

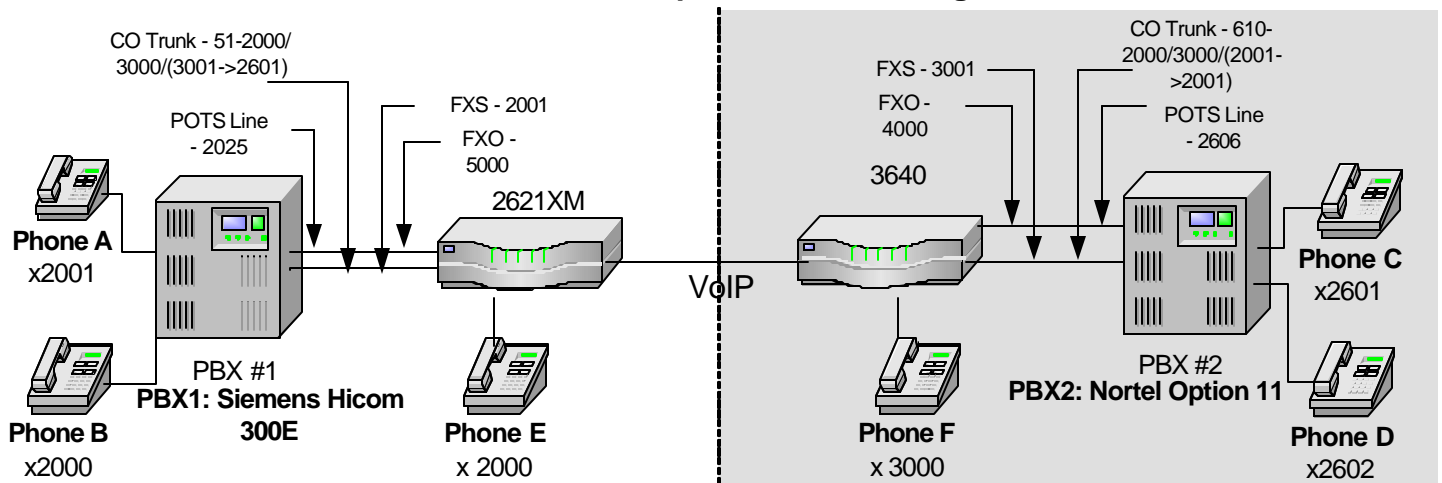
Cisco 2621XM Gateway - PBX Interoperability: Siemens Hicom 330E PBX using Analog FXS/FXO Interfaces to an MGCP Gateway

Introduction

- This application note describes the interoperability of a Cisco 2621XM gateway and a Siemens Hicom 300E PBX using analog FXS/FXO interface ports.
- Connectivity is achieved by using the analog FXS loop start voice port on Cisco 2621XM, which connects to the loop start CO Trunk port on Siemens Hicom 300E PBX.
- The network topology diagram shows the end-to-end interoperability.

Network Topology

Basic Call Setup End-to-End Configuration





Limitations

- Ground Start Signaling type is not supported on the Siemens Hicom 300E PBX POTS line.
- The Siemens Hicom 300E PBX analog POTS lines do not support disconnect supervision.
- The FXO voice port goes off-hook on the first ring of an incoming seizure before the targeted phone has answered. The PBX analog extension does not support disconnect supervision, which causes trunk hang issues and long ring-no answer times. For additional information, refer to *FXO Answer and Disconnect Supervision* at the following URL:
http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122t/122t2/ft_ansds.htm

System Components

Hardware Requirements

- Cisco 2621XM gateway with analog VIC 2FXO and VIC 2FXS interface cards
- Siemens Hicom 330E PBX

Software Requirements

- Cisco IOS Software Release c2600-is-mz.122-10.7.T6
- PBX Software Version 6.6

Configuration

Configuring the Siemens Hicom 300E PBX

CO Trunk Configuration

```
DIS-BCSU:TBL,1,2,31;
```

```
H500: AMO BCSU STARTED
```

ADDRESS	NOM.	BOARD	TYPE	V/R	ACTUAL BOARD	LWV	FID	FIRMWARE	BD STATUS	CCN
1. 2. 31		Q2485-X	TMC16P		Q2485-X	1	0	D429-B	READY	16

```
AMO-BCSU -226 BOARD CONFIGURATION, SWITCHING UNIT
```

```
DISPLAY COMPLETED;
```

```
DIS-TCSU:1-2-31-0,1-2-31-3;
```

```
H500: AMO TCSU STARTED
```



```

+-----+
| PEN: 1- 2- 31- 0  INS: Y  BOARD: TMC16P  DEV: LPSTR  TGRP: 3  |
+-----+
| TRKID : 0004          TCCID :          |
| CCT   : LOOP STA/0004 |
| ACDATA : 0          COTNO : 3          LCRCOSD : 5          |
| ATNTYP : CO          DITIDX : 1         LCRCOSV : 5          |
| COFIDX : 3          DPLN  : 0          LOCANA  :          |
| COPNO  : 50          ITR   : 1         REMANA  :          |
| COSNO  : 75          CIDDGTS : NONE    |
| CIRCIDX: 0          NWBNO  : *          PTTBLIDX : *          |
| * = NOT APPLICABLE FOR THIS BOARD TYPE |
+-----+

```

```

+-----+
| PEN: 1- 2- 31- 1  INS: Y  BOARD: TMC16P  DEV: LPSTR  TGRP: 3  |
+-----+
| TRKID : 0005          TCCID :          |
| CCT   : LOOP STA/0005 |
| ACDATA : 0          COTNO : 3          LCRCOSD : 5          |
| ATNTYP : CO          DITIDX : 1         LCRCOSV : 5          |
| COFIDX : 3          DPLN  : 0          LOCANA  :          |
| COPNO  : 50          ITR   : 1         REMANA  :          |
| COSNO  : 75          CIDDGTS : NONE    |
| CIRCIDX: 0          NWBNO  : *          PTTBLIDX : *          |
| * = NOT APPLICABLE FOR THIS BOARD TYPE |
+-----+

```

AMO-TCSU -226 TRUNK CONFIGURATION, SWITCHING UNIT

DIS-COP;

H500: AMO COP STARTED

	S			E A				
	T			E S N				
	A	S	V	S P I D	DD	S		
	D	Z	L	P D D T	TT	U	P	
	I	A	A	S A N N O	MM	P	D	
COP	A	N	C	A A N I I N	FF	V	P	
IDX	L	S	K	T T I S S E	L	12	1234	

0								
1	X							
6	X	X		X			X	
50	X				X	X	X	

AMO-COP -226 CLASS OF PARAMETER

DIS-COT;

H500: AMO COT STARTED



COT	D	A	D	D	M	S	V	E	E	A	R
	I	N	S	S	I	D	A	L	S	S	N
	T	S	A	A	S	R	T	S	P	P	I
		R	S					A	A	D	D
								T	N	N	N
								I	I	I	H
								S	S		
0											
1		X									
3	X										
6		X									
14	X			X							

AMO-COT -226 CLASS OF TRUNK FOR CALL PROCESSING

DIS-TGACC:3;

H500: AMO TGACC STARTED

TGRP NUMBER	:	3	TGRP NAME	:	LOOP START CO'S /N	MAXIMUM NO:	2
SUBGROUP NUMBER:	2	DEVICE TYPE:	LOOP START	DIR TYPE:	BOTH		
ACD THRESHOLD	:	*	TRACENO	:	0	USAGE TYPE:	TERR
ALLOCATED TO AT LEAST ONE ROUTE SELECTION	:	ROUND	CFBLOCK	:	DISABLED	GDTR RULE:	0
THE FOLLOWING PORTS (LTG-LTU-SLOT-CIRCUIT) ARE ALLOCATED:							
1- 2- 31- 0		1- 2- 31- 1		- - -		- - -	
- - -		- - -		- - -		- - -	

AMO-TGACC-226 TRUNK GROUP ACCESS CODE

DIS-COS: COS,75;

H500: AMO COS STARTED

COS	VOICE	DTE	FAX
75	CFWCO MDR PRISTN SPKRCALL TTT VC	URTA	

AMO-COS -226 CLASSES OF SERVICE, SWITCHING UNIT

Analog Station Configuration

DIS-SCSU:2025,ALL;

H500: AMO SCSU STARTED

STNO 2025 NAME ANALOG TEST ACT DEV



```

COS1      60  COSX      0  DIAL    DTMF    DLIDX    -  DEVFUNC  ANATE
COS2      60  SPDC1     -  DPLN      0  TA       N  PEN      1-2-79-1
LCRCOSV1  12  SPDC2     -  HTLNIDX   -  TADLIDX   -  PUBSCR   2025
LCRCOSV2  12  SPDI      10  ITR       0  TAINS    -  ACTCDE   000000000000
LCRCOSD1  -  HANDSFR   -  SPECL     -  ACCLASS   -  NTYPE    -
LCRCOSD2  -  INS       Y  PUGRP     -  QPRIOR    -  RPTYPE
DSSALERT  -  DTS       N  STD       -  FAXSERV   N  HDSTYPE
NWBALNO   -  CDIDX     -  WINKOFF   N  SEIZE     -  DTE DL VER
CFWDV     N  CFWDD     N  DND       N  CALLWAIT  N  VCE DL VER  0
VCP       -  MSGWLMP   -  PHONMAIL  N  COMGRP    -  DNIDSP    -
MAINO     -  CUI       -  KEYM     -  TSI       -  LOCODE    -
DCFWBUSY  N  API       -  EVMS      N  EVMSIDX   0  OPTITYPE  -
TATYPE    -  TATYPE2   -  FLASH     N
PATTERN   -  TFLAGROUP -  ATMADDR   -  SPKALERT  -
RELTEST   N
FIXED CFW1 -  FIXED CFW2 -  VAR CFW  -
STATION-HUNT N
UCD-HUNT   N
PILOT-HUNT N
NIGHTVARIANT N
AMO-SCSU -226  SUBSCRIBER CONFIGURATION IN THE SWU

```

Digital Station Configuration

DIS-ITRHO:HOTDEST;

H500: AMO ITRHO STARTED

```

+-----+
| HTLNIDX HOTDEST |
| 1      2001     |
+-----+

```

AMO-ITRHO-226 INT. TRAFFIC RELATIONS GROUPS AND HOTLINE/OFFHOOK INTERCEPT



DIS-ITRHO:HOTDEST;

H500: AMO ITRHO STARTED

```

+-----+
| HTLNIDX HOTDEST |
| 1      2001     |
+-----+

```

AMO-ITRHO-226 INT. TRAFFIC RELATIONS GROUPS AND HOTLINE/OFFHOOK INTERCEPT

DIS-SCSU:2001,ALL;

H500: AMO SCSU STARTED

STNO	2001	NAME	PBXGOD					ACT	DEV
COS1	60	COSX	0	DIAL	-	DLIDX	-	DEVFUNC	OPTI
COS2	60	SPDC1	-	DPLN	0	TA	N	PEN	1-2-37-1
LCRCOSV1	5	SPDC2	-	HTLNIDX	-	TADLIDX	-	PUBSCR	4085272001
LCRCOSV2	5	SPDI	10	ITR	0	TAINS	-	ACTCDE	000000000000
LCRCOSD1	5	HANDSFR	Y	SPECL	-	ACCLASS	-	NTYPE	UNK
LCRCOSD2	5	INS	Y	PUGRP	-	QPRIOR	-	RPTYPE	
DSSALERT	N	DTS	Y	STD	1	FAXSERV	N/A	HDSTYPE	NONE
NWBALNO	-	CDIDX	-	WINKOFF	-	SEIZE	-	DTE DL	VER
CFWDV	N	CFWDD	N	DND	N	CALLWAIT	N	VCE DL	VER 0
VCP	OFF	MSGWLMP	-	PHONMAIL	N	COMGRP	0	DNIDSP	Y
MAINO	-	CUI	N	KEYM	0	TSI	1	LOCODE	-
DCFWBUSY	N	API	N	EVMS	N	EVMSIDX	0	OPTITYPE	OEADPLC
TATYPE	-			TATYPE2	-			FLASH	-
PATTERN	-	TFAGROUP	-	ATMADDR	-			SPKALERT	Y



```
RELTEST      -  
  
FIXED CFW1   -          FIXED CFW2   -          VAR CFW    -  
  
STATION-HUNT N  
  
UCD-HUNT     N  
PILOT-HUNT   N  
NIGHTVARIANT N
```

```
AMO-SCSU -226          SUBSCRIBER CONFIGURATION IN THE SWU
```

Configuring the Cisco 2621XM Router

```
Router# show running-config  
Building configuration...  
  
Current configuration : 1912 bytes  
!  
version 12.2  
service timestamps debug uptime  
service timestamps log uptime  
no service password-encryption  
!  
hostname c2621XM_Analog  
!  
no logging console  
enable password cisco  
!  
ip subnet-zero  
!  
no ip domain lookup  
!  
voice call carrier capacity active  
!  
voice class dualtone-detect-params 1  
cadence-variation 25  
!  
voice class custom-cptone us-custom  
dualtone busy  
frequency 480 620  
cadence 500 500  
dualtone disconnect  
frequency 435  
cadence 600 400  
!  
fax interface-type fax-mail  
mta receive maximum-recipients 0  
!  
interface FastEthernet0/0  
no ip address  
shutdown  
duplex auto  
speed auto  
!  
interface FastEthernet0/1  
ip address 1.1.1.2 255.255.255.0
```



```
duplex auto
speed auto
!
ip classless
ip http server
ip pim bidir-enable
!
dialer-list 1 protocol ip permit
!
call rsvp-sync
!
voice-port 1/0/0
!
voice-port 1/0/1
!
voice-port 1/1/0
  timeouts call-disconnect 1
  timeouts ringing 18
  timeouts wait-release 3
  supervisory disconnect dualtone mid-call
  supervisory custom-cptone us-custom
  supervisory dualtone-detect-params 1
!
voice-port 1/1/1
!
no mgcp timer receive-rtcp
!
mgcp profile default
!
dial-peer cor custom
!
dial-peer voice 1 pots
  destination-pattern 2000
  port 1/0/0
!
dial-peer voice 2 pots
  destination-pattern 2001
  port 1/0/1
!
dial-peer voice 3 pots
  destination-pattern 5000
  port 1/1/0
!
dial-peer voice 4 pots
  destination-pattern 5001
  port 1/1/1
!
dial-peer voice 5 voip
  destination-pattern 3...
  session target ipv4:1.1.1.1
!
dial-peer voice 6 voip
  destination-pattern 2...
  session target ipv4:1.1.1.1
!
dial-peer voice 7 voip
  destination-pattern 4...
  session target ipv4:1.1.1.1
!
dial-peer voice 8 voip
  destination-pattern 6...
  session target ipv4:1.1.1.1
```



```
dtmf-relay h245-alphanumeric
!  
line con 0  
  exec-timeout 0 0  
line aux 0  
  exec-timeout 0 0  
line vty 0 4  
  exec-timeout 0 0  
  password c  
  login  
line vty 5 15  
  login  
!  
end
```

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