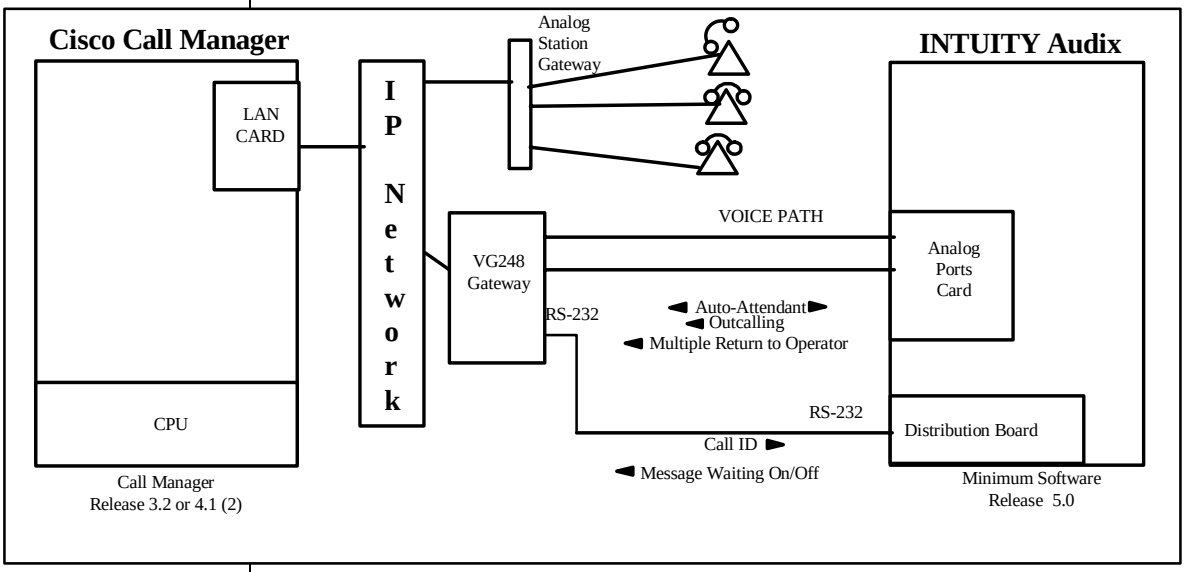
INTUITY AUDIX™
Message Server

Configuration Note 9130 – RIP 03/10

Cisco CallManager & VG-248 Gateway



IMPORTANT:
This CN is for Support ONLY of Existing Integrations as originally installed.
No NEW Sales or Conversions to different Integrations are supported.

Describe how call information is sent from the Cisco CallManager to the INTUITY™

1.0 METHOD OF INTEGRATION

With RS-232 integration, call information is transmitted over a digital link between the Cisco CallManager and the INTUITY AUDIX™. Voice communications are provided by a separate path created by a hunt group of single-line stations on the Cisco CallManager that connect to voice port cards within the INTUITY AUDIX™. When an incoming call is received by the hunt group, it is accompanied by a digital message in standard SMDI format from the Cisco CallManager which contains call information. The INTUITY AUDIX™ then answers the call on the specified port and plays the appropriate greeting. To set or cancel message-waiting notification, the INTUITY AUDIX™ sends a digital message over the RS-232 link to the Cisco CallManager.

Avaya INTUITY AUDIX™ Requirements

2.0 AVAYA INTUITY AUDIX™ ORDERING INFORMATION

- Voice Port Cards (IVC6), six analog connections per card
- Multi-Port Serial Card (Provides 8 RJ11 connections)

- INTUITY AUDIX™ Software Release 5.0 (or later) platform software
- Serial and Inband Integration Software

3.0 CISCO CALLMANAGER HARDWARE REQUIREMENTS

Hardware requirements

- Cisco CallManager PC with one available serial (com) port
- Analog station ports, one per INTUITY™ port. Analog ports are provided via analog ports on Cisco Analog VG248 Gateway
- One analog station for remote service access
- RJ45 to DB9 adapter (Cisco p/n 74-0495-01) and Cisco rollover cable (Cisco p/n number 72-0876-01).

  Note: These two accessories complete the physical connection of the SMDI circuit between the devices - the Async 1 port on the VG248 and the COM1 port on the INTUITY™ .

3.1 CISCO CALLMANAGER SOFTWARE REQUIREMENTS

Cisco software requirements

- Minimum software level – Version 3.2, 4.1
- Cisco VG248 Gateway – Version 1.1.2, 1.3

4.0 SUPPORTED INTEGRATION FEATURES

Supported integration features

- Station forward to personal greeting
  - all calls
- System forward to personal greeting
  - Busy
  - no answer
- Message Waiting Indicator
  - stutter dial tone
  - lights (ISDN sets only)
- Automated Attendant
- Outcalling
- Multiple Return-to-operator
- Direct Call
- Personal greeting of original-called party on a multiple-call forward

- Reply to message left by subscriber in internal telephone-answering mode

5.0 CONFIGURING THE CISCO CALLMANAGER FOR INTEGRATION

Configuring the VG248 & Cisco CallManager for Integration

The Voicemail system connects to the Cisco CallManager using a data connection between the Async port (marked *Async 1* – see below) of the VG248 to the serial I/O port of the INTUITY voice mail system. This is an industry standard SMDI protocol that uses an RS-232 connection.

- *Async 1* - The primary serial port used for connecting to the voice mail system (any configuration) or voice mail source (chained or multiplexing configuration). If you are using a single VG248 device, connect the voice mail system to the Async 1 port on the VG248. With multiple VG248 devices, use the Async 1 port to connect to the previous VG248 device's Async 2 port.

- *Async 2* - Used for connecting multiple VG248 devices together. If there are multiple VG248 devices in use, connect the Async 2 port of the first VG248 device (which is connected directly to the voice mail system via the Async 1 port) to the next VG248 device's Async 1 port. Continue to connect all the VG248 devices in the chain similarly. If you are connecting a legacy PBX system to the voice mail chain, connect the Async 2 port of the last chained VG248 device to the voice mail port of the legacy PBX.

The characteristics of the physical link consist of setting the baud rate, data bits, parity, and stop bits. **These settings must match on both the Cisco VG248 and the INTUITY™**.

The voice path is configured as if it were a series of single line telephones. These single line telephones are referred to as analog ports. Each port requires an RJ11 connection into the INTUITY. These analog ports must be configured in a hunt group. The hunt group is created in the Cisco CallManager to allow the station to hunt to the next voice port. Call Information packet is passed from the Cisco CallManager / VG248 to the INTUITY over the data-connection via the SMDI protocol. The call information packet will contain a message desk number (MDN), a logical terminal number (LTN) and the called party ID (where the call was forwarded from) at the minimum.

For a better integration, the switch should pass the calling party ID & the reason code for why the call was forwarded.

In case MWI is to be supported, the switch protocol should support passing of MWI ON/OFF code and the switch is responsible for switching the MWI lamp ON/OFF on the user's telephone when the switch receives such a code from the INTUITY AUDIX.

In addition, all users telephones must be programmed to forward to the Pilot Number of the voicemail system on a ring-no-answer and busy condition.

5.1 CONFIGURING CISCO VG248 PORTS

Note: Configuring the analog ports to associate them in a hunt group is different in Call Manager 4.x and newer releases. (see end of this section)

Configuring the Ports on the VG-248

☐ Add the Analog ports in CallManager Administration. Open **CallManager Administration**.

Select **Device**. Select Add a **New Device**. Click **Next**.

Select **Device Type**. Select **Gateway**. The Gateway – New screen is displayed. Click **Next**.

In the **Device Type** box, select VG248. Click Next.

In the **MAC Address** box, type the gateway's MAC address. The MAC address for the VG248 must be entered as the last 10-characters – each port then adds a 2 digit suffix to the 10 character address resulting in the 12 character MAC address.

Once the VG248 has been added the individual ports can then be configured. Start with port **(00)** – this is used only for MWI and will not be used for transporting voice. Port's **(01)** through **(48)** are used as voice-paths and must be configured depending on the amount of ports used for Integration. Select port **(01)** and set the **Device Pool** appropriately i.e. **Default**. Next click **Insert**. The screen now asks if you would like to configure a Directory Number – answer **OK**. Fill out the **Directory Number** box and as well as the **Forward Busy – Destination** field. The concept here is that port **(01)** is the pilot of the Voicemail hunt-group and then forwards-no-answer to port **(02)** and so on. Once these fields have been completed click **Add.** Repeat this process for all ports.

The VG248 ports must also be configured. Access the VG248 and select **Configure**. Ensure that **Network interface** is configured appropriately and that both the VG248 and Cisco CallManager can see each other i.e. the Cisco CallManager should be able to see the VG248 as being **Registered** under the **Gateway** screen.

Under the **Configure** menu select **Telephony** > **Port specific parameters** where all 48 ports are displayed. For each port that is **Disabled** select the port and set as **Enabled**. Once **Enabled** the port should now show the Directory Number previously assigned from the Cisco CallManager Gateway administration screen.

NOTE: If you are experiencing analog ports not dropping after callers leave a message: Under the **Configure** menu select **Telephony** > **Port specific parameters** and set the following:

- **Select the range of ports: R**

- **Select a range (example): 1-16**
- **Depress Enter key**
- **Select: Call Supervision Method**
- **Select: Drop Loop Current**
- **Depress Esc key and get back to main menu**

This will cause the analog port to use call supervision and send Intuity a disconnect that is can detect.

The next step is to configure the Voicemail pilot DN. (If you are doing this on a Cisco Call Manager 4.x, see NOTE below)

Configuring the Voice Mail Pilot #

Select **Feature** > **Voice Mail** > **Voice Mail Pilot** and add the chosen Directory Number.

Next select **Feature** > **Voice Mail** > **Voice Mail Profile** and add the previously configured **Voice Mail Pilot** to this profile. Each subscriber will need to be modified to "point" to this new profile or an existing profile could be modified accordingly.

Configuring Message Waiting

Now Message Waiting must be Configured. From the Main Menu select **Configure** > **Voice Mail** > **Call Manager MWI on DN**. Enter the same number as configured on CallManager as the MWI DN.

Do the same for **Call Manager MWI off DN** and enter the value that matches the parameter on the Call Manager as the MWI DN.

Ensure that these numbers are the same as those configured on the VG248 under menu **Configure** > **Telephony** > **Voice mail**.

Next from the main menu select **Voice Mail** > **Async port serial settings** > **Async 1.** The **port speed**, **data bits**, **stop bits**, and **parity** must match those of Intuity Audix.

This menu is also used to configure SMDI parameters. Configure the Keep Alive number (used by Intuity). From the Main Menu Main Menu, select **Configure** > **Voice mail** > **SMDI settings** > **Keep alive number.** Enter the number used in Intuity to test the serial link (usually it is 5551212)

Connect the VG248 to the Intuity Audix and test with calls – Intuity Audix should answer appropriately.

Note: ***For Cisco Call Manager 4.x and higher*** ports have to be configured into a **Line Group** (a group of extensions you want to ultimately associate to a single pilot number). This is then configured into a **Hunt List** (a grouping of one or more Line Groups), which is then configured into a Hunt Pilot (basically the Pilot number of a hunt group, which allows you to define a **Pilot Number**, and where you define the Hunt List you want to

reach when the Pilot Number extension you just defined is dialed).

In the example screens that follow two VG248 ports, extensions 5091 and 5092, are configured to be reachable via Hunt Pilot number 5100.

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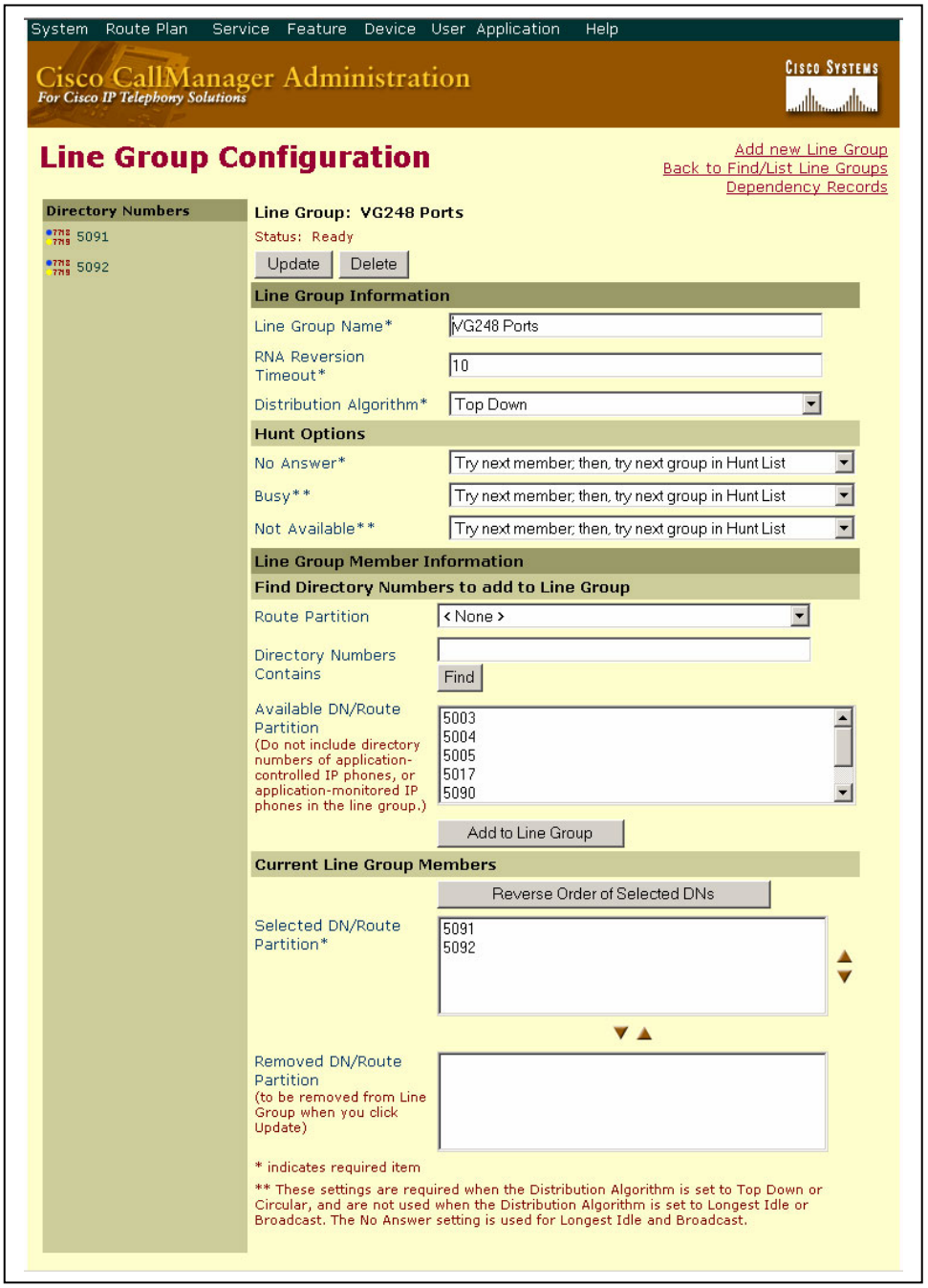
In these examples two VG248 ports, extensions *5091* and *5092*, are placed in a Line Group named ***VG248 Ports***.



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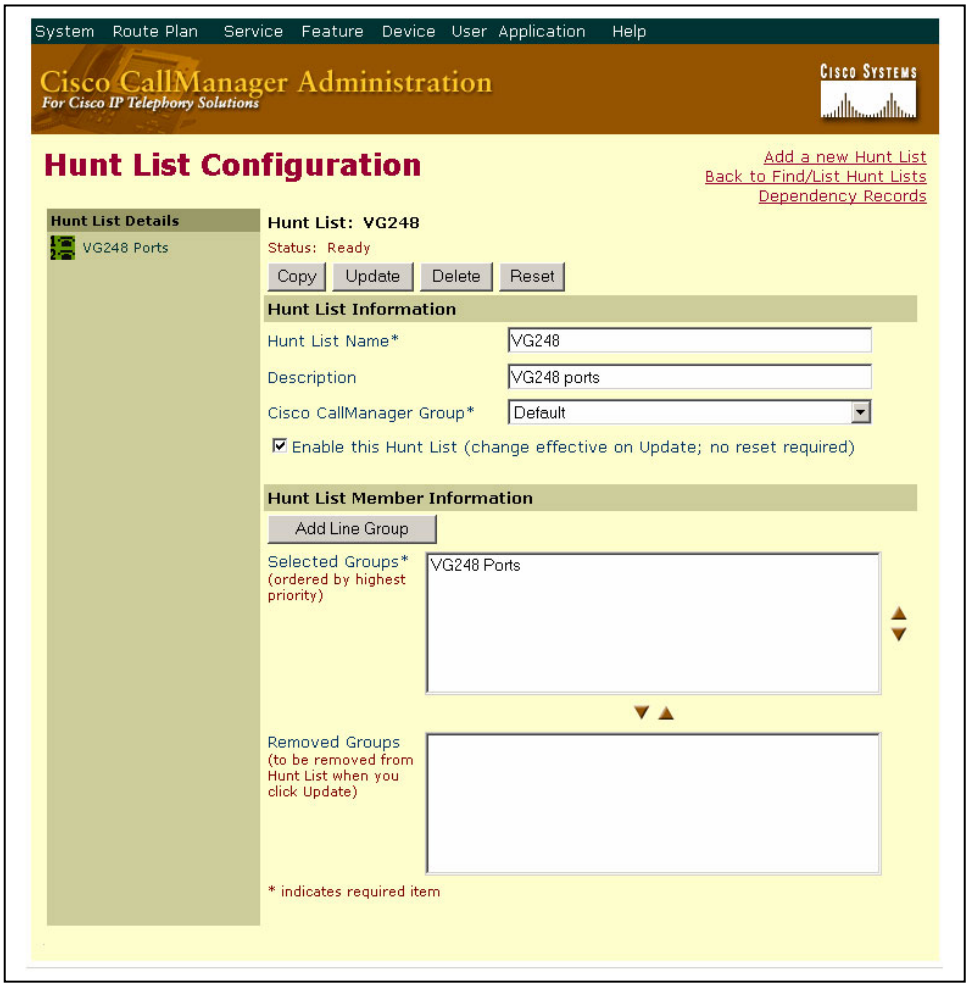
Here the line group ***VG248 Ports*** is added to a Hunt List named ***VG248***.



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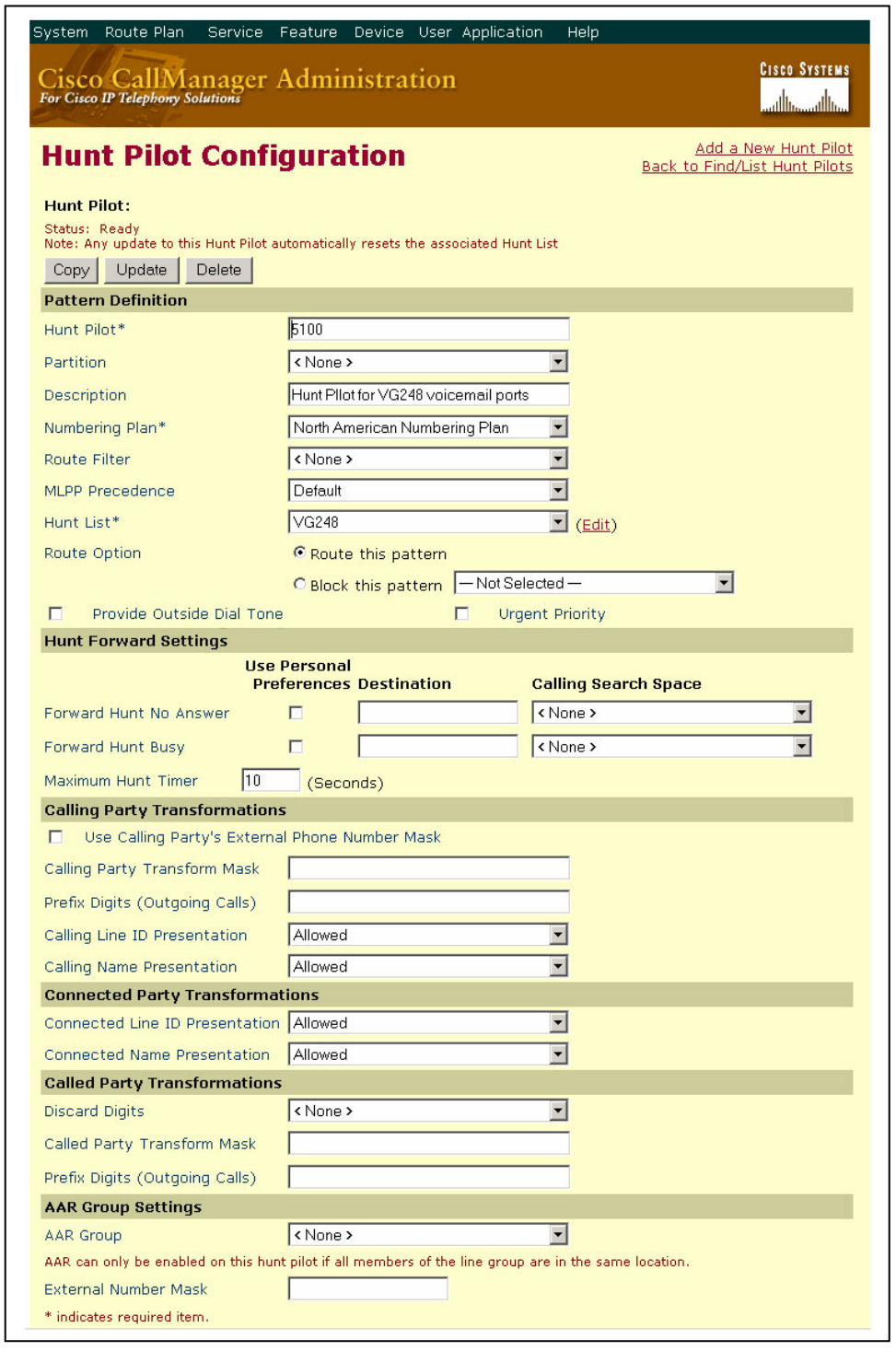
Hunt Pilot number 5100 is created and points to Hunt List ***VG248***.



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6.0 CONFIGURING THE INTUITY™

Configuring the INTUITY™

☐ The following define the steps required on the INTUITY™

HINT: When changes to the Switch Interface Administration are completed, a message appears on the screen indicating to restart the INTUITY™ voice system. However, this task is not required after each step. Once ALL changes are completed the system must then be restarted.

Step 1:

Ensure that the **Country** and **Switch** are already properly chosen. If not then contact your local TSO to have the the proper Country, and Switch selected. Systems at Release 5.0 and higher only have the option to view the switch selection page.

Step 2:

- Serial Interface (port) Configuration
  Select "Switch Interface Administration"
  Select "Call Data Interface Administration"
  Select "Switch Link Administration".
  Select "Serial Interface".

- Assign parameter values that **match** the Cisco CallManager integration serial port:
  Data bits:8
  Stop bits: 1
  Start bits: 1
  Baud rate: 9600
  Parity: N
  Flow control: N
  Serial ports: /dev/tty00

  Select the serial port by pressing "CHOICES" button. Serial ports /dev/tty00 and /dev/tty01 are reserved for INTUITY™ system use. Select /dev/tty00 if using a direct connection to Com port 1.

  Press F3 to save the administered values.

Step 3:

- Message Waiting MWI Device Assignment
- Select "Switch Interface Administration" menu
- Select "Call Data Interface Administration" menu
- Select "MWI Administration" menu
- Select "Device Assignment" option
- Administer parameters as follows:
  - Link Test[Y/N]: N Link Test Interval: <leave default>

- Populate the first entry in the table as follows:
  - Switch Number device ID Link Test Number 1 <Serial Port from step 2 above <5551212>
  - If this is left blank then Cisco CallManager "Keep Alive DN" must also be left blank.
  - If the group of channels for MWI updates is 1, the screen will look like figure 1.

Link Test [Y/N]: N	Link Test Interval:	
Switch Number	Device Number	Link Test Number
1	/dev/tty00	

Figure 1

Step 4:

- Message Waiting MWI Assignment
  Select "Switch Interface Administration" menu
  Select "Call Data Interface Administration" menu
  Select "MWI Administration" menu
  Select "MWI Parameters"

  - The MWI ON/OFF codes do not need to be defined, therefore should be left at the default.

Step 5:

- System Translation Administration
  Select "Switch Interface Administration" menu
  Select "Call Data Interface Administration" menu
  Select "System Translation Administration" menu
  Select "Dial Plan Translation" option
  Administer the following:
  - INTUITY Extension Length: <Switch Subscriber extension length>
  - Switch Network Access Code: MUST be blank
  - Administer extension ranges in the table as follows:

1) Leave "Switch Prefix" field blank

2) Enter the valid extension ranges in "Switch Start Ext." and "Switch End Ext." fields

3) Leave "INTUITY™ Prefix" field blank

4) Enter the Switch number if the entry. This is the same number used in the AUDIX subscriber database

5) Enter"N" in the remote [Y/N] field

The following provides an example of how this form should be filled, if the extension length is 3 digits on the INTUITY™ and the valid extension ranges on the switch begin 111 through 222 and 555 through 999, while INTUITY™ subscribers ranges are the same 111 through 222, amd 555 to 999.

INTUITY Extension Length: 3 Switch Network Access Code:

Switch Prefix	Switch Start Ext.	Switch End Ext.	INTUITY Prefix	Switch Number[Y/N]	Remote
1	111	222		1	N
2	555	999		1	N

Step 6:

- System Translation Administration
  Select "Switch Interface Administration" menu
  Select "Call Data Interface Administration" menu
  Select "System Translation Administration" menu
  Select "Hunt Group Translations"

- Note: The Message Desk Number and the Logical Terminal Number are not required in the following fields when the customer has only one hunt group. Customers using multiple hunt groups must define the Message Desk number(xxx) and the Logical Terminal number (yyyy)for each channel:

- INTUITY Channel Message Desk No. Logical Terminal No.

- 0 XXX YYYY

Step 7:

- Assign PBX Extensions to Channels
  Select "Voice System Administration" menu
  Select "Voice Equipment" menu
  Select "Actions " (F8) option
  From the "Assign.Change" screen,
  Select "PBX Extension to Channel" option

Assign the extension numbers computed in the above step to all used voice channels.

- Assign AUDIX as a service to all channels.
- Press F3 to save changes.

Step 8:

- Assign PBX Extensions to Channels
  Select "Voice System Administration" menu
  Select "Voice Equipment" menu
  Select "Actions " option
  Select "Assign/Change" option
  Select "Services to Channels"
  Channel Number: All
  Service Name: *DNIS_SVC
  Press F3 to save changes.

Step 9:

- Transfer Security Assignment
- Select "Voice System Administration" menu
  Select "Transfer Security" menu
  Assign restrictions allowed/denied if any used.

Step 10:

- Auto Attendant Setup for Day/Night Service
- Administer the appropriate Business Schedule and Holiday Schedule
  Select "AUDIX Administration" menu
  Enter "Change Auto-attendant-routing-routing table"
  Administer parameters as follows:

AUTO_ATTENDANT ROUTING TABLE

Route Table Administration

Incoming Called Number	Business Schedule	Holiday Schedule	Day Service Mailbox	Night Service Mailbox	Alternate Service Mailbox
???	Bus1	Hol1	???	???	

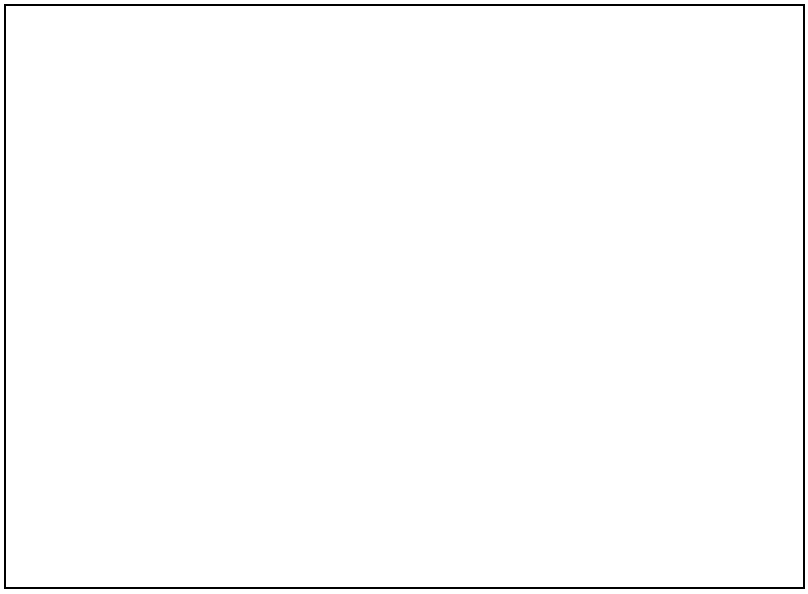
Step 11:

- After all the required programming is complete restart the INTUITY™.

7.0 INSTALLING THE VOICE LINES

Connecting the Voice Lines

☐ Each IVC6 card supports six analog (tip/ring) connections. The voice path between the Cisco CallMqanger and the INTUITY™ requires three pairs into each RJ11 connection of the IVC6 card. The following shows an example of how lines would be physically connected using a IVP6 connector. Customer have the option to use other methods of connectivity, provided they bring three pairs (6 wires) to each RJ11 on the back of the IVC6 card.



☐ To ensure the ports are physically connected correctly, ask the switch a administrator to place calls to each individual INTUITY™ voice channel one at a time. Use the "System Monitor" menu in INTUITY™ to monitor that the correct channel is dialed from the switch.

☐ The Null Modem cable connects to the DB9 into COM1 of the INTUITY™, and the other side of the DB-9 connects into the Cisco CallManager I/O port. The pin strappings of the cable are as followed:

Pin 2 to 3
Pin 3 to 2
Pin 4 to 6
Pin 5 to 5
Pin 7 to 8
Pin 8 to 7

Steps to verify our installation when complete

7.1 Testing the Installation

- ☐ Refer to the AUDIX Administration manual for further details on testing the installation.
- ☐ Create two mailboxes associated with two test extensions. Record a name and personal greeting for each mailbox.
- ☐ Using one test extension, call the other test extension. You should hear the appropriate greeting (see test scenarios below).

  Leave a message. Verify that message waiting indication turns on.

  Test call coverage scenarios:

  ▪ Forward all calls - When a subscriber forward all calls to the INTUITY™ number, calls placed to the subscriber should follow the correct INTUITY™ prompt should be played for that subscriber.

  ▪ Busy - Place a call to a busy extension. This should follow the right coverage path and INTUITY™ should play the NO ANSWER greeting.

  ▪ Call no answer from INTUITY™ scenario is the same as above.

  f calls are Non-Integrated, check the following:

  ▪ Check the appropriate COS has been assigned to the tip/ring lines.

  ▪ Check the PBX Extn to Channel mapping has been administered properly.

  ▪ Check the Switch Integration log to make sure the RAW data is seen for every call and is appropriately parsed and translated.

  ▪ Check the maintenance log to see if an error has been logged indicating "Bad data". If yes, then check the switch setup to ensure that the correct serial integration information are being passed to INTUITY™ .

  ▪ Check the Dial Plan Translation screen to see if the translation table has been administered correctly.

- ☐ Message waiting indicators - Listen to the message left for the mailboxes above, delete the message and verify message waiting is turned off.

  ▪ Verify that message waiting indication turns on.

  If Message Waiting failures occur check the following:

  ▪ Check the appropriate COS has been administered on the switch or the subscriber telephone sets.

▪ Check the SWIN LOG to see if INTUITY™ is dialing out the required sequence of digits. If not check the DIAL PLAN Translation and make sure that it is administered correctly.

▪ Check if the MWI sequence dialed out by INTUITY™ is the same as set on the switch. Ask the switch administrator for the MWI sequence. If it is different than change the MWI ON Prefix and Suffix to reflect the correct value.

☐ Test Transfers using "*T" option. From Audix mailbox. Transfer to another mailbox. Monitor the transfer time. Transfer to a station that is in a Do-Not-Disturb mode, busy mode, RNA mode.

▪ The transfer time is approximately 5-8 seconds.

▪ Test multiple transfers - set up phone A to transfer to Phone B and Phone B transfers to phone C. And phone C transfers to phone D. Determine how many transfers can be supported on the switch.

Note: The VG248 has 4 Call Control Modes: Standard, Feature, Basic, and Restricted. For example, Feature Mode has #2 in the Blind Transfer sequence. We recommend Standard Code, so ensure the proper CallManager codes are entered if a different Call Control is used.

If Transfer failures are encountered, then check the following:

▪ Check if dial tone is being detected by INTUITY™. If not, use the Tone Sniffer tool to configure the dial tone correctly.

▪ Check if the flash duration set on INTUITY™ is the same as that configured on the switch, if not then modify the flash duration.

NOTE: If the caller is disconnected during transfers then the flash duration is too high and has to be reduced. If the caller hears INTUITY™ dialing digits during transfer then the flash duration is too low and has to be increased.

☐ Call Disconnect - Leave a message for test mailbox, retrieve it and listen for the sign of the call progress tones. Place an external call and document the time it takes the INTUITY™ to disconnect after the caller hangs up.

▪ If there is no progress tone in the message, disconnect is working fine.

☐ Zero ("()") Out - Verify that return-to-operator works properly.

☐ Call the INTUITY™ from a test extension leave a message for a station with a voice mail button.

▪ If the subscriber stations are programmed to support a button, which will dial the voice mail access number and the mailbox number

followed by the # sign, the INTUITY™ will prompt for the password. Do you hear “Please enter your password”.

- ☐ Automated Attendant - Call the automated attendant mailboxes.

  - If the correct Auto Attendant mailbox is not reached and all above tests passed, the most likely problem will be in the switch translations. Check with the system administrator to endure proper translation.

- ☐ Optional testing when setting up outcall notification in the test mailbox, leave a message to generate an outcall. Make sure ports are configured for Outcall

  - INTUITY™ should call the number administered for out calling after the administered time has passed.

  - If Outcalling failures occur, check if dialtone is being detected by INTUITY™. If not, use the Tone Sniffer tool to configure the dialtone correctly.

NOTE: If you encounter problems while performing these tasks, review the “switch log” before escalating problems to your local Technical Support Center.

8.0 CONSIDERATIONS

Important notes regarding this integration

8.1 **Analog Ports not dropping after callers leave a message** indicates INTUITY™ is not see a positive disconnect. To ensure users do not hear a few seconds of reorder toneat the end of their messages, you will need to set the Cisco Call Manager Call Supervision method as shown in the NOTE in Section 5.1.

8.2 **Cisco Call Manager 4.1(2) MWI issues** (i.e., out of sync, etc.) may be resolved by turning off Intuity’s MWI refresh.

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CHANGE HISTORY		
Revision	Issue Date	Reason for Change
DRAFT 0.1	08/06/02	Initial release for review/validation
DRAFT 0.2	06/30/03	Reformat, add DRAFT Note detail page 1
A	08/01/03	GA
B	02/26/04	Updated Cisco Gateway information and Cisco Gateway programming received from Cisco for this integration and added Note for VG248 feature mode in section 6.0
C	03/03/04	Updated Cisco Call Manager SMDI cable information, added part #s, and Note in section 3.0
D	05/03/04	Updated Cisco Call VG248 programming NOTE in section 5.1 for positive disconnection / detection.
E	05/09/2005	Added note and screens for Cisco Call Manager 4.1 (2) and creating Pilot Number in section 5.1; added Consideration 8.3 concerning MWI issues.
F	05/05/2006	Changed COM1 parameters in section 5 to match those in Section 6. Added note to explain they must match in each section.
G	12/22/2006	Updated Section 5.0 and 5.1 to reflect changes need for VG248 integration. Also removed Consideration 8.1 as Cisco CM now supports Supervised Transfers.
RIP	03/1/10	Made CN RIP

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