



# Ericsson MD110 Release BC12 SP5 to Cisco IOS Voice Gateway using E1 NET5 with H.323

October 30, 2007 Revision 3

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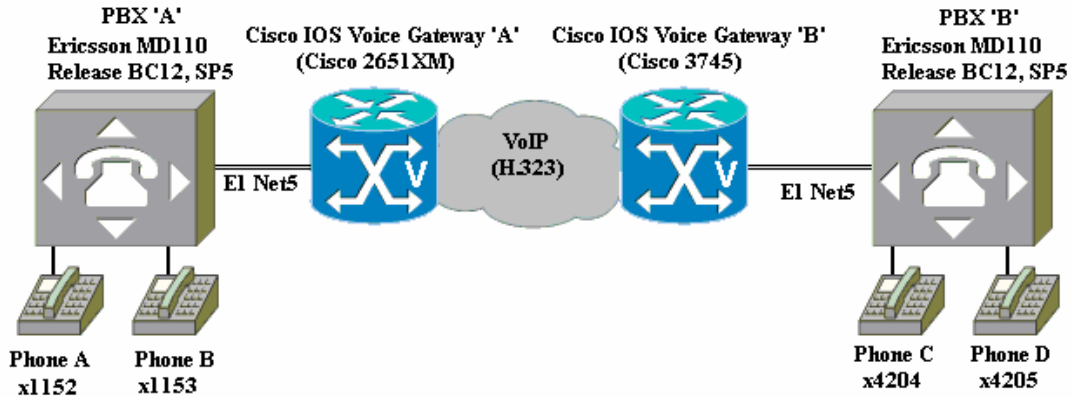
## Introduction

- Although specific gateway router models were used to validate its content, this application note also applies to all Cisco 1700/2600/3600/3700/2800/3800 series Cisco IOS voice gateways.
- This application note provides configuration guidelines for a toll-bypass network using Cisco IOS voice gateways to connect Ericsson MD110 Release BC12 SP5 PBXs. The PBXs are connected to the Cisco IOS voice gateways by E1 NET5 trunk circuits. The Cisco IOS voice gateways “extend” the E1 NET5 trunk circuits with VoIP, using the H.323 protocol.
- Two Ericsson MD110 Release BC12 SP5 PBXs were connected via E1 NET5 trunk to two Cisco IOS voice gateways. The voice gateways were connected via IP over Ethernet, and configured for VoIP using H.323. End-to-end calls were placed between the PBXs to exercise and test basic calls as well as NET5 supplementary services such as call hold, call transfer, call conference, and call forward.
- Using the Ericsson PBX configurations and Cisco IOS voice gateway configurations in this application note, successful toll bypass integration was achieved. This includes basic call, call transfer, call conference, and local call forward, and call hold, with some limitations on Caller ID features during transfer, forward, and conference scenarios. Network/external call forward is not supported with Net5 on the Ericsson PBXs used for testing. These limitations are detailed in the following sections and all were found to be inherent to the Ericsson PBXs. Thus, H.323 toll bypass introduced no new restrictions to the available features or performance.



## Network Topology

Figure 1. Network Topology or Test Setup



## System Components

### Hardware Requirements

- (2) Cisco IOS voice gateways with E1 VWICs (voice/WAN interface cards)
- (2) Ericsson MD110 PBXs
- (4) Ericsson digital station telephones

### Software Requirements

- Ericsson MD110: Release BC12 SP5
- Cisco IOS voice gateways: Cisco IOS Release Version 12.3(7)T or later.



## Features

### Features Supported

- Basic Call (ENBLOC and Overlap)
- Calling Number
- Connected Number
- Call Transfer: Supervised Local Transfer
- Call Transfer: Supervised Network/External Transfer
- Call Conference: Local
- Call Conference: Network/External
- Call Forward: Local
- Call Hold

### Features Not Supported

- Calling Name
- Called/Connected Name
- Call Forward: Network/External
- MWI



## Limitations

- CONNECTED NUMBER is supported in lieu of CALLED (ALERTING) NUMBER. This is inherent to the PBXs and also occurs with the PBXs connected directly via an E1 NET5 trunk.
- CALLING NUMBER and CONNECTED NUMBER contain 3-digit prefixes (node identifiers). For PBX 'A', this prefix is '777'. For PBX 'B', this prefix is '666'. So, CALLING NUMBER on a call from Phone A to Phone C shows up as 777-1152, and the CONNECTED NUMBER when Phone C answers shows up as 666-4204. This is inherent to the PBXs as configured in this note and also occurs with the PBXs connected directly via an E1 NET5 trunk.
- Overlap calls are accomplished by dialling an access code, which is the 3-digit prefix mentioned in the previous bullet. This is why extra dial peers were needed to route overlap calls.
- On Local Supervised Transfers, the original CALLING NUMBER is displayed on the final destination only after the transfer is complete. This is inherent to the PBXs and also occurs with the PBXs connected directly via a E1 NET5 trunk.
- On Network/External Supervised Transfers, the original CALLING NUMBER is not displayed on the final destination after the transfer is complete. Rather, the name and number of the transferring phone is still displayed. This is inherent to the PBXs and also occurs with the PBXs connected directly via a E1 NET5 trunk.
- On Supervised Transfers originated from an external call (e.g., Phone A calls Phone C, and Phone C transfers to Phone B), the CALLED (CONNECTED) NUMBER display is not updated on the originating phone after the transfer is complete. Rather, the number of the transferring phone is still displayed. On Supervised Transfers originated from a local call (e.g., Phone A calls Phone B, and Phone B transfers to Phone C), however, the CONNECTED NUMBER display is updated properly. This is inherent to the PBXs and also occurs with the PBXs connected directly via a E1 NET5 trunk.
- On Conference Calls accomplished by an external conference (e.g., originate from 'C' to 'A', and conference from 'A' to 'D'), the CALLING NUMBER is not passed to the remaining conferee when the conferencing extension drops out. The conferencing extension's number is still displayed. This is inherent to the PBXs and also occurs with the PBXs connected directly via a E1 NET5 trunk.
- On Conference Calls originating from an external call followed by a local or external conference (e.g., originate from 'C' to 'A', and conference from 'A' to 'B' or originate from 'C' to 'A', and conference from 'A' to 'D'), the CONNECTED NUMBER is not updated on the original calling extension when the conferencing phone drops out. Rather, the conferencing extension's number is still displayed. This is not a problem when the original call was a local call (e.g., originate from 'A' to 'B', and conference from 'B' to 'C'). This is inherent to the PBXs and also occurs with the PBXs connected directly via a E1 NET5 trunk.
- Network/external call forward is not supported. This is inherent to the PBXs as configured in this note and also occurs with the PBXs connected directly via an E1 NET5 trunk.
- On Forwarded Calls involving an external call followed by a local forward (e.g., originate from 'C' to 'B' and forward from 'B' to 'A'), the forwarding CALLING NUMBER is passed to the final destination extension only after the final destination answers and connects. This is inherent to the PBXs and also occurs with the PBXs connected directly via an E1 NET5 trunk.
- MWI is not supported over Net5.



## Configuration

### Configuring the Ericsson MD110 BC12 SP5 Global (both PBXs)

- To do overlap sending

Do NADAP; To show numbering scheme

Remove the external number code for the route you want overlap sending for (e.g. If you want ext 40xx to be sent via overlap sending delete 40):

```
NANLR:EXL=40;
```

Change the ADC parameter under RODDI command so the first position of ADC equals 0 (immediate seizure) e.g.

```
ADC=0707000000000000107001100.
```

RODDE:dest=40; Removes the route destination data if not already set for ovrlp sending

```
RODDI:dest=40,rou=101,adc=0707000000000000107001100; Inserts route destination for ovrlp sending
```

- To do ENBLOC Sending

NADAP; To show numbering scheme

Add the external route access code for the extensions you would like to reach across the QSIG/PRI link with enbloc sending. (e.g. If the extension numbers on the other PBX are 4001 – 4099, you would build an access code for external route with number 40)

```
NANLS:EXL=40,min=4,max=4;
```

Change the ADC parameter under RODDI command so the first position of ADC equals 1 (seizure when minimum number length is attained)

```
e.g. ADC=1707100000000000107001101.
```

RODDE:dest=40; Removes the route destination data if not already set for enbloc sending



RODDI:dest=40,rou=101,adc=170710000000000107001101; Inserts route destination for enbloc sending.

Note: 40 is used only as an example. use the first two digits of your external route (e.g. If the extensions on the far-end PBX are 1200 - 1299, use 12)

#### Path Replacement (Route Optimization)

To enable/disable Path Replacement, use the following command:

```
<ASPAC:PARNUM=66,PARVAL=1; //Route optimization allowed. --- FORWARD
```

```
<ASPAC:PARNUM=66,PARVAL=0; //Route optimization NOT allowed.
```

#### Call Diversion on Busy/No Reply

To enable/disable Diversion on Busy/No Reply, use the following command:

```
<CDINI:DIR=1154,DIV=4200; // CALL DIVERSION INDIVIDUAL NUMBER INITIATE
```

```
<CDINE:DIR=1154; // CALL DIVERSION INDIVIDUAL NUMBER END
```

#### Diversion Counter

```
<ASUVP:PARNUM=121; // check current setting for maximum number of hop diversions
```

```
<ASPAC:PARNUM=121,PARVAL= VALUE; // To set maximum number of hop diversions where VALUE range is 0-255
```

```
<ASUVP:PARNUM=121;
```

#### APPLICATION SYSTEM PARAMETER VALUES FOR UNIT

```
PARNUM CHA PARVAL MINVAL MAXVAL UNIT REMARK
```

```
121 YES 12 0 255 RMP
```

```
END
```

```
// Type of network services
```



ASPAP:PARNUM=223; // check current setting for type of Network Services

ASPAC:PARNUM=223,PARVAL=7;//Network features Standard SS-Call forwarding, SS-Call Transfer, SS-Path replacement for route optimization



### Configuring the Ericsson MD110 BC12 SP5 PBX 'A'

<ROCAP:rou=100;

#### ROUTE CATEGORY DATA

ROU SEL	TRM SERV	NODG	DIST	DISL	TRAF	SIG	BCAP
100	71100000000000010	5	2110030000	0	30	128	03151515 111110000031 001100

<rodap:rou=100;

#### ROUTE DATA

ROU	TYPE	VARC	VARI	VARO	FILTER
100	SL60	H'00000310	H'05400000	H'06300000	NO

<roddp:dest=42;

#### EXTERNAL DESTINATION ROUTE DATA

DEST	DRN	ROU	CHO	CUST	ADC	TRC	SRT	NUMACK	PRE
42	100		17070000000000250107001100	0	1	0			

<ROEDP:rou=2,tru=all;

#### ROUTE EQUIPMENT DATA

ROU	TRU	EQU	IP ADDRESS	SQU	INDDAT	CNTRL
100	001-1	001-0-40-01			H'000000000000	
100	001-2	001-0-40-02			H'000000000000	
100	001-3	001-0-40-03			H'000000000000	
100	001-4	001-0-40-04			H'000000000000	
100	001-5	001-0-40-05			H'000000000000	
100	001-6	001-0-40-06			H'000000000000	
100	001-7	001-0-40-07			H'000000000000	
100	001-8	001-0-40-08			H'000000000000	



100	001-9	001-0-40-09	H'000000000000
100	001-10	001-0-40-10	H'000000000000
100	001-11	001-0-40-11	H'000000000000
100	001-12	001-0-40-12	H'000000000000
100	001-13	001-0-40-13	H'000000000000
100	001-14	001-0-40-14	H'000000000000
100	001-15	001-0-40-15	H'000000000000
100	001-16	001-0-40-17	H'000000000000
100	001-17	001-0-40-18	H'000000000000
100	001-18	001-0-40-19	H'000000000000
100	001-19	001-0-40-20	H'000000000000
100	001-20	001-0-40-21	H'000000000000
100	001-21	001-0-40-22	H'000000000000
100	001-22	001-0-40-23	H'000000000000
100	001-23	001-0-40-24	H'000000000000
100	001-24	001-0-40-25	H'000000000000
100	001-25	001-0-40-26	H'000000000000
100	001-26	001-0-40-27	H'000000000000
100	001-27	001-0-40-28	H'000000000000
100	001-28	001-0-40-29	H'000000000000
100	001-29	001-0-40-30	H'000000000000
100	001-30	001-0-40-31	H'000000000000



<kscap:dir=1152;

KEY SYSTEM CATEGORY PRINT

DIR TRAF SERV CDIV ROC ITYPE TRM ADC LANG

BSEC

1152 03151515 0211120700 0111511111 720004 19 0 00100013010000 0

0

END

<kscap:dir=1153;

KEY SYSTEM CATEGORY PRINT

DIR TRAF SERV CDIV ROC ITYPE TRM ADC LANG

BSEC

1153 00151515 0202720500 0111511111 000001 19 0 00100013010000 0

0

END



<NIINP:dir=all;

EXTENSION NAMES

DIR	NAME1	NAME2	PRES	INFO
1152	BC12-1	TWO		10
1153	BC12-1	THREE		10

Ericsson MD-110 Software Version

<CADAP;

CALENDAR DATA

IDENTITY=ACM-1

VERSION=CXP1010101/2/BC12SP5/R2A

11:19:20

MON 13 DEC 2004

END



### Configuring the Ericsson MD110 BC12 SP5 PBX 'B'

<rocap:rou=3;

#### ROUTE CATEGORY DATA

```
ROU SEL      TRM SERV  NODG DIST DISL TRAF  SIG    BCAP
3 7110000000000010 5 2110030000 0 30 128 03151515 111110000031 001100
END
```

<rodap:rou=3;

#### ROUTE DATA

```
ROU TYPE VARC  VARI  VARO  FILTER
3 SL60 H'00000310 H'55440000 H'06400000 NO
```

<roddp:dest=11;

#### EXTERNAL DESTINATION ROUTE DATA

```
DEST DRN ROU CHO CUST ADC          TRC SRT NUMACK PRE
11   3      1707000000000250107001100 0 1 0
```

<roedp:rou=3,tru=all;

#### ROUTE EQUIPMENT DATA

```
ROU TRU  EQU      IP ADDRESS      SQU  INDDAT  CNTRL
3 001-1 001-1-40-01          H'000000000000
3 001-2 001-1-40-02          H'000000000000
3 001-3 001-1-40-03          H'000000000000
3 001-4 001-1-40-04          H'000000000000
```



3	001-5	001-1-40-05	H'000000000000
3	001-6	001-1-40-06	H'000000000000
3	001-7	001-1-40-07	H'000000000000
3	001-8	001-1-40-08	H'000000000000
3	001-9	001-1-40-09	H'000000000000
3	001-10	001-1-40-10	H'000000000000
3	001-11	001-1-40-11	H'000000000000
3	001-12	001-1-40-12	H'000000000000
3	001-13	001-1-40-13	H'000000000000
3	001-14	001-1-40-14	H'000000000000
3	001-15	001-1-40-15	H'000000000000
3	001-16	001-1-40-17	H'000000000000
3	001-17	001-1-40-18	H'000000000000
3	001-18	001-1-40-19	H'000000000000
3	001-19	001-1-40-20	H'000000000000
3	001-20	001-1-40-21	H'000000000000
3	001-21	001-1-40-22	H'000000000000
3	001-22	001-1-40-23	H'000000000000
3	001-23	001-1-40-24	H'000000000000
3	001-24	001-1-40-25	H'000000000000
3	001-25	001-1-40-26	H'000000000000
3	001-26	001-1-40-27	H'000000000000
3	001-27	001-1-40-28	H'000000000000
3	001-28	001-1-40-29	H'000000000000
3	001-29	001-1-40-30	H'000000000000
3	001-30	001-1-40-31	H'000000000000

END



<KSCAP:dir=4204&4205;

KEY SYSTEM CATEGORY PRINT

DIR	TRAF	SERV	CDIV	ROC	ITYPE	TRM	ADC	LANG
-----	------	------	------	-----	-------	-----	-----	------

BSEC

4204	03151515	0211120700	0111511111	720004	20	0	00100013011000	F
------	----------	------------	------------	--------	----	---	----------------	---

0

4205	03151515	0211120700	0111511111	720004	20	0	00100013011000	F
------	----------	------------	------------	--------	----	---	----------------	---

0

<NIINP:dir=4204&4205;

EXTENSION NAMES

DIR	NAME1	NAME2	PRES	INFO
-----	-------	-------	------	------

4204	BC12-3	FOUR		20
------	--------	------	--	----

4205	BC12-3	FIVE:		20
------	--------	-------	--	----

Ericsson MD-110 Software Version

<CADAP;

CALENDAR DATA

IDENTITY=DANDS-EURO

VERSION=CXP1010001/5/BC12SP5/R3A

CALENDAR TIME NOT VALID

17:23:44

MON 13 DEC 2004

END



## Configuring the Cisco IOS Voice Gateway 'A' (Cisco 2651XM)

2651XM\_West#sho ver

Cisco IOS Software, C2600 Software (C2600-ADVENTERPRISEK9-M), Version 12.3(7)T,

RELEASE SOFTWARE (fc1)

Technical Support: <http://www.cisco.com/techsupport>

Copyright (c) 1986-2004 by Cisco Systems, Inc.

Compiled Sat 21-Feb-04 14:41 by eaarmas

ROM: System Bootstrap, Version 12.2(8r) [cmong 8r], RELEASE SOFTWARE (fc1)

2651XM\_West uptime is 1 hour, 8 minutes

System returned to ROM by reload

System image file is "flash:c2600-adventerprisek9-mz.123-7.T.bin"

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:

<http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>

If you require further assistance please contact us by sending email to



export@cisco.com.

Cisco 2651XM (MPC860P) processor (revision 0x300) with 124928K/6144K bytes of memory.

Processor board ID JAE0817EK5Z (1672255744)

M860 processor: part number 5, mask 2

2 FastEthernet interfaces

31 Serial interfaces

2 Channelized E1/PRI ports

32K bytes of NVRAM.

49152K bytes of processor board System flash (Read/Write)

Configuration register is 0x2102

2651XM\_West#sho run

2651XM\_West#sho running-config

Building configuration...

Current configuration : 2191 bytes

!

version 12.3

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname 2651XM\_West

!

boot-start-marker

boot system flash



```
boot-end-marker
!
logging buffered 5000000 debugging
!
no network-clock-participate slot 1
no network-clock-participate wic 0
voice-card 1
!
ip subnet-zero
!
!
!
!
ip cef
no ip domain lookup
ip audit po max-events 100
no aaa new-model
no ftp-server write-enable
isdn switch-type primary-net5
!
!
!
voice service voip
h323
!
!
voice class codec 1
codec preference 1 g729r8
codec preference 2 g711ulaw
```



```
codec preference 3 g711alaw
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
!
```

```
controller E1 1/0
```

```
  pri-group timeslots 1-31
```

```
  description ECN-4
```

```
!
```

```
controller E1 1/1
```

```
!
```

```
no crypto isakmp enable
```

```
!
```

```
!
```

```
!
```

```
!
```

```
interface FastEthernet0/0
```

```
  ip address 172.20.4.7 255.255.255.0
```

```
  duplex auto
```

```
  speed auto
```



```
!  
interface FastEthernet0/1  
no ip address  
shutdown  
duplex auto  
speed auto  
!  
interface Serial1/0:15  
description D-channel for ECN-4  
no ip address  
no logging event link-status  
isdn switch-type primary-net5  
isdn overlap-receiving  
isdn incoming-voice voice  
isdn send-alerting  
isdn bchan-number-order ascending  
isdn sending-complete  
isdn outgoing display-ie  
no cdp enable  
!  
ip classless  
ip route 0.0.0.0 0.0.0.0 FastEthernet0/0  
!  
ip http server  
no ip http secure-server  
!  
!  
!  
!
```



```
!  
control-plane  
!  
!  
!  
voice-port 1/0:15  
description voice port for ECN-4  
!  
!  
!  
!  
!  
dial-peer voice 323 voip  
destination-pattern 4...  
session target ipv4:172.20.4.9  
!  
dial-peer voice 1015 pots  
destination-pattern 1...  
direct-inward-dial  
port 1/0:15  
forward-digits all  
!  
dial-peer voice 519 voip  
shutdown  
destination-pattern 6...  
session protocol sipv2  
session target ipv4:172.20.4.9  
supplementary-service pass-through  
!
```



```
dial-peer voice 5050 pots
destination-pattern 5050
direct-inward-dial
port 1/0:15
forward-digits all
!
dial-peer voice 324 voip
destination-pattern 666....
session target ipv4:172.20.4.9
!
dial-peer voice 1016 pots
destination-pattern 777....
direct-inward-dial
port 1/0:15
forward-digits all
!
!
!
line con 0
line aux 0
line vty 0 4
exec-timeout 0 0
password cisco
login
transport input telnet
!
!
!
end
```



```
2651XM_West# sho isdn stat
```

```
Global ISDN Switchtype = primary-net5
```

```
ISDN Serial1/0:15 interface
```

```
    dsl 0, interface ISDN Switchtype = primary-net5
```

```
Layer 1 Status:
```

```
    ACTIVE
```

```
Layer 2 Status:
```

```
    TEI = 0, Ces = 1, SAPI = 0, State = MULTIPLE_FRAME_ESTABLISHED
```

```
Layer 3 Status:
```

```
    0 Active Layer 3 Call(s)
```

```
Active dsl 0 CCBs = 0
```

```
The Free Channel Mask: 0xFFFF7FFF
```

```
Number of L2 Discards = 0, L2 Session ID = 1
```

```
Total Allocated ISDN CCBs = 0
```

```
2651XM_West#
```



## Configuring the Cisco IOS Voice Gateway 'B' (Cisco 3745)

3745\_West#sho ver

Cisco IOS Software, 3700 Software (C3745-ADVENTERPRISEK9-M), Version 12.3(7)T, R

RELEASE SOFTWARE (fc1)

Technical Support: <http://www.cisco.com/techsupport>

Copyright (c) 1986-2004 by Cisco Systems, Inc.

Compiled Sat 21-Feb-04 05:53 by eaarmas

ROM: System Bootstrap, Version 12.2(8r)T2, RELEASE SOFTWARE (fc1)

3745\_West uptime is 1 hour, 4 minutes

System returned to ROM by reload

System image file is "flash:c3745-adventerprisek9-mz.123-7.T.bin"

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:

<http://www.cisco.com/wvl/export/crypto/tool/stqrg.html>

If you require further assistance please contact us by sending email to



export@cisco.com.

Cisco 3745 (R7000) processor (revision 2.0) with 116736K/14336K bytes of memory.

Processor board ID JMX0813L0Z3

R7000 CPU at 350MHz, Implementation 39, Rev 3.3, 256KB L2, 2048KB L3 Cache

2 FastEthernet interfaces

31 Serial interfaces

4 Channelized E1/PRI ports

2 Voice FXS interfaces

DRAM configuration is 64 bits wide with parity disabled.

151K bytes of NVRAM.

31168K bytes of ATA System CompactFlash (Read/Write)

Configuration register is 0x2102

3745\_West#sho run

3745\_West#sho running-config

Building configuration...

Current configuration : 2607 bytes

!

version 12.3

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname 3745\_West

!

boot-start-marker



```
boot system flash
boot-end-marker
!
card type e1 1 1
logging buffered 5000000 debugging
!
no network-clock-participate slot 1
no network-clock-participate slot 2
no network-clock-participate slot 3
no network-clock-participate slot 4
no network-clock-participate wic 0
no network-clock-participate wic 1
no network-clock-participate wic 2
no network-clock-participate aim 0
no network-clock-participate aim 1
no aaa new-model
ip subnet-zero
ip cef
!
!
!
!
no ip domain lookup
ip audit po max-events 100
no ftp-server write-enable
isdn switch-type primary-net5
voice-card 1
dspfarm
!
```





```
controller E1 1/1
!
controller E1 1/2
!
controller E1 1/3
!
no crypto isakmp enable
!
!
!
!
interface FastEthernet0/0
ip address 172.20.4.9 255.255.255.0
duplex auto
speed auto
!
interface FastEthernet0/1
no ip address
shutdown
duplex auto
speed auto
!
interface Serial1/0:15
description D-channel for ECN10
no ip address
no logging event link-status
isdn switch-type primary-net5
isdn overlap-receiving
isdn protocol-emulate network
```



```
isdn incoming-voice voice
isdn send-alerting
isdn sending-complete
no cdp enable
!
router eigrp 10
network 172.20.0.0
no auto-summary
!
ip classless
ip route 0.0.0.0 0.0.0.0 FastEthernet0/0
!
ip http server
no ip http secure-server
!
!
!
!
!
!
control-plane
!
!
!
voice-port 1/0:15
description voice port for ECN10
!
voice-port 3/0/0
!
```



```
voice-port 3/0/1
!
!
!
!
dial-peer cor custom
!
!
!
dial-peer voice 323 voip
destination-pattern 1...
session target ipv4:172.20.4.7
!
dial-peer voice 1015 pots
destination-pattern 4...
direct-inward-dial
port 1/0:15
forward-digits all
!
dial-peer voice 519 voip
shutdown
destination-pattern 3...
session protocol sipv2
session target ipv4:172.20.4.7
supplementary-service pass-through
!
dial-peer voice 5050 voip
destination-pattern 5050
session target ipv4:172.20.4.7
```



```
!  
dial-peer voice 1016 pots  
destination-pattern 666....  
direct-inward-dial  
port 1/0:15  
forward-digits all  
!  
dial-peer voice 324 voip  
destination-pattern 777....  
session target ipv4:172.20.4.7  
!  
!  
!  
line con 0  
line aux 0  
line vty 0 4  
exec-timeout 0 0  
password cisco  
login  
transport input telnet  
!  
!  
end
```

3745\_West#

3745\_West#sho isdn stat

Global ISDN Switchtype = primary-net5

ISDN Serial1/0:15 interface

\*\*\*\*\* Network side configuration \*\*\*\*\*



dsl 0, interface ISDN Switchtype = primary-net5

Layer 1 Status:

ACTIVE

Layer 2 Status:

TEI = 0, Ces = 1, SAPI = 0, State = MULTIPLE\_FRAME\_ESTABLISHED

Layer 3 Status:

0 Active Layer 3 Call(s)

Active dsl 0 CCBs = 0

The Free Channel Mask: 0xFFFF7FFF

Number of L2 Discards = 0, L2 Session ID = 0

Total Allocated ISDN CCBs = 0

3745\_West#





## Important Information

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