

NEC IPX2400 PBX with Cisco 3845 T1 QSIG as an MGCP Gateway to Cisco Unified CallManager 4.2 and Cisco Emergency Responder 1.

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Table of Contents

Introduction	
Network Topology	3
Limitations.	
System Components	
Hardware Requirements	
Software Requirements	
Features	
Configuration	
Cisco Unified CallManager Configuration	
Cisco Emergency Responder Configuration	52
NEC IPX2400 Configuration	
Acronyms	

Note: Cisco CallManager is now known as Cisco Unified CallManager in release 4.0 and later releases.



Introduction

The following is an Application Note for Interoperability of a Cisco Unified CallManager 4.2, Cisco Emergency Responder 1.3 and Cisco 3845 with CAMA interface and T1-QSIG trunk with a NEC IPX2400 PBX interconnected via VWIC-2MFT-T1

Test emergency 911 call from a PBX digital station was routed to the T1 QSIG trunk, of the Cisco 3845 MGCP gateway, and was correctly associated to the appropriate Emergency Response Location. The call was connected through the Cisco 3845 CAMA trunk to the PSAP Emulator. The Emergency Response Location associated the ten digit DID call back number (ELIN) correctly and sent it to the PSAP, audio connection was also achieved. The PBX digital station was then disconnected.

A return call was originated from an incoming trunk (PSTN side) in the same Cisco Unified CallManager Partition. The number dialed was the DID digits of the 10 digit call back number sent to the PSAP on the previous 911 call (ELIN number). The call was routed through to the PBX digital station that had originated the E911 call. The call was disconnected and an alternate trunk was used to dial the same DID number and the call was routed through, again, to the PBX digital station that had originated the E911 call.

Test emergency 911calls were made from each PBX digital station and Cisco IP phone. All calls were confirmed to select its associated Emergency Response Location and the associated 10 digit DID call back number. In each case, the call was disconnected and the call back number was confirmed to reach the phone that had originated the E911 call.

Emergency 911calls made from a NEC IPX2400 PBX utilizing a T1 QSIG trunk configured as ISO, associates with the correct Emergency Response Location and routes to the associated PSAP with the correctly formatted 10 digit DID call back number.

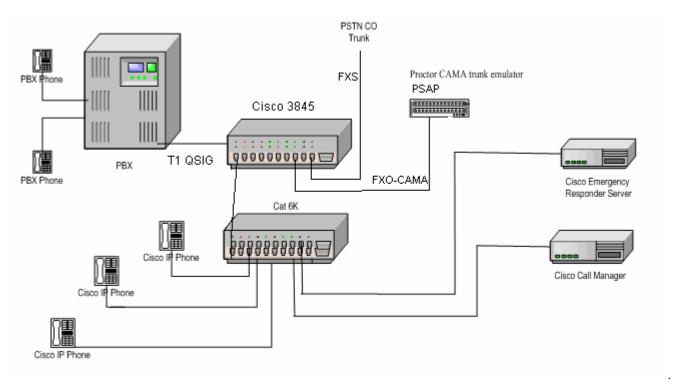
The call back DID number routes the return call to the correct phone that had originated the E911 call from the PBX digital phone.

Figure 1 shows the test set-up for interoperability between the Cisco Unified CallManager and Cisco Emergency Responder connected to the PBX via a T1 QSIG trunk using Cisco3845 MGCP Gateway.



Network Topology

Figure 1. Network Topology or Test Setup



Limitations

Unique DID numbers must be used to associate with each Emergency Response Location to allow the return call if the 911 caller is disconnected.

Each available calling party that might dial 911 from the PBX side must have that calling party number configured in the Manually Configured Phones screen of the Cisco Emergency Responder.

System Components

Hardware Requirements

Cisco Hardware

Cisco 3845 Gateway with NM-HD/VWIC-2MFT-T1 (QSIG trunk) and NM-HD-V2/VIC2-4FXO (CAMA trunk)

Cisco Catalyst 6x00 switch

Cisco Unified CallManager

Cisco Emergency Responder

NEC IPX2400 PBX

Software Requirements

Cisco IOS Software releases "c3845-ipvoice-mz.123-14.T4".

PBX Software: Release 15



Cisco Unified CallManager 4.2 (0.839)

Cisco Emergency Responder 1.3 (0.105)

Features

Calling Number

E911 ERL DID number passed to PSAP

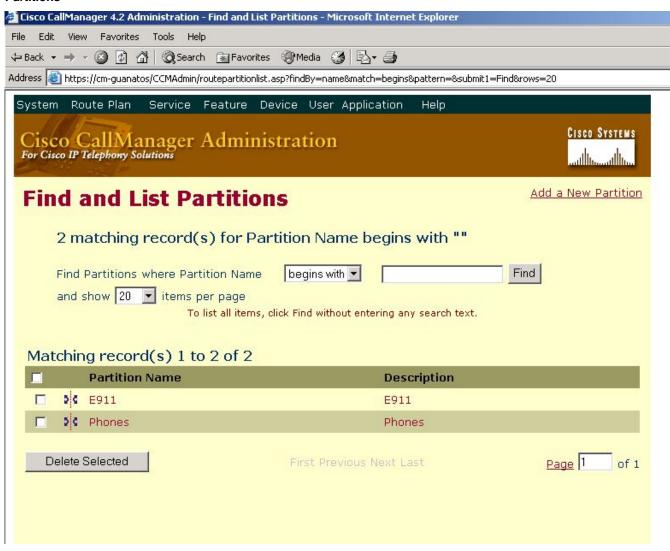
Incoming DID calling to disconnected 911 originating caller



Configuration

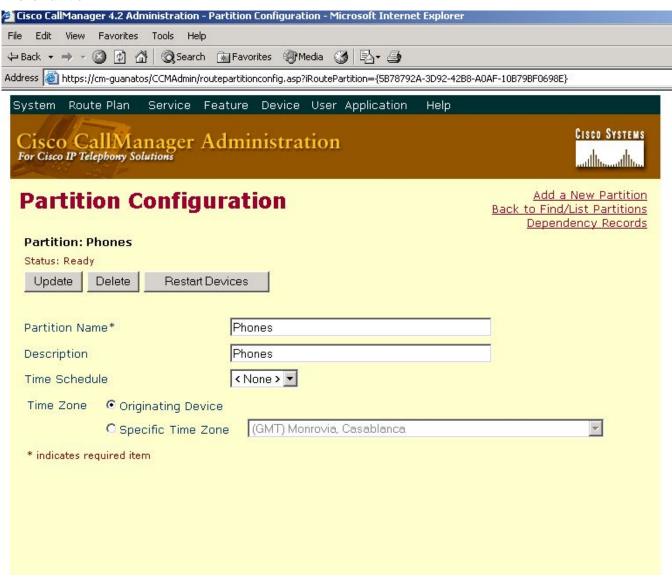
Cisco Unified CallManager Configuration

Partitions



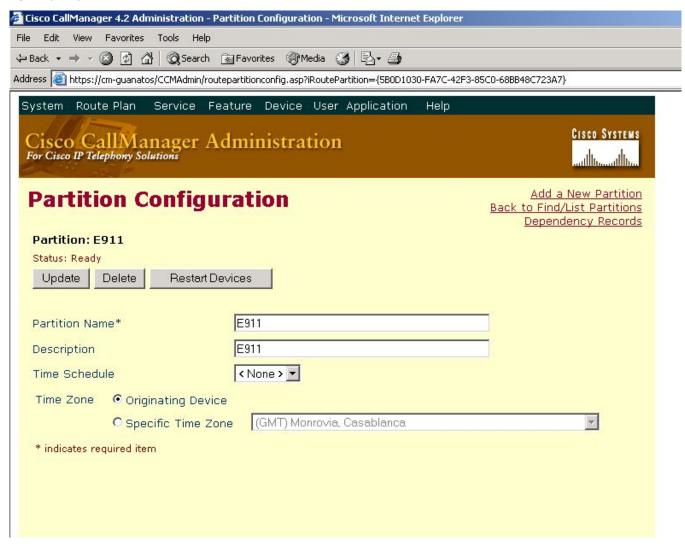


Phone Partition



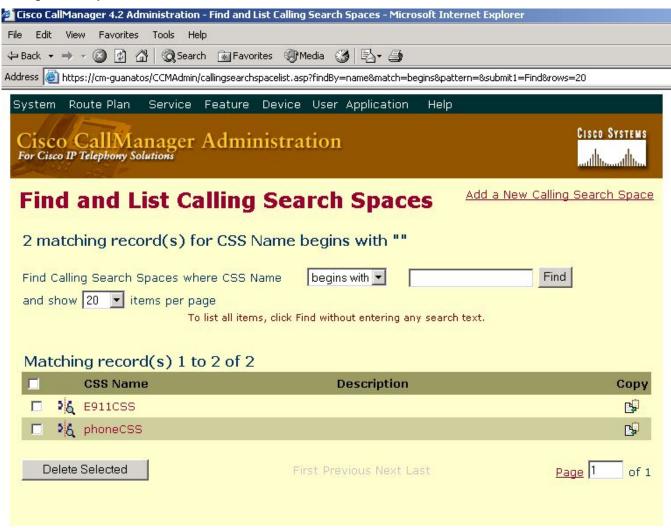


E911 Partition



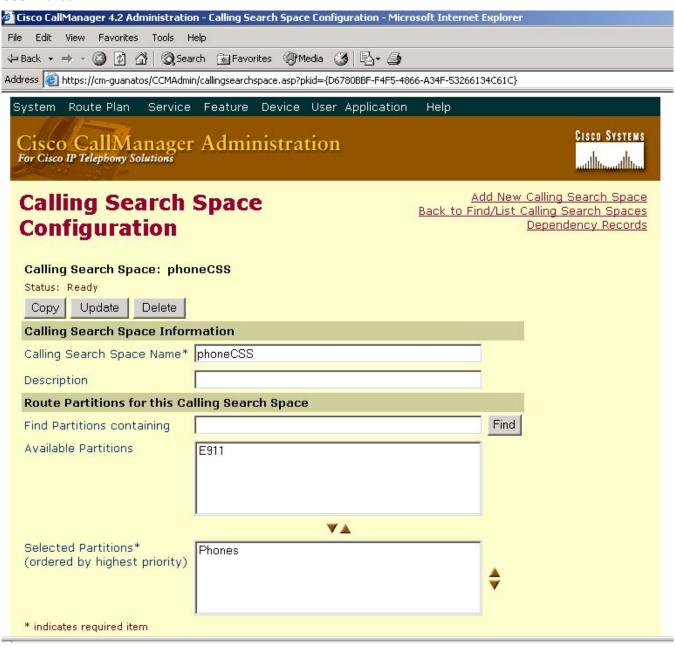


Calling Search Space



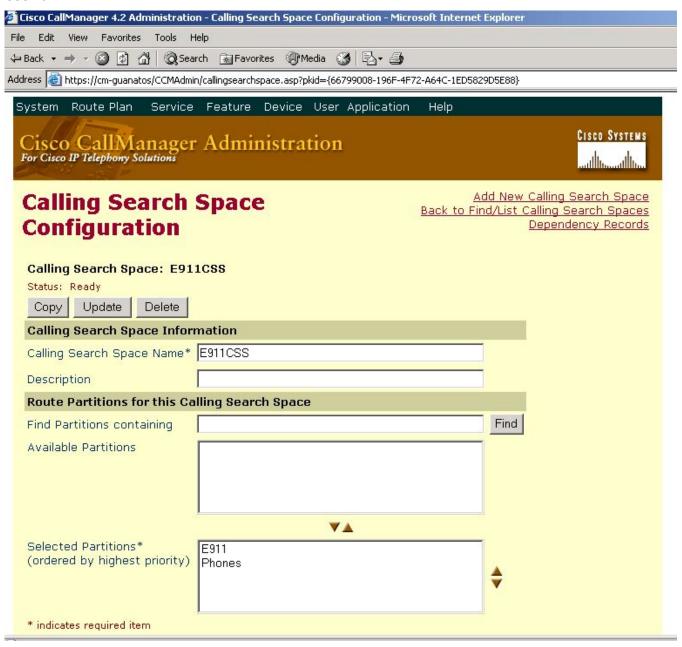


CSS Phones





CSS E911

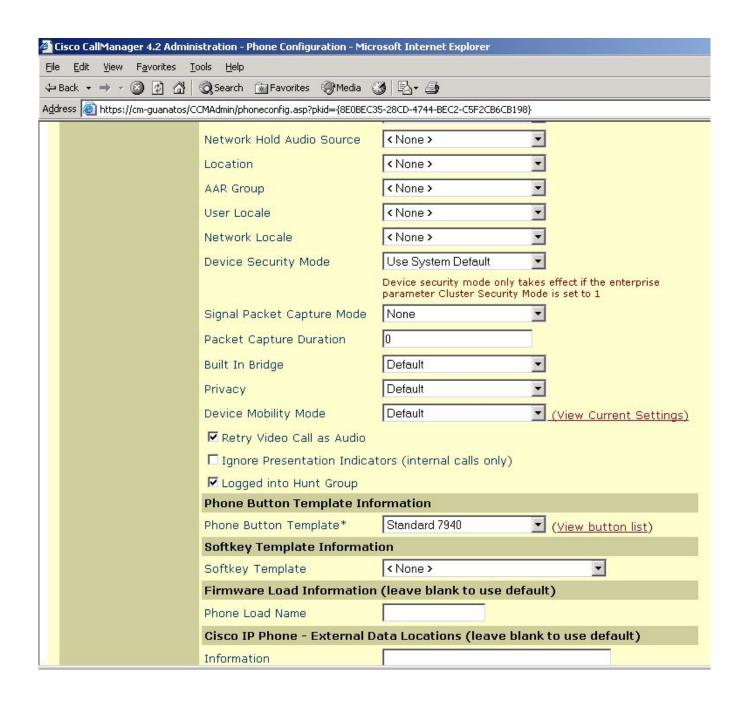




CCM IP Phones







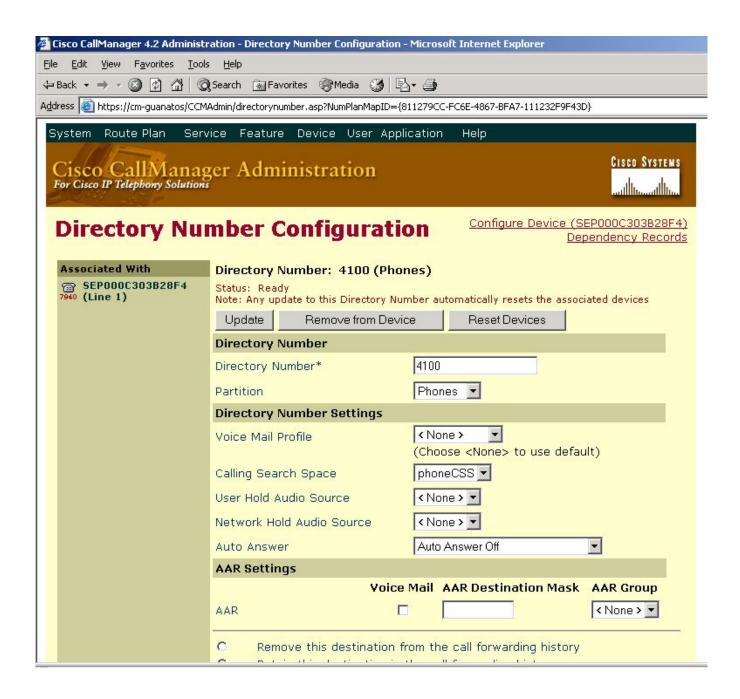


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Lo	og In Time	< None >	
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C	ertificate Operation	No Pending Operation 👤	
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A	uthentication String	Ge	nerate String
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	Authentication String		Generate String			
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	Video Capabilities*	Disabled				
	Auto Line Select*	Disabled	•			
	Web Access*	Enabled				
	* indicates a required item. ** Indicates time on Publisher.	<u>B</u> a	Back to top of page ock to Find/List Phones			







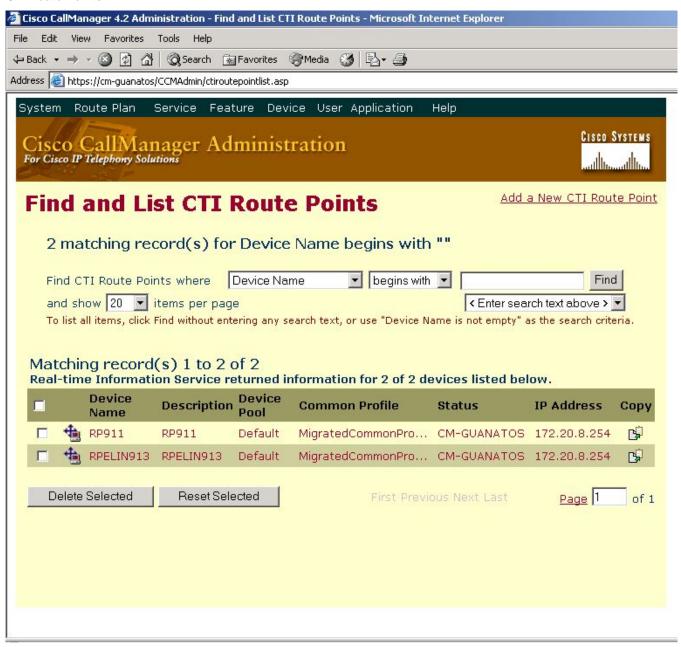
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	Forward Busy External	ᅜ	4200	< None >	
	Forward No Answer Internal	ᅜ	4200	< None >	
	Forward No Answer External	V	4200	< None >	
	Forward No Coverage Internal			< None >	
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	Call Pickup Group	≺ Non	e > 🔻 (<u>View D</u>	etails)	
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	Display (Internal Caller ID)	Omarl	Bravo		



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	Line Settings for this Device				
	Display (Internal Caller ID) Omar Bravo				
	Line Text Label Omar Bravo				
	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				
	Call Pickup Group Audio Alert Setting(Phone Idle) Use System Default				
	Call Pickup Group Audio Alert Setting(Phone Active) Use System Default				
	Multiple Call / Call Waiting Settings				
	Maximum Number of Calls* 4 (1 - 200)				
	Busy Trigger* 2 (<= Max. Calls)				
	Forwarded Call Information Display				
	✓ Caller Name ☐ Caller Number				
	☐ Redirected Number ☑ Dialed Number				
	* indicates required item; changes to Line or Directory Number settings require restart.				
	** Ring Setting (Phone Active) applies to this line when any line on the phone has a call in progress.				
	Note: If you are using a language other than English for Display (Internal Caller ID) or Line Text Label text, make sure the correct character set (shown below) is selected. Text displays incorrectly if the wrong characterset is selected. (English characters are included in all character sets.)				
	Character Set Western European (Latin 1)				

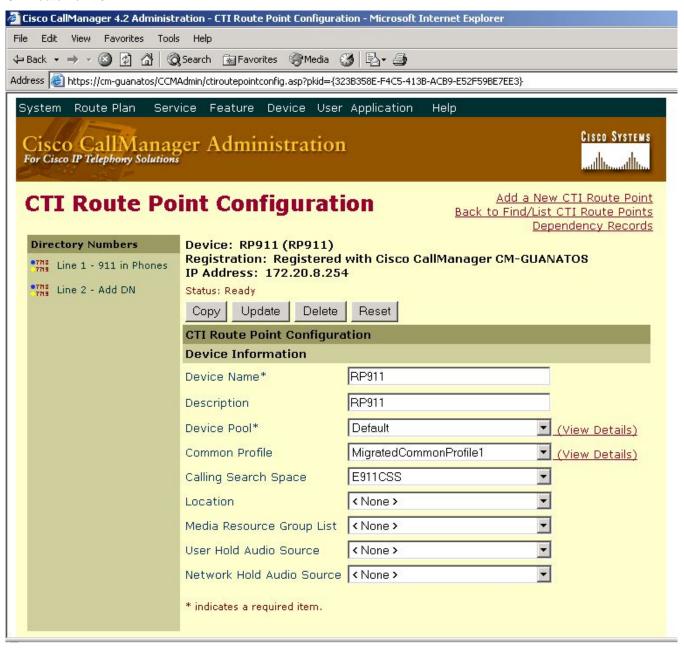


CTI Route Points

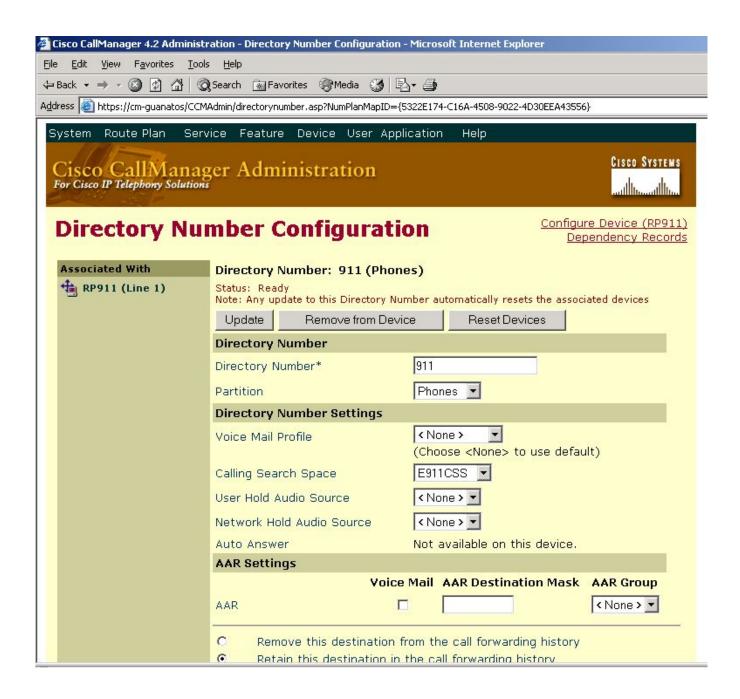




CTI Route Point 911









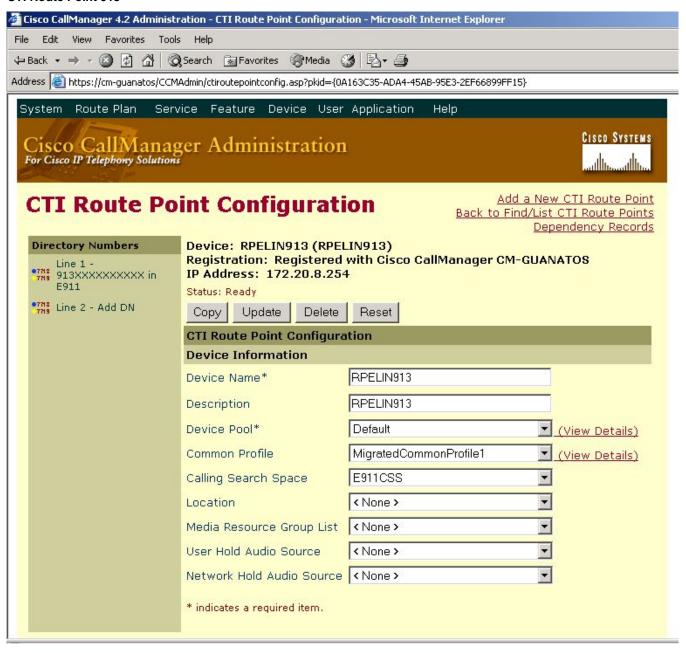
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	Retain this destination in the call forwarding history				
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	Forward All			< None > ▼	
	Forward Busy Internal			< None > ▼	
	Forward Busy External			< None > ▼	
	Forward No Answer Internal			<none></none>	
	Forward No Answer External			<none></none>	
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	Forward No Coverage External			<none> ▼</none>	
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	Forward On Failure Ext/Int		<u></u>	<none> ▼</none>	
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	MLPP Alternate Party Settings				
	Target (Destination)				
	Calling Search Space	< Non	e> •		
	No Answer Ring Duration		(seconds)		
	Line Settings for all Devices				
	Alerting Name				
	Line Settings for this Device				



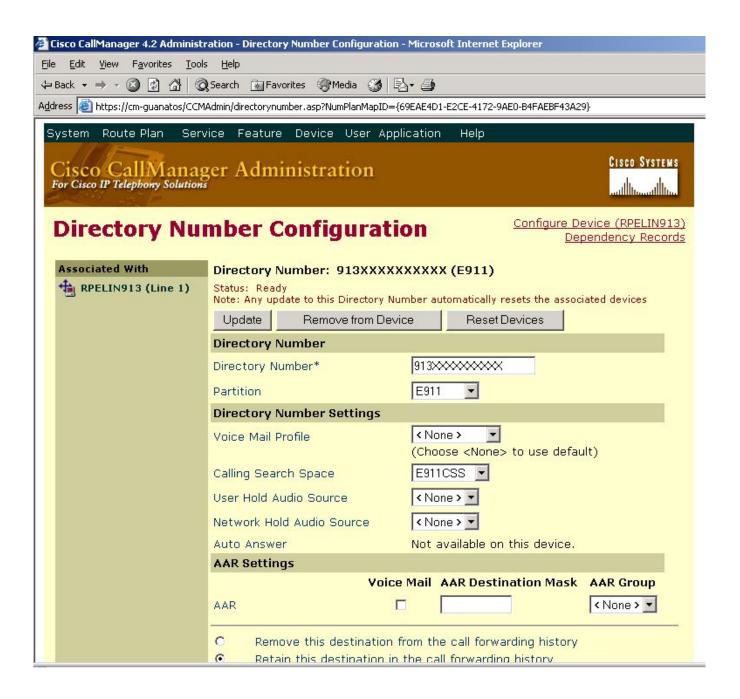
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	Alerting Name				
	Line Settings for this Device				
	Display (Internal Caller ID)				
	Line Text Label	Not available on this device.			
	External Phone Number Mask				
	Message Waiting Lamp Policy	Not available on this device.			
	Ring Setting (Phone Idle)	Not available on this device.			
	Ring Setting (Phone Active)**	Not available on this device.			
	Call Pickup Group Audio Alert Setting(Phone Idle)	Not available on this device.			
	Call Pickup Group Audio Alert Setting(Phone Active)	Not available on this device.			
	Multiple Call / Call Waiting 9	Settings			
	Maximum Number of Calls*	5000 (1 - 10000)			
	Busy Trigger*	4500 (<= 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.			
	Note: If you are using a language other than English for Display (Internal Caller ID) or Line Text Label text, make sure the correct character set (shown below) is selected. Text displays incorrectly if the wrong characterset is selected. (English characters are included in all character sets.)				
	Character Set Western Europ	pean (Latin 1)			
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CTI Route Point 913









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	Forward No Answer Internal			< None >	▼
	Forward No Answer External			< None >	•
	Forward No Coverage Internal			< None >	
	Forward No Coverage External			< None >	•
	Forward Unregistered Internal			< None >	▼
	Forward Unregistered External			< None >	•
	Forward On Failure Ext/Int			< None >	•
	No Answer Ring Duration		(seconds)		
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	MLPP Alternate Party Setting	gs			
	Target (Destination)				
	Calling Search Space	≺ Non	e> •		
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	Alerting Name				
	Line Settings for this Device				



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	Line Settings for all Devices			
	Alerting Name			
	Line Settings for this Device			
	Display (Internal Caller ID)			
	Line Text Label	Not available on this device.		
	External Phone Number Mask			
	Message Waiting Lamp Policy	Not available on this device.		
	Ring Setting (Phone Idle)	Not available on this device.		
	Ring Setting (Phone Active)**	Not available on this device.		
	Call Pickup Group Audio Alert Setting(Phone Idle)	Not available on this device.		
	Call Pickup Group Audio Alert Setting(Phone Active)	Not available on this device.		
	Multiple Call / Call Waiting S	Settings		
	Maximum Number of Calls*	5000 (1 - 10000)		
	Busy Trigger*	4500 (<= 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.		
	Note: If you are using a language other than English for Display (Internal Caller ID) or Line Text Label text, make sure the correct character set (shown below) is selected. Text displays incorrectly if the wrong characterset is selected. (English characters are included in all character sets.)			
	Character Set Western Europ	ean (Latin 1)		

Note: A Backup CER server was not used during testing therefore CTI route point for 912 was not created.



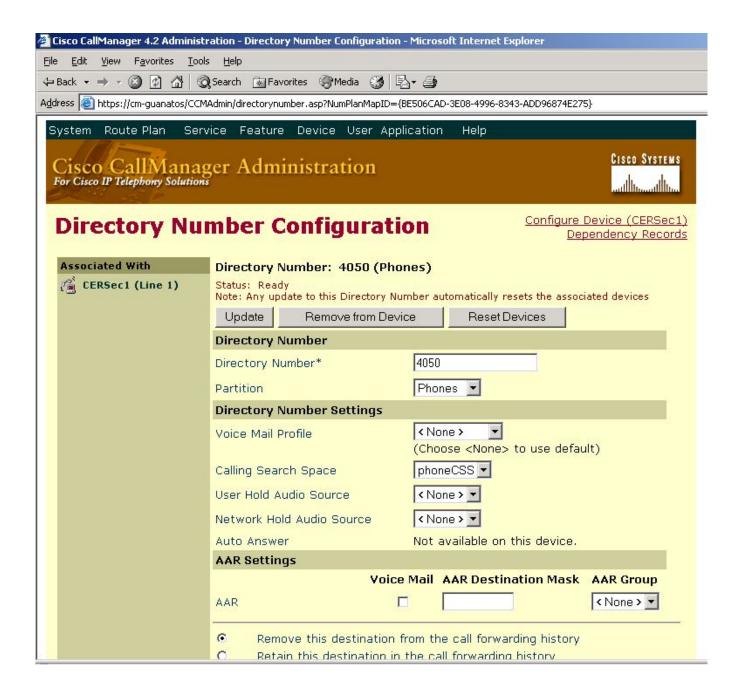
CTI Port





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Description CERSec1 Owner User ID Device Pool* Common Profile Calling Search Space AAR Calling Search Space Media Resource Group List User Hold Audio Source Network Hold Audio Source Network Hold Audio Source CNone > Location AAR Group Device Mobility Mode Default Ignore Presentation Indicators (internal calls only) Logged into Hunt Group Multilevel Precendence and Preemption (MLPP) Information MLPP Domain MLPP Indication Not available on this device	4 Back → → - 🔕 🗗 🚮	Search 📓 Favorites 🥡 Media	Ø ₽· ₽		
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User Hold Audio Source		AAR Calling Search Space			
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Back to Find/List Phones				Back to Find/List Phones	







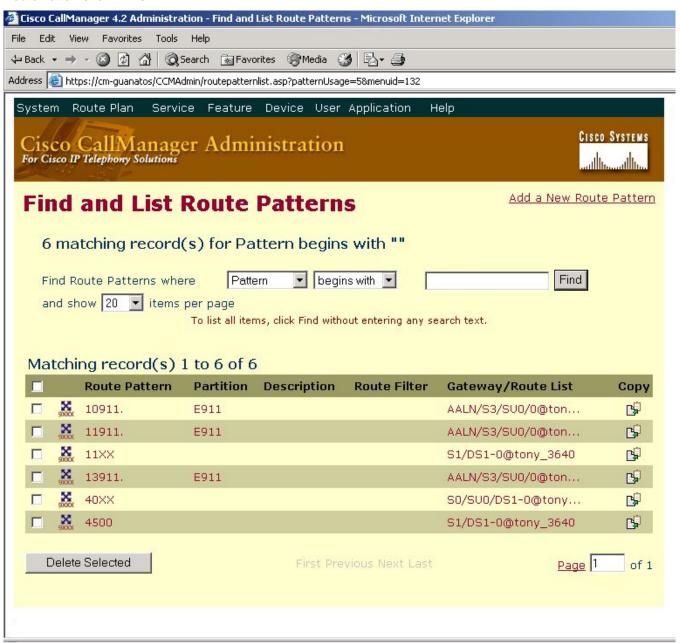
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	Yold	e Mail	Destination	Calling Search Space	
	Forward All			< None > ▼	
	Forward Busy Internal			< None > ▼	
	Forward Busy External			< None > ▼	
	Forward No Answer Internal			< None > ▼	
	Forward No Answer External			< None > ▼	
	Forward No Coverage Internal			< None > ▼	
	Forward No Coverage External			< None > ▼	
	Forward Unregistered Internal			<none> ▼</none>	
	Forward Unregistered External			<none> ▼</none>	
	Forward On Failure Ext/Int			<none> ▼</none>	
	No Answer Ring Duration		(seconds)		
	Call Pickup Group	< Non	e > 🔻 (<u>View D</u>	petails)	
	MLPP Alternate Party Setting	gs			
	Target (Destination)				
	Calling Search Space	< Non	e> •		
	No Answer Ring Duration		(seconds)		
	Line Settings for all Devices				
	Alerting Name				
	Line Settings for this Device				



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Address a https://cm-guanatos/CCM	Admin/directorynumber.asp?NumPlanMapID	={BE506CAD-3E08-4996-8343-ADD96874E275}			
	Alerting Name				
	Line Settings for this Device				
	Display (Internal Caller ID)				
	Line Text Label	<u> </u>			
	External Phone Number Mask				
	Message Waiting Lamp Policy	Use System Policy 🔽			
	Ring Setting (Phone Idle)	Not available on this device.			
	Ring Setting (Phone Active)**	Not available on this device.			
	Call Pickup Group Audio Alert Setting(Phone Idle)	Not available on this device.			
	Call Pickup Group Audio Alert Setting(Phone Active)	Not available on this device.			
	Multiple Call / Call Waiting 9	Settings			
	Maximum Number of Calls*	4 (1 - 200)			
	Busy Trigger*	2 (<= Max. Calls)			
	Forwarded Call Information	Display			
	✓ Caller Name	Caller Number			
	Redirected Number	☑ Dialed Number			
	* indicates required item; changes	to Line or Directory Number settings require restart.			
	Note: If you are using a language other than English for Display (Internal Caller ID) or Line Text Label text, make sure the correct character set (shown below) is selected. Text displays incorrectly if the wrong characterset is selected. (English characters are included in all character sets.)				
	Character Set Western Europ	ean (Latin 1)			
	incorrectly if the wrong characterse character sets.)	et is selected. (English characters are included in all			

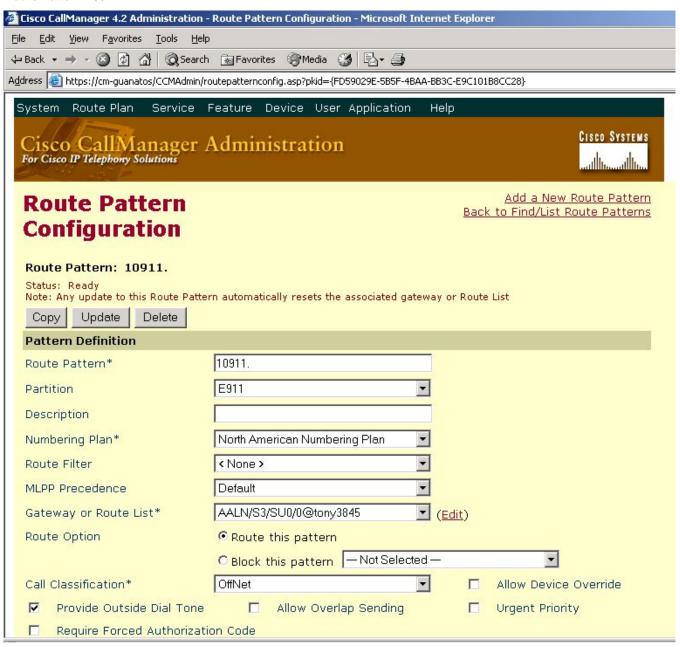


Route Patterns for ELINs





Route Pattern 10911

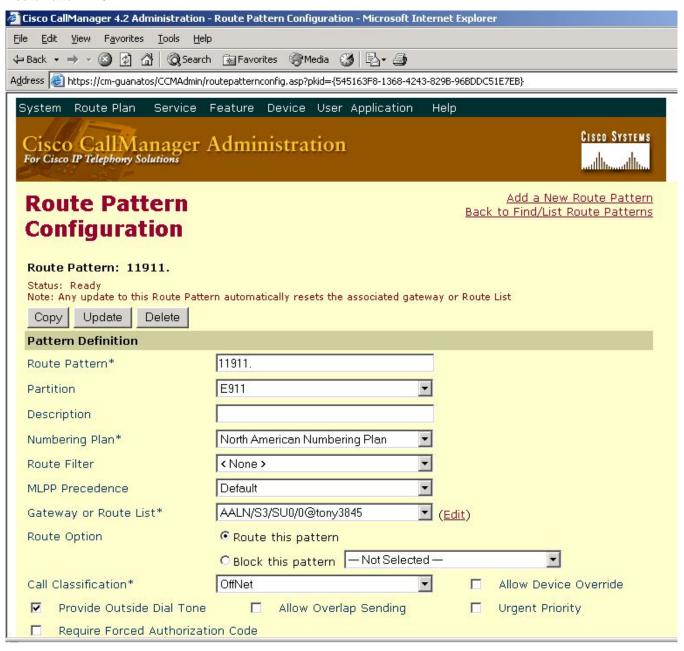




🚰 Cisco CallManager 4.2 Administration - I	Route Pattern Configuration - Microsoft Internet Explorer
<u>File Edit Yiew Favorites Tools H</u> elp	
← Back → → ✓ 🔕 🗗 🕍 🔯 Search	Favorites
Address Addres	utepatternconfig.asp?pkid={FD59029E-5B5F-4BAA-BB3C-E9C101B8CC28}
Authorization Level	0
☐ Require Client Matter Code	
Calling Party Transformations	
✓ Use Calling Party's External	Phone Number Mask
Calling Party Transform Mask	4089994200
Prefix Digits (Outgoing Calls)	
Calling Line ID Presentation	Default <u></u>
Calling Name Presentation	Default 🔽
Connected Party Transformati	ions
Connected Line ID Presentation	Default 🔽
Connected Name Presentation	Default <u></u>
Called Party Transformations	
Discard Digits	PreDot 🔽
Called Party Transform Mask	4089994200
Prefix Digits (Outgoing Calls)	
ISDN Network-Specific Facilitie	es Information Element
Carrier Identification Code	
Network Service Protocol	— Not Selected —
Network Service	Service Parameter Name Service Parameter Value
— Not Selected —	▼ NotExist>
* indicates required item.	



Route Pattern 11911

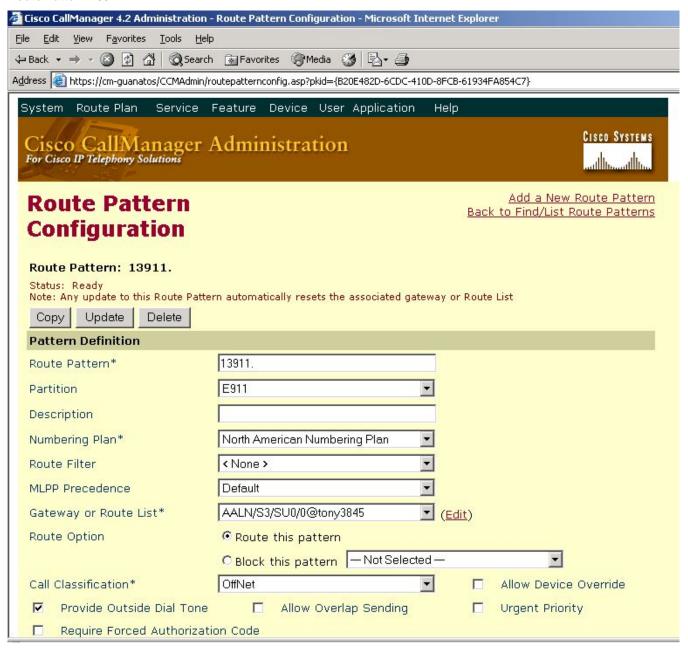




Cisco CallManager 4.2 Administration -	Route Pattern Configuration - Microsoft Internet Explorer
<u>File Edit View Favorites Tools Help</u>	
Back	Favorites
Address Address / https://cm-guanatos/CCMAdmin/rc	utepatternconfig.asp?pkid={545163F8-1368-4243-829B-96BDDC51E7EB}
Authorization Level	0
Require Client Matter Code	
Calling Party Transformations	
Use Calling Party's Externa	Phone Number Mask
Calling Party Transform Mask	4089994201
Prefix Digits (Outgoing Calls)	
Calling Line ID Presentation	Default 🔽
Calling Name Presentation	Default
Connected Party Transformat	ions
Connected Line ID Presentation	Default
Connected Name Presentation	Default
Called Party Transformations	
Discard Digits	PreDot 🔽
Called Party Transform Mask	
Prefix Digits (Outgoing Calls)	4089994201
ISDN Network-Specific Faciliti	es 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.	
(4)	



Route Pattern 13911

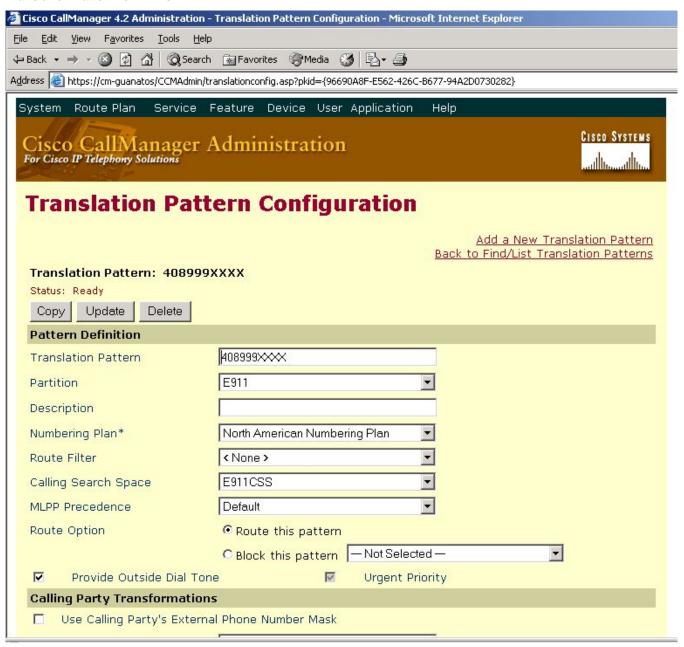




	Route Pattern Configuration - Microsoft Internet Explorer
File Edit View Favorites Tools Help	
	Favorites
Address https://cm-guanatos/CCMAdmin/ro	outepatternconfig.asp?pkid={B20E482D-6CDC-410D-8FCB-61934FA854C7}
Authorization Level	0
Require Client Matter Code	
Calling Party Transformations	
Use Calling Party's Externa	l Phone Number Mask
Calling Party Transform Mask	4089994203
Prefix Digits (Outgoing Calls)	
Calling Line ID Presentation	Default
Calling Name Presentation	Default ▼
Connected Party Transformat	ions
Connected Line ID Presentation	Default
Connected Name Presentation	Default ▼
Called Party Transformations	
Discard Digits	PreDot 🔻
Called Party Transform Mask	4089994203
Prefix Digits (Outgoing Calls)	
ISDN Network-Specific Facilit	es 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.	



Translation Pattern for ELINs

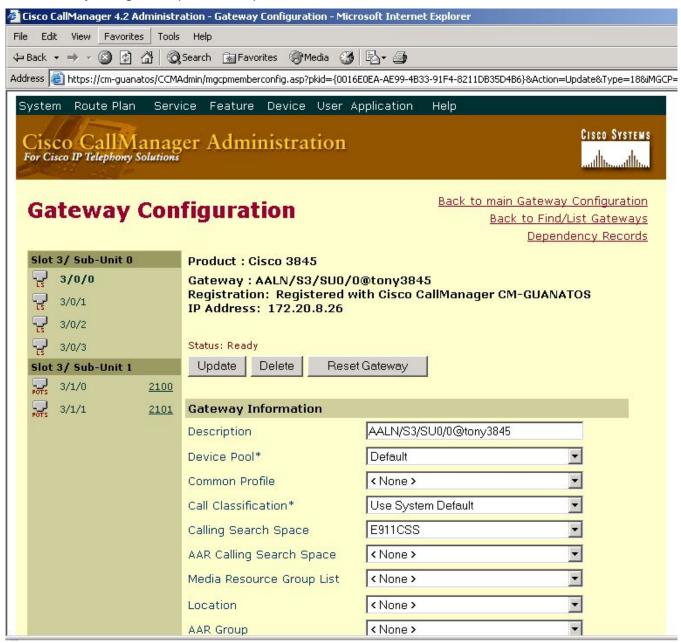




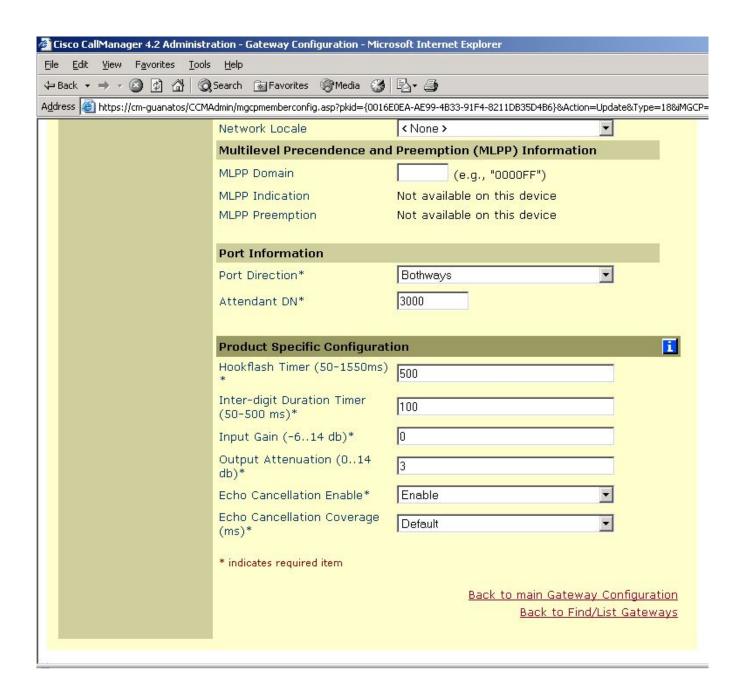
Cisco CallManager 4.2 Administration -	Translation Pattern Configuration - Microsoft Internet Explorer
<u>File Edit View Favorites Tools H</u> elp	
Back → → ✓ ② ② △ △ Search	
Address Mttps://cm-guanatos/CCMAdmin/tr	anslationconfig.asp?pkid={96690A8F-E562-426C-B677-94A2D0730282}
Numbering Plan*	North American Numbering Plan
Route Filter	< None >
Calling Search Space	E911CSS 🔻
MLPP Precedence	Default <u>▼</u>
Route Option	© Route this pattern
	○ Block this pattern ─ Not Selected ─
✓ Provide Outside Dial Tone	e
Calling Party Transformations	
Use Calling Party's Externa	l Phone Number Mask
Calling Party Transform Mask	
Prefix Digits (Outgoing Calls)	
Calling Line ID Presentation	Default 🔻
Calling Name Presentation	Default 🔻
Connected Party Transformat	tions
Connected Line ID Presentation	Default 🔻
Connected Name Presentation	Default ▼
Called Party Transformations	
Discard Digits	< None >
Called Party Transform Mask	
Prefix Digits (Outgoing Calls)	913
* indicates required item.	
2/4	



PSAP Gateway Configuration (CAMA Trunk)

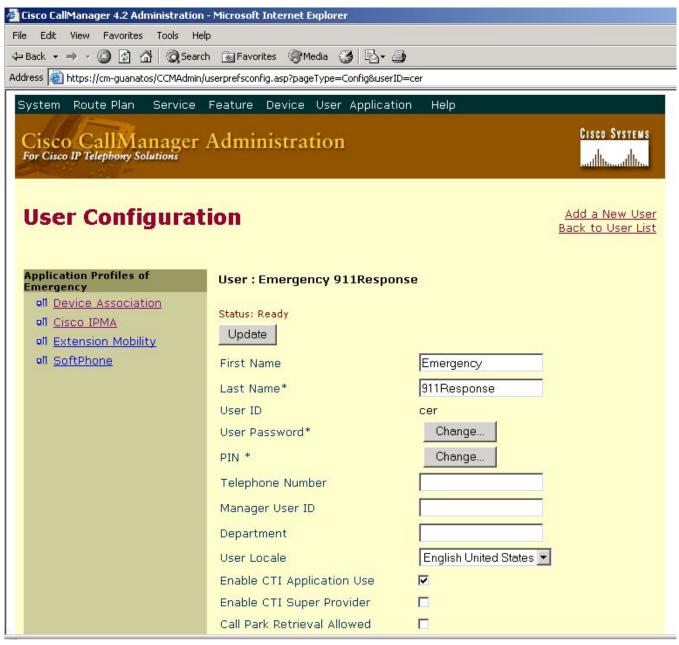




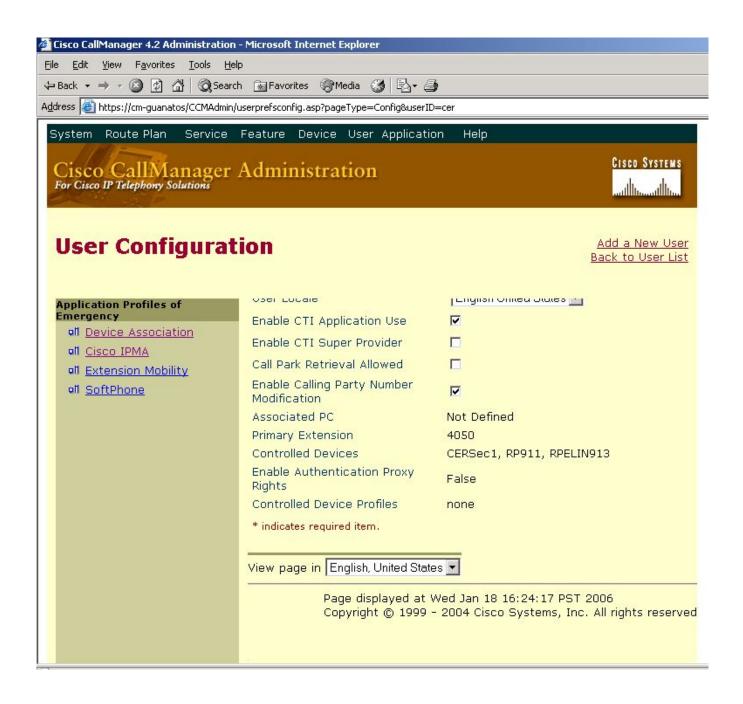




Cisco Unified CallManager User

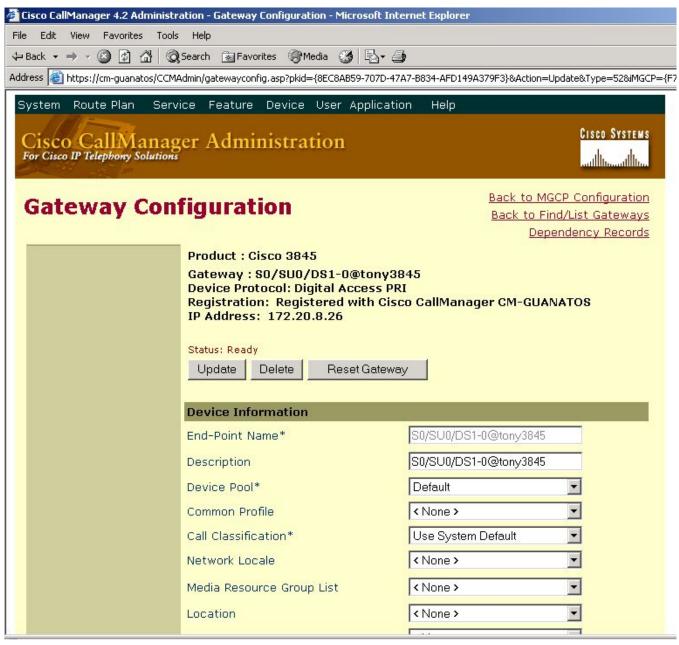








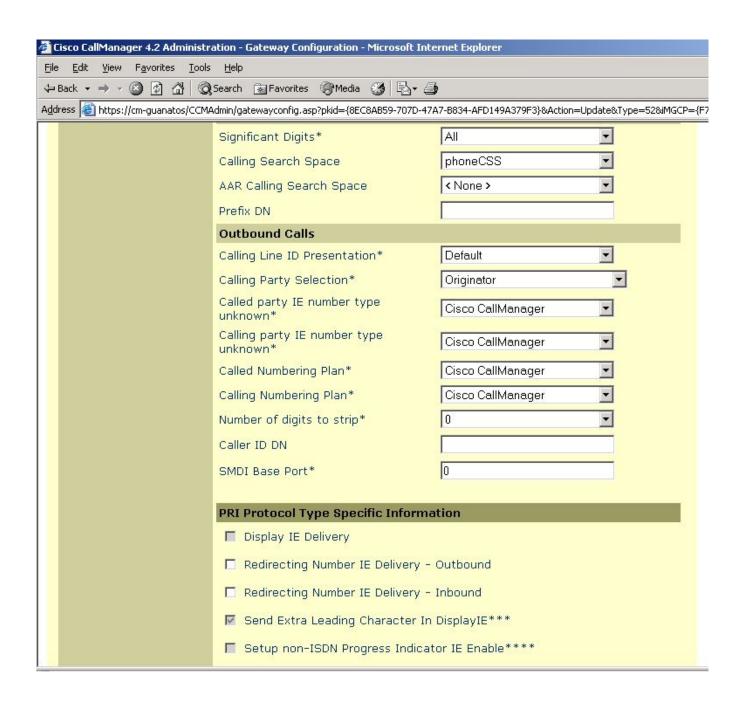
T1-QSIG Gateway



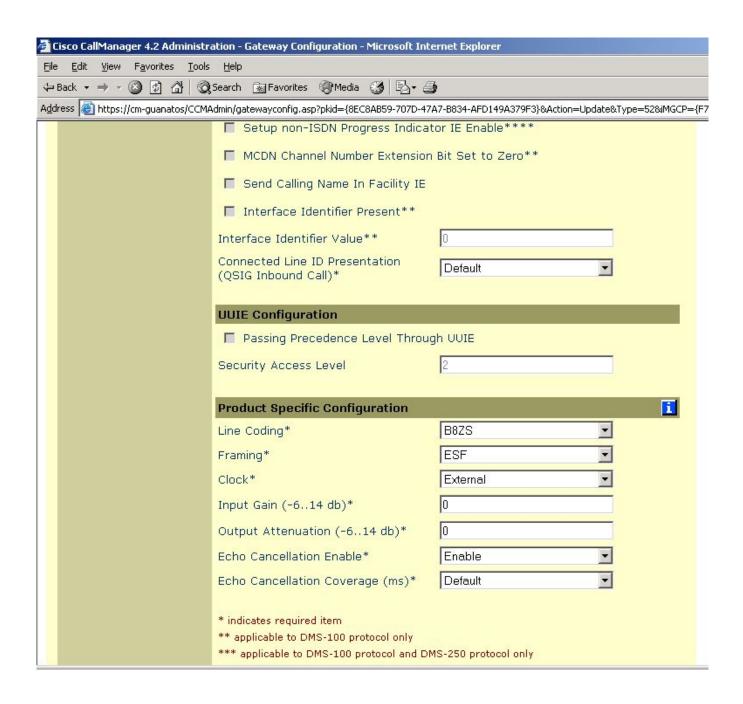


🗿 Cisco CallManager 4.2 Administr	ation - Gateway Configuration - Microsoft Inte	ernet Explorer
<u>File Edit Yiew Favorites T</u> ools	; <u>H</u> elp	
⇔ Back → → → ② ② ③ ⑥ ⑥	Search 🕍 Favorites 🍘 Media 🧭 🗟 🕶 🗐)
Address Address //cm-guanatos/CCM	Admin/gatewayconfig.asp?pkid={8EC8AB59-707D-474	A7-B834-AFD149A379F3}&Action=Update&Type=52&iMGCP={F7
	AAR Group	< None >
	Load Information	
	V150 (subset)	
	Multilevel Precendence and Preem	nption (MLPP) Information
	MLPP Domain (e.g., "0000FF")	
	MLPP Indication	Off 🔽
	MLPP Preemption	Disabled
	Interface Information	
	PRI Protocol Type*	PRI QSIG T1
	Protocol Side*	Network
	Channel Selection Order*	Top Down
	Channel IE Type*	Timeslot Number
	PCM Type*	μ-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 Sparch Space	phono(SS



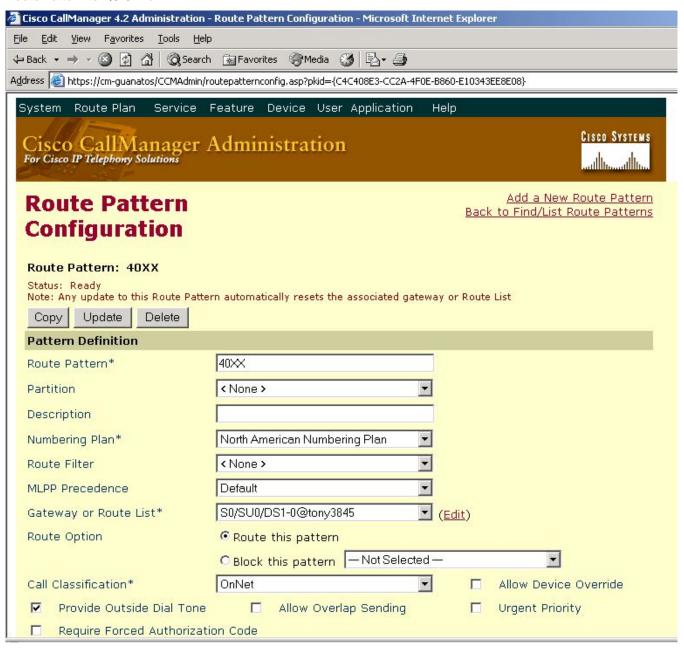








Route Pattern to QSIG Trunk



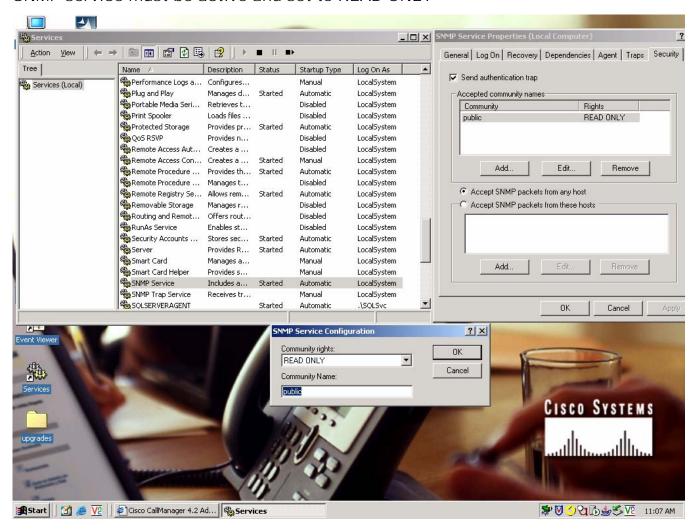


	Route Pattern Configuration - Microsoft Internet Explorer
File Edit View Favorites Tools Help	
Back → → ✓ ③ ☑ △ △ OSearch	
Agaress https://cm-guanatos/CCMAdmin/ro	utepatternconfig.asp?pkid={C4C408E3-CC2A-4F0E-8860-E10343EE8E08}
Authorization Level	0
Require Client Matter Code	
Calling Party Transformations	
☐ Use Calling Party's External	Phone Number Mask
Calling Party Transform Mask	
Prefix Digits (Outgoing Calls)	
Calling Line ID Presentation	Default 🔽
Calling Name Presentation	Default 🔽
Connected Party Transformat	ions
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 Faciliti	es 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.	

Note: For detailed information regarding QSIG interoperability between CCM and NEC IPX2400 PBX go to: http://www.cisco.com/warp/public/779/largeent/avvid/inter_operability/flash/portal.html



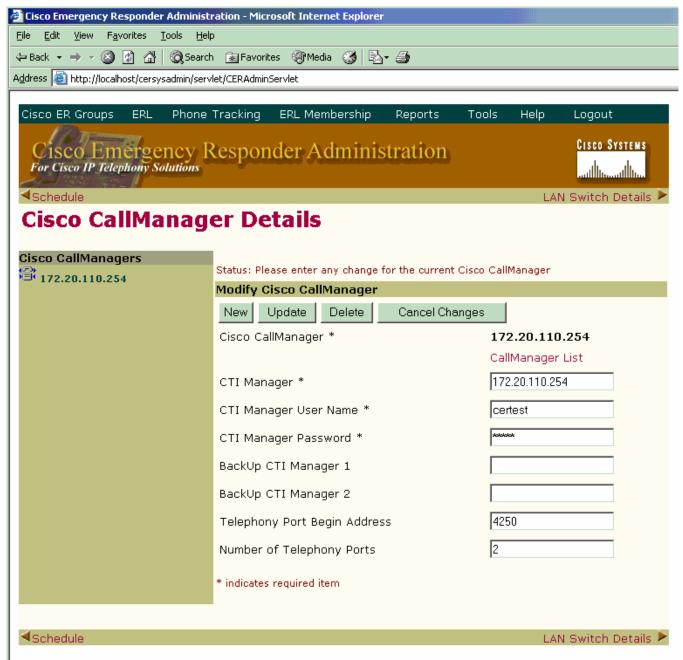
SNMP service must be active and set to READ-ONLY





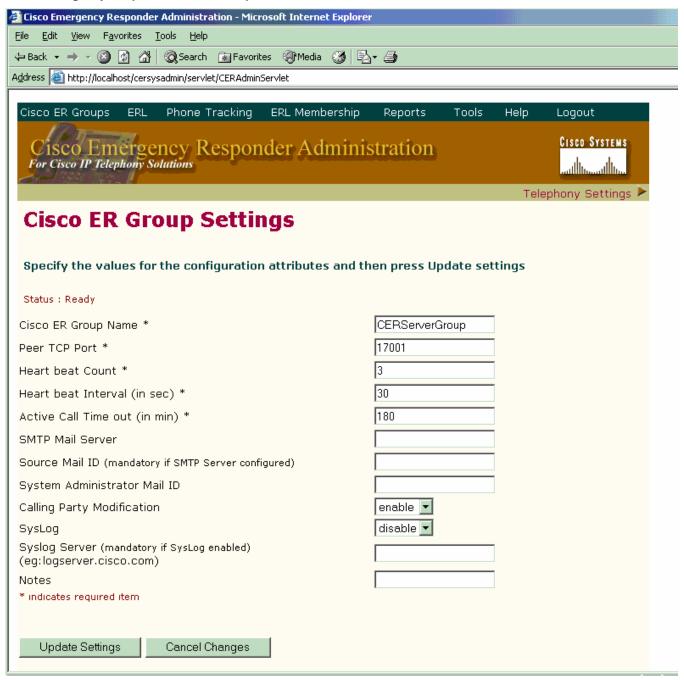
Cisco Emergency Responder Configuration

Cisco Unified CallManager Details



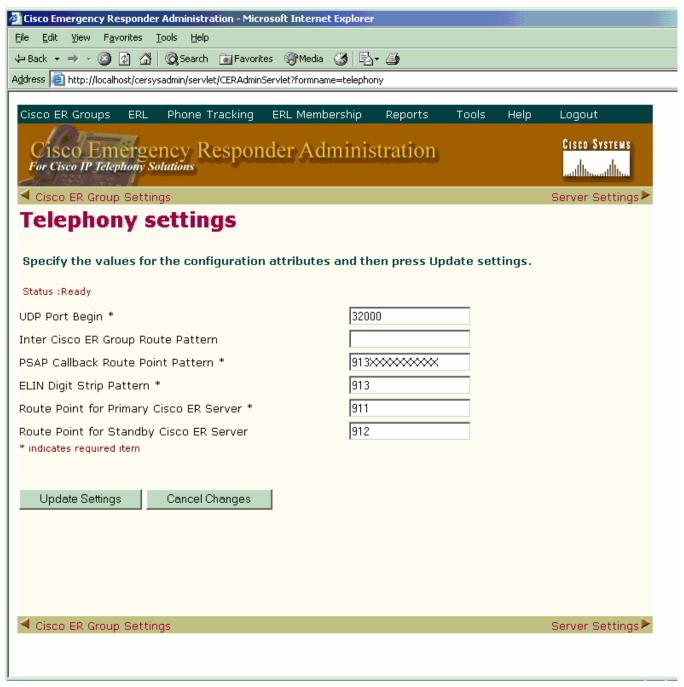


Cisco Emergency Responder Server Group



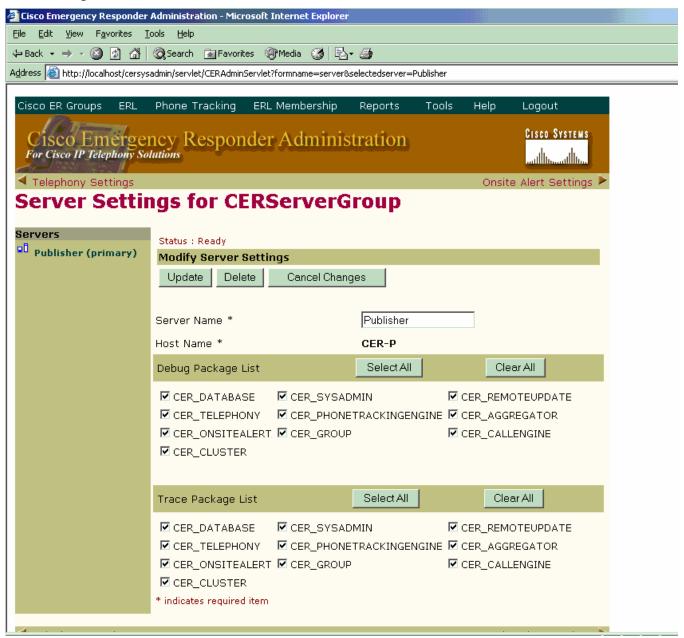


Telephony Settings



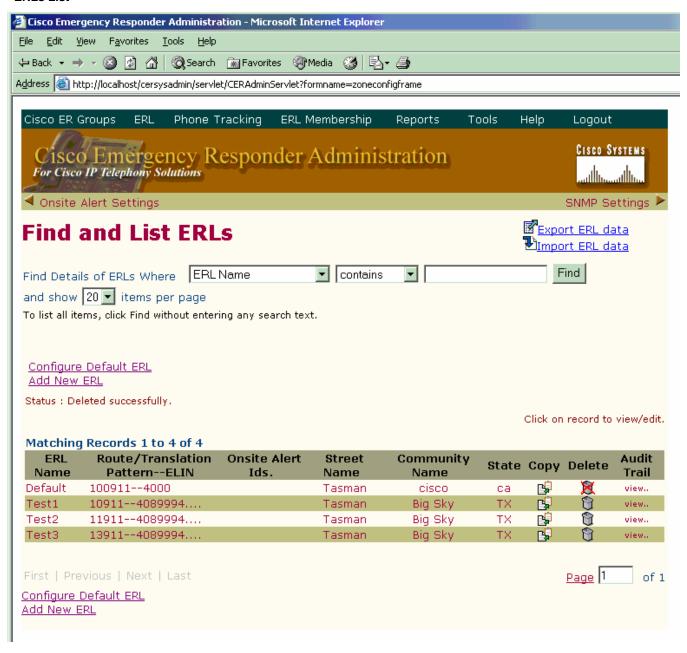


Server Settings



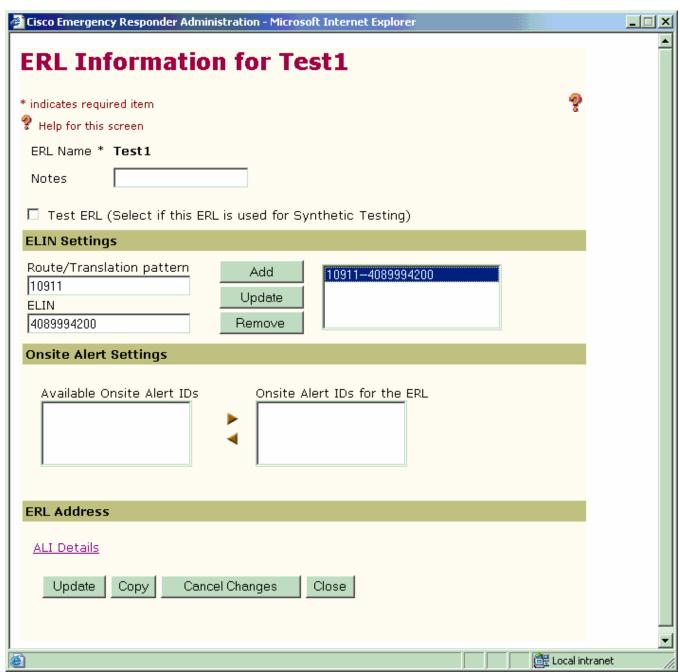


ERLs List



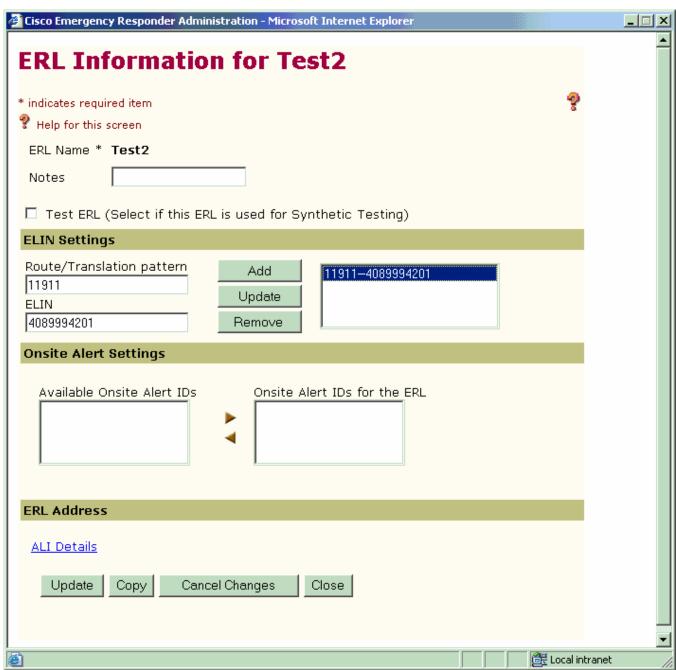


ERL 1



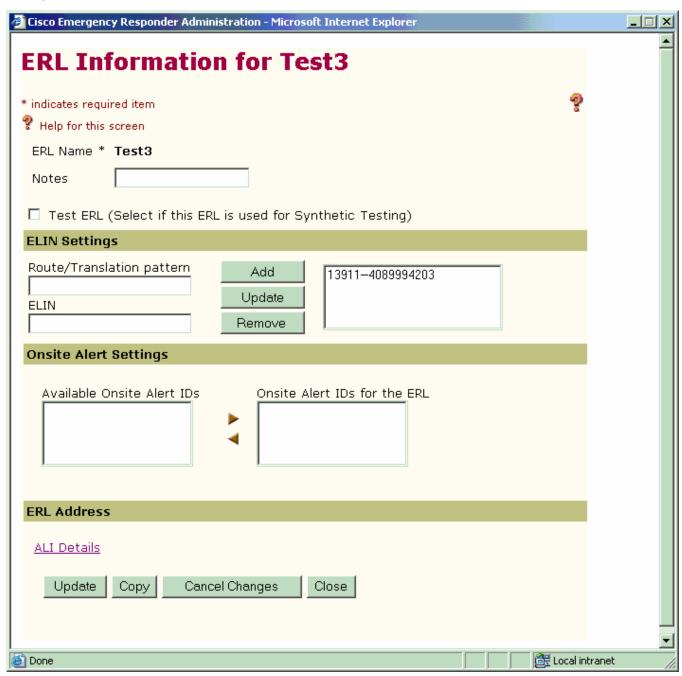


ERL 2



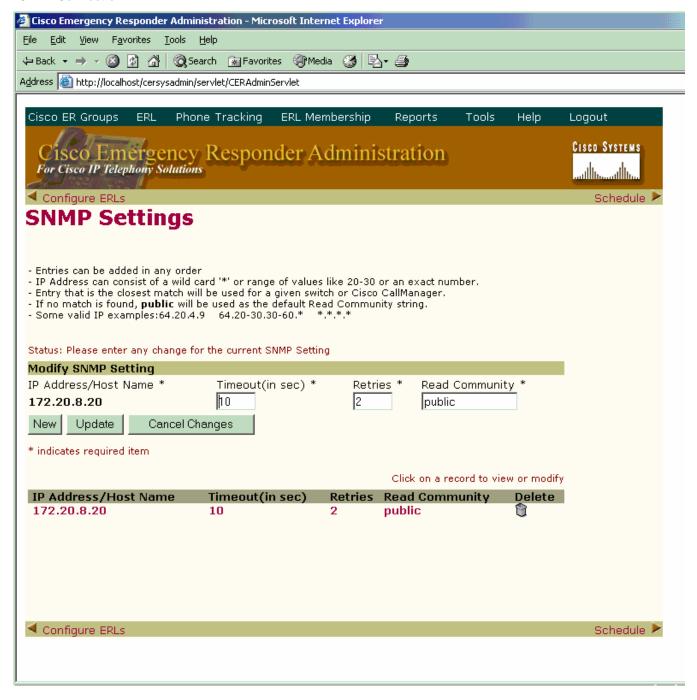


ERL 3



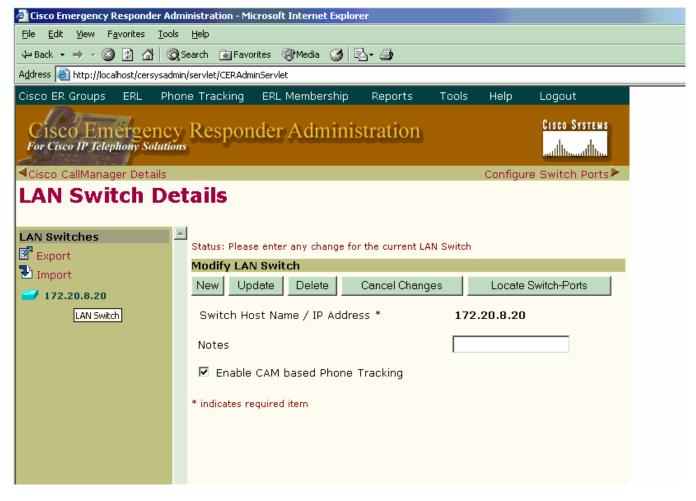


SNMP Connection



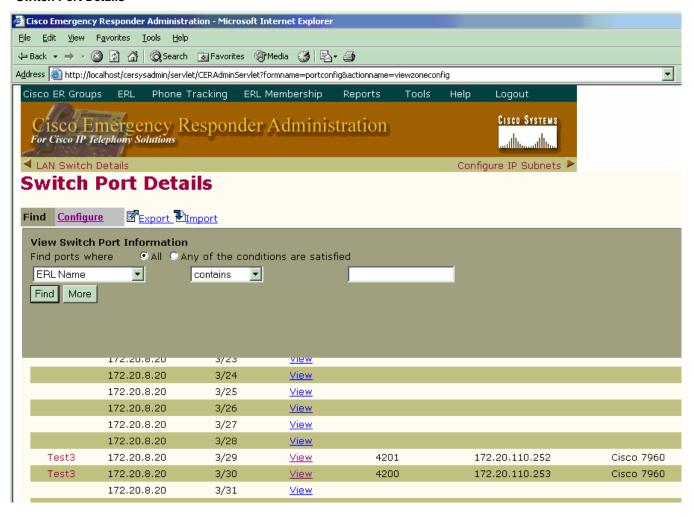


LAN Switch Identifying



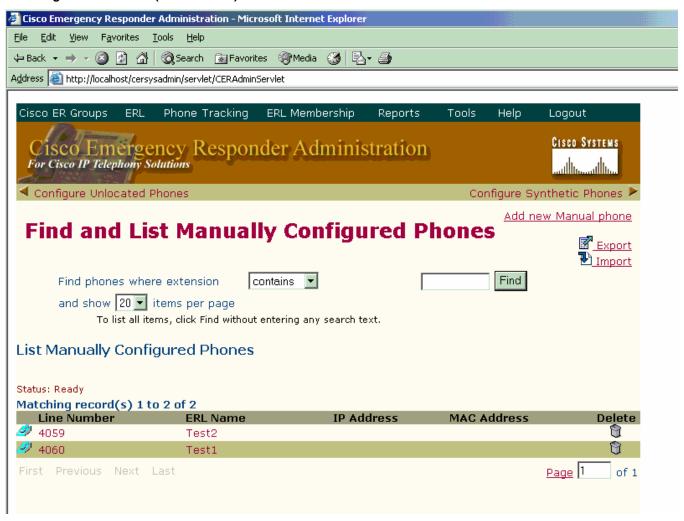


Switch Port Details

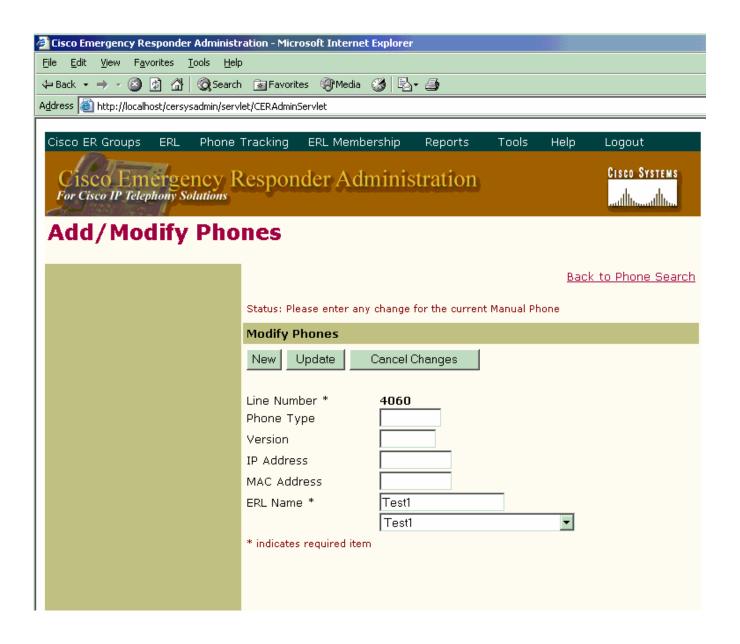




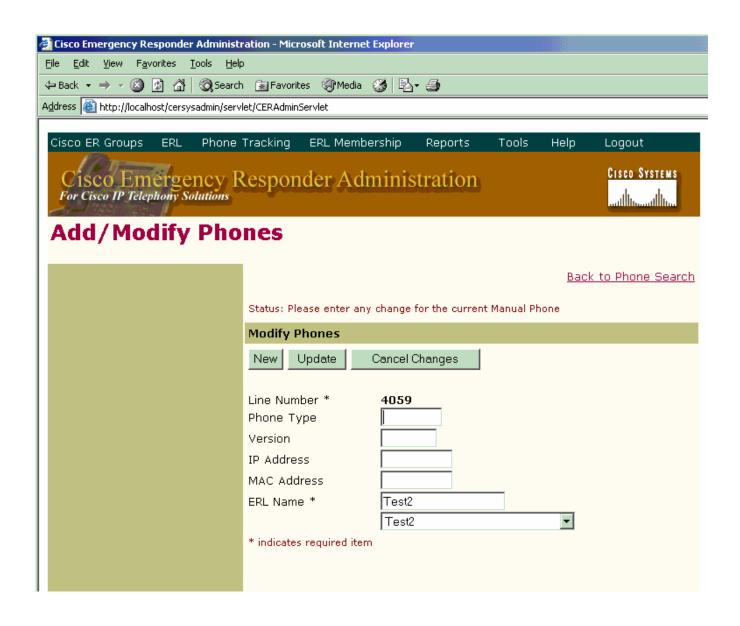
Defining Manual Phones (PBX Stations)











Cisco 3845 Cisco IOS Gateway Configuration

Router3845# show running-config Building configuration...

Current configuration: 3087 bytes

!

Version 12.3

service timestamps debug datetime msec service timestamps log datetime msec no service password-encryption

hostname Router3845



```
boot-start-marker
boot system flash:c3845-ipvoice-mz.123-14.T4.bin
boot-end-marker
enable password cisco
no aaa new-model
resource policy
no network-clock-participate slot 3
no network-clock-participate slot 4
network-clock-participate wic 0
voice-card 0
no dspfarm
voice-card 3
no dspfarm
voice-card 4
dspfarm
ip subnet-zero
ip cef
no ip dhcp use vrf connected
ip host CM-GUANATOS 172.20.8.254
ip host CM-BARZA 172.20.110.254
no ftp-server write-enable
isdn switch-type primary-4ess
controller T1 0/0/0
framing esf
```



```
linecode b8zs
pri-group timeslots 1-24 service mgcp
controller T1 0/0/1
framing esf
linecode b8zs
controller E1 4/0/0
shutdown
pri-group timeslots 1-31 service mgcp
controller E1 4/0/1
interface GigabitEthernet0/0
ip address 172.20.8.26 255.255.255.0
duplex half
speed 100
media-type rj45
negotiation auto
interface GigabitEthernet0/1
ip address 172.20.110.104 255.255.255.0
shutdown
duplex auto
speed auto
media-type rj45
negotiation auto
interface Serial0/0/0:23
no ip address
isdn switch-type primary-qsig
isdn protocol-emulate network
isdn incoming-voice voice
isdn T310 120000
isdn bind-l3 ccm-manager
no cdp enable
interface Serial4/0/0:15
no ip address
shutdown
isdn switch-type primary-qsig
isdn incoming-voice voice
isdn bind-l3 ccm-manager
no cdp enable
ip default-gateway 172.20.8.1
ip classless
ip route 0.0.0.0 0.0.0.0 172.20.8.1
```



```
ip http server
control-plane
voice-port 0/0/0:23
voice-port 3/0/0
signal cama KP-NPD-NXX-XXXX-ST
dial-type mf
timing hookflash-out 500
voice-port 3/0/1
dial-type mf
timing hookflash-out 500
voice-port 3/0/2
dial-type mf
timing hookflash-out 500
voice-port 3/0/3
dial-type mf
timing hookflash-out 500
voice-port 3/1/0
voice-port 3/1/1
voice-port 4/0/0:15
ccm-manager mgcp
ccm-manager music-on-hold
ccm-manager config server CM-GUANATOS
ccm-manager config
!
mgcp
mgcp call-agent CM-GUANATOS 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
dial-peer voice 999300 pots
service mgcpapp
port 3/0/0
dial-peer voice 999301 pots
service mgcpapp
port 3/0/1
dial-peer voice 999310 pots
service mgcpapp
port 3/1/0
dial-peer voice 999311 pots
service mgcpapp
port 3/1/1
dial-peer voice 999302 pots
service mgcpapp
port 3/0/2
dial-peer voice 999303 pots
service mgcpapp
port 3/0/3
line con 0
password cisco
stopbits 1
line aux 0
stopbits 1
line vty 0 4
password cisco
login
scheduler allocate 20000 1000
End
Router3845# show version
Cisco IOS Software, 3800 Software (C3845-IPVOICE-M), Version 12.3(14)T4, RELEASE
SOFTWARE (fc2)
```



Technical Support: http://www.cisco.com/techsupport Copyright (c) 1986-2005 by Cisco Systems, Inc. Compiled Thu 08-Sep-05 21:49 by kehsiao

ROM: System Bootstrap, Version 12.3(11r)T2, RELEASE SOFTWARE (fc1)

Router3845 uptime is 1 week, 2 days, 5 hours, 15 minutes System returned to ROM by power-on System image file is "flash:c3845-ipvoice-mz.123-14.T4.bin"

Cisco 3845 (revision 1.0) with 485376K/38912K bytes of memory.

Processor board ID FTX0933A1JA

2 Gigabit Ethernet interfaces

55 Serial interfaces

2 Channelized E1/PRI ports

2 Channelized T1/PRI ports

4 Voice FXO interfaces

2 Voice FXS interfaces

DRAM configuration is 64 bits wide with parity enabled.

479K bytes of NVRAM.

125184K bytes of ATA System CompactFlash (Read/Write)

Configuration register is 0x2102

Router3845#

Router3845#sh voice port 3/0/0

Foreign Exchange Office 3/0/0 Slot is 3, Sub-unit is 0, Port is 0

Type of VoicePort is FXO

Operation State is DORMANT

Administrative State is UP

The Last Interface Down Failure Cause is Administrative Shutdown

Description is not set

Noise Regeneration is enabled

Non Linear Processing is enabled

Non Linear Mute is disabled

Non Linear Threshold is -21 dB

Music On Hold Threshold is Set to -38 dBm

In Gain is Set to 0 dB

Out Attenuation is Set to 3 dB

Echo Cancellation is enabled

Echo Cancellation NLP mute is disabled

Echo Cancellation NLP threshold is -21 dB

Echo Cancel Coverage is set to 64 ms

Echo Cancel worst case ERL is set to 6 dB

Playout-delay Mode is set to adaptive

Playout-delay Nominal is set to 60 ms

Playout-delay Maximum is set to 250 ms

Playout-delay Minimum mode is set to default, value 40 ms



Playout-delay Fax is set to 300 ms
Connection Mode is normal
Connection Number is not set
Initial Time Out is set to 10 s
Interdigit Time Out is set to 10 s
Call Disconnect Time Out is set to 60 s
Ringing Time Out is set to 180 s
Wait Release Time Out is set to 30 s
Companding Type is u-law
Region Tone is set for US

Analog Info Follows:

Currently processing none

Maintenance Mode Set to None (not in mtc mode)

Number of signaling protocol errors are 8

Impedance is set to 600r Ohm

Station name None, Station number None

Translation profile (Incoming):

Translation profile (Outgoing):

Voice card specific Info Follows:

Signal Type is cama

Cama Type is KP-NPD-NXX-XXXX-ST

NPD to NPA mapping is :

NPD NPA

0 0

1 0

2 (

3 0

Battery-Reversal is enabled

Number Of Rings is set to 1

Supervisory Disconnect is signal

Answer Supervision is inactive

Hook Status is On Hook

Ring Detect Status is inactive

Ring Ground Status is inactive

Tip Ground Status is inactive

Dial Out Type is mf

Digit Duration Timing is set to 100 ms

InterDigit Duration Timing is set to 100 ms

Pulse Rate Timing is set to 10 pulses/second

InterDigit Pulse Duration Timing is set to 750 ms

Percent Break of Pulse is 60 percent

GuardOut timer is 2000 ms

Minimum ring duration timer is 125 ms

Hookflash-in Timing is set to 600 ms

Hookflash-out Timing is set to 500 ms



Supervisory Disconnnct Timing is set to 350 ms Router3845#

Cisco Catalyst 6x00 Configuration

Console> (enable) **show snmp**SNMP: Enabled
RMON: Disabled

Extended RMON Netflow Enabled : None.

Memory usage limit for new RMON entries: 85 percent

EngineId: 00:00:00:09:00:01:97:31:c8:00:00:00

Chassis Alias: Traps Enabled: None Port Traps Enabled: None

Community-Access Community-String

read-only public read-write private read-write-all secret

Additional- Access-

Community-String Access-Type Number View

.....

Trap-Rec-Address Trap-Rec-Community Trap-Rec-Port Trap-Rec-Owner Trap-Rec-Index

Console> (enable) show cdp

CDP : enabled
Message Interval : 60
Hold Time : 180
Version : V2
Device Id Format : Other

Console> (enable)

set interface sc0 109 172.20.8.20/255.255.255.0 172.20.8.255



NEC IPX2400 Configuration

The NEC requires a substantial amount of programming and circuit card switch settings to properly install T1 PRI. It is beyond the scope of this document to provide the entire configuration, therefore the NEC information below is directed to NEC techs

The switch settings and software references in this document assume a familiarity with the NEC 2400. It is highly recommended to have a NEC ISDN certified technician setup the NEC portion.

Configure in the following sequence:

Install Circuit Card

Configure all software

Circuit Card Configuration (PA-24PRTB)

Switch	Position	Settings	
MB		Make Busy	Down
	0	Internal Loop Back	Off
LB	1	External Loop Back	Off
LB	2	Payload Loop Back	Off
	3	Dch Control Block MBR	Off
SENSE		Protocol	A
(Rotary)		0 = CCIS (NEC proprietary)	
		1 = NI2	
		3 = INS1500	
		5 = AT&T (#4 & #5 ESS)	
		7 = Nortel DMS100/DMS250	
		A = Q.SIG	
	1	ON = Impedance 100 ohms	ON
		OFF = Impedance 110 ohms	
SW0	2	XMT XFMR Ground	OFF
	3	RCV XFMR Ground	OFF
	4	Fixed On	ON
	1	Digital PAD ROM Count	OFF
		Off $= 2$ ROM chips on board	
		On = 3 ROM chips on board	
SW1	2	Fixed On	ON
	3	ON = 24B	OFF
		OFF = 23B + D	
	4	D-Channel Packet Service	OFF
SW2	1	Equalizer	ON
	2	Equalizer	ON
	3	Equalizer	ON
	4	12/24 Multiframe	ON
	5	AMI/B8ZS	ON
	6	4K Data Link Control	ON



	7	4K Data Link Control	OFF
	8	Fixed ON	ON
SW3	1	RMT Alarm	OFF
	2	RMT Alarm	OFF
	3	Fixed Off	OFF
	4	All "1" Supervision	OFF
	5	Fixed On	ON
	6	Fixed On	ON
	7	Fixed On	ON
	8	Fixed On	ON
SW4	1	Fixed Off (Protocol Selection)	OFF
	2	ON = User	ON
		OFF = Network	
	3	Dch Signal Logic	OFF
	4	Dch Speed Selection	ON
	5	Dch Speed Selection	ON
	6	Fixed On	ON
	7	Fixed On	ON
	8	Fixed On	ON
SW5	1	PAD	ON
	2	PAD	ON
	3	PAD	ON
	4	PAD	ON
	5	PAD	ON
	6	PAD	ON
	7	PAD	ON
	8	Idle Code	OFF

Route (ARTD) Configuration

021 MSB

[IPX-R	15_IP:	:LRTD]								January	27,2006
		Starti	ng	* Roi	ite Cl	ass Dat	ta List *	End	ding		
		RT	2					RT	3		
RT 2											
CDN		Data			CDN		Data		CDN		Data
001	OSGS	0			043	BT	1		085	CSEU	0
002	ONSG	2			044	PRV	0		086	CSEL	0
003	ISGS	0			045	A/D	1		087	CMP	0
004	INSG	2			046	CW	0		088	TALK	0
005	TF	3			047	TPQ	0		089	FOT	0
006	TCL	4			048	BL	0		090	RST	0
007	L/T	1			049	TRKS	0		091	TOCI	0
800	RLP	2			050	DPLY	1		092	TOCD	0
009	TQ	0			051	ACD	0		093	ODGD	0
010	SMDR	0			052	2W/4W	0		094	RLS	0
011	TD	0			053	FAAT	0		095	GWD	0
012	DR	0			054	GW	0		096	Н1	0
013	AC	1			055	TCMA	0		097	DT	0
014	TNT	0			056	SMDR3	0		098	CI	0
015	LSG	12			057	HDT	0		099	OID	0
016	SMDR2	0			058	CD	0		100	TKS	0
017	H/M	0			059	CCH	0		101	PAD2	0
018	MC	0			060	TC/EC	0		102	TRM	0
019	ANI	0			061	IRE	0		103	TRPX	0
020	D	0			062	SCR	0		104	LDR	0
0.21	MCD	Λ			062	T VED 1	Λ		105	TCC	Λ

063 LYER1 0

105

TSC



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



NEC Software Release

DISS 03/31/05 10:08:19:965000 IPX-R15_IP

<Lookup:401A>
Success:00:0000
Get: Main Memory

Туре	Version	Issue	Date
Main Memory Boot ROM	15 Н	02.00 02.00	2003/10/09 2002/11/20
IP	_	-	-
ACDP	_	_	-
MAT	15	02.00	2003/09/05
TCP/IP	5	01.00	2003/09/04
PHDP	2	02.00	2003/08/08
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Acronyms

Acronym	Definitions
CAMA	Analog "Centralized Automatic Message Accounting" E911 Trunk
PSAP	Public Service Answering Point

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