

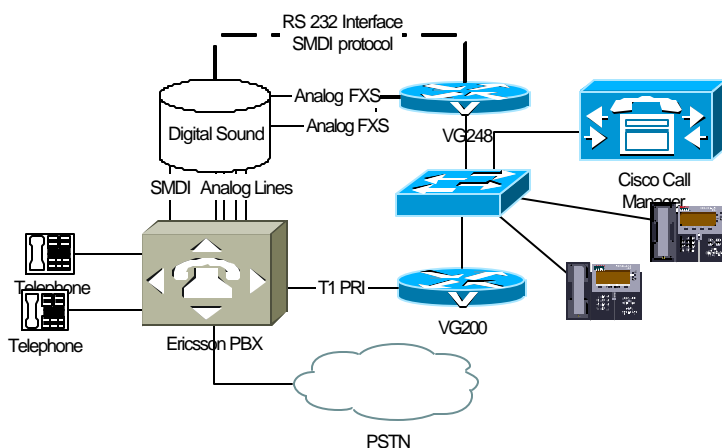
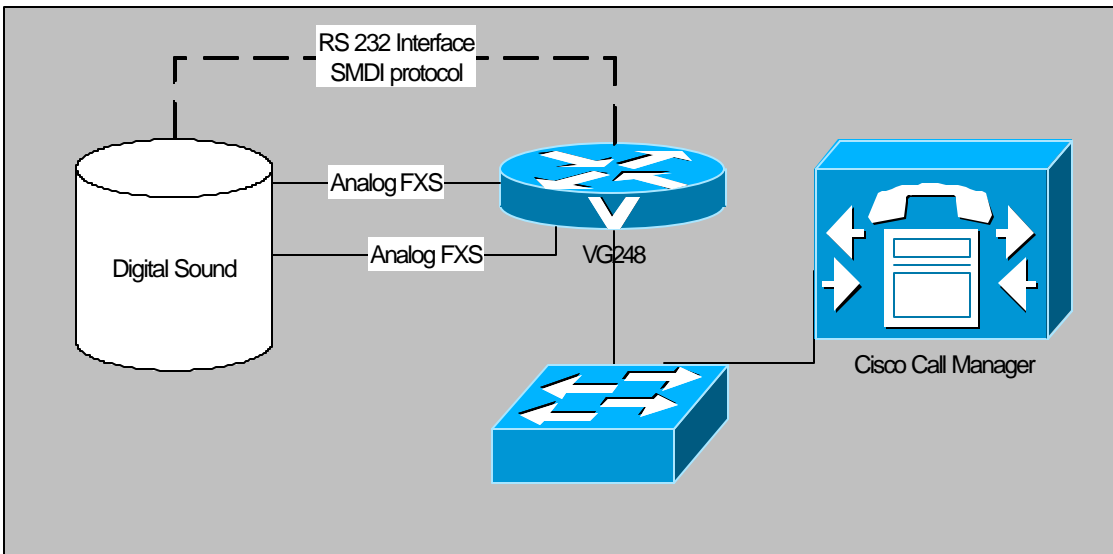
# Cisco VG248 - PBX Interoperability: Digital Sound Voice Server 2110 with Cisco CallManager

## Introduction

- This is an Application Note for Connectivity of Digital Sound Voice Server 2110 PBX with Cisco CallManager using Cisco VG248 as the voice gateway.
- The Network Topology diagram shows the test set-up for end-to-end interoperability between the Cisco CallManager connected to the PBX via the Cisco VG248 as the voice gateway.

## Network Topology

Figure 1. Network Topology





## System Components

### Hardware Requirements

- Cisco Hardware
  - Cisco VG248 voice gateway
  - Cisco CallManager 3.1 (3a)
- Digital Sound Voice Server 2110

### Software Requirements

- Cisco VG248 Software Release 1.2(1)
- InfoMail® 4.3 System
- Cisco Call Manager Software Version 3.1(3a)

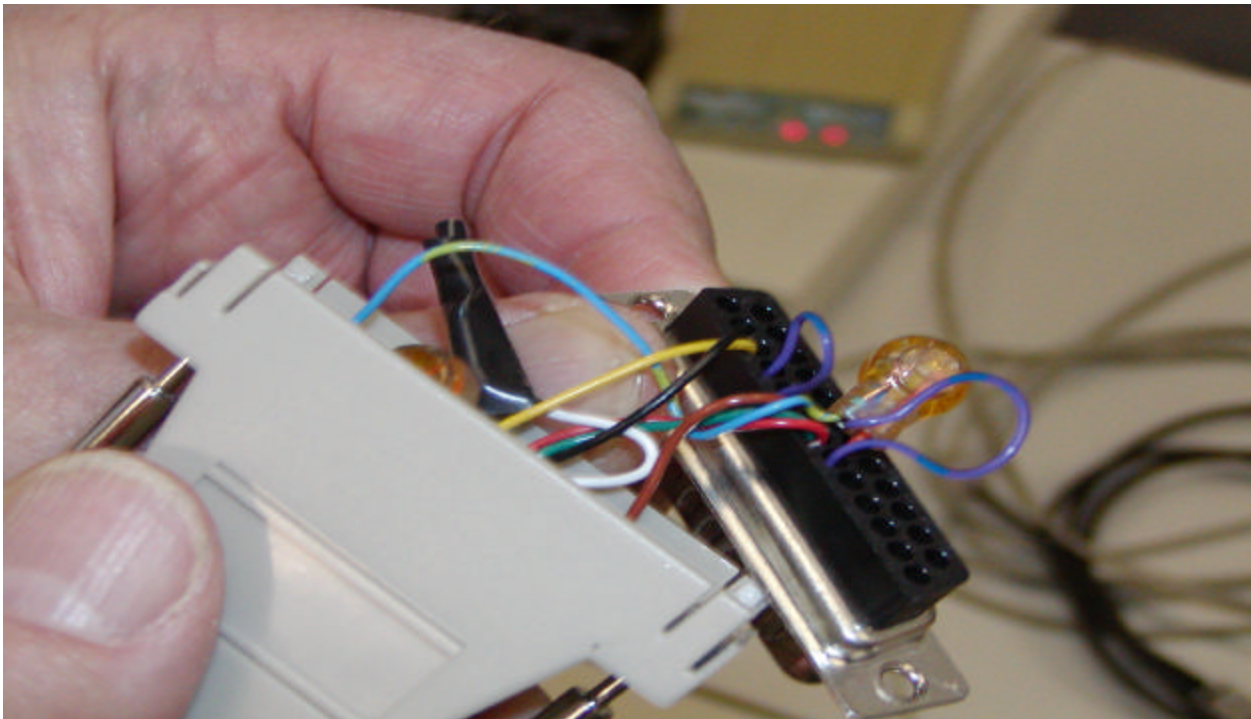
## Configuration

### Cabling

The Digital Sound voicemail will not activate the serial link until it sees DTR as high . The interface to the Digital Sound TTY board is DB25. You will have to modify the connector to show DTR as high.

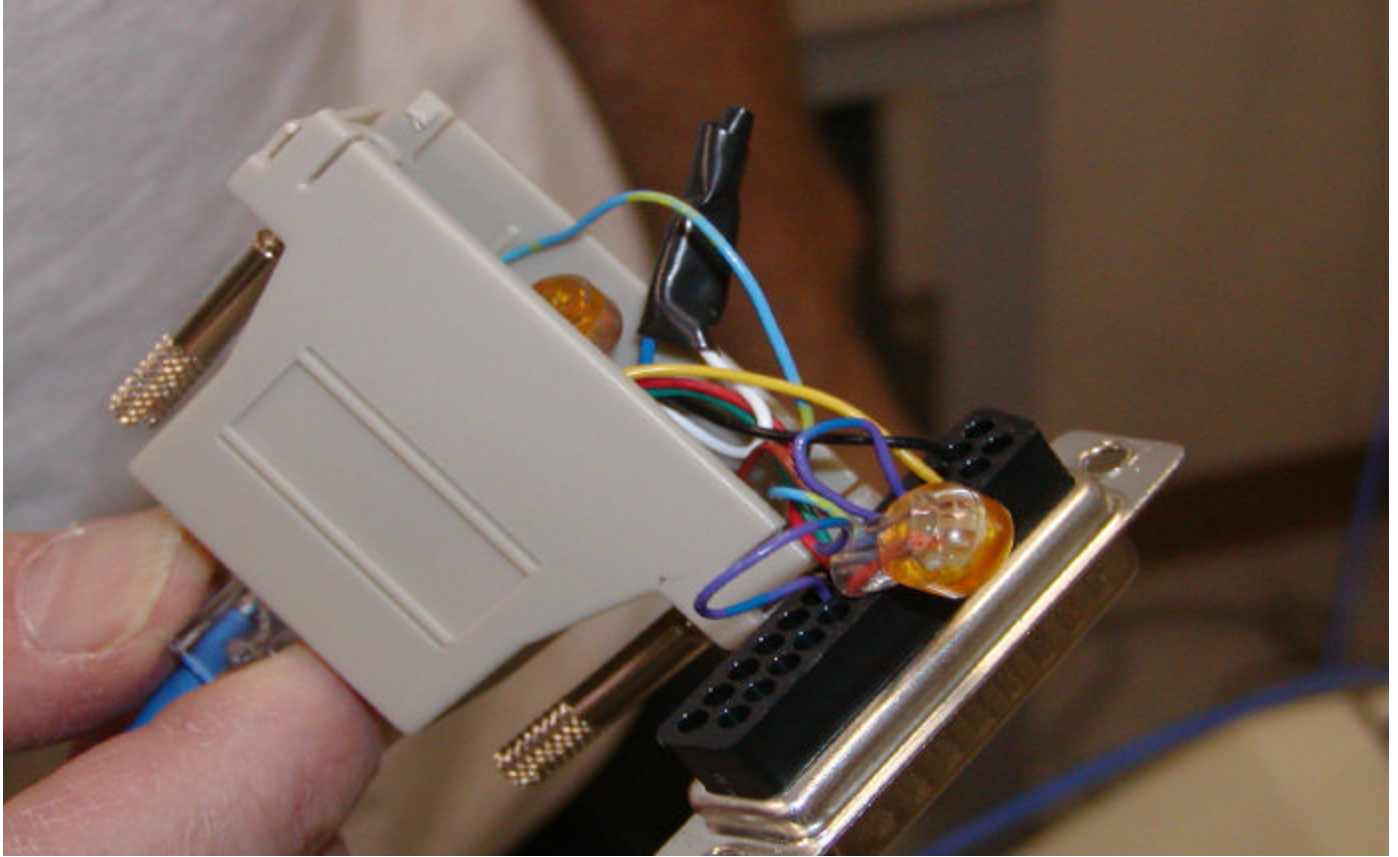
The following photographs show modifications made to the serial link connector.

**Figure 2.** Modified Serial Link Connector





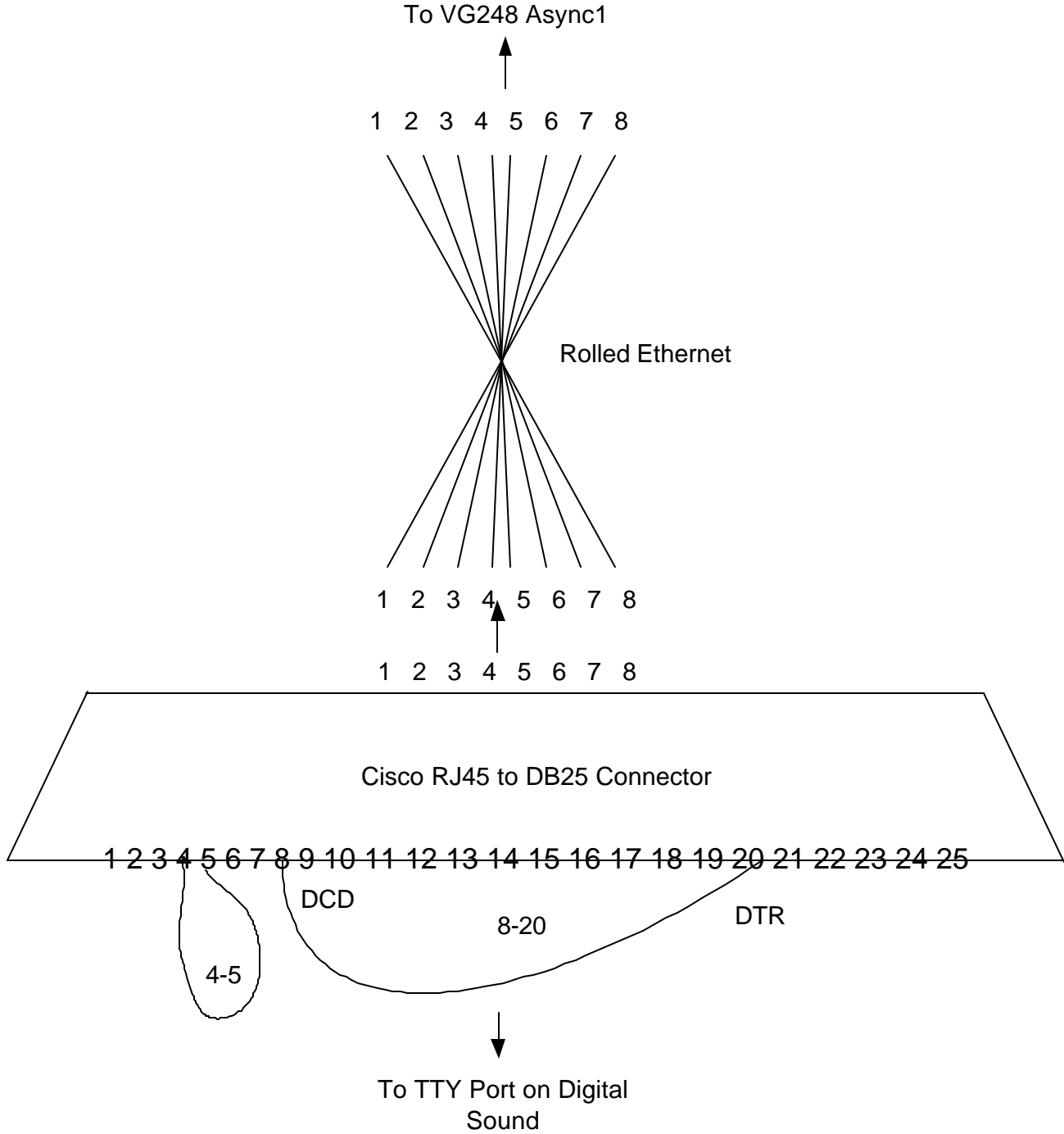
**Figure 3.** Modified Serial Link Connector, Second View





The pinout is as follows:

Figure 4. Serial Link Connector Pinout





## Configuring the Digital Sound Voice Server 2110

IMAIL> dis ht10 (Display Host 10)

variable		value
id		host10
name	(nm)	HOST10
type		1AESS
areaCode	(ac)	
portRate	(pr)	9600
prefixDigits	(pfxd)	
receiverPort	(rcp)	/dev/tty5
transmitPort	(tmp)	/dev/tty5
revertAccessCode	(rac)	fdn

IMAIL> dis pt1 (Display Port 1)

variable		value
port		port1
hunt	(hn)	hunt2
host	(ht)	host10
portType	(ptp)	A
phone	(ph)	33701
logicalUnitNumber	(lun)	1
customerNumber	(cn)	1
LIM slot		5
LIM channel		1
LIC slot		4
LIC channel		1
protocol		SL/OFF
mode	(md)	msg,ans,page

IMAIL> dis pt2 (Display Port 2)

variable		value
port		port2
hunt	(hn)	hunt2
host	(ht)	host10
portType	(ptp)	A
phone	(ph)	33702
logicalUnitNumber	(lun)	2
customerNumber	(cn)	1
LIM slot		5
LIM channel		2
LIC slot		4
LIC channel		9
protocol		SL/OFF
mode	(md)	msg,ans,page



IMAIL> lo

UCI # su 991

InfoMail is in service.

PARTITION1> dis mbx41181

variable		value
name	(nm)	CiscoIP test2
mailbox		mbx41181
domain	(dom)	
alternateIdA	(alta)	
alternateIdB	(altb)	
alternateIdC	(altc)	
alternateIdD	(altd)	
attendantExt	(ax)	
billableNo	(bn)	
classOfService	(cos)	cos2
connected		00:09:05
declined		0
department	(dept)	
division	(div)	
enrolled		03/10/03
futureMsgs		0
host	(ht)	ht10
language	(lang)	1
lock	(lk)	off
Press SPACE for next screen or RETURN for next line:		
newMsgs		1
notify	(nt)	off
notifyEndTime	(ntet)	40:00
notifyId	(ntid)	
notifyPswdReqd	(ntpwr)	off
notifyStartTime	(ntst)	40:00
notifyType	(ntt)	all
numExtensions		0
page	(pg)	on
pageId	(pgid)	2624621app824*8989*41181#ppp
pageType	(pgt)	all
product	(prod)	
publicCarrierId	(pci)	
savedMsgs		0
storageUsed		00:00:07



PARTITION1> lo

UCI # sysadm

=====  
InfoMail(R) 4.3 System  
=====

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All rights reserved. This program contains confidential information and trade secrets of PulsePoint Communications. Reverse engineering of object code is prohibited. Use of the copyright notice is precautionary and does not imply publication.

you have mail

SYSTEM ADMINISTRATION

- 1 diskmgmt disk management menu
- 2 excptmgmt exception and alarm management menu
- 3 filemgmt file management menu
- 4 machinmgmt machine management menu
- 5 packagemgmt package management menu
- 6 softwaremgmt software management menu
- 7 syssetup system setup menu
- 8 tapemgmt tape management menu
- 9 ttygmt tty management menu
- 10 univoxmgmt UNIVOX management menu
- 11 usermgmt user management menu

Enter a number, a name, the initial part of a name, or  
? or <number>? for HELP, q to QUIT: 9

TTY MANAGEMENT

- 1 lineset show tty line settings and hunt sequences
- 2 mklineset create new tty line settings and hunt sequences
- 3 modtty show and optionally modify characteristics of tty lines

Enter a number, a name, the initial part of a name, or  
? or <number>? for HELP, ^ to GO BACK, q to QUIT: 3

Changeable tty lines:

tty0 tty1 tty2 tty3 tty4 tty5

Select the tty you wish to modify,  
or enter ALL to see a report of all ttys [?, q]: tty5

tty5: current characteristics:

State off  
Hangup Delay off  
Line Setting 9600  
Description VG248 gateway

Available states:

off on

Select a state (default: off) [?, q]: q

Press the RETURN key to see the ttygmt menu [?, ^, q]: q

\*\*\*\* to see SMDI raw data \*\*\*\*\*



```
UCI # cd /appl/vmail/lib
```

```
UCI # VMdebug
```

```
InfoMail is in service.
```

```
DEBUG> erron A
```

```
DEBUG> call v TM_set "tx+rt"
```

```
vmail function TM_set returned 0x1 (1)
```

```
DEBUG> TX - 221 27:46 ht3 receiver: (8920)
```

```
TX - 223 27:56 ht10 receiver: (MD0010002N41183 45393 ) ****
```

```
TX - 224 28:11 ht10 write: rv14 (OP:MWI 41183!) ****
```

```
TX - 223 28:12 ht10 receiver: (MD0010002H ) ****
```

```
DEBUG> call v TM_set "tx-rt"
```

```
vmail function TM_set returned 0x1 (1)
```

```
DEBUG> lo
```

```
UCI #
```





## Configuring Cisco CallManager

### Cisco CallManager Administration Screen

System Route Plan Service Feature Device User Application Help

**Cisco CallManager Administration**  
For Cisco IP Telephony Solutions

**Cisco CallManager 3.1 Administration**

Details

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**Microsoft Internet Explorer**

When reporting or troubleshooting a problem, please give the following information to Technical Assistance:

Cisco CallManager System version: 3.1(3a)  
Cisco CallManager Administration version: 3.1(0.35)

**Database Information**

Driver: SQL Server  
Server: UCJ-WOIP  
Database: CCM300

**Database DLL version**

OBL: 3.1(0.5143)  
OBLP: 3.1(0.65003)  
OBLX: 3.1(0.23083)

OK



## VoiceMail DN Configuration

The screenshot shows the Cisco CallManager Administration web interface. The main heading is "Service Parameters Configuration". The current server is 10.1.132.2 and the current service is Cisco CallManager. The status is "Ready".

The configuration table is as follows:

UserUserEStatus*	False	False
VoiceMail	33701	
VoiceMailMaximumHopCount*	2	12

\* indicates required item  
[Click for More Information.](#)



## VoiceMail MWI Configuration

The screenshot shows the Cisco CallManager 3.1 Administration web interface in Microsoft Internet Explorer. The browser address bar shows the URL: `http://10.1.132.2/CCMAdmin/phoneconfig.asp?pkid={6F896FDA-A3FC-4FDE-9C69-CC83728B7AE8}&status=uc`. The page title is "Cisco CallManager Administration - Phone Configuration".

The main content area is titled "Phone Configuration" and displays the following information:

- Phone:** VGC0943E282F600 (mwi virtual port vg248)
- Registration:** Registered with Cisco CallManager 10.1.132.2
- IP Address:** 10.1.232.2
- Status:** Update completed

Below this information are several buttons: Copy, Update, Delete, Reset Phone, and Cancel Changes.

The "Phone Configuration (Model = Cisco VGC Phone)" section includes a "Device Information" table with the following fields:

MAC Address*	0943E282F600
Description	mwi virtual port vg248
Device Pool*	Default (View details)
Calling Search Space	< None >
Media Resource Group List	< None >
User Hold Audio Source	< None >
Network Hold Audio Source	< None >
Location	< None >

\* indicates a required item.

Navigation links include: [Add a new phone](#), [Add/Update Speed Dials](#), [Back to Find/List Phones](#), and [Back to top of page](#).

The taskbar at the bottom shows the Start button, several application icons, and the system tray with the time 12:08 PM.



## VoiceMail Port 1 Configuration

The screenshot displays the Cisco CallManager Administration web interface in Microsoft Internet Explorer. The browser's address bar shows the URL: `http://10.1.132.2/CCMAdmin/phoneconfig.asp?old={4061C44F-F96A-40FF-A1A2-73FC8914C641}`. The page title is "Cisco CallManager Administration - Phone Configuration".

The main content area is titled "Phone Configuration" and shows details for a phone with the name "VGC0943e282f601 (VoiceMail Port 01)". The registration status is "Registered with Cisco CallManager 10.1.132.2" and the IP address is "10.1.232.2". The status is "Ready".

Below the phone details, there are buttons for "Copy", "Update", "Delete", "Reset Phone", and "Cancel Changes".

The "Device Information" section includes the following fields:

- MAC Address\*: 0943e282f601
- Description: VoiceMail Port 01
- Device Pool\*: Default (with a "(View details)" link)
- Calling Search Space: < None >
- Media Resource Group List: < None >
- User Hold Audio Source: < None >
- Network Hold Audio Source: < None >
- Location: < None >

A note at the bottom left states "\* indicates a required item." and a "Back to top of page" link is at the bottom right.

The Windows taskbar at the bottom shows the Start button, several application icons, and the system tray with the time "11:59 AM".



Cisco CallManager 3.1 Administration - Directory Number Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://10.1.132.2/CCMAdmin/directorynumber.asp?NumPlanMapID={C781FB86-DC86-4CF4-A67D-9BFAE215879D}>

Links [back](#) [cco](#) [cec](#) [Conf](#) [Directory](#) [ESE](#) [evvbu](#) [Google](#) [IP xStream](#) [kpwr](#) [Maps](#) [Matrix](#) [MCEBU](#) [Phone](#) [stocks](#) [sw](#)

## Directory Number Configuration

[Configure Device \(VGC0943e282f601\)](#)

**Devices using this Directory Number**

- VGC0943e282f601 (Line 1)

**Directory Number: 33701**  
Status: Ready

Update Delete Restart Devices Cancel Changes

**Directory Number**

Directory Number\*

Partition

**Directory Number Settings**

Voice Message Box

Calling Search Space

User Hold Audio Source

Network Hold Audio Source

Call Waiting

Activate Auto Answer Not available on this device.

**Call Forward and Pickup Settings**

	Destination	Calling Search Space
Forward All	<input type="text"/>	<input type="text" value="&lt; None &gt;"/>
Forward Busy	<input type="text" value="33702"/>	<input type="text" value="&lt; None &gt;"/>
Forward No Answer	<input type="text" value="33702"/>	<input type="text" value="&lt; None &gt;"/>
Call Pickup Group	<input type="text" value="&lt; None &gt;"/>	

**Line Settings for this Device**

Display (Internal Caller ID)

Start | [Cl...](#) | [Sa...](#) | [C:...](#) | [C:...](#) | [U:...](#) | Internet | 12:00 PM



## VoiceMail Port 2 Configuration

The screenshot shows the Cisco CallManager Administration web interface in Microsoft Internet Explorer. The browser address bar shows the URL: `http://10.1.132.2/CCMAdmin/phoneconfig.asp?pkid={4634CBD0-B546-45B7-96A3-6F8C000FC322}`. The page title is "Cisco CallManager 3.1 Administration - Phone Configuration".

The main content area is titled "Phone Configuration" and displays the configuration for a phone with MAC address VGC0943e282f602. The phone is registered with Cisco CallManager 10.1.132.2 and has an IP address of 10.1.232.2. The status is "Ready".

Navigation links include: [Add a new phone](#), [Add/Update Speed Dials](#), and [Back to Find/List Phones](#).

On the left, under "Directory Numbers", there is a link for "Line 1 - 33702 (no Partition)".

Below the phone information, there are buttons for "Copy", "Update", "Delete", "Reset Phone", and "Cancel Changes".

The "Phone Configuration (Model = Cisco VGC Phone)" section includes a "Device Information" table:

Device Information	
MAC Address*	0943e282f602
Description	VoiceMail Port 02
Device Pool*	Default (View details)
Calling Search Space	< None >
Media Resource Group List	< None >
User Hold Audio Source	< None >
Network Hold Audio Source	< None >
Location	< None >

\* indicates a required item. [Back to top of page](#)

The Windows taskbar at the bottom shows the Start button, several application icons, and the system tray with the time 12:01 PM.



Cisco CallManager 3.1 Administration - Directory Number Configuration - Microsoft Internet Explorer

Address: http://10.1.132.2/CCMAdmin/directorynumber.asp?NumPlanMapID={6952E20C-DF40-4D5B-BF39-964F14918E09}

## Directory Number Configuration

[Configure Device \(VGC0943e282f602\)](#)

**Devices using this Directory Number**  
VGC0943e282f602 (Line 1)

**Directory Number: 33702**  
Status: Ready

Update Delete Restart Devices Cancel Changes

**Directory Number**

Directory Number\* 33702

Partition < None >

**Directory Number Settings**

Voice Message Box

Calling Search Space < None >

User Hold Audio Source < None >

Network Hold Audio Source < None >

Call Waiting Off

Activate Auto Answer Not available on this device.

**Call Forward and Pickup Settings**

	Destination	Calling Search Space
Forward All		< None >
Forward Busy	33701	< None >
Forward No Answer	33701	< None >
Call Pickup Group	< None >	

**Line Settings for this Device**

Display (Internal Caller ID) VoiceMail 02

Start | Internet | 12:04 PM



## Configuring the Cisco VG248

### VERSION

```
-----  
|                               |  
| Cisco VG248 (VG248-VMIP)    |  
|                               |  
-----
```

```
-----  
| Version                      |  
-----
```

```
Software version : 1.2(1)  
DSP firmware version : 3.6(20x)  
Loader version : 1.0(1)
```

```
Copyright (c) 1999-2002 Cisco Systems Inc.  
-----
```

### TELEPHONY

```
-----  
|                               |  
| Cisco VG248 (VG248-VMIP)    |  
|                               |  
-----
```

```
-----  
-----  
-----  
| Telephony                    |  
-----
```

```
CallManager TFTP server (10.1.132.2)  
CallManager device name (VGC0943e282f6)  
Feature codes  
Country (North America)  
Port enable policy (auto)  
Port specific parameters  
Advanced settings  
-----
```





-----  
Cisco VG248 (VG248-VMIP)

| Voice mail |

-----  
| Voice mail protocol (SMDI) |  
| Pilot directory number (33701) |  
| Number of voice mail ports (2) |  
| First voice mail port number (1) |  
| Number format (12345) |  
| Forward MWIs to CallManager (yes) |  
| Forward MWIs to Async 2 (no) |  
| CallManager MWI on DN (1998) |  
| CallManager MWI off DN (1999) |  
| SMDI settings |  
| MCI settings |  
| Ericsson settings |  
Async port serial settings

-----  
Cisco VG248 (VG248-VMIP)

| Voice mail |

-----  
| Voice mail protocol (SMDI) |  
| Pilot directory number (33701) |  
| Number of voice mail ports (2) |  
| First voice mail port number (1) |  
| Number format (12345) |  
| For ----- |  
| For Async port serial settings |  
| Cal ----- |  
| Cal Async port speed (9600 bps) |  
| SMD Async 1 data bits (7) |  
| MCI Async 1 parity (even) |  
| Eri Async 1 stop bits (1) |  
| Asy Async 2 data bits (8) |  
|---- Async 2 parity (none) |--  
Async 2 stop bits (1)



## PORT STATUS

```

-----
|                               Cisco VG248 (VG248-VMIP)                               |
-----
| Port selection |
-----
|  1 Enabled 33701   | 17 Disabled   | 33 Disabled   |
|  2 Enabled 33702   | 18 Disabled   | 34 Disabled   |
|  3 Disabled        | 19 Disabled   | 35 Disabled   |
|  4 Disabled        | 20 Disabled   | 36 Disabled   |
|  5 Disabled        | 21 Disabled   | 37 Disabled   |
|  6 Disabled        | 22 Disabled   | 38 Disabled   |
|  7 Disabled        | 23 Disabled   | 39 Disabled   |
|  8 Disabled        | 24 Disabled   | 40 Disabled   |
|  9 Disabled        | 25 Disabled   | 41 Disabled   |
| 10 Disabled        | 26 Disabled   | 42 Disabled   |
| 11 Disabled        | 27 Disabled   | 43 Disabled   |
| 12 Disabled        | 28 Disabled   | 44 Disabled   |
| 13 Disabled        | 29 Disabled   | 45 Disabled   |
| 14 Disabled        | 30 Disabled   | 46 Disabled   |
| 15 Disabled        | 31 Disabled   | 47 Disabled   |
| 16 Disabled        | 32 Disabled   | 48 Disabled   |
| '* - port in use   | press 'R' to enter range
-----

```

## PORT 1

```

-----
|                               Cisco VG248 (VG248-VMIP)                               |
-----
| Port selection | Port 1 parameters |
-----
|  1 Enabled 33 | Status             | (enabled)      |
|  2 Enabled 33 | Call control mode  | (standard)     |
|  3 Enabled 41 | Caller ID          | (enabled)      |
|  4 Disabled   | MWI method         | (none)         |
|  5 Disabled   | Call supervision method | (drop loop current) |
|  6 Disabled   | Input gain         | (0)            |
|  7 Disabled   | Output gain        | (0)            |
|  8 Disabled   | Dialing digit detection | (default: use DSP) |
|  9 Disabled   | Fax relay          | (disabled)     |
| 10 Disabled   | Fax relay ECM      | (disabled)     |
| 11 Disabled   | Fax relay NSF      | (preserve value) |
| 12 Disabled   | Passthrough mode   | (default: automatic) |
| 13 Disabled   | -----          |
| 14 Disabled   | 30 Disabled        | 46 Disabled    |
| 15 Disabled   | 31 Disabled        | 47 Disabled    |
| 16 Disabled   | 32 Disabled        | 48 Disabled    |
| '* - port in use | press 'R' to enter range
-----

```



## PORT 2

```
-----
|                               Cisco VG248 (VG248-VMIP)                               |
|-----|-----|-----|
| Port selection | Port 2 parameters | |
|-----|-----|-----|
| 1 Enabled 33 | Status (enabled) | |
| 2 Enabled 33 | Call control mode (standard) | |
| 3 Enabled 41 | Caller ID (enabled) | |
| 4 Disabled | MWI method (none) | |
| 5 Disabled | Call supervision method (drop loop current) | |
| 6 Disabled | Input gain (0) | |
| 7 Disabled | Output gain (0) | |
| 8 Disabled | Dialing digit detection (default: use DSP) | |
| 9 Disabled | Fax relay (disabled) | |
| 10 Disabled | Fax relay ECM (disabled) | |
| 11 Disabled | Fax relay NSF (preserve value) | |
| 12 Disabled | Passthrough mode (default: automatic) | |
| 13 Disabled | ----- | |
| 14 Disabled | 30 Disabled 46 Disabled | |
| 15 Disabled | 31 Disabled 47 Disabled | |
| 16 Disabled | 32 Disabled 48 Disabled | |
| '* - port in use press 'R' to enter range | |
|-----|-----|-----|
-----
```

```
-----
|                               Cisco VG248 (VG248-VMIP)                               |
|-----|-----|-----|
| Advanced settings | | |
|-----|-----|-----|
| Allow last good configuration (enabled) | | |
| SRST policy (enabled: use default router) | | |
| SRST provider ( ) | | |
| Call preservation (enabled: no timeout) | | |
| Media receive timeout (disabled) | | |
| Busy out off hook ports (disabled) | | |
| DTMF tone duration (default: 100ms) | | |
| Echo cancelling policy (default: use SLIC) | | |
| Hook flash timer (800ms) | | |
| Hook flash reject period (none) | | |
| Passthrough signaling (legacy) | | |
| Fax relay payload size (default: 20) | | |
| Fax relay maximum speed (default: 14400 bps) | | |
| Fax relay playout delay (default: 300) | | |
|-----|-----|-----|
-----
```



```
-----  
|                               Cisco VG248 (VG248-VMIP)                               |  
-----  
| Validate SMDI configuration |  
-----  
| SMDI chain |  
| ----- |  
| [local Async2 port not active] |  
| local: 000943E282F6 [10.1.232.2] |  
| [Async1 connected to unknown system] |  
  
| Voice mail port numbers |  
| ----- |  
| 000943E282F6 [10.1.232.2] 1-2 |  
-----
```

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