Unified Communication Center
Advanced Speech Access

Release 1.0

Administrator’s Guide

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About This Guide

Information in this guide is intended for the person responsible for administering Avaya Advanced Speech Access (ASA).

Using This Manual On Line

Following are guidelines for using this manual on line:

- 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 Technical Support Web site at:

http://support.avaya.com/

Administrator Overview of Avaya Advanced Speech Access

Avaya Advanced Speech Access (ASA) provides a telephone speech user interface to Microsoft Exchange information. Using speech recognition and text-to-speech technology, ASA communicates with callers in spoken English, giving them telephone access to most of the functions available from their desktop Outlook software.

ASA also provides access to voice mail messages, call answering, call conferencing, and follow-me/hold-my-calls filtering. Using ASA, mobile professionals can manage electronic communications and access business computer resources from any telephone.

This guide provides the information you need to manage and maintain ASA. For information about using ASA, see the *Avaya Advanced Speech Access User's Guide* (also available on the Avaya Advanced Speech Access software CD).

Note: Updated information about ASA is provided in the **ReadMe.txt** file available on the Avaya software CD. Be sure to read this document before performing any of the task described in this guide.

ASA Components

ASA consists of the following components:

- **ASA Server**. Software platform on which ASA runs.
- **ASA Application.** ASA software that runs on an ASA Server.
- **ASA Management Console**. Microsoft Management Console (MMC)-based utility from which you configure and manage ASA Server.
- **ASA Web Management**. Collection of the following browser-based utilities that support ASA administration over the Web:
  - **ASA Manager**. Enables you to perform many of the server administration functions available from the ASA Management Console.
  - **ASA User Manager.** Enables you to perform user administration functions such as enabling and disabling user accounts.
  - **ASA Reports**. Enables you to view system logs.
  - **ASA User Preferences.** Enables ASA subscribers to change their ASA settings.

ASA Server Software

ASA Server provides connections with the computer network and telephone system, controls the execution of the ASA application, and provides resources such as text-to-speech and voice recognition engines that are accessed by the applications that run on it.

ASA Server software includes several types of processes that run simultaneously and perform the functions necessary to support ASA. Although these processes will initially run on a single server, in the future you may want to enable processes to run on multiple linked servers. Whether on a single server or on multiple servers, the installation is collectively termed a *serverset*. See ASA Platform Configurations for additional information about serversets.

Following are the ASA Server processes:

- Text-to-Speech Server
- Speech Recognition Server
- Telephony Server
- VA Engine
- VAServer
- VAManager
- VAServerManager

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

ASA Server uses several directories to store files necessary for platform operations. These directories are created on each node in the serverset. Table 1 describes the ASA Server platform directories.

Table 1. ASA 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 containing commands spoken by the user
<*install root*>\bin	Executable programs that comprise ASA Server
<*install root*>\Log	Installation and component debug logs
<*install root*>\Saved Installations	Configuration data saved during an upgrade of ASA Server
<*install root*>\Web	Source files for ASA Web applications
<*install root*>\Help	ASA Server Help files

Directory	Contents
<*install root*>\VASystem	Prompt files shared by all applications
<*install root*>\VADatabase	SQL files used t initialize the VA database
<*install root*>\Config	Files used to configure the NMS telephony boards
<*install root*>\Spooler	Files associated with inbound and outbound spooled taxes
<*install root*>\Temp	Temporary files created by applications and VA Engines during normal execution

ASA Application Software

The ASA application runs on the ASA Server platform and interacts with ASA users. It also provides the telephone interface to the Avaya voice and Microsoft Exchange servers, communicating with Exchange through Microsoft's Collaboration Data Objects (CDO).

The ASA application enables users to dial into the ASA system from any telephone and access their accounts on the Avaya voice and Microsoft Exchange servers. Using natural-language commands, users can perform many of the functions available from their desktop Outlook software, including the following:

- Read, send, forward, and reply to e-mail messages
- Look up contact information
- Manage appointments
- Manage tasks
- Retrieve notification of appointments and tasks

By leveraging the power of the Avaya Unified Communication Center, ASA also enables users to perform a range of telephony functions, including

- Access voice-mail messaging capabilities
- Call a contact by speaking the contact's name
- Dial telephone calls
- Host conference calls
- Receive 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. ASA brings the power of the PC desktop to mobile professionals any time, any where.

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; but this arrangement also allows for vendor-independent Text-To-Speech (TTS). The current ASA Server platform implementation uses the Speechworks Speechify TTS system. Only the TTS Server component would need to be modified for customization, not the entire platform.

Speech Recognition Server Process

The Speech 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 Speech 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 from Nuance Communications.

Telephony Server Process

The Telephony Server process provides the interface 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 ASA Server platform from the telephony hardware, 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 ISDN T1 phone system:

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

VA Engine

VA Engine is the virtual machine on which ASA runs. Based on the instructions from the ASA application, this engine uses its telephony interface to communicate with the user. and it uses 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.

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 Speech Recognition Server process and the same TTS Server process.

Anatomy of an Avaya Advanced Speech Access 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, passing 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 Speech Recognition Server.
6. The Speech 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 would 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.

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 should take any actions
- Paging users when specified events occur

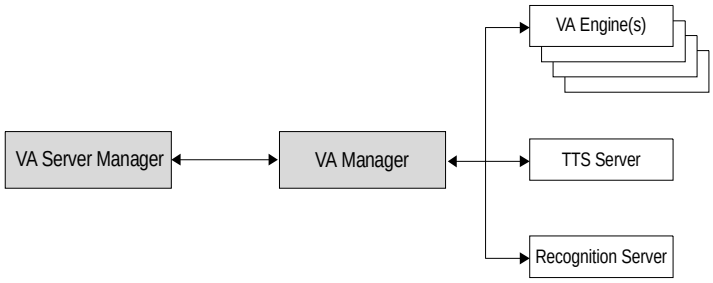
Only one VAServer is used for an application; it provides services for all user accounts.

VAManager

Each server 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 start-up 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 running on the server
- Performance monitoring

Figure 1. VAManager Conceptual Model



VAServerManager

The VAServerManager provides a single point of control for all processes and servers being used 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 (ASA Manager) that enables you to manage the entire site. For more information about ASA server management, see ASA Configuration

The VAServerManager monitors all ASA components running on all the servers within the serverset (Speech 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.

ASA Database

The ASA Database process stores configuration parameters and platform logs in the Microsoft Database Engine (MSDE). MSDE is installed as part of the ASA Server platform installation. Required tables and initial data are created the first time the VAServerManager process is started.

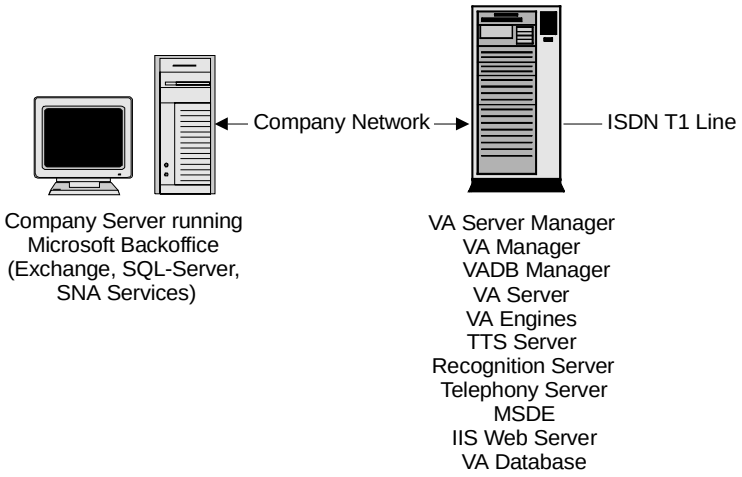
The VAServerManager uses a COM object called **VADBManager** to communicate with the database. VAServerManager creates this object at start-up and

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 Platform Configurations

In the future, some ASA implementations will consist of multiple servers–because of the number of ASA subscribers the site supports. In a single-server implementation, such as the one you install using the *Avaya Advanced Speech Access 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 2 depicts a single-server implementation.

Figure 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, expanding the capabilities of the serverset. When the ASA 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 serversets, 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 Resource Manager
- Nuance License Manager
- Nuance Compilation Manager
- Speech 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
- ASA Database

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

ASA and the Public Telephone Network

The ASA Server platform requires an ISDN PRI line to communicate with the public telephone network. An ISDN PRI line can be ordered from your local telephone service provider (lead times 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 resolve is whether all ASA users call one telephone number, or if each user is assigned their own telephone line.

The ISDN line must terminate into a Channel Service Unit (CSU). Your telephone service provider can supply the CSU or will 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 Avaya Advanced Speech Access.

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. An ASA member node can support one NMS board.

Table 2. Member Node Server Requirements Using T1 Lines

Number of Simultaneous Sessions	NMS Member Servers Required
1 to 23	1 server, with 1 NMS AG4000-2T1/800 board
1 to 46	1 server, with 1 NMS AG4000-4T1/1600 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:

- Ensure that the application software can communicate with the telephone system and other hosts, such as the Microsoft Exchange server
- Use the ASA management interfaces to manage the systems in the serverset
- Start and stop the ASA services
- Monitor the platform interfaces and error logs

- Maintain the ASA database
- Manage ASA user 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.

ASA Configuration

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

A Web-based administration tool is also available for performing many configuration and administration tasks (see Install ASA Web Management).

ASA Management Console

The ASA Management Console enables you to view and manage all the ASA components 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. 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 running ASA Server. However, if you want to remotely manage Avaya Advanced Speech Access, you can create a separate Administration Station by installing the ASA Management Console on a machine not running ASA Server.

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

Complete the following steps to set up an Administration Station.

1. Insert the Avaya Advanced Speech Access software CD into the CD-ROM drive of the system on which you want to install Administrator Station.
2. At the main installation screen, click **Install Components**, then click **ASA Server**.
3. From the Setup Type list box, select **ASA Server Administration Station**; then click **Next**.
4. When prompted to select the directory into which the ASA Server files are installed (**C:\Program Files\ASA Server 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 ASA Server 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 Avaya Advanced Speech Access software CD, 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-> ASA Server->Avaya Advanced Speech Access Server Management Console**. An MMC window appears that contains the Avaya Advanced Speech Access Console snap-in.

Note: If the Start menu does not launch the ASA Management Console, see Problems Launching the ASA Management Console in the Troubleshooting section.

General Serverset Configuration

To set the general information for the serverset, begin at the ASA Management Console (see Launching the Console) and expand the **ASA Manager** and **Configuration** components; then click the **General Information** node.

The general information form appears in the detail pane. Table describes the fields you must complete on the form.

Table 3 General Information Form Required Fields

Field	Description
Exchange Server	Machine name of the Microsoft Exchange Server with which Avaya Advanced Speech Access communicates.
Time Zone of Exchange Server	Time zone used on the Exchange mail server
AvayaASA Service Account	Account under which all ASA Server platform services run. Also, account used to access the Exchange server (**AvayaASA** by default)

Field	Description
User Feedback E-mail Address	E-mail address to which user comments from the ASA "Leave a Comment" function are sent.
Company Name	Company's name
Company Domain	Company's domain name **(avaya.com** for example)
Site Name	Name of the site at which the ASA Server platform is located (**ASA Denver**, for example). This field is used to distinguish platforms at companies running more than one set of ASA servers.)
UCC License Server	Name of the machine where Avaya Unified Communications Center (UCC) software runs. Typically, this will be the name of the UCC Base Server.
ASA Account Number Length	Number of digits to use for ASA account numbers. For example, if the site will use an ASA user's telephone number for the account umber, the length would be **7**.
Use LDAP for people searches **Note**:This field is also found on the LDAP Setup screen.	Box to check if this site will use an LDAP-based corporate directory to generate a list of names for people that ASA subscribers can call and send messages to.
Use Voice Server directory	Box to check if this site will use the names directory on the Voicemail server to map names to voice mail addresses. **Note:** If this box is checked, the "Use LDAP for people searches" box should also be checked.

Telephony Setup

The Telephony Setup node is used to configure the way in which Avaya Advanced Speech Access dials local and long distance numbers. By default, all lines are used for outgoing calls. This section describes the parameters you can use to set rules for your ASA outcall numbering plan.

To configure the dialing information for ASA Server, begin at the ASA Management Console (see Launching the Console) and expand the **Configuration** node. Then click **Telephony Setup** to display the **Telephony Setup** details pane.

Important: See the Dialing Parameters section for detailed information about how to change the ASA dialing plan.

Dialing Plan Default Values

If no parameter values are changed on the Telephony Setup screen, ASA uses the following default values:

Site Area Code	None	
Site Country Code	**1**	
Off PBX Prefix	None	
National Dialing Prefix	**1**	
International Dialing Prefix	**011**	
Private Number Table	Blank	
Local Number Table	Area Code	Blank
	Number	**RRRRRRR**
	Dial	**PXXXXXXX**
Long Distance Number Table	Area Code	**RRR**
	Number	**RRRRRRR**
	Dial	**PNXXXXXXXXX**

Telephony Setup Details Pane

Table 4 lists the fields on the Telephony Setup screen and provides information about how to fill in these fields.

Table 4 Telephony Setup Details Pane

For This Field or Button	Take This 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)
The Country Code for the ASA	Enter the country code for the ASA at the ASA Server location (should match the numbering plan for the T1/E1). For example, the code for the United States is 1. When the 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
The Area Code for the ASA	Enter the country code for the ASA at the ASA Server location. For example, the area code for San Jose, CA is **408**.
Local Numbering Plan Prefixes	Local Numbering Enter the digits to prefix Plan Prefixes to a number for domestic long-distance calls: **Off PBX** Digits to prefix to a local number before it is dialed. In the United States, this number is often **9**. **National Prefix** Digits to prefix to a number for domestic long distance calls made from the ASA Server location. From the United States, this number is usually **1**. **International Prefix** Digits to prefix to an international call made from the ASA Server location.
Outbound Dialing	Select one of the following radio buttons: **Disable** Disables all outbound calls **Enable All Ports** Enables outbound calling on all ports

For This Field or Button	Take This Action
Specify Enabled Ports	Specifies the port numbers that should be used for outgoing calls. You can separate individual numbers by a comma (**1, 4, 8**), use a hyphen to express a range of numbers (**5-10**), and combine individual numbers and ranges (**1,3,5-9,12**).
Forbidden Number Templates	Click to configure one or more templates that describe numbers that users are forbidden to call from the local ASA Server. These could be any sort of number (subscriber, national, international). From the US, examples might be 900 numbers (**900rrrrrr**), 911, and 411
Country Codes	Click to configure the known list of established country code numbers and the associated country name. This list is initially populated, but may be updated by the ASA administrator. If a number fails to match the Private, Local or Long Distance Number Tables (see), ASA uses this table to determine if the number should be interpreted as an international call.
Text Substitution Templates	Click to configure one or more templates that define text substitutions that should be done on input strings before any of the local dialing rules are applied. This table consists of a list of strings, and the values with which they should be associated. Before a number is dialed, it is run through this table to replace any matched strings with their associated value.

For This Field or Button	Take This Action
Text Substitution Templates (continued)	This feature is useful in ASA environments that employ standardized dialing conventions for dialing plans such as intra-company or extension dialing. For example: **Input** **Substitution** **Example** VNET 8 VNET111-2222 to **8,1112222** ext. **,** 978-2555 ext. 421 to **9782555,42**1 x **,** 978-2555 x421 to **9782555,421** **Note:** Avoid using ambiguous input such as EXT and EXTENSION. Avoid using numbers at the end of input text (such at EXT1)
Private Number Table	Click to configure one or more templates used to define the set of numbers considered private (not part of the local, public numbering plan). For detailed information about completing the Private Number Table dialog box, see Private Number Table in the "Dialing Parameters" section.
Local Number Table	Click to configure numbers that must be matched to be assigned to the LOCAL dial type. For detailed information about completing the Numbers Table dialog box, see Local Number Table in the "Dialing Parameters" section
National Number	Click to configure numbers that will be considered by ASA as LONG DISTANCE dial types. For detailed information the completing the Long Distance Number Table dialog box (see Long Distance Number Table in the "Dialing Parameters" section.

Dialing Parameters

This section describes how to change the ASA dialing plan using the Telephony Setup form.

Number Table Characteristics

Each ASA number table (see Private Number Table, Local Number Table, Long Distance Number Table) provides a sequence of entries (consisting of two to four fields) that match a particular series of numbers. Matched numbers are then marked as private, local, or long distance.

Number Template Fields

You use a Number Template field to describe a series of digits to match a number. These fields consist of a sequence of digits or wildcards, and are restricted by the rules explained on Table 5.

Table 5 Number Template Rules

Digit or Character	Description	Example(s)
0 through **9**	Valid digits	
R	Represents the *any digit* wildcard. Matches any digit (0-9), but must be present in the matched number	RRR Matches any 3-digit number, and *only* 3-digit numbers.
[and **]**	Sets a conditional wildcard. The characters between the brackets can consist of **0**-**9**, and **-**, to specify the digits or range of digits that must be matched.	[159RR] Matches 3-digit numbers that start with 1,5, or 9 [18-8]RR Matches 3-digit numbers that start with 1,6,7,or 8

Digit or Character	Description	Example(s)
?	Follows any digit or wildcard to make it optional. Allows numbers to be of variable length.	[12]?RR Matches 3-digit numbers beginning with 1 or 2,; also matches any 2-digit number
O	Optional digit wildcard; shorthand notation for **R?**, which optionally matches any digit.	ORR Matches any 3-digit number or any 2-digit number (same as R?RR)

Dial Template Fields

A Dial template field is a companion to one or more Number Template fields, and specifies how a matched number will be dialed. Valid characters are described on.

Table 6 Dial Template Rules

Digit or Character	Description
0 through **9** A through D	Each character represents a single explicit DTMF digit to be dialed.
X	Replaced by a digit matched by a wildcard in an associated Number Template. Each wildcard is assigned an order and a series of Xs is replaced in the order in which they match wildcards. (See Sample Template Entries for more information.)
S	Used to skip a wildcard field. If a matched wildcard is not needed in the final dialed number, this character can be used to skip it.(See Sample Template Entries for more information.)
G	Replaced by the value of the Area code for ASA field on the main Telephony Setup screen.

Digit or Character	Description
I	Replaced by the value of the International Prefix field on the main Telephony Setup screen.
N	Replaced by the value of the National Prefix field on the main Telephony Setup screen.
P	Replaced by the value of the Off PBX Prefix field on the main Telephony Setup screen.
U	Replaced by the value of the Country code for ASA field on the Telephony Setup screen.
Z	Replaced by the authorization code administrated for the user performing the outcall.

Sample Template Entries

Table 7 provides a list of sample Number and Dial Templates entries, and their results.

Table 7 Template Input/Output Information

If this number is input...	And the Number Template is set to...	And the Dial Template is set to...	Then this number is output...	Notes
123	RRR	XXX	123	
155	[157]5R	X5X	155	
555	ORR	XXX	555	Optional digit matched ‘5’.
55	ORR	XXX	55	Optional digit matched nothing.
1255	[147]ORR	XXXX	1255	Optional digit matched ‘2’.

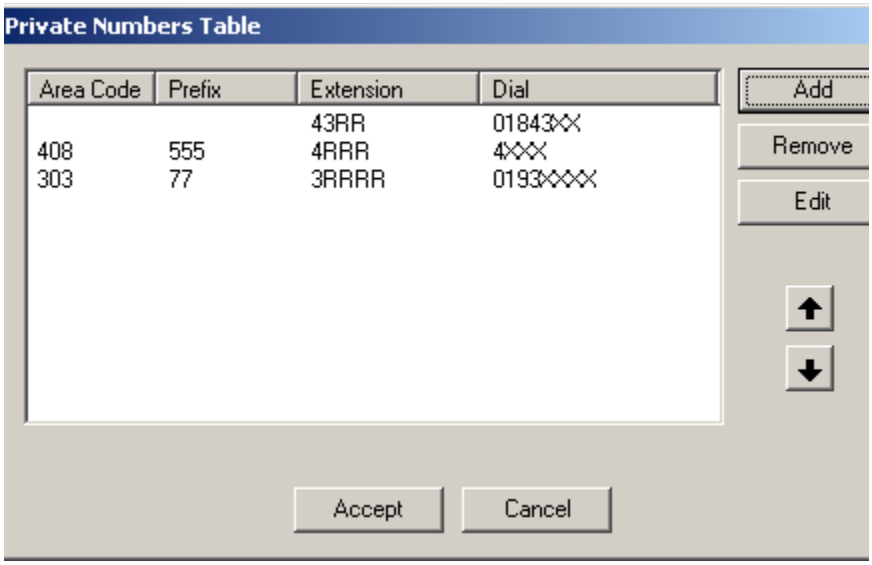
If this number is input...	And the Number Template is set to...	And the Dial Template is set to...	Then this number is output...	Notes
1255	[147]ORR	222SSXX	22255	Skipped first and second wild cards.
155	[147]ORR	SXXX	55	Optional digit matched nothing.

Important: As the last sample shows, you must take care when more than one match is possible. The **1** could have matched the **O** wildcard, but the **[147]** was matched first. Wildcards are evaluated in left to right order.

Private Number Table

Figure 3 illustrates the Private Number Table. This table describes both Private and On PBX numbers. Any number that matches an entry in this table is assigned the PRIVATE dial type. The Area Code, Prefix, and Extension columns are associated Number Template fields. Dial is a Dial Template (specifies how the entry should be dialed.

Figure 3. Private Number Table.



As configured, the Area Code and Prefix are optionally matched. A single entry in the table can match all possible permutations of a private extension.

Following are Private Number Table examples. For examples 2 and 3, assume that the Telephony Setup screen is configured as follows:

Country Code = 1
Area Code = 408
Off PBX Prefix = 9
National Prefix = 1
International Prefix = 011

Private Number Table, Example 1

For the first entry in Figure 3 (Extension **43RR** and Dial **01843XX**) only 4-digit extensions starting with 2 would be matched.

Although the entry **43RR** is a subset of the previous example, it is evaluated first; because this rule is listed first. If a number matches this entry, further entries are not checked. Thus, the number dialed will be the 4-digit extension that starts with **43**, prefixed by a trunk access code of **018**.

Private Number Table, Example 2

For the second entry in Figure 3 (Area Code **408**, Prefix **555**, Extension **4RRR**, Dial **4XXX**), the following list of numbers are matched:

4***	4 digits starting with 4
5554***	7 digits starting with 5554
4085554***	10 digits starting with 4085554
14085554***	10 digits starting with 4085554 and prefixed by the National Dialing prefix
14085554*** Code	10 digits starting with 4085554 and prefixed by the Country
01114085554***	10 digits starting with 4085554 and prefixed by the

International	Dialing Prefix and Country Code
95554***	7 digits starting with 5554 and prefixed by the Off PBX prefix
94085554***	10 digits starting with 4085554 and prefixed by the Off PBX prefix
914085554***	10 digits starting with 4085554 and National Dialing Prefix
914085554***	10 digits starting with 40855 and prefixed by the Off PBX prefix and Country Code
901114085554***	10 digits starting with 4085554 and prefixed by the Off PBX prefix, International prefix, and Country Code

Any number that matches this list is dialed as a 4-digit extension that begins with **4** (as per the Dial field.

Private Number Table, Example 3

For the third entry in Figure 3 (Area Code **303**, Prefix **77**, Extension **3RRRR**, Dial **0193XXXX**), non-local numbers can be dialed using the private network. The following list of numbers are matched:

3****	5 digits starting with 3
303773****	10 digits starting with 303773
1303773****	10 digits starting with 303773, prefixed by the national dialing prefix
1303773****	10 digits starting with 303773, prefixed by the country code
0111303773****	10 digits starting with 303773, prefixed by the international dialing prefix and country code
9303773****	10 digits starting with 303773, prefixed by the off PBX prefix
91303773****	10 digits starting with 303773, prefixed by the off PBX prefix

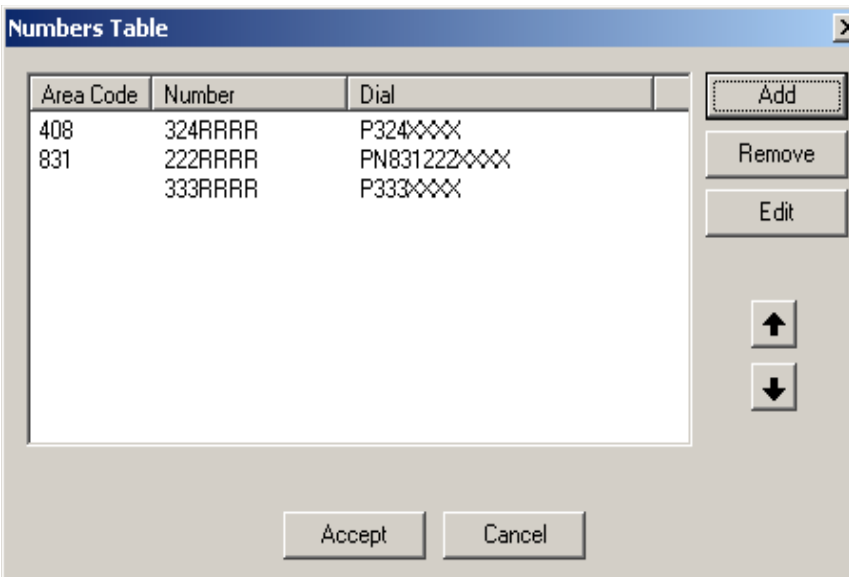
and	
	national dialing prefix
91303773****	10 digits starting with 303773, prefixed by the off PBX prefix
and	
	country code
90111303773****	10 digits starting with 303773, prefixed by the off PBX prefix, international dialing prefix and country code

Any number matching this confutation is dialed using the private network, as a 5-digit extension starting with **3**, and using the trunk access code **019**. 7-digit numbers are not accepted, because the Area Code field does not match what you entered in the main Telephony Setup screen.

Local Number Table

The Local Number Table (see Figure 4) is similar in form and function to the Private Number Table. However, the Local Number Table has only two Number Template fields Area Code and Number) and one Dial Template field. Configure this table to match numbers that you assign to the LOCAL dial type.

Figure 4. Local Number Table



For this table, the Area Code need not match for the entry to be considered a match--provided that the Area Code

matches the value on the main Telephony Setup screen. The following examples illustrate the rules for this table.

For the examples, assume the main Telephony Setup screen is configured as follows:

Country Code = 1
Area Code = 408
Off PBX Prefix = 9
National Prefix = 1
International Prefix = 011

Local Number Table, Example 1

For the first entry in Figure 4 (Area Code **408**, Number **324RRRR**, and Dial **P324XXXX**), the following list of numbers are matched:

324****	7 digits starting with 324
408324****	10 digits starting with 408324

1408324**** is configured as follows:

Country Code = 1
Area Code = 408
Off PBX Prefix = 9
National Prefix = 1
International Prefix = 011

Digits starting with **408324**, prefixed by the national dialing prefix, are configured as follows:

1408324****	ten digits starting with 408324, prefixed by the country code
0111408324****	10 digits starting with 408324, prefixed by the international dialing prefix and country code.
9324****	7 digits starting with 324, prefixed by the off PBX prefix
9408324****	10 digits starting with 408324, prefixed by the off PBX prefix
91408324****	10 digits starting with 408324, prefixed by the off PBX prefix and national dialing prefix
91408324****	10 digits starting with 408324, prefixed by the off PBX prefix

and	
	country code
90111408324****	10 digits starting with 408324, prefixed by the off PBX prefix, international dialing prefix and country code

A number that matches (with the above restrictions) is dialed as a 7-digit number, starting with **324** and prefixed by the Off PBX prefix. Thus, if the number **4083245555** is input, ASA will dial **93245555**.

Local Number Table, Example 2

The second entry in Figure 4 (Area Code **831**, Number **222RRRR**, and Dial **PN831222XXXX**) represents a series of numbers that are outside the local area code, but that still should be considered local (they are non-toll calls).

Following is a list of matching numbers for this entry.

831222****	10 digits starting with 831222
1831222****	10 digits starting with 831222, prefixed by the National Dialing Prefix
1831222****	10 digits starting with 831222, prefixed by the Country Code
0111831222****	10 digits starting with 831222, prefixed by the International Dialing Prefix and Country Code
9831222****	10 digits starting with 831222, prefixed by the Off PBX prefix
91831222****	10 digits starting with 831222, prefixed by the Off PBX prefix and National Dialing Prefix
91831222****	10 digits starting with 831222, prefixed by the Off PBX prefix and Country Code
90111831222****	10 digits starting with 831222, prefixed by the off PBX prefix, International Dialing Prefix and Country Code

Unlike Example 1, this entry matches only a 10-digit number, because the Area Code does not match the value

on the Telephony Setup main screen. Thus, the number **8312221111** would be dialed as **918312221111**, a 10-digit number prefixed by the Off PBX prefix and National Dialing prefix, as specified in the Dial field.

Local Number Table, Example 3

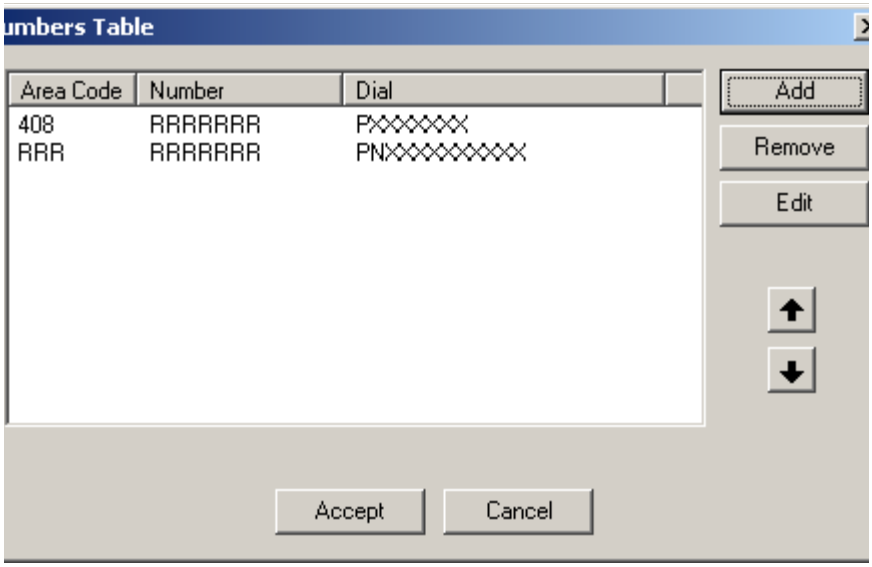
The third entry in Figure 4 (blank Area Code field, Number **333RRRR**, and Dial **P333XXXXZ,,,1234**) matches only 7-digit numbers starting with **333**.

As per the Dial field, these numbers are dialed with the Off PBX prefix, followed by the 7-digit number, the users authorization code, and an extension of **,,,1234**. The extension is output as DTMF tones by ASA after the call is answered.

Long Distance Number Table

The Long Distance Number Table (see Figure 5)is a list of numbers considered by ASA as the LONG-DISTANCE dial type. This table has the same fields and functionality as the Local Number Table.

Figure 5. Long Distance Number Table



Long Distance Number Table, Example 1

The first entry in Figure 5 (Area Code **408**, Number **RRRRRRR**, and Dial **PXXXXXXX**) matches numbers for the local area code that were not matched by

the rules in the Local Number Table. The following numbers are matched.

*******	7 digits
408*******	10 digits starting with 408
1408******* prefixed by	10 digits starting with 408, the National Dialing prefix
1408*******	10 digits starting with 408, prefixed by the Country Code
0111408*******	10 digits starting with 408, prefixed by the International Dialing prefix and Country Code
9*******	7 digits, prefixed by the Off PBX prefix
9408*******	10 digits starting with 408, prefixed by the Off PBX prefix
91408*******	10 digits starting with 408, prefixed by the Off PBX prefix and National Dialing prefix
91408*******	10 digits starting with 408, prefixed by the Off PBX prefix and Country Code
90111408*******	10 digits starting with 408, prefixed by the Off PBX prefix, International Dialing prefix and Country Code

Numbers matching these restrictions are dialed with the Off PBX prefix followed by the 7-digit number.

Long Distance Number Table, Example 2

The second entry in Figure 5 (Area Code **RRR**, Number **RRRRRRR**, and Dial **PNXXXXXXXXX**) provides a description for all national numbers. This entry is last in the table, because previous entries are a subset of this entry.

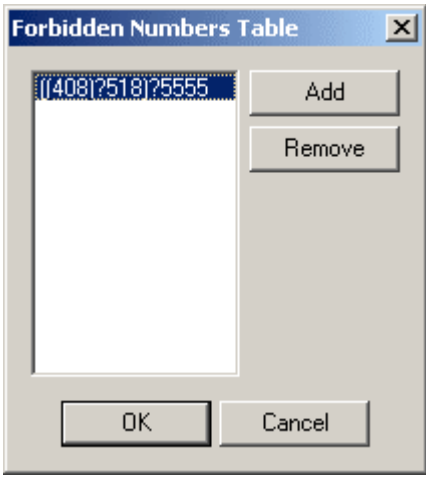
The following numbers are matched with this entry:

**********	10 digits
1**********	10 digits, prefixed by the National Dialing prefix
1**********	10 digits, prefixed by the Country Code
0111**********	10 digits, prefixed by the international dialing prefix and Country Code
9**********	10 digits, prefixed by the Off PBX prefix
91**********	10 digits, prefixed by the Off PBX prefix and National Dialing prefix
91**********	10 digits, prefixed by the Off PBX prefix and Country Code
90111**********	10 digits, prefixed by the Off PBX prefix, International Dialing prefix and Country Code

Forbidden Number Template

The Forbidden Number Table (see Figure 6), is a list of Number Template fields that specify numbers that users should not be permitted to dial. This table is checked before and after the number is converted by the Number Tables. Numbers matching the entries in this table are marked with the DISALLOWED dial type.

Figure 6. Forbidden Number Table



How the Dialing Parameter Tables Operate

ASA verifies a number's dialing parameters as follows:

1. **Check the Substitution Table**. Apply to the number appropriate text substitutions.
2. **Determine if the number should be dialed**. Compare the number to Forbidden Number Table entries. If a match is found, do not dial the number. If no match is found, proceed to step 3.
3. **Check the Private Number Table**. If a match is found, convert the number by the appropriate Dial Template and set the type to PRIVATE. If no match is found, proceed to step 4.
4. **Check the Local Number Table**. If a match is found, convert the number by the appropriate Dial Template and set the type to LOCAL. If no match is found, proceed to step 5.
5. **Check the Long Distance Number Table**. If a match is found, convert the number by the appropriate Dial Template and set the type to LONG_DISTANCE. If no match is found, proceed to step 6.

6. Determine if this is an international number. Check the number for an international dialing prefix (set on the Telephony Setup screen).

   If an international dialing prefix is found, use the Country Code table to determine whether the number has a valid country code that does not match the site country code selected on the Telephony Setup screen.

7. **Dial the number**:

   a. If the country code is valid and does not match the site country code, set the number type to INTERNATIONAL and dial the number with the Off PBX prefix prepended.

   b. If the country code matches the site country code, mark the number as UNKNOWN (a mistake has been made in the Number Tables). Dial the number as is.

   c. If the number does not start with 011, determine if it starts with a valid country code (other than the one set on the Telephony Setup screen). If it has a valid country code, mark the number as international and dial the number with the Off PBX prefix and international dialing prefix prepended.

   d. If the country code matches the site country, set the type to UNKNOWN and dial the number as is (a mistake has been made in the Number Tables).

   e. If none of these conditions applies, mark the number as UNKNOWN and dial it as is.

8. Once the number has been converted, check the Forbidden Number Table again. If the number matches on the second attempt, mark the number DISALLOWED–regardless of it's previous demarcation.

Set Up Voicemail Server Information

Typically, you add the Voicemail Server and set up voicemail Server information when you install ASA. However, you can add, delete, or reconfigure voicemail

server infrormation at any time by following the instructions in this section.

Adding a Voicemail Server

1. From the ASA Management Console, click **ASA Management->Configuration**.
2. Right-click **Voicemail Setup** and select **New->Voicemail Server** from the pop-up menu.
3. Enter the required information and click **OK**.

Removing a Voicemail Server

1. From the ASA Management Console, right-click the voicemail server node.
2. Click **Delete** on the pop-up menu.

Configuring Voicemail Server Setup Information

1. In the left pane of the ASA Management Console, expand **Configuration** and click **Voicemail Setup**.
2. Click the voicemail server name to open the voicemail server form.

3. Configure the voicemail server as follows:

For This Field	Take This Action
Voicemail Server	Enter the name of the voicemail server
VM Pilot Number	Enter the pilot number for the voicemail server
VM Server Type	Enter the type of voicemail server installed at this site
Network Address	Enter the network address for the voicemail server
Download Enabled	Select this option if you want to schedule names downloads from the voicemail server
Perform Retrieval	Select the frequency, and the day and time for the names download from the voicemail server.
Retrieval Time	Schedule the time of day at which the names download from the voicemail server should occur.
Mailbox ID	If your voicemail server requires a mailbox ID, enter the ID to use during the names download.
Password	If your voicemail server requires a password for the mailbox ID, enter the password to use during the names download
Last Download Time and Status	Displays the time and status of the last. names download from the voicemail server.

Switch 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.
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->Settings->Control Panel** and 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\ ASA Server\bin**, for example). Then execute the following command:

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

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

   ChangePassword -d AvayaDom -u AvayaASA xy1234
   ChangePassword -u AvayaASA xy1234
   ChangePassword xy1234

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

Configure the ASA Application

When ASA Server is first installed, the ASA application is not registered for execution. However, if you followed the instructions in the *Avaya Advanced Speech Access Installation Guide*, you installed and published the ASA application immediately after installing the ASA Server software.

You may occasionally need to add a new version of the ASA application to support new features. This section provides the information you need to configure the application.

Associated Service Process

To create and execute the ASA application, the following types of service processes must be running:

- One or more Telephony Engines (on which the application runs). Each Engine supports a single, active inbound telephone call; a ASA Server platform that supports multiple simultaneous callers generally has one Engine per telephone channel.

  Note that a Telephony Engine depends on the following process types:

  Nuance Manager
  Speechify TTSServer
  VAServer
  NamesDownload

- A Text-to-Speech (TTS) Server for translating text into voice output
- The ASA Nuance Manager process.
- 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 configuring the application.

Publication File

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

- Application code file executed by the VA Engine
- Grammar file containing the words and phrases recognized by ASA
- Recorded prompt files
- Additional sound files 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 ASA Server platform servers. At publication time, the grammar is compiled into a format that can be understood by the Speech Recognition software, and then loaded in the recognition engines. In case of failure during the publication process, any files 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 Recognition Server) to be associated with an existing application, without having to republish the application files.

Add an ASA Application

To create a new application from the ASA Management Console,

1. Right-click **ASA Manager->ASA Application**s.
2. From the pop-up menu, select **New->ASA Application**. The Set Application File dialog box appears.

3. In the Path to file: field, enter the full path to the **.vapub** file for the application. Or click **Browse** and find the file using the Open File dialog box.

4. Click **OK** to add the new application to the component tree. If the same application is added multiple times, the additional instances prompt to provide a unique Application names.

Note: Application names must be less than 10 characters in length.

Publish an ASA 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; the application source files are stored in this directory.

Important: Do not attempt to publish a second application until the publication process is completely finished.

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 appears.

2. If you want the dynamic grammar database to be rebuilt as part of the publish routine, select the box next to **Rebuild dynamic grammar database**.

3. If you want to delete the application's directory (in case the publication fails), check the box next to Delete directory if publish fails.

4. If you want the application to auto-start after publishing, check the box next to **Auto-start after publish**.

Important: If the Auto-start field is inactive (grayed out) you must restart the application manually after completing this procedure.

5. Click **Publish**.

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

VAOutlook: Done publishing application VAOutlook

display in the events box.

Custom Pre-Publishing and Post-Publishing

When you create a new application, you can also specify pre- and post-publish 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 pre-publish scripts are executed before the grammar compilation. The script may, 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 post-publish script executes. The post-publish script can be used to perform cleanup, or to perform some tasks with the package in place.

Post-Publish 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** 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 pre-publish script, compiling the recognition package, and executing the post-publish 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. It 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, persons 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 Problems with the Publication Process

Disk Full

The following 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 you just created and recreate 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.

VAServer Process Not Properly Configured

If the publish operation fails, the VAServer process might not be properly assoicated with the **VAOutlook.vapub** file. You need to

- Check that the engines are dependent on the VAServer process
- Check that the VAServer process is associated with VAOutlook (see Create Processes Manually).

Remove an ASA Application

To remove an application from the serverset:

1. From left pane of the ASA Management console, click **ASA Applications**.
2. Right-click **VAOutlook**; then click **Delete**.
3. 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.

Create 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. From 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. From the **Type** combo box, select the type of process you want to create. Default process types are listed on .

Table 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 ASA Server and the Natural Microsystems telephony hardware APIs.	VATelephony.exe
Nuance Compilation Server	Used by the Speech Recognition software to generate dynamic grammar entries. The Compilation server is created by ASA Server for each application you create.	compilation-server.exe

Process Type	Description	File name
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
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 by ASA Server for each application you create.	resource-manager.exe
ASAOutlook Fault Monitor	Used by the ASA application 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; ASA Server sets a parameter to indicate the engine type.	VAEngine.exe

Process Type	Description	File name
Telephony Engine	VA Engine used with a telephony card The same **VAEngine.exe** executable is used for both Sound Card Engines and Telephony Engines; ASA 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

4. From 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.

Configure Alerts

ASA Server includes an alert feature that enables the Avaya Advanced Speech Access administrator to be paged (via 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 appears.

2. In the **Pager Email** field, enter the pager e-mail address, 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 you want to monitor for errors (use the **Select All** and **Clear All** buttons to select or clear all of the checkboxes 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** checkbox, 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.

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.

Add TTS Dictionary Entries

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

Note: The changes to custom TTS entries do not take effect until the Engines are started.

Test TTS Dictionary Entries

It could take 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 use 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.

Install ASA Web Management

ASA Web Management consists of a collection of Web-based utilities that enable you to manage the ASA Server, the ASA application, and ASA users, over the World Wide Web (see ASA Components).

ASA Server must be fully installed and configured before you install ASA Web Manager. If you did not install ASA Web Manager on the ASA Server during initial setup (see the *Avaya Advanced Speech Access Installation Gui*de), proceed as follows:

1. Insert the Avaya Advanced Speech Access software CD into the ASA Server CD-ROM drive.
2. From the Install Components menu, select **ASA Web Management**.
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.

Uninstall ASA

The best way to ensure that ASA uninstalls completely is to "clean" the disk by reformatting it and then re-installing the Windows 2000 operating system (overwrite the existing ASA software). You can then re-install ASA, if necessary, by following instructions in the *Avaya Advanced Speech Access Installation Guid*e.

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

ASA Server Administration

Server Administration Overview

This chapter discusses the ASA server administration tasks you perform from the ASA Management Console during day-to-day operations. If you are not familiar with all the components of ASA Server, see ASA Server Software. For information about managing the ASA application, and its users, see ASA Application and User Administration.

Operations Management

As the administrator of Avaya Advanced Speech Access, you will perform the following operational tasks:

- Monitor platform logs
- Monitor disk space
- Manage the VA Database
- Purge call logs and transcriptions
- Monitor debugging logs
- Prepare back-up servers
- Monitor ASA performance
- Start or stop ASA processes

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

Security Management

In certain environments, ASA Server administration also includes managing 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 for more information.

Administering ASA Server Over the Web

ASA Web Manager enables you to perform many of the same ASA Server administration tasks that you perform with the ASA Management Console. When installed (see (Install ASA Web Management), this utility is accessible from the following URL:

http://*server_name***/asamanager**

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 you want to configure.

Configuration 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 you want to configure.

Monitoring Platform Logs

ASA 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 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 received and each outgoing call placed during an ASA session. Because a user can have ASA dial calls, there are often multiple calls 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 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 performed checking messages, sending messages, placing calls) but also the voice commands 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.

ASA Reports

ASA Reports 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 running ASA Reports from a browser on the serverset controller node, use the actual machine name (not "localhost"). The ASA Reports application loads properly if you use "localhost" in the URL, but an ODBC error occurs when you try to run the report.

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

http://*server_name***/ASAreports**

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

Execute Page

From 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.

Constraints Page

From the Search UR ASA Interface page, click the **Constraints** tab to set boundaries for your report. Table 4 describes the selections.

Table 4. 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 change the statistics displayed on the report. Table 5 describes the selections.

Table 5. 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, using 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

From 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, as follows:

Fill in any of the following fields to override the database selection
Fill in the fields for this option to change to a different database.

Fill in any of the following fields to override the database values
Check the appropriate boxes under this option to specify the information that appears on log reports. For example, select the
Log Speech Recognition Errors 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 encountered

- **Details.** Provides detailed information of the problem can be used by Avaya Technical Support

Interpreting Reports

You should 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).
- Track recognition accuracy percentages (ratio of successful recognition to total recognition attempts) so that you can take corrective action, if necessary. Recognition accuracy should be above 90%.
- Track the time spent by the ASA machine in "listening" and "talking" (most of the system's time should be spent on these activities). If too time is spent recognizing speech, the recognition server may 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) 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 speech.

Monitoring Disk Space

ASA 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 ASA Server platform, and take appropriate

steps to free up disk space, as needed. (See Deleting Call Logs and Transcriptions).

Note: You can configure ASA Server to alert you via e-mail pager when the amount of free disk space falls below a certain threshold. See Configure Alerts for more information.

Calculate Disk Usage

The two largest consumers of platform disk space are the sound files stored in the **VAUtterances** directory and the logs 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

ASA 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, shows the amount of disk usage you can expect for various levels of traffic.

Table 6. 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	95 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 7 describes the expected growth of the database, based on the number of user sessions.

Table 7. VA Database Growth by Session Rate

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 like the SQL Server Enterprise Manager, and it supports a maximum database size of just 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.

Manage the Database

Because MSDE does not include its own user interface, you perform most management tasks for the VA Database 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 display on the right side of the console window.

Back Up the Database

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

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 should back up the SASA database at least once a week. If your site is a large one, you may 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 VADB 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 should periodically purge older files from the backup directory

Restore the Database

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

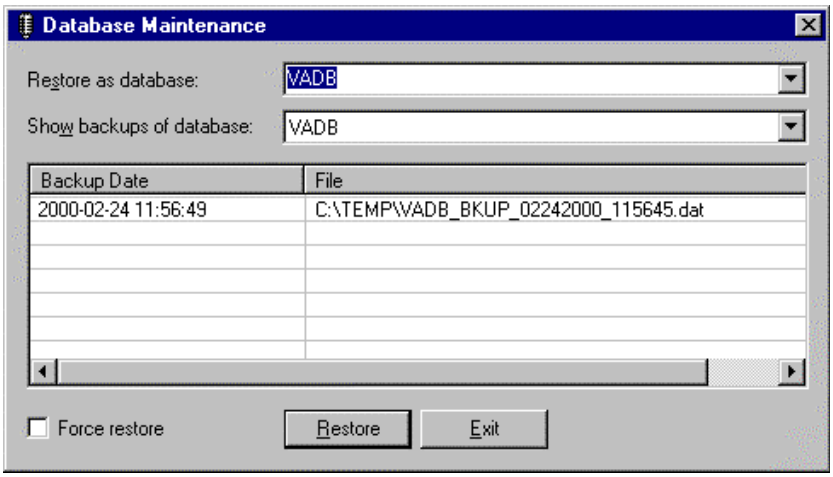
Note: To restore the database, VA Maintenance must have an exclusive lock on the database. The restore process will fail if ASA is running any active database sessions.

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, highlight (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 7.

Figure 7. Database Maintenance Utility Interface



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

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

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

Export Database Tables

The **Export** frame on the Database Administration Panel 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 files for all calls processed by ASA 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 purge logs and transcriptions periodically to free up disk space.

For each call session, two 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 (**.wav**) files are stored in the **VAUtterances** directory and capture each spoken message recorded during a call. The amount of disk space 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 ASA Server platform. Use the disk-space guidelines in Calculate Disk Usage 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, perform the following steps:

1. From the ASA Management Console, click **Database Administration**.
2. On the details pane, select either or both of these checkboxes:
   - **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. 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.

Add New Maintenance Plan

1. Start at the ASA Management Console. Click the DBAdministration **Add** button in the Maintenance Jobs frame. The Add Maintenance Job dialog box appears.

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 you want the job to run.

4. In the **Duration** frame, enter the date and time of day on 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 should 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 should 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 may want to set up two separate purge plans: one that frequently deletes the detailed records only, and another that less frequently deletes both summary and detailed records.

Maintenance Plan Log

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

Debug Logs

In addition to the session, call, and transcription logs maintained in the database, ASA 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 should 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 ASA Parameters.

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 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 installed with all the ASA Server software, but do not make the server active part of the set. If one of the active servers fail, the failed server's configuration can then be copied to the back-up 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 ASA Server software and all prerequisites are properly installed on the target server.
2. From the ASA Management Console , 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 appears.
5. Select from the list the name of the target serve; then click **OK.** An authentication dialog box appears.
6. In the authentication dialog box, enter the Username and Password for the AvayaASA user on the target server; then click **OK**. A node for the new server is added to the **Serverset** sub-tree.

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, ASA 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 ASA 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 ASA Server installation program. Following are the default values for the objects:

- **Access Permissions**: Enable access to the AvayaASA user account
- **Launch Permissions:** Enable launch to the AvayaASA user account

  Caution: Setting improper parameters can prevent VA processes from running. Therefore, only administrators with advanced DCOM experience should 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 AvayaASA user account (or the account under which the VA processes are running) must have access to, and launch, permissions for all VA objects.

Reset DCOM Permissions

In the event that you must modify the DCOM setting for ASA Server, the following utilities, copied to the

ASA 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:

   vvladcom -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 (**AvayaASA** by default).

Secure File System Data

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

- Domain Administrator
- Local System Administrator
- System
- AvayaASA

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 AvayaASA service account must have access to ASA directories, you must always grant Full Control.

Caution: If you grant a user account access;uer account accessaccount 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:

- ASAReports
- ASAManager
- ASAUploads
- _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.

ASA Database Security

When you install the ASA 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 AvayaASA service account as a database administrator. At runtime, the ASA Server for ASA access always uses the AvayaASA NT account. 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.

Starting ASA 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:

- ASA platform needs to be brought down for maintenance
- 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.

Configure 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 start-up).

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

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

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

Start 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 Manager** node
2. From the popup menu, select **Start All Processes**.

Process Start Order

When global start-up is set, all global processes are started first. 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 start 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 it should be started (from lowest to highest). All processes within a given group start at about the same time.

Table 8 lists the startup order groups.

Table 8. Startup Order Groups

Process Type	Startup Order Group
VA Server	1
External App	1
Nuance Resource Manager	2
Nuance License Manager	2
Speechify TTS Server	2
Nuance Compilation Server	3
Nuance RecServer	3
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.

Monitor 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 should monitor their progress first.

Start Individual Processes

Most of the time you will use either the global or application start-up functions. However, should you need to start only a single process,

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

  OR

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

As with starting an application, any global processes 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 ASA Server platform. When ASA processes are stopped, the applications cease execution. No incoming calls can be received.

Shut Down Gracefully

The best method to use to shut down a ASA Server platform is the **Stop All (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 Manager** node.
2. From the popup menu, select **Stop All (Graceful)**.

Shut Down Immediately

In some cases, you might need to immediately stop all processes on the platform. 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 Manager** node.
2. From the popup menu, select **Stop All (Immediate)**.

Restart the System

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

Stop Individual Applications and Processes

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

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

ASA Application and User Administration

This section discusses the tasks required to manage the ASA application, and its users. If you are not familiar with ASA, see Administrator Overview of Avaya Advanced Speech Access.

Application Administration Overview

Following are the tasks required to maintain the ASA application:

- Monitor platform logs
- Manage server disk space
- Back up the database.

See ASA Server Administration. for more information.

Managing Applications Using the ASA Management Console

In addition to performing maintenance tasks, you also perform the following administrative tasks from the ASA Management Console:

- Set the hold music
- Enable the Corporate Directory (LDAP protocol)
- Modify notification time-outs

Managing Applications Over the Web

ASA Web Manager (see (Install ASA Web Management) enables you to perform the following application administration tasks over the Web:

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

You access ASA Web Manager from the following URL:

http://*server_name***/asamanager**

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

Set the Default Hold Music

When callers dial in to ASA's public interface, the application can play music to them while they are on hold. When you first publish the application, a wave 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 **ASA Applications** node. In the main window, click **Advanced** to open the application's **Advanced** properties dialog box.
2. In the **Music on Hold** frame, click **Browse**. The **Select a Filename** dialog box appears.
3. The **Select a Filename** dialog box should 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.

Set 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

Enable the Corporate Directory

ASA supports the Lightweight Directory Access Protocol (LDAP) used for many corporate directory address lists.

By default, ASA enables each user to access only the Contacts folder, which contains the contacts that each user enters in his or her desktop Outlook application. ASA can also be enabled to access an LDAP-based corporate address directory. When both access methods are enabled, these two sources are transparent to the user. However, the command a subscriber speaks determines the access method this is used by ASA.

If a user speaks the name of the person who they want ASA to call or send a message to ("**Send a message to John Brown**"), ASA searches only the subscriber's Outlook Contacts folder for the spoken name. However, if the subscriber says only "**Send a message**" or "**Make a call**" (does not speak the name of the person they want to contact), ASA replies by asking "**To whom?**" and, when the subscriber replies with a name, ASA goes directly to the corporate (LDAP) directory to search for the name.

In some situations, using both types of 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 Contacts folder. However, you must enable the corporate directory to provide this capability.

To enable the corporate directory,

1. From the ASA Management Console, expand the **Configuration** node and click **LDAP Setup**.
2. Complete the fields on the screen, as described below. If you need help determining the value for any field, consult the administrator of the corporate directory that you want ASA to access.

For this Field	Take this Action
Use LDAP for people searches	Check the box to indicate that ASA should access the corporate directory. **Note:** The alternate method for configuring LDAP is to check the Use LDAP box in the General Serverset Configuration dialog box.
Server	Enter the machine name or IP address of the LDAP server.
Port	Leave blank to use LDAP standard port **389**. Or type the number of the port on which the LDAP server can be accessed.

Suffix	Enter the type of data for ASA to retrieve from the LDAP server. In LDAP, this value is also known as the Base Domain Name (DN) or Search Root.
User ID	Enter the account name (if any) for ASA to use to access the LDAP server.
User Password	Enter the password (if any) for the User ID account.
Static Grammar Filter	Leave this field blank if the corporate directory contains fewer than 5000 people (all names will be included in the ASA grammar).
r	If the corporate directory contains more than 5000 people, use this field to limit the grammar to the 5000 people you want ASA subscribers to call or send messages to. All field names included in the filter (**telephonenumbe**r, for example) must be valid fields in the LDAP directory. For example, if the directory contains employee' addresses, you can filter based on zip code, rather than on telephone area code as shown in the examples. The syntax for this field string is defined by LDAP. Following are some sample field entries: **telephonenumber=+1408*** Returns all people in the corporate directory whose phone number is in area code 408. **(\(telephonenumber=+1 408*)** **(telephonenumber=+1 303*)** Returns all people in the corporate directory whose phone number is either in area code 408 or in area code 303.

(&(telephonenumber=+1 408*)(sn=Smith)

Returns all people in the corporate directory whose phone number is in area code 408 and whose last name is Smith.

DTMF Filter

Leave this field blank to permit ASA subscribers to spell by name when making calls or addressing messages to anyone in the corporate directory. (The 5000-name limit imposed on the Static Grammar Filter does not apply to DTMF filtering.)

)To limit the list of people that subscribers can call by spelling the name to the same list that they can call by speaking the name, set the value here to match that of the Static Grammar Filter.

The syntax for this filter is identical to that of the Static Grammar Filter.

3. Verify that the following fields contain the names that the LDAP server uses to identify various information accessed by ASA. The default names are part of the LDAP standard; you should not need to change them.

   First Name Attribute
   Last Name Attribute
   Display Name Attribute
   Email Attribute
   Telephone Number Attribute
   Fax Attribute

4. Re-publish the ASA application (see Publish an ASA Application) so that the names grammar made from the corporate directory will be rebuilt.

Modify Notification Time-outs

ASA calls users and notifies them of pending appointments, tasks, and inbox rules. If the user cannot

be reached (for example, his or her phone is busy), the application waits three minutes, 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 fifteen minutes, the notification attempt is abandoned.

Using the ASA Management Console, you can modify both the notification retry-interval and the maximum total time 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 the platform should 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 ASA Parameters.

User Administration

You perform the following user management tasks from the Web-based ASA User Manager utility:

- Add or delete an ASA user (subscriber)
- Update a user’s record in the database
- Change a user’s alias name or account number
- List all the ASA users in the database

Log in to ASA User Manager

To launch the User Manager utility, the ASA Web Management software must be installed on the system from which you are accessing this utility (see Install ASA Web Management). Log on to the following Web location to access User Manager

http://*server_name***/asaum**

Note: The machine you log in from must be in the same domain as the ASA Server.

Add or Update a User

Adding a user to ASA also adds the user to the database and, if applicable, enables the user in Microsoft Exchange.

To add a user,

1. Log in to ASA User Manager. From the left pane, select **Add User**.
2. Complete the following fields, using the directions on the Add User dialog box:

   Account Number
   VoiceMailbox Server
   Voice Mailbox
   Alias Name (optional)
   Phone Number
   Authentication Code
   Outbound RestrictionsDisplay Name
   Exchange Server

To update a user record in the database,

1. Log in to ASA User Manager. From the left pane, select **Modify User**.
2. Enter the user's account number in the Enter Account Number field; then click **Modify User**.
3. On the Modify User screen, click the **Update User** button.

Delete a User

Deleting a user from ASA also deletes the user from the database and, if applicable, disables the user in Microsoft Exchange.

Important: Disabling a user through Windows Active Directory does not delete the user from ASA. You must also perform the following procedure to completely delete the user from the system.

To delete a user,

1. Log in to ASA User Manager. From the left pane, select **Modify User**.
2. Enter the user's account number in the Enter Account Number field; then click **Modify User**.
3. On the Modify User screen, click the **Delete User** button.
4. Click **Yes** to confirm the deletion.

Change a User Alias

1. On the Microsoft Exchange Server, change the user's alias to match the alias you are creating in ASA.
2. Log in to ASA User Manager. From the left pane, select **Modify User**.
3. Enter the user's account number in the Enter Account Number field; then click **Modify User**.
4. On the Modify User screen, click the **Update Alias/Account#** button.
5. Enter the new user alias in the New Alias box and click **Change Alias**.

Change a User Account Number

1. Log in to ASA User Manager. From the left pane, select **Modify User**.
2. Enter the user's account number in the Enter Account Number field; then click **Modify User**.
3. On the Modify User screen, click the **Update Alias/Account#** button.
4. Enter the new numeric account number in the New Account Number box; then click **Change Account**.

A Word About ASA User Preferences

The ASA User Preferences Web interface enables ASA subscribers to change their ASA settings. When installed (see Install ASA Web Management), this utility is accessible from the following location:

http://*server_name***/asaonline**

ASA subscribers use the User Preferences interface to specify the following:

- Name and telephone number of their personal operator
- Where ASA can reach them for incoming calls (optionally, a list of who is allowed to reach them, and when)
- Ability to log onto ASA by entering only their password
- How they want to be reminded of appointments
- Length of voice prompts and the level of assertiveness of ASA
- How ASA's text-to-speech voice should pronounce certain names

Troubleshooting ASA

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

- Installation problems
- Utilities or processes that fail to start
- ASA Error Logs
- Creating and removing IIS Virtual Directories
- Database errors
- Application and user administration errors

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

Installation Problems

If you used the *Avaya Advanced Speech Access Installation Guide* to install ASA, you may already have tried the solutions suggested in this section. If you cannot solve your installation problems yourself by following the guidelines in this section, contact your local support representative.

Check VAServerManager Status

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->Settings->Control Panel -> 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\ASA Server** 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 message. describes the log files in the Log directory.

Table 9. Installation Log Files

File Name	Description
AvayaASASAInstallLog_ Server.log	The primary installation log file. This file should be checked first.
VAServiceControl.log	Contains a log of the install routine's NT Service operations (e.g. creating the VAManager and VAServerManager services)

VAServiceControl_SS.log	Contains logging of the install routine's NT Service operations for the MSSQLServer service
VAServiceControl_SSA.log	Contains logging 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

The most common installation problems, and their solutions, are listed on Table 10.

Table 10. 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.	Refer to the *Avaya Advanced Speech Access 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, then run the installation again.
Improperly Configured AvayaASA Service	If the AvayaASA service account does not have the proper domain, the installation could fail.	Refer to the *Avaya Advanced Speech Access Installation Guide*. Ensure that AvayaASA was set up properly. **Note:** The ASA installation program enables certain local rights on the AvayaASA service account. If you did not create the account, or 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, then run the ASA installation again.
Processes start okay, but AvayaASA cannot connect to TTS server (TTS server is running)	You may have assigned an empty password to AvayaASA.	Refer to the *Avaya Advanced Speech Access Installation Guide*. Perform the ASA installation again and select a password for AvayaASA.
Processes start okay, but VA Engine displays the message **Can't load XML**	XML Parser not installed	Refer to the *Avaya Advanced Speech Access Installation Guide*. Install the XML Parser. Then re-run the ASA Server installation procedure.

Problems Launching the ASA Management Console

Console Will Not Launch from the Windows Start Menu

If the Start menu process does not work (see Launching the Console), manually launch the console, as follows:

1. From the Start menu, select **Run**.
2. In the Run dialog box, type **mmc** and click **OK**.
3. 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.

Note: If the **ASA Serverset Manager** snap-in does not appear in the Add Standalone Snap-In dialog box, see

4. Select **ASA Serverset Manager** from the list of available snap-ins; then click **OK**. The Select Server dialog box appears.
5. Click **Select** and choose the server on which the VAServerManager service is running (the serverset controller node).
6. Click **Finish** to close the Select Server dialog. Then click **OK** to close the Add/Remove Snap-In dialog.

ASA Serverset Manager snap-in Does Not Appear

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 install or manually register the DLL.

To manually register the DLL,

1. Go to the system command prompt and change the directory to the following

   \ASA Server\bin

2. Type the following:

   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).

Processes that Fail to Start

You can check the status of a process by viewing its details pane. This pane appears in the right-hand window of the ASA Management Console when you click on the process name in the component tree. On this properties panel, 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 ASAServer Error and Message Codes for more information). A complete listing of platform error codes, and their meanings, is presented in Table 14. 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. A Speech Recognition Server cannon start if its License Manager process is not already running. If a component fails start, make sure that all its

associated processes are running correctly and, if they are not, attempt to start them.

ASA Error Logs

ASA Server writes error messages to several locations. When attempting 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 appear in the **Application** view of the Event Viewer application. Click the following to access the viewer

Start->Programs->Administrative Tools-> 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 on 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 and ASA Parameters for more information about these messages.

Debug Log

ASA 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 a clue 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 ASA Parameters). Typically, the only time 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 consumed by the logs increases dramatically. Do not forget to reset the debug level parameter once debugging is complete.

Administrator Alerts

ASA 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, refer to Configure Alerts. Following is a list of administrator alert 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% 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 (typically 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 on 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: 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 running on the system.

Message: Nuance exception status NUANCE_SERVER_ MESSAGE_READ_EOF - Processing message failure

Description: Occurs when the recognition client 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 the network is up and running. You may 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 may be missing a critical piece of information necessary to process the requests. This may include, for example, a missing dynamic grammar database or a record in that database.
  Resolution 3: Make sure the information the recognition server needs is available.

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

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

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

Speech Recognition Servers That Fail to Start

In many cases, a Speech Recognition Server cannot start because a prerequisite process, such as the Nuance License Manager, is not running.

Resolving Database Errors

If you receive error messages indicating problems with the database, try the following to resolve the problems:

1. From the Windows desktop, click **Start-> Control Panel ->Services** and make sure the MSSQLServer and SQLServerAgent services are started.

   - If the services are not started, try to start them through the Control Panel
   - If the services fail to start, check the Windows Event Log to identify the cause of the failure.

2. Check the registry parameters on every server in the serverset to ensure they are set to the proper values. These keys are located under the following registry key:

   HKEY_LOCAL_MACHINE\SOFTWARE\
   Avaya\Avaya Advanced Speech Access\
   Global Parameters

See ASA Parameters for more information about registry parameters.

Check the AvayaASA service account and make sure it is set up correctly (see the *Avaya Advanced Speech Access Installation Guide* for more information). AvayaASA is the account used by the ASA Server software to access the database. If account permissions are improperly set, it cannot connect.

Regenerate the Database

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

1. Restore the database from the most recent backup. See Managing the VA Database for more information.

2. Delete the database and recreate it: When you delete the database, VAServerManager will detect the database is missing the next time the process it started. It will then create a new database with the

default values Use one of the following methods to delete the database:

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

  C: osql -e drop database VADB go

Caution: Dropping and recreating the database results in the loss of all configuration information (including processes and application information). ASA Server restarts with an empty configuration. Be sure you have a regular database backup policy in place.

Creating and Removing IIS Virtual Directories

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

- ASA Reports
- ASAManager
- ASA Web Management

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

Create 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\ ASA Server\bin**)

Type the following:

VACreateVirtualDirectory <*virtual_directory_ name*> <*virtual_directory_physical_path*> **<{True=InProcess,False=OutofProcess}>** **<***default_document***>**

<{True=BasicAuthentication,False=NoBasicA uthentication}>

<{True=NTLMAuthentication,False=NoNTLMA uthentication} False=NoAllowAnonymous Authentication}>
<{True=AllowAnonymousAuthentication,

<{True=ExecuteAccess,False=NoAllowExecut eAccess)>

<True=AllowWriteAccess,False=NoAllowWrite Access

<True=AllowReadAccess,False=NoAllowRead Access{

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 Created on Each Server in the Serverset

Table 11 provides commands for re-creating virtual directories that are created by the ASA Server installation on each server in the serverset.

Table 11. Virtual Directories Created on Each Server in the Serverset

Virtual Directory	Sample Command
VA_<*servername*> SystemPrompts	VACreateVirtualDirectory"VA_ <*servername*> _SystemPrompts""c:\Program Files\ ASA Server\VASystem" True "foo.html" False True False
VA_<*servername*> Applications	VACreateVirtualDirectory "VA_ <*servername*>_Applications" "c:\Program Files\ ASA Server\VAApplications" True "foo.html" False True False
VA_<*servername*> Utterances	VACreateVirtualDirectory "VA_ <*servername*>_Utterances" "c:\Program Files\ ASA Server\VAUtterances" True "foo.html" False True False
VA_<*servername*> VA Logs	VACreateVirtualDirectory "VA_ <*servername*>_VALogs" "c:\Program Files\ ASA Server\VALogs" True "foo.html" False True False
ASAUM	VACreateVirtualDirectory "ASAUM" "c:\Program Files\ ASA Web Management\"ASAUM" False "default.htm" False True False
ASAOnline	VACreateVirtualDirectory "ASAOnline" "c:\Program Files\ ASA Web Management\"ASAnline" False "default.htm" True False True

Virtual Directories Needed for ASA Web Management

Table 12 provides sample commands for re-creating virtual directories that are needed to run the Web version of the ASA management tool.

Table 12. Virtual Directories Needed for ASA Web Management

Virtual Directory	Sample Command
ASA Reports (session logs for ASA Web management)	VACreateVirtualDirectory "ASAReports" "c:\Program Files\ ASA Server\Web\ASA Reports" True "WinExecute.asp" False True False
ASAManager (ASA Web management tool)	VACreateVirtualDirectory "ASAManager" "c:\Program Files\ ASA Server\Web\ASAManager" False "Default.asp" False True False
_scriptlibrary (required for Web ASA management)	VACreateVirtualDirectory "_scriptlibrary" "c:\Program Files\ ASA Server\Web_scriptlibrary" T rue "rs.htm" False True False

Remove a Virtual Directory

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

VARemoveVirtualDirectory <*virtual directory name*>

For example:

VARemoveVirtualDirectory "ASA Reports"

Common Error Messages and Solutions

The following tables list error messages that are frequently be seen by administrators. They are divided into two categories:

- ASA Server generated messages
- Windows messages

The tables provide a short description of each error message and suggest ways to resolve the problem. If you cannot find the error message you are looking for, refer to ASAServer Error and Message Codes.

ASA 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 setting the process's default parameters. The problem could be caused by an error accessing the InitialProcessParameter table in the database.

Resolution: See Resolving Database Errors.

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 shutdown. Restart the process and/or platform.

0x811100BA ERVERMANAGER 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 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.VAApplication parameter 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 executing an application **.vad** file Contact Avaya technical support.

0xC111006A DATABASE ERROR

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

Resolution: See Resolving Database Errors.

0xC11100CB SYSTEM DIRECTORY ERROR

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

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

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 ASA Server installation error. A required object was registered incorrectly.

0x800006ba RPC_S_SERVER_UNAVAILABLE

Description: An error occurred while 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.

0x80030002 FILE COULD NOT BE FOUND

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

Resolution: Check that Microsoft 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 being added to the Serverset does not have the ASA Server software installed.

Resolution: Install the ASA Server software on the new server.

0x80070005 E_ACCESSDENIED

Description: A command could not execute 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.exe** 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 should 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 using the ASA Management Console.

oUSER.INITIALIZE FAILED

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

- **Reason 1:** The AvayaASA 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 **AvayaASA 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 to see that the VAServerManager, the VAManager services and the VA Engine processes are running as the AvayaASA service account user or as a user who has Exchange service account administrator privileges.

- **Reason 4:** The AvayaASA service account user does not have the correct privileges on the Exchange site.
  Resolution 4: Use the Exchange Administrator program to check that the AvayaASA 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 reset.

Application and User Administration Errors

If you cannot solve your ASA application problem after reading the information in this chapter, please contact your ASA support representative.

Errors When Adding Accounts

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

Error C1110161: PVAUserMDO,inc:
Could not enable PVA for user XXXXXX

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. In the example used above, **jdoefron** would be more appropriate alias for Joseph Doenfron; because it is unique. A user's alias should 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

Contacting Avaya Customer Support

In order to maintain continuity, the designated ASA administrator or backup administrator should contact their customer support representative directly. Please have the following information available before contacting customer.

Information Required	Comments
Name of Contact	Name of the system administrator or back-up administrator
Callback Number	Include this 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 you are running

If you have an ASA process with the message

Unexpected process termination

in the Process Event window, please contact your local support representative.

ASA Parameters

This appendix describes the various parameters used by ASA Server to store configuration data. In addition to explaining the concept of platform parameters, the appendix provides a comprehensive listing of the parameters in use on the platform.

ASA Parameters Overview

The ASA 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 launches. (The exceptions are the few parameters needed by the application to open and read from the database. Such parameters are stored in the registry.)

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 ASA Server platform.

Parameters should be modified only by experienced ASA administrators with instruction from Avaya support personnel.

Parameter Levels

ASA Server parameters can be divided into several levels:

- **Registry Parameters.** Contain information needed by the ASA Server platform during its start up process. In particular, they contain the information ASA 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 valid only for a single server. For example, because the ASA 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 monitored and a flag indicating whether the process should be restarted automatically on reboot.

In some cases, the same parameter can be set at two different levels; when this occurs, the lowest-level parameter takes precedent. For example, the **VATTS.ServerName** parameter, which indicates the machine that should 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.

When Parameter Changes Take Affect

Most changes to parameters (with the exception of registry parameters) take affect 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 needed by ASA Server during its startup operation in order to access the database (where the remainder of the platform's parameters are stored.) These parameters are set in the registry by the InstallShield application using information entered during the installation process.

All ASA application registry parameters are stored under the following key:

HKEY_LOCAL_MACHINE\SOFTWARE\Avaya
Avaya Advanced Speech Access\Global Parameters

Registry parameters are listed on Table 13. A Default Value of "**–**" indicates that the value is set by the administrator, either during the InstallShield routine or through the ASA Management Console.

ASA Stores almost all data in the MSDE database.

Table 13. 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.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 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 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 **Current 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.

Important: These parameters should not be changed unless you are instructed to do so by an Avaya Technical Support Representative.

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

Server Parameters

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

Important: These parameters should not be changed unless you are instructed to do so by an Avaya Technical Support Representative.

Application Parameters

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

Important: These parameters should not be changed unless you are instructed to do so by an Avaya Technical Support Representative.

Process Parameters

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

Important: These parameters should not be changed unless you are instructed to do so by an Avaya Technical Support Representative.

ASA*Server* **Error and Message Codes**

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 three values, as indicated below:

0x0 = Success Message

0x4 = Informational Message

0x8 = Warning Message

0xC = Error Message

The complete set of possible error codes and their descriptions are listed on Table 14.

Note: The table lists only those errors and messages generated by the ASA Server software. The ASA Management Console interface also reports messages generated by the Window operating system. If an error displayed in the Management Console does not appear on this list, it is likely a Windows error.

Table 14 Error Codes and Descriptions

Message Code	Description
0x0111003C	VAVM STARTUP COMPLETE
0x0111004A	TTS ABORTED
0x01110092	APPLICATION GENERAL SUCCESS
0x011100DC	VAPUBLISH COMPLETE
0x41110018	VAVM SHUTDOWN
0x41110019	VAVM REMOTE HANGUP
0x4111001D	VAVM RECOGNITION UNRECOGNIZED
0x41110034	VAMANAGER PARAMETER CHANGE
0x41110038	INACTIVITY TIMEOUT
0x41110041	BEGIN CALL
0x41110042	USER LOGIN
0x41110043	END CALL
0x41110044	BEGIN SESSION
0x41110045	END SESSION
0x4111004B	TTS CLIENT CONNECTED
0x4111004C	TTS CLIENT DISCONNECTED
0x4111004E	VAMANAGER PROCESS STARTING
0x41110073	POPMON USER RELEASED
0x4111008C	SITEMANAGER VAMANAGER CONNECTION
0x41110093	APPLICATION GENERAL INFORMATIONAL
0x4111009B	COL INVALID INDEX
0x4111009C	COL PROPERTY DOES NOT EXIST
0x4111009D	COL NO MESSAGES
0x4111009E	COL NO PREVIOUS MESSAGE
0x4111009F	COL NO NEXT MESSAGE
0x411100A0	COL NO ATTACHMENTS
0x411100A1	COL NO PREVIOUS ATTACHMENT
0x411100A2	COL NO NEXT ATTACHMENT

0x411100A3	COL NOT MEETING REQUEST
0x411100A4	COL NO RECIPIENT
0x411100A9	TELEPHONY BUFFER OVERFLOW
0x411100AA	TELEPHONY BUFFER HIWATER
0x411100AF	EXTERNAL EVENT
0x411100B5	VAVM LOG SESSION
0x411100BC	PROCESS PARAMETERS NOT INITIALIZED
0x411100C7	VADBM COMPONENT VERSION ERROR
0x411100DD	VAPUBLISH INFORMATION
0x411100E5	USER IDENT
0x411100EA	PLATFORM INFORMATIONAL
0x411100F1	VAMANAGER DISK SPACE NOW BELOW THRESHOLD
0x81110046	TTS TOO MANY CHANNELS
0x81110047	TTS SEND FAILED
0x81110078	SITEMANAGER SELECTSITE FAILED
0x81110079	SITEMANAGER ADDSITE FAILED
0x8111007A	SITEMANAGER REMOVESITE FAILED
0x8111007B	SITEMANAGER ENUMERATION ERROR
0x8111007C	SITEMANAGER SELECTCOMPUTER FAILED
0x8111007D	SITEMANAGER ADDCOMPUTER FAILED
0x8111007E	SITEMANAGER REMOVECOMPUTER FAILED
0x8111007F	SITEMANAGER SETPARAMETER FAILED
0x81110081	SITEMANAGER SETSITENOTIFY FAILED
0x81110082	SITEMANAGER SELECTPROCESS FAILED
0x81110083	SITEMANAGER ADDPROCESS FAILED
0x81110084	SITEMANAGER PROCESSCOMMAND FAILED
0x81110087	SITEMANAGER ADDUSERNOTIFY FAILED
0x81110088	SITEMANAGER SETUP FAILED
0x8111008A	SITEMANAGER CONNECTION TIMEOUT
0x8111008B	SITEMANAGER COMPONENTMANAGER FAILURE

0x8111008F	UNKNOWN PAGE TYPE
0x81110090	UNKNOWN PAGE KEYWORD
0x81110091	PAGE FILE SYNTAX ERROR
0x81110094	APPLICATION GENERAL WARNING
0x81110097	UNSYNCHRONIZED PARAMETERS
0x81110098	INVALID AUDIO STREAM
0x81110099	AUDIO BUFFER UNDEFINED
0x811100AB	PARAMETER DOES NOT EXIST
0x811100AC	EVENTSINK ALREADY DEFINED
0x811100AD	EVENTSINK NOT DEFINED
0x811100BA	SERVERMANAGER NOT INITIALIZED
0x811100BB	DB ENTRY ALREADY EXISTS
0x811100EB	PLATFORM GENERAL WARNING
0x811100EE	VAMANAGER DISK ALERT USING DEFAULT THRESHOLD
0x811100F2	RECOGNITION QUALITY ALERT
0x811100F3	LATENCY ALERT
0x811100F4	PARAMETER CHANGE
0x811100F5	CANNOT DELETE SERVERSET CONTROLLER
0x811100F6	REQUEST FILE SYNTAX ERROR
0x811100F7	REQUEST FILE INCORRECT VALUE
0x811100F8	REQUEST FILE INCOMPLETE
0x811100FE	VAMANAGER RESTART PROCESS
0xC1110001	VAVM ALREADY STARTED
0xC1110002	VAVM ERROR PARSING VADL STRING
0xC1110003	VAVM ERROR PARSING VADL FILE
0xC1110004	VAVM EXTERNAL MODULE NOT FOUND
0xC1110005	VAVM MODULE NAME ALREADY EXPORTED
0xC1110006	VAVM START DISCOURSE NOT SPECIFIED
0xC1110007	VAVM DISCOURSE NOT DEFINED
0xC1110008	TTS NOT INITIALIZED

0xC1110009	TTS NULL STRING
0xC111000A	TTS UNKNOWN TYPE
0xC111000B	AUDIO STREAM NOT DEFINED
0xC111000C	AUDIO STREAM FORMAT NOT SUPPORTED
0xC111000D	AUDIO STREAM OVERFLOW
0xC111000E	TTS RENDER STRING ERROR
0xC111000F	TTS SYNTHESIS FAILED
0xC1110010	WRITE OPERATION FAILED
0xC1110011	VAVM INTERNAL ERROR
0xC1110012	VAVM GETSCRIPTINGHOST FAILED
0xC1110013	VAVM INVALID DISPID FOR NAMESPACE
0xC1110014	VAVM NAMESPACE MEMBER NOT DEFINED
0xC1110015	VAVM INVALID DISPID FOR RECRESULT
0xC1110016	VAVM INVALID TYPE FOR RECRESULT
0xC1110017	VAVM SCRIPT ITEM NAME ALREADY DEFINED
0xC111001A	VAVM BARGE IN
0xC111001B	VAVM NO ACTIVE CALL
0xC111001C	VAVM RECOGNITION ERROR
0xC111001E	SPEECH INITIALIZE ERROR
0xC111001F	SPEECH UNINITIALIZE ERROR
0xC1110020	SPEECH GRAMMAR ERROR
0xC1110021	SPEECH ABORT ERROR
0xC1110022	SPEECH RECOGNITION ERROR
0xC1110023	SPEECH SETPARAMETER ERROR
0xC1110024	TELEPHONY INITIALIZE ERROR
0xC1110025	TELEPHONY NOT INITIALIZED
0xC1110026	TELEPHONY UNINITIALIZE ERROR
0xC1110027	TELEPHONY ANSWER CALL ERROR
0xC1110028	TELEPHONY TERMINATE CALL ERROR
0xC1110029	TELEPHONY PLACE CALL ERROR

0xC111002A	TELEPHONY TRANSFER CALL ERROR
0xC111002B	TELEPHONY INVALID CALLID
0xC111002C	TELEPHONY RECORD ERROR
0xC111002D	TELEPHONY STOP RECORD ERROR
0xC111002E	TELEPHONY PLAY ERROR
0xC111002F	TELEPHONY SETPARAMETER ERROR
0xC1110030	TELEPHONY GETPARAMETER ERROR
0xC1110031	TELEPHONY CHANNEL CLOSED
0xC1110032	PROCESSID OUT OF RANGE
0xC1110033	DELETED PROCESS
0xC1110035	VAMANAGER PERFMON FAILED
0xC1110036	INSUFFICIENT MEMORY RESOURCES
0xC1110037	COUNTER ARRAY TOO SMALL
0xC1110039	VAVM INITIALIZATION ERROR
0xC111003A	VAVM TOPIC NOT FOUND
0xC111003B	VAVM STARTUP ERROR
0xC111003D	VAVM NOT IMPLEMENTED
0xC111003E	VAVM GRAMMAR NOT DEFINED FOR DISCOURSE
0xC111003F	VAVM SCRIPTING ERROR
0xC1110040	TTS INITIALIZE ERROR
0xC1110048	SYSTEM ERROR
0xC1110049	DCOM ERROR
0xC111004D	VAMANAGER PROCESS TERMINATED
0xC111004F	VAMANAGER PROCESS FAILED TO START
0xC1110050	TTS UNKNOWN STRING TYPE
0xC1110051	VAVM PROMPT RESOURCE NOT FOUND
0xC1110052	VAVM PROMPT INVALID RESOURCE
0xC1110053	VAVM INVALID PROMPT EXPRESSION
0xC1110054	VAVM INVALID PROMPT RESOURCE
0xC1110055	VAVM NOT SUPPORTED

0xC1110056	VAMANAGER WRITE TO LOG FILE FAILED
0xC1110057	VAMANAGER INVALID COMPONENT ID
0xC1110058	VAMANAGER PROCESS NOT FOUND
0xC1110059	VAMANAGER PROCESS ALREADY EXIST
0xC111005A	VAMANAGER CANNOT DESTROY RUNNING PROCESS
0xC111005B	VAMANAGER COMPONENT NOT FOUND
0xC111005C	USER ALREADY SELECTED
0xC111005D	USER NOT SELECTED
0xC111005E	USER NOT FOUND
0xC111005F	USER ALREADY EXIST
0xC1110060	USER UPDATE FAILED
0xC1110061	USER CREATION FAILED
0xC1110062	UNKNOWN AUTH METHOD
0xC1110063	USER NOT AUTHENTICATED
0xC1110064	UNKNOWN IDENT METHOD
0xC1110065	DUP IDENT VALUE
0xC1110066	PARAMETER CREATION FAILED
0xC1110067	PARAMETER UPDATE FAILED
0xC1110068	BUFFER TOO SMALL
0xC1110069	PERMISSION DENIED
0xC111006A	DATABASE ERROR
0xC111006B	VASERVER RULE CREATION FAILED
0xC111006C	VASERVER RULEID ALREADY EXIST
0xC111006D	VASERVER RULEID NOT FOUND
0xC111006E	VASERVER USER HAS PENDING REQUEST
0xC111006F	POPMON NOT INITIALIZED
0xC1110070	POPMON ALREADY INITIALIZED
0xC1110071	POPMON RULES ENGINE NOT SPECIFIED
0xC1110072	POPMON DUPLICATE RULE
0xC1110074	POPRULE SYNTAX ERROR

0xC1110075	POPRULE UNDEFINED KEYWORD
0xC1110076	POPRULE WRONG NUM PARAMS
0xC1110077	POPRULE EMPTY RULE
0xC1110080	SITEMANAGER CONNECT FAILED
0xC1110085	SITEMANAGER CONNECTLOCAL FAILED
0xC1110086	SITEMANAGER CONNECTREMOTE FAILED
0xC1110089	SITEMANAGER DATASOURCE FAILURE
0xC111008D	APP NOT FOUND
0xC111008E	VAPROCESS NOT STARTED
0xC1110095	APPLICATION GENERAL ERROR
0xC1110096	APPLICATION LOGON FAILED
0xC111009A	TELEPHONY SET CONTROL ERROR
0xC11100A5	TELEPHONY CONTROL CALL ACTIVE
0xC11100A6	VAVM NO ACTIVE SESSION
0xC11100A7	VAVM INVALID CALL STATE
0xC11100A8	VAVM SESSION TERMINATION
0xC11100AE	TELEPHONY WAIT FOR CALL ERROR
0xC11100B0	TELEPHONY CONF TOO BIG
0xC11100B1	TELEPHONY DUPLICATE JOIN
0xC11100B2	TELEPHONY UNKNOWN CONFEREE
0xC11100B3	TELEPHONY TROMBONE ERROR
0xC11100B4	TELEPHONY CONF JOIN ERROR
0xC11100B6	TELEPHONY STOP WAIT CALL ERROR
0xC11100B7	TELEPHONY CONF DROP ERROR
0xC11100B8	TELEPHONY MUTE CALL ERROR
0xC11100B9	TELEPHONY LISTEN CALL ERROR
0xC11100BD	TELEPHONY HOLD CALL ERROR
0xC11100BE	TELEPHONY RELEASE HOLD ERROR
0xC11100BF	TELEPHONY ACQUIRE CALL ERROR
0xC11100C0	VADBM CREATE DATABASE FAILED

0xC11100C1	VADBM REGISTRY PARAMETER ERROR
0xC11100C2	VADBM SQL SCRIPT MISSING
0xC11100C3	VADBM SQL SCRIPT ERROR
0xC11100C4	VADBM SQL SERVER NOT FOUND
0xC11100C5	VADBM DATABASE UPDATE ERROR
0xC11100C6	VADBM TABLE READ ERROR
0xC11100C8	VADBM VAMANAGER CONNECT ERROR
0xC11100C9	VADBM INITIALIZATION ERROR
0xC11100CA	VADBM OLEDB SESSION ERROR
0xC11100CB	SYSTEM DIRECTORY ERROR
0xC11100CC	EXCHMON USER NOT FOUND
0xC11100CD	EXCHMON ALREADY INITIALIZED
0xC11100CE	EXCHMON NOT INITIALIZED
0xC11100CF	EXCHMON RULES ENGINE NOT SPECIFIED
0xC11100D0	TELEPHONY CONNECT CALL ERROR
0xC11100D1	VADBM BACKUP FAILED
0xC11100D2	VADBM RESTORE FAILED
0xC11100D3	VADBM INVALID RESTORE DEVICE
0xC11100D4	VADBM MAX LENGTH EXCEEDED
0xC11100D5	VADBM EXPORT FAILED
0xC11100D6	VADBM NO SUCH TABLE
0xC11100D7	VADBM LOG PURGE ERROR
0xC11100D8	VADBM JOB ERROR
0xC11100D9	VADBM JOB NAME ERROR
0xC11100DA	VADBM INVALID JOB
0xC11100DB	VADBM TABLE MIGRATION ERROR
0xC11100DE	VAPUBLISH ERROR
0xC11100DF	VAPUBLISH APP ALREADY BEING PUBLISHED
0xC11100E0	VAPUBLISH FILE ALREADY EXISTS
0xC11100E1	VAVM_INVALID_OPERATION

0xC11100E2	FATAL DATABASE ERROR
0xC11100E3	VADBM INVALID VALUE
0xC11100E4	EXCHMON GET DN FAIL
0xC11100E6	TELEPHONY CALL NOANSWER
0xC11100E7	TELEPHONY CALL BUSY
0xC11100E8	EXCHMON USER LIMIT REACHED
0xC11100E9	PLATFORM GENERAL SUCCESS
0xC11100EC	PLATFORM GENERAL ERROR
0xC11100ED	VAMANAGER LOGICAL DRIVE STRING FAILURE
0xC11100EF	VAMANAGER DISK SPACE EXCEEDED THRESHOLD
0xC11100F0	VAMANAGER GETDISKFREESPACE FAILURE
0xC11100F9	TELEPHONY NO OUTBOUND CHAN
0xC11100FA	TELEPHONY BAD DIAL STRING
0xC11100FB	TELEPHONY SIT TONE DETECTED
0xC11100FC	TELEPHONY FAX TONE DETECTED
0xC11100FD	VAMANAGER TOLLCALL EXCEEDED THRESHOLD
0xC11100FF	NO ASA APPLICATION
0xC1110100	ASA DECODING ERROR
0xC1110101	PARSE SCRIPT ERROR

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