Installing AmAndA@Work.Place

Version 3.xx

Installer's Guide Edition 7/01

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Conventions

This manual uses the following terminology and conventions:

Amanda	The name by which this manual refers to the Amanda@Work.Place system to make reading about the system easier. Because of the name Amanda, the system is also referred to as “she.”
caller	Someone who calls into Amanda. A caller often obtains information, leaves a message for someone, and/or provides information. Because Amanda is referred to as “she,” callers and users are referred to as “he.”
user	Someone with an extension that Amanda transfers calls to and/or stores messages for. A user can access Amanda to play, delete, and send messages as well as set personal options such as Do Not Disturb.
`fixed-space type`	This guide displays information that you must type and messages from Amanda in fixed-space type.

Contents

Chapter 1:
Introducing Amanda

Specification

The PC on which your Amanda system is installed has:

- MS-DOS version 6.22 in the directory C:\DOS.
- A 386DX processor running at 40MHz.
- A VGA card.
- 4MB of RAM.
- A 3.5-inch, 1.44MB floppy disk drive and appropriate controller.
- A 540MB IDE hard disk drive with an appropriate IDE controller.
- One or two Rhetorex voice boards.
- COM1, using IRQ 4, and COM2, using IRQ 3, which are available for fax modems or SMDI integration.
- Modem for remote access using the Host/Remote programs.

NOTE: Within the CMOS settings, all adapter ROM shadowing should be disabled except for system ROM shadowing at address F000. Don't change the BIOS configuration without consulting an Amanda Company marketing partner or solution provider or an Amanda Company technical support representative.

Environmental Requirements

- Locate the unit in an area free of excess moisture, dust, corrosive gases, and chemicals.
- Install Amanda securely on a table or desk at least 2 feet (.6 meters) above the floor or mount the system on a wall.
- Use a properly grounded electrical outlet which is not controlled by a switch.
- Ensure that the operating temperature is 40 to 95 degrees Fahrenheit (2 to 35 degrees Centigrade), away from direct sunlight.
- Ensure that the humidity is 15% to 90%, noncondensing.
- For proper ventilation and servicing of the unit, provide at least 1 foot (0.3 meters) clearance on all sides and above the unit.

Electrical Requirements

The electrical requirements are:

- 90 to 130 VAC, 50 to 60 Hz, 3-prong outlet with separate ground, separately fused at 15 amps.
- Outlet not controlled by an on/off switch.

- Use of electrical line conditioning equipment such as a surge protector and an uninterruptible power supply (UPS) is strongly recommended.
- Grounding to comply with Underwriters Laboratories (UL) 1459.

Amanda@Work.Place Features

Amanda@Work.Place supports:

- 1 telephone switching system
- 4 ports with one voice board; 6 or 8 ports with two boards (by adding a 2-port or 4-port board)
- 2 serial ports
- 99,999 mailboxes, each of which have:
  - 3 personal greetings
  - 3 personal mailing lists
  - 4 notification records
  - 10 scheduling records
  - 128 messages
- Support for SMDI (a serial interface to your telephone switching system)
- Support for sending and receiving faxes
- Host and remote programs for communicating remotely with the computer running Amanda
- 33 hours of voice storage
- The Token Programming Language

General Uses

Amanda@Work.Place is an automated attendant and voice processing system designed especially for ease of use and flexibility. As a PC-based product, Amanda takes advantage of the technical innovations in the personal computer market. In addition, Amanda's standard hardware components can be repaired or replaced by any PC service company. The computer on which Amanda is installed must be used only for Amanda.

Depending on what lines from your telephone switching system are connected to Amanda and when calls are sent to Amanda to be processed, Amanda can serve you or your customer in a variety of ways.

Configured as a primary attendant: Amanda answers all your incoming calls on the lines you designate and allows the callers to direct their calls to a specific person or department without being placed on indefinite hold. If a specific person is unavailable, Amanda can take a private message for that person without missing any details.

In this case, the telephone switching system sends all incoming calls to Amanda.

Configured as a secondary attendant: Amanda assists your regular operator when call volume is heavy, allowing callers to direct their own calls or hold for the operator. Some companies provide specific incoming lines for Amanda as a backdoor attendant for calls from vendors, family members, friends, and special clients who prefer to have Amanda process their calls.

In this case, the telephone switching system sends incoming calls to Amanda only when the regular operator's extension is busy or not answered.

Configured as an off-duty attendant: Amanda provides 24-hour access to your company and its employees when an operator is unavailable.

In this case, the telephone switching system sends all incoming calls to Amanda while the office is closed.

Configured as a voice messaging center: Amanda takes messages and allows users to send, store, and forward messages, increasing productivity and enhancing inter-office communication.

In this case, the telephone switching system transfers any incoming call to Amanda if the extension being called is busy or not answering.

Configured as an information system: Amanda provides answers to your callers' most frequently asked questions (so you can avoid costly interruptions and provide a higher level of customer service 24 hours a day). Information such as your address, available hours, directions to your offices, and so forth, might be better handled by Amanda. Amanda's serial ports can access databases and other information stored in other computers, allowing Amanda to give callers information on account balances, train schedules, and so forth.

In this case, the telephone switching system or even an operator can send incoming calls to Amanda. Then automatically, or if selected, Amanda plays out the requested information.

Purpose of This Guide

This guide explains how to set up Amanda@Work.Place for the first time. It covers:

- Connecting and configuring Amanda to work with your telephone switching system
- Configuring Amanda to provide the voice mail services that the owner selects

Customer Service and Support

The Amanda Company provides customer service and support Monday through Friday from 8:00 A.M. to 8:00 P.M. Eastern Time, except holidays.

Customer Support:
(800) 800–9822

For sales, contact The Amanda Company at the East Coast office.

Dealer Sales:
Telephone: (800) 410-2745

Distribution Sales:
Telephone: (800) 410-2745

International Sales:
Telephone: (203) 744-3600

International Support:
Telephone: (203) 744-0860

Web Site:
http://www.taa.com

End User Support

End user support covers the actual usage of Amanda through the telephone, such as picking up messages, sending messages, changing greetings, and using distribution lists. Registered Amanda sites receive free end user support for the life of their systems. Be sure to send in your registration card!

System Administration Support

System administration support covers the configuration of Amanda; such as setting up mailboxes, programming notification, scheduling automatic changes, and creating reports. Registered Amanda sites receive free system administration support for up to six months after the installation. Be sure to send in your registration card!

Installation Support

Installation support covers the initial connection of Amanda to a telephone switching system as well as solutions to problems that occur when the system is reconfigured or Amanda is upgraded.

The Amanda Company now offers installation support to any dealer who buys a turnkey system.

Qualified Amanda marketing partners and solution providers, who are in good standing, receive installation support for any system.

Application Support

Application support covers extended features that can be added to Amanda using Amanda's powerful Token Programming Language. The Amanda Company can write custom applications for you. All Amanda Solution Providers, who are in good standing, receive application support. Please contact your Amanda sales representative for more information.

Chapter 2:
Installing Your Amanda System

Installation Checklist

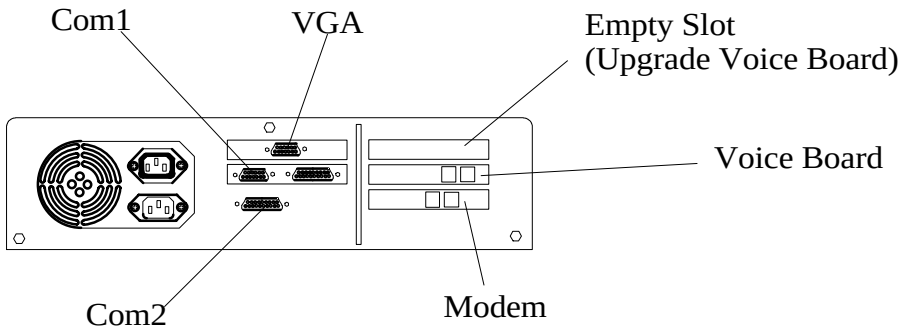
Follow this checklist or use it to verify that you have completed all the necessary steps for connecting Amanda to the telephone switching system.

Be sure to…

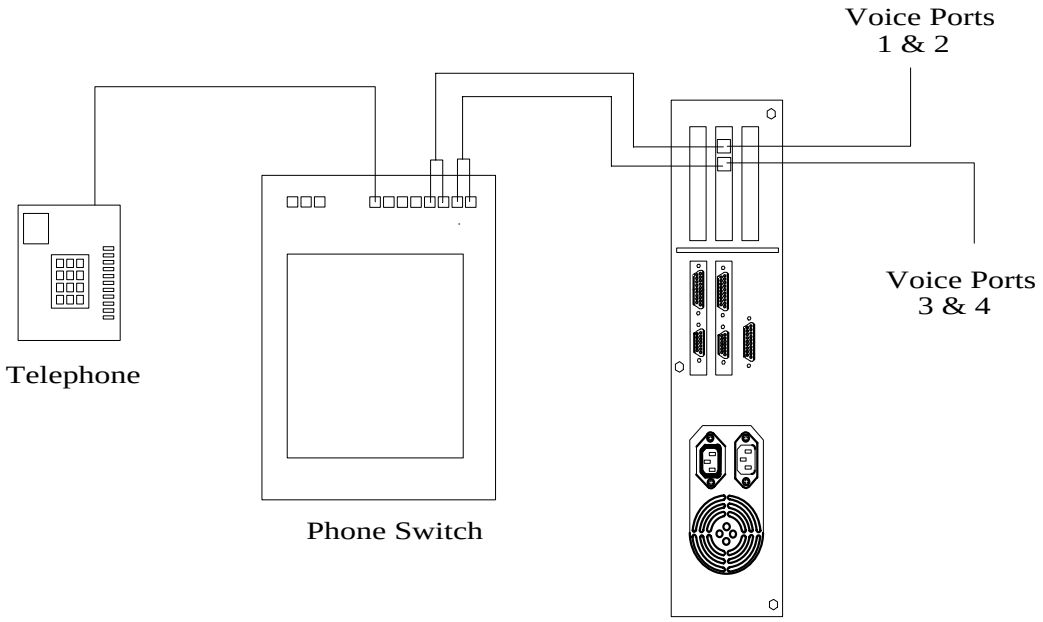
1. Program the telephone switching system for voice mail integration.
2. Connect the line cords from the voice board to the telephone switching system.
3. Connect a monitor and keyboard or a remote computer—if necessary.
4. Run Setup to define Amanda system configuration options.
5. Test each voice board port for answering.
6. Run Setup to identify the PBX, dial codes, and tone patterns.
7. Use the trace file to add integration information to your 1001.PBX file.

Connecting the Ports

The next figure shows you the back of the computer for a four-port system that uses one four-port voice board. Each board has four RJ-11 connectors providing connection to four loop-start trunks or station line interfaces.



The next figure shows how to connect the telephone switching system to the voice ports on the computer.



Attaching a Monitor or a Remote Computer

To control and configure Amanda@Work.Place, you must have one of the following kits (or its equivalent):

- Video Administration Kit (containing a monitor and a keyboard). This gives you access to Amanda at any time using the monitor and keyboard.
- Remote Administration Kit (containing a null modem cable and an Amanda Remote Software diskette). You supply another computer, such as a laptop or notebook. You connect the other computer, referred to as the remote computer, whenever you need to control Amanda.

Connecting the Monitor and Keyboard

To add a monitor and keyboard:

1. Unpack the keyboard and monitor.

2. Plug the keyboard cable into the keyboard port on the back of the computer.

3. Attach the video signal cable (the end with the D-shell connector) to the VGA video port on the back of the computer. (Consult the legend sticker on the back of the computer to find the port.)

4. Examine the power cord connector on the monitor. Plug it into either the back of the computer or a 110 volt outlet as applicable.

5. Plug in the computer and turn it on.

6. Now you can run Setup and other programs, monitor Amanda's operation, and so forth.

Connecting a Remote Computer

You can control Amanda from a remote computer by doing all of the following:

- Connecting the two computer with either a null modem cable or by means of modems (and, of course telephone lines).
- Running a Host program (either HOST.COM or HOST30.COM) on Amanda's computer.
- Running a Remote program (either REMOTE.COM or WINREM.EXE) on the remote computer.

For more details, see "Setting Up the Remote Computer" on page 74.

Using a UPS

The Amanda Company strongly recommends the installation of an uninterrupted power supply (UPS) with every Amanda system. It provides clean power to Amanda and keeps the probability of a computer lockup (and the resulting loss of data or even loss of the system) as low as possible.

According to some reports, power problems are the primary reason why computers lose data (45.3%). The next closest cause is storm damage at 9.4%. (Human error and sabotage rank eighth with 3.2%.)

According to a Bell Laboratories study entitled "The Quality of US Commercial AC Power," the main categories of AC power irregularities across the nation are sags (or brownouts), power surges, blackouts, and overvoltages. The best solution is a UPS, which can handle 99.3% of these power problems.

A UPS is a special type of AC power line conditioner. When compared to the other devices available, such as surge suppressors, filters, isolation transformers, tap changing regulators, and voltage regulating transformers, the UPS is rated highest by Bell Laboratories and is relatively inexpensive.

The cost of installing a UPS is nominal when compared to the cost of repairing a damaged Amanda system or compared to the loss of confidence from callers and internal Amanda users.

For more information about what causes power irregularities and what damage they can do to Amanda, call to be faxed Technical Note 10, “The Importance of a UPS.”

Chapter 3:
Running the Setup Utility

Running Setup

You must configure Amanda to work properly with your telephone switching system and to let Amanda know your customer's voice mail and other preferences. The Amanda Company provides the Setup utility to make configuring Amanda easier.

You run Setup to configure dial codes, tone patterns, DTMF integration patterns, and Amanda's system configuration options.

To run Setup:

1. If Amanda is running, shut down the Amanda system:
   a. Press Alt+S.
   b. Type in the password. (The default is AMandA with only the first two and the last letter capitalized.)
   c. Press Enter.
   d. Press Y (to confirm the shutdown).
   e. Press Y again (to reconfirm).

2. Change to the AMANDA directory—unless you are there already. At the DOS prompt, type:

   ```
   CD C:\AMANDA
   ```

   Then press Enter.

3. Now that the DOS prompt reads C:\AMANDA, type:

   ```
   SETUP
   ```

   Then press Enter.

   The Amanda Configuration Utility menu appears.

4. From this menu, you define the following for your telephone switching system and Amanda:

   - Telephone System Dial Codes
   - Telephone System Tone Patterns
   - System Integration Patterns
   - System Configuration Options

System Configuration Options contains two sections:

General Configuration	Displays dialog boxes that guide you through the options that are most often changed, whether they appear in the INSTALL.CFG file or the Default Template for mailboxes (normally mailbox 997). These dialog boxes are explained in “Chapter 7: Configuring Amanda.”
Advanced Configuration	Allows you to change any configuration setting in INSTALL.CFG. The options are divided into categories to make it easier to locate the options you need to change. The options are parameter lists. Each option is explained in “Appendix C: Configuration Reference.”

Chapter 4:
Defining Dial Codes

Defining Dial Codes

To communicate with the telephone switching system, Amanda must know the switching system's dial codes.

By default, the 1001.PBX file is used to store dial codes. You can change this if you choose, but The Amanda Company recommends using 1001.PBX. If you use another name, do not use any number in the range 1002 to 2001 (reserved by The Amanda Company).

As part of a new installation, the file 1001.PBX is created for you based on the Panasonic KX-T308/616/1232 telephone switching system.

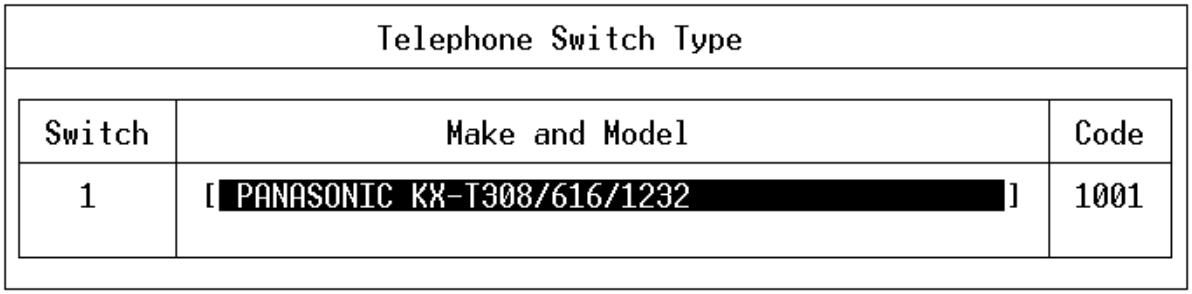
NOTE: Instead of using Setup, you can edit your .PBX file in the C:\AMANDA\PBX.DB directory using the JOVE utility. See "Chapter 10: Utilities," in *Administering Amanda@Work.Place* for information about JOVE.

To define dial codes:

1. Run Setup as explained in "Running Setup" on page 9.

2. From the Configuration Utility menu, press 1 to select Telephone System Dial Codes.

   The Telephone Switch Type screen lists 1001.PBX along with the name of the switching system it is based on or identifies the switching system as not defined.



3. From the Telephone Switch Type screen, do one of the following:
   - If the telephone switching system is the correct one (or if the telephone switching system is the one you have used in the past—even though it is identified as not defined):

     •Select the file to be edited then press Enter.

     Setup displays the dial codes and their descriptions.
   - If the telephone switching system is **not** the one listed:
     a. Select one of the .PBX files.
     b. Press F2 to display a list of switching systems.
     c. Use the arrow keys to select the name of your system or the name of a system which has codes similar to yours then press Enter.
     d. Press Enter again to display the dial codes and their descriptions.

4. To change any dial codes that do not apply to your system:
   a. Use the following Dial Codes Table to understand each of the codes displayed on the screen.
   b. Use the Up Arrow, Down Arrow, Tab, or Enter keys to select the code you want to change.
   c. Type the new code over the current code (if there is one).

      (You can also use Backspace, Delete, spacebar, and the Right Arrow and Left Arrow keys to edit the code.)
   d. When you are finished, press F10 to save your changes.

      (To return to the Telephone System Dial Codes screen without saving your changes, press Esc.)
   e. Repeat steps A through D for any other codes to be changed.

5. When you have finished defining the dial codes, press Esc to return to the Amanda Configuration Utility menu.

Dial Codes Table

Dial Code Label	Description
What to dial to put the caller on transfer hold:	The code Amanda dials to ask the telephone switching system to put the caller on transfer hold before she transfers a caller to an extension. Usually, this code is “F-” (a hookflash followed by a half-second pause). This may need to be changed to “F--” (a hookflash followed by a one-second pause) or “F,” (a hookflash followed by a two-second pause) for telephone switching systems that are slow to provide a transfer dial tone after a hookflash. (Don’t use the quotation marks in the dial code.) If tmo_dtwait is greater than 0, the number of dashes set for this option is irrelevant. Use the value 0 for tmo_dtwait for faster call processing. For more information about tmo_dtwait, see “What to dial to put the caller on transfer hold:” on page 13. If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dl_dtwait option.
What to dial when there is no transfer dial tone:	The code Amanda dials to return to the caller if both of the following are true: You configure Amanda to wait for a transfer dial tone before transferring a call to an extension There is no transfer dial tone In this case, Amanda treats the attempted transfer as though the extension was busy. Some telephone switching systems use “F-”, others use “-”. (Don’t use the quotation marks in the dial code.) If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dl_ndtret option.
What to dial to return to the caller after ring no answer:	During supervised transfers, if the extension rings the specified number of times but is not answered, Amanda dials this code to ask the telephone switching system to reconnect the caller to Amanda. (See “Using the Questionnaire” on page 37 for more information about configuring the number of rings.) Usually, this code is “F-”. (Don’t use the quotation marks in the dial code.) If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dl_rnaret option.
What to dial to return to the caller after busy:	During supervised transfers, Amanda dials this code to ask the telephone switching system to reconnect the caller to Amanda if the extension is busy. Usually, this code is “F-”. (Don’t use the quotation marks in the dial code.) If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dl_bsyret option.
What to dial after a call screening reject:	The code Amanda dials to reconnect to the caller if all of the following are true: Amanda is performing a supervised transfer Call screening is ON The user at the extension that was called *rejects* the caller In this case, Amanda plays the mailbox’s current greeting. Usually, this code is “F-”. (Don’t use the quotation marks in the dial code.) If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dl_hupret option.

Dial Codes Table (Continued)

Dial Code Label	Description
What to dial to connect a caller to an extension:	During supervised transfers, Amanda dials this code to complete the call transfer after detecting an answer at the called extension. If call screening is ON, Amanda dials this code only after the user at the extension *accepts* the call. Usually, this code is "H" (for Hang up). (Don't use the quotation marks in the dial code.) If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dl_connect option.
What to dial *before* the mailbox extension:	If Amanda needs to dial something *after* dial tone detection, but *before* dialing the extension number, enter that code here. Usually this is left blank. If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dl_prefix option.
What to dial *after* the mailbox extension:	If Amanda needs to dial something *after* dialing the extension number, enter that code here. Don't use an "H" for a blind transfer here because this setting is global. Sometimes you need "1-" to bypass the hands-free answer feature (voice announce) on some telephone systems. (Don't use the quotation marks in the dial code.) If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dl_suffix option.
What to dial on each port after the system starts:	If you want Amanda to dial some initialization codes when she first starts up, define those codes here. For example, you may want to remove call forwarding on the ports. Usually this is left blank. If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dl_init option.
What to dial on each port before shutdown:	If you want Amanda to dial certain codes when she shuts down, define those codes here. For example, enabling call forwarding on the ports lets a live operator take the calls when Amanda shuts down. Usually this is left blank. If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dl_stop option.
What to dial when a port goes off-hook:	If Amanda must dial some special codes as she goes off-hook to enable a special feature, define those special codes here. For example, you may enable special types of SMDI integration over a serial port. Usually this is left blank. If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dl_pickup option.

Dial Codes Table (Continued)

Dial Code Label	Description
What to dial to create or record a conference call:	Controls how to do a conference call when the called party answers the telephone. You provide the digits used to conference the caller, called party, and Amanda (for example, "*3"). (Don't use the quotation marks in the dial code.) If your telephone switching system does not have this capability, leave it blank. For example, if the Extension field for a mailbox contains 127KM, Amanda dials 127. When an answer is detected, Amanda dials the conference dial code (such as "*3") which conferences the caller, the called party, and Amanda. Instead of hanging up when she connects the two parties, Amanda records the conversation as a message in mailbox 127. If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dl_conference option.
Number of seconds to wait for dial tone detection:	This is the number of seconds Amanda waits for your telephone switching system to provide a continuous dial tone for one full second. If your system has few DTMF receivers or intercom paths for call transfers, one may not be immediately available for Amanda to transfer a call. In this case, this number should be greater than 0. Use 0 when Amanda does not wait for a dial tone (as when the telephone switching system returns stutter dial tone or silence on a transfer). A good value is 4 (seconds) when she does wait for a dial tone. The range is 0–127. If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the tmo_dtwait option.
Number of 1/100 seconds to use for Flash time:	Determines how long Amanda remains on-hook while performing a hookflash. The value is in hundredths of seconds. The usual value is 55 (just over half a second). When set too short, the hookflash does not happen; when set too long, it hangs up. If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the flashtm option.
Which DTMF tone to listen to for hangup detection:	If your telephone switching system plays a specific DTMF tone or sequence of tones when a caller hangs up (to make hangup detection faster), enter that DTMF digit here. If your telephone switching system has this capability, the code is usually the letter "d" which represents DTMF D. This may be a sequence of DTMF digits rather than a single DTMF digit. The maximum length is 10 characters. If your system does not support this feature, leave it blank. If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dt_hangup option.
What to dial to turn on the message waiting indicator:	Controls what DTMF digits are dialed by Amanda to enable message notification automatically when a new message is left. This value is used only with the KA(1) token. Most popular telephone switching systems have a default value. If this field is blank for your switching system, enter the DTMF digits which enable a message waiting indicator on your telephone sets. To have Amanda dial these digits, use KA(1) in the notify method field. Amanda replaces KA(1) with these digits. For more information, see "KA(on_off)" on page 147 for more information. **NOTE:** New installations automatically have notification templates that turn message waiting indicators on and off. using the KA(1) token. If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dl_light_on option.

Dial Codes Table (Continued)

Dial Code Label	Description
What to dial to turn off the message waiting indicator:	Controls what DTMF digits are dialed by Amanda to disable message notification automatically when a new message is played or deleted. This value is used only with the KA(0) token. Most popular telephone switching systems have a default value. If this field is blank for your switching system, enter the DTMF digits which disable a message waiting indicator on your telephone sets. To have Amanda dial these digits, use KA(0) in the notify method field. Amanda replaces KA(0) with these digits. For more information, see “KA(on_off)” on page 147 for more information. **NOTE:** New installations automatically have notification templates that turn message waiting indicators on and off. using the KA(0) token. If you are editing C:\AMANDA\PBX.DB\1001.PBX instead of using Setup, this is the dl_light_off option.

Chapter 5:
Defining Tone Patterns

Using GetTones

Amanda must recognize telephone switching system tone patterns when performing supervised transfers. The Setup utility runs another utility, named GetTones, to "learn" the tone patterns for ringing, busy, hang-up, and reorder (also called fast busy).

Before running the GetTones utility, you must have satisfied *all* of the following requirements:

- Define the dial codes. See "Defining Dial Codes" on page 11.
- Connect ports 1 and 2 (the top RJ-14 jack of the first Rhetorex board) to valid, working single-line extensions on the telephone switching system.
- Know the extension number to which port 1 is connected.
- Verify that the extension to which port 1 is connected is *not* in any hunt group, and does *not* have any call forwarding programmed.
- Verify that the extension to which port 2 is connected has outside line access and can dial a test telephone number that is answered and does not hang up after answering (time or weather lines are good choices to call).
- Define a non-Amanda extension that has a telephone connected, is not forwarded, and will *not* be answered. This becomes your Ring No Answer (RNA) test station.

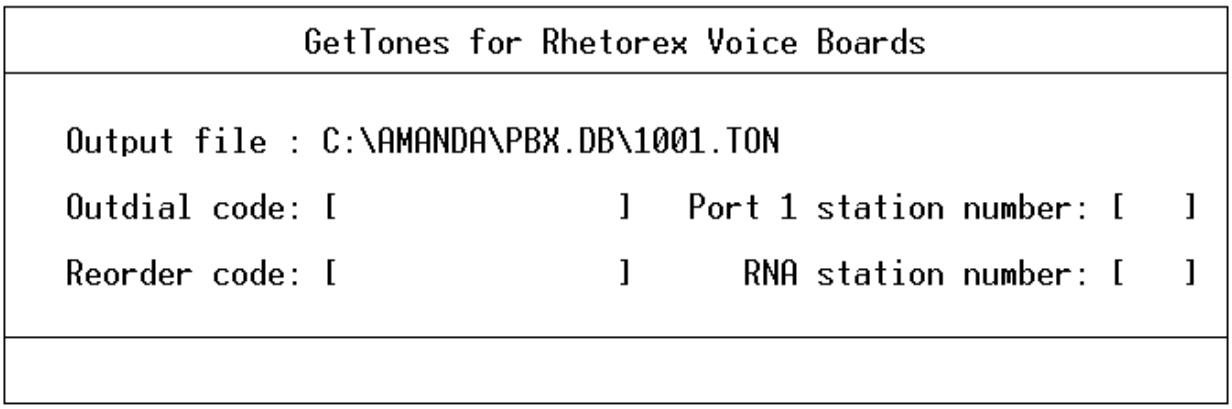
To define telephone switching system tone patterns:

1. Make sure that you have satisfied all the above requirements.

2. Run Setup as explained in "Running Setup" on page 9.

3. From the Configuration Utility menu, press 2 to select Telephone System Tone Patterns.

   The GetTones for Rhetorex Voice Boards screen appears.



4. By default, the output file has the same name as your .PBX file. However, it ends with the extension .TON.

5. Enter the outdial code, port 1's station number, the reorder code, and the RNA station number. Use the Up Arrow, Down Arrow, Tab, or Enter key to move from one entry to the next.

outdial code	Type the outside line access and telephone numbers for a connection to test for tone patterns (such as the time or weather number). For example: 9,5551111 Then press Enter.
port 1 station number	Type the extension for a standalone (no call hunting or forwarding) single-line (analog) extension connected to port 1. Then press Enter.
reorder code	Type any dial code that generates a reorder tone pattern on the telephone switching system. Typically, invalid extension numbers work well, for example, 555 generally works. If not, try 444 or 777 or any number that generates a fast busy tone pattern. Then press Enter.
Ring No Answer station number	Type a non-Amanda extension that has a telephone connected and is *not* answered or call forwarded. If voice-announce or call-announce is enabled, remember to enter the extension plus the additional digit or digits that force the extension to ring. For example, if the RNA test station is 112, type: 1121- Then press Enter.

6. Press F4 to run GetTones.

   GetTones obtains the ring, busy, reorder, and hangup patterns of the telephone switching system. Messages appear on your screen as the utility gets and tests these patterns.

NOTE: If you have problems with the GetTones utility, such as not getting good patterns or not being able to verify a tone pattern, try using AccuCall Plus, a Rhetorex utility that also captures tone patterns. See "Using AccuCall Plus" on page 18.

Using AccuCall Plus

The C:\AMANDA\PBX.DB\1001.TON file defines the tone patterns that the telephone switching system returns to Amanda. Amanda recognizes these tones and uses her knowledge of them when she transfers calls. AccuCall Plus is a Rhetorex utility that allows you to set up ring, busy, reorder/fast busy/error, and special tone (such as a fax CNG tone) definitions.

This section is primarily for running tests that create new .TON files. If your telephone switching system performs inband signaling integration, you may not need the Ring No Answer (RNA) or ringback pattern.

You might edit an existing file to adjust the cadence or the percentage of variation. For example, suppose a ring is usually one second on followed by three seconds off. However, sometimes it is a bit shorter or longer. You may want to increase the percentage of variation to allow for the differences. If the busy and reorder tones are very similar, you might need to reduce the percentage of variation to differentiate between them.

Amanda must be shut down before you run AccuCall Plus.

To shut down Amanda:

1. If Amanda is running, press Alt+S.
2. Type in the password. (The default is AMandA with only the first two and the last letter capitalized.)
3. Press Enter.
4. Press Y (to confirm the shutdown).
5. Press Y again (to reconfirm).

   When the C:\AMANDA prompt appears, you can start running AccuCall Plus.

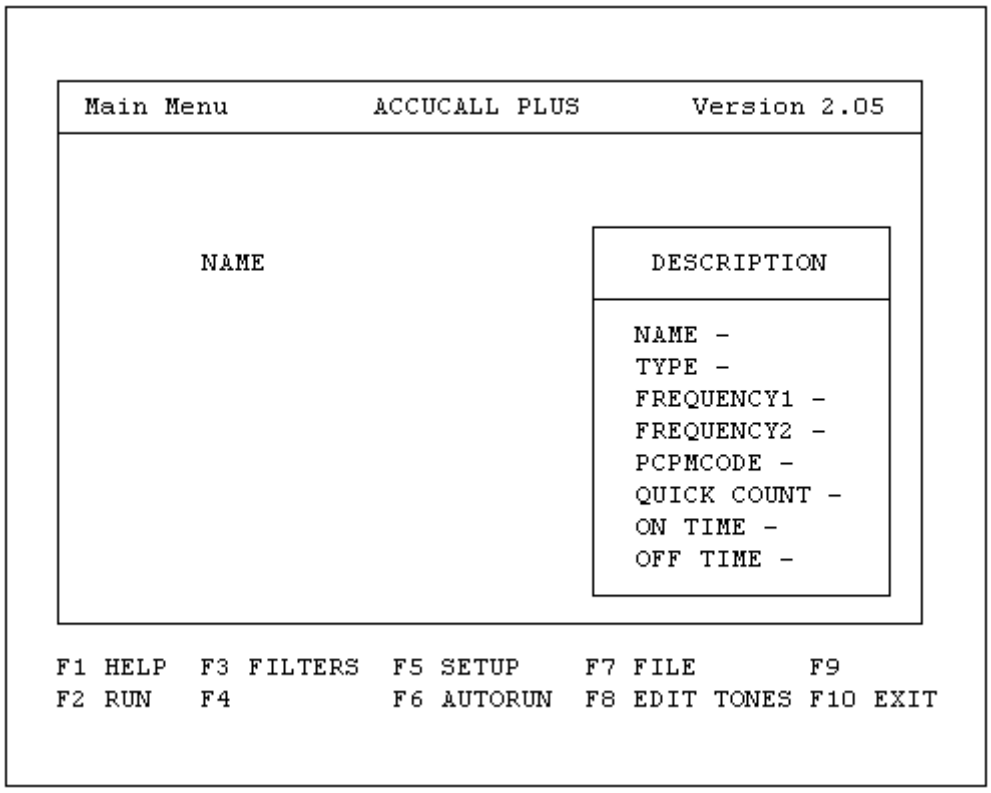
To run AccuCall Plus:

1. Change directory to C:\ACCUCALL by typing:
   ```
   cd c:\accucall
   ```
2. Press Enter.
3. You can create a new 1001.TON file or edit an existing file.

   To create a new 1001.TON file, run AccuCall by typing:
   ```
   accucall
   ```
   To edit an existing 1001.TON file, run AccuCall by typing:
   ```
   accucall C:\AMANDA\PBX.DB\1001.TON
   ```
4. Press Enter.

   The AccuCall Plus main screen has several options. The list of function keys at the bottom of the screen indicate which keys go with each option.

5. Select “AUTO RUN” by pressing F6.



To define the Ring No Answer (RNA) tone pattern:

1. Type a telephone number for an extension in the Phone No. field. This extension number must not be forwarded, not in a hunt group, not in hands free/speaker phone mode, and not be answered by anyone.

2. Type 3 in the Verification Count field. This is the number of times you want to run the test.

3. Type 10 in the Minimum Cycles field. This is the number of rings AccuCall Plus will listen to before completing the test cycle.

4. Select Full (the default) as the value for the Frequency Range field.

   The possible values are:
   Full (300 Hz to 1700 Hz)
   High (800 Hz to 1700 Hz)

   This is the range of frequencies that AccuCall Plus listens to.

5. The Frequencies Detected Window displays the frequencies detected by AccuCall Plus to characterize the tone.

6. The Cadence Detected Window displays the cadence that AccuCall Plus detected to characterize the tone. (This is displayed as a horizontal bar graph.)

7. Press F9 to begin the test.

8. After AccuCall Plus has determined the system tone pattern, you can customize the tone description using the Edit Tones box:

Name:	Example: Panasonic Double Ring
Type:	Ring1 if single ring, single pause Ring2 if double ring, single pause
Terminating:	NO
Cadence:	NO
Frequency1:	Determined by test
Frequency2:	Determined by test
PCPM Code:	8 (always for ring tones)
Quick Count:	None
On Time:	Determined by test
On Max Variation:	Determined by test
On Min Variation:	Determined by test
Off Time:	Determined by test
Off Max Variation:	Determined by test
Off Min Variation:	Determined by test

9. Save the tone by pressing F8 (twice).

10. From the main screen, press F3 to go to the Filters screen. The Undefined Tone Frequencies box on the right side of the screen lists any undefined frequencies that were found by the test.

11. Add these frequencies to the Filter table on the left side. Write each frequency in the Filter table, replacing the word “none” with the frequency.

12. Then press F10 to save this information and return to the main screen.

    NOTE: All the listed frequencies must be at least 40 Hz apart so Amanda can distinguish them.

To define the Busy tone pattern:

1. Fill in the telephone number for an extension that is offhook and connected to either another internal extension or to an outside line.

2. Type 3 in the Verification Count field. This is the number of times you want to run the test.

3. Type 10 in the Minimum Cycles field. This is the number of rings AccuCall Plus will listen to before completing the test cycle.

4. Select Full (the default) as the value for the Frequency Range field.

   The possible values are:
   Full (300 Hz to 1700 Hz)
   High (800 Hz to 1700 Hz)

   This is the range of frequencies that AccuCall Plus listens to.

5. The Frequencies Detected Window displays the frequencies detected by AccuCall Plus to characterize the tone.

6. The Cadence Detected Window displays the cadence that AccuCall Plus detected to characterize the tone. (This is displayed as a horizontal bar graph.)

7. Press F9 to begin the test.

8. After AccuCall Plus has determined the system tone pattern, you can customize the tone description using the Edit Tones box:

Name:	Example: Panasonic Busy
Type:	Busy1 if regular busy cadence Busy2 if double busy cadence
Terminating:	YES (always)
Cadence:	NO
Frequency1:	Determined by test
Frequency2:	Determined by test
PCPM Code:	7 (always for busy tones)
Quick Count:	None
On Time:	Determined by test
On Max Variation:	Determined by test
On Min Variation:	Determined by test
Off Time:	Determined by test
Off Max Variation:	Determined by test
Off Min Variation:	Determined by test

   NOTE: A normal single busy tone is approximately 500 msec on and 500 msec off.

9. Save the tone by pressing F8 (twice).

10. Press F8 to add the tone.

11. From the main screen, press F3 to go to the Filters screen. The Undefined Tone Frequencies box on the right side of the screen lists any undefined frequencies that were found by the test.

12. Add these frequencies to the Filter table on the left side. Write each frequency in the Filter table, replacing the word “none” with the frequency.

    Make sure that the busy frequencies are listed in the first four positions in the table (these positions are for terminating tones). When a tone is a terminating tone, Amanda does not wait for it to be repeated before taking control of the call.

13. Then press F10 to save this information and return to the main screen.

To define the Reorder/Fast Busy/Error tone pattern:

1. Type a telephone number for an invalid extension in the Phone No. field. This extension number must return the reorder tone. For example, you might use 777 or 888. Test this tone from a single-line telephone before you run this test.

2. Type 3 in the Verification Count field. This is the number of times you want to run the test.

3. Type 10 in the Minimum Cycles field. This is the number of rings AccuCall Plus will listen to before completing the test cycle.

4. Select Full (the default) as the value for the Frequency Range field.

   The possible values are:
   Full (300 Hz to 1700 Hz)
   High (800 Hz to 1700 Hz)

   This is the range of frequencies that AccuCall Plus listens to.

5. The Frequencies Detected Window displays the frequencies detected by AccuCall Plus to characterize the tone.

6. The Cadence Detected Window displays the cadence that AccuCall Plus detected to characterize the tone. (This is displayed as a horizontal bar graph.)

7. Press F9 to begin the test.

8. After AccuCall Plus has determined the system tone pattern, you can customize the tone description using the Edit Tones box:

Name:	Example: Panasonic Reorder Tone
Type:	Busy if normal reorder
Terminating:	YES
Cadence:	NO
Frequency1:	Determined by test
Frequency2:	Determined by test
PCPM Code:	7 (always for busy tones)
Quick Count:	None
On Time:	Determined by test
On Max Variation:	Determined by test
On Min Variation:	Determined by test
Off Time:	Determined by test
Off Max Variation:	Determined by test
Off Min Variation:	Determined by test

9. Save the tone by pressing F8 (twice).

10. From the main screen, press F3 to go to the Filters screen. The Undefined Tone Frequencies box on the right side of the screen lists any undefined frequencies that were found by the test.

11. Add these frequencies to the Filter table on the left side. Write each frequency in the Filter table, replacing the word “none” with the frequency.

    Make sure that the reorder frequencies are listed in the first four positions in the table (these positions are for terminating tones).

12. Then press F10 to save this information and return to the main screen.

To finish AccuCall Plus:

1. Press F7 to save the tone file.

2. Type the file name C:\AMANDA\PBX.DB\1001.TON.

3. Press F8 to save the file.

   AccuCall Plus will not allow you to save to file unless you have defined all the filters. It will also refuse to save to file if any two frequencies are within 40Hz of each other.

   If you have two frequencies that are closer than 40Hz, the best strategy is to select a value that is between them and then go back to edit every tone pattern that contains the two frequencies and replace them with that value. To edit tones press <F8> from the main menu.

4. Exit the AccuCall Plus program by pressing F10.

Chapter 6:
Defining Integration Patterns

Using the Trace File for Integration

If your telephone switching system supports DTMF integration (also called inband integration), you can:

1. Perform tests that add integration information to the TRACE.OUT file.

2. Convert that information to a set of integration strings.

3. Add the integration strings to the 1001.PBX file in the C:\AMANDA\PBX.DB directory using the Setup or JOVE utilities.

   NOTE: See "Chapter 12: Utilities," in *Administering Amanda@Work.Place* for information about JOVE.

Depending on the telephone switching system you selected when you defined dial codes (see "Defining Dial Codes" on page 11), some of the integration patterns might be already filled in. Many telephone switching systems are programmable, so existing patterns on the System Integration Patterns screen may still need modification.

Make sure you define dial codes **before** performing the procedures in this chapter. Otherwise you will overwrite all the integration information as the Setup utility creates the 1001.PBX file for you using The Amanda Company's predefined .PBX file for the PBX that you select.

Setting Up the Trace File

To check that trace files are being created:

1. Shut down Amanda if it is running

2. At the DOS prompt, type the following to go to the root directory:

   ```
   CD\
   ```

3. Then press Enter.

4. Edit the Amanda.bat file by typing:

   ```
   JOVE AMANDA.BAT
   ```

5. Then press Enter.

   The JOVE editor appears on the screen. Towards the bottom of the page is a line that starts RAMANDA. You are ready to proceed if the line reads:

```
RAMANDA /t5 /s1300 %1 %2 %3
```

If not, edit the line so that it is identical to this line.

6. To save and close the file, press the four following key combinations in order:

   Ctrl+X
   Ctrl+S
   Ctrl+X
   Ctrl+C

7. At the DOS prompt, change directories to the pbx database by typing:

   ```
   CD\AMANDA\PBX.DB
   ```

   Then press Enter.

8. Edit the Pbx file by typing:

   ```
   JOVE 1001.PBX
   ```

9. Then press Enter.

10. Press Page Down display the lower portion of the file where the integration (if any) is displayed.

11. Use Down Arrow to move the cursor to the bottom of the file to a blank line.

12. Type the following:

    ```
    integration 10  'rrrrrrrrr'
    ```

    This new integration string will capture up to 10 digits of In Band Signaling that will be displayed in the trace file for later inclusion in 1001.PBX.

13. To save and close the file, press the four following key combinations in order:

    Ctrl+X
    Ctrl+S
    Ctrl+X
    Ctrl+C

14. At the DOS prompt, type:

    ```
    CD\
    ```

15. Then press Enter.

16. Start Amanda by typing:

    ```
    AMANDA
    ```

17. Then press Enter.

Creating Test Patterns

After enabling the Trace capability and restarting Amanda, the telephone switching system must be programmed to perform the following capabilities:

- Select an extension that forwards on Ring No Answer to Amanda.
- Select another extension that forwards to the above extension on Ring No Answer.
- Select a third extension that forwards on Busy to Amanda.
- Select a fourth extension that forwards to the third extension on Busy.
- Select a fifth extension that forwards all calls to Amanda.
- If applicable, create a hunt group that will forward back to Amanda if the hunt group is busy or rings without answer.
- Create a Direct Inward Line by having an outside CO trunk line ring at an extension that will forward on Ring No Answer and Busy to Amanda. Tests 5 and 6 below do not have CO line identification enabled. Tests 7 and 8 do.

Running the Tests

To run the tests:

1. Start Amanda by typing the following at the DOS prompt:

   ```
   amanda
   ```

2. Then press Enter.

Test 1

- Place a call to the extension that forwards on Ring No Answer to Amanda. Once Amanda has received the forwarded call, hang up.

Test 2

- Place a call to the second extension that is forwarded to the first extension. When Amanda has received the call, hang up.

Test 3

- Place a call to the third extension that forwards on Busy to Amanda. Make sure that the extension is offhook and connected to another extension or outside line. Once Amanda has received the busy forwarded call, hang up.

Test 4

- Place a call to the fourth extension that is busy forwarded to the third extension. Make sure that both extensions are offhook and either connected to each other, or to outside lines. Once Amanda has received the busy forwarded call, hang up.

Test 5

- Call in on the CO line that is directed to an extension that is forwarded to Amanda on Ring No Answer. Make sure that CO Line ID is disabled. Once Amanda receives the call, hang up.

Test 6

- Call in on the CO line that is directed to an extension that is forwarded to Amanda on Busy. Make sure that the CO Line ID is disabled. Once Amanda receives the call, hang up.

Test 7

- Repeat test 5 with CO Line ID enabled.

Test 8

- Repeat test 6 with CO Line ID enabled.

Test 9

- Call directly into Amanda from any extension. When Amanda answers the call, hang up.

Reading the Trace File

To read the trace file:

1. Shut down Amanda.
2. At the C:\AMANDA> prompt, type:

   ```
   JOVE TRACE.OUT
   ```

3. Then press Enter.

   The first line should read similar to:

   ```
   Oct 09 15:51:00 Begin trace of Amanda…
   ```

4. Press Ctrl+S to perform a search.
5. Type the following search text:

   ```
   Using dtmf
   ```

6. Then press Enter.

   The JOVE editor searches for the first call's integration string. The cursor should move to the trace line that reads similar to:

   ```
   Oct  09 15:53:00 ichan01: Using dtmf data:  #123
   ```

   The # sign indicates a Ring No Answer forwarded call, and the 123 (for example) is the extension that forwarded the call to Amanda. These digits could be any combination of DTMF digits. For example, the AT&T Partner sends:

   ```
   #03##123#
   ```

   The #03## is the Ring No Answer code, and the 123# is the extension number that forwarded. Different telephone switching systems (and often different models) send different digits.

7. WRITE DOWN THE INTEGRATION INFORMATION FOR THIS CALL.
8. Press Ctrl+S again.
9. Keep the same search string by just pressing Enter.

   You should progress to the next call's digits.

10. WRITE DOWN THE INTEGRATION INFORMATION FOR THIS CALL.

11. Repeat steps 8 through 10 until all 9 integration stings have been recorded. Some of the strings may be identical (although the extension may be different if you tested from different stations).

12. To return to the C:\Amanda> prompt, press the following key combinations:

    Ctrl+X
    Ctrl+C

To decide what integration strings to add to 1001.PBX:

1. Look at the integration string from Test 1. This represents a Ring No Answer call that forwarded to Amanda. Locate the characters that match the extension number that forwarded. On your notepad, rewrite the string so that the extension number is replaced by the lower case letter r's. For example, if your string was "#123", then your new string would be "#rrr". In the case of the Partner example, the "#03##123# would be changed to "#03##rrr#.

   NOTE: You may have 2, 3, 4 or more digits in your extension numbers. The number of r's will match the number of digits in your extension dial plan.

2. Go to the integration string for Test 2. It may be similar to the one above, or it may contain a more complex string that has both the first and second extensions listed. If the string is identical to the previous string (for example, #03##123#), draw a line through it on your notepad.

   If both extensions are listed, determine which number was the first extension (originally called) and which was the second extension. If your string looks similar to "#122123", then the 122 was the second extension, and 123 was the first extension. On your string, replace the first extension with the lower case r's and the first extension with lower case s's. Our example would look like "#sssrrr". The Partner would change from "#03##122#123#" to #03##sss#rrr#".

3. The integration string from Test 3 may be identical to the string from Test 1 (except for the extension number). If so, draw a line through it.

   If not, then your switch sends a unique busy forwarded integration to Amanda. For example, the string may look like "*123". The "*" denotes a busy forwarded call, and the "123" is the extension that forwarded. Replace the "123" with lower case b's. Your string would now look like "*bbb".

4. The integration string from Test 4 may be identical to the one from Test 3. If so, draw a line through it.

   If not, then identify the first extension number and replace the number with lower case b's. Identify the second extension number and replace the number with lower case s's. Your string may have looked like "*122123" and should now look like "*sssbbb".

5. The integration string from Test 5 is to differentiate a trunk based call from a station based transfer if the switch offers this level of differentiation. If this string is identical to string one or three, draw a line through it.

   If not, evaluate the new string to see what other information was sent in addition to "123" which is the forwarding extension. If the integration string contains the trunk ID number (even though it is supposed to be disabled), replace the numbers with either x's (if the trunk ID is insignificant).

6. Repeat step 5 for the string from Test 6, but replace the extension number with b's rather than r's.

7. Repeat step 5 for Test 7. If the string is identical to the one from Test 5, draw a line through it.

8. Repeat step 5 for Test 8, but replace the extension number with b's rather than r's. If the string is identical to the one from Test 6, draw a line through it.

9. Test 9 captures the signaling for a direct call into voice mail. The integration string probably includes a prefix (usually 1 digit—but it could be several digits) and the extension number of the calling user. Replace the extension number with e's.

10. It is extremely important that there are no duplicate integration patterns. To make sure that each pattern is different, list them on a piece of paper, then rewrite them changing all character codes to zeros. What is left are dial code masks which must all be different. For example, using the following dial codes: `1***eee`, `#02#sss#rrr#`, and `#03##rrr#`, the dial code masks are `1***000`, `#02#000#000#`, and `#03##000#`, which are all different. If any dial code masks are the same, you must modify the duplicates or delete them.

Adding Integration Strings

You can define integration patterns using either one of the following:

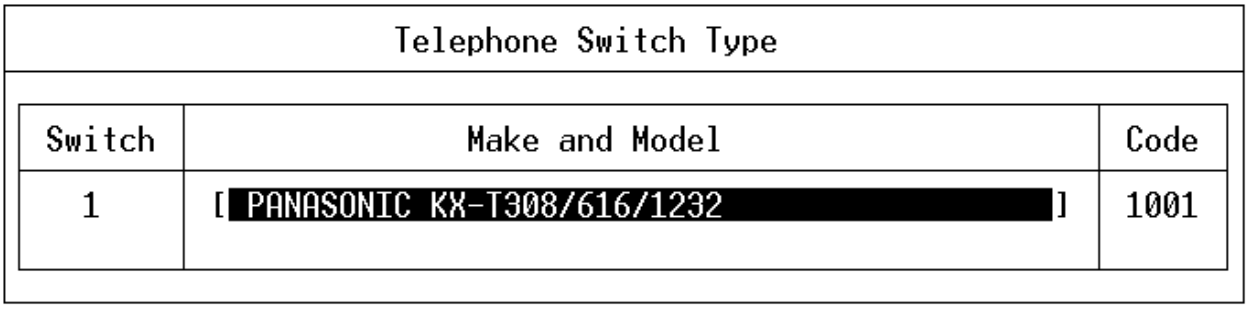
- The Setup utility
- The JOVE editor to edit 1001.PBX.

To define DTMF integration patterns using the Setup utility:

1. Run Setup as explained in "Chapter 3: Running the Setup Utility."

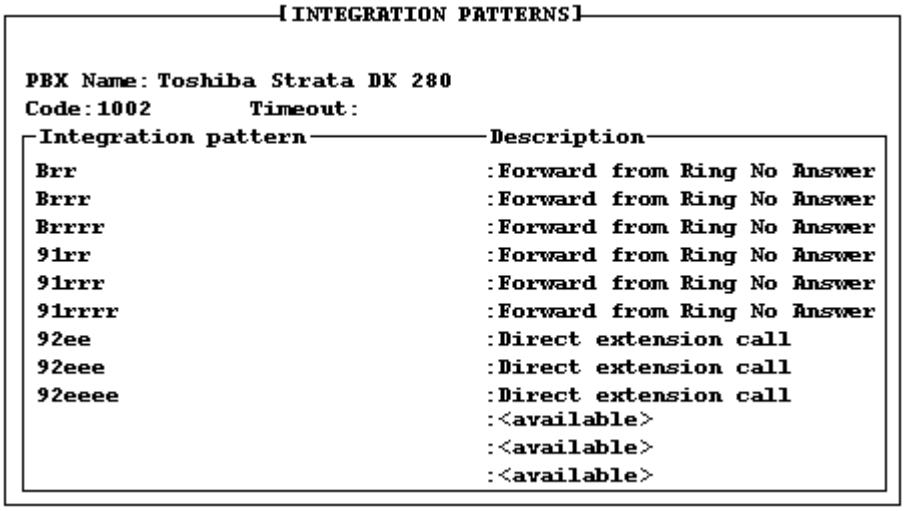
2. From the Configuration Utility menu, press 3 to select Telephone System Integration Patterns.

   The Telephone Switch Type screen appears.



3. From the Telephone Switch Type screen, select the name of your .PBX file then press Enter.

The Integration Patterns screen appears. Its first line tells the name and code (a number between 1001 and 2001) for your switching system (if they appear in the .PBX file). The following example shows a Toshiba model.



4. Type a number of tenths of seconds in the Timeout box.

   A value of 0 prevents integration. Any other value is the amount of time that Amanda will wait for information from the telephone switching system. A suggested value for this timeout is 10 (which equals 1 second). In some cases you may need a value of 15 or 20.

   Depending on the telephone switching system you selected when you defined dial codes (See “Defining Dial Codes” on page 11), some of the integration patterns might be already filled in.

   NOTE: To move from the timeout field to the integration patterns and vice versa, press Ctrl+Home.

5. Many telephone switching systems are programmable, so existing patterns on the System Integration Patterns screen may still need modification.

   Do one or more of the following:

   - Verify that the existing patterns are accurate by checking the manual for your telephone switching system.
   - Edit the existing patterns manually. (Select one, use the arrow keys to move around, and type over anything that needs to be changed.)

     For example, if the Ring No Answer pattern is #6rr, the rr stands for any two-digit extension. If the #6 is accurate, but you plan to have three or four-digit extension numbers, you must do some editing. For three-digit numbers, change the Ring No Answer pattern to #6rrr instead of #6rr. (See “Using Character Codes” on page 32 for more information about rrr and other codes.)
   - Delete a pattern by deleting all the characters in it.

To add integration strings to 1001.PBX using JOVE:

1. At the prompt, type:

   ```
   CD PBX.DB
   ```

2. Then press Enter.

3. Type:

   ```
   JOVE 1001.PBX
   ```

4. Then press Enter. This is the same file we edited earlier.

5. Press Down Arrow until you select the line that reads:

   ```
   integration 10  'rrrrrrrrrr'
   ```

6. Press Delete to remove this line.

7. Take the integration strings you created in the previous procedure. Type each one on a separate line in 1001.PBX. For example:

   ```
   integration 10  '#03##rrr#
   integration 10  '#03##sss#rrr#
   integration 10  '#00#ee#
   ```

   NOTE: The 10 is a suggested value for the timeout. 10 equals 1 second. Any other value is the amount of time that Amanda will wait for information from the telephone switching system. In some cases you may need a value of 15 or 20. A value of 0 prevents integration.

   These are in addition to the dial codes and any other integration strings that may have been in the original file. Enter them at the end of the file. Do not duplicate lines, but do remove any lines that are inaccurate.

8. To save and close the file, press the four following key combinations in order:

   Ctrl+X
   Ctrl+S
   Ctrl+X
   Ctrl+C

To restart Amanda:

1. At the DOS prompt, type:

   ```
   CD\
   ```

2. Then press Enter.

3. Type:

   ```
   AMANDA
   ```

4. Then press Enter.

Using Character Codes

You must modify the DTMF patterns so that the integration patterns become general (not specific to extensions 111 and 127). Call states and extension information are defined by using one of the character codes shown below. Each character code represents a call state, the position of the extension number in the pattern, and the number of digits in the extension. When inband signaling strings come from the telephone switching system, Amanda compares them to the defined integration patterns and decides how to handle the calls.

The character codes in the integration patterns are defined as follows:

Code	Description
b	Busy call state When bbb (or bbbb) appears in the integration pattern, Amanda checks the Busy Chain. If the Busy Chain is blank, she plays the custom busy message for mailbox bbb (or bbbb) or the system busy message.
c	ANI or Caller ID digits When a string of c's appears in the integration pattern, Amanda stores the DTMF characters at those locations in the port variable %H. With token programming the %H can be used to identify callers and so forth.
e	Direct dial call state (used to access a mailbox directly by Amanda asking for a security code) When eee (or eeee) appears in the integration pattern, Amanda assumes the caller wants to log in to mailbox eee (or eeee) and asks for the security code.
i	Immediate record call state (plays the record tone and starts recording a message) When iii (or iiii) appears in the integration pattern, Amanda begins recording a message for mailbox iii (or iiii) without playing a prompt first.
r	Ring-no-answer call state that indicates who the call was for and that it was not answered When rrr (or rrrr) appears in the integration pattern, Amanda checks the Ring No Answer (RNA) Chain. If the RNA Chain is blank, she plays the current greeting for mailbox rrr (or rrrr) or the system greeting. See the configuration option "integration_greeting" on page 162 for information about how the system greeting can be played when an integrated call has both the rrr and sss (or rrrr and ssss) fields set.
s	Information regarding where the call came from (for handling message replies) If sss (or ssss) is found in the integration pattern along with b's or r's, Amanda recognizes mailbox sss as the sender of the message—if one is left. **TIP:** When using s's, the integration requires User IDs for all telephones, even those in the file room and lobby.
t	Trunk call or CO line ID; this can also be used for dynamic port allocation When ttt (or tttt) appears in the integration pattern, Amanda processes mailbox ttt (or tttt) normally. Whenever a call comes in on trunk line 3, for example, mailbox 3 is processed. If trunk lines 1 to 20 support two companies that share an Amanda system, mailbox's 1–10 can have @G(990) in their Extension fields—causing Amanda to play one company's greeting. mailbox's 11–20 can have @G(880) in their Extension fields—causing Amanda to play the other company's greeting.
x	Wild card that matches anything (use this carefully) For example 6xxxx would match every inband signaling string that had a 6 followed by four other characters.

Realize that the character codes you use define not only the placement of the extension information in the pattern, but also the call state, that is, Ring No Answer, Busy, Direct, and so forth. Therefore, you can control Amanda's behavior based upon your specific requirements. For example, if your customer does not wish to allow for Busy call states, then modify the integration character codes and replace the b's with r's.

Some telephone switching systems have timing problems that cause the first DTMF digit to be missed. In such cases, it is useful to add integration patterns that are variations of the current patterns. For example, you might add a second pattern for Direct calls (`1***eee` in our example) as `***eee`. These are identical—except the first digit is missing in the second pattern. You can also try reducing the delay time (Delay option on SMDI tab in Setup utility).

Never remove leading digits froma pattern if they differentiate this pattern from another or if they are “active” digits (such as r’s and b’s).

Running Integration Helper

If you know that your telephone switching system supports DTMF integration, the Integration Helper utility also allows you to determine the integration patterns.

Before running the Integration Helper be sure that you:

- Enable your telephone switching system for voice mail integration.
- Program a test extension for call coverage, or call forwarding on Ring No Answer and Busy, to Amanda. The following procedure assumes that this extension is 111, but it can be any extension.
- Make another extension available for placing test calls. The following procedure assumes that this extension is 127.

To run Integration Helper:

1. Press F4 to run the Integration Helper utility.

   The following appears on the screen:

   ```
   Integration Helper—Waiting for a call on any port…To
   abort press ESC…
   ```

2. Place sample calls by calling from the available extension (127) to your test extension (111). Use these calls to generate DTMF tones so Integration Helper can capture them. You can capture Ring No Answer, Busy, and Direct call codes—using extensions and CO trunk lines. See “Placing Test Calls” on page 35.

3. As a code is captured, it appears on the Edit Integration Pattern screen. You see the captured pattern on two lines, one that is for display only and the other which you edit. For example, you need to replace extension numbers with patterns such as rrr for ring no answer. (See “Using Character Codes” on page 32 for more information.)

4. When you have finished, press Esc to return to the System Integration Patterns screen. The screen should be filled with the captured DTMF digits (per your edits) and the descriptions of those codes.

Placing Test Calls

You can place test calls of the following types:

Available extension (127) calls the test extension (111) for Ring No Answer:

After a Ring No Answer condition occurs, the call should be forwarded to the Integration Helper program which answers the call and captures the DTMF digits played by the telephone switching system. You define what type of test call you made.

Available extension (127) calls the test extension (111) while the test extension is Busy:

Verify that the test extension (111) has been call forwarded Busy to the single-line ports you have programmed for Amanda. Make the test extension (111) Busy. From the available extension (127), call the test extension (111). The test extension (111) should forward to the single-line ports immediately after the Integration Helper captures the DTMF digits (if any).

Test extension (111) calls directly to Integration Helper:

From the test extension (111), call the single-line ports. Integration Helper captures the DTMF digits (if any). Note that some telephone switching systems use different codes depending upon whether this direct call was made by dialing an extension or by pressing a message light. You should run both tests if you suspect this to be true of your system.

Available extension (127) using a CO line calls in and rings the test extension (111) for Ring No Answer:

From the available extension (127), select an outside CO line and call in to where you are installing Amanda. When the receptionist answers, ask to be blind transferred to the test extension (111), which should forward to the Integration Helper after a certain number of rings.

Available extension (127) using a CO line calls in while the test extension (111) is Busy:

Make the test extension (111) busy. From the available extension (127), select an outside CO line and call the company where you are installing Amanda. When the receptionist answers, ask to be blind transferred to the test extension (111), which should forward to the Integration Helper immediately.

Forward from Ring No Answer Example

You may have two patterns labeled “Forward from Ring No Answer.” Both should contain the extension number (111) that was call forwarded to the Integration Helper. This is the extension that did not answer. One of the patterns may contain the available extension number you called from (127).

For example, suppose the integration patterns were:

#02#127#111#

and

#03##111

You replace the digits of the test extension (111, the extension that did not answer) with r’s and the digits of the telephone from which the call was made, 127, with s’s:

#02#sss#rrr#

and

#03##rrr

This takes care of extensions that have exactly three digits (such as 111 and 127). To handle four-digit extensions, for example, you would have used:

#02#ssss#rrrr#

and

#03##rrrr

Direct Call Example

As a result of the Direct test call, one pattern should be labeled “Direct call…” and contain the extension number for the telephone from which you called (111).

Replace the extension number with e’s. For example, change:

1*111**

to:

1*eee**

This takes care of extensions that have exactly three digits (such as 111 and 127). To handle four-digit extensions, for example, you would have used:

1*eeee**

Forward from Busy Example

For patterns labeled “Forward from Busy,” you replace the extension number that was busy with b’s. If there is a pattern that contains the extension from which the call was made, replace the extension number with s’s.

Chapter 7:
Configuring Amanda

Using This Chapter

This chapter contains a questionnaire that helps you determine exactly how your customer needs his Amanda system to be set up. It also guides you as you configure an Amanda system for the first time. Fortunately, The Amanda Company has configured Amanda so that over 90% of the configuration options need no change whatsoever.

For a complete list of the configuration options, see “Appendix C: Configuration Reference.”

Using the Questionnaire

Use this “First Use” questionnaire to find out how your customers prefer to use their Amanda system. Use the results as you run Setup, selection 4, to set configuration options, and as you create the mailbox template (usually mailbox 997). Then create mailboxes for users.

Question Column

The questions address:

- How Amanda handles all callers.
- How Amanda interacts with most users. You assign new users the options that give them an initial, usable mailbox configuration. After each mailbox has been created, the System Administrator can change these options, and the users themselves can change some options.
- System Administration issues.

During your interview with the client, you will use the Question and Circle Response columns in this questionnaire to select the Amanda features for this site.

Location Column

You will use the Location and Action columns to implement these features on Amanda. The Location column uses this symbol → to separate the choices you must make at each menu level to select the feature from the correct Amanda screen. For example, “In the Setup utility, select System Configuration Options→General Configuration→Incoming Calls” means “In the Setup utility, first select Configuration Options, then select General Configuration, then select Incoming Calls.”

The Location column includes the name of the configuration option (called a parameter) for each feature. The options and their current settings are stored in C:\AMANDA\INSTALL.CFG. You can review them using the Setup utility. From Setup, select System Configuration Options→Advanced Configuration→General.

First Use Questionnaire

Question	Circle Response	Location and Amanda Parameter (if applicable)	Action
1) Amanda normally says "Please hold while I try that extension" as she transfers a call. This feature can be turned off. Do you want Amanda to say "Please hold….?"	YES	In the Setup utility, select System Configuration Options→General Configuration→ Incoming Calls. Amanda parameter is `please_hold`	Set the Amanda Says "Please Hold While…" check box to T for True, which is the default.
	NO		Set the Amanda Says "Please Hold While…" check box to F for False You can also bypass this message for individual mailboxes using the Token Programming Language (although only blind transfers are supported).
2) Do you want Amanda to verify that a caller is still on the telephone before transferring the call to an operator? (Amanda asks the caller to "Say yes at the tone" before transferring the call.)	YES	In the Setup utility, select System Configuration Options→General Configuration→ Incoming Calls. Amanda parameter is `dtmf_gate`	Set the Amanda Says "Please Say 'Yes'…" check box to T for True.
	NO		Set the Amanda Says "Please Say 'Yes'…" check box to F for False, which is the default.
3) Do you want callers to be able to hold for busy extensions?	YES	In the Setup utility, select System Configuration Options→General Configuration→ Incoming Calls. Amanda parameter is `cancel_busy_hold`	Set the Caller Can Hold check box to T for True, which is the default.
	NO		Set the Caller Can Hold check box to F for False.
4) If YES to 3, do you want active or inactive hold? On active hold, the caller is prompted to press * to remain on hold. On inactive hold, the caller takes no action to stay on hold. (800 numbers benefit from using active hold, because the caller cannot leave the telephone unattended.)	ACTIVE	In the Setup utility, select System Configuration Options→General Configuration→ Incoming Calls. Amanda parameter is `active_hold`	Set the Active Hold check box to T for True, which is the default.
	INACTIVE		Set the Active Hold check box to F for False.
5) Do you want direct messages to play the Name/ Extension recording instead of the mailbox's greeting? (A direct message is left in a user's mail box without attempting to ring that user. By default, Amanda plays the mailbox's greeting. The Name/Ext recording is shorter than the mailbox's greeting.)	YES	In the Setup utility, select System Configuration Options→General Configuration→ Incoming Calls. Amanda parameter is `short_direct_send`	Select the Play User's Name and Extension Recording option.
	NO		Select the Play User's Greeting option (which is the default).

First Use Questionnaire (Continued)

Question	Circle Response	Location and Amanda Parameter (if applicable)	Action
6) Do you want Amanda to answer all incoming calls or only answer when the operator cannot get to the phone within a certain number of rings? (This decision can vary from port to port.)	ALL CALLS	In the Setup utility, select System Configuration Options→Advanced Configuration→ Per Port. Amanda parameter is `n_rings`	Set N_RINGS to 1 for each port. This is a per port setting. The default is one ring on each port. (Amanda is being set up as a primary attendant.)
	AFTER *x* RINGS What is *x*?		Set N_RINGS to x for each port, where *x* in the number of rings. This is a per port setting. (Amanda is being set up as a secondary attendant.)
7) Do you want callers who use the company directory (411) to press * to transfer to the mailbox being described?	YES	Global settings parameter is `tmo_dir_transfer`.	Set tmo_dir_transfer a number greater than 0. The default is 2.
	NO		Set tmo_dir_transfer to 0.
8a) Do you want users and callers to be able to listen to, rerecord, or cancel messages and greetings that they create?	YES	In the Setup utility, select System Configuration Options→General Configuration→ Messages. Amanda parameter is `end_rec_menu record_menu`	Set the Allow Listening To… check box to T for True, which is the default.
	NO		Set the Allow Listening To… check box to F for False.
8b) Do you want users and callers to hear a prompt before they start recording or just the beep? The prompt is "Begin recording at the tone. Finish by pressing # or hanging up."	PROMPT and BEEP	In the Setup utility, select System Configuration Options→Advanced Configuration→ General. Amanda parameters are `begin_rec_prompt record_menu`	Set `begin_rec_prompt` to T for True, which is the default. Set `record_menu` to T for True, which is the default.
	BEEP ONLY		Set `begin_rec_prompt` to F for False. Set `record_menu` to T for True, which is the default.
9) When users listen to messages, Amanda normally plays the messages in chronological order. Do you want users to hear urgent messages first?	YES	In the Setup utility, select System Configuration Options→General Configuration→ Messages. Amanda parameter is `urgent_to_front`	Set the Urgent Messages First check box to T for True, which is the default.
	NO		Set the Urgent Messages First check box to F for False.
10) When a user listens to messages, should Amanda start with his first new (unheard) message or the first message in his message list (whether heard or unheard)?	NEXT NEW MESSAGE	In the Setup utility, select System Configuration Options→General Configuration→ Messages. Amanda parameter is `play_new_first`	Set the Play Next New Message check box to T for True.
	FIRST MESSAGE IN LIST		Set the Play Next New Message check box to F for False, which is the default.
11) What time stamp should a forwarded message have? You can use the time the message was recorded or the time the message was forwarded. (When you use the time that the message was recorded, the person receiving the forwarded message may think delivery was slow and be confused—unless the person forwarding the message adds a comment.)	TIME RECORDED	In the Setup utility, select System Configuration Options→General Configuration→ Messages. Amanda parameter is `timestamp_forwards`	Select the Time Originally Recorded option, which is the default.
	TIME FORWARDED		Select the Time Forwarded option.

First Use Questionnaire (Continued)

Question	Circle Response	Location and Amanda Parameter (if applicable)	Action
12) Do you want Amanda to tell the user the date and time a message was recorded before playing the message? This option can be modified for each user.	YES	In Amanda, select Users menu, then enter 997 in mailbox.	Set the D/T option to YES.
	NO		Set the D/T option to NO. **NOTE:** A user can always get the message date/time by pressing 74 during the message even if this option is set to NO.
13) If YES to 12, do you want Amanda to say 'today' and 'yesterday' instead of the exact date? This option is set for all users.	YES	In the Setup utility, select System Configuration Options→General Configuration→ Messages. Amanda parameter is `abbreviate_dates`	Select the Amanda Says "Today" And "Yesterday" For Dates option, (which is the default).
	NO		Select the Amanda Always Says Full Date option.
14) How many times should the telephone ring before Amanda decides the user is unavailable? (After these rings, Amanda takes a message, reroutes the call, or does whatever she is configured to do for Ring No Answer.)	1 2 3 4 5 6 7 8 9	In Amanda, select Users menu, then enter 997 in mailbox.	Set the Set Maximum Rings value to the circled number. The current default is 0, which means 4 rings. **CAUTION:** If you are using the U token in Extension fields (to perform a partially supervised transfer), Maximum Rings must be set to 1.
15) Do you want users to be able to turn Do Not Disturb on and off?	YES	In Amanda, select Users menu, then enter 997 in mailbox.	Set Do Not Disturb's Lock to OFF.
	NO		Set Do Not Disturb's Lock to ON.
16) Do you want Do Not Disturb initially ON or initially OFF?	ON	In Amanda, select Users menu, then enter 997 in mailbox.	Set Do Not Disturb to ON.
	OFF		Set Do Not Disturb to OFF.
17) Do you want users to be able to turn call screening on and off? (Call screening allows users to accept or reject calls based on who is calling.)	YES	In Amanda, select Users menu, then enter 997 in mailbox.	Set Screen Calls' Lock to OFF.
	NO		Set Screen Calls' Lock to ON.
18) Do you want call screening initially ON or initially OFF?	ON	In Amanda, select Users menu, then enter 997 in mailbox.	Set Screen Calls to ON.
	OFF		Set Screen Calls to OFF.
19) Do you want callers to leave messages for the users they call?	YES	In Amanda, select Users menu, then enter 997 in mailbox.	Set Store Messages to YES. Set Store Messages's Max to a number of seconds for each message.
	NO		Set Store Messages to NO; make sure Copy Messages To is blank.

First Use Questionnaire (Continued)

Question	Circle Response	Location and Amanda Parameter (if applicable)	Action
20) Do you want everyone to use the same greeting (and in the same voice) when the telephone is not answered? (NO allows each user to create his own greeting.)	YES	In Amanda, select Users menu, then enter 997 in mailbox.	Set Current Greeting's Max to 0.
	NO		Set Current Greeting to 0; set Current Greeting's Max to a number of seconds for each user's recording. Each user should record a greeting and a Name/Extension recording. Until a user records these, the system greeting and Name/Extension recording are used. When the user records Greeting 1, the Current Greeting setting changes from 0 to 1 automatically. The user may also control what greeting is used. (Amanda@Work.Place provides 3 greetings per mailbox.)
21) If YES to 20, do you want to use Amanda's system greeting or a company-wide custom greeting when a telephone is not answered? (The system greeting is "Please leave a message for" followed by the system or custom Name/Extension recording.)	SYSTEM	In Amanda, select Users menu, then enter 997 in mailbox.	Set Current Greeting to 0, which is the default.

	CUSTOM		Set Current Greeting to 1. Record a greeting for some mailbox (e.g., 445), then use DOS to copy it (e.g., `C:\VMB.DB\5\445\GRT1.VOX`) as GRT1.VOX for each mailbox assigned to a user. For 3-digit extensions that start with 2, use:
			`COPY` *`custom_grt`*
			`C:\VMB.DB\?\2??\GRT1.VOX`
			For 4-digit extensions that end with 5, use:
			`COPY` *`custom_grt`*
			`C:\VMB.DB\?\4???\GRT1.VOX`
			(Here, *custom_grt* is `C:\VMB.DB\5\445\GRT1.VOX`.)
			Update the mailbox template (997) before you create the other mailboxes. Use the COPY command shown above after the IDs have been created.

22) If callers are permitted to hold when a user extension is BUSY (see Question 3), do you want everyone to use the same greeting (and in the same voice)? (NO allows each user to create his own busy greeting.)	YES	In Amanda, select Users menu, then enter 997 in mailbox.	Set Busy Message's Max to 0.
	NO		Set Busy Message's Max to a number greater than zero, such as 45. Each user should record a busy greeting. Until a user records his busy greeting, the system busy greeting is used. The user may also control what busy greeting is used.

First Use Questionnaire (Continued)

Question	Circle Response	Location and Amanda Parameter (if applicable)	Action
23) If YES to 22, do you want to use Amanda's system busy greeting or a custom busy greeting? (The system busy greeting explains to the caller how to hold for the extension. If the caller presses *, Amanda plays music, then retries the extension. If it is still busy, Amanda changes the prompt: the caller can hold, enter another extension, or leave a message.)	SYSTEM	In Amanda, select Users menu, then enter 997 in mailbox.	Set Busy Message to SYS.

	CUSTOM		Set Busy Message to CUS. Record the busy message for a mailbox (e.g., 445), then use DOS to copy that message (e.g., `C:\VMB.DB\5\445\BUSY.VOX`) as BUSY.VOX for each user's mailbox. For 3-digit extensions that start with 2, use:
			`COPY` *`custom_bsy`*
			`C:\VMB.DB\?\2??\BUSY.VOX`
			For 4-digit extensions that end with 5, use:
			`COPY` *`custom_bsy`*
			`C:\VMB.DB\?\4???\BUSY.VOX`
			(Here, *custom_bsy* is `C:\VMB.DB\5\445\BUSY.VOX`.)
			Update the mailbox template (997) before you create the other mailboxes. Use the COPY command shown above after the IDs have been created.

24) Do you want Amanda to let the user know who the call is for? (This is primarily for people who answer calls for more than one person or share a telephone.)	YES	In Amanda, select Users menu, then enter 997 in mailbox.	Set ID Call? to YES.
	NO		Set ID Call? to NO.
25) If YES to 24, do you want Amanda to let the user accept or reject the call based on who it is for?	YES	In Amanda, select Users menu, then enter 997 in mailbox.	Set Screen Calls to ON and ID Call? to YES.
	NO		Use the settings already specified for Screen Calls and ID Call? in questions 17, 18, and 24.
26) If YES to 25, do you want users to hear: • Both who is calling and who the call is for. • Only who the call is for.	BOTH	In the Setup utility, select System Configuration Options→Advanced Configuration→ General (Settings). Amanda parameter is `modified_call_screening`	Set `modified_call_screening` to `F` for False.
	ONLY WHO CALL IS FOR		Set `modified_call_screening` to `T` for True.
27) Do you want to use a system or custom Name/ Extension recording? (The system recording says the mailbox number instead of the user's name. For example, if the user's mailbox is 143, Amanda says "For mailbox 1-4-3.") **NOTE:** It is a good idea to have someone with a good voice make a Name/Extension recording for each user, so Amanda identifies users by name on the first day, even if you allow custom name/ extension recording.	SYSTEM	In Amanda, select Users menu, then enter 997 in mailbox.	Set Name/Ext to NO. The users cannot make recordings.
	CUSTOM		Set Name/Ext. to YES. Each user should make a recording. Until a user makes his recording, the system recording is used.
28) Do you want to log information about messages? If YES, the MSG.LOG file will store: • The date and time every message is received • The date and time every mailbox is checked for messages along with the DTMF the user entered	YES	In the Setup utility, select System Configuration Options→General Configuration→ Messages. The Amanda parameter is `msg_log`	Set the Log Info About Messages check box to T for True.
	NO		Set the Log Info About Messages check box to F for False, which is the default.

First Use Questionnaire (Continued)

Question	Circle Response	Location and Amanda Parameter (if applicable)	Action
29) Do you want to log information about accesses to mailboxes? If YES, the USER.LOG file will store the date, time, and mailbox when any mailbox is accessed by DTMF. This file can be analyzed for call distributions and accesses by dates, days, and times.	YES	In the Setup utility, select System Configuration Options→General Configuration→ Messages. The Amanda parameter is `user_log`	Set the Log Info About User Access check box to T for True.
	NO		Set the Log Info About User Access check box to F for False, which is the default.
30) What password does the administrator want to use for Amanda? (You may not want to write this down, but be sure that it gets reset. The default is AMandA with the first two and the last letter capitalized.)	Write password here.	In the Setup utility, select System Configuration Options→General Configuration→ Password. Amanda parameter is `password`	Enter a password which contains no more than eight letters. Passwords are case-sensitive.
31) What language should Amanda use for prompts, such as "Please hold…?" (You can offer information in more than one language, ask for details.)	ENGLISH SPANISH FRENCH	In the Setup utility, select System Configuration Options→General Configuration→ General Defaults. Amanda parameter is `prompt_file`	Press F2 and select a language from the drop down list in the Language list box. ENGLISH is the default. If you do not select English, you must also install the prompts for the language.
32) Will Amanda be connected to a printer so that you can print reports?	YES	In the Setup utility, select System Configuration Options→General Configuration→ General Defaults. Amanda parameter is `lpt_port`	Set the Printer Attached To LPT value to 1.
	NO		Set the Printer Attached To LPT value to 0, which is the default.
33) Do you want to shut down Amanda for disk maintenance and/or tape backups?	YES	In the Setup utility, select System Configuration Options→General Configuration→ General Defaults. Amanda parameter is `shutdown`	Set the Shutdown For Maintenance And Backups check box to T for True.
	NO		Set the Shutdown For Maintenance And Backups check box to F for False.
34) If YES to 33), do you want Amanda to shutdown once a week or everyday?	WEEKLY Write a day and a time.	In the Setup utility, select System Configuration Options→General Configuration→ General Defaults. Amanda parameter is `shutdown`	Select the Once A Week On [TUE] At [01:30] option. The default is Tuesday at 1:30 A.M. You can specify a different day from the TUE drop down list box. You can enter a different time in the 01:30 text box. Time value uses the 24-hour format (HHMM).
	DAILY Write down the time.		Select the Everyday at <HHMM> option and enter the time at HHMM, using the 24-hour format.
35) What words do you want the screen saver to display on the Amanda computer? (Write the words. The default is "Buy more Amandas.")	Write a phrase.	In the Setup utility, select System Configuration Options→General Configuration→ General Defaults. Amanda parameter is `advertising`	At the Screen Saver Phrase text box, enter the phrase. Recommended length is up to 30 characters, but maximum length is 80.

First Use Questionnaire (Continued)

Question	Circle Response	Location and Amanda Parameter (if applicable)	Action
36) When users don't delete messages, they accumulate. Do you want to get rid of messages that have been listened to and have been around for a long time? Be aware that deleted messages are gone forever.	YES	In the Setup utility, select System Configuration Options→Advanced Configuration→ General (Settings). Amanda parameter is `purge`	See Action for Question 37.
	NO		Set Amanda parameter `purge` to `0`, which is the default.
37) If YES to 36, write a number of days (from 1 to 99) after which a message that has been heard should be deleted.	Write a number (1-99).	In the Setup utility, select System Configuration Options→Advanced Configuration→ General (Settings). Amanda parameter is `purge`	Set `purge` to `x`, where x is the number of days (1-90) after being heard that a message is purged.
38) Do you want to use the hold music provided by The Amanda Company or hold music and messages of your own?	The Amanda Company	N/A	Amanda plays C:\AMANDA\HOLD.VOX by default.
	YOUR OWN		There is no config option or mailbox field for this. To rerecord HOLD.VOX: 1. Shut down Amanda. 2. At the DOS prompt (C:\AMANDA), type: `COPY HOLD.VOX MUSIC.VOX` so you can use this file later. If you already have a MUSIC.VOX file, use another name. 3. Restart Amanda. 4. Using the telephone, log in to the system administrator mailbox (999), select 8 for the System Administration menu, then 3 to record the busy-hold music. 5. Make your recording. It becomes the file C:\AMANDA\HOLD.VOX and is played by Amanda to callers on hold. 6. If you create HOLD0.VOX, HOLD1.VOX, etc. Amanda plays them after HOLD.VOX if the extension remains busy. Each one is created as HOLD.VOX, and must be changed to HOLD*x*.VOX with a DOS command: `COPY HOLD.VOX HOLDx.VOX` Do the recording for the real HOLD.VOX (the first music/ message the caller hears) last.

Configuring a New Installation

Amanda has over 200 configuration options. They are what make Amanda so powerful and flexible. You will probably leave over 90% of those options set to their default settings. However, armed with the answers to the First Use Questionnaire, you should review the most commonly changed options (those in the General Configuration section of the Setup utility).

To set a new Amanda system's general configuration options:

1. Run Setup as explained in "Chapter 3: Running the Setup Utility."

   The Work.Place Configuration Utility screen appears.

2. To select System Configuration Options, press 4.

   The System Configuration menu appears.

3. To select General Configuration, press Enter.

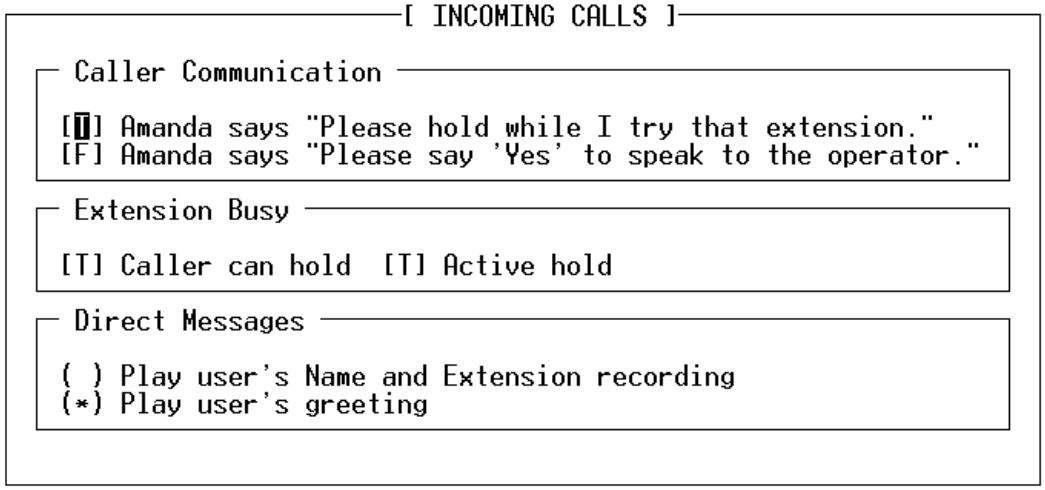
   The General Configuration menu provides easy access to the configuration options you are most likely to change.

4. Press I for Incoming Calls.

   The Incoming Calls screen appears.

   Options with bracketed settings [T] or [F] are like Windows check boxes. Using T for True is like checking a check box. Using F for False is like clearing a check box. Pressing the space bar toggles between T and F. Sometimes one check box is dependent on your selection for an earlier check box. For example, in the Incoming Calls screen, if you do not allow the caller to hold, the setting for active hold is ignored.

   Options with settings that are in parentheses (*) or ( ) are like Windows option buttons. You make a selection from the group of options by typing an asterisk in front of any one of the options. (Typing a space removes an asterisk from one option; if there are only two options, the asterisk automatically moves to the other option.)



5. For each check box, select T for True or F for False.

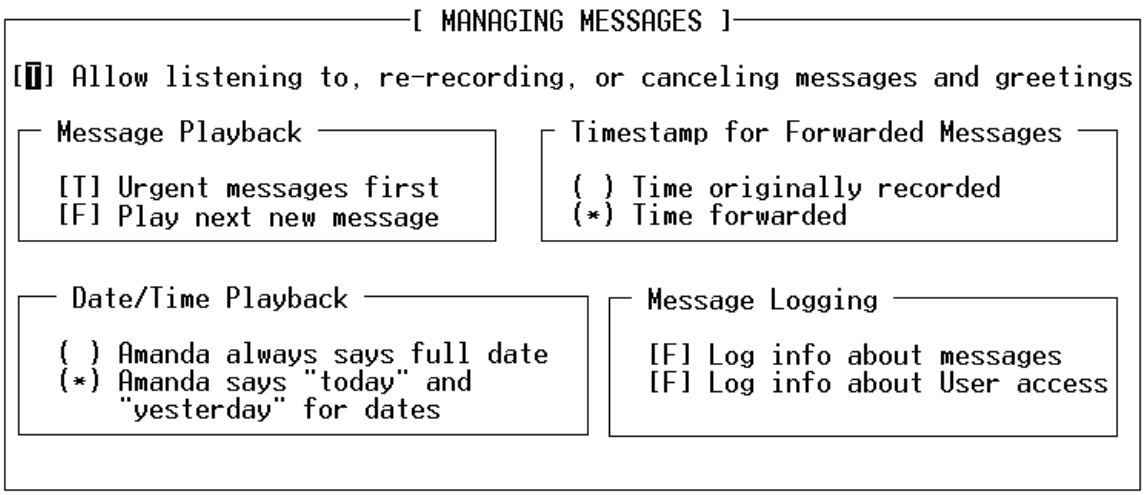
Type an asterisk (*) to select an option button.

(Press F1 for help with any setting you aren't sure about.)

6. Press F10 to save your settings and Esc to return to the General Configuration screen.

7. Press M for Messages.

   The Managing Messages screen appears.



8. For each check box, select T for True or F for False.

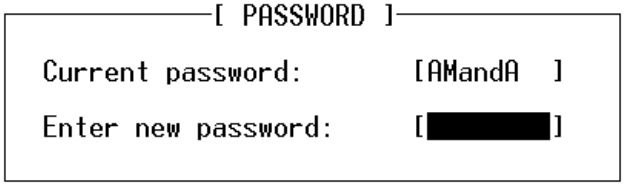
   Type an asterisk (*) to select an option button.

   (Press F1 for help with any setting you aren't sure about.)

9. Press F10 to save your settings and Esc to return to the General Configuration screen.

10. Press P for Password.

    The Password screen appears. Current Password is display-only.



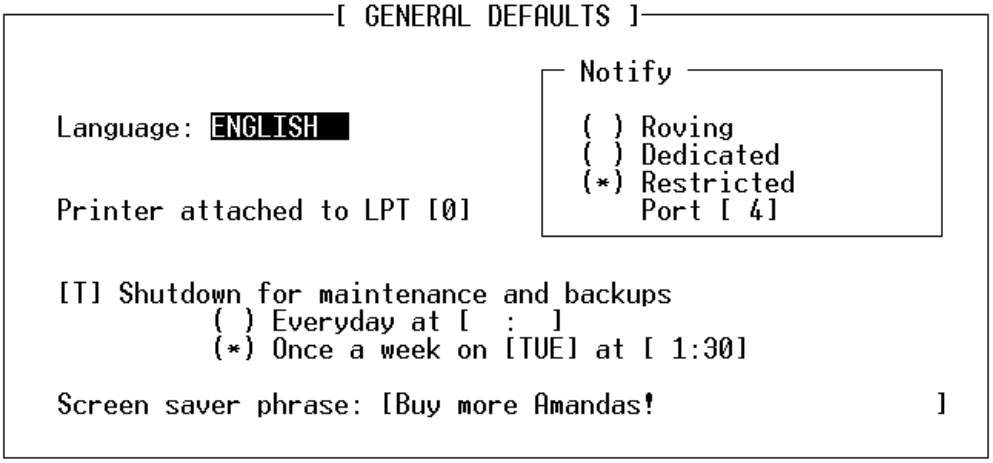
11. Type the new password for Amanda in the Enter New Password text box.

12. Press F10 to save your settings and Esc to return to the General Configuration screen.

13. Press G for General Defaults.

    The General Defaults screen appears.

Language is an example of a list. Pressing F2 displays a list of choices from which you select the language to be used.



Sometimes options are dependent on your selection for other options. For example, in the General Defaults screen, only if you select the Restricted option button can you access the Port text box and type the number of the port to which notification is restricted. Likewise, only if you select the Shutdown For Maintenance And Backups check box is it important what days or time the shutdown occurs.

For more information about notification, see “Selecting a Type of Notification” on page 47.

14. For the check box, select T for True or F for False.
    Type an asterisk (*) to select an option button.
    Select the day of the week from a list.
    Type numbers for the ports and times.
    Type a phrase for the screen saver. (You can use up to 79 characters, but the screen saver phrase is more readable if you use fewer than 30 characters.)
    Press F1 for help with any setting you aren’t sure about.

15. Press F10 to save your settings and Esc to return to the General Configuration screen.

Selecting a Type of Notification

Many telephones have message lights (also called message waiting lights) to let users know that they have unheard messages. You use notification records to turn the lights on and off. You can also notify users about waiting messages by paging them, calling their extensions, or calling them at an outside number.

Part of installing Amanda is selecting the type of notification:

- Roving
- Dedicated
- Restricted

With roving notification, Amanda tries to use the last port in the hunt group (for example, port 4 on a 4-port system) for notification. If the last port is busy, Amanda tries the second-to-last port (for example, port 3), and so forth.

If, on your telephone switching system, the port that turns on the message light must also turn it off, you must have only one port perform notification (control voice notify, message lights, paging, and so forth). You must use dedicated or restricted notification, rather than the default roving notification.

With dedicated notification, one port is used:

- Only for notification

BUT that port

- *Cannot* take incoming calls

Dedicated notification eliminates glare (the collisions between incoming calls and notifications). However, you have one less port for receiving calls.

With restricted notification, one port is used:

- Only for notification

AND that port

- *Can* take incoming calls

With restricted notification, glare can still occur. However, all your ports can be used for receiving calls.

See *Administering Amanda@Work.Place* for more information on notification records.

If you are using JOVE to edit INSTALL.CFG, for roving notification, set both n_ochan and notify_restriction to 0. For dedicated notification, set n_ochan to 1 and notify_restriction to 0. For restricted notification, set n_ochan to 0 and notify_restriction to a specific port number.

NOTE: When using roving or restricted notification, program your phone system to have the ports in a linear hunt group (not a circular hunt group). In a linear hunt group, port 1 always rings first, port 2 rings only if port 1 is busy, and port 3 only rings if port 1 *and* port 2 are *both* busy. Then when Amanda's last port rings, *all* the other ports must be busy.

If a caller hears DTMF and then a hangup instead of the company greeting, a collision has occurred.

Sharing Amanda

Sometimes more than one company or department share an Amanda system. Specific ports are assigned to specific groups. For example, on a two-port system shared by two companies, one company receives calls on port 1 and another on port 2. This affects the configuration options that determine which mailbox is used for:

- The company or initial greeting that callers hear when they call one of the companies.
- The employee directory that contains the names of all the users as they appear in the Directory Name 1 and Directory Name 2 fields.
- The direct message mailbox that allows you to record a message for a mailbox without having to transfer to that extension. You hear either the mailbox's greeting or the name and extension recording (depending on the setting for the short_direct_send configuration option). For example, you can leave a message for someone that you know is out of the office or not to be disturbed.

The following procedures are based on a four-port Amanda system shared by two companies.

To have different company greetings:

- In the Per Port section of Advanced Configuration, change the mailbox for the company greeting on a per port basis.

  Suppose the first company uses ports 1 and 2, and the second company uses ports 3 and 4. Then box_grt for ports 1 and 2 might be set to mailbox 990, while box_grt for ports 3 and 4 might be set to mailbox 880.

[PER PORT SETTINGS]

PORT	PBX	BOX_GRT	BOX_IDX	BOX_SND	N_RINGS	HANGUP SUPERVISION
1	1	990	411	998	1	T
2	1	990	411	998	1	T
3	1	990	411	998	1	T
4	1	990	411	998	1	T
5	1	990	411	998	1	T
6	1	990	411	998	1	T
7	1	990	411	998	1	T
8	1	990	411	998	1	T
9	1	990	411	998	1	T
10	1	990	411	998	1	T

To have different employee directories:

- In the Per Port section of Advanced Configuration, change the mailbox for the employee directory on a per port basis.

  For example, box_idx for ports 1 and 2 might be set to mailbox 411, while box_idx for ports 3 and 4 might be set to mailbox 311.

To use different mailboxes for direct messaging:

- In the Per Port section of Advanced Configuration, change the mailbox for the direct messaging on a per port basis.

  For example, box_snd for ports 1 and 2 might be set to mailbox 998, while box_snd for ports 3 and 4 might be set to mailbox 888.

If two departments share an Amanda system, you might use the default mailboxes for one department and create another set for the other department. If you intend to use the defaults, don't overwrite these mailboxes when you create new mailboxes for employees. For more information about default mailboxes, see "Using Default and Recommended Mailboxes" on page 49.

Using Default and Recommended Mailboxes

The following is a complete list of the default (and recommended) mailboxes in case you need to change (or set) them. If two departments share an Amanda system, you might use these mailboxes for one department and create another set for the other department. (For more information about sharing an Amanda system, see "Sharing Amanda" on page 48.) If you intend to use the defaults, don't overwrite these mailboxes when you create new mailboxes for employees.

Default and Recommended Mailboxes

Mailbox	Configuration Option	Purpose
0	(no option)	Mailbox for operator or receptionist. Mailbox 0 has been created for you. By default, this mailbox has Do Not Disturb locked OFF, call screening locked OFF, Greeting 0 as the current greeting, 999 in the Done Chain, stores messages, and is set to ring six times.
8	(no option)	Mailbox that acts as a shortcut to mailbox 998. Mailbox 8 makes it easier to send callers directly to voice mail. Live operators press transfer, call Amanda, dial 8# followed by the mailbox number, and hang up. The caller goes directly to voice mail.
411	box_idx	Mailbox for employee directory. Mailbox 411 has been created for you. By default, this mailbox has Do Not Disturb locked ON, call screening locked OFF, Greeting 1 as the current greeting, an empty Done Chain, and does not store messages.
990	box_grt	Mailbox for Company Greeting. Mailbox 990 has been created for you. By default, this mailbox has Do Not Disturb locked ON, call screening locked OFF, Greeting 1 as the current greeting, 991 in the Done Chain, and does not store messages.
991	(no option)	Mailbox for Caller Instructions. Mailbox 991 has been created for you. By default, this mailbox has Do Not Disturb locked ON, call screening locked OFF, Greeting 1 as the current greeting, 0 in the Done Chain, and does not store messages.
994	hot_box	Mailbox for use with PCPM codes. For example, you can set up a hot_box to detect calls from modems. As you create a hot box mailbox, make sure that the mailbox does NOT store messages and that Do Not Disturb is off. In addition, the Extension field must transfer the caller to the fax machine or whatever device is to be used by this box. In most cases, only one hot_box is defined to detect fax tones and the remainder are unused. However, you cannot separate these for companies or departments that share Amanda.
995	future_delivery	Mailbox that stores messages to be delivered at some time in the future. Mailbox 995 has been created for you. By default, this mailbox has Do Not Disturb locked ON, call screening locked OFF, Greeting 0 as the current greeting, nothing in the Done Chain, and stores messages. You don't need to (and cannot) separate these for companies or departments that share Amanda.
996	guest_defaults	Mailbox which is the template for all new guest mailboxes. Mailbox 996 has been created for you. By default, this mailbox has Do Not Disturb OFF, call screening OFF, Greeting 0 as the current greeting, nothing in the Done Chain, and stores messages. You cannot separate these for companies or departments that share Amanda.
997	defaults_box	Mailbox which is the template for all new mailboxes. Mailbox 997 has been created for you. You cannot separate these for companies or departments that share Amanda.

Default and Recommended Mailboxes (Continued)

Mailbox	Configuration Option	Purpose
998	box_snd	Mailbox for direct messaging. Mailbox 998 has been created for you. By default, this mailbox has Do Not Disturb locked ON, call screening locked OFF, an empty Done Chain, and does not store messages.
999	(no option)	Mailbox for system administration and for a quick hangup. Mailbox 999 has been created for you. You cannot separate these for companies or departments that share Amanda. By default, this mailbox has Do Not Disturb locked OFF, call screening locked OFF, an empty Done Chain, and an H in the Extension field. **Never change or delete this mailbox.**

Chapter 8:
Faxing

Using This Chapter

This chapter:

- Explains how to set up a fax modem for use with Amanda.
- Explains how to detect a fax machine automatically.

Using a Fax Modem

You can use a fax modem on any Amanda@Work.Place system.

The fax modem used in Amanda may be internal or external as long as it meets all of the following requirements:

- Class 2 or Class 2.0 compliant. (Be aware that Class 2 is different from Class 2.0.)
- Internal fax modems must have a UART 16550 serial interface, and external fax modems must be connected to UART 16550 serial ports.

The MSD.EXE program in DOS can verify whether or not your PC has these high speed serial ports. So can IS16550. (The syntax is IS16550 /x where x is the number of the COM port.)

NOTE: If you have a Class 2 modem, the default configuration settings for fax options should work well with your modem. If you have a Class 2.0 modem, change the setting for fax_send_reverse to F for False.

You must configure the fax modem for one of the following:

COM1 with IRQ4 and no other devices on COM1 or using IRQ4

COM2 with IRQ3 and no other devices on COM2 or using IRQ3

COM3 with IRQ11 and no other devices on COM3 or using IRQ11

We recommend using COM1 and/or COM2 for fax modems. This port must be dedicated to the fax modem.

NOTE: If you have a turnkey Amanda system, it comes with an internal modem which uses COM4 and IRQ5. This is used only by the host software on the Amanda computer that allows you to control Amanda from a remote site using the remote program. None of Amanda's configuration options have anything to do with this modem, but the fax modem cannot be set to COM4 or IRQ5. Even if your system is not a turnkey system, we recommend that you install an internal data modem using the same COM port and IRQ so you can contact Amanda remotely. If you ever need customer support from The Amanda Company, this modem will make it

possible to solve your problem much more quickly. See “Chapter 10: Accessing Amanda Remotely” for more information about host and remote software.

To configure a fax modem for Amanda:

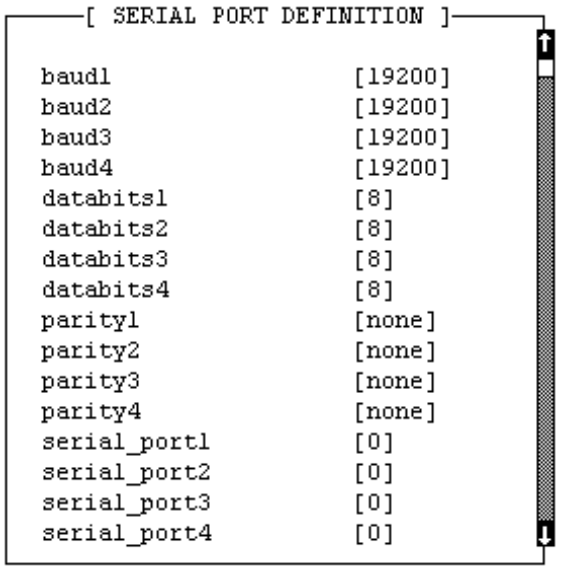
1. Run the Setup utility.

2. From the Work.Place Configuration Utility menu, select System Configuration Options or press 4.

3. From the System Configuration menu, press A for Advanced Configuration.

4. From the Advanced Configuration menu, press S for Serial.

   The Serial Port Definition dialog box appears.
   (If you type a space, the Setup utility interprets it as a zero.)



5. Change:

   `serial_port`***n*** `0`

   To:

   `serial_port`***n y***

   The option maps Amanda's logical port to a physical port on the PC.

   The ***n*** is the number of the logical serial port and the ***y*** is the physical serial port (for example, COM1). It is best to make ***n*** and ***y*** the same number. For example, map logical port 2 to COM2.

6. Modify the `baud`***n***, `databits`***n***, `stopbits`***n***, and `parity`***n*** to match the correct values for the serial integration link you are receiving.

   The ***n*** is the number you used for ***n*** in step 5.

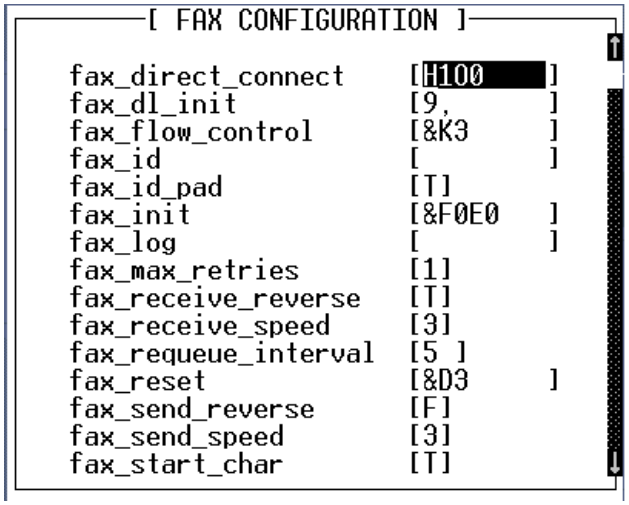
7. Press F10 to save your changes.

   The Save All Data? dialog box appears.

8. Press Y for Yes.

9. From the Advanced Configuration menu, press F for Fax.

   The Fax Configuration screen appears.
   (If you type a space, the Setup utility interprets it as a zero.)



10. (Skip this step if you dial 9 to access an outside line.) In the Fax section on Advanced Configuration, change:

    `fax_dl_init 9,`

    To:

    `fax_dl_init` ***n***

    replace ***n*** with the outside access code for the telephone switching system. (Adding a comma causes a 2-second pause.)

11. (Skip this step if you have a Zoom modem.) Change:

    `fax_flow_control &K3`

    For Aceex modems, use:

    `fax_flow_control \Q3 X3 &K3`

    For Practical Peripherals modems, use:

    `fax_flow_control X3 &K3`

    This option has the Class 2 command for the type of flow control used by your fax modem.

12. Change:

    `fax_id`

    To:

    `fax_id` *`fax`*

    where *`fax`* is a number or a name used to identify your fax modem (for example, 'FAXA')

13. Many older Class 2 fax modems need a string of leading digits ‘1111’ for their fax_id. By default, Amanda adds these digits.

    However, if they appear on the receiving fax machine, change:

    ```
    fax_id_pad T
    ```

    To:

    ```
    fax_id_pad F
    ```

14. Change:

    ```
    faxn
    ```

    To:

    ```
    faxn ext
    ```

    where ***n*** is the number for the logical serial port and *ext* is the extension number where the fax modem is connected on the telephone switching system (this must be a single line extension).

15. This defines the maximum number of digits for a local extension. This is used when the “72” Fax retrieve command is selected so that *fax_dl_init* (usually ‘9,’) will be applied only for outside calls.

    Change:

    ```
    max_local_extension 6
    ```

    To:

    ```
    max_local_extension n
    ```

    where ***n*** is the maximum number of digits in a telephone extension on your telephone switching system.

NOTE: You don’t need to change the default values for the other serial port and fax configuration options.
To use the fax modem effectively, you must also use tokens to program the Extension fields for one or more mailbox. For more information, see the sections on one and two-call faxbacks in “Chapter 11: Programming Examples,” in *Administering Amanda@Work.Place*.

Suggested Settings

The following modems have been used with Amanda with the following settings. This is not a comprehensive list, and many other modems work with Amanda. The following settings are not even guaranteed to work with your modem (even if your modem is one of those listed) because modem manufactures produce a variety of models and change their firmware from time to time. However, you may want to try them.

Zoom Modems
fax_flow_control &K3
fax_dl_init -

Aceex Modems
fax_flow_control \Q3 &K3

Practical Peripherals Modems
fax_flow_control X3 &K3

SmartOne 1442 Faxmodems

fax_flow_control	&K4
fax_direct_connect	H1O0
fax_receive_reverse	T
fax_reset	&D3
fax_send_reverse	F

Boca modem M144EW

fax_flow_control	&K3

Detecting a Fax Machine Automatically

Amanda can detect and accept incoming faxes automatically.

To automatically detect and accept an incoming fax:

- The fax connect tone must be in the PCPM tone table.

  The tone information is stored in C:\AMANDA\PBX.DB\1001.TON.

  The tone must be one of the first four tones or frequencies defined, and it must be marked as a terminating tone. The PCPM code associated with the tone must be in the range 13-36.
- A mailbox (usually 994) must be set up to process faxes. To learn how to create and program that mailbox, see *Administering Amanda@Work.Place*.
- That mailbox must be specified in the hot_box configuration option.

Modifying the PCPM Tone Table

To modify the tone table for Rhetorex voice boards:

1. Run AccuCall Plus.

   For more information about AccuCall Plus, see “Using AccuCall Plus” on page 18.

2. To detect a FAX tone, use the following:

NAME:	FAX CNG TONE
TYPE:	OTHER
TERMINATING:	YES
CADENCE:	NO
FREQ1:	1100
FREQ2:	NONE
PCPMCODE:	13 (13 through 36 are acceptable)
QUICKCOUNT:	400
ON TIME:	528
OFF TIME:	2976

All other values can remain at their defaults.

NOTE: Remember to insert the FREQ1 value of 1100 into the filter table in one of the first four positions. Only frequencies in the first four positions are used for terminating tones.

Creating the Hot Box Mailbox

The Amanda Company recommends using mailbox 994 as the first hot_box, but you can use any valid mailbox. Use Amanda's Mailbox screen to create the mailbox that will process the PCPM tone. See *Administering Amanda@Work.Place* for information about creating mailboxes.

After calling Amanda, the caller presses the Start button on his fax machine during the Company greeting (or some other greeting). Amanda recognizes the tone and processes mailbox 994. Mailbox 994 performs a blind transfer to the fax machine. The Extension field for mailbox 994 must contain the extension connected to the fax machine followed by an H (hangup).

Example Extension field:
`1000H`
where extension 1000 is connected to the fax machine

Setting the Hot Box Options

You must let Amanda know the mailbox that will process the PCPM tone by setting the hot_box configuration option.

To designate a mailbox to accept incoming faxes:

1. Run the Setup utility. At the DOS prompt, from the directory C:\AMANDA, type:

   `SETUP`

   Then press Enter.

2. From the main menu, press 4.

   The System Configuration Options menu appears.

3. From the System Configuration menu, type:

   `A`

   (for Advanced Configuration).

4. From the Advanced Configuration menu, type:

   `H`

   (for Hot Boxes).

5. Select the number that corresponds to the PCPM code.

6. Type the mailbox number next to the code.

   Your typing replaces previous setting (by default -1 for no mailbox).

7. Press F10 to save.

Sending Faxes

Faxes that you send to customers must be stored on Amanda in fax format. You create the documents, then fax them to Amanda using the J() token to receive them. For more details, see “Sending Faxes to Amanda” on page 131.

Chapter 9:
Using Serial Integration

Serial Integration Overview

Serial integration is a type of digital integration in which the telephone switching system uses the computer's serial port to communicate to Amanda. A data line from the central office or telephone switching system sends information and instructions (about the caller and called party) to your on-site voice mail box.

For example, if you call Amanda from an internal extension, Amanda recognizes you and asks only for your security code. Serial integration makes getting your messages faster.

Amanda can support the following types of serial integration on Rhetorex voice boards:

- Bellcore Standard
- NEC 2000 and NEC 2400
- AT&T System 75 or Definity-G3
- Generic which can apply to other types of serial integration when the options are set correctly

NOTE: The Amanda Company recommends using a user's telephone extension number as his mailbox in all cases, but, with digital integration, this one-to-one correspondence is required.

Bellcore Standard SMDI

This section covers serial integration for any telephone switching system that uses Bellcore Standard Simplified Message Desk Interface (SMDI). For example, Centrex, Northern Telecom SL-1 with a VoiceBridge, and Fujitsu F-9600 use SMDI.

To modify configuration options for use with Bellcore Standard SMDI:

1. Choose an available serial port on the computer. The serial port you use must be COM1, COM2, COM3, or COM4.

   Whatever serial port you use, make sure nothing else is configured to use that port or the IRQ (hardware interrupt) configured for use with that port.

2. Run Setup as explained in "Chapter 3: Running the Setup Utility."

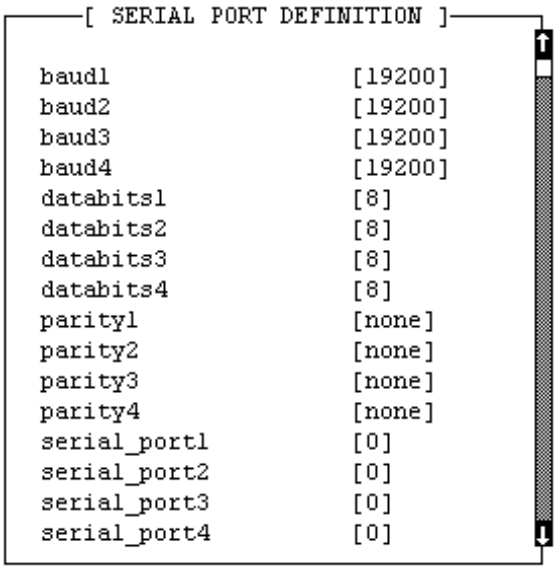
   NOTE: As an alternative, you can use the JOVE utility to access the configuration options in C:\AMANDA\INSTALL.CFG.

3. From the Work.Place Configuration Utility menu, select System Configuration Options. You press 4.

4. From the System Configuration menu, press A for Advanced Configuration.

5. From the Advanced Configuration menu, press S for Serial.

   The Serial Port Definition dialog box appears.
   (If you type a space, the Setup utility interprets it as a zero.)



6. Change:

   `serial_port`***n*** `0`

   To:

   `serial_port`***n*** ***y***

   The option maps Amanda's logical port to a physical port on the PC.

   The ***n*** is the number of the logical serial port and the ***y*** is the physical serial port (for example, COM1). It is best to make ***n*** and ***y*** the same number. For example, use `serial_port1 1` or `serial_port2 2`, and so forth.

7. Modify the `baud`***n***, `databits`***n***, `stopbits`***n***, and `parity`***n*** to match the correct values for a serial integration link you are receiving.

   The ***n*** is the number you used for ***n*** in step 6.

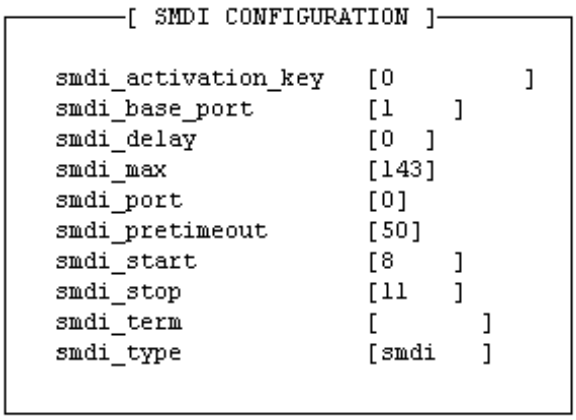
8. Press F10 to save your changes.

   The Save All Data? dialog box appears.

9. Press Y for Yes.

10. From the Advanced Configuration menu, press I for SMDI.

    The SMDI Configuration screen appears.
    (If you type a space, the Setup utility interprets it as a zero.)



11. In the SMDI section of Advanced Configuration, change

    `smdi_port 0`

    To:

    `smdi_port` ***n***

    where ***n*** is the number for ***n*** in step 6.

12. Verify that the smdi_type option is:

    `smdi_type 'smdi'`

    Change it if necessary.

13. Modify `smdi_base_port 1` if the first port on the telephone switching system is not identified as the logical port 1. For example, some telephone switching systems use the port's extension or another logical terminal number to identify the port. The first port may be extension 241, with the second port 242, etc. **These numbers must be consecutive.** For example, if the first or base port is 241, you use `smdi_base_port 241`.

14. You can also set `smdi_pretimeout` ***n***, where ***n*** is the maximum number of seconds that an SMDI packet can precede the forwarded call. The default is 50.

15. You can also set `smdi_delay` ***n***, where ***n*** is the number of tenths of seconds that Amanda waits after the call is answered before looking for integration information. This allows more than one packet to be sent to a port per telephone call. Amanda uses the last (most recent) packet. The default is 0. The range is 0 to 255.

16. Press F10 to save your changes.

    The Save All Data? dialog box appears.

17. Press Y for Yes.

NOTE: The smdi_max, smdi_start, smdi_stop, and smdi_term configuration options do not apply to telephone switching systems that use Bellcore Standard SMDI.

You must also modify your C:\AMANDA\PBX.DB\1001.PBX file to include the SMDI information. Using the Amanda Setup utility (selection 3) or the JOVE utility, verify that your integration lines are as follows. When using Setup, type 30 in the Timeout field. (30 equals 30 tenths of seconds or a total of 3 seconds.) Then enter the integration strings in the column for the extension plan your system uses.

Use an <available> entry for each string you are adding. (See “Using Character Codes” on page 32 for more information about the codes such as rrr or rrrr.)

	4-digit Extension Plan	3-digit Extension Plan
Forward no answer	Axxxrrrr0000000	Axxxxrrr0000000
Forward no answer	Bxxxbbbb0000000	Bxxxxbbb0000000
Forward no answer	Nxxxrrrr0000000	Nxxxxrrr0000000
Forward no answer	Axxxrrrrxxxssss	Axxxxrrrxxxxsss
Forward busy	Bxxxbbbbxxxssss	Bxxxxbbbxxxxsss
Forward busy	Nxxxrrrrxxxssss	Nxxxxrrrxxxxsss
Direct station access	Dxxxxxxxxxxeeee	Dxxxxxxxxxxeee

If you are using the JOVE utility, the integration timeout precedes each integration string as follows. This example is only for 4-digit station plans.

4-digit Station Plan

integration 30	'Axxxrrrr0000000'
integration 30	'Bxxxbbbb0000000'
integration 30	'Nxxxrrrr0000000'
integration 30	'Axxxrrrrxxxssss'
integration 30	'Bxxxbbbbxxxssss'
integration 30	'Nxxxrrrrxxxssss'
integration 30	'Dxxxxxxxxxxeeee'

NOTE: To modify the above for another digit plan, use the appropriate number of `r`'s, `b`'s, `s`'s, `e`'s, and `x`'s. Also, while 30 is used in the example (causing Amanda to timeout after 3 seconds if the packet has not been received), you may use some other number. The number is in tenths of seconds.

To program the message waiting lights, use the following in the Method field of the two notification records used for Light ON and Light OFF:

4-digit Station Plan

Light ON: @S(1,'OP:MWI 000%U!\D')

Light OFF: @S(1,'RMV:MWI 000%U!\D')

3-digit Station Plan

Light ON: @S(1,'OP:MWI 0000%U!\D')

Light OFF: @S(1,'RMV:MWI 0000%U!\D')

NOTE: The message codes above are for a 4-digit and 3-digit station plan. To modify to another digit plan, use the appropriate number of `0`'s. These examples use logical serial port 1; for other ports, the 1's would have to be replaced.

NEC 2000 and NEC 2400

This section covers serial integration for NEC 2000 and NEC 2400 systems.

To set configuration options for serial integration on NEC 2000 or NEC 2400:

1. Follow steps 1 through 11 in the Bellcore Standard SDMI procedure "To modify configuration options for use with Bellcore Standard SMDI:" in the "Bellcore Standard SMDI" section.

2. Change the smdi_type option to:

   ```
   smdi_type 'necmci'
   ```

3. Modify `smdi_base_port 1` if the first port on the telephone switching system is not identified as the logical port 1. For example, some telephone switching systems use the port's extension or another logical terminal number to identify the port. The first port may be extension 241, with the second port 242, etc. **These numbers must be consecutive.** For example, if the first or base port is 241, you use `smdi_base_port 241`.

4. You can also set `smdi_pretimeout` ***x***, where ***x*** is the maximum number of seconds that a packet can precede the forwarded call. Start with 50, the default, but you may need to experiment to determine the best setting. On the NEC 2000, one solution provider reports that 15 is a good setting.

5. Set smdi_start option to the number that indicates the position in the integration packet sent by the telephone switching system where the field containing the port number starts. Start counting positions in the packet with the number 1. The default is 8.

   ```
   smdi_start 8
   ```

6. Set the smdi_stop option to the number that indicates the position in the integration packet sent by the telephone switching system where the field containing the port number ends. Start counting positions in the packet with the number 1. The default is 11.

   ```
   smdi_stop 11
   ```

7. You can also set `smdi_delay` ***x***, where ***x*** is a number of tenths of seconds. Amanda waits that long after the call is answered before looking for integration information. This allows more than one packet to be sent to a port per telephone call. Amanda uses the last (most recent) packet. The default is 0.

   NOTE: The smdi_max and smdi_term configuration options do not apply to NEC telephone switching systems.

You must also modify your C:\AMANDA\PBX.DB\1001.PBX file to include the SMDI information. Using the Amanda Setup utility (selection 3) or the JOVE utility, verify that your integration lines are as follows. When using Setup, type 20 in the Timeout field. (20 equals 20 tenths of seconds or a total of 2 seconds.) Then enter the integration strings in the column for the station plan your system uses.

Use an <available> entry for each string you are adding. (See “Using Character Codes” on page 32 for more information about the codes such as rrr or rrrr.)

	4-Digit Station Plan	**3-Digit Station Plan**
Forward no answer:	40xxxssssxxxxxrrrrxx	40xxxssssxxxxxrrrxxx
Forward busy:	41xxxssssxxxxxbbbbxx	41xxxssssxxxxxbbbxxx
Forward all:	42xxxssssxxxxxrrrrxx	42xxxssssxxxxxrrrxxx
Direct station access:	43xxxeeeexxxxxxxxxxx	43xxxeeexxxxxxxxxxx
Direct station access from trunk:	432xxttttxxxxxxxxxxx	432xxtttxxxxxxxxxxx

If you are using the JOVE utility, the integration timeout precedes each integration string as follows. This example is only for 4-digit station plans.

	4-Digit Station Plan
integration 20	'40xxxssssxxxxxrrrrxx'
integration 20	'41xxxssssxxxxxbbbbxx'
integration 20	'42xxxssssxxxxxrrrrxx'
integration 20	'43xxxeeeexxxxxxxxxxx'

integration 20 '432xxttttxxxxxxxxxxx'

NOTE: To modify the above for another digit plan, use the appropriate number of `r`'s, `b`'s, `s`'s, `e`'s, and `x`'s. In the example, 20 is used (causing Amanda to timeout after 2 seconds if the packet has not been received) because it works for all serial integration. The number is in tenths of seconds.

To program the message waiting lights for NEC 2000, use the following in the Method field of the two notification records used for Light ON and Light OFF:

Light ON: @S(1,'\002')S(1,'0!A1')S(1,'%U')S(1,'\003')

Light OFF: @S(1,'\002')S(1,'0!A5')S(1,'%U')S(1,'\003')

To program the message waiting lights for NEC 2400 IMG, use the following in the Method field of the two notification records used for Light ON and Light OFF:

Light ON: @S(1,'\002')S(1,'0!B2')S(1,'%U')
S(1,'0000000001')S(1,'\003')

Light OFF: @S(1,'\002')S(1,'0!B6')S(1,'%U')
S(1,'0000000001')S(1,'\003')

NOTE: These examples uses logical serial port 1; for other ports, the 1's would have to be replaced.

AT&T System 75 or Definity-G3

If you use AT&T System 75 or Definity-G3 (smdi_type s75), call Amanda Company customer support for more information. Call to be faxed Technical Note 14, "Serial Integration for System 75 and Definity-G3."

To set configuration options for use with System 75 and Definity-G3:

1. Follow steps 1 through 11 in the Bellcore Standard SDMI procedure "To modify configuration options for use with Bellcore Standard SMDI:" in the "Bellcore Standard SMDI" section.

2. Change the smdi_type option to:

   `smdi_type 's75'`

NOTE: Type 's75' with a lower case 's'. This option is case sensitive.

3. Modify `smdi_base_port 1` if the first port on the telephone switching system is not 1. For example, some telephone switching systems use the port's extension or another logical terminal number to identify the port. The first port may be extension 210, with the second port 211, etc. (These numbers must be consecutive.) For example, if the first or base port is 210, you use `smdi_base_port 210`.

4. You can also set `smdi_delay` ***x***, where ***x*** is a number of tenths of seconds causes Amanda to wait that long after the call is answered before looking for integration information. This allows more than one packet to be sent to a port per telephone call. Amanda uses the last (most recent) packet. The default is 0.

5. Press F10 to save your changes.

   The Save All Data? dialog box appears.

6. Press Y for Yes.

NOTE: The smdi_max, smdi_pretimeout, smdi_start, smdi_stop, and smdi_term configuration options do not apply to AT&T System 75 and Definity-G3 telephone switching systems.

You must modify your C:\AMANDA\PDX.DB\1001.PBX file to properly integrate the 7404D set information. Using either the Amanda Setup utility or the JOVE utility, verify that your integration lines are:

```
integration 10 'xxxxxxxxxxxxxx*xxxxxxxxxxxxxxxxrrr D'
integration 10 'xxxxxxxxxxxxsssxxxxxxxxxxxxxxxxrrr D'
integration 10 'xxxxxxxxxxxxxx*xxxxAxxxxxxxxxxxrrr C'
integration 10 'xxxxxxxxxxxxeeexxxxAxxxxxxxxxxxxx C'
integration 10 'xxxxxxxxxxxxxx*xxxxxxxxxxxxxxxbbb B'
integration 10 'xxxxxxxxxxxxsssxxxxxxxxxxxxxxxxbbb B'
integration 10 'xxxxxxxxxxxxxx*xxxxxxxxxxxxxxxxrrr S'
integration 10 'xxxxxxxxxxxxsssxxxxxxxxxxxxxxxxrrr S'
integration 10 'xxxxxxxxxxxxxx*xxxxxxxxxxxxxxxxrrr x'
integration 10 'xxxxxxxxxxxxsssxxxxxxxxxxxxxxxxrrr x'
```

NOTE: The integration lines above are for a three (3) digit station plan. When you have a mixed dialing plan, (for example, 3 and 4 digit extensions) you must have integration strings to handle ***ALL*** possible combinations.

To modify to another digit plan, use the appropriate number of r's, b's, s's, e's, and x's. The proper integration lines vary depending on your System 75 software release, digital telephone set model, and the data cartridge that you use in the digital set. If you experience problems with the integration strings defined above, run option 3 in the Setup utility (Integration Helper) to assist you, or contact Amanda Company customer support.

Also, you need to defined the telephones system dial code "What to dial when a port goes off-hook" with the code you defined above in FEATURE ACCESS CODE Call Pickup Access Code.

Finally, you must create mailboxes for each extension number where Amanda's ports are connected. The parameters must be defined as follows:

Extension: @G(990)
Do Not Disturb: OFF LOCK: ON
Store Messages? NO
Chains RNA: 990
Chains Busy: 990

Mailbox 990 is the default Company Greeting mailbox. If you have redefined the Company Greeting mailbox for any of the ports, use that mailbox instead of 990.

Light ON: *4%U

Light OFF: #4%U

NOTE: The examples use %U (for mailbox), but you may prefer %E (for Extension field) or %V (for Variable field). You can use %E when the Extension field contains only the extension number. (For example, if the Extension field contains an H for a blind transfer or starts with a @, %E is unusable.) You can use %U only if the mailbox is the same as the extension number. If you use %V, the Variable field in the notification record must contain the extension number.

The *4 and #4 are the AT&T default values, often left as the standard, but fully configurable. Watch out for dialplan conflicts if you change them because the conflicts can slow down system operation if a needed wait for dial timeout (that is, a four-digit speedial code) has the same first few digits as the message waiting light feature.

Ericsson MD-110

This section covers serial integration for the Ericsson MD-110 system.

To set configuration options for serial integration on Ericsson MD-110:

1. Follow steps 1 through 11 in the Bellcore Standard SDMI procedure “To modify configuration options for use with Bellcore Standard SMDI:” in the “Bellcore Standard SMDI” section.

2. Change the smdi_type option to:

   ```
   smdi_type 'md110'
   ```

3. Modify `smdi_base_port 1` if the first port on the telephone switching system is not identified as the logical port 1. For example, some telephone switching systems use the port’s extension or another logical terminal number to identify the port. The first port may be extension 241, with the second port 242, etc. **These numbers must be consecutive.** For example, if the first or base port is 241, you use `smdi_base_port 241`.

4. You can also set `smdi_pretimeout` ***x***, where ***x*** is the maximum number of seconds that a packet can precede the forwarded call. Start with 50, the default, but you may need to experiment to determine the best setting.

5. Set the smdi_start option to the number of digits in your extension plan. For example, the following indicates that you have three-digit extensions.

   ```
   smdi_start 3
   ```

6. (Optional) Set the smdi_stop option to the number of digits in your port number information that the telephone switching system will send. This number will usually be 2.

   ```
   smdi_stop 2
   ```

7. You can also set `smdi_delay` ***x***, where ***x*** is a number of tenths of seconds. Amanda waits that long after the call is answered before looking for integration information. This allows more than one packet to be sent to a port per telephone call. Amanda uses the last (most recent) packet. The default is 0.

   NOTE: The smdi_max and smdi_term configuration options do not apply to Ericsson MD-110 telephone switching systems.

You must also modify your C:\AMANDA\PBX.DB\1001.PBX file to include the SMDI information. Using the Amanda Setup utility (selection 3) or the JOVE utility, verify that your integration lines are as follows. When using Setup, type 10 in the Timeout field. (10 equals 10 tenths of seconds or a total of 1 second.) Then enter the integration strings in the column for the station plan your system uses.

Use an <available> entry for each string you are adding. (See “Using Character Codes” on page 32) for more information about the codes such as rrr or rrrr.)

	4-Digit Station Plan	**3-Digit Station Plan**
Forward no answer:	80rrrrxx	80rrrxx
Direct station access:	81eeeexx	81eeexx
Direct station access:	82eeeexx	82eeexx
Forward no answer:	83ssssrrrrxx	83sssrrrxx
Forward no answer:	85rrrrxx	85rrrxx
Forward no answer:	86rrrrxx	86rrrxx
Forward no answer:	91ssssrrrrxx	91sssrrrxx
Forward busy:	92ssssbbbbxx	91sssbbbxx
Forward no answer:	94rrrrxx	94rrrxx
Forward busy:	95bbbbxx	95bbbxx

If you are using the JOVE utility, the integration timeout precedes each integration string as follows. This example is only for 4-digit station plans.

	3-Digit Station Plan
integration 10	'80rrrxx'
integration 10	'81eeexx'
integration 10	'82eeexx'
integration 10	'83sssrrrxx'
integration 10	'85rrrxx'
integration 10	'86rrrxx'
integration 10	'91sssrrrxx'
integration 10	'92sssbbbxx'
integration 10	'94rrrxx'
integration 10	'95bbbxx'

NOTE: The number of x’s in the above strings is equal to the value of smdi_stop, while the number of `r`’s, `e`’s, `b`’s, and `s`’s is equal to the value of smdi_start. To modify the above for another digit plan, use the appropriate number of `r`’s, `b`’s, `s`’s, `e`’s, and `x`’s. In the example, 10 is used (causing Amanda to timeout after 1 second if the packet has not been received) because it works for all serial integration. The number is in tenths of seconds.

To program the message waiting lights for NEC 2000, use the following in the Method field of the two notification records used for Light ON and Light OFF:

Light ON: @S(3,'\B06%E01\N')

Light OFF: @S(3,'\B07%E01\N')

\B represents Ctrl+B, the start of transmission (STX) character. %E should be the same number of digits and smdi_start specifies.

NOTE: These examples uses logical serial port 3; for other ports, the 3's would have to be replaced.

Generic

This section covers a generic serial integration. It is designed for any telephone switching system using serial integration other than those that:

- Use Bellcore Standard SMDI
- Are NEC 2000 or NEC 2400 systems
- Are AT&T System 75 or Definity-G3 systems

To set configuration options for generic serial integration:

1. Follow steps 1 through 11 in the Bellcore Standard SDMI procedure "To modify configuration options for use with Bellcore Standard SMDI," in the "Bellcore Standard SDMI" section.

2. Change the smdi_type option to:

   To:

   ```
   smdi_type 'generic'
   ```

3. Modify `smdi_base_port 1` if the first port on the telephone switching system is not identified as the logical port 1. For example, some telephone switching systems use the port's extension or another logical terminal number to identify the port. The first port may be extension 241, with the second port 242, etc. **These numbers must be consecutive.** For example, if the first or base port is 241, you use `smdi_base_port 241`.

4. You can also set `smdi_pretimeout` ***n***, where ***n*** is the maximum number of seconds that an SMDI packet can precede the forwarded call. The default is 50.

5. You must set `smdi_start` ***n***, where ***n*** is the position in the integration packet sent by the telephone switching system where the field containing the port number starts. Start counting positions in the packet with the number 1. The default is 8.

6. You must set `smdi_stop` ***n***, where ***n*** is the position in the integration packet sent by the telephone switching system where the field containing the port number ends. Start counting positions in the packet with the number 1. The default is 11.

7. You must set `smdi_max` ***n***, where ***n*** is the maximum number of characters expected/accepted per packet. The default is 143.

8. You must set `smdi_term` ***n***, where ***n*** is the termination character set (if there is one). Leave this option empty if the packets are terminated only by receiving smdi_max characters.

9. You can also set `smdi_delay` ***n***, where ***n*** is the number of tenths of seconds that Amanda waits after the call is answered before looking for integration information. This allows more than one packet to be sent to a port per telephone call. Amanda uses the last (most recent) packet. The default is 0. The range is 0 to 255.

You must also modify the system integration patterns (stored in C:\AMANDA\PBX.DB\1001.PBX) using the Amanda Setup utility (selection 3) or the JOVE utility. You may need to write appropriate notification records to turn message lights on and off. Consult your PBX manual for this information.

Chapter 10:
Accessing Amanda Remotely

Accessing Amanda from Another Computer

You can control and configure Amanda@Work.Place remotely from another computer using the Host and Remote programs. Host runs on Amanda (server or standalone) and Remote runs on the computer that is accessing Amanda remotely. You also need either a null modem cable to connect the computers or a modem on each computer.

These programs allow the remote computer's monitor and keyboard to take over for Amanda's monitor and keyboard. You should see whatever is (or would be) visible on Amanda's monitor, and you can use Amanda as though you were operating her keyboard. You can run Setup and other programs on Amanda's computer while sitting at the remote computer.

NOTE: DOS programs that use graphics and pop-up decision windows may not be controllable or appear correctly on the screen while you are using the Remote program. Examples are Edit, MSD, Scandisk, and Defrag (when run in interactive, rather than batch, mode).
Never use Edit remotely. When you press Alt+X to close the file, you become disconnected. Use JOVE instead.

Setting Up Amanda's Computer as a Host

It is a good idea to run the Host program automatically whenever Amanda's computer starts. The AUTOEXEC.BAT file already contains lines that you can use for this purpose.

However, you must remove the REM at the beginning of the line to be used and at the beginning of the line above it (that line starts REM ECHO…) You might also have to change the number of the COM port to be used by the null modem cable or by the modem in Amanda's computer. If the line is missing, add it as the first line of the AUTOEXEC.BAT file.

Then reboot the computer to load the Host program.

The line for the null modem cable is:

```
REM LH HOST /2 /f /n >>%LOGN%
```

This lines for the modem and null modem cabled can be explained as follows:

REM	Indicates that the line is currently ignored. Remove the REM to use the line.
LH HOST	Tells the computer to load this program in high memory.
/2	The 2 is for COM2. You can change this number to the number of the COM port the null modem cable or modem will use.
/f	Indicates that the cable or modem is faster than 2400 bps.
/n	Indicates that a null modem cable will be connected to both computers.
>>%LOGN%	Sends information about loading the Host program to either the C:\BOOTLOG file or to the screen, depending whether your AUTOEXEC.BAT file contains the line SET LOGN=C:\BOOTLOG or the line SET LOGN=CON:

The line for the modem is:

```
REM LH HOST /4 >>%LOGN%
```

Use the list above (for the null modem) to understand each part of this line.

Change the /4 to the number of the COM port used by the modem on Amanda's computer, and add a /f if your modem can handle data speeds of higher than 2400 bps.

Setting Up the Remote Computer

The remote computer must have a copy of the Remote program. Then you can run the Remote program from that computer (for example, a notebook).You can copy REMOTE.COM from C:\AMANDA to a floppy disk using the following command at the DOS prompt:

```
copy c:\amanda\remote.com a:\remote.com
```

(Your floppy disk drive may be b: rather than a:.) Then you can insert the floppy disk into the remote computer and copy the file to that computer.

REMOTE.COM is also on one of your installation disks. You can use that floppy disk if you prefer.

If Amanda is running as a standalone, you can copy the file using the Alt+F (Filecopy) command from the Main screen. Simply answer the Copy From: and Copy To: prompts.

Connecting by Cable

To connect over a null modem cable:

1. Attach one end of the null modem cable to the correct serial port (for example, COM2) on Amanda's computer and to a serial port on the remote computer.

2. Turn on both computers.

3. From the remote computer, use the following command to start the Remote program.

   `remote /x /n /f`

   where ***x*** is 1 or 2, depending on what COM port the cable is connected to on the remote computer. For COM1, you can use /1 or nothing at all because COM1 is the default.

   You execute the command from the directory in which the Remote program is stored or you add the path name to the command. For example, if the program is stored in the UTIL directory on your C: drive, C:\UTIL\REMOTE would replace REMOTE in the command. If the computer runs a version of Windows, run the command from a DOS box.

4. Press Enter.

   The following appears on the screen:

   `Remote Version 2.0`

   You can run Setup and other programs on Amanda's computer while sitting at the remote computer. (If the screen is blank because of Amanda's screen saver, press the spacebar to exit the screen saver.)

5. To end the Remote session, press Alt+X.

   The program asks you to confirm your decision to exit by typing Y.

   The remote computer disconnects from Amanda.

Connecting by Modem

To connect via data modem, both Amanda's computer and the computer that will be accessing Amanda remotely must be running and have a modem that is connected to both a serial port and a telephone line. The data modem must be connected to either a dedicated telephone number (this works best) or station separate from the telephone system.

The Host program can use COM1 through COM4. The Amanda Company recommends that Amanda's computer use one of the following for the data modem:

COM1 with IRQ4 and not other devices on COM1 or using IRQ4

COM2 with IRQ3 and not other devices on COM2 or using IRQ3

COM3 with IRQ11 and not other devices on COM3 or using IRQ11

COM4 with IRQ5 and not other devices on COM4 or using IRQ5

The Remote program works only with COM1 or COM2, with industry standard IRQ and I/O port addressing. That is:

COM1 with IRQ4 and not other devices on COM1 or using IRQ4

COM2 with IRQ3 and not other devices on COM2 or using IRQ3

To control Amanda via modem:

1. Use the following command to start the Remote program:

   `remote /x`

   where ***x*** is 1 or 2, depending on what COM port the cable is connected to on the remote computer. (For COM1, you can use /1 or nothing at all because COM1 is the default.)

   You execute the command from the directory in which the Remote program is stored or you add the path name to the command. For example, if the program is stored in the UTIL directory on your C: drive, C:\UTIL\REMOTE would replace REMOTE in the command. If the computer runs a version of Windows, run the command from a DOS box.

2. Press Enter.

   The following appears on the screen:

   ```
   Remote Version 2.0
   Enter phone number:
   ```

3. Type the telephone number for Amanda, then press Enter.

   For example, if both modems are on the station side of the telephone switching system, you might use 9,17147530414,,,,,102 where the commas are two-second pauses and the 102 is for mailbox 102. In this example, the Extension field for mailbox 102 would have to be 102H to achieve a blind transfer to extension 102.

   `Enter password:` appears on the screen.

4. Type `JENNIFER` in uppercase letters, then press Enter.

   You can run Setup and other programs on Amanda's computer while sitting at the remote computer. (If the screen is blank because of Amanda's screen saver, press the spacebar to exit the screen saver.)

5. When you have finished, type Alt+X to end the connection.

   The program asks you to confirm your decision to exit by typing Y.

   The remote computer disconnects from Amanda.

Chapter 11: Programming Amanda

Using Tokens

The Token Programming Language allows you to write programs for Amanda. These programs consist of tokens entered in Extension fields (defined per mailbox using the Users screen) and/or in Method fields (defined per mailbox using the Notify Screen). This section describes the language and introduces you to common programming terms. Understanding these terms can help you understand any programming language.

A token is a sequence of one or more characters that represents an action that Amanda can perform. The tokens that you use most often are simple and perform routine actions such as dialing an extension. However, a program can be much more complicated than that.

With the Token Programming Language, you can use tokens to do either of the following:

- Enhance Amanda's normal processing of the Extension and Method fields. Normally, she uses Programmed Call Progress Monitoring (PCPM).

  In this case, you add the tokens where appropriate within the field.

  For example, `147H` is a sequence of four tokens that tells Amanda to dial the DTMF digits 147 (for extension 147) and then hang up. Notice that the tokens are not separated by spaces (or any other characters). You write tokens one right after the other.
- Stop Amanda's normal processing of the fields and tell her what to do.

  In this case, the first character in the field is @. Then you add the tokens that tell Amanda what to do.

  For example,

  `@R(G1,%S1)`
  assigns the DTMF digits entered by the caller to a variable named %S1. This starts with an @ to indicate that you are NOT processing this Extension field normally.

Normal processing for the Extension field: Amanda plays "Please hold while I try that extension," puts the caller on transfer hold, then evaluates the tokens in the field. Unless told to do otherwise, she listens for call progress tones and an answer.

The @ stops Amanda from performing the dial code that puts a caller on transfer hold (also known as the dl_dtwait dial code). As explained *in Installing Amanda@Work.Place*, you use the Setup utility (selection 1) to set or view the dial codes. The codes are stored in C:\AMANDA\PBX.DB\1001.PBX, which you can view or edit using the JOVE utility.

Normal processing of the Notify Method field: Amanda tries to access a port for an outbound notification call. The @ stops Amanda from going off-hook.

When most people think of a program, they think of a series of lines, each of which contains a single action or command. The Token Programming Language is similar, but each line become the contents of a different field, using the Extension field of a mailbox.

If the program contains only a few lines, sometimes you can use just one Extension or Method field for the entire program. However, when you need more fields, you use the Extension fields from additional mailboxes. Even if a Method field must be extended, you extend it to the Extension field in another mailbox.

You use additional fields for any of the following reasons:

- The logic of the program branches or repeats. You use a G() command or I() command to create the branch or loop. See “Flow of Control: Branching and Looping” on page 85 for more details.
- The length of the string of tokens exceeds 65 characters, so you are forced to continue in another field. You use a G() command to extend the token string to a new Extension field.

Mailbox Settings

If you are using a mailbox’s Extension field for token programming, you must use all of the following settings:

- Do Not Disturb must be off. Amanda ignores the Extension field altogether if Do Not Disturb is on.
- Call screening must be off.

Success and Failure

Amanda evaluates tokens from left to right. If Amanda performs a token successfully, she goes on to the next token.

When all the tokens have been performed successfully in an Extension field, Amanda goes to the RNA Chain field. If the RNA field is blank, she goes to the Done Chain field for the company greeting mailbox (usually mailbox 990).

When all the tokens have been performed successfully in the Notify Method field, Amanda goes to the next Notify Method field (if there is one). If there are no more Notify Method fields, Amanda goes to the Done Chain field for the current mailbox.

If the token is unrecognized (because of a syntax error or a typographical error) or fails, Amanda immediately goes to the Done Chain field without processing the rest of the tokens in the field. If the last successful token gives Amanda an invalid mailbox, she processes the Done Chain field for the mailbox associated with the current port because she cannot locate a Done Chain field for the invalid mailbox. (The mailbox associated with the port is usually 990, the Company Greeting mailbox.)

For a literal or system variable, there is no such thing as failure. The token always succeeds. Some tokens define almost any behavior as successful. For example, you can have Amanda spell an empty string. Amanda doesn’t say anything, but no failure occurs either.

Tracing Token Execution

Amanda's trace files can let you know where and how a token program is failing. This is an invaluable debugging tool.

Amanda creates trace files as she runs, because the following trace command should be in the AUTOEXEC.BAT file.

```
amanda /t5 /s1300
```

Like the default trace command, this command creates C:\AMANDA\TRACE.OUT file and limits its size to the last 1.3MB of data. (A file this size will fit on a 3 1/2-inch floppy disk.) What is different about this command is that it writes to the trace file every 10 lines. In this way, if Amanda crashes while running your token program, no more than ten lines of trace information can be lost. You can use /t with a number less than 10 if you need to, but it will slow down the system.

You can also display trace information on-screen.

To display trace information:

1. Press Ctrl+Home.

2. Press Alt+T.

Pressing any key stops the display. On-screen traces are stored by default in C:\AMANDA\SCREEN.OUT. To change the name of this file, use the Setup utility to change the setting for the configuration option screen_save.

Kinds of Tokens

Tokens fall into the following categories:

- Literals
- Variables
- Commands

Literals

A literal is an exact value such as the whole numbers 4 or 1144. Notice that you do not use commas within numbers. You use 1144—not 1,144.

The DTMF digits and most single-character tokens are literals. For example, the comma (,) that causes a pause is a literal.

Another type of literal is the string. In the Token Programming Language (as in most programming languages), a string is a sequences of characters. For example, JAMES DOLE is a 10-character string that starts with the letter J and ends with the letter E. To clearly show where a string begins and ends, programming languages require delimiters (characters that enclose the string, but are not part of it. In the Token Programming Language, you use single or double quotation marks as string delimiters. So JAMES DOLE becomes `'JAMES DOLE'` or `"JAMES DOLE"`.

"9," is a string that Amanda might dial for an outside line. It consists of the DTMF digit 9 followed by the comma for a pause.

A string that has no characters is called the empty string. It often occurs in programming and is written as `''` or `""`.

If you use one kind of quotation mark within a string, you should use the other kind as the string's delimiters: "Amanda's" or 'Do not use " (the double quotation character)'.

Variables

Each variable is the name of a storage location within the computer that can store a string or a whole number. After you store something in a variable, you can use that variable's name instead of typing the string or the number. This is useful because:

- Amanda's variables have simple names (no more than four characters) and save you typing time. (You are less likely to make a mistake typing a short variable name than a long string.)
- You can change the contents of the storage location and still use the same variable.
- Amanda can perform the same set of tokens over and over again with different values because the tokens use the variables rather than the values. For example, if you change the telephone number stored as a variable, Amanda dials the new number without you having to change any tokens.

The Token Programming Language has system, port, and global variables. Each of them starts with a percent sign (%).

System variables are controlled by Amanda. For example, %D contains the amount of available disk space, and %C contains the number of the port currently in use.

Port variables are controlled by you. Their names range from %S0 to %S19. Port variables provide 20 locations in which to store information on a per-port basis. The %S0 accessed by Amanda while using one port is not the same location as the %S0 accessed by Amanda while using another port.

Global variables are also controlled by you. Their names range from %G0 to %G9. These 10 locations are used by all the ports. The %G2 accessed by Amanda while using one port is exactly the same location as the %G2 accessed by Amanda while using another port.

Assignment

You control port and global variables. For example, you can assign numbers or strings to them and later change those numbers or strings. For example, you might assign the value of 65 to %G4 and the value "Amanda" to %S9. Assigning a value to a variable copies that value to the variable's storage location.

Initially, each port and global variable has the empty string as its value. Assignment is done in the Token Programming Language using the assignment command, which starts with the equal sign (=). When the variable contains a number, you can add to that number or subtract from it using the command that starts with a plus sign (+).

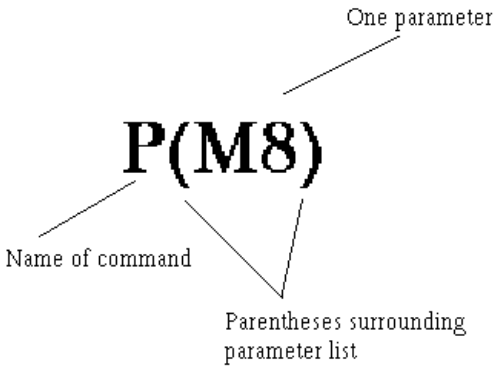
For example, =(%S1,24) puts the number 24 in the variable named %S1.
+(%S1,15) adds 15 to the 24 in %S1 and then stores the sum 39 in %S1.
+(%S1,-10) subtracts 10 from the 39 in %S1 and then stores the difference 29 in %S1.

Commands

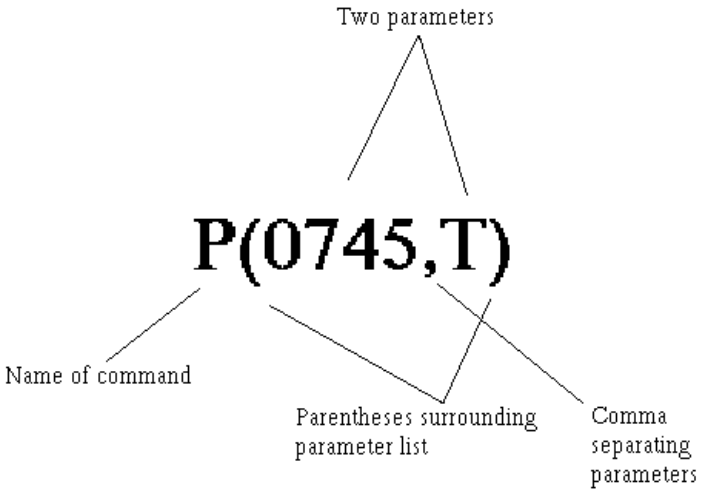
Commands are more complex than literals and variables. Commands perform actions. For example, a command may tell Amanda to play a particular message or go to another mailbox.

Each command has a name followed by a series of parts called parameters. Some parameters contain information that Amanda needs to perform the command. Others contain information that Amanda obtains for you as she performs the command. Each parameter is a literal, variable, or another command.

The parameters are delimited (surrounded) by parentheses and separated by commas. For example, P(M8) tells Amanda to play message number 8. The command name is P, and its only parameter is M8, which is surrounded by parentheses.



The command P(0745,T) tells Amanda to say the number 0745 as a time. It also has the command name P, but it has two parameters: the number 0745 and the literal T.



When a command is referred to by name in this guide, the parentheses appear after the command's name. For example, the command named P is referred to as the P() command, which is read as "the P command."

Parameters

Parameters can be required or optional. The syntax places brackets […] around optional parameters.

Parameters can also be for input or for output. Input parameters provide the information that Amanda needs in order to perform the action that you requested. For example, Amanda might need the name of the file in which to store a fax or the telephone number for a pager. You supply the input parameters and make sure that the information in them is correct. Input parameters can be literals, variables, or other commands.

Output parameters are parameters that store information you asked Amanda for. Output parameters are always variables because Amanda must store the information you requested in a storage location. Usually one command asks for the information, Amanda stores the information in a variable, and another command uses that variable. For example, you might use the V() command to retrieve a telephone number from a file. If the output parameter for the telephone number is %S5, Amanda stores the telephone number in the variable %S5. Then you use %S5 in a T() command to send a fax using that telephone number.

The syntax in the guide does not indicate which parameters are input and which are output. This is clear from the descriptions of the command and parameters.

When a string is used as a parameter, you don't always need the quotation marks, because the commas and parentheses serve as delimiters. You must use the quotation marks when a variable is part (but not all) of the string. For example, if %S0 is MARY and %S5 is HU, the string "MARY HU" can be used as a parameter with or without quotation marks, but the strings "%S0 HU", "%S0 %S5", and "%S0 %S5" must have quotation marks. Most programming languages do not allow you to put variables within strings. The Token Programming Language allows this, but it only checks for variables within a string if you delimit that string with quotation marks. You cannot use a number from 0 to 9 after %S1 in a string because Amanda assumes that you meant the variable %S10 or %S11, etc.

Most system variables do not have parameters. However, a couple of system variables have parameters that affect the contents of that system variable. For example, to use %I, the system variable that retrieves data from specific fields of specific messages, you use parameters to indicate which field, message number, and mailbox you want the data from.

Syntax

The exact sequence of characters for each token is defined by its syntax, so you have to learn to read syntax. The following table shows the conventions used in this guide. They are similar to the syntax conventions used for other programming languages.

Syntax Convention	Meaning
bold	Bold is used for characters that must be used by you exactly as they appear—if you use them at all.
italics	Italics are used for characters that you must replace with real strings, numbers, variables, or other commands.

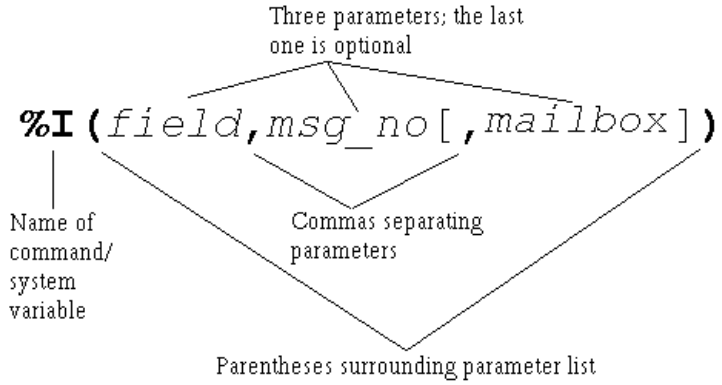
[ ]	The syntax inside the brackets is optional. If you don't use this syntax, its default is used.
{ }	The syntax inside braces can be repeated.

For example, the following is the syntax for %I:

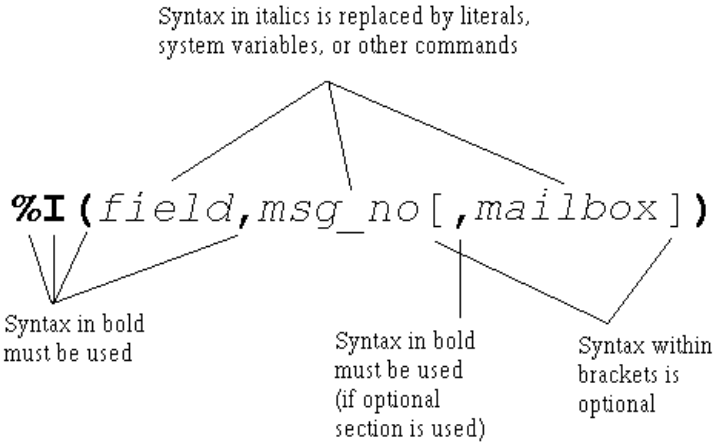
Syntax:

%I(*field*,*msg_no*[,*mailbox*]**)**

%I() has three parameters: field, msg_no and mailbox.



Because the %I and parentheses are bold, you know that you have to include them in the command. The commas are bold, but the one in front of mailbox is inside brackets […], which surround optional parts of the syntax. If you use the bracketed part of the syntax, you must use the comma.



Because *field* is italicized, you know that it is a place holder for information that you must provide. *Field* can be any one of the following fields associated with messages:

D for the Date field

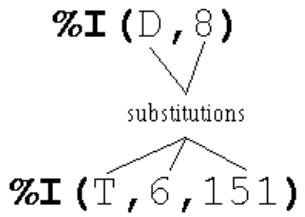
T for the Time field

F for the From field

Because *msg_no* is also italicized, you know that it is a place holder for information that you must provide. For example, to find out the date for message number 8, you replace *msg_no* with the number 8. Because *mailbox* is inside brackets, you replace it only if you use that part of the syntax. For example, you may want to delete a message belonging to mailbox 151.

Whenever a parameter is optional, such as *mailbox*, it has a default. A default is the value that is used for the parameter whenever the parameter is missing. The default for mailbox is the current mailbox.

Using the syntax, you can create any number of %I() commands. For example, %I(D,8) provides the date for message 8 for the current mailbox, and %I(T,6,151) provides the time for message 6 for mailbox 151.



Both the Extension and Notify Method fields can contain up to 65 characters. If you need more than 65 characters for your program, you use:

- A command that reads additional tokens from a file
- The G() command to tell Amanda to go to the Extension field for another mailbox and process the tokens she finds there

Files and Directories

This section points out what you need to know about files and file names when using the Token Programming Language. It assumes that you already know the following and other facts about files and directories:

- DOS files are stored in directories.
- The complete name for a file starts with the root directory (usually C:), lists the subdirectories leading to the file, and ends with the name of the file, each of which is separated by a backslash (\).

When you use a DOS file name as a parameter, you must replace each backslash (\) found in the name with either two backslashes (\\) or one forward slash (/). For example, C:\AMANDA\FOOBAR.TXT must become either C:\\AMANDA\\FOOBAR.TXT or C:/AMANDA/FOOBAR.TXT.

You can use variable names as parts of the file name. For example, if %S1 is C:, and %S2 is Amanda, you can use "%S1\\%S2\\FOOBAR.TXT".

Amanda can read text files (also called ASCII files) as well as files in dBase format. The former have file names that usually end with .TXT, and the latter have file names that end with .DBF. Amanda can read from, write to, and search files that contain database records. A record is a way to group pieces of information. For example, your name and address is a

record in a database for any company that sends you supplies. The individual parts of your name and address are fields of that record. In a database, another name for a record is a row, and another name for a field is a column.

Sample Address Record:

First Name: MARY Last Name: HU

Street Address: 28291 HOOVER ST.

City: WINTER FALLS State: MI

Zip: 48444

Text files that contain database records should have commas separating each field of each record and a carriage return/linefeed separating one record from another. (A carriage return/linefeed is the pair of ASCII characters placed in a file when you press Enter on your keyboard.)

Sample Address Record as a line in a text file:

MARY,HU,28291 HOOVER ST.,WINTER FALLS,MI,48444

When Amanda reads records from a text file, you tell her the number of the fields you want to read or change the data in. The fields are numbered starting with 1. In our example, First Name is 1, and Last Name is 2.

dBase files are created using dBase, a database software product. For dBase files, you tell Amanda the name of the field instead of its number. When Amanda reads data from a dBase file, she deletes any spaces at the end of the data as she stores the data into a variable. For example, if the field contains "MARY ", Amanda reads only "MARY".

Flow of Control: Branching and Looping

When programming Amanda, you often type the tokens for a program in more than one field. This is not because you have exceeded the 65-character limit for the Extension or Notify Method field, but because you want to control the flow of token processing. For example, the only way to have Amanda perform different actions based on the value of a variable, is to put the tokens for one set of actions in another Extension field.

The commands that control the flow of tokens are:

- The I() command which compares two values. (Notice that this is not the same as the %I() command/system variable discussed earlier in this chapter.) This command is similar to the If command or If statement in other programming languages. It is used to branch in either of two directions, depending on whether the comparison is true or false. If the comparison is true, Amanda goes to another mailbox's Extension field and processes the tokens there. If the comparison is false (for example, %S1 is not equal to the empty string), Amanda continues processing tokens where she is.

  For example, I(%S1,=,",101) can be read as "If the variable %S1 equals the empty string, go to mailbox 101. If not, go to the next token in this mailbox."
  I(%G0,>,5,2000) can be read as "If the variable %G0 is greater than 5, go to mailbox 2000. If not, go to the next token in this mailbox."

- The G() command which tells Amanda to go to another mailbox's Extension field right now. (Notice that this is not the same as the %G0 through %G9 global variables.) There is no comparison made—just an immediate branch to a new mailbox.

  For example, G(2000) can be read as "Go immediately to mailbox 2000."

A loop is the name given to a set of tokens that are repeated. For example, if the last token in the Extension field for mailbox 151 is G(151), Amanda returns to the beginning of the Extension field for mailbox 151. This forms a loop. It forms an infinite loop unless Amanda can branch to another mailbox's Extension field before performing the G() command. Sometimes you want an infinite loop, but usually an I() command appears within the loop (somewhere between the beginning of the loop and the G() command) and allows Amanda a way out of the loop.

For example, if you want Amanda to process the tokens for 151 exactly three times, you use a variable as a counter. You add 1 to the variable every time through the loop and branch when the I() command determines that the variable is equal to 3.

If you want Amanda to process the tokens for 151 until a certain value is entered by the caller, you store the caller's input in a variable and use the I() command to branch when the variable finally contains the value you are waiting for.

The examples in this section shows a loop in which Amanda repeats the tokens in one Extension field over and over—until stopped. You can make more complicated loops. For example, you can use the G() command to go from mailbox 151 to mailbox 152 to mailbox 153, before returning to mailbox 151. This is still a loop because eventually Amanda returns to mailbox 151. It is just a longer, more complicated loop than the earlier examples.

Examples

This section provides practical examples using some of the available tokens.

Customizing the Employee Directory

The default operation of the employee directory minimizes the work you have to do as a system administrator. All you have to do is put values in the Dir Name 1 and Dir Name 2 fields for each employee's mailbox. A little extra work on your part can make it easier for the caller to use the employee directory.

Application

This example explains how to streamline the functionality of the employee directory (by default, mailbox 411) so that the caller does not have to dial the extension.

The default use of the employee directory:

1. A caller enters 411 for the employee directory.

2. The caller enters three digits representing the first three letters in either the first or last name of the person he wants to call.

3. Amanda reads the extension for each person whose name matches the digits.

4. The caller dials the correct extension.

The customized use of the employee directory:

1. A caller enters 411 for the employee directory.
2. The caller enters three digits representing the first three letters in either the first or last name of the person he wants to call.
3. If more than one employee matches the digits, Amanda asks the caller to choose.

   For example, Amanda might say “For Steve Smith, press 1; for Stella Clark, press 2.”
4. Amanda dials the extension.

Translating to Amanda’s Tokens

This example shows the use of the G() command, which stops Amanda from processing the current mailbox and goes directly to the specified mailbox. It also illustrates the M() command that causes Amanda to play a greeting and wait for a single-digit number from the menu as a response.

To customize the employee directory:

1. Make a list of everyone’s first and last names (as they will appear in the Dir Name 1 and Dir Name 2 fields in their mailboxes).

   Example:

Steve	Forest	Mailbox 105
JoAnn	Johnson	Mailbox 106
Bob	Knapp	Mailbox 107

2. Determine what three digits would match each name:

   Example:

Steve 783	Forest 367	Mailbox 105
JoAnn 562	Johnson 564	Mailbox 106
Bob 262	Knapp 562	Mailbox 107

3. Create mailboxes for each of the sets of three-digits.

   Example:

   Create mailboxes 783, 367, 562, 564, and 262.

4. For each of these mailboxes, make sure that:

   Do Not Disturb is locked OFF. (Do Not Disturb: OFF Lock: ON)

   Call screening is locked OFF. (Screen Calls? OFF Lock: ON)

5. Fill in the Extension fields for mailboxes that only match one of the employees with **@G(***employee_mailbox***)**

   Example:

   Because 783 and 367 match Steve Forest, the Extension fields for mailbox 783 and mailbox 367 should be:

   @G(105**)**

   Because 564 matches JoAnn Johnson, the Extension field for mailbox 564 should be:

   @G(106**)**

   Because 262 matches Bob Knapp, the Extension field for mailbox 262 should be:

   @G(107**)**
   or
   @P(G1)P(N,107**)G(**107**)**

6. For mailboxes that match more than one of the employees:
   a. Record G1 (Greeting 1) as "For *first matching name*, press 1; for *second matching name*, press 2; …" substituting the real names of employees for the italicized words.
   b. In the Menus fields, put the mailbox for the first matching name in 1; the mailbox for the second in 2, and so forth.
   c. In the Extension field, puts:

      @M(G1,1,30**)**

   This command causes Amanda to play Greeting 1 and waits for the caller to enter a digit indicating a choice from the menu. If the caller does not enter a digit within 30 seconds, Greeting 1 repeats.

   Example:

   Because 562 matches both JoAnn Johnson and Bob Knapp, the Menus for mailbox 562 would be:

   1 106

   2 107

   The greeting would be:

   "For JoAnn Johnson, press 1; for Bob Knapp, press 2."

TIPS: To make this better yet, use:
@P(G1)P(N,*employee_mailbox***)**
G(*employee_mailbox***)**
instead of:
@G(*employee_mailbox***)**
Record a Greeting 1 for each of the new mailboxes that says "You are being transferred to" after which Amanda plays the Name and Extension recording for the employee's mailbox. For mailbox 564 in the example, this would look like:
@P(G1)P(N,106**)G(**106**)**
The P() command plays greetings and so forth. In this case, the first P() command plays Greeting 1; the second plays the Name and Extension recording.

If the matching digits conflict with existing mailboxes (for example, 564 matches JoAnn Johnson, but it is already the mailbox for another employee), use 99564 or some other variation that does not conflict with employee mailboxes.

When more than one employee matches the digits that the caller enters, you can add 9 to the menu (with mailbox 411) and append the greeting to end with: "…press 9 to return to the employee directory." Then, if the caller doesn't want any of the people mentioned in the greeting, he can try another name.

Token Reference

This section contains two tables, each of which lists all of the tokens in the Token Programming Language:

- A **quick token reference** table, which lists each token by its function or purpose. The functions are in alphabetical order so that you can easily find all the tokens that perform similar functions. For example, the J() and T() commands both deal with faxes so they are grouped under Fax. This table provides only the syntax for each token. For a full description of the token, you must look in the alphabetical reference.
- An **alphabetical token reference** table, which lists the tokens in alphabetical order based on the first letter in the token's name. For example, %I and I are found under I. Tokens whose names do not contain a letter are listed in ASCII order before the letters. This table provides complete descriptions and examples of each token.

Quick Token Reference

Function/Purpose of Token	Syntax
absolute value	**P**[*repetition*]**(***number*,**N)**
Add	**+(***variable*[,*value*]**)**
ANI (Automatic Number Identification)	**%H**
Append, file	**|(***file***)**
Assignment	**=(***variable*,*value*[,*start*,*end*]**)**
Boards, serial numbers	**%B1** **%B2** **%B3** **%B4** **%B5** **%B6**
Caller hang-up	**H(***mailbox***)**
Caller ID	**%H**
Comment	**%F(***field*[,*mailbox*]**)**
Condition	**I(***value*,*operator*,*value*,*mailbox***)**
Conference call	*ext_no***KM**
Creating message notification file	**X**[**(***file***)**]
Currency	**P**[*repetition*]**(***amount*,*currency***)**
Current connect time	**%T**

Quick Token Reference (Continued)

Function/Purpose of Token	Syntax
Current date in American format	**%Y**
Current port number	**%C**
Current time	**%Z**
Current mailbox	**P**[*repetition*] **(U**[**,***mailbox*]**)**
	%U
Current mailbox's Extension field	**%E**
Date	**%I(***field***,***msg_no*[**,***mailbox*]**)**
	P[*repetition*]**(***date***,D)**
	%Y
Days of week	**%W**
Deleting file	**Y**[**(***file***)**]
Deleting, message	**KD(***msg_no*[**,***mailbox*]**)**
Dial (pulse dial)	**~**
Dial codes	**F**
dial tone	**%X**
dial tone, wait for	**W(***n***,T**[**,***mailbox*]**)**
Directory Name field	**%F(***field*[**,***mailbox*]**)**
Disk space	**%D**
	P[*repetition*]**(D)**
Dollars	**P**[*repetition*]**(***amount***,***currency***)**
DTMF digits	**P**[*repetition*]**(***DTMF***)**
	P[*repetition*]**(R)**
	0 1 2 3 **4 5 6 7** **8 9 A B** **C D * #**
DTMF for relay paging	**P**[*repetition*] **(R)**
	%R
DTMF, save caller's entry	**R(***greeting*[**#***mailbox*]**,***variable*[**,***timeout*]**)**
Exit for caller hang up	**H(***mailbox***)**
Exit for mailbox	[*ext_no*]**H**

Quick Token Reference (Continued)

Function/Purpose of Token	Syntax
Extension field	*ext_no*
	@
	%E
*Extensions, partially supervised transfer	**U-***ext_no*
Fax, incremental	**<(***phone_no***)**
	>(*file***)**
Fax, initialization	**%A**
Fax, receive	**J(***file_or_box***,***phone_no***[,***tokens***])**
Fax, send	**T(***file***,***phone_no***[,***tokens***])**
Fields, process extension or Notify field as tokens	@
Fields, returns number of characters in a string	**LEN[***string***]**
Fields, values in mailbox record	**%F(***field* **[,***mailbox***])**
Fields, Variable field in notification record	**%V**
Fields, Extension	**%E**
Fields, information	**%I(***field***,***msg_no***[,***mailbox***])**
Files, append	**|(***file***)**
Files, as indicators	**X[(***file***)]**
	Y[(*file***)]**
	Z[(*file***)]**
Files, delete record	**KV(***file***,***field***,***value***)**
Files, from recordings	**KR(***file_or_box***[,***recording_info***])**
Files, import	**{***file***}**
Files, read	**{***file***}**
	V(*file***,***field***,***value***{,***field***,***variable***})**
	[(*file***)**
	N(*file***,***field***,***value***{,***field***,***variable***})**
Files, search	**?(***line***,***file***,***mailbox***)**
Files, voice	**P[***repetition***](X,***file***)**

Quick Token Reference (Continued)

Function/Purpose of Token	Syntax
Files, write	**](***file***)**
	N(*file***,***field***,***value***{,***field***,***variable***})**
Francs	**P**[*repetition*]**(***amount***,***currency***)**
Free disk space	**P**[*repetition*] **(D)**
	%D
Frequency	**KB(***frequency***,***msecs***)**
From	**%I(***field***,***msg_no*[**,***mailbox*]**)**
Goto	**G(***mailbox***)**
Greeting	**P**[*repetition*]**(***greeting*[**,***mailbox*]**)**
Hang-up	[*ext_no*]**H**
	O(*time***)**
Hang-up, cleanup	**H(***mailbox***)**
Hang-up, partially supervised	**U-***ext_no*
Hookflash	**F**
	O(*time***)**
If	**I(***value***,***operator***,***value***,***mailbox***)**
Import, file	**{***file***}**
Information mailboxes	**M(***greeting*[*#mailbox*]**,***repetition***,***delay***)**
IVR	**%I(***field***,***msg_no* [**,***mailbox*]**)**
Languages, change	**L(***file***)**
Length	**LEN[***string***]**
Letters and spaces	**P**[*repetition*]**(A,***string***)**
LIGHT.ON See also message waiting indicators.	**X**[**(***file***)**]
	Y[**(***file***)**]
	Z[**(***file***)**]
Menu	**M(***greeting*[*#mailbox*]**,***repetition***,***delay***)**
Messages	**%I(***field***,***msg_no*[**,***mailbox*]**)**
Messages, by number	**P**[*repetition*]**(M***n*[**,***mailbox*]**)**
Messages, delete	**KD(***msg_no*[**,***mailbox*]**)**
Messages, from recordings	**KR(***file_or_box*[**,***recording_info*]**)**

Quick Token Reference (Continued)

Function/Purpose of Token	Syntax
Messages, number	**%M**[**(***mailbox***)**]
Messages, number of new	**%N**
Messages, record and send to mailing list	**KJ(***mailbox***,***list_number*[**,***sender*]**)**
Messages, total	**P**[*repetition*]**(M**[**,***mailbox*]**)**
Message count, total for mailbox	**%M**[**(***mailbox***)**]
	P[*repetition*] **(M**[**,***mailbox*]**)**
Message count, new for current user	**%N**
Message waiting indicators, creating	**X**[**(***file***)**]
Message waiting indicators, deleting	**Y**[**(***file***)**]
Message waiting indicators, testing for	**Z**[**(***file***)**]
Message waiting indicators, turning on and off	**KA(***on_off***)**
Money	**P**[*repetition*]**(***amount***,***currency***)**
Name and extension	**P**[*repetition*]**(U**[**,***mailbox*]**)**
	P[*repetition*]**(N**[**,***mailbox*]**)**
Notification record, Method field	@
Notification record, Variable field	**P**[*repetition*] **(V)**
	%V
Notify, relay paging	**P**[*repetition*] **(R)**
	%R
Number	**P**[*repetition*] **(***number***,N)**
	P[*repetition*] **(V)**
On-hook	**O(***time***)**
Pager	**P**[*repetition*] **(R)**
	%R
	%V
Pager, wait for	**W(***n***,P**[**,***mailbox*]**)**
Partial supervised transfer	**U-***ext_no*
Pauses	**-**
	,

Quick Token Reference (Continued)

Function/Purpose of Token	Syntax
	W(*n*)
Pesos	**P**[*repetition*]**(***amount*,**P)**
Playing, absolute value	**P**[*repetition*]**(***number*,**N)**
Playing, currency	**P**[*repetition*]**(***amount*,*currency***)**
Playing, date	**P**[*repetition*]**(***date*,**D)**
Playing, disk space	**P**[*repetition*]**(D)**
Playing, DTMF digits	**P**[*repetition*]**(R)**
	P[*repetition*]**(***DTMF***)**
Playing, greeting	**P**[*repetition*]**(***greeting*[,*mailbox*]**)**
Playing, menu	**M(***greeting*[*#mailbox*],*repetition*,*delay***)**
Playing, messages	**P**[*repetition*]**(M***n*[,*mailbox*]**)**
Playing, money	**P**[*repetition*]**(***amount*,*currency***)**
Playing, name and extension	**P**[*repetition*]**(N**[,*mailbox*]**)**
	P[*repetition*]**(U**[,*mailbox*]**)**
Playing, number	**P**[*repetition*]**(***number*,**N)**
Playing, number of messages	**P**[*repetition*]**(M**[,*mailbox*]**)**
Playing, prompt	**P**[*repetition*]**(***prompt_no*,**V)**
Playing, spelling	**P**[*repetition*]**(A,***string***)**
Playing, time	**P**[*repetition*]**(***time*,**T)**
Playing, Variable field	**P**[*repetition*]**(V)**
Playing, voice file	**P**[*repetition*]**(X,***file***)**
Ports	**S(***port*,[*string*,[*variable*],[*termination*], [*length*],[*timeout*]**)**
Ports, change volume	**^(***volume_change***)**
Port, current connect time	**%T**
Port number, current	**%C**
Port, transfer code for current	**%X**
Previous mailbox	**%P**
Prompt	**P**[*repetition*] **(***prompt_no*,**V)**
	L(*file***)**

Quick Token Reference (Continued)

Function/Purpose of Token	Syntax
Pulse dial	**~**
Questions and answers	**Q(**{*greeting*[*#mailbox*][**,E**]}**)**
Read, file	**{***file***}**
	N(*file*,*field*,*value*{,*field*,*variable*}**)**
	V(*file*,*field*,*value*{,*field*,*variable*}**)**
Recordings, stored as messages or files	**KR(***file_or_box*[,*recording_info*]**)**
Records, delete	**KV(***file*,*field*,*value***)**
Remote computers	**S(***port*,[*string*,[*variable*],[*termination*], [*length*],[*timeout*]**)**
Rings, wait for number of	**W(***n*,*event* [,*mailbox*]**)**
Search, file	**?(***line*,*file*,*mailbox***)**
	N(*file*,*field*,*value*{,*field*,*variable*}**)**
	V(*file*,*field*,*value*{,*field*,*variable*}**)**
	KV(*file*,*field*,*value***)**
Search, string	**KI(***target*,*source*,*variable***)**
Security code	**KC(***mailbox*,*variable***)**
	KL(*mailbox*,*security_code***)**
	KP(*mailbox*,*security_code***)**
Serial port access	**S(***port*,[*string*,[*variable*],[*termination*], [*length*],[*timeout*]**)**
Set Name	**%F(***field*[,*mailbox*]**)**
Shutdown	**KS**[**(***errorlevel***)**]
Sound volume, change	**^(***volume_change***)**
Space	**%D**
	P[*repetition*]**(D)**
Spell	**P**[*repetition*]**(A,***string***)**
String, search	**KI(***target*,*source*,*variable***)**
Strings, length	**LEN[***string***]**
Subtract	**+(***variable*[,*value*]**)**
Testing for message notification file	**Z**[**(***file***)**]

Quick Token Reference (Continued)

Function/Purpose of Token	Syntax
Time	**%I(***field*,*msg_no*[,*mailbox*]**)**
	P[*repetition*]**(***time*,**T)**
Time, connect time	**%T**
Time, current	**%Z**
Timed break recall	**~**
Tokens, processing	@
Tones	**0 1 2 3** **4 5 6 7** **8 9 A B** **C D * #**
Total messages	**P**[*repetition*] **(M**[,*mailbox*]**)**
Transfer code for current port	**%X**
Transfer, unsupervised (blind)	[*ext_no*]**H**
Transfer, supervised	*ext_no*
	*ext_no***KM**
Transferring to specified mailbox	**G(***mailbox***)**
Mailbox access	**KC(***mailbox*,*variable***)**
	KL(*mailbox*,*security_code***)**
	KP(*mailbox*,*security_code***)**
Mailbox, current	**%U**
Mailbox, Extension field of current	**%E**
Mailbox, new message count	**%N**
Mailbox, playing Name/Extension recording	**P**[*repetition*] **(U**[,*mailbox*]**)**
Mailbox, previous	**%P**
Mailbox, total message count	**%M**[**(***mailbox***)**]
Mailbox, value of field	**%F(***field* [,*mailbox*]**)**
Variable field	**P**[*repetition*]**(V)**
	%V

Quick Token Reference (Continued)

Function/Purpose of Token	Syntax
Variables	**[(***file***)**
	](*file***)**
	|(*file***)**
	+(*variable*[**,***value*]**)**
	=(*variable***,***value*[**,***start***,***end*]**)**
	%G0 %G1 %G2 %G3 %G4 **%G5 %G6 %G7 %G8 %G9**
	%S0 %S1 %S2 %S3 **%S4 %S5 %S6 %S7** **%S8 %S9 %S10 %S11** **%S12 %S13 %S14 %S15** **%S16 %S17 %S18 %S19**
Variables, shift	**K<(***x*[**,***value*]**)**
Voice boards, serial numbers	**%B1 %B2 %B3** **%B4 %B5 %B6**
Voice form	**Q(**{*greeting*[**#***mailbox*][**,E**]}**)**
Voice, wait for	**W(***n***,V**[**,***mailbox*]**)**
Volume change for port	**^(***volume_change***)**
Waiting, for a number of tenths of a second	**W**(*n*)
Waiting, for dial tone, pager, voice	**W(***n***,***event* [**,***mailbox*]**)**
Weekday	**%W**
Write, file	**](***file***)**
	N(*file***,***field***,***value*{**,***field***,***variable*}**)**

Alphabetical Token Reference

Token Syntax	Description
`-`	Literal that pauses processing for .5 (one-half) second.
`,`	Literal that pauses for 2 seconds. Used when dialing an extension or to introduce a pause before processing the next token. **NOTE:** Be careful not to confuse this comma with the separator found in commands and records.
`?(`*`line`*`,`*`file`*`,` *`mailbox`*`)`	Command that searches the specified file (line by line) for the specified line. The line must match an entire line within the file. If the line is found, processing continues at the specified mailbox. If the line is not found, processing continues with the next token. *line* The string or variable to be matched as a line in the file. No line in the file should exceed 143 characters. *file* A string or variable containing a valid DOS file name for the text file to be searched. Use the complete path to the file unless the file is in C:\AMANDA. There is no limit to the number of lines in the file. *mailbox* A valid mailbox or a variable containing a mailbox. **Example:** `?(%S9,C:\\AMANDA\\FOOBAR.TXT,247)` causes Amanda to search FOOBAR.TXT for a line that matches the characters in %S9. If a line is found, Amanda continues processing at mailbox 247. **Failure:** Invalid mailbox
`@`	Literal that causes Amanda to process the Extension or Notify Method field as a set of tokens instead of processing the field normally. **Normal processing for the Extension field:** Amanda plays "Please hold while I try that extension," puts the caller on transfer hold, then evaluates the tokens in the field. The @ stops Amanda from performing the dial code that puts a caller on transfer hold (also known as the dl_dtwait dial code). As explained *in Installing Amanda@Work.Place*, you use the Setup utility (selection 1) to set or view the dial codes. The codes are stored in C:\AMANDA\PBX.DB\1001.PBX, which you can view or edit using the JOVE utility. **Normal processing of the Notify Method field:** Amanda tries to access a port for an outbound notification call. The @ stops Amanda from going off-hook.

Alphabetical Token Reference (Continued)

Token Syntax	Description

[(*file***)**	Command that reads the first line in the specified file as the first ten port variables (%S0-%S9). The 10 values in the file must be comma delimited. The first value is %S0, the second is %S1, etc. The quotation marks used to delimit strings do not appear in the file, but the commas that separate them from the other variables do. For example, empty strings take up no space in the file.
	This command is usually used with the]() command to keep track of what the port is doing. You read the variables using the [() command, update them, and then write them to the file once more using the]() command.
	Read with the [() command and write with the]() command within the same field to avoid potential simultaneous access errors caused by another port accessing the file.
	If the file does not exist, Amanda just goes on to the next token.
	file A string or variable containing a valid DOS file name for the text file to be read. No line in the file should exceed 143 characters. There is no limit to the number of lines.
	Example:
	`[(C:\\AMANDA\\FOOBAR.TXT)`
	places the following line in FOOBAR.TXT
	`,,,10,,,,5,9,555`
	In this case %S0, %S1, %S2, %S4, %S5, and %S6 were empty strings.
	To count the number of calls, etc. processed by a particular port (or all ports), read the variables, add 1 to the contents of the one that stores the count, and write the variables back to the file.
	`[(C:\\AMANDA\\FOOBAR.TXT)+(%S4)]`
	`(C:\\AMANDA\\FOOBAR.TXT)`
	If you are counting all ports, use the same file for all ports. If you are counting per port, use a different file for each port.
	Failure: Does not fail

\\	Backslash, the actual "\" character. Can be used in strings. **Failure:** Does not fail
\A	Attention, which is a bell sound (Ctrl+G). Can be used in strings. **Failure:** Does not fail
\B	Ctrl+B. Added for Ericsson MD-110 serial integration. For the MD-110, Ctrl+B is the Start of Transmission (STX) character. Can be used in strings. **Example:** `@S(3,"\B06%Emm\N")` which controls message waiting indicators. **Failure:** Does not fail
\N	Newline (Ctrl+J). Can be used in strings. **Failure:** Does not fail
\R	Return (Ctrl+M). Can be used in strings. **Failure:** Does not fail
\T	TAB (Ctrl+I). Can be used in strings. **Failure:** Does not fail

Alphabetical Token Reference (Continued)

Token Syntax	Description
](*file***)**	Command that writes the values of the first 10 port variables (%S0–%S9) to the specified file. The values are comma-separated and terminated by a carriage return/linefeed. Usually used in conjunction with the [() command which reads the %S variables. *file* A string or variable containing a valid DOS file name for the text file to be written to. Use the complete path to the file unless the file is in C:\AMANDA. **Example:** See the [() command. **Failure:** The file is read-only Insufficient disk space to save file
^(*volume_change***)**	Command that changes the volume of the current port. *volume_change* Amount to increase or decrease the current volume. Use a positive number to increase the volume and a negative number to decrease the volume. Use the minus sign for negative numbers, but omit the plus sign for positive numbers. Amanda gives you a volume as close as possible to what you ask for. The volume ranges from 1 (the softest) to 9 (the loudest). Initially, the volume is set to 5, but that is not necessarily its current value. If the volume is 5, and you apply a change of 4, the volume goes to 9. If you apply a change of 6, the volume goes to 9 and Amanda ignores the fact that you asked for more volume than was available. **Example:** `^(8)` raises the volume of the port to its loudest. **Failure:** Does not fail
{*file***}**	Command that reads Amanda tokens from an external file. This allows you to exceed the 65-character limit in the Extension and Notify Method fields. If the file does not exist, Amanda just goes on to the next token. *file* A string or variable containing a valid DOS file name. Use the complete path to the file unless the file is in C:\AMANDA. The file must be a text file containing valid Amanda tokens. No line in the file should exceed 143 characters. There is no limit to the number of lines in the file. **NOTE** Since the entire file is read and since white space is ignored, you can make the file easier to read by putting one token per line. (White space is tabs, spaces, and carriage return/linefeeds.) **Example:** `{C:\\AMANDA\\RELAY.TXT}` causes Amanda to process the tokens in RELAY.TXT. **Failure:** Does not fail The failure of any token within the file causes the rest of the file to be ignored. Then Amanda executes the token after the {} token or the RNA chain if there is no token after the {} token.
|(*file***)**	Command that appends the first ten %S port variables (%S0–%S9) to the specified file. If the file does not exist, Amanda creates it. The values are comma-separated and terminated by a carriage return/linefeed. *file* A string or variable containing a valid DOS file name for a text file. Use the complete path to the file unless the file is in C:\AMANDA. **Example:** `|(C:\\AMANDA\\PORTVARS.TXT)` causes Amanda to add a line to PORTVARS.TXT. You can use this to add a line to PORTVARS.TXT every time the port you are tracing changes the value of a variable. Later you can review the file. **Failure:** The file is read-only Insufficient disk space to save file

Alphabetical Token Reference (Continued)

Token Syntax	Description
~	Literal that pulse dials the digit 1 to effect a timed break recall.

+(*variable* [,*value*]**)**	Command that allows you to add a number to or subtract a number from the value stored in a variable. Usually used to set limits and control programming loops.
	variable One of port or global variables.
	value Optional. A number or variable. The default is 1.
	Example:
	`+(%S7,-1)`
	subtracts 1 from the value stored in %S7.
	`+(%G6)`
	adds 1 to the value stored in %G6.
	Failure: Does not fail

<(*phone_no***)**	Command that allows a caller to request and transmit multiple fax documents with one call. It must be used in conjunction with the >() command. To fax multiple documents, you initiate the process with this command and, as the caller requests faxes, you add the file for the requested document using the >() command. The fax is sent automatically after the caller hangs up.
	phone_no String, number, or variable containing the DTMF digits to be dialed.
	This command is used only in Extension fields.
	Example:
	`<(9,7144525570)>(C:\\AMANDA\\PRICES.TXT)>`
	`(C:\\AMANDA\\OPTIONS.TXT)>(C:\\AMANDA\\OPTIONS.TXT)`
	causes Amanda to call (714)452–5570 (after dialing 9 for an outside line and pausing). Then Amanda faxes two files. Duplicate files are ignored.
	Failure: Does not fail

=(*variable,value* [,*start,end*]**)**	Command that gives the specified variable the specified value. Use *start* and *end* to assign only part of the string (a substring) to the variable.
	variable One of the port or global variables.
	value A string, number, or variable.
	start Optional. The starting character position to copy from *value*. The default is to copy the entire string.
	end Optional, but must be used if *start* is used. The last character position to copy from *value*.
	Examples:
	`=(%S1,"FRENCH")`
	Gives %S1 the value of "FRENCH"
	`=(%S1,"FRENCH",3,4)`
	Gives %S1 the value of "EN".
	If %S2 is the telephone number 7530414,
	`=(%S1,%S2,1,3)`
	extracts the prefix 753 from %S2 and assigns it to %S1
	If %S3 is 1 and S4 is 1,
	`=(%S1,"MARY",%S3,%S4)`
	%S1 is assigned "M".

Alphabetical Token Reference (Continued)

Token Syntax	Description
>(*file***)**	Before using this command, you start incremental faxing with the <() command. Even if the same file is used with the >() command more than once (per incremental fax), it is faxed only once. *file* A string or variable containing a valid DOS file name for the text file to be transmitted. Use the complete path to the file unless the file is in C:\AMANDA. This command is used only in Extension fields. **Example:** See the <() command. **Failure:** Does not fail
0 1 **2 3** **4 5** **6 7** **8 9** **A B** **C D** *** #**	Literal that plays the DTMF tone corresponding to the specified digit: 0–9, A–D, *, or #
%A	System variable containing the value of the fax_dl_init configuration setting. **Example:** If %A is "9,", a 9 followed by a pause is needed to access an outside telephone line.
%B1 %B2 **%B3 %B4** **%B5 %B6**	System variable that contains the serial number of the corresponding voice board. %B1 is voice board 1, %B2 is voice board 2, etc.
%C	System variable that contains the port number. Each port has its own %C. For example, if the current caller is on Port 3, %C contains a 3.
%D	System variable that contains the percentage of free disk space. **Example:** I(%D,<,20,171) causes Amanda to transfer to mailbox 171. In this case, 171 would have Do Not Disturb ON and Store Messages NO. The caller would hear a greeting that plays a warning about disk space being low. The Done Chain field would have something like mailbox 999, the greeting for which is “Thank you for calling. Good-bye.”
%E	System variable that contains the contents of the current mailbox’s Extension field. Each port has its own %E. An Extension field can contain up to 65 characters. **Example:** P(A,%E) causes Amanda to say the characters in the Extension field. See the P() command for more information.
ext_no	Series of DTMF digits that indicate an extension number. When these are the first characters in an Extension field (that is, the Extension field does not start with @), Amanda performs a supervised transfer as shown in *Administering Amanda@Work.Place*. **Example:** 378 causes Amanda to call extension 378 and supervise the call. **Failure:** Invalid extension number

Alphabetical Token Reference (Continued)

Token Syntax	Description
%F(*field* [**,***mailbox*]**)**	System variable that contains the value of the specified field for the specified mailbox. Each port has its own %F. *field* One of the following numbers or a variable containing that number: **1** for the Directory Name 1 field **2** for the Directory Name 2 field **3** for the Comment field *mailbox* Optional. Any valid mailbox or a variable containing a mailbox. The default is the current mailbox. **Example:** `%F(3,126)` assigns the string from the Comment or Set Name field for mailbox 126 to %F. **Failure:** Invalid mailbox
F	Literal that performs a hookflash. The duration of the hookflash is specified in the telephone switching system dial codes section of the Setup utility. See also recall. **Failure:** Does not fail

%G0 %G1
%G2 %G3
%G4 %G5
%G6 %G7
%G8 %G9
	The Amanda system has 10 global variables (%G0–%G9). Initially, each variable is equal to the empty string. The values of %G0–%G9 are the same no matter what port is current.
	If Port 1 changes %G1, then all other ports immediately see the new value for %G1. Each variable can contain a string of up to 143 characters.
	When the system is shut down, the values of %G0–%G9 are lost. They cannot be stored using the [(),](), or |() commands.
	See also %S0–%S9.
	Example:
	`+(%G0)`
	adds one to the current value of %G0.
	`=(%G2,555)`
	assigns the mailbox 555 to %G2.
	`G(%G2)`
	causes Amanda to go to the Extension field for mailbox 555.
	Failure: Invalid variable name (such as %G52)

G(*mailbox***)**	Command that controls processing. Amanda continues standard processing at the specified mailbox's Extension field (as shown in *Administering Amanda@Work.Place*). *mailbox* A valid mailbox or a variable containing a mailbox. **NOTE:** If you use the G() command in a Notify Method field, remember that the telephone port is still in Notify mode and cannot transfer a call. Therefore, the Extension field that you go to should start with an @. **Example:** `G(176)` causes Amanda to go to the Extension field for mailbox 176. **Failure:** Invalid mailbox
%H	System variable that contains the empty string unless your 1001.PBX file (in the C:\PBX.DB directory) is set up for ANI or (in the future) Caller ID digits. Each port has its own %H. **Example:** If 1001.PBX contains: `integration 10 'Cxxxxxxxccccccc'` and the packet 'C00000007530414' arrives, %H contains the number 7530414 as long as the port that received the call is active.

Alphabetical Token Reference (Continued)

Token Syntax	Description
[*ext_no*]**H**	Command that performs a hang-up. With an extension number, it performs an unsupervised transfer before hanging up. This H() command ends the processing of tokens for the current Extension or Notify Method field. If you use an unsupervised transfer in the mailbox's Extension field, make sure that Call Screening is locked off. If Call Screening is on for an supervised call, the caller is screened but that recording is not played to the user. *ext_no* Series of DTMF digits that indicate an extension number. **Example:** 151H causes Amanda to transfer the call to extension 151 and hang up (without waiting for a voice or busy signal) when Amanda is processing a call. **Failure:** Invalid extension number
H(*mailbox***)**	Command that performs exit routines when a caller hangs up. It specifies the mailbox to be processed if a hang-up condition is detected while processing the current set of tokens. (Processing these tokens can take Amanda to more than one mailbox.) *mailbox* A valid mailbox or a variable containing a mailbox. This command is used only in Extension fields. **Example:** H(614) causes Amanda to go to mailbox 614 when a caller hangs up. Because you are tracking the number of hang ups, the Extension field for mailbox 614 has tokens that add one to the variable with which you are counting the hang-ups, for example, +(%G4). **Failure:** Invalid mailbox
%I(*field,msg_no* [**,***mailbox*]**)**	System variable that contains the data from the specified field of the specified message. Each port has its own %I. This lets you extract specific information from a message. For example, you might use %I in a notification record. *field* One of the following: **D** for the Date field **T** for the Time field **F** for the From field *msg_no* The number of an existing message. You cannot use a variable containing that number. *mailbox* Optional. Any valid mailbox or a variable containing a mailbox. The default is the current mailbox. **NOTE:** If a message is from an outside caller, the From field of that message is equal to -1. If the message is from a caller who is logged on to Amanda, the From field contains the caller's mailbox. **Examples:** P(%I(D,5),D) plays the date of message 5 in the current mailbox. P(%I(T,5),T) plays the time of message 5 in the current mailbox. P(%I(D,5,212),D) plays the date of message 5 of mailbox 212. P(%I(F,5,212),U) plays the Name/Extension recording of the mailbox who sent message 5 of mailbox 212. See the P() command for more information. **Failure:** Invalid mailbox Invalid message number

Alphabetical Token Reference (Continued)

Token Syntax	Description
I(*value*, *operator*, *value*,*mailbox***)**	Command that allows you to control processing based on a condition. If the specified values and operator create a condition that is true, Amanda continues processing at the specified mailbox. If the condition is false, the next token after this command is executed. *value* Any string, number, or variable. *operator* One of the following symbols: > greater than < less than = equal ! not equal *mailbox* Any valid mailbox or a variable containing a mailbox. **Examples:** I("111",<,"222",1000) continue processing at mailbox 1000. I("111",>,"222",1000) continue processing at the next token. I(%S1,=,"1234",2000) continue at mailbox 2000 only if %S1 contains the value 1234. I(%S1,=,"SPANISH",2000) continue at mailbox 2000 only if %S1contains the value "SPANISH". **NOTE:** When using the I() command in a Notify Method field, remember that the telephone port is still in Notify mode and cannot transfer a call. Therefore, the Extension field that you go to should start with an @. **Failure:** Invalid mailbox If there is a problem with a condition, it is considered false rather than a failure

Alphabetical Token Reference (Continued)

Token Syntax	Description
J(*file_or_box*, *phone_no* [,*tokens*]**)**	Command that allows a fax to be received as a file (for later transmission with the T() command) or as a message for a mailbox. Before using this command, make sure the configuration settings for the physical serial port have been defined. *file_or_box* A string or variable indicating where the fax is to be stored. It contains either a mailbox indicating whose message it is or a valid DOS file name for a text file. Use the complete path to the file unless the file is in C:\AMANDA. *phone_no* The telephone number for the fax device that sends the transmission or a variable containing that number. Use the empty string to make Amanda wait until a call rings into the appropriate fax port. (When not in a variable, the empty string must appear in this command as a pair of double quotation marks—even though some commands allow you to omit them.) *tokens* Optional. A string or variable that defines the actions Amanda takes to connect the call to the fax port. This command is used only in Extension fields. **Example:** J(123,"","P(G1)%X%F-H") sets up a personal fax mail mailbox. In this case, mailbox 123 receives a fax as a message and P(G1) plays a greeting such as "Start your fax machine at the tone." The following tokens allow for one-call fax transmission: %X The system variable that contains the codes needed to get the transfer dial tone on the current port %F The extension of the fax port being used -H A hang-up (after pausing a half second to complete an unsupervised transfer) `J("C:\\FAXES\\FAX1","")` makes Amanda set up one of her fax modems to wait for a call and accept a fax called C:\FAXES\FAX1. You can use this to fax files to your own Amanda system. For example, if you print a text file that contains information for customers and then fax it to Amanda, Amanda can fax that information out to customers using the T() command. **Failure:** Invalid mailbox Fax modem not configured properly Physical port not available Logical port not configured properly

K<(*x*[,*value*]**)**	Command that shifts the values of the %S variables to the left or right.
	x A number (ranging from 0 to 20). When the number is positive, the shift is to the left. When negative, the shift is to the right.
	value Optional. The data to be placed in the %S variables left empty by the shift. The default is to perform a circular shift, leaving no variables empty because the value from %S0 moves to %S19, or vice versa, for every shift.
	Examples:
	`K<(1)`
	shifts the contents of %S0 through %S19 to the left by one location. The contents of %S19 moves to %S18, the contents of %S18 moves to %S17, etc. The contents of %S0 moves to %S19 because this is a circular shift. None of the previous values are lost. They are only relocated.
	`K<(-3,"JOHN DOE")`
	shifts the contents of %S0 through %S19 to the right three locations, then replaces each of the first three values (%S0, %S1, and %S2) with the string "JOHN DOE". The last three values (%S17, %S18, and %S19) are lost.
	`K<(20,"")`
	is a quick way to clear all variables, replacing them with the empty string.
	Failure: Does not fail

Alphabetical Token Reference (Continued)

Token Syntax	Description
KA(*on_off***)**	Command that dials the PBX parameter dl_light_on or dl_light_off specified in the telephone system dial codes. *on_off* 1 or 0 to indicate whether the message waiting indicator is turned on or off. When the value is1, the message waiting indicator is turned on as Amanda dials the codes for "What to dial to set the message waiting indicator on" (the dl_light_on parameter). When the value is0, the message waiting indicator is turned off as Amanda dials the codes for "What to dial to set the message waiting indicator off" (the dl_light_off parameter). Most of the popular telephone systems have specified values that turn the message waiting indicator on and off. If these values are not pre-defined for your system, you can set them using Amanda's Setup utility. **Example:** `KA(1)` causes Amanda to dial the string specified in the dial codes for "What to dial to set the message waiting indictor on." **Failure:** Does not fail
KB(*frequency***, *msecs***)**	Command that plays a certain frequency for a certain time period (defined in milliseconds). *frequency* A number of Hz. *msecs* A number of milliseconds. **Example:** `KB(350,2000)` plays the frequency 350 Hz for two seconds. **Failure:** Does not fail
KC(*mailbox***, *variable***)**	Command that compares the security code for the specified mailbox with the contents of a variable. If there is a match, the command is successful. For callers who do not know the security code, Amanda continues processing using the mailbox in the Done Chain field. *mailbox* Any valid mailbox or a variable containing a mailbox. *variable* The port or global variable whose contents are matched against the security code of *mailbox.* **Example:** `R(G1,%S1)KC(212,%S1)KL(%S1)` assigns the DTMF digits entered by the caller to %S1, compares %S1 with the security access code of mailbox 212, and takes the appropriate action. After the caller passes the security check, the KL() command allows the caller to log on to the mailbox. See also the KL() command. **Failure:** Invalid mailbox Invalid security code Security codes do not match

Alphabetical Token Reference (Continued)

Token Syntax	Description

KD(*msg_no* [,*mailbox*]**)**	Command that deletes a message from the specified or current mailbox. Using this command cancels any pending Notify actions for the specified message automatically.
	msg_no A number or a variable containing a number.
	mailbox Optional. Any valid mailbox or a variable containing a mailbox. The default is the current mailbox.
	Examples:
	`KD(5)`
	deletes message 5 of the current mailbox.
	`KD(10,212)`
	deletes message 10 of mailbox 212.
	Failure: Invalid mailbox
	Invalid message number

KI(*target*, *source*, *variable***)**	Command that searches one string (called the source string) to see if it contains a copy of another string (called the target string).
	target A string or a variable containing the string to be searched for inside the *source.*
	source A string or a variable containing the string to search.
	variable The port or global variable to which the KI() command assigns one of the following:
	• Zero if the target is not found in the source.
	• The number of the position within the *source* string at which the copy of the *target* string starts.
	Examples:
	`KI("UL","PAUL INCE",%S1)`
	is a successful search and assigns the value 3 to %S1
	`KI("ULL","PAUL INCE",%S1)`
	fails and assigns the value 0 to %S1
	`KI(%S0,%S1,%S2)`
	means if a copy of %S0 is found within %S1, %S2 is assigned its character position. If %S0 is not found, %S2 is assigned the value 0.
	Failure: Does not fail

KJ(*mailbox*, *list_number* [,*sender*]**)**	Allows a caller to record a message that, when saved, is sent to a list of users. *mailbox* Any valid mailbox or a variable containing a mailbox. *list_number* Any valid list number (1–8 or 10–30). If the mailbox number is 999, then the list number is for a system list rather than a user list. *sender* Optional. Provides a sender for the message or treats the message as though it were from outside the Amanda system. When 0, the message is treated as a message from outside the Amanda system. Amanda does not identify the sender. This is the default. When 1, the Message From field contains the number of the mailbox containing this token. Amanda plays the name and extension recording for that mailbox's owner when identifying the sender. **Example:** `KJ(128,5)` causes Amanda to record a message and then send it to the users on mailing list 5 for mailbox 128. **Failure:** Invalid mailbox or list number or out of disk space

Alphabetical Token Reference (Continued)

Token Syntax	Description
KL(*mailbox*, *security_code*)	Command that logs the current caller on to the specified mailbox. The caller is at the top level menu (the menu that says "Press 1 to play your messages...."). *mailbox* Any valid mailbox or a variable containing a mailbox. *security_code* The security code for the specified mailbox. **Example:** `R(G1,%S1)R(G2,%S2)P(G5)P(%S1,N)KL(%S1,%S2)` Greeting 1 says, "Please enter the mailbox you wish to log into." After the caller enters the mailbox, Amanda assigns it to %S1. Greeting 2 says, "Please enter the mailbox's security code." After the caller enters the code, Amanda assigns it to %S2. Next Amanda plays Greeting 5, "You are logging into mailbox", followed by the mailbox. KL(%S1,%S2) attempts to log the caller into the specified mailbox using the specified security code. **Failure:** Invalid mailbox Invalid security code
*ext_no***KM**	Command that tells Amanda to do a supervised transfer to the specified extension, create a conference call for the caller and the user at the extension (using the dl_conference configuration setting), and record the call until detecting a hang-up or #. Amanda then makes the recording a message for the user. *ext_no* Series of DTMF digits that indicate an extension number. **Example:** `128KM` causes Amanda to transfer the call (if she is processing a call) to extension 128, starts a conference call, and records the conference call as a message for mailbox 128. **Failure:** Invalid extension number
KP(*mailbox*, *security_code*)	Command that sets the security code for the specified mailbox. *mailbox* Any valid mailbox or a variable containing a mailbox. *security_code* String of DTMF digits that indicate the new security code for the specified mailbox. **Example:** `KP(128,"5404")` causes Amanda to change the security code for mailbox 128 to 5404. **Failure:** Invalid mailbox mailbox is locked or read-only Security code is an empty string, contains invalid characters, or exceeds limit set by the configuration option security_min_length. You set this option using the Setup utility.

Alphabetical Token Reference (Continued)

Token Syntax	Description

KR(*file_or_box* [**,***recording_info*]**)**	Command that makes a recording and stores it as either a file or a message for the specified mailbox.
	file_or_box A string or variable indicating where the recording is to be stored. It contains either a mailbox indicating whose message it is or a valid DOS file name. Use the complete path to the file unless the file is in C:\AMANDA.
	recording_info A number from 0 to 3 indicating whether the caller hears a beep (to start recording) and the post record menu. The default is 1.
	0 No beep; no post record menu.
	1 Beep; no post record menu.
	2 Beep; post record menu.
	3 No beep; post record menu.
	Examples:
	`KR(212)`
	makes the recorded response a new message for mailbox 212.
	`KR("C:\\MSG.VOX")`
	stores the response in the MSG.VOX file in the root directory. In both cases, the caller hears the beep for recording but no post record menu.
	NOTE: When using the KR() command, be sure to ask the caller to leave a message. A suggested example is:
	`P(G1)KR(212)`
	Greeting 1 says, "Please leave a message at the tone. Finish by pressing # or hanging up."
	Failure: Invalid mailbox
	Unable to create file

KS [**(***errorlevel***)**]	Command that starts a system shutdown immediately. *errorlevel* Optional. Specifies the exit code (a DOS errorlevel) at which the system exits. The default exit code (errorlevel) is zero. This command is used only in Extension fields. **Example:** `KS(3)` immediately shuts down the system, exiting with the errorlevel set to 3. The errorlevel can be used by another program or a DOS batch file to determine what action should be taken next. **Failure:** Does not fail
KV(*file*,*field*, *value***)**	Command that finds and deletes the first record in the specified file that has the specified value in the specified field. *file* A string or variable containing a valid DOS file name for the text or DBF file. Use the complete path to the file unless the file is in C:\AMANDA. No line in the file should exceed 143 characters. There is no limit to the number of lines in the file. *field* A number, string, or variable that indicates the number or name of a field. *value* A string or variable that contains the data to be compared with the contents of the specified field. **Example:** `KV("C:\\LISTS\\PHONE.LST",4,"STEVE BRUCE")` searches for the first record in the PHONE.LST file that contains the value STEVE BRUCE in field 4. If found, the entire record is deleted. If not found, no record is deleted (but the command is still successful). **Failure:** The file is read-only Insufficient disk space to save file File is not the correct format (text file containing comma-separated fields and carriage return/linefeed separated records or .DBF file)

Alphabetical Token Reference (Continued)

Token Syntax	Description
L(*file***)**	Command that immediately changes the system prompts to use the specified Amanda system language file. This changes the system prompts, but the greetings of the individual mailboxes might need to be recorded by the users in the new language. *file* A string or variable containing the name of a valid Amanda system language file (minus the .IDX extension and the DOS path). Amanda knows that the system language file names end in .IDX and are located in the Amanda directory. **Examples:** L(ENGLISH) changes the prompts to those found in ENGLISH.IDX (if your system has a Rhetorex voice board) or ENGLISH.BDX (if your system is connected to a Norstar KSU) in the C:\AMANDA directory. L(SPANISH) changes the prompts to those found in SPANISH.IDX (if your system has a Rhetorex voice board) or SPANISH.BDX (if your system is connected to a Norstar KSU) in the C:\AMANDA directory. **Failure:** Does not fail (If you specify a file that doesn't exist or is not a prompt file, Amanda uses the current prompt file.)
LEN[*string***]**	Assumes the value of the total number of characters within a string or digits within a number. *string* Any string, number, or variable. **NOTE:** The brackets in this syntax are bold. The brackets are a required part of the syntax whenever you use LEN. Be careful not to confuse them with the non-bold brackets that indicate that the syntax within the brackets is optional. **Example:** LEN[7145551212] assumes the value 10. I(LEN[%S1],=,4,%S1) checks the length of the DTMF entry stored in %S1 because all extensions have 4 digits. If %S1 contains a mailbox, Amanda goes to that mailbox. See the I() command for more information. **Failure:** Does not fail
%M[(*mailbox***)]**	Command that returns the total number of messages for the specified or current mailbox. Each port has its own %M. *mailbox* Optional. A valid mailbox or a variable containing a mailbox. The default is the current mailbox. **Example:** %M(321) contains the number of messages stored for mailbox 321. **Failure:** Invalid mailbox

Alphabetical Token Reference (Continued)

Token Syntax	Description

M(*greeting* [*#mailbox*], *repetition*, *delay*)	When Amanda processes this command, she plays the specified greeting and waits for a single DTMF digit to be pressed by the caller. Amanda immediately finds the matching menu selection and continues processing at the specified mailbox. This eliminates the normal delay for determining that a DTMF entry has been completed.
	greeting One of the seven mailbox greetings (G1–G7). This greeting should be a menu from which the caller is to make a selection.
	mailbox Optional. Any valid mailbox. The default is the current mailbox.
	repetition The number of times to play the greeting.
	delay The amount of time (in tenths of seconds) to wait before repeating the greeting.
	This command is used only in Extension fields.
	Examples:
	`M(G1,2,20)`
	Amanda plays Greeting 1 twice, pausing for two seconds before repeating it. If the caller presses a DTMF digit, Amanda stops the greeting and uses the caller's digit to process the menu.
	If the caller makes no selection at all, Amanda continues processing at the next token.
	If the caller makes an invalid selection, Amanda restarts the M() command.
	If the caller makes a valid selection (for example 5), Amanda immediately continues processing at the mailbox specified in the *Menu* field 5.
	`M(G1#111,2,30)`
	plays Greeting 1 from mailbox 111. If there is no response from the caller, Amanda plays Greeting 1 again after a 3 second pause. If there is still no response, Amanda executes the next token in the Extension field.
	Failure: Invalid mailbox

%N	System variable that contains the number of new messages for the current mailbox. Each port has its own %N. **Example:** P(%N,N) causes Amanda to say the number of new messages as a number.
N(*file*,*field*, *value*,*field*, *varable*}**)**	Command that searches the specified file for *all* the records that match the specified value. This command changes the values in up to 8 fields in each matching record using the values stored in the specified variables. If no matching records are found, Amanda continues processing the next token. See also the V() command. *file* A string or variable containing a valid DOS file name for the text or DBF file. Use the complete path to the file unless the file is in C:\AMANDA. No line in the file should exceed 143 characters. There is no limit to the number of lines in the file. *field* A number, string, or variable that indicates the number or name of a field. The first *field* indicates what field to compare with *value*; the additional (up to 8) *field*s indicate what fields to change. Each field is changed to the value of its corresponding variable. (.DBF files have field names; text files have field numbers.) *value* A string or variable that contains the data to be compared with the contents of the specified field. *variable* One of port or global variables. **Example:** `N("C:\\LISTS\\PHONE.LST",1,"RYAN GIGGS",3,%S1,2,%S2)` finds all records in the file "PHONE.LST" that have "RYAN GIGGS" in the first field and replace the contents of field 2 with the value of %S2 and the contents of field 3 with the value of %S1. Numbers are used for the fields because PHONE.LST is a text file. **Failure:** Specified file does not exist Value of field not found within the file

Alphabetical Token Reference (Continued)

Token Syntax	Description
O(*time***)**	Command that makes Amanda go on-hook for the specified amount of time. Depending upon the value used, you can cause a hookflash or a hang-up. This is particularly useful for generating an intermediate hang-up condition during token processing without terminating the actual continued token processing. See also the H() command. *time* A number in tenths of seconds or a variable containing that number. **Example:** `O(20)` causes Amanda to go on-hook for two seconds. **Failure:** Does not fail
%P	System variable that contains the previous mailbox, that is, the last mailbox accessed before the current mailbox. Each port has its own %P. See also %U (current mailbox). Example: While accessing mailbox 990, %U is 990. Then a caller enters 222 and is transferred to that extension. As mailbox 222 is accessed, %U becomes 222, and %P becomes 990.
P[*repetition*] **(***date***,D)**	Command that tells Amanda to say the specified number as a date. *repetition* The number of times to repeat the date. The default is 1. *date* A number in either of the following formats: MMDDYY (which assumes the year 19YY,) or MMDDYYYY. For dates after 1999, you must use MMDDYYYY. Despite this format, the date is read in the order that most speakers of the prompt language (specified using the Setup utility) expect to hear it. If the year is the current year, Amanda does not read the year. **Example:** `P(06261994,D)` causes Amanda to say "June twenty-sixth, nineteen ninety-four" **Failure:** Does not fail
P[*repetition*] **(***amount***,** *currency***)**	Command that tells Amanda to say the specified number as an amount of money. *repetition* The number of times to repeat amount. The default is 1. *amount* A number from 0 to 999 million. *currency* Use one of the following: **$** For dollars and cents. **F** For francs and centimes. **P** For pesos and centavos. **Example:** `P(06261994,$)` cause Amanda to say "Sixty-two thousand six hundred nineteen dollars and ninety-four cents" Usually when using **F** or **P**, the system language is French or Spanish. However, the monetary terms are always available, regardless of the system language. **Failure:** Does not fail

Alphabetical Token Reference (Continued)

Token Syntax	Description

P[*repetition*] **(***number***,N)**	Command that tells Amanda to say the absolute value of the number.
	repetition The number of times to repeat absolute value. The default is 1.
	number A number or variable representing a number from 0 to 999 million.
	NOTE: Use a condition to test whether the number is positive or negative. Use a greeting that says "negative" or "minus" to handle negative numbers.
	Examples:
	Suppose that %S1 contains -1234 and G1 contains the recording "negative," then
	`I(%S1,>,0,1001)P(G1)P(%S1,N)`
	causes Amanda to say "negative one thousand two hundred thirty-four". (mailbox 1001's Extension field would not include the greeting—just the command, `P(%S1,N))`
	`P(06261994,N)`
	causes Amanda to say "Six million two hundred sixty-one thousand nine hundred ninety-four."
	Failure: Does not fail

P[*repetition*] **(***time***,T)**	Command that tells Amanda to say the specified number as a time of day. *repetition* The number of times to repeat the contents of the port variable. The default is 1. *time* A number or variable containing a number that specifies a time in the 24-hour HHMM format. However, Amanda says the time in a 12-hour format, followed by A.M. or P.M. **Example:** `P(1826,T)` causes Amanda to say "Six, twenty-six P.M." **Failure:** Does not fail
P[*repetition*] **(A,***string***)**	Command that tells Amanda to say the characters in the specified string. For a space, Amanda says the word "space". *repetition* The number of times to repeat the contents of the string. The default is 1. *string* A string of letters from the alphabet and spaces. **Example:** `P(A,"GEORGE BEST")` causes Amanda to say "G," "E," "O," "R," "G," "E," "space," "B," "E," "S," "T." **Failure:** Does not fail
P[*repetition*] **(D)**	Command that tells Amanda to say the percentage of remaining disk space. *repetition* The number of times to repeat the percentage of disk space. The default is 1. **Examples:** `P(D)` causes Amanda to say "The percentage of free disk space is" followed by the percentage as a number, e.g., forty-two. **Failure:** Does not fail
P[*repetition*] **(***greeting* [**,***mailbox*]**)**	Command that tells Amanda to play the specified greeting for the specified or current mailbox. *repetition* The number of times to repeat the greeting. The default is 1. *greeting* One of the seven mailbox greetings (G1–G7). *mailbox* Optional. Any valid mailbox or a variable containing a mailbox. The default is the current mailbox. **Example:** `P(G1)` causes Amanda to play Greeting 1 for the current mailbox. **Failure:** Invalid mailbox

Alphabetical Token Reference (Continued)

Token Syntax	Description
P[*repetition*] **(M**[**,***mailbox*]**)**	Command that tells Amanda to say the total number of messages for the specified or current mailbox. Using this command cancels any pending Notify actions for the specified message automatically. When this command plays a message that is marked with Receipt Verification, the verification message's From field contains the mailbox which executed this command. *repetition* The number of times to repeat the number of messages. The default is 1. *mailbox* Optional. Any valid mailbox or a variable containing a mailbox. The default is the current mailbox. **Example:** `P(M,212)` causes Amanda to say the total number of messages for mailbox 212. **Failure:** Invalid mailbox
P[*repetition*] **(M***n*[**,***mailbox*]**)**	Command that tells Amanda to play the message with the specified number for the specified or current mailbox. *repetition* The number of times to repeat the message. The default is 1. *n* The number of the message to be played. *mailbox* Optional. Any valid mailbox or a variable containing a mailbox. The default is the current mailbox. **Example:** `P3(M1,212)` causes Amanda to play message 1 for mailbox 212 three times. **Failure:** Invalid mailbox
P[*repetition*] **(N**[**,***mailbox*]**)**	Command that tells Amanda to play the Name/Extension recording of the specified or current mailbox. If there is no recording, nothing is played. See also **P**[*repetition*]**(U**[**,***mailbox*]**)**. *repetition* The number of times to repeat the Name/Extension recording. The default is 1. *mailbox* Optional. Any valid mailbox or a variable containing a mailbox. The default is the current mailbox. **Example:** `P(N)` causes Amanda to play the Name/Extension recording for the current mailbox. **Failure:** Invalid mailbox
P[*repetition*] **(***DTMF***)**	Command that tells Amanda to say a number as DTMF digits. This is usually used for repeating the number corresponding to the DTMF tones entered by a caller. *repetition* The number of times to repeat the DTMF digits. The default is 1. *DTMF* A number or variable containing a series of DTMF digits. **Example:** `P(%S5)` causes Amanda to say the DTMF digits in %S5. For example, if %S5 contains the number 411, Amanda says 4–1–1 instead of four hundred eleven. **Failure:** Does not fail

Alphabetical Token Reference (Continued)

Token Syntax	Description
P[*repetition*] **(***prompt_no***,V)**	Command that tells Amanda to look for the specified prompt number in the current system language file. Then Amanda plays the prompt associated with that number. *repetition* The number of times to repeat the prompt. The default is 1. *prompt_no* The number or variable containing the number for the prompt. The current range is from 1 to 477. (For some languages, some of the prompt numbers reference blank messages.) **Example:** `P2(15,V)` causes Amanda to play prompt number 15 twice. **Failure:** Does not fail

P[*repetition*] **(R)**	Command that tells Amanda to say the DTMF digits entered by a caller who requested relay paging notification. (These digits are stored in %R.)
	This command can be used in either field, but makes the most sense when used in a Notify Method field.
	repetition The number of times to repeat the DTMF digits. The default is 1.
	Example:
	`P(R)`
	causes Amanda to say the DTMF digits stored in the system variable %R.
	You can also use:
	`P(%R)`
	Failure: Does not fail

P[*repetition*] **(U[,***mailbox***])**	Command that tells Amanda to play the Name/Extension recording of the specified or current mailbox. If there is no recording, Amanda says "mailbox," followed by the digits for the mailbox. See also **P**[*repetition*]**(N[,***mailbox***])**. *repetition* The number of times to repeat the Name/Extension recording. The default is 1. *mailbox* Optional. Any valid mailbox or a variable containing a mailbox. The default is the current mailbox. **Example:** `P(U)` causes Amanda to play the Name/Extension recording for the current mailbox. If it doesn't exist, Amanda says the digits for the mailbox. **Failure:** Invalid mailbox

P[*repetition*] **(V)**	Command that tells Amanda to say the digits in the Variable field of the Notification record.
	repetition The number of times to repeat the contents of the Variable field. The default is 1.
	Example:
	`P2(V)`
	causes Amanda to say the digits in the Variable field twice. The following also works:
	`P2(%V)`
	Failure: Does not fail

P[*repetition*] **(X,***file***)**	Command that tells Amanda to play a voice file. *repetition* The number of times to repeat the contents of the file. The default is 1. *file* A string or variable containing the name of a voice file. Use the complete path to the file unless the file is in C:\AMANDA. The file can be one recorded using the KR() command, an Amanda message file, or a voice file copied to the Amanda system. However, the copied file must have the same sampling rate as Amanda voice files. The sampling rate is the value of the *adpcm_nq* system configuration option. This option's default is 32 kilobytes. **Example:** `P(X,"C:\\SAMPLE.VOX")` retrieves "SAMPLE VOX" from the root directory, and plays it. **Failure:** Does not fail

Alphabetical Token Reference (Continued)

Token Syntax	Description

Q({*greeting* [*#mailbox*] [**,E**]}**)**	Command that allows you to ask a caller a series of questions and store all the caller's responses as a single message for the current mailbox. Each question is recorded as a greeting which Amanda plays back with a tone. Then Amanda records a response and goes on to the next question. Up to 20 questions are allowed. To ask more than 7 questions (after using Greetings 1 to 7 for the current mailbox) you can use greetings from other mailboxes by specifying which mailbox's greeting to access with a # sign followed by the *mailbox*, e.g., G7#123 would use greeting 7 from mailbox 123. You use the Q() command to create voice forms or implement some IVR applications.
	This command is used only in Extension fields.
	greeting One of the seven mailbox greetings (G1–G7).
	mailbox Optional. Any valid mailbox. The default is the current mailbox.
	E Gives the caller the opportunity to edit (review, rerecord, append, or cancel) the previous group of answers.
	If additional token language processing is required after the caller has hung up, use the H token as part of the token string.
	Examples:
	`Q(G1,G2,G3,G4,G5,G6,G7,G1#9000,G2#9000)`
	causes Amanda to ask 9 questions recorded in the specified greetings, record 9 responses, and store the responses as one message for the current mailbox, regardless of what mailbox's provide the greetings.
	`Q(G1,G2,G3,E)`
	records three answers from the caller and then gives the caller an opportunity to review those answers as if they were one message. When editing, a menu gives the caller the options of re-recording, appending to or canceling the answers of that group.
	`Q(G1,G2,E,G3,G4,E)`
	asks the caller two questions and then allows the caller to edit those answers. Once the caller presses 9 to save, Amanda asks the next two questions and then allows the caller to edit the second group of answers.
	NOTE: While editing, pressing 4 to cancel erases all the previous answers (not just those in the group being edited) and restarts the Q() command.
	Failure: Invalid mailbox
	Invalid greeting

Alphabetical Token Reference (Continued)

Token Syntax	Description
%R	System variable (the relay variable) that contains the DTMF digits entered by the caller who requested relay paging notification. Each port has its own %R. See the notification chapter in *Administering Amanda@Work.Place*. This is primarily used to send up to 16 digits of information to a user's pager/beeper. This token is used only in Notify Method fields. **Example:** `9,%VW(9,V)P(U)P(R)` causes Amanda to call someone at home and say the telephone number and other information in the relay variable.

R(*greeting* `[#`*mailbox*`],` *variable* `[,`*timeout*`]`**)**	Command that plays a greeting from the current or specified mailbox and stores the caller's DTMF entry as a number in the specified variable. The greeting is interrupted as soon as the first DTMF tone is entered. If there is no DTMF entry or if the timeout occurs, the variable is set to the empty string.
	greeting One of the seven mailbox greetings (G1–G7).
	mailbox Optional. Any valid mailbox. The default is the current mailbox.
	variable One of the port or global variables.
	timeout A number from 0 to 99 that represents the time in tenths of seconds to wait for a DTMF entry after playing the greeting. The default is 1.2 seconds.
	Example:
	`R(G1,%S6,20)`
	stores a telephone number entered by a caller for later use. Greeting 1 is "Enter your telephone number, finish by pressing the # sign." The caller's entry is stored as a number in the port variable %S6. Amanda waits two seconds after the greeting before deciding that the caller is not going to enter a telephone number.
	`R(G1#111,%S1)`
	plays Greeting 1 of mailbox 111. The DTMF digits entered by the caller become the value of %S1.
	Failure: Invalid mailbox
	Invalid greeting

%S0 %S1
%S2 %S3
%S4 %S5
%S6 %S7
%S8 %S9
%S10 %S11
%S12 %S13
%S14 %S15
%S16 %S17
%S18 %S19
	Each telephone port has its own set of 20 %S variables where you can store, modify, or retrieve information. One port's %S1 is not the same as another port's %S1. If Port 1 changes %S1, it does not change the value of Port 2's %S1. Initially, each variable is equal to the empty string. Each variable can contain a string of up to 143 characters. See also %G0–%G9.
	NOTE: The [(),](), and |() commands can be used only with %S0 through %S9. The variables %S10 through %S19 cannot be read from, written to, or appended to any DOS file.
	Example:
	`+(%S0,5)`
	adds five to the current value of %S0.
	`=(%S12,714)`
	assigns the area code 714 to %S12.
	`I(%S12=714,555)`
	causes Amanda to go to the Extension field for mailbox 555 because the condition is true (%S12 does equal 714).
	Failure: Invalid variable name (such as %S52)

Alphabetical Token Reference (Continued)

Token Syntax	Description

S(*port*,[*string*], [*variable*], [*termination*], [*length*], [*timeout*]**)**	Command that gives Amanda access to other computers via the serial ports. Amanda can send a string to and/or receive a string from the remote computer. When receiving, Amanda terminates the connection when the first of the following occurs:
	• Amanda receives the specified termination string
	• She receives the maximum number of characters
	• A timeout occurs
	When sending, Amanda terminates the connection after the string is sent.
	Before using this command, make sure the configuration settings for the physical serial port have been defined.
	port The number for or a variable containing the number for the logical serial port (1,2,3,4) mapped onto a physical COM port by the configuration option *serial_port1*, *serial_port2*, *serial_port3*, or *serial_port4*.
	string Optional. A string or variable containing the characters to send to the specified serial port. It can contain alphanumeric characters as wells as variables and the following special characters:
	\A Attention, which is a bell sound (Ctrl+G)
	\N Newline (Ctrl+J)
	\R Return (Ctrl+M)
	\T TAB (Ctrl+I)
	\\ Backslash, the actual "\" character.
	The default is to send no string to the serial port.
	variable Optional. The port or global variable that stores the response. The default is not to store a response.
	termination Optional. A string or variable that defines the characters that, when read, stop Amanda from reading the serial port. This can use the same special characters as *string*. The default is "\R\N", the carriage return/linefeed pair that usually end a line in a text file. The terminating character, if any, does not become part of *variable*.
	length Optional. A number or a variable containing a number. Its absolute value defines the maximum number of characters to receive over the serial port. The default is -143. Use a positive value for *length* when you are receiving a packet of characters, you know its exact size, and you want the command to fail if fewer characters are received. Use a negative number otherwise.
	timeout Optional. A number or variable that defines the maximum time, in seconds, that Amanda should wait for the first character and also between characters being received on the serial port. The default is the setting for the configuration option *tmo_serial*.
	Example:
	`S(2,%S3,%S4,,,50)`
	both sends and receives. The command uses COM port 2. %S3 stores the string to be sent. %S4 stores the string that is received. Amanda waits a half second for the first character and between characters.
	`S(2,%S3)`
	only sends. The command uses COM port 2. %S3 stores the string to be sent. This command has non-standard syntax. Because *all* the parameters after the string to be sent are not being used, this command does not need the additional commas.
	`S(2,,%S4,,,50)`
	only receives. The command uses COM port 2. %S4 stores the string that is received. Amanda waits a half second for the first character and between characters.
	Failure: Physical port not available
	Logical port not configured properly
	If a timeout stops Amanda from receiving information before the maximum number of characters is received and the length is a positive number, Amanda considers the command a failure.

Alphabetical Token Reference (Continued)

Token Syntax	Description
%T	System variable that contains the current connect time, the number of seconds that the current port/call has been active. Each port has its own %T. **Examples:** P(%T,N) causes Amanda to say the amount of connect time as a number. See the P() command for more information.
T(*file,phone_no* **[,***tokens***])**	Command that sends faxes to either a specified telephone number or to a connected call. Before using this command, be sure at least one fax modem is installed and configured on Amanda. Before using this command, make sure the configuration settings for the physical serial port have been defined. *file* The file name of the fax you wish to transmit. It can be any valid DOS file name. Use the complete path to the file unless the file is in C:\AMANDA. *phone_no* The telephone number (or a variable containing that number) for the fax device that accepts the transmission. Use the empty string to make Amanda wait for a call to ring into the fax port. *tokens* Optional. A string or variable that defines the actions Amanda takes to connect the call to the fax port. For more information, please see the example for the J() command. This command is used only in Extension fields. **Examples:** T(C:/FAXES/NEWINFO.FAX,%G6) allows the user to request a fax and have the supplier of that fax send it to the provided telephone number. This is commonly called a “two-call fax back”. NEWINFO.FAX is the name of the file, and %G6 contains the fax telephone number. T(C:/FAXES/NEWINFO.FAX,"",%S5) allows the user to request a fax and have it sent as part of the current call. This is commonly called a “one-call fax on demand”. NEWINFO.FAX is the name of the file, and %S5 provides the tokens that connect the call to the FAX port. **Failure:** Fax modem not configured properly Physical port not available Logical port not configured properly
%U	System variable that contains the current mailbox number. Each port has its own %U. See also %P.
U-*ext_no*	Command that performs partially supervised transfers. Amanda does not transfer the call if she detects a busy signal. To use the U token, the setting for Maximum Rings for the mailbox must be set to 1. *ext_no* Series of DTMF digits that indicate an extension number. This command is used only in Extension fields. **Example:** U-144 causes Amanda to call extension 144 (if Amanda is processing a call). If the extension rings, she transfers the call and hangs up. If the extension is busy, Amanda lets the caller know that. **Failure:** Does not fail
%V	System variable that contains the value of the Variable field in the current Notification record. Each port has its own %V. This token is used only in Notify Method fields. **Example:** If the only difference in a Notification template for mailboxes is the pager/beeper telephone number that Amanda should call, %V can store that number. 9,%VW(3,P)%U*%M*%N# causes Amanda to call the user and play the number of messages.

Alphabetical Token Reference (Continued)

Token Syntax	Description
V(*file*,*field*, *value*{,*field*, *variable*}**)**	Command that searches the specified file for the first record that has the specified value in the specified field. It retrieves values from up to 8 other fields in that record, putting the retrieved values in the specified variables. See also the N() command. *file* A string or variable containing a valid DOS file name for the text or .DBF file. Use the complete path to the file unless the file is in C:\AMANDA. No line in the file should exceed 143 characters. There is no limit to the number of lines in the file. *field* A number, string, or variable that indicates the number or name of a field. The first *field* indicates what field to compare with *value*; the additional (up to 8) *field*s indicate what fields to copy into the corresponding variables. (.DBF files have field names; text files have field numbers.) *value* A string or variable that contains the data to be compared with the contents of the specified field. *variable* One of port or global variables. **Example:** `V("C:\\LISTS\\PHONE.LST",1,"JOHN",3,%S1,2,%S2)` searches the file PHONE.LST for the value JOHN in field 1. If the search is successful, the value in field 3 of that record is stored in %S1 and the value in field 2 is stored in %S2. **Failure:** If no record is found
%W	System variable that contains the day of the week (1 is Sunday, and 7 is Saturday).

W(*n*,[*event* [,*mailbox*]]**)**	Command that tells Amanda to:
	• Wait a number of tenths of a second
	• Wait for an event, such as a dial tone or another appropriate answer. If the event does *not* occur, Amanda goes to the specified mailbox.
	n Without an event parameter (P, V, or T), a number of tenths of a second.
	For dial tone (T), the number of seconds.
	For pager (P) and voice (V), the number of rings to wait before continuing. If n is 0 for pager or voice, the 0 is replaced with the value of rmt_rna, a configuration option that you define using the Setup utility.
	event The event that Amanda waits for:
	P A pager answer
	V A voice answer
	T The dial tone
	mailbox Any valid mailbox or a variable containing a mailbox. Specifies the mailbox to which control should be transferred if the event does not occur.
	Examples:
	`W(3)`
	makes Amanda pause for 3 tenths of a second
	`W(3,P)`
	makes Amanda wait up to three rings for a paging/beeping system to answer. Use this to confirm that the paging company answered before playing the DTMF digits to be displayed on the pager.
	`W(4,V,111)`
	makes Amanda wait up to four rings for a voice. If a voice is detected, processing continues with the next token. Otherwise, control is transferred to mailbox 111.
	Failure: Invalid mailbox
	Event does not occur and no mailbox is specified

%X	System variable that contains the codes needed to get the transfer dial tone on the current port. Each port has its own %X. This is the setting of the dl-dtwait configuration option (usually F-).

Alphabetical Token Reference (Continued)

Token Syntax	Description
X[(*file*)]	Command that creates the specified file or LIGHT.ON. Used in conjunction with the Y() and Z() commands, this command can control Amanda's processing of tokens. *file* A string or variable containing a valid DOS file name for a text file. The default is to create the file LIGHT.ON in the mailbox's directory. **Example:** A user's message waiting indicator toggles on and off. For the first message, Amanda should turn the indicator on. The indicator should be left on for the second and later messages (until they are all listened to). So you use: • Z() to check whether the indicator is on or not (if LIGHT.ON exists, the indicator is on). • X() to create the LIGHT.ON file when a message arrives and the indicator is not on. • Y() to delete LIGHT.ON when the indicator is turned off because the user has listened to all the messages. **Failure:** Does not fail
%Y	System variable that contains the current date in American format: MMDDYYYY. **Example:** P(%Y,D) causes Amanda to say the current date (contained in %Y) as a date. See the P() command for more information.
Y[(*file*)]	Command that deletes the specified file or LIGHT.ON. *file* A string or variable containing a valid DOS file name for a text file. The default is to delete the file LIGHT.ON in the mailbox's directory. **Example:** Y(C:\\AMANDA\\FOOBAR.TXT) causes Amanda to delete FOOBAR.TXT. See also the X() command. **Failure:** Does not fail
%Z	System variable that contains the current time in 24-hour format: HHMM. **Example:** P(%Z,T) causes Amanda to say the current time (contained in %Z) as a time. See the P() command for more information.
Z[(*file*)]	Command that tests for the existence of the specified file or LIGHT.ON. If the file is there, Amanda immediately stops processing the rest of the tokens for this mailbox. Otherwise, the next token is executed. *file* A string or variable containing a valid DOS file name for a text file. The default is to delete the file LIGHT.ON in the mailbox's directory. **Example:** Z()X() causes Amanda to check for LIGHT.ON. If it is *not* there, the X() command causes Amanda to create it. See also the X() command. **Failure:** Does not fail

Troubleshooting

Check for the following mistakes:

1. Did you start the string of tokens without @ when you wanted Amanda to perform a hookflash or PCPM?

2. Did you start the string of tokens with @ when Amanda should NOT perform a hookflash or PCPM?

3. If the tokens are in an Extension field, did you forget that both Do Not Disturb and Call Screening must be OFF?

4. Did you check the trace file for information about what went wrong?

TIP: Remember that when a string of tokens in an Extension field fails, Amanda goes to the mailbox specified in the Done Chain for that mailbox. If you are testing a program and are not sure which strings of tokens fails, use different mailboxes in the Done Chain fields to help you. For example, if you do not know which of two strings fails, you might put mailbox 4000 in one Done Chain and mailbox 4001 in the other. If you use
`@P(G1, your_personal_UserID)`
in the Extension field for 4000 and use
`@P(G2, your_personal_UserID)`
in the Extension field for 4001, then you know which string fails based on which of your personal greetings Amanda plays.

Chapter 12:
Programming Examples

System Paging of a User for Special Callers

This example illustrates inter-mixing tokens with Amanda's standard call processing.

Application

This application creates a special mailbox (for example, 611) for family, friends, or special customers. When callers access this mailbox, Amanda pages you over the telephone paging system in your office. After letting you know that you have an important call, Amanda transfers that call to your extension through a "backdoor" even if your regular extension mailbox (for example, 111) might have its Do Not Disturb setting ON. The steps required to implement this feature might be summarized as follows:

1. Put the caller on hold.
2. Access the telephone switching system paging feature.
3. Say something such as "There is an important call for David."
4. Transfer the call to a "backdoor" mailbox that rings the extension.

Translating to Amanda's Tokens

This could be translated into Amanda tokens as follows:

1. Dial the code for putting the caller on Transfer Hold (which is normal processing if the first character is *not* an @ sign).
2. Dial the telephone switching system paging access code, for example, 33* (if that is your system's code for a system page.)
3. Play a greeting that you have already recorded such as "There is an important call for David" using the P() token.
4. Dial the code for retrieving the caller from Transfer Hold and then transfer the caller to a "backdoor" mailbox that rings the extension. For example, to retrieve the caller you use %X and to access the "backdoor" mailbox use the G() token.

Result

The final result might be:

```
33*P(G1)%XG(6111)
```

where G1 for the current mailbox has the “important call for David” recording and mailbox 6111 transfers the call to the extension 111 by having 111 in its *Extension* field with *Do Not Disturb* set to OFF and its *Lock* ON.

Switching and Maintaining Languages

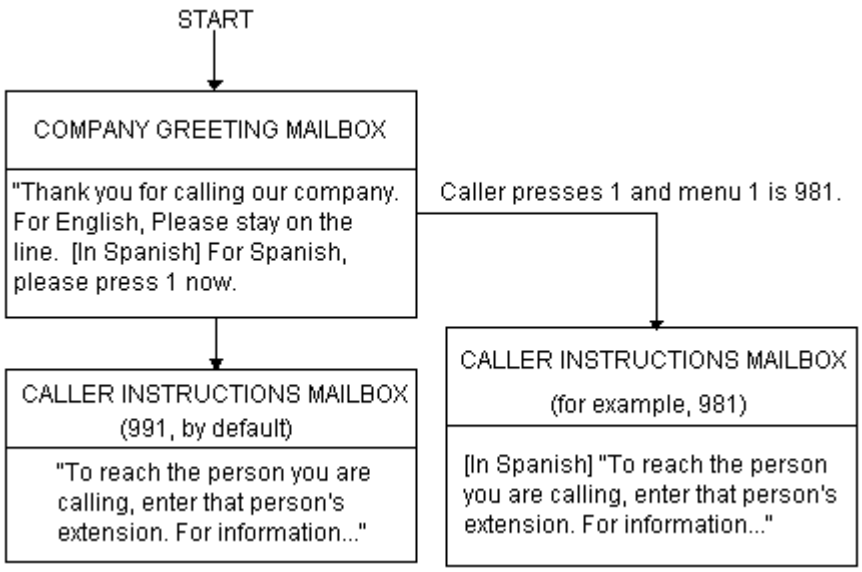
This example illustrates how you can completely over-ride Amanda’s standard processing.

Amanda has the ability to support multiple languages simultaneously on any port. The only requirements are that you install an alternative language prompt file and you configure the mailboxes to allow a caller to change to the alternate language. Additionally, you can control which mailboxes a caller has access to when they select a specific language.

Application

Let’s start by allowing a caller to select outgoing greetings in a different language. When a call is answered by Amanda, processing begins at the Company Greeting mailbox (which is 990 by default.) After the greeting is played, processing (by default) continues at mailbox 991 which plays the caller Instructions. During either the Greeting (990) or the Instructions (991) you can give the caller the option to press a digit to hear the Instructions in a different language. When the caller enters the language digit, Amanda should then be configured to access another mailbox that contains the proper Instructions using the Token Programming Language.

The following diagram helps illustrate this:

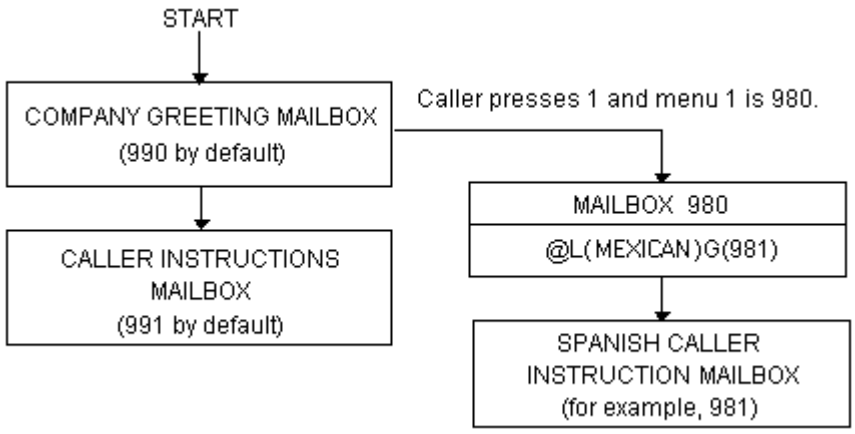


This now gives your callers the option to hear their instructions in the language of their choice (realize that you can have additional language selections as additional menu choices). However, after the caller selects Spanish by pressing 1, when they access a mailbox, Amanda still says in English, “Please hold while I try that extension.” We have changed which language instructions a caller hears, but we still have not changed which language system prompts the caller hears. To change the system prompts to another language we must use tokens (and of course have installed the appropriate language prompts).

Using Amanda’s Tokens

The token to change system prompts is L(). To change to the Spanish system prompts, use L(SPANISH) provided that the Spanish system prompts file resides in the Amanda directory and is named SPANISH.IDX (because your system has a Rhetorex voice board).

To accomplish this, we could use another mailbox that changes the system prompts to Spanish and then continues processing at the Spanish Instructions as follows:



mailbox 980’s *Extension* field contains the tokens `@L(SPANISH)G(981)` which causes Amanda to:

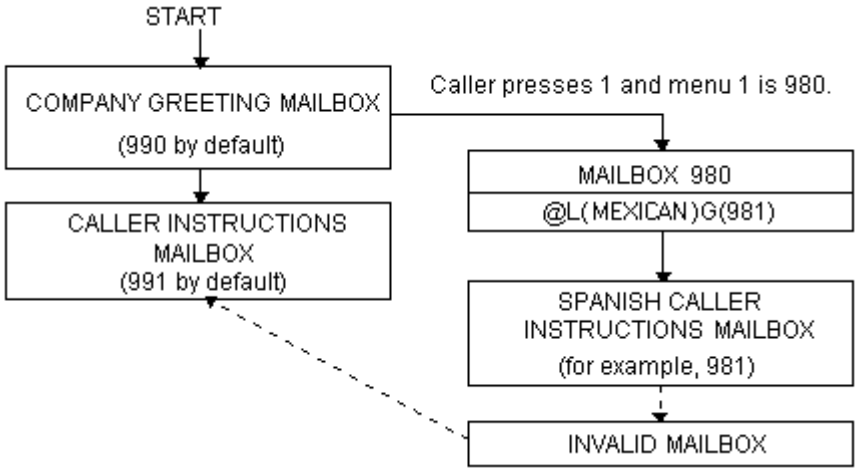
1. Not put the caller on transfer hold
2. Change the system prompts to the file "SPANISH"
3. Continue processing at mailbox 981.

NOTE: There are several ways this same activity could have been accomplished. For example, instead of using the `G(981)` token, mailbox’s RNA Chain could have had 981 in it. (We use the RNA Chain, since Amanda returns Ring No Answer after successfully performing the tokens in the Extension field).

Another Consideration

This works for most situations. However, there is one final consideration. What happens if the caller enters an invalid extension or choice? By definition, an invalid mailbox has no Done Chain. As a result, Amanda defaults to using the Done Chain of the Company Greeting mailbox on that port.

The following diagram illustrates this:



The result is that a caller, who has selected Spanish and entered an invalid mailbox, eventually ends up at the English Instruction mailbox!

To have callers always access the proper language Instruction mailbox, you can add a control structure to Amanda. In this example, we might perform the following:

1. If an alternate language is selected, remember which language was selected.

2. Before playing the default Instruction mailbox, determine which language Instruction mailbox should play and continue processing at that mailbox.

Using Amanda's Tokens

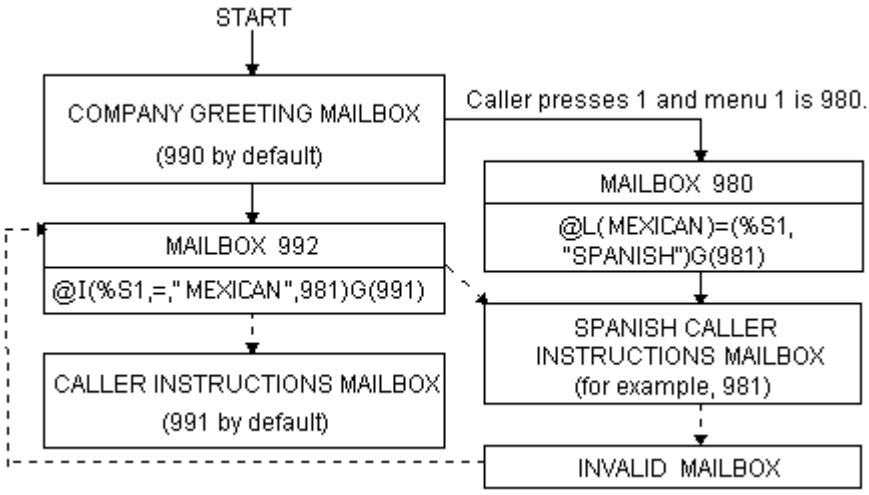
This could be accomplished with tokens as follows:

1. To remember that a specific language was selected, we could use a storage (variable) token such as %S1 to have a value that represents the language. To assign %S1 a value, we use the =() token. For example, `=(%S1,"SPANISH")` stores the value "SPANISH" into %S1.

2. To determine which language Instruction mailbox to access, we could use the I() token, often called the If token, which allows Amanda to continue processing at the correct mailbox.

   For example, `I(%S1,=,"SPANISH",981)` checks the value of %S1 for "SPANISH" and if it matched, then continues processing at mailbox 981 (the Spanish Instruction mailbox in this example). Finally, to make sure that this occurs before playing the default Instruction mailbox (in this example mailbox 991) we need to insert this control mail-

box between the Company Greeting mailbox (990) and the Instruction mailbox (991) as follows:



This configuration now changes Amanda's standard processing and keeps the caller connected to the correct language Instruction mailbox. It works because whenever a new call is answered, Amanda initializes the %S tokens to "" (the empty string). Therefore, if the caller never presses 1 for Spanish, then %S1 is never set to the value "SPANISH" and control is always passed on to mailbox 991 from mailbox 992.

Order Shipment Information

This example illustrates how you can interact with data files to retrieve useful information that is given to callers by request.

Application

The application is as follows:

1. Ask the caller to enter an order number (let's assume that it is five digits).

2. Determine whether or not the corresponding order has shipped.

3. If the order has not shipped, inform the caller. Otherwise, tell the caller the date the order was shipped.

In order for Amanda to determine an order's shipped status and its ship date, she needs to retrieve information from some source. One possible way she can obtain the data is by using the serial, S(), token to request it from another computer. An alternative solution is to access the information by looking in a file on Amanda's hard disk (or alternatively, a network server if Amanda is connected to one). For this example, we use the second implementation and assume that the following files exist on Amanda's hard disk in the root directory:

SHIPPED - An ASCII text file with order numbers that have been shipped (one per line), for example:

11111
22222
33333
12345

SHIPDATE - An ASCII text file where each line contains an order number and its ship date separated by a comma (one per line), for example:

11111,06301994
22222,07011994
33333,07061994
12345,07121994

Translating to Amanda's Tokens:

1. To ask the caller for an order number, use `R(G1,%S1,20)` where Greeting 1 has the recording "Please enter the five-digit order number now." After the caller enters the order number, Amanda can perform some additional checking. For example, to determine if a five-digit order number was entered, use `I(LEN[%S1],!,5,`*`mailbox`*`)`. If the number of digits stored in %S1 is not equal to 5, Amanda continues processing with *mailbox.*

2. To determine whether or not the order shipped, you examine the file SHIPPED to find out if it contains the caller's order number. Use `?(%S1,C:\\SHIPPED,`*`mailbox`*`)`to find out whether or not a string (%S1), which contains the order number, is in a file SHIPPED. If it is, Amanda continues processing with *mailbox.*

3. If the order number is not in the file SHIPPED, Amanda continues processing at the token after the ?() token. Therefore, to tell the caller that an order has not shipped, you use `P(G1)` where Greeting 1 plays, "Sorry, but your order has not yet shipped, please call back tomorrow." To tell the caller the order's ship date, first determine that date using `V(C:\\SHIPDATE,1,%S1,2,%S2)`, which scans the first column of the file SHIPDATE for the value in %S1. After finding the first match, Amanda stores the value in the second column as %S2. Then you use `P(G1)P(%S2,D)` to tell the caller the date. Here Greeting 1 plays, "Your order was shipped on."

Summary

To summarize the above, the mailbox settings and tokens are as follows:

Mailbox	Extension/Recording	Done Chain
2000	@R(G1,%S1,20) I(LEN[%S1],!,5,2001)G(2002)	
2001	"Your order number must be five digits. Good-bye."	999
2002	@?(%S1,SHIPPED,2003)P(G1)	999
2003	@V(SHIPDATE,1,%S1,2,%S2) P(G1)P(%S2,D)	999

One-call and Two-call Faxbacks

You can use fax files and the token programming language to perform one-call and two-call faxbacks. Most of this functionality is preconfigured for you inside Amanda using specific mailboxes.

A one-call faxback is a call from a fax machine so that a document can be faxed to the caller at that fax machine. Unless you have a toll-free telephone line, the faxing is at the caller's expense.

A two-call faxback requires two calls. Someone calls from his telephone, indicates what documents to fax, and leaves his fax number. Amanda calls the fax machine and sends the documents. This second call is at your expense, so you may want to do two-call faxbacks only in your area code or under other special circumstances.

You must have already installed and configured an appropriate fax modem for Amanda before the following examples can work. To create the documents, fax them to Amanda as explained in "Sending Faxes to Amanda" on page 131.

Sending Faxes to Amanda

Before you can send faxes from Amanda, the data to be faxed must be stored on the hard drive. Because Amanda uses a proprietary fax format, you must fax the data to her. You can set up a mailbox to do both of the following:

- Receive the data that you fax to Amanda
- Store the faxes with numbered names in the C:\FAX directory, from which they can be used in one-call and two-call faxbacks

The mailbox that performs these tasks must have:

Extension Field: `@R(G1,%S1,30)J("C:/FAX/%S1","","%X%FH")G(999)`

DND: OFF

Screen Calls: OFF

Store Messages: YES

Greeting 1: Please enter the number of the fax that you are sending new.

%S1 must not be used in any other application.

%X must be defined in 1001.PBX.

%F must be the extension that is physically connected to the fax modem and must be set in the install.cfg file, the file controlled by the Setup utility.

Do not enter more than eight digits in response to this greeting (because of DOS naming conventions). The number you enter becomes the name of the file. For example, if you type in 32, the fax is stored as C:\FAX\32.

NOTE: You must have created the C:\FAX directory previously. Amanda does not create this directory for you.

One-call Faxback

To set up a one-call faxback, you need to use one mailbox for each document. If you have no more than ten documents, you need only one mailbox for the greeting that supplies the menu of available documents.

The following example assumes that you have three documents and uses only four mailboxes. The documents are named TECH1, TECH2, and TECH3 to represent technical reports #1 through #3. They are stored in C:\FAX. It uses mailboxes 92000 to 92003, but you can use any mailboxes.

Mailbox 92000 contains the menu. It should have the following settings and greetings:

Extension Field: blank

DND: ON

Store Messages: NO

Greeting 1: If you are calling from your fax machine, please press the number corresponding to the technical report you are interested in. For report #1 on SMDI, press 1. For report #2 on Service Plans, press 2. For report #3 on Upgrading Voice Boards, press 3.

Menu 1: 92001

Menu 2: 92002

Menu 3: 92003

Mailbox 92001's Extension field contains the tokens that send technical report #1.

Extension Field: `@T('C:/FAX/TECH1','','P(G1)%X%FH')`

DND: OFF

Store Messages: NO

Greeting 1: Please press the start button on your fax machine at the tone.

Mailbox 92002's Extension field contains the tokens that send technical report #2.

Extension Field: `@T('C:/FAX/TECH2,'','P(G1)%X%FH')`

DND: OFF

Store Messages: NO

Greeting 1: Please press the start button on your fax machine at the tone.

Mailbox 92003's Extension field contains the tokens that send technical report #3.

Extension Field: `@T('C:/FAX/TECH3,'','P(G1)%X%FH')`

DND: OFF

Store Messages: NO

Greeting 1: Please press the start button on your fax machine at the tone.

NOTE: All the quotation marks in these token examples are single quotation marks (although double quotation marks can be used). Forward slashes are used (although double backward slashes \\ can also be used with this token).

Two-call Faxback

This example allows the caller to select one or more fax documents, and leave his fax number. The steps are as follows:

1. Request the fax area code (this is to determine whether or not to set up for long distance dialing).

2. Confirm the area code. If it is not confirmed, go back to step 1.

3. Request the fax telephone number.

4. Confirm the telephone number. If it is not confirmed, go back to step 3.

5. Give the caller the fax document selections and allow him to make more than one selection. In this example, the documents are named TECH1, TECH2, and TECH3 to represent technical reports #1 through #3. The files are stored in C:\FAX.

Mailbox 1000's Extension field is programmed to ask the caller for his area code and store the DTMF tones entered by the caller as the variable %S1. Next it says the numbers that were entered by the caller so the caller can confirm, reenter, or exit the faxback routine.

Extension Field: `@R(G1,%S1,20)P(G2)P(%S1)M(G3,2,30)`
DND: OFF
Store Messages: NO
Greeting 1: Please enter the area code of your fax machine now.
Greeting 2: You entered area code:
Greeting 3: If this area code is correct, press 1 now.
If this area code is not correct and you want to re-enter it, press 2 now.
If you do NOT want to have documents faxed to you, press 3 to exit.
Menu 1: 1001
Menu 2: 1000
Menu 3: 991

Mailbox 1001's Extension field contains the tokens that determine whether or not the entered area code is local (assuming that the local area code is 714). If the area code is not local, it stores the long distance dialing digit '1' in the variable %S0.

Extension Field: `@I(%S1,=,'714',1002)=(%S0,'1')G(1003)`
DND: OFF
Store Messages: NO

If the area code is local, **mailbox 1002**'s Extension field sets both the long distance dialing string and the area code string to " (the empty string).

Extension Field: `@=(%S0,'')=(%S1,'')G(1003)`
DND: OFF
Store Messages: NO

Mailbox 1003's Extension field contains the tokens that request the fax telephone number and stores it in the variable %S2.

Extension Field: `@R(G1,%S2,40)P(G2)P(%S2)M(G3,2,30)`
DND: OFF
Store Messages: NO
Greeting 1: Please enter the telephone number for your fax machine now.
Greeting 2: You entered the fax telephone number:
Greeting 3: If this fax telephone number is correct, press 1 now.
If this number is not correct and you want to re-enter it, press 2 now.
If you do NOT want to have documents faxed to you, press 3 to exit.
Menu 1: 1004
Menu 2: 1003

Menu 3: 991

Mailbox 1004 contains a menu that lists the available documents. It should have the following settings and greetings:

Extension Field: `@<( '9,%S0%S1%S2')M(G1,2,30)`

DND: OFF

Store Messages: NO

Greeting 1: Please press the number corresponding to the technical report you are interested in. For report #1 on SMDI, press 1. For report #2 on Service Plans, press 2. For report #3 on Upgrading Voice Boards, press 3.

Menu 1: 10041

Menu 2: 10042

Menu 3: 10043

Mailbox 10041's Extension field contains the tokens that send technical report #1.

Extension Field: `@P(G1)>('C:/FAX/TECH1')G(1005)`

DND: OFF

Store Messages: NO

Greeting 1: The technical report on SMDI will be faxed to you.

Mailbox 10042's Extension field contains the tokens that send technical report #2.

Extension Field: `@P(G1)>('C:/FAX/TECH2')G(1005)`

DND: OFF

Store Messages: NO

Greeting 1: The technical report on service plans will be faxed to you.

Mailbox 10043's Extension field contains the tokens that send technical report #3.

Extension Field: `@P(G1)>('C:/FAX/TECH3')G(1005)`

DND: OFF

Store Messages: NO

Greeting 1: The technical report on upgrading voice boards will be faxed to you.

Mailbox 1005 allows the caller to select another document to be faxed or to end the call (Menu 2 goes to 999). You might prefer to have Menu 2 return to the caller instructions mailbox 991.

Extension Field: blank

DND: ON

Store Messages: NO

Greeting 1: To request an additional document, press 1; to exit, press 2.

Menu 1: 1004

Menu 2: 999

NOTE: All the quotation marks in these token examples are single quotation marks (although double quotation marks can be used). Forward slashes are used (although double backward slashes \\ can also be used with this token).

IVR and Voice Form Applications

This section provides guidelines for writing effective IVR (Interactive Voice Response) and voice form applications. It also provides examples of how to use Amanda's menus, greetings, and messages as well as the Q(), M(), R(), and P() commands from Amanda's Token Programming Language.

Before you start, determine whether your application will be used by infrequent users, expert users, or both.

You might need to design a training mode (which explains the choices—perhaps using a different voice for the explanations) and an expert mode (which offers minimal explanation).

Consider using short-cut options that allow expert users to access information more quickly.

Also think about the average user's vocabulary and familiarity with similar systems as well as the type of telephone he will use and the location from which he will probably call. For example, don't use technical terms with non-technical users. If you expect users to call from pay telephones, the noise around them might make voice response a poor choice.

Making the User Comfortable

To make users feel that they are in control of the application rather than at the mercy of it, the greetings should perform the following tasks in order:

1. Identify the company or service so that the user can determine whether he has placed his call correctly.

2. Identify the application as non-human so that the user does not expect human interaction.

   For example, avoid personal pronouns in phrases. Use "Please enter the number" rather than "tell me the number."

3. If necessary, separate callers using touch-tone telephones from those using dial-pulse telephones.

   Use something similar to "If you are calling from a touch-tone phone, please press 1 now. Otherwise, please remain on the line. An attendant will help you."

4. Early on the first menu, offer the user access to a human attendant.

5. Offer access to a human attendant and call termination on each menu level.

6. Customize the greetings for the user.

   For example, if the user has only three of the five services you offer, never offer him the option of adding the services that he already has or the option of canceling the services that he does not have.

Using Greetings

The greetings used in your application will fall into the following categories:

- Menus that list options from which the users make selections
- Requests for responses
- Informational—providing answers to users' requests or other user feedback

Using Menus

As you create your menus, do the following:

- Find logical topics for menus
- Offer topics in order: most likely to be selected to least likely. Make an exception to this rule when the topic itself contains a number.

  For example, use "To order the Series 3, press 3" rather than "To order the Series 3, press 1"—even when your most popular sales item is Series 3.
- Limit the number of options on each menu. If a menu contains more than eight options (including reaching an attendant, returning to previous menu, and exiting), break this menu into submenus.

Word your menus carefully using the following suggestions:

- State the result before the action.

  For example, use "For Accounts Payable, press 1" rather than "Press 1 for Accounts Payable."
- Be consistent from option to option and menu to menu.

  For example, use "Please make your selection now" on each menu level to indicate that all the menu options have been offered.
- Use "Press" for a single-digit response or "Enter" for multi-digit response.
- Say the number on a key rather than a letter on that key—even if the letter is more significant.

  For example, say "Press 3" rather than "Press F."

Making Requests

Requests to users fall into the following categories:

- Request for single-digit response (such as 1 for Yes or 2 for No)
- Request for multi-digit response such as a telephone or credit card number
- Group of questions that comprise a voice form

  For example, you might ask the user a series of questions, the answers to which are essentially the fields on a paper form. These voice responses are saved as messages.

For single-digit responses, you can use a greeting as a menu.

For multi-digit responses, you can use the R() command to convert the DTMF tones to an ASCII number.

For voice forms, you can use the Q() command to save the responses for up to 20 questions as a message.

NOTE: Amanda can store a total of 65,536 voice message files. However, each of the up-to-20 questions in the Q() command count is stored in a separate voice message file, even though Amanda treats all the questions as one "message". That means that a message total does not have to reach 65,536 to exceed the allowable number of files for voice messages. For example, a message total of 3276 could use every file available for storing messages—if each of those "messages" contains 20 responses to the questions in a Q() command.

Word your requests carefully using the following suggestions:

- Use consistent wording.

  For example, use "Please" to indicate that a request is coming.
- Make it clear what type of input is expected from the user (keypad input or voice response).

  For example, use "At the tone, please say your last name" or "On your touch-tone phone, please enter the letters of your last name."
- Use "Press" for single choice, "Enter" for data, and "Say" for voice response. For voice response, end the request with "now" or start it with "At the tone, please say…"—whichever is appropriate.

Providing Information and Feedback

Be sure to provide some type of feedback for every user action and allow users to reverse unintended operations. For example, you can:

- Repeat the data provided by the user.

  For example, you can use the P() command to play the telephone number stored by the R() command or use the Q() command to give the caller the opportunity to edit (review, rerecord, append, or cancel) answers to questions on a voice form.
- Request confirmation.
- Play a greeting that indicates that the application has moved on to the next step.
- Repeat the current greeting when there is no response. If there is still no response, provide a message explaining what is happening and either connect the call to an attendant or disconnect it.
- Play an error message, status message, or tone.

  Status messages, such has "We are still processing your order" should play after the first two seconds and then every seven to ten seconds.

  For an error message, provide a retry greeting (and perhaps suggest a remedy) before repeating the current greeting. Be sure to notify the user when returning to the main menu or transferring the user to an attendant after an error.

Word your informational greetings carefully using the following suggestions:

- Don't say Standard Time unless you do not shift to Daylight Savings Time.

  For example, on the west coast, say "Pacific Time."
- Be brief. When that is impossible, allow the user to listen to the greeting again.
- When providing a telephone number, always repeat it.
- Eliminate unnecessary words.

  For example, use "Please press 1 'Yes' or 2 for 'No'" rather than "Please press the key with the 1 on it for 'Yes' or the key with the 2 on it for 'No'."
- When pairing opposite phrases, use words that sound differently.

  For example, avoid pairing Turn On and Turn Off because they sound so much alike.

- Don’t use open-ended or ambiguous questions.

  For example, use “Do you have your account number?” rather than “Have your account number ready.”
- Be polite, non-judgmental, and avoid humor.

  For example, use “That password is invalid” rather than “You entered the password incorrectly.”

Using the Telephone Keypad

If the users enter their choices via the telephone keypad, follow these guidelines:

- Assign keys consistently. This is especially true for Delete and other destructive options.

  For example, don’t use 3 for Delete on one menu and Save on another.
- Offer alternates to * and # keys because those keys might be disabled.
- Use keys 1 and 2 for the most frequently selected options. Users expect to use the 1 and 2 keys most often.
- Avoid using keys 1, 2, 5, and 8 as destructive options.

  You might want to avoid 5 and 8 entirely as they are the most error-prone key choices. (These two keys are the only ones with a key in each direction.)
- Use the rows and columns of the keypad effectively.
- Use the left column for actions that precede or are lower than others.
- Use the right column for actions that follow or are higher than others.

  For example use a number in the left column to lower a volume and the corresponding number in the right column to increase a volume.
- Consider using a key in the top row as a response to a greeting that says “Go to the top” and a key in the bottom row in response to “Go to the bottom.”

Choosing Tokens

A number of commands from the Token Programming Language make IVR easier and voice forms possible.

To present a menu for your caller, you can use:

- The menu fields associated with the mailbox. The mailbox allows the caller to enter either a one-digit response to the menu or another mailbox. Amanda waits long enough to be sure that the caller has finished. (For this method, turn Do Not Disturb ON.)
- The M() command. In this case, Amanda waits for only one digit. It is faster that using menu fields, but it does not allow the caller to enter a mailbox with more than one digit. (For this method, turn Do Not Disturb OFF.)

To convert the DTMF (or touch) tones entered by the caller into a number, use:

- The R() command, which stores a number in a variable.

To play a greeting or play back the number stored by the R() command, use:

- The P() command. This command has many variations. See the “Token Reference” on page 89 for details.

To play up to 20 questions (from greetings) and store the answers as a single message, use:

- The Q() command, which also allows the caller to edit the responses.

Using Tokens

This example describes parts of an application that records consumer reactions to sample products. For example, hair stylists may be mailed information about a line of new hair care products.

If interested, a stylist can call an 800 number to request a sample of one of them. The sample is mailed along with product literature and a test ID that uniquely identifies the stylist with the product.

After using the product, the stylist calls again to answer a series of questions. For services rendered, the stylist is mailed a small fee or a free case of the product.

Later, the survey company analyzes the data and reports back to the manufacturer. The application has two parts:

- Gathering information about a potential tester, such as name, address, telephone number, and the product to be sent
- Quizzing the testers about the product

The tester information part (explained in “Gathering Testing Information” on page 140) uses:

- Menus using the M() command and 0 to reach a live attendant at any time.
- The P() command to play a general greeting.
- The R() command to request a telephone number, convert the DTMF tones entered by the stylist, and store the telephone number in a variable.
- The |() command (that’s the pipe command or vertical bar command) to add data about the stylist to a database file.
- A series of greetings that ask for the parts of an address. The Q() command plays the greetings and allows the stylist to edit the responses before they are saved as a message.

The quiz part (not explained) uses:

- Menus using the M() command, using 0 to reach a live attendant at any time.
- The R() command to request the test ID, convert the DTMF tones entered by the stylist, and store the ID in a variable.

- The N() command to look up the test ID in a database file. The database determines what set of questions to ask the stylist. It also contains a field indicating how many calls have come in using this test ID. Only one call should come in for each ID. If a stylist never calls in, an employee can call that person. If a stylist calls more than once (hoping for extra free cases of the product or whatever), an employee talks to the stylist personally, assuming some error has occurred.
- The Q() command to play a series of questions (greetings), allows the stylist to edit the responses, and stores the set of responses as a message.

Gathering Testing Information

Mailbox 880 handles all calls coming in on the 800 number and immediately passes the call to the caller instructions mailbox 881 (via the Done Chain).

Mailbox 881 has:

Extension Field: `@M(G1,2,30)G(0)`
Amanda plays the menu in Greeting 1. If there is no response from the caller, Amanda plays Greeting 1 again after a three-second pause. If there is still no response, Amanda executes the next token in the Extension field (which goes to the operator).

DND: OFF

Store Messages: NO

Greeting 1: To become one of our testers, press 1. If you are already one of our testers and you want to answer a product questionnaire, press 2….

Menu 1: 1000

Menu 2: 2000

Menu 0: 0

Mailbox 1000 has:

Extension Field: `@P(G1)Q(G2,G3,G4,G5,G6,G7,`
`G1#1001,E)R(G2#1001,%S1,30)G(1001)`
Amanda plays Greeting 1 from mailbox 1000 to welcome the tester and to give an overview of the process.
Then Amanda asks for the stylist's mailing address using a series of greetings and recording the answers as one message.
Next Amanda asks for a telephone number and stores it as a variable (%S1).

(It would be a good idea to play this number back to the stylist and allow reentry, but this example does not do that. See how this is done in "Two-call Faxback" on page 132.)
Finally, the call is transferred to mailbox 1001.

DND: OFF

Store Messages: YES

Greeting 1: Welcome to….

Greeting 2: Please say your last name now.

Greeting 3: Please say your first name and middle initial now.

Greeting 4: Please say the name of your business now.

Greeting 5: Please say your street address now.

Greeting 6: Please say your zip code now.

Greeting 7: Please say the name of your city now.

Greeting 1 of mailbox 1001: Please say the name of your state now.

Greeting 2 of mailbox 1001: Please use your telephone keypad to enter a daytime

telephone number where we can reach you if necessary. Please start now.

Mailbox 1001 has:

Extension Field: `@=(%S2,%M(1000))M(G3,2,30)G(0)`
%M[1000] is the number of messages stored in mailbox 1000. Amanda stores this number in a variable (%S2). This message number becomes associated with the stylist for the duration of the survey.
Then Amanda plays the menu in Greeting 3. If there is no response from the caller, Amanda plays Greeting 3 again after a three-second pause. If there is still no response, Amanda executes the next token in the Extension field (which goes to the operator).

NOTE: Using the message number to uniquely identify the tester works only because no messages will be deleted from mailbox 1000 until after the survey. If you will have more messages than disk space, keep a number in another file. Read the number using the [() command, increment it by one with the +() command, and write the new number (for the next tester) back to the file using the]() command.

DND: OFF

Store Messages: NO

Greeting 3: Please select one of the following products….

Menu 1: 1002

Menu 2: 1003

… other menu options …

Menu 0: 0

mailboxes 1002, **1003**, … have:

Extension Field: `@=(%S3,%S2)+(10000,%S3)`
`|(C:\\TESTERS\\TESTX.TXT)P(G1)G(999)`
Next Amanda makes a copy (%S3) of the message number (which identifies the stylist) and adds 10000 (or some other product differentiating number) to it. This becomes the test ID.
Then Amanda appends the stylist's telephone number (%S1), message number (%S2), and product number (%S3) to a database file (C:\TESTERS\TESTX.TXT).
Finally, Amanda plays Greeting 1 from the current mailbox and hangs up. (It would be a good idea to have the user verify that the stylist did indeed want this product or return to mailbox 1001, but this example does not do that. You would play a greeting naming the product and ask the stylist to confirm, similar to reconfirming the telephone number in Example 4.)

DND: OFF

Store Messages: NO

Greeting 3: Thank you for agreeing to test product such-and-such. You will be receiving…within 10 days. Please try the product and call this system again to answer a few questions about it….

Appendix A: Troubleshooting Amanda

New Problems

Solving a problem often requires sending annotated trace files to The Amanda Company. Amanda Company customer support representatives need to know what happened, what SHOULD HAVE happened, what time, and so on. The trace files need to go to the right people in a timely manner. If a line connected to Amanda goes out of service, The Amanda Company needs trace information on the last activity on that line. Submit trace files to a place accessible to everyone even if the customer service representative you have been working with is out of the office: customer.support@taa.com.

Resetting a Port from the Main Screen

The Main screen is used primarily for information about the system. However, Amanda also allows you to reset a port from the Main screen so that the system does not have to be completely shut down. This is a hidden feature, so that people will not accidentally make a port idle. No dialog box appears on the screen.

Ports are represented by two digits. Port 1 is 01, port 5 is 05, port 13 is 13, and so forth. To reset a specific port (make it go IDLE), do the following:

1. Press Ctrl+Home.
2. Press Alt+P.
3. Enter the two-digit port number.

This forces a hangup on the specified port.

CAUTION: Anyone using the port being reset is disconnected without warning.

What to Do When…

This section explains what to do when:

- Amanda does not transfer the call
- The caller doesn’t hear the Busy or RNA Greeting
- Notification does not work correctly
- The Host/Remote programs do not work
- You see the message: RDSP Not Located at any Interrupt Vector

Amanda Does Not Transfer the Call

If Amanda does not transfer the call, one of the following may be causing the problem.

Problem: **The mailbox has Do Not Disturb turned ON.**

Solution: If ON, no transfer is attempted and the caller immediately hears the current greeting of the mailbox. Check the mailbox you are calling to make sure Do Not Disturb is OFF.

Problem: **The dial codes are incorrect.**

Solution: Run the Setup utility, selection 1, to verify that the dial codes are correct for the telephone switching system Amanda is connected to.

NOTE: The telephone switching system dial codes should be in the system's manual.

Problem: **The telephone switching system returns stutter dial tone on a transfer hookflash.**

Solution: If stutter dial tone is returned, change the value of the *Number of seconds to wait for dial tone detection* option to 0 seconds. (Run the Setup utility, selection 1.)

Problem: **The telephone switching system does not return dial tone on a transfer hookflash—and it is supposed to.**

Solution: Do one or more of the following:

- Check your single line station card to see if it is operating properly
- Use a buttset or single line telephone to verify that the switch is not giving dial tone to the ports
- Check to see that you have enough Touch Tone Receivers (TTRs, also called DTMF receivers)

Problem: **Token programming is being used and a hookflash has not been entered in the Extension field.**

Solution: Review the tokens and insert a hookflash where needed. When the Extension field starts with @, a F- or %X will not enable PCPM. Amanda does not listen for call progress tones. The W() token can be used to listen for voice.

Problem: **An additional hookflash is needed because the transfer involves both Centrex lines and a telephone switching system.**

Solution: Include another F- in the *Dial code to put a caller on transfer hold* option (also known as dl_dtwait). (Run the Setup utility, selection 1.)

Problem: **The call progress tones are not correct.**

Solution: You should use GetTones or AccuCall Plus to correct the call progress tones. See "Chapter 5: Defining Tone Patterns."

Problem: **There may be insufficient intercom paths on older analog telephone switching systems.**

Solution: Check your telephone switching system's intercom path capability to see if additional hardware will add more intercom paths.

Caller Doesn't Hear the Busy Message or RNA Greeting

If the caller does not hear a busy or RNA (ring no answer) greeting, one of the following may be causing the problem.

Problem: **Amanda is unable to recognize a busy or RNA tone.**

Solution: You should use GetTones or AccuCall Plus to correct the call progress tones. See "Chapter 5: Defining Tone Patterns."

Problem: **Amanda is doing blind transfers rather than supervised transfers.**

Solution: Check the Extension field of the mailbox you are calling and the *What to dial AFTER dialing the mailbox extension* option (also known as dl_suffix) to see if an H has been added. (Run the Setup utility, selection 1.) If the integration codes are unique, blind transfers are OK, but the stations must be forwarded back to Amanda.

Problem: **The U token (used to indicate a partially supervised transfer) is unrecognized, so the call is not processed correctly.**

Solution: Remove the U token and place the call again to see if the greeting can be heard or look at the trace file to see which token within the extension field is failing.

Problem: **The integration patterns are incorrect.**

Solution: Run a trace on the system to see if the integration strings coming across the port match the ones Amanda is expecting. (Run the Setup utility, selection 3.)

Problem: **The Busy and Ring No Answer integration patterns are identical, so Amanda treats both types of calls the same.**

Solution: Remove one of the integration strings by running the Setup utility, selection 3. Integration strings include:

- busy ('bbbb')
- ring no answer ('rrrr')

NOTE: This prevents the caller from hearing one of the two greetings. You should remove the busy integration string (the one including the b's).

Problem: **The Busy chain or RNA chain sends the call to another mailbox.**

Solution: Check the mailbox you are calling to be sure the Busy and RNA chains are empty.

Notification Does Not Work Correctly

If notification does not work correctly, one of the following may be causing the problem.

If using roving notification, make sure that all single line ports connected to the voice board ports get dial tone when they go off-hook and also program the phone system to grant all Amanda ports outside dial tone, when a 9 or some other code is dialed.

If using dedicated or restricted notification, make sure that the designated port has the attributes stated in the above paragraph.

Problem: **H in Notify Method field.**

Solution: Check to see that the dial string in the Notify Method field for the mailbox does not contain an H.

Problem: **Using %E in a Method field**

Solution: You cannot use %E in a notification Method field unless the Extension field contains only the extension number. To insert an extension number into a Method field when you cannot use %E, do one of the following:

- Use %U instead of %E if the extension number and the mailbox number are the same
- Put the extension number in the Variable field in the notification record and use %V in the Method field

Problem: **Timing problems (pager with voice greeting, Amanda not waiting for dial tone).**

Solution: Call the pager and count the seconds and/or rings it takes to respond. Use the W token to wait an appropriate time and/or number of rings.

Problem: **Wrong code for message waiting lights.**

Solution: Check your telephone switching system manual to verify that the codes for turning on a message waiting light from a single line extension are correct.

Problem: **Wrong type of notification record.**

Solution: Be sure you selected the right type for the notification record. For example, the notification record that turns the message light off must have the type PICKUP.

Problem: **Max Times is set for 0.**

Solution: Make the value in the Max Times field in the Notify record greater than zero.

Host/Remote Programs Do Not Work

If the Host and Remote programs do not work, one of the following may be causing the problem. See "Chapter 10: Accessing Amanda Remotely."

Problem: **Both modems used have a bps higher than 2400.**

Solution: Make sure you use /f on the command line if both modems are faster than 2400 bps (bits per second).

Problem: **Host is not loaded in the AUTOEXEC.BAT file or has not been loaded manually.**

Solution: Check your AUTOEXEC.BAT to see if "rem" is in front of LH HOST /4 statement. Or type LH HOST /x with the COM port x at the DOS prompt (C:\).

Problem: **Host is installed on the wrong COM port.**

Solution: Check what COM port your modem is using and change the LH HOST statement to use that port number.

Be sure that the host program is not using the same COM port as any other process, such as SMDI or your fax modem.

Problem: **An internal modem is being used and there is an IRQ or a COM port conflict with the computer's controller card.**

Solution: Check your computer's controller card and verify that your modem's COM port is disabled on the controller card.

Problem: **Remote is installed on a COM port other than COM 1 or 2.**

Solution: To use the Remote program, the modem must use only COM 1 or COM 2. Verify that the modem is set for one of these ports. Then run the remote program designating the correct port.

Problem: **Other communications software is still running.**

Solution: Remove all other remote software from the computer's AUTOEXEC.BAT file and do not load any other remote software manually.

Message: RDSP Not Located at Any Interrupt Vector

If you see the RDSP Not Located at any Interrupt Vector message, one of the following may be causing the problem.

Problem: **The CMOS settings are incompatible.**

Solution: Make sure the CMOS settings disable all adapter ROM shadowing or shadow RAM, except for the F000 (hexadecimal) segment/system ROM shadow.

Problem: **The Exclusion statement in CONFIG.SYS is incorrect.**

Solution: Back up your existing CONFIG.SYS, AUTOEXEC.BAT, and \PLATFORM\CONFIG files.

Then try to rerun, from the C:\ prompt, 1STTIME.BAT to reconfigure your PC's memory.

Problem: **There is a conflict between the settings in the CONFIG.SYS and \PLATFORM\CONFIG files.**

Solution: Check to see that the dualport statement in the \PLATFORM\CONFIG file matches the first two characters in the exclusion (X=) statement in the CONFIG.SYS file.

NOTE: Reboot after making any changes in the CONFIG.SYS file, AUTOEXEC.BAT file, or \PLATFORM\CONFIG file.

Problem: **The voice board is not installed or properly seated in the PC.**

Solution: Turn the power off and check that the board is properly seated in its slot on the motherboard.

System Halts

Problem: **The lpt_port option is set to a non-zero number but no printer is attached.**

Solution: Run Setup as explained in "Chapter 3: Running the Setup Utility." Select System Configuration Options, then General Configuration, then General Defaults. Change ***x*** in "Printer attached to LPT [***x***]" to zero if no printer is attached.

Problem: **The host is loaded on a non-existent COM port.**

Solution: Check to see that the internal modem has not been removed.

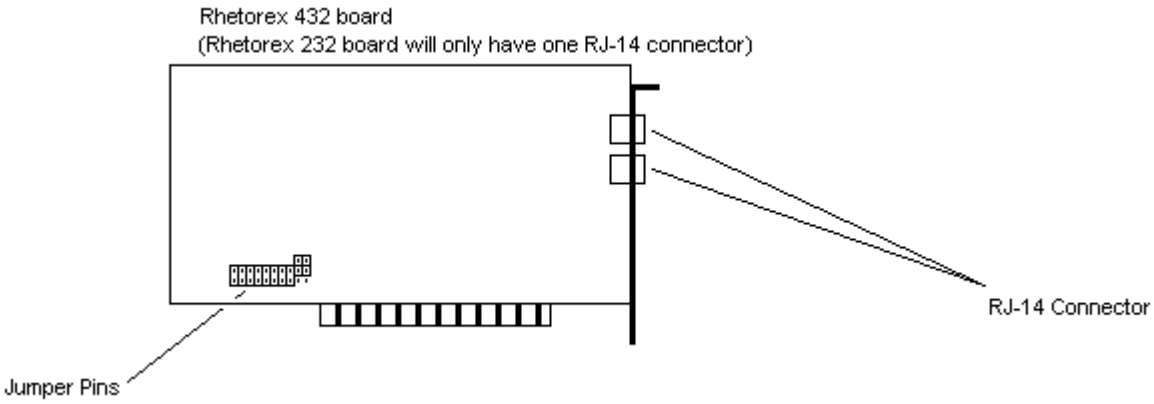
Appendix B:
Adding a Voice Board

Adding an RDSP/x32 Voice Board

If you upgrade Amanda@Work.Place to include more ports, you need to know more about addressing and installing voice boards.

Amanda recognizes each installed voice board by its unique address. The first voice board has address 300; the second has address 301. To set a voice board's address, you must configure the pins on the voice board correctly using shorting jumpers. Voice boards are normally shipped with address 300 (board 1) when you receive them. You should check the address and change it, if necessary.

If you look at the voice board with the 4-wire (RJ-14) jacks to the right, the 10 sets of pins are in a row along the bottom of voice boards (models 432 and 232). The jumper positions are labeled as powers of 2 (1, 2, 4, 8, 16, 32, …). (However, the table below numbers them from 1 to 10.)



The following table shows how to set the shorting jumpers for each possible voice board in Amanda.

Board	Hex Address	Leftmost Jumper Positions Rightmost 1	2	3	4	5	62	7	8	9	10
1	300	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Open	Open
2	301	Open	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Open	Open

Closed means that two pins are covered/connected by the shorting jumper, and Open means that the two pins are *not* covered/connected by the shorting jumper. In the diagrams in this chapter, the blacked out pin positions represent closed positions.

TIP: Installers often place shorting jumpers over only one pin when the position is Open. This does not connect the pins, but it does prevent losing jumpers.

Notice that the jumper positions numbered 3 through 7 are always closed and that the jumper positions numbered 8 and 9 are always open. You will change only the leftmost three jumper positions (those numbered 0, 1, and 2 in the table).

The next table show the jumper positions graphically.

A Graphical View

Board	Hex Address	Jumper Positions
1	300	
2	301	

CAUTION: Do not add or remove shorting jumpers while power is applied to the board.

ShowJump Utility

Rhetorex provides the ShowJump utility which also shows how to configure the jumpers on various types of Rhetorex boards. On Amanda, this utility is stored in the C:\PLATFORM directory.

To use ShowJump:

1. At a DOS prompt, type:

   `C:\PLATFORM\SHOWJUMP`

   The Rhetorex Board Jumper Configuration Utility Screen displays the jumper configuration for hex address 300 on boards 2108 and 4108 (which Amanda does not support).

2. Press Page Down until the board you are interested in is displayed.

3. Then type the hex address and press Enter.

   The jumper configuration for the displayed board changes to fit the address that you entered.

4. Press Esc to exit.

Installing Voice Boards

After making sure the address for the voice board is correct, you can install it.

To install the voice board:

1. If this is a new installation, go to step 2. Otherwise, shutdown Amanda from the Main screen:
   a. Press Alt+S.
   b. Type in the password. (The default is AMandA with only the first two and the last letter capitalized.)
   c. Press Enter.
   d. Press Y (to confirm the shutdown).

e. Press Y again (to reconfirm).

f. After the DOS prompt C:\AMANDA> appears, *wait 30 seconds* before turning off the power.

2. Turn off the computer's power.

3. Remove the computer cover and locate an available slot. A full length slot is needed for models 2132 and 4132.

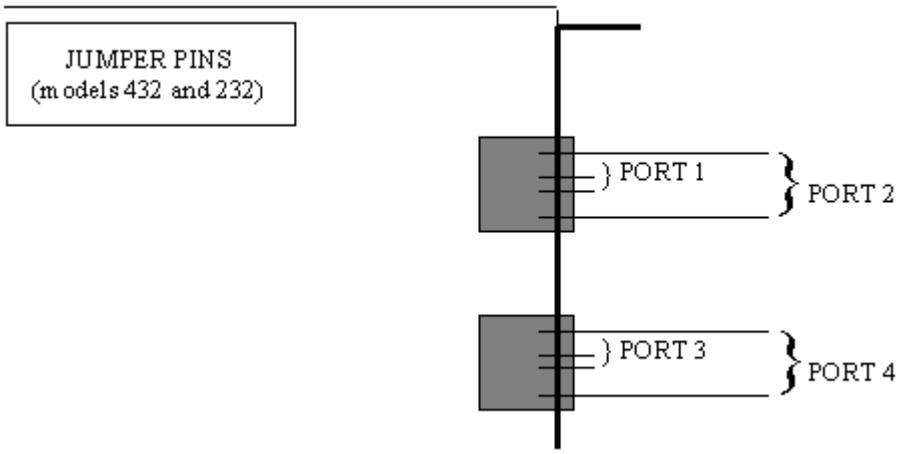
4. Remove the back slot cover and install the voice board. If there is a rear card guide, slide the end of the voice board into it properly.

5. Close the computer cover and turn on the power.

CAUTION: Use an ESD-safe station while configuring and installing your board. Otherwise, static discharge may damage your board.

Connecting Ports

You create a port by connecting a telephone line to a voice board. Amanda can support from 2 to 24 ports. On a Rhetorex voice board with two connectors, the top connector represents the first two ports and the bottom connector represents the second two ports for a total of four ports per board. Each connector on a voice board is an RJ-14 modular jack. The inner pair is one port, and the outer pair is the other port.



Ports are numbered consecutively from 1 to 24. Port 1 is connected to the lowest addressed voice board (usually address 300). Each connector on the voice board is linked to your telephone switching system by a standard 4-wire line cord to a standard RJ-14 modular jack which should represent two analog (single-line) extensions.

Appendix C:
Configuration Reference

General Options

Configuration Option	Description
abbreviate_dates	Controls how Amanda says the date for a message dated today or yesterday. True or False. The default is True. When True, Amanda says "today" or "yesterday" instead of the actual date, for example, "November 27th, 1996." When False, Amanda says only the actual date, such as "November 27th, 1996." The default appears in install.cfg as: `set abbreviate_dates true`
abbreviate_greeting	Allows you to shorten the system greeting. True or False. The default is False. When True, Amanda says, "Please leave a message at the tone." This is the shortened version of the system greeting. When False, Amanda says, "Please leave a message for" followed by the name and extension recording. This is the usual default version of the system greeting. The default appears in install.cfg as: `set abbreviate_greeting false`
activation_key	A number you receive from your Amanda Company sales representative to activate your system. You must set this option if one or more of your voice boards were not purchased from The Amanda Company. If you change or add a board later, you need another activation key because the key is based on the serial numbers for all of the boards and the total number of ports. The default is 0, which means there is no activation key. The default appears in install.cfg as: `set activation_key 0`

General Options (Continued)

Configuration Option	Description
active_hold	When the extension is busy, the caller can hold for the called party—actively or inactively. True or False. The default is True. When True, Amanda is set up for active hold. The caller must continually indicate that he wants to remain on hold. Failure to continue to press * when prompted indicates that the caller is no longer interested in holding. If he doesn't enter another extension, he is asked for a message. Active hold is best for 800 numbers, support lines, or when Amanda is used as an Automatic Call Distribution (ACD) device. It prevents a caller from pressing * to go on hold and staying on hold indefinitely without further interaction. The caller presses * to go on hold and must press * periodically to stay on hold. When False, Amanda is set up for inactive hold. The caller indicates that he wants to be on hold only once. If the caller does nothing, Amanda retries the extension until it is no longer busy. The caller can also enter another extension or press * to leave a message. In this case, the user uses * to go on hold and * to leave a message. See also auto_queue. The default appears in install.cfg as: `set active_hold true`
adpcm_hq	Sets the sampling rate for outgoing greetings. The higher the sampling rate, the better the sound quality, but also the more disk space used. 24, 32, or 64. The default (and recommended value) is 64. **NOTE:** If you change this on an active system, all previously recorded outgoing greetings need to be re-recorded. The default appears in install.cfg as: `set adpcm_hq 64`
adpcm_nq	Sets the sampling rate for incoming messages. The higher the sampling rate, the better the sound quality, but also the more disk space used. 24, 32, or 64. The default (and recommended value) is 32. **NOTE:** If you change this on an active system, you should have users delete all their messages first. The default appears in install.cfg as: `set adpcm_nq 32`
adpcm_pq	Sets the sampling rate for the system prompt file. This is set to the sampling rate at which the system prompt file was recorded. 24, 32, or 64. Correctly set by default. **NOTE:** Do not change this unless you have installed the appropriate system prompt file. The default appears in install.cfg as: `set adpcm_pq` *x* where x is the correct setting for your prompt files.
advertising	Displays a text string at different locations on the Main screen after the screen saver starts up. Use any text string ranging from 0 to 79 characters. The recommended length is less than 30 characters so your message is easy to read and fits on the screen at most locations. 'Buy more AMandAs!' is the default. See also tmo_blank. The default appears in install.cfg as: `set advertising 'Buy more Amandas!'`

General Options (Continued)

Configuration Option	Description
ati_mode	Allows Amanda to be used with a Rhetorex x000 board and an ATI board. An ATI board requires a version 7.x Rhetorex driver. True or False. The default is false. When True, Amanda makes the connections needed for the ATI board. When False, Amanda does not make the ATI connections. The default appears in install.cfg as: `set ati_mode false` **CAUTION:** RTNI-xATI voice boards cannot detect rotary. If you use an RTNI-xATI voice board, you must leave the rotary configuration option set to false.
auto_queue	Designed for callers with rotary telephones so that they can be put "on hold" without having to press *. True or False. The default is False. If True and if active_hold is False, callers are automatically put "on hold" when they reach a busy extension. A custom busy message must explain what's going on so that callers are aware that they are "on hold" and that they can dial other extensions—if they prefer. The default appears in install.cfg as: `set auto_queue false`
auto_report	The name of a previously saved report file in the RPT.DB subdirectory within the AMANDA directory which can be executed and printed once each day. When not set, no auto reporting is done. Use the name of a report file with the extension .RPT. The default is an empty string which means that no report file is executed. To use this feature, verify the following: • A printer with a parallel interface must be connected to Amanda • The parameter lpt_port must be set to 1, indicating the port to which the printer is attached • The printer must be online and have enough paper See also auto_report_time and lpt_port. The default appears in install.cfg as: `set auto_report ''`
auto_report_time	The time of day at which the report is to be printed (when auto_report is not an empty string). A time of day in 24-hour MMHH format. The default is 0745 (7:45 a.m.). See also auto_report and lpt_port. The default appears in install.cfg as: `set auto_report_time 0745`
begin_rec_prompt	When record_menu is True, this option controls whether the caller hears Amanda prompts or only a beep when recording a message. This option has no effect on the post-record menu. If the caller presses #, the post-record menu indicates how to rerecord, append to, or save a recording. True or False. The default is True. When True, Amanda plays, "Begin recording at the tone, finish by pressing # or hanging up" before the beep. When False, the caller hears only a beep. See also record_menu and end_rec_menu. The default appears in install.cfg as: `set begin_rec_prompt true`

General Options (Continued)

Configuration Option	Description
busycycles	Minimum number of non-ringback cycles necessary before the Rhetorex driver notifies Amanda that the extension is busy. The default is 2 cycles. The range is 0 to 20. 0 means do not change the current Rhetorex setting (which is also 2 cycles). The default appears in install.cfg as: `set busycycles 2`
ca_file	The file (in the C:\AMANDA directory) which stores call accounting (SMDR) data that comes from the port in ca_port. The data is collected from the telephone switching system, stored while Amanda runs, and then (after a shutdown) read by a call accounting package that analyzes and manipulates the data. Use any filename. The default is 'SMDR.DAT'. See also ca_port. The default appears in install.cfg as: `set ca_file 'SMDR.DAT'`
ca_port	The number for the logical serial port that will read SMDR data from the switch while Amanda is running. The data is stored in the file specified by ca_file unless the number is 0, in which case no SMDR data is read. Use 0, 1, 2, 3, or 4. The default is 0. See also ca_file. The default appears in install.cfg as: `set ca_port 0`
cancel_busy_hold	Determines whether callers can hold for a busy extension. True or False. The default is False. When True, busy becomes equivalent to Ring No Answer (RNA). That means that the caller cannot hold for a busy extension and can only leave a message once RNA or BUSY is the state of the called extension (assuming the mailbox accepts messages). When False, the caller can press * to hold for a busy extension. The default appears in install.cfg as: `set cancel_busy_hold false`
clock_sync	Controls whether Amanda resynchronizes the DOS software clock with the PC hardware clock. True or False. The default is True. When True, Amanda resynchronizes. When False, Amanda does not resynchronize. Turn this off if you have another utility that controls the PC clock. The default appears in install.cfg as: `set clock_sync true`
cmt_maxlen	Sets the total number of seconds allowed for recording a List Comment. The user can record a comment while creating a mailing list or later. It names or describes the contents of the list. Number of seconds. The range is from 1 to 99. The default is 10. The default appears in install.cfg as: `set cmt_maxlen 10`

General Options (Continued)

Configuration Option	Description
connect_tone	When an answer is detected and Amanda is not identifying the called party for the current mailbox, this option determines whether Amanda plays a beep. (The mailbox's ID Call? field is set to NO.) True or False. The default is True. When True, Amanda plays the beep. When False, there is no beep. The default appears in install.cfg as: `set connect_tone true`
create_locked	Controls whether or not new mailboxes are locked when the mailbox template (usually mailbox 997) is locked. The administrator (using mailbox 999 and the telephone) can lock the template (and other mailboxes) using one of the system administration options. This prevents callers from logging into the mailbox template. True or False. The default is False. When True, new mailboxes created from the template are initially locked if the template is locked. When False, new mailboxes are not locked. This means that they can be logged into via the telephone immediately after they are created. The default appears in install.cfg as: `set create_locked false`
db_locking	Makes Amanda lock each record in a file as it is accessed. No other port or program can access that record of that file. This is used within the context of using tokens to read and write to ASCII or dBase files. The value is 0 or 1. The default is 0. When 0, Amanda does not perform record locking. When 1, Amanda attempts to perform record locking which will fail unless SHARE.EXE, a DOS program (not licensed via The Amanda Company), is running. This program is usually loaded by the CONFIG.SYS or AUTOEXEC.BAT file. The default appears in install.cfg as: `set db_locking 0`
defaults_box	Indicates what mailbox to use as a template when creating a new mailbox. The contents of most fields, all notification records, and all automatic scheduling records are copied from the template to the new mailbox. The Comment and Directory Name fields are not copied. The Extension field is copied only if it begins with an @ (which indicates token programming). If the Security Code field of the default mailbox is blank, the security codes for new mailboxes are their mailbox numbers. Otherwise, the security codes for all new mailboxes are the same as that of the template mailbox. The Security Code field always appears blank. You must fill it with spaces if you want it to actually be blank. Use any valid mailbox. The default is 997. See also guest_defaults. The default appears in install.cfg as: `set defaults_box 997`
diskwarn	When Amanda has only the specified percentage of disk space left, she executes Disk notification record (if there is one) for mailbox 999. The notification record may call you at home, call your extension, call your pager, and so forth. For example, use 20 to have Amanda notify you when the remaining disk space falls below 20. Number (for a percentage). The range is from 1 to 99. The default is 20. See also tmo_disk. The default appears in install.cfg as: `set diskwarn 20`

General Options (Continued)

Configuration Option	Description
dl_pickup_on_ring	When an inbound ring is detected and Amanda goes off-hook, this option determines whether Amanda dials the code specified by the dl_pickup parameter in the 1001.PBX file or the current dial codes file for that port. True or False. The default is False. When True, Amanda dials the code. When False, Amanda does not dial the code. The default appears in install.cfg as: `set dl_pickup_on_ring false`

General Options (Continued)

Configuration Option	Description

dtmf_action
dtmf_busy
dtmf_dnd
dtmf_ring
dtmf_xfer
tmo_xfer
	The dtmf_action, dtmf_busy, dtmf_dnd, dtmf_ring, dtmf_xfer, and tmo_xfer, options are required only for telephone switching systems, such as Comdial DXP and Panasonic KXT-D, that can send DTMF tones in place of PCPM tones.
	For Comdial DXP, The Amanda Company recommends dtmf_action=1, dtmf_busy='2', dtmf_dnd='3', and dtmf_xfer='1'. (It sends nothing for a ring—dtmf_ring=".) tmo_xfer=50 and tmo_rna=25 have been recommended.
	For Panasonic KXT-D, The Amanda Company recommends dtmf_action=1, dtmf_ring='1', dtmf_busy='2', dtmf_dnd='4', dtmf_xfer='5', and tmo_xfer=20.
	tmo_xfer is the number of tenths of seconds that Amanda waits to read a sequence of DTMF digits from the port prior to doing PCPM. The range is 0 to 255. The default is 0, which disables this and the following options. (If this option is blank, the default is used.)
	If the tmo_xfer timeout is greater than 0, Amanda waits for digits until the timeout occurs.
	The digits she might read are:
	dtmf_xfer This sequences of digits means that the extension has been answered. Amanda releases the call. The default is an empty string (no digit).
	NOTE: The telephone switching system should bring the call back to the port if this digit is sent when the phone is ringing rather than actually answered.
	CAUTION: When using call screening, be aware that this will play the caller's name and company as well as the call screening menu to a ringing tone.
	dtmf_dnd This sequence of digits means that the extension is in Do Not Disturb mode. Amanda treats the call as though it were not answered (RNA). The default is an empty string (no digit).
	dtmf_busy This sequence of digits means that the extension is busy so Amanda performs no PCPM. The default is an empty string (no digit).
	dtmf_ring This sequence of digits causes Amanda to stop waiting or to extend her wait, depending on the value of dtmf_action. The default is an empty string (no digit).
	no digit If Amanda reads no sequence of digits before the tmo_xfer timeout occurs, she stops waiting or extends her wait, depending on the value of dtmf_action.
	The dtmf_action option determines what Amanda does if she receives the digit specified in dtmf_ring or if the timeout specified by tmo_xfer occurs before a digit arrives. (continued on next page…)
	When 0 (the default), Amanda performs normal PCPM.
	When 1, Amanda continues to wait for a digit. She waits 6 seconds for each of the rings specified for a Ring No Answer (RNA). For example, if the mailbox has 4 rings for RNA, Amanda waits 24 seconds. Then she decides that the call is not answered.
	For COMDIAL, see also dtmf_dt.
	The defaults appear in install.cfg as:
	`set dtmf_action 0`
	`set dtmf_busy ''`
	`set dtmf_dnd ''`
	`set dtmf_ring ''`
	`set dtmf_xfer ''`
	`set tmo_xfer 10`

General Options (Continued)

Configuration Option	Description
dtmf_before_ring	Controls whether Amanda clears the voice board's DTMF buffer when a ring is detected. Clearing the buffer gets rid of digits left over from a previous call. True or False. The default is False. When True, the buffer is not cleared. Make sure the telephone switching system can send DTMF before a ring prior to changing this to True. When False, Amanda clears the buffer when a ring is detected. You must use False for Rhetorex 2132 and 4132 because they cannot detect DTMF while on-hook. The default appears in install.cfg as: `set dtmf_before_ring false`
dtmf_busy	This option is required only for telephone switching systems, such as Comdial DXP and Panasonic KXT-D, that can send DTMF tones in place of PCPM tones. See also dtmf_action.
dtmf_dnd	This option is required only for telephone switching systems, such as Comdial DXP and Panasonic KXT-D, that can send DTMF tones in place of PCPM tones. See also dtmf_action.
dtmf_detect	How long a DTMF tone must play for Amanda to recognize that it has occurred. Number from 2 to 6, each representing 16 ms. (For example, 3 equals 48 ms or .048 seconds.) The default is 0. Zero means to use the default. The default is 3 (.048 seconds). When non-zero, both Rhetorex's DTMFDetect and DTMFDelay channel parameters are set to that value. The default appears in install.cfg as: `set dtmf_detect 0`
dtmf_dly	Controls the amount of time between DTMF tones when Amanda is dialing. Number of hundredths of seconds. The value is 0 or a number from 3 to 19. The default is 0. Using a value of 0 makes it country-dependent (50ms in the US, 80ms in the UK). When non-zero, the specified time is used. The default appears in install.cfg as: `set dtmf_dly 0`
dtmf_dt	The string of DTMF digits received instead of a dial tone. For example, COMDIAL sends a '1'. The string can be any length. The default is an empty string which means that Amanda waits for the dial tone. If dtmf_dt is not an empty string, and if tmo_dtwait (the dial code that determines how long to wait for a dial tone or its equivalent) is > 0, Amanda dials dl_dtwait (the dial code that puts the caller on transfer hold) and then waits for the dtmf_dt digits to come from the switch. If Amanda receives fewer digits or if the digits do not match dtmf_dt, Amanda assumes the extension is busy. If Amanda receives the expected digits, she proceeds with the call. As soon as Amanda receives the correct number of digits, she stops waiting regardless of the value of tmo_dtwait. Therefore, it should be safe to make tmo_dtwait substantially larger than the actual time expected. The default appears in install.cfg as: `set dtmf_dt ''`

General Options (Continued)

Configuration Option	Description
dtmf_gate	Verifies that the caller is still on the line before transferring him to the operator. This applies only if the mailbox (usually the operator) specified in the Done Chain for the Caller Instructions mailbox has Do Not Disturb turned off. True or False. The default is False. When True, Amanda verifies that the caller is still on the line after playing the Caller Instructions and not hearing any DTMF. Amanda asks the caller to "Say 'yes' at the tone" before transferring the call. For example, on telephone switching systems that do not have disconnect supervision, this can prevent the transfer of a call to the operator or prevent the replaying of a menu when the caller has hung up. When False, Amanda transfers the call without verifying that the caller is still on the line. The default appears in install.cfg as: `set dtmf_gate false`
dtmf_on	Controls how long Amanda plays each DTMF tone. Number in hundredths of seconds. The range is from 10 to 90. The default is 20 (.2 seconds). The default appears in install.cfg as: `set dtmf_on 20`
dtmf_ring	This option is required only for telephone switching systems, such as Comdial DXP and Panasonic KXT-D, that can send DTMF tones in place of PCPM tones. See also dtmf_action.
dtmf_xfer	This option is required only for telephone switching systems, such as Comdial DXP and Panasonic KXT-D, that can send DTMF tones in place of PCPM tones. See also dtmf_action.
end_rec_menu	When record_menu is True, this option determines whether the caller hears the post-record menu that allows callers or users to review or re-record their messages or greetings. True or False. The default is True. When True, the caller or user hears the menu. When False, the caller or user does not hear the menu. The default appears in install.cfg as: `set end_rec_menu true`
exit_digit	Defines one additional DTMF tone that causes Amanda to stop during recordings (whether greetings or messages) and play the post-record menu. The range is from 0 to 9 and also includes * and #. The default is '#'. Remember that the # key always causes Amanda to stop recording, even when it is not the value of exit_digit. The default appears in install.cfg as: `set exit_digit '#'`
exit_to_0	Allows a caller to leave a message and talk to the operator afterwards. True or False. The default is True. When True, the caller can press 0 after recording a message and is transferred to mailbox 0. When False, Amanda records the DTMF 0 as part of the message unless 0 is defined as an exit digit (see exit_digit). **NOTE:** Regardless of the setting for exit_to_0, a caller can press 0 during the "Begin recording at the tone..." prompt and go to mailbox 0 immediately. If the caller presses any other key (1-9, #, *), Amanda stops the prompt, plays the beep, and starts recording the message. The default appears in install.cfg as: `set exit_to_0 true`

General Options (Continued)

Configuration Option	Description
future_delivery	Specifies the mailbox that stores messages to be delivered in the future. This mailbox must be able to store messages. The default is 995, but you can use any valid mailbox. -1 means no mailbox has been assigned. The default appears in install.cfg as: `set future_delivery 995`
gain_loud	Controls the volume of the custom busy message. Number. The range is from -8 to 8 and the default is 0. The default appears in install.cfg as: `set gain_loud 0`
gain_norm	The initial volume for all ports. Number. The range is from -8 to 8 and the default is 0. The default appears in install.cfg as: `set gain_norm 0`
guest_defaults	The mailbox to use as a template when creating a new guest mailbox. The default is 996, but you can use any valid mailbox. -1 means no mailbox has been assigned. See also defaults_box which explains what fields are copied. The default appears in install.cfg as: `set guest_defaults 996`
guest_min	The starting mailbox for guest mailboxes. If this value is 90000, the first guest mailbox is 90000. The second is 90001, and so forth. See also guest_max. Guest_max must be larger than guest_min. Any valid mailbox. The default is 90000. The default appears in install.cfg as: `set guest_min 90000`
guest_max	The last mailbox for guest mailboxes. If this value is 90199, the highest possible number for a guest mailbox is 90199. Along with the guest_min, you limit the number of guest mailboxes that Amanda can create. Guest_max must be larger than guest_min. A valid mailbox. The default is 90199. The default appears in install.cfg as: `set guest_max 90199`
integration_greeting	Determines what greeting plays for integrated calls that have both rrr and sss (or rrrr and ssss) fields set. (The r's indicate the number of digits in the extension of the user who was called but did not answer. The s's indicate the number of digits in the extension of the user who made the call. See "Using Character Codes" on page 32 for more information.) True or False. The default is True. When True, Amanda plays the RNA greeting for the mailbox identified by rrr. When False, Amanda plays the system greeting. In either case, a message is taken for rrr from sss. The default appears in install.cfg as: `set integration_greeting true`
irq	The IRQ over which the voice board communicates with the Amanda system. The default is 7. The range is 0-15, but do not change this setting unless instructed to by an Amanda Company employee. Most IRQs are unavailable because they are used by PC components. The default appears in install.cfg as: `set irq 7`

General Options (Continued)

Configuration Option	Description
lcoff	The minimum necessary duration of loop current off before the voice board driver recognizes that the loop current is off. Corresponds to the Rhetorex global parameter LcOff. Number of hundredths of seconds (from 1 to 6553) or the number -1 or 0. For example 10 is .1 second. The default is -1. When 0, the voice board's default is used. The default is .1 seconds. When -1, there is no wait. The default appears in install.cfg as: `set lcoff -1`
lcvalid	The length of time that the voice board driver ignores loop current transition events (on, off, and drop) after starting PCPM. Corresponds to the Rhetorex channel parameter LcValid. Number of hundredths of seconds (from 1 to 255) or the number -1 or 0. For example 10 is .1 second. The default is 0. When 0, the voice board's default is used. The default is 4 seconds. When -1, this option is disabled and no events are ignored. The default appears in install.cfg as: `set lcvalid 0`
lcwait	The minimum time after dialing a digit string before the voice board driver decides the loop current drop is an answer. Corresponds to the Rhetorex channel parameter LcWait. Number of hundredths of seconds (from 1 to 255) or the number -1 or 0. For example 10 is .1 second. The default is 0. When 0, the voice board's default is used. The default is 100 ms (.1 seconds). When -1, this option is disabled and there is no minimum time. The default appears in install.cfg as: `set lcwait 0`
list_delay	When a message is sent to a list, this is the delay between deliveries to mailboxes on the list. It has no effect on direct messaging or future deliveries. Slowing down the delivery rate makes sending to long lists less likely to slow down the system. Number of tenths of a second. The default is 10 (which is 1 second). The range is 0 to 255. The default appears in install.cfg as: `set list_delay 10`
lognam	The name of the file to be used as the system log file. It is stored in the C:\AMANDA directory. This log file contains start-up information, any execution error information, DOS errors, disk errors, system actions, and shutdown information. The default filename is 'AMANDA.LOG'. **NOTE:** Since this file grows (slowly), archive or delete it once or twice a year when you perform preventative maintenance. The default appears in install.cfg as: `set lognam 'AMANDA.LOG'`
lpt_port	Number of the printer port to which a printer is attached to Amanda. The default is 0, which means that no printer is attached. While a printer can be attached to LPT ports 1, 2, or 3, use 1 for best results and attach the printer to LPT1. If you use a non-zero value, but no printer is attached, Amanda halts. See also auto_report and auto_report_time. The default appears in install.cfg as: `set lpt_port 0`

General Options (Continued)

Configuration Option	Description
max_dl_inits	The number of ports that can go off-hook simultaneously and dial the telephone switching system initialization code. The range is from 1 to the number of ports defined for Amanda. The default is 2. The PBX file option dl_init (What to dial on each port after the system starts) works on the ports specified here. The default appears in install.cfg as: `set max_dl_inits 2`
max_ports	Number of ports in use on the Amanda system. This option needs to be set when the number of ports available is greater than the number of ports in use. For example, if you have a four-port voice board but are currently using only three ports, set this option to 3 to ensure that Amanda does not try to use the fourth port. The default is 24. The range is 1-24. If you are using all the ports that your voice boards can support, it is OK to have a number here that is greater than the number of ports you have. The default appears in install.cfg as: `set max_ports 24`
max_prompt	The number of times Amanda repeats menu options before hanging up on a user who is logged in to a mailbox. Number from 1 to 9. The default is 2. The default appears in install.cfg as: `set max_prompt 2`
minmsg	Amanda requires a minimum length for recorded messages. If a message is shorter than this, it is not saved. The most common reason for changing this parameter is when the Q() token is used and short answers are expected. If so, you should change this to 1 (0.1 seconds.) Otherwise, using a setting that is small results in an increased number of messages that contain only a hangup sound. Number of tenths of seconds. The default is 10 (1 sec.).The range is 0 to 65535. The default appears in install.cfg as: `set minmsg 10`
minoff	Minimum amount of time necessary for an inbound ring's off period. Number of tenths of seconds. The default is 5 (.5 second). The range is 1-655. The default appears in install.cfg as: `set minoff 5`
minring	Minimum amount of time necessary for an inbound ring's on period. Number of tenths of seconds. The default is 0 which tells Amanda to use the voice board's default (which is 2 for Denmark or Holland and 3 elsewhere). Otherwise, the range is 1-655. The default appears in install.cfg as: `set minring 0`

General Options (Continued)

Configuration Option	Description
modified_call_ screening	When a mailbox has both call screening and called party identification on, this option controls whether Amanda announces only the name and extension of the called party or both that and the name and company of the caller. This is usually used only when more than one mailbox calls the same extension. When call screening is on, Amanda plays the Call Screening menu when the telephone is answered. Then the person who answers can accept some calls and reject others based on the information that he hears. Amanda treats the rejected calls as Ring No Answers. Do not use Call Screening (modified or not) with a mailbox that performs unsupervised (blind) transfers. These transfers have an H in the Extension field (for example, 127H). When the call is unsupervised, no recording is played to the user. True or False. The default is True. When True, the person who answers hears the called party's name and extension recording. Amanda does not ask the caller for a "name and company." When False, the person who answers hears both the caller's name and company and the called party's name and extension recording. The following is an example where John (mailbox 111) and Mary (mailbox 112) share Extension 100. John is at lunch, and Mary is answering all calls at Extension 100. The caller enters 111 trying to reach John. Amanda rings Extension 100 and Mary answers. Amanda says, "This call is for John, Extension 111. To accept this call, press 1. To reject this call press 2 and hang up…." Mary presses 2. The caller hears John's current greeting. **NOTE:** If a user wants Amanda to announce only for the caller's name and company, ID Call? should be NO. The default appears in install.cfg as: `set modified_call_screening true`
msg_log	Amanda creates the specified file in the C:\AMANDA directory and logs: The date and time every message is received The date and time every mailbox is checked for messages along with the DTMF the user entered. The default is no filename, which means no log is written to. We recommend using 'MSG.LOG'. See also user_log. The default appears in install.cfg as: `set msg_log ''`

General Options (Continued)

Configuration Option	Description
n_ochan	Allows you to dedicate port 1 to notification. The number 1 or 0. The default is 0. When 1, port 1 is dedicated and does not answer incoming calls. When using dedicated notification, be sure to direct incoming calls to port 2 and up. Dedicated notification eliminates the notification collision (known as glare) caused when Amanda inadvertently begins a notification on a port receiving an incoming call. However, you can no longer use the port for incoming calls. When 0, Amanda does either roving or restricted notification (depending on the value of notify_restriction). With roving notification, Amanda starts with the last port in the hunt group and works backwards until she locates an idle port. Restricted notification uses only one port, usually the last port in the hunt group. However, that port is not dedicated to notification. The port can still receive calls. **NOTE:** If a caller hears DTMF and then a hangup instead of the company greeting, a collision has occurred. When n_ochan is set to 1, notify_restriction is ignored. When using roving or restricted notification, program the ports to be in a linear hunt group (not a circular hunt group). In a linear hunt group, the first port always rings (unless it is busy), the second port rings only if the first is busy, and the third port rings only if the first and second ports are both busy. Then when Amanda's last port rings, all the other ports must be busy. The default appears in install.cfg as: `set n_ochan 0`
nam_maxlen	The maximum number of seconds to allow for recording a mailbox's name and extension. Amanda plays the name and extension recording to provide callers with information from the employee directory and to identify who is being called. A number of seconds. The range is from 1 to 99. The default is 5. See also box_idx and modified_call_screening. The default appears in install.cfg as: `set nam_maxlen 5`
new_send	Determines whether a user can send a message to more than one user, when those users are not part of a single list. True or False. The default is True. When True, a user can send a message to several mailboxes "on the fly." When the user presses 4 to send a new message, then 1 to select a mailbox destination, Amanda asks for the "next mailbox or the # sign to finish." When the user presses 3 to send, or 5 to send with verification, the message is sent to every mailbox that was entered. When False, the user can send a message only to one mailbox or to a previously created list of mailboxes. The default appears in install.cfg as: `set new_send true`
non_relay_ok	Determines the result of pressing # during a greeting. True or False. The default is False. When True, for any mailbox that does not have relay paging, pressing # (as well as ##) ends a greeting and goes directly to the beep for leaving a message. If the mailbox has relay paging, # invokes the relay and only ## ends the greeting. When False, only ## ends the greeting, regardless of whether the mailbox has relay paging. The default appears in install.cfg as: `set non_relay_ok false`

General Options (Continued)

Configuration Option	Description
notify_restriction	If you specify a port, Amanda restricts notification to that port. However, the port still takes incoming calls. Use any port number or 0. 0, the default, means that roving or dedicated notification is being used instead of restricted notification. You typically use the last port in the linear hunt group. You must use this option if you install Amanda on a telephone switching system that requires the same port to turn message lights both on and off. In this case, roving notification could cause a message light to come on and stay on. Restricted notification does not eliminate the possibility of notification collisions (known as glare). If notify_restriction is set to an invalid value, Amanda detects that during startup, resets notify_restriction to the highest port number, and logs that fact. See also n_ochan. The default appears in install.cfg as: `set notify_restriction 0`
off_dly	Amount of time after a line goes off-hook before the voice board notifies Amanda that the line is off-hook. Number of hundredths of seconds. The default is 50 (.5 sec.). The range is 1-6553. The numbers 0 and -1 have special meanings. When 0, Amanda uses the voice board's default (which is also 50). When -1, there is no delay. The default appears in install.cfg as: `set off_dly 50`
partial_q_ok	Determines what messages are saved when the Q() command is used to get answers from a caller. True or False. The default is False. When True, Amanda saves a message even if the caller hangs up before answering all the questions. When False, Amanda does *not* save a message using the Q() command unless all the questions have been answered. The default appears in install.cfg as: `set partial_q_ok false`
password	Sets the Amanda password. The password is case-sensitive, so uppercase letters are different from lowercase letters. That means that AMandA, Amanda, and amanda all represent different passwords. Use a text string with a maximum length is 8 characters. The default is AMandA. If you use the null string (that is, no password), you must use a dealer password to operate and shut down Amanda. The default appears in install.cfg as: `set password 'AMandA'`

General Options (Continued)

Configuration Option	Description
PBX	This option is described here in case you decide to change it by editing install.cfg. (However, setting this option is *not* recommended.) The PBX option (not to be confused with the pbx option) does *not* appear in the General Configuration section of the Setup utility because Setup makes changes to this option automatically. This option indicates a number for a PBX and a name for its .PBX and .TON files. Setup assigns the number 1 to your first PBX and the number 2 to your second (if you have a second PBX). Setup automatically assigns a name (up to 8 characters) to the .PBX and .TON files that Amanda uses with your telephone switching system. By default, Setup uses 1001 for the first PBX and 2001 for the second. You can use any name in install.cfg, but it is best to use the defaults. If you must change this option, use a number greater than 2001 or a non-numeric name. Amanda's Setup utility provides a list of PBXs. When you select your first telephone switching system, information about that switch's known dial codes, integration patterns, and so forth is automatically copied to 1001.PBX. When you select the second, information bout that switch is copied to 2001.PBX. Then you modify those files to suit your needs. If you run Setup or Diag to discover tone patterns, the patterns are stored in 1001.TON and 2001.TON respectively. See also pbx in the Per Port section. The defaults (which do not start with the word set) appear in install.cfg as: `PBX 1 1001`
play_from	When playing your messages, this option controls whether Amanda identifies the Amanda user who sent (or forwarded) each message. True or False. The default is False. When True, Amanda indicates who sent an internal message before she plays the message. She plays the name and extension recording for the sender (if it exists). She says the mailbox number (for example, mailbox 1-4-7) when there is no recording. When False, Amanda only plays the message. The default appears in install.cfg as: `set play_from false`
play_new_first	Determines what message is played next when the user has logged on to his mailbox to play messages. True or False. The default is False. When True, pressing 1 plays the next new message and pressing 75 plays the messages in order, regardless of whether they have been heard. When False, pressing 1 plays the messages in order and pressing 75 plays the next new message. See also urgent_to_front which affects the order of the mailbox's message. The default appears in install.cfg as: `set play_new_first false`
play_skip	The number of seconds to rewind or skip forward during message playback when a * (rewind) or # (skip forward) is pressed. The range is from 1 to 99. The default is 5. The default appears in install.cfg as: `set play_skip 5`

General Options (Continued)

Configuration Option	Description
please_hold	Controls the use of the “Please hold” prompt. True or False. The default is True. When True, Amanda says “Please hold while I try that extension” before transferring a caller. When False, Amanda says nothing and immediately puts the caller on transfer hold. The default appears in install.cfg as: `set please_hold true`
product_activation_key	A number you receive from your Amanda Company sales representative to activate your system. If one or more of your voice boards were not purchased from The Amanda Company, you must also set activation_key. See “activation_key” on page 153. If you change the first board in your system, you need another product activation key because the key is based on the serial number for the first Amanda Company board. The default is 0, which means there is no product activation key. The default appears in install.cfg as: `set product_activation_key 0`
prompt_file	Specifies the language that Amanda uses when a call first comes in on a given port. ENGLISH or SPANISH. The default is ENGLISH. You can change the prompt file for that port “on the fly” using the L() command from the Token Programming Language. Amanda can also change the language prompts for that port based on the DTMF sent by the telephone switching system or the central office. The ENGLISH.IDX file contains the English prompts. SPANISH.IDX is also available. Please contact your Amanda Marketing Partner, Solution Provider, or sales representative for more information and pricing. The default appears in install.cfg as: `set prompt_file 'ENGLISH'`
purge	Controls how long messages that have been heard are stored before they are purged. Number of days. The range is from 0 to 99. The default is 0. If 0, no messages are purged. Otherwise, messages that have been heard are purged after the specified number of days. When users log in, Amanda tells them how many messages will be purged when they exit message mode. This number is the number of heard messages that have been stored longer than the number of days you specify here. **NOTE:** Once a message is purged, there is no way to retrieve it. The default appears in install.cfg as: `set purge 0`
ramdisk	Name of the ram drive (if any) used for temporary files. The default is the C drive. The range is a single uppercase character from C to Z. Before you change this make sure that you have set up a ram drive using the RAMDRIVE.SYS program from DOS. The default appears in install.cfg as: `set ramdisk 'C:'`

General Options (Continued)

Configuration Option	Description

range1
range2
range3
range4
	If you have a range key (for example range1_key for range1 or range2_key for range2), you can activate 10000 mailboxes. Ranges and range keys are used for third-party applications that program a range of mailboxes to perform certain functions using the Token Programming Language. For more information, contact your Amanda Company sales representative.
	You set this option to the first number in the mailbox range. This number must be a multiple of 10000.
	The default is 10000 for range1, 20000 for range2, 30000 for range3, and 40000 for range4.
	See also range1_key, range2_key, range3_key, and range4_key.
	The defaults appear in install.cfg as:
	`set range1 10000`
	`set range2 20000`
	`set range3 30000`
	`set range4 40000`

range1_key
range2_key
range3_key
range4_key
	If you buy a third-party application that was customized for Amanda using the Token Programming Language, you import the mailboxes programmed for that application with the import utility.
	Then, to activate that application, you set one of these options to the activation key (or range key) that allows Amanda to use those mailboxes. For more information, contact your Amanda Company sales representative.
	The default is 0, which means there is no key.
	See also range1, range2, range3, and range4, the options that you set to the first of the mailboxes that correspond to the range key.
	The defaults appear in install.cfg as:
	`set range1_key 0`
	`set range2_key 0`
	`set range3_key 0`
	`set range4_key 0`

recall_delay	Amount of time the voice board waits after an earth recall (used in place of a hookflash on some telephone switching systems). Number of hundredths of seconds. 0 tells Amanda to use the voice board's default (which is 15 for Denmark or Holland and 50 elsewhere). Otherwise, the range is 1-6553. The default appears in install.cfg as: `set recall_delay 0`
record_beep	Controls the beep that the user or caller hears as the system begins recording. True or False. The default is True. When True, the system beeps as it begins to record. When False, the beep is not used. Be aware that, unless you have changed the prompt set, the prompt the user hears as the system begins to record says “Begin recording at the tone.” The default appears in install.cfg as: `set record_beep true`

General Options (Continued)

Configuration Option	Description
record_menu	Controls Amanda's use of prompts and menus before and after recordings. True or False. The default is True. When True, Amanda checks the values of begin_rec_prompt and end_rec_menu to determine what to say. When False, Amanda does not prompt the caller to leave a message at the tone nor the user to record a greeting at the tone. She also does not play the post-record menu that allows the caller or user to review and re-record. The default appears in install.cfg as: `set record_menu true`
rmt_rna	In a notification record, when using W(0,P) or W(0,V) to wait for a pager or voice answer, the number for this option replaces the 0 and provides the number of remote rings that Amanda must hear before she decides that there is no answer. The default is 4. The range is 1 to 9. The default appears in install.cfg as: `set rmt_rna 4`
rotary	Controls the detection of rotary digits. True or False. The default is False. When True, Amanda detects rotary digits. When False, Amanda does not detect rotary digits. **NOTE:** Only rotary digits 3(9 and 0 are currently detected on the Rhetorex 2132 and 4132 boards. Therefore, if you plan to use this feature, make sure that all your mailboxes exclude the digits 1 or 2. Also, there are no * and # signs on rotary phones, therefore setting this to True introduces additional delays when the system detects the dialed number. For full rotary detection, please contact your Amanda Sales Representative for other options. **NOTE:** The Rhetorex 232 and 432 boards do not support rotary detection. If rotary detection is required, use Rhetorex 2132 and 4132 boards. **NOTE:** The 727 Rhetorex drivers (shipped with Amanda version 6.02) does not support rotary. You can switch to the 537 drivers. First save VOICECNF.EXE as VOICECNF.727 and RHETDRV.EXE as RHETDRV.727. Then copy VOICECNF.537 to VOICECNF.EXE and RHETDRV.537 to RHETDRV.EXE. These files are in C:\PLATFORM. The default appears in install.cfg as: `set rotary false`
screen_save	The file in the C:\AMANDA directory in which screen traces are saved. Whenever you use screen trace, the data is saved to the designated file. Otherwise, the data appears only on the screen. The default filename is SCREEN.OUT. The default appears in install.cfg as: `set screen_save 'screen.out'`
sec_code_display	Controls whether security codes are visible from the User screen. True or False. The default is False. When True, the security codes are visible. When False, they are replaced by asterisks. The default appears in install.cfg as: `set sec_code_display false`
security_min_length	The minimum length of a user's security code when changed by a user over the telephone. This does not affect the length of security codes that are entered from Amanda. The administrator can use any password of 8 or fewer characters. A number from 1 to 8. The default is 1. The default appears in install.cfg as: `set security_min_length 1`

General Options (Continued)

Configuration Option	Description
short_direct_send	The direct message mailbox (usually 998) is for leaving messages for any Amanda user. It does not ring that user's extension. After entering 998, the caller is asked for the destination mailbox then leaves his message. This option controls how Amanda identifies the user before the message is left. This confirms that the caller entered the mailbox that he intended to. True or False. The default is False. When True, the caller hears "You entered" followed by the name and extension recording for the user—if there is one. Amanda says the mailbox number (for example, mailbox 1-4-7) when there is no recording. When False, the caller hears the mailbox's current greeting (which can be skipped by pressing # twice). The default appears in install.cfg as: `set short_direct_send false`
shutdown	The day and time that Amanda performs her weekly automatic shutdown for disk maintenance and/or tape backup. A day of the week followed by a space and a time of day. The default is '2 130' (Tuesday, at 1:30 a.m.). For the day of the week, 0 means Sunday, 1 is Monday, ..., 6 is Saturday, and -1 is everyday. The time is in the 24-hour format. For example, 9:30 p.m. is 2130 without the colon (:). The default appears in install.cfg as: `set shutdown '2 130'`
tape_length	When a user selects 1, 7, 8 (for continuous play) from the top level menu, this option indicates how long Amanda will play messages continuously (with a beep between them). Usually this is equal to the length of one side of a tape. It allows users to archive their messages. Users can record the messages on tape using a microphone if the telephone does not have a jack for this purpose. Number of minutes from 1 to 99. The default is 30. The default appears in install.cfg as: `set tape_length 30`
timestamp_forwards	Controls the date and time given to a forwarded message. True or False. The default is True. When True, the date and time tell when the message was forwarded. This can prevent messages from appearing to be delayed when they are forwarded without explanatory prefixes. When False, the date and time tell when the message was first recorded. The default appears in install.cfg as: `set timestamp_forwards true`
tmo_blank	Controls how long Amanda waits after the last keystroke before blanking the Main screen (to prevent screen burn-in). Amanda blanks the screen only if the Main screen is displayed. A value of 0 stops Amanda from ever blanking the screen. Number of minutes. The range is 0 to 99. The default is 5. See also advertising. The default appears in install.cfg as: `set tmo_blank 5`
tmo_disk	Controls how often Amanda checks for low disk space. Amanda also checks for low disk space when she starts up. Number of minutes. The range is 0 to 255. The default is 60. See also diskwarn. The default appears in install.cfg as: `set tmo_disk 60`

General Options (Continued)

Configuration Option	Description
tmo_dtmf	The amount of time Amanda waits after a DTMF digit before deciding the caller has finished the entry. (If the caller presses #, Amanda immediately recognizes this as the end of a DTMF entry.) Number of tenths of seconds (from 1 to 255). The default is 12 (1.2 seconds). The default appears in install.cfg as: `set tmo_dtmf 12`
tmo_hold	Determines how long Amanda waits after a caller presses * to hold for an extension that is busy before trying to transfer the call again. This is only used when the file C:\AMANDA\HOLD.VOX, which Amanda normally plays for callers on hold, is missing. Usually Amanda tries to transfer the call after playing the file. Number of seconds. The default is 20. The range is 0 to 255. **NOTE:** You can record over HOLD.VOX using the system administration menu from the system administration mailbox (mailbox 999.) You may want to save the original first. The default appears in install.cfg as: `set tmo_hold 20`
tmo_idle	Number of seconds of inactivity after which Amanda decides that the port is idle. The default is 0. The range is 0-999. When greater than 0, Amanda goes off-hook and back on-hook after deciding that the port is idle. This is necessary when a telephone system does not release a station that is connected to Amanda even after Amanda has gone on-hook (a rare occurrence). When 0, Amanda does not go off-hook and back on-hook if a port is idle. The default appears in install.cfg as: `set tmo_idle 0`
tmo_integrate	During inband integration, this option causes Amanda to wait the specified number of seconds for the first digit to arrive. Then the seconds in the timeout period (specified in the .pbx file) begin. After the first digit arrives, Amanda continues to read digits until the timeout period ends. The range is 0 to 255. The default is 0. The default appears in install.cfg as: `set tmo_integrate 0`
tmo_menu	The amount of time Amanda waits before repeating a menu when no selection is made. Number of tenths of seconds from 1 to 99. The default is 20 (2.0 seconds). The default appears in install.cfg as: `set tmo_menu 20`
tmo_pickup	The minimum amount of time Amanda waits between an on-hook and off-hook event. Number of tenths of seconds from 1 to 99. The default is 20 (2.0 seconds). The default appears in install.cfg as: `set tmo_pickup 20`
tmo_rna	For some PBXs, Amanda assumes that the called party is not going to answer the telephone if there is no answer after a certain length of time. The amount of time she waits is the product of this setting times the maximum number of rings for a Ring No Answer. (The maximum number of rings is set per mailbox using the Maximum Rings field.) This setting is in tenths of seconds and is the estimated length of time it takes for a ring. The default is 60 (which is an estimated six seconds per ring). The range is 0 to 65535. The defaults appear in install.cfg as: `set tmo_rna 60`

General Options (Continued)

Configuration Option	Description
tmo_serial	Number of seconds to wait for a response from a peripheral device connected to one of Amanda's serial ports. When communicating with peripheral devices through a serial port, Amanda needs a timeout value so she doesn't wait forever for a response. Number of seconds from 1 to 999. The default is 2. The default appears in install.cfg as: `set tmo_serial 2`
tmo_silence	The maximum seconds of silence before Amanda decides that the caller or user is finished recording a message or greeting. The post record menu plays if the record_menu option is True. The caller can press 3 to append the message if he was just pausing too long. If the number is 0, Amanda does not use silence to determine completion. Number of seconds from 0 to 255. The default is 5. The default appears in install.cfg as: `set tmo_silence 5`
tmo_sound	The maximum seconds of continuous sound/dial tone before Amanda decides that the caller or user is finished recording a message or greeting and has hung up. If the number is 0, Amanda does not use sound/dial tone to determine completion. Number of seconds from 0 to 255. The default is 5. The default appears in install.cfg as: `set tmo_sound 5`
tmo_xfer	This option is required only for telephone switching systems, such as Comdial DXP and Panasonic KXT-D, that can send DTMF tones in place of PCPM tones. See also dtmf_action.
tokens_available	Lists the tokens available to program with. Depending on the type of Amanda system you have, you may not be able to use all the tokens in the list. You can make additional restrictions by deleting tokens that your system can use from the list. For example, deleting the G token makes it impossible to program a move from one mailbox to another via tokens. The default is 'GIJLMNOPQRSTUVW<>+-?=|[]{^@' The default appears in install.cfg as: `set tokens_available 'GIJLMNOPQRSTUVW<>+-?=|[]{^@'`
urgent_to_front	Controls the priority of urgent messages. True or False. The default is True. When True, Amanda places urgent messages in front of other messages (new and old) for a mailbox. The user cannot press 4 to wrap from the first to the last message. He must listen to the urgent messages first. When False, urgent messages are mixed in with other messages in the order that they were received. See also play_new_first. The default appears in install.cfg as: `set urgent_to_front true`

General Options (Continued)

Configuration Option	Description
use_pvc	Controls whether Amanda uses the positive voice control feature available on the Rhetorex voice board. True or False. The default is True. When True, Amanda detects a human voice faster, but there is a greater chance of identifying an unanswered call as answered and ending her supervision of the call too soon. When False, Amanda may take more time to detect an answer during supervised transfers, but false answer detects are less likely. See also voice_analysis_length. The default appears in install.cfg as: `set use_pvc true`
use_tutorial	Controls whether Amanda uses the tutorial for setting up mailboxes when users use the telephone user interface for the first time. True or False. The default is True. When True, Amanda suggests that the user use the tutorial to set up his or her mailbox. Amanda continues to make this suggestion until the mailbox has been set up. When False, Amanda does not suggest that the user use the tutorial. Regardless of the setting, Amanda retains information about who has and hasn't set up mailboxes so that anytime this configuration parameter is set to True, Amanda behaves correctly. The default appears in install.cfg as: `set use_tutorial true`
user_log	If you provide a file name, Amanda creates that file and logs: The date, time, and mailbox when any mailbox is accessed by DTMF. For example, whenever a caller enters a mailbox, that information is logged. The file can be analyzed later for call distribution and access to mailboxes by date, day, and time. The default is to not log data (because no file name is provided). We recommend using 'USER.LOG'. See also msg_log. The default appears in install.cfg as: `set user_log ''`
voice_analysis_length	When positive voice control is used, this option specifies how long a noise must continue before Amanda decides that it is a voice answer and not just a glitch. Number of hundredths of seconds. The range is from 1 to 6553. The suggested range is 1 to 100. The default is 19. **NOTE:** The default (.19 seconds) appears to eliminate false answer detection on Panasonic and Samsung telephone switching systems, allowing them to work with the 5.54 Rhetorex driver. See also use_pvc. The default appears in install.cfg as: `set voice_analysis_length 19`

Fax Options

Configuration Option	Description
fax_direct_connect	The string to send (after "AT") to the fax modem to make it connect to a *ringing* telephone, play the CNG tone, and send the fax. Use a maximum of 20 characters. This option defaults to 'H1O0' which some Zoom modems require. **NOTE:** The value of H1O0 contains four distinct characters: alphabetic H, numeric one, alphabetic O, and numeric zero. The default appears in install.cfg as: `set fax_direct_connect 'H1O0'`
fax_dl_init	When a user is listening to messages over the telephone and discovers that he has a fax message, he dials 72 to send the message to a fax machine followed by the telephone number for the fax machine. Amanda dials this option before she dials the fax machine's number. Usually, it is the dial code for accessing an outside line. The default is '9,'. Use a maximum of 20 characters. The default appears in install.cfg as: `set fax_dl_init '9,'`
fax_flow_control	Defines the Class 2 command to set the type of flow control for the fax modem. The default is '&K3'. Use a maximum of 20 characters. **For** **Use** Rockwell-based fax modems &K3 Aceex modems \Q3 X3 &K3 Practical Peripherals modems X3 &K3 Zoom modems &K3 Smart One 1442 modems &K4 Boca modem M144EW &K3 The default appears in install.cfg as: `set fax_flow_control '&K3'`
fax_id	Identifies your fax modem. Use the company name or the telephone number of your fax machine. Use a maximum of 20 characters. By default, no identification is provided. When two faxes connect, they exchange and then display each other's identifying strings. The default appears in install.cfg as: `set fax_id ''`
fax_id_pad	Controls whether '1111' is added to the front of the fax_id. Many older fax modems need some extra characters as padding. Otherwise, part of the identifying string is cut off. True or False. The default is True, but if '1111' appears on the receiving fax machine, change this option to False (so no padding characters are added). The default appears in install.cfg as: `set fax_id_pad true`
fax_init	String sent to initialize a fax modem (give it a known starting state). The default is '&F0E0'. Use a maximum of 20 characters. Some modems require "&F" rather than "&F0". The "E0" insures that the modem is in non-echo mode, because the command that puts the modem into Class 2 or Class 2.0 mode expects the fax modem to be in non-echo mode first. The default appears in install.cfg as: `set fax_init '&F0E0'`

Fax Options (Continued)

Configuration Option	Description
fax_log	Use this option to log data about files (not messages) that are faxed. Amanda creates a log file in the C:\AMANDA directory and logs: • The names of the files that were faxed • The telephone numbers to which the files were sent By default, no filename is used and no log is written. Use a maximum of 20 characters. We recommend using 'FAX.LOG'. The default appears in install.cfg as: set fax_log ''
fax_max_retries	Defines the maximum number of times, after the first, to retry sending a fax file if it is unsuccessful. This is used only when sending the fax in two-call mode (where the caller enters a fax telephone number and the fax modem sends the file to that number). The range is 0 to 9. The default is 1. The default appears in install.cfg as: `set fax_max_retries 1`
fax_receive_reverse	True or False. Depends solely on the fax modem you are using. For most Rockwell-chipset-based Class 2 modems, this parameter should be True. For most other modems (including Class 2.0), it should be False. If set incorrectly, received faxes cannot be retransmitted or viewed at all. Setting it to True reverses the bits within each received byte, correcting for an oddity in the Rockwell firmware. The default appears in install.cfg as: `set fax_receive_reverse true`
fax_receive_speed	The maximum speed for receiving faxes. The value can be '0', '1', '3'. Use '0' for 2400 bps, '1' for 4800 bps, and '3' for 9600 bps. Normally a value of '3' works for 486 CPUs at 25MHz or higher (and is the default). If you experience data loss on your faxes, lower this setting. The default appears in install.cfg as: `set fax_receive_speed '3'`
fax_requeue_interval	Defines the number of minutes to wait between retries. The range is 1 to 99. The default is 5. See also max_retries. The default appears in install.cfg as: `set fax_requeue_interval 5`
fax_reset	Defines the reset command to send to your fax modem when DTR (Data Terminal Ready) is dropped. For most Rockwell-based fax modems, it should be '&D3', which is the default. Possible values: See your fax modem manual. Use a maximum of 20 characters. The default appears in install.cfg as: `set fax_reset '&D3'`
fax_send_reverse	True or False, depends solely on your Class 2 or Class 2.0 fax modem. For most fax modems, this option should be False. The default appears in install.cfg as: `set fax_send_reverse false`

Fax Options (Continued)

Configuration Option	Description
fax_send_speed	The maximum speed that Amanda uses to send faxes. The value can be '0', '1', '3'. Use '0' for 2400, '1' for 4800, and '3' for 9600 bps. Normally a value of '3' works for 486 CPUs at 25MHz or higher (and is the default), but it depends on your computer. If you experience data loss on your faxes, lower this setting. The default appears in install.cfg as: `set fax_send_speed '3'`
fax_start_char	Controls whether the system waits for the start character or not. True or False. The default is False. When True, Amanda waits for the character. When False, Amanda does not wait. Early drafts of the CCITT Class 2 Specification require that, when sending a fax, the sender wait for the fax modem to send a control character indicating that it is ready for the data to begin. Some modems lose data if the computer starts sending before the fax modem indicates that it's ready to receive. Unfortunately, not all Class 2 fax modems send the start character. The default appears in install.cfg as: `set fax_start_char false`
fax1 fax2 fax3 fax4	Use these options to define the station, or extension, number to which your fax modem is connected. For example, if the first fax modem is connected to extension 101, set fax1 to '101'. By default, no extension is set for a fax modem. Use a maximum of 7 digits. The defaults appear in install.cfg as: `set fax`***n*** `''` where ***n*** is logical serial port 1, 2, 3, or 4. See serial_port*n*.
max_local_extension	The maximum number of digits that can be considered an extension number. The default number is 6. The range is 1 to 6. Users (at the message menu) can send fax messages they have received to a fax machine by entering 72 then a fax machine's telephone number. Amanda applies fax_dl_init (usually '9' for an outside line) if the telephone number entered by the user has more digits than max_local_extension. The default appears in install.cfg as: `set max_local_extension 6`

Hot Box Options

Configuration Option	Description
hot_box	Defines the mailboxes to which Amanda goes when she detects special PCPM tones. You can have up to 24 hot_boxes. For example, you can configure a hot_box to detect connections from TDD machines for deaf communications. In most cases, only one hot_box is defined to detect fax tones and the remainder are unused. You provide a mailbox next to the corresponding PCPM code (13 to 36). The default mailbox is -1, which means no mailbox. We recommend using 994 as the first hot_box mailbox, but you can use any valid mailbox. **NOTE:** To add a specific tone to the tone table, it must be one of the first four tones defined, and it must be marked as a terminating tone. Call to be faxed Technical Note 8, "Special Tone Detection." The defaults appear in install.cfg as: `set hot_box -1 n` where ***n*** is the PCPM code minus 12. (For example, for PCPM code 25, you use 25-12 or 13. The range for *n* is from 1 to 24.)

Outdial Options

Configuration Option	Description
box_outdial	Controls special mailbox options. You provide a mailbox for each telephone digit that becomes a special mailbox option. While logged into a mailbox, a user presses 7 to reach special options, then a digit, 0-9, depending on what you specify here. Then Amanda executes the tokens in the extension field of the mailbox you specify for that digit. Setting the mailbox to -1 disables that special mailbox option. For example, to allow users to press 7 then 5 to call for the time of day, you might type 149 next to the digit 5. In this case, 149's Extension field should contain the telephone number Amanda dials for the weather (perhaps 9,8531212). Later, users log into their mailboxes and press 75 for the current time. Afterwards they continue other mailbox options. The defaults appear in install.cfg as: `set box_outdial -1 x` where x is a digit from 0 to 9 **CAUTION:** If you use box_outdial to give users an outside line, you might want to use telephone lines that are toll restricted.

Per Port Options

Configuration Option	Description
box_grt	Determines what greeting the caller hears first. This is set per Amanda telephone port by assigning a mailbox to the port. Greeting 1 for that mailbox is the greeting that the caller hears. By default, all ports are assigned 990, the Company Greeting mailbox. The defaults appear in install.cfg as: `set box_grt 990 n` where 990 is a mailbox and where n is a port number from 1 to 24.
box_idx	Sets the mailbox for the employee directory. This is set per Amanda telephone port by assigning a mailbox to the port. The employee directory contains the names of all the users as they appear in the Dir Name 1 and Dir Name 2 fields. The default is 411 for every port. For example, to use one employee directory for the ports 1 and 2, another for port 3, and a third for port 4, set box_idx to 411 for ports 1 and 2, 511 for port 3, and 611 for port 4. **NOTE:** Callers use their telephone pad to spell the names of the users they want to reach. Amanda plays the name and extension recording for every user that matches. If there is no name and extension recording, Amanda says "mailbox" and the number of that mailbox. Digits 7 and 9 should be used for letters Q and Z respectively. The default appears in install.cfg as: `set box_idx 411 n` `where` 411 is a mailbox and where n is a port number from 1 to 24.
box_snd	Indicates what mailbox serves as the direct message mailbox. This is set per Amanda telephone port by assigning a mailbox to the port. The direct message mailbox allows you to leave a message for a mailbox without processing the mailbox. Amanda does not execute the Extension field's tokens or play a greeting. For example, an operator can use the direct message mailbox to transfer callers directly to a user's voice mail. The default is 998 for all ports. The default appears in install.cfg as: `set box_snd 998 n` `where` 998 is a mailbox and where n is a port number from 1 to 24.
hangup_supervision	Allows you to use hangup supervision. This is set per Amanda telephone port. True or False. The default is True. Use True if your telephone switching system supports Loop Current Drop for hangup supervision on the specified port. Even if it doesn't, using True usually has no negative effect. Use False if you notice call transfer problems such as disconnects during three-way conferences. However, if the problems persists, return to True. The default appears in install.cfg as: `set hangup_supervision true n` where n is a port number from 1 to 24.

For reference purposes, the per port options are listed here in alphabetical order. In the Setup utility, they are listed: pbx, box_grt, box_idx, box_snd, n_rings, and hangup_supervision.

Per Port Options (Continued)

Configuration Option	Description
n_rings	Sets the number of rings that Amanda waits before answering a call on a given port. To have port 7 answer after the second ring use `n_rings 2 for port 7`. This is useful for those telephone switching systems that do not allow incoming lines to ring in a station hunt group or do not provide delayed ringing. Also, it may be used to set up backup answering for a secondary attendant operation. The rings range from 0 to 9. **NOTE:** There is a side-effect. When users want to pickup their messages, they must wait the specified number of rings before Amanda answers. The default appears in install.cfg as: `set n_rings 1 n` where 1 is the number or rings and where n is a port number from 1 to 24.
pbx	Indicates which Amanda telephone ports are connected to which PBXs. You provide the PBX's number (usually 1 or 2). The defaults appear in install.cfg as: `set pbx 1 n` where 1 is the PBX number and where n is a port number from 1 to 24.

For reference purposes, the per port options are listed here in alphabetical order. In the Setup utility, they are listed: pbx, box_grt, box_idx, box_snd, n_rings, and hangup_supervision.

Serial Port Options

Configuration Option	Description
baud1 baud2 baud3 baud4	The bps (bits per second) for the logical serial port with the same number. For example, baud1 gives the bps for serial_port1. (Serial_port1 can be mapped to any COM port.) Possible values: Any valid bps rate. The default is 19200. The defaults appear in install.cfg as: `set baud`***n*** `19200` where ***n*** is the logical serial port 1, 2, 3, or 4.
databits1 databits2 databits3 databits4	The number of data bits for the logical serial port with the same number. For example, databits1 gives the number of data bits for the COM port defined as serial_port1. (Serial_port1 can be mapped to any COM port.) Possible values are 7 or 8. The default is 8. The defaults appear in install.cfg as: `set databits`***n*** `8` where ***n*** is the logical serial port 1, 2, 3, or 4.
parity1 parity2 parity3 parity4	The parity for the logical serial port with the same number. For example, parity1 gives the parity for serial_port1. (Serial_port1 can be mapped to any COM port.) Possible values are none, even, odd, mark, or space. The default is none. The defaults appear in install.cfg as: `set parity`*n* `none` where ***n*** is the logical serial port 1, 2, 3, or 4.

Serial Port Options (Continued)

Configuration Option	Description
serial_port1 serial_port2 serial_port3 serial_port4	To communicate with peripheral devices connected to COM/RS232 ports, Amanda needs to know which ports are connected. This option matches the serial ports as Amanda knows them (called the logical serial ports) to the actual COM1, COM2, COM3, and COM4 ports on the computer (called the physical serial ports). Possible values are 0 through 4. The default is 0, which means that the port is not connected. Only after this matching can Amanda communicate with devices, such as SMDI interfaces, connected to her COM ports. For example, `serial_port1 2` matches serial_port1 (Amanda's first logical serial port) to the physical COM port 2 of the PC. However, it is less confusing to use `serial_port1 1`, matching logical and physical ports with the same number. The defaults appear in install.cfg as: `set serial_port`***n*** `0` where ***n*** is the logical serial port 1, 2, 3, or 4.
stopbits1 stopbits2 stopbits3 stopbits4	The number of stop bits for the logical serial port with the same number. For example, stopbits1 gives the number of stop bits for serial_port1. (Serial_port1 can be mapped to any COM port.) Possible values are 1 and 2. The default is 1. The defaults appear in install.cfg as: `set stopbits`***n*** `1` where ***n*** is the logical serial port 1, 2, 3, or 4.

SMDI Options

Configuration Option	Description
smdi_activation_key	A number you receive from your Amanda Company sales representative to allow your system to use SMDI. If you change or add a board later, you need another activation key because the key is based on the serial numbers for the boards and the number of ports. The default is 0, which means there is no activation key. The default appears in install.cfg as: `set smdi_activation_key 0`
smdi_base_port	Use this option to identify Amanda's first voice mail port. The first voice mail port is identified as logical port 1, with every successive port having a sequential logical port number. These numbers must be consecutive. The number for the second port must be one more than the number for the first port, and so on. The default number is 1. The range is 0 to 32000. The default appears in install.cfg as: `set smdi_base_port 1`

SMDI Options (Continued)

smdi_delay	The time that Amanda waits after the phone rings and is answered, before looking at the integration information (if any). Use a number of tenths of seconds or 0. The default is 0. The range is 0-255. This option does not apply to inband integration. When non-zero, Amanda waits the specified time. This allows more than one string to be sent to a given port per telephone call. The number should allow enough time for all the strings to arrive, forcing Amanda to use only the last (most recent) one. (The integration time specified in the 1001.PBX configuration file can be zero or near zero, because Amanda has already waited for smdi_delay time to pass.) For example, if smdi_delay is set to 30 (3 seconds), it is OK to use a pattern such as integration 1 '...', which designates a 0.1-second integration timeout because Amanda waits 3 seconds for the last packet to be received. The default appears in install.cfg as: `set smdi_delay 0`
smdi_max	The maximum number of characters expected in a generic SMDI packet. The default is 143. The range is from 1 to 143. Use this when smdi_type is 'generic'. The default appears in install.cfg as: `set smdi_max 143`
smdi_port	The logical serial port (represented by serial_port*n*) to use for SMDI integration. The port should already have been configured as a serial port using the options in the Serial section of Advanced Configuration. The range is 0 to 4. The default is 0 (no serial port used). The default appears in install.cfg as: `set smdi_port 0`
smdi_pretimeout	The maximum number of seconds that an SMDI packet can precede the forwarded call. The default is 50. The range is from 1 to 99. Use this when the smdi_type is 'smdi', 'necmci', or 'generic'. The default appears in install.cfg as: `set smdi_pretimeout 50`
smdi_start	The position in the integration packet sent by the telephone switching system where the field containing the port number begins. The first position in the packet is number 1. Use this option when smdi_type is 'necmci' or 'generic'. The default is 8. The range is 0-65535. The default appears in install.cfg as: `set smdi_start 8`
smdi_stop	The position in the integration packet sent by the telephone switching system where the field containing the port number ends. The first position in the packet is number 1. Use this option when smdi_type is 'necmci' or 'generic'. The default is 11. The range is 0-65535. The default appears in install.cfg as: `set smdi_stop 11`

SMDI Options (Continued)

smdi_term	Used only when smdi_type is 'generic'. The terminating characters (if any) which define the end of a generic SMDI packet. You can include the following "escape" sequences (similar to those used in strings within tokens) Sequence Meaning \n newline (carriage return followed by a linefeed) \r carriage return \j linefeed \a attention \d end of transmission \\ backslash \t tab *digits* The *digits* must represent the octal number for any character in the range 0 to 377 (That is 0 to 255 decimal). For example, to include the ASCII character A (which is 101 in octal), you use \101. When this option is not set, packets end only when smdi_max characters have been received. The default is an empty string, which means that packets end only when smdi_max characters have been received. The default appears in install.cfg as: `set smdi_term ''`
smdi_type	Indicates which SMDI integration protocol Amanda is to use. For Bellcore Standard, use 'smdi'. For AT&T System 75 or Definity-G3, use 's75'. For NEC 2000 Message Center Interface use 'necmci'. For Ericsson MD-110, use 'md110'. For the generic driver, use 'generic'. The default appears in install.cfg as: `set smdi_type 'smdi'`

T1/DID Options

Configuration Option	**Description**
did_dtmf	Indicates what kind of integration digits Amanda reads when did_mode is True. True or False. The default is True. When True, Amanda expects either MF or DTMF digits. When False, she expects the digits as pulse. See also did_mf and did_mode. The default appears in install.cfg as: `set did_dtmf true`
did_mf	Determines what kind of integration digits Amanda reads when did_dtmf is True and did_mode is True. Otherwise, Amanda ignores this option. True or False. The default is False. When True, Amanda expects MF digits. When False, Amanda expects DTMF digits. See also did_dtmf and did_mode. The default appears in install.cfg as: `set did_mf false`

T1/DID Options (Continued)

Configuration Option	Description
did_mode	Indicates whether Amanda is using DID. True or False. The default is False. When True, Amanda expects a DID interface (such as EXACOM) that processes a hook-flash as battery reversal. When False, Amanda does not expect a DID interface. The default appears in install.cfg as: `set did_mode false`
n_ani	The number of Automatic Number Identification (ANI) digits to be read by Amanda between the first and second wink in a 2-wink T1 environment. The default is 0. The range is 0-255. In a 2-wink T1 environment, Amanda may receive more digits than the Rhetorex buffer can hold. So Amanda reads up to n_ani digits between the first and second winks and starts processing them as part of the regular inband integration. After the second wink, Amanda reads the remaining digits. See also t1_mode and n_winks. The default appears in install.cfg as: `set n_ani 0`
n_winks	If t1_mode is True, tells whether the environment is an immediate (0-wink), 1-wink, or 2-wink environment. Number from 0 to 2. The default is 1. When 2, you need to set n_ani. See also t1_mode and n_ani. The default appears in install.cfg as: `set n_winks 1`
ring_mode	Indicates whether Amanda expects a loop start or a DID interface line. True or False. The default is True. When True, Amanda expects a loop start line, and new calls are indicated by ring voltage. When False, Amanda expects a DID interface line, and new calls are indicated by loop current. The default appears in install.cfg as: `set ring_mode true`
t1_mode	Indicates whether Amanda is to use a T1 line. True or False. The default is False. When True, Amanda expects a T1 line and can process it using a Rhetorex 24000 board. When False, Amanda does not expect a T1 line. The default appears in install.cfg as: `set t1_mode false`

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