



A MITEL
PRODUCT
GUIDE

MiContact Center Enterprise

Nuance Software Installation Guide (ASR & TTS)

Release 9.6

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Notices

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Introduction

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

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

- Nuance Speech Suite 11, which consists of:
 - Nuance License Manager
 - Nuance 11 (ASR)
 - Nuance Vocalizer for Network 7 (TTS)
 - Nuance Management Station

Nuance SW download

There are three packages of Nuance SW available for MiCC Enterprise at the SW download (SWDL) site on the MiAccess portal:

1. The base Nuance Speech Server (NSS) 11 package. This includes SW and Nuance documentation in order to install the NSS server, Recognizer and Vocalizer. It also includes the US English ASR and TTS language files.
2. Nuance Recognizer package. This includes the Recognizer 10 languages for:
 - a. ar-WW_Arabic-WorldWide
 - b. ca-ES_Catalan-Spain
 - c. da-DK_Danish-Denmark
 - d. de-AT_German-Austria
 - e. de-CH_German-Switzerland
 - f. de-DE_German-Germany
 - g. en-AU_English-Australia
 - h. en-GB_English-United Kingdom
 - i. en-US_English-United States
 - j. es-ES_Spanish-Spain
 - k. eu-ES_Basque-Spain

- l. fi-FI_Finnish-Finland
 - m. fr-BE_French-Belgium
 - n. fr-CA_French-Canada
 - o. fr-FR_French-France
 - p. it-IT_Italian-Italy
 - q. nl-BE_Dutch-Belgium
 - r. nl-NL_Dutch-Netherlands
 - s. no-NO_Norwegian-Norway
 - t. pl-PL_Polish-Poland
 - u. pt-BR_Portuguese_Brazil
 - v. ru-RU_Russian-Russian Federation
 - w. sv-SE_Swedish-Sweden
3. Nuance Vocalizer Packages. The following languages and voices are included:
- a. ar-WW_Arabic-WorldWide
 - i. Female voice Laila
 - ii. Male voice Tarik
 - b. ca-ES_Catalan-Spain
 - i. Female voice Montserrat
 - ii. Male voice Jordi
 - c. da-DK_Danish-Denmark
 - i. Female voice Sara
 - ii. Male voice Magnus
 - d. de-DE_German-Germany
 - i. Female voice Petra

-
- ii. Male voice Markus
 - e. en-AU_English-Australia
 - i. Female voice Karen
 - ii. Male voice Lee
 - f. en-GB_English-British-English
 - i. Female voice Stephanie
 - ii. Male voice Oliver
 - g. en-US_English-United States (also included in NSS SW package)
 - i. Female voice Zoe
 - ii. Male voice Nathan
 - h. es-ES_Spanish-Spain
 - i. Female voice Monica
 - ii. Male voice Jorge
 - i. eu-ES_Basque-Spain
 - i. Female voice Miren
 - j. fi-FI_Finnish-Finland
 - i. Female voice Satu
 - ii. Male voice Onni
 - k. fr-FR_French-France
 - i. Female voice Aurelie
 - ii. Male voice Thomas
 - l. it-IT_Italian-Italy
 - i. Female voice Paola
 - ii. Male voice Luca

- m. nl-BE_Dutch-Belgium
 - i. Female voice Ellen
- n. nl-NL_Dutch-Netherlands
 - i. Female voice Claire
 - ii. Male voice Xander
- o. no-NO_Norwegian-Norway
 - i. Female voice Nora
 - ii. Male voice Henrik
- p. pl-PL_Polish-Poland
 - i. Female voice Zosia
 - ii. Male voice Krysztof
- q. pt-BR_Portuguese_Brazil
 - i. Female voice Luciana
 - ii. Male voice Felipe
- r. ru-RU_Russian-Russian Federation
 - i. Female voice Milena
 - ii. Male voice Yuri
- s. sv-SE_Swedish-Sweden
 - i. Female voice Alva and Klara
 - ii. Male voice Oskar

If another language or TTS voice is needed, then contact Mitel Support to have it downloaded from the Nuance partner portal. For a complete list of languages and TTS voices use the links provided in the section SUPPORTED LANGUAGES below.

ASR and TTS

The Speech Suite installer includes one language and one text-to-speech voice. To install an ASR and a TTS language on a single server during the NSS installation copy the extracted language installation packages under the `install_language` folder in the `setup_files` folder prior to running the NSS installer. By default the US English ASR and TTS packages are located there.

At any time in the future you can add more languages and voices by installing them separately, without using the Speech Suite installer.

ASR and TTS software can be installed on multiple servers for load sharing and balancing purposes.

Supported Languages

Nuance Recognizer ASR Languages

Nuance Recognizer features 86 languages and dialects around the world for your Automatic Speech Recognition (ASR) self-service systems. The list included many dialects of English, Spanish, French, German and others like Swedish, Arabic Danish, Finnish and Norwegian. A complete list of these can be found [here](#).

Nuance Vocalizer 7 TTS Languages

The standard library offers 53 languages/dialects and 120 voices, 20 of which are multi-lingual. A complete list of these can be found [here](#).

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 or TAS server(s)) 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, standalone IPMS server or single TAS 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 Nuance installation SW.
- There is no previously installed Nuance software on the server

If a previous version of the software exists, it has to be un-installed first.

Removing Previous Versions of Nuance Software

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

- Nuance 8.5, 9.0 or 10.0
- Nuance Additional ASR Languages
- Nuance Vocalizer
- ScanSoft RealSpeak (only present if Nuance 8.5 was installed)
- 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.
2. 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, or shutdown the TAS server(s) if your system is TAS based

-
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.
 6. The Control Panel screen appears.
 7. Click the software to remove (for example Nuance v8.5).
 8. Click **Change/Remove** to remove the previous version of software.
 9. Click **Yes** to confirm.
 10. The system removes the software.
 11. Repeat steps 6 to 8 for each software package with older version.
 12. Restart the system.

Installing Nuance Software

Prepare Server

Extract the downloaded file 'Nuance_Speech_Suite-11.0.10-x86_64-windows.zip' to a temp folder.

Firewall should be turned off.

Ensure that 8.3 file naming is enabled if installing on other than boot drive (C:).

Install VC++ 2015-2019 by running *vc_redist.x64.exe* in the *2015-2019 VC++ runtime* folder.

NOTE: Carefully follow the instructions in the *Nuance_Speech_Suite-11.0.10-Installation_Guide.pdf* guide that is included together with the NSS installation package. Also carefully note the supported versions of the 3rd party components as stated in the *NSS 11.10 Release Notes.html* document.

Install Java JDK

Run *zulu8.66.0.15-ca-jdk8.0.352-win_x64.msi* located in the '3rd party files' folder. Accept all Defaults.

Install Apache Tomcat

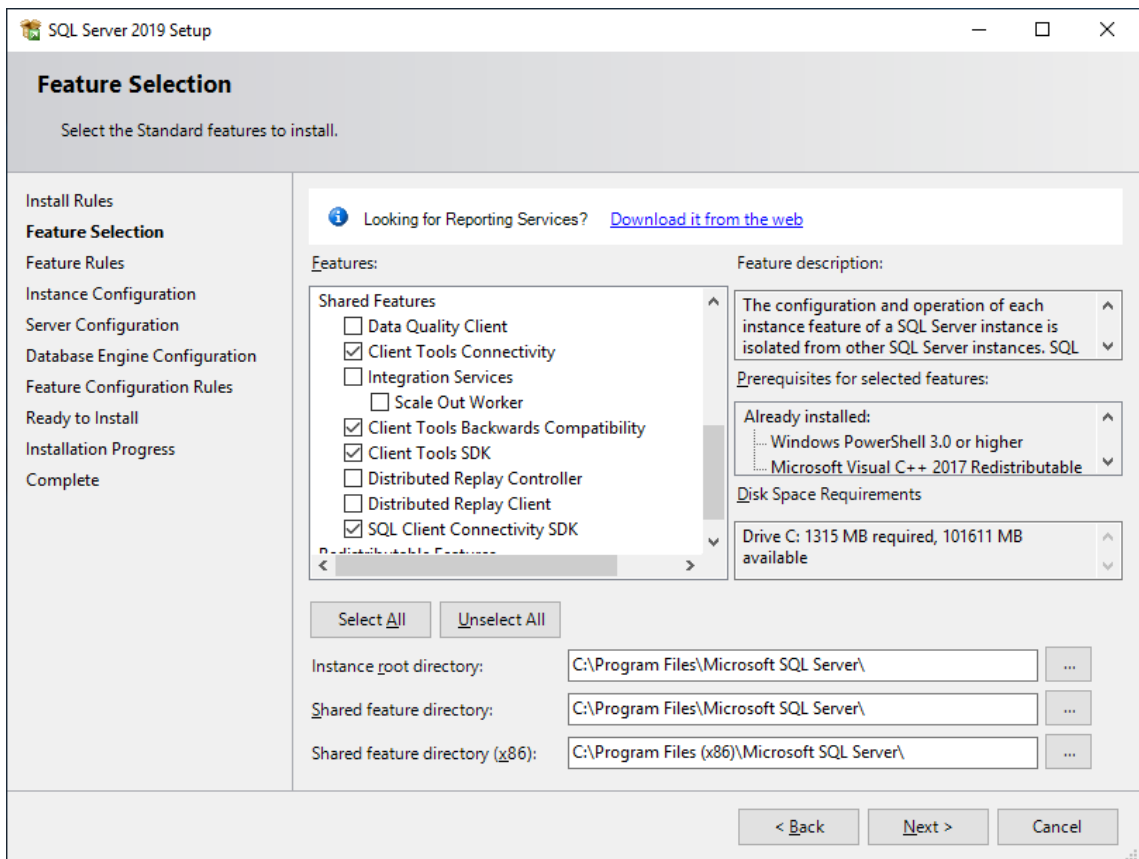
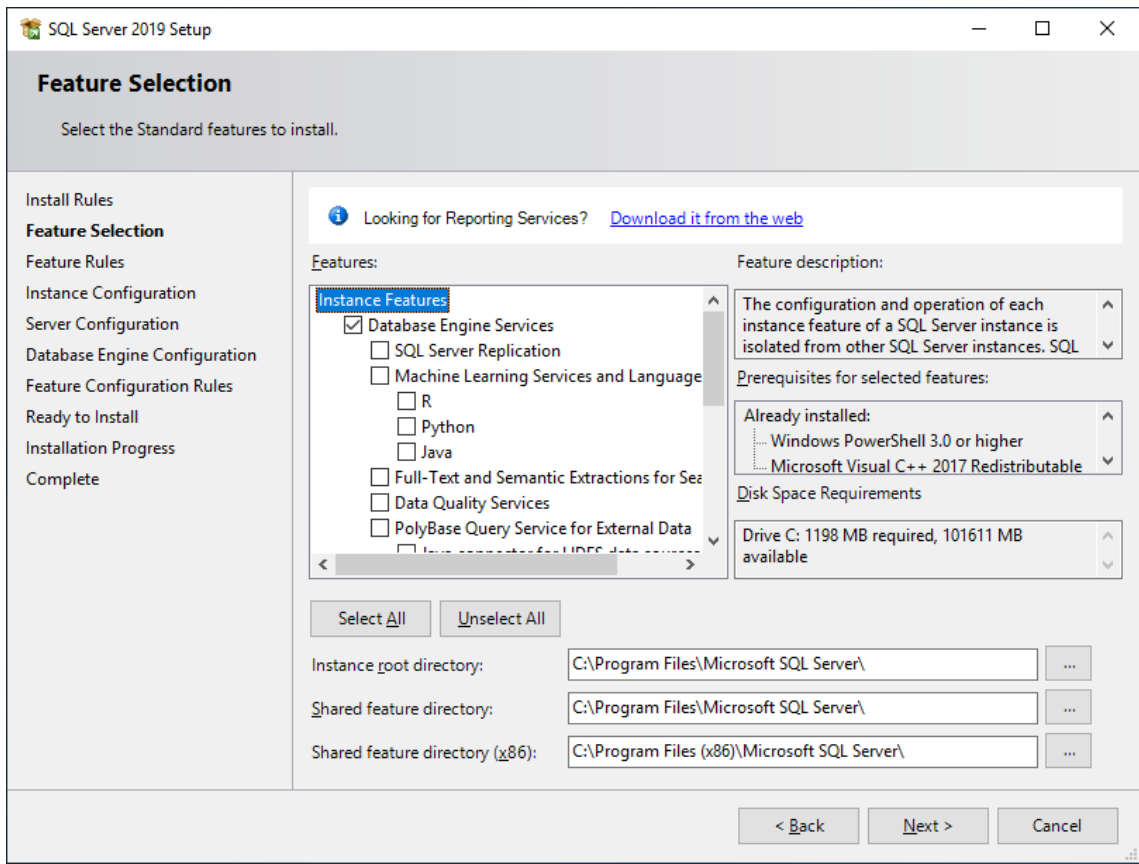
Extract the content of *apache-tomcat-9.0.71-windows-x64.zip* located in the '3rd party files' folder to e.g. C:\

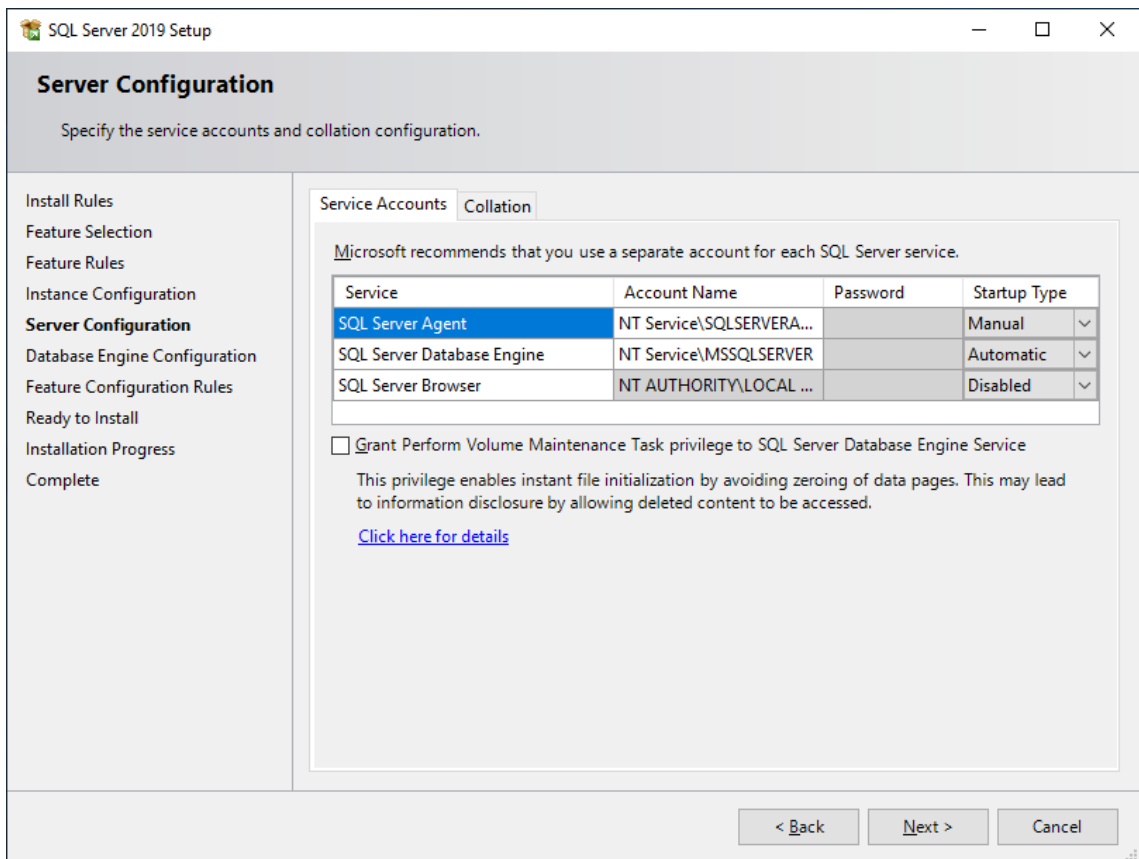
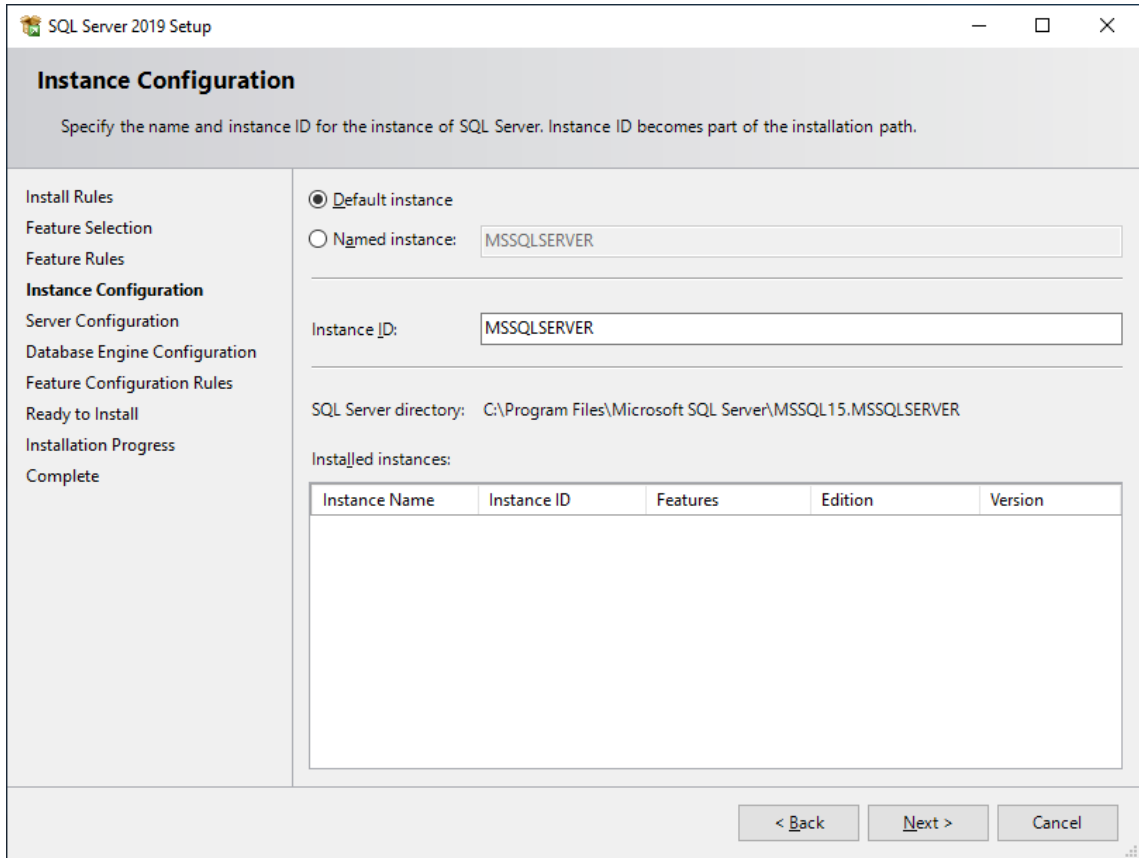
Remember this location for later NSS installation..

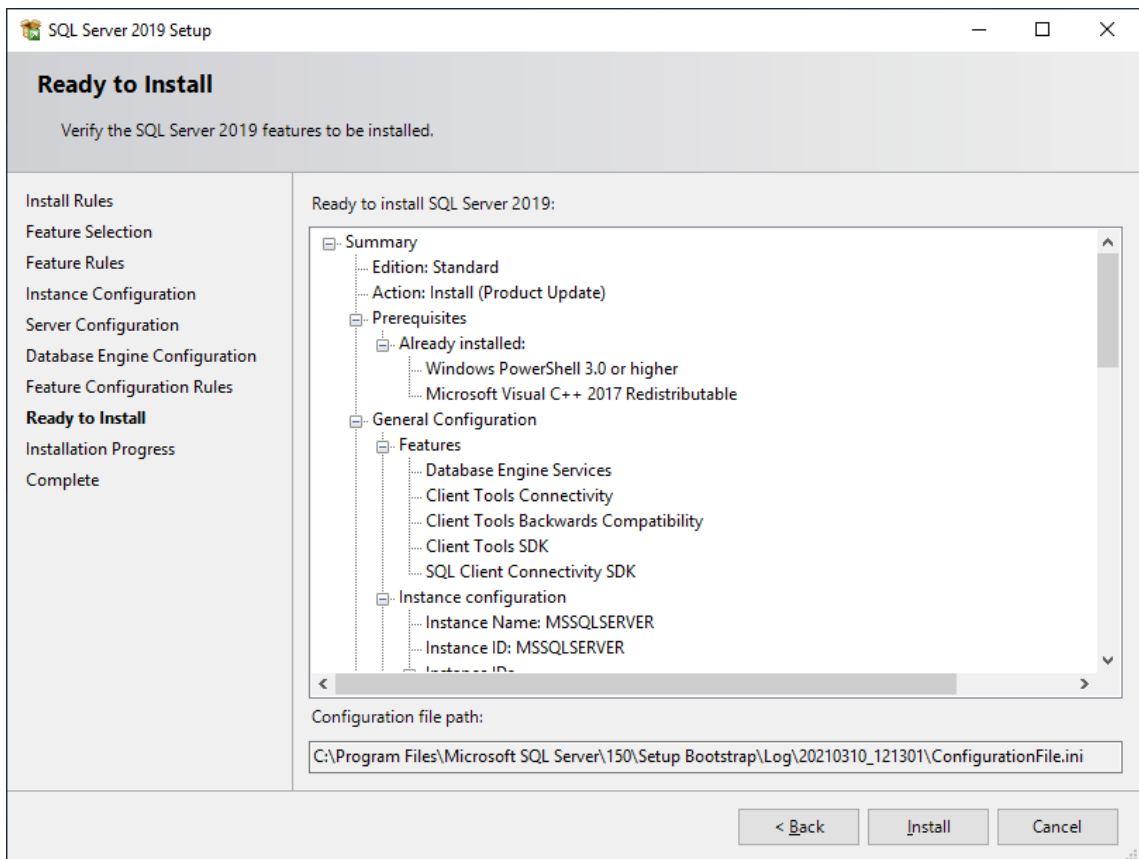
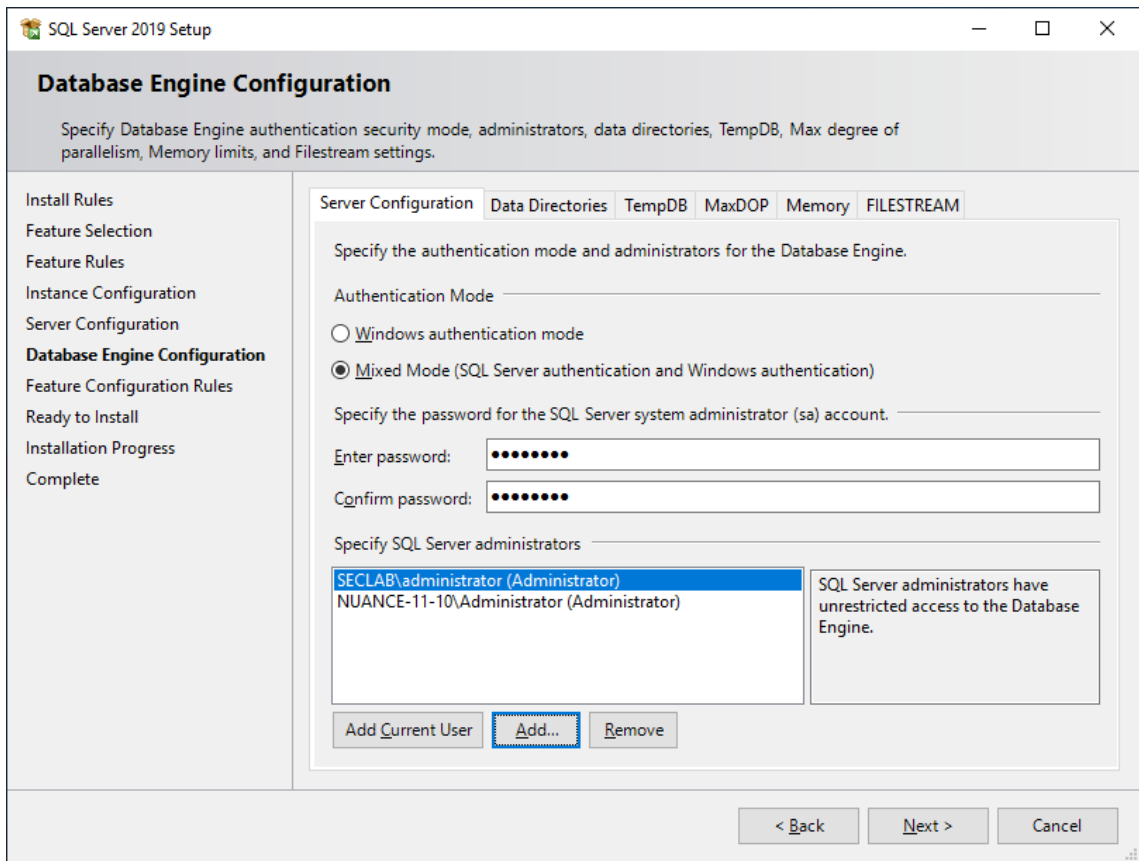
Database

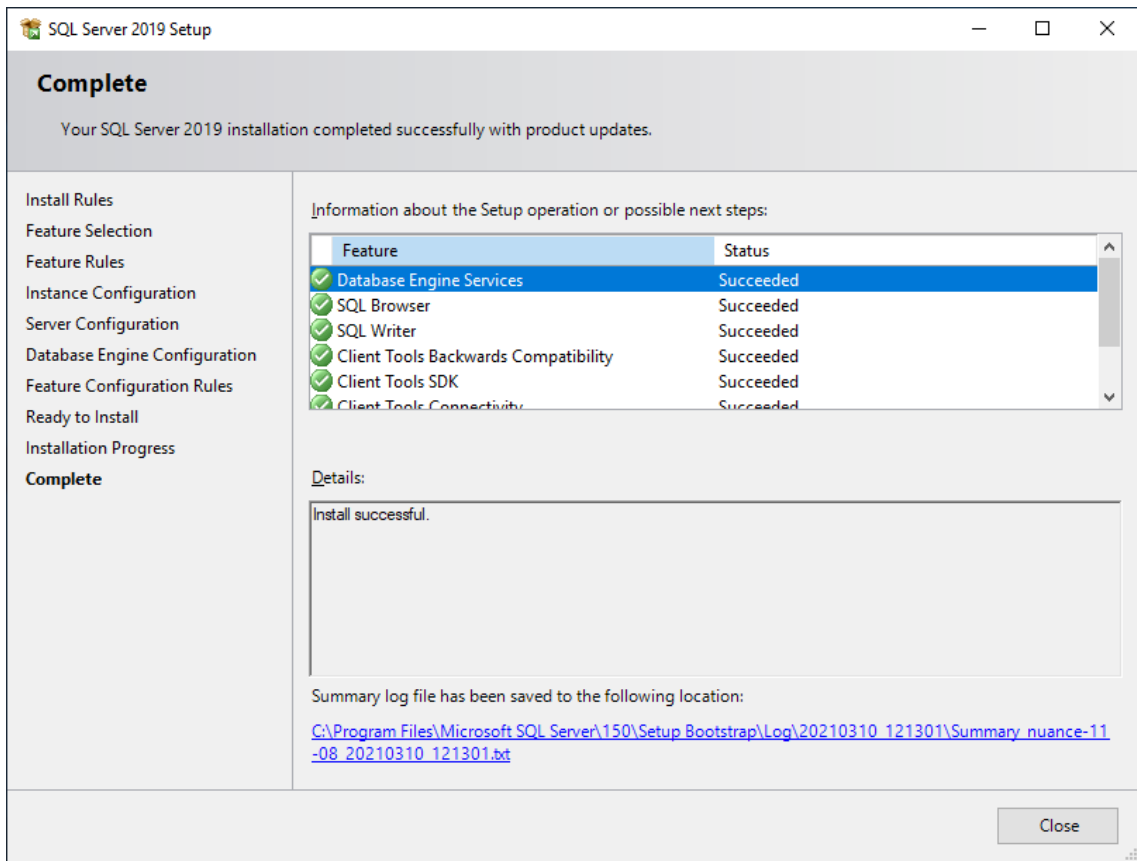
If using SQL Server continue here. If using MySQL then continue at section '[Install MySQL 5.7 and Connector/J](#)' further down in the document.

Install SQL 2019 (SQL 2014 SP1 or 2016 SP2 are also supported)







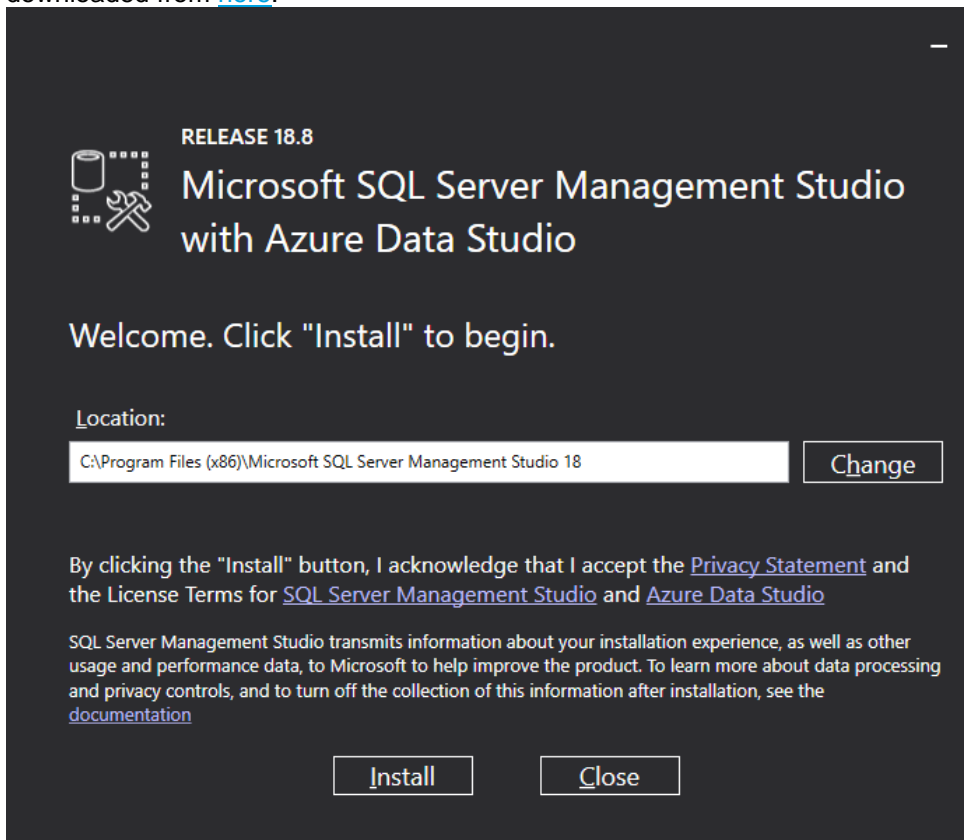


Install latest update for SQL Server 2019:

The latest update for SQL Server 2019 (currently CU9) can be downloaded from [here](#).

Install SQL Management Studio:

The latest version of the SQL Management Studio (SSMS-Setup-ENU.exe) can be downloaded from [here](#).



Copy sqljdbc42.jar from the ..\3rd party files\SQL Server Connectors folder to e.g. c:\sqljdc_6.0\
Remember file location for later NSS installation.

Install the ODBC Driver 17 by running msodbcsql.msi located in the ..\3rd party files\SQL Server Connectors folder:

<Reboot the server>

Create SQL user ms by opening a Command window and run command
`sqlcmd -U sa login -P saPassword -S hostname\dbinstancename`
or just:
`sqlcmd -U sa login -P saPassword -S hostname`
if default instance is used.

Then **run** commands:

```
1> CREATE LOGIN ms WITH PASSWORD = 'msp', CHECK_POLICY = OFF;  
2> go
```

Add the dbcreator and bulkadmin roles to the 'ms' user:

```
1>SP_ADDSRVROLEMEMBER 'ms', 'dbcreator';  
2>go  
1>SP_ADDSRVROLEMEMBER 'ms', 'bulkadmin';
```

```
2>go
1>quit
```

Note: The bulkadmin role must be added as well (documentation error in the Nuance installation guide)

Create the mserver database: Log in to SQL Server as the newly created user 'ms' and issue command:

```
sqlcmd -U ms -P msp -S hostname\dbinstancename
```

or just:

```
sqlcmd -U ms -P msp -S hostname
```

if default instance is used.

Then run commands:

```
1> create database mserver;
```

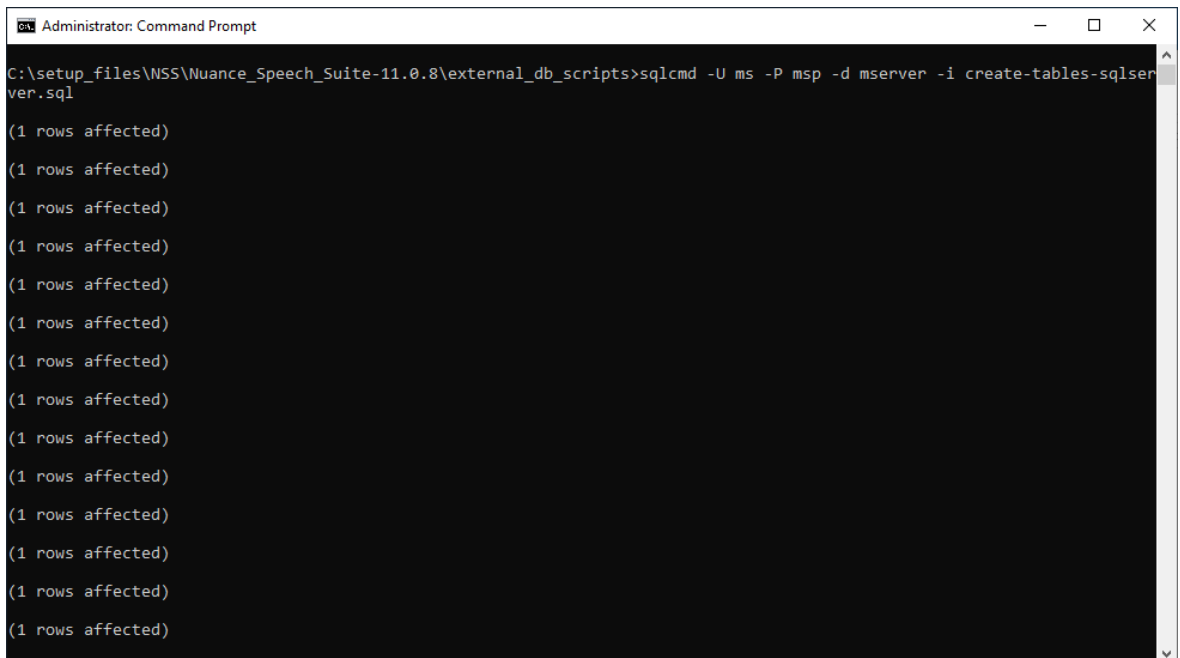
```
2> go
```

```
1> quit
```

Create tables in the mserver database by running the script *create-tables-sqlserver.sql*:

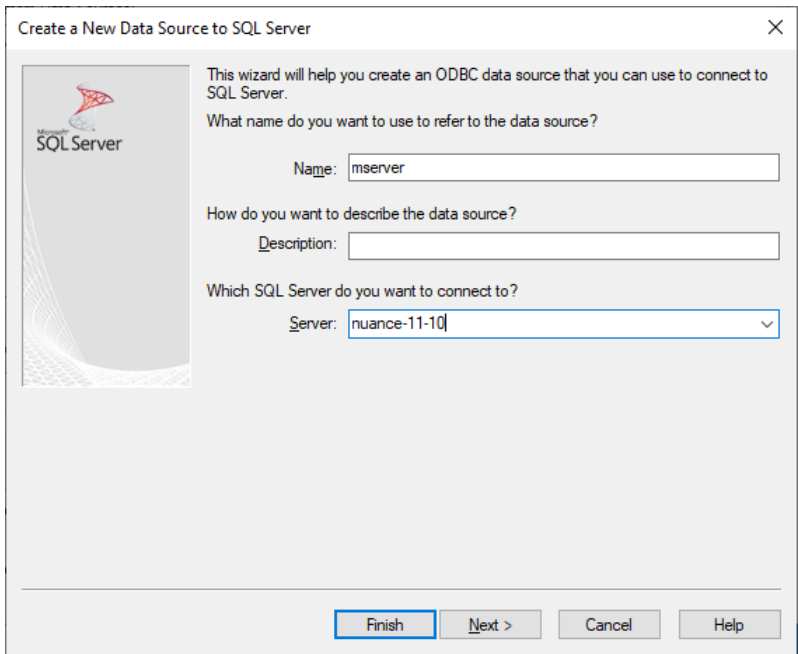
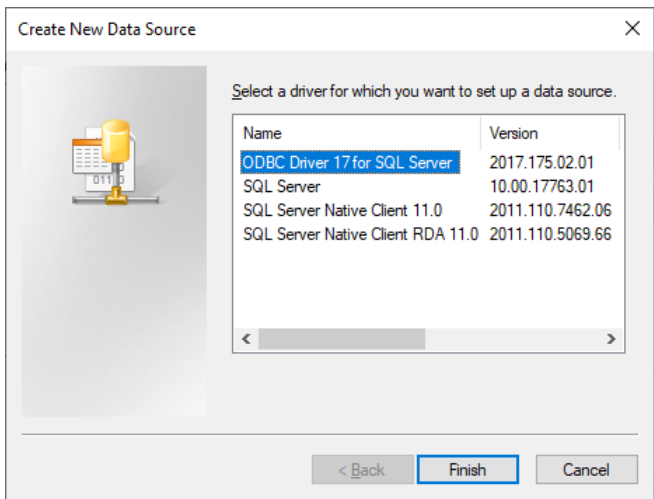
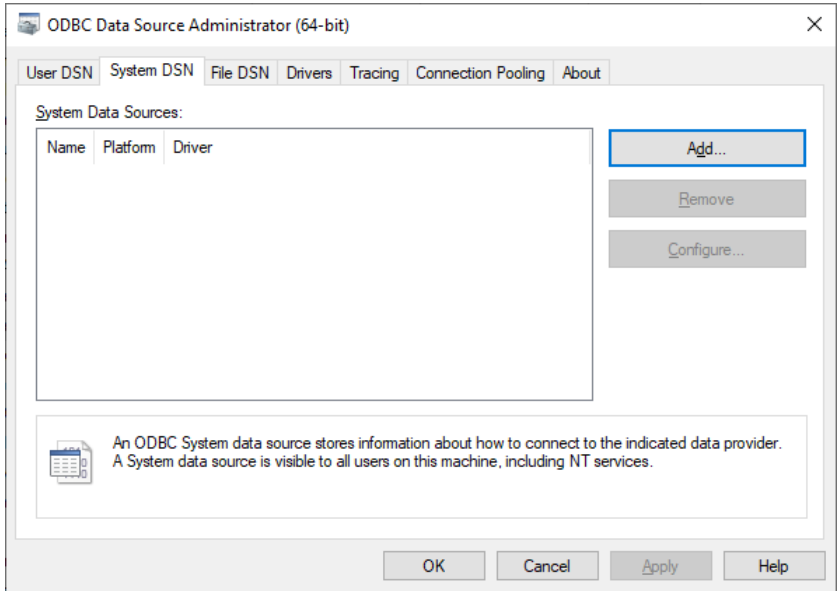
Open a cmd window (Run as Administrator) and go to folder

\Setup_files\NSS\Nuance_Speech_Suite-11.0.8\external_db_scripts and **Run** the command *sqlcmd -U ms -P msp -d mserver -i create-tables-sqlserver.sql*




```
Administrator: Command Prompt
C:\setup_files\NSS\Nuance_Speech_Suite-11.0.8\external_db_scripts>sqlcmd -U ms -P msp -d mserver -i create-tables-sqlserver.sql
(1 rows affected)
(1 rows affected)
(1 rows affected)
(1 rows affected)
(1 rows affected)
(1 rows affected)
(1 rows affected)
(1 rows affected)
(1 rows affected)
(1 rows affected)
(1 rows affected)
(1 rows affected)
(1 rows affected)
(1 rows affected)
(1 rows affected)
```

Create the ODBC data source MSERVER



Create a New Data Source to SQL Server



How should SQL Server verify the authenticity of the login ID?


- With Integrated Windows authentication.
SPN (Optional):
- With Active Directory Integrated authentication.
- With SQL Server authentication using a login ID and password entered by the user.
- With Active Directory Password authentication using a login ID and password entered by the user.
- With Active Directory Interactive authentication using a login ID entered by the user.

Login ID:

Password:

< Back Next > Cancel Help

Create a New Data Source to SQL Server



Change the default database to:

Mirror server:

SPN for mirror server (Optional):

Attach database filename:

Use ANSI quoted identifiers.

Use ANSI nulls, paddings and warnings.

Application intent:

Multi-subnet failover.

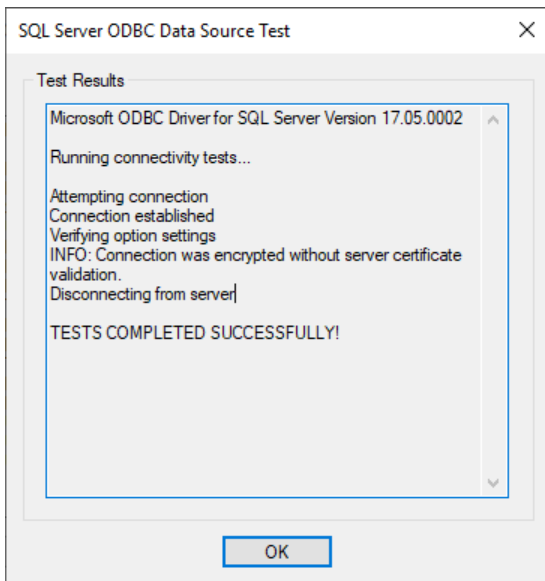
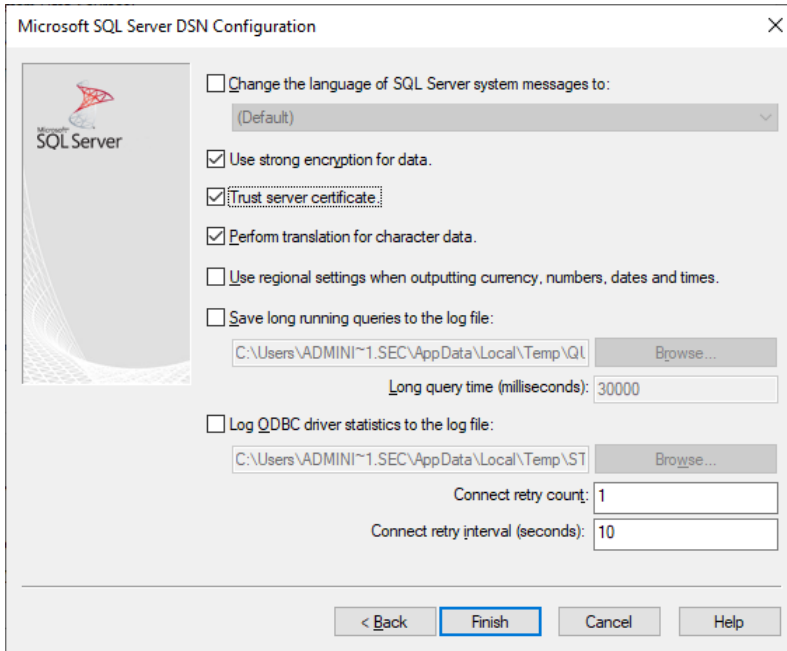
Transparent Network IP Resolution.

Column Encryption.

Enclave Attestation Info:

Use FMTONLY metadata discovery.

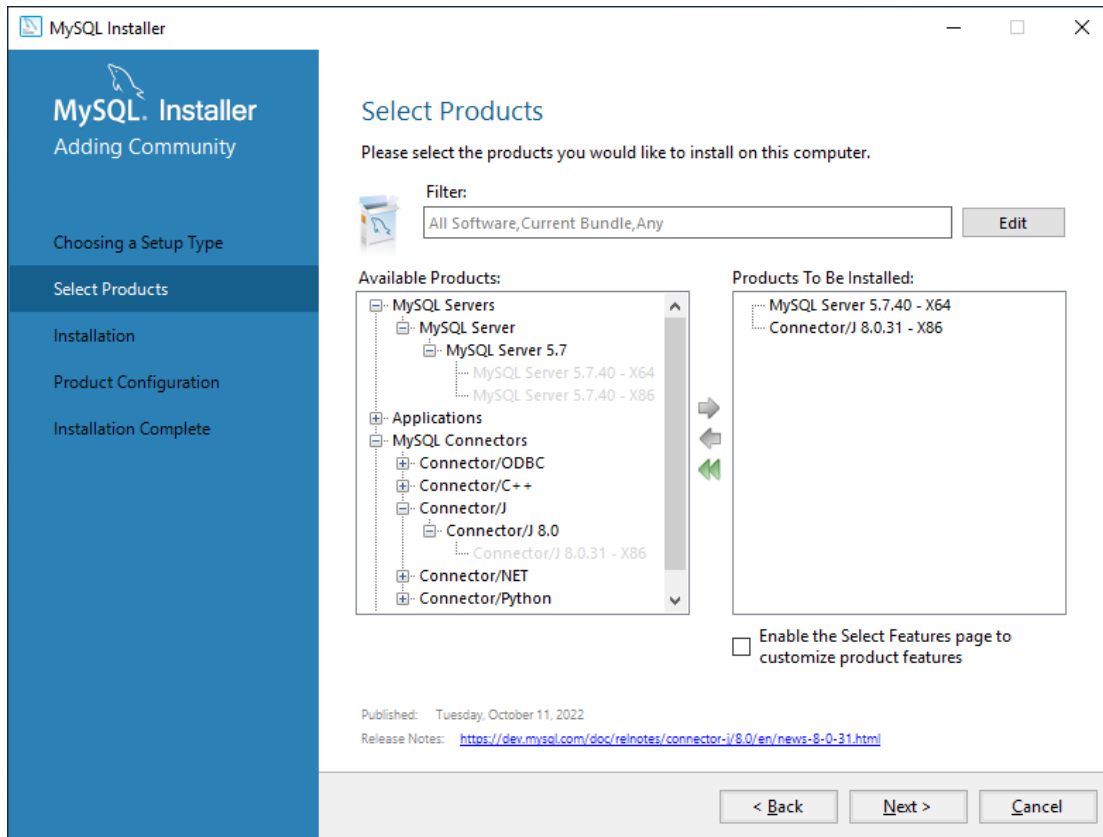
< Back Next > Cancel Help

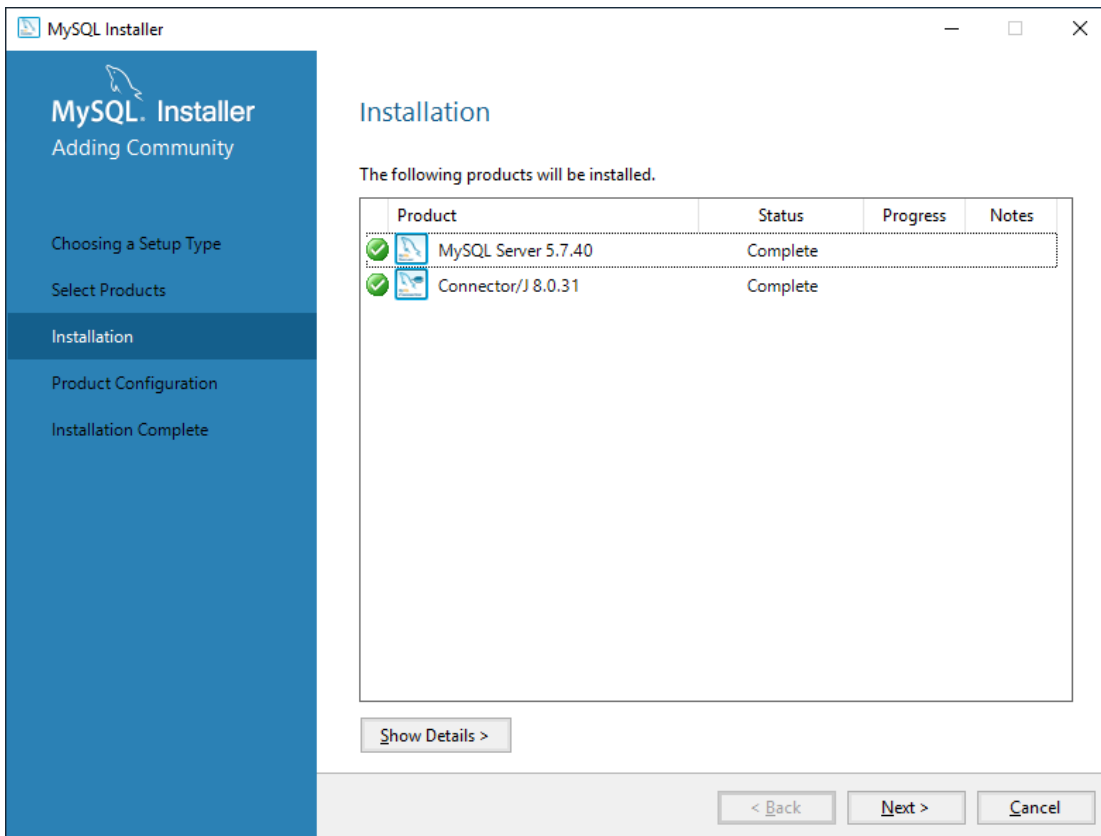
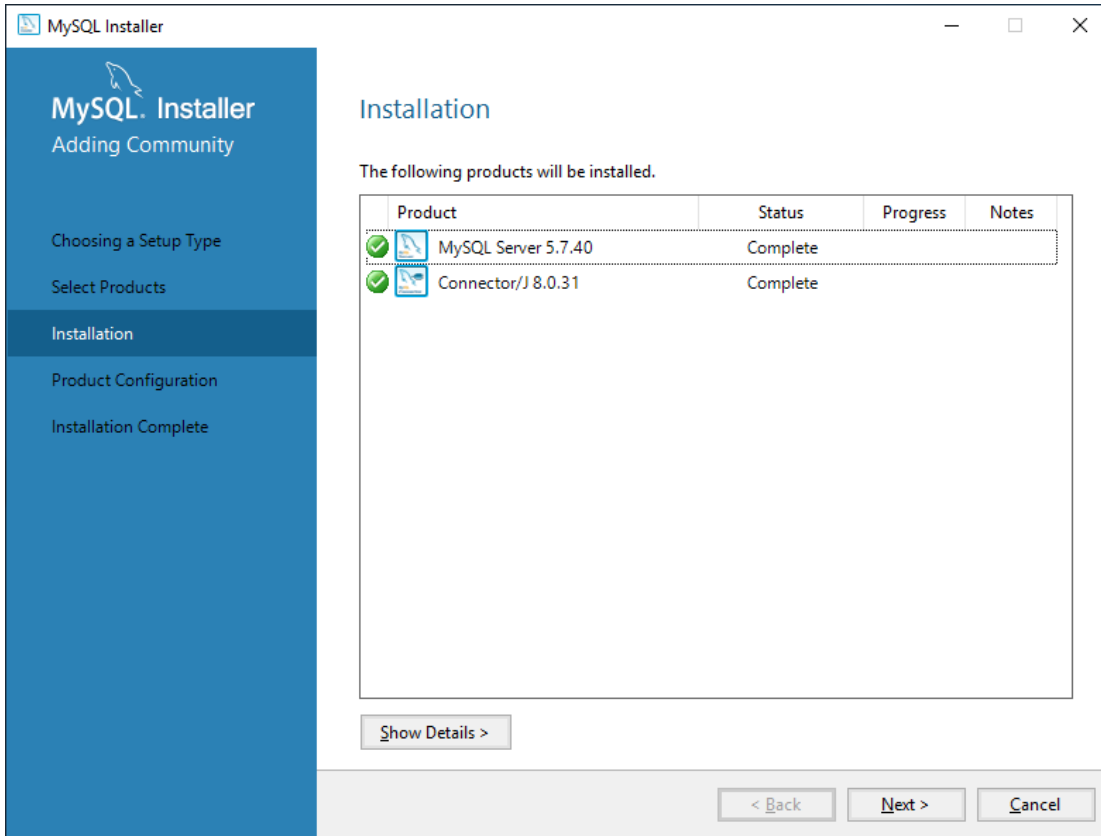


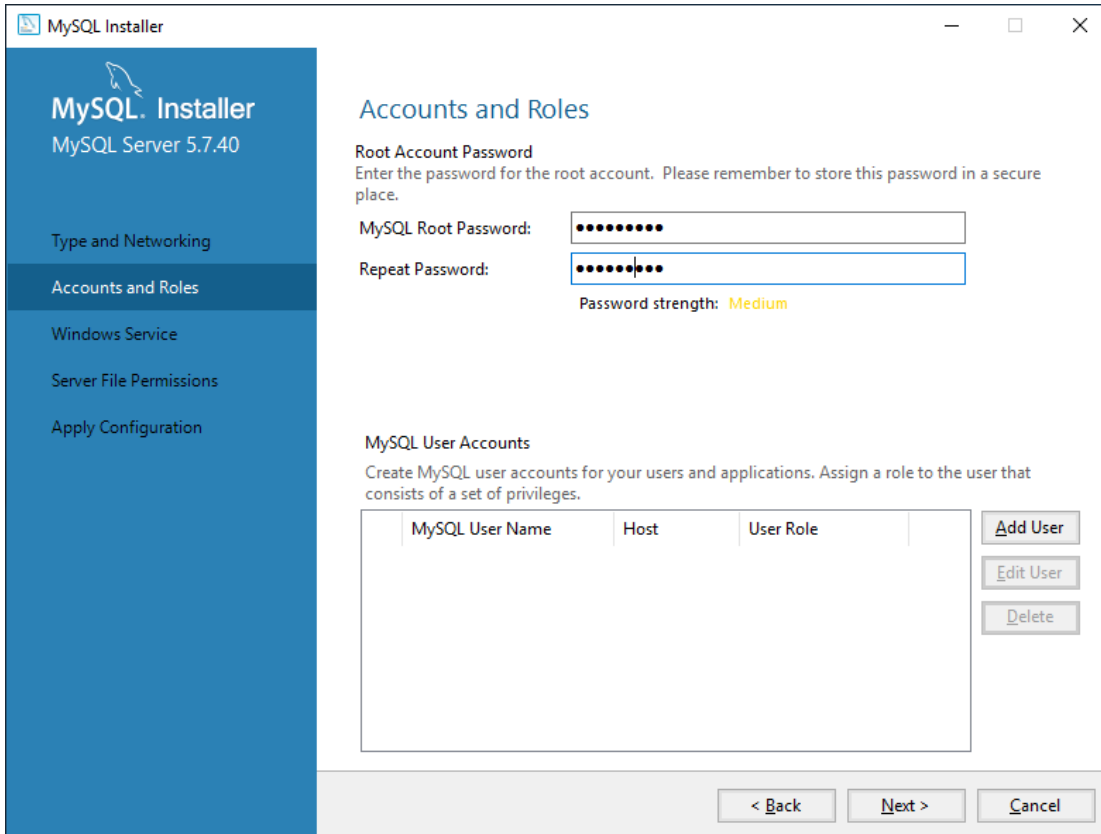
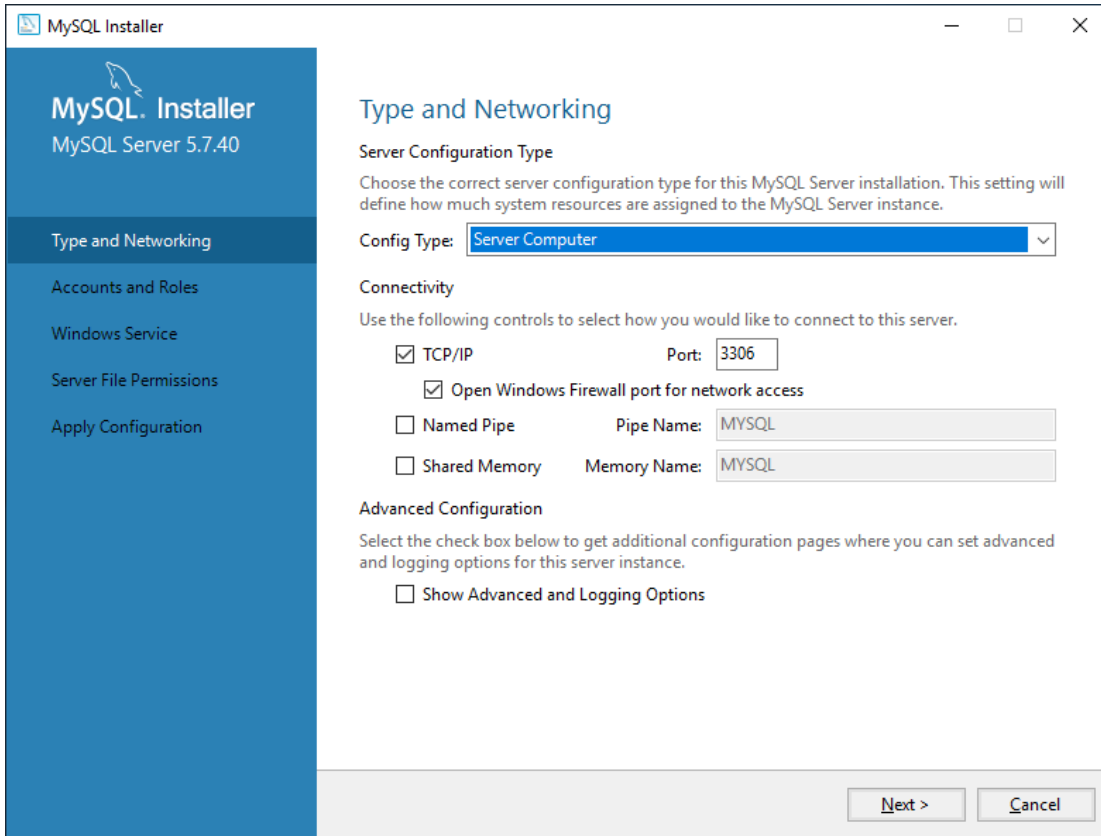
Continue at ['Install NSS 11'](#) below.

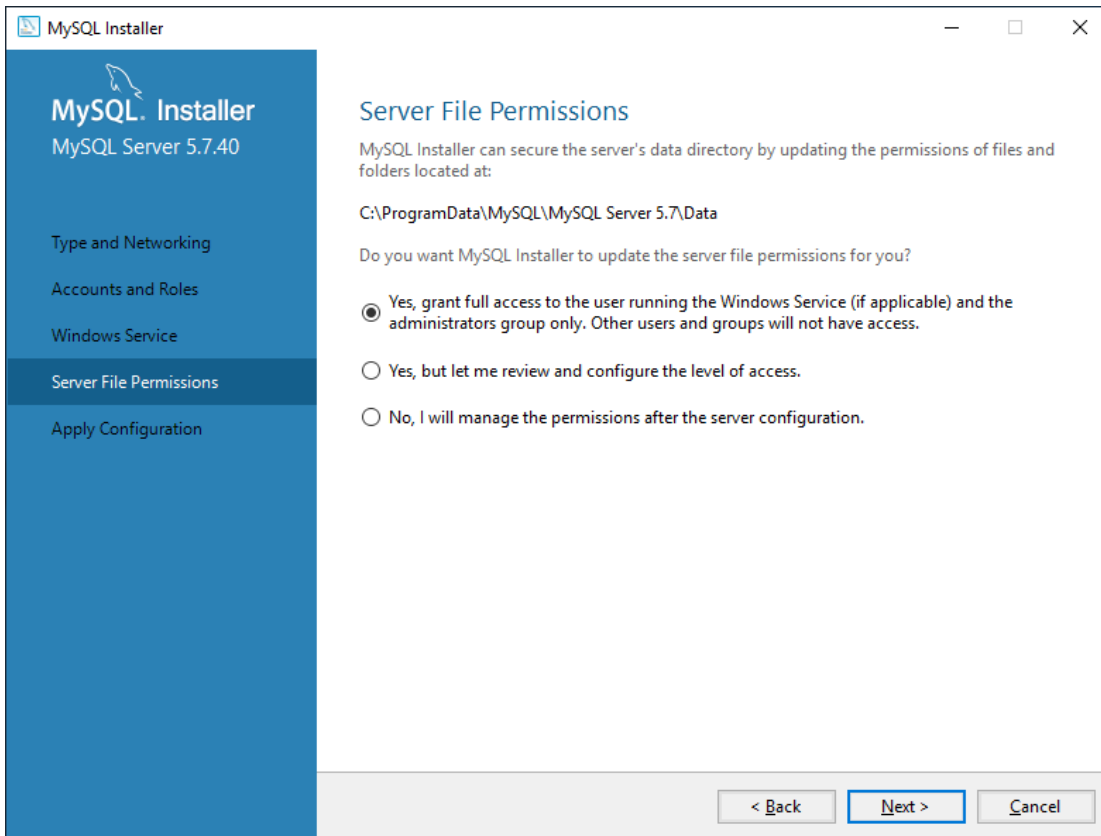
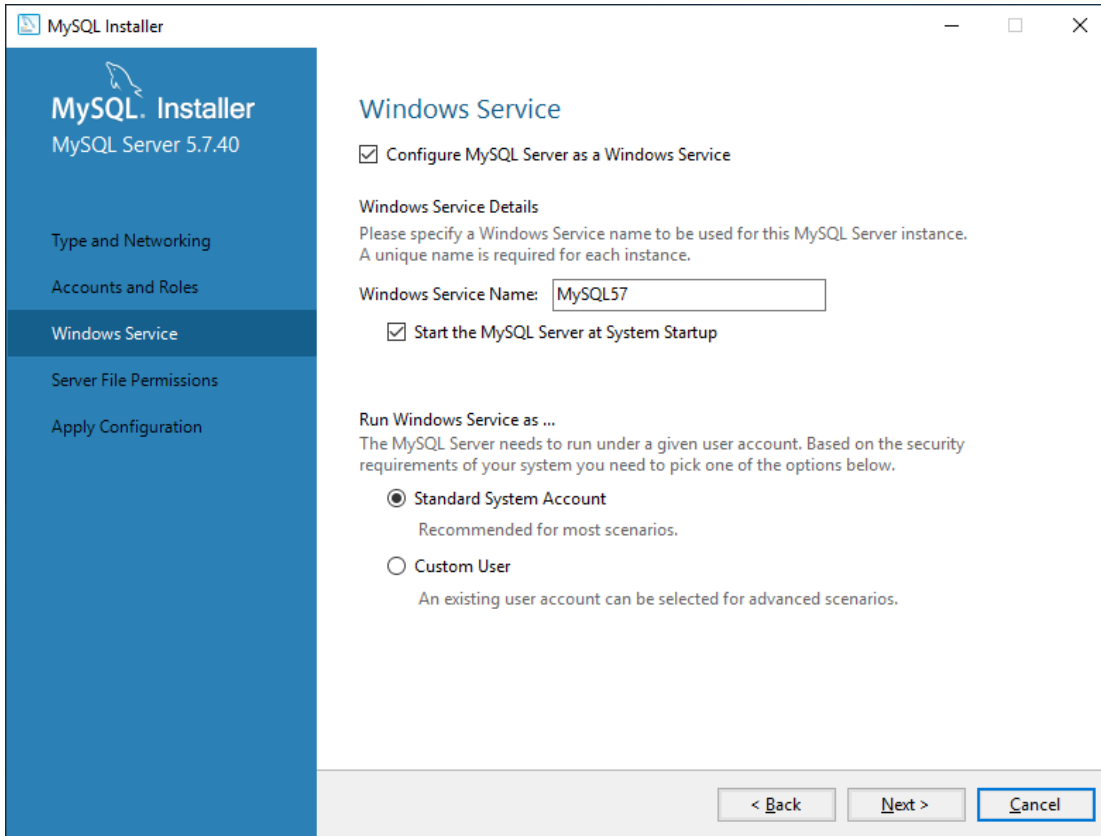
Install MySQL 5.7 and Connector/J

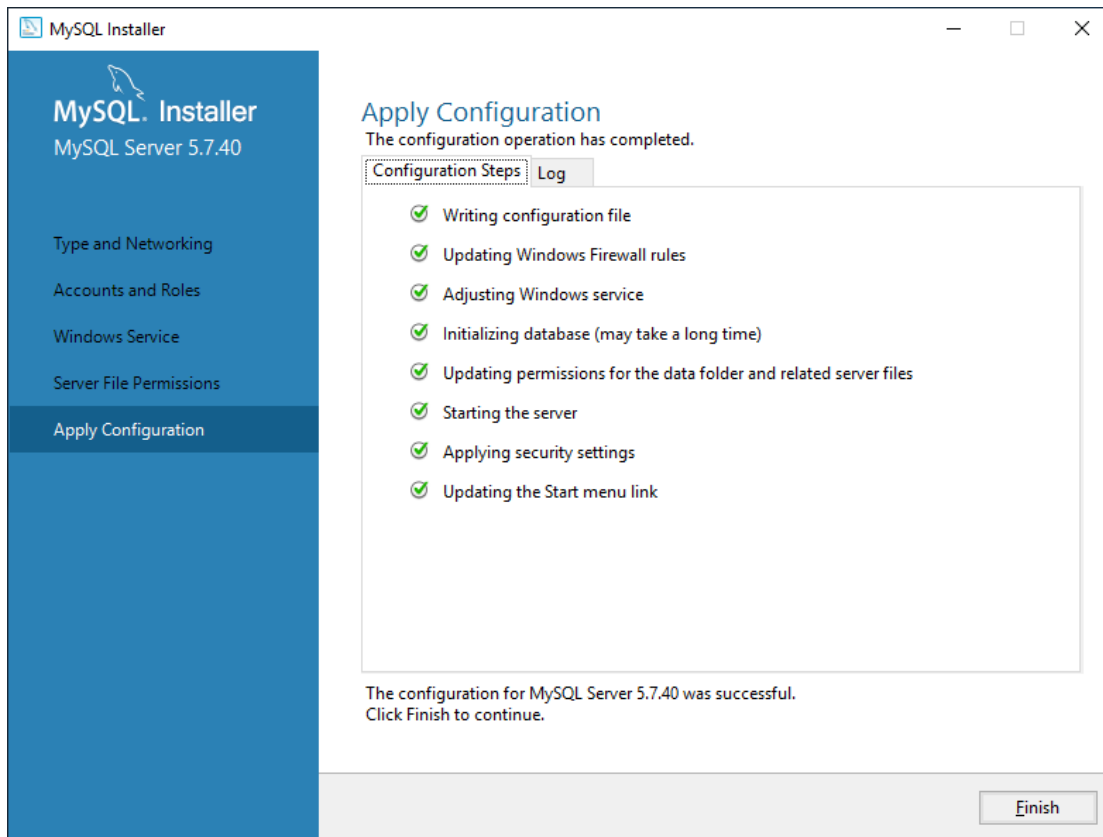
Run `mysql-installer-community-5.7.40.0.msi` located in the `3rd party files\MySQL` folder and select Custom and then select these items:
(Note that Connector/C will be installed by selecting MySQL Server)





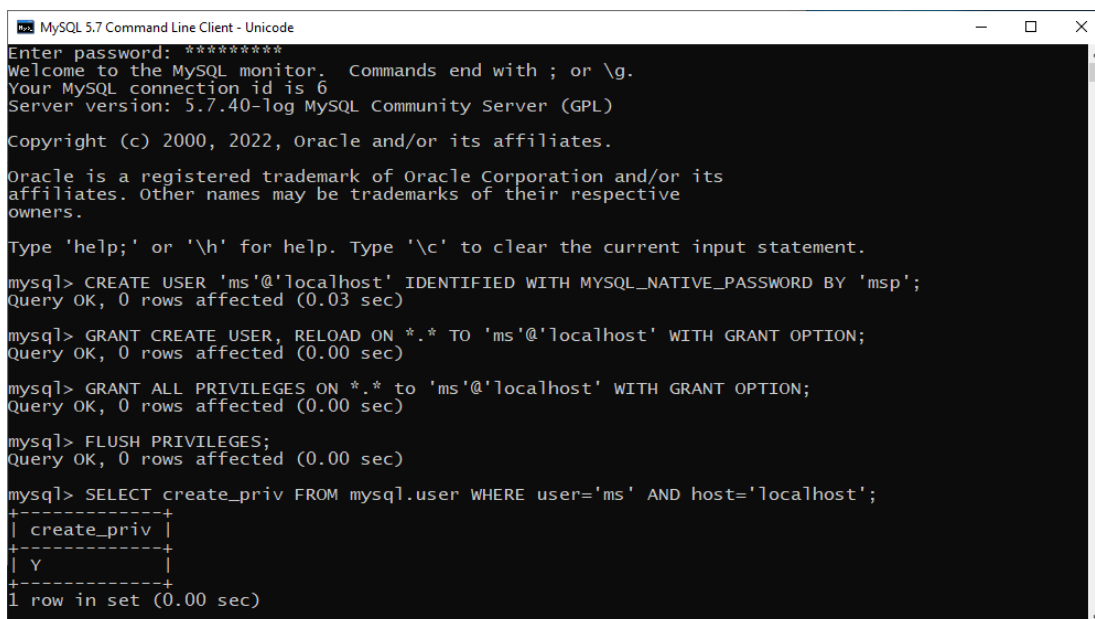






Create user 'ms' using the MySQL Client. Issue commands:

```
mysql> CREATE USER 'ms'@'localhost' IDENTIFIED WITH MYSQL_NATIVE_PASSWORD BY 'msp';
mysql> GRANT CREATE USER, RELOAD ON *.* TO 'ms'@'localhost' WITH GRANT OPTION;
mysql > GRANT ALL PRIVILEGES ON *.* to 'ms'@'localhost' WITH GRANT OPTION;
mysql > FLUSH PRIVILEGES;
mysql > SELECT create_priv FROM mysql.user WHERE user='ms' AND host='localhost';
```

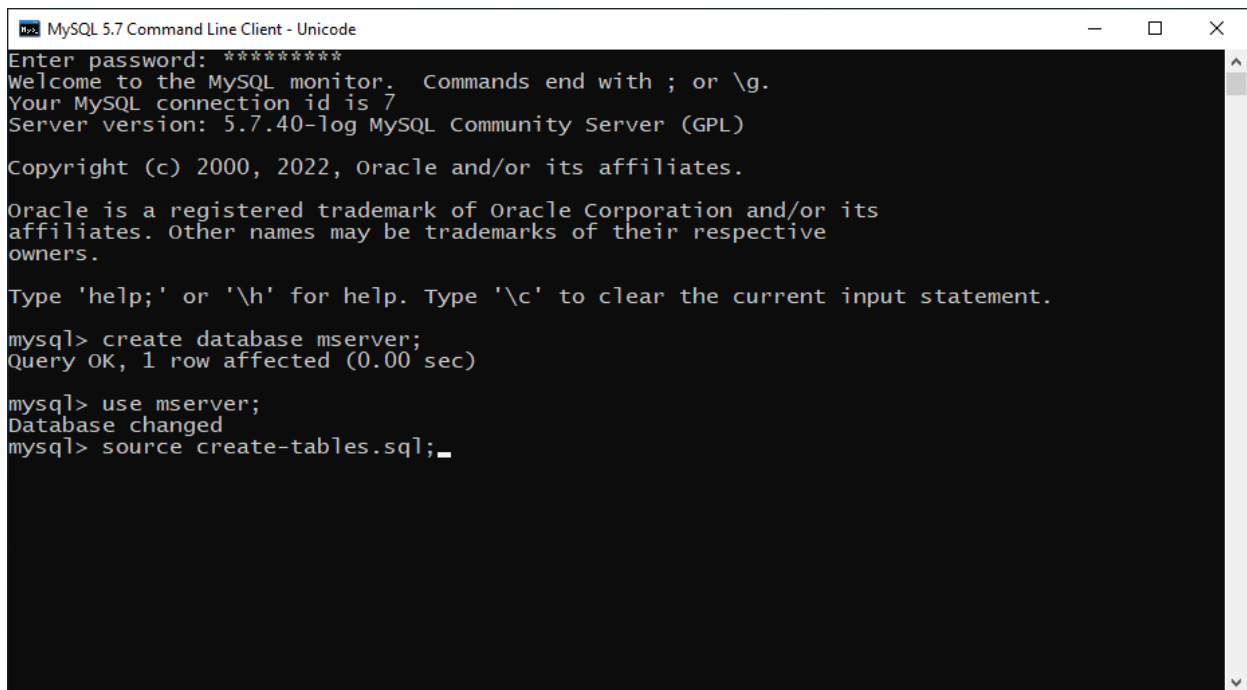


Note: Nuance recommends that the CREATE USER and GRANT commands are repeated for different variations of the hostname format. Above the user is defined as ms@localhost. Nuance also recommend creating the user as ms@<server name>, ms@<FQDN> and ms@<IP address>

Create database mserver and its tables: Copy create-tables.sql to C:\Program Files\MySQL\MySQL Server 5.7\bin

Run MySQL client and issue commands:

```
mysql> create database mserver;
mysql> use mserver;
mysql> source create-tables.sql;
```



```
MySQL 5.7 Command Line Client - Unicode
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 7
Server version: 5.7.40-log MySQL Community Server (GPL)

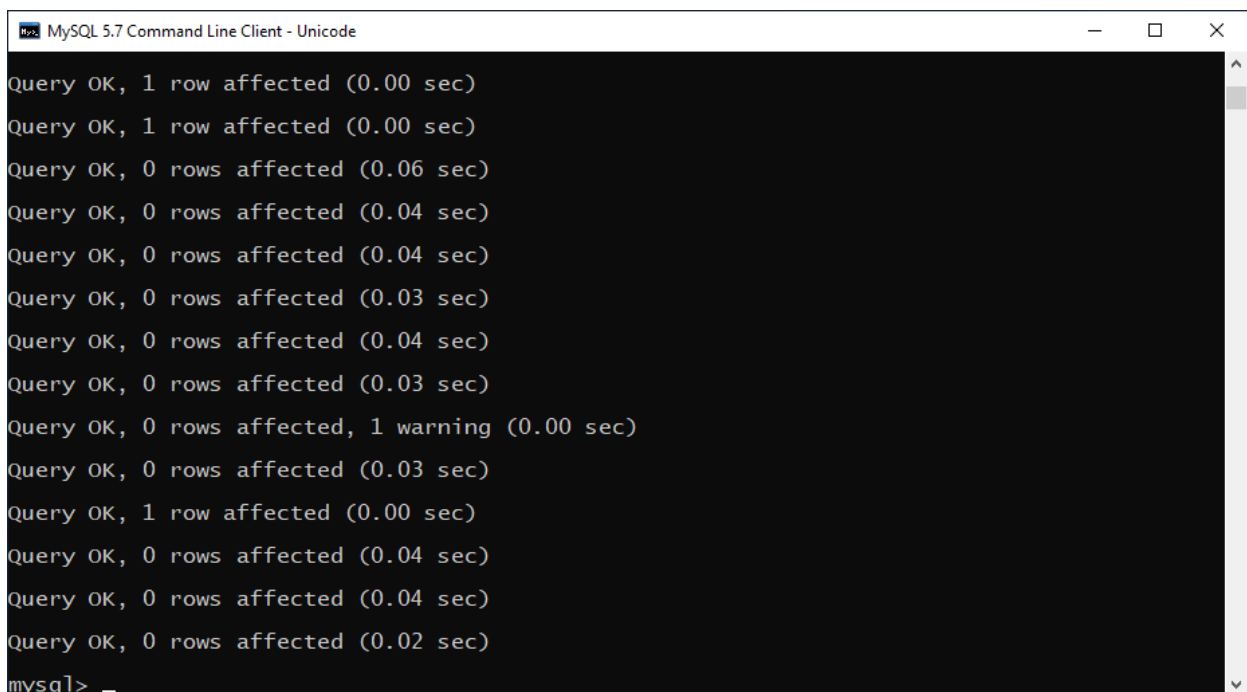
Copyright (c) 2000, 2022, Oracle and/or its affiliates.

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> create database mserver;
Query OK, 1 row affected (0.00 sec)

mysql> use mserver;
Database changed
mysql> source create-tables.sql;_
```

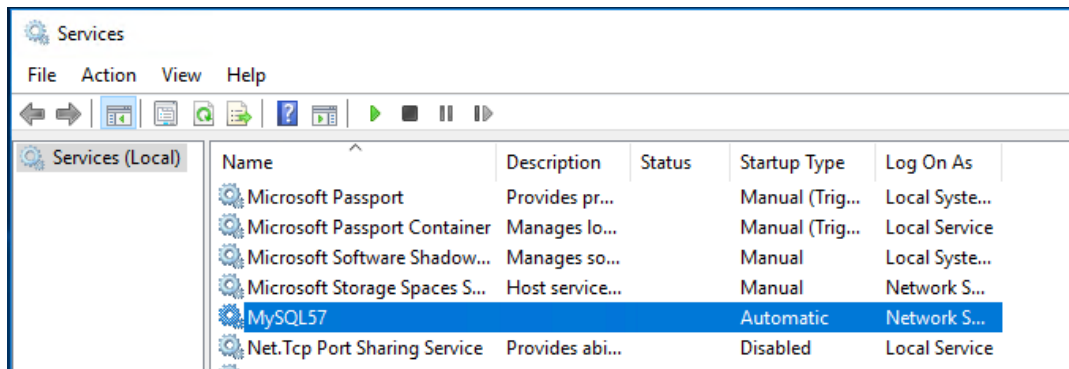


```
MySQL 5.7 Command Line Client - Unicode

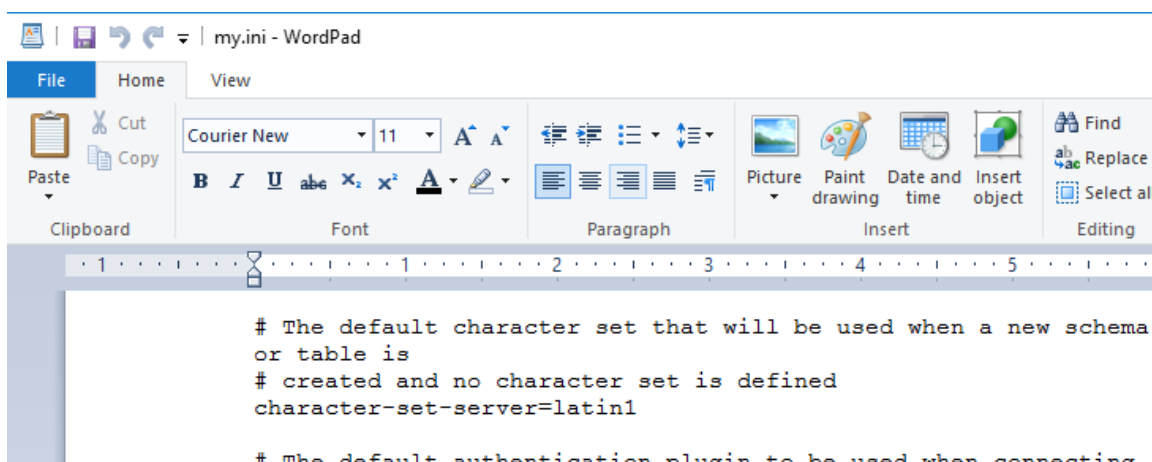
Query OK, 1 row affected (0.00 sec)
Query OK, 1 row affected (0.00 sec)
Query OK, 0 rows affected (0.06 sec)
Query OK, 0 rows affected (0.04 sec)
Query OK, 0 rows affected (0.04 sec)
Query OK, 0 rows affected (0.03 sec)
Query OK, 0 rows affected (0.04 sec)
Query OK, 0 rows affected (0.03 sec)
Query OK, 0 rows affected, 1 warning (0.00 sec)
Query OK, 0 rows affected (0.03 sec)
Query OK, 1 row affected (0.00 sec)
Query OK, 0 rows affected (0.04 sec)
Query OK, 0 rows affected (0.04 sec)
Query OK, 0 rows affected (0.02 sec)
mysql> _
```

Configure database performance:

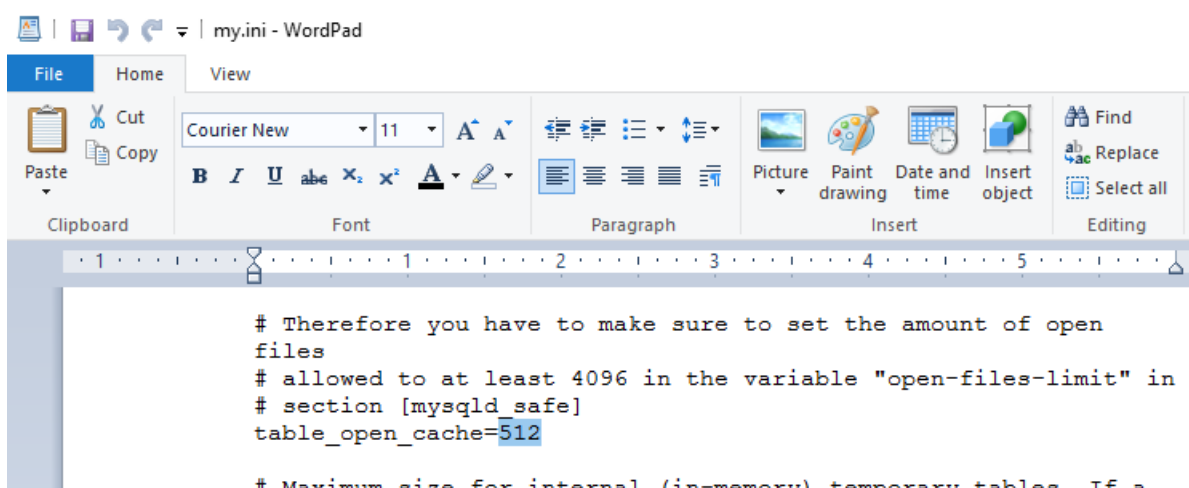
Stop the MySQL service if it is running:



Open `C:\ProgramData\MySQL\MySQL Server 5.7\my.ini` in **Wordpad** and set `character-set-server=latin1`



Change `table_open_cache` to be 512



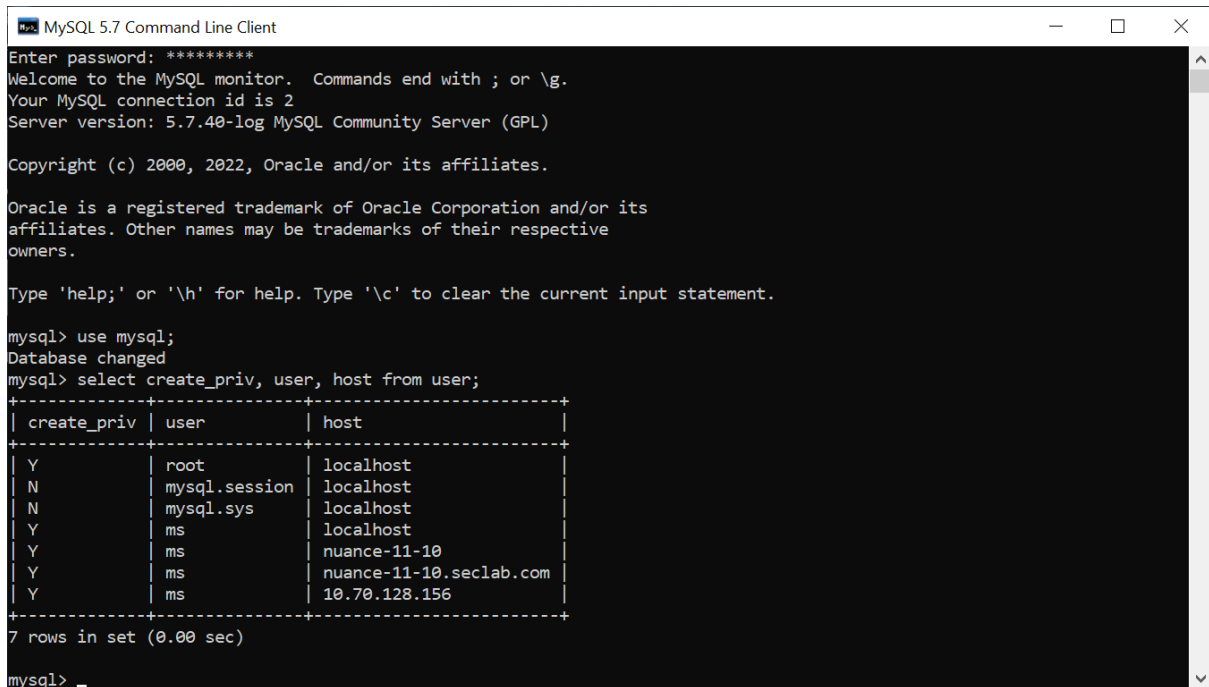
Save the file as 'Plain text document'. If using Notepad then the MySQL service will not start...

Delete the `ib_logfile*` files located in `C:\ProgramData\MySQL\MySQL Server 5.7\data` folder.

<Reboot the Server>

Use MySQL client to check that the `ms` user exists and has `create_priv` privileges. Issue commands:

```
mysql> use mysql;
mysql> select create_priv, user, host from user;
```



```
MySQL 5.7 Command Line Client
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 2
Server version: 5.7.40-log MySQL Community Server (GPL)

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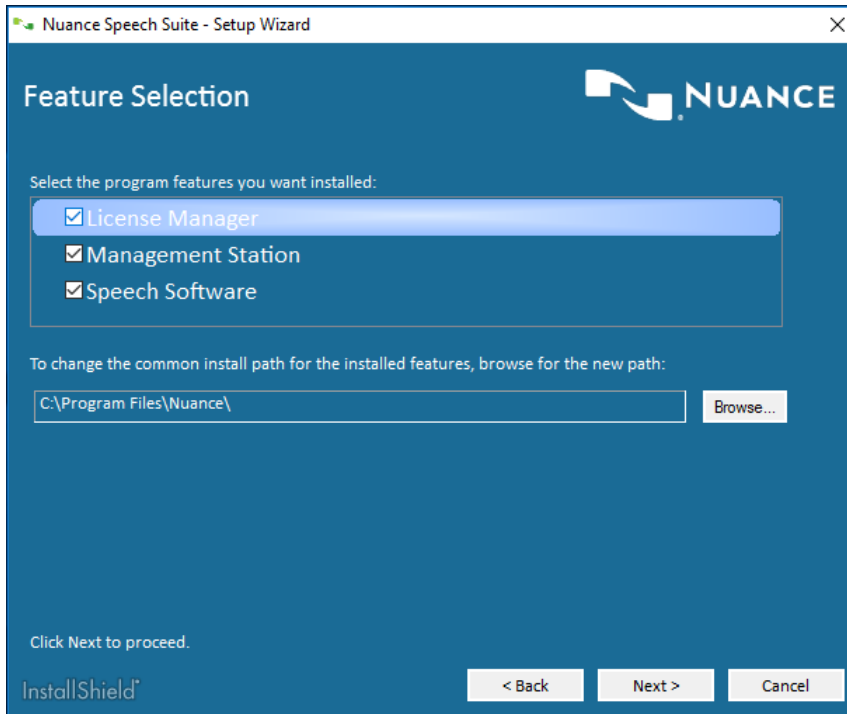
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> use mysql;
Database changed
mysql> select create_priv, user, host from user;
+-----+-----+-----+
| create_priv | user      | host      |
+-----+-----+-----+
| Y           | root     | localhost |
| N           | mysql.session | localhost |
| N           | mysql.sys  | localhost |
| Y           | ms       | localhost |
| Y           | ms       | nuance-11-10 |
| Y           | ms       | nuance-11-10.seclab.com |
| Y           | ms       | 10.70.128.156 |
+-----+-----+-----+
7 rows in set (0.00 sec)

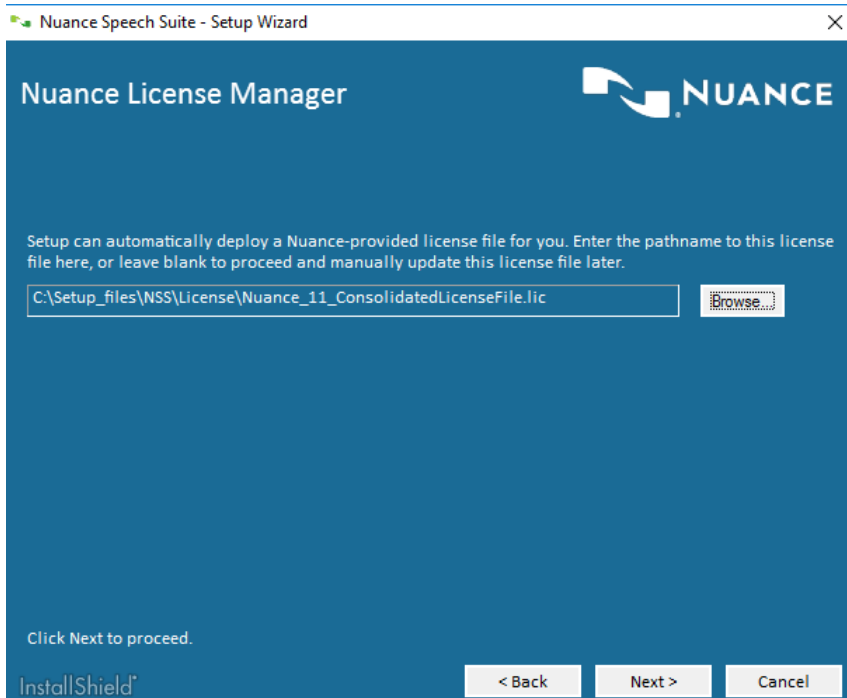
mysql>
```

Install NSS 11

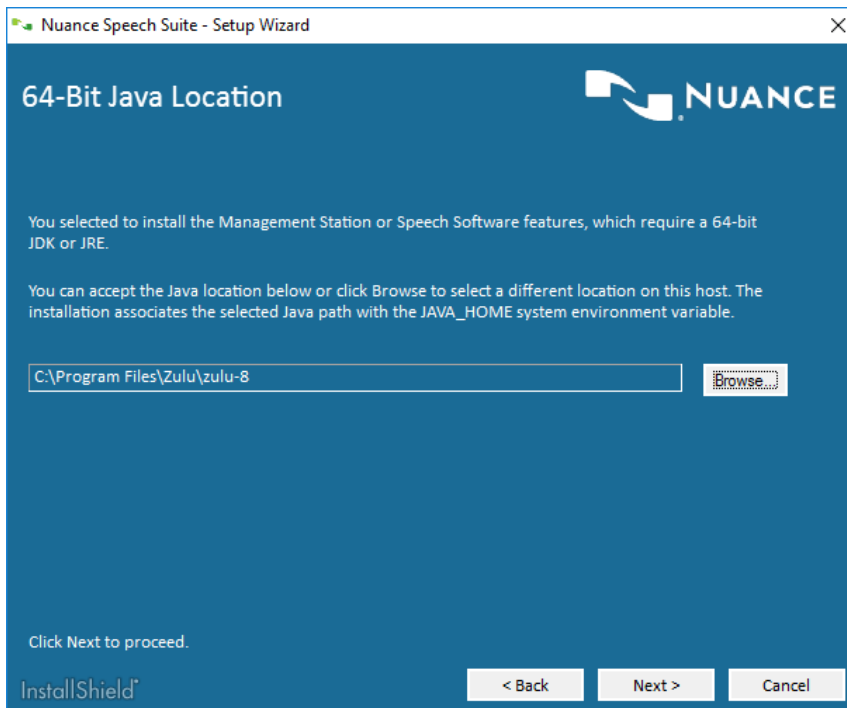
The installation package is available in the *NSS* folder in the temp folder where the installation package was extracted. Right click on '*Nuance Speech Suite 11.0.exe*' and select '*Run as Administrator*'. If all Nuance components are to be installed on this server then select all three components: License Manager, Management Station and Speech Software:



Enter the location of the Nuance License file. It is available in the folder *NSS\License* and is named *Nuance_11_ConsolidatedLicenseFile.lic*:



Enter the location of the Java JDK installation:



Select database type.
If MS SQL Service is used:

Nuance Speech Suite - Setup Wizard

Configure Database Type

The Nuance Speech Suite product can be used with either Oracle MySQL or Microsoft SQL Server. Please select a database product to use for this installation.

Oracle MySQL

Microsoft SQL Server

Server Name:

Database Name:

Enter either a port number or an instance name.

Server Port:

Instance Name:

Click Next to proceed.

InstallShield®

Nuance Speech Suite - Setup Wizard

Nuance Management Station

Enter the port@host pair(s) for the License Manager host. Separate multiple entries with a comma. For example, 27000@host1,27000@host2.

License address:

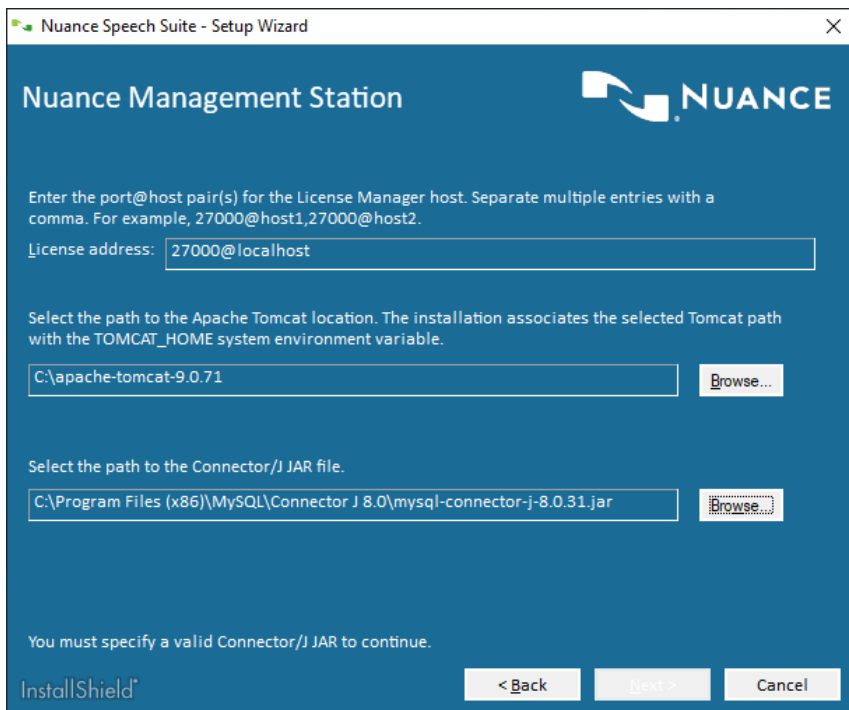
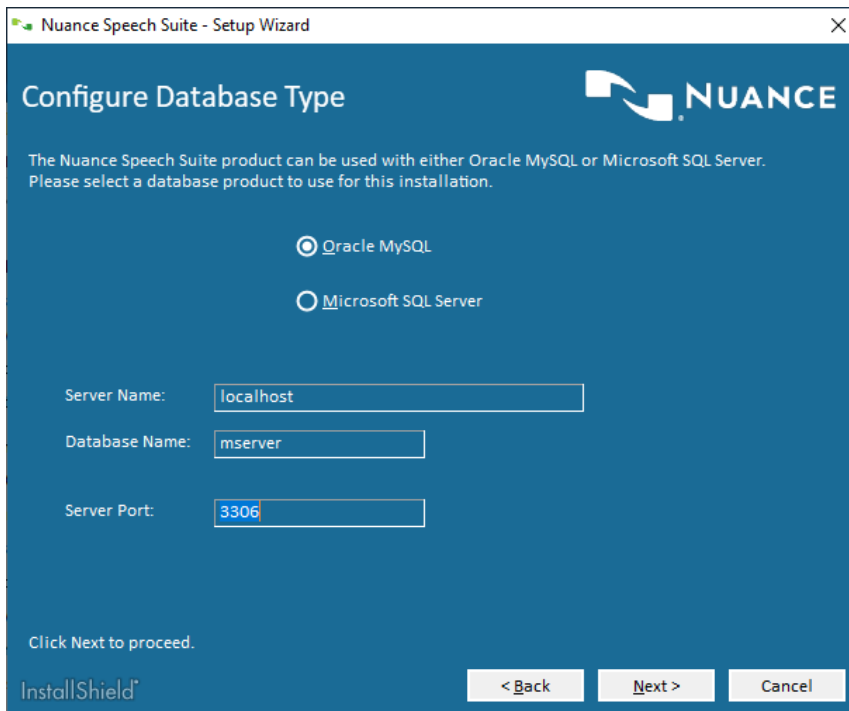
Select the path to the Apache Tomcat location. The installation associates the selected Tomcat path with the TOMCAT_HOME system environment variable.

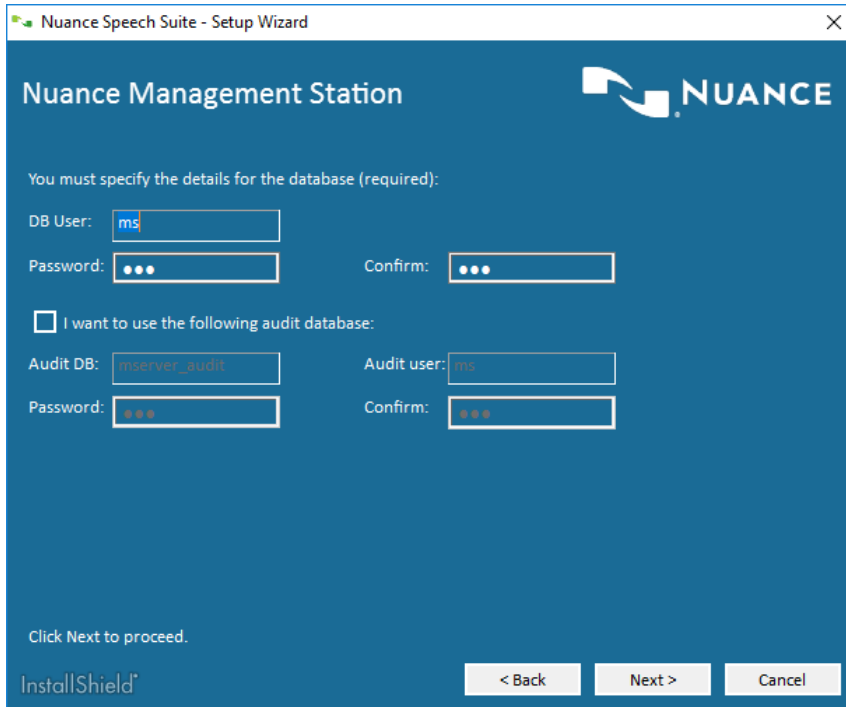
Select the path to the Connector/J JAR file.

Click Next to proceed.

InstallShield®

If MySQL is used:

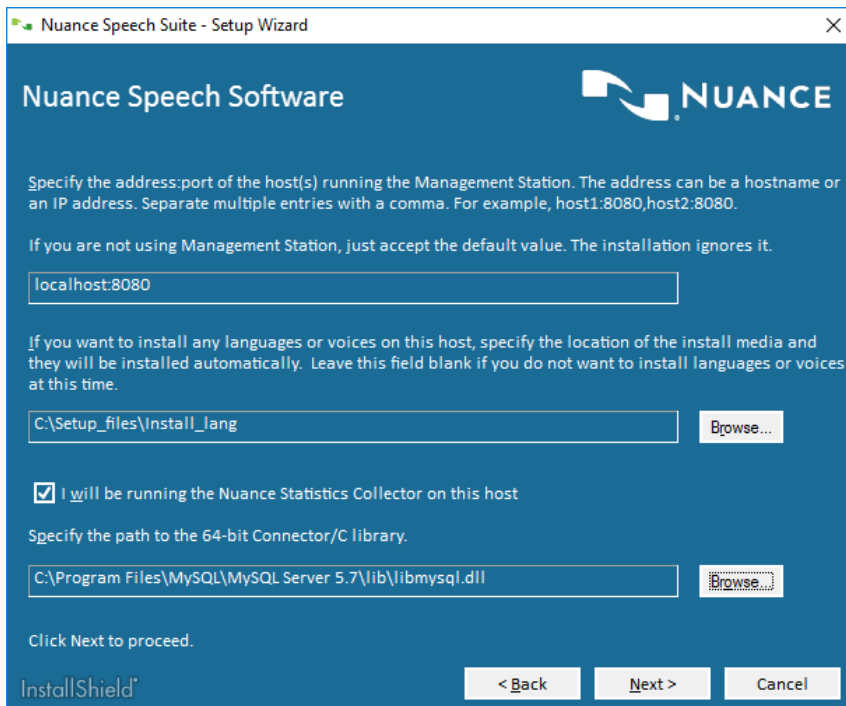


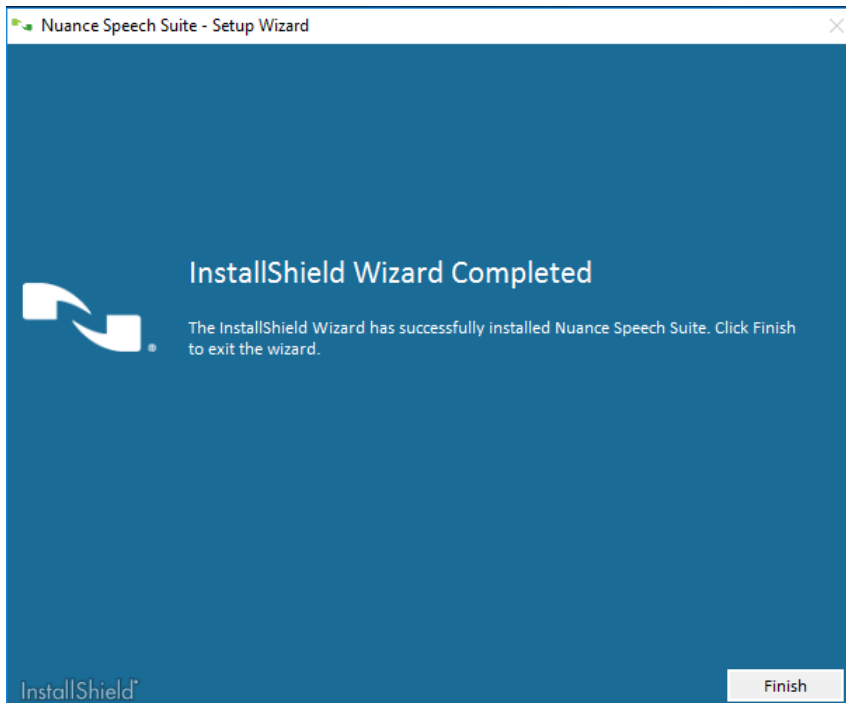
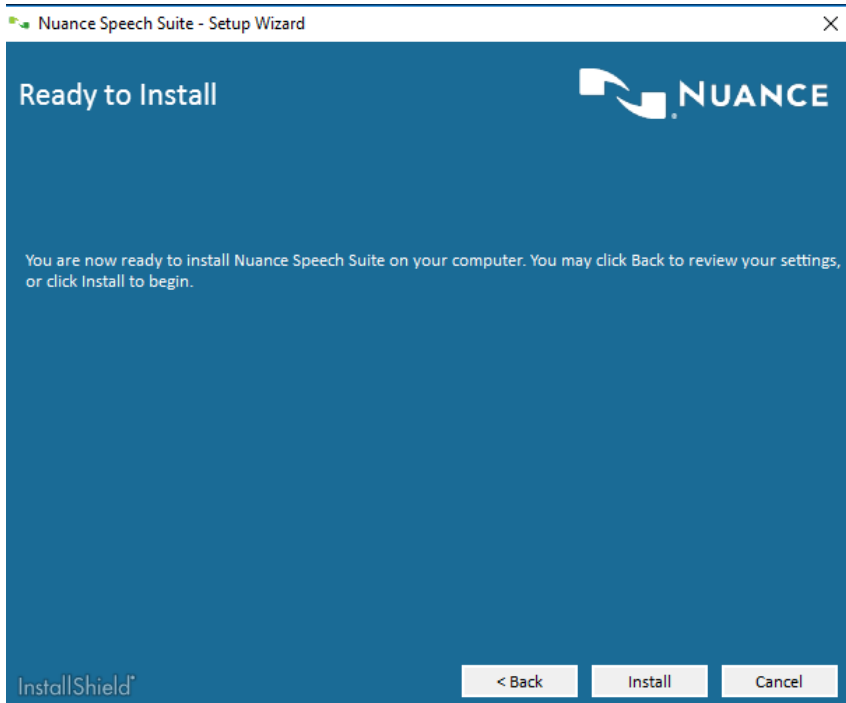


To install the provided US English ASR and TTS languages files then point to the folder *Install_lang* in the folder where the installation package was extracted. Otherwise replace these packages with any language (extracted) from the Recognizeer and Vocalizer packages available on SWDL.

If SQL server is used then enter the path to the *msodbcsql17.dll* file that typically is installed in the *C:\Windows\System32* folder.

If MySQL is used the point to the *libmysql.dll* file in the *<drive>:\Program Files\MySQL\MySQL Server 8.0\lib* folder.





Finish up the installation

Copy updated *NSSserver.cfg* file from the *SpeechServer_config* folder to *<Drive>:\Program Files (x86)\Nuance\Speech Server\Server\config*

Follow the instruction in the Nuance Installation guide how to log on to the Nuance Management Station (user is *Administrator* and initial password in *changeit*) to assign resources and to start the services.

License configuration

OAS

There is a difference in the way Nuance integration is implemented in TAS vs. OAS. When using OAS each OAS Media Server establishes a set number of connections to the Nuance Speech Server at startup. This is configured in the 'AsrTtsObjects' variable in the *hlink.cfg* file located in the *<OAS installation folder>/bin* folder. This variable should typically be set to the highest number of ASR or TTS channel licenses available in the system. But it can also be used in a system where multiple OAS Media Servers are used, so that it can be controlled how many concurrent Nuance ASR and/or TTS sessions that can be performed per media server.

TAS

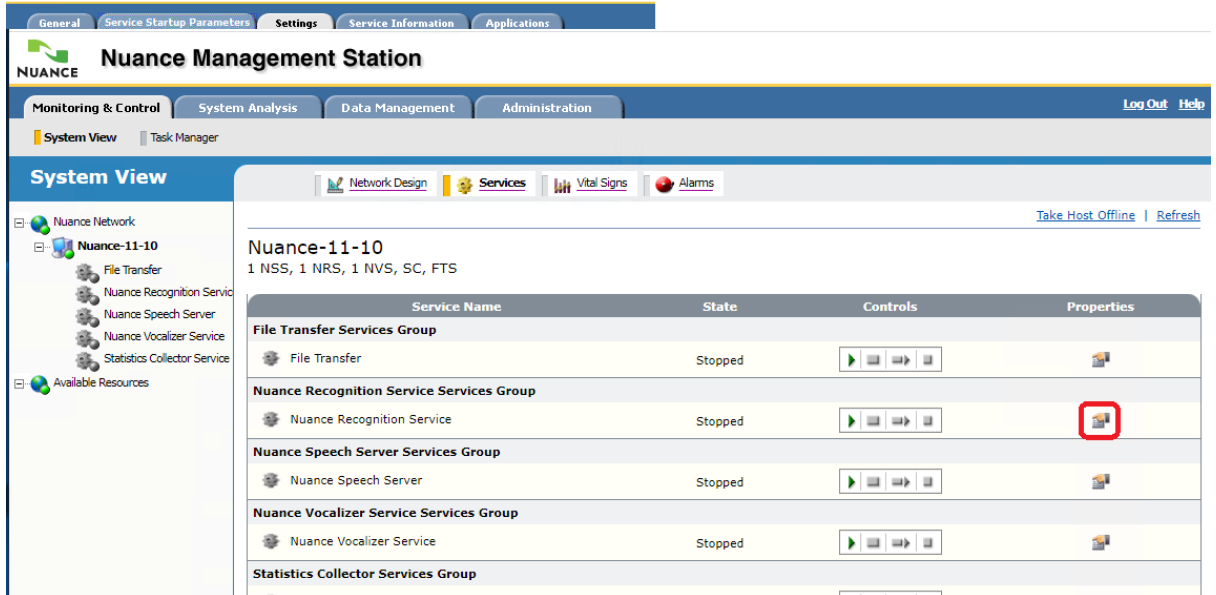
For TAS servers there is no configuration files to update since TAS does not establish a set number of connections at startup. TAS initiates SIP sessions dynamically to Nuance Speech Server when speech resources are requested and tears down the session when the call is completed.

Nuance Speech Server

Nuance Speech Server does by default only accept 4 simultaneous sessions for ASR and/or TTS. To change this, logon to the Management Station and perform the following steps:

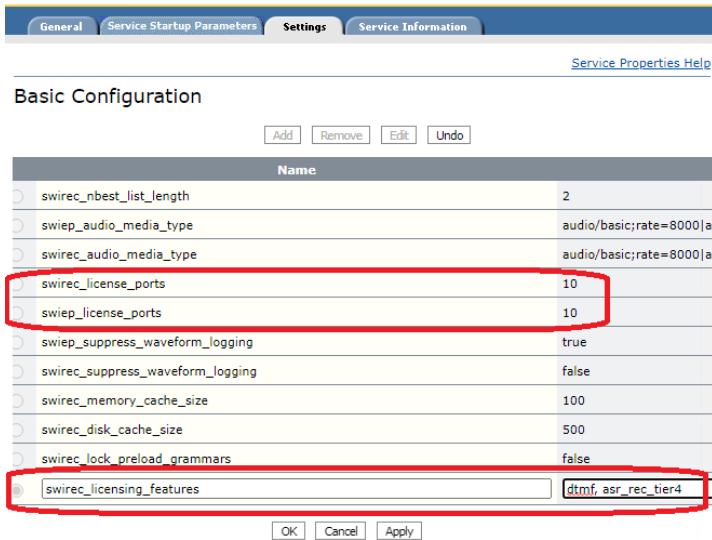
Select your host in the System View pane on the left and click on Services and then click on Properties for the Nuance Recognizer Service.

Nuance Speech Server on Nuance-11-10



Click on the Settings tab, and depending on how many ASR licenses you have, the value of swirec_license_port and swirep_license_ports should be set to that value.

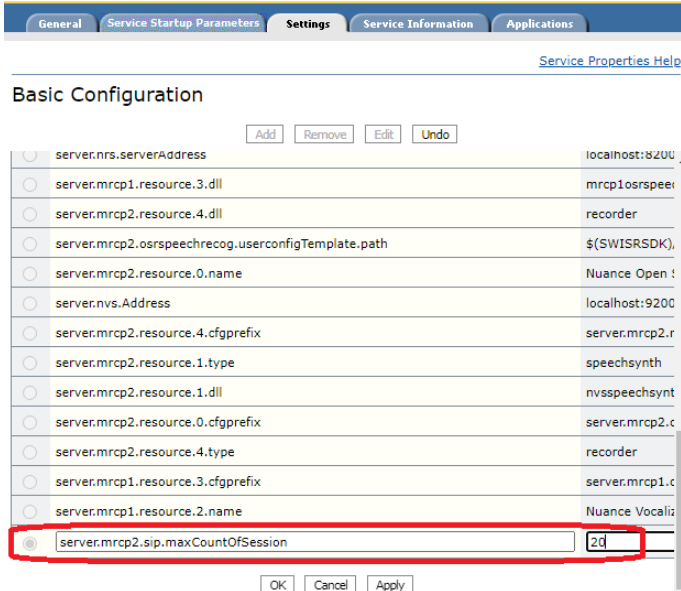
Nuance Recognition Service on Nuance-11-10



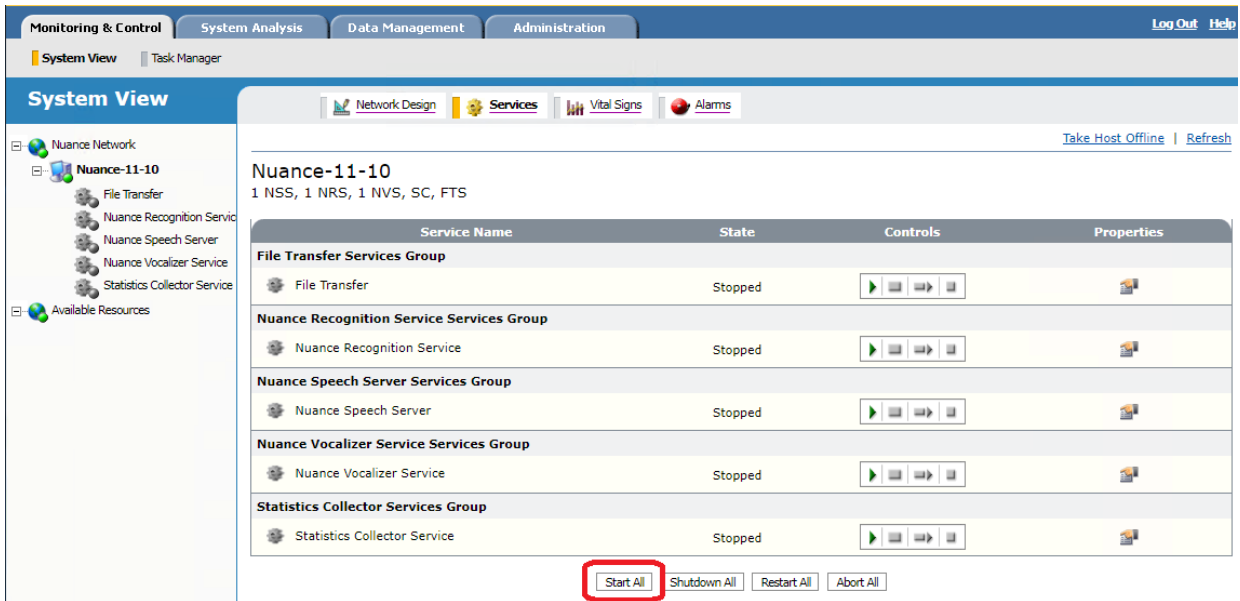
Then **set** the number of TTS licenses you have by clicking on Properties for Nuance Vocalizer Service. Set tts_license_ports to the number of TTS licenses you have.

And lastly, **click** on Properties for Nuance Speech Server and add a new parameter called server.mrcp2.sip.maxCountOfSession and set it to the sum of your ASR and TTS licenses. So for example if you have 10 ASR licenses and 10 TTS licenses then set server.mrcp2.sip.maxCountOfSession to 20.

Nuance Speech Server on Nuance-11-10



Click Start All at the bottom of the Services.



If all went well then all service will start. If not see the Troubleshooting section in the Nuance Installation Guide.

Service Name	State	Controls	Properties
File Transfer Services Group			
File Transfer	Ready	[Start] [Stop] [Restart] [Abort]	[Properties]
Nuance Recognition Service Services Group			
Nuance Recognition Service	Ready	[Start] [Stop] [Restart] [Abort]	[Properties]
Nuance Speech Server Services Group			
Nuance Speech Server	Ready	[Start] [Stop] [Restart] [Abort]	[Properties]
Nuance Vocalizer Service Services Group			
Nuance Vocalizer Service	Ready	[Start] [Stop] [Restart] [Abort]	[Properties]
Statistics Collector Services Group			
Statistics Collector Service	Ready	[Start] [Stop] [Restart] [Abort]	[Properties]

Test the installation by following the instructions in the Nuance Installation Guide, page 46.



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