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-spservicek9-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
mmisnmp-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
transort input all
transport output all
line vty 0 4 password cisco
 login
!
end
```