

Installing Amanda Portal

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1 Introduction

There are several steps that you must take in order to install the Amanda Portal and related software packages:

1. Install telephony board drivers, if and as appropriate.
2. Install speech drivers if using text-to-speech or speech recognition features.
3. Install the Amanda Portal software.
4. Install Amanda Portal client software.
5. Complete an initial configuration of the Amanda Portal software, including activating the software for use in your configuration.
6. (Optional) Fine tune installation parameters to meet your needs.
7. Configure template mailboxes.
8. Create an initial set of mailboxes.

When you insert the Amanda Portal CD, it should auto-run a general installation program which will let you select which software package(s) you want to install. Each of the installation steps outlined below can be accomplished by using this program. You can also install several utility programs using this application, such as Acrobat Reader, which is required for viewing the Amanda documentation.

2 Step 1: Installing Telephony Board Drivers

Amanda Portal can be used with two different types of telephony boards: Brooktrout (formerly, Rhetorex) and Intel (formerly Dialogic). The supported Brooktrout boards provide only basic call handling functionality with analog ports. While the Intel boards can also provide this same functionality, they can perform several important additional features, all related to their ability to switch calls over a “mezzanine” bus called the SCbus. This switching capability can be used to accomplish, among other things:

- Connecting hardware resources to a call “on the fly.” An example of this is with Intel (formerly, Gammalink) fax resource boards which are supported. When an incoming call is determined to be from a fax machine, the Amanda software can automatically connect an available fax resource

to the call dynamically. This permits purchasing fewer fax resources than there are ports in the system, even though every port is potentially capable of sending or receiving a fax.

- In addition, T1 CAS (Channel Associated Signaling, or standard US robbed-bit signaling T1), E1 CAS, and many T1 and E1 ISDN protocols are supported.
- Complex call routing without the use of a telephone switch, or routing beyond the capabilities of the attached switch, can be performed. For example, an incoming call into a business can be redirected through an outside line to a user at a cell phone or other PSTN telephone number. Most PBXs will not allow trunk-to-trunk transfers of this nature, but since Amanda Portal can use the switching facilities of the SCbus, this limitation can be overcome.

2.1 Installing the Brooktrout Telephony Drivers

If you are using Brooktrout boards in the system, you should install these drivers by double-clicking on the Brooktrout installer. The current version of the installer is RHET238.EXE, which contains version 2.38 of Brooktrout's RealCT Direct drivers. Once this installation wizard starts, choose to install the drivers in the default location, and choose a custom installation. Custom installation will allow you to select the particular set of features to be installed. You should install support for analog boards, and omit installation of RTNI, T1, and E1 drivers. No additional software needs to be installed, and it is unlikely that you would find use for the Brooktrout documentation, though it can be installed if you choose.

Next, you must configure the driver software using a Configuration Wizard, which can be launched from the Start—Programs—Brooktrout menu. The Wizard is used to tell the driver which Brooktrout boards are in your computer and how each board is configured. Brooktrout PCI boards do not have any configuration jumpers or settings, and they should be automatically detected by the Configuration Wizard through plug-and-play. The older-style ISA boards, on the other hand, must be jumped by hand to I/O addresses which do not conflict with any other devices in the system. You will then add these boards manually in the Configuration Wizard and designate the I/O address that is jumpered on each board. Under most circumstances, you can use the IRQ and shared memory segment addresses which the Wizard selects, unless you know that they will conflict with other devices which are in the computer. If you are using ISA devices, you will usually configure the system's BIOS so that the IRQ that you are going to use is marked "Legacy/ISA" to prevent it from being assigned to another device. The most common IRQ selection is 5. You may also have to change a BIOS setting to designate an area of memory that is to

be used for the driver's shared memory segment, though not all BIOSs have a configuration parameter for this purpose. The usual location for this memory is D000.

In the Advanced Parameters section of the Wizard, you should usually change the driver to address the boards using 16 bits, and mark the driver to start automatically when the computer is booted. Under normal circumstances, you will not have to change any of the other settings in this section. You will normally want to elect to have the Wizard try to start the driver for the first time. If the driver fails to start, then the Wizard will offer to let you run a Windows diagnostic program so that you can try to determine what IRQ or I/O address conflict is preventing the driver from starting.

When the software configuration completes, you will be prompted as to whether you wish to run the Accucall program. Under normal circumstances, you will want to do so. In the world of analog telephony, most call signaling is performed by various tones that you hear on the telephone, such as ringing ("ringback"), busy signals, fast busy signals ("reorder tones"), etc. Your system will typically not function correctly unless you "train" it to recognize the particular tones generated by your PBX (or central office switch). The Accucall program is used to learn these tones and store them in a file which is then automatically loaded by the driver each time it starts. Accucall can be used in an automatic, "wizard," mode in which it asks a few questions and then automatically builds and tests the tone tables, or it can be used in a manual mode. Unless it fails to work correctly, the "wizard" mode is usually the easiest and fastest way to train the system on the tones your PBX will generate. Be sure to save the tone set in a file when you complete using Accucall.

2.2 Installing the Intel/Dialogic Telephony Drivers

As of this writing, the version of the Intel drivers is System Release 5.1.1. The installer for these drivers is `SETUP.EXE` in the SR511 directory on the Dialogic Driver CD. During its installation, an installation wizard will be started which will let you choose the appropriate Intel drivers to be installed on your computer. If you have a previous installation of the Intel driver software installed, be sure to stop those drivers and remove that software before proceeding with the installation, even if it is the same version of the software. The driver will not usually function correctly otherwise.

During the installation process, be sure to select a Custom installation. If you choose a Typical installation, then the appropriate software for use with Amanda will **not** be installed. You will then be prompted to select from a large number of drivers and other features to be installed. Here are some notes relevant to use with Amanda Portal:

- You do not need to install the “third party support”. These features are not used by Amanda Portal. If you are using Portal’s speech recognition capabilities, then you should select the “Continuous Speech Processing” module.
- You must install the TAPI Service Provider in order to use Dialogic’s PBXpert program. However, this driver is not used by Amanda, so if you are not going to use PBXpert, then you can omit this module.
- If you will be using an E1 board, or an ISDN (PRI) protocol with a T1 board, then you should choose to install GlobalCall and ISDN support. You will get a subsequent dialog box asking you which ISDN protocol(s) you want to install. Naturally, you will want to install the protocol(s) that your trunks have been configured for.
- Similarly, if you are using a DM/3 board, including an IP Telephony board, then you should include DM/3 and DM/3 GlobalCall support.
- If you are installing a Gammalink board, then include the “GDK” option.
- You may include the Windows NT Performance Counters if you will make use of the information that is gathered. Otherwise, omit this software to improve system performance and also because its installation will require you to reboot the system.
- If you later want to change any of your selections, you must uninstall the drivers then re-install them. You cannot install over an existing installation.

Like the Brooktrout drivers, Intel driver installation is completed by using a configuration program that is installed during the installation phase. This program is called the Dialogic Configuration Manager, or DCM. When you installed Intel boards, each board was configured with a sequential number called the Board Locator ID, via a rotary switch on top of the board. Whether the boards are ISA or PCI, the DCM should automatically detect them when it comes up. There are very few parameters that you should normally change in the settings of the boards before attempting to start the driver. To change the parameters for a particular board, right click on the board to bring up a dialog box. One parameter that you usually must change on ISA boards is to set the bus width from 8 to 16 bits. You should do so unless you find that this prevents the driver from working correctly. If you are configuring digital boards (T1 or E1 interfaces) for use with an ISDN protocol, then you should set the appropriate protocol(s) on the lines. On dual boards, such as the D/480SC-2T1 cards, you can configure the protocol on each trunk separately.

Once you have saved any necessary board configuration parameters, you should attempt to have the DCM start the drivers. Once you have successfully started

the drivers, then you can use the Service menu of the DCM to configure the drivers to start automatically whenever the computer is booted.

As of this writing, Intel has released Service Pack 1 for the SR 5.1.1 drivers. It is included on the Dialogic Drivers CD and should be installed after installation of the base driver set is completed.

2.2.1 Gammalink Fax Resource Board Installation

If you are installing Gammalink Fax Resource boards in addition to telephony boards, then you will configure those next using the Gammalink Configuration Manager. For hardware configuration, please refer to the installation documentation that accompanies the cards.

To run the GammaLink Configuration Manager click start, programs, “Configure GDK,” to start the program. Once started you need to configure your board(s). The driver supports up to five boards which may have as many as 12 fax resources each, for a possible total of 60 fax resources per system. On the “Main” tab click on the “GammaLink CPA button” as shown in Figure 1.

Initially, you’ll see the following message:

“No channel or global key was detected in your registry. The existing GammaLink key has been replaced. The replaced GammaLink key has been saved to your GFAX directory in a file named gammasavekey.reg. Please call technical support if you would like to understand how to restore this saved key.”

Click the OK button to continue the configuration. This will open the “Dialogic GammaLink Fax Configuration” window (see Figure 2). On the overview tab, the properties window will be blank unless you already have a GammaLink board installed. Click the “Auto Detect...” button for the program to find and start the configuration of your board(s).

On a new installation you’ll get a message stating:

“If you continue by selecting OK all information in the registry will be deleted and replaced with a new basic channel configuration. Additionally, all changes made to the configuration during this session will be lost. It is recommended that you save the current registry set up by selecting cancel in this message box and selecting the ‘Save Registry’ button on the front panel of this application.”

Click Ok to continue the installation. If the application is able to detect your board, you’ll see the following screen:

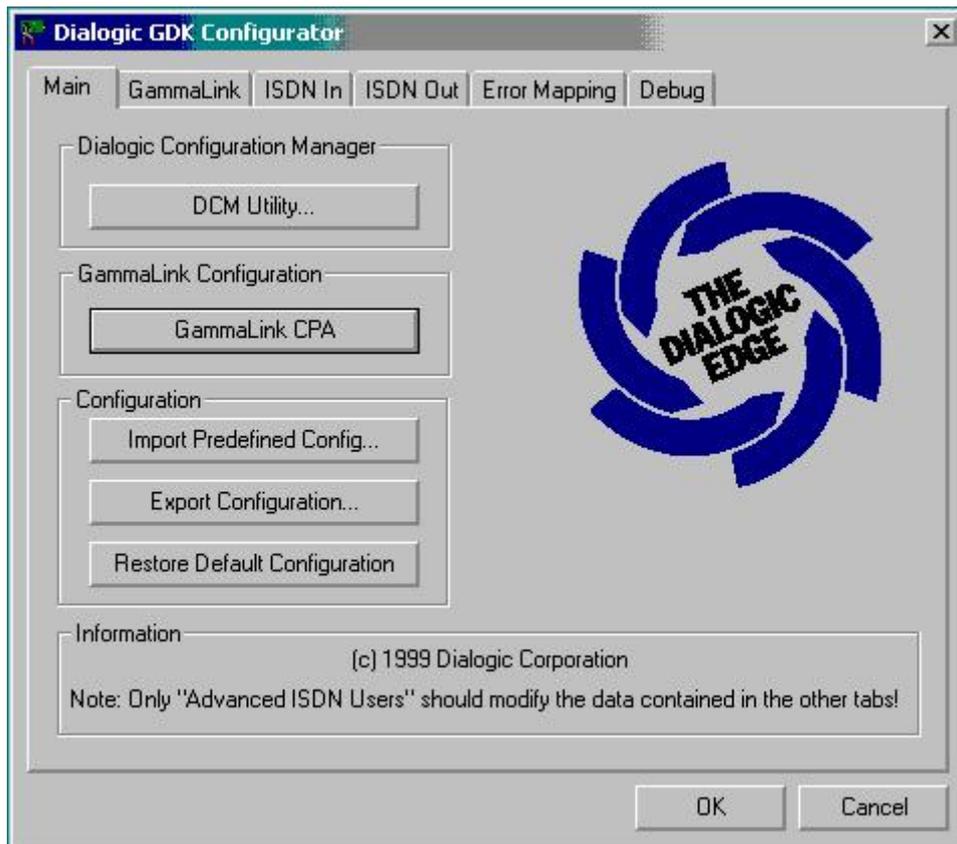


Figure 1: Gammalink Configuration Manager

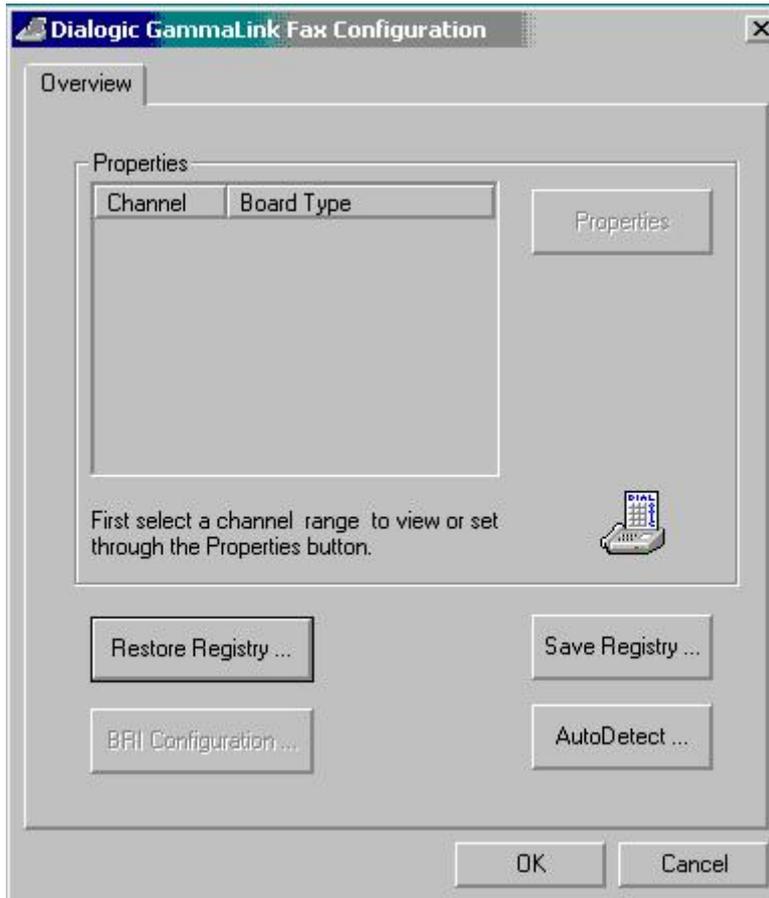


Figure 2: Initialize Configuration Database

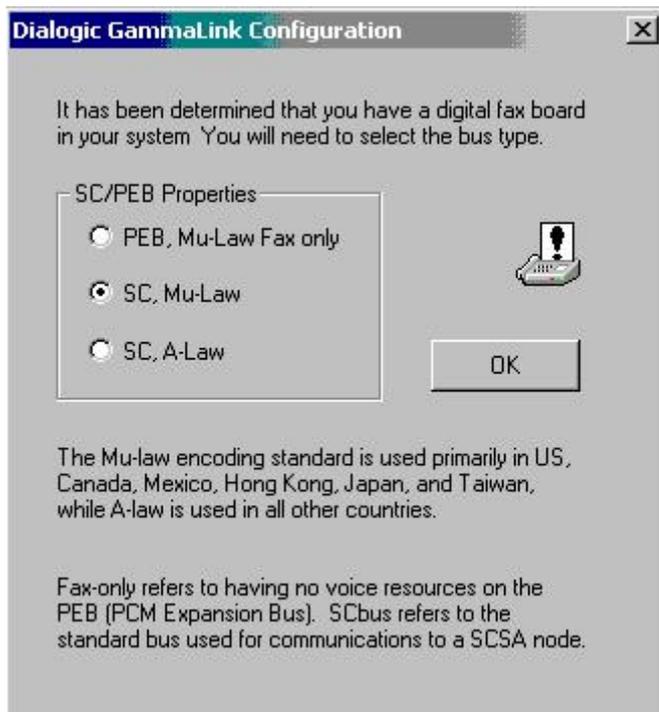


Figure 3: Gammalink Board Detection and Configuration

Select the radio button for “SC, Mu-Law” if you are in the United States (as shown in Figure 3) or “SC, A-Law” if you are outside the US, and then click OK. You’ll see the following message: “Automatic board detection is complete!” Click OK and you’ll immediately notice that the properties of the overview tab now shows your available fax resources as seen in Figure 4.

Now click OK to accept the new configuration, and then click OK on the main tab to complete the installation.

2.2.2 Make sure the Dialogic/Intel Service is Running

Once you have the drivers installed and working, depending on your telephony environment, you may need to run Dialogic’s PBXpert program. It performs a similar function to the Brooktrout Accucall program: it learns the tones that your PBX sends for busy, ringback, etc., and stores them in a file called a Tone Set File (TSF). Following are some notes on the use of PBXpert:

Make sure that the Dialogic service is started prior to running PBXpert. To check to see if the service is started, or to start the service, access the services icon in the control panel and find “Dialogic System Services”, and if it is not running, click the Start button or right-click on the item and select Start, depending on which version of Windows you are using.

Note: You can also start and stop the Dialogic System Services by running the Dialogic Configuration Manager (DCM). To start the DCM, click start, programs, Dialogic System Software, and then click Dialogic Configuration Manager (DCM).

Important Note: You MUST install the TAPI during the Custom Driver installation or PBXpert will not be able to dial DTMF. If you need to add the TAPI component you’ll have to un-install your Dialogic Software, and install it again choosing custom installation and choosing all the appropriate components including TAPI.

Note: You must not only stop the Amanda Portal service before running PBXpert, but you must never have run Amanda since the driver was started. When Amanda runs, it dissociates the voice processing and loop start devices on the boards through SCbus commands, and PBXpert will not re-establish these connections. Therefore, the best procedure is to stop Amanda, then stop and start the driver, then start PBXpert.

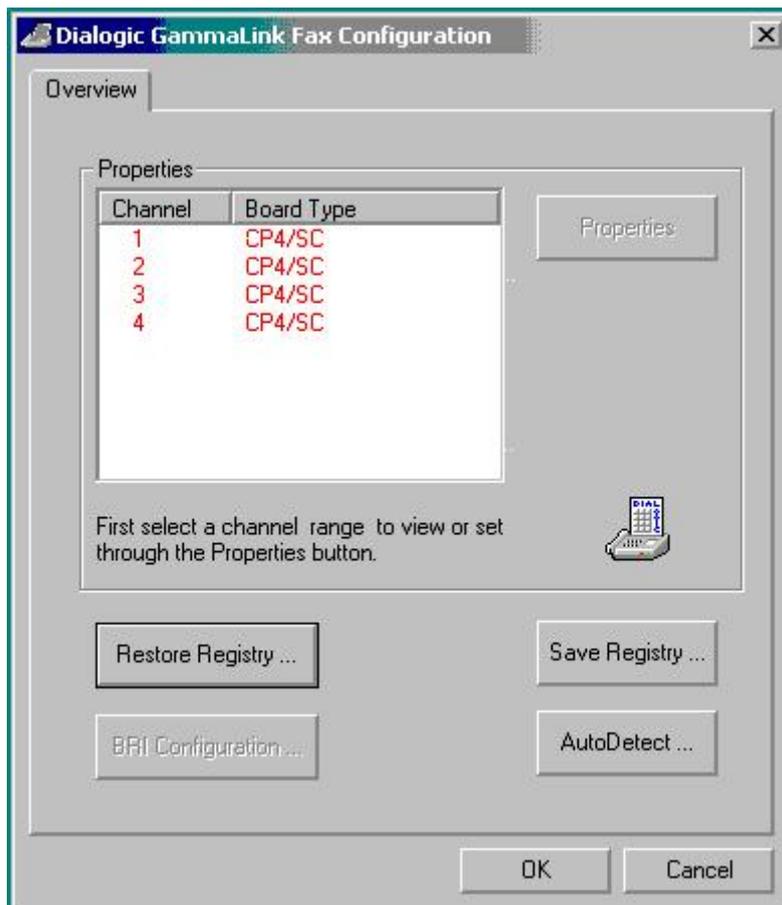


Figure 4: Detected Gammalink Resources

2.2.3 Running PBXpert

1. To start PBXpert, click Start, Programs, Intel/Dialogic System Software, and then PBXpert.
2. You will be prompted to run the wizard, click cancel to run PBXpert manually, or click next to run the wizard. You have more control running PBXpert manually, but for beginners, the wizard is usually easier. You must have at least 2 stations connected to your Dialogic board in order to run the wizard.
3. From the drop down Edit menu, click “New tone set”. Enter the manufacturer name and model of your telephone system, and then click OK.
4. Click options, and then click settings (if you don’t see a settings choice, click on the settings icon represented by gears, it looks like the services icon). Define the physical extension numbers connected to Line A / channel 1, and Line B / channel 2 where it says phone number. You must make sure that the first 2 ports on your first Dialogic board are connected to your telephone system in order to run PBXpert. Next, define a reorder tone dial string so PBXpert will get a good reorder tone from your telephone system, enter a dial string that would be invalid on your telephone switching system, typically an extension number that is out of the valid extension range or ** work well. Once your extensions and your reorder dial string are defined, click ok.

Important Note: Prior to running any tests, make sure that voice mail to voice mail call blocking (if applicable), call forwarding, and hunting are disabled on your two test ports connected to port 1 and 2 on your Dialogic board.

5. Click on the tones drop down menu, and then click learn, and you will see a dialogue box which says Start Learn with a list of tone types below it. All tones are selected as a default. Choose all of the tone types you wish to learn. Typical tone types to learn are dial tone, ring tone, busy tone, and re-order tone.

To avoid problems learning the tones, only have PBXpert learn the tones that your telephone system can provide, i.e. if your telephone system sends a DTMF digit as a disconnect signal like a “D” tone, or multiple DTMF tones like “****”, it cannot be learned by PBXpert, so you must disable the disconnect tone from the tones to learn list. This should only be checked if your telephone system sends a re-order, busy, or dial tone as a disconnect signal. Otherwise, it’s not needed. PBXpert will make several test calls for the call conditions listed on the screen. Once the tones are learned, and the learn process is complete, click keep data.

6. Next, from the Edit drop down menu, click Mark (this marks the tone set for consolidation). Click the Tones drop down menu, and click Consolidate. Consolidation is done to add the industry standard tones like

Bell Ring, Busy, operator intercept, and fax CNG tones to your tone set. You may also consolidate tone sets for multiple PBXs in addition to the PSTN tones. You can use this, for instance, when connecting one Amanda system to multiple PBXs. Once you have finished consolidation, save the file.

Note: When saving your tone set file (i.e. phone-system.tsf), it's saved in the C:\Program Files\Dialogic\Data folder as a default location. Once you've completed running PBXpert successfully, it's a good idea to backup the tone set file.

7. Click on the Tones drop down menu, and click Activate. The tones must be activated before you can test them. Once activated, click on the tones drop down menu again, and click test. All tone conditions should be tested unless you didn't learn a specific tone for a specific reason. Whatever tone was not learned, make sure the same tone is not tested. Click start test. If the tones are tested successfully, you can save your file and then exit PBXpert. If your tones were not tested successfully, you can click Edit, and then click Edit Tones to modify your tone conditions manually increasing the percentage for error. Try to increase the variance, and if that doesn't work, turn off frequency detection under Options, Settings, Advanced, Call Analysis, Operator tab, then test the tones again. Once the tests are successful, save your .TSF file and exit PBXpert.

2.2.4 Troubleshooting Tips

Before running PBXpert, make sure the Dialogic drivers are started.

If your tests fail and the test extension does not ring, make sure TAPI is installed. You'll get a TAPI related error while running PBXpert. You MUST install TAPI before you can run PBXpert successfully.

If you encounter problems running PBXpert, you can change some of your configuration settings by clicking on options, settings, advanced.

You can modify the ToleranceMethod:

Constant Factor Enter a value in this field in HZ that will be added to the highest measured (learned) value, and subtracted from the lowest measured value. The default is 30Hz, and the duration is ± 3 milliseconds.

Percentage Ratio Enter a value in this field (in percent) that will be used to calculate a value that will be added to the highest measured (learned) value, and subtracted from the lowest measured value to calculate a range. The default values are 6

Statistical The statistical Tolerance (or standard deviation) uses a method based on calculating a mean and variance of a samples of a measured (learned) value to calculate a tolerance which is then added to the measured value. The result is then used to calculate a range.

For good results with this method, it is recommended that the number of frames be at least 30.

Frames Enter a numerical value that indicates the number of samples of a frequency or cadence that are used to calculate a range. For a cadence, it is the number of tone on/tone off transitions. Generally, the more frames used, the more accurate the range. When using the standard deviation method to calculate a range, it is recommended that the number of frames be at least 30.

Following are the Intercept Mode Flag Option definitions. Most of these parameters are controlled directly by Amanda, so they are listed here mainly for reference.

DX_OPTEN This option is used to Enable Frequency Detection (wait for a connect to terminate Call Analysis and return an intercept). If a valid frequency is detected, Call Analysis waits for detection of a connect using Cadence Detection or Loop Current Detection before returning an intercept. The default setting is Enabled (on).

Frequency Detection Frequency Detection operates simultaneously with all other Call Analysis detection methods. The purpose of Frequency Detection is to detect the tri-tone Special Information Tone (SIT) sequences and other single frequency tones. Detection of an SIT sequence indicates an operator intercept or other problem in completing the call.

DX_OPTDIS This option is used to Disable Frequency Detection and Positive Voice Detection (PVD).

Positive Voice Detection PVD can detect when a call has been answered by determining whether an audio signal is present that has the characteristics of a live or recorded human voice. This provides a very precise method for identifying when a connect occurs. The default setting is Enabled (on).

DX_OPTNOCON This option is used to Enable Frequency Detection (terminate Call Analysis and return an intercept immediately upon detecting tones). Frequency Detection returns an intercept immediately after detecting a valid frequency. The default setting is Enabled (on).

DX_PVDENABLE This option is used to enable Positive Voice Detection.

DX_PVDOPTEN This option is used to Enable Positive Voice Detection (PVD) and Frequency Detection (DX_OPTEN). The default setting is Disable (off).

DX_PVDOPTNOCON This option is used to enable Positive Voice Detection (PVD) and Frequency Detection (DX_OPTNOCON). The default setting is Disable (off).

DX_PAMDENABLE This option is used to Enable Positive Answering Machine Detection (PAMD). PAMD is available only with Perfect Call Call Analysis. Whenever PAMD is enabled, Positive Voice Detection (PVD) is also enabled. The default setting is Disable (off).

DX_PAMDOPTEN This option is used to Enable Positive Answering Machine Detection (PAMD) and Frequency Detection (DX_OPTEN). The default setting is Disabled.

Sometimes when you test the tones that you have learned, one of the tones will fail the test (typically, Disconnect) while the other tones test fine. In this case, sometimes it helps not to include the standard tone information that Dialogic “consolidates” by default. To try this, open the Settings dialog, go to the Advanced tab, and uncheck “Include Default Tone Definitions in Consolidation.” In this case, you must have PBXpert learn *all* the different tones that the system may encounter, such as PSTN ringback and busy tones, not just the tones of the local switch. Including the default tones means that these tones will already be “understood” by the system, but it also includes tone definitions for a variety of telephone switches, which sometimes can conflict with the tones of the switch you’re currently learning.

3 Step 2: Speech Recognition Software Installation

Amanda Portal currently uses Microsoft’s Speech API (“SAPI”) version 5.1 for performing text to speech. No additional royalties are due for the use of this software on Microsoft Operating System platforms. However, you may obtain more realistic-sounding text-to-speech engines and voices from third parties which are SAPI 5.1 compatible and therefore can be used with Amanda Portal. These vendors include AT&T and ElanTTS. Their TTS engines also include English accents other than American and support for a wide range of non-English languages.

Amanda Portal currently uses speech recognition software from LumenVox. This software is not SAPI compatible, so you do not need to install SAPI to use it. However, you must obtain a license via The Amanda Company for the number of instances of the speech engine that you wish to use simultaneously. You will need to supply this license key when you execute the LumenVox installation wizard. You may choose to perform a Typical installation, which is

the default, and there are no other choices that you need to make during the LumenVox installation process.

4 Step 3: Install the Amanda Portal Software

You may now install the Amanda software by double-clicking on the `AMANDA.EXE` program on the Amanda CD, or by selecting “Amanda Portal” and clicking the Install button in the autorun installer. This will launch an installation wizard which will ask you where you would like the software installed and the program group that you would like it to appear under. Usually you will just accept the defaults for these choices. You will also be asked if this is a full installation (or reinstallation), or if it is an upgrade to an existing installation of Amanda Portal. If you are performing an upgrade, be sure that the Amanda service is not running or the upgrade will fail because the files will be in use.

As with the Brooktrout and Intel driver installations, once the installation is completed, you must run a Configuration Wizard to complete the initial configuration of Amanda so that the software will run. This operation will be discussed below under “Step 5.”

4.1 Special Considerations When Using GlobalCall

Dialogic’s GlobalCall driver provides a great deal of flexibility. Application programs such as Amanda can use nearly the full range of Dialogic’s products without having to have specific code to support each telephony board and protocol. In particular, there are many different ISDN and CAS protocols which are used on T1 and E1 lines. With GlobalCall, you can configure Amanda to work with each of these protocols nearly automatically. The downside is that Amanda cannot automatically determine what ports are in the system and how they should be used. Instead, you must provide this information in a configuration file which Amanda reads when it starts up. The name of this file is `gc_devices.cfg`. It should contain one line for each telephone line (port) to be opened by Amanda. Lines beginning with “#” are assumed to be commentary lines and are ignored. Amanda will open the ports in the order specified in the file, numbering them from zero upwards. *You must create this file before you run the Amanda Configuration Wizard.*

Each line of the file (other than the comments) will contain one or more specifiers. The specifier `:P_` indicates a protocol, `:N_` indicates a network device, and `:V_` indicates a voice processing resource. You can specify these parameters in any order within the line, but without any spaces or other separators in between. Which ones you use will depend on the requirements of the protocol you are

using and/or the physical characteristics of the board being used. For instance, since ISDN protocols do not require voice processing resources for making and receiving calls, you cannot specify `:V_` to associate a voice processing resource with the port. CAS protocols, on the other hand, require that you specify a voice processing resource to be used in call set-up. Finally, Dialogic's analog boards do not allow complete dissociation between the loop start and voice processing devices, and furthermore a VP device is required when making calls (to dial DTMF digits), so with these devices, you must specify which VP device to use. Since the VP and LS devices are accessed by the same device handle, you cannot specify the network device with `:N_`.

Analog lines are configured using the following syntax:

```
:P_pdk_na_an_io:V_dxxxBbCc
```

where *b* is a "virtual" board number and *c* is a channel number. Dialogic divides their voice processing resources into "virtual boards" containing four channels each. So the voice channels will be numbered B1C1, B1C2, B1C3, B1C4, then B2C1, B2C2, etc. Dialogic terms them "virtual" boards because they do not necessarily correspond to physical boards found in the computer. One physical board may contain as many as 15 virtual boards. When using analog boards under GlobalCall, you should be aware that the driver configures several parameters using a configuration file called `pdk_na_an_io.cdp` which is found under the `\Program Files\Dialogic\CFG` directory. These values override the normal Amanda parameters, so you must edit this file and restart the drivers to make changes. Each parameter in this file is well documented with explanatory text in the file. Be sure that you do not modify any of the parameters which are annotated as "do not modify" in the file.

When using ISDN protocols on T1 or E1 boards, you will use the following syntax in the `gc_devices.cfg` file:

```
:N_dtiBbTt:P_isdn
```

where the number *b* specifies the trunk number and *t* specifies the timeslot on that trunk. T1 ISDN (PRI) usually has 23 timeslots per trunk, with the "D" (data) channel on timeslot 24, whereas T1 CAS will have 24 voice ports available. Similarly, E1 ISDN has 30, versus 31 for E1 CAS. The particular ISDN protocol which is to be used is specified in the Dialogic Configuration Manager program, on a per-trunk basis.

Another thing you must be aware of when using GlobalCall is that the the default driver installation does not actually install all the protocols and drivers that are supported. It contains only the most commonly-used protocols and

drivers, mainly those for ISDN. If the protocol or driver that you wish to use is not among them, then you can install the supplementary “GC Protocols 3.0,” which is also found on the Dialogic Drivers CD. Note that the North American Analog driver is contained within this installation. To install these drivers, run the Setup.bat program in the “GC Protocols 3.0” directory on the CD.

5 Step 4: Installing the Amanda Portal Clients

The installation process performed in step three copied all of the Amanda Portal server software into the directory you selected. For your convenience, it also copied installers for the Amanda Portal client software into the `Clients` subdirectory of the Amanda installation directory. You may share this directory so that other users on the network can easily install the software. In any case, you should install the administrative client on the server by double-clicking on the `ClientInstall.EXE` program found in that directory. This is another simple installation wizard which will ask you in what directory you want to install the software, and in which program group you want the program to appear. Usually, you will accept the defaults for these choices.

6 Step 5: Initial Amanda Portal Configuration

As with installing the Brooktrout and Intel drivers, installing the Amanda software is a two-part process. In Step 3, we copied the necessary files to the computer’s hard disk and installed registry entries. In Step 5, we will initialize the Amanda configuration database to the point of having a basic working system. To do so, run “Start—Programs—Amanda Server—Configuration Wizard”. After the Welcome screen, the next screen you will see (see Figure 5) will allow you to initialize a configuration database which contains all the Amanda configuration parameters with associated help text and the recommended default values set. Later, you will be able to change these settings to fine-tune your installation. You may not proceed without completing this step. Should you ever want to run the Configuration Wizard again, you will normally skip this step because it will restore your configuration settings to their factory defaults, and you would lose any customization that you have subsequently performed.

The next screen, shown in Figure 6, looks very similar. It allows you to create a default set of mailboxes with appropriate privilege settings, greetings, etc. This set of mailboxes is used by the Amanda “personality” which emulates the telephone user interface (“TUI”) found on other Amanda voice processing products. Unless you are installing a system which will use a radically different

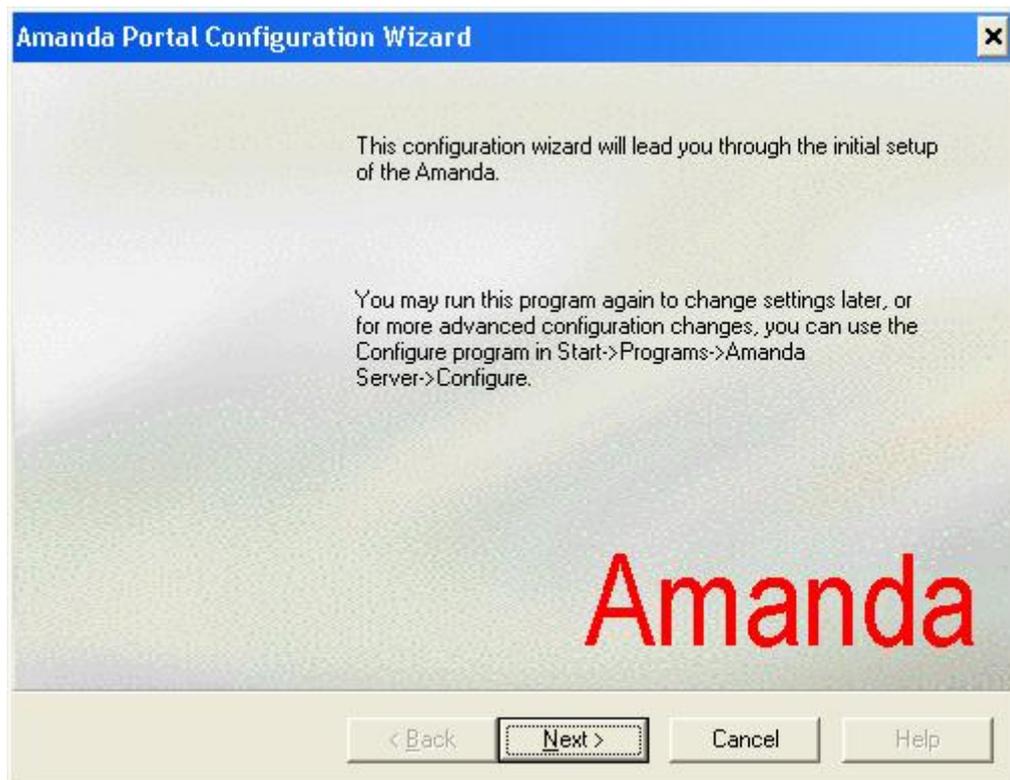


Figure 5: Initialize Configuration Database

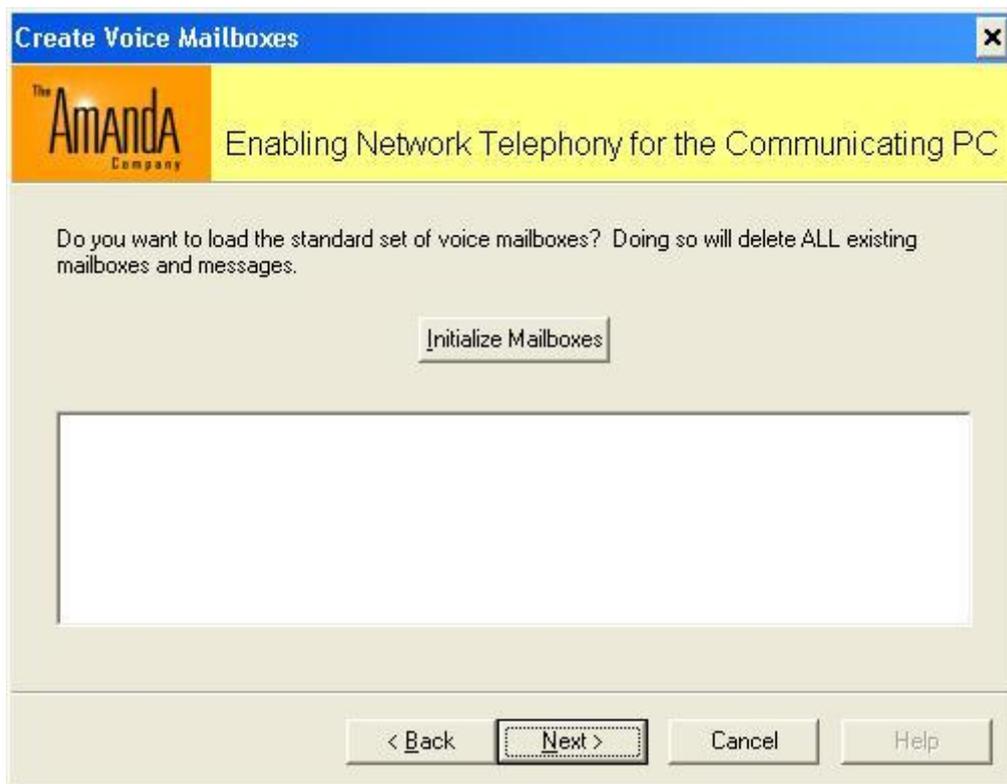


Figure 6: Initialize Mailbox Database

TUI, such as a pure IVR system (and even frequently when you are), you should proceed with creation of these mailboxes.

The next screen, shown in Figure 7, is for importing mailboxes. The Configuration Wizard can read a file containing one line per mailbox, with the mailbox name, the user's first name, and the user's last name, separated by spaces.

Amanda Portal is built with a central core software module which defines the basics of the system: the concepts of voice mailboxes arranged hierarchically, mailbox privileges, Multi-Media Objects, a resource manager, etc. The core also provides a framework for additional "plug-in" support modules which provide additional functionality. These modules may be provided with the system or they may be sold by third-parties for use with Amanda.

The fourth screen, shown in Figure 8, allows you to choose among the unlicensed support modules that come with the Amanda Portal software package.

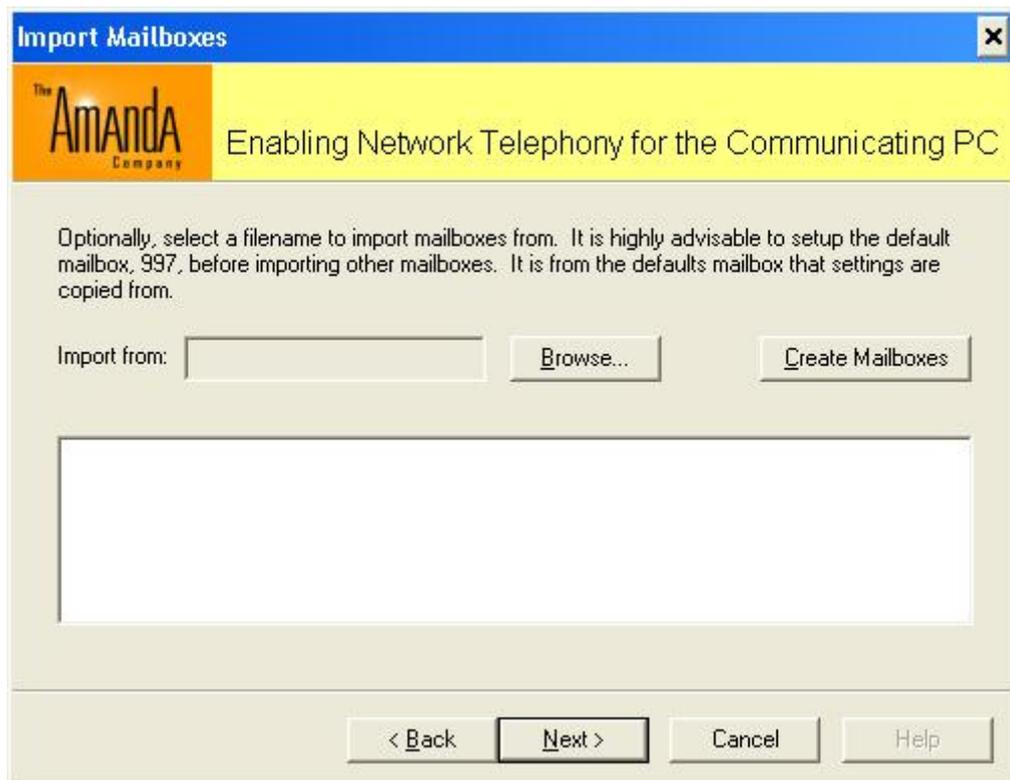


Figure 7: Importing Mailboxes

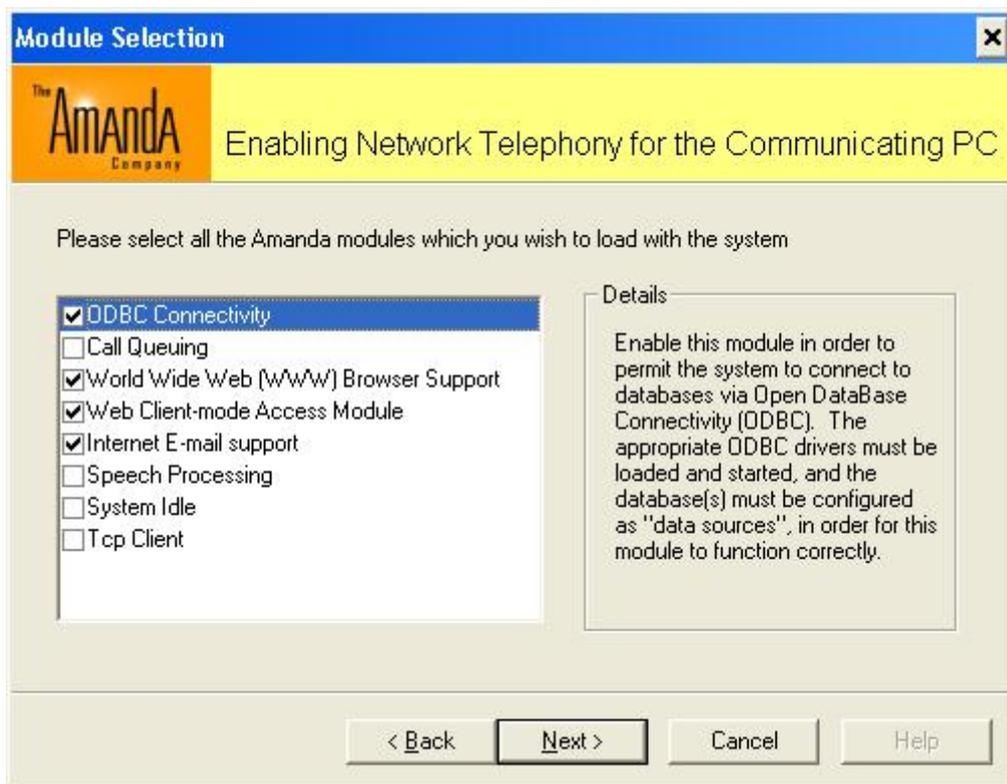


Figure 8: Module Selection

If you have any third party software modules, you will load them separately, and provide for any licencing, using the Amanda Configuration program in Step 6. For now, add a checkmark next to each module which you wish to load with the system. Note that to use Amanda's web server, you cannot be running IIS or any other web server on your computer. Similarly, to use Amanda's e-mail service, you cannot be running another e-mail server on the machine. Once you have finished selecting your modules, press Next.

The next few screens ask you about parameters which are controlled by your Amanda Portal License Key. The first, shown in Figure 9, asks you to input the number of additional client connections which your configuration is to support. The base software includes 10 connections. The number you enter on this screen is the number of *additional* simultaneous client connections you are going to allow.

The next screen, shown in Figure 10, now appears asking you to select which li-

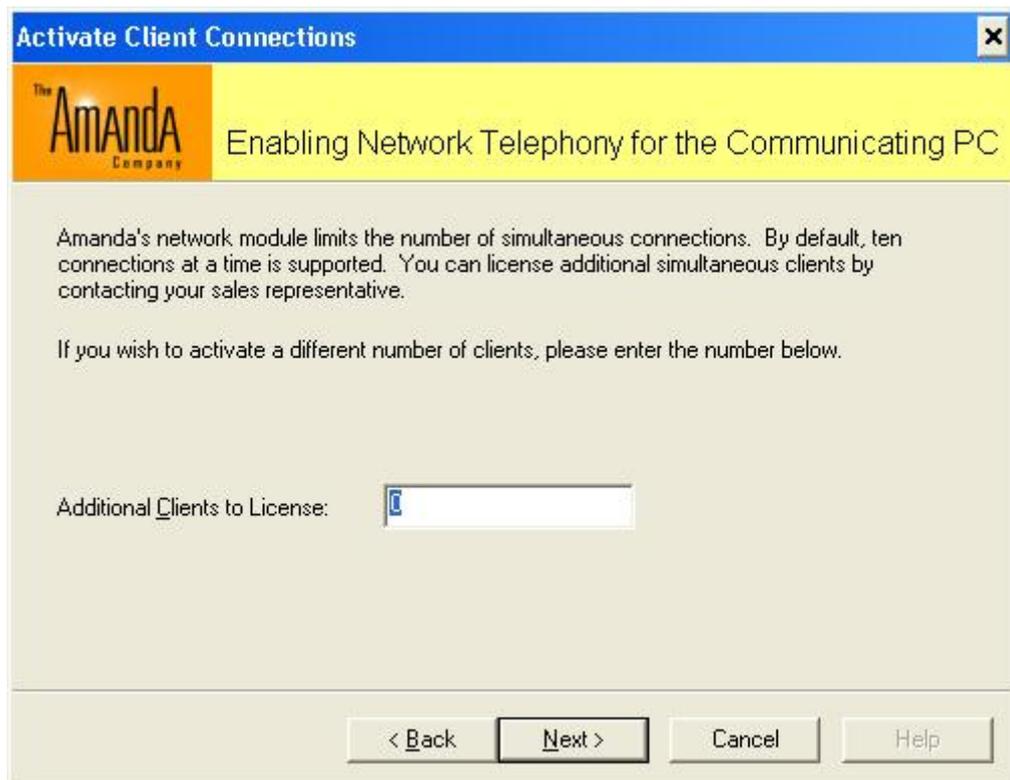


Figure 9: Additional Network Connections

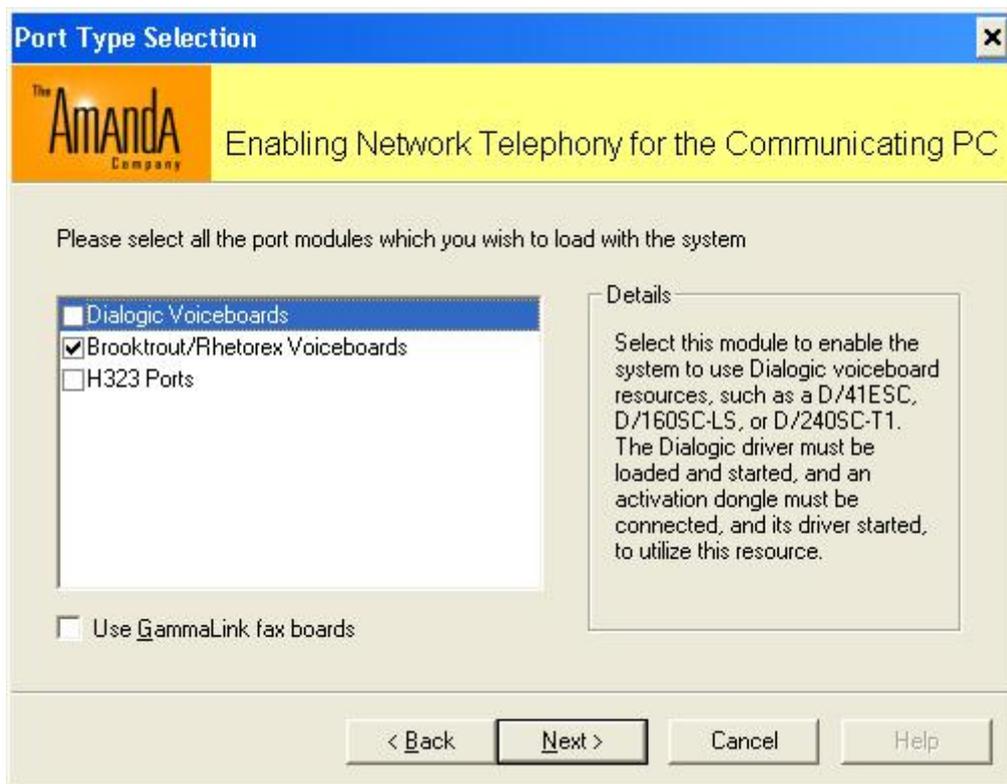


Figure 10: Port Module Selection

cenced modules you wish to use for telephony. You may choose between Brooktrout and Dialogic. Choosing either, you may optionally add H.323 Internet Telephony support. If you choose Dialogic, you may also add a check to the box at the bottom of the screen to add Gammalink fax module support. The Wizard will verify that the modules you have chosen do not conflict with each other. If there are problems, it will explain the conflict to you and remain on the module selection page.

For each one of these modules which you select, you will then receive a series of three additional screens. The first, shown in Figure 11, asks you how many ports are to be supported.

If you select Dialogic or Brooktrout ports, an additional screen, shown in Figure 12, lets you select the default PBX settings to be used on all ports. If you are using multiple PBXs connected to different ports, select the PBX type which applies to the most number of ports here, and in the Configuration program you

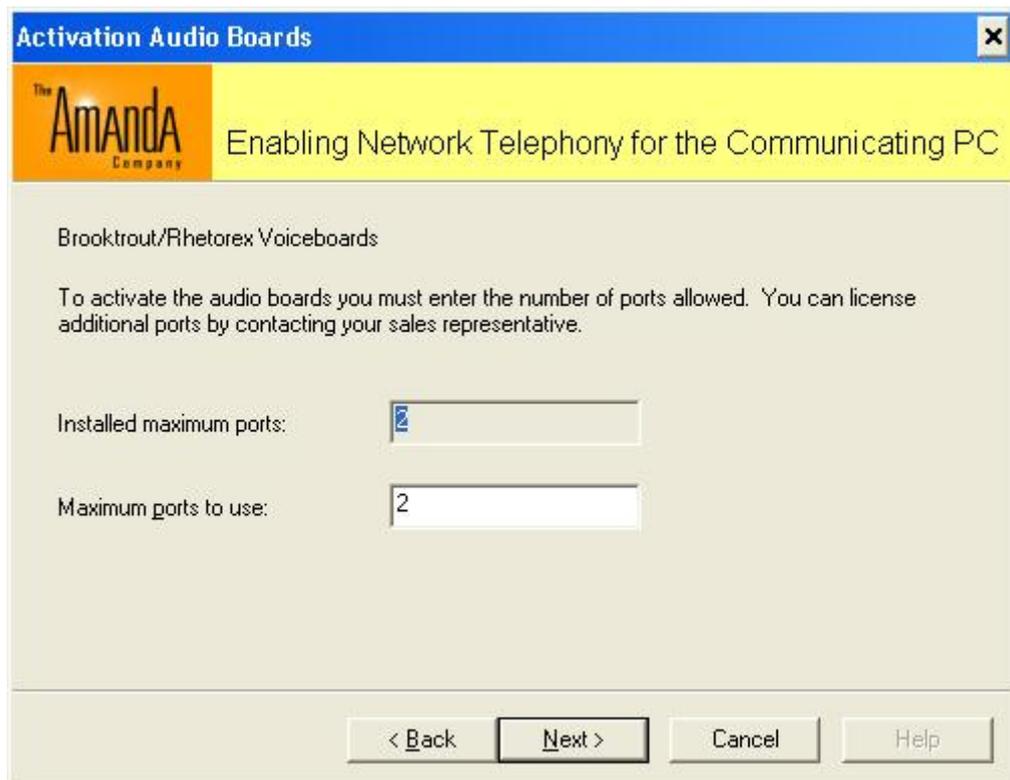


Figure 11: Number of Ports

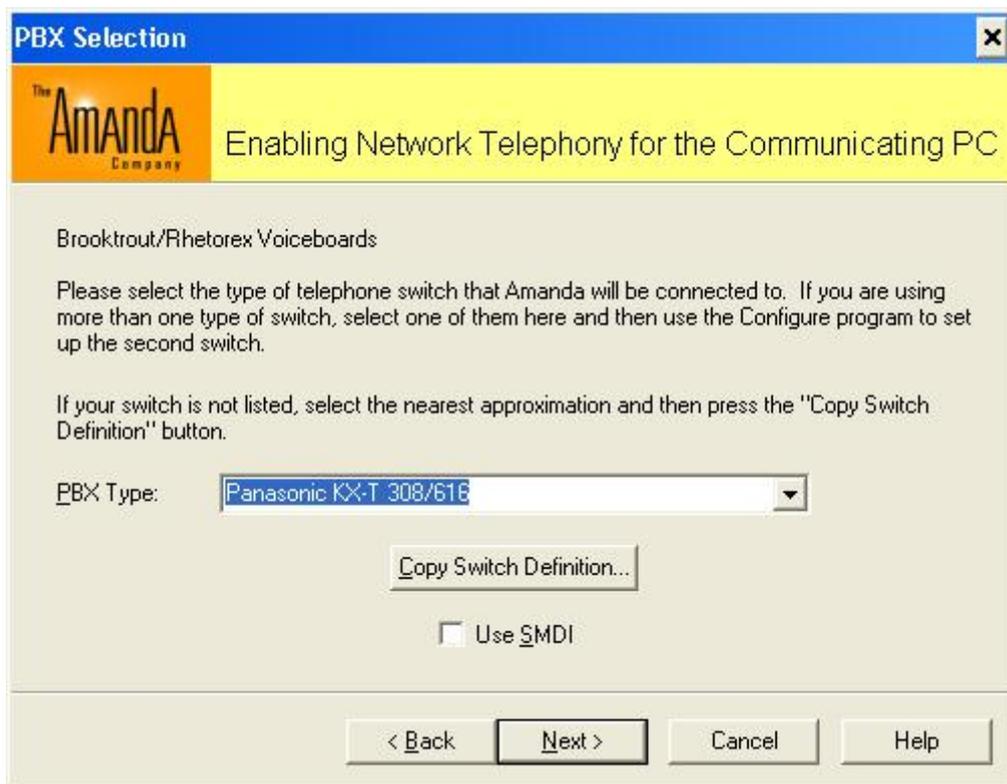


Figure 12: PBX Selection

can change the settings for the port(s) which are connected to a different PBX type. Note also that some PBXs can optionally use a serial port connection for out-of-band integration information. If your PBX provides this information, then you should check the checkbox at the bottom of the screen, and you will see two additional screens, shown in Figures 13 and 14, which allow you to specify which of the supported serial protocols will be used and the serial port parameters to be used for Amanda to read the integration information.

Whether or not you are using Serial Integration, you will also have to specify which port(s) are to be used for two classes of outbound calling: “notify” and “outbound.” Ports may be grouped into arbitrary sets with symbolic names suggestive of the uses of the ports. By default, Amanda uses two such port groups. The “notify” ports, shown in Figure 15, are normally used for executing notification jobs which require a telephony port, such as to call a pager or control a Message Waiting Indicator on your telephone. Other outbound calls, shown in Figure 16, are usually used for all other outbound calling.

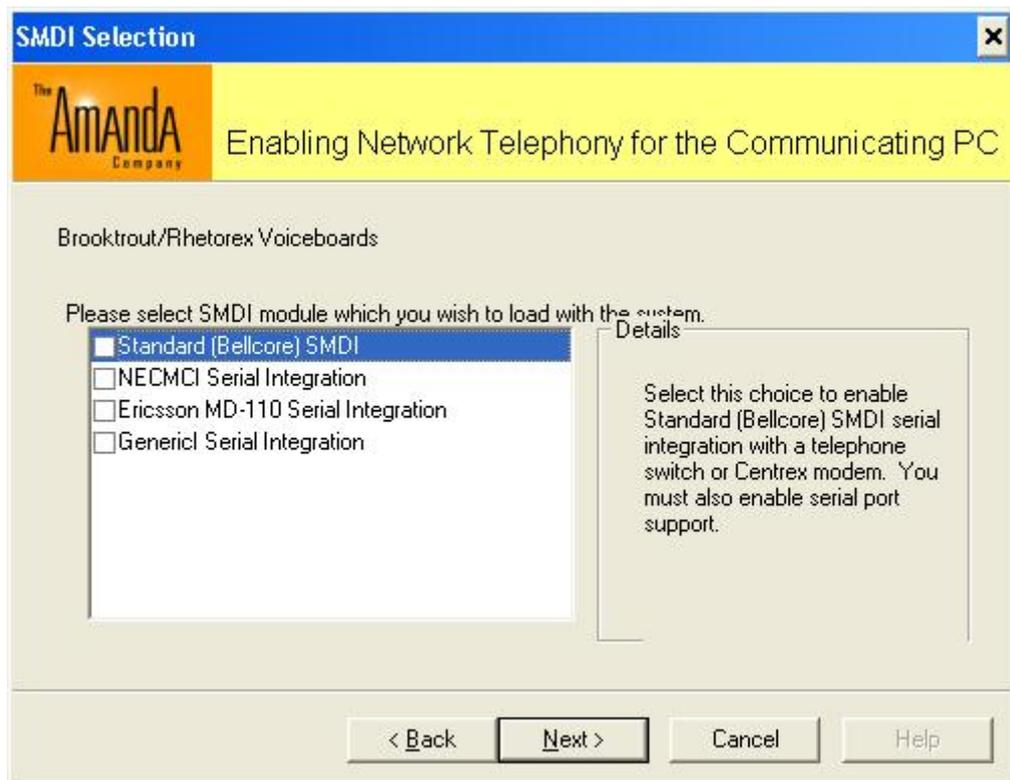


Figure 13: Serial Integration Protocol Selection

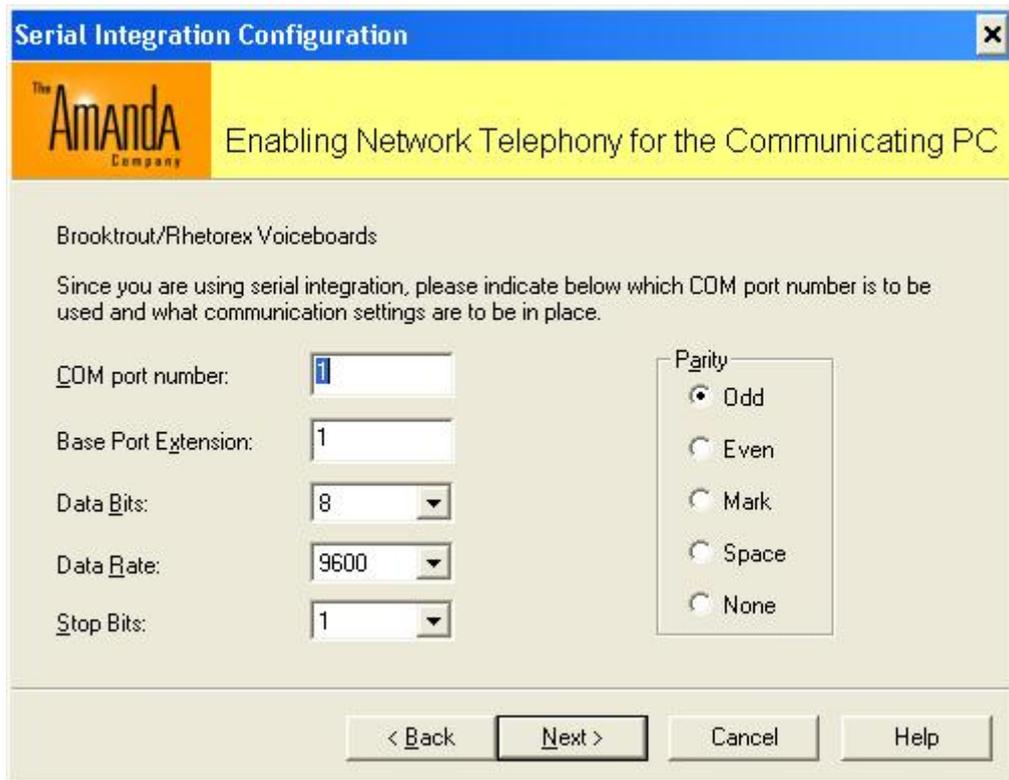


Figure 14: Serial Port Configuration

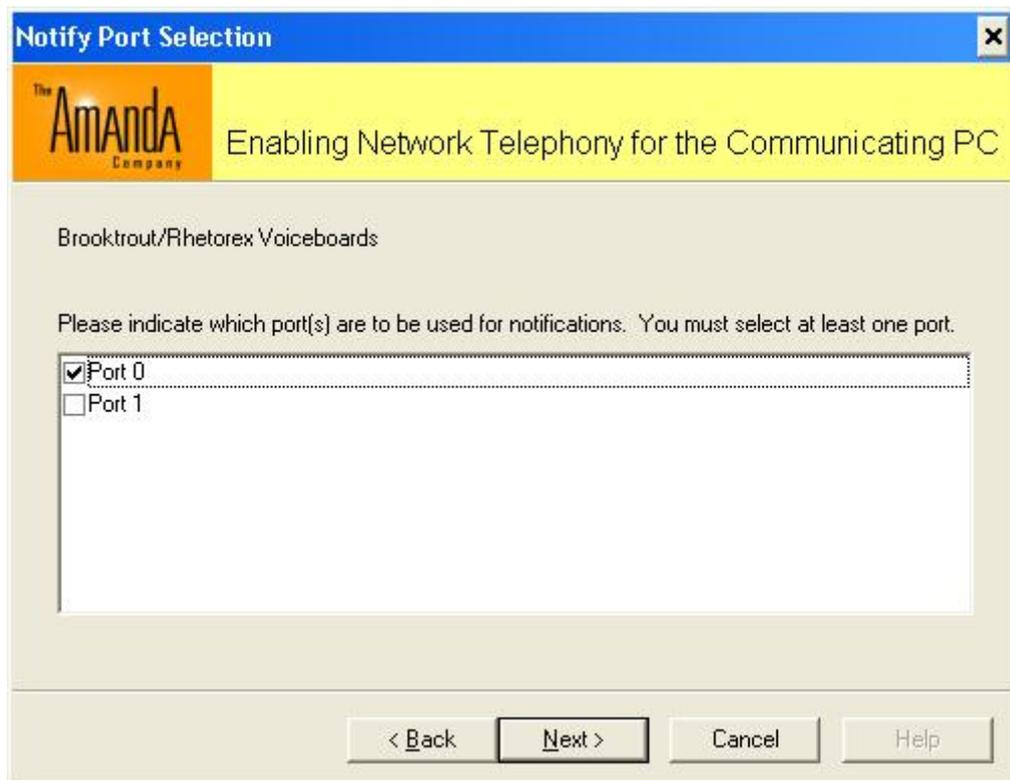


Figure 15: Notify Port Selection

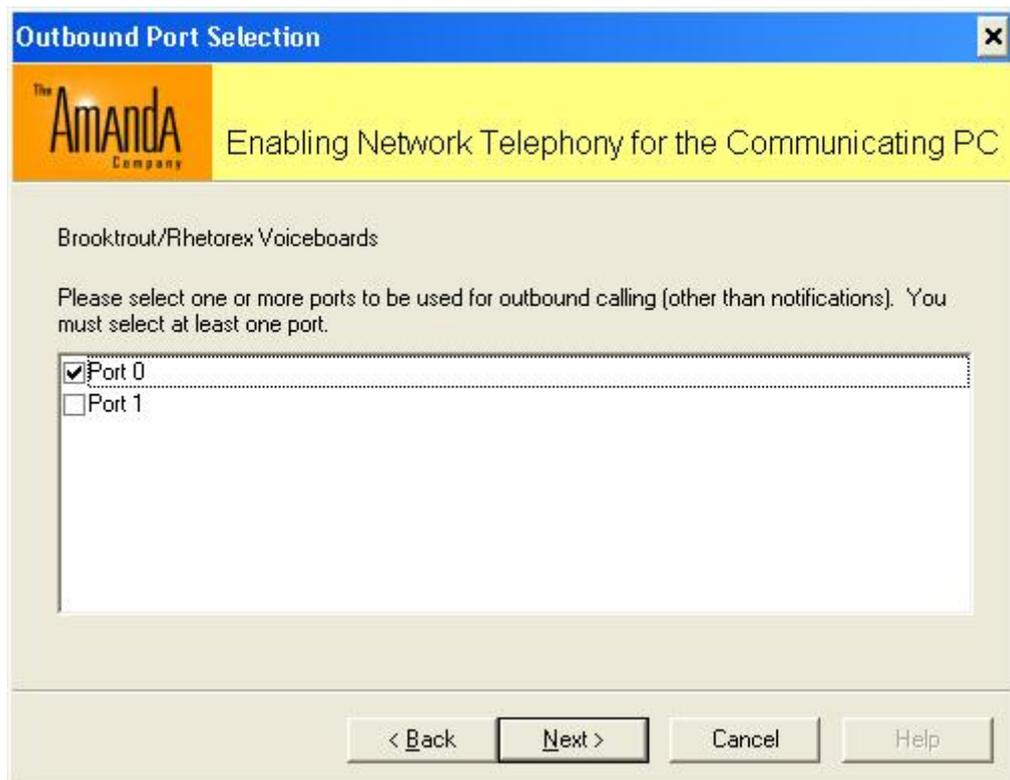


Figure 16: Outbound Port Selection

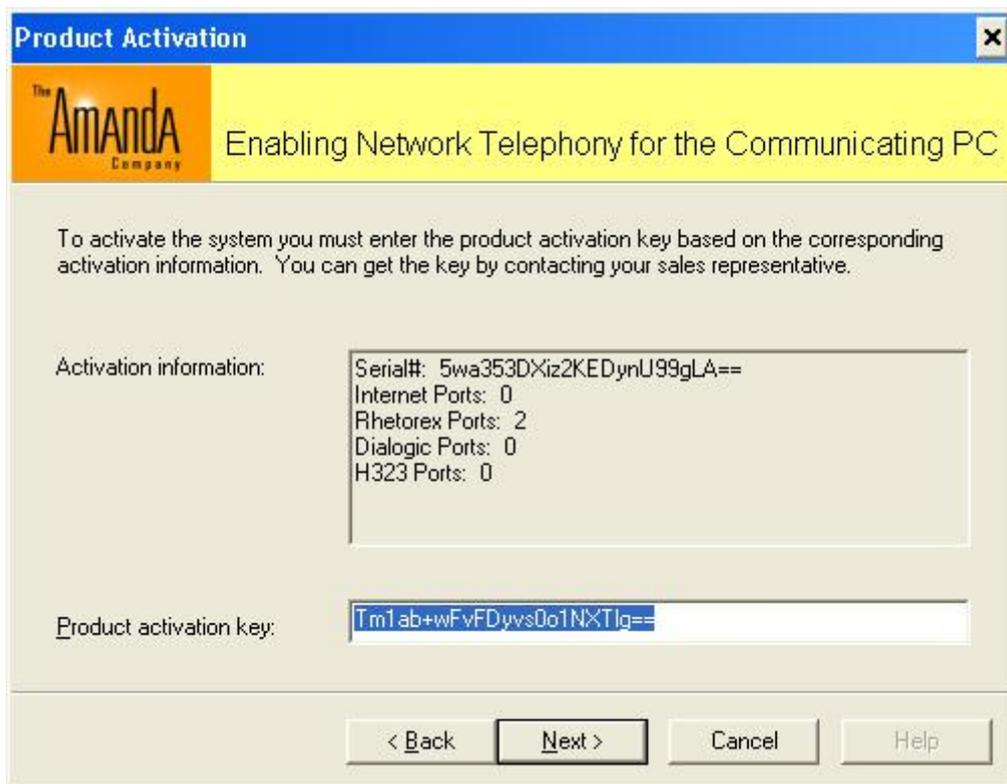


Figure 17: Entering Your License Key

Once you have answered all of these questions, you will be asked to enter a license key which corresponds to the selections you have made, as shown in Figure 17. The Product Activation Key that you enter must correspond to the configuration that is shown in the “Activation information” section of the screen. Note that it takes a few seconds to move from the previous screen to the Product Activation screen.

7 Step 6: Fine-Tuning Your Installation

The Amanda Configuration Settings program allows you to view or modify the configuration database. Some configuration parameters are used by the Amanda software directly, while others are used only at the scripting level to control the behavior of the scripts. Generally, the parameter names are the same as those in

other Amanda products with the same function. However, to add consistency, all timeout parameters in Amanda Portal are always expressed in milliseconds. In other Amanda products, the timeouts are expressed in varying units, usually tenths of seconds, but sometimes seconds or hundredths of seconds. Also, some parameters in other Amanda products which are global have been moved to be either per-port, per-PBX, or per-mailbox parameters in Amanda Portal. All per-mailbox settings are accessed through the Amanda Portal Station.

When you start the Configuration Settings program, you will see that tabs across the top give you access to the Global, Per Port, Per PBX, and Per Board parameters. There are currently no per-board parameters; this tab is reserved for future use. Whenever a script is executed on Amanda, such as in response to an incoming telephone call, it can use the `load_config` command to read all the relevant parameters into a global Tcl associative array called `config`. This is done by first loading all the Global parameters. Next, per-port parameters are read in, first by reading the “all ports” parameters and then any parameters that are specific to the current port number. If there is a per-port setting called `pbx`, then the PBX Configuration database is searched and if that PBX name appears there, its parameters are also loaded into the array. In this way, all the parameters are loaded and available in a consistent fashion, and more-specific settings will override more general ones (such as a specific port setting versus an all-ports setting).

To access a particular parameter, you can type in its name in the Parameter field, use the scroll bar on the right hand side to scroll to the desired parameter, then highlight it by clicking on it with the mouse, or use the Up and Down Arrow keys on the keyboard to move the selection highlight within the parameter list. Whenever a parameter is selected, its current value is displayed in the Value field, and help text explaining the use of the parameter is shown in the window at the bottom of the screen. If you type in a parameter name which does not exist, you enter a value for it and use the “Set” button to store a new parameter in the database. In this way, you can easily create parameters of your own to control scripts which you have written.

8 Step 7: Configuring Template Mailboxes

When you create mailboxes in Amanda, you actually always copy another mailbox, or “clone” it, to create the new one. One particular mailbox, box 997, is the default “template” mailbox from which others are copied. You can, however, choose a different mailbox from which to copy settings at the time when you are creating the box. Therefore, it is best for you to change any mailbox settings in box 997, which has been configured with reasonable default values, before creating any other mailboxes. If you are familiar with other Amanda

products, you will find that several parameters that were global parameters are per-mailbox parameters in Amanda Portal.

Amanda Portal mailboxes also fall into two categories: regular mailboxes and guest mailboxes. There are only two differences between the two:

1. When creating a guest mailbox, the creating mailbox cannot choose the particular mailbox number which is assigned. Instead, the system chooses a free mailbox within a range which was set by the administrator. This allows the administrator to have some control over the boxes which get created, perhaps to maintain a particular numbering plan, while still giving individual users the ability to create and delete mailboxes by themselves.
2. When a guest mailbox is created, it is cloned from a different template mailbox, box 996. This allows the administrator to specify different default settings for guest boxes than regular mailboxes have. For instance, usually guest mailboxes will store messages but will be permanently locked in “do not disturb” since they typically do not correspond to telephone extensions.

9 Step 8: Creating Mailboxes

Once you have configured your template mailbox, you are ready to create mailboxes. In Amanda Portal, mailboxes are organized hierarchically. That is, each mailbox has a “parent” mailbox to which it belongs. Any given mailbox can have at most a specified number of “children” mailboxes. At the top of this “tree” of mailboxes is a mailbox (999) which is an ancestor of all the mailboxes, including itself. There can potentially be more than one such “root” mailbox, though this would be an unusual situation. If a large organization wants to decentralize administrative control, then the “999” mailbox would create, for example, departmental mailboxes, and endow each of those mailboxes with the ability to create an appropriate number of children mailboxes underneath themselves. In this way, departmental managers could be responsible for managing their subordinates’ mailboxes themselves.

Amanda Portal’s mailboxes can also be partitioned: that is, every mailbox reference can be automatically prefixed by another number, such as a telephone number. Thus, what look like boxes 990, 991, 997, etc., could actually be all prefixed by a ten-digit company phone number. In this way, Amanda Portal can provide tenant services automatically, based on the phone number dialed by the caller, assuming that ANI information is available.

To create mailboxes, use the Amanda Portal Station client. Log in as the administrator (mailbox 999). Make sure that mailbox 999 is highlighted in the

“tree view” on the left side, then double-click “Immediate Descendants” on the right hand side. This will bring up a dialog box which will allow you to create one or more children mailboxes. If you highlight a different mailbox on the left, then you will be creating children of that mailbox, regardless of which mailbox you logged in as.

10 Conclusion

This completes the initial installation of the Amanda Portal software. At this point, you may use the Configuration program to add third-party software modules or to continue to fine-tune the installation. Most other configuration changes, such as creating and modifying mailboxes, creating new “method” Tcl code, etc., will be made through the “Amanda Portal Station” client.