



CONVERSANT® System
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Avaya VoiceXML Feature

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- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

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- Security documents
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Introduction to the Avaya VoiceXML feature

The Avaya VoiceXML feature on CONVERSANT R9 allows you to run interactive voice response (IVR) applications developed in the VoiceXML language. This feature description provides the following information:

- [Overview of the Avaya VoiceXML feature](#) (on page 7)
- [Installing the Avaya VoiceXML feature](#) (on page 15)
- [VoiceXML application development considerations](#) (on page 37)
- [Troubleshooting](#) (on page 45)

Intended audience

The information in this feature description is intended as a supplement to the [CONVERSANT V8 documentation](#) (see http://support.avaya.com/elmodocs2/conversant/v8_i3/index.jhtml). Audiences should have the following prerequisite knowledge and experience:

- Detailed technical knowledge of the CONVERSANT V8 system
- Working knowledge of VoiceXML
- Experience installing packages on the CONVERSANT V8 system

The Avaya VoiceXML feature uses the SpeechWorks Speechify 2.0 system for text-to-speech capabilities and the SpeechWorks OpenSpeech Server (OSS) 1.0 system for speech recognition. You should be familiar with how to install and use these systems. Avaya assumes that you have access to pertinent SpeechWorks documentation.

Application development tool

Avaya recommends using Voice@Work to develop VoiceXML applications for CONVERSANT R9 . Voice@Work has been updated by Avaya to give you the ability to design IVR applications, generate VoiceXML code, and install the application code on the CONVERSANT R9 system.

For information on how to use Voice@Work, see the Help system.

Overview of the Avaya VoiceXML feature

The Avaya VoiceXML feature is an add-on package to the CONVERSANT R9 that gives the CONVERSANT R9 system the capability to run VoiceXML applications.

This overview provides the following information:

- [What is VoiceXML?](#) (on page 8)
- [Avaya VoiceXML software components](#) (on page 10)
- [Avaya VoiceXML architecture](#) (on page 13)

What is VoiceXML?

VoiceXML (Voice Extensible Markup Language) is a Web-based language that is similar to HTML. However, instead of working with a graphical browser to interact with users, as HTML does, VoiceXML uses a voice browser.

A voice browser system enables VoiceXML applications to perform many IVR functions, such as:

- Prompting users with text-to-speech (TTS) and prerecorded digitized audio
- Collecting user input with speech recognition and dual tone multi-frequency (DTMF) input
- Recording user speech
- Providing basic telephony control, such as transfer and hang-up

A typical voice browser configuration consists of a Web server, a VoiceXML interpreter, and an IVR platform.

Web server

VoiceXML documents provide the logic and control for VoiceXML applications. Typically, documents are stored and retrieved from a Web server. One of the advantages of VoiceXML architecture lies in its inherent ability to leverage existing Web infrastructure for application development and implementation. VoiceXML documents can reside anywhere on the Web as long as they are addressable from the VoiceXML interpreter.

With this architecture, application developers can also extend existing Web applications to include voice interaction. For example, a Web application that provides live stock market updates could be voice-enabled by the addition of a VoiceXML "front end."

Note:

Although it is advantageous to use a Web server for VoiceXML documents, it is not required. VoiceXML documents may reside locally on the file system for the VoiceXML interpreter or the IVR platform.

VoiceXML interpreter

The VoiceXML interpreter is the heart of the voice browser. It provides the functionality for parsing and processing the VoiceXML documents. It also provides the interface with the IVR platform and the Web.

IVR platform

The interactive voice response (IVR) platform manages the voice and data transmissions required by the VoiceXML application. These transmissions comprise all the telephony

interactivity that the application has with a caller as well as the external data transmission necessary for the application to do voice recognition and text-to-speech (TTS) functions.

The Avaya VoiceXML feature includes software that provides the voice browser capabilities of the VoiceXML interpreter and the IVR platform. For more information, see [Avaya VoiceXML software components](#) (on page 10).

For more information on VoiceXML, the following resources are available on the Web:

- [World Wide Web Consortium - Voice Browser Activity](http://www.w3.org/voice) (see <http://www.w3.org/voice>)
- [VoiceXML Forum](http://www.voicexml.org) (see <http://www.voicexml.org>)

Avaya VoiceXML software components

The Avaya VoiceXML feature for CONVERSANT R9 consists of several software components that together provide the VoiceXML interpreter and IVR platform capabilities. The three major software components are:

- The Avaya Voice Browser (AVB) is the main part of the feature. The AVB parses and interprets the VoiceXML code so that the CONVERSANT R9 platform can provide IVR functions such as prompt playback and tone processing. See [Avaya Voice Browser \(AVB\)](#) (on page 10).
- The Proxy text-to-speech (PTTS) component is an optional package that provides the data interface to the SpeechWorks Speechify 2.0 server. If used, this system converts text-based data from the VoiceXML application into simulated speech for prompt and playback functions. See [Proxy Text-To-Speech \(PTTS\)](#) (on page 11).
- The Natural language speech recognition (NLSR) proxy component is an optional package that provides the data interface to the SpeechWorks OpenSpeech Server (OSS) 1.0 system. If used, this system recognizes natural-sounding speech for collecting user input in a VoiceXML application. See [Natural language speech recognition \(NLSR\) proxy](#) (on page 12).

Avaya Voice Browser (AVB)

AVB is a collection of proprietary and third-party software components that together provide the ability to request, parse, and interpret VoiceXML documents.

AVB supports the VoiceXML 2.0 specification as documented in the W3C Working Draft dated October 23, 2001. For more information, see the VoiceXML section of the [W3C Web site](#) (see <http://www.w3.org/voice>).

AVB consists of the following software components:

- Avaya VoiceXML Interpreter 2.0 (Avaya VXI) – A version of the SpeechWorks OpenVXI 2.0 system specifically customized by Avaya to be functionally integrated with CONVERSANT R9. More information on OpenVXI 2.0 is available on the [SpeechWorks Web site](#) (see <http://www.speechworks.com>).
- Xerces C++ 1.6.0 – An open-source XML parser developed and distributed by the Apache Software Foundation. More information on Xerces is available on the [Apache Software Foundation Web site](#) (see <http://xml.apache.org>).
- SpiderMonkey – An open-source ECMA-compliant Javascript interpreter developed and distributed by The Mozilla Organization. More information is available on the [The Mozilla Organization Web site](#) (see <http://www.mozilla.org/js/spidermonkey>).

- libwww – An open-source library of Web access functions developed and distributed by the World Wide Web Consortium (W3C). This library is used to fetch VoiceXML pages from Web servers using the http protocol. More information on libwww is available on the [W3C Web site](http://www.w3.org/Library) (see <http://www.w3.org/Library>).

Avaya VXI 2.0 provides the main VoiceXML capability of the CONVERSANT R9 system. It receives all the calls from the IVR platform and dispatches them to VoiceXML documents that can be located on the local file system or on the Web. The mapping of calls to VoiceXML documents is specified in the `/vs/data/vxml/appDispatch.vxml` file. Once the application has taken the call, Avaya VXI serves as the interface between the VoiceXML document and the required actions on the IVR platform, such as playing announcements, prompting for input, collecting input, and so on.

Xerces, SpiderMonkey, and libwww are additional pieces of software that extend the Web-based capabilities of Avaya VXI, giving it the abilities to parse VoiceXML documents, interpret JavaScript code, and exchange data freely via the Web infrastructure.

For more information on how to install AVB, see [Install the AVB software](#) (on page 20).

Proxy text-to-speech (PTTS)

The proxy-text-to-speech (PTTS) software provides the interface between AVB and SpeechWorks Speechify Server 2.0. Speechify is an external TTS engine that converts text-based information into natural-sounding speech.

To include TTS functionality in your VoiceXML applications, you must have the following components:

- CONVERSANT R9 (or CONVERSANT V8) PTTS package – This is purchased separately as an optional package for CONVERSANT R9. For more information the PTTS package on CONVERSANT R9, see *Proxy Text-To-Speech (PTTS) User Guide* (see http://support.avaya.com/elmodocs2/ptts/ptts_i3.jhtml).
- SpeechWorks Speechify Server 2.0 (external system) – This system is purchased separately and is installed on an external server. More information on SpeechWorks Speechify server is available on the [SpeechWorks Web site](http://www.speechworks.com) (see <http://www.speechworks.com>).
- SpeechWorks TTS package (spwkttts) – This package is a free download from the Avaya Support Centre Web site. See [Download the SpeechWorks TTS and ASR packages](#) (on page 18).

Note:

Currently, PTTS for VoiceXML only works with the SpeechWorks Speechify Server 2.0.

For more information on how to install PTTS, see [Install the text-to-speech software](#) (on page 25).

Natural language speech recognition (NLSR) proxy

The natural language speech recognition (NLSR) proxy software provides the interface with SpeechWorks OpenSpeech Server (OSS) 1.0. OSS is an external speech recognition engine that has been optimized for VoiceXML.

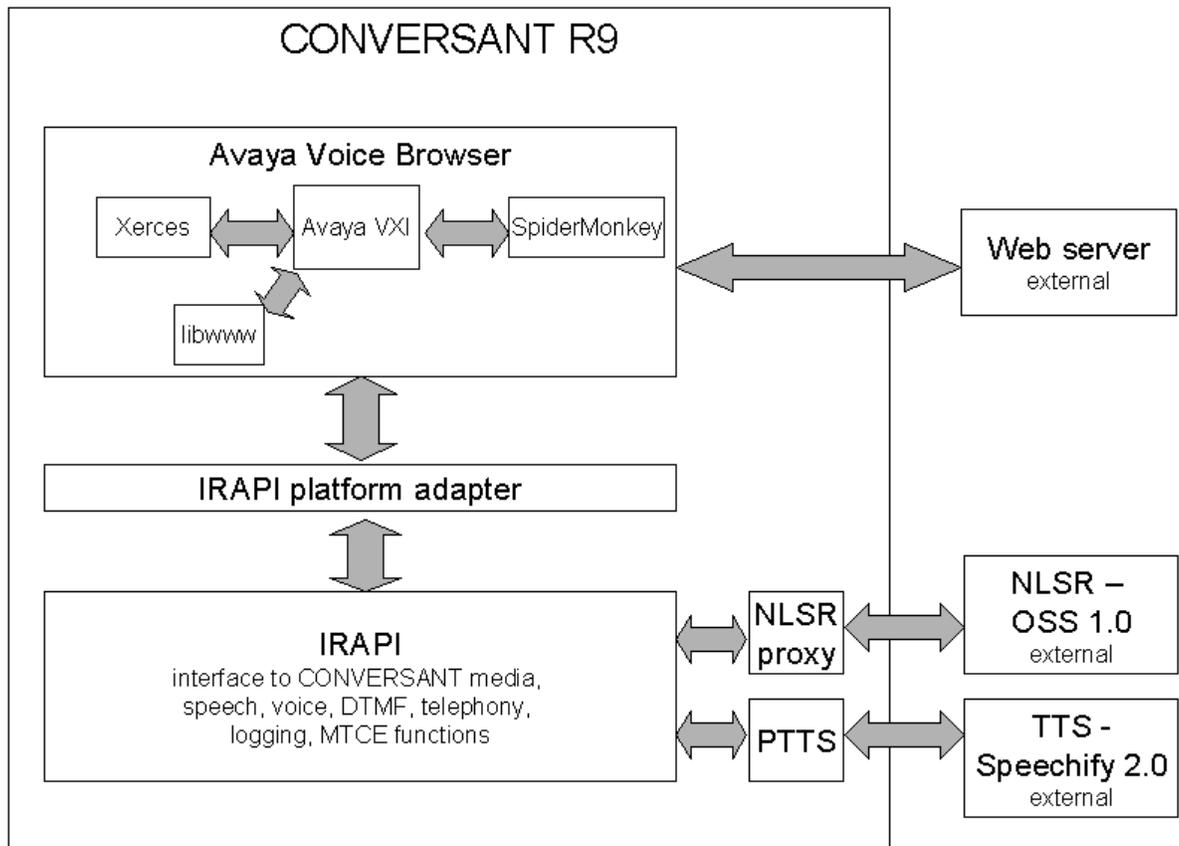
To include NLSR functionality in VoiceXML applications, you must have the following components:

- CONVERSANT R9 (or CONVERSANT V8) NLSR package – This is purchased separately as an optional package for CONVERSANT R9. For more information the NLSR package on CONVERSANT R9, see *Natural Language Speech Recognition with the Intuity CONVERSANT System* (see <http://support.avaya.com/elmodocs2/intuity/nsr/>).
- SpeechWorks OpenSpeech Server (OSS) 1.0 including OpenSpeech Recognizer (OSR) 1.0 (external system) – This system is purchased separately and is installed on an external server. More information on SpeechWorks OSS/OSR 1.0 is available on the [SpeechWorks Web site](http://www.speechworks.com) (see <http://www.speechworks.com>).
- SpeechWorks ASR package (spwkasr) – This package is a free download from the Avaya Support Centre Web site. See [Download the SpeechWorks TTS and ASR packages](#) (on page 18).

For information on how to install NLSR proxy, see [Install the speech recognition software](#) (on page 30).

Avaya VoiceXML architecture

The following figure illustrates the relationships between the different components of the Avaya VoiceXML feature (on page 10).



About IRAPI

IRAPI (Intuity Response Application Programming Interface) is the programming layer with which AVB interacts. IRAPI enables the IVR platform (CONVERSANT R9) to provide the data and telephony functions required by VoiceXML applications. The IRAPI platform adapter is software that converts VoiceXML actions into IRAPI functions.

For more information on IRAPI, see *CONVERSANT System Version 8 Application Development with Advanced Methods* (see http://support.avaya.com/elmodocs2/conversant/v8_i3/index.jhtml).

Installing the Avaya VoiceXML feature

Before installing the VoiceXML components, check to make sure you have all the items required to complete the entire installation process. See [Items Required for VoiceXML software installation](#) (on page 16) for more information.

Installing the VoiceXML components involves the following basic steps:

1. [Download the SpeechWorks TTS and ASR packages](#) (on page 18).
2. [Back up the system](#) (on page 19).
3. [Install the AVB software](#) (on page 20).
4. [Install the text-to-speech software](#) (on page 25).
5. [Install the speech recognition software](#) (on page 30).

If you have trouble installing a software package, or if the package already exists on the system, Avaya recommends that you first remove the package before reinstalling it. See [Remove software from CONVERSANT R9](#) (on page 35).

Items required for VoiceXML software installation

The Avaya VoiceXML feature can be installed on either the CONVERSANT R9 platform or the CONVERSANT V8 platform with Remote Field Update A (RFU+A).

To perform the installation of the VoiceXML software components, you will need the following items:

- The Avaya VoiceXML feature CD-ROM
- Data tape cartridges to perform the system backup
- Optional items for text-to-speech (TTS), if required (these items are purchased separately):
 - SpeechWorks Speechify 2.0 (on a separate server)
 - Proxy Text-To-Speech (PTTS) feature package for CONVERSANT R9 or CONVERSANT V8
 - SpeechWorks TTS package for CONVERSANT R9. You can download this package from the Avaya Support Centre Web site. See [Download the SpeechWorks TTS and ASR packages](#) (on page 18) for more information.
- Optional items for speech recognition, if required (these items are purchased separately):
 - SpeechWorks OpenSpeech Server (OSS) 1.0 and OpenSpeech Recognizer (OSR) 1.0 (on a separate server)
 - Natural Language Speech Recognition (NLSR) proxy feature package for CONVERSANT R9 or CONVERSANT V8
 - SpeechWorks ASR package for CONVERSANT R9. You can download this package from the Avaya Support Centre Web site. See [Download the SpeechWorks TTS and ASR packages](#) (on page 18) for more information.

In addition to this document, you will need to have the following documentation available during the installation:

- *CONVERSANT System Version 8.0 System Reference* (see http://support.avaya.com/elmodocs2/conversant/v8_i3/index.jhtml) for information on how to perform a system backup.
- *CONVERSANT System Version 8.0 Administration* (see http://support.avaya.com/elmodocs2/conversant/v8_i3/index.jhtml) for detailed information about voice system commands you will use to install and administer the VoiceXML software.

Items required for VoiceXML software installation

- *Proxy Text-To-Speech (PTTS) User Guide* (see http://support.avaya.com/elmodocs2/ptts/ptts_i3.jhtml) for information on how to install and configure the PTTS software on the CONVERSANT R9 system, if required.
- *Natural Language Speech Recognition for Intuity CONVERSANT System* (see <http://support.avaya.com/elmodocs2/intuity/nsr/>) for information on how to install the NLSR proxy software on the CONVERSANT R9 system, if required.
- SpeechWorks Speechify 2.0 documentation for information on how to install and configure the Speechify system, if required.
- SpeechWorks OSS and OSR 1.0 documentation for information how to install and configure the OSS/OSR systems, if required.

Note:

The documentation for CONVERSANT System Version 8 (V8) is valid and accurate for systems upgraded to CONVERSANT R9.

For installation assistance in the United States or Canada, call the Technical Service Center at 800-242-2121. Press 0 and then press 81977.

For assistance outside the United States and Canada, call your Regional Support Center.

Download the SpeechWorks TTS and ASR packages

If you will be using SpeechWorks Speechify 2.0 or SpeechWorks OpenSpeech Server 1.0 for text-to-speech or speech recognition in your VoiceXML applications, you need to download the separate add-on packages from the Avaya Support Centre Web site.

To download the TTS or ASR packages:

1. Using a Web browser, go to **<http://support.avaya.com>**
The browser displays the main page for the Avaya Support Centre Web site.
2. Click **Call Center/CRM** in the menu on the left side of the browser window.
The menu expands to display product families under Call Center/CRM.
3. Click **Self Service**.
The menu expands to display the products under the Self Service product family.
4. Click **Interactive Voice Response (CONVERSANT® IVR)**.
The menu expands to display the releases under the Interactive Voice Response product.
5. Click **All**.
The menu expands to display all the categories provided for the product.
6. Click **Software Downloads**.
The browser displays, in the main part of the window, all the software downloads available for the Interactive Voice Response product.
7. Click either the **Conversant R9.0 SpeechWorks Speechify 2.0 Proxy TTS integration** or **Conversant R9.0 SpeechWorks Open Speech Server Proxy ASR integration**.
The browser displays a Web page with information about the package you selected.
8. Follow the instructions on the Web page to save the package file on your local computer.
9. If necessary, repeat Steps 6 - 8 for the other package.
10. Using FTP or a similar file transfer tool, move the downloaded package file (or files) to the CONVERSANT R9 system.

Back up the system

Avaya suggests performing a full backup of your system before installing any new software components. The procedure for backing up your system varies based on the disk configuration on your platform.

For complete details on how to perform a backup, see section "Backing Up the CONVERSANT System" in Chapter 3 "Common System Procedures" in *CONVERSANT System Version 8 System Reference* (see http://support.avaya.com/elmodocs2/conversant/v8_i3/index.jhtml).

When you have completed the backup, proceed to [Install the AVB software](#) (on page 20).

Install the AVB software

The Avaya Voice Browser (AVB) package contains the main software set for running VoiceXML applications on CONVERSANT R9.

If your applications use text-to-speech (TTS) or natural language voice recognition (NLSR), you will need to follow separate procedures for installing the add-on packages that provide that functionality. For more information on these packages, see [Install the text-to-speech software](#) (on page 25) or [Install the speech recognition software](#) (on page 30).

Installing AVB involves the following basic steps:

1. [Installing the voicexml package on CONVERSANT R9](#) (on page 20).
2. [Assigning AVAYAVXI service to channels or numbers](#) (on page 21).
3. [Mapping VoiceXML applications to channels or numbers](#) (on page 22).

Installing the voicexml package on CONVERSANT R9

The voicexml package contains the main portion of the Avaya VoiceXML feature, including all the components of the AVB and the IRAPI platform adapter.

Note:

If a previous version of the voicexml package has been installed on the system, Avaya recommends removing the package before re-installing it. See [Remove software from CONVERSANT R9](#) (on page 35) for more information.

1. Log in as root.
2. Place the Avaya VoiceXML feature CD-ROM into the CD-ROM drive.
3. Type **stop_vs** and press **Enter**.

The system displays the following message:

```
The Voice System has stopped.
```

4. Type **pkgadd -d cdrom1 voicexml** and press **Enter**.

The installation process begins. When it is complete, the system displays the following message indicating a successful installation:

```
Installation of INTUITY Voice XML interpreter (AVB), version 1.0  
(voicexml) was successful.
```

5. Type **start_vs** and press **Enter** to restart the voice system.

The system displays a message indicating the voice system is starting.

For complete information on the **pkgadd** and **start_vs** commands, see Appendix A, "Summary of Commands" in *CONVERSANT System Version 8.0 Administration* (see http://support.avaya.com/elmodocs2/conversant/v8_i3/index.jhtml).

Proceed to [Assigning AVAYAVXI service to channels or numbers](#) (on page 21).

Assigning AVAYAVXI service to channels or numbers

The AVAYAVXI service acts as the main VoiceXML application that provides the dispatching function for calls coming into the voice system. After AVB has been installed, you must assign the AVAYAVXI service to the channel or number you want to use for VoiceXML applications.

The procedures below show how do a basic assignment of the AVAYAVXI service to a channel, a number using the Dialed Number Identification Service (DNIS), or a number using Automatic Number Identification (ANI) service. For detailed information on the **assign service** command, see Appendix A "Summary of Commands" in *CONVERSANT System Version 8.0 Administration* (see http://support.avaya.com/elmodocs2/conversant/v8_i3/index.jhtml).

Note:

If other services on the CONVERSANT R9 system have been (or will be) assigned with the **startup** option, Avaya recommends that you assign the AVAYAVXI service with the **startup** option.

For channel assignment:

1. At the UNIX command prompt, type **assign service AVAYAVXI to chan *number*** where *number* is the channel you want to assign. Press **Enter**.
2. Test the service assignment by following the test procedure below.

For DNIS assignment:

1. At the UNIX command prompt, type **assign service *DNIS_SVC to chan *range*** where *range* is the range of channels the DNIS service is assigned to. Press **Enter**.
2. Type **assign service AVAYAVXI to dnis *number*** where *number* is the DNIS you want to assign. Press **Enter**.
3. Test the service assignment by following the test procedure below.

For ANI assignment:

1. At the UNIX command prompt, type **assign service AVAYAVXI to ani *number*** where *number* is the ANI you want to assign. Press **Enter**.
2. Test the service assignment by following the test procedure below.

To test the service assignment:

- Call one of the numbers to which you assigned AVAYAVXI.

No VoiceXML applications have been mapped to the numbers to which you assigned the service. If AVAYAVXI is working properly, it returns an audio message stating that there are no applications assigned to the number. If you hear this message, you have successfully assigned the AVAYAVXI service.

Proceed to [Mapping VoiceXML applications to channels or numbers](#) (on page 22).

Mapping VoiceXML applications to channels or numbers

The AVAYAVXI service runs a script called **appIDispatch.vxml** that redirects calls to the starting pages for VoiceXML applications. You must edit this script to map the starting pages of your VoiceXML applications to the appropriate channels or numbers (DNIS or ANI).

Note:

Make sure the channels and numbers you use for your applications are the same ones to which you assigned the AVAYAVXI service. Your application will fail if you use different channels or numbers.

When you add the AVB software package, the system installs a sample **appIDispatch.vxml** script gets in the **/vs/data/vxml** directory. The script contains the following text:

```
<?xml version="1.0"?>
<vxml version="2.0">
<!-- Application Dispatch File
  Modify this file to associate a starting VXML page
  with an application channel or DNIS or ANI.
-->
<form>
  <block>
    <!-- Example URL/Application Association
      Uncomment and modify for your application.
      The example:
      - assigns session values to variables for
        ease of use
      - checks the dialed number of the call and
        redirects to the associated application
        if there is a match
      - next, checks the channel number and redirects
        all calls coming in on the first 24 channels
        to the associated application
      - if none of the conditions match then a message
        is played and the call is disconnected.

      <var name="dnis" expr="session.telephone.dnis"/>
      <var name="ani" expr="session.telephone.ani"/>
      <var name="chan" expr="session.telephone.channel"/>
```

```

<if cond="dnis == 5551212">
    <goto next="http://Webserver/widgets.vxml"/>
<elseif cond="chan &gt;= 0 &amp;&amp; chan &lt;= 23"/>
    <goto next="http://Webserver/sprockets.vxml"/>
</if>

- end of comment block -->

<!-- Test VoiceXML script
    Uncomment to test text-to-speech and speech recognition
    <goto next="file:///vs/data/vxml/vxmlFeatureTest.vxml"/>
-->

<!-- No URL association with an application -->
<audio src="file:///vs/data/vxml/prompts/no_app_assigned.vis"/>

<disconnect/>
</block>
</form>
</vxml>

```

The main part of the script that you edit is the `<if>` statement (shown below) that appears after the session variables are assigned.

```

<if cond="dnis == 5551212">
    <goto next="http://Webserver/widgets.vxml"/>
<elseif cond="chan &gt;= 0 &amp;&amp; chan &lt;= 23"/>
    <goto next="http://Webserver/sprockets.vxml"/>
</if>

```

In this statement, each condition represents a mapping between a channel or number and a VoiceXML application. For example, in the sample script, the first condition maps the DNIS number "5551212" to the fictional VoiceXML application starting page at `http://Webserver/widgets.vxml`. If that condition is not met, the next condition is evaluated, and so on. If none of the application mapping conditions are met, the system returns a recorded audio message that informs the calling party that no application has been assigned to the associated channel or number.

To map VoiceXML applications to the appropriate channels or numbers:

1. Type `vi /vs/data/vxml/appDispatch.vxml` and press **Enter**.
2. Using the vi editing commands, move the line containing

```
- end of comment block -->
```

and place it above the line containing the first session variable assignment. This action will uncomment the session variable assignments and the `<if>` statement that contains the application mapping.

3. Edit the `<if>` statement to contain conditions for each application mapping you need to set up. Each condition specifies a channel or number (DNIS or ANI) and the VoiceXML starting page in the `<goto>` tag.

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Starting pages can be local files or they can be remote files located on the Web. Local files are referenced using a URI that begins with **file://** and located in the **/voice1/vxml/apps/<application>** directory where *<application>* is the name of your VoiceXML application. For example, the starting page for the "widget" application would be

```
file:///voice1/vxml/apps/widget/starting_page.vxml
```

Web files are referenced using a URI that begins with **http://** and can be located on any Web server visible to AVB. For example, the starting page for the widget application the Web server "voiceserver.com" would be

```
http://voiceserver.com/widget/starting_page.vxml
```

The system examines the conditions in the `<if>` statement in the order they appear in the **appDispatch.vxml** file. Once a condition is met, none of the rest of the conditions are examined. Take special care to put your conditions in the correct sequence for dispatching the applications appropriately.

4. Save the file and quit vi.
5. Test the script changes by calling one or two of the numbers to which you mapped applications. The test will be successful if the system redirects the call to the appropriate VoiceXML application.

If your VoiceXML applications use text-to-speech (TTS) or voice recognition, proceed to [Install the text-to-speech software](#) (on page 25) or [Install the speech recognition software](#) (on page 30).

Install the text-to-speech software

VoiceXML applications that use text-to-speech (TTS) functionality on CONVERSANT R9 must do so by way of proxy software that interfaces with SpeechWorks Speechify 2.0 server.

Note:

VoiceXML applications on CONVERSANT R9 will not work with existing on-board TTS capabilities (such as those available on the speech and signal processor card) or other proxy TTS systems.

Installing the TTS software involves the following basic steps:

1. [Installing SpeechWorks Speechify 2.0 on the Windows NT Server](#) (on page 25).
2. [Installing the PTTS package on CONVERSANT R9](#) (on page 26).
3. [Installing the SpeechWorks TTS package on CONVERSANT R9](#) (on page 26).
4. [Testing the TTS software](#) (on page 28).

Installing SpeechWorks Speechify 2.0 on the Windows NT Server

Text-to-speech (TTS) capability for VoiceXML applications on CONVERSANT R9 is provided by SpeechWorks Speechify 2.0 server software. This system resides on an external server, such as a Windows NT server or another server approved by SpeechWorks to work with the Speechify system.

The documentation included when you purchase the SpeechWorks Speechify 2.0 system provides information on how to install the software. See that documentation for detailed installation instructions. More information about Speechify is available at the [SpeechWorks Web site](http://www.speechworks.com) (see <http://www.speechworks.com>).

Make sure you perform the following steps when you install Speechify 2.0:

1. Install Speechify 2.0 software.
2. Install a Speechify voice.
3. Install the Speechify 2.0.2 software update.
4. Make note of the IP address of the server on which you install Speechify 2.0. Also note the socket number for each voice installed on the server. You will need this information when you install the SpeechWorks TTS package on CONVERSANT R9.

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When you have completed installing Speechify 2.0, proceed to [Installing the PTTS package on CONVERSANT R9](#) (on page 26).

Installing the PTTS package on CONVERSANT R9

To use the TTS capabilities of SpeechWorks Speechify 2.0 server, you must install the optional proxy text-to-speech (PTTS) package and the SpeechWorks TTS package on CONVERSANT R9.

Follow the installation instructions in section "Installing the PTTS Client Software on the CONVERSANT System" in Chapter 2 "PTTS Installation and Removal" of *Proxy Text-To-Speech (PTTS) User Guide* (see http://support.avaya.com/elmodocs2/ptts/ptts_i3.jhtml).

When you have completed the installation of the PTTS package, proceed to [Installing the SpeechWorks TTS package on CONVERSANT R9](#) (on page 26).

Installing the SpeechWorks TTS package on CONVERSANT R9

The SpeechWorks TTS package (spwkttts) is an add-on module that works in conjunction with the PTTS package to interface with SpeechWorks Speechify 2.0. To obtain the spwkttts package, you must download it from the Avaya Support Centre Web site. If you have not downloaded the package yet, see [Download the SpeechWorks TTS and ASR packages](#) (on page 18).

Note:

If a previous version of the SpeechWorks TTS package has been installed on the system, Avaya recommends removing the package before re-installing it. See [Remove software from CONVERSANT R9](#) (on page 35) for more information.

To install the SpeechWorks TTS package:

1. Log in as root.
2. Type `stop_vs` and press Enter.

The system displays the following message:

```
The Voice System has stopped.
```

3. Type `pkgadd -d path spwkttts` where *path* is the directory containing the spwkttts package. Press **Enter** .

The system displays the following message:

Before installing this package, you must install and configure a SpeechWorks Speechify 2.0 server on your network. You will need to have the IP address and socket number(s) for the TTS service. The installation script will ask you for them at the end of the installation process. Do you have the necessary information available? [y/n]

4. Type **y** and press **Enter**.

Note:

If the spwktts package has been previously installed, the system displays a message asking you whether to use the existing TTS server configuration. You can choose to reuse the configuration, which will install the spwktts package using that information (this allows you to skip Steps 4 - 7 below). Or you can choose not to use the existing configuration, in which case the configuration file is removed and you specify new configuration information for the package (as in Steps 4 - 7 below).

The system displays the following message:

```
You will now be prompted to enter the IP address of the TTS
server, the port number for the TTS voice, and the number of
channels for that voice. Repeat this process for each TTS
voice/Server combination. Enter "done" for the IP address when
done.
```

```
Enter the IP address (NNN.NNN.NNN.NNN in format):
```

5. Type the IP address of the Speechify 2.0 server and press **Enter**.

The system displays the following message:

```
Enter the socket number for a voice port on the server:
```

6. Type **5555** (or the socket number you specified when you installed Speechify 2.0 server) and press **Enter**. 5555 is the default port for the Speechify English female voice. See the SpeechWorks Speechify documentation for default ports for other voices.

The system displays the following message:

```
Enter the number of channels this voice port will support:
```

7. Type the number of channels that will be used for the TTS service and press **Enter**.

The system displays the following message:

```
Trying to ping <IP address> ... okay
```

```
Server Added
```

```
IP address [<cr> for <IP address>]:
```

Installing the Avaya VoiceXML feature

8. If you do not have additional Speechify 2.0 servers to associate with the TTS service, type **done** and press **Enter**.

Note:

If you have additional servers, type the IP address of the server, press **Enter**, and repeat the procedure beginning with Step 4 above to specify the socket number and the number of channels.

If you entered **done**, the system displays messages indicating the progress of the installation process. The installation of the spwkts package uses the configuration information you specified. When the installation is complete, the system displays the following message.

```
Installation of SpeechWorks Speechify 2.0 Proxy TTS integration,
version 1.0 (spwkts) was successful.
```

9. Type **start_vs** and press **Enter**.

The system displays messages indicating that the voice system is starting.

Proceed to [Testing the TTS software](#) (on page 28).

Testing the TTS software

To test the text-to-speech (TTS) software, you can use a VoiceXML test document (**vxmlFeatureTest.vxml**) that is provided as part of the Avaya VoiceXML feature. This document is set up to prompt the caller with a test and then provide feedback that indicates the software is working properly.

To test TTS:

1. Type **vi /vs/data/vxml/applDispatch.vxml** and press **Enter**.

The **appldispatch.vxml** file is displayed in the vi editor.

2. Locate the comment block for the test script shown below:

```
<!-- Test VoiceXML script
Uncomment to test text-to-speech and speech recognition
<goto next="file:///vs/data/vxml/vxmlFeatureTest.vxml"/>
-->
```

3. Using the vi editing commands, move the closing comment mark ("-->") above the <goto> tag the references the **vxmlFeatureTest.vxml** document.

Note:

Make sure that calls to the system will reach the part of the applDispatch.vxml file that contains the reference to the test script. If you mapped any VoiceXML applications to channels or numbers (on page 22) as part of the AVB installation, you will need to comment the lines containing those mappings.

Otherwise, the system could dispatch the test call to another VoiceXML application before reaching the line that would dispatch to the call to the test script.

4. Save the changed script and quit the vi editor.
5. Place a call to the CONVERSANT R9 system using a number to which the AVAYAVXI process is assigned.

The system should answer the call and prompt you to choose the TTS or ASR test.

6. Choose the TTS test.

The system will speak text that says that the TTS software is working. If you get this result, the TTS test is complete.

7. Hang up.

Install the speech recognition software

VoiceXML applications that use natural language speech recognition (NLSR) on CONVERSANT R9 must do so by way of proxy software that interfaces with SpeechWorks OpenSpeech system.

Installing the speech recognition software involves the following basic steps:

1. [Installing SpeechWorks OSS/OSR 1.0 on Windows NT Server](#) (on page 30).
2. [Installing NLSR proxy package on CONVERSANT R9](#) (on page 31).
3. [Installing the SpeechWorks ASR package on CONVERSANT R9](#) (on page 31).
4. [Testing the speech recognition software](#) (on page 33).

Installing SpeechWorks OSS/OSR 1.0 on Windows NT Server

Natural language speech recognition for VoiceXML applications on CONVERSANT R9 is provided by SpeechWorks OpenSpeech Server (OSS) software. This system resides on an external server, such as a Windows NT server or another server approved by SpeechWorks to work with the OSS system.

The documentation included when you purchase the SpeechWorks OSS 1.0 system provides information on how to install the software. See that documentation for detailed installation instructions.

Note:

The steps shown below include installation of the OSR 1.0 and OSS 1.0 updates. These updates can be downloaded from the technical support section of the [SpeechWorks Web site](http://www.speechworks.com) (see <http://www.speechworks.com>).

Using the instructions provided with OSS 1.0, make sure you perform the following steps when you install the SpeechWorks speech recognition software:

1. Install SpeechWorks OpenSpeech Recognizer (OSR) 1.0.
2. Install SpeechWorks OSR 1.0 update. You must download this from the SpeechWorks Web site.
3. Install the SpeechWorks OSS 1.0.
4. Install the SpeechWorks OSS 1.0 update. You must download this from the SpeechWorks Web site.

When you have completed all the installation steps for OSS/OSR 1.0, proceed to [Installing NLSR proxy package on CONVERSANT R9](#) (on page 31).

Installing NLSR proxy package on CONVERSANT R9

To use the speech recognition capabilities of SpeechWorks OpenSpeech Server (OSS) 1.0, you will need to have the optional Natural Language Speech Recognition (NLSR) proxy package and the SpeechWorks Automatic Speech Recognition (ASR) package installed on CONVERSANT R9.

For complete instructions on how to install the NLSR proxy package, see Chapter 2 "Software Installation and Removal" in [Natural Language Speech Recognition for Intuity CONVERSANT System](http://support.avaya.com/elmodocs2/intuity/nsr/) (see <http://support.avaya.com/elmodocs2/intuity/nsr/>).

When you have completed the installation of the NLSR proxy package, proceed to [Installing the SpeechWorks ASR package on CONVERSANT R9](#) (on page 31).

Installing the SpeechWorks ASR package on CONVERSANT R9

The SpeechWorks ASR package (spwkasr) is an add-on module that works in conjunction with the NLSR proxy package on CONVERSANT R9 to interface with SpeechWorks OSS 1.0. The spwkasr package is included as part of the Avaya Voice Browser (AVB) software.

Note:

If a previous version of the SpeechWorks ASR package has been installed on the system, Avaya recommends removing the package before reinstalling it. See [Remove software from CONVERSANT R9](#) (on page 35) for more information.

To install the SpeechWorks ASR package:

1. Log in as root.
2. Type **pkgadd -d *path* spwkasr** and press **Enter** where *path* is the directory containing the spwkasr package.

The system displays the following message:

```
The voice system is currently running and must be stopped in order
to install this package.
```

```
Is it ok to STOP the voice system ? [y/n]
```

3. Type **y** and press **Enter**.

The system displays the following message:

```
The Voice System is now stopping
```

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PLEASE READ THIS CAREFULLY!!!!!!

The Open Source libraries needed by this package have already been installed. Removing the package that installed the libraries *before* this package will cause the spwkasr feature to stop working. Remember that you must remove the packages in the reverse order that you installed them.

Press enter to continue

This message informs you that this package is dependent on libraries that have already been installed as part of the AVB package (voicexml). If you remove the AVB package, the SpeechWorks ASR package will not work.

4. Press **Enter**.

The installation of the spwkasr package displays messages showing progress. When the installation is complete, the system displays the following message:

```
Installation of SpeechWorks Open Speech Server Proxy ASR
integration, version 1.0 (spwkasr) was successful.
```

To configure the SpeechWorks OSS 1.0 on CONVERSANT R9:

1. Type **cvis_menu** and press **Enter**.

The system displays the Voice System Administration menu.

2. Select **SR Server Administration > Add/Remove SR Servers**.

The system displays the Add/Remove ASR Servers window. In the window, you will need to add a line containing the host address, port number, and recognizer type for each channel you want to use for speech recognition.

3. In the **Host Address** field, enter the IP address of the server running SpeechWorks OSS 1.0. Press **Tab** or **Enter** to move to the next field.

4. In the **Port Number** field, type **4901** and press **Enter**.

5. In the **Recognizer Type** field, press **F2** (Choices) and select **OPSR4**.

6. Repeat Steps 3 - 5 for each channel you want to use for speech recognition.

7. Press **F3** to save the information you entered.

The system displays the following message:

```
Check with your application developer or ASR vendor to determine
if speech center clipping should be turned on.
```

```
Do you want speech center clipping for barge-in turned on?
```

8. Type **n**.

The system displays the following message:

This command will terminate ongoing calls for a few seconds. Do you want to continue?

9. Type **y**.
10. Press **F1** (Acknowledge).
11. Press **F6** (Cancel) twice to return to the Voice Administration menu.
12. Select **Exit**.
13. Type **start_vs** and press **Enter**.

The system displays messages indicating that the voice system is starting.

Proceed to Testing the speech recognition software (on page 33).

Testing the speech recognition software

To test speech recognition software, you can use a VoiceXML test document (vxmlFeatureTest.vxml) that is provided as part of the Avaya VoiceXML feature. This document is set up to prompt the caller with a test and then provide feedback that indicates that the software is working properly.

Note:

The text-to-speech (TTS) software must be running and functional to test the speech recognition software.

To test speech recognition:

1. Type **vi /vs/data/vxml/appIDispatch.vxml** and press **Enter**.

The **appIDispatch.vxml** file is displayed in the vi editor.

2. Locate the comment block for the test script shown below:

```
<!-- Test VoiceXML script
  Uncomment to test text-to-speech and speech recognition
  <goto next="file:///vs/data/vxml/vxmlFeatureTest.vxml"/>
-->
```

3. Using the vi editing commands, move the closing comment mark ("-->") above the <goto> tag the references the **vxmlFeatureTest.vxml** document.

Note:

Make sure that calls to the system will reach the part of the appIDispatch.vxml file that contains the reference to the test script. If you mapped any VoiceXML applications to channels or numbers (on page 22) as part of the AVB installation, you will need to comment the lines containing those mappings. Otherwise, the system could dispatch the test call to another VoiceXML

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application before reaching the line that would dispatch to the call to the test script.

4. Save the changed script and quit the vi editor.
5. Place a call to the CONVERSANT R9 system using a number to which the AVAYAVXI process is assigned.

The system should answer the call and prompt you to choose the TTS or ASR test.

6. Choose the ASR test.

The system prompts you to speak two digits, such as "4" and "8."

7. Speak any two digits to the system.

If the speech recognition software is working correctly, the system speaks the two digits back to you (using the TTS capability). If you get this result, the ASR test is complete.

8. Hang up.

Remove software from CONVERSANT R9

If you have trouble installing a software package, or if the package already exists on the system, Avaya recommends that you first remove the package before reinstalling it.

⚠ CAUTION:

You must reboot the system before reinstalling packages.

To remove a package from CONVERSANT R9 that has been installed (or partially installed) with the **pkgadd** command:

1. Log in as root.
2. If the voice system is running, type **stop_vs** and press **Enter**.
The system displays messages indicating that the voice system is stopping.
3. Type **pkgrm *package*** where *package* is the name of the package you want to remove from the system. Press **Enter**.
The system displays messages indicating that the package is being removed.
4. Type **shutdown -i6 -g0 -y** and press **Enter**.
The rebooting process starts. When it is finished, the system displays the console login prompt.

VoiceXML application development considerations

When developing VoiceXML applications for CONVERSANT R9, you should keep the following in mind:

- [Defaults for VoiceXML properties and event handling](#) (on page 38).
- [VoiceXML file locations](#) (on page 40)
- [VoiceXML audio file formats](#) (on page 41)
- [Using the default.cfg file](#) (on page 42) to set up various parameters for AvayaVXI.
- [Current issues with this release of the Avaya VoiceXML feature](#) (on page 43).

Defaults for VoiceXML properties and event handling

The property and event handling defaults for VoiceXML applications running on CONVERSANT R9 are specified in the `/vs/data/vxml/defaults.xml` file. All applications use the values set in this file unless otherwise specified in a lower-level document. For example, an application document can specify its own property values and override the values set in the `defaults.xml` file.

Property values in defaults.xml

The `<property>` element is used to specify certain platform behaviors, such as speech recognition parameters. The `defaults.xml` file specifies the following default properties and values:

```
<property name='xml:lang'           value='en-US' />
<property name='confidencelevel'    value='0.5' />
<property name='sensitivity'        value='0.5' />
<property name='speedvsaccuracy'    value='0.5' />
<property name='termtimeout'        value='0s' />
<property name='termchar'           value='#' />
<property name='bargein'            value='true' />
<property name='caching'            value='fast' />
<property name='audiofetchhint'     value='prefetch' />
<property name='documentfetchhint'  value='safe' />
<property name='grammarfetchhint'   value='prefetch' />
<property name='objectfetchhint'    value='prefetch' />
<property name='scriptfetchhint'    value='prefetch' />
<property name='inputmodes'         value='dtmf voice' />
```

See the VoiceXML specification for information on the purpose of each of these properties and on how the values affect the system.

To change these properties to meet the requirements of your VoiceXML application, edit the `defaults.xml` file or specify the property values in your application documents using the `<property>` element.

Any changes you make to the `defaults.xml` file will not be effective until the Avaya VXI process has been restarted. The easiest way to restart the Avaya VXI process is to stop the voice system (using the `stop_vs` command) and start it again (using the `start_vs` command). For more information on how to use these commands, see *CONVERSANT System Version 8 Administration* (see http://support.avaya.com/elmodocs2/conversant/v8_i3/index.jhtml).

Event handling in defaults.xml

The **defaults.xml** file specifies how to handle certain types of events that may occur during the course of a VoiceXML application, if the application itself does not specify how to handle them.

The Avaya Voice Browser (AVB) provides default handling for the following types of events:

Type of event	Description of event	By default the system...
Cancel	The user has asked to cancel playing of the current prompt.	Does nothing.
Exit	The user has asked to exit.	Exits the application.
Help	The user has asked for help.	Plays an audio file informing the user that no help is provided. On the fifth instance, exits the application.
No input	The user has not responded within the timeout interval.	In the first four instances, provides a series of escalating responses ranging from reprompting on the first instance to playing an audio file informing the user that the system cannot hear input. On the fifth instance, exits the application.
No match	The user has input something, but it was not recognized.	In the first three instances, plays a series of escalating responses requesting the user to provide input again. On the fourth instance, exits the application.
Telephone disconnect	The user has hung up.	Exit the application.
Error	An application fatal error has occurred.	Attempts to log information about the error, plays an audio file informing the user that a serious error has occurred, and exits the application.

If you plan to use the default event handling specified in the **defaults.xml** file, you may want to record your own audio files to use for each type and instance of certain events. Copy the audio files to the **/voice1/vxml/apps** directory. You will then need to edit the **defaults.xml** file to reference your new audio recordings.

Any changes you make to the **defaults.xml** file will not be effective until the Avaya VXI process has been restarted. The easiest way to restart the Avaya VXI process is to stop the voice system (using the **stop_vs** command) and start it again (using the **start_vs** command). For more information on how to use these commands, see *CONVERSANT System Version 8 Administration* (see http://support.avaya.com/elmodocs2/conversant/v8_i3/index.jhtml).

VoiceXML file locations

VoiceXML (.vxml) and audio files can be located either locally on the CONVERSANT R9 system or remotely on a Web server.

Local application files

VoiceXML application files that are located locally, must be located in the **/voice1/vxml/apps/appname/** directory where appname is directory name for all the files associated with a give application. Local files are referenced in VoiceXML documents using the **file://** address type. For example, to reference the start.vxml file in the voice_it application, you would use the following address:

```
file:///voice1/vxml/apps/voice_it/start.vxml
```

Notice the three (3) slashes in the address. Two of the slashes are part of the **file://** address designation. The third slash is the beginning of the file location on the server (in this case, it designates the root level of the file system).

AVB home directory

The home for the AVB system is the **/vs/data/vxml/** directory. This directory contains the following items:

- defaults.xml
- default.cfg
- applDispatch.vxml
- vxmlFeatureTest.vxml
- default prompt files (audio) - in the prompts directory

Web files

Files that are located remotely can reside anywhere on the Web (Internet or Intranet) as long as it is accessible from the CONVERSANT R9 system. Web files are referenced in VoiceXML documents using the **http://** address type. For example to reference the start.vxml file on the VoiceIT Web site, you would use the following address:

```
http://voiceIT.com/start.vxml
```

VoiceXML audio file formats

Avaya Voice Browser (AVB) supports several standard audio formats. These formats are referenced in the **default.cfg** file as supported audio mime types.

AVB allows applications to use the following audio mime types:

- **audio/x-alaw-basic** – Raw (headerless) 8kHz 8 bit mono A-law [PCM] single channel. (G.711)
- **audio/basic** – Raw (headerless) 8kHz 8-bit mono mu-law [PCM] single channel. (G.711)
- **audio/x-dialogic-vox** – VOX 6-8kHz 4 bit mono ADPCM single channel.
- **audio/x-wav** – WAV (RIFF header) 8kHz 8-bit mono mu-law or A-law [PCM] single channel.
- **audio/L8;rate=8000** – Raw 8kHz 8 bit linear PCM single channel.
- **audio/vnd.avaya.vis** – VIS 8khz 4 bit mono ADPCM single channel (Standard CONVERSANT audio format).

All of these formats (with the exception of VIS) are automatically converted to the standard CONVERSANT audio format (VIS) before they are processed by the system. To improve performance, Avaya recommends that you use the VIS format for audio files when possible. For more information on audio formats, see CONVERSANT System Version 8 Speech Development, Processing, and Recognition (see http://support.avaya.com/elmodocs2/conversant/v8_i3/index.jhtml).

Using the default.cfg file

The `/vs/data/vxml/default.cfg` file contains configuration data for the AvayaVXI process. Under most circumstances, you will not need to make changes to this file. However, there are a few situations in which you will need to open this file and edit the value of a configuration setting.

Note:

Any changes you make to the `default.cfg` file will not be effective until the Avaya VXI process has been restarted. The easiest way to restart the Avaya VXI process is to stop the voice system (using the `stop_vs` command) and start it again (using the `start_vs` command). For more information on how to use these commands, see *CONVERSANT System Version 8 Administration* (see http://support.avaya.com/elmodocs2/conversant/v8_i3/index.jhtml).

Increasing the loop count

If a VoiceXML application needs to loop through different form items multiple times (more than 19), you will need to increase the `client.vxi.maxLoopIterations` parameter in the `default.cfg` file. The default is "10" which is used to calculate the loops allowed (value times 2 minus 1). Therefore, increasing the value to 11 will set up the system to allow 21 loops.

Transfer configuration requirements

Avaya Voice Browser (AVB) uses flash hook transfer only. However, the primary rate interface (PRI) protocol does not support flash hook transfers. Therefore, you must set the outdial signaling group transfer parameter (`client.tel.outdialgroup` in the `default.cfg` file) to a signaling group that is either tip/ring, line-side T1, or loop start. Note that the entire signaling group used for the transfer must be tip/ring, line-side T1 or loop start, since any available resource in the signaling group could be used for the transfer.

When using the `<transfer>` element, the "destexpr" attribute supports the "tel" URL scheme defined in the Internet standard RFC2806, "URLs for Telephone Calls." For more information, see <http://www.ietf.org/rfc/rfc2806.txt>.

Caching parameters

You can set the `client.inet.cacheEntryExpTimeSec` parameter in the `default.cfg` file to specify the number of seconds used to determine expiration time when no other expiration time is available for a cache entry. For example, this parameter would be used if the VoiceXML document does not provide metadata fields for Expires or Last-Modified in the header.

The default value for this parameter is 86400, which means that a page will expire after 1 day.

Current issues with the Avaya VoiceXML feature

There are three types of issues for this release of the Avaya VoiceXML feature:

- Considerations for application developers
- Unsupported features of the VoiceXML 2.0 specification
- Known issues in current release

Considerations for application developers

- Redefining a variable that was set previously will set the variable to undefined.
- Formats of data in the <say-as> tag must conform to SpeechWorks Speechify documentation for SSML and <say-as> tag support. More information on the <say-as> tag is available at the [SpeechWorks Web site](http://www.speechworks.com) (see <http://www.speechworks.com>).
- The <value> tag must be preceded by a space for text-to-speech (TTS) to be spoken properly.

Unsupported features of the VoiceXML 2.0 specification

- DTMF termtimeout parameter.
- Local (file://) and remote (http://) DTMF grammars.
- Certain JSML tags. See the SpeechWorks Speechify documentation for SSML and/or <say-as> support.
- The <record> tag supports only the "dtmfterm" attribute. Recognition is not supported for <record> tag, so you can use only the "modal=true" attribute.
- The maxtime shadow variable of the <record> tag.
- The caching attributes maxage and maxstale. To vary the caching behavior, set the cacheEntryExpTimeSec parameter in the **default.cfg** file.
- The <voice> tag. To change gender, set the property promptgender in the **defaults.xml** file to either "male" or "female" to use the appropriate TTS voice.
- The sub attribute of the <say-as> tag.
- The xml:lang attribute is not supported for either the paragraph or sentence elements. To set the language used for TTS, set the xml:lang in either the <vxml> tag or the <prompt> tag.
- Only DTMF grammars are supported inside the <transfer> tag.
- The transferaudio attribute of the <transfer> tag.

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- The `maxtime_disconnect` return value of the `<transfer>` tag.
- `Maxspechtimeout` event.
- The `weight` and `version` attributes of the `<dtmf>` and `<grammar>` tags.
- The `bargeintype` attribute for any tag.
- The `label` attribute of the `<log>` tag.
- The following events: `error.badfetch.protocol`, `error.unsupported.language`, and `maxspechtimeout`.
- The following properties: `bargeintype`, `fetchaudiodelay`, `fetchaudiominimum`, `maxnbest`, `maxspechtimeout`, `universals`, `*maxstale`, and `*maxage`.

Known issues in current release

- Channels may not always be immediately available for the next call – set guard time on switch.
- Invalid grammars such as `."`, `":"` cause the ASR processes to fail. If this occurs, the `aasrProxySW` process on the CONVERSANT R9 system must be killed and the OSS/OSR service on the SpeechWorks OSS/OSR server must be stopped and restarted.
- Multi-lingual ASR not supported in this release.
- Currency and digits are not spoken correctly when built-in grammar type is used. Both are spoken as numbers. To speak correctly, the `<say-as>` tag must be used.

Troubleshooting

When the CONVERSANT R9 system has problems or errors, it generates system messages. System messages are intended to alert you to problems, potential problems, and changes in the state of the system. You can view these messages by accessing the Voice System Administration menu (cvis_menu) and using the Message Log Report screen under the Reports Administration menu.

Most of the messages in the Message Log Report are explained in *CONVERSANT System Version 8 System Reference* (see http://support.avaya.com/elmodocs2/conversant/v8_i3/index.jhtml). Messages specifically generated by the AVB, PTTS, and NLSR proxy components of the Avaya VoiceXML feature are described (with correction action) in the following topics:

- [AVB alarms and log messages](#) (on page 46)
- [SWTTS alarms and log messages](#) (on page 49)
- [SWASR alarms and log messages](#) (on page 52)

In addition to the standard messages generated by the various software components of the Avaya VoiceXML feature, you can specify your own log messages in the VoiceXML documents themselves. For more information, see [Using the <log> tag](#) (on page 54).

You can also set up the system so that the AvayaVXI process generates log messages that can be helpful in troubleshooting problems. For more information, see [Avaya VXI log messages](#) (on page 55).

You can use the **rmdb** command to debug PTTS and NLSR proxy connections. For more information on this command, see *CONVERSANT System Version 8 Application Development with Advanced Methods* and *CONVERSANT System Version 8 Administration* (see http://support.avaya.com/elmodocs2/conversant/v8_i3/index.jhtml).

AVB alarms and log messages

The Avaya Voice Browser (AVB) package logs the following alarms on the CONVERSANT R9 system:

AVB001

Alarm Level: None
Description: Copyright notices.
Repair Procedure: No corrective action is necessary.

AVB002

Alarm Level: Major
Description: VoiceXML parse error: %s<<type,S>> where type contains further information.
Repair Procedure: Based on information in type from above make appropriate corrections to VoiceXML document.

AVB003

Alarm Level: Major
Description: ERROR: %s<<type,S>> where type contains further details.
Repair Procedure: 1. Based on information in type make appropriate changes to VoiceXML document .
2. If badfetch, check name in URI attribute and verify that Web connection is established.

AVB004

Alarm Level: Major
Description: Platform error: %s<<type,S>> where type contains further details.
Repair Procedure: 1. Stop the voice system.
2. Start the voice system.
3. If problem persists, reboot.

AVB005

Alarm Level: Major
 Description: No initial URL %s<<type,S>>
 Repair Procedure:

1. Verify that **applDispatch.vxml** file is in **/vs/data/vxml**.
2. Verify that the testClient.vxmlURL parameter in **/vs/data/vxml/default.cfg** contains the correct location for the **applDispatch.vxml** file.
3. Verify that the **applDispatch.vxml** file is free of errors.

AVB006

Alarm Level: Major
 Description: Exception in document %s<<type,S>> reason %s<<type,S>>
 Repair Procedure: Review the VoiceXML document for errors based on information provided in the error message.

AVB007

Alarm Level: Minor
 Description: Bad grammar: %s<<type,S>>
 Repair Procedure: Review the grammar in the VoiceXML document for errors.

AVB008

Alarm Level: Major
 Description: In Recognition interface, Unable to process answer: %s<<type,S>>
 Repair Procedure:

1. Look for further speech recognition errors.
2. Verify the connection between the Conversant and the speech recognition server.

AVB009

Alarm Level: Major
 Description: Record failed: %s<<type,S>>
 Repair Procedure: Contact your field support representative.

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AVB010

Alarm Level: Major

Description: Prompt failed: %s<<type,S>>

Repair Procedure: 1. Look for further SWTTS or AVB errors.
2. Verify the connection between the Conversant and the speech recognition server.

AVB011

Alarm Level: Minor

Description: Invalid <property>: %s<<type,S>>

Repair Procedure: Review the VoiceXML document for errors.

AVB012

Alarm Level: Minor

Description: Semantic error: %s<<type,S>>

Repair Procedure: Review the VoiceXML document for errors. Pay particular attention to javascript statements.

SWTTS alarms and log messages

The SpeechWorks Text-To-Speech (TTS) package logs the following alarms on the CONVERSANT R9 system:

SWTTS007

Alarm Level: Major
Description: Unable to allocate memory %s<<msg,S>>
Repair Procedure:

1. Stop the voice system.
2. Start the voice system.
3. If the problem persists, reboot the system.

SWTTS008

Alarm Level: Major
Description: No channel manager available.
Repair Procedure:

1. Stop the voice system.
2. Start the voice system.
3. If the problem persists, reboot the system.

SWTTS009

Alarm Level: Major
Description: A request has been made for an unavailable channel.
Repair Procedure:

1. Verify that all channels are in service.
2. Verify that the number of TTS licenses and the number of client connections has not been exceeded.

SWTTS010

Alarm Level: Major
Description: Mutex Error: %s<<msg,S>>
Repair Procedure: Contact your field support representative.

SWTTS011

Alarm Level: Major
Description: Error in SpeechWorks interface: %s<<msg,S>>
Repair Procedure: Contact your field support representative.

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SWTTS012

Alarm Level: Major

Description: The TTS port is invalid.

Repair Procedure: 1. Verify the connection between the Conversant and TTS server.
2. Verify that the port specified (5555 is the default) is not already in use.

SWTTS013

Alarm Level: Major

Description: Error with configuration file: %s<<msg,S>>

Repair Procedure: Contact your field support representative.

SWTTS014

Alarm Level: Major

Description: Error in initialization: %s<<msg,S>>

Repair Procedure: Contact your field support representative.

SWTTS015

Alarm Level: Minor or Major

Description: The connection between the Conversant and SpeechWorks TTS server has been lost. Communication will be attempted in 2 minutes. If two of these messages occur in one hour, an ALERT001 will be written to the log.

Repair Procedure: Check the TCP/IP connection between the Conversant and SpeechWorks TTS server.

SWTTS016

Alarm Level: Minor or Major

Description: No channel available for language %d<<lang,D>>, gender %s<<gender,S>>

Repair Procedure: 1. Verify connection between the Conversant and SpeechWorks TTS server.
2. Verify the SpeechWorks configuration (refer to SpeechWorks documentation for details).

SWTTS017

Alarm Level: Minor or Major
Description: Error: %s<<msg,S>>
Repair Procedure: Contact your field support representative.

SWTTS018

Alarm Level: Major
Description: TCP/IP Error: %s<<msg,S>>
Repair Procedure: Verify the connection between the Conversant and the SpeechWorks TTS server.

SWTTS019

Alarm Level: Major
Description: %s<<msg,S>> for unknown channel.

Repair Procedure:

1. Verify that all channels are in service.
2. Verify that the number of TTS licenses and the number of client connections has not been exceeded.

SWTTS020

Alarm Level: Major
Description: No channel available for voice %s<<voice,S>>.
Repair Procedure: Verify that all Speech and Signal Processor (SSP) circuit cards are in service.

SWASR alarms and log messages

The SpeechWorks Automatic Speech Recognition (ASR) package logs the following alarms on the CONVERSANT R9 system:

SWASR001 through SWASR008

Alarm Level: Major
Description: Errors in communication with SpeechWorks ASR processes.
Repair Procedure: Contact your field support representative.

SWASR009

Alarm Level: Major
Description: Channel is outside the range of administered channels.
Repair Procedure: 1. Verify SR Server Administration (via `cvis_menu`).
2. Contact your field support representative to verify Right To Use (RTU) licensing.

SWASR010

Alarm Level: Major
Description: Specified channel is returning an error.
Repair Procedure: 1. Verify that channel is in service.
2. Contact your field support representative.

SWASR011 through SWASR073

Alarm Level: Major
Description: Errors in grammar processing.
Repair Procedure: Contact your field support representative.

SWASR074

Alarm Level: Major
Description: Problem connecting to SpeechWorks OSS/OSR server.
Repair Procedure: 1. Verify connection.
2. Verify that SpeechWorks service is running on OSS/OSR server.

SWASR075 through SPASR091

Alarm Level: Major

Description: Proxy ASR platform resource errors.

Repair Procedure:

1. Stop the voice system.
2. Start the voice system.
3. If problems persist, reboot the system.
4. If problems continue to persist, contact your field support representative.

Using the <log> tag

You can use the <log> tag in your VoiceXML documents to generate logging or debug messages that may be helpful in troubleshooting problems with applications.

For example,

```
<log>Error: <value expr='_event' />, <value expr='_message' /></log>
```

could be used to generate errors based on evaluating the `_event` and `_message` variables in an application.

Complete information on the <log> tag is in the VoiceXML 2.0 draft specification at the [W3C Web site](http://www.w3.org/TR/voicexml20/) <http://www.w3.org/TR/voicexml20/>.

Messages generated by using the <log> tag are written to the same log file used by CONVERSANT R9. They are viewable using the Message Log Report screen under the Reports Administration menu. All <log> tag messages are written as AVB013 messages in the Message Log Report.

Avaya VXI log messages

Various levels of logging messages from the Avaya VXI process can be enabled (and disabled) in the **default.cfg** file. Logging levels are specified in the file by the parameter

`client.log.diagTag.number`

where *number* specifies the type of log messages to generate. There are several logging levels specified in **default.cfg**. The following logging levels are particularly useful for debugging and troubleshooting purposes:

- `client.log.diagTag.5000` – Shows activity associated with spoken words (using text-to-speech), prompts, announcements, and other audio playback.
- `client.log.diagTag.6000` – Shows activity associated with grammar loading, activation, and deactivation. Also provides "best" and "value" results, which show what was trying to be matched in the grammar (best) and what the end result was (value).
- `client.log.diagTag.8000` – Shows errors associated with Avaya VXI activities, such as unsupported mime type.
- `client.log.diagTag.8001` – Shows standard pre-defined VoiceXML errors thrown by the Avaya VXI process, such as `error.badfetch`.
- `client.log.diagTag.8002` – Shows variable settings, fetch information, fetch errors, and parsing errors. This logging level is useful for tracing through application logic and finding any errors in the application syntax.

By default, all of the logging parameters are disabled. A disabled logging parameter is indicated by the comment character ("`#`") at the beginning of the line specifying the parameter.

To enable logging levels:

To enable Avaya VXI logging levels:

1. Type **vi /vs/data/vxml/default.cfg** and press **Enter**.
2. Using the vi editing commands, remove the comment character ("`#`") from the lines that specify the logging levels you want to enable.
3. Save and close the file.

Note:

Any changes you make to the **default.cfg** file will not be effective until the Avaya VXI process has been restarted. The easiest way to restart the Avaya VXI process is to stop the voice system (using the **stop_vs** command) and start it again (using the **start_vs** command). For more information on how to use these

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commands, see *CONVERSANT System Version 8 Administration* (see http://support.avaya.com/elmodocs2/conversant/v8_i3/index.jhtml).

To view log messages:

Log messages are written to the **/voice1/vxml/log.txt** file or the file specified by the `client.log.filename` parameter in the **default.cfg** file.

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