Avaya™ Unified Communication Center Speech Access (Microsoft Exchange version)

Configuration and Administration Guide

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- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

Be aware that there may be a risk of unauthorized intrusions associated with your system and/or its networked equipment. Also realize that, if such an intrusion should occur, it could result in a variety of losses to your company, including but not limited to, human/data privacy, intellectual property, material assets, financial resources, labor costs, and/or legal costs).

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- Security documents
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About This Guide

Information in this guide is intended for the person responsible for administering UCC Speech Access (Microsoft Exchange version). It includes the following chapters and appendices:

Chapter 1, “Administrator Overview of UCC Speech Access (Microsoft Exchange version),” provides an overview of the ASA speech user interface to Microsoft Exchange.

Chapter 2, “ASA Configuration,”describes the basic platform configuration tasks you perform as an ASA administrator. Both the ASA Management Console and the ASA Manager Web interface are introduced.

Chapter 3, “PVAServer Administration,” discusses the ASA administration tasks that you must perform to manage the ASA platform during day-to-day operations.

Chapter 4, “ASA User Administration,” discusses the tasks required to manage the **PVA***Exchange* application and its users.

Chapter 5, “Troubleshooting PVAServer,”provides tips and guidelines for troubleshooting **PVA***Server* errors. It also lists the common ASA Management Console errors, and their resolutions.

Chapter 6, “Troubleshooting the ASA Application,” provides tips and guidelines for troubleshooting and correcting **PVA***Exchange* application errors.

Appendix A, “PVAServer Parameters, Error Codes, and Messages,” describes the different parameters that are used by **PVA***Server* to store configuration data. Also included is a comprehensive list of the paramaters. In addition, the appendix describes the **PVA***Server* error and message codes that the ASA Management Console uses to relay error messages between components.

Using This Manual On Line

Following are guidelines for using the .pdf version of this manual:

- Text that is underlined in blue links to a Web page.
- Text that is underlined in green links to the underlined topic. Click the underlined text to jump to the topic.
- To jump to a topic from the Contents page, click the topic name or page number.
- To jump to a topic from the Index, click the page number for the topic.
- To navigate forward and backward through the manual, use the tools provided by Acrobat Reader.

For Additional Information

For the latest product and support information, visit the Avaya UCC Speech Access (Microsoft Exchange version) Web site at:

http://support.avaya.com/

Adminstrator's Tasks

This guide provides specific information about performing your ASA administrator duties. See "Duties of the ASA Administrator" for more information.

Each duty can involve many separate tasks so, to help you better utilize the information in this guide, we have categorized the tasks into three categories: those that you perform once or rarely, those that you perform occasionally, and those that you perform regularly.

Tasks That You Perform Only Once or Rarely

- Configure the General Serverset information. See "General Serverset Configuration" for more information.
- Configure the Telephony Setup to set dialing plan parameters. See "Telephony Setup" for more information.
- Configure alerts to enable ASA to contact an administrator when system errors occur. See "Configuring Alerts" for more information.
- Prepare backup servers to use if one of the active servers fail. See "Copying Server Configurations" for more information.
- Start all ASA processes through Auto-start or through a manual start process. See "Starting All Processes" for more information.
- Set the hold music. See "Setting the Default Hold Music" for more information.
- Enable the Global Address List (GAL) to allow subscribers access to a corporate address list. See "Enabling the Exchange Global Address List (GAL)" for more information.

Tasks That You Perform Occasionally

- Install an optional administration station to remotely manage ASA. See "Installing an Optional Administration Station" for more information.
- Switch an ASA Server domain, user, or password. See "Switching an ASA Server Domain, User, or Password" for more information.
- Create a new ASA application to support new features. See "Creating an ASA application with Associated Processes" for more information.
- Create processes manually for an application to improve performance. See "Creating Processes Manually" for more information.
- Add and test TTS dictionary entries. See "Setting TTS Dictionary Entries" for more information.
- Establish maintenance plans to schedule regular backup and purge operations for the database. See "Establishing Maintenance Plans" for more information.
- Create or remove virtual directories. See "Creating and Removing IIS Virtual Directories" for more information.

Tasks That You Perform Regularly

- Add or delete subscribers or modify their information. See "Assigning User Account Numbers" for more information.
- Monitor platform logs (Session Log, Call Log, Session Transcription Log). See "Monitoring Platform Logs" for more information.
- Monitor disk space to maintain the required amount of free disk space. See "Calculate Disk Usage" for more information.
- Manage the VA database. See "Managing the VA Database" for more information.
- Delete call logs and transcriptions to free up disk space. See "Deleting Call Logs and Transcriptions" for more information.

1

Administrator Overview of UCC Speech Access (Microsoft Exchange version)

UCC Speech Access (Microsoft Exchange version) provides a telephone speech user interface to Microsoft Exchange information. Within this documentation, UCC Speech Access (Microsoft Exchange version) is also referred to as **ASA**. By using speech recognition and text-to-speech technology, ASA communicates with callers in spoken English, and gives them telephone access to most of the functions available from their desktop Outlook software. By using ASA, mobile professionals can manage electronic communications and access business computer resources from any telephone. This manual provides the information that you need to manage and maintain your ASA system.

Note:
Updated information about ASA is provided in the **releasenotes.html** file available on CD #1 (of the three CDs included with ASA). Be sure to read these Release Notes before performing any of the tasks that are described in this guide.

PVA*Server* Software

The **PVA***Server* software is the platform on which ASA runs. It provides connections with the computer network and telephone system, controls the execution of the ASA application (**ASA**), and provides resources such as text-to-speech and voice recognition engines that are accessed by the applications that run on the platform.

The **PVA***Server* software includes several types of processes that run simultaneously and perform the functions necessary to support ASA. Although they can all run on a single server for a small installation, for most ASA implementations the processes will be running on multiple linked servers. Whether on a single server or on multiple servers, the

installation is collectively termed a *serverset*. See "ASA Platform Configurations" on page 1-10 for additional information about serversets.

Following are the **PVA***Server* processes:

- Text-to-Speech Server
- Recognition Server
- Telephony Server
- VA Engine
- External Application (**PVA***Exchange*)
- VAServer
- VAManager
- VAServerManager

These processes provide the core components necessary for an ASA system to function (telephony interface, speech recognition facilities, interfaces for e-mail servers, and the like).

ASA Software

ASA is the application that runs on the **PVA***Server* platform and interacts with ASA users. ASA also provides the telephone interface to the Exchange Server, and communicates with Exchange through Microsoft's Collaboration Data Objects (CDO).

ASA enables users to dial into the ASA system from any telephone and access their accounts on the Microsoft Exchange server. By using natural-language commands, users can perform most of the functions available from their desktop Outlook software, including the following:

- Read (through TTS), send, forward, and reply to e-mail messages
- Look up contact information
- Manage appointments
- Manage tasks
- Retrieve notification of appointments, tasks, and Inbox rules

By leveraging the power of Microsoft Exchange, **ASA** also enables users to perform a range of telephony functions, including:

- Calling a contact by speaking the contact's name
- Dialing telephone calls
- Hosting conference calls
- Receiving incoming calls and voice mail messages

For example, users can have ASA dial the telephone number of a contact in their Contacts folder. Or, when an appointment or task is coming due, ASA can call the user on the telephone and notify him or her of the event. By making Exchange resources available over the telephone, ASA brings the power of the PC desktop to mobile professionals anytime, anywhere.

ASA consists of the following components:

- **ASA Application.** The UCC Speech Access (Microsoft Exchange version) application that runs on a **PVA***Server* platform. This application provides the telephone interface to the Exchange Server. It communicates with Exchange by using Microsoft's Collaboration Data Objects (CDO).
- **ASA User Administration.** A utility you use to perform user administration functions such as enabling and disabling user accounts.
- **ASA User Preferences Web Interface.** An add-on component that enables users to change their ASA settings over the Web.

Text-to-Speech Server Process

The Text-to-Speech Server receives text from other platform components, translates it into speech (audio stream), and returns it to the requesting component. This speech translation service is isolated in a separate component, in part to improve performance. However, this arrangement also allows for vendor-independent Text-To-Speech (TTS). The current **PVA***Server* platform implementation uses the Speechify TTS system. Only the TTS Server component, not the entire platform, would need to be modified for customization.

Recognition Server Process

The Recognition Server receives an audio stream from other platform components, attempts to recognize the sound as speech, and returns the recognized text. Like the TTS server, the Recognition Server is a component that isolates speech-recognition functions from the rest of the platform. The server provides an interface to a third-party voice recognition engine called Nuance.

Although the Nuance processes listed below are used with ASA, these processes are all managed by a single Nuance process called **Nuance Manager**. The Nuance Recognition Server requires the Nuance Manager process to be running.

The following Nuance process are managed by the Nuance Manager.

- **Nuance Resource Manager.** The Resource Manager is a management process that automatically load-balances requests when more than one instance of the Nuance Recognition Server is running. Rather than making recognition requests to a particular Recognition Server, the ASA software makes the request to the Resource Manager, which forwards it to the first available Recognition Server.
- **Nuance Compilation Server.** The Nuance recognition software uses the Compilation Server to generate pronunciation strings for new words. These strings, which tell the speech recognition engine how to translate sounds into a particular word, enable users to dynamically add new words and phrases (such as a person's name) to the set understood by the engine.
- **Nuance License Manager.** The License Manager server runs continually in the background and dispenses licenses to all requesting Nuance components. No Nuance Recognition Server components can be launched unless the license manager is already running.

Telephony Server Process

The Telephony Server process provides the interface that the ASA software uses to communicate with the telephony hardware. It is through this interface that ASA receives user input and sends voice output. The Telephony Server isolates the **PVA***Server* platform from the telephony hardware, thereby allowing for hardware-independent vendors.

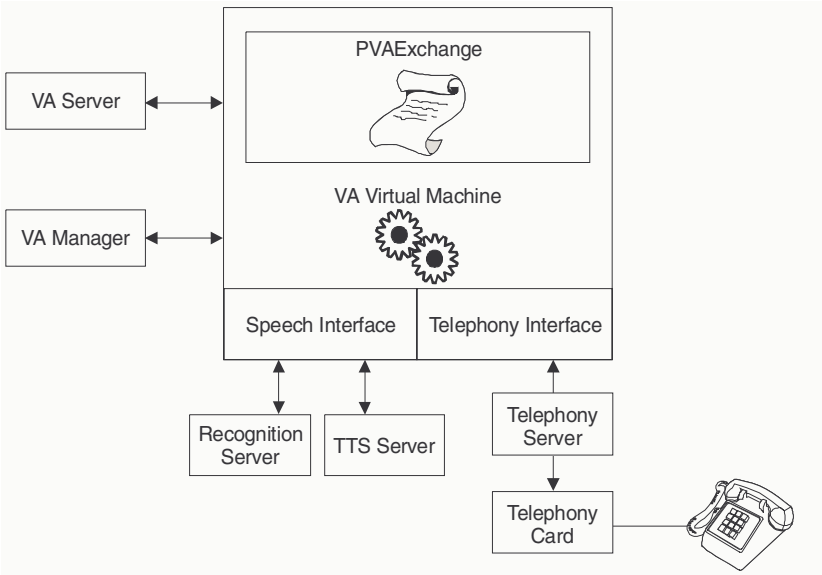
For the current ASA release, the Telephony Server interfaces with one of the following telephony boards, which connects the platform to a local ISDN T1 phone system:

- Natural Microsystems (NMS) AG4000-1T1/800
- Natural Microsystems (NMS) AG4000-2T1/800
- Natural Microsystems (NMS) AG4000-2T1/1600
- Natural Microsystems (NMS) AG4000-4T1/1600
- Natural Microsystems (NMS) AG4000-1E1/800
- Natural Microsystems (NMS) AG4000-2E1/800
- Natural Microsystems (NMS) AG4000-2E1/1600
- Natural Microsystems (NMS) AG4000-4E1/1600

VA Engine

VA Engine is the virtual machine on which ASA runs. Based on the instructions from the application, the engine uses its telephony interface to communicate with the user and its speech interface to recognize speech-into-text and to translate text into speech. The VA Engine also communicates with administrative processes such as the VAManager. The relationships among VA Engine and the other platform components are illustrated in Figure .

VA Engine Conceptual Model



VA Engine can support user interaction over only one telephone line, but multiple VA Engines can run simultaneously on a single platform. At large sites, dozens of VA Engines run at the same time, one for each incoming telephone line. Multiple VA Engines can use the same Recognition Server process and the same TTS Server process.

Anatomy of a UCC Speech Access (Microsoft Exchange version) Call

The following steps describe the basic events that occur during an ASA user session. This example is somewhat simplified, but it illustrates the way the platform components interact during ASA execution.

1. The ASA application is loaded into the VA Engine, which listens to its telephone line and waits for an incoming call.
2. When a call is received, the Telephony Server notifies the VA Engine.
3. VA Engine begins executing the application and passes its “welcome” sound file to the Telephony Server.
4. The caller speaks the first voice command, which is passed by the Telephony Server to the VA Engine.
5. The VA Engine submits the voice input as a stream to the Recognition Server.
6. The Recognition Server processes the audio stream, recognizes it as speech, and returns the command as a text string to the VA Engine.
7. The VA Engine analyzes the returned text string, determines what type of command it is, and takes the appropriate actions.
8. The actions taken for each command are determined by the application that is running on the VA Engine. For example, if the ASA subscriber says “**Read my first e-mail message**” the following actions then occur:

    a. The VA Engine contacts the user’s Microsoft Exchange Inbox and retrieves the text of the first e-mail message.

    b. The Engine passes the message text to the Text-to-Speech server, which translates it into speech and returns the speech to the Engine as an audio stream.

    c. The VA Engine passes the audio stream to the Telephony Server, which plays the sound over the telephone.

9. Once the VA Engine has finished handling a command, it waits for the next command to be spoken and then repeats the interaction process.

External Application Process

The External Application process can be used to add a customer-written process to the application execution environment.

VAServer

The VAServer process performs functions that must occur even when no user is connected to ASA. These functions include the following:

- Monitoring external sources such as e-mail boxes, databases, and Web sites for events (for example, a new e-mail message arrives or a database field is updated)
- Applying rules and filters to external source events to determine whether the ASA system needs to take any actions
- Paging users when specified events occur

Only one VAServer is used for an application. It provides services for all user accounts.

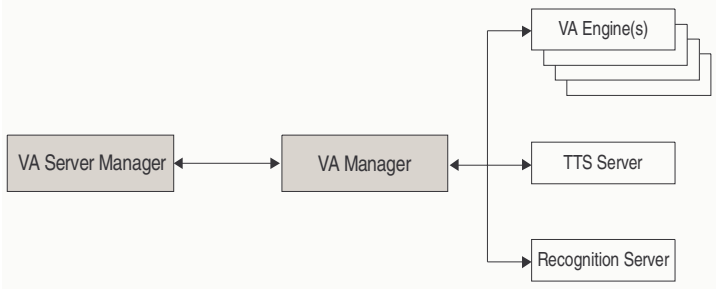
VAManager

Each server that is running one or more ASA components must also be running the VAManager service. This service creates and monitors all ASA components that are active on the server, and it provides management interfaces that are used for the following purposes:

- Configuration, both at startup and during run time
- Signaling of events such as errors and informational messages
- Logging of events
- Logging of each call received by the ASA applications that are running on the server
- Performance monitoring

The VAManager conceptual model is illustrated in Figure 1-1

Figure 1-1. VAManager Conceptual Model



VAServerManager

The VAServerManager provides a single point of control for all processes and servers in use in an ASA serverset. You communicate with the VAServerManager through the ASA Management Console (a snap-in for the Microsoft Management Console or MMC), or through a Web browser-based management tool (VAManager) that enables you to manage the entire site. For more information about ASA server management, see Chapter 2, “ASA Configuration.”

The VAServerManager monitors all ASA components that are running on all the servers within the serverset (Recognition Servers, TTS Servers, VA Engines, and the like). You can configure VAServerManager to page the system administrator (with an alert) if components fail or if other system-critical events occur.

VA Database

The VA database process stores configuration parameters and platform logs in a Microsoft MSDE database. The MSDE database engine can be installed automatically as part of the **PVA***Server* platform installation. Required tables and initial data are created the first time that the VAServerManager process is started.

The VAServerVAServerManagerManager uses a COM object called **VADBManager** to communicate with the database. VAServerManager creates this object at start-up and provides a set of APIs that other ASA

components can use to retrieve configuration information and log data. In addition, the **VADBManager** object handles version checking, database restoration, and other database management functions.

ASA Web Server

The **PVA***Server* platform uses a Microsoft IIS Web Server to support browser-based administration utilities. The following Web-based utilities are currently available:

- **ASAManager.** A tool that enables you to remotely manage a **PVA***Server* platform (over an Intranet or the Internet).
- **ASAUserMgt.** A tool with which you enable, disable, and list the configuration of ASA subscribers.
- **PVAReports.** A tool that enables you to view system logs.

The ASA software uses several directories to store files necessary for platform operations. In a multiserver implementation, these directories are created on each node in the serverset. Table 1-1 describes the **PVA***Server* platform directories.

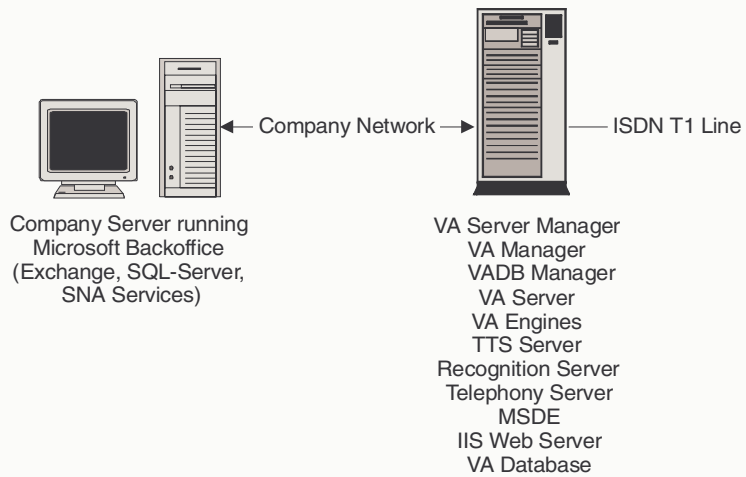
Table 1-1. PVA*Server* Platform Directories

Directory	Contents
<*install root*>\VAApplications	Source files for the applications that run on the platform
<*install root*>\VALogs	ASA application debug logs
<*install root*>\VAUtterances	Sound files that contain commands spoken by the user
<*install root*>\bin	Executable programs that comprise **PVA***Server*
<*install root*>\Log	Installation and component debug logs
<*install root*>\Saved Installations	Configuration data that is saved during an upgrade of **PVA***Server*
<*install root*>\Web	Source files for ASA Web applications
<*install root*>\Help	**PVA***Server* Help files

ASA Platform Configurations

Some ASA implementations consist of multiple servers, because of the number of ASA subscribers the site supports. In a single-server implementation, such as the one that you install by using the *UCC Speech Access (Microsoft Exchange version) Quick Start Installation Guide*, all platform components are run on one server. This type of implementation is typically used in environments where only a few simultaneous ASA sessions need to be supported. Figure 1-2 depicts a single-server implementation.

Figure 1-2. An ASA Single-Server Site Implementation



Whether your implementation consists of a single server or multiple servers, the installation is collectively termed a *serverset*.

You expand a serverset by adding servers (nodes), as needed, to meet your business requirements. New nodes act as building blocks, that expand the capabilities of the serverset. When the **PVA***Server* platform is expanded by adding nodes, one node in the serverset is designated the serverset *controller node*. Additional servers in the serverset are referred to as *member nodes*.

The building block is a standard recommended configuration, rather than a required configuration. For small and medium-sized servers ets, the serverset controller would typically host the standard building block configuration, plus some additional processes.

If you use the building block approach, every node in the serverset hosts the following processes:

- Nuance Manager (manages the following Nuance processes)
  - Nuance Resource Manager
  - Nuance License Manager
  - Nuance Compilation Manager
  - Nuance Recognition Server
- TTS Server
- Telephony Server
- VAManager
- VA Database Manager
- VA Engine
- IIS Web Server

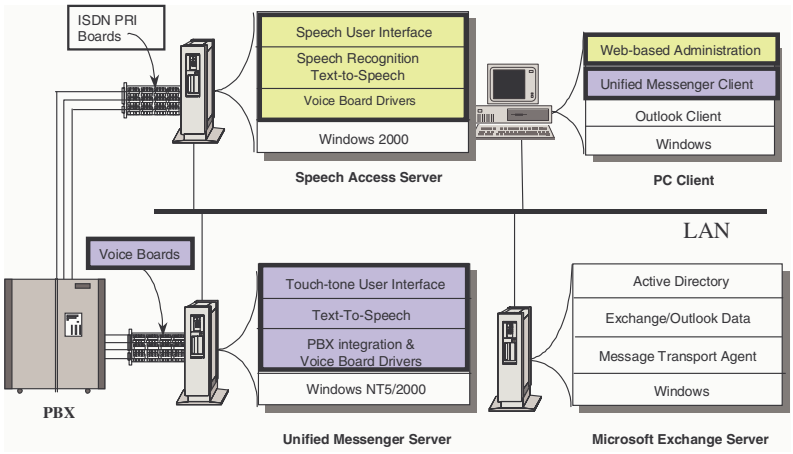
In addition, each node hosts directories that are used to store logs, utterance files, and master copies of the application files. The serverset controller node hosts the following additional components:

- VAServerManager service
- VA database

The VAManager on each added node communicates with the VAServerManager on the serverset controller node.

Figure 1-3 depicts a typical implementation of UCC Speech Access (Microsoft Exchange version) with Unified Messenger.

Figure 1-3. Implementation of UCC Speech Access (Microsoft Exchange version) with Unified Messenger



ASA and the Public Telephone Network

The **PVA***Server* platform requires that an ISDN PRI line communicate with the public telephone network. An ISDN PRI line can be ordered from your local telephone service provider (lead times line vary, but it typically takes 6 to 8 working weeks). Some PBX devices also provide ISDN PRI lines.

An ISDN PRI line consists of 23 bearer channels (B-channels) for carrying digitized voice and 1 data channel (D-channel) for call management. The line provisioning is a function of the type of Central Office (CO) or corporate PBX switch that supplies the ISDN connection. The only site-specific item to be resolved is whether all ASA users call one telephone number or each user is assigned his or her own telephone line.

The ISDN line must terminate in a Channel Service Unit (CSU). Your telephone service provider can supply the CSU or provide information as to where you can acquire a CSU.

Long distance access must be enabled on your ISDN line if users are to be allowed to place long distance calls through ASA.

ISDN Channel Requirements

Primary rate Interface (PRI) is a type of ISDN service designed for larger organizations. PRI includes 23 B-Channels (30 in Europe) and one D-Channel (2 in Europe). PRI service is generally transmitted through a T1 line (or an E1 line in Europe). Therefore, a single ISDN PRI T1 line in

the United States provides 23 telephone channels that can be used by UCC Speech Access (Microsoft Exchange version).

Each incoming call uses a channel. Each outbound call also uses a channel. It is assumed that account holders will regularly use ASA to place calls to contacts or to be notified of pending events. Therefore, the number of simultaneous users that can be supported is generally less than the number of available channels.

NMS Telephony Board Requirements

An NMS telephony board supports ISDN PRI lines. The application supports multiple NMS boards per server.

Table 1-2. Member Node Server Requirements That Use T1 or E1 Lines

Number of Simultaneous Sessions	NMS Member Servers Required
1 to 23 sessions using T1 boards	1 server, with 1 of the following NMS boards: ■ NMS AG4000-1T1/800 board ■ NMS AG4000-2T1/800 board
1 to 46 sessions using T1 boards	1 server, with 1 of the following NMS boards: ■ NMS AG4000-2T1/1600 board ■ NMS AG4000-4T1/1600 board *OR* 2 servers with one of the following boards: ■ NMS AG4000-1T1/800 board ■ NMS AG4000-2T1/800 board
1 to 30 sessions using E1 boards	1 server, with 1 of the following NMS boards: ■ NMS AG4000-1E1/800 board ■ NMS AG4000-2E1/800 board
1 to 60 sessions using E1 boards	1 server, with 1 of the following NMS boards: ■ NMS AG4000-2E1/1600 board ■ NMS AG4000-4E1/1600 board *OR* 2 servers with one of the following boards: ■ NMS AG4000-1E1/800 board ■ NMS AG4000-2E1/800 board

Telephony Configuration Information

You must ensure that the ASA ISDN telephony hardware can be correctly configured to work with your telephone provider's ISDN hardware. Once the ISDN PRI is installed at your site, obtain the following information from your telephone service provider:

1. Telephone numbers associated with your ISDN circuit.
2. Carrier's circuit ID for your ISDN line.
3. Brand of CO switch to which the ISDN is connected, and the type of ISDN variant used to communicate with the switch. Supported types in the US are AT&T (Lucent) 4ESS and 5ESS, Nortel DMS 100, and National ISDN 2 (NI-2).

Duties of the ASA Administrator

As an ASA administrator, your duties include the following:

- Ensuring that the application software can communicate with the telephone system and other hosts, such as the Microsoft Exchange server
- Using the ASA management interfaces to manage the systems in the serverset
- Starting and stop the ASA services
- Monitoring the platform interfaces and error logs
- Maintaining the VA database
- Managing ASA subscriber accounts

To perform these duties, you need experience with the following:

- Intel-based server hardware and configuration
- Windows 2000
- Microsoft Exchange Server (version 5.5 or version 2000)
- Microsoft Internet Information Server (IIS)
- Microsoft MSDE or SQL Server databases
- Telephony hardware and configuration

The remainder of this guide provides specific information about performing your ASA administrator duties.

2

ASA Configuration

This chapter discusses the basic platform configuration tasks you will perform as an ASA administrator. Because you can perform most administrative tasks by using the ASA Management Console, this tool is used for the administrative procedures described in this chapter.

A Web-based administration tool is also available for performing many configuration and administration tasks. See "Using the ASAManager Web Interface" for information about installing and using this Web-based tool.

Note:
The configuration tasks that you need to perform immediately after installing ASA are described in "Configuring Applications" Complete the installation and configuration tasks in the *UCC Speech Access (Microsoft Exchange version) Quick Start Installation Guide* before attempting to perform the configuration tasks in this chapter.

ASA Management Console

The ASA Management Console enables you to view and manage all the ASA components that are running in a serverset. This interface is implemented as a snap-in for the Microsoft Management Console (MMC) framework, which provides a consistent interface for application administration.

Console Overview

Based on the Microsoft Windows Explorer paradigm, the ASA Management Console includes a "component tree" view of system components on the left side of the screen and a "details pane" on the right.

When you highlight an item in the tree, the item appears in the details pane. You right-click to open a pop-up menu that lists additional functions (viewing properties, adding new components, deleting existing components, and the like).

In a multi-node serverset, the ASA Management Console generally runs only on the serverset controller node. However, it is available on other nodes in the serverset. When using the Administration Station, an administrator can also run the console on another system (such as a desktop workstation).

Installing an Optional Administration Station

The ASA Management Console is installed automatically on systems that are running **PVA***Server*. However, if you want to remotely manage UCC Speech Access (Microsoft Exchange version), you can create a separate Administration Station by installing the ASA Management Console on a machine that is not running **PVA***Server*.

Note:
This installation installs only the basic components that are needed to run the MMC Snap-In console and to communicate with the PVAServerManager on the serverset controller node.

Complete the following steps to set up an Administration Station:

1. Insert the UCC Speech Access (Microsoft Exchange version) Server Software CD into the server's CD-ROM drive.
2. At the main installation screen, click **Install ASA Components** and then click **PVAServer**.
3. From the Setup Type list box, select **PVAServer Administration Station** and then click **Next**.
4. When prompted to select the directory into which the **PVAServer** files are installed (**C:\Program Files\PVAServer Administration** by default), click **Next** to accept the default. Or click **Browse**, select a new folder, and then click **Next**.
5. When prompted to select the Program Folder for the **PVAServer** Administration Station icons, click **Next** to accept the default. Or change the folder name and then click **Next**.
6. Click **Finish** when the installation completes. Remove the UCC Speech Access (Microsoft Exchange version) Server Software CD and then restart the system when prompted.

Launching the Console

1. Log on to the ASA server as a member of either the Administrators group or the Domain Administrators group.

2. From the desktop, click **Start->Programs->PVAServer-> Avaya Speech Access Management Console**. An MMC window appears that contains the Avaya Speech Access Console snap-in is displayed.

   If the Start menu process does not work, or if the UCC Speech Access (Microsoft Exchange version) snap-in does not appear, proceed to step 3. Otherwise, proceed to step 4.

3. If necessary, manually launch the **Management Console**, as follows:

   a. From the Start menu, select **Run**.

   b. In the Run dialog box, type **mmc** and click **OK**.

   c. From the MMC Console menu, select **Add/Remove Snap-In**. The Add Snap-In dialog box appears. Click **Add** to launch the Add Standalone Snap-In dialog box.

   d. Select **ASA Serverset Manager** from the list of available snap-ins and then click **OK**. The Select Server dialog box appears.

   e. Click **Select** and choose the server on which the VAServerManager service is running (the serverset controller node).

   f. Click **Finish** to close the Select Server dialog. Then click **OK** to close the Add/Remove Snap-In dialog.

4. If the **ASA Serverset Manager** snap-in does not appear in the Add Standalone Snap-In dialog box, it is likely that the snap-in DLL has not been registered. You need to perform another installation or manually register the DLL. To manually register the DLL, go to the system command prompt and change the directory to the following

   \PVAServer\bin

   and then type **regsvr32 VAManagementSI.dll**.

Note:
You can also use the Add Snap-In procedure to connect to a serverset controller other than the default (useful in environments with more than one ASA platform).

General Serverset Configuration

The first configuration task that you must perform is to set the general information for the serverset. To begin, expand the **ASA Manager** and **Configuration** components and then click the **General Information** node. The general information form appears in the detail pane. Table 2-1 describes the fields you must complete on the form.

Table 2-1. General Information Form Required Fields

Field	Description
Exchange Server	Machine name of the Microsoft Exchange Server with which UCC Speech Access (Microsoft Exchange version) will communicate.
Time Zone of Exchange Server	A list of the available time zones
ASA Service Account	Account under which all **PVA***Server* platform services will run. Also, account used to access the Exchange server (AvayaSA by default).
User Feedback E-mail Address	The e-mail address to which user comments from the ASA “Leave a Comment” function are sent.
Company Name	The name of the company.
Company Domain	The company’s domain name (**avaya.com**, for example)
Site Name	The name of the site at which the **PVA***Server* platform is located. (This field is used to distinguish platforms at companies that could be running more than one set of ASA servers.) **Note:** This is not the name of the Exchange site.

Avaya Version Number	The version number for the ASA application you are using.
Nuance License <path\filename>	This unique key is generated by Nuance for each company. The value for this field is the full path to a Nuance license file.

Telephony Setup

Table 2-2. Telephony Setup Details Pane

Field	Action	
Output Level (toggle bar)	Move the bar left or right to set the volume of the ASA discourse (try -3 for the initial setting)	
Outbound Dialing (ISDN and Analog only)	Use to control the telephony ports used for outbound calling. ▪ Select **Disable** to disables all outbound calls. ▪ Select **Enable All Ports** to enables outbound calling on all ports. ▪ Select **Specify Enabled Ports** to specify the port numbers that should be used for outgoing calls. You can separate individual numbers by a comma (for example, 1, 4, 8), use a hyphen to express a range of numbers (for example 5-10), and combine individual numbers and ranges (for example 1, 3, 5-9, 12).	
PBX Dialing Prefixes	Local Numbers	Enter the digit string that must be prefixed to a local number before it is dialed.
	Private Numbers	Enter the digit string that must be prefixed to a private number before it is dialed.
	Long Distance Numbers	Enter the digit string that must be prefixed to a long distance number before it is dialed.

Field	Action	
PBX Dialing Prefixes (continued)	International Numbers	Enter the digit string that must be prefixed to an international number before it is dialed.
Local Numbering Plan Prefixes	National Numbers	Enter the digits to prefix to a number for domestic long distance calls made from the **PVA***Server* location.
	International Numbers	Enter the digits to prefix to a number for international calls made from the **PVA***Server* location.
Subscriber Number Templates	A subscriber number is typically considered a local, toll-free call. Define one or more templates to describe the possible sizes of subscriber number configurations (size as well as any specific numbers or patterns). The templates can contain the following characters: ▪ **R** A required digit 0-9 ▪ **O** An optional digit 0-9 ▪ **0-9** A required specific digit. ▪ **[D,D-D] Where D is a digit 0-9**. This pattern defines the set or a range of possible digits at a particular location in the string. **Examples:** **RRRRRRR**. Any seven digit number. **RRRROO**. A 4, 5, or 6 digit number. **911**.This exact number will be treated as a local number. **888RRRR**. Any seven digit number beginning with the prefix 888. **[8,9]RR**. A three digit number that may begin with an 8 or 9. **777[3-6]RRR**. A 7 digit number where the 4th digit can be in the range 3-6.	

Field	Action
National Number Templates	A national number is a number made up of Area Code + Subscriber Number. Use define the digits ASA should expect in a national number. For example, the United States uses 10 digits for the subscriber number and area code, so the template would be *RRRRRRRRR*. In countries where the area code and/or subscriber number lengths vary, this template should contain required and optional digits. An example for a national number with possible lengths of 7 to 9 digits is *RRRRRRROO*. This template definition works exactly like the template definition for the Subscriber Number Templates. If selected, you must always add the prefix for National Numbers to national numbers (typically long distance numbers) before dialing.

Field	Action
Ambiguous Area Codes	A site's dialing plan may need to support varying length area codes.Use to distinguish the local *20* call from the long distance *201* call. Only digits should be entered for Ambiguous Area Codes. For example, United Kingdom's area codes can range from 2 to 6 digits. This can cause complications if the ASA site's area code (e.g. 20) is a subset of another longer area code (e.g. 201). As an example, if the Telephony Setup was setup for, **Area Code for the ASA** = 20 **National Number Template** = RRRRRRRRRO **Ambiguous Area codes** = 201, 207 **Local Area codes** = 202 then the following numbers would be: 2088888888 (Local) 20188888888 (Long Distance) 20288888888 (local) 2077777777 (Long Distance) If selected, the input dial strings that contain only a non-private subscriber number would have the local area code prefixed to them.
Private Number Templates	Use one or more templates to define the set of numbers considered private, that is, not part of the local, public numbering plan.
Forbidden Number Templates	Use one or more templates to describe numbers that subscribers are forbidden to call from the local **PVA***Server*. These could be any sort of number, subscriber or national, or international. For example, in the US, you might consider 900 numbers (900RRRRRRR), 911, or 411 as forbidden numbers. This template definition works exactly like that defined above for Subscriber Number Templates.

Field	Action
Text Substitution Templates	Use one or more templates to define text substitutions that should be entered for certain input strings before any of the local dialing rules are applied. This is useful in environments that employ standardized dialing conventions for dialing plans such as intra-company or extension dialing. For example: **InputSubstitutionExample** VNET8VNET111-2222 to 8,1112222 ext.,978-2555 ext. 421 to 9782555,421 x,978-2555 x421 to 9782555,421 **Notes**: Avoid using ambiguous input such as **EXT** and **EXTENSION**. Avoid using numbers at the end of input text such as **EXT1**.
Long Distance Subscriber Prefixes	Use to assign subscriber prefixes that should be treated as long distance calls. In those cases where only the Subscriber Number is provided in the input dial string, any number in this list that matches the corresponding leading digits of the subscriber number is treated as a long distance call. In these cases, the National Prefix and Local Area Code are prefixed to the number.
Local Area Codes	Use to assign area codes, different from the Local Area Cod**e**, that should be treated as local toll-free calls. This list will be combined with the National Number Template to determine if a national number should have the National Prefix added or stripped.

Field	Action
Explicit Local Numbers	Use to assign specific numbers to be treated as local calls that are always dialed without the area code. Numbers in this list are dialed without the local area code regardless of the Always Dial The Area Code parameter. In the U.S., examples of explicit local numbers are emergency service 911 and information 411.
Country Codes	Use to add or update country codes. This parameter contains the known list of established country code numbers and the associated country name. This list is initially populated, but may be updated by the administrator. **Note:** When the Country Code for the ASA field is set to **1**, the following settings are internally defaulted: **National Number Prefix** 1 **International National Prefix** 011 **Subscriber Number Template** RRRRRRR **National Number Template** RRRRRRRRRR

Example 1

Country Code for ASA	1
Area Code for ASA	803
Always Dial National Prefix	selected
Long Distance Subscriber Prefixes	888
Local Area Codes	813

Input Number	Dialed Number	Toll Type
733-2555	7332555	Local
803–733-2555	7332555	Local
888-2555	18038882555	Long Distance
727–733-2555	17277332555	Long Distance
813–733-2555	8137332555	Local
+44 (123) 733-2555	011441237332555	International

Example 2:

Country Code for the ASA	1
Area Code for ASA	803
PBX Dialing Plan – Local Numbers	9
PBX Dialing Plan – Long Distance Numbers	91
PBX Dialing Plan – International Numbers	9011
Private Number Template	RRR
Explicit Local Numbers	411

Input Number	Dialed Number	Toll Type
255	255	Local
411	9411	Local
733-2555	97332555	Local
803–733-2555	97332555	Local
888-2555	918038882555	Long Distance
727–733-2555	917277332555	Long Distance
+44 (123) 733-2555	9011441237332555	International

Adding and Removing Servers

When **PVA***Server* is first installed, only the controller node is included in the list of managed servers. If you are configuring a multinode serverset, you must add each member node to the set before you can configure applications. After the system is up and running, you might need to add or remove servers to expand the capacity of the serverset or to replace a failing system.

To add a server to the serverset:

1. Ensure that the server that you want to add to the set that is controlled by the ASA Management Console is running **PVA***Server* and all of its prerequisite software. Check that the AvayaSA user account was properly created.

2. If necessary, expand the component tree ASA Manager node and right-click the **Serverset** node. A pop-up menu is displayed.

3. From the pop-up menu, select **New->Server** to access the Select Compute**r** dialog box. Select the server you want to add and click **OK**.

To remove a server from the serverset, right-click the server's node on the component tree and select **Delete** from the pop-up menu.

Note:
When a server is removed from the set, all of its processes are also stopped and removed from the server. If the server is later added again to the set, you will need to re-create the processes.

Switching an ASA Server Domain, User, or Password

You will rarely need to switch ASA server domains, users, or passwords. However, if you need to make such changes, proceed as follows:

1. Locate the **ChangePassword.vbs** script in the **\bin** folder of the Avaya ASA root directory, and continue as follows:

2. Stop the ASA services (VAManager and, if the system is the serverset controller, VAServerManager)

3. Mark the ASA services as **disabled** (prevents the services from starting after the required reboot):

   a. Click **Start->Programs->Administrative Tools** and then double-click **Services.**

   b. In the **Services** dialog box, select **VAManager** and, if the system is the serverset controller, **VAServerManager**; then click **Disable**.

4. Change the domain:

   a. Click **Start->Settings->Control Panel**. Then double-click **Network**.

   b. In the **Network** dialog box, click **Change**. Then select **Domain** and enter the new domain name. Click **OK**.

5. Restart the system.

6. Open a command prompt and change the directory to the **\bin** folder (**C:\Program Files\PVAServer\bin**, for example). Then execute the following command:

ChangePassword [-d <*New Domain*>] [-u <*New Service Account*>] <*New Password*>

For example, the following command changes the domain, user, and password for an ASA Server:

ChangePassword -d AvayaDom -u AvayaSA xy1234
ChangePassword -u AvayaSA xy1234
ChangePassword xy1234

Note:
ChangePassword.vbs does not reset permissions on any ASA directories.You must change these permissions manually.

Configuring Applications

When **PVA***Server* is first installed, no applications are registered for execution. After adding all the servers to the serverset, your next task is to create one or more applications. Occasionally, you might need to add additional applications to support new features.

PVA*Exchange* is the application you use, on the **PVA***Server* platform, to operate UCC Speech Access (Microsoft Exchange version).

Application Requirements

In order to be created and executed, each ASA application requires a set of associated service processes and a publication file.

Associated Service Processes

Each ASA application requires that several types of service processes are running:

- One or more VA Engines (on which the application runs). Each VA Engine supports a single active inbound telephone call. A **PVA***Server* platform that supports multiple simultaneous callers generally has one VA Engine per telephone channel.
- A Text-to-Speech (TTS) Server for translating text into voice output.
- A Recognition Server for translating voice input into text.
- One VAServer process, which monitors user mailboxes and notifies users when events occur (message being received, task being assigned, and the like).

You could create each of these required server processes separately and then associate them with the ASA application. However, the ASA

Management Console provides a mechanism for creating these processes in one batch while you are configuring the application.

Publication File

The UCC Speech Access (Microsoft Exchange version) file (**VAOutlook.vapub**) holds numerous source files that make up an application, including the following:

- Application code file that is executed by the VA Engine
- Grammar file that contains the words and phrases that are recognized by ASA
- Recorded prompt files
- Additional sound files that are used by ASA

Part of the process for creating a new ASA Application is "publishing" its**.vapub** file, meaning that its contents are unpacked and distributed to the appropriate directories on the **PVA***Server* platform servers. At publication time, the grammar is compiled into a format that can be understood by the Speech Recognition software and is then loaded in the recognition engines. In case of failure during the publication process, any files that were created on the platform servers are rolled back and removed.

Note:
The source files for ASA are published to every server in the serverset, even if a server does not host any of the service components associated with the application. This blanket-distribution allows a new process (such as an additional TTS Server) to be associated with an existing application, without having to republish the application files.

Creating an ASA Application with Associated Processes

To create a new application, and its associated processes, proceed as follows:

1. Expand the **ASA Manager** node and right-click the **ASA Applications** node.
2. From the pop-up menu, select **New ->ASA application**. The Add Application Instance dialog box is displayed.
3. Enter a name that describe the application.
4. Ensure that both checkboxes for creating server processes are selected and then click **OK**.
5. If you are configuring the first application, you are prompted to add a TTS server. In the Process Name field of the TTS Server dialog box, enter a name for the new TTS server process.

6. From the TTS Server Type drop-down box, select the type of TTS server you want to create. Then click **OK**. (The default **PVA***Server* platform supports only the Speechify TTSServer so only this option is displayed.)

7. From the Add Recognition Server dialog box, enter a name for the server process and select **Nuance Manager** from the drop-down menu. Then click **OK**. The Add VA Engine dialog box appears.

- The actions you take to add VA Engines depend upon the type of system you are setting up:

   a. To set up a system that uses only one telephone line, or that uses a microphone interface:

      - In the Add VA Engine dialog, enter a name for the new engine.

      - In the Select Type drop-down box, select the type of VA Engine to be created. If you are using a telephone to access ASA, select **Telephony Engine**. If you are using a microphone (as is common for test or development systems), select **Sound Card Engine**.

   b. To set up system that uses multiple phone lines:

      - Click **Multiple** and select the number of engine processes to create (usually one per incoming telephone line).

      - In the **Process Naming** frame, enter the name prefix for the new engines. All created engines should be named with this prefix, and a number appended.

   c. In the **Append to Name Prefix** field, enter the number at which the suffixes that are appended to the process names must begin.

   d. In the **Select Type** drop-down box, select the type of VA Engine to be created. If you are using a telephone to communicate with the ASA, select **Telephony Engine**. If you are using a microphone, select **Sound Card Engine**.

   e. Click **OK**.

8. The first time you add a Telephony Engine to a server, the Add Telephony Server dialog box is displayed.

9. In the first field, enter a name for the new telephony server process. In the second field, select **Natural Microsystems Telephony Server** for the type of telephony provider. Click **OK**. The Set Application File dialog box is displayed.

10. In the Path to file: field, enter the full path to the **.vapub** file (or click **Browse** and find the file by using the Open File dialog box). For the ASA application, the **.vapub** file is located in the following directory:

    <*install_root*>\VAApplications\VAOutlook.vapub

    where <*install_root*> indicates the installation path for the platform software (**C:\Program Files\PVAServer** by default). Click **OK**.

The new ASA application and its related server processes are added to the component tree. (If you do not see the components added, double-click the node for each server to refresh the view.)

Creating an ASA Application Without Associated Components

Although you will probably create the various ASA service components required for an application all at once, it is possible to create an ASA application without associated services (you can add the associated components later).

To create an ASA application without associated services:

1. In the component tree, right-click the **ASA Applications** node and select **New ->ASA Application** from the pop-up menu.

2. On the Add Application Instance Dialog screen, clear all of the component check boxes.

Although this procedure creates the application in the component tree, you cannot run the application until you create the service processes that are associated with it. See "Creating Processes Manually" on page 2-20 for information about manually creating services and associating them with an application.

Publishing an Application

When you create an application, a name and placeholder is made for it but its code and resource files are not available to the VA Engine.

To distribute the files across all the machines in the serverset, you need to publish the application. During the publication process, the publish wizard creates a new directory, on each server, under the **\VAApplication*s*** directory. This directory's name is the same as the application name and the application source files are stored in this directory.

Pre-Publication Tasks

Before publishing the PVAExchange application, you must add or modify the following global parameters:

- **SpeechRec.Nuance.RecognitionModel** (to set the English accent variant for ASA). The following variants are available.
  Note: The parameter and variant names are case sensitive.
  - English.America.1 (default)
  - English.AusNZ.1
  - English.Singapore.1
  - English.SouthAfrica.1
  - English.UK.1
- **VATTS.PhoneNumberOutputFormat** (to set the pattern ASA uses to speak telephone numbers)
  Note: The parameter name is case sensitive.
- **VAPlatform.AccountLength** (to set the account number length)
  Note: The parameter name is case sensitive.
- **VAPlatform.MaxPINLength** (to set the maximum password length)
  Note: The parameter name is case sensitive and the maximum password length is 12 digits.
- **VAPlatform.MinPINLength** (to set the minimum password length)
  Note: The parameter name is case sensitive and the minimum password length is 3 digits.

Adding or Modifying Global parameters

You can view and modify these parameters by using the ASA Management Console, as follows:

1. In the ASA Management Console's component tree, right-click **ASA Manager** and select **Properties** from the pop-up menu.
2. In the Properties dialog box, you can scroll through the list box to view existing parameters. Highlight a parameter and edit its value in the **Value** field, or click **Add** to add a new parameter to the list. You can also click **History** to display a history of parameter modifications.

See Appendix A, "Global Parameters," for a complete and comprehensive list of the Global parameters.

Publishing an Application

Proceed as follows to publish an application:

1. In the component tree of the ASA Applications folder, click the node for the new application (this node was added to the tree when you created the application.) The application details pane is displayed.
2. If you want the dynamic grammar database to be rebuilt as part of the publish routine, select the **Rebuild dynamic grammar** check box.
3. If you want to delete the application's directory (in case the publication fails), select the **Delete directory if publish fails** check box,.
4. If you want the application to auto-start after publishing, select the **Auto-start after publish** check box.
5. Click **Publish**.

The ASA publication process takes several minutes to be completed. As the application is being published, progress messages appear in the **Publishing Events** text box. When the publish operation completes successfully, the following text displays in the events box.

```
Done publishing application
```

Scheduled Publish

Some applications require periodic updating to sync up with external data. For example, during the publication process, **PVA***Exchange* extends its grammar to optionally include the corporate global address list (GAL). Since the GAL is frequently updated, **PVA***Exchange* must be republished on a regular basis to update the grammar.

To set a schedule for publishing the application:

1. In the component tree of the ASA Applications folder, click the node for the application for which you want to set a scheduled publish. The application details pane is displayed.
2. Click **Scheduled Publish** to open the Scheduled Publishing dialog box.
3. Select **Enable Scheduled Publish**.
4. Assign the date, time, and frequency for the scheduled publish and click **OK**.

Custom Prepublishing and Postpublishing

When you create a new application, you can also specify prepublish and postpublish script files to be executed when the application is published. These properties are saved with the application's **.vapub** file. When the application is published, the prepublish scripts are executed before the grammar compilation. The script can, for example, build an external rule

grammar and place it in the application directory. After the grammar compilation is complete and the recognition package is created, the postpublish script is executed. The postpublish script can be used to perform cleanup or to perform some tasks with the package in place.

Postpublish Functions

The application can be updated after publishing. An update could be necessary, for example, when the application depends on an external grammar and the grammar is built from a global address list or a database. If the list or database changes, the changes must be reflected in the application.

To perform the update without stopping the entire application, use the **Compile** and **Distribute** buttons in the **Post-Publish Functions** group on the application pane:

- The **Compile** button performs the steps necessary to compile the application without distributing it to the nodes. Compilation involves executing the prepublish script, compiling the recognition package, and executing the postpublish script. The application's processes do not need to be stopped for this step.
- The **Distribute** button makes the publisher distribute the compiled application to all the serverset nodes. For each node, the publisher gracefully stops all the application processes and the processes that depend on them. If some of the dependencies are located on other machines, the publisher stops the processes on those machines as well. The publisher then copies the newly created application to these nodes and, if the **Auto-start after publish** box is selected, it restarts the stopped processes. The publisher repeats the process on all of the nodes and then terminates. If the serverset is configured in such a way that the dependencies do not cross the machine boundary, the application can be updated without taking all the nodes out of service.

Note:
When the publisher distributes the application to the serverset nodes, whether during the normal publishing operation or when the **Distribute** button is selected, the publisher stops the application processes before performing a copy operation. Because the application stops gracefully, people using that node during the publishing event are not be cut off from their sessions. However, **Distribute** is not complete until all users have finished their sessions.

If You Have a Problem with the Publication Process

The follower error can appear during the publication process:

`Error extracting directory <directory name> from storage--0x80070003`

This message occurs if the disk is full. It can also appear if the entire path to the application's **.vapub** files or the path to one of the files in the application's directory, exceeds the system limit of 256 characters.

If you receive this message, delete the application instance that you just created and re-creates the application with a shorter name. If you still receive this error, you might need to modify the directory structure to shorten the file path.

Removing an ASA Application

Proceed as follows to remove an application from the serverset:

1. In the component tree, click the node for the application that you want to delete. Then select **Delete** from the pop-up menu.
2. From the server processes dialog box:
    a. Select **Yes** if you want to delete all server processes linked to the application.
    b. Select **No** if you want to retain the linked server processes (if necessary, you can delete these processes later).
    c. Select **Cancel** to abort the delete operation.

Creating Processes Manually

Although you are most likely to use the Create Application feature mechanism to create VA Engine, TTS Server, and Recognition Server processes, a process can be created manually.

You can use manual creation to associate additional processes with an existing application. For example, an application that is running slowly might need a second Recognition Server associated with it to speed up processing of recognition requests. Or, you might need additional VA Engines to handle more incoming phone lines. By manually creating and associating new processes, you avoid having to create a new application from scratch.

Creating a New Process

Proceed as follows to create a new process:

1. In the ASA Management Console component tree, right-click the node for the server on which you want to create the process. Then select **New->Process** to display the Add Process Dialog box.
2. In the **Name** field, enter a name for the new process.

3. In the **Type** combo box, select the type of process you want to create. Default process types are listed in Table 2-3.

4. In the Associate with Application Instance combo box, select the name of the application with which you want the process to be associated. To create a global process, select **No Application**.

5. Click **OK**. The new process is added to the component tree.

Table 2-3. Default Process Types.

Process Type	Description	File name
Speechify TTS Server	Performs Text-To-Speech translation.	VATextToSpeechSpeechify.exe
Natural Microsystems Telephony Server	COM object server that provides an interface between the **PVA***Server* and the Natural Microsystems telephony hardware APIs.	VATelephony.exe
Nuance Manager	Manages all the Nuance process used by ASA: Nuance Compilation Manager, Nuance License Manager, Nuance RecServer, Nuance Resource Manager.	VANuanceMgr.exe
Nuance Compilation Server	Used by the Nuance software to generate dynamic grammar entries. The Compilation server is created automatically by **PVA***Server* for each application you create.	compilation-server.exe
Nuance License Manager	Supplies a valid license to the recognition server process (required by the Nuance RecServer) The License Manager is created automatically by **PVA***Server* when you create the first ASA application.	nlm.exe
Nuance RecServer	Recognizes speech-into-text for processing by the recognition software. The RecServer takes utterances (speech), pauses the utterances, and returns tags based on the grammar definition.	recserver.exe

Process Type	Description	File name
Nuance Resource Manager	Provides a gateway between recognition server processes and recognition clients such as the VA Engines. Handles license checking and load balancing for the recognition servers. The Resource Manager is created automatically by **PVA***Server* for each application you create.	resource-manager.exe
PVAOutlook Fault Monitor	Used by **PVA***Exchange* to resolve Microsoft Exchange failures	FaultFileMonitor.exe
Sound Card Engine	VA Engine used with a sound card, microphone, and system speakers, rather than with a telephone The same VAEngine.exe executable is used for both Sound Card Engines and Telephony Engines; **PVA***Server* sets a parameter to indicate the engine type.	VAEngine.exe
Telephony Engine	VA Engine used with a telephony card. The same VAEngine.exe executable is used for both Sound Card Engines and Telephony Engines. **PVA***Server* sets a parameter to indicate the engine type.	VAEngine.exe
VAServer	Handles persistent background functions such as monitoring user mailboxes (for new mail) and alerting users of incoming messages. ASA only requires one VAServer per serverset.	VAServer.exe

Assigning a DNIS Number to a VA Engine

This section explains how to assign a specific DNIS (incoming telephone line) to a particular VA Engine.

When an incoming call is received, the Telephony Server directs the call to the next available VA Engine. Each VA Engine can handle only one call at a time. By default, each VA Engine monitors all DNIS numbers on the Telephony Server's ISDN line for incoming calls. However, in some cases you might want to dedicate one VA Engine to a particular incoming line.

Proceed as follows to designate one DNIS for a particular VA Engine, perform the following steps:

1. Highlight the node for the engine to display the engine's configuration screen in the details pane,
2. Click **Advanced**. The Advanced Properties dialog box is displayed.
3. Within ASA Application Parameters, locate the DNIS Number field. Enter the DNIS number for this VA Engine. Then click **OK** to save the configuration.

Starting ASA Application Processes

For an ASA application to handle incoming calls, all of its related processes must be running. You can configure all registered processes to start automatically whenever you reboot the system. However, you might also need to start or stop processes manually, as in the following situations:

- The ASA platform needs to be brought down for maintenance.
- A process is terminated due to an error and cannot be automatically restarted by the VAServerManager.

At such times, you can start or stop all processes running on a platform, all of an individual application's processes, or each individual process.

Configuring Auto-Start for a VA Engine

When you create a new VA Engine (either manually or through the creation of a new ASA application), the default auto-start property is **False** (VAServerManager does not automatically initialize the VA Engine during startup).

Setting the processes to auto-start eliminates having to start the processes manually when you reboot a server. However, you need to select the auto-start option only on systems that need to run full (including during a power failure).

To set the auto-start property for a VA Engine:

1. Click the **VA Engine** node in the component tree.
2. In the details pane, click **Auto-Start**.

Starting All Processes

The Start All Processes function attempts to start all of the processes currently being used in the serverset (TTS Servers, Recognition Servers, VA Engines, License Managers, and Resource Managers). In effect, this function starts all the registered applications on the platform and prepares them to receive incoming calls.

To start all processes:

1. Right-click the **ASA Management** node.
2. From the popup menu, select **Start All Processes**.

Processing Start Orders

When global startup is set, all global processes are started first (Nuance Manager, for example). Then all per-ASA Application processes are started (TTS Server and Recognition Servers, for example).

Within the global and per-application categories, the order in which processes are started is determined by Startup Groups. Each process type is assigned to a group (based on its dependencies), and each group is assigned a number. The group number indicates the order in which the process must be started (from lowest to highest). All processes within a given group start at about the same time.

Table 2-4 lists the startup order groups.

Table 2-4. Startup Order Groups

Process Type	Startup Order Group
VA Server	1
External App	1
Speechify TTS Server	2
Nuance Manager	2
Nuance License Manager	2
Nuance Compilation Server	3
Nuance RecServer	3
Dialogic Telephony Server	4
Natural Microsystems Telephony Server	4
Sound Card Engine	4
Telephony Engine	4

As the table indicates, the telephony servers and external application processes are started first,. The two types of VA Engines (sound card and telephony) are started last. Because a Telephony Engine cannot be started unless its associated TTS Server is already running, the engine is assigned to a higher-number group than the TTS Server.

If a process fails to launch during a global startup, the VAServerManager attempts to start all of the other processes on the platform. However, any process that has a failed process as a dependency will also fail to start.

Monitoring the Start-Up

When you globally start the platform, you can monitor the progress of the operation. Click the nodes for the various processes and check the status on their detail panes. Because processes in lower start-order groups start earlier, you need to monitor their progress first.

Starting All Processes for an Application

You can also start processes at an application level. This function attempts to start all the processes that are associated with a particular application. These processes usually include VA Engines, TTS Servers, and Recognition Servers.

To start all the processes for an individual application:

1. Expand the **ASA Applications** node and right-click the application for which you want to start all processes.

2. Select **Start** from the pop-up menu.

Once an application is started, it is ready to receive incoming calls. If a process fails to launch during application startup, the VAServerManager still attempts to start the other processes that are associated with the application. Any process that has the failed process as a dependency will also fail to start.

When an application is started, the VAServerManager first verifies that any global processes that are needed for the application (such as the Nuance License Manager) are already running.

Starting Individual Processes

Most of the time you will use either the global or application startup functions. However, should you need to start only a single process do one of the following:

- Right-click the component you want to start and select **Start** from the pop-up menu.

- Highlight the process name and click the **Start** arrow on the MMC Snap-in toolbar.

As with starting an application, any global processes that are required by the individual process must already be running. Otherwise, the process will fail to start.

Stopping ASA Processes

As with starting ASA processes, you have several options from which to choose when shutting down processes on the **PVA***Server* platform. When ASA processes are stopped, the applications cease execution. No incoming calls can be received.

Shutting Down Gracefully

The best method to use to shut down a **PVA***Server* platform is the **Stop All (Graceful)** or **Stop (Graceful)**function. This function immediately sets the platform so that it does not receive any new

incoming calls. However, it does not disconnect any current ASA sessions. The platform shuts down only when all active sessions are complete.

To perform a graceful shutdown:

1. Right-click the **ASA Management** node.
2. From the pop-up menu, select **Stop All (Graceful)**.

Shutting Down Immediately

In some cases, you might need to stop all processes on the platform immediately. Doing so disconnects all current ASA sessions and closes all platform applications.

CAUTION:
Performing an immediate shutdown disconnects all active users from the system.

To perform an immediate shutdown:

1. Right-click the **ASA Management** node.
2. From the pop-up menu, select **Stop All (Immediate)**.

Rebooting the System

If you perform a manual reboot of ASA, all processes that are running on the ASA server are immediately shut down.

Stopping Individual Applications and Processes

The ASA Management Console includes functions that enable you to stop an application or an individual process. To do so, complete the following steps:

1. Expand the component tree until the node for the application or process that you want to stop is visible.
2. Right-click the node for the application or process and select **Stop** from the pop-up menu.

Configuring Alerts

PVA*Server* includes an alert feature that enables the ASA administrator to be paged (through e-mail pager) when selected system errors occur. Alerts are sent as regular e-mail messages. If the administrator does not have an e-mail pager account, the messages can be sent to a regular e-mail account.

Configure alerts as follows:

1. In the component tree's Configuration node, click the **Alerting Setup** node. The alert configuration interface is displayed.

2. In the **Pager Email** field, enter the pager e-mail address and then select the minimum amount of time between pages. Select an interval that is long enough to prevent the administrator from being inundated with repeat messages for the same error, but short enough that the administrator is informed if a different error occurs. An interval of 10 minutes is typical.

3. In the select subsystem frame, choose the subsystems that you want to monitor for errors (use the **Select All** and **Clear All** buttons to select or clear all of the check boxes at once).

   If you select **Logon** errors, be sure to indicate the number of failed logon attempts that must occur before notification. If you select **File System**, indicate how full the disk subsystem must be before the administrator is alerted.

   If you select the **Toll Call Usage** check box, both domestic and international toll calls are monitored. An alert is sent if any user exceeds the maximum number of minutes for toll calls for either domestic or international calls. If you leave the Interval (days) and Max. Minutes at **1**, an alert will occur if any toll calls are made.

Using the TTS Dictionary

By default, the TTS server is configured with pronunciation strings for most common English words. For other words, such as technical terms and proper names, the server uses an algorithm to determine the most likely pronunciation. In many cases, this algorithm can lead to incorrect pronunciations.

The TTS Dictionary feature enables you to correct the TTS server's pronunciation of words and phrases. The mechanism works by simple string substitution: whenever the TTS engine encounters a specified string, it replaces the string (before processing the text), with a more phonetically accurate version.

Setting TTS Dictionary Entries

Set the TTS dictionary entries as follows:

1. In the component tree Configuration folder, click the **TTS Dictionary** node. The TTS Dictionary is displayed in the details pane.
2. Click **Add** to add a new entry. The Dictionary Entry dialog box is displayed.
3. First, enter the actual spelling of the word or phrase. Then, enter the replacement string (phonetic spelling) that has to be used for a correct pronunciation.

Note:
The changes to custom TTS entries do not take effect until the Engines are started. By default, the engines restart automatically after every 25 calls.

Testing TTS Dictionary Entries

It could require some experimentation to find a replacement string that results in a word's proper pronunciation. Use the **Play** button on the TTS Dictionary screen to test a particular entry. When you click the Play button, the highlighted entry is sent to a TTS Server and the resulting speech output is played over the server's speakers.

Note:
The ASA server must be configured for multimedia and have speakers connected.

On platforms with multiple TTS server processes, all servers use the same TTS dictionary. The **Select Server** button enables you to choose which TTS server to be used to play back dictionary entries while testing changes.

Note:
Only TTS servers in the "Running" state are listed among the choices in the **Select Server** drop-down combo box.

Setting Up the User Preferences Web Interface

Proceed as follows to set up the ASA User Preferences Web interface:

1. Insert the UCC Speech Access (Microsoft Exchange version) CD #1 into the CD-ROM drive.
2. From the Install ASA Components screen, select **ASA User Preferences**.
3. Proceed through the installation, entering details when prompted.
4. When the installation is complete, click **Finish** and remove the CD from the CD-ROM drive.

ASA subscribers can now access the User Preferences Web interface by launching their Internet Explorer browser and accessing the following URL:

http://*server_name***/ASAUserPrefs**

where *server_name* is the name of the ASA server.

Using the ASAManager Web Interface

The ASAManager Web interface enables you to manage ASA components over the Web. Although the interface has been modified for the Web, you perform the same administration tasks with the Web interface that you perform with the ASA Management Console.

Install the ASAManager Web Interface

The following sections describe how to prepare the servers and the remote workstations before enabling ASAManager.

Preparing a Server for ASAManager

ASAManager is installed as part of the **PVA***Server* software and is managed by Microsoft Internet Information Server (IIS). **PVA***Server* must be installed on every server that you manage with the ASAManager Web interface.

The ASAManager software and other required components are installed as part of the **PVA***Server* installation. Therefore, **PVA***Server* must be fully installed and configured on any server that you administer with ASAManager.

Preparing a Workstation for ASAManager

The workstation from which you access ASAManager must have the software listed in the following sections:

Install mscomctl.ocx

The **mscomctl.ocx** ActiveX control, version 6.0.84.98 or later, must be installed on the workstation. To check for the control:

1. Search the directory **C:\winnt\system32** for **mscomctl.ocx**.
2. If the control is installed, right-click the control, select **Properties**, and then click **Version**. Check that the correct version is installed.
3. If necessary, download the correct version of the control from the Microsoft Web site.

The **mscomctl** control is automatically upgraded if the workstation that is hosting the browser is connected to the Internet. Ensure that the browser security options are set to allow the automatic download. Note that when the **mscomctl** control is automatically downloaded, a dialog box is displayed asking if you want to install or run the control. Select **Yes** to download the control.

If the workstation is not connected to the Internet, you need to download the control and then manually install it on the workstation, as follows:

1. Access the following Microsoft Web site location:

   http://activex.microsoft.com/controls/vb6/MSCOMCTL.CAB
2. In the File Download dialog box, select the **Save this file to disk** option. Then import the file.
3. Right-click **mscomctl.cab**, select **Extract to Folder,** and double-click the **MSCOMCTL** folder.
4. Select the **mscomctl.inf** file. Then right-click the file and select **install**.

Install Microsoft Internet Explorer

Microsoft Internet Explorer, version 5.5 or later, must be installed on the workstation from which you access ASAManager. If you do not already have Internet Explorer on the workstation, install the browser now. Be sure to also install the optional Java Virtual Machine.

Java Virtual Machine (JVM) is available as an option when you install Microsoft Internet Explorer. It must be installed on the computer from which you access ASAManager. Do the following to ensure that JVM is installed:

1. Search **C:\winnt\system32** for **msjava.dll**.
2. If msjava.dll is not in the directory, reinstall Internet Explorer and select the **JVM** option.

Starting the ASAManager Web Interface

To launch the ASAManager Web interface, open Internet Explorer and type the following URL:

http://*server_name***/ASAManager**

where *server_name* is the name of the serverset controller node.

Serverset Page

This page enables you to:

- Display the servers in the serverset.
- Add and remove servers.
- Display and edit server parameters.
- Manage processes.

To display the serverset page, click the **Server Set** node on the left side of the page and select the server node that you want to configure.

ASA Applications Page

This page enables you to:

- Display ASA applications.
- Display and edit application parameters.
- Start, stop, and manage application processes.

To display the ASA applications page, click the **ASA Applications** node and select the application that you want to configure.

Configurations Page

This page enables you to configure:

- General information
- Telephony setup
- Fax setup
- Alerting setup
- TTS dictionary
- Database administration
- Process types
- Global parameters

To display the Configurations page, click the **Configuration** node and select the component that you want to configure.

Uninstalling or Upgrading ASA

The best way to ensure that ASA uninstalls completely is to “clean” the disk by reinstalling the Windows 2000 operating system (overwrite the existing ASA software). You can then reinstall ASA, if necessary, by following instructions in the *UCC Speech Access (Microsoft Exchange version) Quick Start Installation Guide*.

Alternatively, you can use the Windows **Add/Remove Programs** from the Windows Control Panel to uninstall ASA.

3

PVA*Server* Administration

Server Administration Overview

This chapter discusses the ASA administration tasks you must perform to manage the ASA platform during day-to-day operations. If you are not familiar with all the components of **PVA***Server*, see "PVAServer Software" on page 1-1. For information about managing the ASA application, and its users, see Chapter 4, "ASA User Administration."

Operations Management

As the ASA administrator, you will perform the following operational tasks:

- Monitor platform logs
- Monitor disk space
- Manage the VA Database
- Delete (purge) call logs and transcriptions
- Monitor debugging logs
- Prepare backup servers
- Monitor ASA performance

This chapter provides detailed information about performing each of these tasks.

Security Management

In certain environments, **PVA***Server* administration also includes the management of security issues. Therefore, you might be called upon to perform one or more of the following tasks:

- Set COM permissions.
- Secure file system data.
- Secure the database.

See "Providing a Secure Environment" on page 3-18 for more information

Monitoring Platform Logs

PVA*Server* maintains a set of logs to record activities that occur during user sessions. These logs are stored in the VA Database and can be viewed at any time (use Microsoft Notepad or equivalent text editor). The logs track the following information:

- **Session Log.** Records information about each ASA session. (A session begins when a user dials in to ASA and ends when the user hangs up.) The information that is recorded includes the user account called, the number from which the call originated (ANI), and the duration of the session.
- **Call Log.** Contains an entry for each incoming call that is received and each outgoing call that is placed during an ASA session. Because a user can have ASA dial calls, there are often multiple calls that are recorded per session. For example, if a user dials into ASA and calls two contacts, three separate entries are made in the Call Log: one for the call into ASA and two for the calls dialed by ASA. Information that is stored in the Call Log includes the number dialed for the call and the duration of the call. These records are particularly useful for maintaining billing data.
- **Session Transcription Log.** Records all activities that occur during an ASA session. This data includes not only the activities that are performed in checking messages, sending messages, and placing calls but also the voice commands that are used. The record for each action includes a link to a **.wav** file (stored in the **VAUtterances** directory) that contains the user's recorded speech. These transcriptions can be used to diagnose speech recognition problems.

PVAReports

PVAReports is an Active Server Page application that queries the database and creates reports about user sessions. You can use these reports to monitor platform activity and make performance-tuning decisions.

Note:
When you are running PVAReports from a browser on the serverset controller node, use the actual machine name (not “localhost”). The PVAReports application loads properly if you use “localhost” in the URL, but an ODBC error occurs when you try to run the report.

To launch PVAReports, open Internet Explorer and access the following URL:

http://*server_name***/PVAReports**

where *server_name* is the computer name of the serverset controller node.

Execute Page

On the Search UR ASA Interface page, click the **Execute** tab to request the following types of reports:

- Statistics (for all users)
- Statistics per user

The middle portion of the Execute screen displays the current session criteria. Click the **Constraints** tab to change the criteria.

The bottom portion of the Execute screen displays the current statistics to be displayed on a report. Click the **Statistics** tab to change report statistics.

From the Search UR ASA Interface page, click the **Constraints** tab to set boundaries for your report. Table 3-5 describes the selections.

Table 3-5. Report Boundary Selections

Selection	Description
Date and Time Range	Set the following types of boundaries: ▪ Simple days: (01/01/2000 to 02/01/2000) ▪ Range of dates and times: (03/15/2000 19:15:00 to 03/16/2000 7:00:00). This selection provides a general overview of all user sessions that occur within the ranges set.
Date Range and User ID	Provides a report with an overview of a particular user's sessions that occurred within the selected date/time range
Session ID	Provides a detailed report of ASA activity for a particular session.
Call ID	Provides a detailed report of ASA activity for a particular call.

Statistics Page

From the Search UR ASA Interface page, click the **Statistics** tab to change the statistics that are displayed on the report. Table 3-6 describes the selections.

Table 3-6. Report Statistics Selections

Selection	Description
Average time per session	Average length of each session.
Median time per session	Median length of each session.
Recognition Attempts	Number of successful and unsuccessful recognition attempts.

Recognition Confidence	Minimum, maximum, and average confidence values for speech recognition. The recognition servers assign a percentage value (from 0% to 100%) for each recognition operation it attempts, indicating how confident it is that the phrase it recognized from the user's speech was correct.
Recognition Time	Amount of time the ASA Machine spends waiting for the recognition server to process voice input.
User latency	Amount of time (in seconds) a user must wait for a response from ASA (lapsed time starts when the user stops speaking and ends when ASA begins its voice response).
Time Breakdown	VM time statistics for user sessions, which use the following measures: ▪ Listening time ▪ Recognition time ▪ Talking time ▪ Processing time
Listening Time	Amount of time the VM spends listening to user voice input.
Recognition Time	Amount of time the VM spends waiting for the recognition server to process voice input.
Talking Time	Amount of time the VM spends waiting for voice output to be processed and played to the user.
Processing Time	Amount of time the VM spends processing the application.
User Tasks	Number and types of requests made of the VM.

Source Page

On the Search UR ASA Interface page, click the **Source** tab to change the database for your report and to specify information that appears on log reports. Table 3-7 describes the selections.

Table 3-7. Source Tab Selections

Selection	Action
Fill in any of the following fields to override the database selection	Complete the fields for this option to change to a different database.
Fill in any of the following fields to override the database values	Select the appropriate check boxes under this option to specify the information that appears on log reports. For example, select the **Log Speech Recognition Errors** check box to allow speech recognition errors to be manually logged (server and database names must be provided, and the database must be manually created).
SpeechRec DB Server and SpeechRec DB Name	Use these fields to specify a different database on a different server.

Error Page

When an error occurs, you are automatically redirected to the Error Web page. If you click the Error tab to access the page, no errors will be indicated. However, you can use your browser's Back button to see the previous problem displayed on the Error page.

The following information is provided on the Error Web page:

- **Error Value.** Provides an error code that is a useful to the Avaya Technical Support.
- **Error Message(s).** Provides a description of the problem that was encountered.
- **Details.** Provides detailed information of the problem that can be used by Avaya Technical Support.

Sample Reports

Following are two examples of reports that can be generated with the ASA Logging Utility.

Figure 3-1 shows an example of a Statistics Report for a single user over one day.

Figure 3-1. Statistics Report (single user)

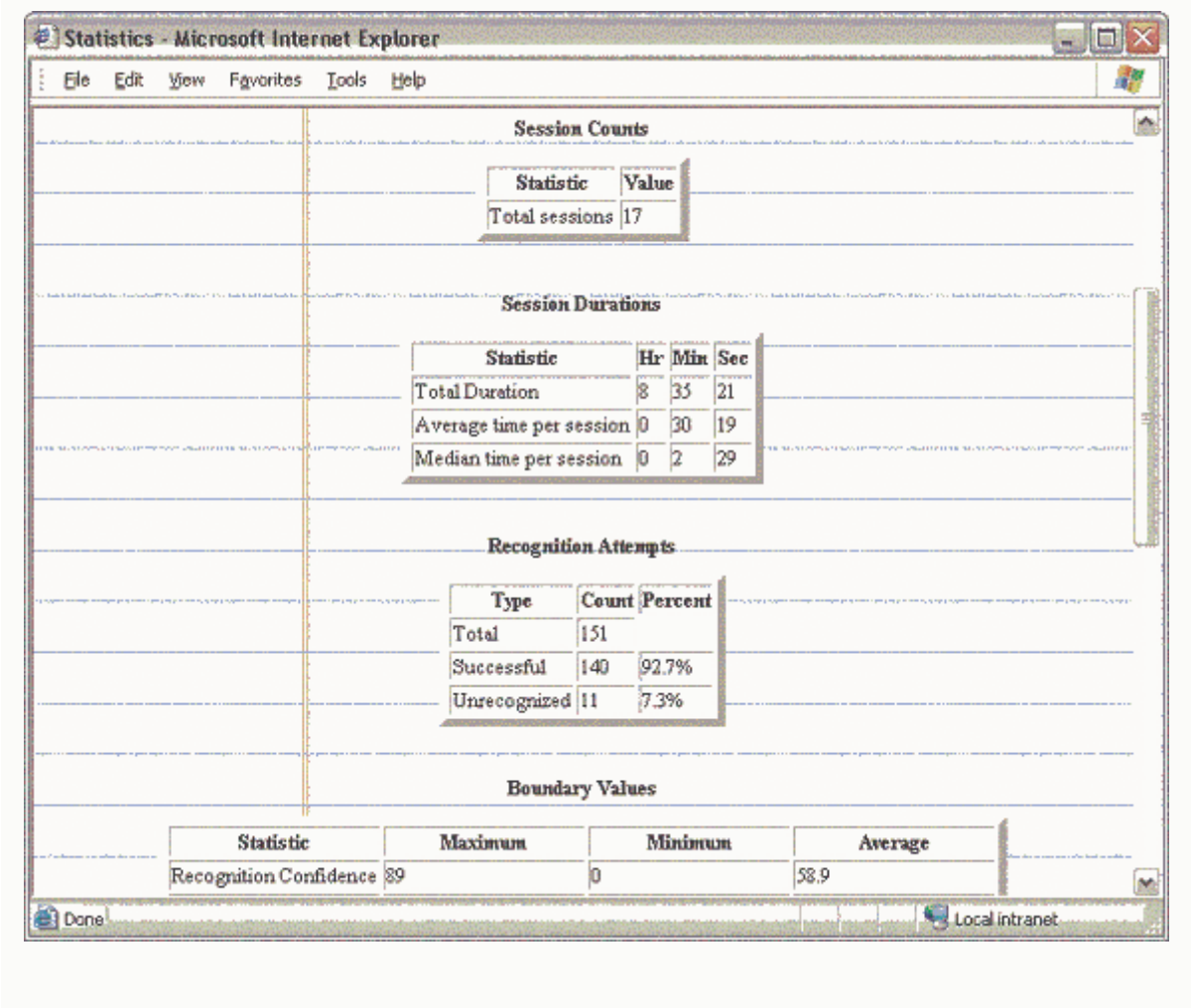
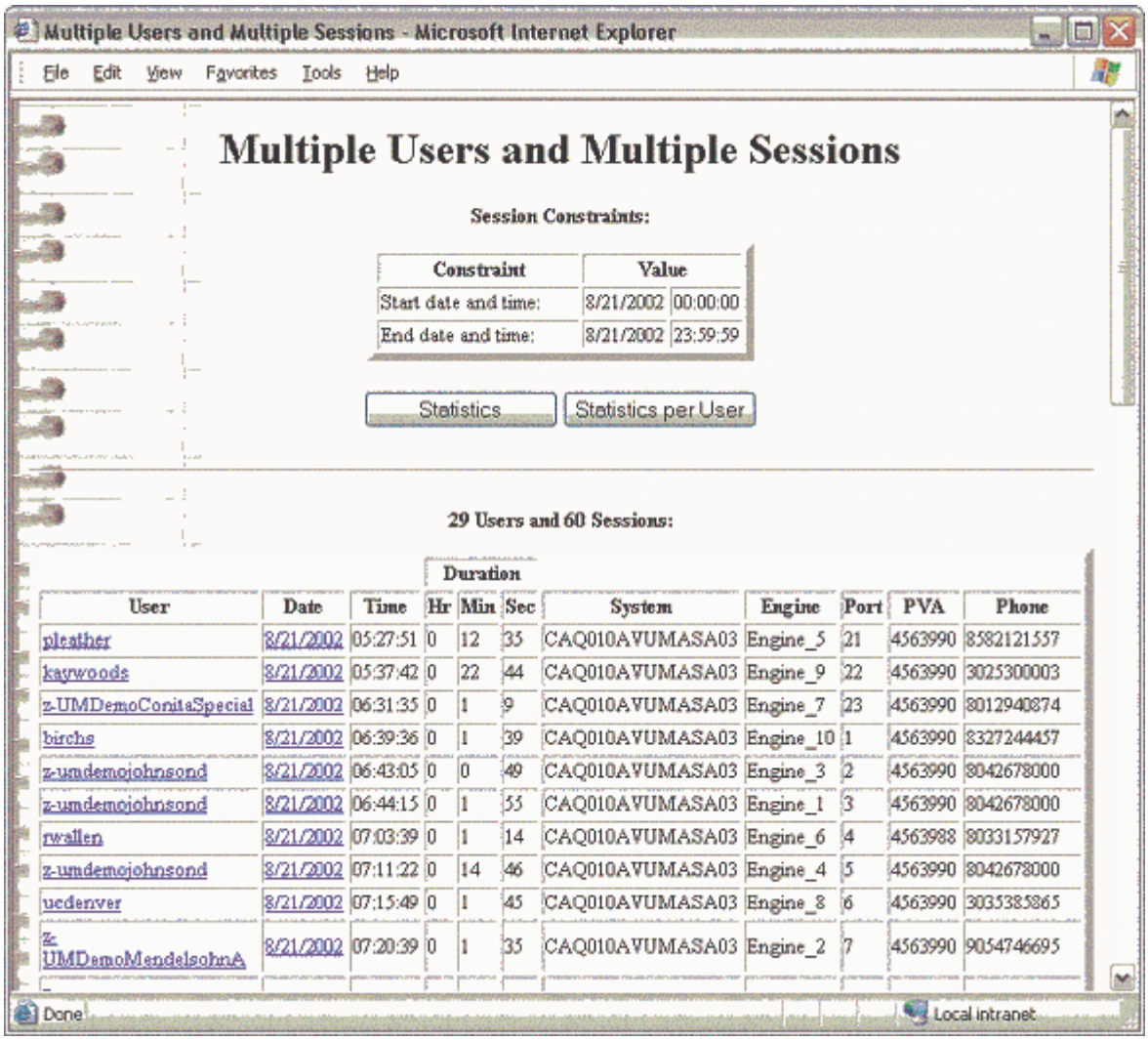


Figure 3-2 shows an example of a Statistics Report that includes general information about multiple users and multiple sessions.

Figure 3-2. Multiple Users and Multiple Sessions Report



Interpreting Reports

You must regularly run and review ASA reports to monitor the performance of the platform. Following are some guidelines for interpreting the information in the reports:

- Use information about the number of user sessions per day to calculate the disk space requirements for the platform. See "Monitoring Disk Space" on page 3-9.
- Track recognition accuracy percentages (ratio of successful recognition to total recognition attempts) so that you can take

corrective action, if necessary. Recognition accuracy needs to be above 90%.

- Track the time spent by the ASA machine in "listening" and "talking" (most of the system's time has to be spent on these activities). If too time is spent recognizing speech, the recognition server could require tuning. If too much time is spent on processing, the application might need to be modified to streamline processing time.
- Use the hyperlinks associated with user utterances to detect speech recognition problems. In session reports, first click the hyperlink to a user utterance to play the utterance. Then check the text string (next to the hyperlink) that was returned by the speech recognition engine. When you compare the utterance to what the engine thought it heard, you can identify "false positives" (words that the engine identifies incorrectly). An empty string ("") indicates that the engine was not able to recognize the utterance.

Monitoring Disk Space

PVA*Server* stores detailed data for each user session. In environments with high ASA traffic, this data can accumulate rapidly and occupy a large amount of disk space. Therefore, you must monitor the available disk space on the **PVA***Server* platform, and take appropriate steps to free up disk space, as needed. See "Deleting Call Logs and Transcriptions" on page 3-14.

Note:
You can configure **PVA***Server* to alert you through e-mail pager when the amount of free disk space falls below a certain threshold. See "Configuring Alerts" on page 2-29 for more information.

Calculate Disk Usage

The two largest consumers of platform disk space are the sound files that are stored in the **VAUtterances** directory and the logs that are stored in the VA Database. Methods for calculating the disk space usage for these two data repositories are presented in the sections below. You will use this information to set maintenance plans for the platform

Utterances Directory

PVA*Server* records each user input as an "utterance" file (**.wav** sound file). The average utterance file is 30 KB in size, and ASA user sessions generate an average of 18 utterances each. Based on these estimates, Table 3-8 shows the amount of disk usage that you can expect for various levels of traffic.

Table 3-8. Utterance Directory Growth by Session Rate (Approximate)

Number of Sessions (per day)	Disk Space Growth (per day)	Disk Space Growth (per week)
25	14 MB	98 MB
50	27 MB	189 MB
100	54 MB	378 MB
250	135 MB	945 MB
500	270 MB	1.9 GB

VA Database

Only the log tables in the VA Database will experience significant daily growth. On average, 16 KB of information is stored for each user session. Table 3-9 describes the expected growth of the database, based on the number of user sessions.

Table 3-9. VA Database Growth by Session Rate (Approximate)

Number of Sessions (per day)	Database Growth (per day)	Database Growth (per week)
25	400 KB	2.8 MB
50	800 KB	5.6 MB
100	1.6 MB	11.2 MB
250	4.0 MB	28 MB
500	8.0 MB	56 MB

Managing the VA Database

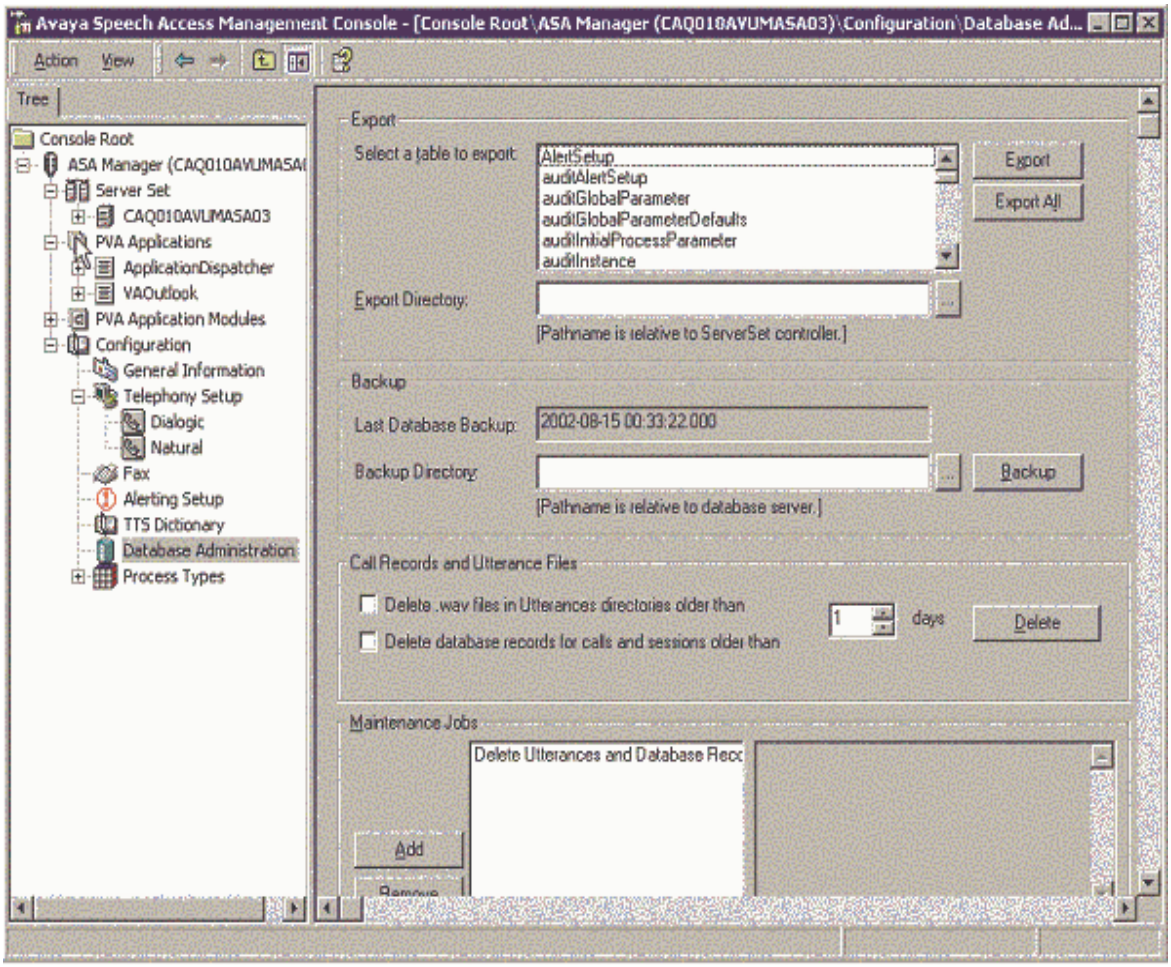
The VA Database, which is hosted by the serverset controller node, is used by VAServerManager to store call log and platform configuration data. This database is implemented with the Microsoft Data Engine, or MSDE.

MSDE provides access to databases compatible with SQL Server 7.0, although MSDE provides a smaller feature set than SQL Server. For example, the MSDE engine does not include an interface similar to the SQL Server Enterprise Manager, and it supports a maximum database size of only 2 GB (SQL Server supports 32 TB). On the other hand, MSDE databases can be read by SQL Server interfaces, and they can be upgraded to SQL Server if increased functionality is needed.

Managing the Database

Because MSDE does not include its own user interface, you perform most management tasks for the VA Database by using the ASA Management Console. Included in the console's component tree is a node called Database Administration, which, when highlighted, causes the database management panel to be displayed on the right side of the console window, as shown in Figure 3-3.

Figure 3-3. Database Administration Panel



Backing Up the Database

The configuration parameters and user information that are stored in the database are essential to the operation of **PVA***Server*. For this reason, you must back up the VA Database regularly.

In the Backup frame on the Database Administration panel, the **Last Database Backup** field indicates when the last backup of the current VA database occurred. You must back up the VA database at least once a week. If your site is a large one, you might want to back up the database as frequently as once a day.

The directory in which the database will be backed up is indicated in the **Backup Directory** field. To change the backup directory, edit the field's value directly or click the **Browse** button and select the new directory from the Browse for Folder dialog box.

To back up the VA database, click **Backup**.

Note:
When you back up the database, the backup file is written to the specified directory and a time stamp is appended to the filename. Older backup files are not overwritten by new operations. Therefore, to conserve disk space, you must periodically delete older files from the backup directory.

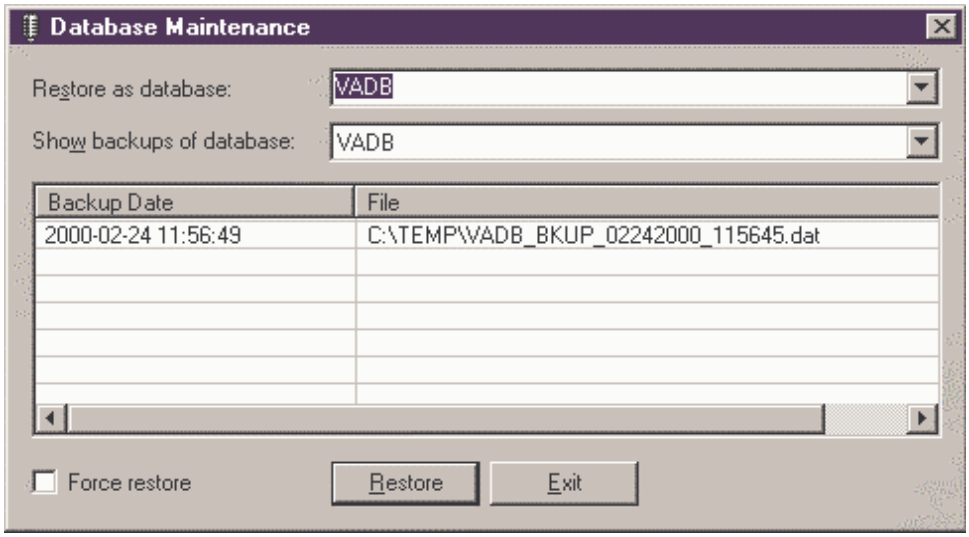
Restoring the Database

In the event of a VADB database failure, restore the database from your backup directory. To do so, shut down the **PSA***Server* platform and run the VA Maintenance utility (**SADBMaint.exe**).

Note:
To restore the database, VA Maintenance must have an exclusive lock on the database. The restore process will fail if ASA is running any active database sessions.

1. For each node in the serverset, open the Windows Task Manager and make sure no VA processes are running. For any VA processes that are running, click the process and select **End Process**.
2. From the ASA Management Console, stop all active platform processes.
3. Click **Start->Control Panel->Services** and stop the VAServerManager and VAManager services,
4. From the *install path***bin** directory, run **VADBMaint.exe**, The utility consists of a single dialog box, as shown in Figure 3-4

Figure 3-4. Database Maintenance Utility Interface



5. From the **Restore as database** drop-down list, select a name for the database that you are restoring.

6. From the **Show backups of database** field, select the name of the database that you want to restore.

7. In the **Backup Date/File** box, select the backup version that you want to restore.

Exporting Database Tables

The **Export** frame on the Database Administration Panel (see Figure 3-3) enables you to export the contents of database tables to plain text files. This feature can be useful for recording usage data or for sending configuration information to Avaya Technical Support.

The process for exporting a table to a text file is as follows:

1. In the Export Directory field, specify the directory where the text file will be placed.

2. In the Select a table to export field, click the appropriate table and then click **Export**. Or, click **Export All** to select all tables for export.

Text files are created with the format <*table name*>**.txt** (for example, **AlertSetup.txt**).

Deleting Call Logs and Transcriptions

VAServerManager maintains database records and Wave (.wav) files for all calls processed by **PVA***Server*. These files and records are vital not only for diagnosing system problems but also for performing accounting tasks such as billing company departments for ASA usage. Database tables and stored files can grow quite large, particularly on platforms with many users. Therefore, you will need to delete (purge) logs and transcriptions periodically to free up disk space.

For each call session, to levels of detail are maintained in the database. Summary-level information is stored in the SessionLog, CallLog, and Session Counters tables. Detailed information about each call is stored in the SessionsTranscriptions table. Wave files are stored in the **VAUtterances** directory and capture each spoken message that is recorded during a call. The amount of disk space that is consumed by these files can grow rapidly.

The frequency with which you need to perform purges depends upon the record keeping needs of your company and on the amount of disk space available for the **PVA***Server* platform. Use the disk-space guidelines in "Calculate Disk Usage" on page 3-9 to determine how much space is likely to be consumed over time.

The Database Administration details panel enables you to maintain database table records and wave files at two levels of granularity: detailed records and summary records. To purge call transcriptions or logs, complete the following steps:

1. From the ASA Management Console, click **Database Administration**.

2. On the details pane, select either or both of these check boxes:

   - **Delete .wav files in VAUtterances directories older than** Removes records from the SessionTranscription table and also deletes wave files from the **VAUtterances** directory that meet the specified condition.

   - Delete database records for calls and sessions older than Removes records from the SessionLog, CallLog, SessionCounters, and SessionTranscriptions tables.

3. In the **Days** combo box, indicate how many days you want to retain transcriptions or logs.

4. Select **Preview Delete** to produce a count of the number of files and database records that the delete operation will remove.

5. Click the **Delete** button to delete all outdated records and **.wav** files.

Establishing Maintenance Plans

Although you can back up the database and purge records and wave files manually, it is usually more convenient to establish a Maintenance Plan. Such a plan enables you to schedule regular backup and purge operations.

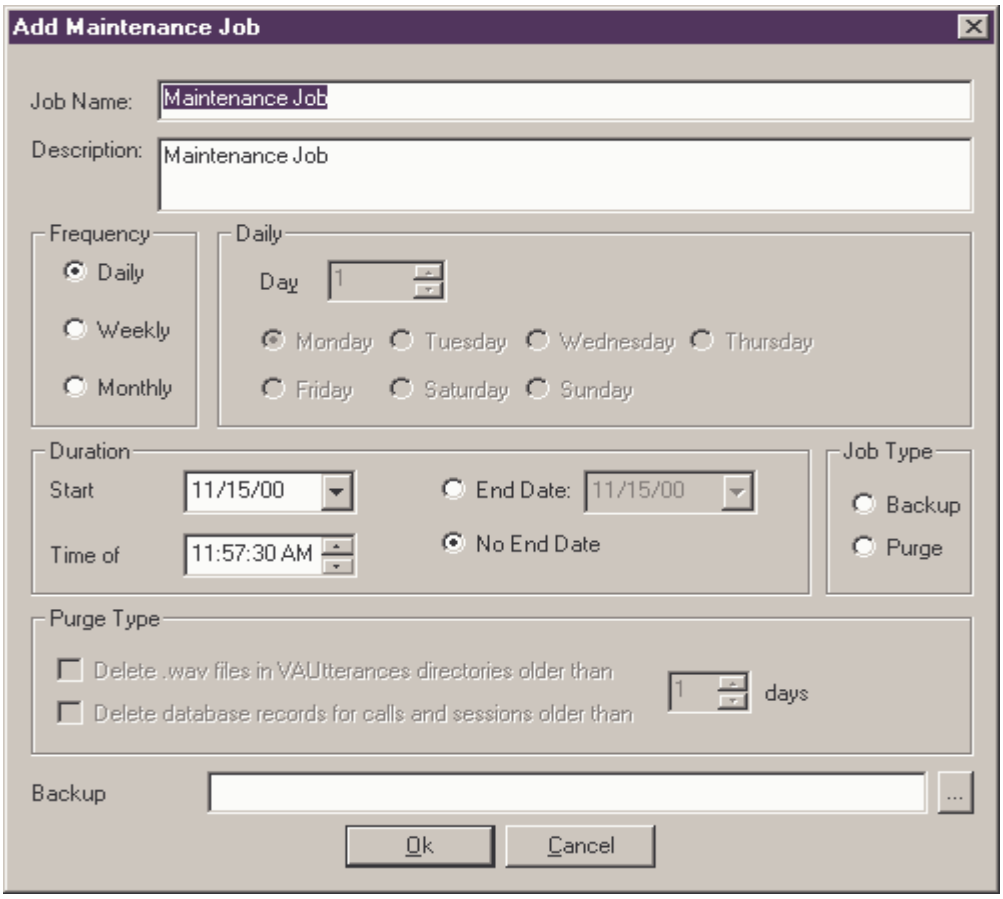
Typically, you need to create at least two maintenance plans: one for database backups, and one for transcription purges.

Adding a New Maintenance Plan

Proceed as follows to add a new Maintenance Plan:

1. Click the **Add** button in the Maintenance Plans frame. The Add Maintenance Job dialog box is displayed, as shown in Figure 3-5.

Figure 3-5. Add Maintenance Job Dialog Box



2. In the **Job Name** field, enter a name for this maintenance plan. (You can also describe the job in the Description field.)

3. In the Frequency frame, select how often you want the maintenance job to run.
   - If you select “Weekly” frequency, select the day of the week on which you want the job to run.
   - If you select “Monthly,” select the day of the month on which you want the job to run.
4. In the **Duration** frame, enter the date and time of day at which you want the first job to run.
5. If you want the job to cease running on a certain date, select the **End Date** option and enter the day on which the job needs to end. Otherwise, select the **No End Date** option.
6. In the **Job Type** frame, select the type of job you are creating (Backup or Purge).
   - If you select Backup, enter in the Backup field the path to which the backup file has to be written (or, select the **Browse** button and choose the path from a dialog box).
   - If you select Purge, choose whether to purge only detailed records and wave files, or to purge summary-level files as well. In the Days field, indicate how many days old the call records must be to be purged.
7. Click **OK** to save the maintenance plan.

Because detailed records and utterance files grow much more rapidly than the summary-level records, you might want to set up two separate purge plans: one that frequently deletes only the detailed records, and another that less frequently deletes both summary and detailed records.

Maintenance Plan Log

Output from VA database maintenance jobs is stored in the **Log** directory under the ASA root directory (**C:\Program Files\PVAServer**) by default. The log includes status and error messages that are reported from the maintenance jobs as they are run.

Debug Logs

In addition to the session, call, and transcription logs that are maintained in the database, **PVA***Server* also generates debug logs, which are stored under the **VALogs** directory. These logs record internal programmatic events that can be used by Avaya Technical Support when debugging system problems. The logs are seldom of use to platform administrators.

By default, the debug level for the platform is set to a low value that does not generate a large amount of log file data. As an administrator, however, you must periodically check the size of the **VALogs** directory and delete old logs if excessive file system space is being used.

Note:
The platform debug level can be set through a global parameter called **VAPlatform.DebugLevel**. Typically, the only time you need to modify the debug level is when you are asked to do so by an Avaya Technical Support person. For more information on setting parameters, see Appendix A, “PVAServer Parameters, Error Codes, and Messages.”

Copying Server Configurations

The ASA Management Console enables you to copy the configuration of an existing server to a new server that you add to the ASA serverset. The copy process migrates all the settings from the original machine to the new machine. If a Recognition Server process and a TTS Server process are running on the first machine, for example, then an instance of each process is created on the new machine. These processes are associated with the same application that they were associated with on the original system.

The primary use of the copy feature is for implementing a fail-over system in large ASA environments. With such a system, you prepare a back-up server that is installed with all the **PVA***Server* software, but do not make the server active part of the set. If one of the active servers fails, the failed server’s configuration can then be copied to the backup server, and the backup brought on line. You experience only minimal interruption of ASA services.

Note:
The node that is the source of the copy operation need not be running when you perform the operation. All required information for copying a node is either stored within the database or is known by the serverset controller. Therefore, you can copy the configuration of a failed server to a backup machine even if the failed server is inoperable.

To copy the configuration from one server to another, use the following procedure:

1. Ensure that the **PVA***Server* software and all prerequisites are properly installed on the target server.
2. In the ASA Management Console application, expand the **Serverset** node. Right-click the node for the server you are copying.
3. From the pop-up menu, select **Copy**.
4. Right-click the **Serverset** node and select **Paste** from the pop-up menu. The Select Computer dialog box is displayed.
5. Select from the list the name of the target server and then click **OK.** An authentication dialog box is displayed.
6. In the authentication dialog box, enter the Username and Password for the AvayaSA user on the target server. Then click **OK**. A node for the new server is added to the **Serverset** submenu.

Once the new server has been added to the set, you can start all of its processes (by right-clicking the node and selecting **Start** from the pop-up menu). If you are using the copy feature to replace a failed server, you can delete the original node from the serverset once you have verified that all the processes have started properly on the replacement server.

Providing a Secure Environment

At install time, **PVA***Server* is configured with default security settings. For most sites, these settings are sufficient. However, you might need to modify some of these settings for sites with strict security policies.

Default DCOM Permissions

During installation, the **PVA***Server* software registers the following DCOM objects:

VADBManager	**VAFaxServer**	**VAServerManager**
VAEngine	**VAManager**	**VATelephony**
VAExchMonitor	**VANuanceManager**	**VATextToSpeechSpeechify**
VAExternApp	**VAServer**	

The security parameters for these DCOM objects are set automatically by the **PVA***Server* installation program. Following are the default values for the objects:

- **Access Permissions**. Enable access to the AvayaSA user account.
- **Launch Permissions**. Enable launch to the AvayaSA user account.

CAUTION:
Setting improper parameters can prevent VA processes from running. Therefore, only administrators with advanced DCOM experience can be used to modify security settings. Modifications to DCOM object settings must be performed on all servers in a serverset, not just on the controller node.

Because VAManager processes must be able to access and launch other VA DCOM objects, the AvayaSA user account (or the account under which the VA processes are running) must have access to, and launch, permissions for all VA objects.

Resetting DCOM Permissions

In the event that you must modify the DCOM setting for **PVA***Server*, the following utilities, copied to the **PVA***Server* **\bin** directory at install time, are available to reset the objects to their original configuration:

- **VARegisterDCOM**
- **vladcom**

Proceed as follows to reset the DCOM permissions of ASA objects:

1. Open a DOS command-line window and change to the <*install_root*>**/bin** directory.
2. Type the following:

   varegisterdcom

3. Then type:

   vladcom -cf dcomcfg.txt -pf DCOM_progid.txt -id <*domain*>\<*user*>

where <*domain*> is the server's domain and <*user*> is the username under which the VA processes are running (**AvayaSA** by default).

Securing File System Data

The **PVA***Server* installation process automatically sets access permissions for each directory that it creates. The following user accounts are granted Full Control of all the directories under the root path (**C:\Program Files\PVAServer**) by default:

- Domain Administrator
- Local System Administrator
- System
- AvayaSA

No other user accounts are granted permission to access these directories.

If your system's security arrangements require it, you can modify these permissions to grant or deny access for other accounts. However, because the AvayaSA service account must have access to ASA directories, you must always grant Full Control.

CAUTION:
If you grant a user account access to the file system data under the ASA root directory, that user can listen to all recorded user utterances. For this reason, most ASA sites grant directory access only to administrators.

IIS Security Settings

The ASA installation program automatically creates the following IIS virtual directories on each node in the serverset:

- **PVAReports**
- **ASAManager**
- **PVAUploads**
- **_scriptlibrary**
- **VA_<*nodename*>_Applications**
- **VA_<*nodename*>_VALogs**
- **VA_<*nodename*>_SystemPrompts**
- **VA_<*nodename*>_Utterances**

For maximum security, each virtual directory is created with Challenge/Response authentication required.

VA Database Security

When you install the **PVA***Server* software on the serverset controller node, the installation program automatically performs the following modifications to the MSDE or SQL Server database:

- Sets the MSDE database (and/or SQL Server) to **Windows NT Authentication only**.
- Sets the AvayaSA service account as a database administrator. At runtime, the **PVA***Server* always uses the AvayaSA NT account to access ASA. Administrative privileges are necessary so that the platform can create database tables.

These authentication settings apply at the database-server level, not at the the database level. If you are supporting other MSDE and or SQL Server databases on the serverset controller node, you might need to change the authentication method to SQL Server and Windows NT. However, such changes can make the database less secure than with Windows NT authentication only.

4

ASA User Administration

This chapter discusses the tasks that are required to manage the ASA application and its users. If you are not familiar with UCC Speech Access (Microsoft Exchange version) and the **PVA***Exchange* application, see "ASA Software" on page 1-2.

User Administration Overview

ASA Administrative Tasks

As an ASA administrator, you perform the following user management tasks:

- Assign account numbers and passwords to ASA users.
- Enable and disable ASA users.
- Set the hold music.
- Enable and manage the Global Address List (GAL).
- Modify notification timeouts.

You use the graphical interface that is provided with Microsoft Exchange Server to manage ASA user accounts (assigning account numbers and passwords, and enabling and disabling users). For this purpose, an Avaya Speech Access tab is added to the Properties dialog box during ASA installation. Because you access the AvayaSA (service account) mailbox and the user's mailbox, you must have Service Account Administrator privileges to perform ASA administration tasks.

To perform ASA application management (setting hold music and modifying notification times) you use the ASA Management Console. If you are not familiar with the ASA Management Console, see "Console Overview" on page 2-1 and "Launching the Console" on page 2-3.

How ASA Interacts with Microsoft Exchange

This section discusses the mechanism with which ASA interacts with Microsoft Exchange. Through this interaction, ASA sets user account information as well as uses the telephone interface to handle Exchange contacts and scheduling.

What Happens When You Enable an ASA User

The following changes occur when you enable a user's ASA account:

- A hidden message of type **IPM.Conita.VA.Profile** is created in the user's Inbox. This message contain the user's ASA information.
- A contact is created in the Service Account mailbox Contacts folder for the new ASA user. The information in this contact is used to match the ASA user's account number with the user's Exchange mailbox alias.

What Happens When You Disable an ASA User

The following changes occur when you disable a user's ASA account:

- The hidden message that contains the user's ASA information is deleted from his or her Inbox.
- Hidden messages of type **IPM.Conita.VA.TimeBlock** that contain the ASA user's schedule-based phone routing information are deleted from the user's Inbox.
- The contact for the user is deleted from the AvayaSA Service Account mailbox.

Assigning User Account Numbers

ASA requires an account number for each user account. The account number length is determined by modifying the following Global parameter:

VAPlatform.AccountLength

See Appendix A, "Global Parameters," for instructions for adding or modify global parameters. Beyond assigning account numbers, no other actions are required to select an identification mode.

Two methods are available for assigning user account numbers: the DNIS account number method, and the non-DNIS account number method.

Note:
If a DNIS matches an existing user account number, ASA automatically operates in the public interface mode. If the DNIS does not match an existing account, the application automatically selects the private interface (non-DNIS account number) mode.

DNIS Account Number Method

The DNIS account number identification method enables the public interface (voice mail) functionality of the ASA application. Each user dials a different phone number to access his or her ASA account (this phone number is the same as the user's account number). DNIS identifies which number was dialed by the caller to access the ASA system.

When a call is received by ASA, it receives the DNIS number from the Telephony Server and, if the DNIS number matches an assigned account number, ASA assumes that the call is intended for that user. ASA plays the individual greeting for the user's account ("I am the personal assistant for Bob Smith"). If the caller is not the user identified, ASA takes a voice mail message. If the user speaks the correct password, ASA begins normal operations.

If you use the DNIS account number method in your environment, you need to set each user's account number to his or her assigned DNIS.

Note:
If a call is received from a DNIS that does not match a valid user account, the ASA answers with the following non-DNIS greeting:

> "Welcome to Avaya Speech Access. Please speak or enter you account number."

Non-DNIS Account Number Method

The non-DNIS account number identification method does not require each user to have a separate ASA phone number. It also does not support the public interface functionality. With this method, all users dial the same telephone number to access their ASA accounts. When a call is received, ASA plays a generic greeting and asks the user to enter his or her account number and password. Once the user is identified, he or she can proceed with normal operations. Unauthorized users cannot perform any functions (for example, they cannot leave voice mail for a user).

If you use non-DNIS account numbers, assign each user an number for his or her account. Ensure that no two account numbers are the same.

Assigning User Passwords

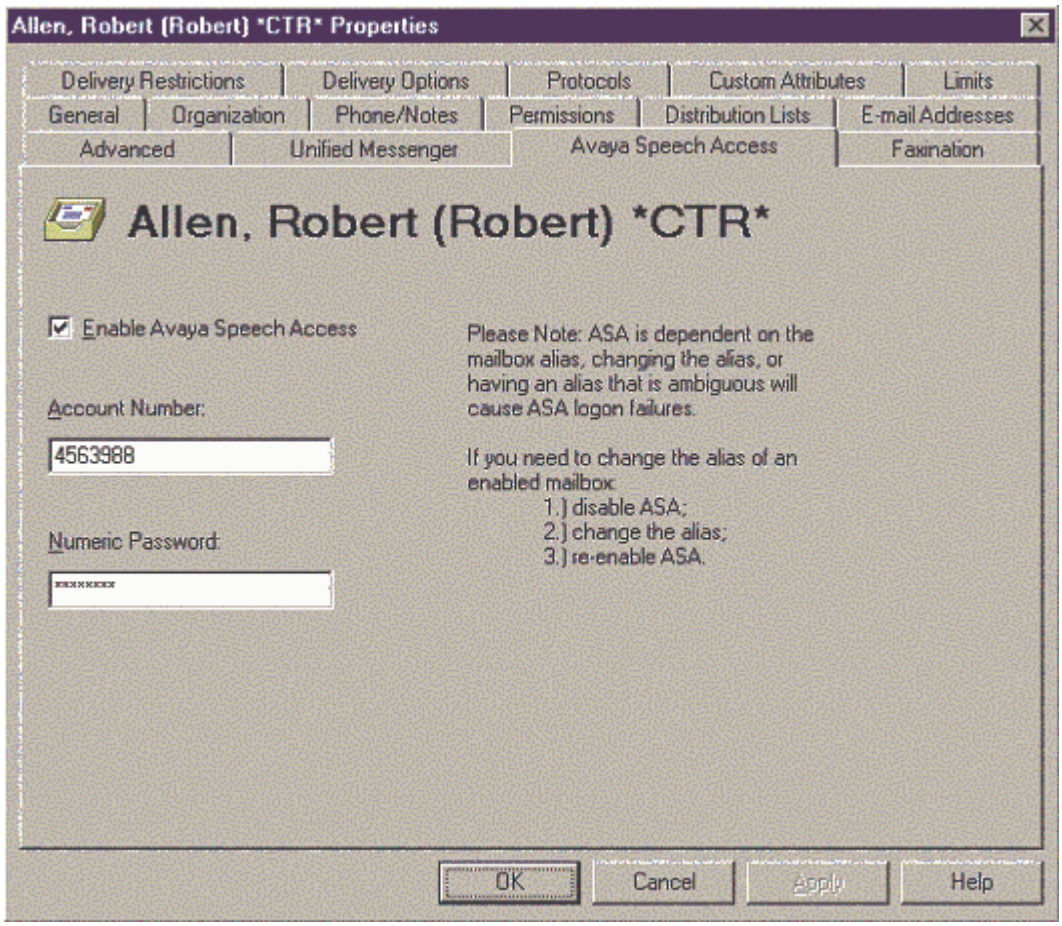
ASA requires that all users have a numeric password, which they use to access ASA. The password can be between 4 and 16 digits long.

As ASA administrator, you assign the initial password for each user when you set up the user's account. Users can change their passwords by using the User Preferences Web pages. (See the *UCC Speech Access (Microsoft Exchange version) User's Guide* for more information about the Web interface for subscribers.)

Using Exchange Server 5.5 to Manage ASA Users

If you are running Exchange Server 5.5, you perform all ASA user account management through the Microsoft Exchange Administrator program. The few ASA-specific administration tasks that you need to perform are available from the **Avaya Speech Access** tab, (added to the Exchange Administrator Mailbox Properties dialog box for each user). Use this tab (shown in Figure 4-1) to edit a user's ASA properties.

Figure 4-1. Avaya Speech Access Tab for Exchange 5.5 Administration)



A Word About Remote Access (Exchange 5.5)

If you are using the Exchange Administrator to administer ASA users from a computer other than the one on which the UCC Speech Access (Microsoft Exchange version) User Administration package is installed, you see two dialog boxes the first time that you click the Avaya Speech Access tab:

- The first dialog box asks for the name of the Exchange server that contains the ASA service account user's mailbox.
- The second dialog box asks for the ASA service account's Exchange alias.

Once you enter these values, they are stored in the Windows registry. You will not have to enter them again.

Enabling an ASA User Account (Exchange 5.5)

When setting up user accounts for the first time, you might want to assign all users the same password (for example, 1111) and then request that they change their password as soon as possible after first using the ASA User Preferences Web interface.

To enable an account:

1. From the Microsoft Exchange Administrator program, expand the site and container nodes under which the mailboxes are located.
2. Double-click the node for the user you want to enable. In the Mailbox Properties dialog box, click **Avaya Speech Access**.
3. To enable the Account Number and Password text boxes, select the **Enable Avaya Speech Access** check box.
4. In the Account Number field, enter the number for accessing this user's ASA account. In the Numeric Password field, type the number the user must enter to access his or her account. Click **OK**.

Disabling an ASA User Account (Exchange 5.5)

When you disable a user account, that user can no longer dial into ASA. Also, the account number and password are not retained. You must enter these values again to re-enable the account.

To disable an account:

1. From the Microsoft Exchange Administrator program, expand the site and container nodes under which the mailboxes are located.
2. Double-click the node for the user you want to disable. From the Mailbox Properties dialog box, click **Avaya Speech Access**.
3. Clear the **Enable Avaya Speech Access** check box and click **Apply** to disable the account number and password. Click **OK**.

Changing an Exchange Server or Alias (Exchange 5.5)

If you change an ASA user's Exchange Server or alias, you need to ensure that ASA can still log on to the user's mailbox:

1. After you click **Apply** to change the Exchange Server or alias, click the **Avaya Speech Access** tab. If instructed to so, click **Apply** and **OK**.
2. Open the user's **Mailbox Properties** dialog box again and click the **Avaya Speech Access** tab. If instructed to do so, click **Apply** and **OK**.

Deleting Exchange Mailboxes (Exchange 5.5)

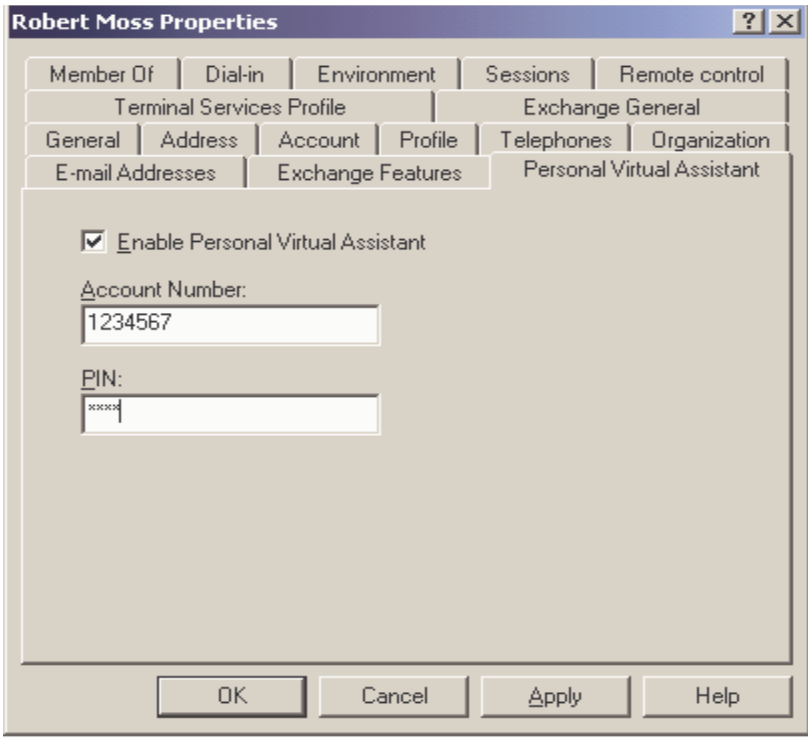
Before you delete the Exchange mailbox for a currently enabled ASA user, first disable the user's ASA account. Otherwise, ASA views the user as having a valid ASA account with a mailbox that it cannot access.

If you inadvertently delete a user's mailbox without first disabling the user's ASA account, do the following:

1. Use Outlook to access the ASA Service Account user's mailbox, and open the **Contacts** folder.
2. Delete the contact with the user name (Exchange alias) of the user you just deleted.

If you are running Exchange 2000 Server, you perform ASA user account management through Microsoft Active Directory Users and Computers. During the ASA Administrator Extension installation for Exchange, an Avaya Speech Access tab was added to this utility for each user (see Figure 4-2). Use this tab to edit the user's ASA properties.

Figure 4-2. Avaya Speech Access Tab for Exchange 2000 Administration



Enabling an ASA User Account (Exchange 2000)

When setting up user accounts for the first time, you might want to assign all users the same password (for example, 1111) and request that they change the password as soon as possible after using the User Preferences Web interface.

To enable a user account:

1. From the Microsoft Active Directory Users and Computers program, expand the **User** node for the appropriate domain. Then double-click the name of the user you want to enable. The **Properties** dialog box is displayed.

2. Click the **Avaya Speech Access** tab and select **Enable Avaya Speech Access.** The Account Number and Password text boxes are enabled.

3. In the **Account Number** field, enter the number for accessing this user's ASA account. In the Numeric Password field, type the number the user must enter to access his or her account. Click **OK**.

Disabling an ASA User Account (Exchange 2000)

When you disable a user's account, that user can no longer dial into his or her ASA. Also, the Account Number and Numeric Password are not retained. You must enter these properties again if the account is re-enabled.

To disable an account:

1. From the Microsoft Active Directory Users and Computers program, expand the **User** node for the appropriate domain. Double-click the name of the user you want to disable. The **Properties** dialog box is displayed.

2. Select the **Avaya Speech Access** check box and then click **Apply**. The Account Number and Password text boxes are disabled. Click **OK**.

Managing the Application

Following are the tasks required to maintain the ASA application:

- Monitoring platform logs
- Managing server disk space
- Backing up the database.

For more information abut performing these tasks, see Chapter 3, "PVAServer Administration,"

In addition to performing these maintenance tasks, you also perform administrative tasks specifically for the ASA application. These tasks are discussed in the sections that follow.

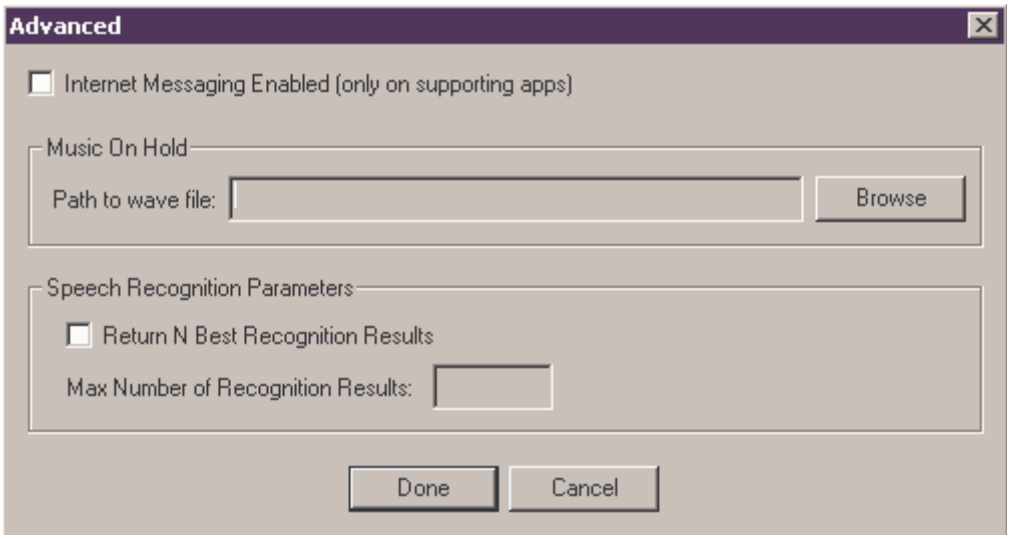
Setting the Default Hold Music

When callers dial in to the ASA public interface, the application can play music to them while they are on hold. When you first publish the

application, a wave (.wav) file for hold music is copied to the platform, but it is not be activated. Proceed as follows to set the hold music:

1. From the ASA Management Console, click the application node for ASA. In the main window, click **Advanced** to open the application's Advanced properties dialog box (see Figure 4-3).

Figure 4-3. ASA Advanced Properties Dialog Box



2. In the Music on Hold frame, click **Browse**. The Select a Filename dialog box is displayed.

3. The Select a Filename dialog box must be pointing to the application's directory under the VAApplications folder. Open the **Files** folder and select **Mohal.wav**.

4. Click **OK** to accept the changes and **Done** to close the dialog box.

Setting Custom Hold Music

You can choose alternative wave files for your ASA platform's hold music. Begin at the ASA Management Console, and select the filename in the Advanced properties dialog box.The following wave file formats are supported:

- PCM 16 bit, 8 kHz
- Mulaw 8 bit, 8 kHz

Enabling the Exchange Global Address List (GAL)

By default, ASA enables each user to access only the Personal Contacts folder, which contains the contacts that each user enters in his or her

desktop Outlook application. ASA can also be enabled to access the Global Address List (GAL), which is maintained by Exchange and includes all the account holders on the Exchange site.

When enabled, these two contact sources are transparent to the user. If a user says, "Send a message to John Brown," ASA searches both the user's personal Contacts folder and the GAL for John Brown. Table 4-1 shows how matching contacts are presented to the user.

Table 4-1. Contacts Matching with ASA

What ASA Can find	Action
One or more contact matches in the personal contacts folder only	All matches are presented so that the user can choose the correct contact.
At least one match in both the personal contacts folder and the GAL	Only matches from the personal contacts folder are presented.
No matches in the personal contacts folder and one or more matches in the GAL	All matching contacts from the GAL are presented to the user.

In some situations, using both types of contact sources is desirable. It enables ASA users to telephone or send messages to any person in their company, without having to enter the contact in their personal contact folders. However, you must enable the GAL to provide this capability by changing the VAPlatform.UseGAL parameter to TRUE, as follows:

1. From the ASA Management Console, right-click the **ASA Manager** node and select **Properties**. In the ASA Manager Properties dialog box, scroll through the list of parameters and click **VAPlatform.UseGAL**.

2. In the Current Value field, change the value to **TRUE** and then click **OK**.

3. Republish the application to add the GAL contact names from the application's grammar. (See the *UCC Speech Access (Microsoft Exchange version) Quick Start Installation Guide* for information about publishing an application).

If you later want to turn off the GAL, change the parameter to **FALSE** and republish the application.

Scheduling GAL Grammar Updates

When users are added, modified, or removed from the GAL, **PVA***Exchange* needs to recompiled to update the GAL grammar. An

administrator can either manually update **PVA***Exchange* by using the Publish button on the application's detail pane in the ASA Management Console or configure ASA to automatically update the grammars by setting up a scheduled publish.

See Chapter 2, "Scheduled Publish." for more information.

Modifying Notification Timeout

ASA calls users and notifies them of pending appointments, tasks, and inbox rules. If the user cannot be reached (for example, if his or her phone is busy), the application waits three minutes and then tries to place the call again. While an engine is waiting to retry a notification, it does not accept incoming calls or try to make notifications to other users.) If contact cannot be made within 15 minutes, the notification attempt is abandoned.

By using the ASA Management Console, you can modify both the notification retry interval and the maximum total time during which the platform attempts a notification.

- To modify the period between notifications, add a platform parameter called

  VAPlatform.NotificationContactInterval

  and set its value to the number of milliseconds between retry attempts. If this parameter is not set, the application defaults to 180000 ms, or 3 minutes.

- To modify the total notification period, add a platform parameter called

  VAPlatform.NotificationAttemptTimeoutMax

  and set its value to the total number of milliseconds that the platform must retry a notification before abandoning it. (If this parameter is not set, the application defaults to 900000 ms, or 15 minutes.)

For more information on adding and setting parameters, see Appendix A, "PVAServer Parameters, Error Codes, and Messages."

5

Troubleshooting PVA*Server*

This chapter provides tips and guidelines for troubleshooting **PVA***Server* errors. It includes a general discussion of the following topics:

- Installation problems
- Processes that fail to start
- ASA Error Logs
- Creating and removing IIS Virtual Directories
- Database errors

In addition, the chapter contains a listing of common ASA Management Console errors and their resolutions.

Installation Problems

If you used the *UCC Speech Access (Microsoft Exchange version) Quick Start Guide*, you might already have tried the solutions suggested in this section. If you cannot solve your installation problems by following the guidelines in this section yourself, contact you support representative.

The most important step in checking an ASA installation is to ensure that the VAServerManager service started. To verify that this service started, click

Start->Programs ->Administrative Tools ->Services

and check that the word **Started** appears on the services list next to VAServerManager.

Installation Log Files

If the VAServerManager service does not display a status of **Started**, an error probably occurred during **ASA** installation. The ASA installation program generates a set of log files that are useful for diagnosing a failed installation. These files can be found in the following location:

<*installroot*>\Log

where <*installroot*> is the path to which the ASA Server software was installed (**C:\Program Files\PVAServer** by default).

If you received a warning or saw error messages during installation, check the log files first to see whether they contain more detailed messages. Table 5-1 describes the log files in the Log directory.

Table 5-1. Installation Log Files

File Name	Description
PVASAInstallLog_Server.log>	The primary installation log file. This file has to be checked first.
VAServiceControl.log	Contains a log of the install routine's NT Service operations (for example, creating the VAManager and VAServerManager services).
VAServiceControl_SS.log	Contains a log of the install routine's NT Service operations for the MSSQLServer service.
VAServiceControl_SSA.log	Contains a log of the install routine's NT Service operations for the SQL Server Agent service.
VLADCOM.log	Contains a log of the install routine's setting of DCOM permissions for the various platform objects.

VAServiceControl_VASM0.log	Contains output from the install routine's configuration of NT service characteristics of the VAServerManager service.
VAServiceControl_VASM1.log	Contains output from the install routine's configuration of NT service characteristics of the database service (MSDE or SQL Server).
SetDBSec.log	Contains a log of the install routine's database security configuration.
VADatabaseManager.log	Contains output from the install routine's initialization and maintenance of the VADB Manager.

Common Installation Problems

The most common installation problems and their solutions are listed on Table 5-2.

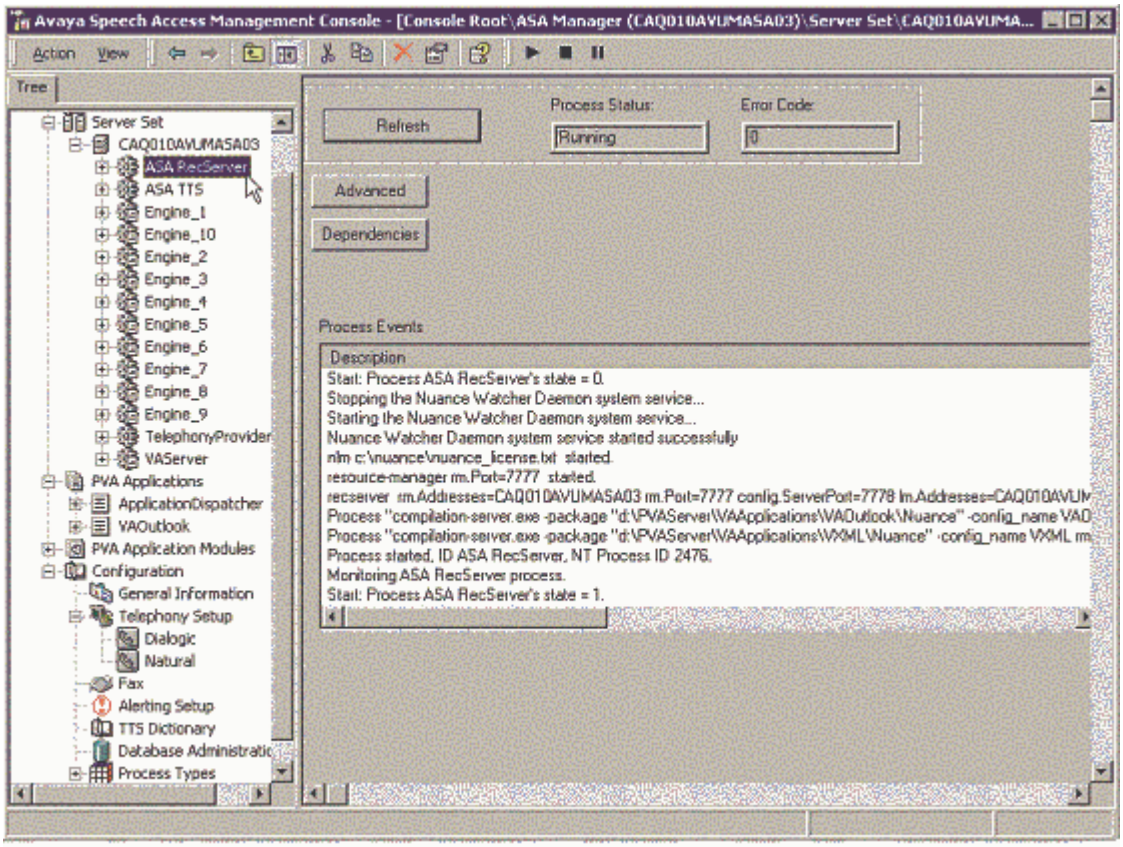
Table 5-2. Common Installation Problems

Problem	Description	Comments
Software Prerequisites Not Installed	The ASA install program does not check for the presence of all the prerequisite software packages.	See the *UCC Speech Access (Microsoft Exchange version) Quick Start Installation Guide*. Ensure that all the necessary components have been installed.
Out of Space Errors	The installation of ASA requires approximately 800 MB for a Controller Node with the MSDE database.	Free up additional disk space and then run the installation again.

Improperly Configured **AvayaSA** Service	If the **AvayaSA** service account does not have the proper domain, the installation could fail.	See the *UCC Speech Access (Microsoft Exchange version) Quick Start Installation Guide*. Ensure that **AvayaSA** was set up properly. **Note:** The ASA installation program enables certain local rights on the **AvayaSA** service account. If you did not create the account, or if you created the account incorrectly, you must rerun the ASA installation.
Speech Recognition .DLLs fail to register during installation	You probably did not restart the system after installing the Nuance software.	Restart the system and then run the ASA installation again.
Processes started correctly, but **AvayaSA** cannot connect to TTS server (TTS server is running)	You might have assigned an empty password to **AvayaSA**.	See the *UCC Speech Access (Microsoft Exchange version) Quick Start Installation Guide*. Perform the ASA installation again and select a password for **AvayaSA**.
Processes started correctly, but VA Engine displays the message **Can't load XML**	XML Parser not installed	See the *UCC Speech Access (Microsoft Exchange version) Quick Start Installation Guide*. Install the XML Parser. Then rerun the **PVA***Server* installation procedure.

You can check the status of a process by viewing its details pane. As shown in Figure 5-1, this pane appears in the right-hand window of the ASA Management Console when you click the process name in the component tree:

Figure 5-1. Details Pane for an ASA Process



On this pane, the Process Status field indicates the current state of the process. It can have one of the following values:

- **Running**: The process is running properly.
- **Pending:** A start or stop request is currently pending for the process.
- **Stopped:** The process has been stopped by an administrator.
- **Error**: The process has failed to start because of an error.
- **Waiting:** The process is stopping gracefully but is currently in use and is waiting to be released.

If the process is in Error status, the code for the error is displayed in the Error Code field. This hexadecimal-number error code indicates the reason for the process's failure (see "Common Error Messages and Solutions" on page 5-16 for more information). If one or more of the processes for an

application fail to start, look up the displayed error code in one of these two resources to determine the reason for the failure.

Note:
In addition to displaying an error code, a failed process can also list troubleshooting information in the large Process Events text box on its details pane.

One of the most common causes for a component's failure to start is that one of its prerequisite processes is not running. A VA Engine, for example, cannot start if its TTS Server is not running. Also, a Nuance Recognition Server cannot start if its License Manager process is not already running. If a component fails to start, make sure that all its associated processes are running correctly and, if they are not, attempt to start them.

ASA Error Logs

PVA*Server* writes error messages to several locations. When you attempt to diagnose system problems, check the locations in the order specified below.

Windows Event Log

The Windows Event Log is the most promising source for troubleshooting information. When the VAServerManager process receives notification of error messages from various platform components, it writes the messages to the Event Log. Third-party components (such as Nuance and the MSDE database) also write error messages to this log. Messages are displayed in the Application view of the Event Viewer application. Click the following to access the viewer

Start->Programs->Administrative Tool->Event Viewer.

ASA Management Console

Most processes display error messages on their details pane in the ASA Management Console. If you are having problems with a particular application or component, click its node in the component tree and check for error codes in the Error box or Process Events field. See "Common Error Messages and Solutions" on page 5-16 for more information about these messages.

Debug Log

PVA*Server* generates debug messages, which are written to the **VALogs** folder under the install root directory. These messages are generally of most use to Avaya technical support personnel, but they can provide you with clues about the cause of platform problems.

By default, the debug level for the platform is set to **0**, which generates only a small number of messages. However, you can adjust the VAPlatform.DebugLevel global parameter to increase the amount of debug logging and to save more detailed messages (see Appendix A, "PVAServer Parameters, Error Codes, and Messages"). Typically, the only time when you need to increase the debug level is when instructed by Avaya technical support.

Note:
When you increase the debug level, the amount of disk space that is consumed by the logs increases dramatically. Do not forget to reset the debug level parameter once debugging is complete.

Administrator Alerts

PVA*Server* includes an alert feature that allows the administrator to be paged when selected system errors occur. For a discussion of the available alerts and how to configure these alerts, see Chapter 2, "Configuring Alerts.". The following table lists various administrator alerts with descriptions and resolutions.

Message: Disk utilization, disk C:\, is above the threshold; utilization 85%; threshold.

Description: This alert is generated when any disk on any system in the serverset exceeds the percentage of disk space consumed threshold set by the administrator.

Resolution 1: Purge unnecessary utterances and/or log files.

Resolution 2: Open Windows Explorer and delete unnecessary files (might be unrelated to ASA).

Message: Unexpected Process Termination TELSERVER, VAO VAServer, NT Process ID 0.

Description: When a process controlled by VAManager aborts, an error is raised, and an alert generated. The message is similar to the alert listed above.

Resolution 1: Manually restart the process through the ASA Management Console, as follows:

1. Click the name of the server that hosts the process.
2. Right-click on the process and select **Start**.

Resolution 2: Investigate the cause of the process termination by examining the ASA Log files or the Windows Event Log.

Nuance Alerts

Following are Nuance alert descriptions and resolutions:.

Message: Nuance exception status NUANCE_TIMED_OUT-Failed to get final result, timeout.

Description: This alert can occur because of a sudden increase of load on the system and is reported to the user as a recognition error. If this alert occurs frequently, the system is not able to carry as much load as was placed on it.

Resolution: Increase the amount of resources available by increasing the amount of memory/CPU power or decreasing the number of engines and/or applications that are running on the system.

Message: Nuance exception status NUANCE_SERVER_MESSAGE_READ_EOF-Processing message failure.

Description: This alert occurs when the recognition client that is running in the engine receives a truncated message from the recognition server. This happens for one of the following reasons:

- **Reason 1:** A network communication problem (only relevant when the recognition server is running on a different machine).
  Resolution 1: Make sure that the network is up and running. You might have to restart the application after correcting the problem.
- **Reason 2:** The recognition server died or was brought down in the middle of processing a recognition request.
  Resolution 2: Look in the recognition server log to determine if it reported the reason of failure. Restart the recognition server.
- **Reason 3:** The recognition server could be missing a critical piece of information necessary to process the requests. This might include, for example, a missing dynamic grammar database or a record in that database.
  Resolution 3: Make sure that the information the recognition server needs is available.

If the problem is persistent, you might need to contact technical support at Avaya or Nuance.

Message: Nuance exception status NUANCE_ERROR - Error while flushing commands in cache.

Resolution: If this error occurs persistently, contact technical support at Nuance or Avaya.

Message: Nuance exception status NUANCE_TIMED_OUT-Failed to connect to server, timeout.

- **Reason 1**: The recognition server went down.
  Resolution 1: Restart the recognition server and engines.
- **Reason 2:** The engine has incorrect resource manager address or port.
  Resolution 2: Correct this information and restart the engines.
- **Reason 3:** Either the recognition server or resource manager is too busy to service the request in time.
  Resolution 3: Decrease the load on the system.

Message: Nuance exception status NUANCE_SERVER_NOT_ACCESSIBLE-No server can satisfy the request.

Following are the potential causes for this exception:

- **Reason 1:** The Recognition Server for this application is not running.
  Resolution 1: Start this process and restart the engines.
- **Reason 2:** Either the Recognition Server or the VA Engine does not have the correct port for the Resource Manager (rm Port parameter on the command line).
  Resolution 2: Enter the correct port information and restart the application.
- **Reason 3:** During the application startup, the VA Engine initializes more quickly than the Recognition Server so that the Recognition Server is not ready to service requests yet.
  Resolution 3: Restart the engine that reported the error.

Nuance Recognition Servers That Fail to Start

In many cases, a Recognition Server cannot start because a prerequisite process, such as the Nuance Manager (or one of it's underlying processes), is not running.

Resolving Database Errors

If you receive error messages indicating problems with the database, check the AvayaSA service account and make sure it is set up correctly (see the *UCC Speech Access (Microsoft Exchange version) Quick Start Installation Guide* for more information). AvayaSA is the account used by the **PVA***Server* software to access the database. If account permissions are improperly set, it cannot connect to the database.

Regenerating the Database

Database problems can result from a corrupted VA database. If you suspect that your database has been corrupted, try the following:

1. Restore the database from the most recent backup. See "Managing the VA Database" on page 3-10 for more information.

2. Delete the database and recreate it. When you delete the database, VAServerManager will detect if the database is missing the next time the VAServerManager is started. The VAServerManager

will then create a new database with the default values. Use one of the following methods to delete the database:

- If SQL Server Enterprise Manage is running on any server in the same domain as the serverset, use it to drop the current VA database (named VADB by default).
- Type the following from the Windows command prompt:

```
C: osql -e
drop database VADB
go
```

CAUTION:
Dropping and re-creating the database results in the loss off all configuration information (including processes and application information). **PVA***Server* restarts with an empty configuration. Be sure that you have a regular database backup policy in place.

Creating and Removing IIS Virtual Directories

The **PVA***Server* installation creates IIS virtual directories and sets the permissions for them. These directories are used by the following browser-based utilities:

- PVAReports
- ASAManager

Should the need arise, the following script is available to re-create a virtual directory:

\bin\VACreateVirtualDirectory.vbs

A second script is available for removing a virtual directory:

\bin\VARemoveVirtualDirectory.vbs

Creating a Virtual Directory

Proceed as follows to create a virtual directory:

From the Windows desktop, open a command prompt and change to the ASA **\bin** folder (**C:\Program Files\PVAServer\bin**).

Type the following:

VACreateVirtualDirectory <*virtual_directory_name*> <*virtual_directory_physical_path*>

<{True=InProcess,False=OutofProcess}> <*default_document*>
<{True=BasicAuthentication,False=NoBasicAuthentication}>
<{True=NTLMAuthentication,False=NoNTLMAuthentication
False=NoAllowAnonymous Authentication}>
<{True=AllowAnonymousAuthentication}>
<{True=ExecuteAccess,False=NoAllowExecuteAccess}>
<{True=AllowWriteAccess,False=NoAllowWriteAccess}>
<{True=AllowReadAccess,False=NoAllowReadAccess}>

Virtual Directory Examples

Following are some sample commands for re-creating virtual directories. Commands are grouped as follows:

- Virtual directories created on each server in the serverset
- Virtual directories needed for ASA Web management

Virtual Directories That Are Created on Each Server in the Serverset

Table 5-3 provides sample commands for re-creating virtual directories that are created by the **PVA***Server* installation on each server in the serverset.

Table 5-3. Virtual Directories Created on Each Server in the Serverset

Virtual Directory	Sample Command
VA_<*servername*> SystemPrompts	VACreateVirtualDirectory“VA_<*servername*> _SystemPrompts”“d:\Program Files\ PVAServer\VASystem” True “foo.html” False True False
VA_<*servername*> Applications	VACreateVirtualDirectory “VA_<*servername*>_ Applications” “d:\Program Files\ PVAServer\VAApplications” True “foo.html” False True False
VA_<*servername*> Utterances	VACreateVirtualDirectory “VA_<*servername*>_ Utterances” “d:\Program Files\ PVAServer\VAUtterances” True “foo.html” False True False
VA_<*servername*> PVAReports	VACreateVirtualDirectory “VA_<*servername*>_ PVAReports” “d:\Program Files\ PVAServer\PVAReports” True “foo.html” False True False

Virtual Directories Needed for ASA Web Management

Table 5-4 provides sample commands for re-creating virtual directories that are needed to run the Web version of the ASA management tool.

Table 5-4. Virtual Directories Needed for ASA Web Management

Virtual Directory	Sample Command
PVAReports (session logs for ASA Web management)	VACreateVirtualDirectory “PVAReports” “d:\Program Files\ PVAServer\Web\PVAReports” True “PVAReport.html” False True False
ASAManager (ASA Web management tool)	VACreateVirtualDirectory “ASAManager” “d:\Program Files\ PVAServer\Web\ASAManager” False “Default.asp” False True False
_scriptlibrary (required for Web ASA management)	VACreateVirtualDirectory “_scriptlibrary” “d:\Program Files\ PVAServer\Web_scriptlibrary” T rue “rs.htm” False True False

Removing a Virtual Directory

To remove a virtual directory, type the following at a command prompt:

VARemoveVirtualDirectory <*virtual directory name*>

For example:

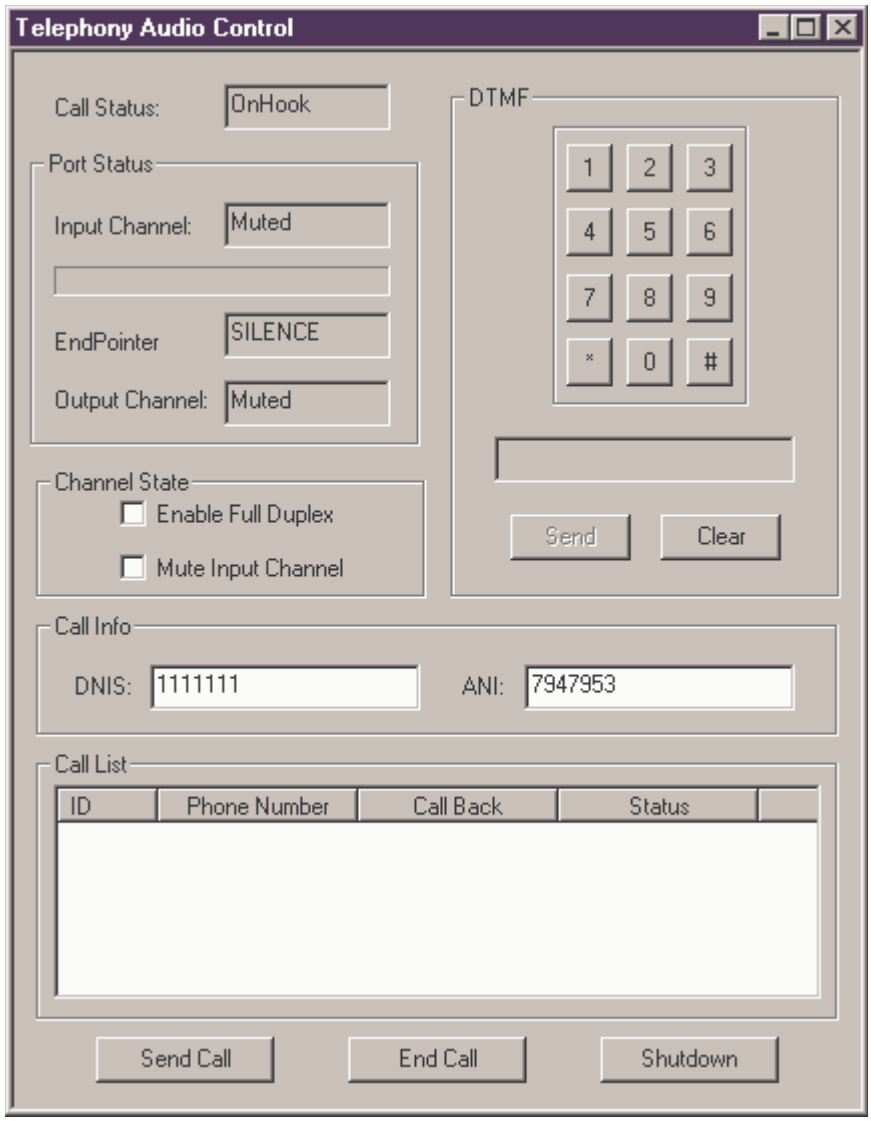
VARemoveVirtualDirectory PVAReports

Running Applications in Interactive Mode

The Sound Card Engine COM object has two modes: interactive and noninteractive. The default mode is noninteractive. The COM object runs in the background, with no visible component.

You can use the ASA Management Console to switch to interactive mode and to run an engine that has a visible GUI. This interface enables you to test features with a Sound Card Engine such as DTMF (phone keypad) functions, DNIS recognition, and audio barge-in. Figure 5-2 illustrates the Sound Card interactive-mode interface.

Figure 5-2. Interactive Mode Interface for Sound Card Engine



Setting Interactive Mode

If you set the **VASoundCard.Interactive** parameter to TRUE, you must change the DCOM settings of the VA Engine object to run as the interactive user. Otherwise, the VA Engine does not automatically generate a call (it waits for input from the hidden interactive interface).

Proceed as follows to configure the platform to run in interactive mode:

1. In the ASA Management Console, stop the Sound Card Engine that you want to set to interactive mode.

2. Right-click the **ASA Manager** node and select **Properties** from the pop-up menu.

3. In the Properties dialog box highlight **VASoundCard.Interactive** and change its value to **TRUE**. Click **OK**.

4. On the server on which the Sound Card Engine is running, log in as the AvayaSA user and launch the DCOM configuration utility (**Start->Run->dcomcnfg**).

5. Select VAEngine from the list of DCOM objects and click its **Properties** button. On the Identity tab, set the VA Engine to run as **Interactive User**. Click **OK** twice.

6. From the ASA Management Console, restart the VA Engine. The interactive interface appears on the screen of the server on which the engine is running.

Use Interactive Mode

The Telephony Audio Control GUI enables you to access the same type of call data that would be attached to a real call. To use the Interactive Mode Interface,

1. On the Telephony Audio Control GUI, enter the **DNIS** (number to be dialed). Then enter the **ANI** (number dialed from).

2. Click **Send Call** to connect to the VAEngine. The call information appears in the Call List pane.

As you test your application:

- Use the DTMF buttons on the Telephony Audio Control GUI to send telephone keypad presses.

- Select the **Enable Full Duplex** check box to use the BargeIn feature, which enables callers to interrupt ASA while it is speaking. (BargeIn is not available in the regular sound-card engine mode.)

- Use the **Mute Input Channel** check box to mute microphone input.

To terminate the test call, select the call in the Call List pane and click **End Call**. Click **Shutdown** to stop the VA Engine (the same as right-clicking the engine node and selecting **Stop (Immediate)**).

Common Error Messages and Solutions

The following tables list error messages that are frequently seen by administrators. The tables provide a short description of each error message and that suggest ways to resolve the problem.

The tables are divided into two categories:

- **PVA***Server*-generated messages
- Windows messages

PVA*Server*-generated Errors

0x411100BC PROCESS PARAMETERS NOT INITIALIZED

Description: When a process is being added to a server, this message signifies that an error occurred in setting the process's default parameters. The problem could be caused by an error in accessing the InitialProcessParameter table in the database.

Resolution: "Resolving Database Errors" on page 5-10

0x811100AD EVENTSINK NOT DEFINED

Description: An error was encountered while **VAManager.exe** was trying to send an event to **VAServerManager.exe**.

Resolution: This error usually occurs when a process is terminated while an event is outstanding, or when the entire platform is immediately shut down. Restart the process and/or platform.

0x811100BA SERVERMANAGER NOT INITIALIZED

Description: Signifies an internal error on initialization that has caused one or more components of the Avaya VAServerManager process to become unusable. This error is a side effect of a previous error.

Resolution: Check the Windows Event Log and the ASA Application logs to find related errors. Correct the related errors.

0x811100BB DB ENTRY ALREADY EXISTS

Description: This error is returned when a command tries to add to a database table a row that duplicates an existing row. It often indicates that you are trying to create a new process with the same name as an existing process.

0xC1110002 VAVM ERROR PARSING VADL STRING

Description: An error has occurred with the application's **.vaxml** file. This error can indicate a problem within the file itself, or it might indicate that the system cannot find the file in question.

Resolution: Verify that the **.vad** file exists and that the system is using the proper path to the file. In particular, check the VAPlatform and VAApplication parameters both on the controller node and on the system running the VAEngine. If these parameters point to the wrong paths, correct them.

0xC1110017 VAVM SCRIPT ITEM NAME ALREADY DEFINED

Description: This error is logged when there is an application scripting error.

Resolution: Contact ASA technical support for help in debugging the application.

0xC1110036	INSUFFICIENT MEMORY RESOURCES

Description: Not enough memory was available to complete an operation.

Resolution: Free up additional memory by terminating unnecessary applications and processes.

0xC111003F	VAVM SCRIPTING ERROR

Description: This error is returned when a script module has generated an error. The resolution depends upon the source of the error.

Resolution: If this error message is received from a VAManager process, an error probably occurred during parsing or execution of an application **.vad** file Contact Avaya technical support.

0xC111006A	DATABASE ERROR

Description: This error is returned when a general database error is encountered.

Resolution: "Resolving Database Errors" on page 5-10.

0xC11100CB	SYSTEM DIRECTORY ERROR

Description: An error was encountered while ASA was trying to get the Avaya system directory from the registry.

Resolution: Make sure that the VAPlatform.VASystemDirectory exists in the registry. See "Registry Parameters." in Appendix A).

0xC11100DC	VAPUBLISH APP ALREADY BEING PUBLISHED

Description: This error is returned during an application publish operation when a previous application has not finished being published.

Resolution: Wait until the previous publish command has finished before starting another publish command.

Windows-generated Errors

0x80000004 E_NOINTERFACE

Description: This message is usually a result of a **PVA***Server* installation error. A required object was registered incorrectly.

0x800006BA RPC_S_SERVER_UNAVAILABLE

Description: An error occurred while ASA was trying to connect to a remote object and could be caused by a number of problems. One of the most frequent causes is that a COM server on a remote machine has “hung” and the client trying to connect to it cannot regain contact.

0x80004005 E_FAIL

Description: If received in conjunction with an **Error retrieving Serverset** message, this error usually indicates that the database or some of its tables are corrupted.

Resolution: See “Resolving Database Errors” on page 5-10.

0x80030002 FILE COULD NOT BE FOUND

Description: The file that was being accessed to perform the current operation could not be found.

Resolution: The resolution depends upon which file could not be found.

0x8004010F MAPI_E_NOT_FOUND

Description: The user might not be able to log on. Or he may be able to log on, but cannot access CDO data.

Resolution: Check that Windows 2000 with CDO has been properly installed on the user’s machine and that the user’s ASA account is properly set up on the Exchange Server.

0x80040154 CLASS NOT REGISTERED

Description: When received in conjunction with an **Error adding Server to Serverset** message, this error generally indicates that the server that is being added to the serverset does not have the **PVA***Server* software installed.

Resolution: Install the **PVA***Server* software on the new server.

0x80070005	COULD NOT INITIALIZE THE OBJECT THAT HANDLES ASA USER MANAGEMENT

Description: When received while ASA is trying to access the Avaya Speech Access tab on an Exchange user account, this error indicates that the administrator who is attempting to access the user account is not logged in as the ASA User Administrator or as a user who has Service Account Administrator privileges.

Resolution: Log off and log back in as the ASA User Administrator or under an account with Service Account Administrator privileges.

0x80070005	E_ACCESSDENIED

Description: A command could not be executed because of a security restriction. This message usually occurs when one or more Avaya objects were not set up correctly during installation.

Resolution: Use **DCOMCNFG.ex**e to check that all objects and services are running under the correct accounts and that the offending object does, in fact, have permission to complete the command.

0x80070003	PATH NOT FOUND

Description: When this error occurs during publication of an application, it indicates that the whole path to the application's **.vapub** file exceeds the system limit of 256 character.

Resolution: Shorten the application's name and/or directory name.

0x800700CE	FILENAME EXCEEDS RANGE

Description: When this error occurs during publication of an application, it indicates that filename of the application's **.vapub** file exceeds the system limit.

Resolution: Shorten the name of the application.

0x8007010B	THE DIRECTORY NAME IS INVALID

Description: The directory in which the process has to run does not exist. This message usually indicates that the application to which the process belongs has not yet been published.

Resolution: Publish the application by using the ASA Management Console.

USER.INITIALIZE FAILED

Description: This error indicates that one or more parameters were incorrectly set or have insufficient permissions.

- **Reason 1:** The AvayaSA service account name was incorrectly entered.
  Resolution 1: Within the ASA Management Console, expand the **ASA Management** and **Configuration** folders and select the **General Information** node. Check that the **AvayaSA Service Account** field has the correct name entered. If you change the name, restart the application.

- **Reason 2:** The Exchange server name was entered incorrectly.
  Resolution 2: Within the ASA Management Console, expand the **ASA Management** and **Configuration** folders and select the **General Information** node. Check that the **Exchange Server** field has the correct name of the Exchange server entered. If you change the name, restart the application.

- **Reason 3:** The VAServerManager or VAManager services or the VA Engine process is running as a user without the correct privileges.
  Resolution 3: Check that the VAServerManager, the VAManager services and the VA Engine processes are running as the AvayaSA service account user or as a user who has Exchange service account administrator privileges.

- **Reason 4:** The AvayaSA service account user does not have the correct privileges on the Exchange site.
  Resolution 4: Use the Exchange Administrator program to check that the AvayaSA service account user has service account administrator privileges on the Exchange site. If this permission is reset, the permissions might take a few minutes to be reset.

Contacting Avaya Customer Support

To maintain continuity, the designated ASA administrator or backup administrator should contact Avaya Customer Support directly. Please have the following information available before contacting Avaya customer support at:

www.support.avaya.com

Information Required	Comments
Name of Contact	Name of the system administrator or backup administrator.

Callback Number	Include this information only if you require Avaya to call you. The message automatically notifies Customer Support so that a representative can call you back.
Problem Type	Use one of the following types: ■ Bug ■ Request for Change ■ Question
Problem Impact	Use one of the following descriptions: ■ System is down. ■ System is running, but unusable. ■ System is running and mostly usable. ■ No impact.
Summary of Problem	Quick description of problem
Description of Problem	Include as much information about the problem as is known including: ■ How to reproduce ■ Call Session ID (if applicable) ■ Error codes ■ Copy of logs (if applicable) ■ Dump files (if applicable)
System Version	ASA software version that you are running

If you have an ASA process with the message

Unexpected process termination

in the Process Event window, attempt to restart the process. Contact your local support representative if you receive this error message again.

6

Troubleshooting the ASA Application

This chapter provides tips and guidelines for troubleshooting ASA application errors and correcting them. It includes a general discussion of the following topics:

- Troubleshooting UCC Speech Access (Microsoft Exchange version) User Administration Installations
- Troubleshooting User Accounts (Exchange Server 5.5)
- Troubleshooting User Accounts (Exchange 2000 Server)
- Disaster Recovery

If you cannot solve your ASA application problem after reading the information in this chapter, contact your UCC Speech Access (Microsoft Exchange version) support representative.

Troubleshooting UCC Speech Access (Microsoft Exchange version) User Administration

Failure to Install the User Administration Utility

If you receive the following message during installation of the User Administration tool

Could not install Avaya Speech Access Administration

you did not correctly enter one or more of the following during installation:

- Exchange server name

- Exchange organization
- Exchange site
- Exchange container

Stop the install and make sure that the names of the items listed above are correct. Retry the installation, and type the correct names when prompted.

Failure to Install Extension Object

If you receive the following message during installation of the ASA User Administration tool

Could not install the extension object into the directory using DAPI

one of the following is the likely cause:

- You are not logged in as the same user who installed the Microsoft Exchange Administrator application.
- The required DLLs for using DAPI are not present on the system.

If you receive this message, log out of Windows, log in again as the proper user and retry the installation. If the same error occurs, check your system to verify that it has the proper DLLs ("DAPI DLL Requirements" on page 6-3).

Login Requirement

ASA requires Exchange administrator privileges because ASA accesses Windows registry entries under the HKEY_CURRENT_USER key. These entries are created when the Microsoft Exchange Administrator application is installed. If you are not logged in as the same user who installed the Administrator application, the ASA User Administration utility cannot access the following registry entries.

AdminLangID REG_DWORD 0x409

ANGAutotextFormat REG_DWORD %First%1Last

DNGAutotextFormat REG_DWORD %First %Last

located under the following key:

HKEY_CURRENT_USER\SOFTWARE\Microsoft\Exchange\MSExchangeAdminCommon key:

The entries enable the use of DAPI for installation of the ASA User Administration utility.

If you want to install the ASA User Administration utility under a different user account from the one that installed the Microsoft Exchange Administrator application, you can do so by copying the registry key:

1. Log in as the user who installed Exchange Administrator.
2. Export the following key to a **.reg** file:

   HKEY_CURRENTUSER\SOFTWARE\Microsoft\Exchange\ MSExchangeAdminCommon

3. Log out of Windows and log in under the user account that will be used to install the ASA User Administration utility.
4. Import the registry key from the **.reg** file you created in step 2.

DAPI DLL Requirements

So that the ASA User Administration utility installation routine can use DAPI, the following DLLs must be present under the **winnt\system32** directory:

- **DAPI.dll**
- **Libxds.dll**
- **Exchmem.dll**

These DLLs are added to the system during the Microsoft Exchange Administrator installation. If they are missing from the **winnt\system32** directory, you cannot install the ASA User Administration application.

CDO Not Registered

During the installation of the ASA User Administration utility, you might receive the following error message:

> **CDO is not registered. Please register CDO and run Setup again**

If you receive this message, perform the following steps to register CDO:

1. Start a command prompt and change to the **\winnt\system32** directory.
2. Enter the following command:

   regsvr32 cdo.dll

ASA Tab Missing for Subcontainer Mailboxes

The ASA User Administration installation adds an Avaya Speech Access tab to each user's Mailbox Properties dialog box. If you have subcontainers within the Recipients container that contain mailboxes (you would have specified the Recipients container during the Exchange Administrator Extension install), complete the following steps to create the Avaya Speech Access tab.

Note:
Perform this procedure after you install the ASA User Administration utility.

1. Start a command prompt and change to the directory that contains the Microsoft Exchange Administrator program (or example, **C:\exchsrvr\bin**).

2. Enter the following command to run the Microsoft Exchange Administrator program in raw mode:

   admin.exe /raw

3. Open the main **Recipients** container and select the container that includes the mailboxes to which you want to add the ASA tab. Then select **File- > Raw Properties** from the menu bar.

4. In the **Object attributes** list box, select **Extension-Name-Inherited**.

   If you cannot find this attribute in the Object attributes list box, select **All** from the List attributes of type dropdown list. Then select the **Extension-Name-Inherited** attribute in the Object attributes list box.

5. In the Edit value box, type **VAUserAdmin**. Then click **Add**. and **OK**.

Complete step 3 through step 5 for each of the other subcontainers.

Troubleshooting User Accounts for Exchange Server 5.5

The following text discusses some errors that you might receive when you are attempting to enable user accounts if you are running Microsoft Exchange Server 5.5.

ASA Tab Error

When you attempt to access the Avaya Speech Access tab in the Microsoft Exchange Administrator application, you might receive the following error:

Could not initialize the object that handles ASA user management

This error indicates that CDO might not be registered. Complete the following steps to register CDO:

1. Start a command prompt and change to the **winnt\system32** directory:
2. Enter the following command:

   regsvr32 cdo.dll

After registering CDO, try again to access the Avaya Speech Access tab in the Microsoft Exchange Administrator application. If you receive the same error message, look in the registry under the following key:

HKEY_LOCAL_MACHINE\Software\Avaya
Avaya Speech Access User Administration\Parameters
<Exchange Organization Name>\<Exchange Site Name>-

where *Exchange Organization Name* is the name of your Exchange Organization (o) and *Exchange Site Name* is the name of your Exchange Site (ou).

The following name-value pairs have to exist:

Name	Description
AdminExchangeServer	Name of the Exchange server that contains the ASA service account user's mailbox (value is of type **String**)
VAAdmin	Exchange alias of the ASA service account (value is of type **String**)

If the registry key does not exist, create it. If the two name-value pairs do not exist or are not correct, create or correct them as appropriate.

Errors in Enabling Accounts

If you try to enable a user account for a subscriber who does not have a unique username or alias, you might receive the following message.

Error 0x80070052e - Could not logon Virtual Assistant

```
Warning 0x800406f9 - May not have been able to disable
Virtual Assistant
```

For example, assume that you have two users, one named John Doe (alias **jdoe**) and the other named Joseph Doenfron (alias **doe**). Exchange Server would detect a match between the last name of John Doe and the alias of Joseph Doenfron and would be unable to resolve a name to a specific mailbox.

Be sure to use a unique alias for each Microsoft Exchange Server user in your organization. A user's alias must not match the first name or last name of another user. For more information, see the following Microsoft Knowledge Base item:

Q189654 - XWEB: "Failed To Get Inbox" Error May Occur If Name Is Ambiguous

Inadequate Exchange Administration Privileges

If you attempt to access the Avaya Speech Access tab and receive the following error, you do not have Service Account Administrator privileges:

```
Error: 0x80040705 Could not initialize the object that
handles ASA user management
```

Log off and log back in under an account with Service Account Administrator privileges. This login level is required to access the ASA service account user's mailbox (AvayaSA) and the user's mailbox.

ASA Properties Not Changed (DNIS and Password)

If the administrator changes a user's DNIS number while the user is logged in to ASA, the new DNIS number is stored in the ASA service account user's contact for the user. The old DNIS number is stored in the user's Inbox. Therefore, when you access the ASA tab for the user, you see the old DNIS number. Change the DNIS number again to the new value. As long as the user is not using the ASA at that time, the change takes place correctly.

If you change a user's password while the user is using ASA, the old password is restored when the user logs off. Access the tab for the user and again change the user's password to the new value. As long as the user is not using the ASA, the change takes place correctly.

Troubleshooting User Accounts for Exchange 2000 Server

Error 800406f9: Could not initialize the object that handles ASA user management.

Verify that you entered the correct ASA service account name and Exchange server when you installed the ASA User Administration utility. This information can be viewed in the Registry under the following path:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Avaya\
Avaya Speech Access User Management\Parameters
```

Error 80040705: Could not initialize the object that handles ASA user management.

Verify that you are logged in as a user with **Send As** and **Receive As** Exchange privileges.

Error 0x800445ed: Could not initialize the object that handle ASA user management.

Verify that one of the following is installed on the server from which you are performing user administration:

- Microsoft 2000 Exchange and/or the Exchange System Management Tools
- Microsoft Outlook 2000 with CDO

If you are running Outlook 2000, verify that Outlook is connected successfully to your Exchange server.

Make sure that the first time Outlook is executed, you choose the **Corporate or Workgroup** e-mail service and make Outlook the default mail application.

Error 80005005: Could not get the Exchange home server name from the Active Directory.

Verify that the user has an Exchange account.

Error 800406F9: Could not log on. Could not get ASA properties.

This message indicates that the user cannot be resolved. This might result from one of the following:

- The user's mailbox is not available (the Exchange server is down).
- The user might have an ambiguous Exchange alias.

For more information about ambiguous aliases, see "Errors in Enabling Accounts" on page 6-5.

If you change the user's alias, either change the existing SMTP e-mail address or create a new SMTP address in the following format:

<Exchange alias>@<e-mail suffix>

Disaster Recovery

This section describes the steps to follow when certain essential ASA components are deleted or uninstalled.

User Mailbox Deleted for ASA Service Account

Create a mailbox for the user (see the *UCC Speech Access (Microsoft Exchange version) Quick Start Installation Guide*). Then complete *ONE* of the following options:

- If you backed up the Contacts folder (usually as a **.pst** file), import the backed-up folder to the ASA service account user's mailbox.
- On the Microsoft Exchange server, use the Microsoft Exchange Administrator application to access the **Mailbox Properties** dialog box for each user. Then click **Avaya Speech Access** to create a contact for that user in the ASA service account user's Contacts folder.
- Run the program named **VAUsersEnDis.exe**, located in the **bin** folder of the ASA Server installation directory. When the dialog box appears, click **Repair ASA**. The program checks the user's profile and, if the user is ASA- enabled, creates the corresponding contact in the ASA service account user's Contacts folder. The greater the number of Exchange mailboxes, the more time this program needs to rebuild the Contacts folder.

User Account That Is Deleted for ASA Service

If the ASA service user account is mistakenly deleted, re-create the account and assign Administrator permissions (see the *UCC Speech Access (Microsoft Exchange version) Quick Start Installation Guide*). Then complete *ONE* of the following options:

- If you backed up the Contacts folder (usually as a **.pst** file), import the backed-up folder to the ASA service account user's mailbox.
- On the Microsoft Exchange server, use the Microsoft Exchange Administrator application to access the **Mailbox Properties** dialog box for each user. Click the **Avaya Speech Access** tab to create a contact for that user in the ASA service account user's Contacts folder.
- Run the program named **VAUsersEnDis.exe**, located in the **bin** folder of the **PVA***Exchange* installation directory (ASA server). When the dialog box appears, click **Repair PVA**. This program check each user's profile and, if the user is ASA-enabled, creates the corresponding contact in the ASA service account user's Contacts folder. The greater the number of Exchange mailboxes, the more time this program needs to rebuild the Contacts folder.

PVA*Exchange* Administrator Extension Is Uninstalled

If the **PVA***Exchange* Administrator Extension is uninstalled, reinstall the **PVA***Exchange* Exchange Administrator Extension by using the instructions in the *UCC Speech Access (Microsoft Exchange version) Quick Start Installation Guide*.

Entries Are Removed from ASA Service Account User's Contact Folder

If the Exchange Administrator mistakenly removes entries from the ASA service account user's contact folder, perform *ONE* of the following actions:

- If you backed up the Contacts folder (usually as a **.pst** file), import the backed-up folder to the ASA service account user's Contacts folder.
- On the Microsoft Exchange server, use the Microsoft Exchange Administrator application to access the **Mailbox Properties** dialog box for each user deleted from the folder. Click the **Avaya Speech Access** tab to create a contact for that user in the ASA service account user's Contacts folder.

- Run the program named **VAUsersEnDis.exe**, located in the **bin** folder of the Avaya **PVA***Exchange* installation directory (ASA server). When the dialog box appears, click **Repair ASA**. The program checks each user's profile and, if the user is ASA-enabled, creates the corresponding contact in the Contacts folder. The greater the number of Exchange mailboxes, the more time this program needs to rebuild the Contacts folder.

A

PVA*Server* Parameters, Error Codes, and Messages

This appendix includes the following:

- A description and comprehensive list of the different parameters that are used by **PVA***Server* to store configuration data.
- A description of the **PVA***Server* error and message codes that the ASA Management Console uses to relay error messages between components.

PVA*Server* Parameters Overview

The **PVA***Server* software maintains an extensive set of parameters that hold configuration information for the platform. The majority of these parameters are stored in the database and loaded into memory when the platform software is launched. (The exceptions are the few parameters that are needed by the application to open and read from the database. Such parameters are stored in the registry.)

By using the ASA Management Console interface, you set the values of many platform parameters. When you enter the company name in the General Information panel, for example, the value is stored in the VAPlatform.CompanyName parameter. Most other parameters are set to default values internally and do not need to be adjusted. On rare occasions, you might need to modify a parameter manually, for purposes such as tuning the platform or setting debug levels. The process for doing so depends upon the type of parameter and is explained later in this appendix.

CAUTION:
Modifying parameters improperly can affect the performance of the **PVA***Server* platform. Parameters must be modified only by experienced ASA administrators with instructions from Avaya support personnel.

Parameter Levels

PVA*Server* parameters can be divided into several levels:

- **Registry Parameters.** Contain information needed by the **PVA***Server* platform during its start up process. In particular, they contain the information that the **PVA***Server* requires to connect to the database. These parameters are stored in the registry on each system in the serverset.
- **Global Parameters**. Hold information relevant to the operation of the platform as a whole, such as the platform's area code and which type of FAX service is being used.
- **Application Parameters.** Hold configuration data that applies only to a single application, such as the TTS server used by the application or the location of the application's source files.
- **Server Parameters.** Store information that is valid only for a single server. For example, because the **PVA***Server* software can be installed in different root directories on different servers, each server has a parameter called **VAPlatform.VASystemDirectory**, in which the name of the ASA root directory is stored.
- **Process Parameters.** Store configuration information that is specific to a particular process. For example, each VA Engine has parameters containing the telephony port that is being monitored and a flag that indicates whether the process needs to be restarted automatically on reboot.

In some cases, the same parameter can be set at two different levels. When a parameter is set a two levels, the lowest-level parameter takes precedent. For example, the **VATTS.ServerName** parameter, which indicates the machine that must be used for TTS services, could be set to "ServerRed" at the global level and to "ServerBlue" at the application level for an application named VAOutlook. In this instance, the VAOutlook application would use the TTS server on ServerBlue, and all other applications would use the TTSServer on ServerRed.

Most changes to parameters (with the exception of registry parameters) take effect almost immediately across all servers in a serverset. However, not all parameter changes take effect immediately. For example, a change to the value of VAPlatform.VALogs (which specifies the folder for the platform log files) does not take effect until you restart the VAManager service.

Registry Parameters

Registry parameters contain information that is needed by **PVA***Server* during its startup operation to access the database (where the remainder of the platform's parameters are stored.) These parameters are set in the registry by the Install Shield application by using information that was entered during the installation process.

All **PVA***Exchange* registry parameters are stored under the following key:

HKEY_LOCAL_MACHINE\SOFTWARE\Avaya\PVAExchange\Global Parameters

Registry parameters are listed in Table A-1. A Default Value of "–" indicates that the value is set by the administrator, either during the Install Shield routine or through the ASA Management Console.

All registry parameters can be considered global parameters.

By default, the local root directory is C:\Program Files\PVAExchange.

Table A-1. Registry Parameters

Parameter Name	Description	Default Value
VAPlatform.DatabaseBackupDirectory	Directory in which the backups of the VA database are stored	–
VAPlatform.DatabaseExportDirectory	Directory to which VA database information is exported	–
VAPlatform.DatabaseName	Name of the database in which the VA platform configuration data is stored	"VADB"
VAPlatform.DatabaseRestoreFile	Base name of the database restore files	–

VAPlatform.DatabaseServer	Name of the server hosting the VA Database	–
VAPlatform.Log	Local directory into which platform logs are written	"<*root*>\VALogs"
VAPlatform.ServerSetController	Name of the server acting as the serverset controller node	–
VAPlatform.VASystemDirectory	Default root path under which the Avaya ASA program files are located	–

Global Parameters

Global parameters are in effect for all systems in an ASA serverset. You can view and modify these parameters by using the ASA Management Console, as follows:

1. In the ASA Management Console's component tree, right-click **ASA Manager** and select **Properties** from the pop-up menu.
2. In the Properties dialog box, you can scroll through the list box to view existing parameters. Highlight a parameter and edit its value in the **Value** field, or click **Add** to add a new parameter to the list. You can also click **History** to display a history of parameter modifications.

With the exception of registry parameters, Server platform parameters are displayed in a Properties dialog box. This dialog box shows the current value and default value for each parameter of that particular type (for example, global). It also contains buttons that enable you to view the history of parameter modifications and to restore parameters to previous values. These buttons include the following:

History Displays the history of modifications to a parameter

Restore Restores a previous value to a parameter

Restore All Restores all parameters of that type to previous values

PVA*Server* global parameters are listed in Table A-2.

A default value of – indicates that the parameter is set by the administrator, either during the Install Shield routine or by using the ASA Management Console application. Unless specified otherwise by the administrator at install time, <*root*> is C:\Program Files\PVAServer.

Table A-2. Global Parameters

Parameter Name	Description
SpeechRec.Nuance.AdditionalStartSilence	Number of seconds of pre-speech silence to be included with the endpointed utterance.
SpeechRec.Nuance.AdditionalStartSilence.Max	Maximum value of the AdditionalStartSilence parameter.
SpeechRec.Nuance.AdditionalStartSilence.Min	Minimum value of the AdditionalStartSilence parameter.
SpeechRec.Nuance.ConfidenceRejectionThreshold	Minimum confidence that the utterance must score to be considered recognized.
SpeechRec.Nuance.ConfidenceRejectionThreshold.Max	Maximum value of the Confidence Rejection Threshold.
SpeechRec.Nuance.ConfidenceRejectionThreshold.Min	Minimum value of the Confidence Rejection Threshold.
SpeechRec.Nuance.DebugTrace	Turns debug tracing on or off.
SpeechRec.Nuance.EndSeconds	Minimum seconds of silence required to indicate that the end of speech has occurred.
SpeechRec.Nuance.EndSeconds.Max	Maximum value for the End Seconds parameter.
SpeechRec.Nuance.EndSeconds.Min	Minimum value for the End Seconds parameter.
SpeechRec.Nuance.FinalResTimeoutMs	Number of milliseconds the client waits for the recognition server to respond with a recognition result. In Nuance 7.0.3, the default value is 60000 (one minute). If you define this parameter, **PVA***Server* overrides the Nuance default value with the defined value. If the recognition result is not returned within the specified timeout period, **PVA***Server* reports a recognition error to the user.

SpeechRec.Nuance.LMAddresses	Name of the machine where the Nuance license manager is located.
SpeechRec.Nuance.RecognitionModel	Language model to be used by the recognition server. This parameter determines the English language variant to use. Variants include English from the US and Canada, Australia/New Zealand, Singapore, South Africa, and the United Kingdom. ■ English.America.1 (default) ■ English.AusNZ.1 ■ English.Singapore.1 ■ English.SouthAfrica.1 ■ English.UK.1 **Note:** the variants listed above are case sensitive. When adding or modifying the parameter, enter the variant exactly as listed above.
SpeechRec.Nuance.RMAddresses	Name of the machine where the Nuance resource manager is located.
SpeechRec.Nuance.RMPort	Port on which the Nuance Resource Manager process is listening.
SpeechRec.Nuance.StartSeconds	Minimum seconds of high-energy sound that is required to indicate speech has started.
SpeechRec.Nuance.StartSeconds.Max	Maximum value of Start Seconds.
SpeechRec.Nuance.StartSeconds.Min	Minimum value of Start Seconds.
SpeechRec.Nuance.ThresholdSnr	Threshold of noise that the endpointer needs to detect start of speech and end of speech.
SpeechRec.Nuance.ThresholdSnr.Max	Maximum value of ThresholdSnr.
SpeechRec.Nuance.ThresholdSnr.Min	Minimum value of ThresholdSnr.
SpeechRec.SaveUtterances	If set to **FALSE**, user utterances are not stored but speech recognition and record with recognition still work properly. If not defined, user utterances are saved by default.

SpeechRecognition.Nuance.DBProvider	Storage location for Nuance dynamic grammar: **vamssql** indicates VA database. **fs** indicates file system.
Telephony.AlwaysDialTenDigits	Boolean value that indicates whether the ASA should dial an area code even for calls within the same area code.
Telephony.AreaCode	Area code of the ASA platform's site.
Telephony.CountryCode	Country code for the **PVA***Server* platform's site.
Telephony.Dialogic.DebugDirectory	The directory to be used to store a debug output wave (.wav) file.
Telephony.Dialogic.DialWaitTime	Determines how long (in seconds) the telephony server waits for an outbound call to be connected before failing the call request.
Telephony.Dialogic.EchoCancel	Determines whether or not the echo cancel feature (needed to support barge-in) is enabled.
Telephony.Dialogic.MaxDTMFDelay	Determines the maximum time (in milliseconds) to expect between DTMF digits. If the user waits longer than the specified time between two digits, the digits that were entered up to that point are sent to ASA by the telephony server.
Telephony.Dialogic.MaxDTMFDigits	Determines how many DTMF digits a user can enter before the telephony server sends the entire group to ASA for processing.
Telephony.Dialogic.PlayBufferHiWater	Percentage specifying the internal high-water threshold mark for the telephony server’s internal play buffer. When this threshold is reached, the server alerts the application so that it stops sending data.
Telephony.Dialogic.PlayBufferLoWater	Percentage that specifies the internal low-water threshold mark for the telephony server’s internal play buffer. When this threshold is reached, the server alerts the application so that it can resume sending data.

Telephony.Dialogic.PlayBufferSize	Specifies the size (in KB) of the internal buffer that is used by the telephony server to queue audio data before playing it to the user.
Telephony.Dialogic.UseAutoGainCtrl	Specifies whether the telephony server has to use Auto Gain Control when it is recording audio.
Telephony.EndPtSilence	Specifies the maximum amount of silence (in milliseconds) that must elapse before the telephony server terminates a record-to-file operation.
Telephony.ExtensionDigitLength	Number of digits that are used when calling internal PBX extensions. When an outgoing call is made with the ASA and the number of digits in the phone number is less than or equal to this parameter, the call is treated as an internal extension call.
Telephony.LocalAreaCodes	Comma-separated list of area codes that must not have ‘1’ dialed before them.
Telephony.LocalOutsideLine	Digits that must be dialed to access an outside line for local calls.
Telephony.LongDistanceOutsideLine	Digits that must be dialed to access an outside line for long distance calls.
Telephony.LongDistancePrefixes	Comma-separated list of phone number prefixes that have the same area code as the system.
Telephony.Mgr.NaturalProgId	Purged of the COM Object that is used by the telephony server to interface with Natural Microsystems telephony hardware.
Telephony.Natural.AGCAttack	Record AGC attack time. Affects how quickly the gain is reduced for loud signals.
Telephony.Natural.AGCDecay	Record AGC attack time. Affects how quickly the gain is increased for soft signals.
Telephony.Natural.AGCEnable	Enables or disables the Automatic Gain Control (AGC) for recording.

Telephony.Natural.AGCLevel	Record Gain (AGC initial gain): The gain applied to the signal before it is encoded. If AGC is enabled, this is the initial gain when record is started.
Telephony.Natural.AGCNoise	Record AGC Noise threshold: The noise threshold for AGC. Gain adjustment is suspended for signals below this level.
Telephony.Natural.AGCTargetLevel	Input level that the Automatic Gain Control (AGC) circuit has to seek.
Telephony.Natural.Board.PlayBufSize	Board play buffer size: Size of the buffer that is used to transfer audio from the engine to the telephony board for each channel.
Telephony.Natural.BoardRecordBufSize	Board record buffer size: Size of the physical buffer that is used to transfer audio from the telephony board during recording.
Telephony.Natural.ConfClampDtmf	Clamp DTMF: Flag that indicates whether DTMF received on any input has to be filtered out before audio is mixed.
Telephony.Natural.ConfEchoCancelDelay	Echo cancel delay: Output sample delay.
Telephony.Natural.ConfEchoCancelEnable	Echo cancel enable: Enables/disables the DSP echo canceller.
Telephony.Natural.ConfEchoCancelGain	Echo cancel gain: Amount of gain (or attenuation) that is applied to the input signal after the echo canceller filter.
Telephony.Natural.ConfInputAGCEnable	Input AGC enable: Lag to enable automatic gain control on the input signal.
Telephony.Natural.ConfInputAGCTargetLevel	Input AGC target level: Desired output level from the input AGC.
Telephony.Natural.ConfInputGain	Input gain: Gain that is applied to the signal before it is encoded. If AGC is enabled, this is the initial gain.
Telephony.Natural.ConfInputSilenceLevel	Input silence level: Noise threshold for input AGC. Gain adjustment is suspended for signals below this level.

Telephony.Natural.ConfMaxTalkers	Maximum talkers: Maximum number of simultaneous talkers whose audio are mixed as conference output.
Telephony.Natural.ConfOutputAGCEnable	Output AGC enable: Lag to enable automatic gain control on the output signal.
Telephony.Natural.ConfOutputAGCTargetLevel	Output AGC target level: Desired output level from the output AGC.
Telephony.Natural.ConfOutputGain	Output gain: Gain that is applied to the encoded audio. If output AGC is enabled, this is the initial gain.
Telephony.Natural.ConfOutputSilenceLevel	Output silence level: Noise threshold for output AGC. Gain adjustment is suspended for signals below this level.
Telephony.Natural.DtmfDigitTime	Outbound DTMF digit duration: The duration of each DTMF digit for outbound dialing.
Telephony.Natural.DtmfInterdigitTime	Outbound DTMF inter-digit duration: Duration of the silence time between each DTMF digit for outbound dialing.
Telephony.Natural.DtmfLevel	Signal level for dialed DTMF digits.
Telephony.Natural.FaxCngToneBandwidth	Fax CNG tone bandwidth: Bandwidth used by the CNG tone detector.
Telephony.Natural.FaxCngToneDuration	Fax CNG tone duration: Minimum duration for which the inbound fax CNG tone must be present for a call to be considered a fax call.
Telephony.Natural.FaxCngToneFrequency	Fax CNG tone frequency: Frequency of the CNG tone that indicates that an incoming call is a fax call
Telephony.Natural.FaxDetectTimeout	Fax detect timeout: The duration the fax tone detector is enabled at the beginning of a call.

Telephony.Natural.FaxDocEncoding	Fax document encoding: Specifies the encoding format of documents for the receiving fax terminal only. Encoding is used to specify how to store the received document when OTF conversions are enabled. This parameter has no effect during fax transmission or when the OTF mode is set to **NEVER**.
Telephony.Natural.FaxDocPageWidth	Fax document page width: Specifies how to store the received document when OTF conversions are enabled. This parameter has no effect during transmission.
Telephony.Natural.FaxDocResolution	Fax document resolution: Specifies the resolution of documents for the receiving fax terminal only. Resolution is used to specify how to store the received document when OTF conversions are enabled. This parameter has no effect during transmission.
Telephony.Natural.FaxEncoding	Fax encoding: Limits the image encoding format of fax images to be transmitted to 1D encoding. 1D encoding is supported by all Group 3 fax terminals. The actual encoding depends on the value for this parameter, the encoding that is supported by the receiving fax terminal, and the encoding in the file to be transmitted. Error Correction Mode must be set to true to use **MMR**.
Telephony.Natural.FaxErrorCorrectionMode	Fax error correction mode: Flag that indicates whether this mode is enabled or not.
Telephony.Natural.FaxModemType	Fax modem type: Specifies the preferred modem that can be selected for fax transmissions. Specifying a preferred modem sets an upper limit on the set of modems that is considered when ASA is trying to match the receiving fax terminal's capabilities.

Telephony.Natural.FaxOtfConversion	Fax on-the-fly (OTF) conversion: Specifies when to perform OTF conversion during a fax transmit operation. OTF conversion modifies the stored fax document's format (its encoding, resolution, and/or page size) before transmitting it. If OTF is enabled, the actual format that is transmitted depends on the value for this parameter, the format supported by the receiving fax terminal, and the format in the original file to be transmitted. Set this parameter to **NEVER** to disable OTF conversion. Set this parameter to **FAILED** to perform format conversions only when fax negotiations would otherwise fail. Set to **ALWAYS** to always perform a conversion.
Telephony.Natural.FaxResolution	Fax resolution: Limits the maximum resolution of fax images to be transmitted. The actual resolution depends on the value of this parameter, the resolution that is supported by the receiving fax terminal, and the image resolution in the file to be transmitted.
Telephony.Natural.IsdnCountry	Country where ISDN originates.
Telephony.Natural.ISDNEquipType	ISDN Equipment Termination Type: A telephony central office or PBX normally provides the network side termination to the telephony board and **PVA***Server* provides the user side (TE). If a PBX does not support network-side, select NT to enable **PVA***Server* to provide it.
Telephony.Natural.IsdnVariant	Variant of ISDN protocol that is configured at the originating switch.
Telephony.Natural.OutboundAnswerTimeout	Outbound answer timeout: Maximum time that can elapse with no stimulus from the network before call progress stops because of timeout. If the value is set to zero, the timer is disabled.

Telephony.Natural.OutboundMaxRings	Outbound Max Rings: Maximum number of rings that are detected before an outbound call is terminated as unanswered.
Telephony.Natural.RecordInitialSilence	Record initial silence interval: Maximum length of silence at the beginning of a recording before recording will be stopped.
Telephony.Natural.RecordSilenceDeglitch	Record silence deglitch interval: Maximum non-silent interval that is ignored by the silence detector. Any sounds that last longer than this interval reset the silence detector.
Telephony.Natural.RecordSilenceLevel	Record silence maximum level: Maximum signal level that is considered to be silence.
Telephony.OutboundPorts	Numbers of the telephony ports (ISDN B-Channels) used for outbound calls. The value can include commas to separate numbers and hyphens to indicate a range ("1,3,5-7"). When set to zero (0), no outbound dialing is allowed. When set to empty, use all ports.
Telephony.OutputLevel	Specifies the decibel level the ASA uses when playing user prompts.
Telephony.OutputLevel.Max	Maximum decibel level at which the ASA can play prompts.
Telephony.OutputLevel.Min	Minimum decibel level at which the ASA can play prompts.
Telephony.Provider	Name of the telephony provider hardware.
Telephony.Public.Assistant	Controls the behavior of the ASA during conference calls. If **TRUE**, all conference call participants can hear the prompts played by ASA. If **FALSE**, only the ASA subscriber can hear the prompts.

Telephony.SpecialExtensions	Comma-separated list of numbers treated as local phone numbers (rather than extensions). For example, if extension dialing is used with the ASA and the **Telephony.ExtensionDigitLength** parameter is set to 3, this parameter could be set to "911, 411" to allow users to make outside local calls to 911 and 411.
VAApplication.ReplaceEuroCharacters	Should be used only by developers of applications that target recognition models other than English. Some European languages require that some ANSI characters with codes above 127 be present. By default, the dynamic grammar object and the recognition subsystem replace these with equivalent English characters. To disable this behavior, set this parameter to **FALSE**. If you are planning to use the dynamic grammar object (**VADynamicGrammarMgr.DynamicGrammarDO**), set this parameter on a node level or at the global level. If you are creating only dynamic grammars through the VAVM object, this parameter can be set at the application level.
VAEngine.AudioBufferSize	Size (in bytes) of the VA Engine's audio buffer.
VAEngine.EnableDetailedLogging	Turns detailed logging on when set to **TRUE**. When set to **FALSE**, disables the creation of call transcriptions. All other logs are created.
VAEngine.RecordFormat	See VAPlatform message attachment format.
VAEngine.SpeechRecProgID	Prog ID of the COM object that is used by the Engine to interface with the Recognition Server.
VAFax.FacsysExchangeAddressing	Addressing scheme in use by FACSys system.

VAFax.FacsysMailGateway	The Mail Gateway that is being used with a FACSys Fax service.
VAFax.FacsysMailGateway.Option1	Available FACsys mail gateway option.
VAFax.FacsysMailGateway.Option2	Available FACsys mail gateway option.
VAFax.FacsysMailGateway.Options	Number of FACsys mail gateway options.
VAFax.FacsysSMTPPOP3Email	E-mail address to which faxes must be submitted for sending by Facsys if the mail gateway is SMTPPOP3.
VAFax.JFaxEmail	E-mail address to which faxes must be submitted for Jfax services.
VAFax.Service	Name of the Fax Service in use by the platform.
VAFax.Service.Option1	Available fax service option.
VAFax.Service.Option2	Available fax service option.
VAFax.Service.Option3	Available fax service option.
VAFax.Service.Options	Number of available fax service options.
VAPlatform.AllowedLogonFailures	Number of failed logins that are allowed before the current user session is disconnected.
VAPlatform.CompanyName	Name of the customer who is licensed for the **PVA***Server* platform software.
VAPlatform.AvayaVersionNumber	The version number of ASA.
VAPlatform.DebugLevel	A value from 0 to 7 that determines how detailed the messages are that are written to the debug logs, with 0 the least and 7 the most verbose.
VAPlatform.ExchangeServer	Computer name of the Exchange Server being used with **PVA***Exchange.*
VAPlatform.FileSystemPercent	Percentage of the file system that can be filled before an alert is triggered.
VAPlatform.IPDomain	Indicates the site's Internet domain.
VAPlatform.AccountLength	The length for an ASA account number.

VAPlatform.MessageAttachmentFormat	Format for saving message attachments. The default is GSM_8_8K, which creates GS format messages for compatibility with Unified Messenger™.
VAPlatform.NotificationAttemptTimeoutMax	Maximum amount of time (in milliseconds) to try to send a notification to a user before giving up.
VAPlatform.NotificationContactInterval	Interval (in milliseconds) between attempts to send a notification to a user.
VAPlatform.SiteName	Name of the site at which the VA platform is located.
VAPlatform.VAContextUsername	Service account under which the platform components run.
VAPlatform.VALogs	Local directory to which global log files are written.
VAPlatform.VAUtterances	Local directory to which utterance files are stored.
VAPlatform.VoiceMsgFormat	The value of PBX creates voice messages with a message class compatible with Unified Messenger™ (IPM.OCTEL.VOICE).
VAServer.NumEventWorkers	Number of event-monitoring processes to be launched by the VAServer process.
VASoundCard.Interactive	If **TRUE**, enables the sound card dialog box to be displayed on the screen and to contain interactive controls that enable a sound card VA Engine to simulate DTMF and other telephony functions. Once this parameter is set to True, the VAEngine DCOM object must have its properties set to run in interactive mode so that the dialog box is displayed.
VATTS.CharValue.Max	Maximum value of a character that the e-mail preprocessor passes through. Every character with a value higher than this is removed and not sent to the TTS server.

VATTS.DoStatLog	Indicates whether the platform has to log statistics about speech synthesis performance.
VATTS.PhoneNumberOutputFormat	The pattern ASA uses to speak a telephone number.The patterns vary for different countries. For example, the pattern used for an American long distance number of 1-800-555-1212 is 1,3,3,4 (spoken left to right) with pauses between the number sets. **Note:** The value appears as #,###,###,#### when entered.
VATTS.ReconnectAttempts.Max	Maximum number of times that the platform attempts to reconnect to the TTS server before generating an error.
VATTS.ReconnectInterval	When the platform's connection to the TTS server has been lost, the amount of time (in milliseconds) the platform wastes before attempting to reconnect.
VATTS.ResumeMark	Number of sentences that are outstanding on the TTS server when the client can resume sending them to the server. This value is used to wake up the client after it stopped sending the sentences (see VATTS.StopMark).
VATTS.SecondaryServer	Name of the secondary TTS host to be used by TTS client if the primary server fails.
VATTS.SegmentTimeout	Number of milliseconds that the client waits to receive the result from the server. After this time period expires, the client tries to reconnect to the secondary TTS server, if any, and resend the sentences to it. If the secondary server is not present, this value has no effect.

VATTS.SentenceLen.Max	Maximum number of words sent to the TTS server. If a full sentence exceeds the number of words, the client sends the part of the sentence broken at the first punctuation sign in the sentence that does not exceed this value. If the sentence has no punctuation signs, then a number of words equal to VATTS.SentenceLen.Max is sent to the server.
VATTS.SentenceLen.Min	Minimum number of words in a sentence that is sent to the TTS server. That is, if a sentence has fewer words than this value, the TTS client adds words from the next sentence (unless no more data is available).
VATTS.ServerName	Name of the default TTS host to be used by platform processes.
VATTS.ServerProgID	ProgID of the COM object that is used by the platform to communicate with the TTS server.
VATTS.StatLogFileName	Name of the log file in which to store TTS statistics.
VATTS.StopMark	Tells the client to stop sending sentences to the TTS server when the number of sentences still on the server reaches this value. The client then waits until the number of outstanding segments drops to a number equal to VATTS.ResumeMark.

The **PVA***Server* platform's server-level parameters are listed in Table A-3.

To set a server parameter, right-click the server's node in the component tree and then select **Properties** from the pop-up menu. A Properties dialog box opens and enables you to view, edit, add, and remove parameters from the server.

Table A-3. Server Parameters

Parameter Name	Description	Default Value
VAPlatform.VAApplications	Local directory in which the server's application files will be stored	<*root*>\VAApplications
VAPlatform.VASystemDirectory	Install root for the Avaya ASA software on the server	C:\Program Files\PVAServer

Application Parameters

To view and modify parameters for **PVA***Exchange* or for custom-written applications, right-click the application's node in the component tree and then select **Properties** from the pop-up menu.

Table A-4. Table A-4: Application Parameters

Parameter Name	Description
SpeechRec.Nuance.CompilationServer	The server on which the Nuance Compilation Server process is running if a Nuance Recognition Server is used for the application
SpeechRec.Nuance.CompilationServerPort	The port number on which the application's compilation server is listening
SpeechRec.Nuance.RMAddresses	The server that the Nuance Resource Manager process is running if a Nuance Recognition server is used for the application
SpeechRec.Nuance.RMPort	The port number on which the Nuance Resource Manager process is listening for requests if a Nuance Recognition server is used for the application
VAEngine.InitialVADFile	The initial *.vad* source file used by the application.
VAPlatform.ApplicationDeleteOnFail	Determines whether the application's directory and files must be deleted if the publication operation fails
VAPlatform.ApplicationFile	Full path to the application's *.vapub* file
VAPlatform.ApplicationName	The name of the application

VAPlatform.ApplicationOverwriteDir	Determines whether existing application directories should be overwritten when the application is published
VAPlatform.ApplicationStructuredFile	Stores the path to the "*.vapub*" file selected by the user as the application's structured storage file
VAPlatform.ApplicationVersion	The version number of the application (available only after the application has been successfully published)
VAPlatform.LastPublishTime	The date and time when the last publish operation was completed
VAPlatform.MasterApplicationPath	The base path to the application files
VATTS.ServerName	The server that the TTS Server process is running on for this application
VATTS.ServerProgID	The process Program ID (COM ProgID) of the TTS Server for this application

Process Parameters

To view and modify process parameters, right-click the process's node in the component tree and then select **Properties** from the pop-up menu.

Process-level parameters are listed in Table A-5. A default value of – indicates that the parameter is set by the administrator or is automatically determined when the administrator configures a new process.

Table A-5. Process Parameters

Parameter Name	Description
ExchangeProgID	Program ID of the COM object that is used by the VAServer process to communicate with the Exchange Server.
SpeechRec.Nuance.MaxClients	Maximum number of clients that can be supported by a recognition server process.
SpeechRec.Nuance.ServerPort	Port on which the process's recognition server is listening.
SpeechRec.PackageName	Package name of the speech recognition software that is used by a recognition server process.

VAEngine.DNIS	Specifies the DNIS numbers for which a VAEngine answers calls. If left unset, the engine answers all calls coming to its ports, regardless of the DNIS.
VAEngine.InactivityTimeout	Generally set within an application. The amount of time that must elapse without the user speaking before the application considers the line to be inactive and prompts the user for input.
VAEngine.Port	Incoming telephony port or ports that are monitored by the VA Engine.
VAEngine.PortStatus	Status of the VA engine's port.
VAEngine.RecordFormat	Specifies the format in which user messages are recorded (ULAW_8_8K, PCM_16_8K, or GSM_8_8K).
VAEngine.ScriptTimeout	Amount of time (in milliseconds) that the VAEngine will wait for a script to finish processing before canceling the script.
VAEngine.TelephonyProgID	Program ID of the Telephony server COM object that is used by the VAEngine.
VAEngine.TTSProgID	Program ID of the COM object that is used by the VAEngine to interface with the Text-to-Speech server.
VAPlatform.AssociatedAppInstance	Name of the application that is associated with the process.
VAPlatform.ProcessAutoStart	Boolean flag that indicates whether the process must be started automatically when the platform comes up.
VAPlatform.ProcessErrorCode	Code for the last error to occur in the process.
VAPlatform.ProcessName	Name of the process.
VAPlatform.ProcessPID	Program ID assigned for the process by Windows NT.
VAPlatform.ProcessProgID	Program ID for the process's COM object.
VAPlatform.ProcessState	Current state of the process (stopped, started, error).
VAPlatform.ProcessStdout	File to which the console output is redirected.
VAPlatform.ProcessTarget	Name of the executable file for the process.

VAPlatform.ProcessTypeDescription	Name of the process type (for example, VA Engine, Resource Manager).
VAPlatformCommandLine	Command-line flags that must be used when executing the process. Parameters with spaces in them must be enclosed in double quotes.
VATTS.ServerProgID	Program ID of the TTS server that is used by the process

PVA*Server* Error Codes and Message

The ASA Management Console uses a code system to relay error messages between components. These messages are frequently displayed to an administrator in the component's display pane (either in the Error Code window or in the Process Events list box) and in error logs. Translating these codes to their English-language message is often the first step toward diagnosing a problem with the platform.

The first three digits of the code indicate which type of message the code represents. These digits can have one of four values, as indicated below:

0x0 = Success Message

0x4 = Informational Message

0x8 = Warning Message

0xC = Error Message

If you receive a **PVA***Server* error code, contact your Avaya Customer Support representative.