



**Wavelink Telnet Client
Voice-Enabled Emulation
Reference Guide**

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Chapter 1: Introduction

This document provides information about using Voice-Enabled Emulation.

This section provides the following information:

- Document Assumptions
- Document Conventions
- About Voice-Enabled Emulation

Document Assumptions

This document assumes that the reader has the following:

- Knowledge of wireless networks and wireless networking protocols.
- Knowledge of TCP/IP, including IP addressing, subnet masks, routing, BootP/DHCP, WINS, and DNS.
- Knowledge of Wavelink Avalanche Manager or Avalanche MC.
- Knowledge of Wavelink Telnet Client.
- Knowledge of Telnet Client Scripting.

Document Conventions

This document uses the following typographical conventions:

`Courier New`

Any time you type specific information into a text box (such as a file name), that option appears in the `Courier New` text style. This text style is also used for any keyboard commands that you might need to press.

Examples:

Type `Enter` to continue.

Press `CTRL+ALT+DELETE`.

Bold

Any time you interact with an option (such as a button or descriptions of different options in a dialog box), that option appears in the **Bold** text style.

Examples:

Click **Open** from the **File** Menu.

Select the **Update** option.

Italics

Any time this document refers to another section within the document, that section appears in the *Italics* text style. This style is also used to refer to the titles of dialog boxes.

Examples:

See *Configuring Packages* on page 12 for more information.

The *Screen Reformatter* dialog box appears.

About Voice-Enabled Emulation

Voice-Enabled Emulation is a verbal communication system that facilitates real-time voice communication between the host computer and the mobile device user. Voice-Enabled Emulation provides the ability to translate data

from the host computer into spoken directions that the user is able to hear. The user's response can then be translated into data and transmitted back to the host computer.

NOTE Voice-Enabled Emulation is included in Telnet Client 7.0 and later versions.

Language Support

Voice-Enabled Emulation provides support for various languages. For a current list of supported languages, refer to the [Wavelink Website](#) or contact Wavelink Customer Service. *Appendix A: Wavelink Contact Information* on page 37 provides Wavelink contact information.

To use Voice-Enabled Emulation with languages other than English, it is recommended that you install the Language Build of the Telnet Client.

Licensing

Voice-Enabled Emulation requires a separate license in addition to the standard Telnet Client licenses. You can use Voice-Enabled Emulation without a license, but you will be limited to the demo version. Voice-Enabled Emulation is not included in any Telnet Client maintenance licenses.

NOTE To obtain Telnet Client licenses, please contact Wavelink Customer Service. *Appendix A: Wavelink Contact Information* on page 37 provides Wavelink contact information.

Voice-Enabled Emulation Terminology

For a complete list of Voice-Enabled Emulation terms and components, refer to the *Glossary* on page 39.

Chapter 2: Installation and Configuration

This chapter provides information about the following:

- Installation
- Configuration

NOTE For definitions of various terms used in this chapter, refer to the *Glossary* on page 39.

Installation

This section provides Voice-Enabled Emulation installation information, including the following:

- Installation Requirements
- Installing Voice-Enabled Emulation on a Mobile Device
- Installing Voice-Enabled Emulation on a PC

Installation Requirements

This section lists the hardware, software, and memory requirements that Voice-Enabled Emulation requires for best performance.

Hardware Requirements

Voice-Enabled Emulation requires the following hardware components to operate effectively:

- Mobile device with headset jack
- Headset microphone with a signal-to-noise ratio (SNR) better than 20 dBA

Software Requirements

Voice-Enabled Emulation requires the following software to run effectively:

- Wavelink Avalanche Manager version 3.6 or later, or Avalanche MC

- Wavelink Avalanche Enabler version 4.02 or later
- Wavelink Telnet Client version 7.0 or later

Memory Requirements

Voice-Enabled Emulation requires the following available memory to run effectively:

- 128 MB RAM
- Or-
- 64 MB RAM with an SD card
- Or-
- 64 MB RAM with 128 MB Flash Memory

Installing Voice-Enabled Emulation on a Mobile Device

Voice-Enabled Emulation consists of multiple packages (in addition to the Telnet Client package) that must be deployed to the mobile device using Wavelink Avalanche Manager or Avalanche MC. The necessary Avalanche packages are:

- 1 Speech Registry package
- 2 Speech-to-text Base package
- 3 Speech-to-text Language package
- 4 Text-to-speech Base package
- 5 Text-to-speech Vocalizer package

Depending on your organization's needs, you may choose to install only speech-to-text, or only text-to-speech packages. However, the Speech Registry package is required to use Voice-Enabled Emulation.

NOTE To obtain software packages, please contact Wavelink Customer Service. *Appendix A: Wavelink Contact Information* on page 37 provides Wavelink contact information.

This section provides the following information:

- Installing the Speech Registry Package
- Installing Speech-to-Text Packages
- Installing Text-to-Speech Packages

Installing the Speech Registry Package

The Speech Registry package allows you to choose where Voice-Enabled Emulation files are stored on the mobile device. The Speech Registry package is not optional, you must install this package to use Voice-Enabled emulation.

To install the Speech Registry package:

- 1 Install the `TESpChRg` package in Avalanche Manager or Avalanche MC.
- 2 Configure the package as described in *Configuring the Speech Registry Package* on page 12.
- 3 Deploy the package to the mobile device.

NOTE For more information about installing and deploying software packages, refer to *Wavelink Avalanche Manager User's Guide* or *Wavelink Avalanche MC User Guide*.

Installing Speech-to-Text Packages

To utilize speech-to-text functionality, you need the following software packages:

- Base Package
- Language Package(s)

The Language package determines the language that will be used when converting speech to text. For a list of available languages, refer to the [Wavelink Website](#).

To install speech-to-text:

- 1 Install the Base and Language packages in Avalanche Manager or Avalanche MC.

- 2 If desired, configure the Base package as described in *Configuring the Speech-to-Text Base Package* on page 13.
- 3 Deploy the packages to the mobile device.

NOTE For more information about installing and deploying software packages, refer to *Wavelink Avalanche Manager User's Guide* or *Wavelink Avalanche MC User Guide*.

Installing Text-to-Speech Packages

To utilize text-to-speech functionality, you need the following software packages:

- Base Package
- Vocalizer Language Package

The Vocalizer package is language-specific and allows you to select from multiple voices to be used when converting text to speech. If desired, you can install multiple language packages (dependant on your mobile device's memory capacity).

To install text-to-speech:

- 1 Install the Base and Vocalizer packages in Avalanche Manager or Avalanche MC.
- 2 Deploy the packages to the mobile device.

NOTE For more information about installing and deploying software packages, refer to *Wavelink Avalanche Manager User's Guide* or *Wavelink Avalanche MC User Guide*.

Installing Voice-Enabled Emulation on a PC

Voice-Enabled Emulation for Microsoft Windows consists of two files in addition to the Telnet Client that must be installed on the PC. Depending on your organization's needs, you may choose to install only speech-to-text, or only text-to-speech.

NOTE To obtain files, please contact Wavelink Customer Service. *Appendix A: Wavelink Contact Information* on page 37 provides Wavelink contact information.

This section provides the following information:

- Installing the Speech-to-Text File
- Installing the Text-to-Speech File

Installing the Speech-to-Text File

To utilize speech-to-text functionality, you need the Speech-to-Text Windows Support file.

To install speech-to-text:

- 1 Double-click the Speech-to-Text executable.

The *Wavelink SpeechToText Support Setup Wizard* appears.

- 2 Follow the instructions in the Speech-to-Text Support Setup Wizard to complete the installation.
- 3 When the installation is complete, click **Finish** to exit the Wizard.

Installing the Text-to-Speech File

To utilize text-to-speech functionality, you need the Text-to-Speech Windows Support file.

To install text-to-speech:

- 1 Double-click the Text-to-Speech Vocalizer executable.

The *Wavelink TextToSpeech Vocalizer Support Setup Wizard* appears.

- 2 Follow the instructions in the Text-to-Speech Vocalizer Support Setup Wizard to complete the installation.
- 3 When the installation is complete, click **Finish** to exit the Wizard.

Configuration

After you have installed Voice-Enabled emulation packages, you can use the Telnet Client to configure the packages and the mobile device microphone and speaker settings.

Configuring Packages

After you have installed the necessary software packages, you may configure those packages. This section provides the following information:

- Configuring the Speech Registry Package
- Configuring the Speech-to-Text Base Package

Configuring the Speech Registry Package

The Speech Registry package allows you to determine whether to store Voice-Enabled Emulation files on an SD card or on the mobile device.

To configure the Speech Registry package:

- 1 Right-click on the Speech Registry package in Avalanche Manager or Avalanche MC.
- 2 Select **Configure Package > TE Speech Configuration**.

The *Telnet Speech Install Config* dialog box appears.

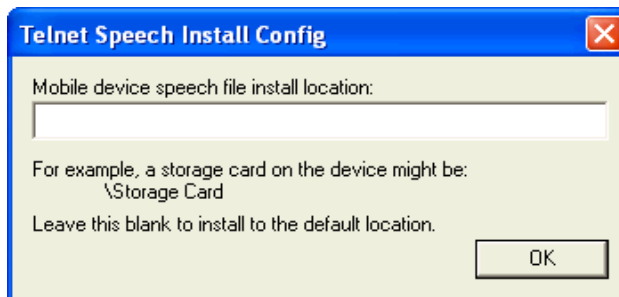


Figure 2-1. *Telnet Speech Install Config Dialog Box*

- 3 If you want to install Voice-Enabled Emulation files on an SD card, enter the location of the card on the mobile device in the available text box.

Example: \Storage Card

-Or-

Leave the text box empty to install Voice-Enabled Emulation files to the default location on the mobile device.

4 Click **OK**.

Your changes are saved.

Configuring the Speech-to-Text Base Package

Configuring the Speech-to-Text Base package involves accessing the Grammar File Manager (included in the package). The Grammar File Manager allows you to maintain text files that define which words, phrases, and symbols are recognized.

To configure the Speech-to-Text package:

- 1 Right-click the Speech-to-Text Base package in Avalanche Manager or Avalanche MC.

The *Grammar File Manager* dialog box appears.

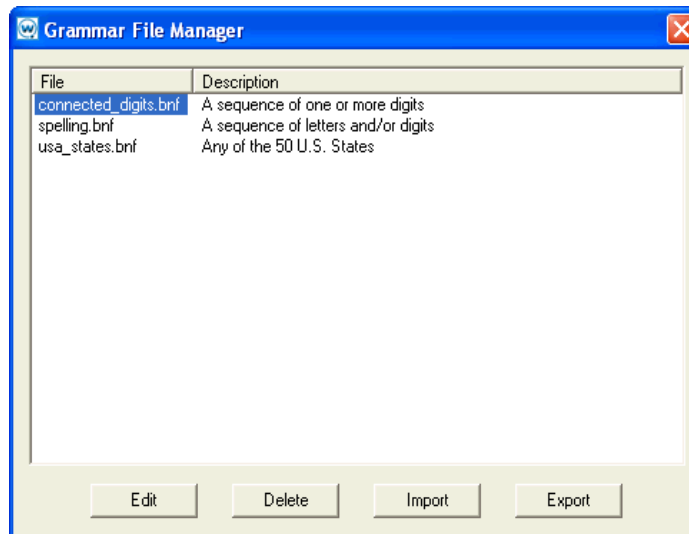


Figure 2-2. *Grammar File Manager*

For information about importing, exporting, and editing Grammar Files, refer to *Nuance VoCon Embedded Development System Development Formalisms* documentation.

NOTE Nuance documents can be obtained from www.wavelink.com, or by contacting Wavelink Customer Service. *Appendix A: Wavelink Contact Information* on page 37 provides Wavelink contact information.

Configuring the Microphone

On some mobile devices, you can calibrate the microphone by setting values that will optimize the speech detection in your current environment. The microphone settings that you select will become the default values for future speech-to-text processing on the mobile device. It is recommended that you calibrate the microphone before initial use.

To configure:

- 1 From the Telnet **Options** menu, select **Configure > Microphone**.

The microphone calibration wizard appears.

NOTE You can also access the wizard by running a script that calls the action. For more information about scripting, refer to *Chapter 3: Voice-Enabled Emulation and Scripting* on page 19.

- 2 Click **OK**.

The *Test Settings* dialog box appears.

- 3 From the **Language** drop-down menu, select the language you will be using for speech-to-text conversion.
- 4 From the **Grammar** drop-down menu, select the grammar you will be using for speech-to-text conversion.

- 5 Click **Next**.

The *Microphone Volume* dialog box appears.

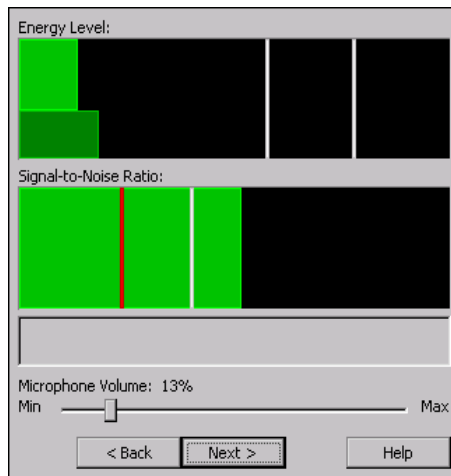


Figure 2-3. *Microphone Volume Dialog Box*

6 Use the **Microphone Volume** slider to adjust the Energy Level.

The Energy Level indicates how much input the microphone is receiving. The highest energy level (indicated by the top, light-green bar) should fall between the two white bars when the user is speaking.

NOTE The Signal-to-Noise ratio will automatically adjust according to the noise level in your environment.

7 Click **Next**.

The *Other Settings* dialog box appears. The **Speech Detection State** indicates whether the speech engine detects the user's speech. When the user is not speaking, the state should be red. When the speech engine detects something that may be speech, the state turns yellow. When the speech engine is certain it is detecting speech, the state turns green.



Figure 2-4. *Speech Detection State*

8 Use the **Absolute Threshold** and **Sensitivity** sliders to adjust the speech detection settings.

The **Absolute Threshold** value indicates the minimum amount of energy required when speech begins. Adjust this value so that the user's speech causes the state to turn yellow immediately, but any background noise causes the state to remain red.

The **Sensitivity** value determines when the speech engine begins detecting a user's speech. A higher sensitivity value means the speech engine will react more easily; a lower value means the speech engine will pick up less background noise.

9 Click **Finish**.

The microphone calibration wizard disappears and the new microphone settings are applied.

Configuring the Speaker

On some mobile devices, you can configure the speaker volume and speed settings. The speaker settings that you select will become the default values for future text-to-speech processing on the mobile device.

To configure:

- 1 From the Telnet **Options** menu, select **Configure > Speaker Volume**.

The speaker settings wizard appears.



Figure 2-5. *Speaker Settings Wizard*

- 2 If desired, enter text in the **Sample Text** text box. Otherwise, use the provided sample text.
- 3 From the **Language** drop-down menu, select the language you will be using for text-to-speech conversion.
- 4 From the **Voice** drop-down menu, select the male or female voice you will be using for text-to-speech conversion.
- 5 Use the **Headset Speaker Volume** slider to adjust the speaker volume.
- 6 If you want additional speaker amplification, enable the **Boost Headset Speaker Volume** dialog box.

NOTE This option is not available on all devices.

- 7 Click **Play Sample** to test your settings. If necessary, you may readjust any of the settings. When the speaker is set to the desired volume, click **Set Rate**.

The speech rate settings screen appears.

- 8 If desired, enter text in the **Sample Text** text box. Otherwise, use the provided sample text.
- 9 From the **Language** drop-down menu, select the language you will be using for text-to-speech conversion.
- 10 From the **Voice** drop-down menu, select the male or female voice you will be using for text-to-speech conversion.
- 11 Use the **Speech Rate** slider to adjust the rate at which the text is played.
- 12 Click **Play Sample** to test your settings. If necessary, you may readjust any of the settings. When the speech is set to the desired rate, click **Done**.

The speaker settings wizard disappears and the new speech settings are applied.

Chapter 3: Voice-Enabled Emulation and Scripting

Voice-Enabled Emulation functions primarily through Telnet Client Scripting. This chapter provides information about the following:

- Scripting
- Voice-Enabled Emulation Scripting Commands
- Voice-Enabled Emulation Settings

Scripting

Use the Telnet Client Script Editor to create and execute scripts that automate Voice-Enabled Emulation processes. For more information about Telnet Client scripting, refer to *Wavelink Telnet Client Scripting Reference Guide*. This section provides the following information:

- Creating Voice-Enabled Emulation Scripts
- Sample Voice-Enabled Emulation Scripts

Creating Voice-Enabled Emulation Scripts

The following steps provide an overview of how you manually create a Voice-Enabled Emulation script. For more detailed information about these steps, refer to *Wavelink Telnet Client Scripting Reference Guide*.

- 1 Name the script.
- 2 Select an activation method.
- 3 Build the script code. In the **Actions** tab, create the code, line-by-line, that describes what you want actions you want the script to perform.

NOTE For actions specific to Voice-Enabled Emulation, refer to *Voice-Enabled Emulation Scripting Commands* on page 22.

- 4 Create any variables that you need for your script in the **Boolean Variables**, **Number Variables**, or **String Variables** tabs.

5 Assign host profiles that can perform the script.

Sample Voice-Enabled Emulation Scripts

This section contains example scripts that perform various Voice-Enabled Emulation functions. You can use the Script Editor to modify and customize these scripts as desired.

For information on using the sample scripts once they have been deployed to a mobile device, refer to *Chapter 4: Using Voice-Enabled Emulation* on page 33.

Play_Screen Sample Script

The following example script converts the current Telnet Client screen into speech that the user can hear.

```
nNumRows=Get_Screen_Rows
nCurrentRow=1
While (Number_Less_Than_Or_Equal (nCurrentRow, nNumRows))
    Speech_From_Text (Get_Screen_Text
        (nCurrentRow, 1), FALSE)
    nCurrentRow=Number_Plus (nCurrentRow, 1)
End_While
Return
```

Get_Number_Test Sample Script

The following example script converts a spoken number into text that displays on the mobile device. This script must be used in conjunction with the Get_Number sample script.

```
Speech_From_Text ("Say a number", FALSE)
Call: Get_Number
    nResult <--> nResult
Ask_OK (Number_To_String_Decimal (nResult),
    "Number Returned")
Return
```

Get_Number Sample Script

The following example script is called by the Get_Number_Test script. It retrieves the appropriate number for the Get_Number_Test script to display.

```
Comment: This script is designed to be called by other
scripts.
Comment: The result of the Speech-to-Text will be in the
nResult variable.
Comment: The number.bnf file must be available as a
grammar file.
```

```

Speech_To_Text(sResult,"number")
nResult=0
While_Not(String_Empty(sResult))
  nNextSpace=String_Find_First(sResult,"",FALSE)
  nResult=Number_Plus(nResult,String_To_Number_Decimal
    (sResult))
  If_Number_Less_Than(nNextSpace,0))
    Break
  End_If
  nNextSpace=Number_Plus(nNextSpace,1)
  sResult=String_Right(sResult,Number_Minus
    (String_Length(sResult),nNextSpace))
End_While
Return

```

Speech_Button_Demo Sample Script

The following example script creates the four buttons on the screen: **Digits**, **State**, **Play Screen**, **Done**. When selected, the buttons allow the user to verbally input data.

For more information about each button and its function, refer to *Using the Speech_Button_Demo Sample Script* on page 34.

```

While_Not(bExit)
  If_Not(bButtonsVisible)
    Button_Create_View("Digits",999,1,6,bGetDigits)
    Button_Create_View("State",999,16,5,bGetState)
    Button_Create_View("PlayScreen",1000,1,11,
      bPlayScreen)
    Button_Create_View("Done",1000,13,4,bExit)
  End_If
  Wait_For_Screen_Update
  If(bPlayScreen)
    bPlayScreen=FALSE
    Button_Remove_All
    bButtonsVisible=FALSE
    Delay(1)

    nNumRows=Get_Screen_Rows
    nCurrentRow=1
    While(Number_Less_Than_Or_Equal
      (nCurrentRow,nNumRows))
      Speech_From_Text(Get_Screen_Text
        (nCurrentRow,1),FALSE)
      nCurrentRow=Number_Plus(nCurrentRow,1)
    End_While
  End_If
End_While

```

```

If (bGetDigits)
  bGetDigits=FALSE
  Button_Remove_All
  bButtonsVisible=FALSE

  Message("Say 1 or more digits...",0)
  szResult=""
  Speech_To_Text (szResult,"connected_digits")
  Message_Clear
  szResult=String_Strip_Characters (szResult,"",FALSE)
  Keypress_String (szResult)
End_If

If (bGetState)
  bGetState=FALSE
  Button_Remove_All
  bButtonsVisible=FALSE

  Message("Say a USA state...",0)
  szResult=""
  Speech_To_Text (szResult,"usa_states")
  Message_Clear
  Keypress_String (szResult)
End_If

End_While
Button_Remove_All
Return

```

Voice-Enabled Emulation Scripting Commands

Use the following commands to create scripts that facilitate Voice-Enabled Emulation. For more information about using scripting commands, refer to *Wavelink Telnet Client Scripting Reference Guide*.

Speech_From_Text_Available

Returns TRUE if text-to-speech is supported on the computer; returns FALSE otherwise.

Speech_From_Text

Converts text into sound and plays the resulting sound on the computer. Returns TRUE if the sound was played successfully; returns FALSE otherwise.

Speech_To_Text_Available

Returns TRUE if speech-to-text is supported on the computer; returns FALSE otherwise.

Speech_To_Text

Returns the text equivalent of a user's speech. Returns an empty string if no acceptable speech was detected. If a grammar is specified, the grammar file with that name is used for speech recognition; otherwise, the previously used grammar file is reused.

Speech_Setting_Available

Identifies speech settings by case-insensitive name strings. Returns TRUE if the speech setting name is supported; returns FALSE otherwise. Refer to *Voice-Enabled Emulation Settings* on page 24 for a list of available setting names.

Speech_Change_Setting

Changes the speech setting to the specified value. Returns TRUE if the specified setting is supported and the value is valid for that setting. Returns FALSE otherwise.

Speech_Get_Setting

Returns the current value for the speech setting. Returns `-1` if the speech setting is not valid.

Speech_Get_Setting_Max

Returns the largest possible value for a speech setting. Returns `0` if only one setting value is supported; returns `-1` if the speech setting is not valid.

Speech_Find_Setting_Value

Searches all possible value descriptions for the speech setting and returns the value of the setting that is the closest match. If "Exact Only" is TRUE, then only exact matches are returned. Returns `-1` if no match is found.

Speech_Get_Setting_Value_Desc

Returns a string that describes the value for the speech setting (this does not need to be the setting's current value). Returns an empty string if the setting or value is not valid.

Speech_To_Text_No_Wait

Returns the text equivalent of a user's speech in a string variable. The boolean variable is set to TRUE when the speech is recognized or times out. If a grammar is specified, the grammar file with that name is used for the speech recognition. If no grammar is specified, the previous grammar file is reused.

Speech_To_Text_Cancel

Returns after canceling the last Speech_To_Text_No_Wait action. Returns immediately if there is no action to cancel.

Speech_To_Text_Get_User_Name

Returns a string with the user name being used by the speech-to-text engine. An empty string is returned if no user name has been assigned.

Speech_To_Text_Change_User_Name

Changes the user name being used by the speech-to-text engine. Returns TRUE if the user name was changed, FALSE if this feature is not supported.

Voice-Enabled Emulation Settings

This section lists the settings supported by Voice-Enabled Emulation. These settings are to be used in conjunction with the preceding scripting commands.

NOTE For definitions of various terms used in this section, refer to the *Glossary* on page 39.

The following information is provided:

- Text-to-Speech Settings

- Speech-to-Text Settings

Text-to-Speech Settings

The following settings are supported by the Text-to-Speech engine:

| | |
|---------------------------|---|
| tts_engine | Indicates the speech engine name. |
| tts_language | Displays the full name of the language currently being used. For example, <i>American English</i> instead of <code>ENU</code> . |
| tts_language_short | Displays the three-letter abbreviation of the language currently being used. |
| tts_language_long | Displays the full name of the language currently being used. |
| tts_voice | Indicates the name of the voice that is currently selected. |
| tts_frequency | Indicates the sampling frequency. Possible Values: 11 KHz, 16 KHz, 22 KHz |
| tts_context | Indicates the processing module (usually text or email). |
| tts_volume | Indicates the sound level. Possible Values: Any number from 50 (silent) to 400 (loudest) Default Value: 100 |
| tts_rate | Indicates the speed level. Possible Values: Any number from 0 (slowest) to 99 (fastest) |
| tts_readmode | Indicates how text should be separated. Possible Values: Sentence, Character, Word, Line |

| | |
|-----------------------|--|
| tts_waitfactor | Indicates the length of the pause between messages. Possible Values: 0 milliseconds (ms), 200 ms, 400 ms, 600 ms, 800 ms, 1000 ms, 1200 ms |
| tts_calibrate | Opens the speaker volume calibration wizard. |

Speech-to-Text Settings

The following settings are supported by the Speech-to-Text engine:

| | |
|---------------------------|---|
| stt_domain | Indicates the situation in which speech-to-text is being used. Possible Values: Car, Mobile |
| stt_language | Displays the three-letter abbreviation of the language currently being used. |
| stt_language_short | Displays the three-letter abbreviation of the language currently being used. |
| stt_language_long | Displays the full name of the language currently being used. For example, <i>American English</i> instead of <i>ENU</i> . |
| stt_frequency | Displays the sampling frequency. Possible Values: 8KHz, 11KHz, 16KHz |
| stt_size | Displays the size of the speech-to-text engine being used. Possible Values: Full, Compact, Ultra Compact |
| stt_timeout | Indicates the total milliseconds (ms) for the system to wait before responding to the speaker. |

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| stt_idle_timeout | <p>Indicates the total milliseconds (ms) for the engine to continue collecting results following the last result or <code>stt_timeout</code>.</p> <p>If any changes (settings, grammar, etc.) are made during the <code>stt_idle_timeout</code> period, the results generated during the period will be discarded.</p> <p>Default Value: 10000 ms (10 seconds)</p> |
| stt_silence | <p>Indicates milliseconds (ms) of silence used to indicate the user is done speaking.</p> |
| stt_fx_silence | <p>Indicates the milliseconds (ms) of silence used to indicate the user is done speaking.</p> |
| stt_expanded | <p>If this setting is <code>1</code>, Speech-to-Text actions return a string with each likely Speech-to-Text result, followed by a newline character, the confidence value for the result, and another newline character.</p> <p>There may be more than one result returned; however, the first result is the one with the highest confidence value. You can use this information to determine the appropriate <code>sst_threshold</code> and <code>sst_confidence</code> values.</p> <p>Possible Values: 1(enabled), 0 (disabled)</p> <p>Default Value: 0 (disabled)</p> |

stt_confidence

Indicates the minimum amount of difference between the confidence for the most likely and next-most likely items that will be accepted.

If the difference is less than the set value, the result will be discarded and the Speech-to-Text action will report that it failed.

Default Value: 1

NOTE You may want to use different values for different grammars.

stt_fx_detect_start

Indicates the action the speech engine should take before attempting to determine what the user is saying. If the setting is 1, the speech engine will wait until it detects the user is speaking; if the setting is 0, the speech engine will expect that the user should start speaking immediately.

Possible Values: 1 (enabled), 0 (disabled)

Default Value: 1 (enabled)

stt_threshold

Indicates the minimum amount of confidence for the most-likely result that will be accepted.

If the confidence is less than the set value, the result will be discarded and the Speech-to-Text action will report that it failed.

Default Value: 4500

NOTE You may want to use different values for different grammars.

| | |
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| stt_fx_threshold | <p>Indicates the amount of energy the microphone input must have before the speech detection (<code>stt_fx_detect_start</code>) is activated.</p> <p>Possible Values: 0 (-72dB) to 9000 (18dB)</p> <hr/> <p>NOTE Each increase of 100 is equal to 1dB.</p> <hr/> <p>Default Value: 2200 (-50dB)</p> |
| stt_save_threshold | <p>Directs the speech engine to save the state if the result confidence is greater than the result confidence for <code>stt_threshold</code> and <code>stt_save_threshold</code> combined.</p> <p>Default Value: 1000</p> |
| stt_fx_min_duration | <p>Indicates the minimum duration (in ms) of speech before speech detection is activated. The speech must also have the amount of energy required by the <code>stt_fx_threshold</code> setting.</p> <p>Possible Values: 10ms - 400 ms</p> <p>Default Value: 60ms</p> |
| stt_fx_sensitivity | <p>Indicates the speech detection sensitivity. A higher value means speech is more easily detected .</p> <p>Possible Values: Any number from 0 to 100</p> <p>Default Value: 50</p> |
| stt_volume | <p>Indicates the current volume of the microphone input.</p> <p>Possible Values: Any number from 0 (lowest) to 100 (highest)</p> <hr/> <p>NOTE This setting is not supported by all mobile devices.</p> <hr/> |

stt_calibrate Opens the microphone calibration wizard.

stt_grammar_optimize Indicates the action the speech engine should take when a grammar is loaded. If the setting is 1, the speech engine will attempt to optimize the grammar when it is loaded.

Possible Values: 1 (on), 0 (off)

Default Value: 1 (on)

NOTE It is recommended that you enable this setting unless you have a complicated grammar that is not working correctly.

stt_grammar_phonetic Indicates whether the grammar is allowed to contain information on phonetic transcription of words.

NOTE If you do not need this feature, it is recommended that you turn it off to save memory.

Possible Values: 1 (on), 0 (off)

Default Value: 1 (on)

stt_grammar_nonterminal Indicates whether an error will be generated if a non-terminal is found in the definition section of any modifiable rule.

NOTE If you do not need this feature, it is recommended that you turn it off to save memory.

Possible Values: 1 (on), 0 (off)

Default Value: 0 (off)

stt_context_optimize Indicates the action the speech engine should take when a grammar is loaded. If the setting is 1, the speech engine will attempt to optimize the grammar context when it is loaded.

Possible Values: 1 (on), 0 (off)

Default Value: 1 (on)

NOTE It is recommended that you enable this setting unless you have a complicated grammar that is not working correctly.

stt_processing Indicates the action the speech engine should take when returning a grammar result. If the setting is 1, the speech engine will return the semantic result (if available) instead of the actual phrase spoken by the user.

Possible Values: 1 (on), 0 (off)

Default Value: 1 (on)

NOTE This setting is useful for grammars that incorporate bracket ({ }) directives.

stt_save_session_delay Indicates the total milliseconds (ms) for the speech engine to wait before saving the next current state. The speech engine will save regularly, allowing it to adapt to the speaker and revert back to a saved state if necessary.

Default Value: 30000 ms (30 seconds)

stt_reset_session_delay Indicates the total milliseconds (ms) for the speech engine to wait for a valid response before reverting back to the last saved state. This prevents the performance from degrading if the user does not speak for a long period of time.

Default Value: 120000 ms (2 minutes)

stt_special_sounds Indicates how the speech engine should interpret special sounds. If the setting is 1, the speech engine will examine sounds to determine if they are more likely to correspond to a special sound (empty pauses, coughing, etc.) than a valid grammar result.

Possible Values: 1 (on), 0 (off)

Default Value: 0 (off)

NOTE If your grammar consists mostly of multi-syllable words or phrases, enabling this setting will result in fewer low-confidence results. However, enabling this setting may result in one- or two-syllable words (such as “yes,” “two,” etc.) being rejected.

Chapter 4: Using Voice-Enabled Emulation

This chapter provides information about using Voice-Enabled Emulation with the example scripts described in *Chapter 3: Voice-Enabled Emulation and Scripting* on page 19. The following information is provided:

- Using the Play_Screen Sample Script
- Using the Get_Number_Test Sample Script
- Using the Speech_Button_Demo Sample Script

Using the Play_Screen Sample Script

The Play_Screen script converts the mobile device's current Telnet Client screen into speech that the user can hear.

To use the Play_Screen script:

- 1 Launch the Telnet Client.
- 2 From the **Term** menu, select **Scripting > Execute Script**.

The *Select Script* dialog box appears.

- 3 Select **Play_Screen** and click **OK**.

The text is read back to the user.

Using the Get_Number_Test Sample Script

Using the Get_Number_Test script, the mobile device requests the user to speak a number. The number then displays on the mobile device screen.

To use the Get_Number_Test script:

- 1 Launch the Telnet Client.
- 2 From the **Term** Menu, select **Scripting > Execute Script**.

The *Select Script* dialog box appears.

- 3 Select **Get_Number_Test** and click **OK**.

- 4 The mobile device requests, "Say a number."
- 5 Clearly speak any number (one through ten).

The *Number Returned* dialog box appears, displaying the number you indicated.

Using the **Speech_Button_Demo** Sample Script

The `Speech_Button_Demo` script creates the following buttons on the mobile device screen:

- Digits
- State
- Play Screen
- Done

The **Digits** and **State** buttons allow the user to input a verbal response which is then displayed on the screen. The **Play Screen** button causes the mobile device to read back all the text on the screen, and the **Done** button allows the user to exit the script.

To use the **Speech_Button_Demo** script:

- 1 Launch the Telnet Client.
- 2 From the **Term** menu, select **Scripting > Execute Script**.

The *Select Script* dialog box appears

- 3 Select **Speech_Button_Demo** and click **OK**.

Four buttons appear on the screen.

- 4 Select the **Digits** button.

The "Say 1 or more digits" message appears.

- 5 Clearly speak any number.

NOTE To enter numbers higher than ten, you must speak each number individually. For example, if you want to enter the number 157, you would say “one, five, seven” rather than “one hundred fifty seven.”

The number displays on the mobile device.

- 6** Select the **State** button.

The “Say a U.S.A. state...” message appears.

- 7** Clearly speak the name of any state.

The state name displays on the mobile device.

- 8** Select the **Play Screen** button.

The mobile device responds with the contents of the screen.

- 9** To exit the script, select the **Done** button.

Appendix A: Wavelink Contact Information

If you have comments or questions regarding this product, please contact Wavelink Customer Service via e-mail or telephone.

Email: customerservice@wavelink.com

Phone: 1-888-699-WAVE (9283)

Glossary

| | |
|-------------------------------|--|
| Action | A single step taken by the scripting engine. |
| Confidence | The degree of certainty that the word or phrase recognized by the speech engine matches the word or phrase spoken by the user. |
| Context | A series of rules that determines which sounds are to be recognized by the speech engine. |
| dB | Abbreviation of decibel. |
| Dictionary | A list of words and associated transcriptions. |
| Directive | A word that has a special meaning to the grammar compiler. Directives are composed of an exclamation mark (!) followed by a word. For example, ! language. |
| Grammar | A structured list of words and phrases that are governed by rules and can be recognized by the speech engine. |
| MS | Abbreviation of milliseconds. |
| Non-Terminal | A symbol that represents another set of symbols within a grammar. |
| Optimize | The process of modifying a grammar to make it work more efficiently. |
| Phonetic Transcription | A transcription intended to represent each distinct speech sound with a separate symbol. |
| Result | The return value of a function. |
| Return | A statement that ends the processing of the current function and returns control to the calling function, with or without a return value. |

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| Sampling Frequency | The rate at which a sample is taken from a sound. |
| Semantic Result | A value returned by a grammar rule when a user's speech matches the rule. |
| SNR | Abbreviation of signal-to-noise ratio. |
| Speech Engine | The component of Voice-Enabled Emulation that processes the audio streams that pass between the speech application and the user. |
| String | An ordered sequence of symbols chosen from a predetermined set. |
| STT | Abbreviation of speech-to-text. |
| Telnet | A TCP/IP utility used for terminal emulation, which allows a client to connect to and interact with a remote host system. |
| TTS | Abbreviation of text-to-speech. |

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