TOSHIBA

Stratagy® ES
Messaging Voice Processing
Technical Bulletin

Stratagy ES Automatic Speech Recognition (ASR)/ Automated Attendant (AA) Feature

The MVP Application Suite now offers a speech enabled Auto Attendant Feature Group labeled, ASR AA. With the ASR AA Feature Group, callers that access Stratagy ES can:

♦ speak a user's name to reach an extension

♦ speak a command to log in to his/her mailbox

Note The system can be programmed for several variations of "login." For example, mailbox login, mailbox logon, user login, user logon, access mailbox.

♦ say "send message" or "quick message" to directly send a message to a user's mailbox without calling his/her extension

Automatic Speech Recognition (ASR) is the term for converting human speech to text. It is used in applications where the information collected from the caller is difficult to enter using a touchtone phone, or where the customer wants to create a more natural, user friendly image with automation. This is particularly effective for collecting alphanumeric part numbers or names and addresses.

ASR functionality is dynamically allocated as a resource or channel to a Stratagy ES voice port. This means that a channel of ASR resources is only tied to a voice port for as long as the Stratagy ES software dictates its need. If the voice port no longer requires the channel or resource, it is freed up to be used by another port. Therefore, to estimate the amount of ASR channels a system may require, you must first estimate how many Stratagy ES voice ports will simultaneously need access to ASR resources.

Integration Considerations

Important! *Ports that are configured for ASR AA can only accept inbound voice mail integration using Simplified Message Desk Interface (SMDI). Dual Tone Multi-frequency (DTMF) in-band integration is not supported on these ports. If DTMF integration is necessary, additional ports not configured for ASR Auto Attendant are required.*

Configurations

There are two configurations for ASR solutions on the Stratagy ES – host-based and Antares-based.

Host-based ASR (Currently Available)

Host (or CPU)-based ASR uses the native CPU of the Stratagy ES to provide the processing power required, no additional speech-related hardware is required. A maximum capacity of eight channels of host-based ASR can be invoked simultaneously. The Stratagy ES host-based ASR is available for the Stratagy ES only available using a D/41ESC voice board to provide echo cancellation. The other Dialogic voice boards do not provide echo cancelling and cannot be used.

See "Host-based ASR Installation" on page 13 for installation instructions.

Hardware/Software Requirements

The following requirements apply for a host-based ASR system:

♦   the Stratagy Activation Module (SAM) must be activated for the feature by placing an order for the ASR AA Feature Group (part number SES-FG-ASR-AA)

♦   SpeechWorks® software

♦   D/41ESC voice board from TSD (part number SES-DL-P4-SC)

Note   The host-based ASR AA provides up to eight channels of ASR resources.

Though less costly in terms of hardware than the Antares-based solution, considerations must include processor requirements for other Stratagy ES applications. Adding other processor intensive applications, such as host-based Text-to-Speech, may require the Stratagy ES CPU to be upgraded.

Antares-based ASR (Scheduled for Release, 4th Quarter of 2000)

With Antares-based ASR, the processors located on the Dialogic Antares resource board, instead of the native CPU, provide the power. The Antares board has Digital Signal Processors (DSPs) that perform all processor functions for the ASR application, including echo cancellation.

This configuration provides up to 12 channels of simultaneous ASR per each installed Antares board. The Antares-based ASR requires either a Dialogic D/41ESC or D/160SC-LS voice board and an Antares board.

See "Antares-based ASR Installation" on page 4 for installation instructions. To install ASR using the Antares-based method, you must also perform the steps under "Host-based ASR Installation" on page 13.

Hardware/Software Requirements

An Antares-based system must have:

♦   the Stratagy Activation Module (SAM) must be activated for the feature by placing an order for the ASR AA Feature Group (part number SES-FG-ASR-AA)

♦   SpeechWorks software

♦   Antares resource board from TSD (part number SES-ANT-2000/50)

♦   D/160SC-LS or D/41ESC voice board from TSD (part numbers SG-DL-P16 or SES-DL-P4-SC)

Antares-based ASR cannot share the same Antares card as Antares-based TTS. ASR and TTS can alternate as resources, but cannot be used at the exact same time on the same voice port.

Enabling ASR AA Feature Group

The ASR AA Feature Group is enabled on the Stratagy ES by:

♦   Loading the Feature Group software

♦   Enabling the Stratagy Activation Module (SAM)

It is not necessary for the Feature Group software to be loaded prior to enabling the feature in the SAM.

Feature Group Software

The software for all released Stratagy ES Feature Groups can be found on the Stratagy ES System Software CD-ROM that is shipped with each Stratagy ES system. Following the instructions in the *Stratagy ES Installation and Maintenance Manual*, technicians can upload the necessary software. Even

though the software may be loaded on the system, the specific Feature Group is not operational until the SAM has been enabled for the feature.

Stratagy Activation Module (SAM)

To enable the ASR AA feature in the Stratagy ES, the SAM must receive new information settings allowing the feature to operate. These settings are procured by first running a query program on the target Stratagy ES that will issue a coded packet that is unique to that specific system. This coded packet is then relayed back to Toshiba TSD along with the target system's remote telephone number and an order for the desired feature. Toshiba personnel then call into the system and update the SAM with new data, unlocking the feature for use.

Note   To provide the most efficient means for remote access, the pcANYWHERE software that comes with each system should be loaded.

Automatic Directory Synchronization for MVP ASR AA Feature Group

With Automatic Directory Synchronization, the ASR AA receives user information from the Stratagy ES mailbox database. Only mailbox users who have their full names added to the User Mode Options Name1 and Name2 fields and have recorded their names are added to the directory used by the ASR AA.

After a new mailbox has been added in the Stratagy ES, the Automatic Directory Synchronization routine updates the ASR AA directory with the new entry. The ASR AA then automatically translates the new name into an accurate phonetic pronunciation based on standard English speech patterns.

The directories for the Stratagy ES mailboxes and the names directory of the ASR Automated Attendant are two separate directories in the system. For the ASR AA to function properly, the names in both directories must be synchronized.

When ASR AA software is installed on the Stratagy ES, a routine is added to the Scheduler table to automatically synchronize these two directories on a daily basis. In addition, the ASR AA software installs an icon on the desktop so technicians can generate a directory synchronization without waiting for the scheduled automatic synchronization.

The ASR AA Feature Group supports up to 250 names in its directory, and includes a User Login/Quick Message feature.

Whether purchasing ASR in the host-based or Antares-based configuration, the ASR AA Feature Group comes with two channels of ASR resources.

Prior to Installing

♦ We recommend that you back up your database prior to starting any upgrade procedure.

♦ Make sure you have all the necessary parts and tools.

♦ Since all of the procedures require Stratagy ES be out-of-service, coordinate with the customer a time for Stratagy ES to be taken off line.

Antares-based ASR Installation

**Important!** *For Host-based installations, go to "Host-based ASR Installation" on page 13.*

Notes

- To complete the Antares-based ASR installation, you must also perform "Host-based ASR Installation" starting on page 13.

- It is recommended that prior to starting this procedure you clear all events from the Event Viewer, System Log. It will make it easier when you check Antares board configurations in Step 10 "Check Event Detail Screen"on page 12.

Step 1: Stop Stratagy Enterprise Server/Configure Manual Start
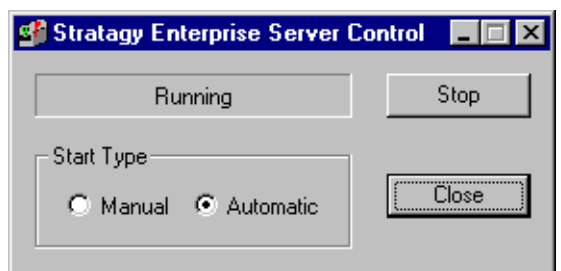
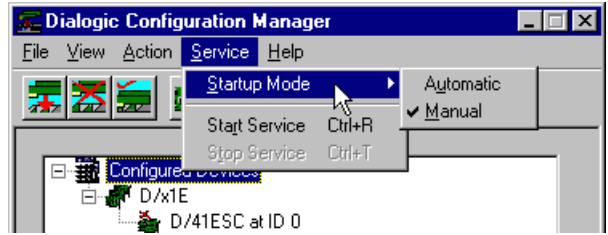|		
	1. Click the StartStratagy icon on the desktop.	
	2. From the Stratagy Enterprise Server Control screen, click Stop.	The screen displays "Stop Pending" and then "Stopped."
	3. Click Manual.	**Note** This prevents Stratagy ES from automatically starting while we modify Dialogic software.
	4. Click Close.	

Step 2: Configure Dialogic Services

Note If you have GammaLink Fax installed, you must stop the GammaLink service first and return to this step.

1. From the Windows NT, click Start, Programs, Dialogic System Software, then Dialogic Configuration Manager - DCM.	The DCM Main screen displays.

2. From the Main menu, click Service, Startup Mode.	
3. Click Stop Service.	A message pop-up box displays stating that the Service has been successfully stopped and the Service Status at the bottom of the screen changes to Stopped.
4. Click OK.	The message box closes.
5. Double-click on each device and make a note of its BLT address, BLT Interrupt, and ISA Bus Width.	**Note** Since you are going to uninstall this software, you'll use this information at the end of the installation procedure for reconfiguring the voice boards.
6. Click File, Exit.	The DCM Main screen closes.

Step 3: Install Streams Environment Protocol

1. Click Start, Settings, Control Panel, Network and then Protocols. If Stream Environment is not already installed, click Add.

2. From the Select Network Protocol, highlight Streams Environment and click OK.

Note If Stratagy ES cannot detect the Streams Environment on the PC, it will ask you to insert the Windows NT CD-ROM in the CD-ROM drive. After you insert the CD-ROM, follow the instructions on the screen.

Step 4: Install Antares Resource Board

1. Turn off the computer's power and unplug any cables (e.g., power cord).

2. Open the computer.

3. Unpack the Antares board.

4. Install the Antares board in accordance with Steps 1~6 on pages 11~16 and 11~17 in the *Stratagy ES I&M Manual*.

Important! *Do not perform Step 7 of that procedure.*

Step 5: (Optional) Install D/41ESC or D/160SC-LS

➤ If your Stratagy ES does not already have a D/41ESC or D/160SC-LS board installed, install one now per instructions shown on pages 11~9 through 11~13 in the *Stratagy ES I&M Manual*.

Note In order to properly install Dialogic's Antares software, Dialogic software must be reloaded.

Step 6: Uninstall the Dialogic/GammaLink Fax Software

1. Replace the computer cover and reconnect the cables.

2. Restart the Stratagy ES.

3. Uninstall the Dialogic software.

4. If you have GammaLink Fax software installed on the Stratagy ES, uninstall it.

5. Reboot the Stratagy ES.

Step 7: Install Dialogic Software

|		
1.	Insert the Stratagy ES Installation CD-ROM into your PC's CD-ROM <drive>.	The Software Install Menu displays.
2.	From the Software Installation Menu screen, click on Dialogic System Software.	The Welcome screen displays.
3.	From the Welcome to Dialogic Setup screen, click Next.	The Registration screen displays.
4.	On the Registration screen, enter your and your company's name. Click Next.	
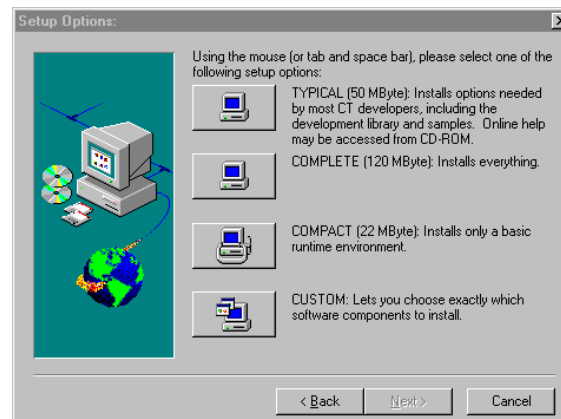
5. From the Setup Options screen, click Custom.
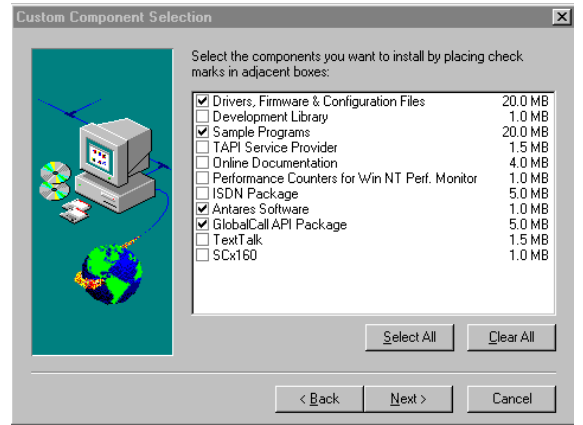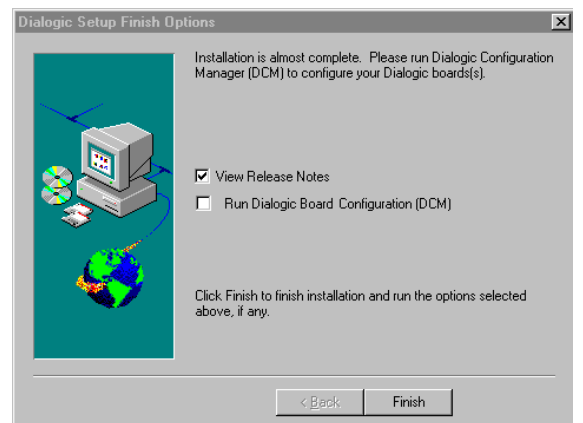

6. From the Custom Component Selection screen, check:

♦ Drivers, Firmware, & Configuration Files

♦ GlobalCall API Package

♦ Antares Software

7. Click Next.
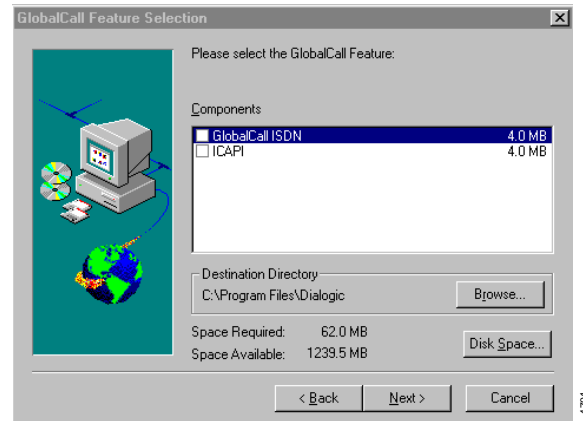
8. Accept the default on the next four screens by clicking Next.

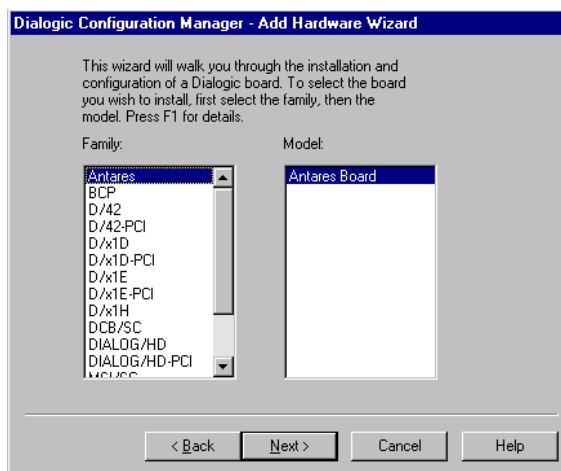|	
9. From the Dialogic Setup Finish Options, check the Run Dialogic Board Configuration option and remove the check from the View Release Notes option. Click Finish.	You are asked if you want to install GammaLink Fax.
10. If you have a GammaLink Fax card installed, click Yes and continue (see *Stratagy ES Installation & Maintenance Manual* for installation instructions)	
...or click No.	
11. When finished, reboot the Stratagy ES.	

Step 8: Configure D/41ESC or D/160ES-LS Board Using DCM

➤ Using the procedures on pages 11~28 through 11~33 of the *Stratagy ES I&M Manual*, configure the D/41ESC or D/160SC-LS voice board(s).

Step 9: Configure Antares Board

1. From the Dialogic Configuration Manager screen, click the Add Device icon on the toolbar ...or select Action, then Add Device from the menu.	**Dialogic Configuration Manager - Add Hardware Wizard** This wizard will walk you through the installation and configuration of a Dialogic board. To select the board you wish to install, first select the family, then the model. Press F1 for details. Family: Antares BCP D/42 D/42-PCI D/x1D D/x1D-PCI D/x1E D/x1E-PCI D/x1H DCB/SC DIALOG/HD DIALOG/HD-PCI Model: Antares Board < Back Next > Cancel Help

2. Highlight Antares in the left-hand column and Antares Board in the right-hand column. Click Next.
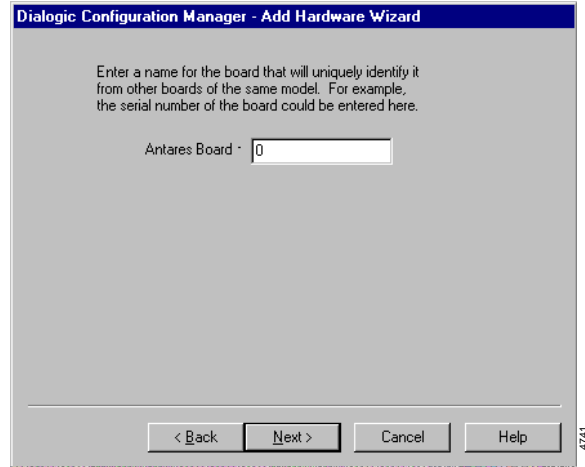
3. Enter Antares 0 (if first board). Click Next.

The DCM Properties for Antares Board screen displays.

4. Click System tab.
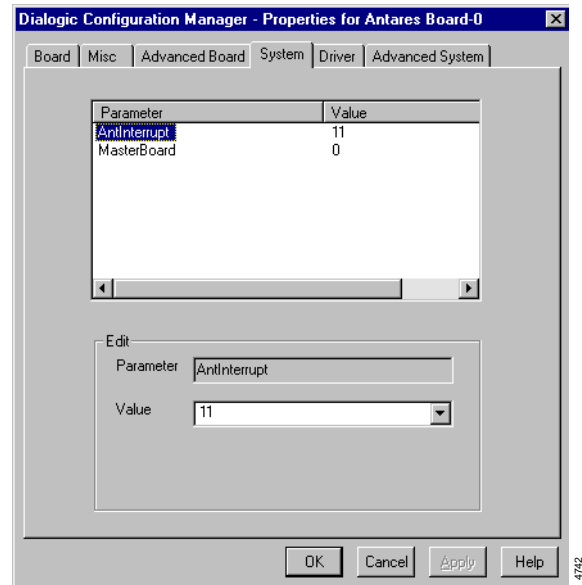
5. Highlight the AntInterrupt parameter and change, if necessary.

Note We recommend using IRQ10 or 11 on Stratagy ES Model A and IRQ9 on Model B.

Note Set multiple Antares boards to the same IRQ.

6. From the Properties for Antares Board screen, highlight the MasterBoard parameter and change, if necessary.

Note   Setting should be the same board ID as the master Dialogic voice card (usually set to 0).

7. If you made any changes to the System tab screen, click Apply, then the Board tab

    ...or if you made no changes, click the Board tab.

Dialogic Configuration Manager - Properties for Antares Board-0

Board | Misc | Advanced Board | System | Driver | Advanced System

Parameter	Value
PCMConfig	SCSA
MaxSCSAslots	1024
Encoding	Mu_Law
DSP0_COFF	c:\program files\dialc
DSP0_PARAMFILE	recplay2.prm
DSP1_COFF	recplay2.cof
DSP1_PARAMFILE	recplay2.prm
DSP2_COFF	recplay2.cof
DSP2_PARAMFILE	recplay2.prm

Edit

Parameter   DSP0_COFF

Value   c:\program files\dialogic\data\cgrmtte

OK   Cancel   Apply   Help

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8. Change the following parameter values for each DSP:

♦   DSP0_COFF = <SpeechWorks installation>\bin\ slaverec.cof

♦   DSP0_PARAMFILE = leave blank

9. Click Advanced Board tab. Change the parameter to TokenTries = 100.

10. Click Driver tab.

Note   <SpeechWorks installation> = product install directory, typically c:\Program Files\SpeechWorks.

Entry would typically be:
c:\Program Files\SpeechWorks\bin\slaverec.cof

11. Change the following parameters to:

♦ Max_Rcus = 96

♦ Max_Opened_Rcus = 96

♦ Max_Dpi = 96

♦ Message_Length = 1024

12. Click Apply, then OK. | The Properties screen closes and the DCM screen displays with the board you just added.

13. Repeat Substeps 1~12 above for any additional boards.

14. Click File then Exit. | The DCM Main screen closes.

Important! *The IRQ you set in the DCM utility must also be set to "Legacy ISA" in the system CMOS.*

15. Reboot the Stratagy ES.

16. During the bootup process, press **Delete** when prompted at the bottom of the screen. | The CMOS Setup Utility screen displays.

17. Highlight PNP/PCI Configuration and press **Enter**.

18. Check the IRQ setting. | The IRQ you set in Substep 4 of the procedure must be set to Legacy ISA on this screen (e.g., IRQ-9 assigned to = Legacy ISA).

19. Make any changes necessary. Press **ESC**.

20. If you modified any settings, press **F10** to save and exit | Stratagy ES continues to boot up.

...or **ESC** to quit.

21. Press **Ctrl+Alt+Del** and log on to the system.

22. (Optional) If you have only one Antares board, you should also set the environmental variable for the system. Click Start, Settings, Control Panel, System and Environment.

23. From the System Properties (Environment tab screen), highlight any variable in the System Variables section of the screen.

The highlighted variable displays in the Variable and Value fields at the bottom of the screen.

24. Highlight the variable in the Variable field at the bottom of the screen and type **NUM_DSP_BOARDS** in its place.

Note If you see the following SpeechWorks error message during run-time, check that NUM_DSP_BOARDS is set correctly: **antares_slots: an_open failed: No compatible or free RCU at RCU's list**

25. Highlight the value in the Value field and type **1** in its place.

26. Click Set, then Apply.

27. Close the System Properties and Control Panel Windows and reboot the system.

Step 10: Check Event Detail Screen

1. From Windows NT, click Start, Programs, Administrative Tools, then Event Viewer. The Event Viewer Window displays.

2. Click Log, then System.

3. Click on each listing with a source file of "dlgc_log." When you reach the one displaying the downloading of the DSP settings, check the Description section of the screen. It should look identical to the screen shown below:
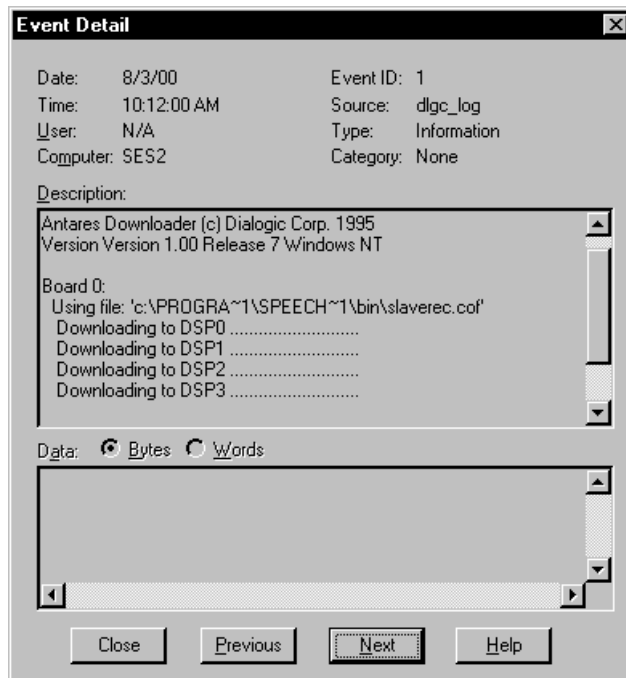
Step 11: Continue with Step 1 of the Host-based ASR Installation

Host-based ASR Installation

Important!   *Host-based ASR requires a D/41ESC voice board. If your system does not already have one installed, see installation instructions on pages 11~9 through 11~13 in the Stratagy ES I&M Manual.*

Step 1: Verify SAM is Feature Activated

1. From the desktop, click Start, Programs, Stratagy Enterprise Server Administration, then SAM Query.
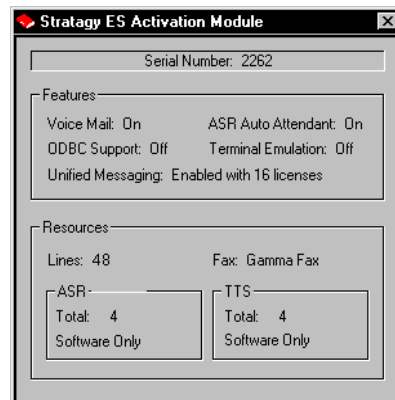
2.	From the Stratagy ES Activation Module screen, verify that the ASR settings display in the lower left-hand corner.	**Note**	If you are installing a host-based ASR system, the screen shows "Software Only." If you are installing an Antares-based ASR system, the screen shows "Hardware Assisted."

Step 2: Stop Stratagy Enterprise Server/Configure Manual Start

See Step 1 "Stop Stratagy Enterprise Server/Configure Manual Start" on page 4 for instructions.

## Step 3: (Optional) Install Stratagy ES Update

If the latest software version of Stratagy Enterprise Server (Stratagy ES Release 2.009.016) is not resident on the Stratagy ES hard drive, you should load the Stratagy ES update and Administration.

➤ From the Software Installation Menu screen, click Software Component Update. The update prompts you for the pathname etc. Accept the defaults. When the installation is complete, you are asked to restart your computer.

Step 4: Install SpeechWorks Software

1.	Insert the Stratagy ES Software CD-ROM into the CD-ROM drive.	The Software Installation Menu screen displays.
2.	From the Software Menu screen, click SpeechWorks.	The Welcome screen displays.
3.	Click Next, then Yes on the Agreement screen after you read it.	The User Information screen displays.
4.	Click Next.	The Select Components screen displays.
5.	Select SpeechWorks Runtime and Documentation options. Remove the check from SpeechWorks SDK. Click Next.	

6. Click Next to accept the default on all screens until the SpeechWorks Configuration Tool screen displays.
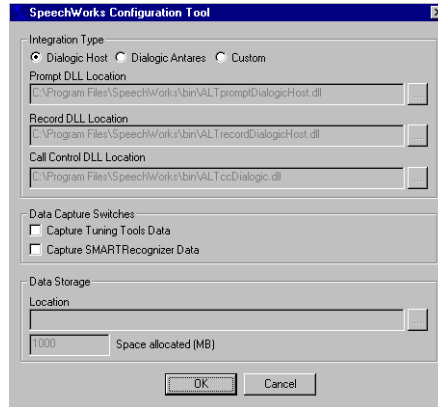
7. From the SpeechWorks Configuration Tool screen, select Dialogic Host or Antares in the Integration Type field and click OK.

8. Click Finish.   The setup is complete.

9. Reboot the server.

Step 5: Load ASR AA Software

Note   Loading the ASR AA software creates Mailbox 900 and a scheduled automatic directory synchronization in the Configuration Scheduler.

1. From the Software Installation Menu screen, click ASR AA.   The Welcome screen displays.

2. Click Next to accept the default on all screens until the Select Components screen displays.

3. From the Select Components screen, select the appropriate ASR Auto Attendant version. Click Next.

Note Selecting ASR Auto Attendant to work without MVP means that only Blind Transfers are performed and users cannot log on to their mailbox by speaking the log in commands.

4. Continue to accept the defaults on the remaining screens. On the final screen, click Finish.

The Setup is complete.

5. Reboot the server.

Step 6: Start Stratagy Enterprise Server/Configure Automatic Start

1. Click the StartStratagy icon on the desktop.

2. From the Stratagy Enterprise Server Control screen, click Automatic.

3. Click Start.
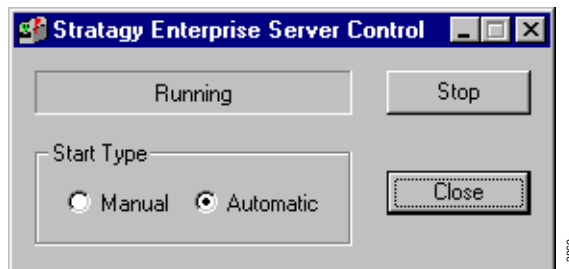
The screen displays "Start Pending" and then "Running."

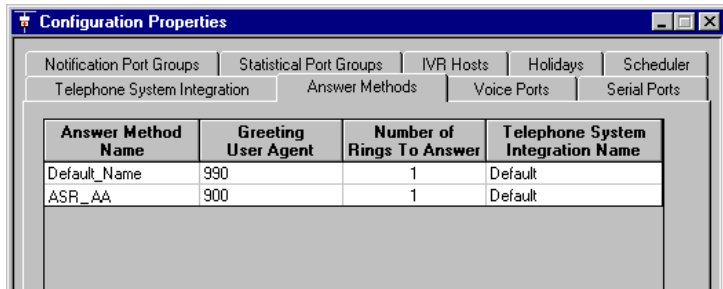4. Click Close.

Step 7: Add Answer Method for Mailbox 900

1. Launch Stratagy ES Admin.

2. From the toolbar, click the Answer Methods icon

...or from the Stratagy Administration Main menu, click Configuration, then Answer Methods.

The Configuration Properties screen with the Answer Methods Tab displays.

3. Click Add.

A blank line displays below the other entries.

4.	Click in the Answer Method Name field and type in a new Answer Method Name (e.g., ASR_AA). Press **Enter**.	The entry cannot be longer than 34 alphanumeric characters. An underscore is allowed (e.g., Default_Name).
5.	Type 900 into the Greeting User Agent field.	
6.	Accept the defaults for the next two fields.	

Configuration Properties

Tabs: Notification Port Groups | Statistical Port Groups | IVR Hosts | Holidays | Scheduler
Telephone System Integration | Answer Methods | Voice Ports | Serial Ports

Answer Method Name	Greeting User Agent	Number of Rings To Answer	Telephone System Integration Name
Default_Name	990	1	Default
ASR_AA	900	1	Default

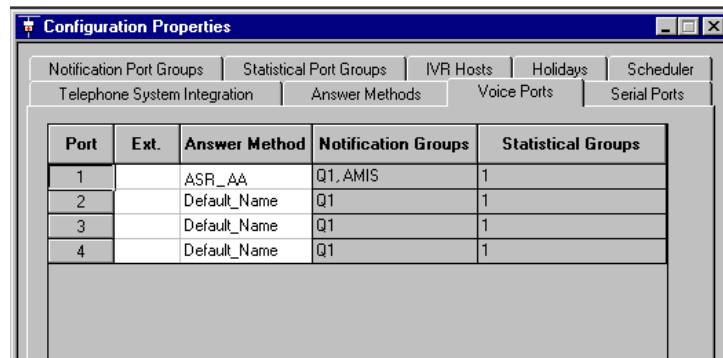| 7.	Click OK.	A dialog box displays.
8.	Click Yes.	The changes are added to the Stratagy ES database the next time Stratagy ES service is shutdown and restarted.

Step 8: Add Voice Port Definition for Mailbox 900

1.	From the toolbar, click the Voice Ports icon ...or from the Stratagy ES Administration Main Menu, click Configuration, then Voice Ports.	The Configuration Properties screen with the Voice Ports Tab displays.
2.	Using the drop-down menu, select the ASR_AA Answer Method created in Step 7 on Page 16.	

Configuration Properties

Tabs: Notification Port Groups | Statistical Port Groups | IVR Hosts | Holidays | Scheduler
Telephone System Integration | Answer Methods | Voice Ports | Serial Ports

Port	Ext.	Answer Method	Notification Groups	Statistical Groups
1		ASR_AA	Q1, AMIS	1
2		Default_Name	Q1	1
3		Default_Name	Q1	1
4		Default_Name	Q1	1

3.	Click OK.	A dialog box displays.

4. Click Yes.	The changes are added to the Stratagy ES database the next time Stratagy ES service is shutdown and restarted.

Step 9: Modify Operator Mailbox

> **Note** This enables the user to say "Operator help" at anytime during the speech recognition process and reach the operator in case of difficulties.

	1. From the toolbar, click the Mailbox icon ...or from the Stratagy Administration Main menu, click User Agents, Edit User Agents, then Mailbox.	The Mailbox Editor screen displays.
	2. At the bottom of the Mailbox Editor screen, double-click the Mailbox listing for the "0" mailbox ...or type the mailbox number and click Refresh.	The Mailbox Editor screen displays the data for mailbox "0."
	3. From the User Mode Options screen, type "Help" in the Name2 field.	
	4. Click Apply.	The changes are added to the Stratagy ES database the next time Stratagy ES service is shutdown and restarted.

Step 10: Record Greetings for ASR AA

> **Note** For more details on recording greetings, see the *Stratagy ES User Guide*.

1. Enter Stratagy ES's extension.	Stratagy ES answers.
2. Press **✳900**.	
3. Enter the security code (default is 900997) + **#**.	
4. From the Main menu, press **3**.	The Manage Mailbox menu plays.

5. Press **1**.	The Change Your Greeting menu plays.
6. Enter the greeting number you want to change or add (**1**~**7**).	
7. Press **2** to record the greeting (speak slowly and clearly). Press **#** when done.	You are prompted to record the company greeting.
8. (Optional) After recording, you can press:	You can repeat options 1~3 as many times as you wish.
1 Review recording	The complete greeting plays.
2 Re-record	The system prompts you to record at the beep.
Press **#** when done.	
3 Append recording	Appending a greeting enables you to add information to the end of your already recorded greeting. The system prompts you to record at the beep.
Press **#** when done.	
4 Cancel recording	The greeting is canceled. The system returns to the previous menu.
9 Save recording	Stratagy ES tells you that greeting (number) has been recorded and returns to the previous menu. Again, you are given the option to review or record over the greeting you have just recorded.
9. Press **9** to return to the previous menu.	You are given the option to record another greeting.
10. Press **1** and select another greeting number (**1**~**7**).	
11. Repeat Substeps 1~9 for any additional greetings you want to record.	**Important!** *The last greeting selected or recorded is the greeting that callers hear as your mailbox greeting.*
	When you are finished recording greetings, pressing **9** in Substep 9 takes you back to the Manage Mailbox menu.
12. Press **6**.	The Instructional Greeting Menu plays.
13. Repeat Substeps 1~9 as often as necessary to record the instructional greeting(s).	
14. To return to the Main Menu, press **999**.	Stratagy ES plays the Main Menu options.

Step 11: Select Greetings

1. From the Stratagy ES Administration Mailbox Editor menu, access Mailbox 900.

2. On the Auto Attendant tab screen, select the greetings that will play using the spin button for the *Selected greeting* and *Selected instructional greeting* fields. (See Chapter 6 — Messaging Voice Processing (MVP) for instructions on the Mailbox Editor screens.)

3. (Optional) On the Auto tab screen, you can schedule the greetings to play on specified days and times.

Step 12: Stop and Restart the Stratagy ES Server Service

Step 13: Run Directory Synchronization

When ASR AA software is installed on the Stratagy ES, a routine is added to the Scheduler table to automatically synchronize the Stratagy ES mailboxes and the names directory of the ASR Automated Attendant on a daily basis. In addition, the ASR AA software installs an icon on the desktop (shown at right) so you can generate a directory synchronization without waiting for the scheduled automatic synchronization.

➤   Click the Directory Sync for ASR AA button on the desktop. The ASR AA directory is now synchronized with the Stratagy ES names directory. The synchronization will be automatic in the future.

Step 14: Verify System's Basic Functions

➤   Follow the instructions in the *Stratagy ES Installation and Maintenance Manual*, Chapter 2 – Installation to verify that the Stratagy ES's basic functions are working.

Step 15: Check Stratagy ES Components Screen

1. Click Stratagy ES Components icon. The Stratagy ES Components screen displays.

2. Click Resource. Check that one but *not* both of the following components are listed on the screen: ASRHost, ASRAntares.