



Alcatel 4400 Release 6.0 using E1 QSIG to Cisco Unified Communications Manager Express Release 4.0(2)

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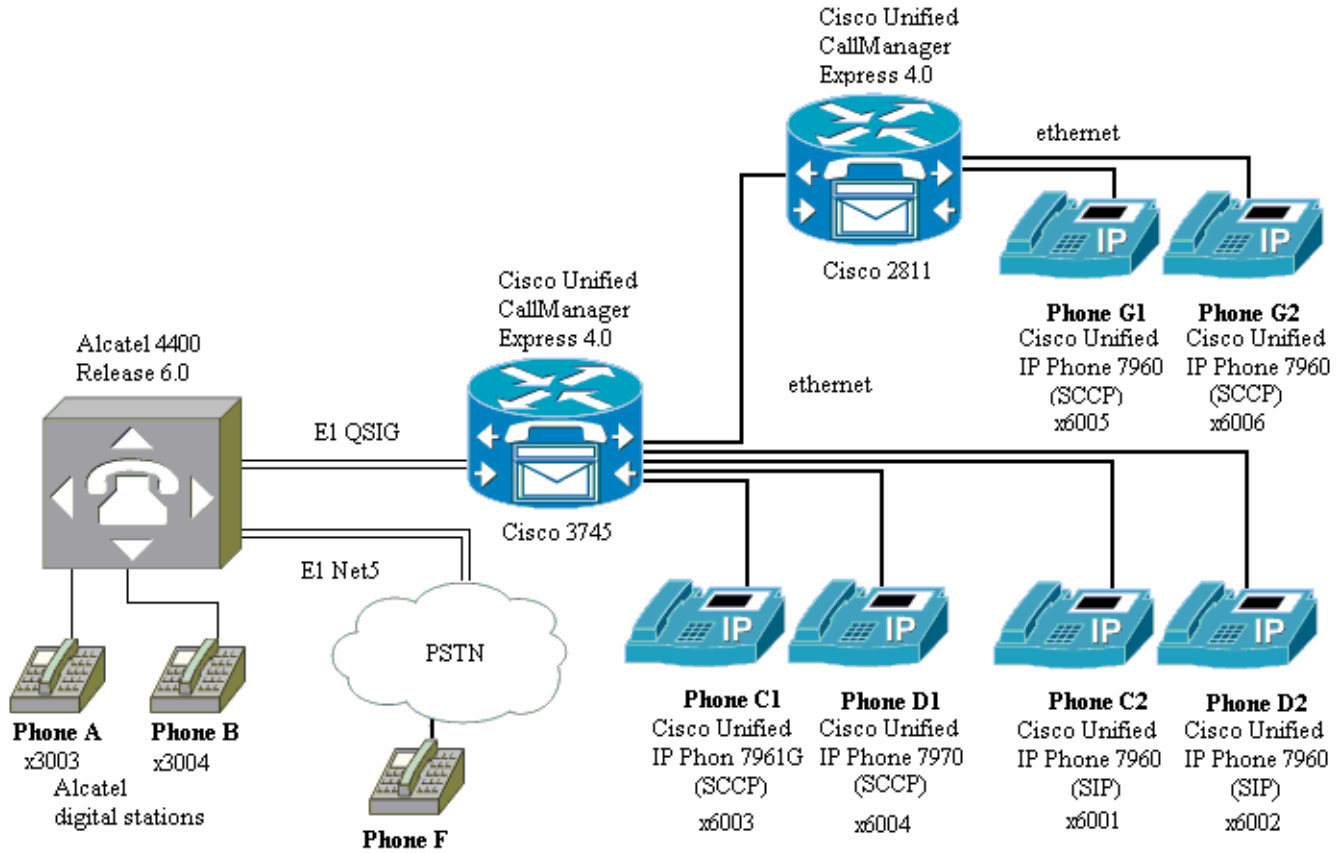


Introduction

- This is an Application Note for connectivity between an Alcatel 4400 Release 6.0 PBX and Cisco Unified Communications Manager Express Release 4.0(2) using a Cisco 3745 voice gateway with QSIG protocol.
- The network topology diagram (Figure 1) shows the test setup for end-to-end interoperability with Cisco Unified Communications Manager Express Release 4.0(2) connected to the PBX via the 3745 E1 QSIG link. The 3745 IOS voice gateway was connected via H.323 to a Cisco 2811 IOS voice gateway. The two gateways were running Cisco Unified Communications Manager Express 4.0(2). Cisco Unified IP phones (models 7960, 7961G, and 7970) were connected to the 2 Cisco Unified Communications Manager Express gateways via SIP and SCCP, as per the figure. A NM-HDV and VWIC-1MFT-E1 were used for the E1 QSIG interface. Calls were made to test basic call, caller ID, transfer, forward, and reroute features.
- This Application Note uses the 3745 voice gateway. However, the use of other Cisco voice gateways is also an option since Cisco Unified Communications Manager Express QSIG implementation does not depend on the physical interface.
- The inclusion of Cisco SIP phones in this application note is for reference only. Cisco Unified Communications Manager Express 4.0(2) supports SIP end-points with limited number of features.

Network Topology

Figure 1. Test Network Topology.





Limitations

Basic Calls

- Overlap dialing is not supported from Cisco Unified Communications Manager Express.
- Connected Name is not supported on calls between PBX and Cisco Unified IP Phone running SIP.
- Alerting Name is not supported on calls between PBX and Cisco Unified IP Phone running SIP.
- If CLIR is configured for outbound calls on Cisco Unified Communications Manager Express 4.0(2), it treats name and number on an incoming call as restricted, even if they are not set as restricted on the PBX.
- Connected Number/Name Restriction are not supported.

Call Transfers

- The Alcatel PBX will not perform a true blind transfer. It can perform a consultation transfer or early attended transfer.
- An early-attended local transfer that originates from a PBX extension to a SIP extension, and is then transferred to another SIP extension (e.g., A calls C2 and C2 transfers to D2), the transferring phone (C2 in example) stays in the call until the final destination (D2 in example) answers.
- An early-attended network/external transfer that originates from a SIP extension to another SIP extension, and is then transferred to a PBX extension (e.g., C2 calls D2 and D2 transfers to A), the transferring phone (D2 in example) stays in the call until the final destination (A in example) answers.
- A blind local transfer originated from a call placed from a PBX station to a SCCP phone on the local Cisco Unified Communications Manager Express, and then transferred to a SIP phone on the same Cisco Unified Communications Manager Express (e.g., A calls C1, and C1 transfers to D2) does not complete. The call drops as soon as the number is dialed.
- A consultation or early-attended transfer originated from a call placed from a phone on the remote Cisco Unified Communications Manager Express to a SIP phone on the local Cisco Unified Communications Manager Express, and then transferred to a PBX phone (e.g., G1 calls C2, and C2 transfers to A) does not complete properly.
- For consultation network/external transfers and early attended network/external transfers, and all consultation local transfers and early attended local transfers that involve a transfer from a SCCP phone to a SIP phone, the original calling name and number are not displayed on the final destination. The remaining local transfers and all blind transfers result in the original calling name and number information displaying properly.
- For many call transfers, the called (connected) name and number are not updated on the original phone after the transfer.

Call Forwards

- The Alcatel PBX will not perform call forward by join. It always performs a reroute in calls where a PBX phone is in the middle.
- For calls from Cisco Unified Communications Manager Express 4.0(2) to a PBX phone that is then forwarded locally to another PBX phone (e.g., Phone C1 calls Phone A, and Phone A forwards to Phone B), the Alcatel PBX sends a reroute proposal, and the Cisco Unified Communications Manager Express responds with a second SETUP message (i.e., a new call). This feature is inherent to the PBX and can not be turned off.
- For local CFNR from a SIP phone to a PBX phone to another PBX phone (e.g., phone C2 calls phone A, and phone A forwards on no response to phone B), the call connects, but has 1-way voice.
- For "trombone" or "hairpin" calls from a PBX phone to a Cisco Unified Communications Manager Express SIP phone to a PBX phone (e.g., phone A calls phone C2, which forwards to phone B), the call completes, but Cisco Unified Communications Manager Express does not perform a reroute, even when reroute is enabled.
- For "trombone" or "hairpin" calls involving overlap dialing from a PBX phone to a Cisco Unified Communications Manager Express (SCCP or SIP) phone to a PBX phone (e.g., phone A calls phone C1/C2 using overlap dialing, and C1/C2 forwards to phone B), the call completes, but there is no reroute. If the Cisco Unified Communications Manager Express phone is a SIP phone, there is no reroute proposal. If the Cisco Unified Communications Manager Express phone is a SCCP phone, there is a reroute proposal, but the PBX ignores it. It is believed that this is because overlap dialing on the Alcatel PBX is accomplished by a direct trunk select (as opposed to



ARS), and this causes the PBX to ignore the reroute proposal because the first trunk is "nailed up". This is believed to be an inherent limitation of the Alcatel PBX.

- Forwarded calls originated from a PBX extension to a remote Cisco Unified Communications Manager Express SCCP extension, and forwarded to a local Cisco Unified Communications Manager Express extension (e.g., A calls G1, and G1 forwards to C1), Cisco Unified Communications Manager Express performs a QSIG reroute, even though a QSIG reroute is not in order (i.e., there is no QSIG "hairpin" or "trombone").
- For many call forwards, the forwarding called name and number are not displayed on the final destination.
- For many call forwards, the called (connected) name and number are not updated on the original phone. In some instances, the correct connected number is sent by the PBX and replaced by Cisco Unified Communications Manager Express with the forwarding number.

MWI

- Cisco Unified Communications Manager Express 4.0(2) supports Cisco Unity integration with QSIG. However, in this instance, no testing was performed with Cisco Unified Communications Manager Express 4.0(2) as the message center PINX.
- There was no PBX voice mail system present at the time of testing. Therefore, no testing was performed with the PBX as the message center PINX.



System Components

Hardware Requirements

- Cisco 3745 IOS voice gateway
 - NM-HDV
 - VWIC-2MFT-E1
- Cisco 2811 IOS voice gateway
- (4) Cisco Unified IP phone 7960s
- (1) Cisco Unified IP phone 7961G
- (1) Cisco Unified IP phone 7970
- (1) Alcatel 4400 PBX
 - (2) Alcatel 4035 *Advanced Reflexes* digital phones
 - (2) PRA2 trunk cards

Software Requirements

- Cisco Unified Communications Manager Express Release 4.0(2)
- Cisco IOS Software, 3700 Software (C3745-IPVOICE-M), Version 12.4(11)T
- Cisco IOS Software, 2800 Software (C2800NM-IPVOICE-M), Version 12.4(11)T
- Alcatel 4400 software release 6.0

G1, G2 – 7960 – SCCP

- Cisco7960 IP phone version 7.2(T0.23)
- Cisco 7960 IP phone app load P0030702T023
- Cisco 7960 IP phone boot load PC0303010200

C2, D2 – 7960 - SIP

- Cisco7960 DSP load ID PS03AT46
- Cisco 7960 IP phone app load POS3-07-5-00
- Cisco 7960 IP phone boot load PC030301

C1 – 7961G – SCCP

- Cisco7961G IP phone load file: SCCP41.8-0-4SR2S
- Cisco 7961G IP phone app load ID: jar41sccp.8-0-3-32.sbn
- Cisco 7961G IP phone boot load ID: 7961G_64-020704128Amd64meg.bin

D1 – 7970 – SCCP

- Cisco7970 IP phone load file: SCCP70.8-0-4SR2S
- Cisco 7970 IP phone app load ID: jar70sccp.8-0-3-32.sbn
- Cisco 7970 IP phone boot load ID: 7970_64060118.bin



Features

Features Supported

- Basic Call, ENBLOC dialing
- Basic Call, Overlap dialing from PBX to Cisco Unified Communications Manager Express
- CLIP-Calling Line (Number) Identification Presentation on Basic and Forwarded Calls
- CNIP-Calling Line (Name) Identification Presentation on Basic Calls and Forwarded Calls
- CLIP-Calling Line (Number) Identification Presentation on Transferred Calls (See Limitations Section)
- CNIP-Calling Line (Name) Identification Presentation on Transferred Calls (See Limitations Section)
- CLIR-Calling Line (Number) Identification Restriction (See Limitations Section)
- CNIR-Calling Line (Name) Identification Restriction (See Limitations Section)
- COLP-Connected Line (Number) Identification Presentation on Basic Calls (See Limitations section.)
- CONP-Connected Line (Name) Identification Presentation on Basic Calls (See Limitations section.)
- Alerting Name (See Limitations section.)
- Tandem PSTN call
- Consultation Transfer – Local (See Limitations Section)
- Consultation Transfer – Network/External (See Limitations Section)
- Early Attended Transfer – Local (See Limitations Section)
- Early Attended Transfer – Network/External (See Limitations Section)
- Blind Transfer – Local (See Limitations Section)
- Blind Transfer – Network/External (See Limitations Section)
- Call Forward Unconditional by Join – Local (See Limitations Section)
- Call Forward Unconditional by Join – Network/External (See Limitations Section)
- Call Forward Busy by Join – Local (See Limitations Section)
- Call Forward Busy by Join – Network/External (See Limitations Section)
- Call Forward No Reply by Join – Local (See Limitations Section)
- Call Forward No Reply by Join – Network/External (See Limitations Section)
- Call Forward Unconditional by Reroute – Network/External (See Limitations Section)
- Call Forward Busy by Reroute – Network/External (See Limitations Section)
- Call Forward No Reply by Reroute – Network/External (See Limitations Section)



Features Not Supported

- Overlap dialing from Cisco Unified Communications Manager Express
- COLR- Connected Line (Number) Identification Restriction
- CONR- Connected Line (Name) Identification Restriction
- Blind Transfers initiated from PBX
- COLP-Connected Line (Number) Identification Presentation on Transferred Calls
- CONP-Connected Line (Name) Identification Presentation on Transferred Calls
- COLP-Connected Line (Number) Identification Presentation on Forwarded Calls
- CONP-Connected Line (Name) Identification Presentation on Forwarded Calls
- Call Completion to Busy Subscriber (Call Back when Free)
- Call Completion on No Reply (Call Back Next Used)
- Path Replacement for Call Transfer by Join
- Path Replacement for Trombone Connection
- Path Replacement for Call Diversion by Forward Switch



Configuration

Configuring the Alcatel 4400 Release 6.0

System Software

Figure 2. PBX system software – 1 of 1.

The screenshot displays the Cisco configuration interface for the Alcatel 4400 Release 6.0 PBX system software. The interface is divided into two main sections: a tree view on the left and a configuration table on the right.

Tree View (Left):

- nextiraone
 - Shelf
 - Media Gateway
 - PWT/DECT System
 - System
 - Translator
 - 1
 - Prefix Plan
 - ## External Features
 - #0 External Features
 - #1 Local Features
 - #2 Set features Personal Directory Use
 - #3 Set features Cancel auto. callback on busy
 - #40 Set features Forward cancellation
 - #41 Set features Forward cancel.by destinat.
 - #5 Set features Cancel Remote forward
 - #6 General Features
 - #7 General Features
 - #80 External Features
 - #81 Local Features
 - #82 Set features Cancel Overfl.to associate
 - #83 Set features Sta. group exit
 - #86 External Features
 - #96 Local Features
 - #97 Local Features
 - #98 Local Features
 - #99 Local Features
 - *#1 Local Features
 - *#2 External Features
 - *#3 External Features
 - **900 Professional TG With Overlapping 0
 - **901 Professional TG With Overlapping 1
 - **903 Professional TG With Overlapping 3
 - **904 Professional TG With Overlapping 4
 - **905 Professional TG With Overlapping 5
 - **906 Professional TG With Overlapping 6
 - **907 Professional TG With Overlapping 7
 - **908 Professional TG With Overlapping 8
 - **909 Professional TG With Overlapping 9
 - **910 Professional TG With Overlapping 10
 - **911 Professional TG With Overlapping 11
 - *0 External Features



Circuit Board

Figure 3. Circuit board configuration – 1 of 1.

The screenshot shows the Cisco configuration interface for a circuit board. The left pane displays a tree view of the configuration hierarchy, with the following items visible:

- nextiraone
 - Shelf
 - 0 ACT-10 Interfaces Main ACT Shelf No N64 4 YES No PARI
 - Board
 - 0 MMSFD Unknown Enabled Main (Master) 0
 - 1 CPU6 Unknown Enabled Main (Master) 0
 - 2 UA 32 Active Enabled Main (Master) 8
 - 3 DPNSS2 Busy Enabled Main (Master) 30
 - 4 PRA2 Busy Enabled Main (Master) 1
 - ATM port
 - ATM E1
 - ATM access
 - BBC2 Access
 - TA adapter
 - S0 Bus
 - Digital Access
 - Virtual Access
 - Transfix Access
 - Ethernet Access
 - Inter-ACT Link
 - ACT Or SU Events
 - GPA DSP program
 - Dynamic Init Parameters
 - Signaling link
 - Signaling Link Backup
 - IBS
 - SOSM Boards
 - RFP
 - Ethernet Parameters
 - Voice Guide Index MG
 - 5 PCM2 Idle Enabled Main (Master) 0
 - 6 INTOFA Unknown Enabled Main (Master) 0 1 1
 - 7 Z12_2 Active Enabled Main (Master) 4
 - 8 EMTL Busy Enabled Main (Master) 6
 - 9 BPRA2 Busy Enabled Main (Master) 4
 - 1 ACT-10 Interfaces Peripheral ACT Shelf No N64 4 YES No
 - 19 Hybrid Peripheral ACT Shelf No N64 4 YES
 - Media Gateway
 - PWT/DECT System
 - System
 - Translator

The right pane shows the configuration for the selected board (nextiraone:0). The configuration table is as follows:

nextiraone:0	
Board Address	4
Interface Type	PRA2
Usage State	Busy
Operational State	Enabled
Main/Standby State	Main (Master)
Number Of Sets Connected	1
Country Protocol Type	Default
Incidents Teleservice	YES
ISDN Board Layer 2 Parameters	
Retransmission Timer	100
TEI Identity Check Timer	100
Polling Timer	1000
No. Of Retransmissions	3
Max Frame Size (Bytes)	260
Passive board	NO
SS7 signaling	NO
T2 ISDN Board Layer 2 Parameters	
Window Size In Frames SAPI S T2	7
Window Size In Frames SAPI P T2	7
Virtual board	NO



Digital Access

Figure 4. Digital Access – 1 of 1.

The screenshot shows the Cisco configuration interface for a device named 'nextiraone'. The left pane displays a tree view of the configuration hierarchy, with 'Digital Access' expanded to show '0 T2 PRA2 255 YES 30 0'. The right pane displays the configuration parameters for this specific access type.

nextiraone:0:4	
T0/T2 Access No.	0
Access Type	T2
Access Board Type	PRA2
Synchronization Priority	255
Network Mode	YES
Max No Of Used B Channels	30
Max No. Of Compressed B Channels	0
Tieline Mode	YES
With Alarm	NO
Reserved1	NO
Reserved2	NO
Network Date Time Update	NO
CRC4	YES
Mu Law for BEARER CAP	NO



“ISO Function” System Parameter

Figure 5. ISO function system parameter configuration – 1 of 3.

The screenshot shows the Cisco configuration interface for 'nextiraone'. The left pane displays a tree view of configuration objects, with 'System Parameters' expanded. The right pane shows the configuration for 'nextiraone:1' with a table of parameters and their values.

Parameter	Value
Instance (reserved)	1
Trunk seizure via attendant	<input checked="" type="checkbox"/>
No detect of On-hook tone	<input checked="" type="checkbox"/>
TrkGrp in ticket for trans.call	<input checked="" type="checkbox"/>
VPN service	<input type="checkbox"/>
ISVPN Node No.	1
No. Digits displayed on sets	16
Melody Ringing Type	1
Int.Call Ringing Cadence No.	1
Ext.Call Ringing Cadence No.	1
Executive Type Ringing Cadence No.	1
Priority Call Cadence No.	1
ISO Function	<input checked="" type="checkbox"/>
Reserve B Channel	<input checked="" type="checkbox"/>
No control: Business Account Code	<input type="checkbox"/>
Business Pref.With Business No.	<input checked="" type="checkbox"/>
Business prefix with code	<input type="checkbox"/>
Follow-Me on Remote forwarding	<input type="checkbox"/>



Figure 6. ISO function system parameter configuration – 2 of 3.

The screenshot shows a configuration window titled "Configuration: nextiraone". The left pane shows a tree view of configuration options under "PCX". The right pane shows a configuration table for "nextiraone:1".

nextiraone:1	
Instance (reserved)	1
Follow-Me on Remote forwarding	<input type="checkbox"/>
BC HLC Fax	1
VG Recording Gain from a UA set	3
Calling ID length	7
No. Of Secret Code Errors	0
Transfer All Business Call Types	<input checked="" type="checkbox"/>
Attendt Stay PCX on cancel consult	<input type="checkbox"/>
Compatibility GF	<input checked="" type="checkbox"/>
Alphanum.Char.Entry - mode2	<input checked="" type="checkbox"/>
Spain version 2	<input type="checkbox"/>
QSIG1 (reserved)	0
QSIG2 (reserved)	0
Stop Tie Line Supervision	<input type="checkbox"/>
Tie Line Germany	0
Entity For Virtual Set	0
No. Of Business Code Errors	0
Period for Disabled Code	0



Figure 7. ISO function system parameter configuration – 3 of 3.

The screenshot shows the Cisco configuration interface for 'nextiraone'. The left pane displays a tree view of configuration objects, with 'nextiraone' selected. The right pane shows the configuration for 'nextiraone:1' under the 'Configuration' tab. The configuration is presented as a table with various parameters and their values.

nextiraone:1	
Instance (reserved)	1
Stop Tie Line Supervision	<input type="checkbox"/>
Tie Line Germany	0
Entity For Virtual Set	0
No. Of Business Code Errors	0
Period for Disabled Code	0
Poor ARS Rerouting memo. Period.	20
Poor ARS Route Inhibit Period	180
Charging by No. Text Messages	<input checked="" type="checkbox"/>
Remote Numeric Gain For 4630	<input checked="" type="checkbox"/>
Business code in redial key	<input checked="" type="checkbox"/>
Cn on Progress message	<input type="checkbox"/>
Deferred transm- Swiss work-around	<input type="checkbox"/>
Send NDS NDI	<input type="checkbox"/>
Calls Distributed to Att.In Order	<input type="checkbox"/>
No. int. messages not answ. by set	16
NS Read before ACK	<input type="checkbox"/>
SNCM	0



PRI ABC_F Trunk Group

Figure 8. PRI ABC_F Trunk configuration – 1 of 5.

The screenshot displays the Cisco Configuration Manager interface for configuring a PRI ABC_F Trunk Group. The left pane shows a tree view of configuration objects, with the selected trunk group expanded to show its sub-configuration. The right pane shows the configuration details for the selected trunk group.

nextiraone	
Trunk Group ID	1
Trunk Group Type	T2
Trunk Group Name	PRI-ABCF
Node number	1
Transcom Trunk Group	<input type="checkbox"/>
Auto.reserv.by Attendant	<input type="checkbox"/>
Overflow trunk group No.	-1
Tone on seizure	<input checked="" type="checkbox"/>
Private Trunk Group	<input type="checkbox"/>
Q931 Signal variant	ABC-F
SS7 Signal variant	No variant
Number Compatible With	-1
Number Of Digits To Send	4
Channel selection type	Quantified
Remote Network	0
Shared Trunk Group	<input type="checkbox"/>
Auto.DTMF dialing on outgoing call	NO
T2 Specification	None
Public Network COS	0
DID transcoding	<input type="checkbox"/>
Special Services	Nothing
Can support UUS in SETUP	<input checked="" type="checkbox"/>
Implicit Priority	
Activation mode	0
Priority Level	0
...	...



Figure 9. PRI ABC_F Trunk configuration – 2 of 5.

The screenshot displays the Cisco configuration interface for a PRI ABC_F Trunk configuration. The left pane shows a tree view of configuration objects, with '1 T2 PRI-ABCF 1 No No -1 Yes No' selected. The right pane shows the configuration details for this object, with a table of parameters and their values.

nextiraone	
Trunk Group ID	1
Overflow trunk group No.	-1
Tone on seizure	<input checked="" type="checkbox"/>
Private Trunk Group	<input type="checkbox"/>
Q931 Signal variant	ABC-F
SS7 Signal variant	No variant
Number Compatible With	-1
Number Of Digits To Send	4
Channel selection type	Quantified
Remote Network	0
Shared Trunk Group	<input type="checkbox"/>
Auto DTMF dialing on outgoing call	NO
T2 Specification	None
Public Network COS	0
DID transcoding	<input type="checkbox"/>
Special Services	Nothing
Can support UUS in SETUP	<input checked="" type="checkbox"/>
Implicit Priority	
Activation mode	0
Priority Level	0
Preempter	NO
Incoming calls Restriction COS	10
Outgoing calls Restriction COS	10
Callee number mpt1343	NO
Overlap dialing	YES



Figure 10. PRI ABC_F Trunk configuration – 3 of 5.

The screenshot shows the Cisco configuration tool interface. The left pane displays a tree view of configuration objects under 'PCX'. The right pane shows the configuration for 'nextiraone:1'.

nextiraone:1	
Instance (reserved)	1
Trunk Group Type	T2
Public Network Ref.	
End-to-end dialing	NO
DTMF end-to-end signal.	NO
Trunk group used in DISA	NO
DISA Secret Code	
VG for non-existent No.	YES
Routing To Manager	NO
Trunk COS	18
Sending of Progress message	YES
No. of digits unused (ISDN)	0
B Channel Choice	YES
Channels: Attendant Control (Rsvd)	0
Redirection For ACD (Dissuasion)	NO
DTO joining	NO
Consultation Call On B Channel	NO
Automated Attendant	NO
Calling party Rights COS	0
Entity Number	1
TS Overflow	YES
Number To Be Added	
Supervised by Routing	NO
VPN Cost Limit for Incom.Calls	0
Immediate Trk Listening if VPNCall	YES
VPN TO	50



Figure 11. PRI ABC_F Trunk configuration – 4 of 5.

The screenshot shows the Cisco configuration interface for a PRI ABC_F Trunk configuration. The left pane displays a tree view under 'PCX' with various configuration options. The right pane shows the configuration for 'nextiraone:1' with a table of parameters and their values.

nextiraone:1	
Instance (reserved)	1
TS Overflow	YES
Number To Be Added	
Supervised by Routing	NO
VPN Cost Limit for Incom.Calls	0
Immediate Trk Listening if VPNCall	YES
VPN TS %	50
CSTA-Monitored	NO
Max.% of trunks out CCD	0
Charge Calling And ADN Creation	NO
Ratio analog.to ISDN cost	
Logical Channel	1__15 & 17__31
TS Distribution on Accesses	YES
Use Split Access	NO
Heterogeneous Remote Network	NO
COS Restrictions - Barring mode	Not Restricted / Not barred
ARS Class of service	31
Quality profile for voice over IP	Profile #1
IP Compression Type	Default
Use of volume in system	YES
External Access Server	NO
CSTA Tracking MCDU Trk	
Announcement for dial tone	NO
Announcement for Ring tone	NO
Private to Public Overflow	YES



Figure 12. PRI ABC_F Trunk configuration – 5 of 5.

The screenshot shows the Cisco configuration interface for a PRI ABC_F Trunk. The left pane displays a tree view of configuration objects, with the following items expanded:

- Trunk Groups
 - 1 T2 PRI-ABCF 1 No No -1 Yes No
 - 1 T2 NO NO
 - T2/T1/T0 Access
 - 0-4-0 T2-1 01111111111111111111011111111111 (highlighted)

The right pane shows the configuration details for the selected object, nextiraone:1:1:

nextiraone:1:1	
Physical Address	0-4-0
Access Type	T2
Access Cluster ID	-1
Time Slots T2	0111111111111111111101111111111111111111

The bottom of the interface includes an 'All Action' button and a status bar with the number '1'.



Routing Prefixes

Figure 13. Routing prefix configuration – 1 of 2 (ENBLOC dialing).

The screenshot shows a Cisco configuration interface with a menu bar (File, Applications, Security, Preferences, Configuration, Windows, Help) and a toolbar. The main window is titled 'Configuration: nextiraone'. On the left, a tree view shows 'PCX' expanded, listing various trunk seize and local features. The right pane shows the configuration for 'nextiraone:1' as a table:

nextiraone:1	
Number	6
Prefix Meaning	Routing No.
Network Number	0
Node Number/ABC-F Trunk Group	1
Number of Digits	4
Number With Subaddress (ISDN)	NO
Default X25 ID.pref.	NO

At the bottom of the configuration pane, there is an 'All' button and a status bar with a page number '1'.



Figure 14. Routing prefix configuration – 2 of 2 (overlap dialing).

The screenshot shows a Cisco configuration window titled "Configuration: nextiraone". The left pane shows a tree view of configuration objects under "PCX", with "Professional TG With Overlapping 1" selected. The right pane shows the configuration details for "nextiraone:1".

nextiraone:1	
Number	**901
Prefix Meaning	Professional TG With Overlapping
Prefix Information	1
Private Route type	<input type="checkbox"/>



Digital Station

Figure 15. Digital station configuration – 1 of 6.

File Applications Security Preferences Configuration Windows Help

Configuration: nextiraone

Networks PCX

nextiraone

- Shelf
 - 0 ACT-10 Interfaces Main ACT Shelf No N64 4 YES No PARI
 - 1 ACT-10 Interfaces Peripheral ACT Shelf No N64 4 YES No
 - 19 Hybrid Peripheral ACT Shelf No N64 4 YES
- Media Gateway
- PWT/DECT System
- System
- Translator
- Classes of Service
- Attendant
- Users
 - 3001 Jack Doe 1 0 2 1 4035T 1
 - 3002 Jill Doe 1 0 2 2 4035T 1
 - 3003 Jane Doe 1 0 2 3 4035T 1
 - 3004 Big Doe 1 0 2 4 4035T 1
 - 3010 alcatel ipphone1 1 255 255 255 4037 (4035 & TSC IP)
 - 3011 Alcatel IPP2 1 255 255 255 4022 (4020 & TSC IP) 1
 - 3012 1 255 255 255 4022 (4020 & TSC IP) 1
 - 3032 Mummy Doe 1 0 7 0 ANALOG 1
 - 3033 Daddy Doe 1 0 7 1 ANALOG 1
 - 3034 Brother Doe 1 0 7 2 ANALOG 1
 - 3035 Sister Doe 1 0 7 3 ANALOG 1
 - 3038 uk_test_1 1 255 255 255 IPTouch 4038 1
 - 3039 uk_test_2 1 255 255 255 IPTouch 4038 1
 - 3050 Alcatel SIP0 1 255 255 255 Extern Station 1
 - 3051 Alcatel SIP1 1 255 255 255 Extern Station 1
 - 7000 Little Doe 1 0 2 5 4035T 1
 - 7001 Doe Doe 1 0 2 6 4035T 1
- Users by profile
- Set Profile
- Groups
- Speed Dialing
- Phone Book
- Entities
- Trunk Groups
- External Services
- Inter-Node Links
- X25
- DATA
- Applications
- Specific Telephone Services

Configuration

nextiraone	
Directory Number	3003
Directory name	Jane Doe
Directory First Name	
Location Node	1
Shelf Address	0
Board Address	2
Equipment Address	3
Set Type	4035T
Entity Number	1
Set Function	Default
Profile Name	
Key Profiles	None
Domain Identifier	0
Add On Module 1	None
Add On Module 2	None
Add On Module 3	None
External Alphanumeric Keyboard	None
Internal Alphanumeric Keyboard	English
V24 Extension	<input type="checkbox"/>
S0 Extension	<input type="checkbox"/>
MAC/PC	NO
Z Adapter	<input type="checkbox"/>
Language ID	1
Secret Code	****
Associated Set No	3003

General Characteristics PIN Assoc.Sets Rights Profile VoiceMail Facilities

Set Characteristics Hotel SIP_Attributes Miscellaneous All Action

1



Figure 16. Digital station configuration – 2 of 6.

The screenshot shows a Cisco configuration interface with a tree view on the left and a configuration table on the right. The tree view shows a hierarchy starting with 'nextiraone', followed by 'Shelf', 'Media Gateway', 'PWT/DECT System', 'System', 'Translator', 'Classes of Service', 'Attendant', and 'Users'. Under 'Users', several entries are listed, including '3003 Jane Doe 1 0 2 3 4035T 1' which is highlighted. The configuration table on the right is titled 'nextiraone' and contains the following data:

Directory Number	3003
Associated Set No.	3003
Cost Center ID	255
Cost Center Name	
Charging COS	Justified
Public Network COS	2
External Forwarding COS	255
Phone Features COS	0
Connection COS	0
Hunt Group Dir.No.	
ACD Group Directory No.	
Pickup Group Name	
Reserved Time Slot	<input type="checkbox"/>
Voice Mail Dir.No.	
Voice Mail Type	No Voice Mail
Paging Trunk Group	255
Paging Beeper	
Called Associated DECT set	
Tele-Marketing Agent	<input type="checkbox"/>
ISDN User	
External	<input checked="" type="checkbox"/>
Internal	<input checked="" type="checkbox"/>
Display ext. calling number	<input checked="" type="checkbox"/>
ISDN Teleservice	Phone
Hotel Set Characteristics	

At the bottom of the configuration table, there are several tabs: 'General Characteristics', 'PIN', 'Assoc.Sets', 'Rights', 'Profile', 'VoiceMail', 'Facilities', 'Set Characteristics', 'Hotel', 'SIP_Attributes', 'Miscellaneous', 'All', and 'Action'. The 'General Characteristics' tab is currently selected.



Figure 17. Digital station configuration – 3 of 6.

The screenshot displays the Cisco Unified Communications Manager configuration interface. The left pane shows a tree view of the configuration hierarchy, with 'Users' > '3003 Jane Doe' selected. The right pane shows the configuration details for this user, including a table of properties and a set of tabs at the bottom.

nextiraone	
Directory Number	3003
Hotel-Set Operation	Administrative
Use Type Of Dir. No.	Normal
Number Of Set Users	1
Dial by name and text msg.	NO
Multi-line station	NO
Multi-Line Properties	
Automatic Incoming Seizure	<input type="checkbox"/>
Automatic Outgoing Seizure	<input type="checkbox"/>
Selective Filtering	<input type="checkbox"/>
Overflow on no answer	<input type="checkbox"/>
Overflow on busy	<input type="checkbox"/>
Supervision at off-hook	<input type="checkbox"/>
Automatic Outgoing Seizure for MLA	<input type="checkbox"/>
Dialed number masked	NO
Access Code to UUS messages	NO
Routing Table	0
Associated Videophone	<input type="checkbox"/>
VIP (Very Important Pers.)	<input type="checkbox"/>
Assistant Directory Number	3003
Calls Priority	0
PCBT Associated	NO
Urgent Call	NO
PIN (Personal Ident.No.)	
PIN No.	

At the bottom of the configuration pane, there are several tabs: General Characteristics, PIN, Assoc.Sets, Rights, Profile, VoiceMail, Facilities, Set Characteristics, Hotel, SIP_Attributes, Miscellaneous, All, and Action.



Figure 18. Digital station configuration – 4 of 6.

The screenshot displays the Cisco configuration interface for a digital station named 'nextiraone'. The left pane shows a tree view of the configuration hierarchy, with 'Users' expanded to show a list of users. The right pane shows the configuration details for the selected user, '3003 Jane Doe'. The configuration table is as follows:

nextiraone	
Directory Number	3003
PIN No.	
PIN With Secret Code	<input checked="" type="checkbox"/>
Type of control	By COS
PIN group number	1
Can be Called/Dialed By Name	YES
Phone book Name (Dial by name)	Jane Doe
Phone book First Name	
Displayed Name	Jane Doe
Remote UA	<input type="checkbox"/>
Errors on Secret Code Counter	0
ACD station	NO
NS Right (Notification server)	NO
Incidents Teleservice	NO
CSTA routing	<input type="checkbox"/>
Voice Guide listening Class	7
Caller COS	4
VSI Transparency	<input type="checkbox"/>
Type of Keyboard	Default keyboard
Errors on Business Code Counter	0
STAP	Off-hook
Tandem	
Tandem Directory Number	
Main set in the tandem	<input type="checkbox"/>

At the bottom of the configuration pane, there are several tabs: General Characteristics, PIN, Assoc.Sets, Rights, Profile, VoiceMail, Facilities, Set Characteristics, Hotel, SIP_Attributes, Miscellaneous, All, and Action. The 'All' tab is currently selected.



Figure 19. Digital station configuration – 5 of 6.

The screenshot displays the Cisco configuration interface for a digital station. The left pane shows a tree view of the configuration hierarchy, with 'Users' > '3003 Jane Doe' selected. The right pane shows the configuration details for this user, including a table of features and their values.

nextiraone	
Directory Number	3003
Main set in the tandem	<input type="checkbox"/>
Partial busy	<input type="checkbox"/>
Ringling in partial busy	Long Ring
Specific supervision	<input type="checkbox"/>
Use Personal Calling Number	<input type="checkbox"/>
UA 3G features	
Emulation	UA 3G
4035 Features	
Navigator	UA 3G
Group PIN control	No group
CCA Operations	<input type="checkbox"/>
A4980	No 4980
Z IVR	<input type="checkbox"/>
NOMADIC	<input type="checkbox"/>
TAPI premium server	NO
Conference group	-1
Announcement group	-1
Call Restriction COS	0
Applicable Restriction COS	0
Implicit Priority	
Activation mode	0
Priority Level	0
Explicit Priority	

At the bottom of the configuration pane, there are several tabs: General Characteristics, PIN, Assoc.Sets, Rights, Profile, VoiceMail, Facilities, Set Characteristics, Hotel, SIP_Attributes, Miscellaneous, All, and Action.



Figure 20. Digital station configuration – 6 of 6.

The screenshot shows a Cisco configuration interface with a tree view on the left and a configuration table on the right. The tree view is expanded to 'Users' > '3003 Jane Doe 1 0 2 3 4035T 1'. The configuration table on the right is titled 'nextiraone' and contains the following data:

nextiraone	
Directory Number	3003
NUMADIC	<input type="checkbox"/>
TAPI premium server	NO
Conference group	-1
Announcement group	-1
Call Restriction COS	0
Applicable Restriction COS	0
Implicit Priority	
Activation mode	0
Priority Level	0
Explicit Priority	
Activation mode	0
Priority Level	0
Pre-emptable Primary Inc. Line	NO
Pre-emptable Secondary Inc. Line	NO
Priority Presentation	NO
lth Service type	Not Valid
CUG List Number	-1
Preferential CUG	-1
CUG Outgoing Access	<input type="checkbox"/>
CUG Incoming Access	<input type="checkbox"/>
Automatic reconfiguration	CTG Forbidden - Connection TO
URL UserName	
URL Domain	
Advanced configuration	<input type="checkbox"/>

At the bottom of the configuration table, there are several tabs: General Characteristics, PIN, Assoc.Sets, Rights, Profile, VoiceMail, Facilities, Set Characteristics, Hotel, SIP_Attributes, Miscellaneous, All, and Action.



Digital Station Phone Facilities

Figure 21. Digital station facilities configuration – 1 of 9.

The screenshot shows a Cisco configuration window titled 'Configuration: nextiraone'. The left pane shows a tree view under 'PCX' with 'Phone Features COS' selected. The right pane shows a table of configuration parameters for 'nextiraone:1'.

Parameter	Value
Phone Features COS	0
Rights Prot.against dir.call pickup	0
Rights Protected against all barge-in	0
Rights Protected against set barge-in	0
Rights Outgoing calls only	0
Rights Forward to external No.	1
Rights Prot.against multi-I ringing	0
Rights Protected against forwarding	0
Rights Protected (against barge-in, etc.)	0
Rights Prot.against call announc.	0
Rights Remote wake-up/appointment	0
Rights Auto.call back satell.trk grp	1
Rights Transfer on no answer	1
Rights ISDN remote charge service	0
Rights Bypass on forwarding	0
Rights Prot.against bypass onforward	0
Rights Interphony	0
Rights Secret Code, Repertory Key	1
Rights Night Serv.Answ.Pick up	0
Rights Night Serv.Direct call pick-up	0
Rights Attendant Call Privil.on PAI	0
Rights Busy priv.to public.overfl.	0
Rights Server-Minitel PC	0
Rights Prot.against Priv.Call	0
Rights Prot.against Rem.Forward.	0
Rights Resp. On Ext Call	0



Figure 22. Digital station facilities configuration – 2 of 9.

The screenshot displays the Cisco configuration interface for a digital station. The left pane shows a tree view under 'PCX' with 'Classes of Service' expanded to 'Phone Features COS'. The main area shows a configuration table for 'nextiraone:1' with various rights settings.

Phone Features COS	Value
Rights Prot.against Rem.Forward.	0
Rights Beep On Ext.Call	0
Rights O/S private to public overflow	0
Rights Transfer outgoing - incoming	1
Rights Transfer Outgoing-Outgoing	1
Rights PCX Calls Follow Ext. forwarding	1
Rights Mask ID.name Only for ext.calls	0
Rights Ringing tone In Handset	1
Rights No Text Msg reception	0
Rights No Callback On Free Set	0
Rights No Callback On Busy Set	0
Rights Override Att Control of TG (Resv)	0
Rights No Substitution	0
Rights Reserved or Att Control	0
Rights Lock Key	0
Rights Prot.against Guest Private Call	0
Rights Prot.against VIP Private Call	0
Rights Prot.against Private Call res1	0
Rights Prot.against Private Call res2	0
Rights Prot.against Automatic answer	0
Rights Authorized DISA unlocking	0
Rights Timed Call Release	0
Rights Calling name display (CNIP/I-CNAM)	0
Rights Int. calls overflow if caller	0
Rights Int. calls overflow if called	0



Figure 23. Digital station facilities configuration – 3 of 9.

The screenshot displays the Cisco configuration interface for a digital station. The left pane shows a tree view of the configuration hierarchy, with 'Phone Features COS' selected. The right pane shows the configuration table for 'nextiraone:1'.

nextiraone:1	
Phone Features COS	0
Rights Int. calls overflow if caller	0
Rights Int. calls overflow if called	0
Rights Record Authorization	0
Rights Casual Conference	0
Rights Silent Connection on Agent	0
Rights Virtual set on CMP board	0
Routing Mode At Off-hook	NO Routing
Inter-Company Calling Right	<input type="checkbox"/>
Set features Immediate forward	1
Set features Immediate forward on busy	1
Set features Forward on no answer	1
Set features Forward on busy or no answer	1
Set features Forward cancellation	1
Set features Forward cancel.by destinat.	0
Set features Overfl.on no answer to associate	0
Set features Cancel Overfl.to associate	0
Set features Sta. group exit	0
Set features Sta. group entry	0
Set features Protect. against barge-in & beeps	0
Set features Lock	0
Set features Auto-assignment	0
Set features Substitution	0
Set features Password modification	0
Set features Accounting/Chargeback Readout	0



Figure 24. Digital station facilities configuration – 4 of 9.

The screenshot displays the Cisco configuration interface for digital station facilities. The left pane shows a tree view under 'PCX' with 'Phone Features COS' selected. The right pane shows a configuration table for 'nextiraone:1'.

nextiraone:1	
Phone Features COS	0
Set features Do not disturb	0
Set features Set Out/In of Service	1
Set features Associated Direct. No. modif.	0
Set features Remote forward	0
Set features Cancel Remote forward	0
Set features Unused	0
Set features Cancel auto. callback on busy	1
Set features Personal directory Programming	0
Set features Personal Directory Use	0
Set features Language	0
Set features Adjust Display Visibility	1
Set features Access and Review Alarms	0
Set features Camp-on Control	0
Set features Overfl. busy to assoc.set	0
Set features Overfl. busy/no answer to assoc.set	0
Set features Voice Guide Listening	0
Set features Suite Do Not Disturb	0
Set features No Ringing	0
Set features Tandem: Assistant Away	0
Set features Tandem: Filter activation	0
Set features Force Set Type Identification	0
Set features Privileged substitution	0
Set features Ubiquity Mobile Programming	0
Set features Ubiquity	0



Figure 25. Digital station facilities configuration – 5 of 9.

The screenshot displays the Cisco configuration interface for a digital station. The main window is titled "Configuration: nextiraone". On the left, a tree view shows the configuration hierarchy: Networks > PCX > Media Gateway > PWT/DECT System > System > Translator > Classes of Service > 1 > Phone Features COS. The selected item is "Phone Features COS", which is expanded to show a list of 31 binary-coded entries (0-30). The right pane shows the configuration for "nextiraone:1" as a table with two columns: a feature name and a numerical value.

nextiraone:1	
Phone Features COS	0
General Services Group call pickup	1
General Services Direct call pickup	1
General Services Processing group call pickup	0
PCX Services Speed call to associated set	1
PCX Services Access Callback list	1
PCX Services Last Caller Callback	1
PCX Services Paging call answer	0
PCX Services Voice Mail Access	0
PCX Services Wake-up/appointment reminder	0
PCX Services Tone test	0
PCX Services Collect telex	0
PCX Services Collect text	0
PCX Services Collect fax	0
PCX Services Message deposit	0
PCX Services Text deposit	0
PCX Services Image deposit	0
PCX Services ACD Prefixes	0
PCX Services Meet-me Conference	0
PCX Services Cancel Wake-up	0
PCX Services Switch off Message LED	0
PCX Services Room status management	0
PCX Services Mini-bar	0
PCX Services Voice Mail Manager Access	0
PCX Services Conversation Recording	0



Figure 26. Digital station facilities configuration – 6 of 9.

The screenshot displays the Cisco configuration interface for a digital station. The left pane shows a tree view under 'PCX' with 'Phone Features COS' selected. The right pane shows a configuration table for 'nextiraone:1'.

nextiraone:1	
Phone Features COS	0
PCX Services PCX address in DPNSS	0
PCX Services Direct Paging Call	0
PCX Services Infocenter	0
PCX Services Voice Mail Deposit	0
PCX Services Select Primary Line	0
PCX Services Select Secondary Line	0
PCX Services Z dialing Behind UA	0
PCX Services Mask remote identity	0
PCX Services Recordable Voice Guides	0
PCX Services Suite Wake-up	0
PCX Services Suite Wake-up Cancel	0
PCX Services Physical Room Call	0
PCX Services Under A4980 Control	0
PCX Services Manual Add-on Conference	0
PCX Services Automatic Add-on Conference	0
PCX Services Announcement	0
PCX Services Automatic Answering	0
PCX Services Call Restriction Service	0
PCX Services Explicit Priority	0
PCX Services Intercom Service Loop	0
PCX Services Explicit Precedence level	0
PCX Services CUG Call	1
PCX Services Background Music	1
External Services Direct trunk seizure	1



Figure 27. Digital station facilities configuration – 7 of 9.

The screenshot shows a Cisco configuration tool window titled "Configuration: nextiraone". The left pane shows a tree view under "PCX" with "Phone Features COS" selected. The right pane shows a configuration table for "nextiraone:1".

nextiraone:1	
Phone Features COS	0
External Services Business account code	0
External Services Redial last number	1
External Services Night service answering	0
External Services DTMF Frequencies test	0
External Services Park Call/Retrieve	1
External Services Waiting call Consultation / Access	0
External Services Rotary End-to-End Signal	1
External Services DTMF End-to-End Signal	1
External Services Malicious call	0
External Services Common Hold	0
External Services Priority of Call	0
External Services Secret/Identity	1
External Services Alphanumeric Paging	0
External Services Manual Hold	1
Suffixes Broker Call	0
Suffixes Three-Party conference	1
Suffixes Barge-in	1
Suffixes Callback on free or busy set	1
Suffixes Camp-on Waiting	0
Suffixes Speaker Paging	0
Suffixes Call announce through speaker	0
Suffixes Consultation Call	1
Suffixes Paging request	0
Suffixes Business number	0



Figure 28. Digital station facilities configuration – 8 of 9.

The screenshot shows the Cisco configuration interface for a digital station. The left pane displays a tree view under 'PCX' with 'Phone Features COS' selected. The right pane shows the configuration table for 'nextiraone:1'.

nextiraone:1	
Phone Features COS	0
Suffixes Business number	0
Suffixes Rotary End-to-End Dialing	1
Suffixes DTMF end-to-end dialing	1
Suffixes Malicious Call	0
Suffixes Voice Mail Message Deposit	0
Suffixes Camp-on Control	0
Suffixes Voice Mail Access	0
Suffixes By pass on Do Not Distrub	0
Speed Dialing Area Area 0	1
Speed Dialing Area Area 1	1
Speed Dialing Area Area 2	1
Speed Dialing Area Area 3	1
Speed Dialing Area Area 4	1
Speed Dialing Area Area 5	1
Speed Dialing Area Area 6	1
Speed Dialing Area Area 7	1
Speed Dialing Area Area 8	1
Speed Dialing Area Area 9	1
Speed Dialing Area Area 10	1
Speed Dialing Area Area 11	1
Speed Dialing Area Area 12	1
Speed Dialing Area Area 13	1
Speed Dialing Area Area 14	1
Speed Dialing Area Area 15	1
Speed Dialing Area Area 16	1



Figure 29. Digital station facilities configuration – 9 of 9.

The screenshot displays the Cisco configuration tool interface for a digital station facilities configuration. The left pane shows a tree view under 'PCX' with 'Classes of Service' expanded to 'Phone Features COS'. The right pane shows the configuration table for 'nextiraone:1'.

nextiraone:1	
Phone Features COS	0
Speed Dialing Area Area 11	1
Speed Dialing Area Area 12	1
Speed Dialing Area Area 13	1
Speed Dialing Area Area 14	1
Speed Dialing Area Area 15	1
Speed Dialing Area Area 16	1
Speed Dialing Area Area 17	1
Speed Dialing Area Area 18	1
Speed Dialing Area Area 19	1
Speed Dialing Area Area 20	1
Speed Dialing Area Area 21	1
Speed Dialing Area Area 22	1
Speed Dialing Area Area 23	1
Speed Dialing Area Area 24	1
Speed Dialing Area Area 25	1
Speed Dialing Area Area 26	1
Speed Dialing Area Area 27	1
Speed Dialing Area Area 28	1
Speed Dialing Area Area 29	1
Speed Dialing Area Area 30	1
Speed Dialing Area Area 31	1
Voice Mail Forwarding	Ring Final Set Mail
Default Overflow Type	No forward
Default Overflow Addressee	Nothing
Quality profile for voice over IP	Profile #2



Configuring the Local Cisco Unified Communications Manager Express 1 (Cisco 3745)

LOCAL-3745#sho ver

Cisco IOS Software, 3700 Software (C3745-IPVOICE-M), Version 12.4(11)T, RELEASE)

Technical Support: <http://www.cisco.com/techsupport>

Copyright (c) 1986-2006 by Cisco Systems, Inc.

Compiled Sat 18-Nov-06 22:37 by prod_rel_team

ROM: System Bootstrap, Version 12.2(8r)T2, RELEASE SOFTWARE (fc1)

LOCAL-3745 uptime is 10 weeks, 4 days, 5 hours, 53 minutes

System returned to ROM by reload

System image file is "flash:c3745-ipvoice-mz.124-11.T.bin"

Cisco 3745 (R7000) processor (revision 2.0) with 243712K/18432K bytes of memory.

Processor board ID JMX0813L0Z3

R7000 CPU at 350MHz, Implementation 39, Rev 3.3, 256KB L2, 2048KB L3 Cache

2 FastEthernet interfaces

31 Serial interfaces

2 Channelized E1/PRI ports

DRAM configuration is 64 bits wide with parity enabled.

151K bytes of NVRAM.

62720K bytes of ATA System CompactFlash (Read/Write)

Configuration register is 0x0

LOCAL-3745#



LOCAL-3745#

LOCAL-3745#wr t

Building configuration...

Current configuration : 4768 bytes

!

version 12.4

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname LOCAL-3745

!

boot-start-marker

boot system flash:c3745-ipvoice-mz.124-12.4.PI6a

boot-end-marker

!

logging buffered 10000000

enable password cisco

!

no aaa new-model

network-clock-participate slot 3

voice-card 3

dspfarm

!

ip cef

!

!



```
no ip dhcp use vrf connected
```

```
!
```

```
ip dhcp pool ephone3
```

```
host 172.20.15.203 255.255.255.0
```

```
client-identifier 0100.170e.c858.d4
```

```
default-router 172.20.15.1
```

```
option 150 ip 172.20.15.196
```

```
!
```

```
ip dhcp pool ephone4
```

```
host 172.20.15.204 255.255.255.0
```

```
client-identifier 0100.15f9.c856.1a
```

```
default-router 172.20.15.1
```

```
option 150 ip 172.20.15.196
```

```
!
```

```
ip dhcp pool ephone1
```

```
host 172.20.15.201 255.255.255.0
```

```
client-identifier 0100.15fa.0cb1.dc
```

```
default-router 172.20.15.1
```

```
option 150 ip 172.20.15.196
```

```
!
```

```
ip dhcp pool ephone2
```

```
host 172.20.15.202 255.255.255.0
```

```
client-identifier 0100.15fa.0cb5.d9
```

```
default-router 172.20.15.1
```

```
option 150 ip 172.20.15.196
```

```
!
```

```
ip dhcp pool ephone7
```

```
host 172.20.15.207 255.255.255.0
```

```
client-identifier 0100.15c6.96dd.6b
```



```
default-router 172.20.15.1
option 150 ip 172.20.15.196
!
!
no ip domain lookup
ip dhcp-server query lease retries 5
ip dhcp-server 172.20.15.196
multilink bundle-name authenticated
isdn switch-type primary-qsig
!
!
voice call carrier capacity active
!
voice service pots
<supplementary-service qsig call-forward>1
!
voice service voip
qsig decode
allow-connections h323 to h323
allow-connections h323 to sip
allow-connections sip to h323
allow-connections sip to sip
supplementary-service h450.12
< no supplementary-service h450.2>2
<no supplementary-service h450.3 >2
h323
sip
```

¹ Omitted to force QSIG call forward by join (no reroute).

² Inserted to force IP call forward by join (no reroute).



```
registrar server expires max 600 min 60
```

```
!
```

```
!
```

```
!
```

```
voice register global
```

```
mode cme
```

```
source-address 172.20.15.196 port 5060
```

```
max-dn 100
```

```
max-pool 192
```

```
load 7960-7940 POS3-07-5-00
```

```
tftp-path flash:
```

```
create profile sync 1037810039062866
```

```
!
```

```
voice register dn 1
```

```
number 6001
```

```
name Local IP1
```

```
< call-forward b2bua busy 6005>3
```

```
<call-forward b2bua noan 6005 timeout 7>4
```

```
huntstop
```

```
!
```

```
voice register dn 2
```

```
number 6002
```

```
name Local IP2
```

```
huntstop
```

```
!
```

```
voice register pool 1
```

```
id mac 0015.FA0C.B1DC
```

³ Inserted for call forward busy from SIP extension.

⁴ Inserted for call forward no reply from SIP extension.



```
type 7960
number 1 dn 1
max registrations 42
dtmf-relay rtp-nte
description Cisco7960
codec g711ulaw
!
voice register pool 2
id mac 0015.FA0C.B5D9
type 7960
number 1 dn 2
max registrations 42
dtmf-relay rtp-nte
description Cisco7960
codec g711ulaw
!
!
controller E1 3/0
pri-group timeslots 1-31
!
controller E1 3/1
!
!
interface FastEthernet0/0
ip address 172.20.15.196 255.255.255.0
duplex auto
speed auto
!
interface FastEthernet0/1
```



```
no ip address
shutdown
duplex auto
speed auto
!
interface Serial3/0:15
no ip address
encapsulation hdlc
isdn switch-type primary-qsig
isdn overlap-receiving
isdn incoming-voice voice
no cdp enable
!
ip route 0.0.0.0 0.0.0.0 172.20.15.1
!
ip http server
ip http authentication local
ip http path flash:
!
!
!
tftp-server flash:P003-07-5-00.bin
tftp-server flash:P003-07-5-00.sbn
tftp-server flash:P0S3-07-5-00.bin
tftp-server flash:P0S3-07-5-00.sb2
tftp-server flash:P0S3-07-5-00.loads
tftp-server flash:apps41.1-1-3-30.sbn
tftp-server flash:apps70.1-1-3-30.sbn
tftp-server flash:cnu41.3-1-3-30.sbn
```



tftp-server flash:cnu70.3-1-3-30.sbn

tftp-server flash:cvm41sccp.8-0-3-32.sbn

tftp-server flash:cvm70sccp.8-0-3-32.sbn

tftp-server flash:dsp41.1-1-3-30.sbn

tftp-server flash:dsp70.1-1-3-30.sbn

tftp-server flash:jar41sccp.8-0-3-32.sbn

tftp-server flash:jar70sccp.8-0-3-32.sbn

tftp-server flash:SCCP41.8-0-4SR2S.loads

tftp-server flash:SCCP70.8-0-4SR2S.loads

< tftp-server flash: any load file that is not on the phone and is needed >

< tftp-server slot0: any load file that is not on the phone and is needed >

!

control-plane

!

!

voice-port 3/0:15

!

!

dial-peer voice 3023 pots

destination-pattern 3...

incoming called-number

<clid restrict>⁵

< supplementary-service qsig call-forward >⁶

direct-inward-dial

port 3/0:15

forward-digits all

⁵ Inserted for CLID restrict cases only.

⁶ Omitted to force QSIG call forward by join (no reroute).



```
!  
dial-peer voice 1 voip  
  preference 1  
  destination-pattern 6...  
  session target ipv4:172.20.15.159  
  dtmf-relay h245-alphanumeric  
  codec g711ulaw  
  no vad  
!  
dial-peer voice 4 pots  
  destination-pattern 4...  
  direct-inward-dial  
  port 3/0:15  
  forward-digits all  
!  
!  
sip-ua  
  retry options 0  
!  
!  
telephony-service  
  load 7960-7940 P003-07-5-00  
  load 7961 SCCP41.8-0-4SR2S  
  load 7970 SCCP70.8-0-4SR2S  
  max-ephones 25  
  max-dn 50  
  ip source-address 172.20.15.196 port 2000  
  max-conferences 8 gain -6  
  call-forward pattern .T
```



```
transfer-system full-consult
transfer-pattern .... <blind> 7
create cnf-files version-stamp Jan 01 2002 00:00:00
!
!
ephone-dn 3 dual-line
number 6003
name Local IP3
< call-forward busy 6005> 8
<call-forward noan 6005 timeout 7> 9
huntstop channel
!
!
ephone-dn 4 dual-line
number 6004
name Local IP4
huntstop channel
!
!
ephone 3
mac-address 0017.0EC8.58D4
type 7961
keep-conference
button 1:3
!
!
!
```

⁷ Inserted to enable blind transfers, as opposed to early attended transfers.

⁸ Inserted for call forward busy from SCCP extension.

⁹ Inserted for call forward no reply from SCCP extension.



```
ephone 4
  mac-address 0015.F9C8.561A
  type 7970
  keep-conference
  button 1:4
!
!
!
line con 0
  exec-timeout 0 0
line aux 0
line vty 0 4
  exec-timeout 0 0
  password cisco
  login
  transport input telnet
!
!
end
```

LOCAL-3745#



Configuring the Remote Cisco Unified Communications Manager Express (Cisco 2811)

REMOTE-2811#sho ver

Cisco IOS Software, 2800 Software (C2800NM-IPVOICE-M), Version 12.4(11)T, RELEA

Technical Support: <http://www.cisco.com/techsupport>

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Compiled Sat 18-Nov-06 17:16 by prod_rel_team

ROM: System Bootstrap, Version 12.4(1r) [hqluong 1r], RELEASE SOFTWARE (fc1)

REMOTE-2811 uptime is 13 weeks, 1 hour, 13 minutes

System returned to ROM by reload at 23:23:17 UTC Fri Jan 5 2007

System image file is "flash:c2800nm-ipvoice-mz.124-11.T.bin"

Cisco 2811 (revision 53.51) with 251904K/10240K bytes of memory.

Processor board ID FHK0946F0MZ

2 FastEthernet interfaces

24 Serial interfaces

1 Channelized T1/PRI port

2 Voice FXS interfaces

DRAM configuration is 64 bits wide with parity enabled.

239K bytes of non-volatile configuration memory.

62592K bytes of ATA CompactFlash (Read/Write)

Configuration register is 0x2



REMOTE-2811#

Building configuration...

Current configuration : 3046 bytes

!

version 12.4

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname REMOTE-2811

!

boot-start-marker

boot system flash:c2800nm-ipvoice-mz.124-11.T.bin

boot-end-marker

!

logging buffered 10000000

no logging console

enable password cisco

!

no aaa new-model

network-clock-participate wic 0

!

!

ip cef

no ip dhcp use vrf connected

!

ip dhcp pool ephone5

host 172.20.15.205 255.255.255.0



```
client-identifier 0100.15fa.0cb7.46
default-router 172.20.15.1
option 150 ip 172.20.15.159
!
ip dhcp pool ephone6
host 172.20.15.206 255.255.255.0
client-identifier 0100.15fa.63bf.84
default-router 172.20.15.1
option 150 ip 172.20.15.159
!
!
no ip domain lookup
ip dhcp-server query lease retries 5
ip dhcp-server 172.20.15.159
multilink bundle-name authenticated
!
isdn switch-type primary-qsig
!
voice-card 0
no dspfarm
!
!
!
voice service voip
qsig decode
allow-connections h323 to h323
allow-connections h323 to sip
allow-connections sip to h323
allow-connections sip to sip
```



supplementary-service h450.12

< no supplementary-service h450.2 inserted here to force call by join>¹⁰

<no supplementary-service h450.3 inserted here to force call by join>¹⁰

h323

sip

!

!

controller T1 0/0/0

framing esf

linecode b8zs

pri-group timeslots 1-24

!

!

interface FastEthernet0/0

ip address 172.20.15.159 255.255.255.0

duplex auto

speed auto

!

interface FastEthernet0/1

no ip address

shutdown

duplex auto

speed auto

!

interface Serial0/0/0:23

no ip address

encapsulation hdlc

isdn switch-type primary-qsig

¹⁰ Inserted to force IP call forward by join (no reroute).



```
isdn timer T310 120000
isdn overlap-receiving
isdn protocol-emulate network
isdn incoming-voice voice
no cdp enable
!
ip route 0.0.0.0 0.0.0.0 172.20.15.1
!
!
ip http server
!
!
tftp-server flash:P0030702T023.bin
tftp-server flash:P0030702T023.loads
tftp-server flash:P0030702T023.sb2
tftp-server flash:P0030702T023.sbn
< tftp-server flash: any load file that is not on the phone and is needed >
< tftp-server slot0: any load file that is not on the phone and is needed>
!
control-plane
!
!
voice-port 0/0/0:23
!
voice-port 0/1/0
!
voice-port 0/1/1
!
```



```
!  
!  
dial-peer voice 2 voip  
destination-pattern 3...  
session target ipv4:172.20.15.196  
dtmf-relay h245-alphanumeric  
codec g711ulaw  
!  
dial-peer voice 6 voip  
destination-pattern 6...  
session target ipv4:172.20.15.196  
dtmf-relay h245-alphanumeric  
codec g711ulaw  
!  
dial-peer voice 4 voip  
destination-pattern 4...  
session target ipv4:172.20.15.196  
dtmf-relay h245-alphanumeric  
codec g711ulaw  
!  
!  
sip-ua  
retry options 0  
!  
!  
telephony-service  
load 7960-7940 P0030702T023  
max-ephones 25  
max-dn 50
```




```
ip source-address 172.20.15.159 port 2000

max-conferences 8 gain -6

call-forward pattern .T

transfer-system full-consult

transfer-pattern .... <blind>11

create cnf-files version-stamp Jan 01 2002 00:00:00

!

!

ephone-dn 5 dual-line

number 6005

name Remote IP5

<call-forward busy 3004>12

< call-forward noan 3004 timeout 7>13

!

!

ephone-dn 6 dual-line

number 6006

name Remote IP6

!

!

ephone 5

mac-address 0015.FA0C.B746

type 7960

keep-conference

button 1:5

!

!
```

¹¹ Inserted to enable blind transfers, as opposed to early attended transfers.

¹² Inserted for call forward busy from SCCP extension.

¹³ Inserted for call forward no reply from SCCP extension.



```
!  
ephone 6  
  mac-address 0015.FA63.BF84  
  type 7960  
  keep-conference  
  button 1:6  
!  
!  
!  
line con 0  
line aux 0  
line vty 0 4  
  password cisco  
  login  
!  
scheduler allocate 20000 1000  
!  
end
```

REMOTE-2811#



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