Application Note

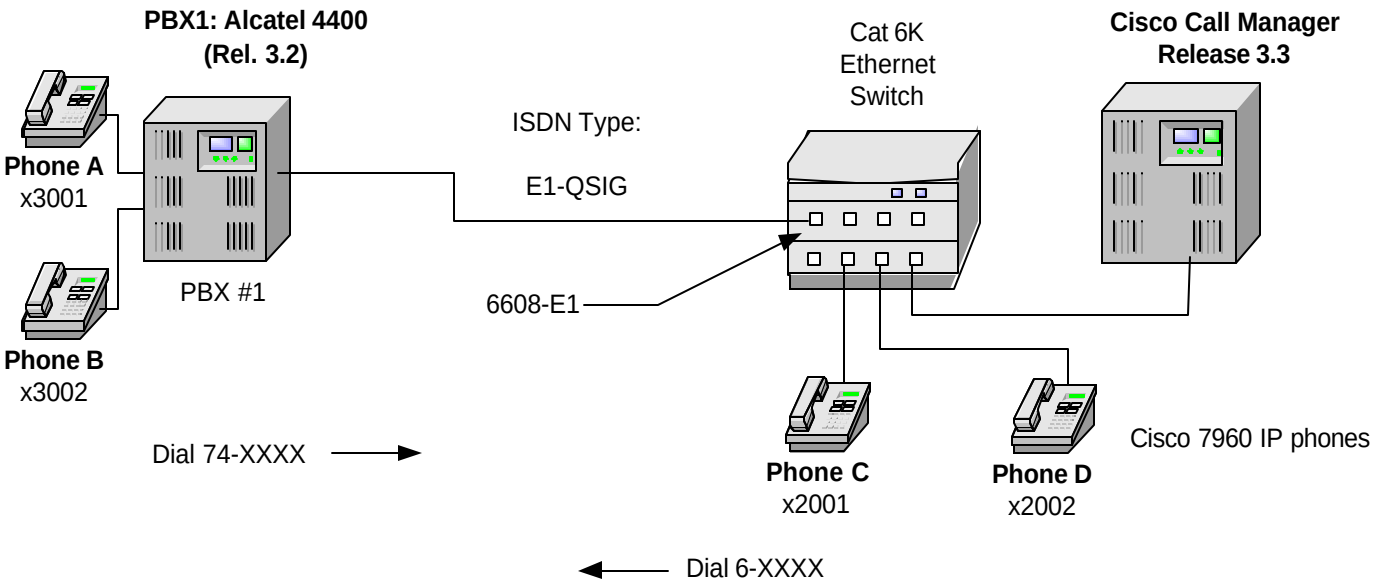
Cisco 6608-E1 - Alcatel 4400 Release 3.2 PBX with Cisco CallManager using the 6608-E1 QSIG Protocol as an MGCP Gateway

Introduction

This is an application note for connectivity of the Alcatel 4400 Release 3.2 PBX with Cisco CallManager using Cisco 6608-E1 QSIG as an MGCP Gateway. The network topology diagram shows the test set-up for end-to-end interoperability with the Cisco CallManager connected to the PBX via a Cisco 6608-E1 QSIG link acting as an MGCP Gateway.

Network Topology

Basic Call Setup End-to-End Configuration



Limitations

- When calling from an Alcatel digital phone to a Cisco 7960 IP phone, the Cisco IP phone displays calling name and number when the call is answered. The Alcatel phone, however, displays connected name only and no connected number when the call is answered. Alcatel does not

support Connected Number Identification Presentation QSIG service even though Cisco CallManager is sending the Connected Number information in the connect message.

- Cisco CallManager 3.3 release does not support sending Alerting Name or Busy Name Identification information.
- Calls did not complete when the IP phone calls an Alcatel phone that is setup to forward to another Alcatel phone. Alcatel in this case sends Facility IE for 'CallRerouting'. Since Cisco CallManager 3.3 release does not support 'CallRerouting', the call is not completed.

System Components

Hardware Requirements

- Cisco Cat6K switch with the Cisco 6608-E1 Gateway
- Alcatel 4400 PBX

Software Requirements

- Cisco IOS Software
- PBX Software Release 32
- Cisco CallManager Release 3.3

Configuration

Configuring the Alcatel 4400 PBX

Configure in the following sequence:

1. ISO function system parameter
2. Board
3. Digital access options
4. Trunk group
5. Trunk detail

Configuring the ISO Function System Parameter

```
\compidea\System::1\Other System Param::1


Other System Param.
Instance (reserved)  1
Trunk seizure via attendant True
No detect.of On-hook tone   True
TrkGrp in ticket for trans.call    True
VPN service   False
ISVPN Node No.    1
```

Nb Digits displayed on sets 1

Melody Ringing Type 1

Int.Call Ringing Cadence No 1

Ext.Call Ringing Cadence No 1

Executive Type Ringing Cadence No 1

Prioritary Call Cadence No 1

ISO Function True

Booking B Channel True

Uncontrol.Business Account Code False

Business Pref.With Business No. True

Project prefix With Code False

Follow-Me on Remote forwarding False

BC HLC Fax 1

VG Recording Gain from an UA set 3

Calling Id.length 7

Nb Of Secret Code Errors 0

Transfer All Business Call Types True

Attendt Keep Local on Enqu.cancel False

Compatibility GF True

Alphanum.Char.Entering-mode2 True

Spain version 2 False

Delete First STAR Digit True

QSIG1 (reserved) 0

QSIG2 (reserved) 0

Stop Tie Line Supervision False

Tie Line Germany 0

Entity For Virtual Set 0

Nb Of Business Code Errors 0

Disabled Code Duration 0

Poor ARS Rerouting memo.Dur. 20

Poor ARS Route Inhibit Dur. 180

Charging by Nb MiniMessages True

Remote Numeric Gain For 4630 True

Project Code In Redial Key True

Cx on Progress message False

Differred transm.(Swiss trick) False

Send NDS NDI False

Calls Distributed On Att.In Order False

Nb non answ. int. messages by set 16

NS_read_before_ack False

SNCM 0

Configuring the Board

Interface type must be set to **PRA2**

\compidea\Shelf::0\Board::4

Board

Board Address 4

Interface Type PRA2

Administrative status Enabled

Usage State Busy

Operational State Enabled

Main/Standby State Main (Master)

Number Of Sets Being Connect. 1

Remote Shelf Address 255

Remote Board Address 255

Synchronisation Priority 255

IO2 With SPB NO

AUXU Parameters 1 None

AUXU Parameters 2 None

AUXU Parameters 3 None

```
AUXU Parameters 4    None

CRC4   YES

Country Protocol Type   Default

Time Slots\0  0

Time Slots\1  1

Time Slots\2  1

Time Slots\3  1

Time Slots\4  1

Time Slots\5  1

Time Slots\6  1

Time Slots\7  1

Time Slots\8  1

Time Slots\9  1

Time Slots\10 1

Time Slots\11 1

Time Slots\12 1

Time Slots\13 1

Time Slots\14 1

Time Slots\15 1

Time Slots\16 0

Time Slots\17 1

Time Slots\18 1

Time Slots\19 1

Time Slots\20 1

Time Slots\21 1

Time Slots\22 1

Time Slots\23 1

Time Slots\24 1

Time Slots\25 1

Time Slots\26 1

Time Slots\27 1
```

```
Time Slots\28 1

Time Slots\29 1

Time Slots\30 1

Time Slots\31 1

Voice-->Data TS  YES

SU shelf Type 2 PCM Shelf

DECT Location area number  255

Send Init Dynamic Msg  False

Param By Default True

Clock Mode Internal

CPU with Optimized B ChannelAccess NO

Board with DTM  False

Incidents Teleservice  YES

Max.VG Recording Duration  0

DASS2 Simulate Network  NO

DPNSS Layer 2 Address  A

ISDN Board Layer 2 Parameters\Retransmission Timer  100

ISDN Board Layer 2 Parameters\TEI Identity Check Timer 100

ISDN Board Layer 2 Parameters\Polling Timer  1000

ISDN Board Layer 2 Parameters\Nb_Of_Retransmission  3

ISDN Board Layer 2 Parameters\Max Frame Size (Bytes)  260

ISDN Board Layer 2 Parameters\Window Size In Frames SAPI S T0 1

ISDN Board Layer 2 Parameters\Window Size In Frames SAPI P T0 3

ISDN Board Layer 2 Parameters\Window Size In Frames SAPI S T2 7

ISDN Board Layer 2 Parameters\Window Size In Frames SAPI P T2 7

Number of configurated ports  1

Associated CPU  255

Number of configurated E1 ports  8

Synchronisation mode Adaptive method

In Band Signalling  NO

Passive board NO
```

SS7 signalling NO

PRA7 TS signalling 16

Use Data Compression NO

Mutual Aid YES

LIO Daughter Board 6 Compressors

Tone on Board R2 Tone

Number of Used Compressors 0

GNISC in Rack 255

GNISC in position 255

Usage State Suite Slave

Atm address

TS used on PCM 0 0

TS used on PCM 1 0

TS used on PCM 2 0

TS used on PCM 3 0

TS used on PCM 4 0

TS used on PCM 5 0

TS used on PCM 6 0

TS used on PCM 7 0

Daughter board equipped NO

Number of Used Compressors 0

Mode Gateway IP

Embedded Ethernet YES

Voice Guide Lang Index 1

CLIP Signalization No CLIP

IVR Protocol No IVR Protocol Protocol

4615 Present NO

LIOE coupler 1 address 255

LIOE coupler 2 address 255

Associated BBC2 coupler 255

Associated BBC2 access 255

```
Use of volume in system YES
Local volume (dB)    0
```

Configuring Digital Access Options

Note: **Network mode** must be set to **Yes** for (Master/Network) or **No**- (Slave/User). **Access Type** must be set to **T2.**

```
\compidea\Shelf::0\Board::4\Digital Access::0


Digital Access
T0/T2 Access No. 0
Access Type   T2
Used Access   YES
Synchronisation Priority    255
Network Mode  YES
Max Nb Of Used B Channels   30
Max_Nb_Of_Compressed_B_Channels    0
Nb Of Signalization TS  1
TieLine Mode  YES
With Alarm NO
Access Type S0    NO
Reserved1  NO
Reserved2  NO
Network Date Time Update    NO
CRC4   YES
Port Class NOT SIG
Multiframe Type   SF
Line Type  Short Haul 0 to 35 meters
Pulses Encoding   AMI
Retransmission Timer 100
TEI Identity Check Timer    100
```

```
Polling Timer 1000
Nb_Of_Retransmission 3
Max Frame Size (Bytes)  260
Window Size In Frames SAPI S   7
Window Size In SAPI P   7
B Channel Rate   64K

   64K
```

Configuring the Trunk Group

Q931 signal variant is used to set the protocol type to **ABC-F**

```
\compidea\Trunk Groups::1

Trunk Groups
Trunk Group Id   1
Trunk Group Type T2
Trunk Group Name PRI-ABCF
Node number   1
Transcom Trunk Group False
Auto.reserv.by Attendant   False
Overflow trunk group No.   -1
Tone on seizure  False
Private Trunk Group  False
Paging Trunk Group   False
Paging Table Id  -1
Paging Signalization NDDI
Security Patrol  False
Q931 signal variant  ABC-F
Operator Id   ANSI
```

```
Number Compatible With  -1
Prefix Sending   False
Number Of Digits To Send    4
Channel selection type  Quantum
Remote Network   15
Shared Trunk Group   False
T.line Calling last dig.length 0
auto.DTMF dialing on outgoing callNO
T2 Specificity   None
Public Network Category 0
DDI transcoding  False
Special Services Nothing
Can support UUS in SETUP    True
Register Signalling  Decadic/MF Q23
```

Configuring the Trunk Detail

```
\compidea\Trunk Groups::1\Trunk Group::1

Trunk Group
Instance (reserved)  1
Trunk Group Type T2
Public Network Ref.
Dialling end to end  NO
DTMF end to end signal. NO
Paying Incoming Calls   NO
TS Permanently assigned NO
Min. Nb.of digits on seize  0
Signal.with access code NO
Trunk group used in DISA    NO
```

```
DISA Secret Code

VG for non-existent No. YES

Routing To Executive NO

Trunk Category Id    19

Nb of digits unused (ISDN)  4

B Channel Choice NO

Channels Reserved By Attend.   0

Dissuasion For ACD   NO

DTO joining   NO

Enquiry Call On B Channel   NO

DDI Mode   NO

Automated Attendant  NO

Calling party Rights category  0

Entity Number 0

TS Overflow   YES

Number To Be Added

Supervised by Routing   NO

Access Cluster Id    -1

VPN Cost Limit for Incom.Calls 0

Immediat Trk Listening For VPNCall YES

VPN TS %  50

Csta Monitored   NO

Max.% of trunks out CCD 0

Charge Calling And ADN Creation    NO

Ratio analog.to ISDN tax

Collect Calls Allowed   YES

Priority of Call NO

PCM Network Mode  NO

LogicalChannel   1__15 & 17__31

TS Distribution on Accesses YES

Use Split Acces  NO
```

```
Heterogeneous Remote Network   NO
Barring mode  Not barred
ARS class of service 31
Quality profile for voice on IP   Profile #1
IP compression type  Default
Use of volume in system YES
Local volume (dB)    0
```

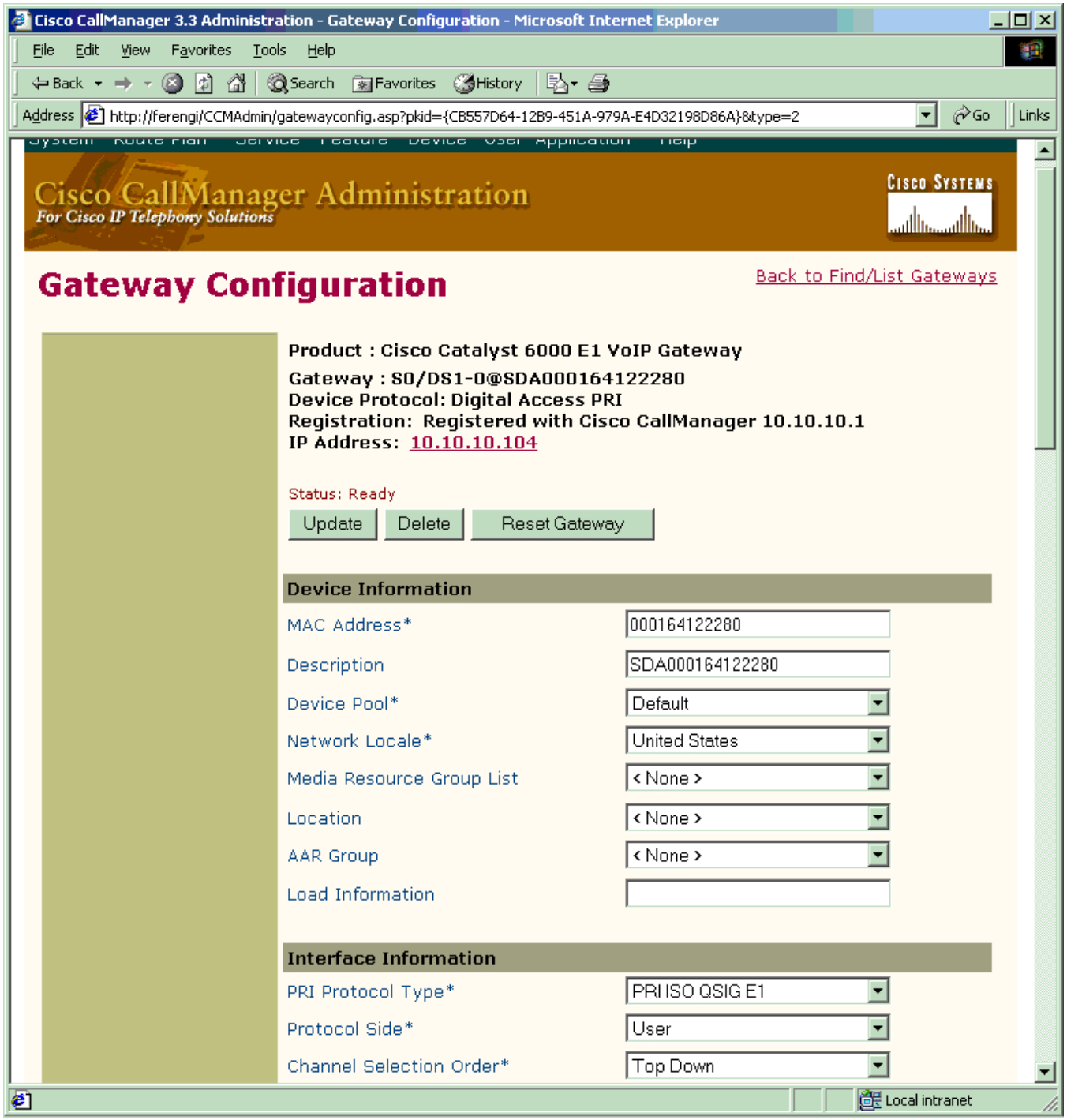
Configuing T2 Access

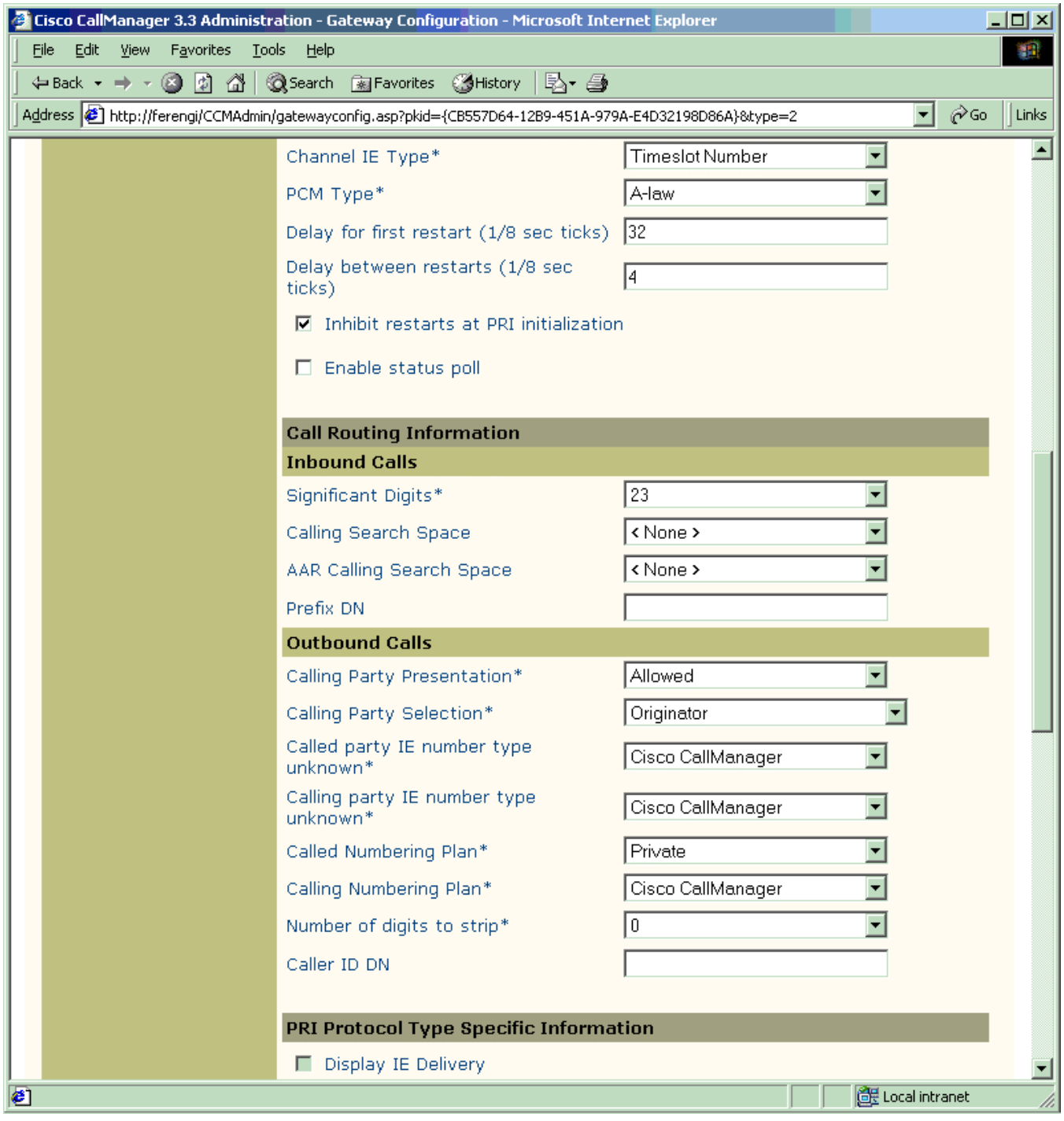
```
\compidea\Trunk Groups::1\T2/T1/T0 Access::0-4-0

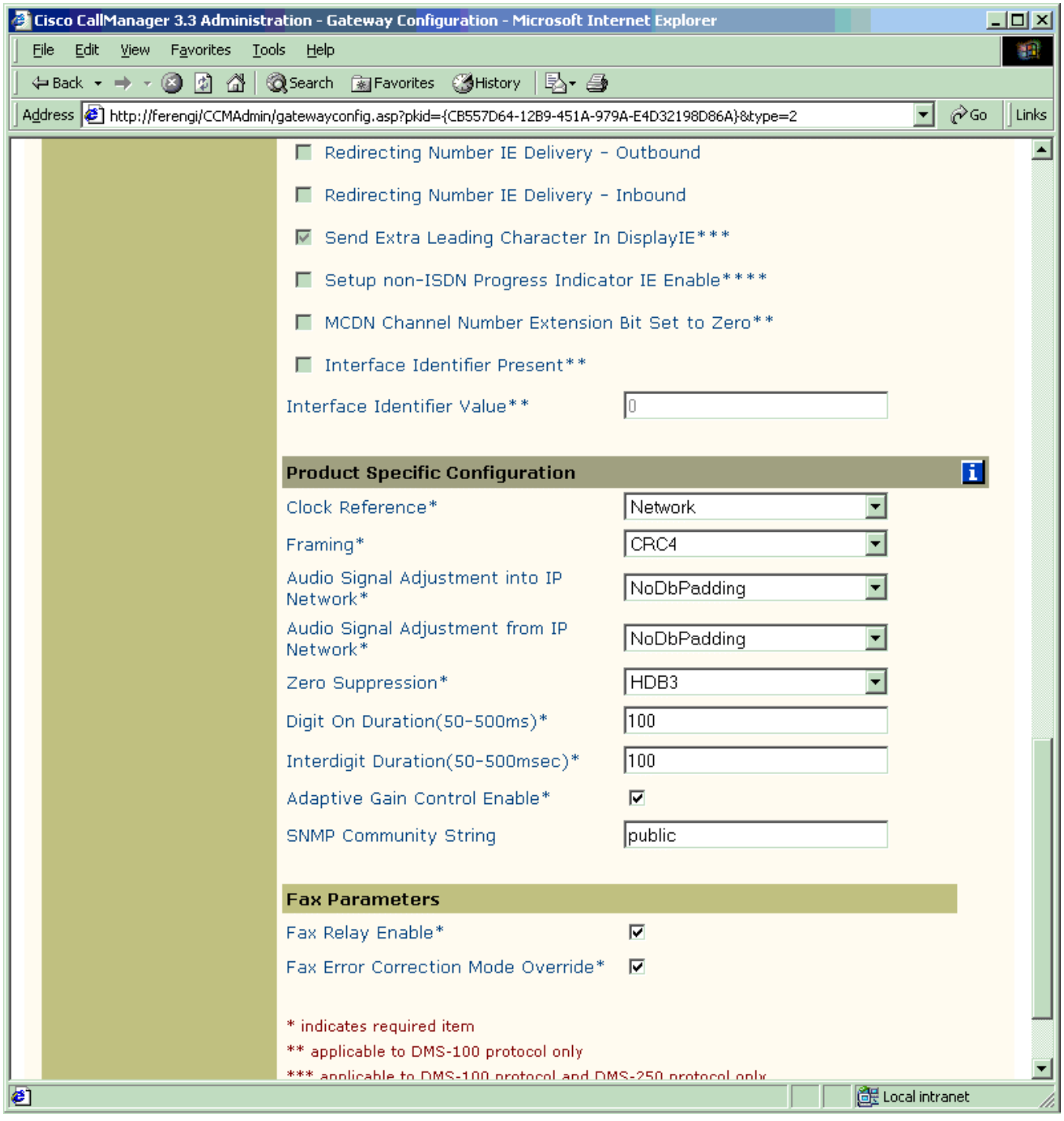
T2/T1/T0 Access
Physical Address 0-4-0
Access Type   T2
Access Cluster Id    -1
Time Slots T2 01111111111111110111111111111111
Time Slots T0 011
Time Slots T1 CCS    01111111111111111111111110
Time Slots Virtual   01111110000000
DLCI   16
Committed Information Rate  48
Extended Information Rate   64
CIR Measurement Interval    10
Support Time Slot Address
ISDN Compression Number
Release Support Timer (100ms)  0
Protection Timer (1mn)
```

Configuring Cisco CallManager

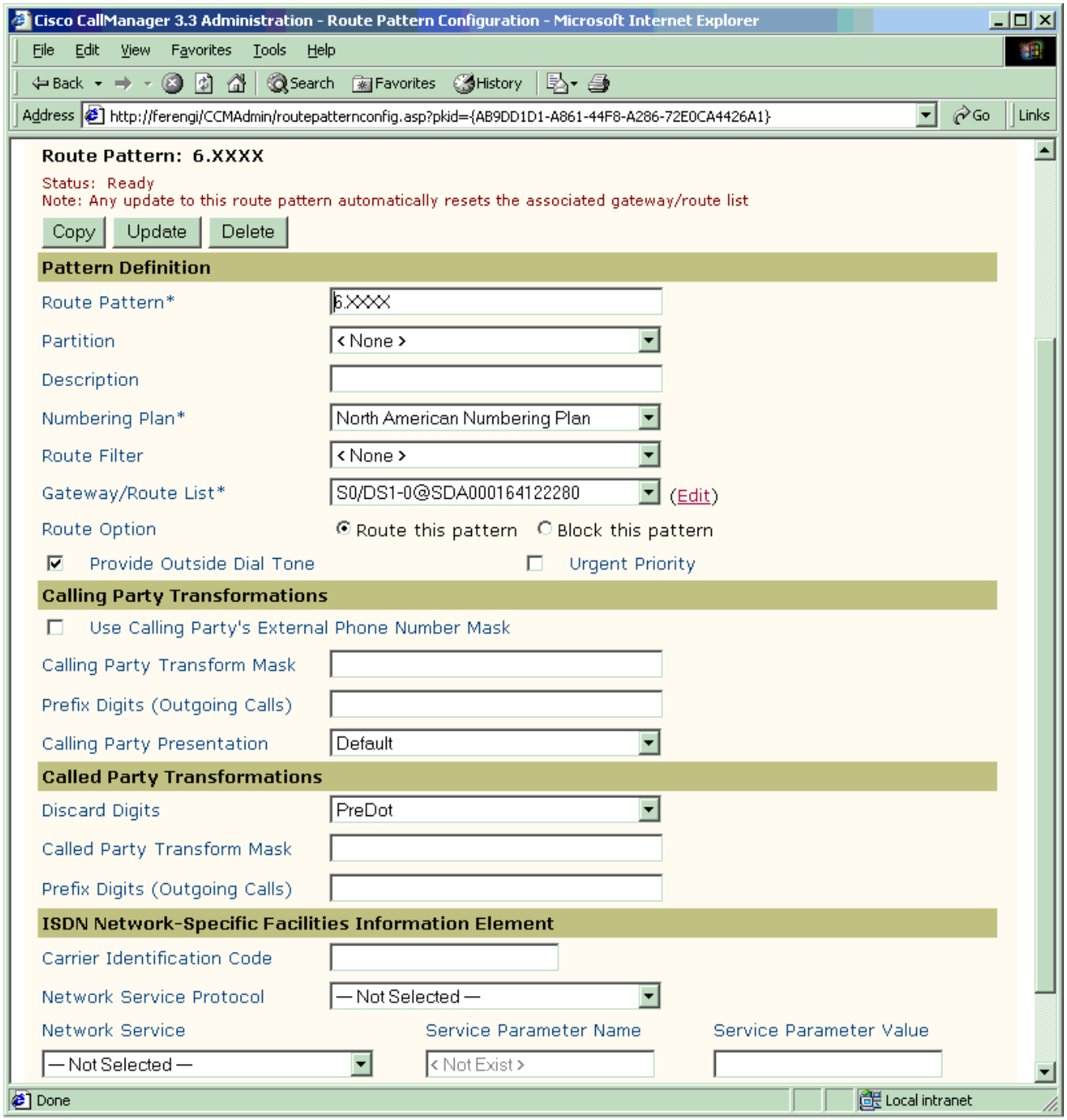
6608-E1 Gateway Configuration



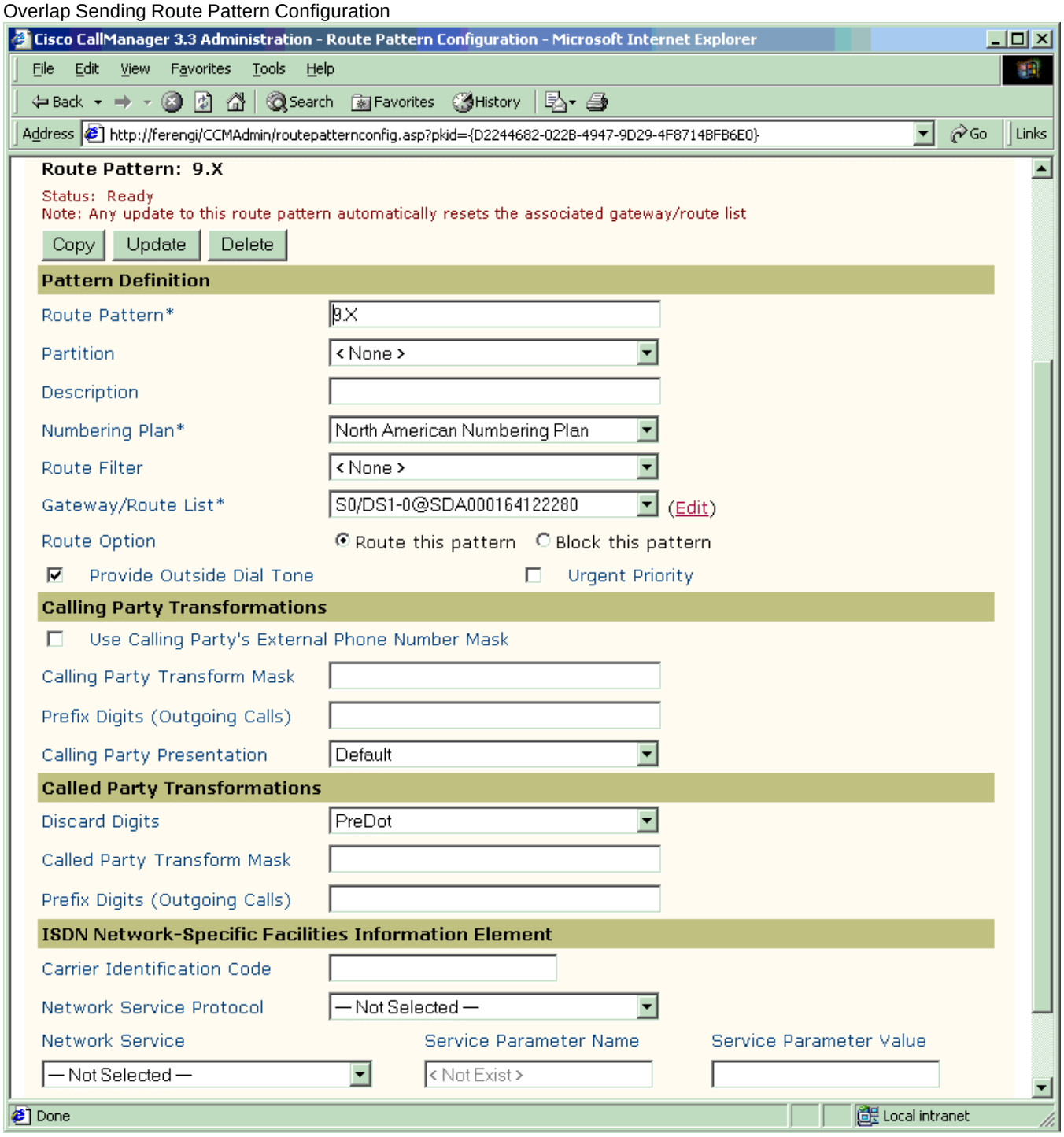




Enbloc Route Pattern Configuration



Overlap Sending Route Pattern Configuration



Alcatel 4400 Software Release

\compidea\node

Node

Node Number (reserved) 1

Software Version R3.2

Version name c1.712

Patch No. 5

Notes

Object Identity

Node Number (reserved) 1

Ethernet Notes\Netmask

Ethernet Notes\Local CPU\Name x000000_tun

Ethernet Notes\Local CPU\IP Address 172.30.253.253

Ethernet Notes\Twin Cpu\Name

Ethernet Notes\Twin Cpu\IP Address

Ethernet Notes\Main Cpu\Name xm000000

Ethernet Notes\Main Cpu\IP Address 10.253.253.3

Ethernet Notes\StandBy Cpu\Name

Ethernet Notes\StandBy Cpu\IP Address

SL Notes

IP/X25 Tunnel Notes\Netmask 255.255.0.0

IP/X25 Tunnel Notes\Local Node\Name x000000_tun

IP/X25 Tunnel Notes\Local Node\IP Address 172.30.253.253

Configuring the Cisco Catalyst 6000 Switch

```
Console> (enable) show version

WS-C6506 Software, Version NmpSW: 6.1(4)
Copyright (c) 1995-2001 by Cisco Systems
NMP S/W compiled on May 15 2001, 12:27:20

System Bootstrap Version: 5.3(1)

Hardware Version: 2.0  Model: WS-C6506  Serial #: TBA04110341

Mod Port Model               Serial #    Versions
--- ---- ------------------- ----------- -------------------------------------
1   2    WS-X6K-SUP1A-2GE    SAD041504XL Hw : 3.1
                                         Fw : 5.3(1)
                                         Fw1: 5.1(1)CSX
                                         Sw : 6.1(4)
                                         Sw1: 6.1(4)
         WS-F6K-PFC          SAD0413097K Hw : 1.1
3   48   WS-X6248-RJ-45      SAD04150CK1 Hw : 1.2
                                         Fw : 5.1(1)CSX
                                         Sw : 6.1(4)
5   8    WS-X6608-E1         SAD043300AJ Hw : 1.1
                                         Fw : 5.4(2)
                                         Sw : 6.1(4)
                                         HP1: D00403030007; DSP1: D005b033 (3.6.
33)
                                         HP2: D00403030007; DSP2: D005b033 (3.6.
33)
```

```
                                        HP3: D00403030007; DSP3: D005B033 (3.6.
33)
                                        HP4: D00403030007; DSP4: D005B033 (3.6.
33)
                                        HP5: C00103010007; DSP5: C002E031 (3.3.
2)
                                        HP6: C00103010007; DSP6: C002E031 (3.3.
2)
                                        HP7: C00103010007; DSP7: C002E031 (3.3.
2)
                                        HP8: C00103010007; DSP8: C002E031 (3.3.
2)

       DRAM                    FLASH                   NVRAM
Module Total   Used    Free    Total   Used    Free    Total Used  Free
------ ------- ------- ------- ------- ------- ------- ----- ----- -----
1       65408K  43645K  21763K  16384K   5327K  11057K  512K  245K  267K

Uptime is 199 days, 22 hours, 13 minutes
Console> (enable)


Console> (enable) show module
Mod Slot Ports Module-Type              Model               Sub Status
--- ---- ----- ------------------------ ------------------- --- --------
1   1    2     1000BaseX Supervisor     WS-X6K-SUP1A-2GE    yes ok
3   3    48    10/100BaseTX Ethernet    WS-X6248-RJ-45      no  ok
5   5    8     E1                       WS-X6608-E1         no  ok

Mod Module-Name         Serial-Num
--- ------------------- -----------
```

```
1                       SAD041504XL
3                       SAD04150CK1
5                       SAD043300AJ

Mod MAC-Address(es)                         Hw     Fw          Sw
--- --------------------------------------- ------ ----------- ------------------
1   00-d0-d3-37-f9-8e to 00-d0-d3-37-f9-8f 3.1    5.3(1)      6.1(4)
    00-d0-d3-37-f9-8c to 00-d0-d3-37-f9-8d
    00-01-63-af-5c-00 to 00-01-63-af-5f-ff
3   00-01-97-4a-10-30 to 00-01-97-4a-10-5f 1.2    5.1(1)CSX   6.1(4)
5   00-01-64-12-22-80 to 00-01-64-12-22-87 1.1    5.4(2)      6.1(4)

Mod Sub-Type                Sub-Model           Sub-Serial  Sub-Hw
--- ----------------------- ------------------- ----------- ------
1   L3 Switching Engine     WS-F6K-PFC          SAD0413097K 1.1

Console> (enable)

Console> (enable) show port 5/1
Port  Name               Status     Vlan       Duplex Speed Type
----- ------------------ ---------- ---------- ------ ----- ------------
 5/1                     connected  1            full 2.048 E1

Port     DHCP    MAC-Address       IP-Address      Subnet-Mask
-------- ------- ----------------- --------------- ---------------
 5/1     enable  00-01-64-12-22-80 10.10.10.104    255.255.255.0

Port     Call-Manager(s)   DHCP-Server     TFTP-Server     Gateway
-------- ----------------- --------------- --------------- ---------------
 5/1     10.10.10.1        10.10.10.1      10.10.10.1      10.10.10.1
```

```
Port     DNS-Server(s)     Domain
-------- ----------------- ------------------------------------------------
 5/1     -                 -

Port     CallManagerState DSP-Type
-------- ---------------- --------
 5/1     registered       C549

Port  NoiseRegen NonLinearProcessing
----- ---------- -------------------
 5/1  enabled    enabled

Port   Trap      IfIndex
-----  --------  -------
 5/1   disabled  66
Console> (enable)
```

Alcatel 4400 Software Release

```
\compidea\node


Node
Node Number (reserved)  1
Software Version R3.2
Version name  c1.712
Patch No. 5
Notes
Object Identity
Node Number (reserved)  1
Ethernet Notes\Netmask
Ethernet Notes\Local CPU\Name  x000000_tun
Ethernet Notes\Local CPU\IP Address   172.30.253.253
Ethernet Notes\Twin Cpu\Name
Ethernet Notes\Twin Cpu\IP Address
Ethernet Notes\Main Cpu\Name   xm000000
Ethernet Notes\Main Cpu\IP Address 10.253.253.3
Ethernet Notes\StandBy Cpu\Name
Ethernet Notes\StandBy Cpu\IP Address
SL Notes
IP/X25 Tunnel Notes\Netmask 255.255.0.0
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                                         HP4: D00403030007; DSP4: D005B033 (3.6.
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```
33)
                                        HP5: C00103010007; DSP5: C002E031 (3.3.
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2)

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    00-01-63-af-5c-00 to 00-01-63-af-5f-ff
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-------- ----------------- --------------- --------------- ---------------
 5/1     10.10.10.1        10.10.10.1      10.10.10.1      10.10.10.1

Port     DNS-Server(s)     Domain
```

```
-------- ----------------- --------------------------------------------------
 5/1     -                  -

Port     CallManagerState DSP-Type
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 5/1  enabled    enabled

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-----  --------  -------
 5/1   disabled  66
Console> (enable)
```

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