



Cisco Unified CallManager Release 5.0-PBX Interoperability: NEC IPX2400 R15 to a Cisco CMM Using E1-PRI QSIG with MGCP

Table of Contents

- Introduction 1
- Network Topology..... 2
- Limitations..... 2
- System Components 3
 - Hardware Requirements 3
 - Software Requirements 3
- Features 3
 - Features Supported..... 3
 - Features Not Supported 4
- Configuration..... 4
 - Configuring the NEC2400 IPX PBX..... 4
 - Cisco Unified CallManager Configuration..... 20
 - CCM Gateway Configuration..... 21
- Acronyms 51

Introduction

This is an application note for connectivity of NEC IPX2400 Release 15 PBX with Cisco Unified CallManager Release 5.0 via Cisco Communication Media Module CMM-E1 as MGCP gateway using ISO QSIG protocol.

The network topology diagram (Figure 1) shows the test setup for end-to-end interoperability with the Cisco Unified CallManager connected to the PBX via Communication Media Module CMM-E1 link as MGCP gateway. Connectivity is achieved by using the PRI QSIG E1 protocol type on the MGCP gateway with Cisco Unified CallManager Service parameter QSIG variant of ISO and ISO switch type on the NEC IPX2400

This Application Note uses the Communication Media Module CMM-E1 voice gateway, however other Cisco voice gateways are also an option to use since Cisco Unified CallManager QSIG implementation does not depend on the physical interface.

Note: The testing conducted on the NEC E1 QSIG configuration was done using the NEC North American Release 15 software. At this time, Cisco does not have the NEC European release and could not be used for testing. Integrating CCM 5.0 using E1 with a NEC IPX2400 Euro switch may cause different results from the results stated in this document.



Call back, Busy or NR, was invoked from Dterm phone x4060 to Cisco IP phone , the original calling name is not shown on the Cisco IP phone x3000. NEC PBX does not send Calling Name on a locally originated CallBack call.

NEC PBX could not restrict Calling Name, however, NEC has an option to turn off/remove name display delivery, in ASYD command (system wide) or remove name from individual stations using ANDD command, or block Name display at a trunk level using ARTD command.

System Components

Hardware Requirements

Cisco Hardware

Cisco Unified CallManager Server

Catalyst 6500

WS-SVC-CMM-6E1, Communications Media Module

NEC IPX2400

Circuit card PA-30PRTC

Software Requirements

Cisco Unified CallManager: 5.0

NEC IIPX2400 Release 15

Cisco IOS Release or 12.3 or higher

Features

Features Supported

CLIP-Calling Line (Number) Identification Presentation

CLIR-Calling Line (Number) Identification Restriction

CNIP-Calling Name Identification Presentation

COLP-Connected Line (Number) Identification Presentation

CONP-Connected Name Identification Presentation

Send Alerting Name

Call Back/Call Completion

CT-Call Transfer (by join)

CFU-Call Forwarding Unconditional

CFB-Call Forwarding Busy

CFNR-Call Forwarding No Reply

Call Forward by Reroute

ANF-PR-Additional Network Feature Path Replacement (for Call Transfer by join)



ANF-PR-Additional Network Feature Path Replacement (for Trombone connection)

Features Not Supported

CONR- Connected Name Identification Restriction – (NEC IPX2400 could not change connected name to restricted).

COLR- Connected Line (Number) Identification Restriction – (NEC IPX2400 could not change connected number to restricted).

Q.SIG MWI- Message Waiting Indication (lamp ON, lamp OFF), the current NEC IPX2400 North American Release 15 software does not support QSIG-MWI.

Overlap sending and overlap receiving are not supported on the current NEC IPX2400 North American Release 15 software.

ANF-PR-Additional Network Feature Path Replacement (for Call Forward by join), the current NEC IPX2400 North American Release 15 software does not support Path Replacement on Call Forward by join.

Configuration

Note: It is important that the engineer/technician modifying the IPX2400 configuration be well versed in the NEC MAT command line. The NEC MAT command line is very precise and should only be changed by a person who is certified by NEC and has the in-depth knowledge on how to troubleshoot the system in case erratic behavior results.

Configuring the NEC2400 IPX PBX

Sequence

Physical Layer Set-up:

SW Mode→SW15→SW16

Note: You must set the switches on the PA-30PRTC appropriately for QSIG operation.

Enable QSIG services:

ASYD→ASFC

To build the QSIG route:

ARTD→ARTI→ATRK→ARSC→ARRC→ADPC→ACSC→ACIC1→ACIC2→MBRT

To build the dial plan to access the QSIG route (Assumes dummy route has been built and ARRC is assigned properly):

ANPD→ASPA→AMND→AFRS→AOPR→ARNP

Configuration Menus and Commands

Physical Layer Set-up:

SW Mode

Set to 10 (A in HEX)

SW15

Set switch 6 to 'off' (Sets CRC4 control active)



SW16

Set switch 4 to 'off' (This switch determines the L2/L3 ISDN protocol side emulation for the route Off=Network/On=User)

Note: To set other physical layer parameters such as interface impedance (75 or 120ohms), alarm monitoring and Loss Pad settings please refer to the NEC CIRCUIT CARD GUIDE for the PA-30PRTC. These parameters are not covered in this document. The value of these parameters will depend upon the installation of each individual Telephony network.

Enable QSIG services

ASYD

System 1, Index 186, bit 6 = 1 (ISDN service enabled)

System 1, Index 375, bit 0 = 1 (avoid Bch lockup)

ASFC

SFI 94 set to '0' (ANI)

Build QSIG Route

ARTD

Note: You must build two ARTD forms, one for the b-channels and one for the d-channel



RT 17 (B-Channels)

CDN	Data	CDN	Data	CDN	Data
001	OSGS 0	043	BT 1	085	CSEU 0
002	ONSG 2	044	PRV 0	086	CSEL 0
003	ISGS 0	045	A/D 1	087	CMP 0
004	INSG 2	046	CW 0	088	TALK 0
005	TF 3	047	TPQ 0	089	FOT 0
006	TCL 4	048	BL 0	090	RST 0
007	L/T 1	049	TRKS 0	091	TOCI 0
008	RLP 2	050	DPLY 1	092	TOCD 0
009	TQ 0	051	ACD 0	093	ODGD 0
010	SMDR 0	052	2w/4w 0	094	RLS 0
011	TD 0	053	FAAT 0	095	GWD 0
012	DR 0	054	GW 0	096	H1 0
013	AC 0	055	TCMA 0	097	DT 0
014	TNT 0	056	SMDR3 0	098	CI 0
015	LSG 12	057	HDT 0	099	OID 0
016	SMDR2 0	058	CD 0	100	TKS 0
017	H/M 0	059	CCH 0	101	PAD2 0
018	MC 0	060	TC/EC 0	102	TRM 0
019	ANI 0	061	IRE 0	103	TRPX 0
020	D 0	062	SCR 0	104	LDR 0
021	MSB 0	063	LYER1 1	105	TSC 0
022	MSW 0	064	NET 0	106	SATS 0
023	TR 0	065	INT 10	107	RVPX 0
024	OC 0	066	DC 4	108	DQ 0
025	R/L 0	067	HKS 0	109	SLOV 0
026	RVSD 0	068	SCF 0	110	SDTO 0
027	TL 0	069	SMDR4 0	111	ADVPR 0
028	ANS 1	070	TCMN 0	112	IND 1
029	TELP 0	071	TCMC 0	113	UUI 0
030	PAD 4	072	MFSP 0	114	DCH 0
031	OGRL 1	073	KPST 0	115	CMRT 0
032	ICRL 1	074	KPPT 0	116	PREF 0
033	HD 0	075	STC 0	117	DFS 0
034	GUARD 1	076	MC2 0	118	BOB 0
035	WINK 0	077	MT 0	119	HO1CH 0
036	VAD 0	078	TONE 0	120	IFR 0
037	CLD 0	079	PPTM 0	121	CONV 0
038	FA 0	080	MPTM 0	122	ORRT 0
039	BC 0	081	LPTM 0	123	CNI 0
040	TCM 0	082	RSAX 0	124	AOC 0
041	TDMQ 0	083	CST 0	125	MGCOT 0
042	TRSC 0	084	CSEG 0		

Note: On the B-channel ARTD table, parameter IND must be set to '1' for Name display, to disable Name display feature on the trunk change the value of IND to '0'.

Note: On the B-channel ARTD table, parameter DC must be set to equal the maximum number of digits in the PBX's station numbers.



RT 18 (D-channel)

CDN	Data	CDN	Data	CDN	Data
001	OSGS 0	043	BT 0	085	CSEU 0
002	ONSG 0	044	PRV 0	086	CSEL 0
003	ISGS 0	045	A/D 0	087	CMP 0
004	INSG 0	046	CW 0	088	TALK 0
005	TF 0	047	TPQ 0	089	FOT 0
006	TCL 4	048	BL 0	090	RST 0
007	L/T 1	049	TRKS 0	091	TOCI 0
008	RLP 0	050	DPLY 0	092	TOCD 0
009	TQ 0	051	ACD 0	093	ODGD 0
010	SMDR 0	052	2w/4w 0	094	RLS 0
011	TD 0	053	FAAT 0	095	GWD 0
012	DR 0	054	GW 0	096	H1 0
013	AC 0	055	TCMA 0	097	DT 0
014	TNT 0	056	SMDR3 0	098	CI 0
015	LSG 13	057	HDT 0	099	OID 0
016	SMDR2 0	058	CD 0	100	TKS 0
017	H/M 0	059	CCH 0	101	PAD2 0
018	MC 0	060	TC/EC 0	102	TRM 0
019	ANI 0	061	IRE 0	103	TRPX 0
020	D 0	062	SCR 0	104	LDR 0
021	MSB 0	063	LYER1 1	105	TSC 0
022	MSW 0	064	NET 0	106	SATS 0
023	TR 0	065	INT 10	107	RVPX 0
024	OC 0	066	DC 0	108	DQ 0
025	R/L 0	067	HKS 0	109	SLOV 0
026	RVSD 0	068	SCF 0	110	SDTO 0
027	TL 0	069	SMDR4 0	111	ADVPR 0
028	ANS 1	070	TCMN 0	112	IND 0
029	TELP 0	071	TCMC 0	113	UUI 0
030	PAD 7	072	MFSP 0	114	DCH 0
031	OGRL 0	073	KPST 0	115	CMRT 0
032	ICRL 0	074	KPPT 0	116	PREF 0
033	HD 0	075	STC 0	117	DFS 0
034	GUARD 0	076	MC2 0	118	BOB 0
035	WINK 0	077	MT 0	119	HO1CH 0
036	VAD 0	078	TONE 0	120	IFR 0
037	CLD 0	079	PPTM 0	121	CONV 0
038	FA 0	080	MPTM 0	122	ORRT 0
039	BC 0	081	LPTM 0	123	CNI 0
040	TCM 0	082	RSAX 0	124	AOC 0
041	TDMQ 0	083	CST 0	125	MGCOT 0
042	TRSC 0	084	CSEG 0		



ARTI

```
RT 17
RST      0      RSCT      0      IDRT      0      COT      0
HMT      0      ROCG      0      ECCISTD   0      SS7      0
TRCRST   0      RICG      0      MFCG2     0      NI2ID    0
TRSRST   0      STSENQ    0      OPCC      0      CLRF     0
T309LNK  0      MMNPASS   0      ICTCON    0      TRC      0
T309CON  0      DLTK      0      VRD       0      OID      0
LLCRST   0      CALN      0      INTD      1      PHG      0
VCM      0      NETINT    0      JECCIS    0      VIR      0
POOL     0      RETMSG    0      IPINT2    0      CSMDS    0
DTRT     0      ANI       0      IPTRK     0      FXD      0
TMPRT    0      SRV       0      CTCF      1      FXJS     0
CODEC    0      TON       0      RERT      1      FXPT     0
PASS     0      NPI       0      DCANS     0      FXPS     0
IRL      0      L/T       0      RND       0      CPI      0
MTC      0      ECCIS     0      CLBK      0      E911     0
TC        0      ECCISTM   0      UALAW     2      RA_RT    0
TS        0      ECCISOB   0      MCTFAC    0
CDCSPD   0      ECCISIB   0      RE         1
DVRST    0      SPMET     0      PR         1
```

Note: The following parameters determine the state of the following QSIG-SS features: CTCF-Call forward/Call transfer, RERT-CF Reroute, PR-Path Replacement. To set the feature enabled you must set it to '1', if you want the feature disabled change the setting to '0'.



ATRK

* Trunk Data List *			
Starting		Ending	
RT	17	RT	18
TK	1	TK	32

<u>RT</u>	<u>TK</u>	<u>LENS</u>	<u>TN</u>
17	1	001121	1
17	2	001122	1
17	3	001123	1
17	4	001124	1
17	5	001125	1
17	6	001126	1
17	7	001127	1
17	8	001130	1
17	9	001131	1
17	10	001132	1
17	11	001133	1
17	12	001134	1
17	13	001135	1
17	14	001136	1
17	15	001137	1
17	17	001141	1
17	18	001142	1
17	19	001143	1
17	20	001144	1
17	21	001145	1
17	22	001146	1
17	23	001147	1
17	24	001150	1
17	25	001151	1
17	26	001152	1
17	27	001153	1
17	28	001154	1
17	29	001155	1
17	30	001156	1
17	31	001157	1
18	1	001140	1
18	2	001120	1



ARSC

* Route Restriction Class List *			
Starting		Ending	
Tenant	1	Tenant	1
Route	17	Route	17

Tenant	Day/Night	Route	RRI	RSC Data Settings																
				0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	DAY	17	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
			2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
			3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

ARRC

* Alternative Route Restriction List *			
Starting		Ending	
Incoming Route	17	Incoming Route	31
Outgoing Route	17	Outgoing Route	31

Incoming Route	Outgoing Route	ARI A-Restriction	ARI D-Restriction
17	17	1	1
17	19	1	1
17	31	1	1
18	18	1	1
18	20	1	1
18	31	1	1
19	17	1	1
19	19	1	1
19	31	1	1
20	18	1	1
20	20	1	1
20	31	1	1
22	23	1	1
22	31	1	1
23	22	1	1
23	31	1	1
31	17	1	1
31	18	1	1
31	19	1	1
31	20	1	1
31	31	1	1



ADPC

* Determinate Point Code Data List *	
Starting	Ending
RT 17	RT 18

RT	PC
17	3
18	3

ACSC

* CSC Data List *	
Starting	Ending
CSCG 134	CSCG 135

<u>CSCG</u>	<u>GROUP:</u>	0	1	2	3	4	5	6	7
134	<u>CCH:</u>	00112	00112	00112	00112	00112	00112	00112	00112
135	<u>CCH:</u>	00112	00112	00112	00112	00112	00112	00112	00112

Note: Because we are using circuit card PA-30PRTC, you assign the same LENS number to each CSCG number. You must assign an even CSCG number for the b-channels and an odd CSCG number for the D-channel. If you are using circuit cards PA-2DCH + PA-30DTR the LENS assignment to the B-channels and D-channels differ, please contact NEC customer support for technical assistance.

ACIC1

* CIC Code Data 1 List *	
Starting	Ending
PC 3	PC 3

<u>PC</u>	<u>CSCG</u>	<u>PC</u>	<u>CSCG</u>	<u>PC</u>	<u>CSCG</u>
3	134				



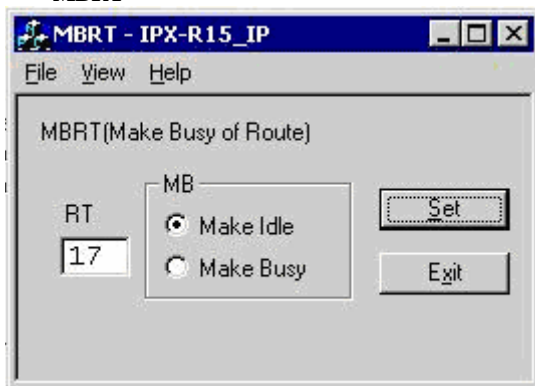
ACIC2

* CIC Code Data 2 List *	
Starting	Ending
PC 3 CIC 1	PC 3 CIC 32

Determinate Point Code	Circuit Identification Code	LENS
3	1	001121
3	2	001122
3	3	001123
3	4	001124
3	5	001125
3	6	001126
3	7	001127
3	8	001130
3	9	001131
3	10	001132
3	11	001133
3	12	001134
3	13	001135
3	14	001136
3	15	001137
3	16	001141
3	17	001142
3	18	001143
3	19	001144
3	20	001145
3	21	001146
3	22	001147
3	23	001150
3	24	001151
3	25	001152
3	26	001153
3	27	001154
3	28	001155
3	29	001156
3	30	001157



MBRT





Build the dial plan to access the QSIG route

Note: Assumes dummy route has been built and ARRC is assigned properly

ANPD

* Numbering Plan Data List *	
Starting	Ending
Tenant 1	Tenant 1

Tenant	1stDC	Normal		Hooking		Busy	
		NND	BusyLamp Field	NND	BusyLamp Field	NND	BusyLamp Field
1	0	1	Out of Service	1	Out of Service	1	Out of Service
	1	5	In Service	5	In Service	5	In Service
	2	2	In Service	2	In Service	-	-
	3	4	Out of Service	4	Out of Service	4	Out of Service
	4	4	Out of Service	4	In Service	4	In Service
	5	4	Out of Service	4	Out of Service	4	Out of Service
	6	-	-	-	-	-	-
	7	-	-	-	-	-	-
	8	1	Out of Service	-	-	-	-
	9	-	-	-	-	-	-
	*	3	Out of Service	3	Out of Service	3	Out of Service
	#	-	-	-	-	-	-

ASPA

* Special Access Code List *	
Starting	Ending
Tenant 1 Access Code 3 Connection Index Normal	Tenant 1 Access Code 3 Connection Index Busy

TN	ACC	CI	SRV	RT	2ndDT	AH	SUB
1	3	Normal	LCR	: 31	: 1	: 0	: 0
1	3	Hooking	LCR	: 31	: 1	: 0	: 0
1	3	Busy	LCR	: 31	: 0	: 0	: 0



AMND

* Maximum Necessary Digits Data List *			
Starting		Ending	
Tenant	1	Tenant	1
DC	3	DC	3

Tenant DC MND TOLL AN RATE A/D
 1 3 4 0 0 0 1

AFRS

* Flexible Route Selection List *			
Starting		Ending	
Tenant	1	Tenant	1
Route	31	Route	31
NPC	3	NPC	3

Tenant Route Number Pattern Code OPR
 1 31 3 3

AOPR

* Outgoing Pattern Routing Data List *			
Starting		Ending	
TDPTN	0	TDPTN	0
OPR	3	OPR	3
RA Order	0	RA Order	0

TDPTN OPR RA Order RA End Route SKIP PNL OVFT PRSC
 0 3 0 0 17 0 0 0 0



ARNP

[IPX-R15_IP::LRNF]

May 17, 2006

* Reverse Numbering Plan Data List *	
Starting	Ending
Route 4	Route 4

Route Access Code
 17 3

Dterm Data (Digital Stations)

ASDT

* Station Data List *	
Starting	Ending
TN 1 STN 4060	TN 1 STN 4061

TN	STN	LENS	TEC	RSC	SFC	ETN	KD	CG	CE	HC	HP	HU	PH	HL	ND	NS	D1	D2	IC	SS	WS	IT	LNL	LNN
1	4060	000032	12	1	1	1									X									
1	4061	000031	12	1	1	1									X									

ANND (Name display for Dterms)

* Name Display Data List *	
Starting	Ending
Tenant 1 Station 4060	Tenant 1 Station 4061

Tenant	Station	Name Display
1	4060	Beasely
1	4061	Landon Donovan



ASFC SFI 94 (used to restrict Calling Number)

```

* Service Feature Restriction Class List *
Starting                               Ending
Tenant 1                               Tenant 1
SFI 94                                 SFI 94

SFC Attribute Settings
Tenant Mode SFI 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
1      Day 94  0 0 0 0 0 0 0 0 0 0 0 0  0  0  0  1
  
```

Note: To restrict 'Calling Number' you assign SFC =15 (or any SFC set to '1'), under ASDT command for the Dterm station you want to restrict.

Call Back

ASYD

ASYD - System Data 1, Index 139. No Answer Timer for CALL BACK. Assign 00H. (RAM Data is 3FH = 30 seconds.)

System Data 1, Index 68, Bit 0. 0/1: SHF and Access Code/last digit of Telephone Number + Access Code.

System Data 2, Index 0, Bit 0. Is CALL BACK enabled on a per Tenant basis? 0/1: No/Yes.

System Data 2, Index 4, Bit 0. CALL BACK and OUTGOING TRUNK QUEUING [O-2] Access Codes are same or separate? 0/1: Separate/Same.

ASFC

SFI 2 allows/restricts CallBack feature.

* Service Feature Restriction Class List *																		
Starting										Ending								
Tenant 1 SFI 2										Tenant 1 SFI 2								
SFC Attribute Settings																		
Tenant	Mode	SFI	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Day	2	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Note: On each Dterm station Assign a SFC that has SFI=2 set to '1', using a SFC with SFI=2 set to '0' restricts CallBack.



ADSL (Assigning CallBack feature on Dterm softkey)

* Dterm Soft Key on LCD Data in LDM List *	
Starting	Ending
SKP 1 SN 2	SKP 1 SN 3

SKP	SN	SKN	FKY	DISP
1	2	0	5	CB
1	2	1	0	00
1	2	2	0	00
1	2	3	0	00
1	2	4	0	00
1	2	5	0	00
1	2	6	0	00
1	2	7	0	00
1	2	8	0	00
1	2	9	0	00
1	2	10	0	00
1	2	11	0	00
1	2	12	0	00
1	2	13	0	00
1	2	14	0	00
1	2	15	0	00
1	3	0	5	CB
1	3	1	0	00
1	3	2	0	00
1	3	3	0	00
1	3	4	0	00
1	3	5	0	00
1	3	6	0	00
1	3	7	0	00
1	3	8	0	00
1	3	9	0	00
1	3	10	0	00
1	3	11	0	00
1	3	12	0	00
1	3	13	0	00
1	3	14	0	00
1	3	15	0	00



ADKS (Assigns soft key pattern to Dterm station)

* Dterm Key Status Data for LDM List *			
Starting		Ending	
Tenant	1	Tenant	1
Station	4060	Station	4061

Tenant	Station	Soft Key Pattern	Line Key Pattern	Page Scroll Key
1	4060	1	3	0
1	4061	1	1	0



Cisco Unified CallManager Configuration

ISO Protocol Service Parameter

Service Parameter Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Refresh Print

Address <https://172.20.8.254:8443/ccmadmin/serviceParamEdit.do?server=9a4c58d0-45dc-4862-87a9-306827d8bf53&service=0&showall=true>

Unknown Number Prefix	
-----------------------	--

Clusterwide Parameters (Device - PRI and MGCP Gateway)

ASN.1 ROSE OID Encoding *	Use Local Value	Use Local Value
QSIG Variant *	ISO (Protocol Profile 0x9F)	ISO (Protocol Profile 0x9F)



CCM Gateway Configuration

Gateway Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Refresh Print

Address <https://172.20.110.254:8443/ccmadmin/gatewayEdit.do?key=2c449b01-1a2b-3bc1-2c0b-5fd38d5c7a83>

Navigation Cisco Unified CallManager Administration

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as: CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help

Gateway Configuration Related Links: [Back To Find/List](#)

Status
Status: Ready

Gateway Details

Product	Communication Media Module
Gateway	CMM_Interop
Protocol	MGCP
Domain Name *	<input type="text" value="CMM_Interop"/>
Description	<input type="text" value="CMM_Interop"/>
Cisco Unified CallManager Group *	<input type="text" value="Default"/>

Configured Slots, VICs and Endpoints

Module in Slot 1	<input type="text" value="WS-X6600"/>						
Subunit 0	<input type="text" value="WS-X6600-6E1"/>	<input type="text" value="1/0"/>	<input type="text" value="1/1"/>	<input type="text" value="1/2"/>	<input type="text" value="1/3"/>	<input type="text" value="1/4"/>	<input type="text" value="1/5"/>
Module in Slot 2	<input type="text" value="< None >"/>						
Module in Slot 3	<input type="text" value="< None >"/>						
Module in Slot 4	<input type="text" value="< None >"/>						

Product Specific Configuration

Global ISDN Switch Type	<input type="text" value="4ESS"/>	
Switchback Timing *	<input type="text" value="Graceful"/>	
Switchback uptime-delay (min)	<input type="text" value="10"/>	
Switchback schedule (hh:mm)	<input type="text" value="12:00"/>	
Fax mode *	<input type="text" value="Fax Relay"/>	

*- indicates required item.



Gateway Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Media

Address <https://172.20.110.254:8443/ccmadmin/gatewayEdit.do?key=eeb93e1f-ca3f-fd85-010f-ab65718c5448>

Navigation Cisco Unified CallManager Administration Go

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as:CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Gateway Configuration Related Links: Back to MGCP Configuration Go

Status
Status: Ready

Device Information

Product	Cisco MGCP E1 Port
Gateway Protocol	CMM_Interop
Device Protocol	Digital Access PRI
Registration	Registered with Cisco Unified CallManager: CM-CHIVAS
IP Address	172.20.8.29
End-Point Name *	S1/DS1-0@CMM_Interop
Description	S1/DS1-0@CMM_Interop
Device Pool*	Default
Call Classification*	Use System Default
NetworkLocale	< None >
Media Resource Group List	< None >
Location*	Hub_None
AAR Group	< None >
Load Information	

Transmit UTF-8 for Calling Party Name

Multilevel Precedence and Preemption (MLPP) Information

MLPP Domain	< None >
MLPP Indication	Not available on this device
MLPP Preemption	Not available on this device

Interface Information

PRI Protocol Type*	PRI ISO QSIG E1
Protocol Side*	User
Channel Selection Order*	Top Down
Channel IE Type*	Timeslot Number
PCM Type*	A-law
Delay for first restart (1/8 sec ticks)*	32
Delay between restarts (1/8 sec ticks)*	4

Inhibit restarts at PRI initialization

Enable status poll

Unattended Port

Call Routing Information - Inbound Calls

Significant Digits*	All
Calling Search Space	PhonesCSS
AAR Calling Search Space	< None >
Prefix DN	



PRI Protocol Type Specific Information

- Display IE Delivery
- Redirecting Number IE Delivery - Outbound
- Redirecting Number IE Delivery - Inbound
- Send Extra Leading Character in Display IE***
- Setup non-ISDN Progress Indicator IE Enable****
- MCDN Channel Number Extension Bit Set to Zero**
- Send Calling Name In Facility IE
- Interface Identifier Present**

Interface Identifier Value**

Connected Line ID Presentation (QSIG Inbound Call)*

UUIE Configuration

- Passing Precedence Level Through UUIE

Security Access Level*

Product Specific Configuration

Line Coding * ?

Framing *

Clock *

Input Gain (-6..14 db) *

Output Attenuation (-6..14 db) *

Echo Cancellation Enable *

Echo Cancel Coverage (ms) *

*- indicates required item.

** - applies to DMS-100 protocol only.



Partitions Configuration

Find and List Partitions - Microsoft Internet Explorer

Address: <https://172.20.8.254:8443/ccmadmin/partitionFindList.do?<%=reqParams%>&recCnt=0&colCnt=3>

Navigation: Cisco Unified CallManager Administration

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as: CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Find and List Partitions

Status: 2 records found

Search Options: Find partition where Partition Name begins with Find Search Within Results

Search Results:

Partition Name	Description
<input type="checkbox"/> Incoming Trunk	Incoming Trunk
<input type="checkbox"/> phones	phones

Add New Select All Clear All Delete Selected Rows per Page: 50

Calling Search Space Configuration

Calling Search Space Configuration - Microsoft Internet Explorer

Address: <https://172.20.8.254:8443/ccmadmin/cssEdit.do?key=69e67ac1-4a7d-a9d8-c26f-cff015f46ff6>

Navigation: Cisco Unified CallManager Administration

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as: CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Calling Search Space Configuration

Related Links: Back To Find/List

Status: Status: Ready

Calling Search Space Information:

Name*: incoming trunk
Description:

Route Partitions for this Calling Search Space:

Available Partitions: phones

Selected Partitions (Ordered by highest priority): Incoming Trunk

Save Delete Copy Add New

*- indicates required item.



Calling Search Space Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Media Print Mail

Address: https://172.20.8.254:8443/ccmadmin/cssEdit.do?key=fe223db4-f40e-6b05-0321-32b1606696a2

Navigation Cisco Unified CallManager Administration Go

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as:CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Calling Search Space Configuration Related Links: Back To Find/List Go

Save Delete Copy Add New

Status
Status: Ready

Calling Search Space Information

Name* phones
Description

Route Partitions for this Calling Search Space

Available Partitions
Incoming Trunk

Selected Partitions
(Ordered by highest priority)
phones

* - indicates required item.



Calling Search Space Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail

Address <https://172.20.8.254:8443/ccadmin/cssEdit.do?key=5ca29d02-e7f5-70ce-c5d2-e6531981be96>

Navigation Cisco Unified CallManager Administration Go

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as:CCAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Calling Search Space Configuration Related Links: Back To Find/List Go

Status
Status: Ready

Calling Search Space Information
Name* PathReplacementCSS
Description

Route Partitions for this Calling Search Space

Available Partitions

Selected Partitions (Ordered by highest priority)
Incoming Trunk phones

Save Delete Copy Add New

*- indicates required item.



Enbloc Route Pattern Configuration

Route Pattern Configuration - Microsoft Internet Explorer

Address: https://172.20.8.254:8443/ccadmin/routePattern2Edit.do?key=7cf2df65-183d-2f34-c6ca-94612a0195ea

Navigation: Cisco Unified CallManager Administration Go

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as: CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Route Pattern Configuration Related Links: Back To Find/List Go

Status
 Status: Ready

Pattern Definition

Route Pattern*

Route Partition

Description

Numbering Plan

Route Filter

MLPP Precedence*

Gateway/Route List*

Route Option
 Route this pattern
 Block this pattern

Call Classification*

Allow Device Override Provide Outside Dial Tone Allow Overlap Sending Urgent Priority
 Require Forced Authorization Code

Authorization Level*

Require Client Matter Code

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation*

Calling Name Presentation*

Connected Party Transformations

Connected Line ID Presentation*

Connected Name Presentation*

Called Party Transformations

Discard Digits

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Network Service Protocol

Carrier Identification Code

Network Service	Service Parameter Name	Service Parameter Value
<input type="text" value="-- Not Selected --"/>	<input type="text" value="< Not Exist >"/>	<input type="text"/>

*- indicates required item.



Overlap Sending Route Pattern

Route Pattern Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address: https://172.20.8.254:8443/ccadmin/routePattern2Edit.do?key=6b39564d-6d56-a9cb-15a1-9334ca592382

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as: CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Route Pattern Configuration Related Links: Back To Find/List Go

Status
Status: Ready

Pattern Definition

Route Pattern* 9.X

Route Partition < None >

Description

Numbering Plan -- Not Selected --

Route Filter < None >

MLPP Precedence* Default

Gateway/Route List* S1/DS1-0@CMM_Interop (Edit) Find

Route Option
 Route this pattern
 Block this pattern No Error

Call Classification* OnNet

Allow Device Override Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Require Forced Authorization Code

Authorization Level* 0

Require Client Matter Code

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation* Default

Calling Name Presentation* Default

Connected Party Transformations

Connected Line ID Presentation* Default

Connected Name Presentation* Default

Called Party Transformations

Discard Digits PreDot

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Network Service Protocol -- Not Selected --

Carrier Identification Code

Network Service	Service Parameter Name	Service Parameter Value
-- Not Selected --	< Not Exist >	

Save Delete Copy Add New



PSTN Route Pattern Configuration

Route Pattern Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media

Address: https://172.20.8.254:8443/ccadmin/routePattern2Edit.do?key=0b720645-56b2-5016-70c8-83902c546cb0

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as:CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Route Pattern Configuration Related Links: Back To Find/List Go

Status
Status: Ready

Pattern Definition

Route Pattern* 650364XXXX

Route Partition < None >

Description PSTN Route Gateway

Numbering Plan -- Not Selected --

Route Filter < None >

MLPP Precedence* Default

Gateway/Route List* S1/DS1-0@CMM_Interop (Edit) Find

Route Option
 Route this pattern
 Block this pattern No Error

Call Classification* OnNet

Allow Device Override Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Require Forced Authorization Code

Authorization Level* 0

Require Client Matter Code

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls) 408527

Calling Line ID Presentation* Default

Calling Name Presentation* Default

Connected Party Transformations

Connected Line ID Presentation* Default

Connected Name Presentation* Default

Called Party Transformations

Discard Digits < None >

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Network Service Protocol -- Not Selected --

Carrier Identification Code

Network Service	Service Parameter Name	Service Parameter Value
-- Not Selected --	< Not Exist >	

Save Delete Copy Add New



Translation Pattern for Incoming Calls

Translation Pattern Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Refresh Print

Address <https://172.20.8.254:8443/ccadmin/translationEdit.do?key=ec898e0f-cf88-adcd-f67a-cd976de7a12c>

Navigation Cisco Unified CallManager Administration Go

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as:CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Translation Pattern Configuration Related Links: Back To Find/List Go

Status
Status: Ready

Pattern Definition

Translation Pattern

Partition Incoming Trunk

Description

Numbering Plan <None >

Route Filter <None >

MLPP Precedence* Default

Calling Search Space phones

Route Option
 Route this pattern
 Block this pattern No Error

Provide Outside Dial Tone Urgent Priority

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation* Default

Calling Name Presentation* Default

Connected Party Transformations

Connected Line ID Presentation* Default

Connected Name Presentation* Default

Called Party Transformations

Discard Digits <None >

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

Save Delete Copy Add New

*- indicates required item.



CLIR Route Pattern Config

Route Pattern Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address: https://172.20.8.254:8443/ccadmin/routePattern2Edit.do?key=7cf2df65-183d-2f34-c6ca-94612a0195ea

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as: CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Route Pattern Configuration Related Links: Back To Find/List Go

Status
Status: Ready

Pattern Definition

Route Pattern* 40XX

Route Partition < None >

Description

Numbering Plan -- Not Selected --

Route Filter < None >

MLPP Precedence* Default

Gateway/Route List* S1/DS1-0@CMM_Interop (Edit) Find

Route Option
 Route this pattern
 Block this pattern No Error

Call Classification* OnNet

Allow Device Override Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Require Forced Authorization Code

Authorization Level* 0

Require Client Matter Code

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation* Restricted

Calling Name Presentation* Default

Connected Party Transformations

Connected Line ID Presentation* Default

Connected Name Presentation* Default

Called Party Transformations

Discard Digits < None >

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Network Service Protocol -- Not Selected --

Carrier Identification Code

Network Service	Service Parameter Name	Service Parameter Value
-- Not Selected --	< Not Exist >	

Save Delete Copy Add New



CNIR Route Pattern Config

Route Pattern Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address: https://172.20.8.254:8443/ccadmin/routePattern2Edit.do?key=7cf2df65-183d-2f34-c6ca-94612a0195ea

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as: CCAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Route Pattern Configuration Related Links: Back To Find/List Go

Status
Status: Ready

Pattern Definition

Route Pattern* 40XX

Route Partition < None >

Description

Numbering Plan -- Not Selected --

Route Filter < None >

MLPP Precedence* Default

Gateway/Route List* S1/DS1-0@CMM_Interop (Edit) Find

Route Option
 Route this pattern
 Block this pattern No Error

Call Classification* OnNet

Allow Device Override Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Require Forced Authorization Code

Authorization Level* 0

Require Client Matter Code

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation* Default

Calling Name Presentation* Restricted

Connected Party Transformations

Connected Line ID Presentation* Default

Connected Name Presentation* Default

Called Party Transformations

Discard Digits < None >

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Network Service Protocol -- Not Selected --

Carrier Identification Code

Network Service	Service Parameter Name	Service Parameter Value
-- Not Selected --	< Not Exist >	

Save Delete Copy Add New



COLR Translation Pattern Configuration

Translation Pattern Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media

Address <https://172.20.8.254:8443/ccmadmin/translationEdit.do?key=ec898e0f-cf88-adcd-f67a-cd976de7a12c>

Navigation Cisco Unified CallManager Administration Go

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as: CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Translation Pattern Configuration Related Links: Back To Find/List Go

Status
Status: Ready

Pattern Definition

Translation Pattern

Partition

Description

Numbering Plan

Route Filter

MLPP Precedence*

Calling Search Space

Route Option
 Route this pattern
 Block this pattern

Provide Outside Dial Tone Urgent Priority

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation*

Calling Name Presentation*

Connected Party Transformations

Connected Line ID Presentation*

Connected Name Presentation*

Called Party Transformations

Discard Digits

Called Party Transform Mask

Prefix Digits (Outgoing Calls)



CONR Route Pattern Configuration

Translation Pattern Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Refresh Print

Address: https://172.20.8.254:8443/ccadmin/translationEdit.do?key=ec898e0f-cf88-adcd-f67a-cd976de7a12c

Navigation Cisco Unified CallManager Administration Go

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as: CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Translation Pattern Configuration Related Links: Back To Find/List Go

Status
Status: Ready

Pattern Definition

Translation Pattern: 30XX

Partition: Incoming Trunk

Description:

Numbering Plan: < None >

Route Filter: < None >

MLPP Precedence*: Default

Calling Search Space: phones

Route Option:
 Route this pattern
 Block this pattern No Error

Provide Outside Dial Tone Urgent Priority

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask:

Prefix Digits (Outgoing Calls):

Calling Line ID Presentation*: Default

Calling Name Presentation*: Default

Connected Party Transformations

Connected Line ID Presentation*: Default

Connected Name Presentation*: Restricted

Called Party Transformations

Discard Digits: < None >

Called Party Transform Mask:

Prefix Digits (Outgoing Calls):

Save Delete Copy Add New

*- indicates required item.



CallBack Service Parameters

Clusterwide Parameters (Feature - Call Back)		
Call Back Enabled Flag *	True	True
Call Back Notification Audio File Name *	CallBack.raw	CallBack.raw
Connection Proposal Type *	Connection Retention	Connection Retention
Connection Response Type *	Default to Connection Retention	Default to Connection Retention
Call Back Request Protection T1 Timer *	10	10
Call Back Recall T3 Timer *	20	20
Call Back Calling Search Space	< None >	
No Path Reservation *	True	True
Set Private Numbering Plan for CallBack *	False	False

CallBack Softkey Configuration

Softkey Template Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Refresh Print Mail Stop Taskbar

Address <https://172.20.8.254:8443/ccadmin/softkeyTemplateEdit.do?key=e679e0a1-b65c-48bd-b86a-223a38786641>

Navigation Cisco Unified CallManager Administration Go

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as: CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Softkey Template Configuration Related Links: Configure Softkey Layout Go

Status
Status: Ready

Softkey Template Information

Name* Standard User CallBack

Description Standard Softkey Template for CallManager only

Applications* Cisco CallManager

Add Application Remove Application

Save Delete Copy Add New Reset

*- indicates required item.



Softkey Template Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail Stop Taskbar

Address <https://172.20.8.254:8443/ccadmin/softkeyTemplateLayoutEdit.do?key=e879e0a1-b65c-48bd-b86a-223a38786641>

Navigation Cisco Unified CallManager Administration Go

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as: CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Softkey Template Configuration Related Links: Softkey Template Configuration Go

Status
Status: Ready

Softkey Layout Configuration
Softkey Template: Standard User CallBack
Select a call state to configure: On Hook

Unselected Softkeys	Selected Softkeys (ordered by position)**
Conference List (ConfList)	Redial (Redial)
Direct Transfer (DirTrfr)	**NewCall (NewCall)
Group Pick Up (GPickUp)	End Call (EndCall)
Immediate Divert (iDiver)	Forward All (CfwdAll)
Join (Join)	Call Back (CallBack)
Meet Me (MeetMe)	
Other Pickup (oPickup)	
Pick Up (PickUp)	
Quality Report Tool (QRT)	
Remove Last Conference Party (RmLstC)	
Select (Select)	
Undefined (Undefined)	
Video Mode Command (VidMode)	

Save Reset

i *- indicates required item.
i **- indicates mandatory fields



Softkey Template Configuration - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Home Search Favorites Media Print Mail Stop Taskbar
Address <https://172.20.8.254:8443/ccmadmin/softkeyTemplateLayoutEdit.do?key=e879e0a1-b65c-46bd-b86a-223a38786641&callState=8>

Navigation Cisco Unified CallManager Administration Go
Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as: CCMAdministrator
System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Softkey Template Configuration Related Links: Softkey Template Configuration Go

Status
Status: Ready

Softkey Layout Configuration
Softkey Template: Standard User CallBack
Select a call state to configure Ring Out

Unselected Softkeys	Selected Softkeys (ordered by position)**
Undefined (Undefined)	Undefined (Undefined) **End Call (EndCall) Call Back (CallBack)

Save Reset

- *- indicates required item.
- ** - indicates mandatory fields



Path Replacement Service Parameter

Clusterwide Parameters (Feature - Path Replacement)		
Path Replacement Enabled *	False	False
Path Replacement on Tromboned Calls *	True	True
Start Path Replacement Minimum Delay Time *	2	0
Start Path Replacement Maximum Delay Time *	4	0
Path Replacement T1 Timer *	30	30
Path Replacement T2 Timer *	15	15
Path Replacement PINX ID		
Path Replacement Calling Search Space	PathReplacementCSS	

MWI lamp On/Off Configuration

Note: Not Applicable. Standard QSIG SS-MWI is not supported on NEC IPX2400 R15

Forward by Reroute Service Parameter

Clusterwide Parameters (Feature - Forward)		
Forward Maximum Hop Count *	12	12
Forward No Answer Timer *	12	12
Max Forward Hops to DN *	12	12
Retain Forward Information *	False	False
Forward By Reroute Enabled *	True	False
Transform Forward by Reroute Destination *	True	True
Always Forward Switch Voice Mail Calls *	True	True
Forward By Reroute T1 Timer *	10	10
Include Original Called Info for Q.SIG Call Diversions *	Only after the first diversion	Only after the first diversion



IP phone Configuration (SCCP)

Phone Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Refresh Print

Address <https://172.20.8.254:8443/ccmadmin/phoneEdit.do?key=afc5d87c-1a71-4183-8712-0e80a5efa070>

Navigation Cisco Unified CallManager Administration Go

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as: CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Phone Configuration Related Links: Back To Find/List Go

Status
Status: Ready

Association Information
Modify Button Items

- Line [1] - 3000 in phones
- Add a new SD
- Unassigned Associated Items -----
- Line [2] - Add a new DN
- Add a new SD
- Add a new SURL
- Add a new BLF SD
- Privacy
- None

Phone Type
Product Type: Cisco 7940
Device Protocol: SCCP

Device Information

Registration	Registered with Cisco Unified CallManager CM-CHIVAS
IP Address	172.20.8.11
MAC Address*	000C303B28F4
Description	Auto 3000
Device Pool*	Default
Phone Button Template*	Standard 7940 SCCP
Softkey Template	Standard User CallBack
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	< None >
AAR Calling Search Space	< None >
Media Resource Group List	< None >
User Hold Audio Source	< None >
Network Hold Audio Source	< None >
Location*	Hub_None
User Locale	< None >
Network Locale	< None >
Built In Bridge*	Default
Privacy*	Default
Owner User ID	< None >
Phone Load Name	

Retry Video Call as Audio
 Ignore Presentation Indicators (internal calls only)
 Allow Control of Device from CTI



Protocol Specific Information

Packet Capture Mode*	None
Packet Capture Duration	0
Presence Group*	Standard Presence group
SCCP Phone Security Profile*	Standard SCCP Profile for Auto Registration
SUBSCRIBE Calling Search Space	< None >
<input type="checkbox"/> Unattended Port	
<input type="checkbox"/> Require DTMF Reception	
<input type="checkbox"/> RFC2833 Disabled	

External Data Locations Information (Leave blank to use default)

Information	
Directory	
Messages	
Services	
Authentication Server	
Proxy Server	
Idle	
Idle Timer (seconds)	

Extension Information

<input type="checkbox"/> Enable Extension Mobility	
Log Out Profile	-- Not Selected --
Login in User ID	< None >
Log in Time	< None >
Log out Time	< None >



Certification Authority Proxy Function (CAPF) Information

Certificate Operation*	No Pending Operation
Authentication String	<input type="text"/>
<input type="button" value="Generate String"/>	
Operation Completes By	2006 : 5 : 13 : 12 (YYYY:MM:DD:HH)
Certificate Operation Status:	None

MLPP Information

MLPP Domain	< None >
MLPP Indication*	Default
MLPP Preemption*	Default


Secure Shell Information

Secure Shell User	<input type="text"/>
Secure Shell Password	<input type="text"/>

Product Specific Configuration Layout

	
<input type="checkbox"/> Disable Speakerphone	
<input type="checkbox"/> Disable Speakerphone and Headset	
PC Port *	Enabled
Settings Access*	Enabled
Gratuitous ARP*	Enabled
PC Voice VLAN Access*	Enabled
Video Capabilities*	Disabled
Auto Line Select*	Disabled
Web Access*	Enabled

 *- indicates required item.

 **- Device reset is not required for changes to Packet Capture Mode and Packet Capture Duration.



Directory Number Configuration - Microsoft Internet Explorer

Address: https://172.20.8.254:8443/ccmadmin/directoryNumberEdit.do?key=1d9c88cf-549e-d47b-199d-6a773ea1b424&mapkey=3da3f835-cadc-8ad4-b339-dabdf8a9a605&devicekey=af5d87c-1a71-4183-8712-0e80a5efa070&index=1

Navigation Cisco Unified CallManager Administration Logged in as: CCMAdmin

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help

Directory Number Configuration Related Links: Back To Find/List

Status
Status: Ready
Note: Changes to Line or Directory Number settings require restart.

Directory Number Information

Directory Number*	3000
Route Partition	phones
Description	
Alerting Name	Bofo Bautista
ASCII Alerting Name	Bofo Bautista

Allow Control of Device from CTI

Associated Devices

SEP000C303B28F4	Edit Device
-----------------	-----------------------------

▼ ▲

Dissociate Devices

Directory Number Settings

Voice Mail Profile	< None >	(Choose <None> to use system default)
Calling Search Space	phones	
Presence Group*	Standard Presence group	
AAR Group	< None >	
User Hold Audio Source	< None >	
Network Hold Audio Source	< None >	
Auto Answer*	Auto Answer Off	



Call Forward and Call Pickup Settings

	Voice Mail Destination	Calling Search Space
Forward All	<input type="checkbox"/> or	phones
Secondary Calling Search Space for Forward All		< None >
Forward Busy Internal	<input type="checkbox"/> or	phones
Forward Busy External	<input type="checkbox"/> or	phones
Forward No Answer Internal	<input type="checkbox"/> or	phones
Forward No Answer External	<input type="checkbox"/> or	phones
Forward No Coverage Internal	<input type="checkbox"/> or	< None >
Forward No Coverage External	<input type="checkbox"/> or	< None >
Forward on CTI Failure	<input type="checkbox"/> or	< None >
No Answer Ring Duration (seconds)		
Call Pickup Group	< None >	

MLPP Alternate Party Settings

Target (Destination):

MLPP Calling Search Space: < None >

MLPP No Answer Ring Duration (seconds):

Line 1 on Device SEP000C303B28F4

Display (Internal Caller ID): Bofo Bautista
Display text for a line appearance is intended for displaying text such as a name instead of a directory number for internal calls. If you specify a number, the person receiving a call may not see the proper identity of the caller.

ASCII Display (Internal Caller ID): Bofo Bautista

Line Text Label: Bofo Bautista

ASCII Line Text Label: Bofo Bautista

External Phone Number Mask:

Message Waiting Lamp Policy*: Use System Policy

Ring Setting (Phone Idle)*: Use System Default

Ring Setting (Phone Active)*: Use System Default
Applies to this line when any line on the phone has a call in progress.

Multiple Call/Call Waiting Settings on Device SEP000C303B28F4

Note: The range to select the Max Number of calls is: 1-200

Maximum Number of Calls*: 4

Busy Trigger*: 2 (Less than or equal to Max. Calls)

Forwarded Call Information Display on Device SEP000C303B28F4

Caller Name

Caller Number

Redirected Number

Dialed Number

Save Delete Copy Reset Add New

i *- indicates required item.



IP phone Configuration (SIP)

Phone Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail Phone

Address <https://172.20.8.254:8443/ccmadmin/phoneEdit.do?key=0a9111b4-cfc7-479a-8c44-c67a23f65e58>

Navigation Cisco Unified CallManager Administration Go

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions Logged in as: CCMAdministrator

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help Log Off

Phone Configuration Related Links: Back To Find/List Go

Status
Status: Ready

Association Information	Phone Type																																								
<p>Modify Button Items</p> <ol style="list-style-type: none">Line [1] - 3008 in phonesLine [2] - Add a new DNAdd a new SDAdd a new SDAdd a new SDAdd a new SDUnassigned Associated ItemsAdd a new SDAdd a new SURLAdd a new BLF SDPrivacyNone	<p>Product Type: Cisco 7961 Device Protocol: SIP</p> <p>Device Information</p> <table><tr><td>Registration</td><td>Registered with Cisco Unified CallManager CM-CHIVAS</td></tr><tr><td>IP Address</td><td>172.20.8.15</td></tr><tr><td>MAC Address*</td><td>00170E0E2F5E</td></tr><tr><td>Description</td><td>Auto 3008</td></tr><tr><td>Device Pool*</td><td>Default</td></tr><tr><td>Phone Button Template*</td><td>Standard 7961 SIP</td></tr><tr><td>Softkey Template</td><td>Standard User CallBack</td></tr><tr><td>Common Phone Profile*</td><td>Standard Common Phone Profile</td></tr><tr><td>Calling Search Space</td><td>< None ></td></tr><tr><td>AAR Calling Search Space</td><td>< None ></td></tr><tr><td>Media Resource Group List</td><td>< None ></td></tr><tr><td>User Hold Audio Source</td><td>< None ></td></tr><tr><td>Network Hold Audio Source</td><td>< None ></td></tr><tr><td>Location*</td><td>Hub_None</td></tr><tr><td>User Locale</td><td>< None ></td></tr><tr><td>Network Locale</td><td>< None ></td></tr><tr><td>Built In Bridge*</td><td>Default</td></tr><tr><td>Privacy*</td><td>Default</td></tr><tr><td>Owner User ID</td><td>< None ></td></tr><tr><td>Phone Load Name</td><td></td></tr></table> <p><input type="checkbox"/> Ignore Presentation Indicators (internal calls only) <input checked="" type="checkbox"/> Allow Control of Device from CTI</p>	Registration	Registered with Cisco Unified CallManager CM-CHIVAS	IP Address	172.20.8.15	MAC Address*	00170E0E2F5E	Description	Auto 3008	Device Pool*	Default	Phone Button Template*	Standard 7961 SIP	Softkey Template	Standard User CallBack	Common Phone Profile*	Standard Common Phone Profile	Calling Search Space	< None >	AAR Calling Search Space	< None >	Media Resource Group List	< None >	User Hold Audio Source	< None >	Network Hold Audio Source	< None >	Location*	Hub_None	User Locale	< None >	Network Locale	< None >	Built In Bridge*	Default	Privacy*	Default	Owner User ID	< None >	Phone Load Name	
Registration	Registered with Cisco Unified CallManager CM-CHIVAS																																								
IP Address	172.20.8.15																																								
MAC Address*	00170E0E2F5E																																								
Description	Auto 3008																																								
Device Pool*	Default																																								
Phone Button Template*	Standard 7961 SIP																																								
Softkey Template	Standard User CallBack																																								
Common Phone Profile*	Standard Common Phone Profile																																								
Calling Search Space	< None >																																								
AAR Calling Search Space	< None >																																								
Media Resource Group List	< None >																																								
User Hold Audio Source	< None >																																								
Network Hold Audio Source	< None >																																								
Location*	Hub_None																																								
User Locale	< None >																																								
Network Locale	< None >																																								
Built In Bridge*	Default																																								
Privacy*	Default																																								
Owner User ID	< None >																																								
Phone Load Name																																									



Protocol Specific Information

Packet Capture Mode*	None
Packet Capture Duration	0
Presence Group*	Standard Presence group
SIP Dial Rules	< None >
MTP Preferred Originating Codec*	711ulaw
SIP Phone Security Profile*	Standard SIP Profile for Auto Registration
Rerouting Calling Search Space	< None >
SUBSCRIBE Calling Search Space	< None >
SIP Profile*	Standard SIP Profile
Digest User	< None >

Media Termination Point Required
 Unattended Port
 Require DTMF Reception

External Data Locations Information (Leave blank to use default)

Information	
Directory	
Messages	
Services	
Authentication Server	
Proxy Server	
Idle	
Idle Timer (seconds)	

Extension Information

Enable Extension Mobility

Log Out Profile -- Not Selected --

Login in User ID < None >
Log in Time < None >
Log out Time < None >

Certification Authority Proxy Function (CAPF) Information

Certificate Operation* No Pending Operation

Authentication String

Operation Completes By 2006 : 5 : 13 : 12 (YYYY:MM:DD:HH)

Certificate Operation Status: None



MLPP Information
MLPP Domain < None >

Secure Shell Information
Secure Shell User
Secure Shell Password

Product Specific Configuration Layout

Disable Speakerphone
 Disable Speakerphone and Headset

PC Port * Enabled
 Settings Access * Enabled
 Gratuitous ARP * Enabled
 PC Voice VLAN Access * Enabled
 Video Capabilities * Disabled
 Auto Line Select * Disabled
 Web Access * Enabled
 Span to PC Port * Disabled
 Logging Display * PC Controlled
 Load Server

Save Delete Copy Reset Add New

* - indicates required item.
 ** - Device reset is not required for changes to Packet Capture Mode and Packet Capture Duration.

Directory Number Configuration - Microsoft Internet Explorer

Address: https://172.20.8.254:8443/ccmadmin/directoryNumberEdit.do?key=343ae4e5-a9b7-1c7b-dabf2376aaef8mapkey=2ef77374-68a6-4816-94e5-45f3d73a5878devicekey=0a9111b4-cf7-479a-8c44-c67a23f65e58&index=1

Cisco Unified CallManager Administration For Cisco IP Telecommunication Solutions

System > Call Routing > Media Resources > Voice Mail > Device > Application > User Management > Bulk Administration > Help

Directory Number Configuration

Status: Ready
 Note: Changes to Line or Directory Number settings require restart.

Directory Number Information

Directory Number* 3001
 Route Partition phones
 Description
 Alerting Name Pato Araujo
 ASCII Alerting Name Pato Araujo

Allow Control of Device from CTI

Associated Devices
 SEP00170EEE2F5E **Edit Device** **Edit Line Appearance**

Dissociate Devices

Directory Number Settings

Voice Mail Profile < None > (Choose <None> to use system default)
 Calling Search Space phones
 Presence Group* Standard Presence group
 AAR Group < None >
 User Hold Audio Source < None >
 Network Hold Audio Source < None >
 Auto Answer* Auto Answer Off



Call Forward and Call Pickup Settings

Forward All	<input type="checkbox"/>	or	<input type="text" value=""/>	Calling Search Space	<input type="text" value="phones"/>	<input type="button" value="v"/>		
Secondary Calling Search Space for Forward All						<input type="text" value="< None >"/>	<input type="button" value="v"/>	<input type="button" value="Find"/>
Forward Busy Internal	<input type="checkbox"/>	or	<input type="text" value=""/>	Calling Search Space	<input type="text" value="phones"/>	<input type="button" value="v"/>		
Forward Busy External	<input type="checkbox"/>	or	<input type="text" value=""/>	Calling Search Space	<input type="text" value="phones"/>	<input type="button" value="v"/>		
Forward No Answer Internal	<input type="checkbox"/>	or	<input type="text" value=""/>	Calling Search Space	<input type="text" value="phones"/>	<input type="button" value="v"/>		
Forward No Answer External	<input type="checkbox"/>	or	<input type="text" value=""/>	Calling Search Space	<input type="text" value="phones"/>	<input type="button" value="v"/>		
Forward No Coverage Internal	<input type="checkbox"/>	or	<input type="text" value=""/>	Calling Search Space	<input type="text" value="< None >"/>	<input type="button" value="v"/>		
Forward No Coverage External	<input type="checkbox"/>	or	<input type="text" value=""/>	Calling Search Space	<input type="text" value="< None >"/>	<input type="button" value="v"/>		
Forward on CTI Failure	<input type="checkbox"/>	or	<input type="text" value=""/>	Calling Search Space	<input type="text" value="< None >"/>	<input type="button" value="v"/>		
No Answer Ring Duration (seconds)	<input type="text" value=""/>							
Call Pickup Group	<input type="text" value="< None >"/>							

MLPP Alternate Party Settings

Target (Destination)	<input type="text" value=""/>
MLPP Calling Search Space	<input type="text" value="< None >"/>
MLPP No Answer Ring Duration (seconds)	<input type="text" value=""/>

Line 1 on Device SEP00170EEE2F5E

Display (Internal Caller ID)	<input type="text" value="Pato Araujo"/>	Display text for a line appearance is intended for displaying text such as a name instead of a directory number for internal calls. If you specify a number, the person receiving a call may not see the proper identity of the caller.
ASCII Display (Internal Caller ID)	<input type="text" value="Pato Araujo"/>	
Line Text Label	<input type="text" value="Pato Araujo"/>	
ASCII Line Text Label	<input type="text" value="Pato Araujo"/>	
External Phone Number Mask	<input type="text" value=""/>	
Message Waiting Lamp Policy*	<input type="text" value="Use System Policy"/>	<input type="button" value="v"/>
Ring Setting (Phone Idle)*	<input type="text" value="Ring"/>	<input type="button" value="v"/>
Ring Setting (Phone Active)	<input type="text" value="Use System Default"/>	<input type="button" value="v"/> Applies to this line when any line on the phone has a call in progress.

Multiple Call/Call Waiting Settings on Device SEP00170EEE2F5E

Note: The range to select the Max Number of calls is: 1-200

Maximum Number of Calls*	<input type="text" value="4"/>	
Busy Trigger*	<input type="text" value="2"/>	(Less than or equal to Max. Calls)

Forwarded Call Information Display on Device SEP00170EEE2F5E

- Caller Name
- Caller Number
- Redirected Number
- Dialed Number

*. indicates required item.



Cisco CMM-E1 Configuration

```
CMM_Interop#show version
Cisco IOS Software, Cat6K-lc Software (wscmm-IPVOICE-M), Version 12.4(5a), RELEA
SE SOFTWARE (fc3)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2006 by Cisco Systems, Inc.
Compiled Sat 14-Jan-06 04:52 by alnguyen
```

```
ROM: System Bootstrap, Version 12.2(1r)T2, RELEASE SOFTWARE (fc1)
```

```
CMM_Interop uptime is 2 weeks, 22 hours, 21 minutes
System returned to ROM by reload
System image file is "bootflash:wscmm-ipvoice-mz.124-5a.bin"
```

```
cisco WS-SVC-CMM Cat6k Voice Linecard (R7000) processor (revision 0xFF) with 196
608K/65536K bytes of memory.
Processor board ID SAD0825032A
R7000 CPU at 400MHz, Implementation 39, Rev 3.3, 256KB L2 Cache
Last reset from power-on
1 FastEthernet interface
1 Gigabit Ethernet interface
93 Serial interfaces
6 Channelized E1/PRI ports
32768K bytes of processor board bootflash (Read/Write)
```

```
Configuration register is 0x2
```

```
CMM_Interop#
```

```
CMM_Interop#sh run
Building configuration...
```

```
Current configuration : 2246 bytes
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname CMM_Interop
!
boot-start-marker
boot-end-marker
!
enable password cisco
!
no aaa new-model
!
resource policy
!
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
no ip domain lookup
```




```
ip host CM-CHIVAS 172.20.8.254
!
isdn switch-type primary-qsig
!
!
controller E1 1/0
pri-group timeslots 1-24 service mgcp
!
controller E1 1/1
pri-group timeslots 1-24 service mgcp
!
controller E1 1/2
!
controller E1 1/3
!
controller E1 1/4
!
controller E1 1/5
!
!
!
interface GigabitEthernet1/0
ip address 172.20.8.29 255.255.255.0
no ip proxy-arp
no negotiation auto
no keepalive
!
interface Serial1/0:23
no ip address
encapsulation hdlc
no logging event link-status
isdn switch-type primary-qsig
isdn incoming-voice voice
isdn bind-13 ccm-manager
no cdp enable
!
interface Serial1/1:23
no ip address
encapsulation hdlc
no logging event link-status
isdn switch-type primary-qsig
isdn protocol-emulate network
isdn incoming-voice voice
isdn T310 120000
isdn bind-13 ccm-manager
no cdp enable
!
ip default-gateway 172.20.8.1
ip route 0.0.0.0 0.0.0.0 172.20.8.1
!
no ip http server
!
!
control-plane
!
!
voice-port 1/0:23
!
voice-port 1/1:23
```



```
!  
ccm-manager mgcp  
ccm-manager music-on-hold  
ccm-manager config server CM-CHIVAS  
ccm-manager config  
!  
mgcp  
mgcp call-agent CM-CHIVAS 2427 service-type mgcp version 0.1  
mgcp dtmf-relay voip codec all mode out-of-band  
mgcp rtp unreachable timeout 1000 action notify  
mgcp modem passthrough voip mode nse  
mgcp package-capability rtp-package  
no mgcp package-capability res-package  
mgcp package-capability sst-package  
mgcp package-capability pre-package  
no mgcp timer receive-rtcp  
mgcp sdp simple  
mgcp fax t38 inhibit  
mgcp rtp payload-type g726r16 static  
!  
mgcp profile default  
!  
!  
!  
!  
!  
line con 0  
password cisco  
line vty 0 4  
password cisco  
login  
!  
!  
end
```

CMM_Interop#



Acronyms

Acronym	Definitions
ANF-PR	Additional Network Feature Path Replacement
AOC	Advice-of-charge. Information element is sent with the connection setup information for incoming Euro-ISDN connections. The AOC IE is used for call charge calculation.
CCM	Cisco Unified CallManager
CCBS	Call Completion to Busy Subscriber
CCNR	Call Completion on No Reply
CFB	Call Forwarding on Busy
CFNR	Call Forwarding No Reply
CFU	Call Forwarding Unconditional
CLIP	Calling Line (Number) Identification Presentation
CLIR	Calling Line (Number) Identification Restriction
CMM	Communication Media Module (CMM) is a Cisco Catalyst® 6500 Series and Cisco 7600 Series line card that provides flexible and high-density T1/E1 gateways
CNIP	Calling Name Identification Presentation
CNIR	Calling Name Identification Restriction
COLP	Connected Line (Number) Identification Presentation
COLR	Connected Line (Number) Identification Restriction
CONP	Connected Name Identification Presentation
CONR	Connected Name Identification Restriction
CT	Call Transfer
MWI	Message Waiting Indicator
PSTN	Public Switched Telephone Network



Important Information

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.



Corporate Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters

Cisco Systems International
BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: 31 0 20 357 1000
Fax: 31 0 20 357 1100

Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-7660
Fax: 408 527-0883

Asia Pacific Headquarters

Cisco Systems, Inc.
Capital Tower
168 Robinson Road
#22-01 to #29-01
Singapore 068912
www.cisco.com
Tel: +65 317 7777
Fax: +65 317 7799

Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on the Cisco Web site at www.cisco.com/go/offices.

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica • Croatia • Czech Republic • Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR • Hungary • India • Indonesia • Ireland • Israel • Italy • Japan • Korea • Luxembourg • Malaysia • Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland • Portugal • Puerto Rico • Romania • Russia • Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa • Spain • Sweden • Switzerland • Taiwan • Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe

© © 2006 Cisco Systems, Inc. All rights reserved.

CCSP, CCVP, the Cisco Square Bridge logo, Follow Me Browsing, and StackWise are trademarks of Cisco Systems, Inc.; Changing the Way We Work, Live, Play, and Learn, and iQuick Study are service marks of Cisco Systems, Inc.; and Access Registrar, Aironet, BPX, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Enterprise/Solver, EtherChannel, EtherFast, EtherSwitch, Fast Step, FormShare, GigaDrive, GigaStack, HomeLink, Internet Quotient, IOS, IP/TV, iQ Expertise, the iQ logo, iQ Net Readiness Scorecard, LightStream, Linksys, MeetingPlace, MGX, the Networkers logo, Networking Academy, Network Registrar, Packet, PIX, Post-Routing, Pre-Routing, ProConnect, RateMUX, ScriptShare, SlideCast, SMARTnet, The Fastest Way to Increase Your Internet Quotient, and TransPath are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0601R)

Printed in the USA