



Ericsson MD110 BC12 to a Cisco IAD243X using E1-ISDN NET5 with SIP

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Introduction

This is an application note for connectivity to an Ericsson MD110 BC12 SP5 with Cisco IAD243X Gateway via E1 ISDN NET5-to-SIP communication (10/100baseT).

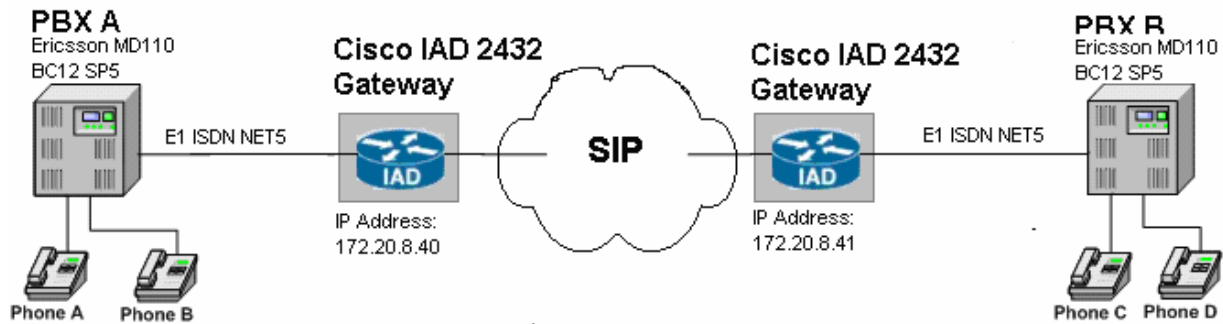
The network topology diagram (Figure 1) shows the test setup for end-to-end interoperability with the Cisco IAD243X Gateway connected to the PBX via NET5 (E1 PRI). IP trunk connectivity between the Cisco IAD243X's is achieved by using SIP protocol.



Network Topology

Figure 1. Network Topology

Basic Call Setup End-to-End Configuration



Limitations

On Call Forward No Answer local (e.g. Phone A calls Phone C CFNA to Phone D), the Cisco IAD243X must be set to Q921/Q931 Network side. If the Cisco IAD 243X is set to Q921/Q931 CFNA at user side will not work.

Connected number (COLP) does not interoperate This is an Cisco IAD2432 limitation.



Hardware Requirements

- 2 Cisco IAD2432 24FXS
- 2 Ericsson MD110 w/ TLU76/1, E1 PRI circuit card
- 2 Ericsson DBC 203 digital phones
- 1 Cisco Catalyst switch (CAT6500)

Software Requirements

- Ericsson MD110 BC12 SP5
- Cisco IOS Release: c2430-ik9o3s-mz-124-9.T1

Features

Features Supported

- Basic end-to-end calls with CLIP (Calling Number)
- Calling Number Restricted
- Overlap Receiving
- Call Transfer – Local and Network/External
- Call on-hold
- Call Forward (Unconditional, Busy and No answer) – local and network/external
- 3-way Conference
- DTMF end-to-end

Features Not Supported

- Calling Name and Connected Name presentation
- Connected Number presentation

Configuration

Configuring Sequence and Tasks for the Ericsson System

1. **ROCAI** Route Category Initiate
2. **RODAI** Route Data Initiate
3. **ROEQI** Route Equipment Initiate
4. **NADAP** Number Analysis (dialing plan)
5. **RODDI** Route External Destination Data Initiate
6. Digital Station



Configuring Ericsson PBX

ROCAI =====> Begin editing configs here

<L rocap:rou=100;

ROUTE CATEGORY DATA

ROU SEL TRM SERV NODG DIST DISL TRAF SIG BCAP

100 7110000000000010 5 2110030000 0 30 128 03151515 111110000031 111111

END

RODAI

<L rodap:rou=100;

ROUTE DATA

ROU TYPE VARC VARI VARO FILTER

100 SL60 H'00000310 H'05400000 H'06410000 NO

END



ROEQI

<L roedp:rou=100,tru=all;

ROUTE EQUIPMENT DATA

ROU	TRU	EQU	IP ADDRESS	SQU	INDDAT	CNTRL
100	001-1	001-0-30-01				H'000000000000
100	001-2	001-0-30-02				H'000000000000
100	001-3	001-0-30-03				H'000000000000
100	001-4	001-0-30-04				H'000000000000
100	001-5	001-0-30-05				H'000000000000
100	001-6	001-0-30-06				H'000000000000
100	001-7	001-0-30-07				H'000000000000
100	001-8	001-0-30-08				H'000000000000
100	001-9	001-0-30-09				H'000000000000
100	001-10	001-0-30-10				H'000000000000
100	001-11	001-0-30-11				H'000000000000
100	001-12	001-0-30-12				H'000000000000
100	001-13	001-0-30-13				H'000000000000
100	001-14	001-0-30-14				H'000000000000
100	001-15	001-0-30-15				H'000000000000
100	001-17	001-0-30-17				H'000000000000
100	001-18	001-0-30-18				H'000000000000
100	001-19	001-0-30-19				H'000000000000
100	001-20	001-0-30-20				H'000000000000
100	001-21	001-0-30-21				H'000000000000
100	001-22	001-0-30-22				H'000000000000
100	001-23	001-0-30-23				H'000000000000
100	001-24	001-0-30-24				H'000000000000
100	001-25	001-0-30-25				H'000000000000
100	001-26	001-0-30-26				H'000000000000
100	001-27	001-0-30-27				H'000000000000
100	001-28	001-0-30-28				H'000000000000
100	001-29	001-0-30-29				H'000000000000
100	001-30	001-0-30-30				H'000000000000
100	001-31	001-0-30-31				H'000000000000

END



NADAP

<L nadap;

NUMBER ANALYSIS DATA

TYPE OF SERIES	NUMBER SERIES
EXTENSION NUMBER SERIES	1001 - 1199 4500 - 4508
EXTERNAL DESTINATION CODE	21 25 31 - 38 40 42 550 - 560 650 666 950

ABBREVIATED COMMON NUMBER SERIES 1200

OWN EXCHANGE NUMBER SERIES 777

TYPE OF SERVICE CODE	SERVICE CODE
----------------------	--------------

EXTERNAL NUMBER LENGTH DATA

EXTERNAL NUMBER	NUMBER LENGTH
40	4 - 4
42	4 - 4
550	4
551	3
554	4 - 10
650	10 - 10
666	3 - 7

PROCEED TO SEND SIGNAL DATA

EXTERNAL NUMBER	POS. TYPE
-----------------	-----------

CALL DISCRIMINATION DATA

EXTERNAL/INTERNAL NUMBER	CAT
--------------------------	-----

END

RODDI

<L roddp:dest=42;

EXTERNAL DESTINATION ROUTE DATA

DEST	DRN	ROU	CHO	CUST	ADC	TRC	SRT	NUMACK	PRE
------	-----	-----	-----	------	-----	-----	-----	--------	-----

42	100	14070000000000250104001001	0	1	0				
----	-----	----------------------------	---	---	---	--	--	--	--

END



Digital Station

<L kscap:dir=1155;

KEY SYSTEM CATEGORY PRINT

DIR TRAF SERV CDIV ROC ITYPE TRM ADC LANG
BSEC

1155 00151515 0202720500 011151111 000001 20 0 00100013010000 0
0

END

Configuring Cisco IAD2432 24FXS

Ericsson-1#sh run
Building configuration...

*Mar 6 19:04:55.133: %SYS-5-CONFIG_I: Configured from console by vty0 (172.20.1
10.100)

Current configuration : 2367 bytes

!

version 12.4

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname Ericsson-1

!

boot-start-marker

boot system flash:c2430-ik9o3s-mz-124-9.T1.bin

boot-end-marker

!

card type e1 1

logging buffered 10000000 debugging

no logging console

enable secret 5 \$1\$WJPz\$ZoIKHvDdxxTEDUc2AwOoM0

!

no aaa new-model

!

resource policy

!

network-clock-participate E1 1/0

network-clock-participate E1 1/1



```
network-clock-select 1 E1 1/0
!
!
no ip domain lookup
!
!
!
isdn switch-type primary-qsig
isdn gateway-max-interworking
!
voice-card 0
!
!
!
!
!
voice service voip
  notify redirect ip2pots
!
controller E1 1/0
  pri-group timeslots 1-31
!
controller E1 1/1
  mode cas
  framing NO-CRC4
!
!
!
!
!
!
interface FastEthernet0/0
  ip address 172.20.8.40 255.255.255.0
  ip broadcast-address 0.0.0.0
  duplex auto
  speed auto
!
interface FastEthernet0/1
  no ip address
  ip broadcast-address 0.0.0.0
  shutdown
  duplex auto
  speed auto
!
interface Serial1/0:15
  no ip address
  encapsulation hdlc
  isdn switch-type primary-net5
  isdn overlap-receiving
  isdn protocol-emulate network
  isdn incoming-voice voice
  isdn T310 120000
  no cdp enable
!
ip default-gateway 172.20.8.1
ip http server
no ip http secure-server
!
ip route 0.0.0.0 0.0.0.0 172.20.8.1
```




```
!  
!  
!  
tftp-server flash:c2430-is-mz.sb93109  
!  
!  
control-plane  
!  
!  
!  
voice-port 1/0:15  
!  
voice-port 2/0  
!  
voice-port 2/1  
!  
voice-port 2/2  
!  
voice-port 2/3  
!  
voice-port 2/4  
!  
voice-port 2/5  
!  
voice-port 2/6  
!  
voice-port 2/7  
!  
voice-port 2/8  
!  
voice-port 2/9  
!  
voice-port 2/10  
!  
voice-port 2/11  
!  
voice-port 2/12  
!  
voice-port 2/13  
!  
voice-port 2/14  
!  
voice-port 2/15  
!  
voice-port 2/16  
!  
voice-port 2/17  
!  
voice-port 2/18  
!  
voice-port 2/19  
!  
voice-port 2/20  
!  
voice-port 2/21  
!  
voice-port 2/22  
!  
voice-port 2/23
```



```
!  
!  
!  
!  
dial-peer voice 1100 pots  
destination-pattern 11..  
supplementary-service pass-through  
direct-inward-dial  
port 1/0:15  
forward-digits all  
!  
dial-peer voice 4200 voip  
destination-pattern 42..  
session protocol sipv2  
session target ipv4:172.20.8.41  
dtmf-relay rtp-nte  
supplementary-service pass-through  
!  
!  
gateway  
timer receive-rtp 1200  
!  
sip-ua  
!  
!  
!  
line con 0  
password cisco  
login  
line aux 0  
line vty 0 4  
exec-timeout 0 0  
password cisco  
login  
!  
end
```

Ericsson-1#



Acronyms

Acronym	Definitions
IAD	Integrated Access Device
SIP	Session Initiation Protocol



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