
Generations® Philips® SpeechMania® ASR Option User's Guide

Release 4.03.00 for Digital UNIX 4.0B

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Generations Philips SpeechMania ASR Option User's Guide

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Table of Contents

Preface.....	V
Purpose of This Manual.....	v
Audience and Prerequisites	v
Related Publications	v
Manual Structure	vi
Introduction.....	1-1
System Requirements	1-1
Hardware.....	1-1
Software.....	1-2
Generations Philips SpeechMania ASR Option Features.....	2-1
Using the HANDOFF Cell.....	2-2
Buffers Used	2-6
Buffers Updated.....	2-6
Parameters	2-6
Branches	2-9
Tables.....	2-9
Installation.....	3-1
Installing the Software on the VRU System	3-1
Configuring the VRU system for the Philips ASR Option.....	3-3
Installing the Philips Application Files on the Generations Application Server	3-4
Configuring and Starting up the Philips SpeechMania Server	3-5

Licensing the Tie Line Channels	3-5
Installing the Hardware	3-5
Index.....	Index-1

Preface

Purpose of This Manual

This manual contains an overview of the Philips SpeechMania Automatic Speech Recognition (ASR) option for Digital UNIX 4.0B. The Generations Philips SpeechMania ASR option enables you to incorporate Philips SpeechMania automatic speech recognition into your Generations applications.

Audience and Prerequisites

Users of this manual need to understand ASR technologies and terminology. Users should be familiar with the Generations Application Editor and application programming.

Related Publications

For information about installing the Generations Philips SpeechMania ASR option with Generations TSP, refer to Chapter 3.

For additional information about the Generations telephony server platform, refer to the following Voicetek® manuals:

- *Generations TSP Base Package Release Note*
- *Generations TSP Service Console Interface Reference Manual*

For additional information about Generations cells and application development, refer to the following Voicetek® manuals:

Generations RSP and Developer Release Note

Generations RSP and Developer System Administration Guide

Generations RSP and Developer Application Development Guide

Generations RSP and Developer Cell Catalog

For additional information about the Philips ASR option, refer to the documentation that is shipped with the Philips SpeechMania server.

Manual Structure

Chapter 1 provides an introduction to the Generations Philips SpeechMania ASR option. It also describes the Philips ASR option system hardware and software requirements.

Chapter 2 provides information about Philips ASR option features and explains how to use the Handoff cell.

Chapter 3 describes how to install the Philips ASR option on the VRU system.

Chapter 1 Introduction

The Generations® Philips® SpeechMania® Automatic Speech Recognition (ASR) option integrates Philips Electronics Corporation's SpeechMania Natural Dialogue System into the Voicetek Generations product to enable large vocabulary, phonetic, speaker-independent, natural language, and continuous speech recognition within Generations applications. The Philips SpeechMania ASR option integrates with Generations TSP Base Package and RSP 4.03 for Digital UNIX 4.0B.

SYSTEM REQUIREMENTS

Before you install the Generations Philips ASR option, make sure that your Voice Response Unit (VRU) system meets the hardware and software requirements described in this chapter.

Hardware

The Generations Philips ASR option requires the following hardware:

- A VRU system running Generations TSP Base Package 4.03 for Digital UNIX 4.0B, and supporting TCP/IP and NFS
- At least 64 MB of memory is required on the VRU system
- Philips SpeechMania server with Dialogic D/41E-SC
- VRU system with Dialogic D/41E-SC

- Viking DLE-200B (one for each SpeechMania channel in use)
- CD-ROM drive on the VRU system or access to a network CD-ROM drive to read the distribution media
- Philips SpeechMania speech recognition server running on any supported system, connected to the VRU system through a TCP/IP Ethernet connection and a D/41E-SC 'tie line' channel(s)
- CD-ROM drive on the application server, or access to a network CD-ROM drive to install the following Philips ASR option application files:
 - SpeechMania Tie Line application (**SMtie.vpf**)
 - SpeechMania user functions (**SMchan** and **SMsleep**)

Software

To perform Philips SpeechMania speech recognition, the VRU system requires the following software:

- Generations TSP Base Package 4.03 for Digital UNIX 4.0B
- Generations RSP 4.03 for Digital UNIX 4.0B, if running Generations in a folded configuration (RSP and TSP on a single VRU system)
- Philips SpeechMania system (any supported version)
- Generations VRU license file with sufficient D/41E-SC channel licenses

Chapter 2 Generations Philips SpeechMania ASR Option Features

The Generations Philips SpeechMania ASR option employs a client/server architecture. Generations TSP is installed on the Voice Response Unit (VRU) system, and the SpeechMania recognition software is installed on a SpeechMania server remote to the VRU system.

The Philips ASR option provides speech recognition by passing control of incoming calls to the VRU system to the SpeechMania server through a Dialogic D/41E-SC channel. Results from the SpeechMania server application are returned to the Generations VRU system through a TCP/IP socket connection, and then passed to the Generations application server to be processed by the Generations application.

Figure 2-1 shows the Generations Philips SpeechMania ASR option process in which the incoming call is handed off for speech recognition to the SpeechMania server.

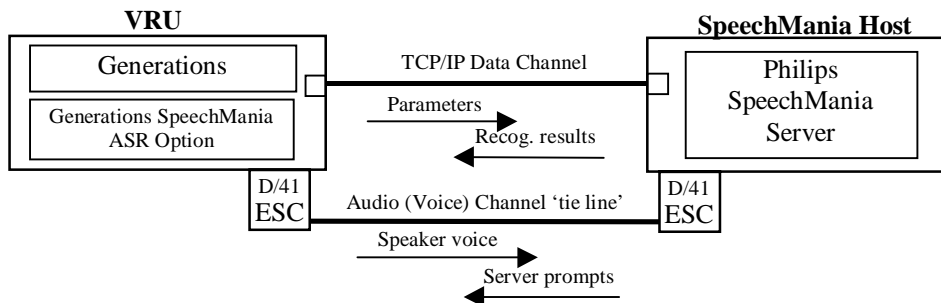


Figure 2-1: Generations Philips SpeechMania ASR Option Process

USING THE HANDOFF CELL

The HANDOFF cell enables you to build a Generations application that uses the Generations Philips SpeechMania ASR option. The HANDOFF cell can be integrated with any Generations application.

The HANDOFF cell passes control of incoming calls to the SpeechMania server through a “tie line” channel. Results from the SpeechMania server application are passed back to the Generations application through a TCP/IP data channel.

In the sample Generations application shown in Figure 2-2, the result values from the SpeechMania server application branch to the COMP cell for further call flow processing.

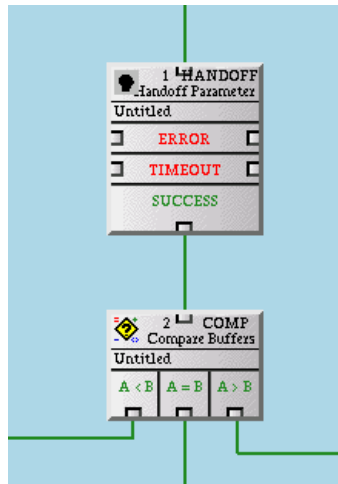


Figure 2-2: Using the HANDOFF Cell

In this example, the COMP cell can be used to compare an integer or boolean result. If you specify B as 1, then a call with the result of 0 would flow to the A<B branch. If the result is 1, then the call would flow to the A=B branch. Any other result would flow to the A>B branch.

Table 2-1 describes the naming convention for Parameter Names and Result Parameter Names.

Parameter Type	Prefix for Parameter Name	Examples
Integer	%	%age
Boolean (0 or 1)	!	!married
String	None	name

Table 2-1: Parameter Name Conventions

The Handoff cell is used to specify input parameter names and values, as shown in Figure 2-3.

The screenshot shows a Windows-style dialog box titled "HANDOFF Parameters". At the top, it says "Cell #0" and "HANDOFF Handoff Parameter". Below this is a "Connects" field with a dropdown menu showing "LINE0". A "Call Audit Enabled?" checkbox is checked, with "Yes" selected and "No" as an alternative. Below that is a "Call Audit Information:" field with a dropdown showing "SUSITS". An "Application ID" field shows the value "3". The dialog is divided into two main sections: "Parameter Names" and "Parameter Value". The "Parameter Names" section has five numbered input fields, with the first two containing "language" and "name". The "Parameter Value" section has three numbered input fields, with the first two containing "language" and "yes". At the bottom are "Apply", "Cancel", and "Help" buttons.

Figure 2-3: Specifying Input Parameter Names and Values

The Handoff cell is also used to specify result parameter names and values, as shown in Figure 2-4.

The screenshot shows a dialog box titled "HANDOFF Parameters". It is divided into two main sections: "Result Parameter Name" and "Result Parameter Value". Each section has a "Result Count" field set to 5. Below each count field are five numbered input fields (1. to 5.) and a small button to the right of each. In the "Result Parameter Name" section, the first two input fields contain "name_buf1" and "name_buf2". In the "Result Parameter Value" section, the first two input fields contain "val_buf1" and "val_buf2". At the bottom of the dialog are three buttons: "Apply", "Cancel", and "Help".

Result Parameter Name	
Result Count	5
1.	name_buf1
2.	name_buf2
3.	
4.	
5.	

Result Parameter Value	
Result Count	5
1.	val_buf1
2.	val_buf2
3.	
4.	
5.	

Figure 2-4: Specifying Result Parameter Names and Values

Buffers Used

The Handoff cell does not use buffer values from another cell.

Buffers Updated

The Handoff cell enables you to specify buffers for the Result Count, Result Parameter Names, and Result Parameter Values. The Result Parameters Names and Values indicate the results of the SpeechMania server application.

Parameters

The following table describes the parameters of the Handoff cell.

Parameters	Initial Value	Explanation
Call Audit Enabled?	No	Determines if this cell logs the following information to the call audit statistics file (audit_stat.d): Application Name Cell Name Cell Number Date and time of Cell Execution Contents of the Cell Comment Field Contents of the Call Audit Information buffer
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the audit_stat.d file. The maximum value for this buffer is 32.

Parameters	Initial Value	Explanation
Application ID	1	Contains the number that identifies a SpeechMania application running on the SpeechMania server. This number specifies the SpeechMania application to be presented to a caller on the tie line channel. The number is calculated by adding 1 to the corresponding SpeechMania application number that appears in the /usr/vrs/data/smsr.cfg configuration file on the VRU system. For information about specifying the application ID during the Philips ASR option installation, refer to Chapter 3 of this guide.
Parameter Name	<None>	The parameter name is used by the SpeechMania server application and is defined by the requirements of the SpeechMania application. You can provide up to five names and associated values.
Parameter Value	<None>	The parameter value is used by the SpeechMania server application and is defined by the requirements of the SpeechMania application. You can provide up to five name and value pairs.

Parameters	Initial Value	Explanation
Result Parameter Name	<None>	The parameter name is passed back to the RSP application by the SpeechMania application, indicating the <i>result</i> of the speech recognition. Up to five result names and values are defined by the SpeechMania application, using the same naming convention as the Parameter Names and Parameter Values. For example, if you design the SpeechMania application to prompt the caller to speak the client's age, and the caller says "twenty-three," the SpeechMania server returns a key-value pair of the parameter name "%age" and the integer value "23."
Result Parameter Value	<None>	The parameter value is passed back to the RSP application by the SpeechMania application, indicating the <i>result</i> of the speech recognition. Up to five result names and values are defined by the SpeechMania application, using the same naming convention as the parameters Parameter Names and Parameter Values.
Result Count	<None>	Specifies the number of Result Parameter Values expected.

Branches

The following table describes the branches of the Handoff cell.

Branch	Explanation
Error	The SpeechMania server rejected the request for recognition on this channel.
Timeout	The caller hung up before the SpeechMania server completed executing its application.
Success	The SpeechMania server executed its application, and handed control back to the RSP application.

Tables

The following table summarizes the tables of the Handoff cell.

Table	Explanation
Parameter Name	The input names to be processed by the SpeechMania application. Specified as strings using the SpeechMania naming convention.
Parameter Value	The input values to be processed by the SpeechMania application.
Result Parameter Name	The output names indicating the result of the SpeechMania application. Specified as buffers using the SpeechMania naming convention.
Result Parameter Name and Result Parameter Value	The output name and values indicating the result of the SpeechMania application.

Chapter 3 Installation

This chapter contains the instructions for installing the Generations Philips SpeechMania ASR option software and hardware.

NOTE: Before proceeding with the instructions in this chapter, make sure that your Voice Recognition Unit (VRU) system meets the hardware and software requirements described in Chapter 1.

INSTALLING THE SOFTWARE ON THE VRU SYSTEM

The Generations Philips SpeechMania ASR option consists of SpeechMania software (RSP and TSP portions) that integrates with Generations on the VRU system. To install the Generations Philips SpeechMania ASR option software, perform the following steps:

1. Insert the Generations CD-ROM into a CD-ROM drive on either the Generations VRU system or Generations application server.

NOTE: If the VRU system does not contain a CD-ROM drive, access a CD-ROM drive on the network.

2. Follow the instructions in the *Generations Installation Guide* to access the software and run the installation program.

3. The Generations installation program displays the following menu:

Specify which packages will be installed:

(Enter y or n to select packages, or q to quit)

```
-----  
RSP . . . . . [n]?  
TSP . . . . . [n]?y  
License Manager . . . . . [n]?  
Generations ISUP Subsystem . . . . . [n]?  
Enter "c" to continue, "r" to redo, or "q" to quit:c
```

4. Type **y** for the TSP selection, type **c** to continue, and press **Enter**.

The system displays the following prompts:

Select the TSP packages to be installed:

```
-----  
System packages . . . . [n]?  
Speech technologies . . [n]?y
```

5. At the Speech Technologies prompt, type **y** and press **Enter**.
6. At the Installing ASR prompt, type **y** and press **Enter**. A list of ASR options appears.
7. At the Pick an Option prompt, type the number corresponding to the Philips SpeechMania ASR option and press **Enter**.
8. When prompted, type the following information and press **Enter** after each prompt.
- Specify the channel number of the first D/41E-SC channel used as a tie line to the SpeechMania host.
 - Specify the Philips SpeechMania server name, and optionally the Internet address, for each server.

- For each SpeechMania application running on the SpeechMania server, specify the name of the application (for example, `restaurant_guide`) and a number to identify the application in the “Application ID” parameter of the `HANDOFF` cell.

The information you entered is placed into a configuration file, `/usr/vrs/data/smsr.cfg`, on the VRU system.

NOTE: If necessary, you can edit the `/usr/vrs/data/smsr.cfg` file at any time to modify the configuration information. Restart the VRU system for the changes to take effect.

When you complete the installation, the system displays a prompt similar to the following:

```
The installation of the TSP Philips SpeechMania Option
for DIGITAL UNIX V4.0 is now complete.
```

CONFIGURING THE VRU SYSTEM FOR THE PHILIPS ASR OPTION

After installing the Generations Philips SpeechMania ASR option on the VRU system, perform the following steps:

1. Log into the Generations application server using a runtime account.
2. In the Generations System Configuration Manager (SCM) tool, reserve audio path(s) for the SpeechMania channels/tie lines.

NOTE: The number of audio paths to be reserved is equal to the channel number of the last tie line, plus one. For example, if channels 4 through 7 are used as tie lines, then you reserve 8 audio paths.

3. In the Generations SCM tool, specify that each of the tie line channels are 'incoming' channels.

INSTALLING THE PHILIPS APPLICATION FILES ON THE GENERATIONS APPLICATION SERVER

The Generations CD-ROM distribution media contains the associated Generations RSP and Developer files for the Philips ASR option. This section describes additional installation steps required for the Generations RSP portion of the Philips ASR option on the Generations application server.

The Generations CD-ROM contains the following Philips ASR option application software:

- SpeechMania Tie Line application (**SMtie.vpf**)
- SpeechMania user functions (**SMchan** and **SMsleep**)

<p>NOTE: Load and run the SpeechMania Tie Line application (SMtie) on all tie line channels that are performing Philips automatic speech recognition.</p>

After you install Generations RSP software on your application server, extract the SpeechMania application and user function files as follows:

1. Make sure you are logged into the Generations application server as a Generations user.
2. Make sure the Generations CD is mounted on your application server. For example, to mount the CD, type **mount -r </dev/rz4c> /mnt** and press **Enter**.
3. On the application server, change to the directory in which you are extracting the Philips ASR option files by typing **cd \$VOICE_HOME** and pressing **Enter**.

4. Type `tar xf /mnt/rsp/alpha/philips/philips.tar` and press **Enter**. The **SMtie.vpf** application is extracted to the **/apps** directory, and the **SMchan** and **SMsleep** user functions are extracted to the **/exe** directory.
5. Run the SpeechMania Tie Line (**SMtie**) application on all the tie line channels.

CONFIGURING AND STARTING UP THE PHILIPS SPEECHMANIA SERVER

For complete information about configuring and starting up the Philips SpeechMania server, refer to the Philips SpeechMania documentation.

LICENSING THE TIE LINE CHANNELS

<p>NOTE: Tie lines are the analog phone lines that connect the VRU system and the SpeechMania server, acting as the voice path between an incoming Generations call and a SpeechMania recognizer channel.</p>
--

To use the Generations Philips SpeechMania ASR option, ensure that all Dialogic D/41E-SC channels used as SpeechMania “tie line” channels are licensed.

INSTALLING THE HARDWARE

To install the Generations Philips SpeechMania ASR option hardware, perform the following steps:

1. Make sure that all D/41E-SC boards are installed on the VRU system.

2. Configure one D/41E-SC channel for each Philips SpeechMania speech recognition channel using the Generations TSP Service Console Interface (SCI) tool. The D/41E-SC channels are used as “tie lines.”
3. Connect the VRU system D/41E-SC channels used as “tie lines” to the SpeechMania server D/41E-SC channels using a Viking DLE-200B. You can use all other VRU system channels for incoming calls.

Index

Symbols

/usr/vrs/data/smsr.cfg file 3-3

A

Audio paths 3-3
 for SpeechMania channels 3-3

B

Boolean 2-3
Buffer values used from another cell
 2-6
Buffers updated in Handoff cell 2-6

C

CD-ROM drive
 accessing 3-1
 network access 3-1
 requirements 1-2
Client/server architecture 2-1
Configuring
 Philips SpeechMania Server 3-5
 VRU system 3-3, 3-4

D

Dialogic D/41E-SC channel 1-1, 1-2,
 2-1, 3-5
 licenses 1-2
 number 3-2

G

Generations application server 2-1,
 3-4

H

HANDOFF cell 2-2, 2-3, 2-4, 2-5
 buffers updated 2-6
 buffers used from another cell 2-6
 using 2-3
Hardware requirements 1-1

I

Incoming call handed off to
 SpeechMania server 2-2
Input parameter names 2-4
Input parameter values 2-4
Installing ASR prompt 3-2

Index

Installing the software 3-1, 3-6
Integer 2-3

L

Licensing the tie line channels 3-5

N

Network CD-ROM drive requirement
1-2

P

Parameter name conventions 2-3
Parameter names 2-3
Parameter types 2-3
Philips ASR Option
 process flow diagram 2-2
Philips ASR option
 application files 1-2
 features 2-1
 HANDOFF cell 2-2
 hardware requirements 1-1
 installation 3-1
 introducing 1-1
 parameter names 2-3
 RSP portion software 3-4
 software requirements 1-2
 SpeechMania server 1-2
 TSP portion software 3-1, 3-2
Prefixes for parameter names 2-3

R

Reserving audio paths 3-3
Result Count 2-6

Result parameter names 2-3, 2-6
 examples 2-3
Result parameter values 2-6
Results from SpeechMania server
 2-1, 2-2

S

SMchan 1-2, 3-4, 3-5
SMsleep 1-2, 3-4, 3-5
SMtie.vpf 1-2, 3-4, 3-5
Software requirements 1-2
Specifying buffers for application
 results 2-6
Specifying input parameter names
 and values 2-4
Specifying result parameter names
 and values 2-5
Speech Technologies prompt 3-2
SpeechMania Natural Dialogue
 System 1-1
SpeechMania server 2-2
 application result values 2-3
 incoming call handed off to 2-2
 results from 2-1, 2-2
SpeechMania Tie Line application
 (SMTie.vpf) 1-2, 3-4
SpeechMania user functions
 (SMchan and SMSleep) 1-2,
 3-4
String 2-3
System Configuration Manager
 (SCM) tool 3-3
System requirements 1-1, 1-2

T

TCP/IP data channel 2-2

TCP/IP Ethernet connection 1-2

TCP/IP socket connection 2-1

Tie line application (SMtie.vpf) 1-2

Tie line channel 2-2

U

User functions (SMchan and
SMsleep) 1-2

Using the HANDOFF cell 2-3

V

Voice Response Unit (VRU) system
requirements 1-1

VRU license file 1-2

