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

October 26, 2007 Revision 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	Clusterwide Parameters (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 -	Default setting 💌	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	Gateway Configuration			
Product: Communication Media Modu Protocol: MGCP MGCP : CMM-E1	lle			
Status: Ready Update Delete Reset Gateway				
Update Delete Reset Gateway 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				
Product Specific Configuration Global ISDN Switch Type	4ESS			
Switchback Timing*	Graceful			
Switchback uptime-delay (min)	10			
Switchback schedule (hh:mm)	12:00			
Fax mode*	FaxRelay			
* indicates required item		Back to Find/List Catoways		
•				

Figure 4. CMM-E1 Gateway Configuration (continued)

Cisco CallManager Administration					
Gateway Configuration Back to MGCP Configuration Back to Find/List Gateways Dependency Records					
	Product : Communication Media Module Gateway : S1/DS1-1@CMM-E1 Device Protocol: Digital Access PRI Registration: Registered with Cisco CallManager CM-MARS IP Address: 172.20.231.51				
	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 MLPP Preemption	Not available on this device 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	
PRI Protocol Type Specific Informa	tion	
Display IE Delivery		
	Outbound	
Redirecting Number IE Delivery - Outbound		
Redirecting Number IE Delivery - Inbound		
🔽 Send Extra Leading Character In DisplayIE***		
Setup non-ISDN Progress Indicator 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	🔽 Redirecting Number IE Delivery - Inbound		
🔽 Send Extra Leading Character I	n DisplayIE***		
Setup non-ISDN Progress Indic	ator IE Enable***		
MCDN Channel Number Extensio			
Send Calling Name In Facility II			
- · · · · ·			
□ 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 **** may be required to force ringback 			
	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 Pattern automatically resets the associated gateway or Route List Copy Update Delete				
Pattern Definition				
Route Pattern*	11XX			
Partition	<none></none>			
Description	CM-MARS to Ericsson 1			
Numbering Plan*	North American Numbering Plan			
Route Filter	<none></none>			
MLPP Precedence	Default			
Gateway or Route List*	S1/DS1-1@CMM-E1			
Route Option	Route this pattern			
	O Block this pattern - Not Selected -			
Call Classification*	OnNet Allow Device Override			
🗖 🛛 Provide Outside Dial Tone	Allow Overlap Sending Urgent Priority			
🗖 🛛 Require Forced Authorizat	ion Code			
Authorization Level	0			
🗖 🛛 Require Client Matter Cod	9			
Calling Party Transformation	s			
Use Calling Party's Externation	al Phone Number Mask			
Calling Party Transform Mask	551 ****			
Prefix Digits (Outgoing Calls)				
Calling Line ID Presentation	Default			
Calling Name Presentation	Default			
Connected Party Transforma	tions			
Connected Line ID Presentation	Default -			
Connected Name Presentation	Default			
Called Party Transformations				
Discard Digits	<none></none>			
Called Party Transform Mask				
Prefix Digits (Outgoing Calls)				

Figure 8. MWI lamp On/Off Configuration

System Route Plan Service	e Feature Device User App	olication Help	· · · · · · · · · · · · · · · · · · ·
Cisco CallManage For Cisco IP Telephony Solutions	r Administration		CISCO SYSTEMS
Message Waiti Configuration	ng		v Message Waiting Number Message Waiting Numbers
Message Waiting Number	: 7001		
Status: Ready Copy Update Delete			
Message Waiting Number*	7001		
Description			
Message Waiting Indicator	⊙On ○Off		
Partition	phones 💌		
Calling Search Space	phones 💌		
* indicates required item			
			-

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

System Route Plan Servic	e Feature Device User /	Application Help	·
Cisco CallManage For Cisco IP Telephony Solutions	er Administration		Cisco Systems
Message Wait Configuration	ing		d a New Message Waiting Number nd/List Message Waiting Numbers
Message Waiting Numbe Status: Ready Copy Update Delete	r: 7000		
Message Waiting Number*	7000		
Description			
Message Waiting Indicator	○ On ⓒ Off		
Partition	phones 💌		
Calling Search Space	phones 💌		
* indicates required item			
			-

Figure 10. MWI Activate Translation Pattern Configuration

Translation Patt	ern Configuration	
	Add a New Translation Dattern	
	<u>Add a New Translation Pattern</u> <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 A second seco	
	O Block this pattern - Not Selected -	
Provide Outside Dial Tor		
Calling Party Transformation		
🔲 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		
Connected Line ID Presentation		
Connected Name Presentation	Default	
Called Party Transformations		
Discard Digits	< None >	
- Called Party Transform Mask	7001	
Prefix Digits (Outgoing Calls)		
* indicates required item.		

Figure 11.	MWI Deactivate	Translation	Pattern	Configuration

Provide and Provide and					
Translation Pattern 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 A second seco				
	O Block this pattern - Not Selected -				
Provide Outside Dial Tor	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	itions				
Connected Line ID Presentation	n Default				
Connected Name Presentation	Default 💌				
Called Party Transformation	s				
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)



larameter Jame	Parameter Value	Suggested Value
Path Replacement Enabled*	True	False
Path Replacement on Tromboned Calls*	True	True
Start Path Replacement Minimum Delay Fime (sec)*	2	O
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 IP 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

arameter Iame	Parameter Value	Suggested Value
orward 1aximum Hop :ount*	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 Fimer (sec)*	15	15

Figure 19. IP phone Configuration

Phone Confi	guration	<u>Add a new phone</u> <u>Add/Update Speed Dials</u> <u>Subscribe/Unsubscribe Services</u> <u>Dependency Records</u> <u>Back to Find/List Phones</u>
Directory Numbers	Phone: SEP003094C331AD	(Auto 4000)
Base Phone	Registration: Registered w IP Address: 172.20.231.10	ith Cisco CallManager 172.20.231.254
Line 1 - 4000 in Phones	Status: Ready	
•7715 Line 2 - Add new DN	Copy Update Delete	Reset Phone
1113	Phone Configuration (Mode	el = Cisco 7960)
	Device Information	
	MAC Address*	003094C331AD
	Description	Auto 4000
	Owner User ID	(Select User ID)
	Device Pool*	Default (View details)
	Calling Search Space	< None >
	AAR Calling Search Space	< None >
	Media Resource Group List	< None >
	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 💽 (<u>View button list</u>)
	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**	: : : : : : : : : : : : : : : : : : :
		Certificate Operation Status	
		Multilevel Precendence and	l Preemption (MLPP) Information
		MLPP Domain	(e.g., "0000FF")
		MLPP Indication	Default 🔽

Figure 21. IP phone Configuration (continued)

	an start t		· · · · ·			
	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			1	
	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	
<u> </u>						⊸

Figure 22. IP phone Configuration (continued)

sociated With	Directory M	Number: 4000 (ph	ones	s)				
斎 SEP003094C331AD 960 (Line 1)	Status: Ready Note: Any update to this Directory Number automatically resets the associated devices							
	Update Remove from De		evice Reset Devices					
	Directory Number							
	Directory Number*		4000					
	Partition		phones 💌					
	Directory Number Settings							
	Voice Mail Profile		✓None > ▼ (Choose <none> to use default)</none>					
	Calling Sear	rch Space	k	phones	-			
	AAR Group		•	< None	> •			
	User Hold A	udio Source	•	< None	>	•		
	Network Hold Audio Source		•	< None	>	•		
	Auto Answe	er	4	Auto Ar	iswer Off		•	
	Call Forward and Pickup Settings							
		Voic	e Ma	ail Cov Des	/erage/ stination	Calling §	Bearch	Space
	Forward All					< None >	ŀ	·
	Forward Bu	sy Internal				< None >	ŀ	•
	Forward Bu	sy External				< None >	ŀ	•
	Forward No	Answer Internal				< None >	•	•
	Forward No	Answer External				< None >		•
	Eorward No	Coverage Internal				None >		- -
		Coverage External				<none></none>		- 1
		Ring Duration		(seconds)			-
	Call Pickup Group		< None >					
	MLPP Alter	mate Party Setting	js					
	Target (Des	stination)						
	Calling Sear	rch Space	< No	one >	•			



 · ·		· · · · ·		
	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 S	ettings		
	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.	ies to this line when any line on the phone has a call		
	Label text, make sure the correct c	nan English for Display (Internal Caller ID) or Line Text haracter set (shown below) is selected. Text displays t is selected. (English characters are included in all		
	Character Set Western Europ	ean (Latin 1) 🔹		



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

sion iQ [Monitor Mode] Connect Diagnostics Configuration Control Special V	
●●●▲↓↓₩₩≣☆	
Shelf Definitions	Shelf properties
 [ig2001 Del	
	Shelf ID.: CARD.0
Ne	
Con	
	Shelf type: Interchange iQ2000 💌
	Port: COM1
	Speed: 38400
	Modem control file:
	Modem number:
	<u>R</u> outer control file:
	Router access point:
	Router/Target Addr:
	Advanced
	Message Timeout: 30 Seconds Modify this value only under instruction from
	Westell Ltd.
•	
	Close
Figure 25. Entering the liQ2000 configuration



Figure 26. Configuration Warning: Click "yes".



PDF	3 4	POF	<u>1</u>	(223)											_
Offlir	ne Config	juration													
- r	nformation	from Targe	et												
s	SVSTEM	CONFIG	GURATION												
	DEIDI														
	READII	NGEERR	ROM(S)												
re.															
															-1
	CARI	D(S)							MAC						
R	PRES	BENT		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>			<u>1010000</u>	202220	20220			<u>urururu</u>	<u>14141414141</u>	<u>100000</u>			
q	Q. IiQ	2000 BA	SE CARD	16000179	1	7	1	1	00A013000BE6	PAT	11/03	OK			
	SELFT	EST COM	IPLETE: READY	FOR SERVICE											
		00 00	DP C2.2.3												
-	11 <u>0</u> 200	UU Q3∕	DF C2.2.3												
H	lit RE	FURN to) continue												
	< l														▼
lr	nformation	to Target-													
Г														• [<u>S</u> end
														1	
												-	Save Log		<u>C</u> lose
-	_	_			_	_	_	_		_					

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

Figure 28. Selecting configuration option: Select QUICK.

Offline Configuration	
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 ?	
	•
	×
Information to Target	
	<u>▼</u> <u>S</u> end
	Save Log Close

Figure 29. Configuration Instructions: Hit RETURN.

Offline Configuration	
Information from Target	
This quick start "wizard" will help you set up your InterChange iQ 2000	
application by asking a series of questions to find out how you want to u	ise
this unit. When you have answered all the questions it will list the res	sults
and ask you for confirmation before storing them.	
This successions such as lighting. And will inform any if you would	
This procedure covers most applications, but will inform you if you need	
use the advanced configuration menus to complete the configuration proces	33.
At any stage you can type:	
UNDO to go back to the previous question	
QUIT to exit to the top-level menu without making any changes	
? to list the current menu options again	
Press <enter> or <return> to continue</return></enter>	
<u>1</u>	
Information to Target	
	<u>▼</u> <u>S</u> end
	Save Log Close

Figure 30. Application description menu: Select QSIG.

	POF							
Offline	Configuration							
- Infor	mation from Target							
equ	ipment) and	a networ	k. It may a	lso be sited be	tween two PBXs			
Ple	ease choose	the optio	n that best	describes how y	our equipment is	attached:		
MEN								
	102							
ISI)N Attach m	e to a pu	blic Euro-IS	DN network				
VOI	IP Attach m	e to a pa	cket voice n	etwork (IP or A	TM) via a router	or gateway		
QS1	IG Attach m	e to a pr	ivate networ	k which uses QS	IG signalling			
Q93	81 Attach m	e to a pr	ivate networ	k using Q.931 s	ignalling			
DPN	ISS Attach m	e to a DP	NSS network	or VPN (e.g. Fe	aturenet)			
PBX	(InterCha	nge iQ 20	00 is sited	in a direct con	nection between t	two PBXs		
CUS	ST Select p	redefined	custom conf	iguration				
QUI	IT None of	the above						
Sel	lect an appl	ication d	econintion					
0.51	ссо ан арри	ication d	escription.					
								-
4								<u> </u>
- Infor	mation to Target —							
QSI	-						_	<u>S</u> end
150								a 1
							Save Log	<u>C</u> lose



4	POF	FOR	<u> </u>		
	Offline Cor	nfiguration			
S	- Informat	ion from Target – None of t			
	QUIT	None of (
	Selec	t an appli	ication de	escription:	
	QSIG				
	0010				
М					
	****	***			
	What	variant of	f QSIG doe	es the netw	ork PBX present?
f					
	MENU				
	TETTOT				
	EISI	QSIG priv	ate netwo	ork signali	ing [ETSI/ECMA (1995)]
	ISO	QSIG priv	vate netwo	ork signall	ing [ISO (1994)]
	ECMA	OSIC priz	tate netw	ork signall	ing [ETSI/ECMA (1993)]
0	LONA	2010 pi 10	ate netwo	JIK SIGNAII	
ob					
	1.1.1.1				
	Selec	t the QSIC	6 variant		
	Informat	ion to Target —			
	ISO				▼ <u>S</u> end
					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 QSIG 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



Offline Configuration	
USER The PBX is configured as "user"	
Is the PBX configured as "network" or "user"?	
USER	

Now please explain how your DPNSS PBX is configured	
Identify the PBX's link level orientation.	
Select UNDO or QUIT if your PBX does not present DPNSS signalling	
MENU	
A The PBX is A end	
B The PBX is B end	
Is the PBX's level 2 configured as A end or B end?	
	_
<u> </u>	×
A	▼ <u>S</u> end
	Save Log Close

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

	POF	<u> </u>								
ine Con	figuration									
	on from Target -									
*****	***									<u> </u>
Pleas	e identify	y the PBX	's call col.	lision avo	oidance s	trategy				
If it	is none (of the opt	ions shown	here, sel	ect OTHE	:R –				
afte:	r you have	e finished	l QuickStar	t setup yo	ou will h	ave to en	ter the			
ADVa:	nced conf	iguration	menu to com	nfigure In	nterChang	e port 2	X/Y prio	rities		
chan	nel-by-cha	annel								
MENU										
XX	All char	nneleare	X priority							
YY										
			Y priority							
XY			e X, remaind							
YX	Channel:	s 1—15 are	e Y, remaind	der X						
OTHER	None of	the above	e							
How a:	re the DP1	NSS PBX's	channel pr:	iorities s	et?					
₹.										Þ
Informatio	on to Target									
×									•	<u>S</u> end
									Save Log	Close

Figure 35.	Prompt for PBXs connected to network without liQ2000:	Select NO
i igure 55.	Tomption DAS connected to network without hog2000.	Delect NO.

	POF	POP	12220		
C)ffline Confi	iguration			
	المراجعة والمراجع	n from Target -			
S		n nom ranget nel-by-cha	nnel		
	Cincini	ior by one			
	MENU				
	XX	All char	nnels are 3	(priority	
м	YY				
	1 1	All char	inels are	priority	
	XY	Channels	: 1-15 are	X, remainder Y	
	YX	Channels	: 1-15 are	Y, remainder X	
6					
1	OTHER	None of	the above		
	How ar	e the DPN	ISS PBX's (channel priorities set?	
	XX				
pb	*****	**			
	Are an	ny PBXs at	tached di:	ectly to your network without an IiQ 2000?	
	1				
	4				
	- Informatio	n to Target —			
	NO				▼ <u>S</u> end
					Save Log Close

Figure 36.	Transparent DPNSS signaling:	Select YES.
riguic ou.	riansparent bi 1400 signaling.	001001120.

	3 4	POF	<u> </u>	<u></u>			10
Off	line Confi	guration					
	901 - 10.	10 12					
E.	Information	n from Targ	et				and a local sector of the sect
							<u> </u>
	Are an	v PBXs	attached	directly	to your network without an Ii(2000?	
	NO						
	*****	**					
v l	V ຕາມ ໜາມ	st cho	nse wheth	er InterCl	ange is to:		
					- 1990 - - 1997 - 199		
	- Tra	nsport	DPNSS si	gnalling	ransparently between these DPM	ISS PBXs,	
	- Per	form s	imple Sup	olementar	Services interworking for all	calls.	
6-0							
	wit	hout f	ll trans	parency b	tween DPNSS PBXs.		
	MENU						
		123	13 - 1272713	22:00			
	YES	Transpa	arent DPN	55 transp	rt		
	NO	Simple	services	interworl	ing only		
b.							
	Do you	want	o carry	DPNSS sig	alling transparently across yo	our network?	
	7						
2	1						
E	Information	n to Target					
	YES	_					▼ Send
	1.29						
							Save Log Close
10							11

Figure 37. Confirm application: Select YES.





Offlee Configuration		
Port 1 (Q.931) Profile = ISO QSIG User end CRC-4 multiframe 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 DNE * Send	Offline Configuration	
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 Enter CONF to confirm these settings, RES to start again, or UNDO:		
User end CRC-4 multiframe 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 Send	Port 1 (Q.931)	<u> </u>
CRC-4 multiframe Fort 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 Send	Profile = ISO QSIG	
Fort 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 Serd	User end	
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:	CRC-4 multiframe	
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)	
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 Send	B end	
Interworking Basic Call Simple supplementary services Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO:	All channels Y priority	
Basic Call Simple supplementary services Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO:	Double-frame	
Simple supplementary services Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO: Information to Target Send	Interworking	
Tranparent DPNSS transport Enter CONF to confirm these settings, RES to start again, or UNDO:	Basic Call	
Enter CONF to confirm these settings, RES to start again, or UNDO:	Simple supplementary services	
Enter CONF to confirm these settings, RES to start again, or UNDO:	Tranparent DPNSS transport	
Information to Target		
Send	Enter CONF to confirm these settings, RES to start again, or UNDO:	
Send		
Send	□ Information to Target	
Save Log Close		▼ <u>S</u> end
		Save Log Close

Figure 39. Exiting Configuration: Select EXIT.

11	PDF	POF	<u> </u>		
C)ffline Cor	figuration			
	المراجع والمراجع	ion from Target-			
5	1.000		DDMCC + S		
		ranparent	DENOS (I	ansport	
	Enter	CONF to a	confirm t	hese setting	ngs, RES to start again, or UNDO:
	CONF				
M	****	12272272			
	Confi	guring wi	th select	ed options –	- Please Wait
	Your	selection	s are con	firmed	
F					
	You h	ave comple	eted Inte	rChange iQ :	2000 Quick Start protocol configuration.
	Vou s	hould now	encure t	he time ic a	set correctly and make any further
	confi	guration (changes y	ou require.	
	811 -		11 1		ntly when you exit from the top-level menu.
0	AII U	manges wi	II DE SAV	eu permanen	itiy when you exit from the top-level menu.
b					
	WARNI	NG: Pleas	se check	the clock s	synchronization switch is correctly set
	Selec	t configu:	ration op	tion ?	
	4				<u> </u>
	- Informat	ion to Target —			
	122	ion to raiget			Send
	EXIT				
					Save Log Close
-	_				

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.

₮ ਙ • ⊕ <u>▲ </u> ↓ L1 २ L3 ≤ H? ≡ 🖄	🔊 🕑 P Module 0 🔽 Port 1 💽 🚊
iQ Diagnostics	x
System V Module 0 Hardware	
Software: IiQ 2000 Q3/DP C2.2.3	Activated: 14/02/2005 15:49:51
SURVAIR. INQ ZUUU QOYDE CZ.2.3	Activated. 1470272000 10,43.01
System Status-	Alarm States
	Ports Not Operational: NO
Flash Memory : No errors.	Error Log Overrun: NO
Clock Source: Port 2	Sync. Source Changed: NO
2. A second s	Impedance Setting Changed: NO
Errors Status	
Major Alarms : No errors.	
Port Errors : No errors.	
	Close Cancel

Figure 42. iQ Diagnostics: Check the Link Status.

		a man can Man Pint - a	al <u>W</u> eb <u>U</u> ser Guide		
A		⇄ L3 醫 H? ≡	Module 0	💌 Port 1 💌 🚊	
					8
	iQ Diagnostics			×	
	System ✔ Modu	e 0 Hardware			
	Type: Dual Po	t-E1 (7)	Revision: 1	Build Level: 1	
	Port Protocol	Layer 1	Layer 2	Layer 3	
	1 Q931/QSIG	Line OK	Connection is up	Operational	
	2 DPNSS	Line OK		Operational	
	+				
				Close Cancel	
	32 12				



Westell IiQ2000 Configuration - MWI

Figure 43.Entering the liQ2000 configuration

3		REDER 4	1000	1 🛄 🛄	1					
]	Vis	ion iQ - Conne	cted to iq20)01 [Configur	ation Mode]					
oft d S		Connect Diag	gnostics Cor	nfiguration Co	ntrol Special	Web User Guide	-			
∃ ⊆ ∎ ∎pe ⊪tor				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			Call <u>R</u> outing SNMP						
] File f Client				<u>D</u> ownload IQ2000 - Config						
File f Client	1									
] 5hell										
5hell t	F									
PTV er p	o bi									
/	s									
2	Configu	ure the iQ 2000 v	via the termin	al window.						
3			2	-						- Printer Part - Part -
dobe R	stinger.o	pt switch.ht	: Vision	iQ ~\$DX-E:	-D					





POP 4		(<u> </u>											_
Dffline Conf	iguration												
- Informatio	n from Target-												13-
SYSTE	4 CONFIGUE	RATION											
READ	ING EEPROP	í(S)											
CAF	RD(S)							MAC					
20000	ESENT		S∕NO	NOD	TUD	DEU	BLD		W 2 W	DATE CS	w.		
left(d)	20EN I		3/ NU	MOD	115	KE V	PLD	ADDRESS	man	DATE CS.	n		
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~											-		
Q. 11(	22000 BASI	2 CARD	160001/9	1	1	1	1	00A013000BE6	PAI	11/03 0	ĸ		
Spina	EST COMPI	LETE: READY	FOR SERVICE										
IiQ 20	000 Q3/DF	P C2.2.3											
Hit RH	STURN to o	continue											
4													-
- Informatio	n to Target —												
												•	<u>S</u> end
0.00										-	Court	. 11	0
											S <u>a</u> ve Lo		<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
	Save Log Close

Figure 47. Advanced Configuration Menu: Select IWRK.

The Configuration	
Information from Target	
Advanced Configuration Menu.	
MENU	
The second s	
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	
NGMT configure system management	
EVNT configure event reporting	
EXIT quit advanced configuration	
Select advanced configuration option ?	
<u> </u>	
Information to Target	
[IWBK	✓ Sence
	Save Log Close

Interworking Parameters. Enter "?" for choices.

Figure 48.

POF	POF	<u> </u>	( <u> </u>	and the second second second second				
Iffline Conf	iguration							
- Informatio	n from Target							
IWRK		e Interw	orking tas	k				
CTRACE	Configur	e Call T	racing sem	vice				
Q921	configur	e Q921 l	ayer 2					
LINK	configur	e dpnss	link layen					
CZ	configur	e CZ lay	er 1					
MGMT	configur	e system	managemer	t				
EVNT	configur	e event	reporting					
EXIT	quit adv	anced co	nfiguratio	m				
Select	advanced	configu	ration opt	ion ?				
IWRK								
Config	gure Inter	working						
Change	e which in	terworki	ng paramet	ers ?				
4								Þ
	-							
ntormatic 2	n to Target —							<u>S</u> end
14					 		<u> </u>	<u>s</u> end
						S <u>a</u> v	e Log	<u>C</u> lose

POF		<b>2721</b>		
Offline Con	figuration			
- Informati	on from Target-			
IWRK				<u>.</u>
	1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 -			
Conri	gure Inte	rworking		
Chang	e which i	nterworki	ıg parameters ?	
Chang	e which i	IICEI WOIKII	g parameters :	
1				
MENU				
SRV	enable a	nd disable	e services	
NSI	DPNSS NS	I strings	for MWI	
DISP	display	all settim	ıgs	
EXIT	done all	changes		
Chang	e which i	nterworki	ıg parameters ?	
:	o whitch i	nooi woikii		
				•
4				<u>}</u>
122	on to Target			
NSI				<u>Send</u>
100				Save Log Close

#### Figure 49. Interworking Parameters Menu: Select NSI.



	DE A		a a a a a a a a a a a a a a a a a a a	<u> </u>			
Of	fline Confi	guration					
	- Information	n from Target -					
Se		r nom raigot					-
	Change	which is	nterworkir	g parameters ?			
	?						
м	MENU						
	SRV	enable a:	nd disable	services			
F			I strings				
	DISP	display (	all settir	gs			
	EXIT	done all	changes				
	Change	- hi - h i .		g parameters ?			
	5880)	wnich 1	nterworkin	g parameters (			
	NSI						
pb							
		48. G - 8					
	Change	which s	tring (				
							-
	4						► I
-					 		
	- Information	n to Target —					
	2					▼ <u></u>	Send
						S <u>a</u> ve Log <u>(</u>	Close



]		1
J	line Configuration	
oft I St	Information from Target	
	EXIT done all changes	
ipe		
ipe tor	Change which interworking parameters ?	
	ISI	
)		
on X M		
1	Change which string ?	
1	2	
File f: Client		
1	MENU	
5hell t	ON NSI Message Waiting on String	
	OFF NSI Message Waiting off String	
	DISP display current settings	
PTV ( er pb	EXIT completed NSI editing	(š
/		
	Change which string ?	
		<b>-</b>
8	<u>.</u>	<u> </u>
) dobe :		
R	Information to Target	
)		<u>Send</u>
<mark>/</mark> ws	Save Log	
ayer .		1.

fline Configuration	
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	
95065	
DPNSS NSI strings for Message Waiting :	
indicator ON : *58B*AN*1#	
indicator OFF : *58B*AN*0#	
Change which string ?	
4	)
Information to Target	
ON	.▼ <u>S</u> enc
	Save Log Close

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

fline Configuration	
Information from Target OFF NSI Message Waiting off String	
	<u> </u>
DISP display current settings	
EXIT completed NSI editing	
Change which string ?	
DISP	
DPNSS NSI strings for Message Waiting :	
indicator ON : *58B*AN*1#	
indicator OFF : *58B*AN*0#	
Change which string ?	
ON	
Editing the MWI ON string	
Select type of string ?	
4	
Information to Target	
	▼ <u>S</u> end
	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 ?	
ब		<u> </u>
- Information MD110	to l'arget	▼ Sen
Two Lid		
		Save Log Close

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

100 AN 100 AN	figuration	
- Informatio	on 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		•
- Informatio	on to Target	
NO		✓ <u>S</u> end
	Save	e Log   Close

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

- Informatio	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		1
EXIT	on to Target	
		Save Log Close

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

	Information	iguration n from Target	
	MENU		<u> </u>
	<u></u>		
	ISDX	standard iSDX & Nortel signalling	
	MD110	standard Ericsson signalling	
	BOTH	use both standard preset strings	
M	RAW	enter customized strings	
	ADD	append customized strings	
	DISP	display the edited NSI string	
F.	EXIT	save these changes	
	QUIT	without saving changes	
	Select	type of string ?	
	EXIT		
	LALI		
5	<b></b>		
ot	Your c	changes will be saved	
	Change	e which string ?	
			-
	4		F
	Information OFF	n to Target	
			∑ <u>sena</u>
			S <u>a</u> ve Log Close

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

	figuration	
- Informatio	onfrom Target 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 ?	
EXIT		
Your	changes will be saved	
Chang	e which string ?	
OFF		
Editi	ng the MWI OFF string	
20101		
Celes	t type of string ?	
Serec	t type of string :	
3		5
		<u>_</u>
- Informatio	on to Target	
MD110		✓ <u>S</u> end
		Save Log <u>C</u> lose

Offline Configuration				
t St Information from Target -				
QUIT without	saving changes			<b>_</b>
e Select type of	string ?			
EXIT				
X M Your changes wi	ll be saved			
Change which st	ring ?			
e f. OFF ent				
Editing the MWI	OFF string			
ell				
Select type of	string ?			
MD110				
v ( pt				
Does the messag	e need a call centre numbe	r ?		
				<b>-</b>
				•
be : ⊢Information to Target —				
NO				Send
			Save Log	<u>C</u> lose
er <b>jäll</b>				

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

Off	line Configuration	
Г	Information from Target	
	EXIT	<u>*</u>
	Your changes will be saved	
	Change which string ?	
	OFF	
	Editing the MWI OFF string	
	Select type of string ?	
	ND110	
	Does the message need a call centre number ?	
	NO	
	Select type of string ?	
		*
	<u> </u>	<u> </u>
Γ	Information to Target EXIT	▼ <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
	Save Log Close

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

ffline 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 : *58*JZ*1#	
indicator OFF : *58*JZ*0#	
Change which string ?	
I	
EXIT	▼ Send
	Save Log <u>C</u> lose

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 ?	
4	
Information to Target	
EXIT	▼ Sen
	Save Log Clos

#### 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 ?	
I	<u>}</u>
□ Information to Target	
	Save Log <u>C</u> lose

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
EXIT	▼ 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
CCM	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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Printed in the USA