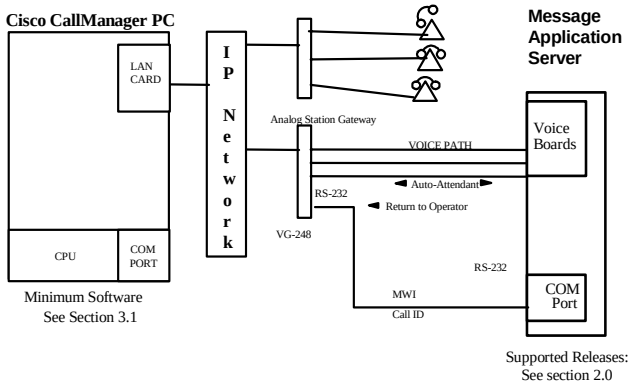
Avaya™

Modular Messaging

Configuration Note 88057 – Version D (5/08)

Cisco CallManager w/VG-248



1.0 METHOD OF INTEGRATION

With RS232 integration, call information is transmitted over a digital link between the PBX and the Avaya Message Application Server

With RS232 integration, call information is transmitted over a serial link between the Cisco VG248 (using Cisco CallManager software) and the Avaya Message Application Server (MAS). Voice communications are provided by separate paths created by a hunt group of analog stations in the Cisco CallManager that connect to the voice board within the MAS. When the hunt group receives an incoming call, it is accompanied by a digital message in standard SMDI format from the Cisco CallManager, which contains call information. The MAS then answers the call on the specified port and plays the appropriate greeting. To set or cancel message-waiting notification, the MAS sends a digital message over the RS-232 link to the Cisco VG248.

MAS Requirements

2.0 AVAYA MESSAGE APPLICATION SERVER REQUIREMENTS

- Dialogic D/41JCT-LS or D/120JCT-LS cards (4 and 12 port/cards)
- Supported Releases: 1.1, 2.0, 3.0, 3.1, 4.0

3.0 PBX HARDWARE REQUIREMENTS

PBX hardware requirements

- Cisco VG248
- Analog ports, one per MAS port. Analog ports are provided via analog ports on the Cisco Voice Gateway 248.

- RJ45 to DB9 adapter (Cisco p/n 74-0495-01) and Cisco rollover cable (Cisco p/n number 72-0876-01).
- Cisco CallManager
- **Cables:** RJ11 four-wire telephone cord, one per MAS port

3.1 PBX SOFTWARE REQUIREMENTS

PBX software requirements

- Minimum Software:

  Cisco VG248 Gateway Version 1.1.2, 1.3
  Cisco Call Manager Version 3.2, 4.0

4.0 SUPPORTED INTEGRATION FEATURES

Supported integration features

[✓] Items are supported

System Forward to Personal Greeting	
All Calls	[ ]
Ring/no answer	[✓]
Busy	[✓]
Busy/No Answer	[ ]
Station Forward to Personal Greeting	
All Calls	[✓]
Ring/no answer	[ ]
Busy	[ ]
Busy/No Answer	[ ]
Auto Attendant	[✓]
Call Me	[✓]
Direct Call	[✓]
External Call ID (ANI)	[✓]
Find Me	[ ]
Internal Call ID	[✓]
Message Waiting	[✓]
Multiple Call Forward	[✓]
Multiple Greetings	[✓]
N+1	[ ]
Outcalling	[✓]
Queuing	[ ]
Return to Operator	[✓]

IMPORTANT: PBX options or features not described in this Configuration Note are not supported with this integration. To implement options/features not described in this document, please contact the Avaya Switch Integration product manager.

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 MODULAR MESSAGING 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 MODULAR MESSAGING™**.

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 MODULAR MESSAGING. 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 MODULAR MESSAGING 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 MODULAR MESSAGING.

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 Modular Messaging 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 Modular Messaging.

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

Note: Modular Messaging does not use a Keep Alive number, so setting this SMDI parameter is not required.

Connect the VG248 to the Modular Messaging and test with calls – Modular Messaging 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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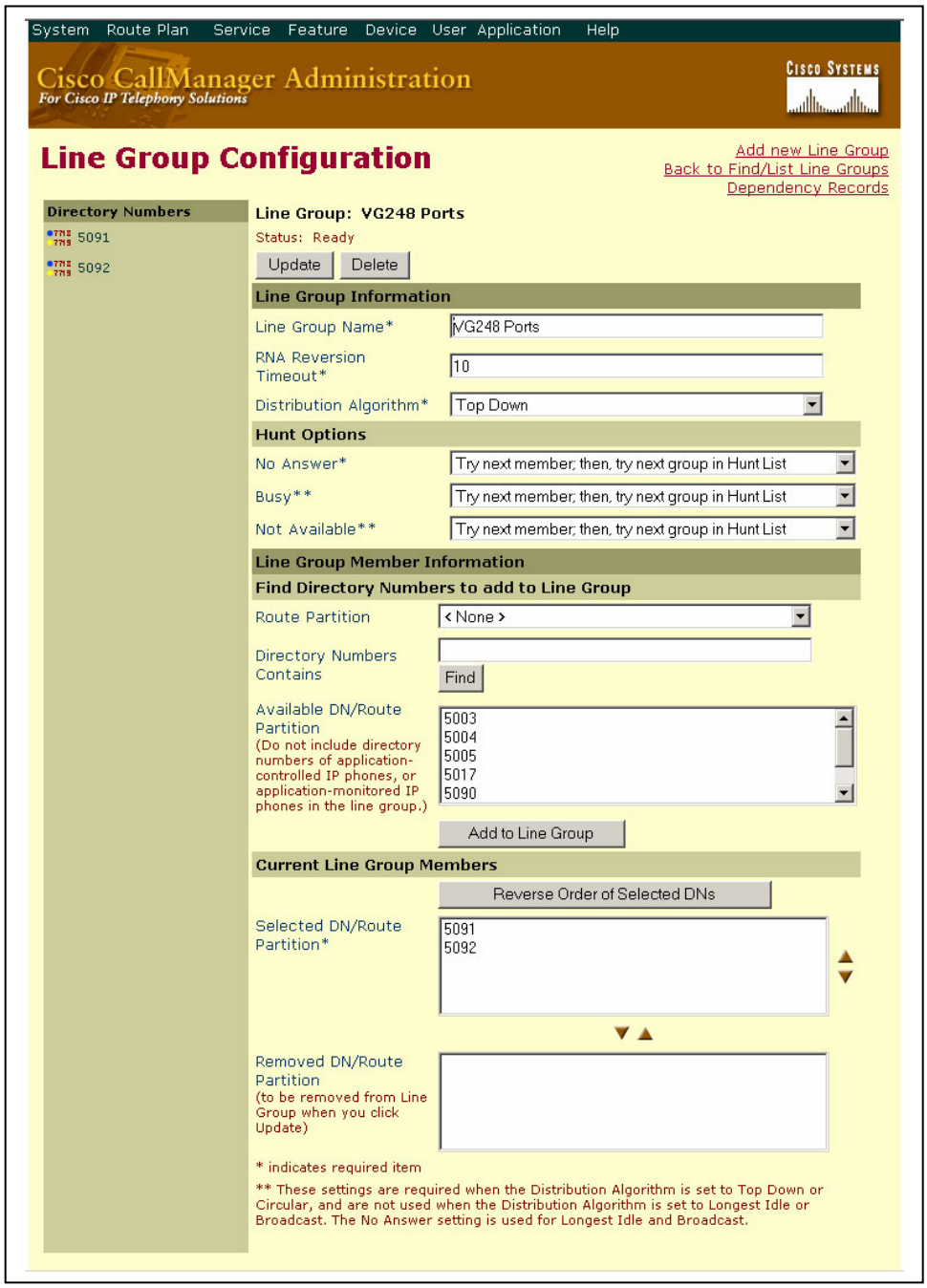
In these examples two VG248 ports, extensions *5091* and *5092*, are placed in a Line Group named ***VG248 Ports***.



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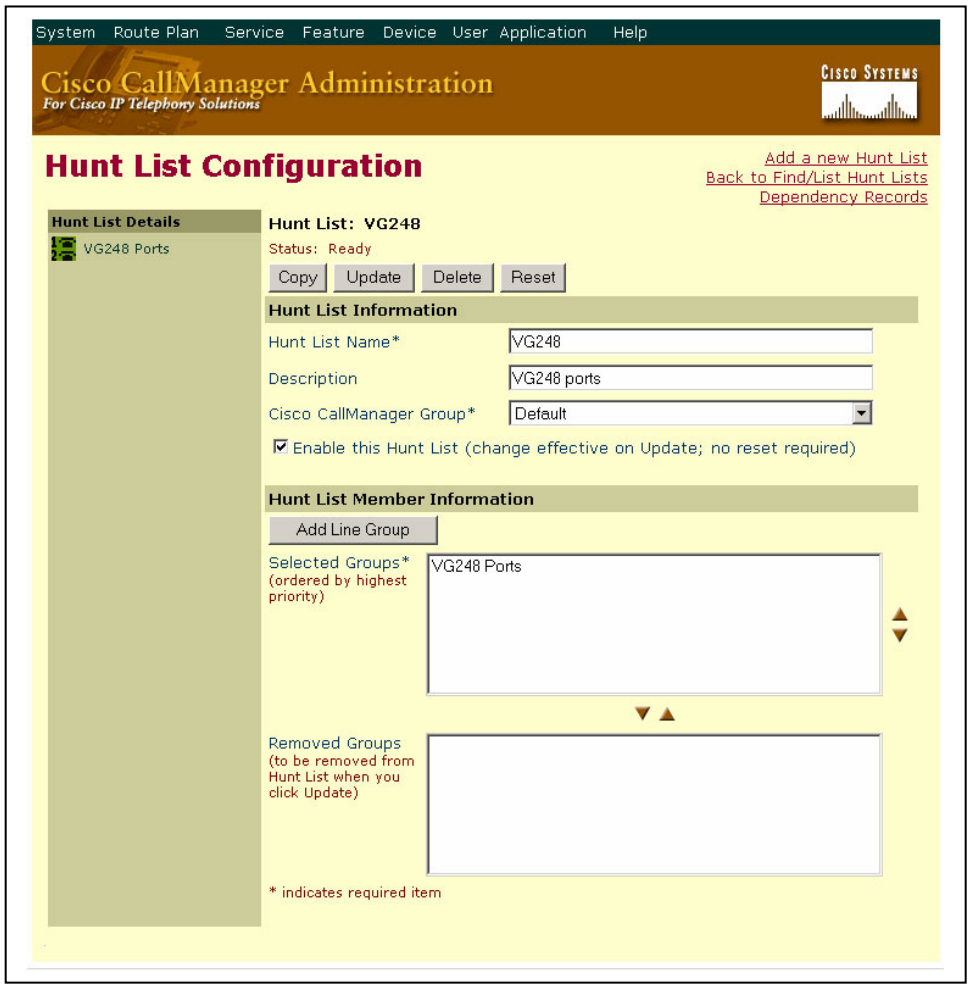
Here the line group ***VG248 Ports*** is added to a Hunt List named ***VG248***.



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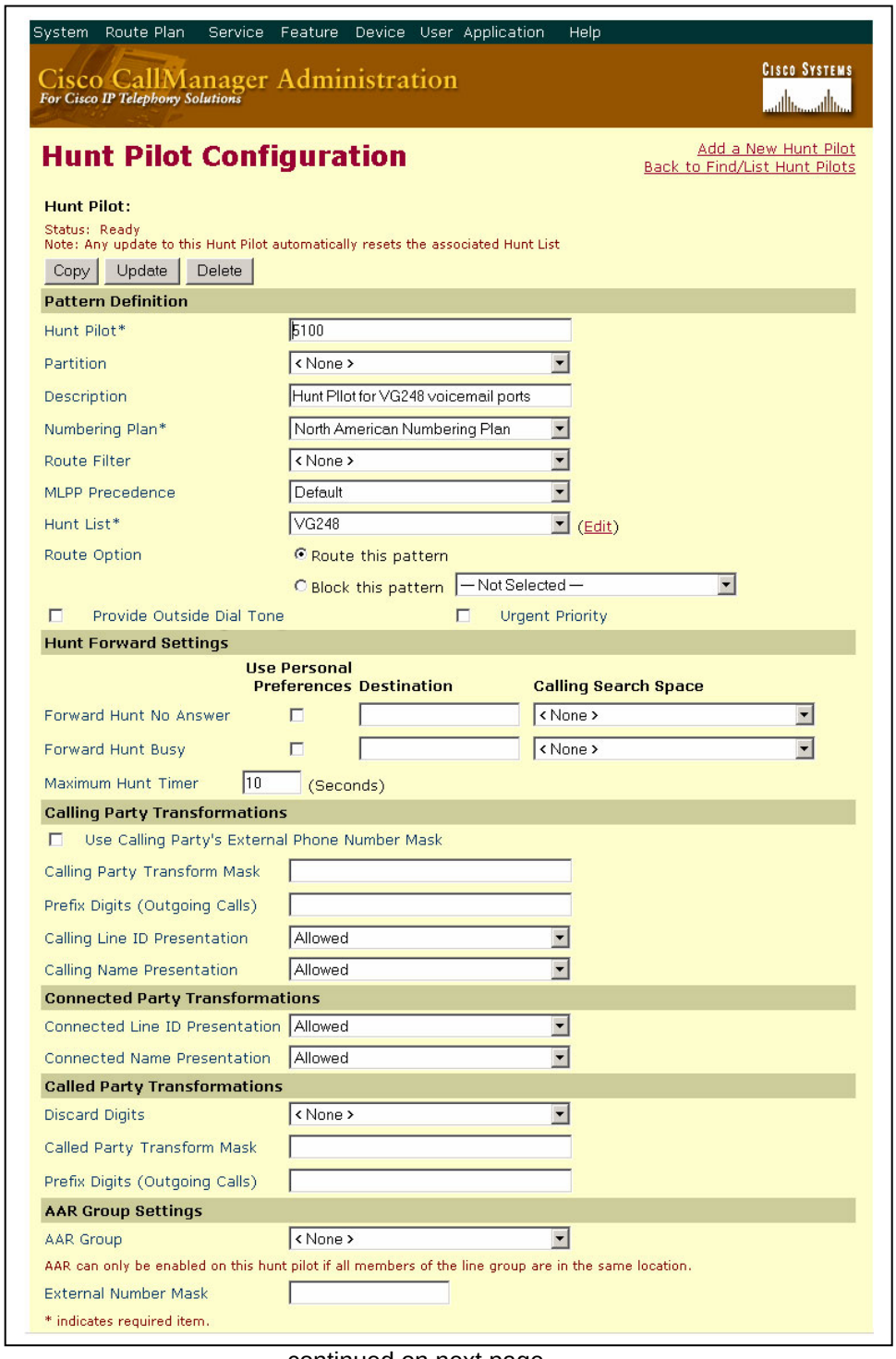
Hunt Pilot number 5100 is created and points to Hunt List ***VG248***.



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6.0 CONFIGURING THE MESSAGE APPLICATION SERVER

Configuring the MAS

Configuring the MAS for proper PBX integration requires configuring several menus accessed within the **Voice Mail System Configuration** application, and a certified MM engineer.

- Access the **Voice Mail System Configuration** application from the MAS program group.
- Access the **Voice Mail Domain**, and then select **PBXs – Centrex**
- Access the **General** tab and set the following values:
- **Go Off Hook when Port Disabled = Enable by checking the box**
  Pause before Digits (ms) = 1000
  Pause Interval for Comma in Dial String (ms) = 2000
  DTMF Inter-Digit Delay during Dialing (ms) = 80
  DTMF Length during Dialing (ms) = 80
  DTMF Length during Detection (ms) = 50
  DTMF Length during Play (ms) = 50
- Access the **Call Transfer** tab and set the following values:
- **Transfer Mode = Blind**
  Transfer Prefix Code = &,XN
  Transfer Complete Code = &
  Transfer Release Code when Busy = &
  Transfer Release Code when No Answer = &
  Transfer Release Code when Reject = &,&
  Flash Time Interval (ms) = 1500
  Enable Call Progress = Enable by checking the box
  Start Delay for Call Progress (ms) = 1000

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.

- Access the **Hangup Detection** tab and set the following values:
- **Maximum Continuous Tone before Hanging Up (ms) = 6000**
  Hangup String = Leave Blank
  Hangup String Timeout (ms) = 0
  Minimum Duration For Drop in Loop Current (ms) = 300
  Maximum Silence before Hanging Up (ms) = 6000

- Return to the **Voice Mail System Configuration** window, and select **Message Application Servers** and access **Telephony Interface (Dialogic Analog).**
- Select the **Analog** tab to configure the selected port(s) on your Voice Server as follows:

  - Playback Volume = 2 (Default)
  - Number of Ports = Enter the number of ports in your system

  Note: The MAS service must be restarted to allow port enabling.

  - Enable the port(s) by checking the **Box** field next to the Port field
  - Extension = Enter the proper extension number assigned to each port
  - Incoming Ring Count = 1
  - Primary ID = Enter Logical Terminal Number (LTN) for that port (normally, LTN start with **0001** for first port, **0002** for second port, **0003** for third port, etc.).
  - Secondary ID = Enter the Message Desk (MD) number assigned to the SMDI link (normally, the MD is **001)** for all ports.

NOTE: The **Secondary ID** must be 3 digit in length (standard SMDI protocol), however the actual value could be different then "001" (i.e. 002, 999, etc.)

- Return to the **Voice Servers** section and access **PBX Integration**.
- Access the **General** tab. Select **Serial** as the integration type.
  Maximum Time to Wait for Serial and Remote Integration Data = 4

IMPORTANT: Connect only MAS#1 to the SMDI link (RS-232). If there are multiple MAS servers, they should be configured for "**Remote**" within the Integration Type. Access the **Remote** tab and enter the appropriate server (i.e MAS1). No RS-232 connections to MAS#2, MAS#3, etc..

- Access the **Serial General** tab and set the following values:
- **Packet Format = SMDI**
  Extension Field Length in Packet = 10 (or match the length from Cisco)
  Maximum Number of Remote Service Sessions = 0 (see note below)
  Log Serial Packets = Enable by checking the box

NOTE: If installing multiple MASs, then enter the correct value. For example, if you have 2 MASs then enter 1; if you have 3 MASs then enter 2, etc.. The default is 0 if only 1 MAS.

- Access the **Serial Settings** button in the same tab and set the following values:

- **Line Speed (Bits per Second) = 9600**
  Data Bits = 7
  Stop Bits = 1
  Parity = Even
  Flow Control = None
  Connector = COM1

After making these changes, return to "Configuring the voicemail system" within the S3400 Message Server Installation guide. Ensure you are prompted to restart the Message Application Server services to apply these changes.

Important notes regarding this integration

8.0 CONSIDERATIONS/ALTERNATIVES

8.1 **Analog Ports not dropping after callers leave a message** indicates Modular Messaging™ is not see a positive disconnect. To ensure users do not hear a few seconds of reorder tone at 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.

CHANGE HISTORY		
Revision	Issue Date	Reason for Change
DRAFT 0.1	**12/11/03**	Initial release for review/validation
DRAFT 0.3	**10/27/04**	Updated to meet MM R2.0 info.
Draft 0.5	**02/11.05**	Changed the cable requirements.
Version A	**03/15/05**	GA
Version B	**04/11/06**	Updated to support MM 3.0
Version C	**12/22/06**	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. Also removed considerations on open look current and multiple greetings.
Version D	**05/05/08**	Updated to support MM 4.0

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