Ericsson MD110 BC12 using DPNSS to Westell liQ2000 using QSIG to Cisco Unified Unified CallManager 4.1.3

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Introduction

This application note provides configuration guidelines for connecting a DPNSS trunk from an Ericsson MD-110 Release BC12 PBX to Cisco Unified CallManager Release 4.1 via Cisco IOS voice gateways using ISO QSIG protocol. A Westell Interchange iQ2000 was used for interworking DPNSS and QSIG.

The Ericsson MD110 PBX was connected via an E1 DPNSS trunk circuit to a DPNSS port on a Westell IiQ2000 protocol converter box. The QSIG port on the Westell IiQ2000 was connected to a QSIG port on a Cisco IOS voice gateway. The voice gateway was connected to Cisco Call Manager via IP over Ethernet, and configured for VoIP using MGCP. Cisco 7960 IP phones were also connected in similar manner to the Cisco Call Manager, and controlled via Cisco "skinny" protocol. End-to-end calls were placed between the PBX digital stations and the 7960 IP phones to exercise and test basic calls as well as DPNSS supplementary services such as caller ID, call transfer, call conference, and call back. The network topology diagram (Figure 1) shows the test setup for end-to-end interoperability with the Cisco Unified CallManager connected to the PBX as described.

Connectivity is achieved by using the E1 PRI QSIG protocol type on the Cisco IOS voice gateway with Cisco Unified CallManager Service parameter QSIG variant of ISO and ISO switch type on the Westell IiQ2000. The IiQ2000 provides a protocol "conversion" from ISO QSIG on the Cisco Unified CallManager to DPNSS, which is supported natively on the Ericsson MD110 PBX.

This Application Note uses the Cisco 3845 voice gateway. However it also applies to other Cisco voice gateways, since Unified CallManager QSIG implementation does not depend on the physical platform.

Using the Ericsson PBX configuration, Westell IiQ2000 configuration, and Cisco IOS voice gateway configuration in this application note, successful toll bypass integration was achieved. This includes basic call, caller ID (calling and connected number only), call transfer, call conference, and call back, with some limitations on Call Diversion and Caller ID features during these scenarios.

Network Topology

Figure 1. Network Topology or Test Setup



(SCCP)

System Components

Hardware Requirements

Cisco 3845 with NM-HDV and VWIC-2MFT-E1

Cisco MCS 7800

(2) Cisco 7960 IP phones

Ericsson MD110 including TLU76/1 E1 interface card

(2) Ericsson MD110 digital stations

Westell IiQ2000

Software Requirements

Cisco Unified CallManager Release 4.1.3.

Ericsson MD110: Release BC12 SP5

Cisco IOS Release 12.3

Westell IiQ2000 software: Vision iQ Ver. 3.2.2.

Features

Features Supported

Basic Call Caller ID: Calling and Connected Number Blind Local Transfer Blind Network / External Transfer Supervised Local Transfer Supervised Network / External Transfer Call Conference Call Back When Free Call Back When Next Used Route Optimization (with Supervised Network/External Transfers) MWI (See Limitations Section)

Features Not Supported

The Ericsson MD110 does not support Calling/Called/Connected Name presentation using DPNSS.

Limitations

No testing with the Operator Console was performed because there was not an operator console at the time of test.

The MD110 does not support (Calling/Called/Connected) Name presentation with DPNSS.

The MD110 supports Connected Number, not Called Number, with DPNSS.

On Supervised Transfers, the Calling Number was updated on the final destination phone upon the transfer completion, which happened after the destination answered in a supervised transfer.

On Blind Transfers, the Calling Number was updated on the final destination phone upon the transfer completion, which happened before the destination answered in a blind transfer.

For Blind Network/External Transfers originating on an IP phone, transferred by an Ericsson MD110 phone, with the final destination as another IP phone (i.e., Phone C calls Phone A, and Phone A transfers to Phone D) DPNSS Call Diversion did not work correctly. The call transfer completed, but resulted in a hairpin call (both trunk circuits were still up). This is normal operation for Cisco Unified CallManager. If the converse call is made (i.e., Phone A calls Phone C, and Phone C transfers to Phone B), DPNSS Call Diversion worked correctly, following transfer completion, to remove PBX – Cisco Unified CallManager trunks. The difference is because ISO QSIG states that the call trunk shall not perform Path Replacement ("Route Optimization" in DPNSS parlance), until there is a connected path in both directions. In a blind transfer, the second leg is not connected when the transfer is completed. The PBX is DPNSS, and the Cisco Unified CallManager is QSIG.

MWI:

With BC12 where the Voicemail system is directly integrated to the MD110, although an MWI message is generated by the PBX, the format is incorrect, and consequently it will be dropped by the Westell. This is due to the MWI NSI string containing illegal characters according to the DPNSS specification BTNR 188. This fault has been demonstrated not to occur on customer sites running BC9 and BC10.

MWI generated from a Unified CallManager attached voicemail platform such as Cisco Unity is able to signal MWI to MD110 phones via the NSI string on all tested versions of Ericsson software (BC9, BC10 and BC12).

Further, where the MWI is generated by a voicemail system itself attached using DPNSS to the MD110, the NSI string relevant to MWI is that generated by the voicemail platform itself and not the MD110. In those instances, the version of MD110 software has no impact on the MWI NSI string. From customer experience, there are instances of external voicemail bureaus connected over DPNSS trunks to an MD110 running BC12 which is able to generate an MWI message to a CCM-attached phone.

Configuration

Configuring the Ericsson MD 110 PBX

<rocap:rou=11;

ROUTE CATEGORY DATA

ROU SEL TRM SERV NODG DIST DISL TRAF SIG BCAP

11 711000000000010 5 3110000000 0 20 10 03151515 111110000011 111111

END

<rodap:rou=11;

ROUTE DATA

ROU TYPE VARC VARI VARO FILTER

11 TL50 H'00000001 H'00000000 H'00000000 NO

END

<roddp:dest=40;

EXTERNAL DESTINATION ROUTE DATA

DEST DRN ROU CHO CUST ADC

TRC SRT NUMACK PRE



40 11 05050000000250005001100 0 1 0

END

<roedp:rou=11,tru=all;

ROUTE EQUIPMENT DATA

ROU	TRU	EQU	IP ADDRESS	SQU	INDDAT	CNTRL

11	001-1	001-0-40-01	H'000000000FF
11	001-2	001-0-40-02	H'000000000FF
11	001-3	001-0-40-03	H'000000000FF
11	001-4	001-0-40-04	H'000000000FF
11	001-5	001-0-40-05	H'000000000FF
11	001-6	001-0-40-06	H'000000000FF
11	001-7	001-0-40-07	H'000000000FF
11	001-8	001-0-40-08	H'000000000FF
11	001-9	001-0-40-09	H'000000000FF
11	001-10	001-0-40-10	H'000000000FF
11	001-11	001-0-40-11	H'000000000FF
11	001-12	001-0-40-12	H'000000000FF
11	001-13	001-0-40-13	H'000000000FF
11	001-14	001-0-40-14	H'000000000FF
11	001-15	001-0-40-15	H'000000000FF
11	001-17	001-0-40-17	H'000000000FF
11	001-18	001-0-40-18	H'000000000FF



11	001-19	001-0-40-19	H'000000000FF
11	001-20	001-0-40-20	H'000000000FF
11	001-21	001-0-40-21	H'000000000FF
11	001-22	001-0-40-22	H'000000000FF
11	001-23	001-0-40-23	H'000000000FF
11	001-24	001-0-40-24	H'000000000FF
11	001-25	001-0-40-25	H'000000000FF
11	001-26	001-0-40-26	H'000000000FF
11	001-27	001-0-40-27	H'000000000FF
11	001-28	001-0-40-28	H'000000000FF
11	001-29	001-0-40-29	H'000000000FF
11	001-30	001-0-40-30	H'000000000FF
11	001-31	001-0-40-31	H'000000000FF

END

<

<cadap;

CALENDAR DATA

IDENTITY=DANDS-EURO

VERSION=CXP1010101/2/BC12SP5/R2A

15:07:52

THU 13 OCT 2005

END

<aspap:parnum=223;

APPLICATION SYSTEM PARAMETERS

PARNUM PARVAL 7

223

END

<aspap:parnum=66;

APPLICATION SYSTEM PARAMETERS

PARNUM PARVAL

66 1

END

Configuring Cisco Unified Unified CallManager

Figure 2. ISO Protocol Service Parameter

Clusterwide P	arameters (Device - PRI and MGCP Gateway)	
Parameter Name	Parameter Value	Suggested Value
ASN.1 ROSE OID Encoding*	Use Local Value	Use Local Value
QSIG Variant*	ISO (Protocol Profile 0x9F)	ISO (Protocol Profile 0x9F)
Caller ID		
Calling Name Not Available Timeout (msec)*	2000	2000
Calling Party Number Screening Indicator*	CallManager sets the screening indicator value - Defau	CallManager sets the screening indicator value - Default setting
Change B- Channel Maintenance Status 1	[]	
Change B- Channel Maintenance Status 2		
Change B- Channel Maintenance Status 3	[]	
Change B- Channel Maintenance Status 4		
Change B- Channel Maintenance Status 5	· · · · · · · · · · · · · · · · · · ·	
Clear Calls Flag When Datalink Is Down*	True	True
Device Status Poll Interval (msec)*	3000	3000
Disable		

Figure 3. CMM-E1 Gateway Configuration

Cisco CallManager Admin	Cisco Systems	
Gateway Configurati	ion	Back to Find/List Gateways
Product: Communication Media Modu Protocol: MGCP MGCP : CMM-E1	lle	
Status: Ready		
Domain Name* CMM-E1		
Description CMM-E1		
Cisco CallManager Group* Default		
Installed Voice Interface Cards	Endpoint Identifier:	5
Module in Slot 1 WS-X6600 💌		
Subunit WS-X6600-	6E1 (<u>1/0)</u> EXPRI (<u>1/1)</u> EXPR	<u>(1/2)</u> EIFRI <u>(1/3)</u>
	<u>(1/ 4)</u> 🗳 <u>(1/ 5)</u> 🕻	3
Module in Slot 2 <a>None>		
Module in Slot 3 < None > 💌		
Module in Slot 4 < None > 💌		
Product Procific Configuration		E
Clobal ISDN Switch Type	4ESS	
Switchback Timing*	Graceful	
Switchback uptime-delay (min)	10	
Switchback schedule (hh:mm)	12:00	
Fax mode*	, Fax Relay	
* indicates required item		▼
ا		

Figure 4. CMM-E1 Gateway Configuration (continued)

Cisco CallManag For Cisco IP Telephony Solutions	er Administration	Cisco Systems
Gateway Con	figuration	<u>Back to MGCP Configuration</u> <u>Back to Find/List Gateways</u> <u>Dependency Records</u>
	Product : Communication Media M Gateway : S1/DS1-1@CMM-E1 Device Protocol: Digital Access PF Registration: Registered with Cise IP Address: 172.20.231.51	lodule N co CallManager CM-MARS
	Status: Ready	
	Update Delete Reset Gatewa	
	Device Information	
	End-Point Name*	S1/DS1-1@CMM-E1
	Description	CM-MARS to Ericsson E1
	Device Pool*	Default
	Call Classification*	Use System Default
	Network Locale	United States
	Media Resource Group List	< None >
	Location	< None >
	AAR Group	< None >
	Load Information	
	Multilevel Precendence and Preen	nption (MLPP) Information
	MLPP Domain (e.g., "0000FF")	
	MLPP Indication	Not available on this device
	Interface Information	
	PRI Protocol Type*	PRI QSIG E1
	Protocol Side*	Network
	Channel Selection Order*	Top Down
	Channel IE Type*	Continuous Number

Figure 5. CMM-E1 Gateway Configuration (continued)

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	n	
🗖 Enable status poll		
Call Routing Information		
Inbound Calls		
Significant Digits*	All	
Calling Search Space	Incoming Trunk	
AAR Calling Search Space	< None >	
Prefix DN		
Outbound Calls		
Calling Line ID Presentation*	Default	
Calling Party Selection*	Originator	-
Called party IE number type unknown*	National	•
Calling party IE number type unknown*	National	•
Called Numbering Plan*	Private	
Calling Numbering Plan*	Private	•
Number of digits to strip*	0	
Caller ID DN		
SMDI Base Port*	0	
DPI Drotocol Tupo Specific Informa	tion	
Display IE Delivery		
Depicy to Derivery	Outbound	
Kedirecting Number IE Delivery -	Outbound	
Redirecting Number IE Delivery -	Inbound	
☑ Send Extra Leading Character In DisplayIE***		
📕 Setup non-ISDN Progress Indicat	or IE Enable****	
MCDN Channel Number Extension	Bit Set to Zero**	•

Figure 6. CMM-E1 Gateway Configuration (continued)

🔽 Display IE Delivery	
💌 Redirecting Number IE Delivery	- Outbound
Redirecting Number IE Delivery	- Inbound
Send Extra Leading Character I	n DisplavIE***
Setur pon-ISDN Progress India	ator IE Enable***
MCDN Channel Number Extensio	n BIT Set to ∠ero**
Send Calling Name In Facility IE	
Interface Identifier Present**	
Interface Identifier Value**	0
Connected Line ID Presentation (QSIG Inbound Call)*	Default
UUIE Configuration	
Passing Precedence Level Thro	ugh UUIE
Security Access Level	2
Product Specific Configuration	i.
Line Coding*	HDB3
Framing*	CRC4
Clock*	External
Input Gain (-614 db)*	0
Output Attenuation (-614 db)*	0
Echo Cancellation Enable*	Enable
Echo Cancel Coverage (ms)*	64
 * indicates required item ** applicable to DMS-100 protocol only *** applicable to DMS-100 protocol and I **** may be required to force ringback f 	DMS-250 protocol only rom some PBXs
	Back to MGCP Configuration Back to Find/List Gateways

Figure 7. Enbloc Route Pattern Configuration

Route Pattern: 11XX Status: Ready Note: Any update to this Route Pat Copy Update Delete	tern automatically resets the associated gatew	vay or Route List
Pattern Definition		
Route Pattern*	<u> </u> 11≫	1
Partition	< None >	I
Description	CM-MARS to Ericsson 1	1
Numbering Plan*	North American Numbering Plan	I
Route Filter	<none></none>	I
MLPP Precedence	Default	1
Gateway or Route List*	S1/DS1-1@CMM-E1	(Edit)
Route Option	Route this pattern	
	O Block this pattern - Not Selected	-
Call Classification*	OnNet 💌	Allow Device Override
🗖 🛛 Provide Outside Dial Ton	e 📃 Allow Overlap Sending	🗖 Urgent Priority
🔲 Require Forced Authoriza	tion Code	
Authorization Level	0	
🗖 🛛 Require Client Matter Co	de	
Calling Party Transformatio	ns	
Use Calling Party's External	nal Phone Number Mask	_
Calling Party Transform Mask	551 XXXX	
Prefix Digits (Outgoing Calls)]
Calling Line ID Presentation	Default 💌	I
Calling Name Presentation	Default	1
Connected Party Transform	ations	
Connected Line ID Presentatio	n Default	1
Connected Name Presentation	Default	J
Called Party Transformation	15	1
Discard Digits	<none></none>	1
Called Party Transform Mask		
Prefix Digits (Outgoing Calls)		

Figure 8. MWI lamp On/Off Configuration

System Route Plan Service Fea	ure Device User A	pplication Help	<u> </u>
Cisco CallManager Ad For Cisco IP Telephony Solutions	ministration		CISCO SYSTEMS
Message Waiting Configuration		<u>Ado</u> <u>Back to Fi</u>	d a New Message Waiting Number nd/List Message Waiting Numbers
Message Waiting Number: 700			
Copy Update Delete			
Message Waiting Number* 7001			
Description			
Message Waiting Indicator 🛛 ⓒ On	O Off		
Partition phone	s 💌		
Calling Search Space phon	s 💌		
* indicates required item			
			-

Figure 9. MWI lamp On/Off Configuration (continue)

System Route Plan Service Feature Device	User Application Help
Cisco CallManager Administra For Cisco IP Telephony Solutions	tion Cisco Systems
Message Waiting Configuration	<u>Add a New Message Waiting Number</u> Back to Find/List Message Waiting Numbers
Message Waiting Number: 7000 Status: Ready Copy Update Delete	
Message Waiting Number* 7000	
Description	
Message Waiting Indicator 🛛 O on 💿 Off	
Partition phones 💌	
Calling Search Space phones	
* indicates required item	_

Figure 10. MWI Activate Translation Pattern Configuration

Translation Patt	tern Configuration	
	Add a New Translation Dattern	
	<u>Back to Find/List Translation Patterns</u>	
Translation Pattern: 7701		
Status: Ready		
Copy Update Delete		
Pattern Definition		
Translation Pattern	7701	
Partition	phones	
Description		
Numbering Plan*	North American Numbering Plan	
Route Filter	< None >	
Calling Search Space	phones 💌	
MLPP Precedence	Default	
Route Option	• Route this pattern	
	O Block this pattern - Not Selected -	
Provide Outside Dial To	ne 🔽 Urgent Priority	
Calling Party Transformation	IS	
🔲 🛛 Use Calling Party's Extern	al Phone Number Mask	
Calling Party Transform Mask	1154	
Prefix Digits (Outgoing Calls)		
Calling Line ID Presentation	Default	
Calling Name Presentation	Default	
Connected Party Transforma	ations	
Connected Line ID Presentation	Default	
Connected Name Presentation	Default	
Called Party Transformation	s	
Discard Digits	< None >	
Called Party Transform Mask	7001	
Prefix Digits (Outgoing Calls)		
* indicates required item.		

Figure 11.	MWI Deactivate	Translation	Pattern	Configuration
				0

Translation Patt	ern Configuration	
	Add a New Translation Pattern Back to Find/List Translation Patterns	
Translation Pattern: 7700		
Status: Ready		
Copy Update Delete		
Pattern Definition		
Translation Pattern	7700	
Partition	phones 💌	
Description		
Numbering Plan*	North American Numbering Plan	
Route Filter	< None >	
Calling Search Space	phones 💌	
MLPP Precedence	Default	
Route Option	• Route this pattern	
	O Block this pattern - Not Selected -	
Provide Outside Dial Tor	ne 🔽 Urgent Priority	
Calling Party Transformation	s	
🔲 🛛 Use Calling Party's Extern	al Phone Number Mask	
Calling Party Transform Mask	1154	
Prefix Digits (Outgoing Calls)		
Calling Line ID Presentation	Default	
Calling Name Presentation	Default	
Connected Party Transforma	itions	
Connected Line ID Presentation	Default	
Connected Name Presentation	Default 💌	
Called Party Transformation	5	
Discard Digits	< None >	
Called Party Transform Mask	7000	
Prefix Digits (Outgoing Calls)		
* indicates required item.		-

Figure 12. CallBack Service Parameters

Parameter Name	Parameter Value	Suggested Value
Callback Notification Audio File Name*	CallBack.raw	CallBack.raw
Connection Proposal Type*	Connection Retention	Connection Release
Connection Response Type*	Default to Connection Retention	Default to Connection Retention
Callback Request Protection Timer (T1) (sec)*	10	10
Callback Recall Timer (T3) (sec)*	20	20
Callback Calling Search Space	< None >	

Figure 13. CallBack Softkey Configuration

System Route Plan Service Feature Device User Application Help
Cisco CallManager Administration
Softkey Template Configuration Add New Softkey Template Configure Softkey Layout Dependency Records Back to Find/List Softkey Templates
Softkey Template: Standard User CallBack
Status: Ready
Copy Update Delete Restart Devices
Softkey Template Name* Standard User CallBack
Description Standard Softkey Template for CallManager only
Add Application Delete Application
Application Cisco CallManager
* indicates required item

Figure 14. CallBack Softkey Configuration (continued)



Figure 15. CallBack Softkey Configuration (continued)



Figure 16. Path Replacement Service Paramet

arameter Iame	Parameter Value	Suggested Value
Path Replacement Enabled*	True	False
Path Replacement on Tromboned Calls*	True	True
Start Path Replacement Minimum Delay Fime (sec)*	2	0
Start Path Replacement Maximum Delay Time (sec)*	4	0
Path Replacement F1 Timer (sec) *	30	30
Path Replacement F2 Timer (sec) *	15	15
Path Replacement PINX Id	551	
Path Replacement Calling Search Space	PathReplacementCSS	

Figure 17. Path Replacement Service Parameters

System Route Plan Service Feature Device User Application	Help 🔶
Cisco CallManager Administration For Cisco IF Telephony Solutions	CISCO SYSTEMS
Call Pickup Configuration	Add a New Call Pickup Number Back to Find/List Call Pickup Numbers Dependency Records
Call Pickup Number: 551 - Incoming Trunk	
Status: Ready	
Copy Update Delete	
Call Pickup Number* 551	
Description	
Partition Incoming Trunk	
* indicates required item	
	•

Figure 18. Forward by Reroute Service Parameter

Parameter Name	Parameter Value	Suggested Value
Forward Maximum Hop Count*	12	12
Forward No Answer Timer (sec)*	12	12
Max Forwards Hops to DN*	12	12
Retain Forward Information*	False	False
Forward By Reroute Enabled*	True	False
Forward By Reroute T1 Timer (sec)*	15	15

Figure 19. IP phone Configuration

Directory Numbers Base Phone	Phone: SEP003094C331AD Registration: Registered w	(Auto 4000) ith Cisco CallManager 1 2	Dependency Records Back to Find/List Phones
Line 1 - 4000 in	Status: Ready	<u> </u>	
The 2 - Add new DN	Copy Update Delete	Reset Phone	
	Phone Configuration (Mode	l = Cisco 7960)	
	Device Information		
	MAC Address*	003094C331AD	
	Description	Auto 4000	
	Owner User ID		(<u>Select User ID</u>)
	Device Pool*	Default	(<u>View details</u>)
	Calling Search Space	< None >	
	AAR Calling Search Space	< None >	•
	Media Resource Group List	< None >	V
	User Hold Audio Source	1 - SampleAudioSource	
	Network Hold Audio Source	< None >	•
	Location	< None >	•
	User Locale	< None >	•
	Network Locale	< None >	•
	Device Security Mode	Use System Default	•
	Signal Packet Capture Mode	None	•
	Packet Capture Duration	0	
	Built In Bridge	Default	
	Privacy	Default	
	☑ Retry Video Call as Audio		
	Ignore Presentation Indica	tors (internal calls only)	
	Phone Button Template Inf	ormation	
	Phone Button Template*	Standard 7960	(View button list)
	Softkey Template Informat	ion	
	Softkey Template	Standard User CallBack	

Figure 20. IP phone Configuration (continued)

	, 		· · · · · · · · · · · · · · · · · · ·
Γ		Expansion Module Information	tion 🔺
		Module 1	<none></none>
		Module 2	< None >
		Firmware Load Information	n (leave blank to use default)
		Phone Load Name	
		Module 1 Load Name	(Module 1 selection required)
		Module 2 Load Name	(Module 2 selection required)
		Cisco IP Phone - External D	ata Locations (leave blank to use default)
		Information	
		Directory	
		Messages	
		Services	
		Authentication Server	
		Proxy Server	
		Idle	
		Idle Timer (seconds)	
		Extension Mobility (Device	Profile) Information
		🗖 Enable Extension Mobility F	Feature
		Log Out Profile	- Not Selected -
		Log In User ID	< None >
		Log In Time	< None >
		Log Out Time	< None >
		Certification Authority Prox	y Function (CAPF) Information
		Certificate Operation	No Pending Operation
		Authentication Mode	By Authentication String
		Authentication String	Generate String
		Key Size (bits)	1024
		Operation Completes By**	: : : : : (YYYY : MM : DD : HH)
		Certificate Operation Status	None
		Multilevel Precendence and	l Preemption (MLPP) Information
		MLPP Domain	(e.g., "0000FF")
		MLPP Indication	Default 🔽

Figure 21. IP phone Configuration (continued)

			· · · · ·			
	Multilevel Precendence and	Preer	nption (MLPP) Info	rmation		
	MLPP Domain		(e.g., "OOOOFF")			
	MLPP Indication	Defau	ılt	•		
	MLPP Preemption	Defau	ılt	•		
	Product Specific Configurati	on			i	
	Disable Speakerphone					
	Disable Speakerphone and Hea	adset				
	Forwarding Delay*		Disabled	•		
	PC Port*		Enabled	•		
	Settings Access*		Enabled	•		
	Gratuitous ARP*		Enabled			
	PC Voice VLAN Access*		Enabled	•		
	Video Capabilities*		Disabled	•		
	Auto Line Select*		Disabled	•		
	* indicates a required item. ** Indicates time on Publisher.			<u>Back to t</u> Back to Find/L	op of page .ist Phones	
Ŀ					•	_

Figure 22. IP phone Configuration (continued)

sociated With	Directory N	lumber: 4000 (ph	ones	5)				
<pre>SEP003094C331AD (Line 1)</pre>	Status: Ready Note: Any update to this Directory Number automatically resets the associated devices							
	Update Remove from De		wice Reset Devices					
	Directory Number							
	Directory Number*		4000					
	Partition		phones					
	Directory Number Settings							
	Voice Mail Profile		✓None ➤ ▼ (Choose <none> to use default)</none>					
	Calling Sear	ch Space	F	phones	•	·		
	AAR Group		<	None	> •			
	User Hold Au	udio Source	<	None	>	•		
	Network Hold Audio Source		<	None	>	•		
	Auto Answe	r	A	Auto Ar	swer Off		•	
	Call Forward and Pickup Settings							
		Voic	e Ma	iil Cov Des	verage/ tination	Calling S	earch \$	Space
	Forward All					< None >	•]
	Forward Bus	y Internal				< None >	-]
	Forward Bus	sy External				< None >	-]
	Forward No	Answer Internal				< None >	•]
	Forward No	Answer External				< None >	-]
	Forward No	Coverage Internal				< None >	-	1
	Forward No	Coverage External				< None >	-]
	No Answer F	Ring Duration			econds)			
	Call Pickup Group		< None > 💌					
	MLPP Alter	nate Party Setting	js		_			
	Target (Des	tination)						
	Calling Sear	ch Space	< No	one >	•			
				_				



- <u>p-</u>	<u> </u>	· · ·					
	No Answer Ring Duration	(seconds)					
	Call Pickup Group	< None > 💌					
	MLPP Alternate Party Settings						
	Target (Destination)						
	Calling Search Space	< None >					
	No Answer Ring Duration	(seconds)					
	Line Settings for all Devices						
	Alerting Name	MARS 0					
	Line Settings for this Device						
	Display (Internal Caller ID)	MARS 0					
	Line Text Label	MARS 0					
	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 💌					
	Multiple Call / Call Waiting Settings						
	Maximum Number of Calls*	4 (1 - 200)					
	Busy Trigger*	2 (<= Max. Calls)					
	Forwarded Call Information	Display					
	🗹 Caller Name	Caller Number					
	🗹 Redirected Number	🗹 Dialed Number					
	* indicates required item; changes	to Line or Directory Number settings require restart.					
	** Ring Setting (Phone Active) appl in progress.	lies to this line when any line on the phone has a call					
	Note: If you are using a language other the Label text, make sure the correct of incorrectly if the wrong characterse character sets.)	han English for Display (Internal Caller ID) or Line Text haracter set (shown below) is selected. Text displays tt is selected. (English characters are included in all					
	Character Set Western Europ	ean (Latin 1)					
			J				



Configuring the Cisco IOS Gateway

tony3845#sh run

Building ...

Current configuration : 2066 bytes

!

version 12.3

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname tony3845

!

boot-start-marker

boot-end-marker

!

enable password cisco

!

no aaa new-model

!

resource policy

!

no network-clock-participate slot 4

no network-clock-participate wic 0

voice-card 0

no dspfarm

!

```
voice-card 4
dspfarm
!
ip subnet-zero
ip cef
!
!
no ip dhcp use vrf connected
!
!
ip host CM-MARS 172.20.231.254
no ftp-server write-enable
isdn switch-type primary-4ess
!
!
!
controller T1 0/0/0
framing esf
linecode b8zs
!
controller T1 0/0/1
framing esf
linecode b8zs
!
controller E1 4/0/0
pri-group timeslots 1-31 service mgcp
!
controller E1 4/0/1
!
```

! ! interface GigabitEthernet0/0 ip address 172.20.231.245 255.255.255.0 duplex half speed 100 media-type rj45 negotiation auto ! interface GigabitEthernet0/1 no ip address shutdown duplex auto speed auto media-type rj45 negotiation auto ! interface Serial4/0/0:15 no ip address 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 172.20.231.1

ip classless

ip route 0.0.0.0 0.0.0.0 172.20.231.1

! ip http server ! ! control-plane ! ! ! voice-port 4/0/0:15 ! ccm-manager mgcp ccm-manager music-on-hold ccm-manager config server CM-MARS ccm-manager config ! mgcp mgcp call-agent CM-MARS 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 no mgcp package-capability fxr-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
stopbits 1
line aux 0
stopbits 1
line vty 0 4
password cisco
login
!
scheduler allocate 20000 1000

!

end

tony3845#

Configuring the Westell liQ2000

Figure 24. liQ2000 Shelf Definitions

	9 P	
Shelf Definitions present Image: Shelf Definitions present Image: Shelf Definitions present Image: Image: Shelf Definitions present Image: Ima	Shelf properties Management name: iq2001 Shelf properties Management name: iq2001 Shelf JD.: CARD.0 Shelf password: Connection type: Direct Connection type: Direct Shelf type: Interchange iQ2000 Port: COM1 Speed: 38400 Modem control file: Modem number: Bouter control file: Router jaccess point: Router/Target Add: Advanced Message Timeout: 30 Seconds Modify this value only under instruction from	
adv	Advanced Message Timeout: 30 Seconds Modify this value only under instruction from Westell Ltd. Close	IM
Figure 25. Entering the liQ2000 configuration



Figure 26. Configuration Warning: Click "yes".



PDF	h	POF	<u></u> 1	<u> </u>											
Offlin	e Config	uration													
e _lni	formation	from Targe	et												î
s	VSTEM	CONFIG	URATION												
	DELDIN		ov(c)												
	READIN	G EEFR	OM(S)												
r.															
	CARI)(S)							MAC						
F	PRES	SENT		S/NO	MOD	TYP	REV	BLD	ADDRESS	MAN	DATE	CSM			
	<u> 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997</u>	an a			<u>1997-999</u>	<u>ururur</u> u					2020202020202	121212			
Q	. IiQ2	2000 BA	SE CARD	16000179	1	7	1	1	00A013000BE6	PAT	11/03	OK			
	SELFTE	ST COM	PLETE: READY	FOR SERVICE											
P	-0 200	10 02/													
	1Q 200	10 Q37	DF C2.2.3												
н	it REI	URN to	continue												
R	1														
	-														
Ini	formation	to Target-													
Γ		170]	<u>S</u> end
													e 1	1	
													Save Log		
-					_	_	_	_		_				_	

Figure 27. IiQ2000 Configuration Command Line Interface: Hit RETURN.

Figure 28. Selecting configuration option: Select QUICK.

Offline Configuration	
Information from Target	
InterChange 1Q 2000 (11Q 2000) Configuration System	
Enter "QUICK" for quickstart application setup	
Enter "CONS" to configure management settings	
MENU	
f	
QUICK quick-start protocol setup	
ADV perform advanced configuration	
CONS console setting (ethernet/serial)	
TIME configure date and time	
PORT reset to defaults	
EAT CONFIGURATION MENU	
Select configuration option ?	
- Information to Target	
DUICK	▼ <u>S</u> end
	Save Log Close
	14

Figure 29. Configuration Instructions: Hit RETURN.

Offline Configuration	
Information from Target	
This quick start "wigard" will belo you get up your TaterCharge iO 2000 1	
This quick start wizard will help you set up your interchange 10 2000	
application by asking a series of questions to find out how you want to u	se
this unit. When you have answered all the questions it will list the res	alts
and ask you for confirmation before storing them.	
This superdury super part applications, but will inform new if new word	
Inis procedure covers most applications, but will inform you if you need	
use the advanced configuration menus to complete the configuration proces	S.
At any stage you can type:	
UNDO to go back to the previous guestion	
QUIT to swit to the top level news without aching any changes	
Quil to exit to the top-level menu without making any changes	
? to list the current menu options again	
Press (Enter) or (Return) to continue	
<u>1</u>	×
Information to Target	
	<u>▼</u> <u>S</u> end
	Savelog Close

Figure 30. Application description menu: Select QSIG.

	PDF	FOF	(<u> </u>	<u> </u>					-	
0	ffline Con	figuration								
	- Informatio	on from Target -								
26	equip	ment) and	a network	It may	also be sit	ed between	two PBXs			<u>▲</u>
	Plana	a chocca	the option	+kat baat	t describes	how wown a	anionent is	- sttached:		
	rieas	e choose	une option	CHAC DES	t destribes	now your e	quipment is	s attached.		
	MENU									
м										
	ISDN	Attach m	e to a pub	lic Euro-	ISDN network	e)				
	VOIP	Attach me	e to a pac	ket voice	network (IP	or ATM) v	ia a route:	r or gateway		
F:	QSIG	Attach m	e to a pri	vate netwo	ork which us	es QSIG si	gnalling			
	Q931	Attach me	e to a pri	vate netwo	ork using Q.	931 signal	ling			
	DPNSS	Attach m	∋ to a DPN	ISS networl	k or VPN (e.	g. Feature	net)			
	PBX	InterCha	nge iQ 200	10 is sited	d in a direc	t connecti:	on between	two PBXs		
	CUST	Select p:	redefined	custom com	nfiguration					
	QUIT	None of	the above							
)E										
				3. SP3.						
	Selec	t an appi	ication de	scription						
										•
	4									
	ter Anna ann									
	- Informatio	on to Target —								
	Jusia									
									Save Log	
										11.



1	POF	POF	12121	(<u> </u>	
)ffline Con	figuration			
Se	Informati	on from I arget -	1		
	QUIT	None of t	the above		
	Selec	t an appli	ication de	escription	
		<i>F</i>			
	QSIG				
м					
	*****	***			
	What	variant of	E OSIG doe	es the net	Jork PBX present?
e					
1					
	MENUS				
	ETSI	OSIG priv	vate netwo	ork signal.	ing [ETSI/ECMA (1995)]
	ISO	QSIG priv	vate netwo	ork signal.	ing [ISO (1994)]
	ECMA	QSIG priv	ate netwo	ork signal.	ing [ETSI/ECMA (1993)]
0					
ob					
	200		2		
	Selec	t the QSIC	variant		
	4				
	- Informati	on to Target —			
	ISO				▼ Send
					Save Log Close
-					

Figure 32. Selecting Network/User: Select NET.

Offline Configuration
- Information from Target
ETSI QSIG private network signalling [ETSI/ECMA (1995)]
ISO QSIG private network signalling [ISO (1994)]
ECMA QSIG private network signalling [ETSI/ECMA (1993)]
Select the QSIG variant:
ISO

Is the OSIG PBX configured as "network end" or "user end" at layer 2?
MENU
NET The PBX is configured as "network"
USER The PBX is configured as "user"
Is the PBX configured as "network" or "user"?
Information to Target
NET Send
Save Log Close



		POP			
Off	line Con	figuration			
	Informati	on from Target -			
	USER	The PBX i	is configu	ired as "user	
	Is th	e PBX conf	igured as	: "network" o	or "user"?
	USER				
	****	***			
	Now p	lease expl	lain how y	our DPNSS PB	BX is configured
	Iden	tify the F	PBX's link	level orien	itation.
	Sele	ct UNDO or	QUIT if	your PBX doe	es not present DPNSS signalling
	VENT				
	MENU				
	A	The PBX is	s A end		
	в	The PBX is	s B end		
	Is th	e PBX's le	evel 2 cor	figured as A	a end or B end?
	4				
-	Informati	on to Target			
	A				▼ Send
					Save Log Close

Figure 34. Selecting channel priorities: Select 'XX'.

Offline Configuration
- Information from Target

Please identify the PBX's call collision avoidance strategy
If it is none of the options shown here, select OTHER -
after you have finished QuickStart setup you will have to enter the
ADVanced configuration menu to configure InterChange port 2 X/Y priorities
channel-by-channel
MENU
XX All channels are X priority
YY All channels are Y priority
XY Channels 1-15 are X, remainder Y
YX Channels 1-15 are Y, remainder X
OTHER None of the above
How are the DPNSS PBX's channel priorities set?
▼ <u>Send</u>
Save Log Close

Figure 35	Prompt for PBXs connected to network without IiQ2000:	Select NO
i igure 55.	Tomption DAS connected to network without hog2000.	Delect NO.

	POF	POP	12220		
C)ffline Confi	iguration			
	المراجعة والمراجع	u (unu Trunch			
Se	chann	n nom raiger el – bv– cha	nnel		
	Cincini	ior by one			
	MENU				
	XX	All char	nnels are 3	(priority	
M	vu				
	1 1	All char	inels are	priority	
	XY	Channels	: 1-15 are	X, remainder Y	
	vx	Channels	: 1-15 are	V remainder X	
6					
1	OTHER	None of	the above		
	How ar	e the DPN	ISS PBX's (channel priorities set?	
	XX				
ob	*****	**			
	Are an	ny PBXs at	tached di:	ectly to your network without an IiQ 2000?	
	1				
	1				
	- Informatio	n to Target —			
	NO				▼ <u>S</u> end
					Save Log Close

Figure 36.	Transparent DPNSS signaling:	Select YES.
•	1 0 0	

20	1 4	POP	1 <u>2020</u> 1	<u> </u>			
Offi	ine Config	guration					
		10.00					
ь Г	Information	n from Targ	et				
	Are an	v PBXs	attached	directly	to vour network without an IiO	2000?	
	59.36V - 27883 	5 00000000					
	NO						
	*****	**					
v .	Vຕາມ ຫາມ	st cho	ose wheth	er InterCl	ande is to:		
	roa ma						
	- Tra	nsport	DPNSS si	gnalling	ransparently between these DPNS	is PBXs,	
	- Per	form s	imple Sup	nlementar	Services interworking for all	calls	
e .	101	IOIM O	rwbro oab	promonioar		00110,	
	wit	hout f	ull trans	parency be	tween DPNSS PBXs.		
	MENU						
	YES	Transpa	arent DPN	55 transp	rt		
	มดะ ะ	Simple	samicas	intervor	ing only		
		ormbre	SELVICES	INCEL WOL	ing only		
t.							
	Do you	want	to carry	DPNSS sig	alling transparently across you	r network?	
	_						_
							Þ
-1	Information	to Target					
		no raiger					Sand
	TES						
100							
							Save Log Llose
1							1.

Figure 37. Confirm application: Select YES.





Offlee Configuration		
Information from Target Port 1 (0.931) Profile = ISO QSIG User end CRC-4 multiframe Port 2 (DPNSS) B end All channels Y priority Double-frame Intervorking Basic Call Simple supplementary services Tranparent DPNSS transport Information to Target Information to Target SymeLog Core	Offline Configuration	
<pre>Port 1 (0.931) Profile = ISO 0SIG User end CRC-4 multiframe Port 2 (DPNSS) B end All channels Y priority Double-frame Intervorking Basic Call Simple supplementary services Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO: </pre>	Information from Target	
Profile = ISO QSIG User end CRC-4 multiframe Port 2 (DPNSS) B end All channels Y priority Double-frame Intervorking Basic Call Simple supplementary services Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO: Information to Target Signelog Close	Port 1 (Q.931)	<u> </u>
User end CRC-4 multiframe Port 2 (DPNSS) B end All channels V priority Double-frame Interworking Basic Call Simple supplementary services Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO: Information to Target Sgve Log Core	Profile = ISO QSIG	
CRC-4 multiframe Port 2 (DPNSS) B end All channels Y priority Double-frame Intervorking Basic Call Simple supplementary services Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO: Information to Target Save Log Core	User end	
Port 2 (DPNSS) B end All channels Y priority Double-frame Interworking Basic Call Simple supplementary services Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO: Information to Target SgweLog Cose	CRC-4 multiframe	
B end All channels Y priority Double-frame Interworking Basic Call Simple supplementary services Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO:	Port 2 (DPNSS)	
All channels Y priority Double-frame Interworking Basic Call Simple supplementary services Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO: Information to Target Save Log Close	B end	
Double-frame Interworking Basic Call Simple supplementary services Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO: Information to Target Sgre Log Close	All channels Y priority	
Interworking Basic Call Simple supplementary services Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO:	Double-frame	
Basic Call Simple supplementary services Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO:	Interworking	
Simple supplementary services Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO: Information to Target Save Log Close	Basic Call	
Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO: Information to Target Save Log Quose	Simple supplementary services	
Enter CONF to confirm these settings, RES to start again, or UNDO:	Tranparent DPNSS transport	
Enter CONF to confirm these settings, RES to start again, or UNDO:		
Information to Target Save Log Close	Enter CONF to confirm these settings, RES to start again, or UNDO:	
Information to Target Information to Target Save Log Close		
CONF Save Log Close	□ Information to Target	
Save Log Close		▼ <u>S</u> end
		Save Log Close

Figure 39. Exiting Configuration: Select EXIT.

11	PDF	POF	(<u>2002)</u>	<u> </u>				
C)ffline Con	figuration						
	- Informati	ion from Torget-						
5	monnau	rannament	DPNSS + -	aneport				
	-	ranparent	DINOS CI	ansport				
	True from	CONF				IN THE INDO.		
	Enter	COMP	SOULTLW OF	nese setting:	, KES tO Start aya.	IN, OF UNDO.		
	CONF							
м	****	***						
	Contra							
	CONTI	guring wi	th select	ed options -	rlease walt			
	Your	selection	s are con	firmed.				
F								
	W1				00 0			
	rou n	lave compi	eted inte	rchange 10 20	00 Quick Start pro	cocol configuration		
	You s	should now	ensure t	he time is se	t correctly and mal	te any further		
	confi	quration (changes y	ou require.				
	All c	hanges wi	ll be sav	ed permanent.	y when you exit fro	om the top-level me	enu .	
E.								
					a a sa as as a			
	WARNI	NG: Plea:	se check	the clock sy	chronization switc	1 1S CORRECTLY SET		
	Selec	t configu	ration op	tion ?				
	4							
	17 2							
	Informati	ion to I arget					1	
	[EXIT]						<u> </u>	Send
	12						Causting 1	Class 1
							Save Log	
								111

Vision iQ - Connected to iq2001 [Configuration Mode] - OX Connect Diagnostics Configuration Control Special Web User Guide Mode 168, C p. - 2 Port 1 3 w. **Vision** iQ × **i**) Menu's have exited - please reconnect for on-line management OK h CAP NUM Ready -8 ····· 1

Figure 40. Vision iQ screen after exiting command line configuration screens.



Reconnect to the IiQ2000 and select Monitor Mode. Check the settings.

Figure 41. iQ Diagnostics: Select Module 0.

	N CA P Module 0 V Port 1 V
iO Diagnostics	IX
System Module U Hardware	
Software: IiQ 2000 Q3/DP C2.2.3	Activated: 14/02/2005 15:49:51
System Status	Alarm States
	Ports Not Operational: NO
Flash Memory : No errors.	Error Log Overrun: NO
Clock Source: Port 2	Sync. Source Changed: NO
in the second se	Impedance Setting Changed: NO
Errors Status	
Major Alarms : No errors.	
Port Errors : No errors.	
	Liose Lancel
	215 HILL

Figure 42. iQ Diagnostics: Check the Link Status.

	Diagnostics Configuration	n Control <u>S</u> pecial y	<u>M</u> eb ∐ser Guide		
A	⊡ <u>▲</u> ▲ Ц ≓	L3 醫 H? 三 桑	B P Module 0	🔨 Port 1 💌 🚊	
					5
	iQ Diagnostics	-		×	
	System 💙 Module 0	Hardware			
	Type: Dual Port-E1	(7)	Revision: 1 B	uild Level: 1	
	Port Protocol L	ayer 1	Layer 2	Layer 3	
		ine ΠK	Connection is up	Operational	
	2 DPNSS	ine OK	↓ Configured	Operational	
t					
				Close Cancel	



Westell IiQ2000 Configuration - MWI

Figure 43.Entering the liQ2000 configuration

3		REDER 4	1202	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1					
	Vis	ion iQ - Conne	cted to iq20)01 [Configur	ation Mode]					
oft	Mode	Connect Diag	gnostics Cor	nfiguration Co	ntrol Special	Web User Guide	-			
d S ape itor			ð <u>A</u> (Layer <u>1</u> Orientation Layer <u>3</u> Layer 3 Ad <u>y</u> and Channel <u>G</u> roups Hunt Groups	ed	<u>196</u> 1960 1970	Module 0	Port 1	<u>▼</u> <u>≗</u>	
2				Address Routin						
on X - N	1			SNMP						
				<u>D</u> ownload IQ2000 - Config						
File f Client	1									
5hell t	F									
PTV er p	o bi									
/	s									
2	Configu	ure the iQ 2000 v	via the termin	al window.						
5			2)	-						- Printer Part - Part -
dobe R	stinger.o	pt switch.ht	: Vision	iQ ~\$DX-E	-D					





	POE					_							-
Offline Confi	iguration												
- Informatio	n from Target-												12-1
SVSTEN	CONFIGUE	PATTON											
010101		ATION .											
READI	ING EEPRON	1(5)											
CAF	RD(S)							MAC					
PRE	SENT		S/NO	MOD	TYP	REV	BLD	ADDRESS	MAN	DATE CSI	M		
											<u> 200</u>		
O. IIC	2000 BASE	E CARD	16000179	1	7	1	1	00A013000BE6	PAT	11/03 0	к		
	-, all'alla - 1980-9049												
	PECT CONDI	ETE. DELDU	FOR CEDUTCE										
SMAR	ESI COMPI	LETE: READI	FOR SERVICE										
IiQ 20	100 Q3/DE	? C2.2.3											
Hit RE	TURN to o	continue											
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4													×
	_												
Informatio	n to Target												Cond
									_				Teun
											Save Lo	9	<u>C</u> lose

Figure 45. IiQ2000 Configuration Command Line Interface: Hit RETURN.

Figure 46. Selecting configuration option: Select ADV.

Information from Target	
InterChange iQ 2000 (IiQ 2000) Configuration System	
Enter "QUICK" for quickstart application setup	
Enter "CONS" to configure management settings	
MENU	
QUICK quick-start protocol setup	
ADV perform advanced configuration	
CONS console setting (ethernet/serial)	
TIME configure date and time	
RSET reset to defaults	
EXIT configuration menu	
Select configuration option ?	
1	
Information to Target	
ADV	✓ <u>S</u> end
	<u>Save Log</u> <u>Close</u>

Figure 47. Advanced Configuration Menu: Select IWRK.

line Configuration	
Information from 1 arget	
Advanced Configuration Menu.	
NENU	
Q931 configure Q931 layer 3	
DPNSS configure DPNSS layer 3	
IWRK configure Interworking task	
CTRACE configure Call Tracing service	
Q921 configure Q921 layer 2	
LINK configure dpnss link layer	
CZ configure CZ layer 1	
MGMT configure system management	
EVNT configure event reporting	
EXIT quit advanced configuration	
Select advanced configuration option ?	
	<u>1</u>
Information to Target	
	Save Log Close

PUP II	POF 19		11				
ffline Conl	figuration						
- Informatio	on from Target						
IWRK	configur	e Intervo	orking tas	k			
CTRACI	E configur	e Call Tı	racing ser	vice			
0921	configur	e 0921 la	ver 2				
TINV	configur	e donce l	link laver				
C7	f:		t				
С <u>с</u>	configur	e CZ Iaye	er 1				
MGMT	configur	e system	managemer	t			
EVNT	configur	e event 1	reporting				
EXIT	quit adv	anced cor	nfiguratio	n			
Selec	t advanced	configui	ration opt	ion ?			
IWRK							
and second s							
C							
Conri	gure inter	working					
Change	∋ which in	terworkir	ng paramet	ers ?			
4							
L					 		
Informatio	on to Target						
2							<u>S</u> en
						Course	1 0
						Savelog	LIOS

PRE	POF	<u> </u>				
Offline Cor	figuration					
- Informat	ion from Target -					
IWRK						-
Confi	gure Inte	rworking				
Chang						
Chang	e which i	nterworkli	ig parameters (
?						
MENU						
SRV	enable a	nd disable	e services			
NSI	DPNSS NS	I strings	for MWI			
DISP	display -	all settin	igs			
EXIT	done all	changes				1
		21 A.S.	8 - 48			
Chang	e which i	nterworki	ig parameters /			
						-
4						•
<u>.</u>						
- Informat	ion to Target —					
NSI						<u>S</u> end
						. 1
					Save Log	Close

Figure 49. Interworking Parameters Menu: Select NSI.



	POF A	POF	(<u>200</u>)	<u></u>			10
	Offline Con	figuration					
ft	— Informatic	on from Target-					
S	in iomidae	ormoni raigee					
1							
ре	Chang	e which in	nterworkir	g parameters ?			
ior	?						
8							
inX M	MENU						
1	CDV	anabla a	nd diesble				
U Filo fi	OIX V		uu uisabie	; services			
client	NSI	DPNSS NS	I strings	for MWI			
a	DISP	display a	all settir	gs			
	EXIT	done all	changes				
Shell			997 978 978 97 8 997 933				
2	Chang	e which in	nterworkin	g parameters ?			
	NSI						
TV 1							
r pi							
/							
	Chang	e which s	tring ?				
							_
\$	4						
ł.							
lobe							
R	Informatio	on to Target					
(13					_	Send
2						Shual ca	Close
NS						Jave Log	
ayer							///



Offline Configuration	
Information from Target	
EXIT done all changes	
Change which interworking parameters ?	
NSI	
Change which string ?	
?	
MENU	
ON NSI Message Waiting on String	
OFF NSI Message Waiting off String	
DISP display current settings	
EXIT completed NSI editing	
Change which string ?	
4	▼
Information to Target	
DISP	
	Save Log <u>C</u> lose

ffine Configuration	
- Information from Target	
MENU	
ON NSI Message Waiting on String	
OFF NSI Message Waiting off String	
DISP display current settings	
EXIT completed NSI editing	
Change which string ?	
DISP	
DPNSS NSI strings for Message Waiting :	
indicator ON **58B*4N*1#	
indicator OFF *58B*AN*0#	
Change which string 2	
change which string r	
2	
Information to Target	
ON	
	Save Log Close

Figure 52. Sample NSI string display for DPNSS MWI ON/OFF: Select ON.

fline Configuration	
Information from Target	
DICD disclar support setting	
Dior display current settings	
EXII COMPLETED NSL EDITING	
Change which string (
115F	
NPNSS NSI strings for Message Maiting	
indicator ON * *588*4N*1#	
indicator OF * * COD*AN*1*	
Change which string ?	
ON	
Editing the MWI ON string	
Select type of string ?	
	-
4	Þ
Information to Target	
	2010
	Save Log Close

Figure 53. Changing the DPNSS MWI ON string. Enter "?" for choices.

- Information	from Target	
Editin	g the MWI ON string	
Select	type of string ?	
?		
MENU		
ISDX	standard iSDX & Nortel signalling	
MD110	standard Ericsson signalling	
BOTH	use both standard preset strings	
RAW	enter customized strings	
ADD	append customized strings	
DISP	display the edited NSI string	
EXIT	save these changes	
QUIT	without saving changes	
Select	type of string ?	
4		<u> </u>
- 1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	-	
-Information	to l'arget	
Two Lid		
		Save Log Close

Figure 54. Changing the DPNSS MWI ON string: Select MD110.

- Informatio	in from Target	
MENU		
ISDX	standard iSDX & Nortel signalling	
MD110	standard Ericsson signalling	
BOTH	use both standard preset strings	
RAW	enter customized strings	
ADD	append customized strings	
DISP	display the edited NSI string	
EXIT	save these changes	
QUIT	without saving changes	
Select	t type of string ?	
MD110		
Does t	the message need a call centre number ?	
4		3
		<u>.</u>
_ Informatio	in to Target	
NO		<u>S</u> end
	Save Log	Close

Figure 55. Changing the DPNSS MWI ON string: Select NO call center number.

- Informati	on from Target	
ISDX	standard iSDX & Nortel signalling	
MD110	standard Ericsson signalling	
BOTH	use both standard preset strings	
RAW	enter customized strings	
ADD	append customized strings	
DISP	display the edited NSI string	
EXIT	save these changes	
QUIT	without saving changes	
Selec	t type of string ?	
MD110		
Does	the message need a call centre number ?	
NO		
Selec	t type of string ?	
4		
- Informati	on to Target	
EXIT		<u>S</u> end
		Save Log Close

Figure 56. Changing the DPNSS MWI ON string: Select EXIT from submenu.

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s F	Information	n from Target	
	MENU		<u> </u>
	ISDX	standard iSDX & Nortel signalling	
	MD110	standard Ericsson signalling	
	BOTH	use both standard preset strings	
м	RAW	enter customized strings	
	ADD	append customized strings	
	DISP	display the edited NSI string	
F	EXIT	save these changes	
	QUIT	without saving changes	
		n a sana ang kanang kanang sana sana sana sana sana sana sana	
	Select	type of string ?	
	EVIT	type of Sviring -	
	LATI		
	.	este suit me tau que a la califacte de la terra de la	
ot	Your c	hanges will be saved	
	Change	which string ?	
	a ann an a		-
	ৰ		F
Γ	Information	n to Target	
	JOFH		<u>Sena</u>
			S <u>a</u> ve Log Close

Figure 57. NSI string display for DPNSS MWI ON/OFF: Select OFF

fline Conf	iguration	
Informatio	n from Target	
RAW	enter customized strings	
ADD	append customized strings	
DISP	display the edited NSI string	
EXIT	save these changes	
QUIT	without saving changes	
Select	t type of string ?	
EXIT		
Your c	changes will be saved	
Change	e which string ?	
OFF		
Editir	ng the MWI OFF string	
Select	t type of string ?	
4		<u>.</u>
Informatio	in to Target	
MD110		<u>S</u> en
		Savel on Close

	Offline Configuration	
:	Information from Target	
	QUIT without saving changes	
e r	Select type of string ?	
	EXIT	
X M	Your changes will be saved	
	Change which string ?	
le f ient	OFF	
	Editing the MWI OFF string	
iell		
	Select type of string ?	
	MD110	
v i pt		
	Does the message need a call centre number ?	
	<u>I</u>	
he		
	Information to Target	
		<u>Sena</u>
		Save Log Close
er		

Figure 59. Changing the DPNSS MWI OFF string: Select NO call center number.

Offli	ne Configuration	
Γ	nformation from Target	
	EXIT	<u> </u>
	Your changes will be saved	
	Change which string ?	
	DFF	
	Editing the MWI OFF string	
	Select type of string ?	
	MD110	
	Does the message need a call centre number ?	
	Folloot turo of othing 2	
	Belect type of string :	
	a	•
		<u></u>
	nformation to Target	
[EXIT	<u>▼</u> <u>S</u> end
		Save Log Close

Figure 60. Changing the DPNSS MWI ON string: Select EXIT from submenu.
- Information from Target	
Select type of string ?	
EXIT	
Your changes will be saved	
Change which string ?	
?	
MENU	
ON NSI Message Waiting on String	
OFF NSI Message Waiting off String	
DISP display current settings	
EXIT completed NSI editing	
Change which string ?	
4	<u>)</u>
Information to Target	
DISP	Sence
	Courses 1 Class

Figure 61. NSI string menu: Select DISP to display new NSI strings.

 Information from Target 2 	
MENU	
ON NSI Message Waiting on String	
OFF NSI Message Waiting off String	
DISP display current settings	
EXIT completed NSI editing	
Change which string ?	
DISP	
DPNSS NSI strings for Message Waiting	
indicator ON : *58*JZ*1#	
indicator OFF : *58*JZ*0#	
Change which string ?	
	<u>•</u>
- Information to Target	
IEVI	<u> </u>
	Save Log Close

Figure 62. New NSI settings for DPNSS MWI ON/OFF. Select EXIT from submenu.

Information from Target	
ON NSI Message Waiting on String	
OFF NSI Message Waiting off String	
DISP display current settings	
EXIT completed NSI editing	
Change which string ?	
DISP	
DPNSS NSI strings for Message Waiting :	
indicator ON : *58*JZ*1#	
indicator OFF : *58*JZ*0#	
Change which string ?	
EXIT	
Change which interworking parameters ?	
X	Þ
Information to Target	
[EXIT]	
	Court or 1 Chara

Figure 63. Interworking Parameters Menu. Select Exit from submenu.

Information from Target	
Change which string /	
DISP	
DPNSS NSI strings for Message Waiting :	
indicator ON : *58*JZ*1#	
indicator OFF : *58*JZ*0#	
Change which string ?	
EXIT	
Change which interworking parameters ?	
EXIT	
Select advanced configuration option ?	
21	
	<u>.</u>
Information to Target	
[EXIT]	<u>S</u> enc
	Save Log Close

Figure 64. Advanced Configuration Menu: Select EXIT from menu.

Information from Target	
DPNSS NSI strings for Message Waiting :	
indicator ON : *58*JZ*1#	
indicator OFF : *58*JZ*0#	
Change which string ?	
EXIT	
Change which interworking parameters ?	
EXIT	
Select advanced configuration option ?	
EXIT	
Select configuration option ?	
<u> </u>	F
Information to Target	▼I Send
	<u></u>
	Save Log Close

Figure 65. IiQ2000 main configuration menu. Select EXIT from command line configuration.



Figure 66. Vision iQ screen after exiting command line configuration screens.



Acronyms

Acronym	Definitions
DPNSS	Digital Private Network Signaling System as detailed in BTNR 188 and 189
NSI	Non-Specified Information – vendor specific free-form PBX-to-PBX messaging
IPT	IP Telephony
ССМ	Cisco Unified CallManager
Q.931	ITU ISDN protocol at level 3
Q.Sig	ITU ISDN protocol enhancement to q.931 carrying additional features
MGCP	Media Gateway Control Protocol
PBX	Private Branch Exchange
MMI	Man Machine Interface – specifically on iSDX/Realitis, a VT100 style console
COS	Class Of Service – on an iSDX, the ability to activate features on a particular line
TAC	Trunk Access Class – the ability for an extension to use a specific trunk



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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 Headquarters Cisco Systems, Inc.

Americas

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

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