



Cisco Unified CallManager Release 5.0 - PBX Interoperability: Avaya Definity G3r PBX to a Cisco 3825 Using FXO with MGCP

Initial Release July 27, 2006

Table of Contents

Introduction	1
Network Topology.....	2
Limitations.....	3
System Components	3
Hardware Requirements	3
Software Requirements	3
Features	3
Configuration.....	4
Configuring Cisco Unified CallManager 5.0.....	4
Configuring the Cisco IOS Voice Gateway (Cisco 3825)	19
Configuring the PBX (Avaya G3r).....	29
Acronyms	38

Introduction

This is an application note for interoperability connectivity between an Avaya Definity G3r PBX and Cisco Unified CallManager 5.0 using a Cisco 3825 with an FXO interface and MGCP call control. A NM-HD-2V and VIC2-2FXO were used for the FXO interface, and the Cisco 3825 was connected to the Cisco Unified CallManager via MGCP.

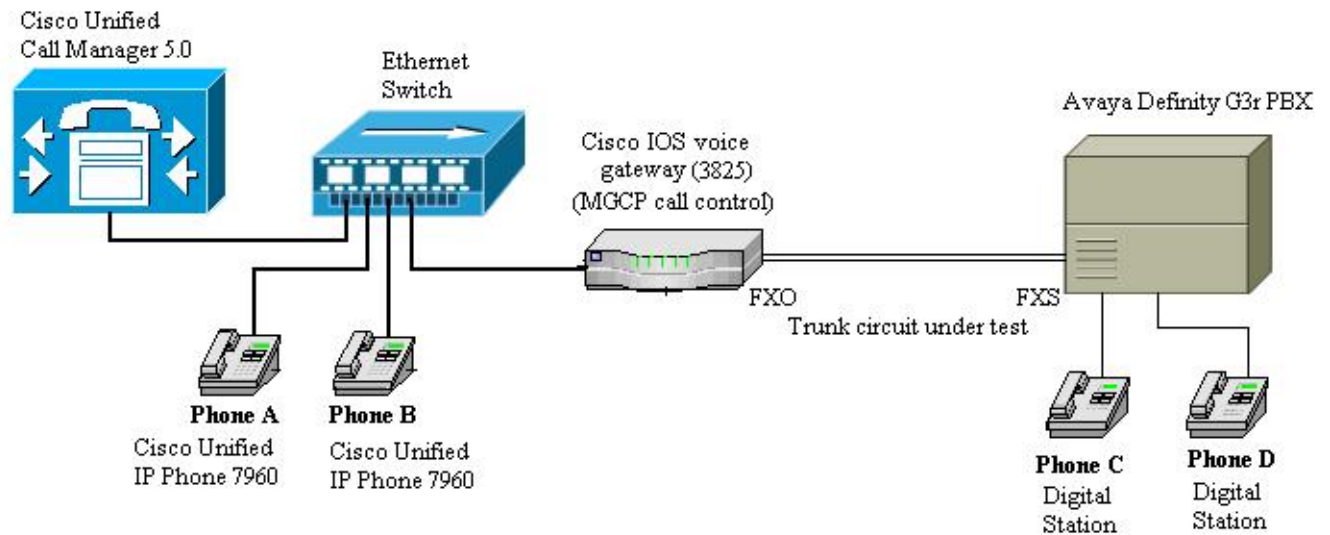
The network topology diagram (figure 1) shows the test setup. Basic calls were made, and voice path and (loop break) disconnect supervision were checked.

Call preservation was tested by interrupting the IP connection between Cisco Unified CallManager and the Cisco IOS voice gateway (3825) during a call in progress. The call was preserved and disconnect supervision still worked, as evidenced by the FXO going on-hook when the PBX phone hung up. However, the IP phone had to be hung up independently.



Network Topology

Figure 1. Network Topology





Limitations

For Call Preservation, when the CCM connection is temporarily disabled during a call in progress, the call survives, and disconnect supervision still worked, as evidenced by the FXO going on-hook when the PBX phone hangs up. However, the IP phone still had to be hung up independently.

System Components

Hardware Requirements

- (1) Cisco 3825
- (1) Cisco NM-HD-2V
- (1) Cisco VIC2-2FXO
- (1) Cisco Unified CallManager 5.0
- (1) Cisco IP Phone 7960
- (1) Avaya Definity G3r, V6
- (1) AT&T 8403 digital handset

Software Requirements

Cisco Unified CallManager Release 5.0
Avaya Definitiy Software Release G3V6i.01.0.018.2
Cisco IOS Release 12.4(7.24)T
Cisco IP phone 7960 version 8.0(1.0)
Cisco IP phone 7960 app load P00308000100
Cisco IP phone 7960 boot load PC03M030

Features

Basic Call
Loop Break Disconnect Supervision
Call Preservation



Configuration

Configuring Cisco Unified CallManager 5.0



Figure 2. Version



Find and List Gateway - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Address <https://172.25.67.178:8443/ccmadmin/gatewayFindList.do> Go Links

Navigation Cisco Unified CallManager Admini

Cisco Unified CallManager Administration

For Cisco IP Telecommunication Solutions Logged in as: CCM

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help

Find and List Gateway

Status
1 records found

Search Options
Find Gateways where Name begins with Hide endpoints Find Search Within Results
(device.name begins with any)

Search Results

	Device Name	Description	Device Pool	Calling Search Space	Ext.	Partition	Route Group	Priority	Port	Device Type	Status
<input checked="" type="checkbox"/>	mgcp-3825.yourdomain.com	mgcp-3825.yourdomain.com								Cisco 3825	See Endpoint

Add New Select All Clear All Delete Selected Reset Selected Rows per Page 50

Figure 3. MGCP gateway



Gateway Configuration - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Reload Print Mail News RSS Feeds

Address <https://172.25.67.178/ccmadmin/gatewayEdit.do?key=09047643-6623-e4ce-e18c-cde361515e57> Go Links

Google Search 125 blocked Check AutoLink AutoFill Options

Navigation Cisco Unified CallManager Admini

Cisco Unified CallManager Administration

For Cisco IP Telecommunication Solutions Logged in as: CCM

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help

Gateway Configuration

Related Links: [Back To Fin](#)

Status

Status: Ready

Gateway Details

Product	Cisco 3825
Gateway	mgcp-3825.yourdomain.com
Protocol	MGCP
Domain Name *	<input type="text" value="mgcp-3825.yourdomain.com"/>
Description	<input type="text" value="mgcp-3825.yourdomain.com"/>
Cisco Unified CallManager Group *	<input type="text" value="Default"/>

Configured Slots, VICs and Endpoints

Module in Slot	Subunit	Module	Port	Endpoint
Module in Slot 0 NM-4VWIC-MBRD	Subunit 0	< None >		
	Subunit 1	< None >		
	Subunit 2	VWIC-2MFT-E1	0/2/0	0/2/1
	Subunit 3	< None >		
Module in Slot 1 NM-HD-2V	Subunit 0	VIC2-2BRI	1/0/0	1/0/1

Figure 4. MGCP gateway config - #1 of 2



Gateway Configuration - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Reload Print Mail News RSS Feeds

Address <https://172.25.67.178/ccmadmin/gatewayEdit.do?key=D9047643-6623-e4ce-e18c-cde361515e57> Go Links

Google Search 125 blocked Check AutoLink AutoFill Options

Module in Slot	Module	Subunit 0	Subunit 1	Subunit 2	Subunit 3	Ports
Module in Slot 0	NM-4VWIC-MBRD	< None >	< None >	VWIC-2MFT-E1	< None >	0/2/0 0/2/1
Module in Slot 1	NM-HD-2V	VIC2-2BRI	VIC2-2FXO			1/0/0 1/0/1 1/1/0 1/1/1
Module in Slot 2	NM-HDV2-2PORT-T1	VIC2-2FXS	< None >			2/0/0 2/0/1 Begin Port 0

Product Specific Configuration

Global ISDN Switch Type: 4ESS

Switchback Timing *: Graceful

Switchback uptime-delay (min): 10

Switchback schedule (hh:mm): 12:00

Type Of DTMF Relay *: Current GW Config

Save Delete Reset Add New

*- indicates required item.

Figure 5. MGCP gateway config - #2 of 2



Gateway Configuration - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Reload Print Mail News RSS Feeds

Address <https://172.25.67.178/ccmadmin/gatewayEdit.do?key=68437c9e-74b8-2b03-2335-e2944d7d04e1> Go Links

Google Search 125 blocked Check AutoLink AutoFill Options

Navigation Cisco Unified CallManager Admini

Cisco Unified CallManager Administration

For Cisco IP Telecommunication Solutions Logged in as: CCM

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help

Gateway Configuration

Related Links: [Back to MGCP Configu](#)

Status
Status: Ready

Device Information

Product	Cisco MGCP FXO Port
Gateway	mgcp-3825.yourdomain.com
Device Protocol	Analog Access
Registration	Registered with Cisco Unified CallManager CM-JUPITER
IP Address	172.20.15.199
End-Point Name *	AALN/S1/SU1/0@mgcp-3825.yourdomain.com
Description	<input type="text" value="AALN/S1/SU1/0@mgcp-3825.yourdomain.com"/>
Device Pool*	<input type="text" value="Default"/>
Media Resource Group List	<input type="text" value="MRGL-Jupiter"/>
Packet Capture Mode	<input type="text" value="None"/>
Packet Capture Duration	<input type="text" value="0"/>
Calling Search Space	<input type="text" value="< None >"/>
AAR Calling Search Space	<input type="text" value="< None >"/>
Location*	<input type="text" value="Hub_None"/>
AAR Group	<input type="text" value="< None >"/>

Done Internet

start 2 I... 2 M... reg... Micr... TI-... unti... 100% 1:48 PM

Figure 6. FXO Port Setup - #1 of 2



Gateway Configuration - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Reload Print Mail News RSS Feeds

Address <https://172.25.67.178/ccmadmin/gatewayEdit.do?key=68437c9e-74b8-2b03-2335-e2944d7d04e1> Go Links

Google Search 125 blocked Check AutoLink AutoFill Options

☐ Transmit UTF-8 for Calling Party Name

Multilevel Precedence and Preemption (MLPP) Information

MLPP Domain <None>

MLPP Indication Not available on this device

MLPP Preemption Not available on this device

Port Information (Loop Start)

Port Direction * Bothways

Attendant DN* 4085254105

☒ Unattended Port

Product Specific Configuration

Hookflash Timer (50-1550ms) * 50

Inter-digit Duration Timer (50-500 ms) * 100

Input Gain (-6..14 db) * 0

Output Attenuation (0..14 db) * 3

Echo Cancellation Enable * Enable

Echo Cancellation Coverage (ms) * 8

Save Delete Reset

*- indicates required item.

** - Device reset is not required for changes to Packet Capture Mode and Packet Capture Duration.

Figure 7. FXO Port Setup - #2 of 2



Find and List Route Patterns - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Reload Print Mail Stop

Address <https://172.25.67.178/ccmadmin/routePattern2FindList.do?lookup=false&multiple=true&recCnt=0&colCnt=5> Go Links

Google Search 127 blocked Check AutoLink AutoFill Options

Navigation Cisco Unified CallManager Administration

Cisco Unified CallManager Administration

For Cisco IP Telecommunication Solutions

Logged in as: CCM

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help

Find and List Route Patterns

+ - X

Status
2 records found

Search Options
Find Route Patterns where Pattern begins with Find Search Within Results
(numplan.dnorpattern begins with any)

Search Results

Pattern	Description	Partition	Route Filter	Associated Device
<input type="checkbox"/> 38537	route to PSTN			AALN/S1/SU1/0@mgcp-3825.yourdomain.com
<input type="checkbox"/> 4008	route to FXO			AALN/S1/SU1/0@mgcp-3825.yourdomain.com

Add New Select All Clear All Delete Selected Rows per Page 50

Done Internet

start Inbo... 2 I... 2 Y... C:\... MGC... regr... 100% 5:24 PM

Figure 8. Route Patterns



Route Pattern Configuration - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Reload Print Mail News RSS Feeds

Address <https://172.25.67.178:8443/ccmadmin/routePattern25ave.do> Go Links

Google Search 125 blocked Check AutoLink AutoFill Options

Navigation Cisco Unified CallManager Admini

Cisco Unified CallManager Administration

For Cisco IP Telecommunication Solutions Logged in as: CCM

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help

Route Pattern Configuration

Related Links: Back To Fin

Status
Update successful

Pattern Definition

Route Pattern* 4008

Route Partition < None >

Description route to FXO

Numbering Plan -- Not Selected --

Route Filter < None >

MLPP Precedence* Default

Gateway/Route List* AALN/S1/SU1/0@mgcp-3825.yourdomain.com (Edit) Find

Route Option
☒ Route this pattern
☐ Block this pattern No Error

Call Classification* OffNet

☐ Allow Device Override ☐ Provide Outside Dial Tone ☐ Allow Overlap Sending ☐ Urgent Priority

☐ Require Forced Authorization Code

Authorization Level* 0

☐ Require Client Matter Code

Figure 9. 4008 Route Pattern - #1 of 2



Route Pattern Configuration - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Address <https://172.25.67.178:8443/ccmadmin/routePattern25ave.do> Go Links

Google Search 125 blocked Check AutoLink AutoFill Options

☐ 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*

Calling Name Presentation*

Connected Party Transformations

Connected Line ID Presentation*

Connected Name Presentation*

Called Party Transformations

Discard Digits

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Network Service Protocol

Carrier Identification Code

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

Save Delete Copy Add New

start 100% 4:33 PM

Figure 10. 4008 Route Pattern - #2 of 2



Find and List Phones - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Reload Print Mail & Newsgroups RSS Feeds

Address <https://172.25.67.178/ccmadmin/phoneFindList.do?lookup=false&multiple=true&recCnt=0&colCnt=17> Go Links

Google Search 125 blocked Check AutoLink AutoFill Options

Navigation Cisco Unified CallManager Administration Logged in as: CCM

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help

Find and List Phones

Related Links: CAPF Report i

Status
6 records found

Search Options
Find Phone where Device Name begins with Find Search Within Results
(device.name begins with any) Select item or enter search text

Search Results

	Device Name(Line)	Description	Device Pool	Device Protocol	Status	IP Address	Copy	Copy
<input type="checkbox"/>	SEP0002FD06DF77	Auto 4002	Default	SCCP	Registered with CM-JUPITER	172.20.33.102		
<input type="checkbox"/>	SEP0003E362FED4	Auto 4004	Default	SCCP	Registered with CM-JUPITER	172.20.33.113		
<input type="checkbox"/>	SEP003094C26261	Auto 4003	Default	SCCP	Unknown	Unknown		
<input type="checkbox"/>	SEP003094C28282	Auto 4000	Default	SCCP	Registered with CM-JUPITER	172.20.33.112		
<input type="checkbox"/>	SEP003094C288E9	Auto 4005	Default	SCCP	Registered with CM-JUPITER	172.20.15.197		
<input type="checkbox"/>	SEP003094C391E9	Auto 4001	Default	SCCP	Registered with CM-JUPITER	172.20.33.104		

Add New Select All Clear All Delete Selected Reset Selected Rows per Page 50

Done Internet

start Yah... 2 I... 2 M... reg... Micr... TI... unti... 100% 1:43 PM

Figure 11. IP Phones



Phone Configuration - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Reload Print Mail News RSS Feeds

Address <https://172.25.67.178/ccmadmin/phoneEdit.do?key=ab7aa531-9a12-486a-8c59-a4658f3b31c0> Go Links

Google Search 125 blocked Check AutoLink AutoFill Options

Navigation Cisco Unified CallManager Admini

Cisco Unified CallManager Administration

For Cisco IP Telecommunication Solutions

Logged in as: CCM

System Call Routing Media Resources Voice Mail Device Application User Management Bulk Administration Help

Phone Configuration

Related Links: [Back To Find/List](#)

Status
Status: Ready

Association Information

[Modify Button Items](#)

- Line [1] - 4085254105 (no partition)
- Line [2] - Add a new DN
- Add a new SD
- Add a new SD
- Add a new SD
- Add a new SD
- Unassigned Associated Items -----
- Add a new SD
- Add a new SURL
- Add a new BLF SD
- Privacy
- None

Phone Type

Product Type: Cisco 7960
Device Protocol: SCCP

Device Information

Registration	Registered with Cisco Unified CallManager CM-JUPITER
IP Address	172.20.15.197
MAC Address*	003094C288E9
Description	Auto 4005
Device Pool*	Default
Phone Button Template*	Standard 7960 SCCP
Softkey Template	< None >
Common Phone Profile*	Standard Common Phone Profile
Calling Search Space	< None >
AAR Calling Search Space	< None >
Media Resource Group List	< None >

Figure 12. IP phone config – 1 of 5.



Phone Configuration - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Reload Print View Source

Address <https://172.25.67.178/ccmadmin/phoneEdit.do?key=ab7aa531-9a12-486a-8c59-a4658f3b31c0> Go Links

Google Search 125 blocked Check AutoLink AutoFill Options

Media Resource Group List < None >

User Hold Audio Source < None >

Network Hold Audio Source < None >

Location* Hub_None

User Locale < None >

Network Locale < None >

Built In Bridge* Default

Privacy* Default

Owner User ID < None >

Phone Load Name

☒ Retry Video Call as Audio

☐ Ignore Presentation Indicators (internal calls only)

☒ Allow Control of Device from CTI

Protocol Specific Information

Packet Capture Mode* None

Packet Capture Duration 0

Presence Group* Standard Presence group

SCCP Phone Security Profile* Standard SCCP Profile for Auto Registration

SUBSCRIBE Calling Search Space < None >

☐ Unattended Port

☐ Require DTMF Reception

☐ RFC2833 Disabled

Expansion Module Information

Figure 13. IP phone config – 2 of 5.



Phone Configuration - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Reload 125 blocked Check AutoLink AutoFill Options

Address <https://172.25.67.178/ccmadmin/phoneEdit.do?key=ab7aa531-9a12-486a-8c59-a4658f3b31c0> Go Links

Google Search

Expansion Module Information

Module 1 < None >
Module 1 Load Name
Module 2 < None >
Module 2 Load Name

External Data Locations Information (Leave blank to use default)

Information
Directory
Messages
Services
Authentication Server
Proxy Server
Idle
Idle Timer (seconds)

Extension Information

☐ Enable Extension Mobility
Log Out Profile -- Not Selected --
Login in User ID < None >
Log in Time < None >
Log out Time < None >

Certification Authority Proxy Function (CAPF) Information

Certificate Operation* No Pending Operation
Authentication String

Done Internet

start 2 I... 2 M... reg... Micr... TI-... unti... 100% 1:44 PM

Figure 14. IP phone config – 3 of 5.



Phone Configuration - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites 125 blocked Check AutoLink AutoFill Options

Address <https://172.25.67.178/ccmadmin/phoneEdit.do?key=ab7aa531-9a12-486a-8c59-a4658f3b31c0> Go Links

Google Search

Certification Authority Proxy Function (CAPF) Information

Certificate Operation* No Pending Operation

Authentication String

Generate String

Operation Completes By 2006 : 6 : 12 : 12 (YYYY:MM:DD:HH)

Certificate Operation Status: None

MLPP Information

MLPP Domain < None >

MLPP Indication* Default

MLPP Preemption* Default

Secure Shell Information

Secure Shell User

Secure Shell Password

Product Specific Configuration Layout

Disable Speakerphone

Disable Speakerphone and Headset

PC Port * Enabled

Settings Access* Enabled

Gratuitous ARP* Enabled

PC Voice VLAN Access* Enabled

Video Capabilities* Disabled

Auto Line Select*

Figure 15. IP phone config – 4 of 5.



Phone Configuration - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites 125 blocked Check AutoLink AutoFill Options

Address <https://172.25.67.178/ccmadmin/phoneEdit.do?key=ab7aa531-9a12-486a-8c59-a4658f3b31c0> Go Links

Google Search

MLPP Domain: < None >

MLPP Indication*: Default

MLPP Preemption*: Default

Secure Shell Information

Secure Shell User:

Secure Shell Password:

Product Specific Configuration Layout ?

☐ Disable Speakerphone

☐ Disable Speakerphone and Headset

PC Port *: Enabled

Settings Access*: Enabled

Gratuitous ARP*: Enabled

PC Voice VLAN Access*: Enabled

Video Capabilities*: Disabled

Auto Line Select*: Disabled

Web Access*: Enabled

Save Delete Copy Reset Add New

i *- indicates required item.

i **- Device reset is not required for changes to Packet Capture Mode and Packet Capture Duration.

Done Internet

start 2 I... 2 M... reg... Micr... TI-... pho... 100% 1:45 PM

Figure 16. IP phone config – 5 of 5.



Configuring the Cisco IOS Voice Gateway (Cisco 3825)

mgcp-3825#

mgcp-3825# **show version**

Cisco IOS Software, 3800 Software (C3825-ENTSERVICES-M), Version 12.4(7.24)T, IE

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

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

Compiled Fri 21-Apr-06 05:02 by prod_rel_team

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

mgcp-3825 uptime is 4 hours, 20 minutes

System returned to ROM by power-on

System image file is "flash:c3825-entservices-mz.124-7.24.T"

Cisco 3825 (revision 1.0) with 222208K/39936K bytes of memory.

Processor board ID FTX0925A0ST

2 Gigabit Ethernet interfaces

55 Serial interfaces

1 Serial(sync/async) interface

2 ISDN Basic Rate interfaces

2 Channelized E1/PRI ports

2 Channelized T1/PRI ports

2 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



mgcp-3825#wr t

Building configuration...

Current configuration : 4483 bytes

!

version 12.4

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname mgcp-3825

!

boot-start-marker

boot system flash:c3825-entservices-mz.124-7.24.T

boot-end-marker

!

card type t1 2 1

logging buffered 100000000 debugging

!

no aaa new-model

!

resource policy

!

no network-clock-participate slot 1

network-clock-participate slot 2

network-clock-participate wic 2

ip cef

!



```
!  
!  
!  
no ip domain lookup  
ip domain name yourdomain.com  
ip host CM-JUPITER 172.20.33.254  
isdn switch-type primary-4ess  
voice-card 0  
no dspfarm  
!  
voice-card 1  
no dspfarm  
!  
voice-card 2  
dspfarm  
!  
!  
!  
!  
voice service voip  
!  
!  
!  
!  
!  
!  
!  
!  
!
```



```
!  
username cisco privilege 15 secret 5 $1$TLIZ$gLqyL2/PWfRM4KakB2WTb0  
!  
!  
controller E1 0/2/0  
  pri-group timeslots 1-31 service mgcp  
!  
controller E1 0/2/1  
!  
controller T1 2/0  
  framing esf  
  linecode b8zs  
  ds0-group 9 timeslots 1-24 type e&m-fgd  
!  
controller T1 2/1  
  shutdown  
  framing esf  
  linecode b8zs  
  pri-group timeslots 1-24  
!  
!  
!  
!  
interface GigabitEthernet0/0  
  description $ETH-LAN$$ETH-SW-LAUNCH$$INTF-INFO-GE 0/0$  
  ip address 172.20.15.199 255.255.255.0  
  duplex auto  
  speed auto  
  media-type rj45
```



```
!  
interface GigabitEthernet0/1  
  
no ip address  
  
shutdown  
  
duplex auto  
  
speed auto  
  
media-type rj45  
  
!  
interface Serial0/0/0  
  
no ip address  
  
shutdown  
  
clock rate 2000000  
  
!  
interface Serial0/2/0:15  
  
no ip address  
  
encapsulation hdlc  
  
isdn switch-type primary-net5  
  
isdn incoming-voice voice  
  
isdn bind-l3 ccm-manager  
  
no cdp enable  
  
!  
interface BRI1/0/0  
  
no ip address  
  
no ip mroute-cache  
  
isdn switch-type basic-qsig  
  
isdn protocol-emulate network  
  
isdn point-to-point-setup  
  
isdn layer1-emulate network  
  
isdn incoming-voice voice
```



```
isdn T310 120000

isdn skipsend-idverify

!

interface BRI1/0/1

no ip address

isdn switch-type basic-qsig

isdn point-to-point-setup

!

interface Serial2/1:23

no ip address

encapsulation hdlc

isdn switch-type primary-qsig

isdn overlap-receiving

isdn protocol-emulate network

isdn incoming-voice voice

isdn T310 120000

no cdp enable

!

ip route 0.0.0.0 0.0.0.0 GigabitEthernet0/0

!

!

ip http server

ip http authentication local

ip http timeout-policy idle 600 life 86400 requests 10000

ip rtcp report interval 60000

!

!

!

!
```



```
control-plane
!
!
!
voice-port 0/2/0:15
!
voice-port 1/0/0
!
voice-port 1/0/1
!
voice-port 1/1/0
!
voice-port 1/1/1
dial-type mf
timing hookflash-out 500
description CAMA
!
voice-port 2/0/0
!
voice-port 2/0/1
!
voice-port 2/0:9
timing dialout-delay 300
!
voice-port 2/1:23
!
ccm-manager mgcp
ccm-manager music-on-hold
ccm-manager config server CM-JUPITER
```



```
ccm-manager config
!
mgcp
mgcp call-agent CM-JUPITER 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 1 pots
service mgcpapp
port 0/2/0:15
!
dial-peer voice 3 pots
service mgcpapp
port 2/0/0
!
```




```
dial-peer voice 4 pots
service mgcpapp
port 2/0/1
!
dial-peer voice 2 pots
service mgcpapp
port 1/1/0
!
dial-peer voice 999200 pots
service mgcpapp
port 2/0/0
!
dial-peer voice 999201 pots
service mgcpapp
port 2/0/1
!
gateway
timer receive-rtcp 5
timer receive-rtp 1200
!
sip-ua
!
banner login ^C
```

Cisco Router and Security Device Manager (SDM) is installed on this device.

This feature requires the one-time use of the username "cisco"

with the password "cisco".

Please change these publicly known initial credentials using SDM or the IOS CLI



Here are the Cisco IOS commands.

```
username <myuser> privilege 15 secret 0 <mypassword>
no username cisco
```

Replace <myuser> and <mypassword> with the username and password you want to use

For more information about SDM please follow the instructions in the QUICK STAR
GUIDE for your router or go to <http://www.cisco.com/go/sdm>

```
-----
^C
!
line con 0
login local
stopbits 1
line aux 0
stopbits 1
line vty 0 4
privilege level 15
login local
line vty 5 15
privilege level 15
login local
!
scheduler allocate 20000 1000
!
end

mgcp-3825#
```



Configuring the PBX (Avaya G3r)

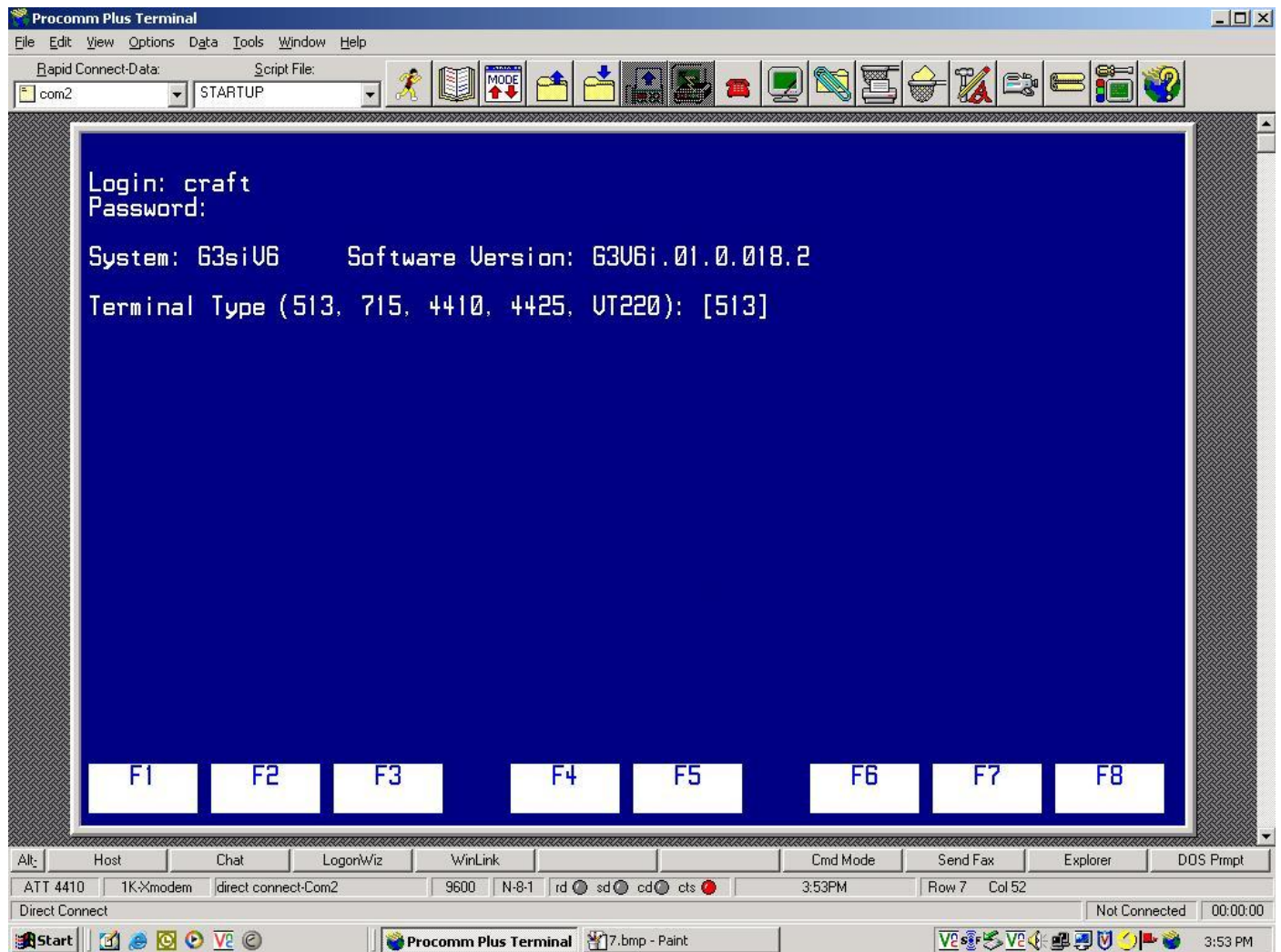


Figure 17. Main login screen – 1 of 2

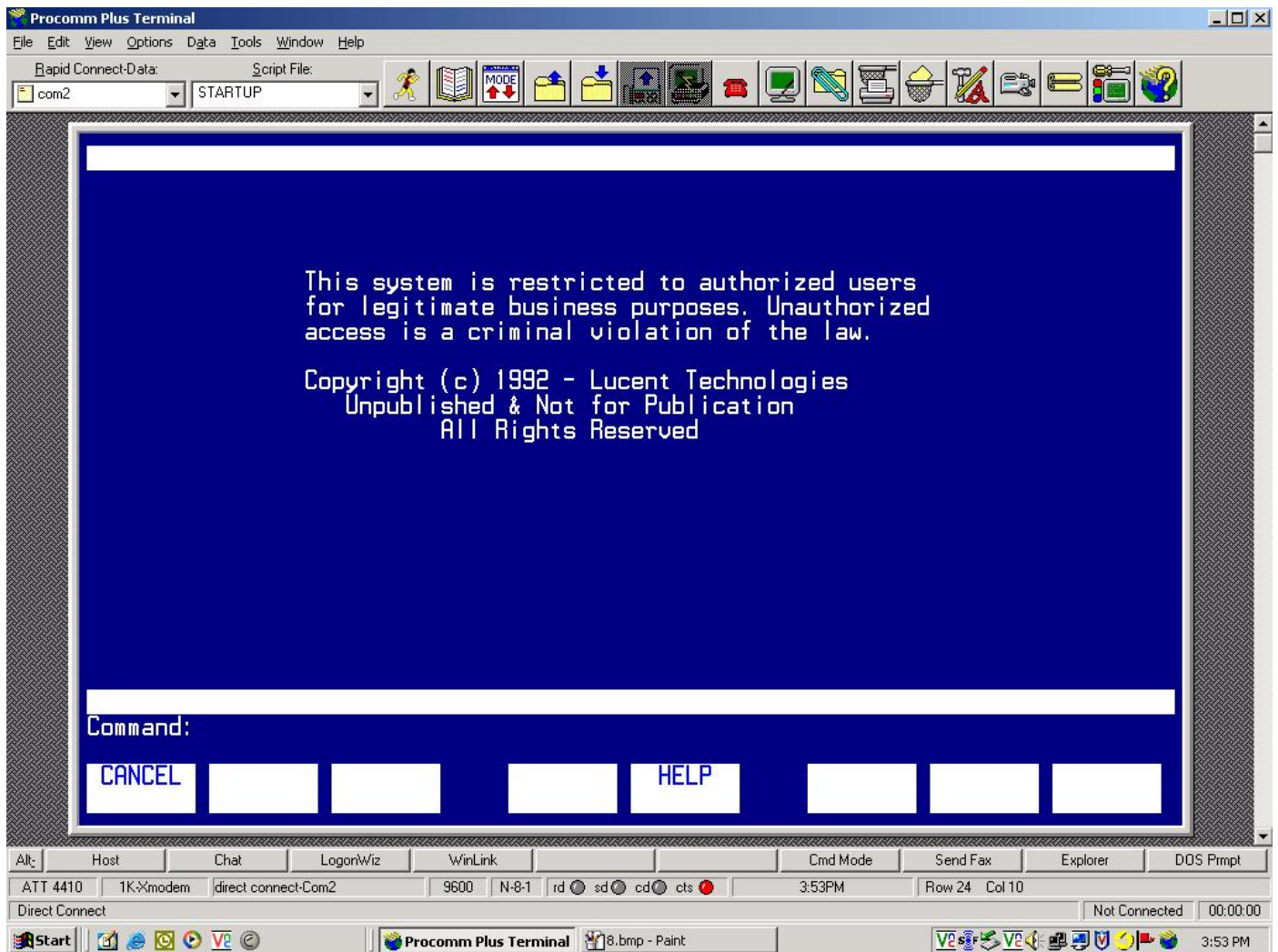


Figure 18. Main login screen – 2 of 2



Procomm Plus Terminal

File Edit View Options Data Tools Window Help

Rapid Connect-Data: com2 Script File: STARTUP

change station 4008 Page 1 of 4

STATION

Extension: 4008	Lock Messages? n	BCC: 0
Type: 8403B	Security Code: _____	TN: 1
Port: 01A0605	Coverage Path 1: _____	COR: 1
Name: john doe - v6	Coverage Path 2: _____	COS: 1
	Hunt-to Station: _____	

STATION OPTIONS

Data Module? n	Personalized Ringing Pattern: 1
Speakerphone: 1-way	Message Lamp Ext: 4008
	Mute Button Enabled? y
	MM Complex Data Ext: _____

CANCEL REFRESH ENTER CLEAR FIELD HELP GO TO PAGE NEXT PAGE PREV PAGE

Alt: Host Chat LogonWiz WinLink Cmd Mode Send Fax Explorer DOS Prompt

ATT 4410 1K-Xmodem direct connect-Com2 9600 N-8-1 rd sd cd cts 4:27PM Row 5 Col 12

Direct Connect Not Connected 00:00:00

Start Procom... 4.bmp - P... 5.bmp - P... 6.bmp - P... 7.bmp - P... 4:27 PM

Figure 19. Digital Station 4008 – 1 of 4

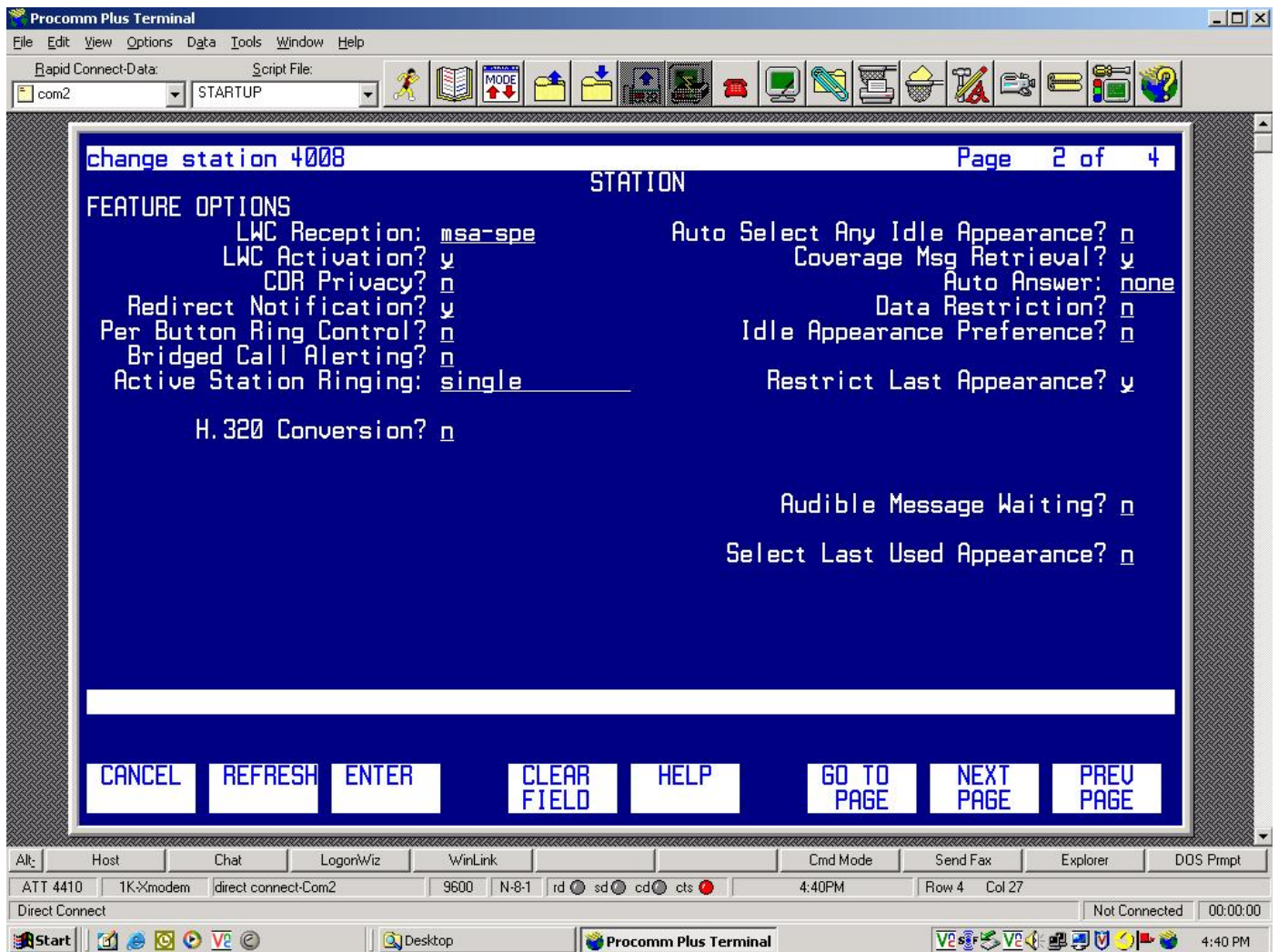


Figure 20. Digital Station 4008 – 2 of 4



Procomm Plus Terminal

File Edit View Options Data Tools Window Help

Rapid Connect-Data: com2 Script File: STARTUP

change station 4008 Page 3 of 4

STATION

SITE DATA

Room: _____ Headset? n

Jack: _____ Speaker? n

Cable: _____ Mounting: d

Floor: _____ Cord Length: 0

Building: _____ Set Color: _____

ABBREVIATED DIALING

List1: _____ List2: _____ List3: _____

BUTTON ASSIGNMENTS

1: call-appr

2: call-appr

3: call-appr

CANCEL REFRESH ENTER CLEAR FIELD HELP GO TO PAGE NEXT PAGE PREV PAGE

Alt: Host Chat LogonWiz WinLink Cmd Mode Send Fax Explorer DOS Prmpt

ATT 4410 1K-Xmodem direct connect-Com2 9600 N-8-1 rd sd cd cts 4:28PM Row 4 Col 14

Direct Connect Not Connected 00:00:00

Start Procomm Plus Terminal 4008b.bmp - Paint 4:28 PM

Figure 21. Digital Station 4008 – 3 of 4

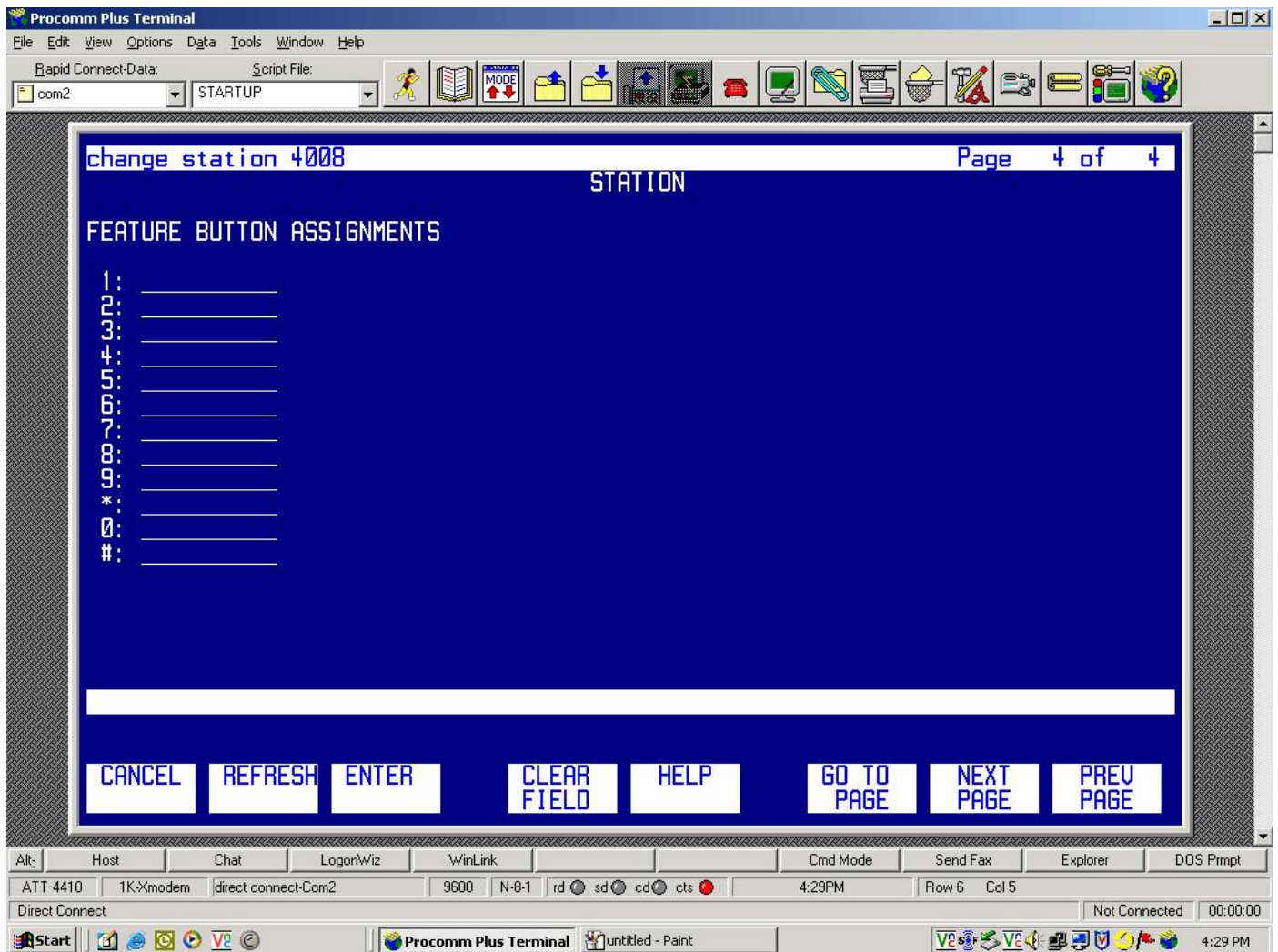


Figure 22. Digital Station 4008 – 4 of 4



Procomm Plus Terminal

File Edit View Options Data Tools Window Help

Rapid Connect-Data: com2 Script File: STARTUP

change station 4009 Page 1 of 3

STATION

Extension: 4009	Lock Messages? <input type="checkbox"/>	BCC: 0
Type: 2500	Security Code: _____	TN: 1
Port: 01A0503	Coverage Path 1: _____	COR: 1
Name: Analog-v6	Coverage Path 2: _____	COS: 1
	Hunt-to Station: _____	Tests? <input type="checkbox"/>

STATION OPTIONS

Off Premise Station? ☐ Message Waiting Indicator: _____

CANCEL REFRESH ENTER CLEAR FIELD HELP GO TO PAGE NEXT PAGE PREV PAGE

Alt: Host Chat LogonWiz WinLink Cmd Mode Send Fax Explorer DOS Prompt

ATT 4410 1K-Xmodem direct connect-Com2 9600 N-8-1 rd sd cd cts 4:45PM Row 5 Col 12

Direct Connect Not Connected 00:00:00

Start Desktop Procomm Plus Ter... ftp://pbx1/chris/ - Mic... 4:45 PM

Figure 23. Analog Station 4009 – 1 of 3

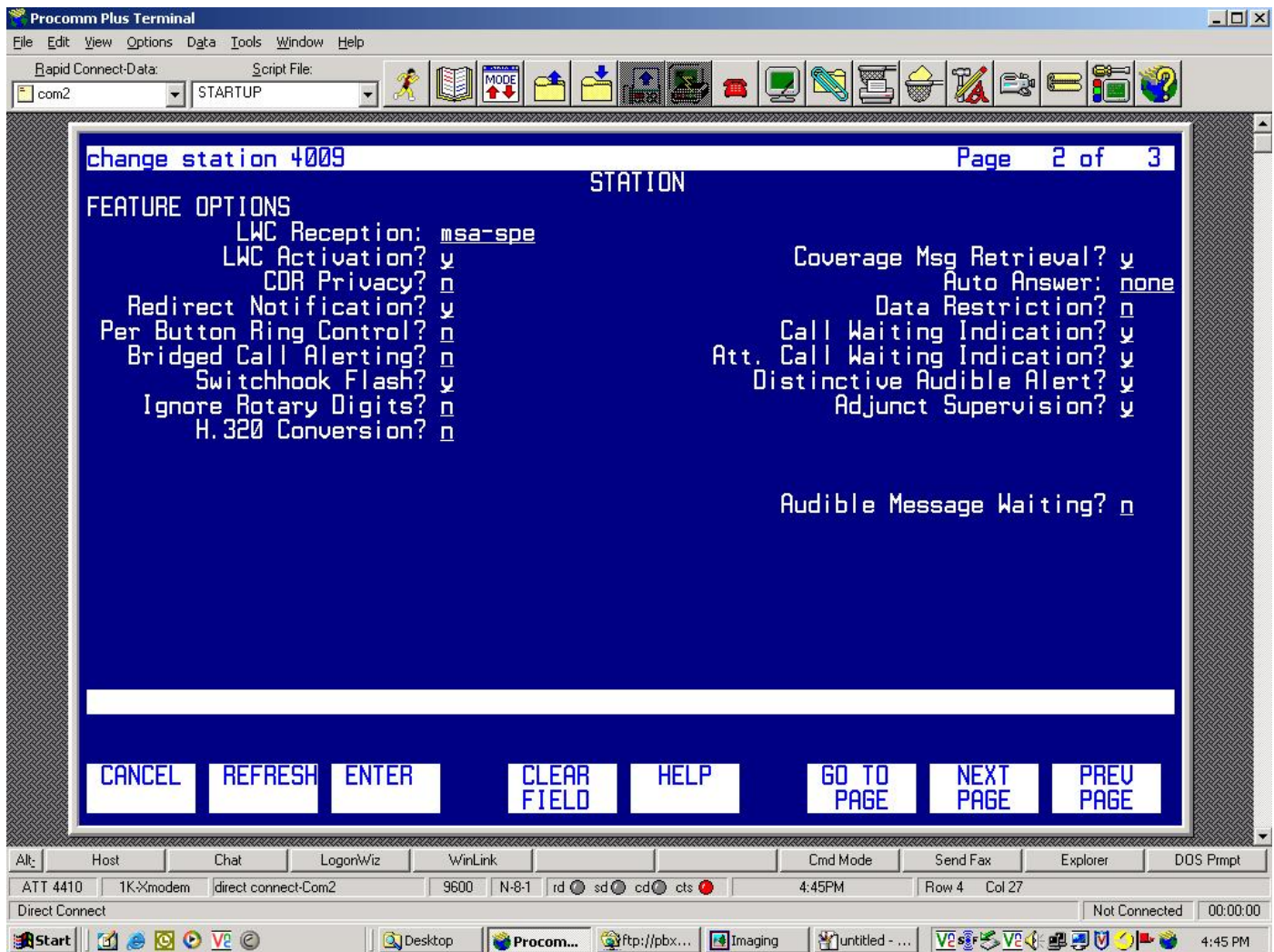


Figure 24. Analog Station 4009 – 2 of 3



Procomm Plus Terminal

File Edit View Options Data Tools Window Help

Rapid Connect-Data: com2 Script File: STARTUP

change station 4009 Page 3 of 3

STATION

SITE DATA

Room: _____ Headset? n

Jack: _____ Speaker? n

Cable: _____ Mounting: d

Floor: _____ Cord Length: 0

Building: _____ Set Color: _____

ABBREVIATED DIALING

List1: _____ List2: _____ List3: _____

HOT LINE DESTINATION

Abbreviated Dialing List Number (From above 1, 2 or 3): _

Dial Code: _____

Line Appearance: call-appr

CANCEL REFRESH ENTER CLEAR FIELD HELP GO TO PAGE NEXT PAGE PREV PAGE

Alt: Host Chat LogonWiz WinLink Cmd Mode Send Fax Explorer DOS Prompt

ATT 4410 1K-Xmodem direct connect-Com2 9600 N-8-1 rd sd cd cts 4:45PM Row 4 Col 14

Direct Connect Not Connected 00:00:00

Start Desktop Procom... ftp://pbx... Imaging 2.bmp - P... 4:45 PM

Figure 25. Analog Station 4009 – 3 of 3



Acronyms

Acronym	Definitions
BRI	Basic Rate ISDN
CAMA	Centralized Automatic Message Accounting
CAS	Channel Associated Signaling
CO	Central Office
FGD	Feature Group "D"
FXO	Foreign Exchange – Office
FXS	Foreign Exchange – Station
IOS	Internetworking Operating System
MCID	Malicious Caller ID
MGCP	Media Gateway Control Protocol
MoH	Music on Hold
MWI	Message Waiting Indication
PBX	Private Branch Exchange
PRI	Primary Rate ISDN
PSAP	Public Service Access Point
SIP	Session Initiation Protocol
ToH	Tone on Hold



Important Information

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

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



Corporate Headquarters

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

European Headquarters

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

Americas Headquarters

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

Asia Pacific Headquarters

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

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

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

© © 2006 Cisco Systems, Inc. All rights reserved.

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

All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0601R)

Printed in the USA