



# IP Office - Job Aid

## Attaching 3rd Party Paging Equipment

### **Summary**

This document gives an overview of attaching 3<sup>rd</sup> party paging equipment to the IP Office. It covers attachment of this equipment to either an analog trunk port, an analog extension port or an Avaya 20 Series digital telephone (2010, 2030, 2050 or 20CC).

Whilst the details in this document should be typical for most 3<sup>rd</sup> party paging equipment it does not imply support for all such equipment.

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# Attaching Paging Equipment

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## Introduction

Paging to and from IP Office phone's is covered by the appropriate telephone user guides. This document covers paging to 3<sup>rd</sup>-party paging equipment (centrally amplified paging systems or self-amplified speakers). Typically 3<sup>rd</sup>-party paging equipment uses analog connections. The IP Office can provide analog connections via either analog trunks or analog extensions. In terms of flexibility of operation once installed the use of an analog extension port for paging is the preferred solution.

### **WARNINGS:**

- The Paging Equipment must provide isolation to the IP Office analogue port or an additional interface device must be fitted.
- The Paging Equipment (and separate interface device if used) must conform to the local and national telecommunications device regulation, ie:
  - USA: FCC approval.
  - European Union: CE marked indicating compliance with the EMC (EN41003) and Low Voltage (EN60950) directives.
- Failure to observe the notes above could result in damage to the IP Office or the 3rd-party equipment.

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## Universal Paging Access Module

For the US, the Universal Paging Access Module (UPAM) is recommended as the interface device between the IP Office and the Paging Equipment.

The UPAM:

- Supports analog extension or trunk (loop or ground start) connection.
  - Requires a 24V or 48V power supply if used with trunk connections.
- Provides a pre-announce tone heard at the paging extension and over the paging speakers. On/Off selectable.
- Provides a confirmation tone heard by the pager only (not supported for ground start trunks). On/Off selectable.
- Has Paging Time control which sets the maximum page time (6 to 35 seconds) if its other disconnect controls are disabled.
- Supports background music input via an RCA-type jack.

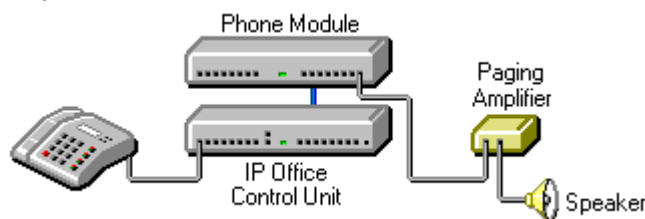
## Paging via an Analog Extension Port (POT Port)

IP Office analog extension ports are marked as POT. These can be used for the connect of third-party paging equipment.

The IP Office 401 (not available in North America) and IP Office 403 Control Units have integral POT ports.



POT ports can also be installed by the addition of an IP Office Phone Module to the system.



- As previously stated the Paging Amplifier must provide isolation or an additional isolation device should be fitted.
- The Paging Amplifier (and separate isolation device if used) must conform to the local and national telecommunications device regulation.
- If not done automatically, it may be necessary to set the Paging Amplifier to give priority to the VOX input

### 1. IP Office POT Port Wiring Connection

Connections to POT ports should use a twin-pair cable wired as follows:


POT RJ45 Socket	Pin Number	Description
	1 and 3	Do not use.
	2	Bell
	4	A: Ring
	5	B: Tip
	6	Bell
	7 and 8	Do not use.

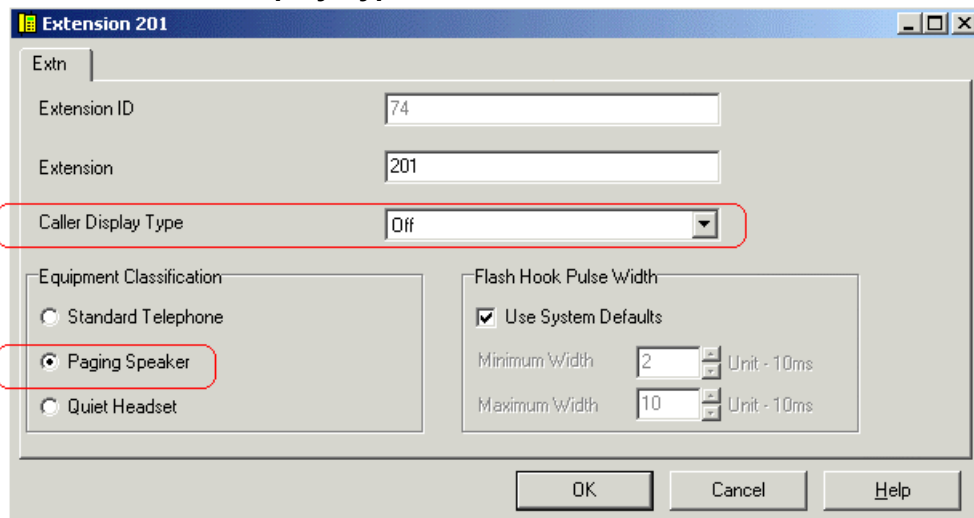
- Pins 2 and 6 are connect to pin 5 via a ringing capacitor.



The POT ports are rated as follows:

- Off-Hook Current = 25mA.
- Ring Voltage = 40V rms.
- REN = 2


## 2. Configure the Analog Extension

1. Start IP Office Manager and receive the configuration from the IP Office.
2. Click on the  **Extension** icon to display the list of extensions.
3. Double-click on the extension that will be used for the paging equipment connection.
4. In the **Extn** tab set the following:
  - Set the **Equipment Classification** to **Paging Speaker**.
  - Set **Caller Display Type** to **Off**.



5. Click on **OK**.
6. Note that the icon for the extension has changed from  to . In this mode the extension connects the speech path immediately without any ringing.

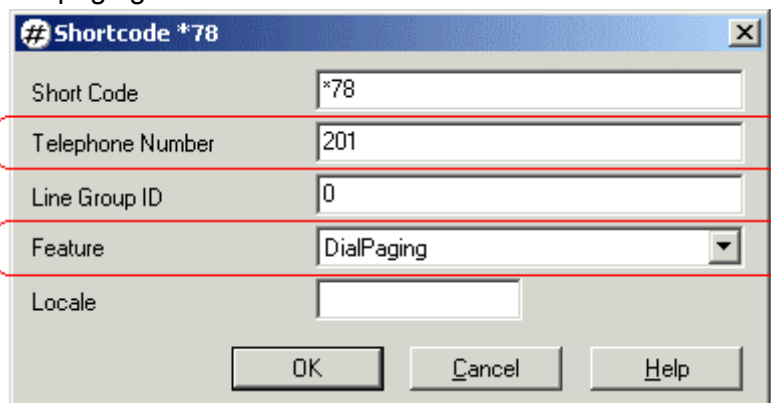
## 3. Configure the Analog Extension User

1. Click on the  **User** icon to display the list of users.
2. Double-click on the user currently associated with the extension above.
3. In the **User** tab set the following set the **Name** to **Paging** or similar to indicate the function.
4. In the **Voicemail** tab untick **Voicemail On**.
5. Click on **OK**.

#### 4. Create a Short Code for Paging the Extension

This stage can be skipped. Since the connection is via a extension with an associated user, page calls can be made using the appropriate user name or number (see "Making Page Calls" on page 10). If you skip short code creation send the new configuration to the IP Office and reboot.

1. Click on the **# ShortCode** icon to display the list of short codes.
2. Right-click on the list and select **New**.
3. Enter the settings for the short code that users should dial when to make a paging call:



The screenshot shows a dialog box titled "# Shortcode \*78". It contains the following fields and values:

Field	Value
Short Code	*78
Telephone Number	201
Line Group ID	0
Feature	DialPaging
Locale	

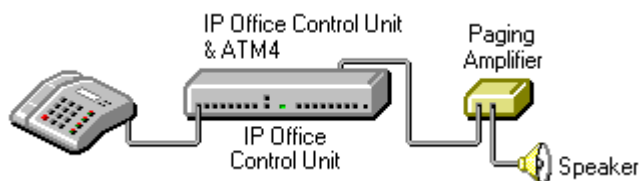
Buttons: OK, Cancel, Help

- **Short Code: \*78**  
The numbers users should dial to do a page. \*78 is just an example.
  - **Telephone Number: 201**  
The analog extension connected to the paging equipment.
  - **Feature: *DialPaging***  
Note that ***DialPaging*** is used for an analogue extension connection. ***Dial*** is used for an analogue trunk connection. .
4. Click on **OK**.
  5. Send the new configuration to the IP Office and reboot.

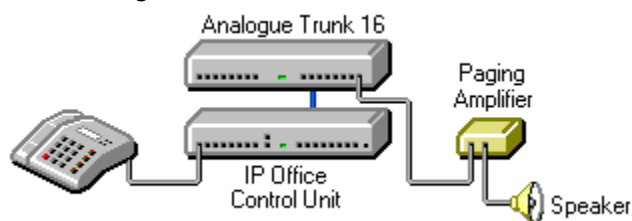
## Paging via an Analog Trunk Port

You can use the analog trunk ports provided by the ATM4 or ATM16 modules.

The ATM4 is an internal module installed into the IP Office Control Unit. Note that the ATM4 only provides Loop Start analog trunk ports.



The ATM16 is an external expansion module. It supports both Loop Start and Ground Start analog trunks.




- As previously stated the Paging Amplifier must provide isolation or an additional isolation device should be fitted.
- The Paging Amplifier (and separate isolation device if used) must conform to the local and national telecommunications device regulation.
- The paging connection must provide power in order to be seen as a real trunk by the IP Office.



### 1. IP Office Analog Trunk Port Wiring Connection

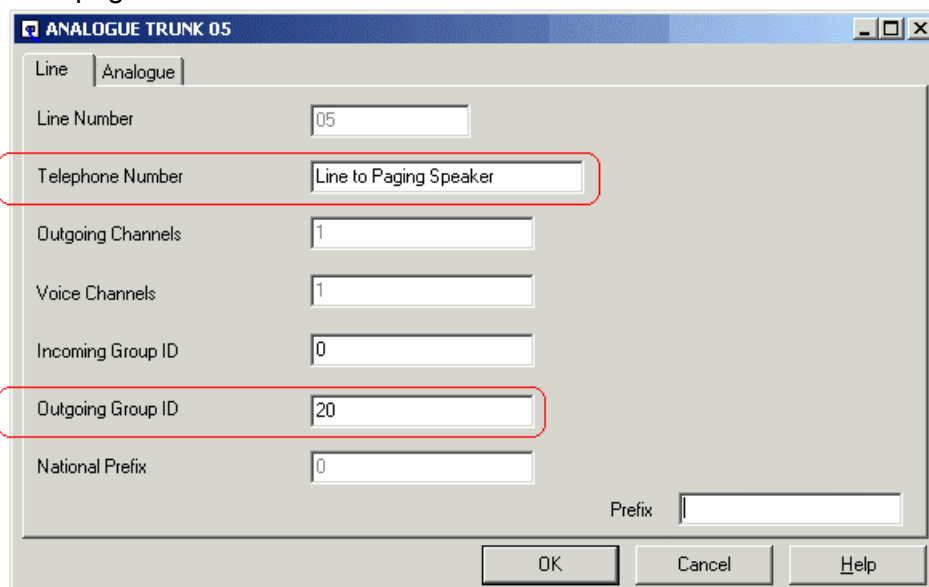
The analog trunk ports on IP Office modules are RJ45 sockets.

Connections to these should use a single-pair cable wired cable as follows:

RJ45 Socket	Pin Number	Description
 Pin 8      Pin 1	1 to 3	Do not use.
	4	A: Ring
	5	B: Tip
	6 to 8	Do not use.

## 2. Line Configuration

1. Receive the configuration from the IP Office.
2. Click on the  **Line** icon to display the list of installed lines.
3. Analog lines appear as shown with  icons. Double-click on the line that will be used for paging.
4. In the **Line** tab set the following:
  - In the **Telephone Number** field enter a note indicating that this is the line to the paging equipment, eg. **Line to Paging**.
  - Set the **Outgoing Group ID** to a unique value, ie. one not used by any other line. This number will be used in a short code that routes page calls to this line.



ANALOGUE TRUNK 05

Line | Analogue

Line Number: 05

Telephone Number: Line to Paging Speaker

Outgoing Channels: 1

Voice Channels: 1

Incoming Group ID: 0

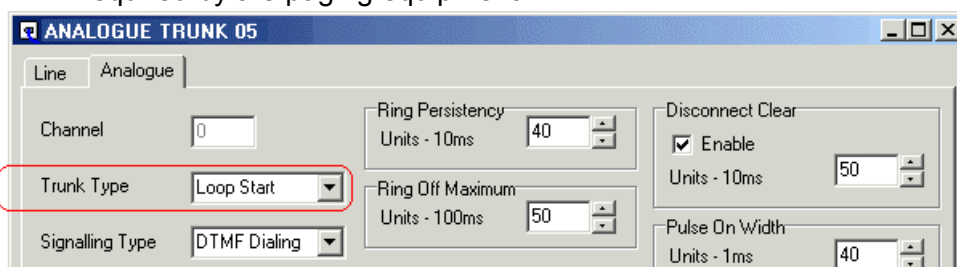
Outgoing Group ID: 20

National Prefix: 0

Prefix:

OK Cancel Help

5. In the **Analog** tab, set the following:
  - Set the **Trunk Type** to **Loop Start**. Note: This is the only option with ATM4 trunks. With ATM16 trunks **Ground Start** can be used if required by the paging equipment.



ANALOGUE TRUNK 05

Line | Analogue

Channel: 0

Trunk Type: Loop Start

Signalling Type: DTMF Dialing

Ring Persistence: 40 (Units - 10ms)

Ring Off Maximum: 50 (Units - 100ms)

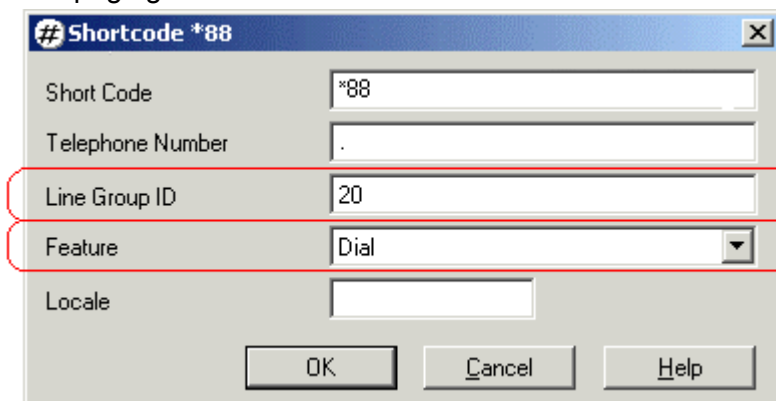
Disconnect Clear: ☒ Enable, 50 (Units - 10ms)

Pulse On Width: 40 (Units - 1ms)

- Leave the remaining values at their defaults unless the instructions of the paging equipment manufacturer indicate that other values are required.
6. Click on **OK**.

### 3. Create a Short Code for Paging the Trunk

1. Click on the **ShortCode** icon to display the list of system short codes.
2. Right-click on the list and select **New**.
3. Enter the settings for the short code that users should dial when to make a paging call:



The screenshot shows a configuration window titled "# Shortcode \*88". It contains the following fields and values:

Field	Value
Short Code	*88
Telephone Number	.
Line Group ID	20
Feature	Dial
Locale	

Buttons at the bottom: OK, Cancel, Help.

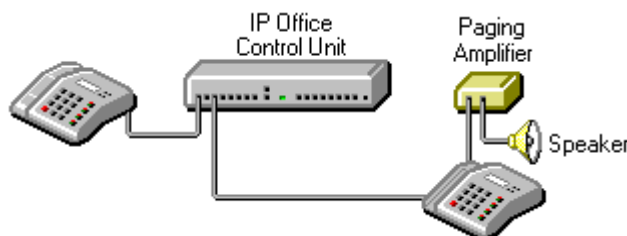
- **Short Code: \*88**  
This is the numbers users should dial to do a page. \*88 is just an example.
  - **Telephone Number: .**
  - **Line Group ID: 20**  
This must match the Outgoing Group ID set for the analog trunk.
  - **Feature: Dial**  
Note that **Dial** is used for an analogue trunk connection.  
**DialPaging** is used for an analogue extension connection.
4. Click on **OK**.
  5. Send the new configuration to the IP Office and reboot.



## Paging via an Avaya 20 Series Digital Telephone

A page call to any 20 Series digital telephone (2010, 2030, 2050 or 20CC) where the handset is physically off-hook and the telephone is idle (not receiving dial tone) is directed to the handset speaker rather than the 20 Series loudspeaker. This option allows external paging systems to be connected to the 20 Series handset cord socket (marked as **H/SET**).

Though this method of connection requires a 20 Series digital telephone and IP Office DT port. It allows the paging device to be part of a group with other extensions that can be paged simultaneously.



The external loudspeaker system must be CE marked to indicate compliance with the EMC (EN41003) and Low Voltage (EN60950) directives.

- **Loudspeaker Impedance:**  
The matching impedance of the external loudspeaker should be 150 ohms.
- **Voltage Levels :**  
The typical voltage levels on an Avaya 20 Series handset Rx output are:
  - **Minimum volume:** 55mV peak to peak.
  - **Maximum volume:** 555mV peak to peak.
- **Wiring Connection:**  
RJ11 using pins 2 and 3 (the inner pair).

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## Making Page Calls

Having setup and tested the paging equipment, users can begin to use it. If the paging device has been connected via an analogue extension port, then the page call features provided for different phones can also be used to page the extension number. Refer to the appropriate phone user guide. Otherwise users can dial the short code setup for paging. The following methods can be used to make page calls.

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### Paging via a DSS Key

For extensions with DSS keys, paging can be assigned to one of those keys. The following method programs the key via the Manager application.

1. Start Manager and load the IP Office configuration.
2. Click on  **Users** to display the list of Users. In the list double-click on the user whose DSS keys you want to edit.
3. Select the **Button Programming** tab (**Digital Telephony** tab on UK English systems).
4. For the required DSS button, select **Dial** as the **Action**. For the Telephone number enter the paging short code or the extension number or the extension name in quotes.
5. Click on **OK**.
6. Save the new configuration.

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### Paging from eBLF

If the paging connection is via an analogue extension, then the associated user will appear in the eBLF button with their new name (eg. Paging). Simple lift your handset and click that button.

If the paging connection is via an analogue trunk, you can add a new BLF button. Select **Configure** and then **Add to Config**. Enter a name for the button and enter the paging short code or extension number or extension name.

## Paging from eConsole

In addition to simply dialing the appropriate short code or extension number you can set the page feature under one of the eConsole's 10 speed dial buttons.

Place your cursor over the required button and right-click. Enter a name and then enter the paging short code or extension number or extension name. Click on **Okay**.

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## Paging from Phone Manager

You can add a speed dial to Phone Manager in order to make paging calls.

1. Within the users Phone Manager, select the Speed Dials tab.
  2. Right-click on the tab area.
    - If paging via a analogue extension port, select **Add User** and select the appropriate user.
    - If paging via an analogue trunk port, select **New**. Enter a name and enter the paging short code as the number.
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## Group Paging

If the paging connection is via an extension port, that extension can be included in a group with other pageable extensions. This allows page calls to be heard via the speaker and over pageable telephones.

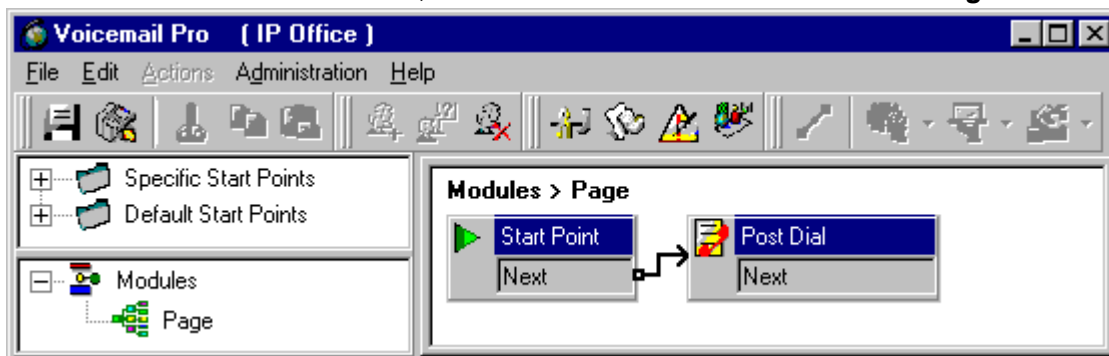
## Voicemail Pro

Voicemail Pro can be used to deliver pre-recorded announcements. This can be useful when the same announcement is repeated frequently. This method requires the paging port to be an analogue extension.

This method also remove the feedback loop that can occur on some sites as the page is first recorded and then played.

### Example 1

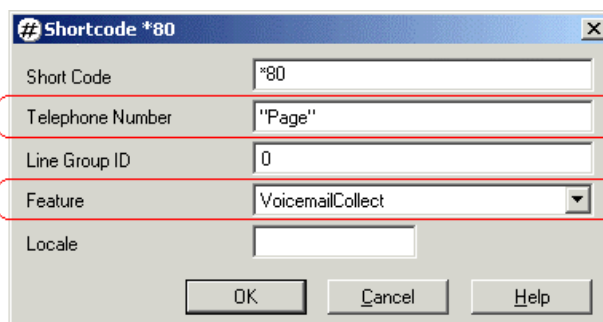
1. In Voicemail Pro, a new Module was added and named **Page**.



2. A **Post Dial** action was added to the module. The properties of the Specific tab were set as shown:



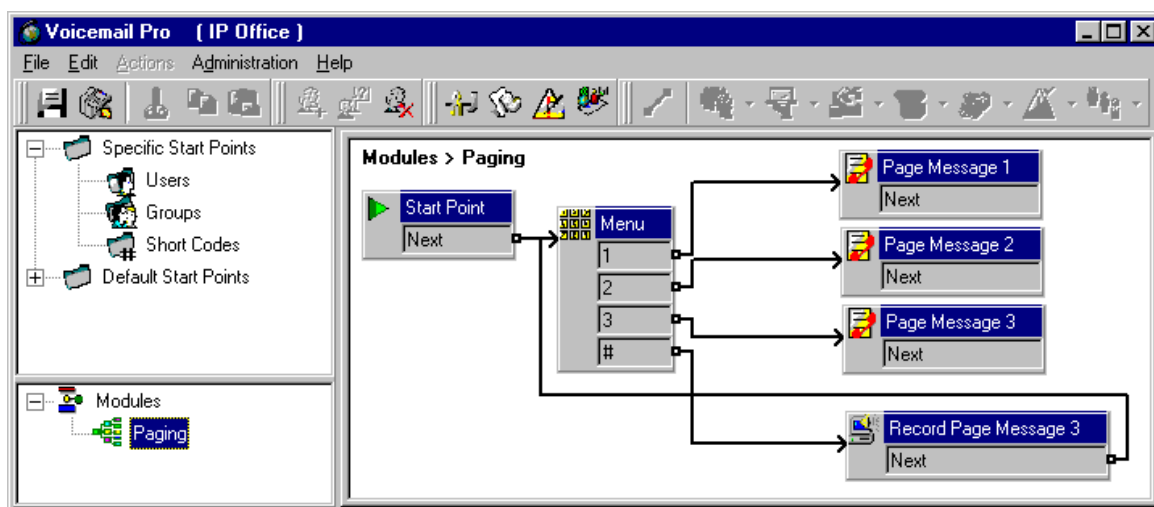
- The **Post the following action** field was set to the address of the .wav file we want played. The (-) in front indicates play once. In the **to extension** field we put the extension number to which the message should be played, in this case a paging port.
3. We then saved and made live the new Voicemail Pro callflow.
  4. In Manager we received the IP Office configuration and created a new short code.



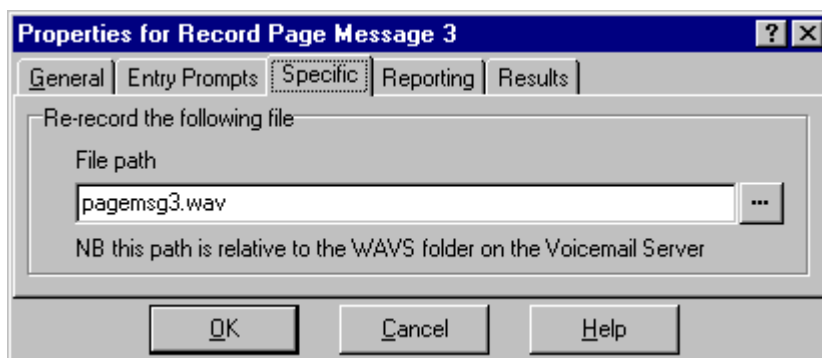
- The **Telephone Number** matches the name of the Voicemail Pro module in quote marks.
  - The **Feature** is **VoicemailCollect**.
5. The new IP Office configuration was then merged.

## Example 2

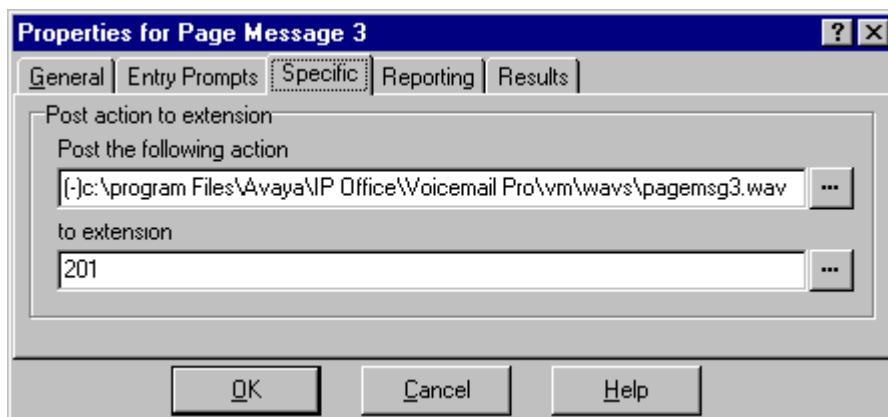
This example builds on example 1 by allowing the user to select which message is played from a menu. In this example the user can press 1, 2 or 3 for different messages. They can also re-record the message associated with option 3 by pressing #.



A **Play List** action was added and in this example set to record **pagemsg3.wav**. Note that just the file name was specified as this action saves files relative to the Voicemail Server's WAVS folder.



In the **Post Dial** action that plays back **pagemsg3.wav** note that the full file path needs to be used.



In IP Office Manager we then added a shortcode that triggers the module **"Paging"** using the **VoicemailCollect** feature.

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