1489....
  mwi off
!
!
```

! The following block of commands provides all the "ephone" definitions on the system. These represent the physical phone parameters such as their MAC addresses, the user ID (called username) associated with the phone, the button layouts, and the phone type. Key considerations include the following:

! - The "username" is used by the end users to log in to Cisco CME to get a web display of their phone settings.

! - The "type" command specifies the IP phone type (in this case a Cisco 7960 IP Phone).

! - The "button" command provides the button layout on the phone. Button 1 has ??, etc.

```
ephone 1
  username "user1" password null
  mac-address 0030.94C2.5DF0
  type 7960
  button 1:1
!
!
!
ephone 2
  username "user2" password null
  mac-address 0012.D984.B03E
  type 7912
  button 1:2
!
!
!
ephone 3
  username "user3" password null
  mac-address 0000.0000.0001
  type 7960
  button 1:3
!
!
!
ephone 4
  username "user4" password null
  mac-address 0000.0000.0002
  type 7960
  button 1:4
!
!
!
ephone 5
  username "user5" password null
  mac-address 0000.0000.0003
  type 7960
  button 1:5
!
!
!
ephone 6
  username "user6" password null
  mac-address 0000.0000.0004
  type 7960
  button 1:6
!
!
!
```

```
ephone 7
  username "user7" password null
  mac-address 0000.0000.0005
  type 7960
  button 1:7
!
!
!
ephone 8
  username "user8" password null
  mac-address 0000.0000.0006
  type 7960
  button 1:8
!
!
!
ephone 9
  username "user9" password null
  mac-address 0000.0000.0007
  type 7960
  button 1:9
!
!
!
ephone 10
  username "user10" password null
  mac-address 0000.0000.0008
  type 7960
  button 1:10
!
!
!
ephone 11
  username "user11" password null
  mac-address 0000.0000.0009
  type 7960
  button 1:11
!
!
!
ephone 12
  username "user12" password null
  mac-address 0000.0000.000A
  type 7960
  button 1:12
!
!
!
ephone 13
  username "user13" password null
  mac-address 0000.0000.000B
  type 7960
  button 1:13
!
!
!
ephone 14
  username "user14" password null
  mac-address 0000.0000.000C
  type 7960
  button 1:14
!
!
!
```

```
ephone 15
  username "user15" password null
  mac-address 0000.0000.000D
  type 7960
  button 1:15
!
!
!
ephone 16
  username "user16" password null
  mac-address 0000.0000.000E
  type 7960
  button 1:16
!
!
!
ephone 17
  username "user17" password null
  mac-address 0000.0000.000F
  type 7960
  button 1:17
!
!
!
ephone 18
  username "user18" password null
  mac-address 0000.0000.0010
  type 7960
  button 1:18
!
!
!
ephone 19
  username "user19" password null
  mac-address 0000.0000.0011
  type 7960
  button 1:19
!
!
!
ephone 20
  username "user20" password null
  mac-address 0000.0000.0012
  type 7960
  button 1:20
!
!
!
ephone 21
  username "user21" password null
  mac-address 0000.0000.0013
  type 7960
  button 1:21
!
!
!
ephone 22
  username "user22" password null
  mac-address 0000.0000.0014
  type 7960
  button 1:22
!
!
!
```

```
ephone 23
username "user23" password null
  mac-address 0000.0000.0015
  type 7960
  button 1:23
!
!
!
ephone 24
username "user24" password null
  mac-address 0000.0000.0016
  type 7960
  button 1:24
!
!
!
line con 0
  exec-timeout 0 0
line aux 0
line 2
no activation-character
no exec
transport preferred none
transport input all
transport output all
line vty 0 4 password cisco
  login
!
end
```

