

Mitel MiContact Center Enterprise

NUANCE SOFTWARE INSTALLATION GUIDE (ASR & TTS)

Release 9.3 SP2



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Nuance Software Installation Guide
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Introduction

This document describes the installation process for Nuance software that is used with Open Application Server (OAS).

In OAS, Automatic Speech Recognition (ASR) and Text-to-Speech (TTS) functionality is provided by:

- Nuance 9 (ASR)
- Nuance Vocalizer fir Network 5.0 (TTS)

ASR and TTS

ASR and TTS software can be installed on multiple servers for load sharing and balancing purposes. If only ASR software is needed, there is no need to install the TTS software. When needing to reinstall or upgrade the ASR software; follow the instructions related to ASR software.

To use TTS, both ASR and TTS software must be installed on each of the servers that are meant to provide TTS services. When needing to reinstall or upgrade the TTS software; follow the instructions relating to both ASR and TTS software.

Supported Languages

Supported ASR and TTS languages are distributed on the OAS ASR/TTS Media Kit disks.

Nuance Recognizer ASR Languages

The following table lists the ASR languages included on the Media Kit.

Languages	Disk	Languages	Disk
Dutch-Belgium	2	Portuguese-Portugal	3
Danish-Denmark	1	Spanish-Spain	3
Finnish-Finland	1	Turkish-Turkey	3
Norwegian-Norway	1	Australian-English	4
Russian-Russia	1	English-Singapore	4
Swedish-Sweden	1	French-Canada	4
Czech-Czech Republic	2	Portuguese-Brazilian	4
English-UK	2	Spanish-Argentina	4
French-Belgium	2	Spanish-Colombia	4
French-France	2	US-English	4

Languages	Disk	Languages	Disk
German-Austria	2	US-Spanish	4
German-Germany	2	Arabic-WorldWide	5
German-Switzerland	2	Cantonese-Hong_Kong	5
Polish-Poland	2	Indian-English	5
Basque-Spain	3	Japanese-Japan	5
Catalan-Spain	3	Korean-Korea	5
Dutch-Netherlands	3	Mandarin-China	5
Greek-Greece	3	Mandarin-Taiwan	5
Italian-Italy	3		

Nuance Vocalizer TTS Languages

The following table lists the supported Nuance Vocalizer TTS languages.

Note: Not all supported TTS languages are included on the Media Kit. To obtain additional languages, please contact Mitel support for assistance.

Languages	Disk	Languages	Disk
Danish-Denmark-Ida	1	Italian-Italy-Paulo	3
Finnish-Finland-Mikko	1	Italian-Italy-Silvia	3
Norwegian-Norway-Stine	1	Portugese-Portugal-Joana	3
Russian-Russia-Milena	1	Spanish-Spain-Diego	3
Swedish-Sweden-Alva	1	Spanish-Spain-Monica	3
Swedish-Sweden-Oskar	1	Turkish-Turkey-Aylin	3
British-English-Daniel	2	Australian-English-Karen	4
British-English-Serena	2	Australian-English-Lee	4
Czech-Czech_Republic-Zuzana	2	Canadian-French-Felix	4
Dutch-Belgium-Ellen	2	Canadian-French-Julie	4
France-French-Thomas	2	Mexican-Spanish-Javier	4
France-French-Virginie		Mexican-Spanish-Paulina	4
German-Germany-Anna	2	Portugese-Brazil-Raquel	4
German-Germany-Yannick	2	SouthAfrica-English-Tessa	4

Languages	Disk	Languages	Disk
Irish-English-Moira	2	UnitedStates-English-Jill	4
Polish-Poland-Agata	2	UnitedStates-English-Tom	4
Scottish-English-Fiona	2	Arabic-WorldWide-Maged	5
Basque-Spain-Arantxa	3	Cantonese-Hong_Kong-Sin-Ji	5
Dutch-Netherlands-Claire	3	Indian-English-Sangeeta	5
Dutch-Netherlands-Xander	3	Japanese-Japan-Kyoko	5
Greek-Greece-Alexandros	3	Korean-Korea-Narae	5
Italian-Italy-Paulo	3	Mandarin-Chinese-Ting-Ting	5
Dutch-Netherlands-Xander	3	Mandarin-Taiwan-Ling	5
Greek-Greece-Alexandros	3		

Deployment Scenarios

It is recommended to install Nuance Speech Server on a separate server as it consumes a lot of CPU usage and memory. The following to deployments can be used:

Single Server and Multiple Clients

In this deployment, only one Nuance Speech Server is installed, and multiple clients (IPMS inside OAS server and standalone IPMS servers) connect to it for sending ASR and TTS requests.

Single Server and Single Client

In this deployment, only one Nuance Speech Server is installed, and only one client (IPMS inside OAS server or standalone IPMS server) connects to it for sending ASR and TTS requests.

Installation Preparation

Before installing the Nuance software, make sure the following is true:

- You have local administrator privileges.
- You have access to the OAS ASR and TTS Media Kit.
- There is no previously installed ASR or TTS software.

If a previous version of the software exists, remove it.

Removing Previous Versions of Nuance Software

Any existing installation of the following software needs to be removed:

- Nuance 8.5
- Nuance Additional ASR Languages
- Nuance Vocalizer 4.0
- ScanSoft RealSpeak 3.5
- TTS Language Voices

To check if previous versions of the software exist, do the following:

1. Go to **Start > Settings > Control Panel**, and then click **Add/Remove Programs**.

If any of the programs listed above appears in the list of programs, a previous version of that software is installed.

To uninstall previous versions of Nuance software, do the following:

1. Close all applications.
2. Shut down OAS by double-clicking the `OASShutDown.exe` application located in the `Mitel\OAS\Bin` folder.
3. From the **Start** Menu, select **Settings > Control Panel > Services**.
4. When the Services applet opens, select the **Nuance Watcher Daemon** service and click the **Stop** button on the tool bar.
5. On the **Start** menu, select **Settings > Control Panel. > Add/Remove Programs**.
The Control Panel screen appears.
6. Click the software to remove (for example Nuance v8.5).
7. Click **Change/Remove** to remove the previous version of software.
8. Click **Yes** to confirm.
The system removes the software.
9. Repeat steps 6 to 8 for each software package with older version.
10. Restart the system.

Installing Nuance Software

To initiate installation of Nuance software, do the following:

1. Close all applications.
2. Insert one of the five ASR/TTS Resources DVDs (for information on which languages are included in which DVD, see the tables above).
3. A Package browse with installation steps and links to installation wizards launches.
4. Go through the steps in the splash screen.

Each of the steps are described in more detail in the following sections.

Installing Nuance License Manager

To install the Nuance License Manager, do the following:

1. Click the Nuance License Manager link from the splash screen. An installation wizard for Nuance License Manager launches.
2. Wait for the wizard to prepare the installation, then follow the instructions given in the wizard.
 - If you want to install Nuance License Manager in a different folder than the one suggested by the wizard, click **Change...** and specify the desired installation folder.

Installing and Configuring Licenses for Recognizer and Vocalizer using Nuance License Manager

When Nuance License Manager has been installed, licenses for Recognizer and Vocalizer are configured using Licensing Tools. Do the following:

1. Launch the tool by clicking **Start > Programs > Nuance License Manager**, and then **Licensing Tools**.
2. Select the **Config Services** tab. This tab contains service configuration settings.
3. Click **Browse** for the Path to the license file, and specify the license file to be used.

The Path to the license file is Program Files\Nuance\license_manager\license and the license file to be used is 500voc5-500nr9-201009090221.lic
4. When the license file is selected, click **Save Service**. A confirmation dialog appears.
5. Click **Yes**.
6. Close the tool application.
7. Restart **NuanceLicensingService** from Windows Service Control Manager.

Installing Nuance Recognizer

To install Nuance Recognizer, do the following:

1. Initiate the Nuance Recognizer Engine installation by clicking the link in the splash screen.
An installation wizard launches.
2. Follow the instructions in the wizard. A
 - Accept the license agreement.
 - If you want to install Nuance Recognizer in a different folder than the one suggested by the wizard, click **Change...** and specify the desired installation folder.
3. When installation is complete, an information message is displayed, indicating that a restart is needed. Select **No**; you can restart the system when all components have been installed.

Installing Nuance Recognizer Language Pack

At least one language pack needs to be installed for Nuance Recognizer.

To install a language pack, do the following:

1. Initiate the wanted language pack installation by clicking the link from the splash screen.
An installation wizard launches.
2. Follow the instructions in the installation wizard.

Validating Recognizer Installation on Windows

To validate the Recognizer installation on Windows, do the following:

1. Install License Manager and validate the installation.
2. Install a valid Nuance Recognizer license.
3. Install Nuance Recognizer and the en-US language pack.
4. Configure Nuance Recognizer to check out a number of licenses less than, or equal to, the number authorized by the license file that was just installed.
5. Open a command window and change directories to C:\Program Files\Nuance\Recognizer\samples\swirec_sample
6. Run the SWIrecSample application from the command line using the following command:
SWIrecSample
7. Check XML recognition results in the output log to confirm that speech recognition occurred.

Example:

Run the SWIrecSample from the command prompt and redirect the output to LOG.txt file.

```
SWIrecSample > LOG.txt
```

The output file (LOG.txt) containing the XML result, is generated in the folder 'C:\Program Files\Nuance\Recognizer\samples\swirec_sample'

The generated LOG.txt file should contain all "SUCCESS" messages and no error messages in XML recognition results. It confirms the speech recognition occurred.

Installing Nuance Vocalizer for Network for TTS

Nuance Vocalizer components are found in the TTS - Software Components section of the splash screen. To install Nuance Vocalizer for Network, do the following:

1. Initiate the installation by clicking the Nuance Vocalizer Network link from the splash screen. An installation wizard launches.
2. Wait for the wizard to prepare the installation, and then follow the instructions given in the wizard.

If you want to install Nuance Vocalizer in a different folder than the one suggested by the wizard, click **Change...** from the Custom setup dialog, and specify the desired installation folder.

Installing Nuance Vocalizer Voice Pack for TTS

To install a voice pack for TTS, do the following:

1. Initiate the language pack installation wanted by clicking the link in the splash screen. An installation wizard launches.
2. Wait for the wizard to prepare the installation, then follow the instructions given in the wizard.

Validating Vocalizer Installation on Windows

To validate the Vocalizer installation, do the following:

1. Run the sample application that is installed with Nuance Vocalizer for Networks by clicking: **Start > Programs > Nuance Vocalizer for Networks 5.0 > Nuance Vocalizer for Networks Demo Program.**
2. In the Demo tool, type your test text, then use the **Play** button or **Read** option from menu bar.

The **Play** button automatically plays the test text and the **Read** option creates a wav file that contains the TTS message.

Installing Nuance Speech Server

To install Nuance Speech Server, do the following:

1. Initiate the installation by clicking the Nuance Speech Server link from the splash screen. An installation wizard launches.

Note: The wizard that launches depends on whether the Apache HTTP server is installed on the local computer or not. The Apache HTTP server is needed prior to Nuance Speech server installation. If already installed, continue directly to step 4.

2. If the Apache HTTP server is not installed, this is indicated. Click **Install** and an installation wizard for Apache HTTP server launches.
3. Follow the instructions in the Apache HTTP server installation wizard.
 - In the Select Type dialog, select Typical.
 - If you want to install Apache HTTP server in a different folder than the one suggested by the wizard, click **Change...** and specify the desired installation folder.
4. When the Apache HTTP server is installed, an installation wizard for Nuance Speech Server launches. Follow the instructions in the wizard.
 - If you want to install Nuance Speech Server in a different folder than the one suggested by the wizard, click **Change...** and specify the desired installation folder.
 - The default web server port (90) is recommended. Change to another port if wanted.
5. When installation is complete, a Nuance Speech Server Installer Information dialog appears, prompting a system restart. Click **Yes** to restart.
6. After reboot, change the start-up type to Automatic for Nuance Speech Server service in Service Control Manager.

Installing Nuance Speech Server Client

To install the Nuance Speech Server client, do the following:

1. Initiate the installation by clicking the Nuance Speech Server link from the splash screen. An installation wizard launches.
2. Wait for the wizard to prepare the installation, then follow the instructions given in the wizard.
 - If you want to install Nuance Speech Server client in a different folder than the one suggested by the wizard, click **Change...** and specify the desired installation folder.

Validating Nuance Speech Server Installation Using NSS Client

Validation of the Nuance Speech Server installation can be divided as follows:

- Connectivity and messaging
- Text-to-speech
- Commands for running the sample client application

Testing Essential Connectivity and Messaging

To test connectivity and messaging, run the client with the script named `demo.mrcp`. This is a script executing basic recognition using built-in grammars on the server. Do the following:

1. On the client machine, open a command prompt window.
2. Change to the scripts subdirectory of the MRCP test client application. By default the directory is: `c:\Program Files\Nuance\Speech Server\client\scripts`.
3. Type the following command:

```
..\bin\client.exe -s localhost -p 5060 demo.mrcp.
```
4. It will create "`demo-mrcpv1.log`" file. Here will see the MRCP "RECOGNITION COMPLETE" message indicating "success" followed by the XML result. It is the indication of SUCCESS for this test. If this file did not contain an XML result, then that would indicate FAILURE for this test.

Testing Text-To-Speech

When a Vocalizer voice has been configured on a Speech server, test the TTS installation by running a script on the sample client. Do the following:

1. On the client machine, open a command prompt window.
2. Change to the scripts subdirectory of the MRCP test client application. By default the directory is: `c:\Program Files\Nuance\Speech Server\client\scripts`.
3. Run the following command

```
...\bin\client.exe -s localhost -p 5060 demoPrompt.mrcp -o
```

The system creates new files "`demoPrompt.ulaw`" and "`demoPrompt.log`" files. The "`demoPrompt.ulaw`" should have a file size of approximately 94 KB to indicate that the test has SUCCEEDED. If this file is not created, or if it is created but with a file size of zero bytes, then that would indicate FAILURE for this test.

Commands for Running the Sample Client Application

In addition to testing installations using the demo script provided by Nuance, application developers can write their own scripts to test the Speech Server software. A command to run the program is:

```
client.exe -k num_runs -s server -p port script
```

For more information on available options, run `client.exe` with the option `-h`.

Note: As the above command could be used by developers using their own script to test the speech sever functionality, hence in that case we cannot predict the result.

Configuring the Nuance Speech Server

OAS uses customized configuration settings for Recognizer, Vocalizer, and Nuance Speech server. Configuration files are provided with the ASR and TTS Media Kit.

Do the following:

1. Replace the installed NSServer.cfg (<Nuance Installation Directory>\Program Files\Nuance\Speech Server\Server\config) with the corresponding file from the Media Kit.
2. Replace the installed Baseline.xml (<Nuance Installation Directory>\Program Files\Nuance\Recogn- nizer\config) with the corresponding file from the Media Kit.
3. Replace the installed ttsrshclient.xml (<Nuance Installation Directory>\Program Files\Nuance\Nuance Vocalizer for Network 5.0\config) with the corresponding file from the Media Kit.
4. Reboot the Nuance Speech server.

Migrating Nuance 8.5 Grammar to Nuance 9.0

Nuance 9.0 provides the `convert_gsl` utility to migrate GSL grammar used in Nuance 8.5 into Grxml format supported with Nuance 9.0. Following is an example command to be used for converting grammar.

Example:

```
convert_gsl - file customer.grammar -lang en-US
```

Nuance 9.0 provides the `sgc` utility to compile the grammar and return the gram file.

Example:

```
sgc - train customer.grxml
```

Note: It is recommended to compile and store all grammar used for recognition on the Nuance server. The absolute path to the Grammar file is needed in the recognition request.

Example:

```
file:/c:/Program Files/Nuance/User_Grammar/customer.grxml
```

Note: When using Nuance 9.0, there is no longer needed to configure ASR packages in OAS

See below for information on how to make a recognize request using ETPAPITool and MiCC Enterprise Script Manager.

ETPAPITOOL:

Recognize

Connection Id.
Device Id. BVD Call Id. 62891141

Grammar D:\Grammars\GRXML\YesNo.grxml

Timeouts
Initial 5000
Final 5000
Maximum 5000

Num. of Results 1

Logging 0

Message Id. 0

☐ Interrupt Play ☐ Flush Buffer

Play List
TS=Hello;

OK Cancel

Script Manager ASR block:

The path of the grammar file is specified in the Vocabulary field of the Settings tab (i.e. "Vocabulary" parameter must be the path of the (root) GRXML file)

Error Condition	No. of Retries	1st Message	2nd Message	3rd Message
No Response:	1	9990		
Not Recognized:	1	9989		
Max. Speech:	1	9989		
Unexpected Digit:	1	9989		
Recognition Too Slow:	1	9989		
Speech Too Early:	1	9989		

Updating Scripts when Migrating from Nuance 8.5 to Nuance 9.0

When migrating from Nuance 8.5 to Nuance 9.0, the Scripts Manager scripts have to be updated for ASR to work. The slot and keywords in the Nuance ASR detection result have changed, as well as the way to use them in the NLBranch block.

The values for the Name and Values fields of the NL Branch block depend on how the grammar is built.

Example:

- If the grammar used specifies tags with returned values like the below:
`<tag>out.answer='yes'</tag>` and `<tag>out.answer='no'</tag>`.
- In this case, the NL Branch block must be configured as depicted in the screenshot below

Value	
1	"yes"
2	"no"
3	
4	
5	
6	
7	
8	
9	
10	

Note: NL Branch block requires the presence of the `swirec_extra_nbest_keys` parameters in the `Baseline.xml` configuration file. These parameters are present by default. For more information refer to the *VoiceXML Script Manager User Guide*.

The following examples illustrate the differences between Nuance 8.5 and Nuance 9.0.

Example of ASR result for Nuance 8.5:

RecognizeEnded...

Device=bvd10606, CallId=01734 6975, #Results=1, cause=44
cause=ETP_MEC_SUCCESSFUL

Speech Result#=1, speech=dial paul, score=67,
#ofinterpretations=1

Interpretation#=1, #ofNL Result=2
NL Result#=1, slot=command, slotvalue=dial, score=0
NL Result#=2, slot=person, slotvalue=paul, score=0

Arrival Time=2011/9/16 14:37:58.822

M.XRefID=1. ETPUNSOLICITED : ETP_RECOGNIZE_ENDED

Example of ASR result for Nuance 9.0:

RecognizeEnded...

Device=b15104,CallId=0000001 68, #Results=2, cause=44
cause=ETP_MEC_SUCCESSFUL

Speech Result#=1, speech=dial paul, score=3,#ofinterpretations=1

Interpretation#=1, #ofNL Result=1

NL Result#=1, slot=command, slotvalue=dial person:paul, score=0

Speech Result#=2, speech=dial home, score=1,#ofinterpretations=1

Interpretation#=1, #ofNL Result=1

NL Result#=1, slot=command, slotvalue=dial place:home, score=0

Arrival Time=2011/9/16 14:54:55.465

M.XRefID=2. ETPUNSOLICITED : ETP_RECOGNIZE_ENDED

Example of NLBranch for Nuance 8.5:

slotname:person, slotvalue:paul

Example of NLBranch for Nuance 9.0:

slotname:command, slotvalue:dial person:paul

