



Macfarlane Telesystems CallPlus 5.3 using DPNSS to Westell liQ2000plus using QSIG to Cisco Unified CallManager 4.1

October 17, 2007 Revision 1

Table of Contents

Introduction	2
Network Topology.....	3
Limitations.....	3
System Components	3
Hardware Requirements	3
Software Requirements	4
Features	4
Features Supported.....	4
Features Not Supported	4
Configuration.....	5
Configuring the Macfarlane Telesystems CallPlus 5.3.....	5
Configuring the Westell liQ2000+	10
Configuring the Cisco Unified CallManager 4.1	27
Configuring the Cisco 2811.....	41
Configuring the Cisco 2821.....	46
Acronyms	51



Introduction

This application note provides configuration guidelines for interconnecting Cisco Unified CallManager to the Macfarlane Telesystems CallPlus system using DPNSS to standard BTNR 188.

Testing was done in the field, and not directly verified by the Cisco Unified Communications Interoperability Lab.

Cisco Unified CallManager does not natively support DPNSS. Interoperability required the use of an external protocol convertor, the Westell IiQ2000plus, to convert between DPNSS and QSIG. The IiQ2000plus converts E1-DPNSS to E1-QSIG, where possible mapping DPNSS features to their QSIG equivalent.

The Test Network Topology (Figure 1) contained a single CallPlus system interconnected to the Unified CallManager system using two E1-DPNSS interfaces. Each CallPlus E1-DPNSS interface was connected via a Westell protocol convertor into a Cisco 3800 Series IOS router acting as an E1-QSIG voice gateway, running MGCP backhaul. Each 3800 router had an NM-HDV module and E1 VWICS to provide the physical E1-QSIG interfaces. The Westell converter was connected to the IOS router using a standard E1 cross-over cable.

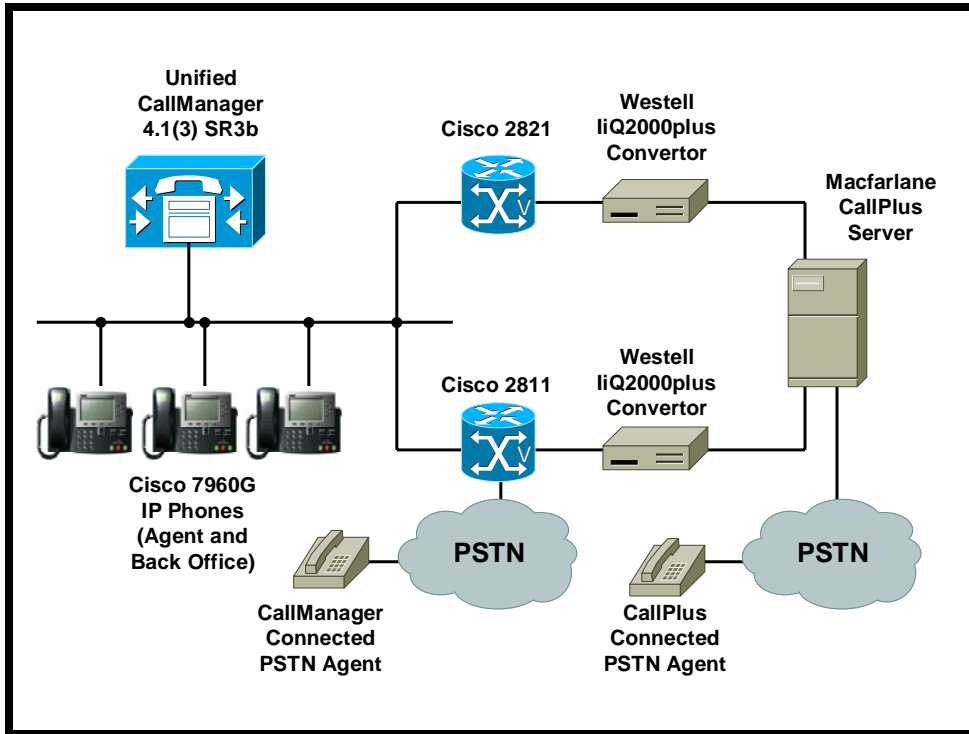
The CallPlus system supported contact centre agents that were situated physically on Unified CallManager controlled IP Phones. Each contact centre agent phone was also associated with PC-based dialogue boxes that controlled agent and phone functions. CallPlus was also able to connect to back office IP phones, also controlled by Unified CallManager. CallPlus treats agent and back office phones differently. Incoming calls to agents or transferred between agents are always CallPlus controlled, and CallPlus remains in the call path. However calls transferred from agents to back office phones are uncontrolled, and CallPlus is removed from the call path. Transfers from agent to back office IP phones must therefore utilise DPNSS Route Optimisation between CallPlus and Unified CallManager.

Dual E1 attachment of Callplus in the test setup was necessary to validate DPNSS Route Optimisation for calls transferred from agent to back office IP phones, and inter-working of DPNSS Route Optimisation with QSIG Path Replacement across the Westell IiQ2000plus convertors.

Typical Cisco router models (Cisco 2811 and 2821) were used as voice gateways in the test setup to validate the content of this Application Note. However the Application Note contents apply equally to other models including Cisco 1700, Cisco 2600, Cisco 3600, Cisco 3700, Cisco 2800, and Cisco 3800 series Cisco IOS voice gateways, the Catalyst 6608 module, the Catalyst 6500 Cisco Communication Media Module (CMM) and any future MGCP-controlled ISO QSIG device registered to Cisco Unified CallManager 4.X above 4.1(2).

Network Topology

Figure 1. Basic Call Setup



Limitations

No limitations were noted during the testing of this interoperability configuration.

System Components

Hardware Requirements

The following hardware is required:

- Cisco Unified CallManager Server MCS 7825-H1

- Cisco Unified IP Phones 7940G and 7960G.

- Cisco 2800 Series Cisco IOS voice gateways with NM-HDV Modules and E1 VWICs.

- Westell liQ2000plus Protocol Convertors

- E1 Crossover Cable

- Dialogic D300JCT DPNSS cards

- Special cards, blades, or cables required



Software Requirements

The following software is required:

Macfarlane Telesystems CallPlus: V5.3

Cisco Unified CallManager: 4.1 (3) SR3b

Cisco IOS for voice gateways: IOSIP Voice 12.4.9(T2)

Westell IiQ2000plus Protocol Convertors: R3.0.1

Westell VisionIQ Management Software

Features

This section lists new and changed features and features that are not supported using the specified hardware and software.

Features Supported

Incoming PSTN Calls from Cisco Unified CallManager or CallPlus to Agent IP Phones

[Calls to the Contact Centre from citizens via the PSTN. May be directly into the Unified CallManager or into CallPlus.]

Transfer of Calls from Agent to Agent IP Phones

[Normal agent to agent transfers – CallPlus retains control of call.]

Transfer of Calls from Agent to Agent IP Phones when the transferred DN is Call Forwarded, Translated by Cisco Unified CallManager, or Re-directed via Route Point.

[Agent to agent transfers where the call is re-routed via IP phone or Cisco Unified CallManager re-directs – CallPlus retains control of call.]

Transfer of Calls from Agent IP Phones to Back Office IP Phones.

[Transfer of calls between Contact Centre agents and back office IP phones. CallPlus relinquishes control of the call. This function requires DPNSS Route Optimisation and QSIG Path Replacement and interoperability via the Westell IiQ2000plus.]

DPNSS Route Optimisation and QSIG Path Replacement Functionality.

[This was validated in two separate configurations - over a single Cisco Unified CallManager to CallPlus interconnect and over dual interconnects with call routing forced via route pattern manipulation.]

It was verified that QSIG Path Replacement was working correctly through diagnostics on the Macfarlane CallPlus system and through use of Windows Performance Monitor that displayed both ISDN channels in use and successful QSIG Path Replacements during each test.

Features Not Supported

No features tested were found to be not supported.



Configuration

This section contains configuration menus and commands and describes configuration sequences and tasks.

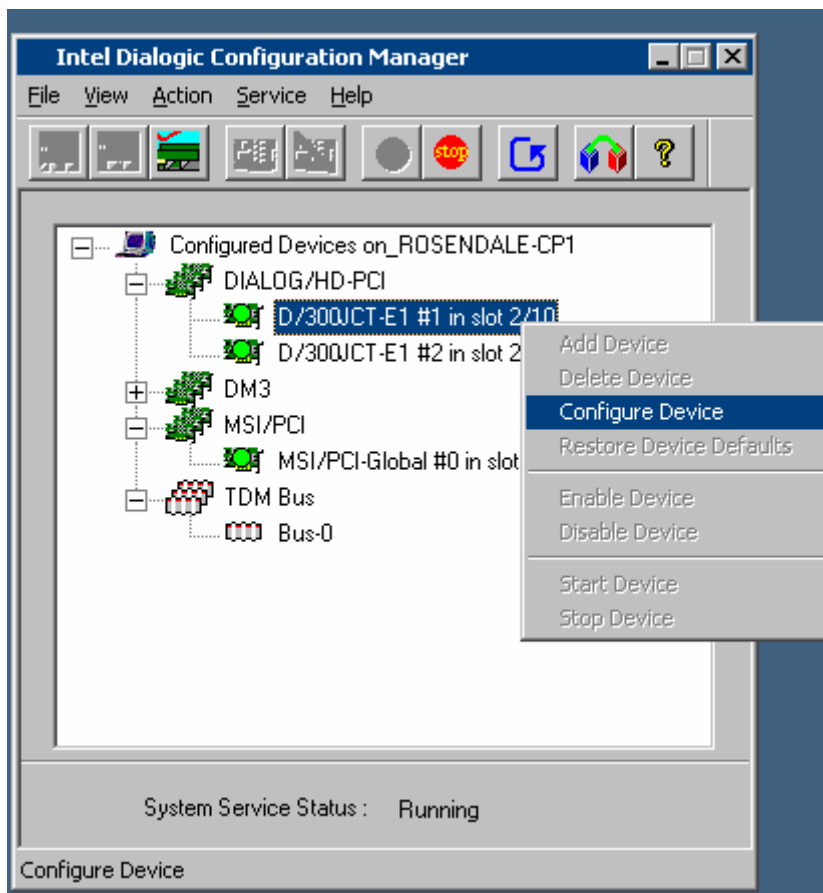
Configuring the Macfarlane Telesystems CallPlus 5.3

The CallPlus server needs to have the Dialogic cards configured with the DPNSS Telephony Protocol.

To check that this is set to DPNSS, open the Dialogic Configuration Manager (Click on Start -> Programs -> Intel Dialogic System Software -> Configuration Manager – DCM).

The following window opens. Right click on the Dialogic card(s) that connects to the Westell IiQ2000plus convertors. Click on Configure Device.

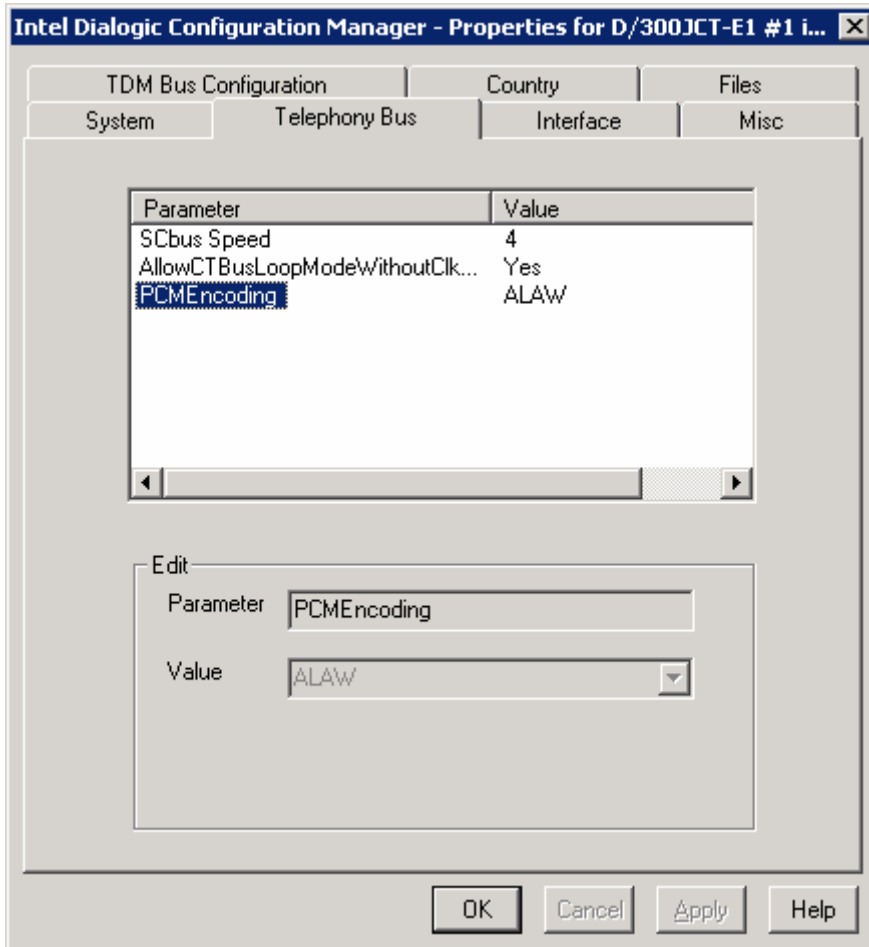
Dialogic Configuration Manager.





The following window opens. Click on the Telephony Tab. The Parameter PCMEncoding should be set to ALAW.

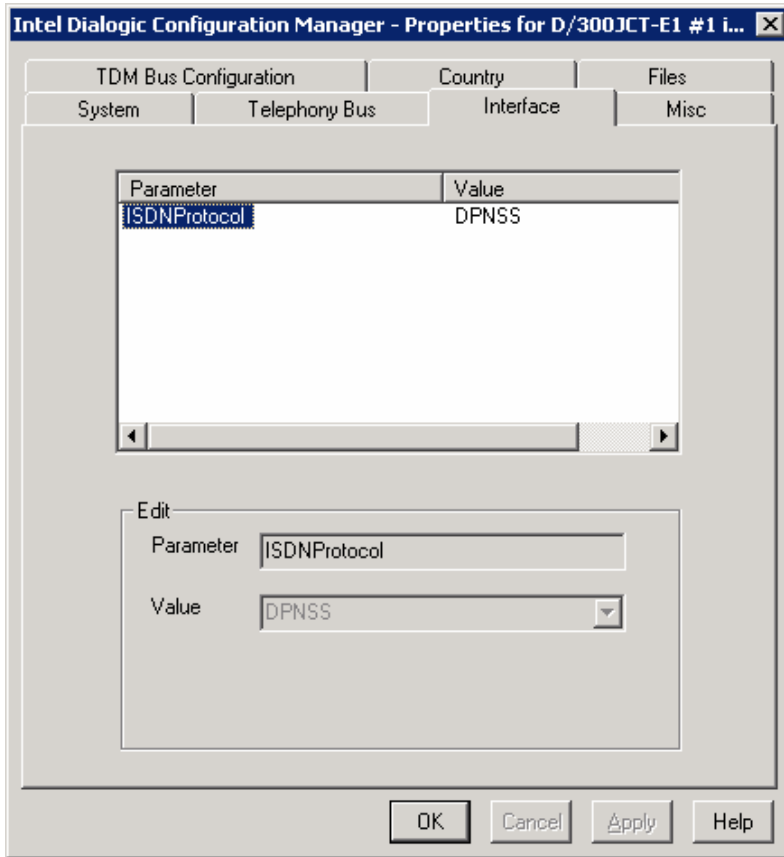
Telephony Bus Tab.





Now Click on the Interface Tab, the Parameter ISDNProtocol should be set to DPNSS

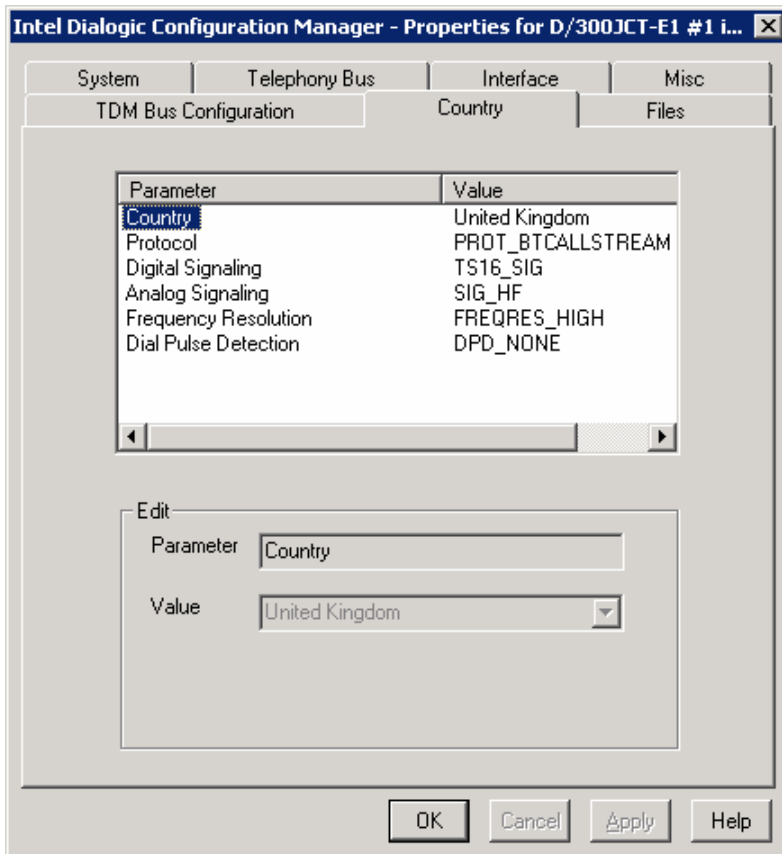
Interface Tab.





Click on the Country Tab, the Parameter Country should be set to United Kingdom. The other Tabs in the Intel Dialogic Configuration Manager do not need to be changed.

Country Tab.

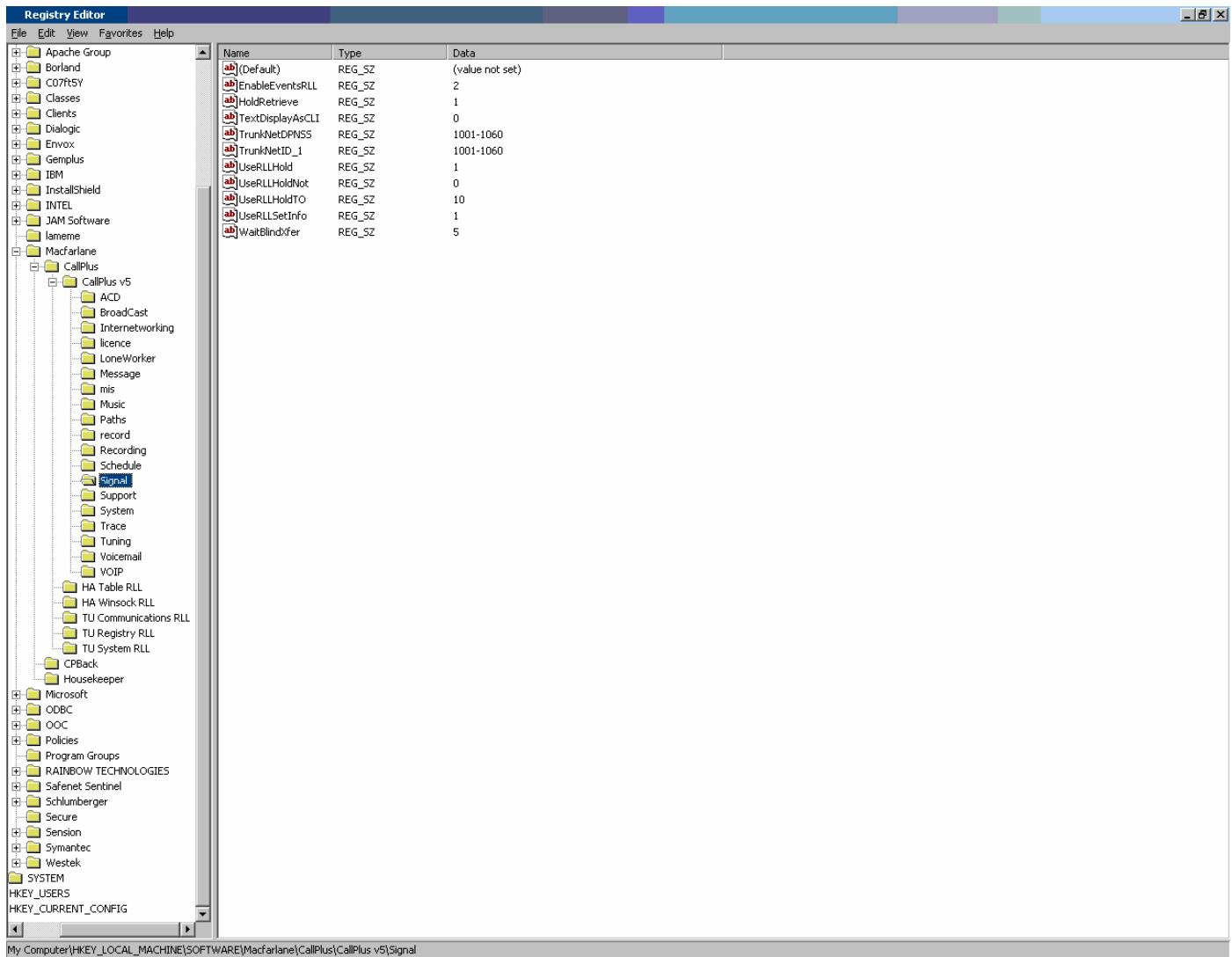




For DPNSS Route Optimisation (ROP) to occur the following registry setting needs to be set up correctly. The only settings that need to be changed are TrunkNetDPNSS.

This should contain all the Trunks that are set to DPNSS. TrunkNetID_1 should contain all the DPNSS trunks that are required to be optimised (not necessarily the same as TrunkNetDPNSS).

Registry Settings for ROP.

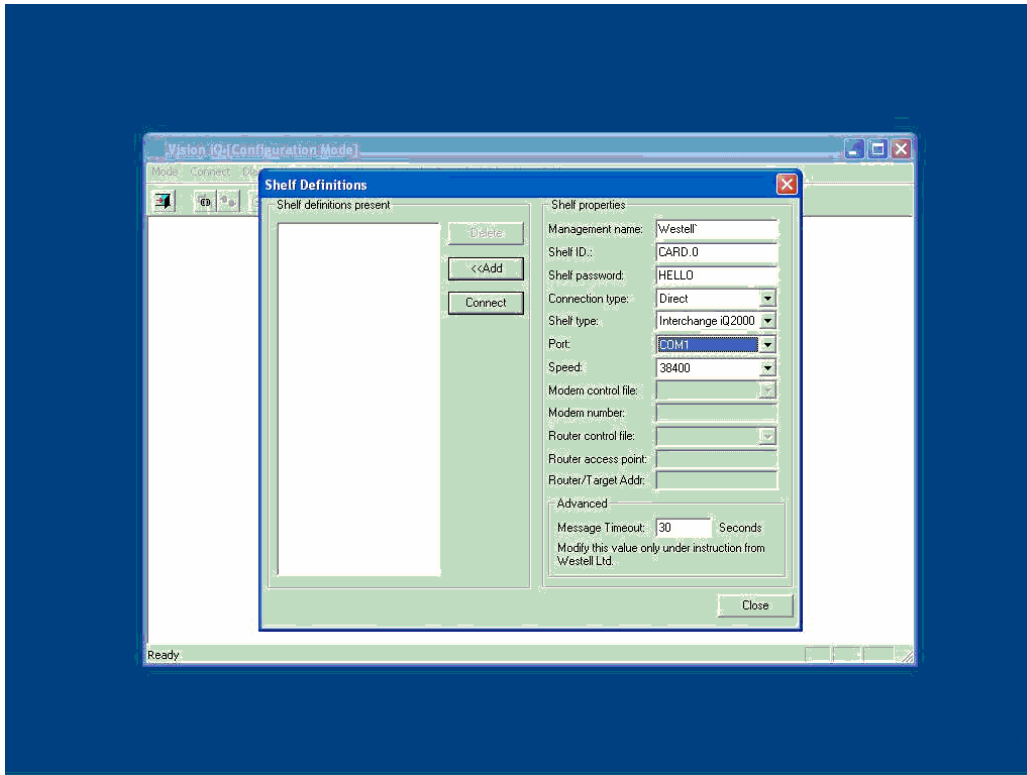




Configuring the Westell liQ2000+

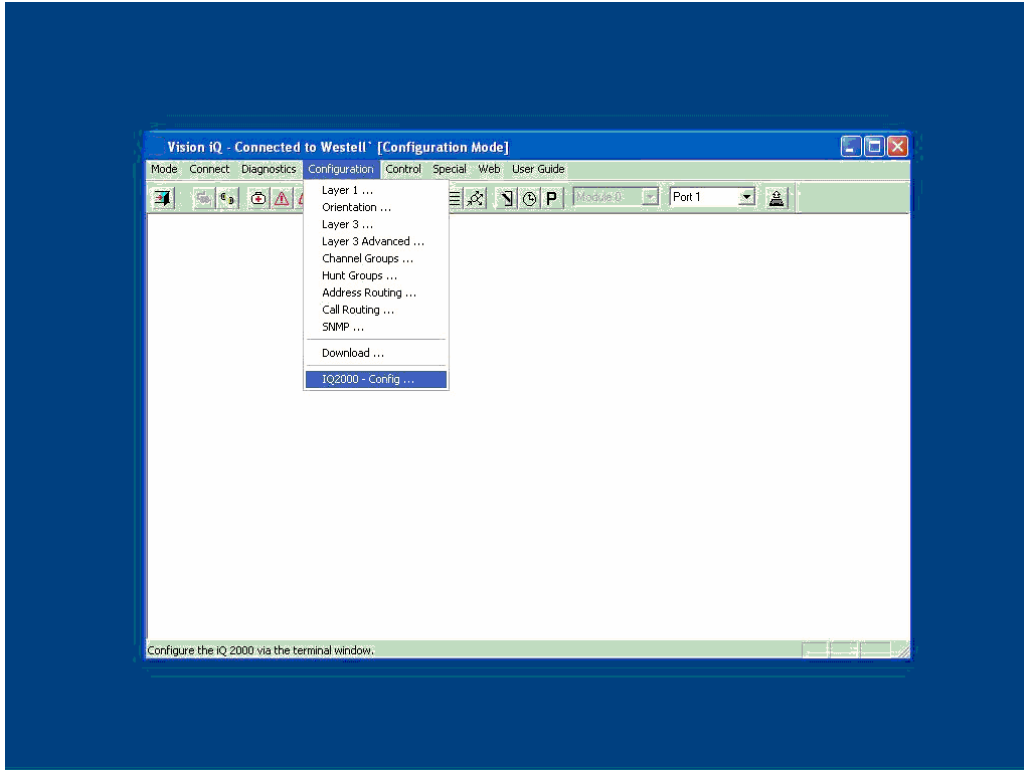
The following figures show the sequence of steps to configure the Westell convertors using Westell VisionIQ Management Software.

Initial VisionIQ Connection to Define Shelf

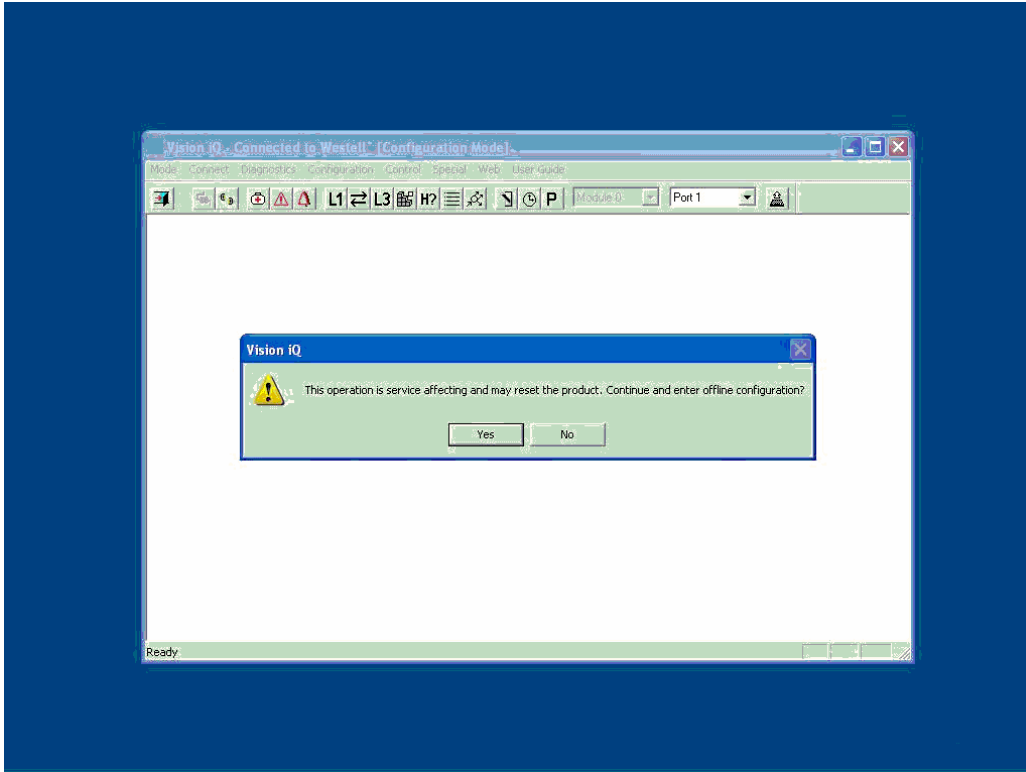




Connect to Shelf and Configure IiQ2000plus

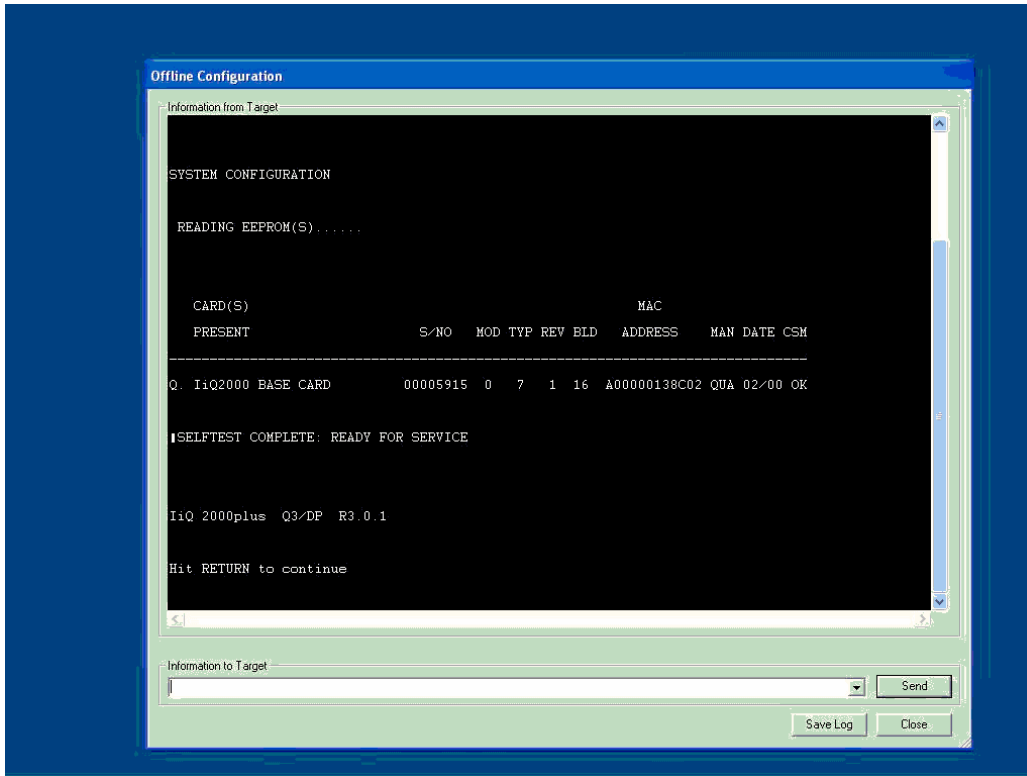


Connected to Westell Warning



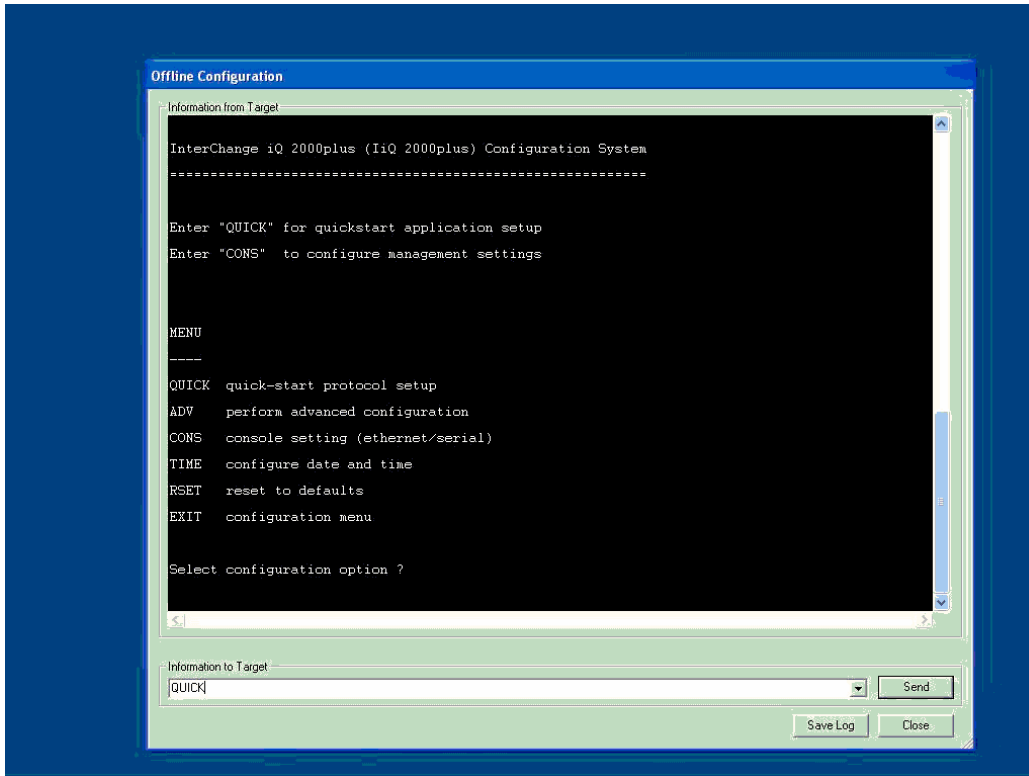


IiQ2000plus Off-line Configuration Screen



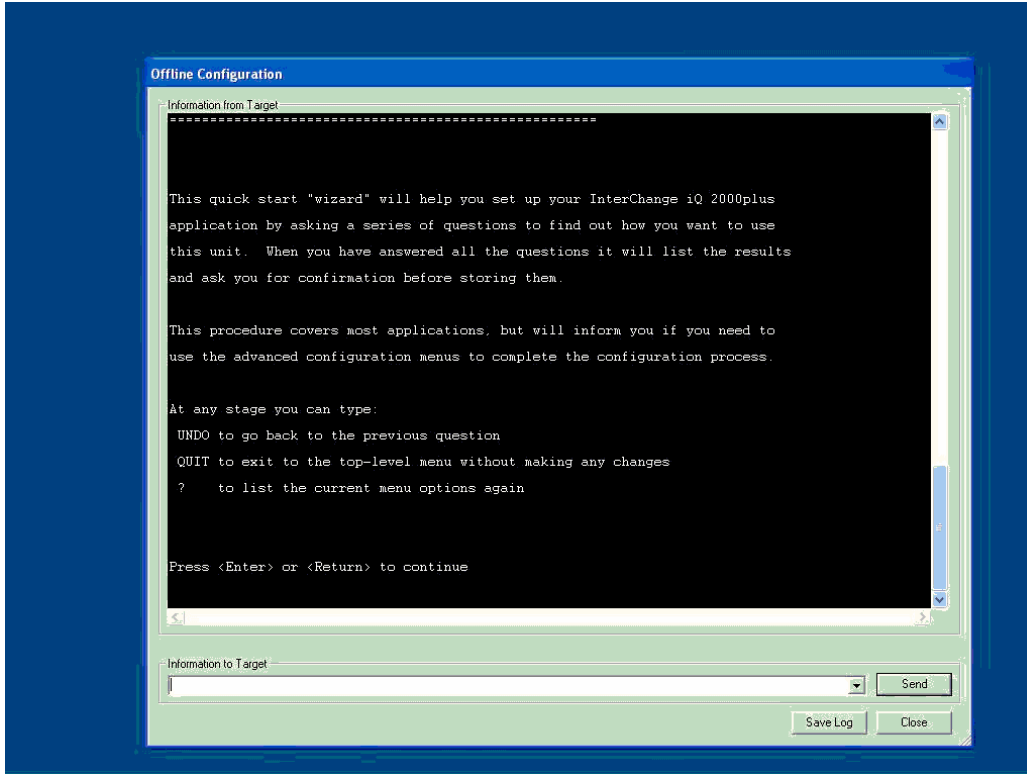


Select QUICK Configuration Mode



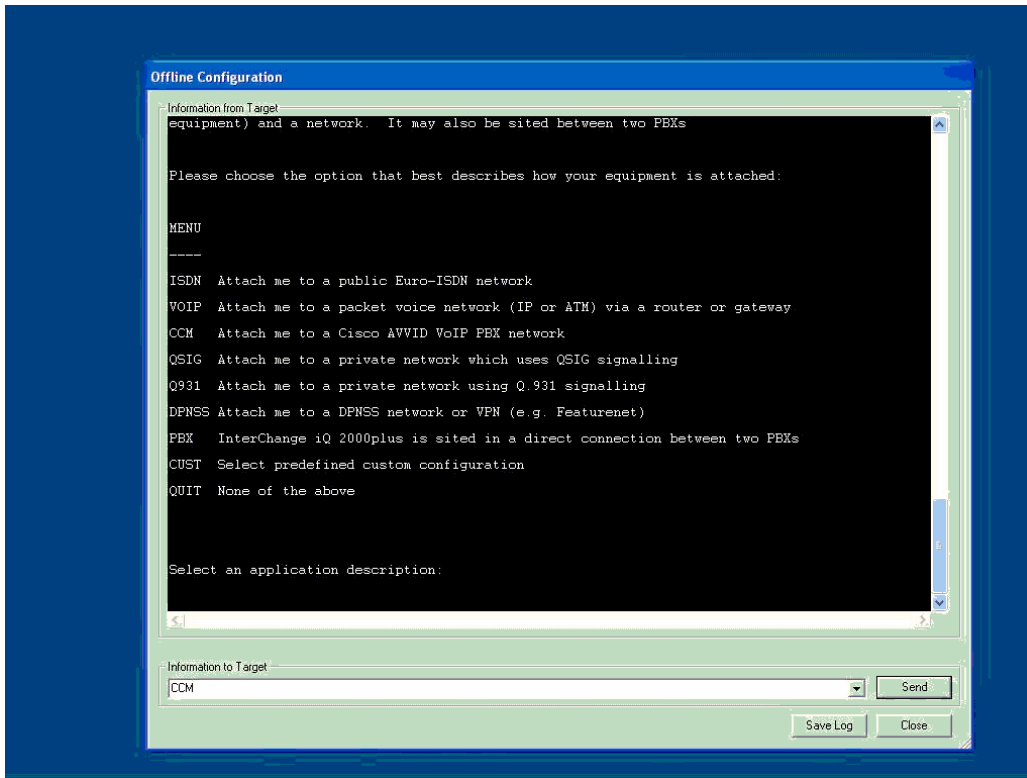


QUICK Configuration Instructions



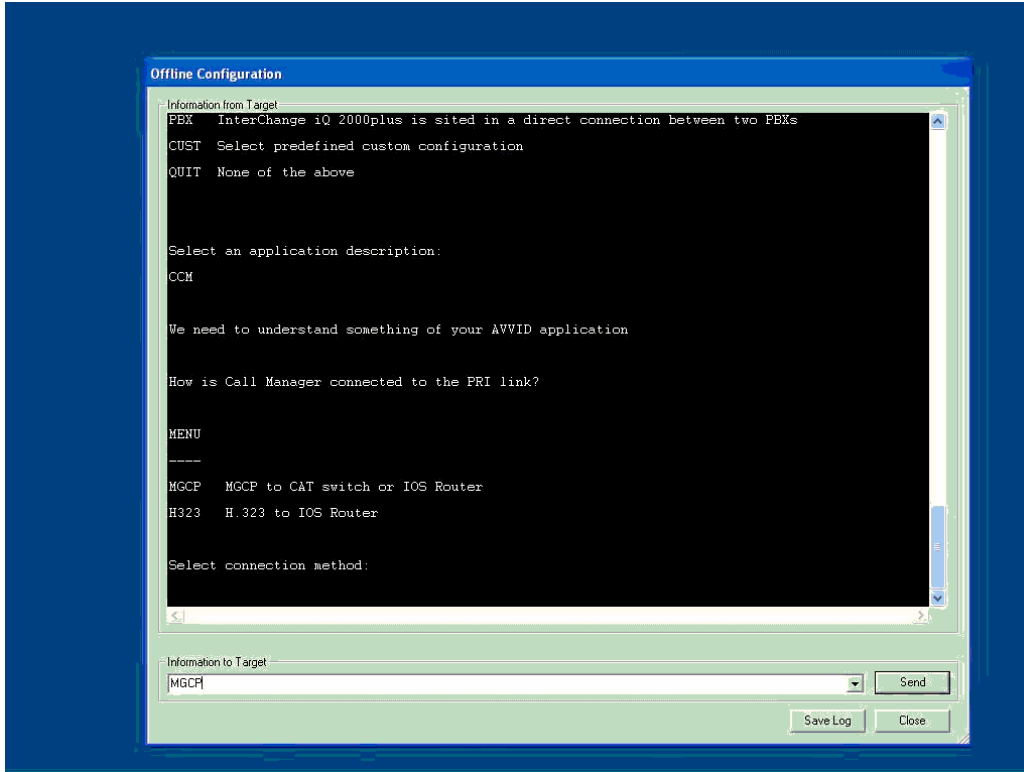


Select CCM for Pre-defined Configuration Options

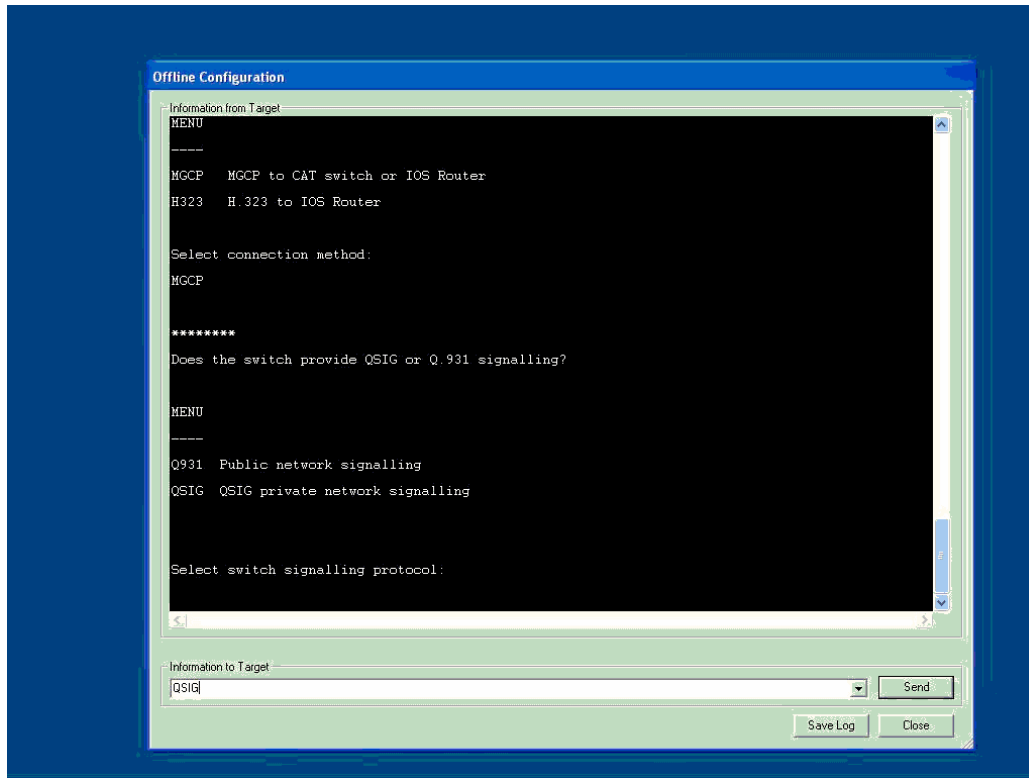




MGCP Gateway Connection Method Required for QSIG

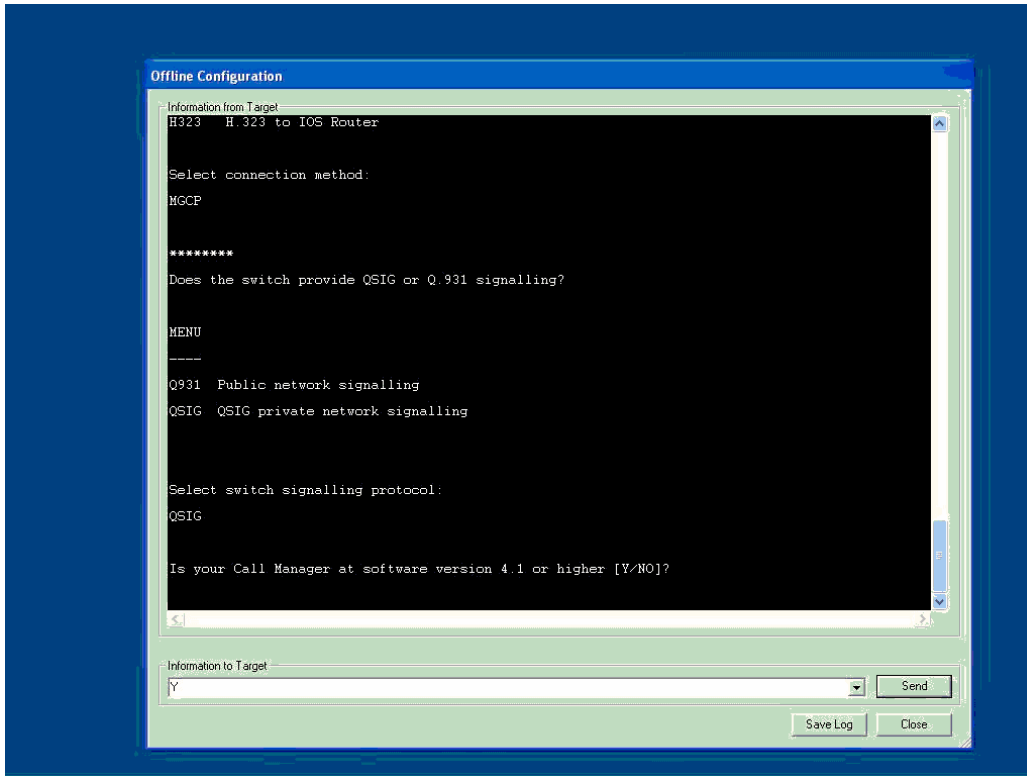


QSIG Protocol to be Selected



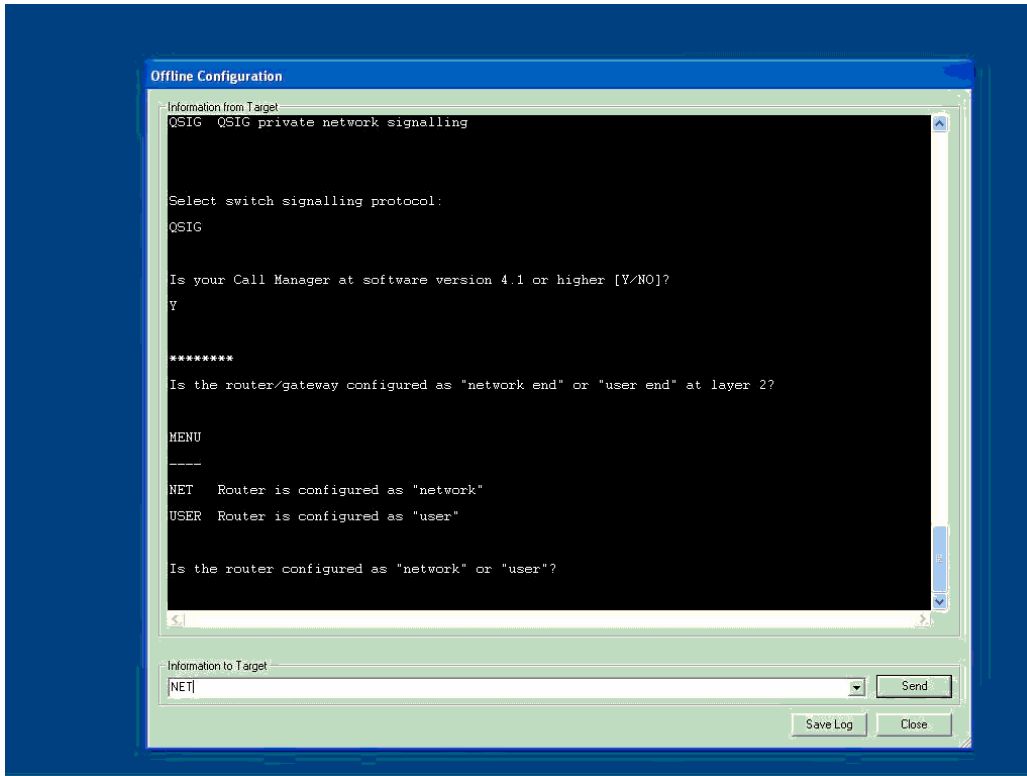


CCM 4.1 Required for QSIG Functionality

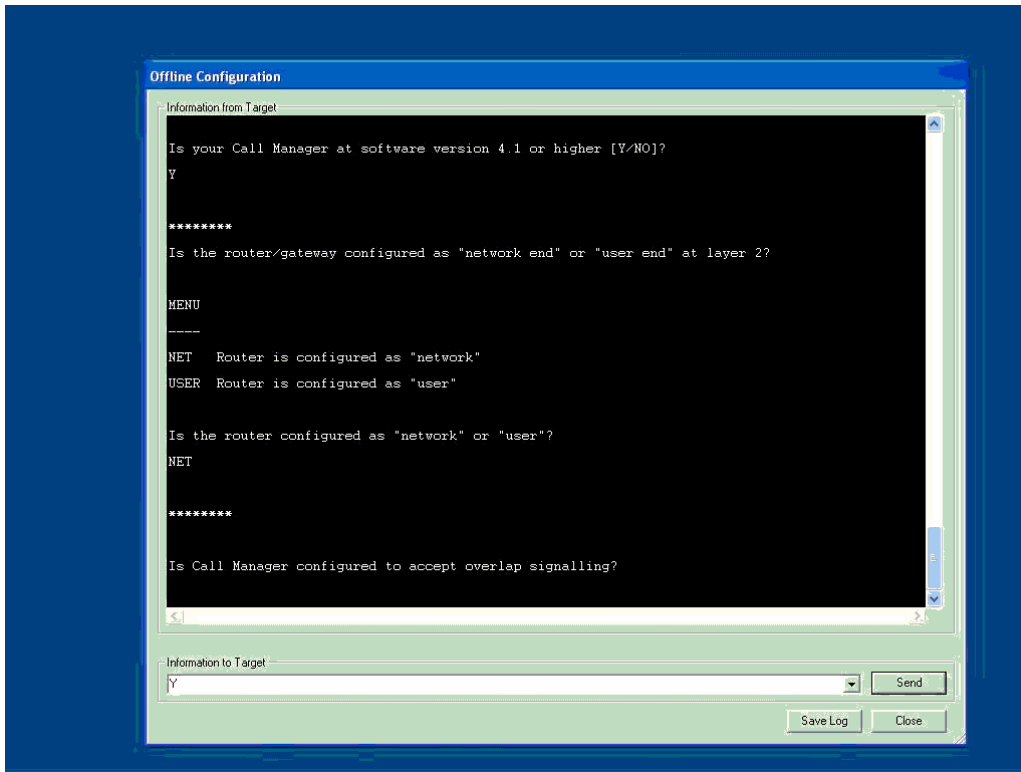




Select Router ISDN 'Side' as NET – Westell to CCM

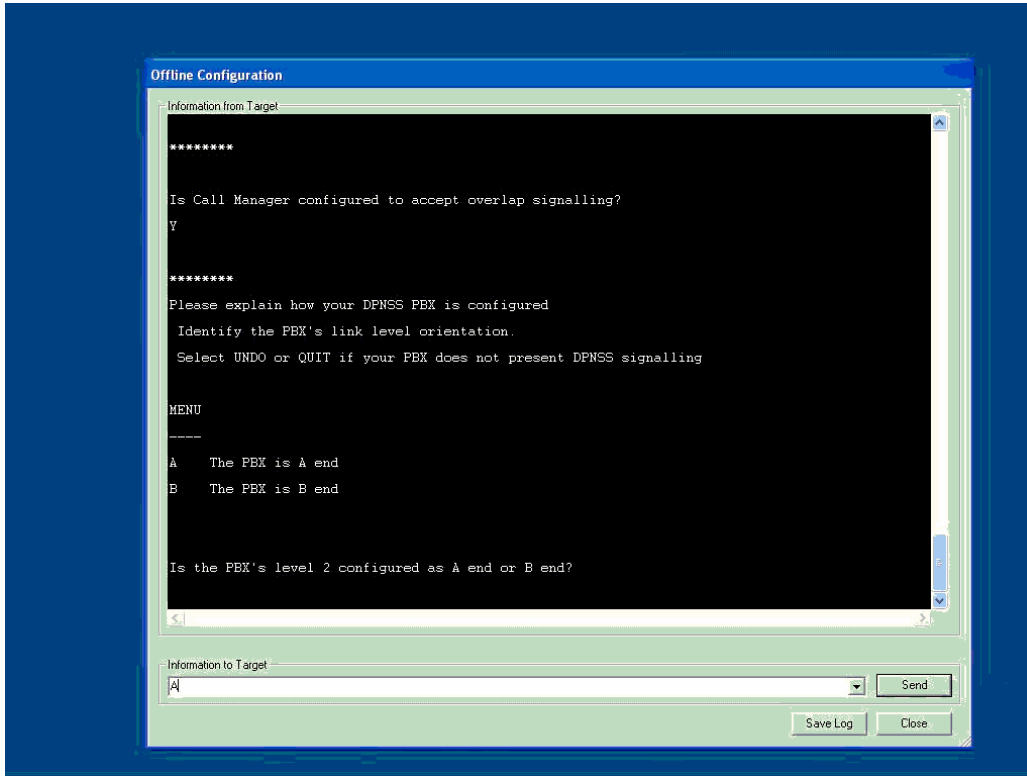


Define Overlap Sending



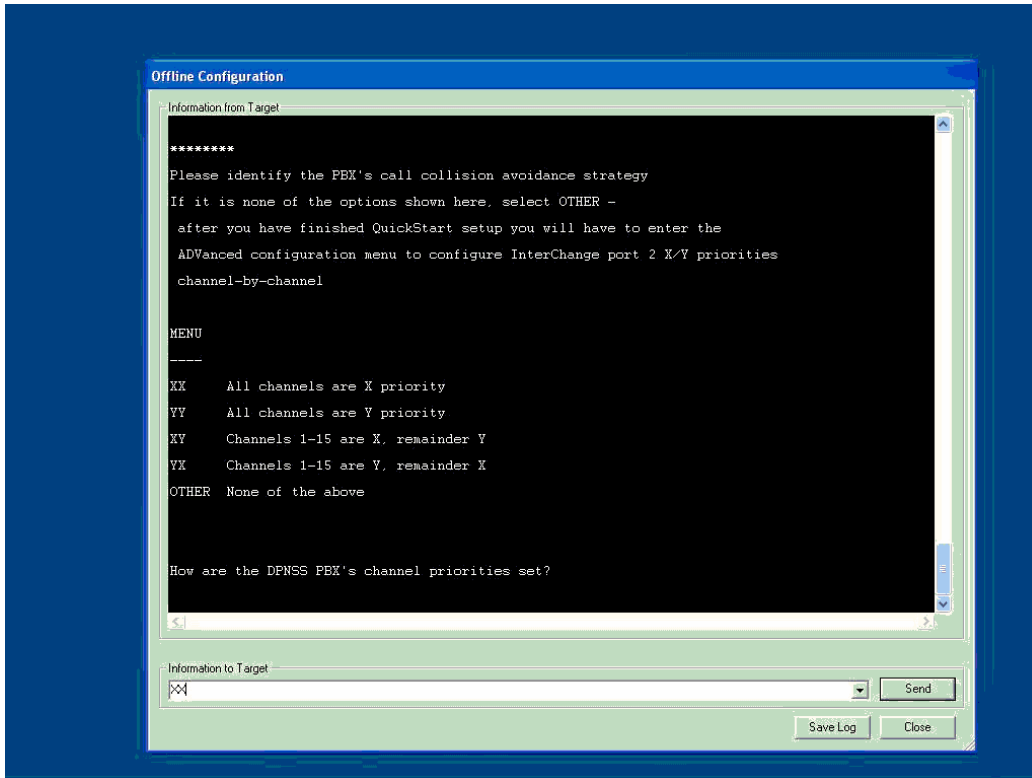


Select CallPlus DPNSS 'End'



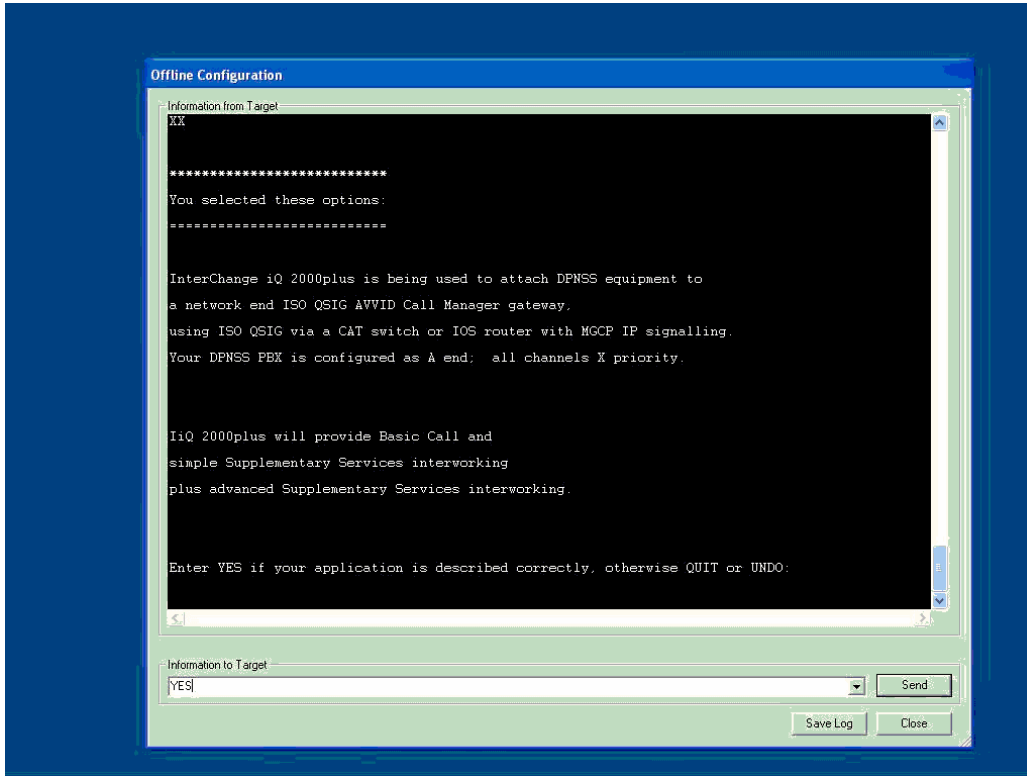


Define DPNSS X/Y Settings



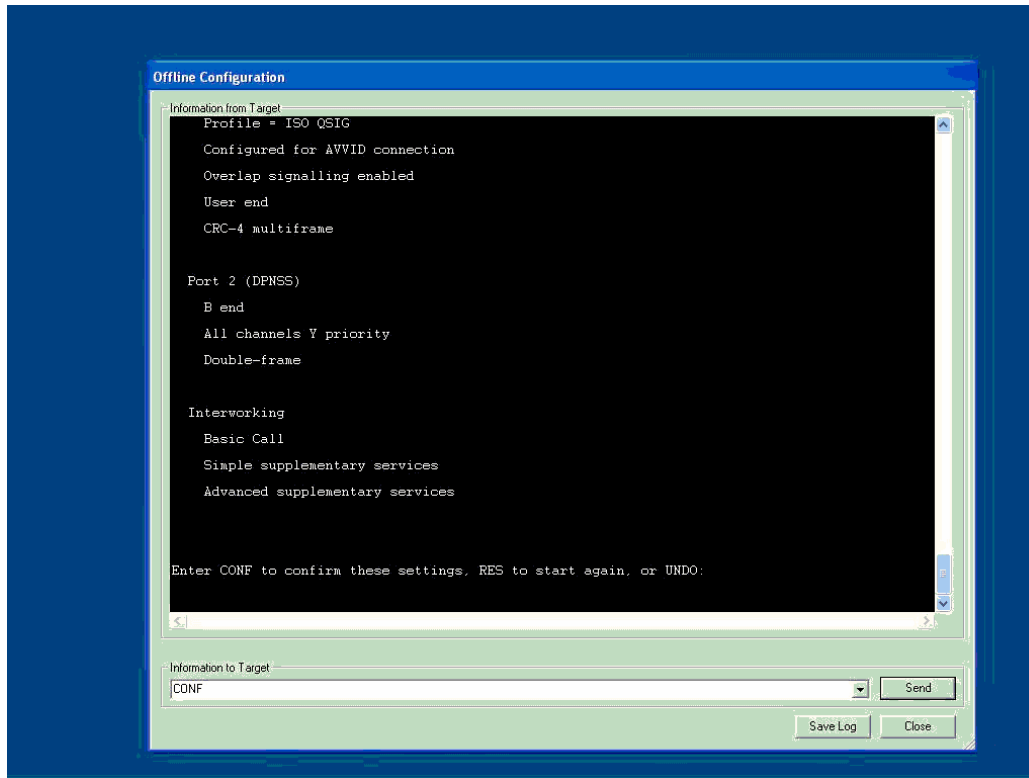


Confirm Application Described Correctly



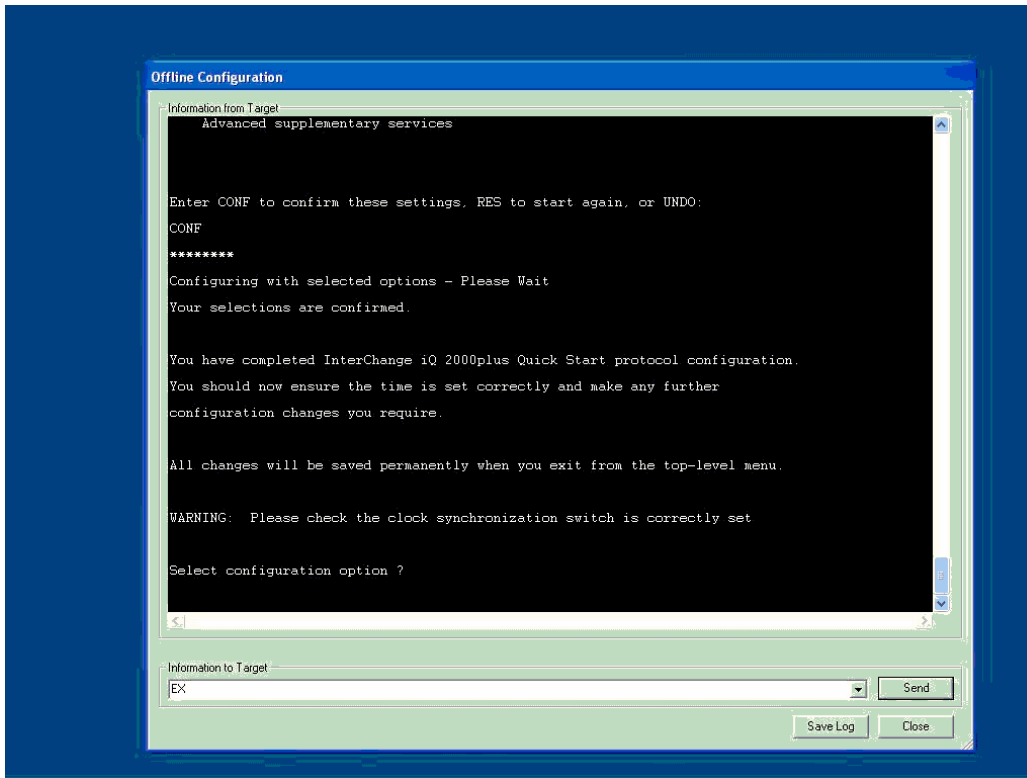


Configuration Confirmation (1 of 2)





Configuration Confirmation (2 of 2)





Configuring the Cisco Unified CallManager 4.1

List gateways, showing Cisco 2811 and 2821 voice gateways.

Find and List Gateways

[Add a New Gateway](#)

9 matching record(s) for Device Name contains ""

Find gateways where contains
 and show items per page. Show endpoints.
 To list all items, click Find without any search text, or use "Device Name is not empty" as the search criteria.

Matching record(s) 1 to 9 of 9

Real-time Information Service returned information for 6 of 9 devices listed below.

<input type="checkbox"/>	Device Name	Description	Device Pool	Status	IP Address
<input type="checkbox"/>	10.0.0.2	10.0.0.2	Default	Unknown	10.0.0.2
<input type="checkbox"/>	10.0.0.3	10.0.0.3	Default	Unknown	10.0.0.3
<input type="checkbox"/>	20.0.0.254	20.0.0.254	Default	Unknown	20.0.0.254
<input type="checkbox"/>	c2811	c2811		See Endpoints	
<input type="checkbox"/>	c2821	c2821		See Endpoints	
<input type="checkbox"/>	S0/SU2/DS1-0@c2811	S0/SU2/DS1-0@c281...	Central Site Phones	Unknown	20.0.0.240
<input type="checkbox"/>	S0/SU2/DS1-1@c2811	S0/SU2/DS1-1@c2811	Central Site Phones	Unknown	20.0.0.240
<input type="checkbox"/>	S1/SU0/DS1-0@c2821	S1/SU0/DS1-0@c2821	Central Site Phones	Unknown	20.0.0.250
<input type="checkbox"/>	S1/SU0/DS1-1@c2821	S1/SU0/DS1-1@c2821	Central Site Phones	Not Found	

First Previous Next Last Page of 1



2811 MGCP Gateway Configuration (1 of 5)

Gateway Configuration [Back to Find/List Gateways](#)

Product: Cisco 2811
Protocol: MGCP
MGCP: c2811

Status: Ready

Domain Name*
Description
Cisco CallManager Group*

Installed Voice Interface Cards	Endpoint Identifiers
Module in Slot 0 <input type="text" value="NM-4VVIC-MBRD"/>	
Subunit 0 <input type="text" value="< None >"/>	
Subunit 1 <input type="text" value="< None >"/>	
Subunit 2 <input type="text" value="VVIC-2MFT-E1"/>	(0/2/ 0) <input type="button" value="EPM"/> (0/2/ 1) <input type="button" value="EPM"/>
Subunit 3 <input type="text" value="< None >"/>	
Module in Slot 1 <input type="text" value="< None >"/>	

Product Specific Configuration

Global ISDN Switch Type
Switchback Timing*
Switchback uptime-delay (min)
Switchback schedule (hh:mm)

2811 MGCP Gateway Configuration (2 of 5)

Gateway Configuration [Back to MGCP Configuration](#) [Back to Find/List Gateways](#) [Dependency Records](#)

Product: Cisco 2811
Gateway: S0/SU2/DS1-1@c2811
Device Protocol: Digital Access PRI
Registration: Unknown
IP Address: 20.0.0.240

Status: Ready

Device Information

End-Point Name*
Description
Device Pool*
Call Classification*
Network Locale
Signal Packet Capture Mode
Packet Capture Duration
Media Resource Group List
Location
AAR Group
Load Information
V150 (subset)

Multilevel Precedence and Preemption (MLPP) Information

MLPP Domain (e.g., "0000FF")
MLPP Indication



2811 MGCP Gateway Configuration (3 of 5)

MLPP Indication	Not available on this device
MLPP Preemption	Not available on this device
Interface Information	
PRI Protocol Type*	PRI EURO
Protocol Side*	User
Channel Selection Order*	Top Down
Channel IE Type*	Use Number when 1B
PCM Type*	A-law
Delay for first restart (1/8 sec ticks)	32
Delay between restarts (1/8 sec ticks)	4
<input checked="" type="checkbox"/> Inhibit restarts at PRI initialization	
<input type="checkbox"/> Enable status poll	
Call Routing Information	
Inbound Calls	
Significant Digits*	All
Calling Search Space	< None >
AAR Calling Search Space	< None >
Prefix DN	
Outbound Calls	
Calling Line ID Presentation*	Default
Calling Party Selection*	Last Redirect Number
Called party IE number type unknown*	Cisco CallManager

2811 MGCP Gateway Configuration (4 of 5)

calling party IE number type unknown*	Cisco CallManager
Called Numbering Plan*	Cisco CallManager
Calling Numbering Plan*	Cisco CallManager
Number of digits to strip*	0
Caller ID DN	
SMDI Base Port*	0
PRI Protocol Type Specific Information	
<input type="checkbox"/> Display IE Delivery	
<input type="checkbox"/> Redirecting Number IE Delivery - Outbound	
<input type="checkbox"/> Redirecting Number IE Delivery - Inbound	
<input checked="" type="checkbox"/> Send Extra Leading Character In DisplayIE***	
<input type="checkbox"/> Setup non-ISDN Progress Indicator IE Enable****	
<input type="checkbox"/> MCDN Channel Number Extension Bit Set to Zero**	
<input type="checkbox"/> Send Calling Name In Facility IE	
<input type="checkbox"/> Interface Identifier Present**	
Interface Identifier Value**	0
Connected Line ID Presentation (QSIG Inbound Call)*	Default
UUIE Configuration	
<input type="checkbox"/> Passing Precedence Level Through UUIE	
Security Access Level	2



2811 MGCP Gateway Configuration (5 of 5)

<input type="checkbox"/>	Setup non-ISUN Progress Indicator IE Enable****
<input type="checkbox"/>	MCDN Channel Number Extension Bit Set to Zero**
<input type="checkbox"/>	Send Calling Name In Facility IE
<input type="checkbox"/>	Interface Identifier Present**
Interface Identifier Value**	<input type="text" value="0"/>
Connected Line ID Presentation (QSIG Inbound Call)*	<input type="text" value="Default"/>
UUIE Configuration	
<input type="checkbox"/>	Passing Precedence Level Through UUIE
Security Access Level	<input type="text" value="2"/>
Product Specific Configuration	
Line Coding*	<input type="text" value="HDB3"/>
Framing*	<input type="text" value="CRC4"/>
Clock*	<input type="text" value="External"/>
Input Gain (-6..14 db)*	<input type="text" value="0"/>
Output Attenuation (-6..14 db)*	<input type="text" value="0"/>
Echo Cancellation Enable*	<input type="text" value="Enable"/>
Echo Cancellation Coverage (ms)*	<input type="text" value="Default"/>
* indicates required item	
** applicable to DMS-100 protocol only	
*** applicable to DMS-100 protocol and DMS-250 protocol only	
**** may be required to force ringback from some PBXs	
Back to MGCP Configuration	



2821 MGCP Gateway Configuration (1 of 5)

Gateway Configuration [Back to Find/List Gateways](#)

Product: Cisco 2821
Protocol: MGCP
MGCP: c2821

Status: Ready

Domain Name*
Description
Cisco CallManager Group*

Installed Voice Interface Cards	Endpoint Identifiers
Module in Slot 0 <input type="text" value="< None >"/>	
Module in Slot 1 <input type="text" value="NM-HDV"/>	
Subunit <input type="text" value="VMIC2MFT-E1"/>	(1/0/0) <input type="text" value=""/> (1/0/1) <input type="text" value=""/>
Module in Slot 2 <input type="text" value="< None >"/>	

Product Specific Configuration ?

Global ISDN Switch Type
Switchback Timing*
Switchback uptime-delay (min)
Switchback schedule (hh:mm)

* indicates required item [Back to Find/List Gateways](#)

2821 MGCP Gateway Configuration (2 of 5)

Gateway Configuration [Back to MGCP Configuration](#) [Back to Find/List Gateways](#) [Dependency Records](#)

Product: Cisco 2821
Gateway: S1/SU0/DS1-0@c2821
Device Protocol: Digital Access PRI
Registration: Unknown
IP Address: 20.0.0.250

Status: Ready

Device Information

End-Point Name*
Description
Device Pool*
Call Classification*
Network Locale
Signal Packet Capture Mode
Packet Capture Duration
Media Resource Group List
Location
AAR Group
Load Information
V150 (subset)

Multilevel Precedence and Preemption (MLPP) Information

MLPP Domain (e.g., "0000FF")
MLPP Indication



2821 MGCP Gateway Configuration (3 of 5)

Load Information	<input type="text"/>
V150 (subset)	<input type="checkbox"/>
Multilevel Precedence and Preemption (MLPP) Information	
MLPP Domain (e.g., "0000FF")	<input type="text"/>
MLPP Indication	Not available on this device
MLPP Preemption	Not available on this device
Interface Information	
PRI Protocol Type*	PRI QSIG E1
Protocol Side*	Network
Channel Selection Order*	Top Down
Channel IE Type*	Use Number when 1B
PCM Type*	A-law
Delay for first restart (1/8 sec ticks)	32
Delay between restarts (1/8 sec ticks)	4
<input checked="" type="checkbox"/> Inhibit restarts at PRI initialization	
<input type="checkbox"/> Enable status poll	
Call Routing Information	
Inbound Calls	
Significant Digits*	All
Calling Search Space	< None >
AAR Calling Search Space	< None >

2821 MGCP Gateway Configuration (4 of 5)

<input type="checkbox"/> Enable status poll	
Call Routing Information	
Inbound Calls	
Significant Digits*	All
Calling Search Space	< None >
AAR Calling Search Space	< None >
Prefix DN	<input type="text"/>
Outbound Calls	
Calling Line ID Presentation*	Default
Calling Party Selection*	Originator
Called party IE number type unknown*	Cisco CallManager
Calling party IE number type unknown*	Cisco CallManager
Called Numbering Plan*	Cisco CallManager
Calling Numbering Plan*	Cisco CallManager
Number of digits to strip*	0
Caller ID DN	<input type="text"/>
SMDI Base Port*	0
PRI Protocol Type Specific Information	
<input checked="" type="checkbox"/> Display IE Delivery	
<input type="checkbox"/> Redirecting Number IE Delivery - Outbound	
<input type="checkbox"/> Redirecting Number IE Delivery - Inbound	
<input checked="" type="checkbox"/> Send Extra Leading Character In DisplayIE***	



2821 MGCP Gateway Configuration (5 of 5)

PRI Protocol Type Specific Information

- Display IE Delivery
- 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**
- Send Calling Name In Facility IE
- Interface Identifier Present**

Interface Identifier Value**

Connected Line ID Presentation (QSIG Inbound Call)*

UUIE Configuration

- Passing Precedence Level Through UUIE

Security Access Level

Product Specific Configuration

Line Coding*

Framing*

Clock*

Input Gain (-6..14 db)*

Output Attenuation (-6..14 db)*

Echo Cancellation Enable*

Echo Cancellation Coverage (ms)*



Route Patterns

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration
For Cisco IP Telephony Solutions

Cisco Systems

Find and List Route Patterns [Add a New Route Pattern](#)

3 matching record(s) for Pattern begins with ""

Find Route Patterns where begins with

and show items per page
To list all items, click Find without entering any search text.

Matching record(s) 1 to 3 of 3

<input type="checkbox"/>	Route Pattern	Partition	Description	Route Filter	Gateway/Route List	Copy
<input type="checkbox"/>	1XXX		Route to Cal...		Calls_to_Callplus	
<input type="checkbox"/>	5XXX		Route to Cal...		Calls_to_Callplus	
<input type="checkbox"/>	97XXX		PSTN or Agent		S0/SU2/DS1-0@c2811	

CallManager Route Pattern Configuration (1 of 5)

Route Pattern Configuration [Add a New Route Pattern](#) [Back to Find/List Route Patterns](#)

Route Pattern: 1XXX
Status: Ready
Note: Any update to this Route Pattern automatically resets the associated gateway or Route List

Pattern Definition

Route Pattern*

Partition

Description

Numbering Plan*

Route Filter

MLPP Precedence

Gateway or Route List* [\(Edit\)](#)

Route Option
 Route this pattern
 Block this pattern

Call Classification* Allow Device Override

Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Require Forced Authorization Code
Authorization Level

Require Client Matter Code

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask



CallManager Route Pattern Configuration (2 of 5)

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation

Calling Name Presentation

Connected Party Transformations

Connected Line ID Presentation

Connected Name Presentation

Called Party Transformations

Discard Digits

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Carrier Identification Code

Network Service Protocol

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

* Indicates required item

CallManager Route Pattern Configuration (3 of 5)

Route Pattern: 5XXX

Status: Update completed
Note: Any update to this Route Pattern automatically resets the associated gateway or Route List

Pattern Definition

Route Pattern*

Partition

Description

Numbering Plan*

Route Filter

MLPP Precedence

Gateway or Route List* (Edit)

Route Option

Route this pattern

Block this pattern

Call Classification* Allow Device Override

Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Require Forced Authorization Code

Authorization Level

Require Client Matter Code

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation



CallManager Route Pattern Configuration (4 of 5)

Calling Name Presentation	Default	
Connected Party Transformations		
Connected Line ID Presentation	Default	
Connected Name Presentation	Default	
Called Party Transformations		
Discard Digits	< None >	
Called Party Transform Mask		
Prefix Digits (Outgoing Calls)		
ISDN Network-Specific Facilities Information Element		
Carrier Identification Code		
Network Service Protocol	— Not Selected —	
Network Service	Service Parameter Name	Service Parameter Value
— Not Selected —	< Not Exist >	

* indicates required item.

CallManager Route Pattern Configuration (5 of 5)

[Add a New Route Pattern](#)
[Back to Find/List Route Patterns](#)

Route Pattern Configuration

Route Pattern: 97XXX
Status: Ready
Note: Any update to this Route Pattern automatically resets the associated gateway or Route List

Pattern Definition

Route Pattern*	97XXX	
Partition	< None >	
Description	PSTN or Agent	
Numbering Plan*	North American Numbering Plan	
Route Filter	< None >	
MLPP Precedence	Default	
Gateway or Route List*	S0/SU2/DS1-1@c2811 (Edit)	
Route Option	<input checked="" type="radio"/> Route this pattern <input type="radio"/> Block this pattern — Not Selected —	
Call Classification*	OffNet	<input type="checkbox"/> Allow Device Override
<input type="checkbox"/> Provide Outside Dial Tone	<input type="checkbox"/> Allow Overlap Sending	<input checked="" type="checkbox"/> Urgent Priority
<input type="checkbox"/> Require Forced Authorization Code	Authorization Level: 0	
<input type="checkbox"/> Require Client Matter Code		

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask	
Prefix Digits (Outgoing Calls)	



CallManager Route Plans (1 of 3)

Pattern/Directory Number	Partition	Type	Route Detail
1XXX		Route Pattern	<ul style="list-style-type: none"> Calls_to_Callplus 2821_then_2811 MBECP S1/SU0/DS1-0@c2821, all ports MBECP S0/SU2/DS1-1@c2811, all ports
4000		Directory Number	ADP0003E3340763
4000		Directory Number	SEP0003E3340763
4001		Directory Number	SEP003094C32A3B
4002		Directory Number	SEP0003E3340766
4003		Directory Number	SEP000BBEE39AB6
4005		Directory Number	James Dean
4006		Directory Number	SEP0003E3340763
4006		Directory Number	SEP000BBEE39AB6
4006		Directory Number	ADP0003E3340763
4010		Directory Number	CallFwd
4020		Translation Pattern	
4100		Call Park	
4199		Translation Pattern	

CallManager Route Plans (2 of 3)

4199		Translation Pattern	
4299		Directory Number	4299
4300		Conference	
4999		Call Pickup Group	
5XXX		Route Pattern	<ul style="list-style-type: none"> Calls_to_Callplus 2821_then_2811 MBECP S1/SU0/DS1-0@c2821, all ports MBECP S0/SU2/DS1-1@c2811, all ports
8000		Hunt Pilot	<ul style="list-style-type: none"> VoiceMail-Pilot VoiceMail-Huntgroup 8001 8002
8001		Voice Mail Port	CiscoUM1-V11



CallManager Route Plans (3 of 3)

Cisco CallManager Administration
For Cisco IP Telephony Solutions

CISCO SYSTEMS

Matching record(s) 21 to 24 of 24

Pattern/Directory Number	Partition	Type	Route Detail
8002		Voice Mail Port	CiscoUM1-V12
8040		Message Waiting	
8041		Message Waiting	
97XXX		Route Pattern	S0/SU2/DS1-0@c2811, all ports

CallManager Translation Patterns

Find and List Translation Patterns [Add a New Translation Pattern](#)

2 matching record(s) for Pattern begins with ""

Find Translation patterns where begins with

and show items per page
To list all items, click Find without entering any search text.

Matching record(s) 1 to 2 of 2

<input type="checkbox"/>	Translation Pattern	Partition	Description	Route Filter	Copy
<input type="checkbox"/>	4020		Divert to Call pl...		
<input type="checkbox"/>	4199		Divert to 4001		

First Previous Next Last Page of 1



CallManager Service Parameters

Name	Parameter Value	Suggested Value
Path Replacement Enabled*	<input type="text" value="True"/>	False
Path Replacement on Tromboned Calls*	<input type="text" value="True"/>	True
Start Path Replacement Minimum Delay Time (sec)*	<input type="text" value="4"/>	0
Start Path Replacement Maximum Delay Time (sec)*	<input type="text" value="10"/>	0
Path Replacement T1 Timer (sec)*	<input type="text" value="30"/>	30
Path Replacement T2 Timer (sec)*	<input type="text" value="15"/>	15
Path Replacement PINX ID	<input type="text" value="4999"/>	
Path Replacement Calling Search Space	<input type="text" value="< None >"/>	
Clusterwide Parameters (Feature - Call Back)		



CallManager PINX Pickup Group

Pickup Group Configuration

Pickup Group: PINX

Status: Ready

Pickup Group Information

Pickup Group Name*

Pickup Group Number*

Route Partition

Associated Pickup Group Information

Find Pickup Numbers to add to Pickup Group

Route Partition

Pickup Numbers Contain

Available Call Pickup
Numbers/Route
Partition

Current Pickup Group Members

Selected Pickup
Numbers/Route
Partition

4999



Configuring the Cisco 2811

```
c2811#sh run
```

```
Building configuration...
```

```
Current configuration : 2464 bytes
```

```
!
```

```
version 12.4
```

```
service timestamps debug datetime msec
```

```
service timestamps log datetime msec
```

```
service password-encryption
```

```
!
```

```
hostname c2811
```

```
!
```

```
boot-start-marker
```

```
boot system flash:c2800nm-ipvoicek9-mz.124-9.T2.bin
```

```
boot-end-marker
```

```
!
```

```
card type e1 0 2
```

```
enable password 7 104D000A0618
```

```
!
```

```
no aaa new-model
```

```
!
```

```
resource policy
```

```
!
```

```
network-clock-participate wic 2
```

```
!
```

```
ip cef
```

```
!
```

```
no ip domain lookup
```



```
!  
isdn switch-type primary-net5  
!  
voice-card 0  
no dspfarm  
!  
controller E1 0/2/0  
pri-group timeslots 1-31 service mgcp  
!  
controller E1 0/2/1  
pri-group timeslots 1-31 service mgcp  
!  
interface FastEthernet0/0  
ip address 20.0.0.240 255.0.0.0  
duplex auto  
speed auto  
!  
interface FastEthernet0/1  
no ip address  
shutdown  
duplex auto  
speed auto  
!  
interface FastEthernet0/1/0  
!  
interface FastEthernet0/1/1  
!  
interface FastEthernet0/1/2  
!
```



```
interface FastEthernet0/1/3
!
interface FastEthernet0/1/4
!
interface FastEthernet0/1/5
!
interface FastEthernet0/1/6
!
interface FastEthernet0/1/7
!
interface FastEthernet0/1/8
!
interface Serial0/2/0:15
no ip address
encapsulation hdlc
isdn switch-type primary-net5
isdn protocol-emulate network
isdn incoming-voice voice
no cdp enable
!
interface Serial0/2/1:15
no ip address
encapsulation hdlc
isdn switch-type primary-qsig
isdn protocol-emulate network
isdn incoming-voice voice
isdn T310 120000
no cdp enable
!
```



```
interface Vlan1
no ip address
!
ip http server
no ip http secure-server
!
control-plane
!
voice-port 0/2/0:15
cptone C1
!
voice-port 0/2/1:15
cptone C1
!
ccm-manager fallback-mgcp
ccm-manager mgcp
ccm-manager music-on-hold
ccm-manager config server 20.0.0.1
ccm-manager config
ccm-manager download-tones
!
mgcp
mgcp call-agent 20.0.0.1 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 ip qos dscp cs3 signaling
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
!
banner motd ^CC
***** 2811 *****
***** 2811 *****
^C
!
line con 0
line aux 0
line vty 0 4
password 7 104D000A0618
login
!
scheduler allocate 20000 1000
!
end

c2811#
```



Configuring the Cisco 2821

```
c2821#sh run
```

```
Building configuration...
```

```
Current configuration : 2155 bytes
```

```
!
```

```
version 12.4
```

```
service timestamps debug datetime msec
```

```
service timestamps log datetime msec
```

```
service password-encryption
```

```
!
```

```
hostname c2821
```

```
!
```

```
boot-start-marker
```

```
boot-end-marker
```

```
!
```

```
enable password 7 1511021F0725
```

```
!
```

```
no aaa new-model
```

```
!
```

```
resource policy
```

```
!
```

```
network-clock-participate slot 1
```

```
voice-card 0
```

```
no dspfarm
```

```
!
```

```
voice-card 1
```

```
no dspfarm
```

```
!
```



```
ip cef
!
no ip domain lookup
!
isdn switch-type primary-net5
!
controller E1 1/0/0
  pri-group timeslots 1-31 service mgcp
!
controller E1 1/0/1
  pri-group timeslots 1-31 service mgcp
!
interface GigabitEthernet0/0
  no ip address
  shutdown
  duplex auto
  speed auto
!
interface GigabitEthernet0/1
  ip address 20.0.0.250 255.0.0.0
  duplex auto
  speed auto
!
interface Serial1/0/0:15
  no ip address
  encapsulation hdlc
  isdn switch-type primary-net5
  isdn overlap-receiving
  isdn protocol-emulate network
```



```
isdn incoming-voice voice
no cdp enable
!
interface Serial1/0/1:15
no ip address
encapsulation hdlc
isdn switch-type primary-qsig
isdn overlap-receiving
isdn incoming-voice voice
no cdp enable
!
ip http server
no ip http secure-server
!
control-plane
!
voice-port 1/0/0:15
cptone C1
!
voice-port 1/0/1:15
cptone C1
!
ccm-manager fallback-mgcp
ccm-manager mgcp
ccm-manager music-on-hold
ccm-manager config server 20.0.0.1
ccm-manager config
ccm-manager download-tones
!
```




```
mgcp
mgcp call-agent 20.0.0.1 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 ip qos dscp cs3 signaling
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
!
dial-peer voice 1 pots
service mgcp
!
banner motd ^C
***** 2821 *****
***** 2821 *****
^C
!
line con 0
line aux 0
line vty 0 4
```



```
password 7 070C285F4D06
```

```
login
```

```
!
```

```
scheduler allocate 20000 1000
```

```
!
```

```
end
```

```
c2821#
```



Acronyms

Acronym	Definitions
BTNR	British Telecom Network Requirement (BT Standard)
DPNSS	Digital Private Network Signalling System
MGCP	Media Gateway Control Protocol
NM-HDV	Network Module – High Density Voice (Cisco Router Module)
PINX	Private Integrated Network Exchange
QSIG	Q (Point of the ISDN) Model
ROP	(DPNSS) Route Optimisation
VWIC	Voice / WAN Interface Card (Cisco Router Module)



Important Information

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

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



**Corporate
Headquarters**

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

**European
Headquarters**

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

**Americas
Headquarters**

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

**Asia Pacific
Headquarters**

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

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

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

© 2007 Cisco Systems, Inc. All rights reserved.

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

All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0705R)

Printed in the USA