



International Atomic Energy Agency

RAIS+ Installation Manual

Regulatory Authority Information System

Division of Radiation, Transport and Waste Safety
12-01-2023

Contents

- Contents 2
- Introduction..... 4
- High-level description of the system architecture 4
- RAIS+ Installation software requirements 5
 - Hardware Requirements: 5
 - Minimum requirements for standalone server: 5
 - Minimum requirements for computer server: 5
 - Software requirements: 6
- RAIS+ Installation Modes:..... 6
- RAIS+ Installation Steps:..... 7
- RAIS+ Advance installation 8
- RAIS+ Basic installation 17
- Annex A - Internet Information Services Configuration..... 25
 - Method 1 – IIS installation from Server Manager console 25
 - Method 2 – IIS installation using Powershell 37
- Annex B - SQL Server 2019 Setup..... 40

Version history

Version	Date	Author/s	Description
1.0	06th June 2022	Dragan Avramovski Neji Chihaoui	Intermediate version
1.1	01st December 2023	Dragan Avramovski Neji Chihaoui	Official version

Introduction

RAIS+ is a web-based application built using the React components for the Front end, .NET Core for the backend and MS SQL Server for the database [Figure 1].

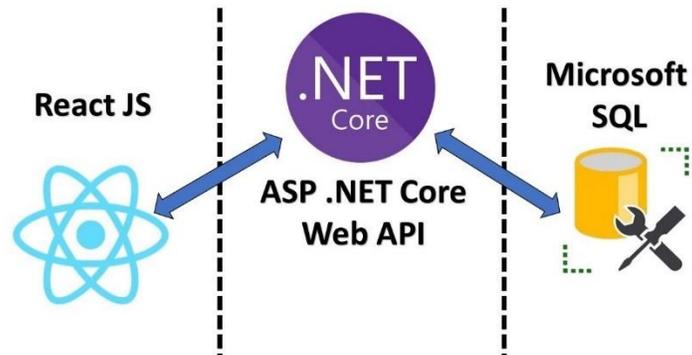


Figure 1

High-level description of the system architecture

RAIS+ follows the classical architecture of a web-based system where the application program is stored on an application server and exposes an API to the web server which then delivers client-side functionalities over the network through a browser interface. The API communicates with Database for record storing and retrieval.

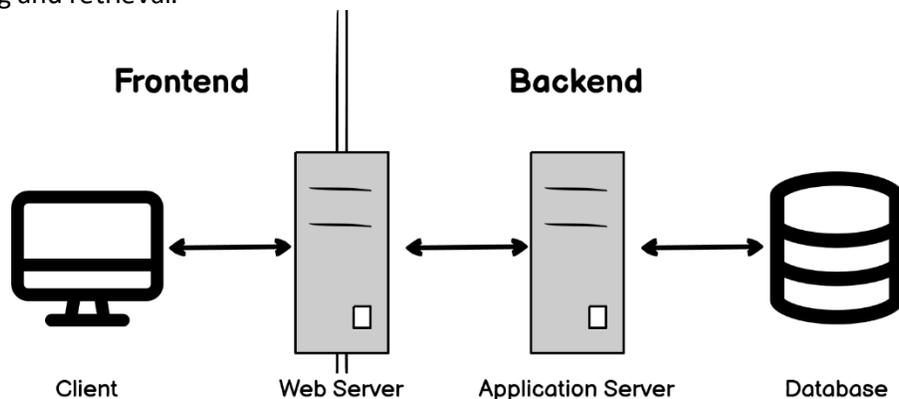


Figure 2

RAIS+ Installation software requirements

Hardware Requirements:

Minimum requirements for standalone server:

RAIS+ standalone will work on any modern computer with Microsoft Windows operating system. Minimum requirements are the following:

- Hard Disk (20 GB available)
- Memory: 4 GB (8 GB High recommended)
- Processor: x64 Processor, Speed: at least 1.4 GHz

Minimum requirements for computer server:

Resource description	Minimal requirements
Server format and datacenter hosting mode:	<ul style="list-style-type: none">• Tower clustered non virtualized, or• Rack or blade virtualized, or• HCI
CPU:	2 sockets, 1/2 CPU, Each CPU: with 10 cores, 20 threads, Basic Frequency = 2 GHz minimum, L3 cache =13 MB
Memory:	DDR4 –2666 MHz, 32 GB installed capacity, Maximum capacity 769 GB
Storage:	Type SAS, supporting Hot-plug with spare disks available, 1.2 To useful capacity, configured with RAID 5-2GB Buffer
Power and FAN	Redundant voltage 220/230 V, 240 V or 110/120 V depending on location. Redundant FAN
Network	RJ45 - 100/1000 MBits/s, and an additional management port

Table 1

Table 1 describes the minimal requirement of a standalone server for medium range use. In a production environment, monitoring the system is recommended to identify whether additional system resources are needed.

Moreover, in a wide range use, deploying RAIS+ software on a n-Tier architecture with load balancing or clustering of both application and storage servers could offer better and optimized availability, performance and scalability of the system.

Software requirements:

1. Operating System
 - a. Windows 2019 Server or later, with the latest service pack and patches installed.
 - b. The latest version of the Internet Information Services.
2. Database Management System: Microsoft SQL server 2019 or later
3. Other modules: Hosting bundle 7.0.9 and Target Framework asp.net core 6.0.
4. Download RAIS+ software from these locations:

<https://www.iaea.org/resources/software/rais-plus>

Or

http://ns-files.iaea.org/files/RAIS_Software.zip

The installer package includes by default the following modules:

- SQL Server online installer
- RAIS+ software installer
- Hosting bundle 7.0.9
- .NET Core 6.0

Note: for Training or limited standalone use, it is possible to install RAIS+ on Microsoft Windows 10 - version Professional or Enterprise 10.0.19044.170 with SQL Express 2019.

RAIS+ Installation Modes:

RAIS+ as a web application that can be installed and run in two modes:

1. Basic Mode: with this mode of deployment the application uses Kestrel as web server. This mode of installation could be used for the following reasons:
 - a. No need for configuration and monitoring advanced features of the system, such as management console, logging, port sharing, request filtering...
 - b. Insufficient experience of how to prepare and configure the advanced installation mode.
2. Advanced Mode: in this mode the application uses IIS as web server. It is recommended for production deployment where the RAIS+ system will be connected to the Network to provide access to users. With this mode, IIS Web Server advanced features are available, such as management console, logging, port sharing, request filtering, etc. This can help the administrator configuring the environment, monitoring flows, fixing observed issues.

RAIS+ Installation Steps:

1. Install and configure the Operating system,
2. Enable inbuilt Administrator Account,
3. Turn Off User Account Control,
4. Restart the computer and logon as Administrator,
 - a. For all the next steps, use the administrator account.
5. Add Internet Information Services (IIS) Features: see Annex A – Internet Information Services Configuration,
6. Install and configure SQL Server: see Annex B – SQL Server 2019 Setup
7. Run the RAIS+ installer,
8. After the installation, restore the default configuration of the UAC applied on administrator account.

Figure 3 describes installation process steps of RAIS+ and its running environment.

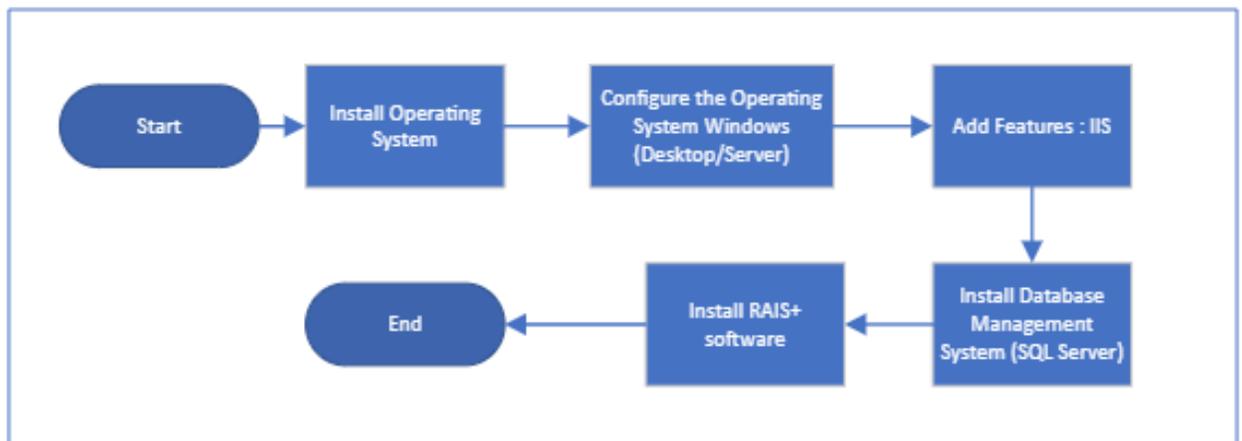


Figure 3

RAIS+ Advance installation

1. Right click the RAIS+ installer, then click run as administrator.

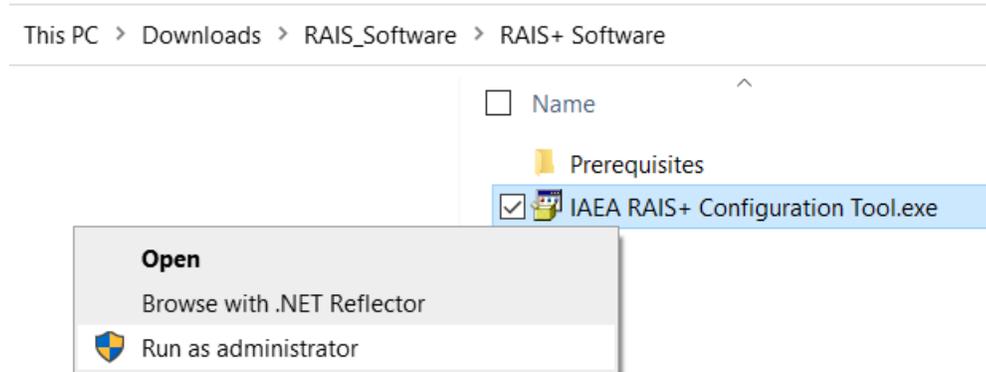


Figure 4

2. From the RAIS Configuration Tool choose whether an Advance Setup mode or in Basic Setup mode will be selected.

Select the Advance Setup,

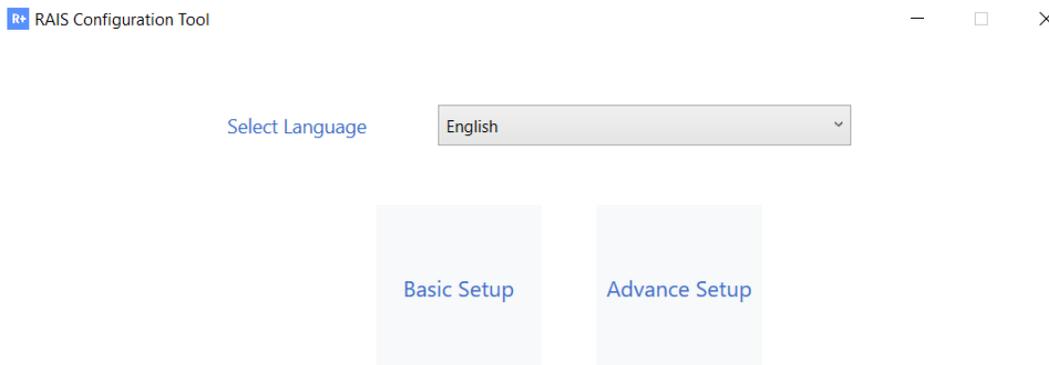


Figure 5

3. Read from the following menu and click Next.

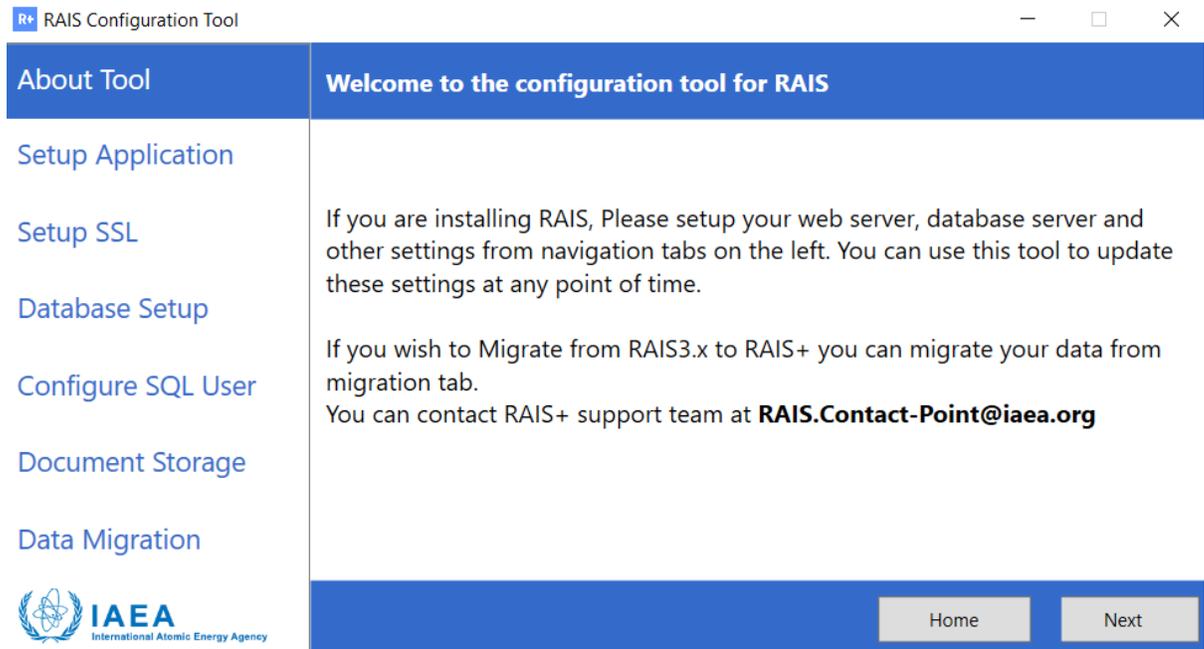


Figure 6

4. From the following menu as in the Figure 7, configure the following parameters:

- Destination Folder: create and select a destination folder that will be used to store application files,
- Website Name: submit the virtual web folder name that will be added to IIS,
- Port: submit a port number. This port number should not be used by other applications on the same server, from the range: 1024- 49151.

If you are using port sharing, ask the Network/System Administrator to configure this parameter within IIS and DNS server.

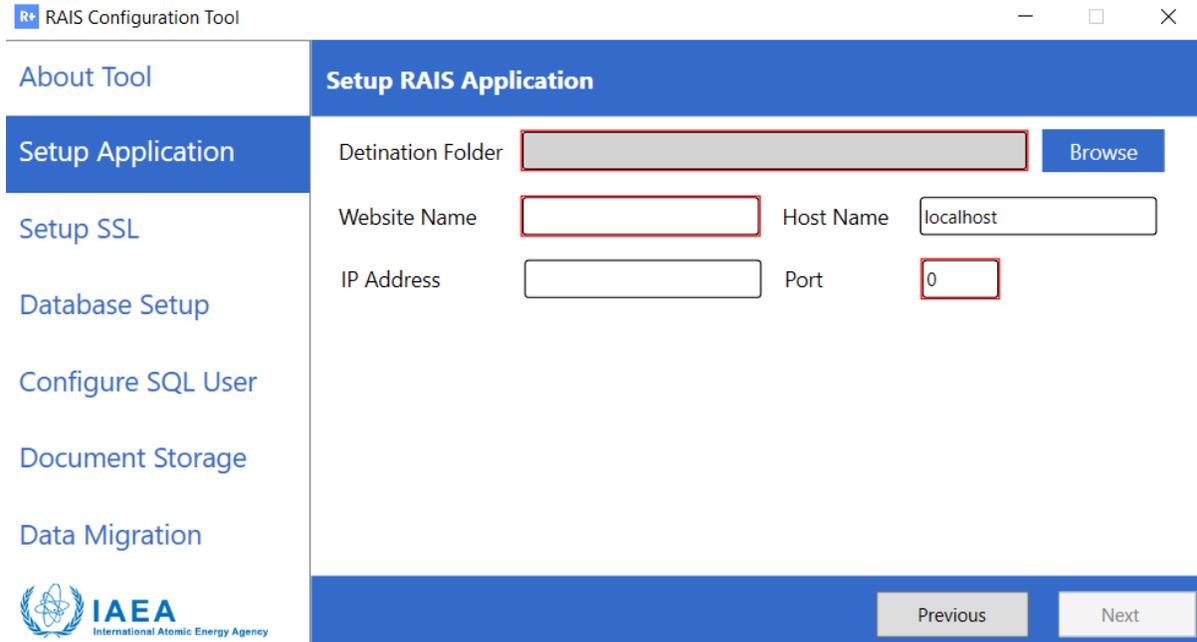


Figure 7

Figure 8 describes an example of web parameters configuration.

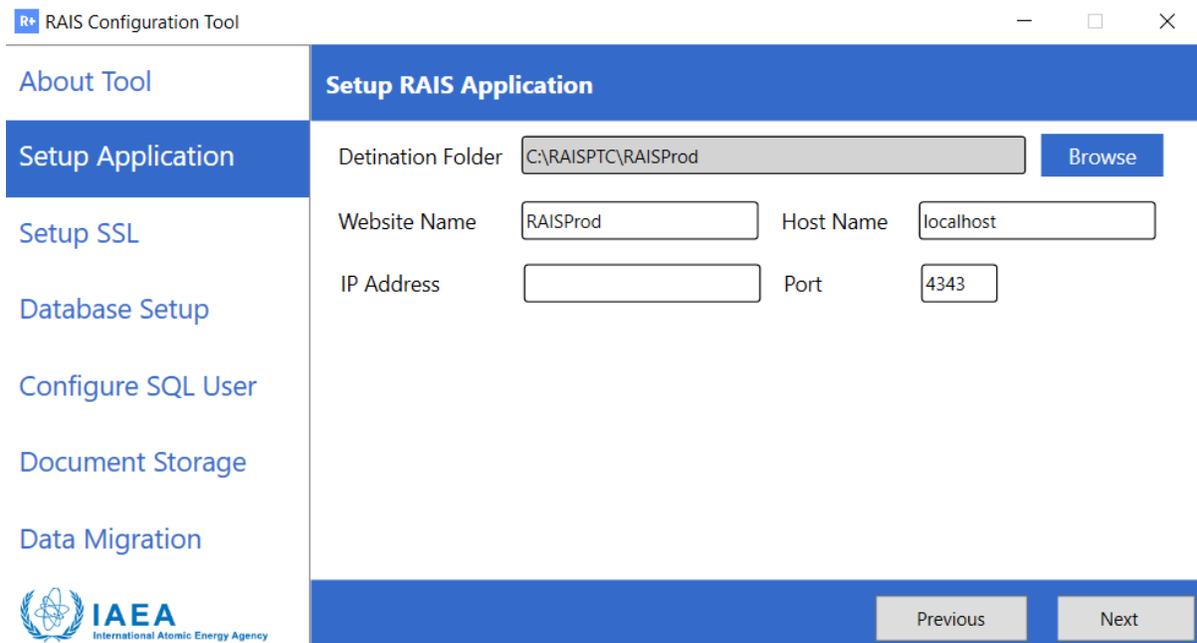


Figure 8

- Click Next

5. Configuration of used modules:

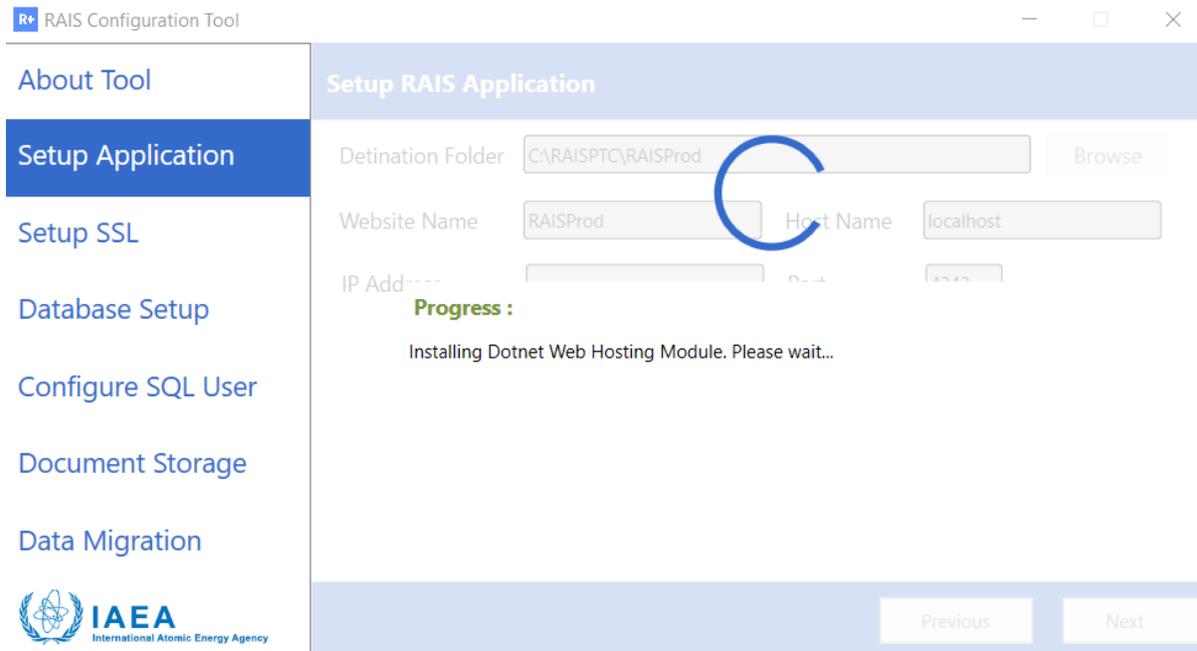


Figure 9

6. From the following menu, select one option and click Next:

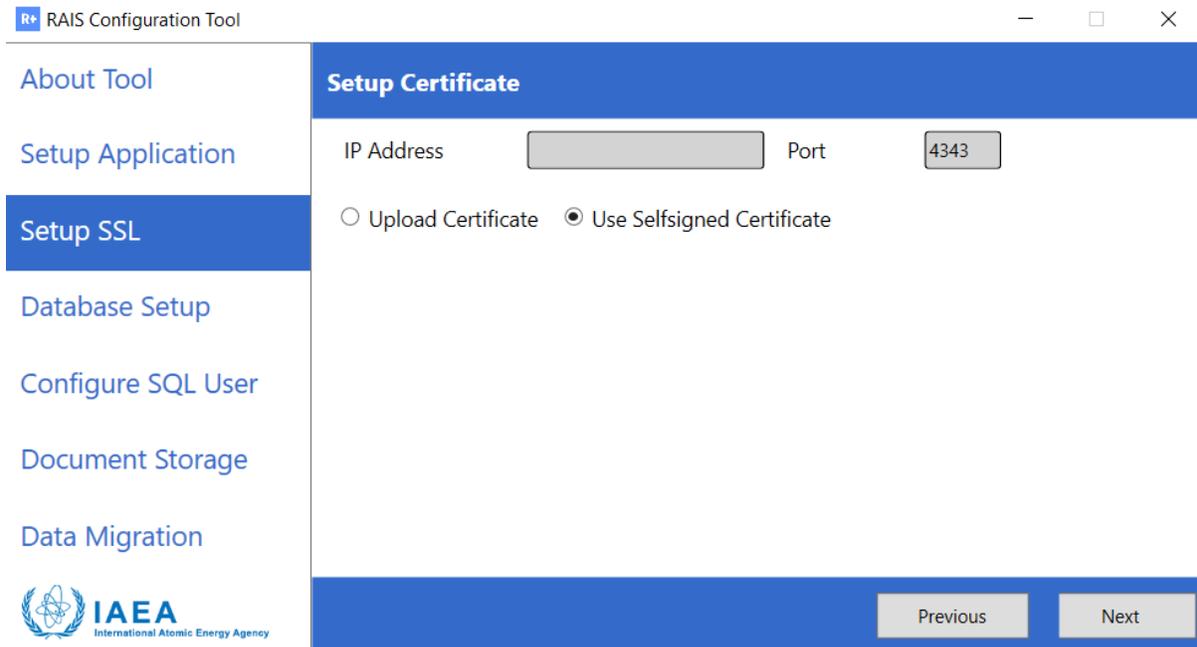


Figure 10

Note: If a trusted CA certificate is available, select Upload Certificate. If not, select Use Self-signed Certificate provided by RAIS+,

Configuration of SSL certificate:

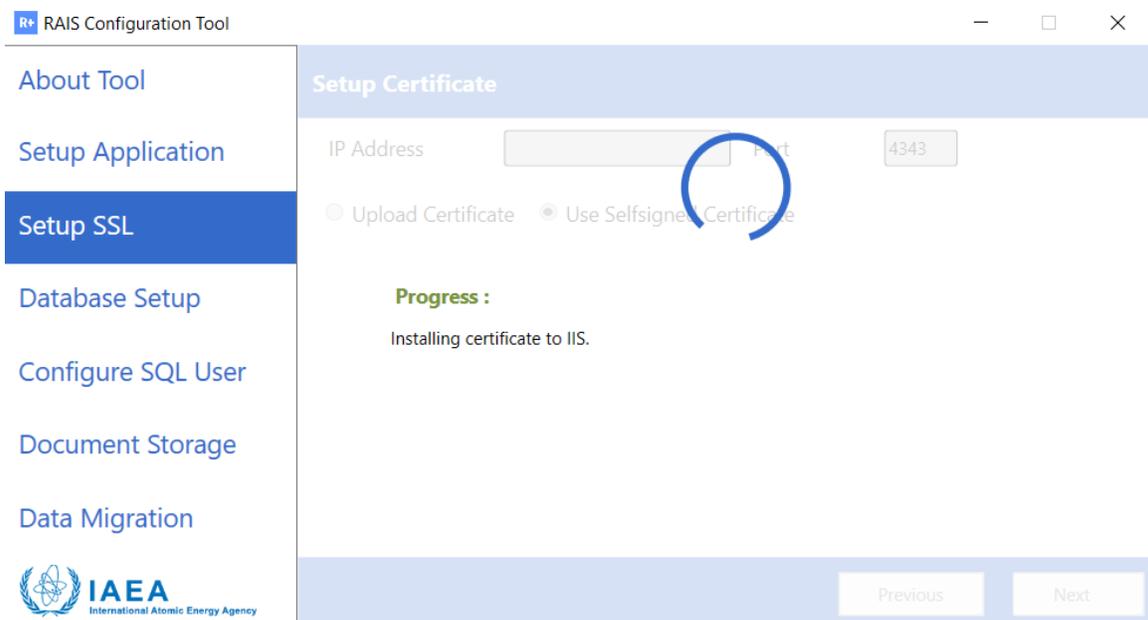


Figure 11

7. From the menu Configure Database:

- Select the instance name from the database server,
- Select the authentication mode (Windows or SQL), then click “Test connection” to ensure that the SQL service is running, and the connection is successfully established,
- Submit the Database Name,
- Click Next,

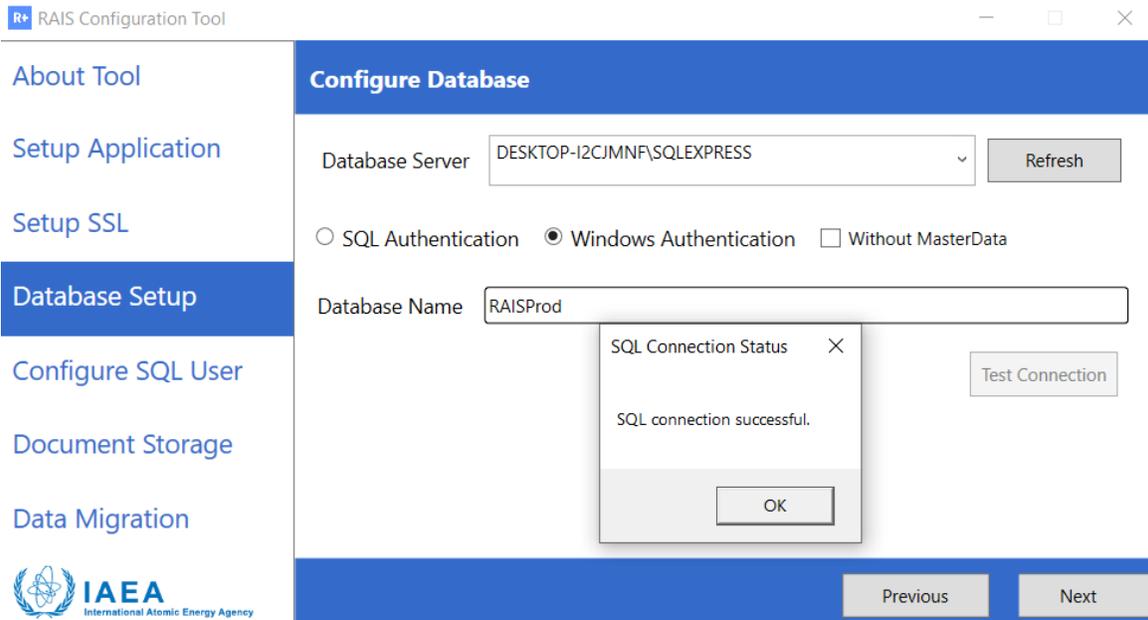


Figure 12

Note: If the SQL 2019 Standard/Express/... is not installed, the installer will setup SQL Server before to proceed to next step.

8. Restoring Database in the selected SQL instance from the previous step,

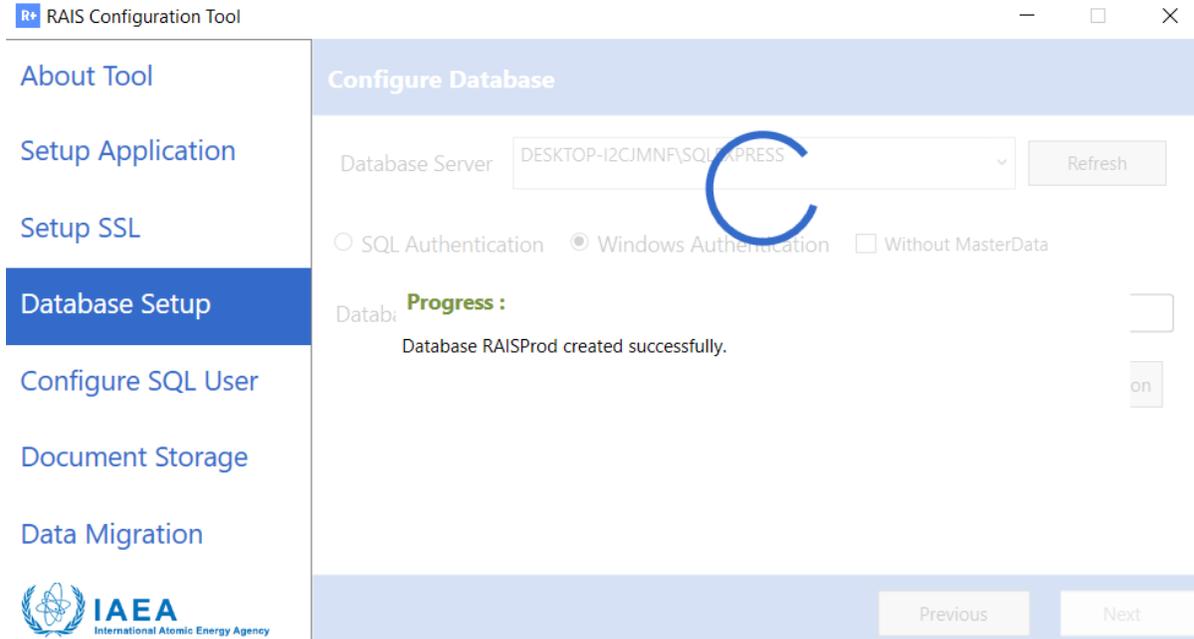


Figure 13

9. Submit RAIS+ credentials:

- a. SQL account: username and password
- b. The default Admin password (for the Raisadmin account)

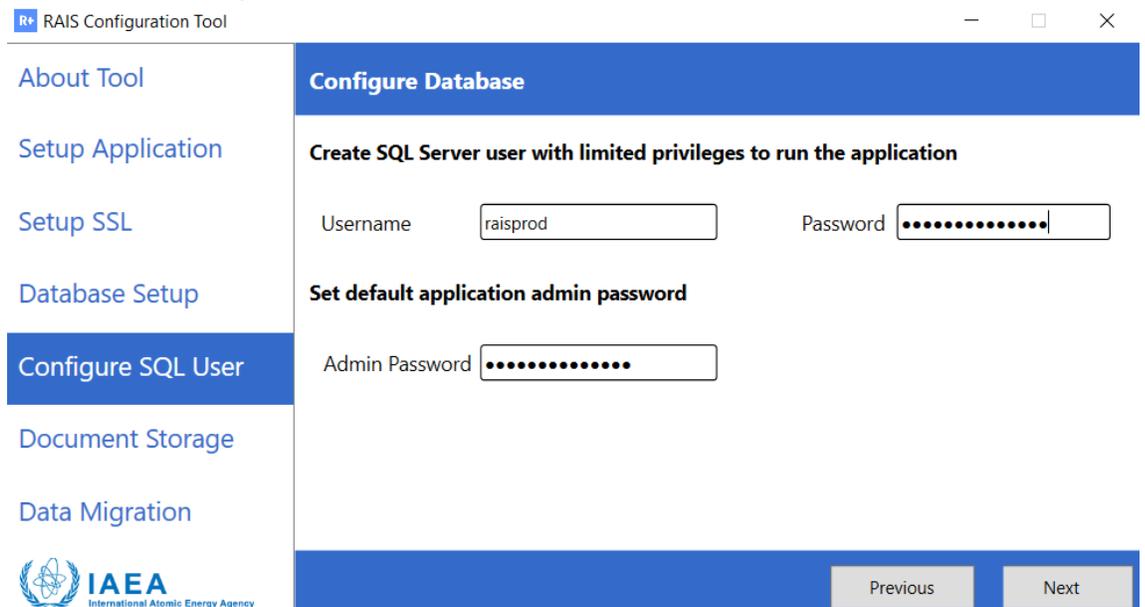


Figure 14

10. Create and submit a destination folder name for file attachments,

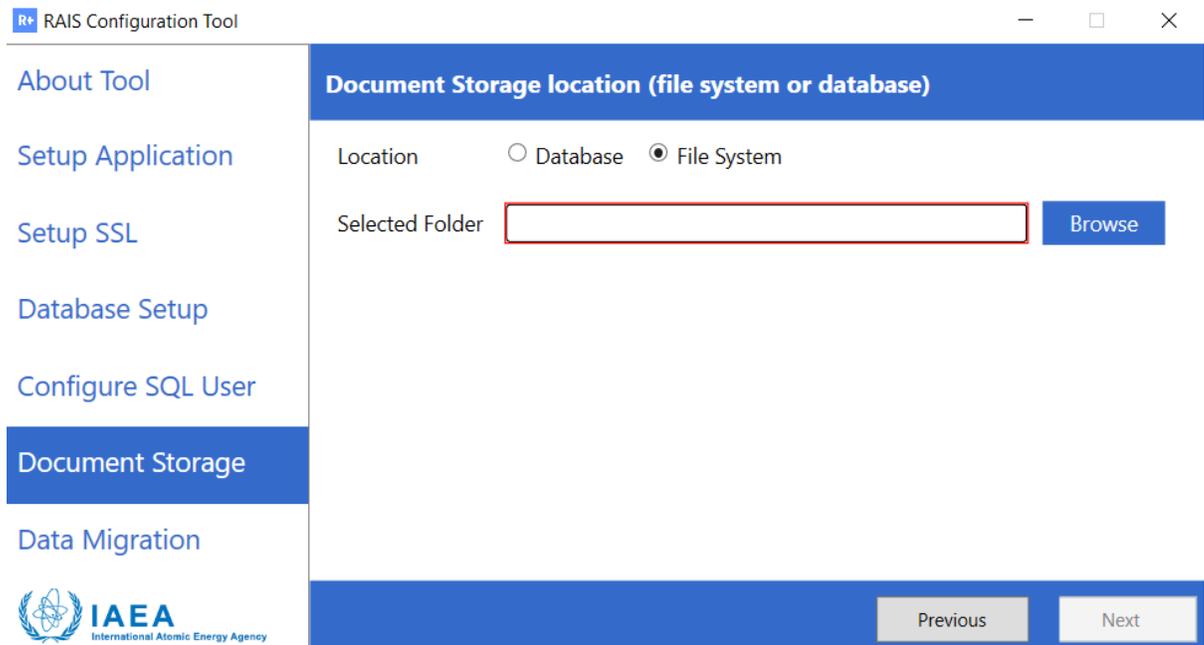


Figure 15

Note: The uploaded files can be saved within the Database if the option “Database” is selected, Select Database, then Click Next,

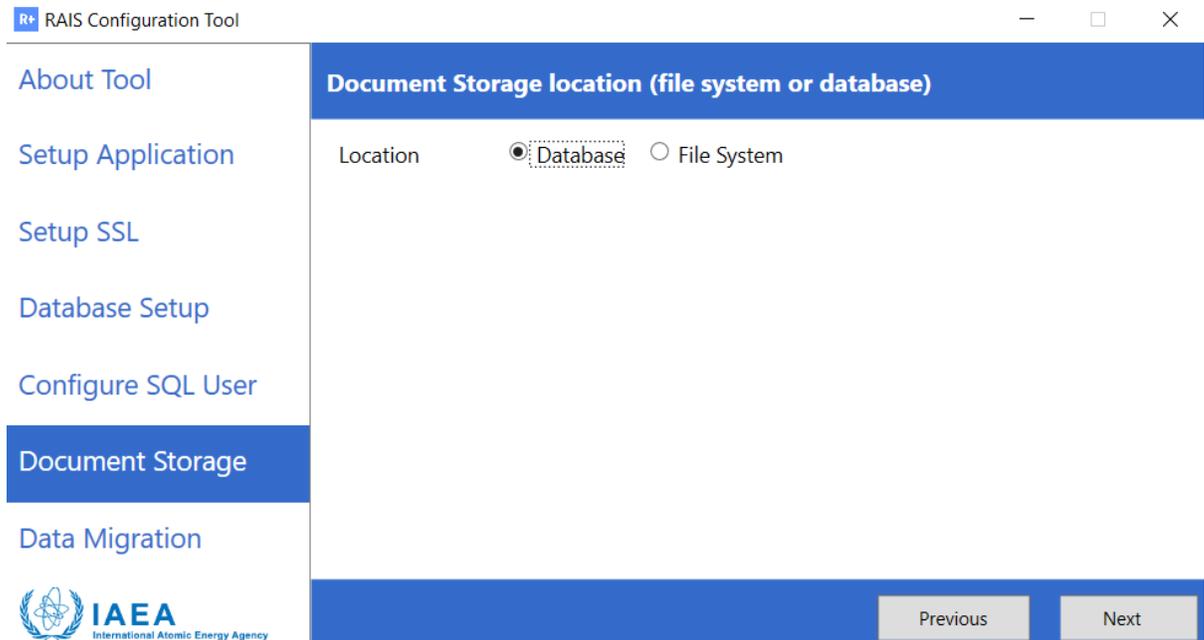


Figure 16

11. Generation of RAIS+ application shortcut,

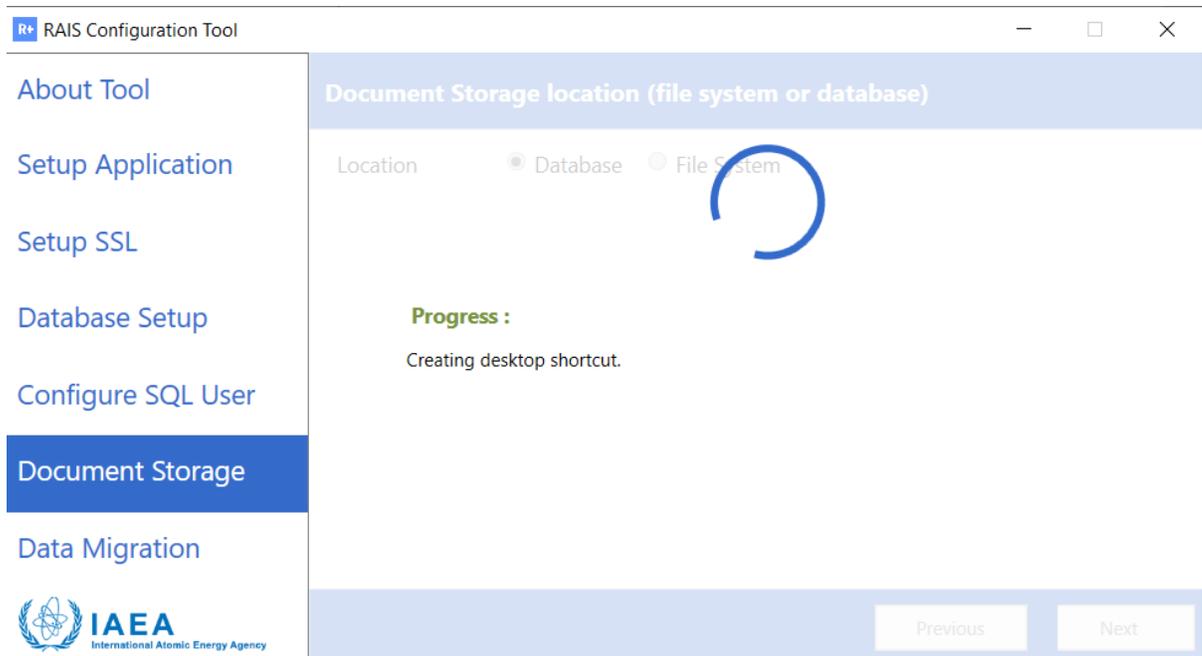


Figure 17

12. Finally, RAIS+ is installed successfully, click Finish from the following menu,

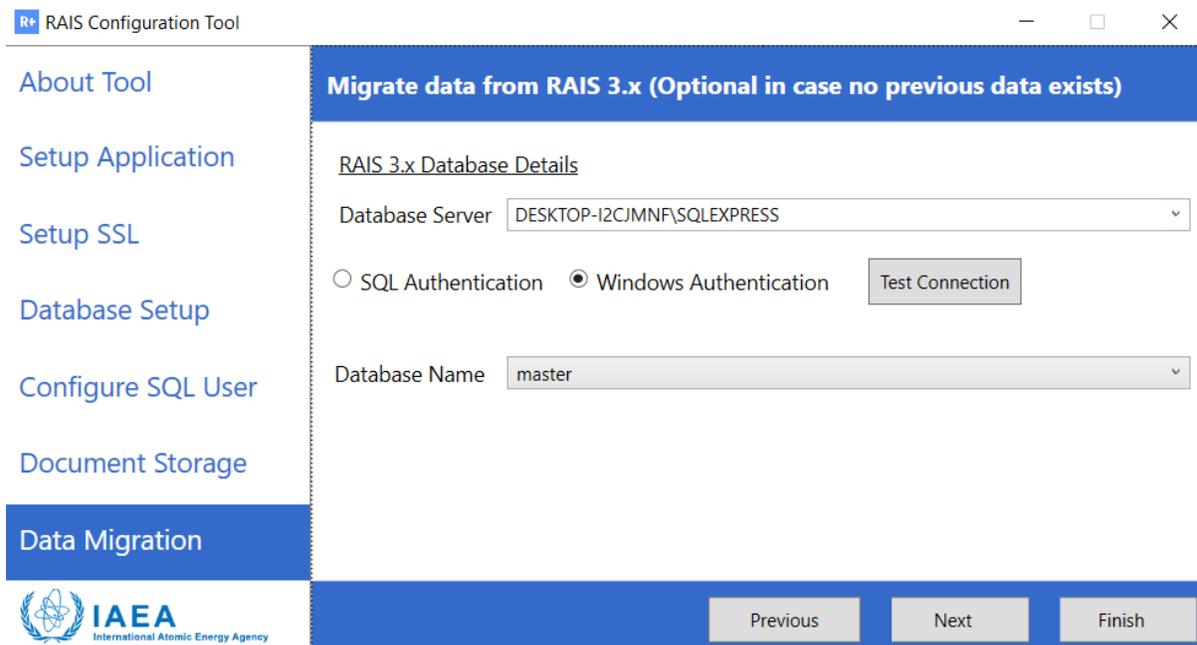


Figure 18

13. Use login credentials to get access to RAIS+ application:

Login: Raisadmin

Password: as created in step 9



Figure 19

The application is available for the administrator,

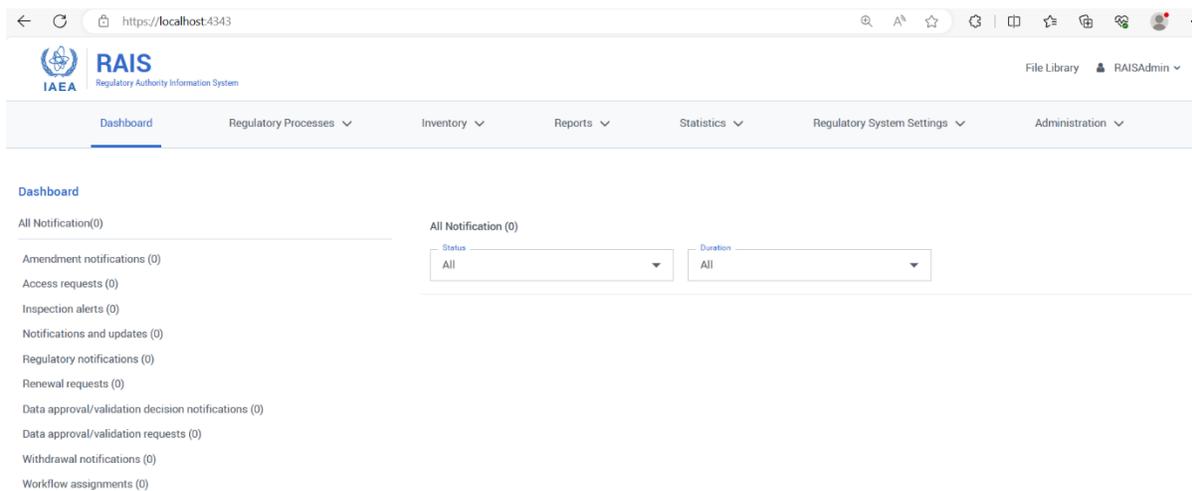


Figure 20

Note: Run the Basic Setup mode, if you want less user interaction with the installer.

RAIS+ Basic installation

1. Right click the RAIS+ installer, then click run as administrator.

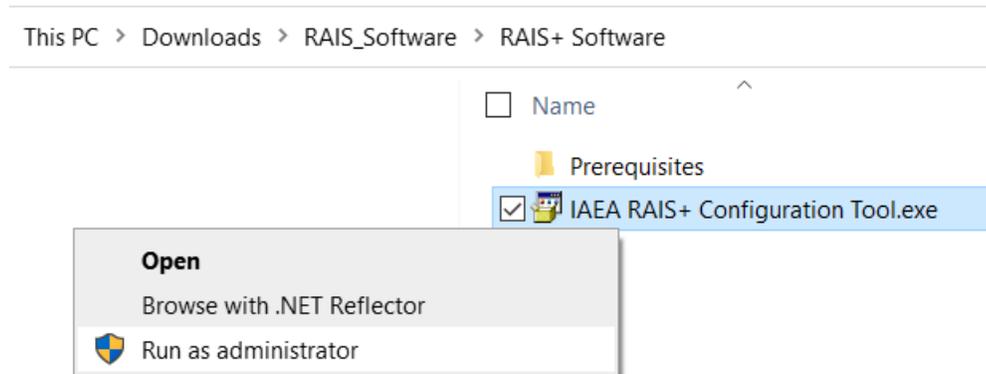


Figure 21

2. From the RAIS Configuration Tool Basic Setup mode,

Select the Basic Setup,



Figure 22

3. Read from the following menu and click Next.

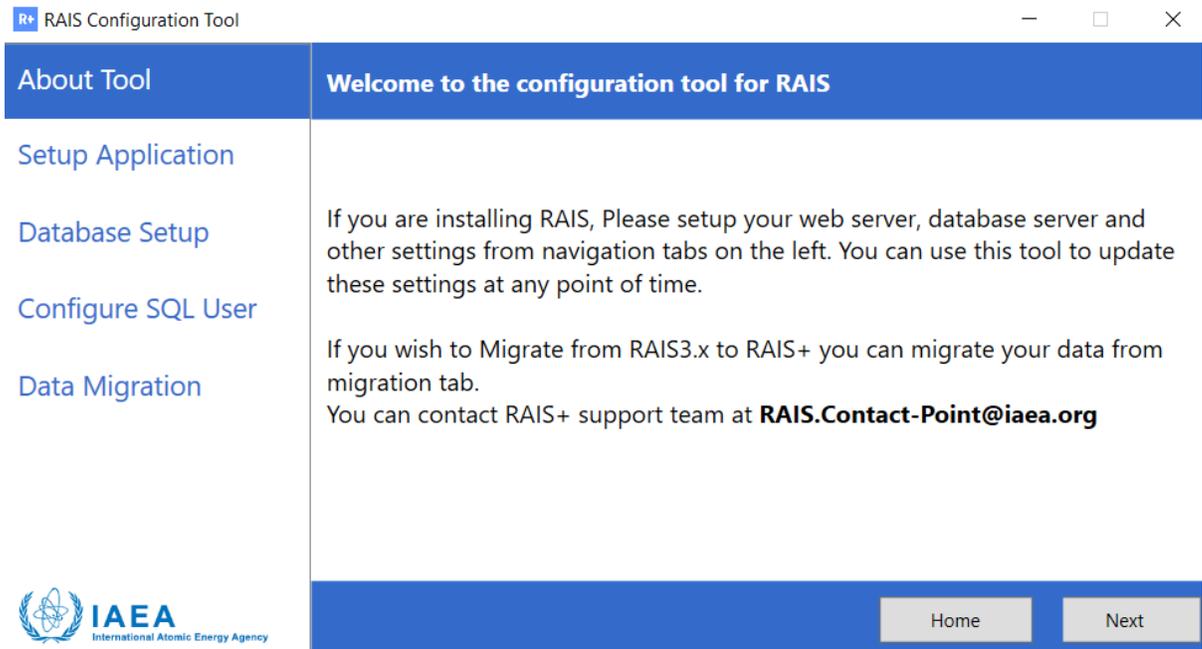


Figure 23

4. From the following menu:

- a. Click Browse,
- b. Create a folder, to store application files,
- c. Click Next:

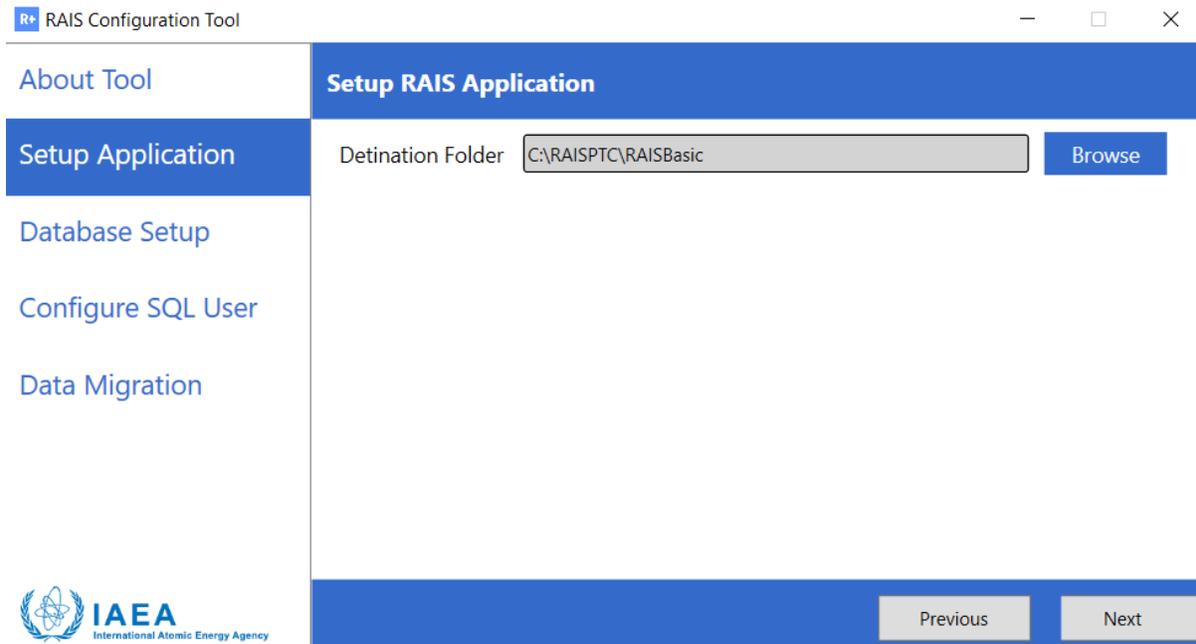


Figure 24

Figure 25 describes the application configuration step.

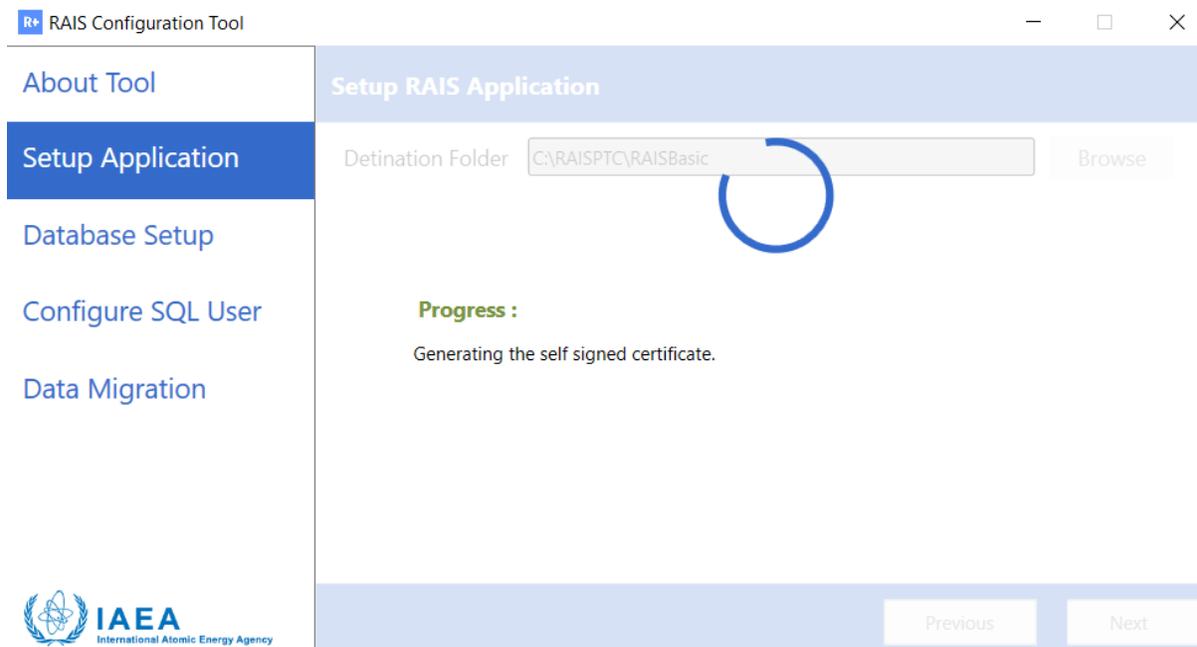


Figure 25

Note: if SQL Server is not already installed in the machine, RAIS+ installer will setup that software before to proceed to RAIS+ installation:

5. From the Menu Configure Database:
 - a. Select the instance name from the database server,
 - b. Select the authentication mode (Windows or SQL), then click "Test connection" to ensure that the SQL service is running, and the connection is successfully established,
 - c. Submit the Database Name,
 - d. Click Next,

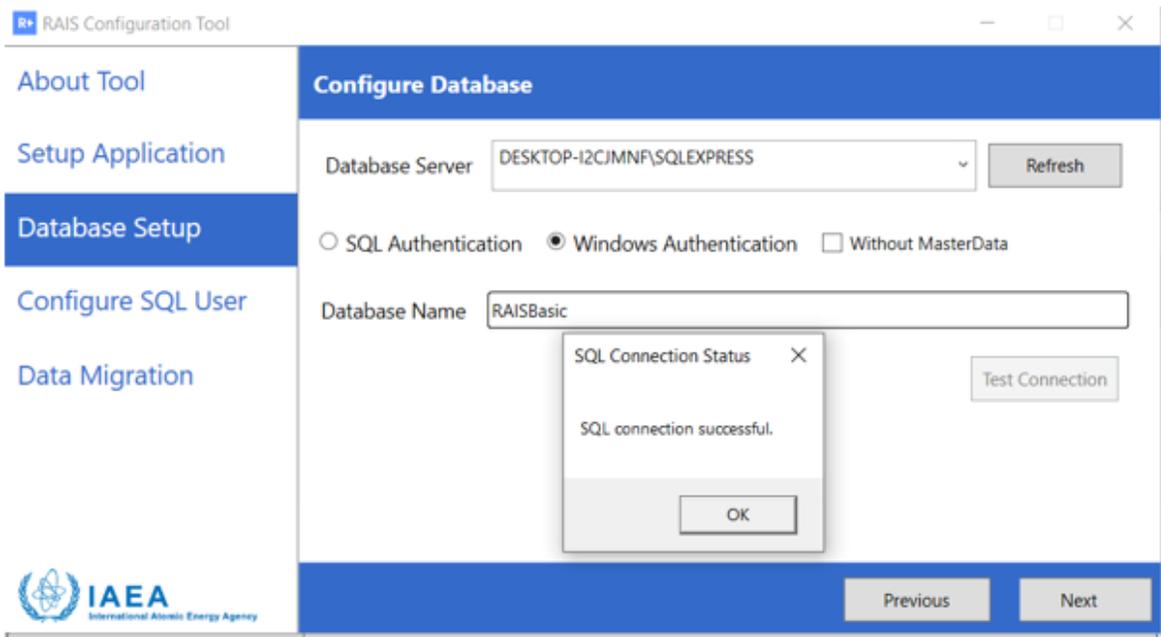


Figure 26

Restoring Database in the selected SQL instance from the previous step,

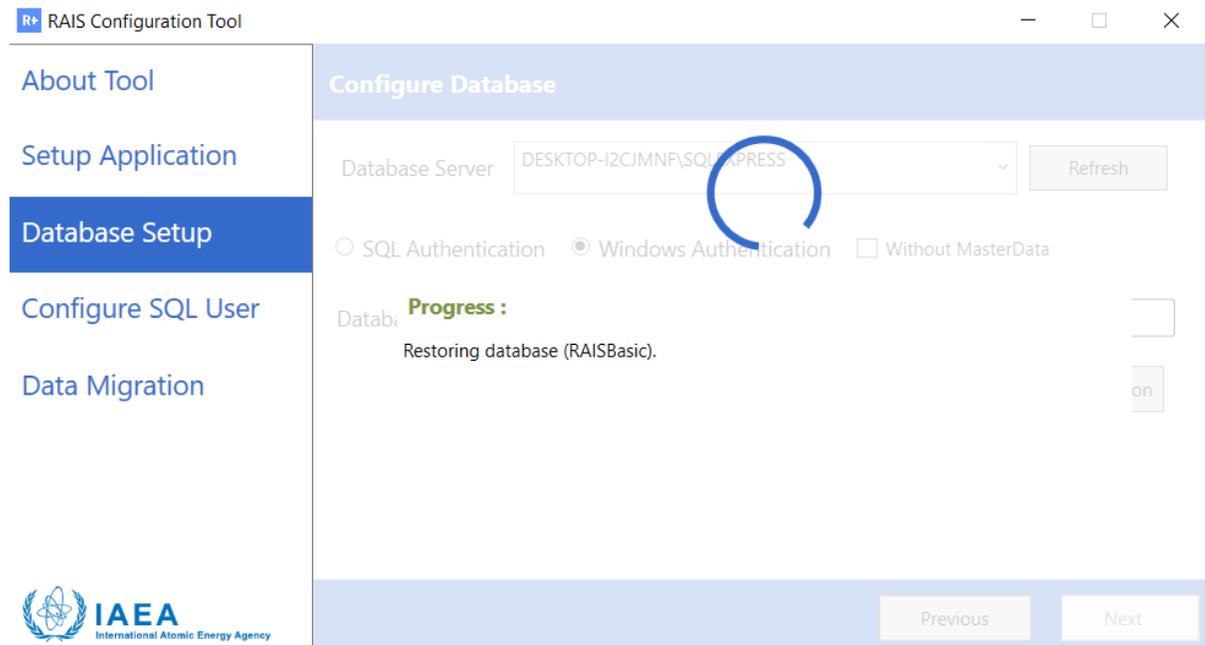


Figure 27

6. Submit RAIS+ credentials:
 - a. SQL account: username and password
 - b. The default Admin password (for the Raisadmin account)

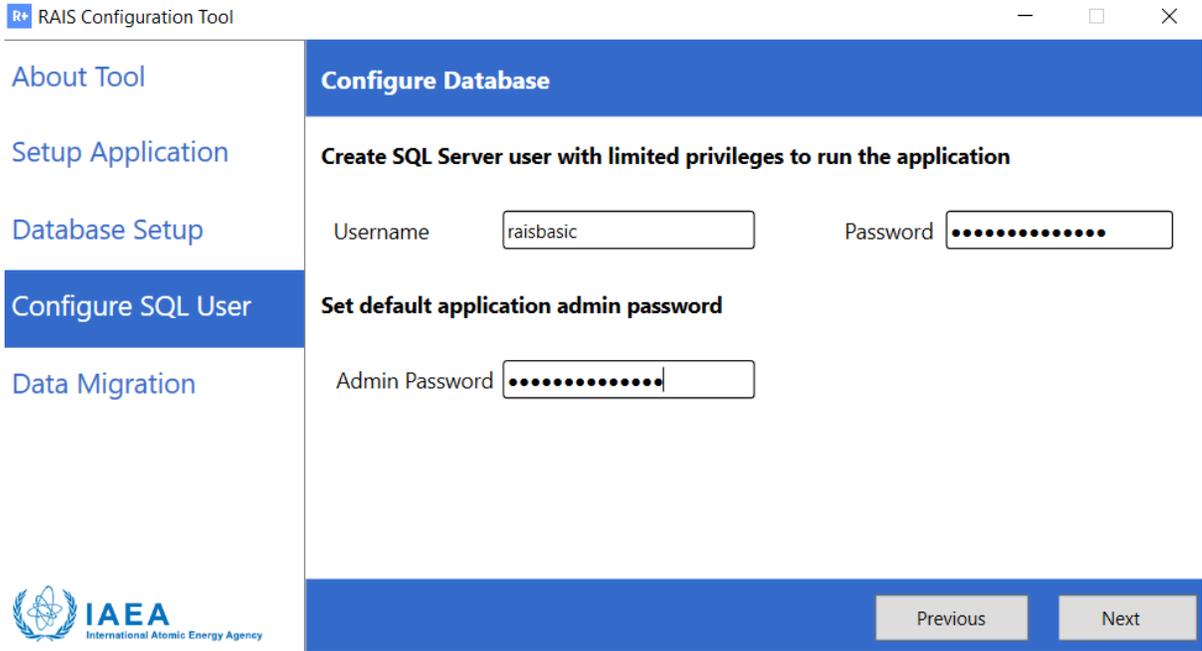


Figure 28

7. Application configuration and generation of RAIS+ shortcut,

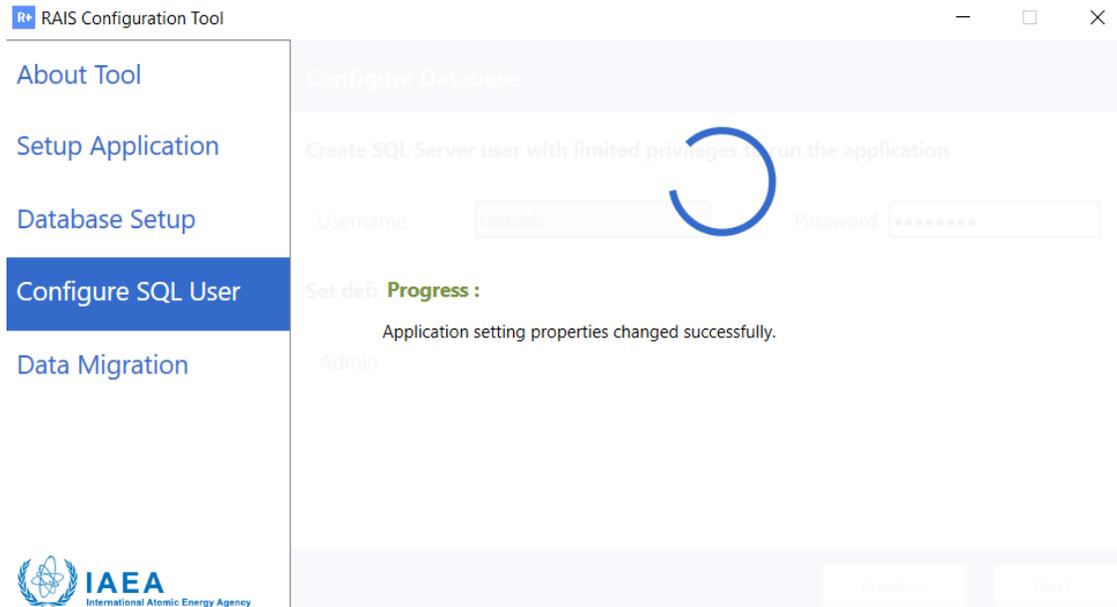


Figure 29

8. RAIS+ is installed in Basic Mode, click Finish:

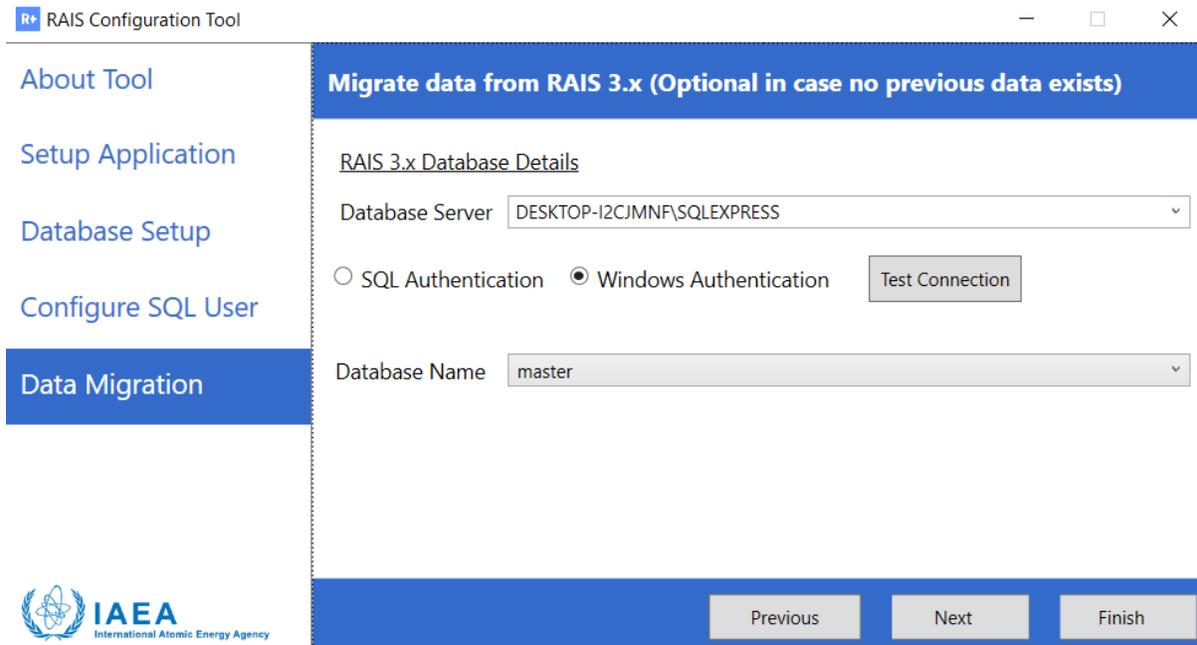


Figure 30

9. Use login credentials to get access to RAIS+ application:

Login: Raisadmin

Password: as created in step 9



Figure 31

The application is available for the administrator,

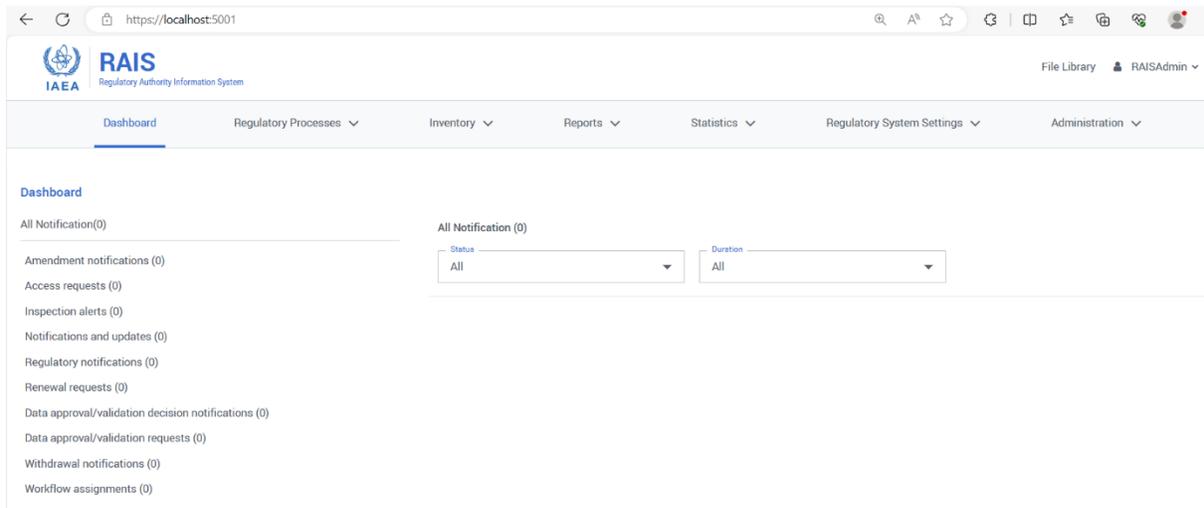


Figure 32

Annex A - Internet Information Services Configuration

Use the inbuilt administrator account to add roles and features in the server before to install RAIS+

Method 1 – IIS installation from Server Manager console

1. Select **Start > Server Manager**.

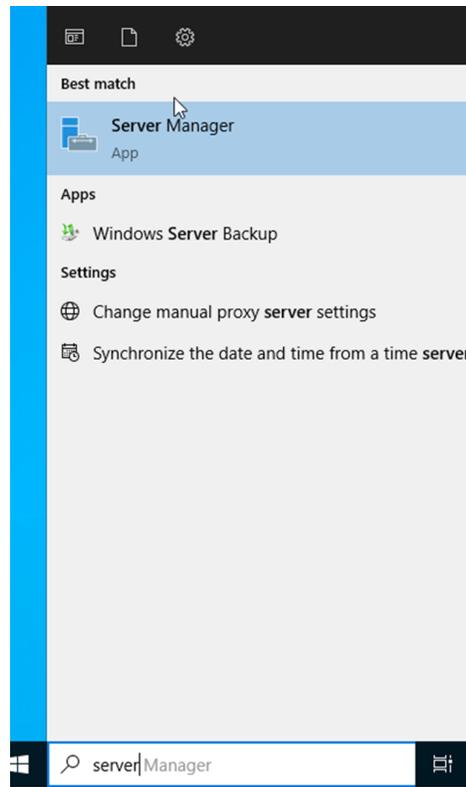


Figure 33

2. In Server Manager, select **Manage > Add Roles and Features**.

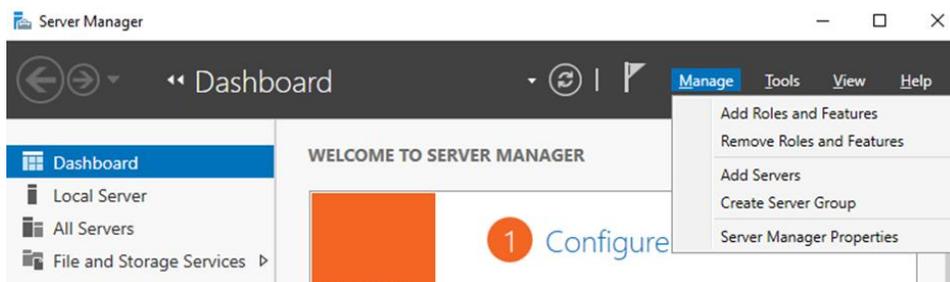


Figure 34

3. In the Add Roles and Features wizard, click **Next** until the **Server Roles** page appears.

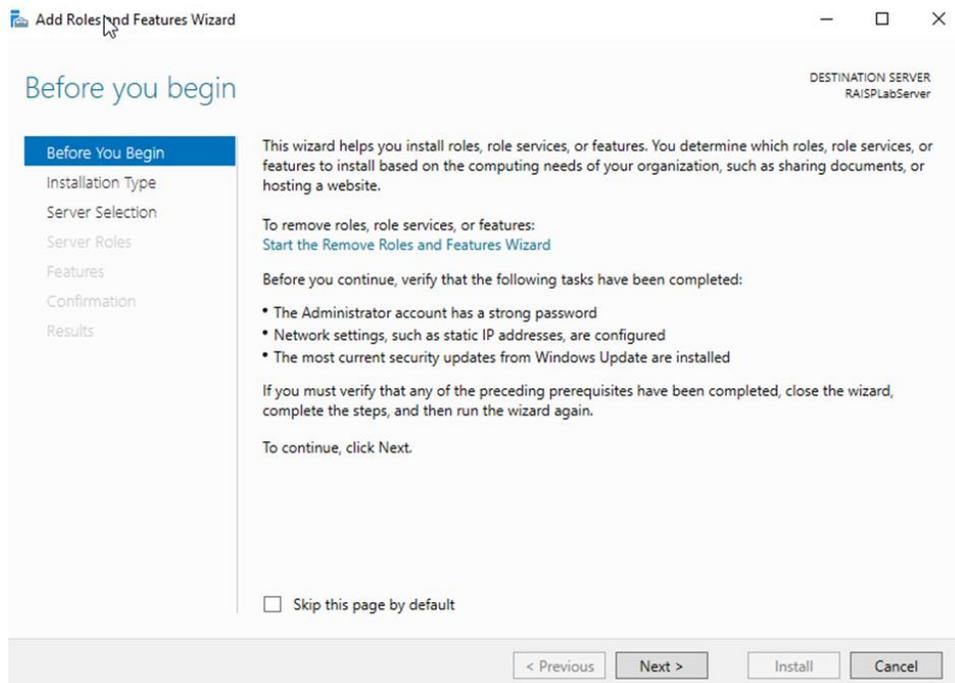


Figure 35

4. In the Add Roles and Features wizard, click **Next** until the **Server Roles** page appears.

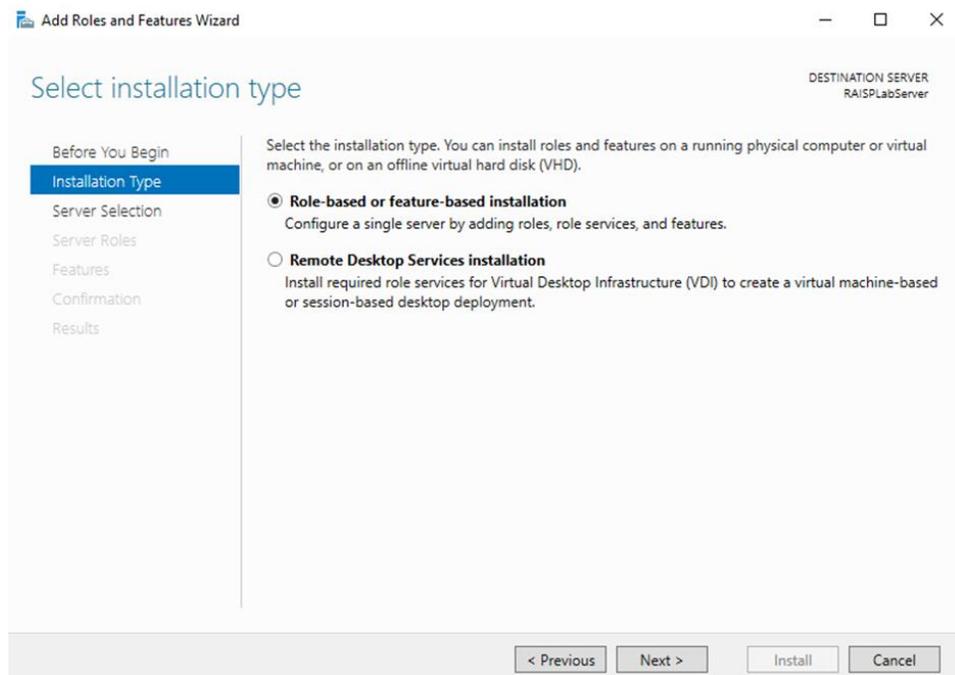


Figure 36

5. In the Add Roles and Features wizard, click **Next** until the **Server Roles** page appears.

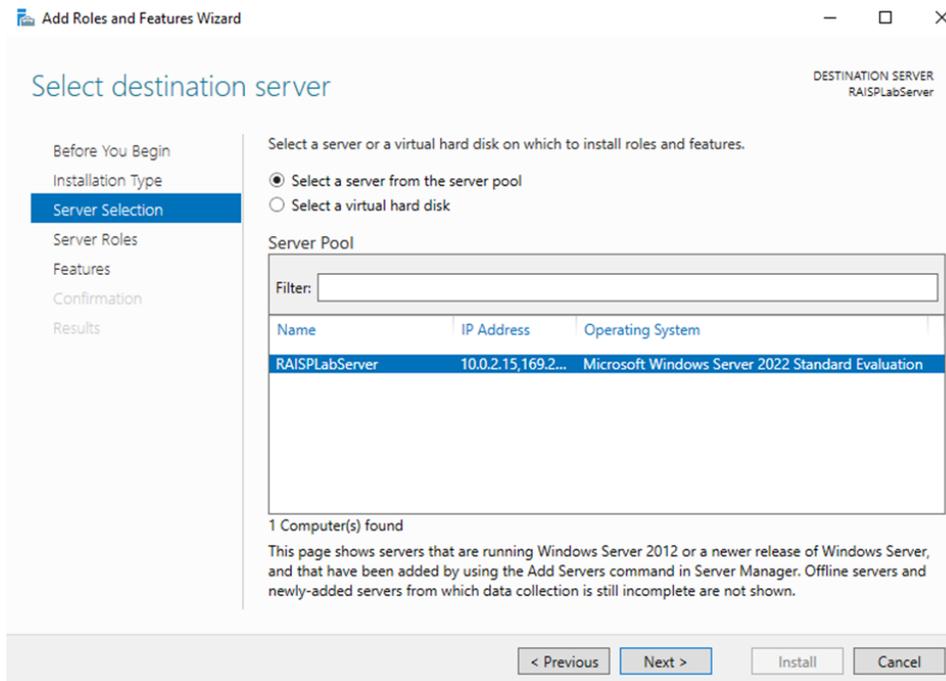


Figure 37

6. In the Server Roles page, select the role Web Server (IIS)

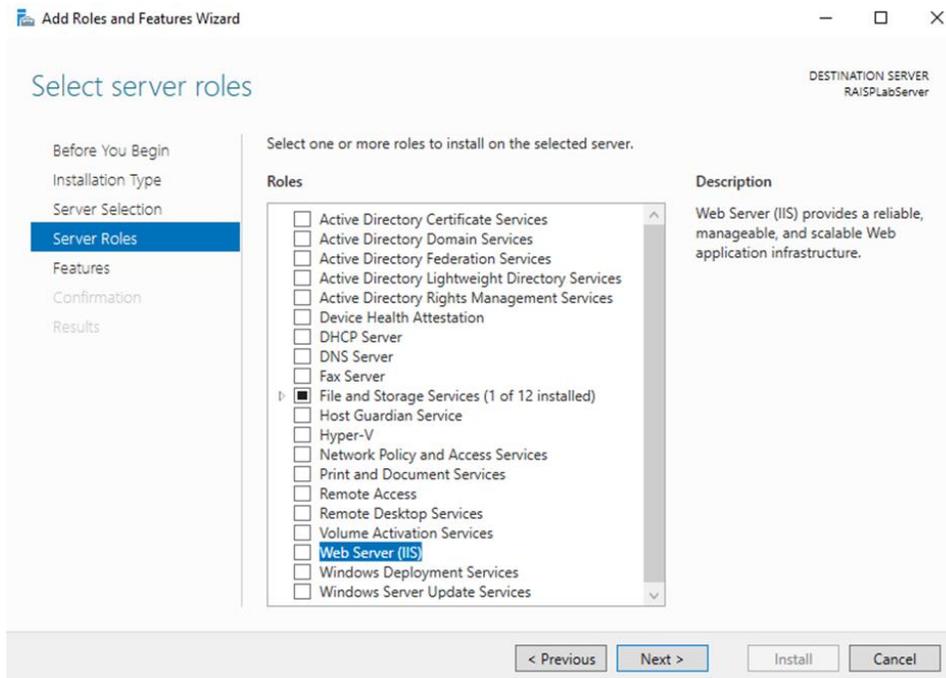


Figure 38

7. In the Add Roles and Features Wizard page, click Add Features

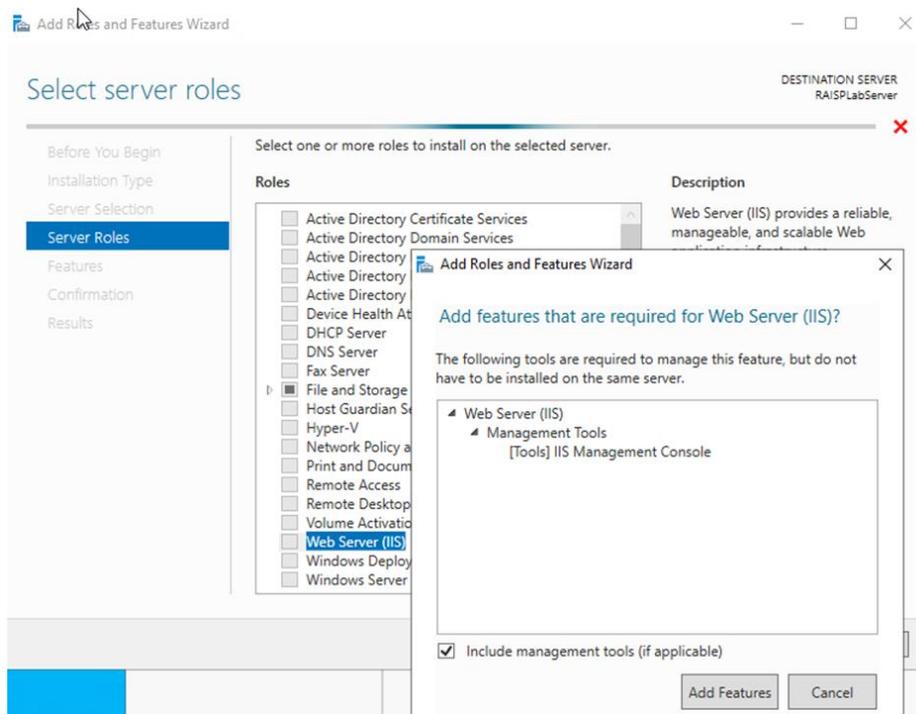


Figure 39

8. In the Roles Wizard page, click Next

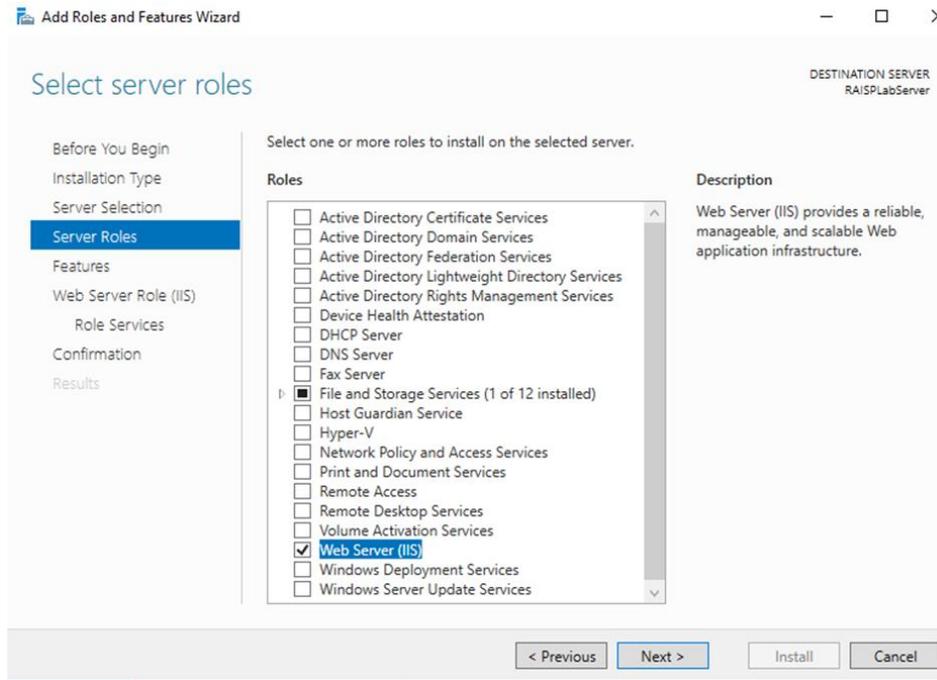


Figure 40

9. In the Add Roles and Features Wizard page, select ASP.Net 4.8

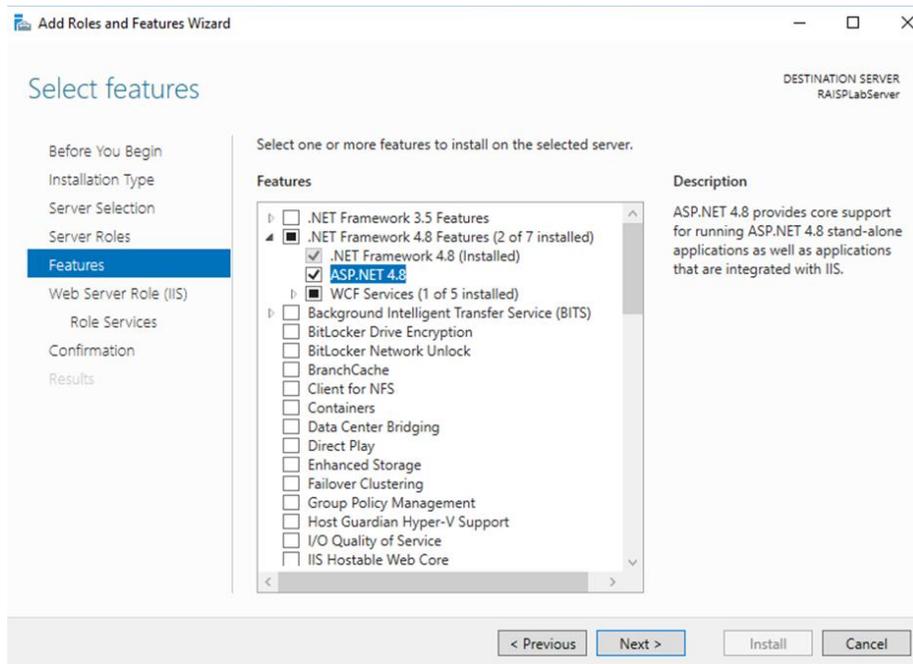


Figure 41

10. Select Message Queuing (MSMQ) Activation, then click Add Features.

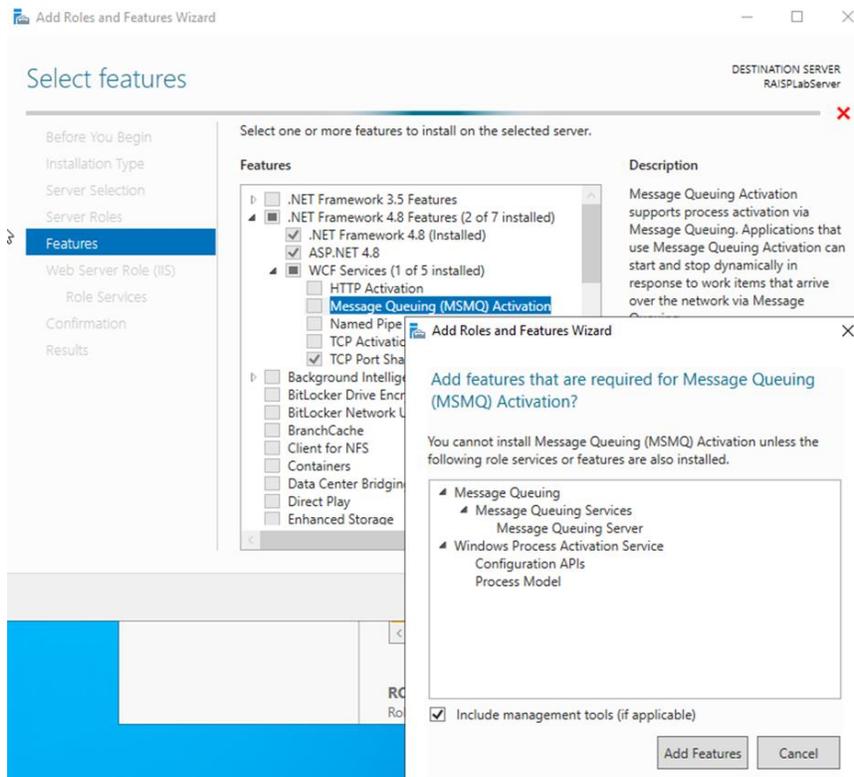


Figure 42

11. Click Next

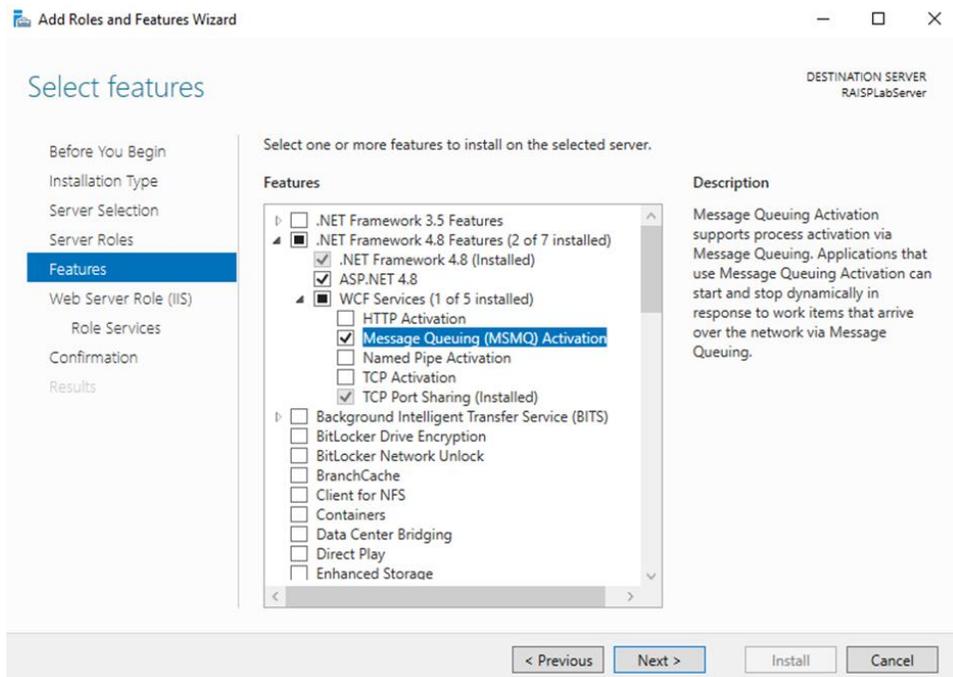


Figure 43

12. Click Next

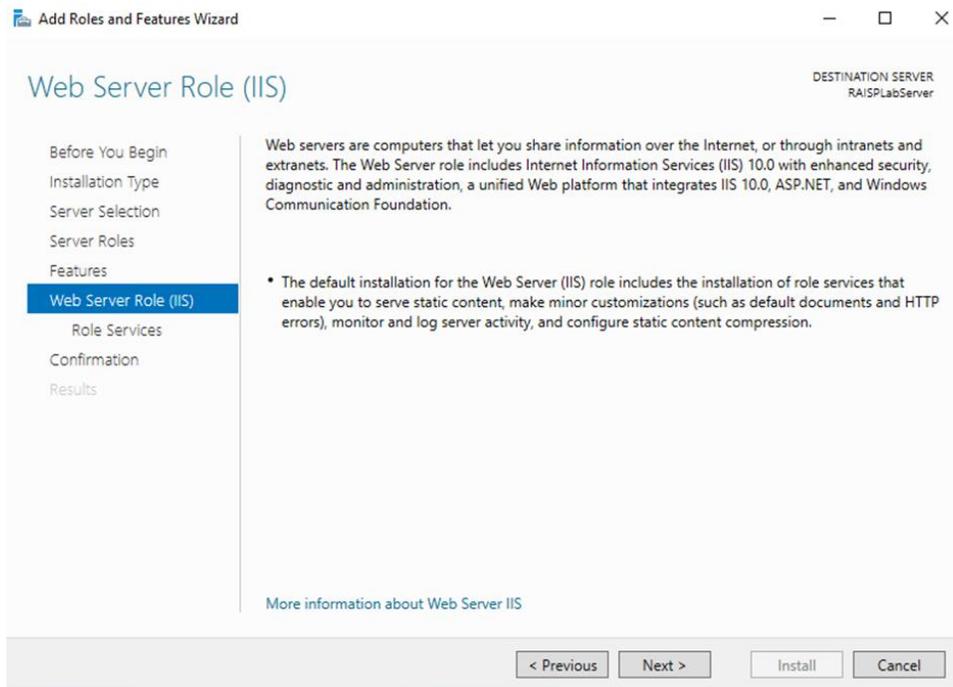


Figure 44

13. All selected roles and Features are as in the Figure 45.

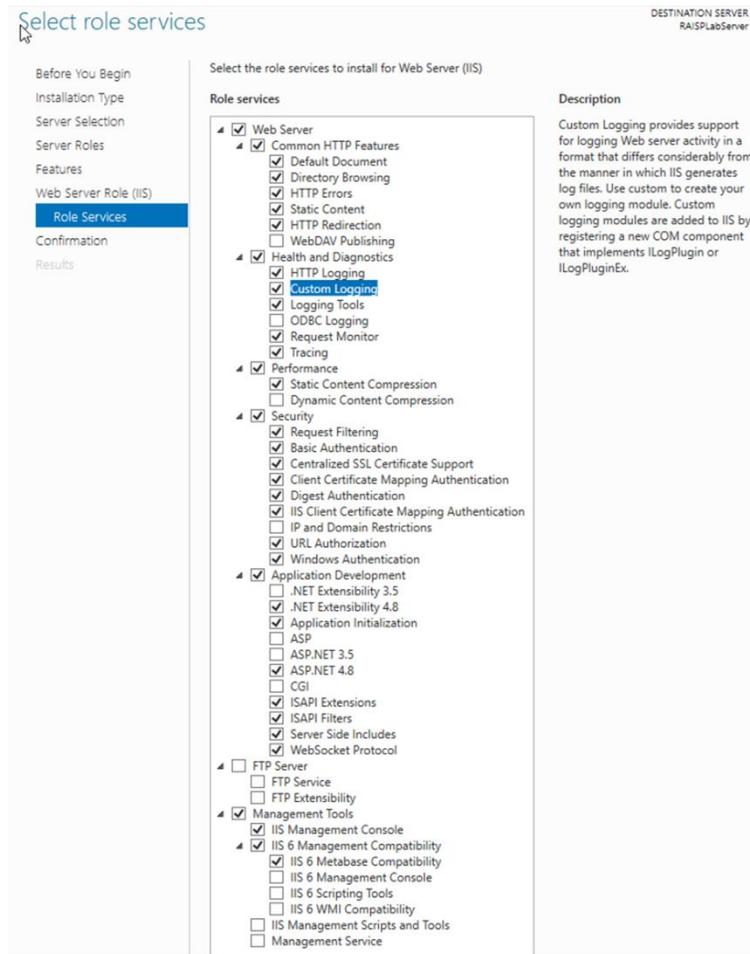


Figure 45

14. Click Next

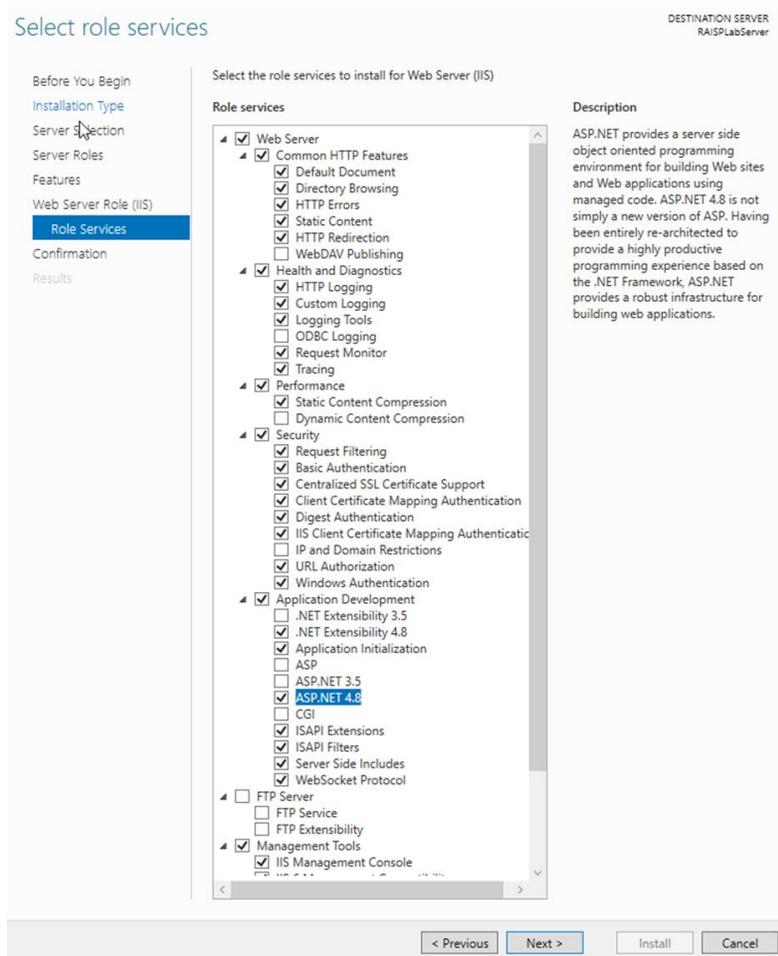


Figure 46

15. Click Install

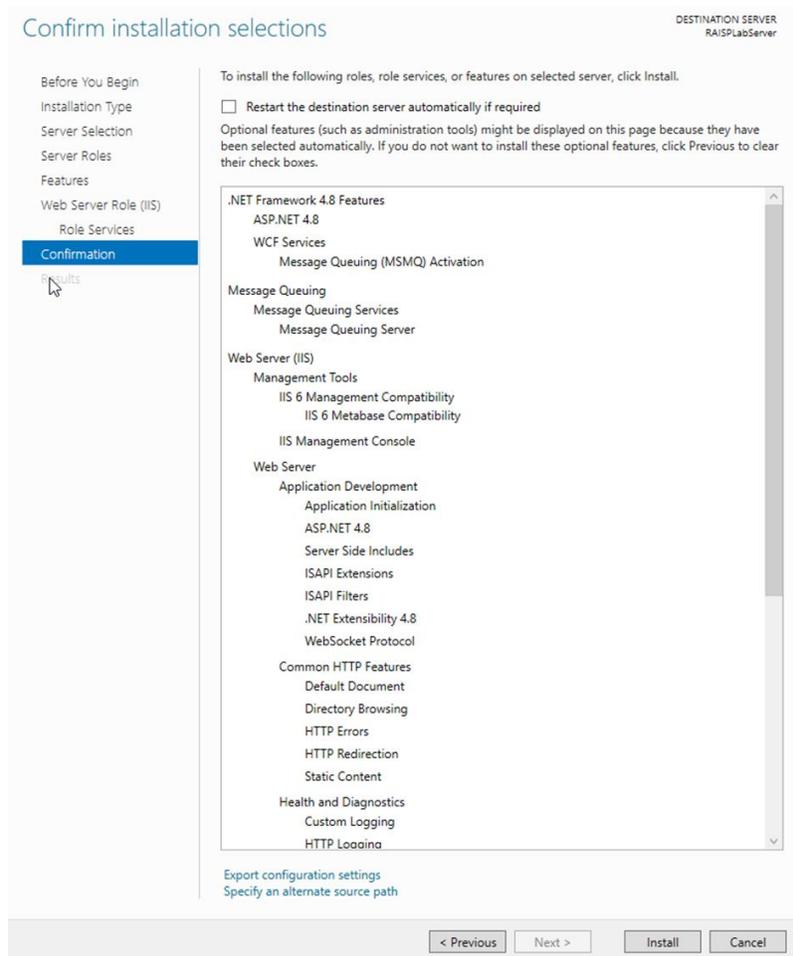


Figure 47

16. The Process Start IIS role and features installation.

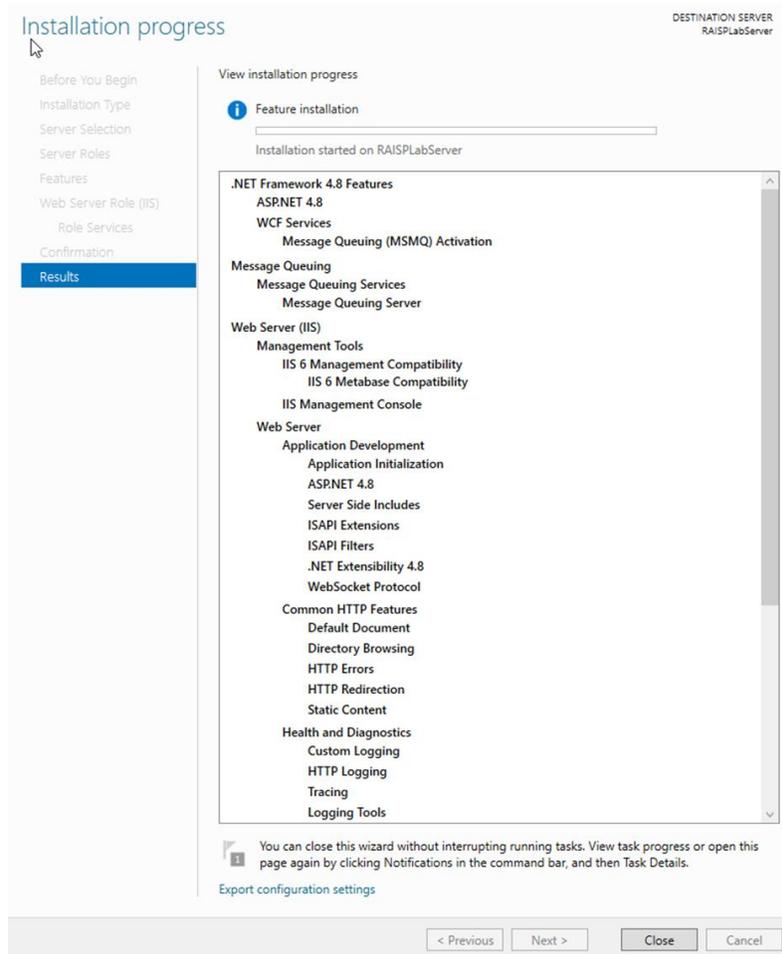


Figure 48

You can verify the progress of the IIS roles and features installation.

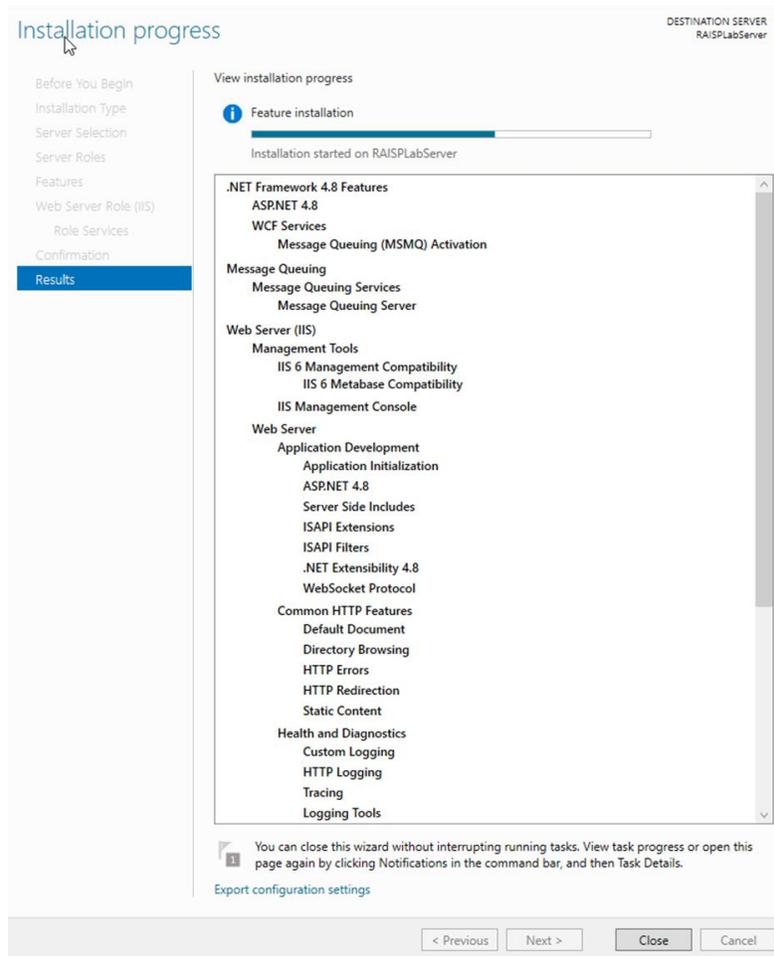


Figure 49

17. The IIS role with required features is successfully added.

Click Close

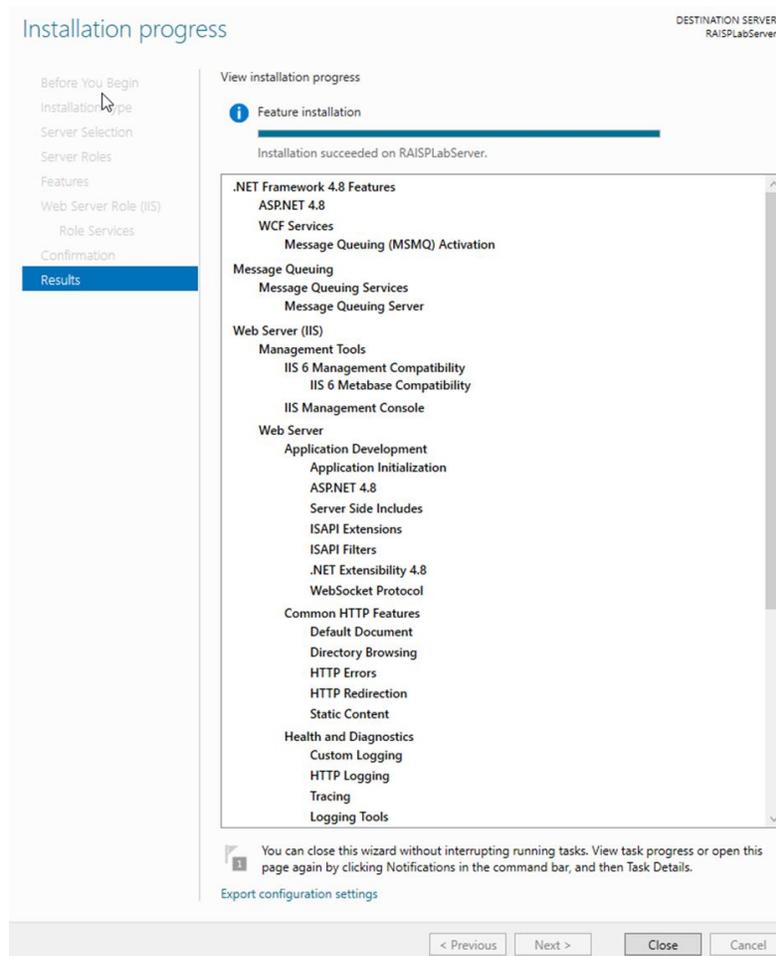


Figure 50

Method 2 – IIS installation using Powershell

We are using a template generated for Microsoft Windows Server 2022 Standard.

1. Download and create a copy from the file 'Deployment Config Template IIS Windows Server 2022',
2. Save the file in a folder in C drive of the RAIS+ server,
3. Edit the XML file and update the "ServerName" RAISPLABSERVER with the RAIS+ server name
4. Select Start > Windows PowerShell, right click and select run as administrator
5. For local Server, Run the following PowerShell command with the XML Template

```
PS C:\Users\Administrator> Install-WindowsFeature -ConfigurationFilePath 'C:\XML\DeploymentConfigTemplate IIS windows Server 2022 standard.xml'
Success Restart Needed Exit Code      Feature Result
-----
True     Yes           SuccessRest... {ASP.NET 4.8, Message Queuing (MSMQ) Activ...
WARNING: You must restart this server to finish the installation process.
PS C:\Users\Administrator>
```

6. For Remote Server, Run the following PowerShell command with the XML Template

A screenshot of a Windows PowerShell terminal window. The title bar reads "Administrator: Windows PowerShell". The command prompt shows the following command: `PS C:\Users\Administrator> PS C:\Users\Administrator> Install-WindowsFeature -ConfigurationFilePath 'C:\%FolderPath%\DeploymentConfigTemplate\115 windows Server 2022 standard.xml' -ComputerName BAISPLabServer`

*PS C:\Users\Administrator> PS C:\Users\Administrator> Install-WindowsFeature –
ConfigurationFilePath 'C:\%FolderPath%\Template.XML' -ComputerName \$ServerName*

Note: this template is prepared for Microsoft Windows Server 2022 Standard.

Annex B - SQL Server 2019 Setup

Downloaded the .exe file from Microsoft web site, follow these steps to install and create an instance of SQL Server:

1. Click the middle tile to select the **Custom** installation type.

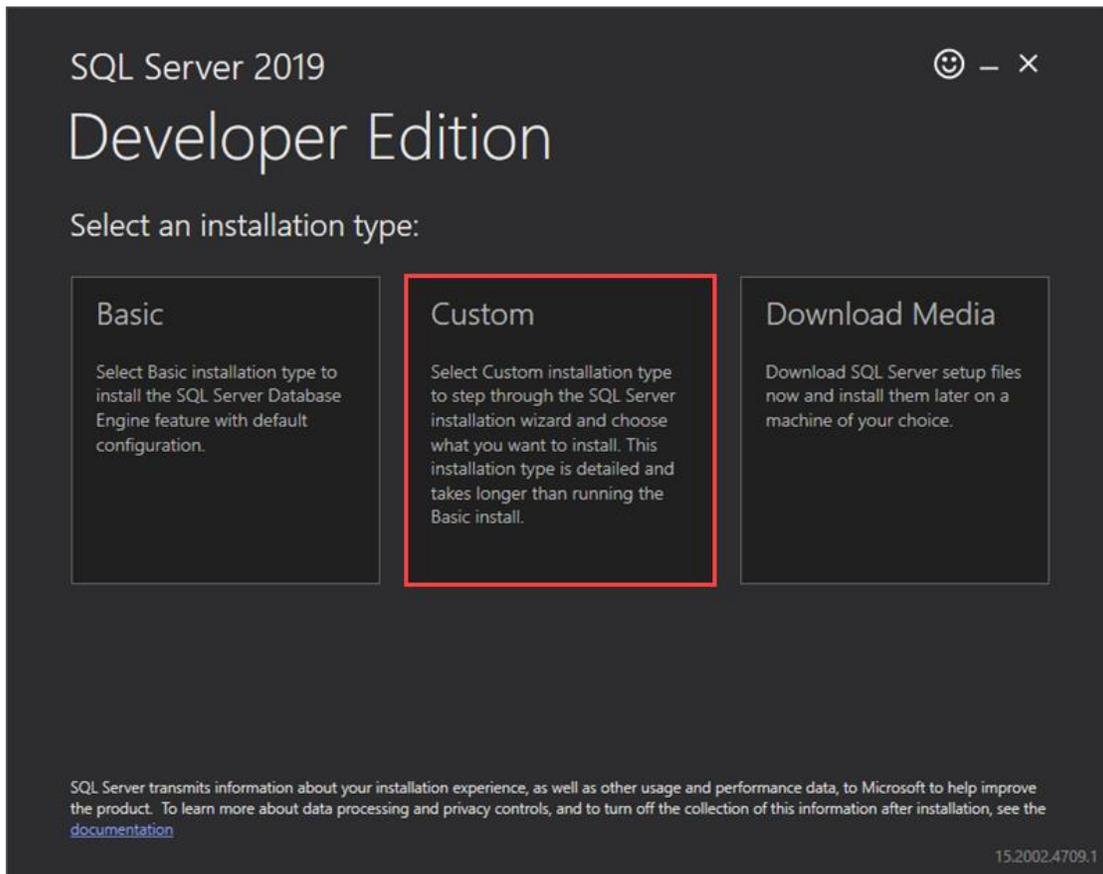


Figure 51

2. Choose where to store the downloaded installation media files and click **Install** to continue.

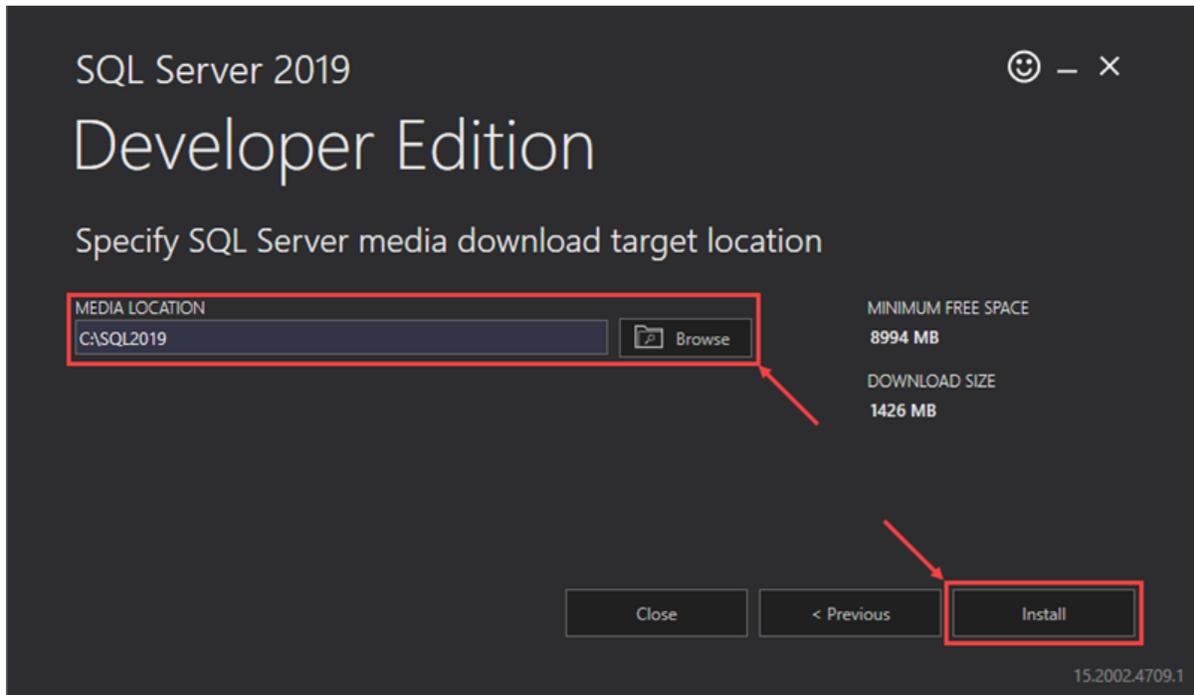


Figure 52

Once the download is complete, the setup window automatically closes and is replaced by the SQL Server Installation Center window. Here, starts the wizard to install SQL Server 2019.

3. If the wizard does not start automatically, locate the folder where the installation files were downloaded then right click setup file and select **Run as administrator**

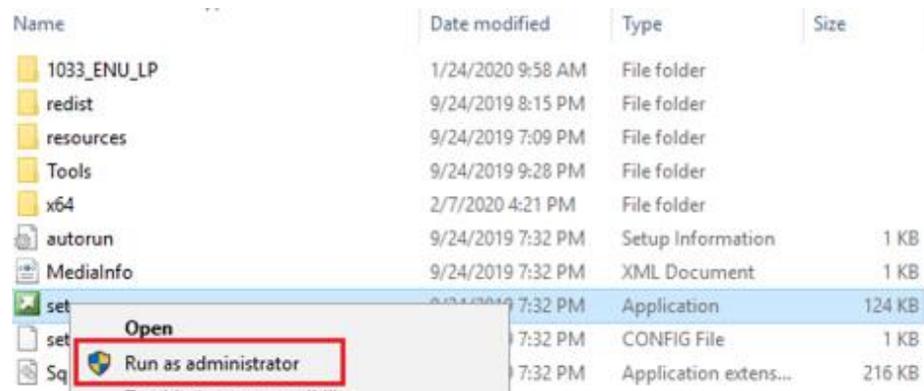


Figure 53

4. Select the **Installation** category on the left-hand side of the SQL Server Installation Center window and click the **New SQL Server** link to start the installation wizard.

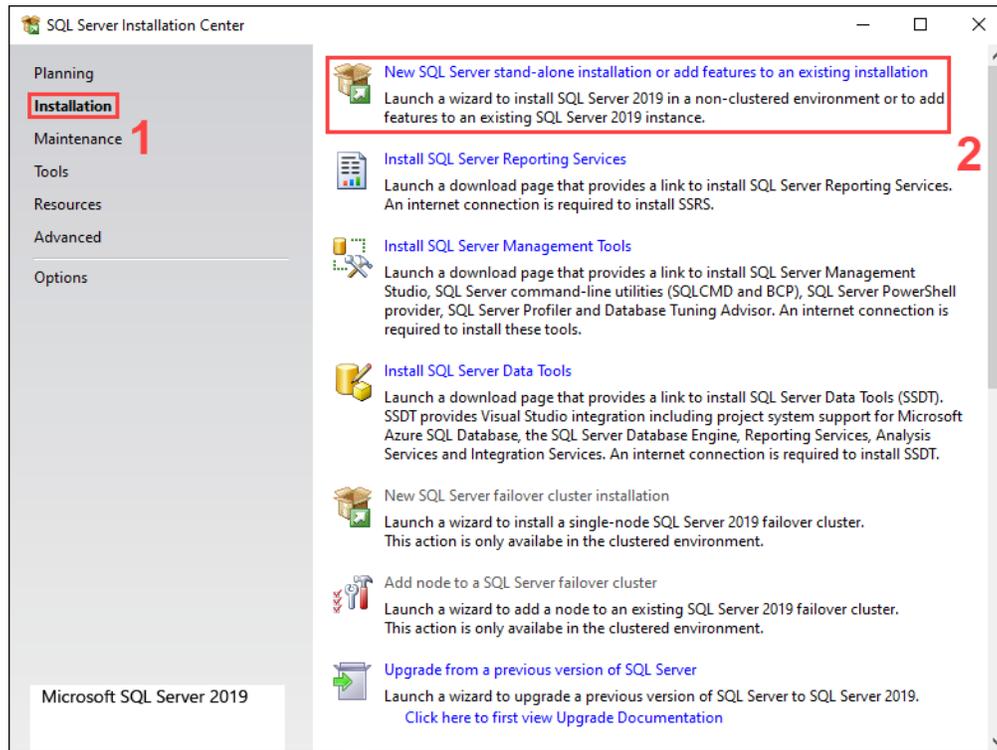


Figure 54

5. The wizard automatically checks for available updates. If there are no updates, click **Next** to proceed.

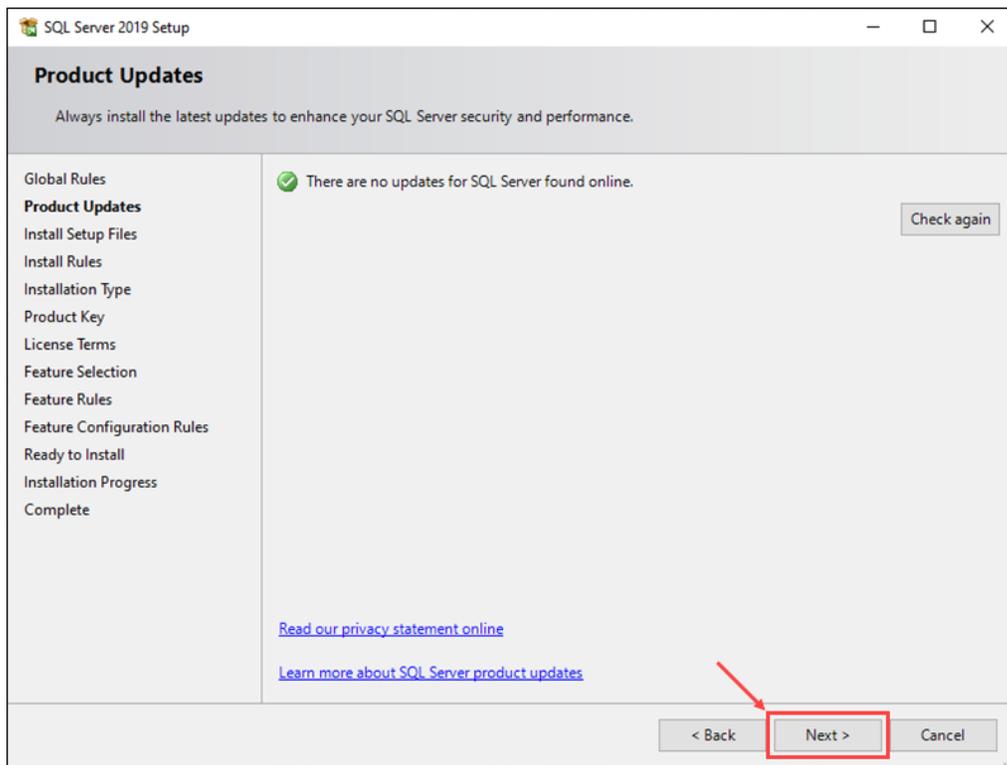


Figure 55

6. The install wizard checks for any errors that might cause problems during the setup process. If it detects any failures, fix them before clicking **Next** to continue.

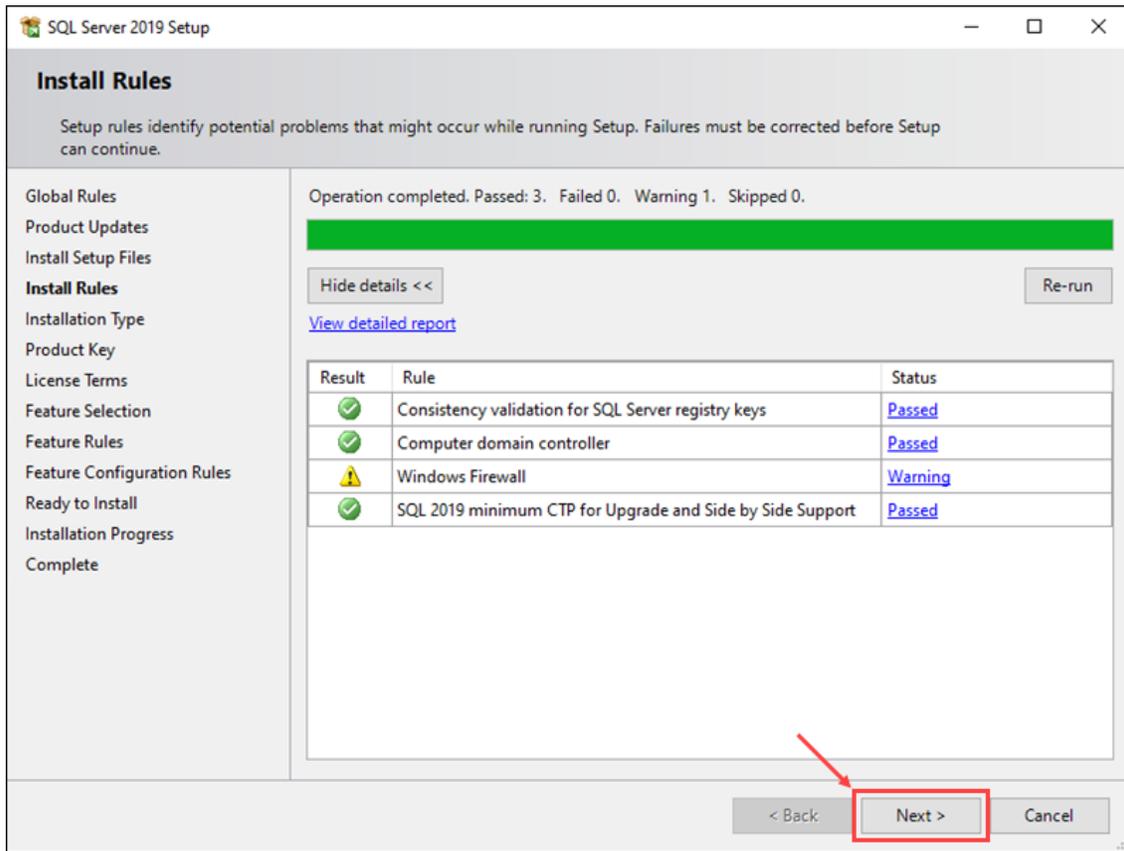


Figure 56

7. Choose an installation type. If you are installing SQL Server for the first time, select the **Perform a new installation of SQL Server 2019** option and click **Next** to continue.

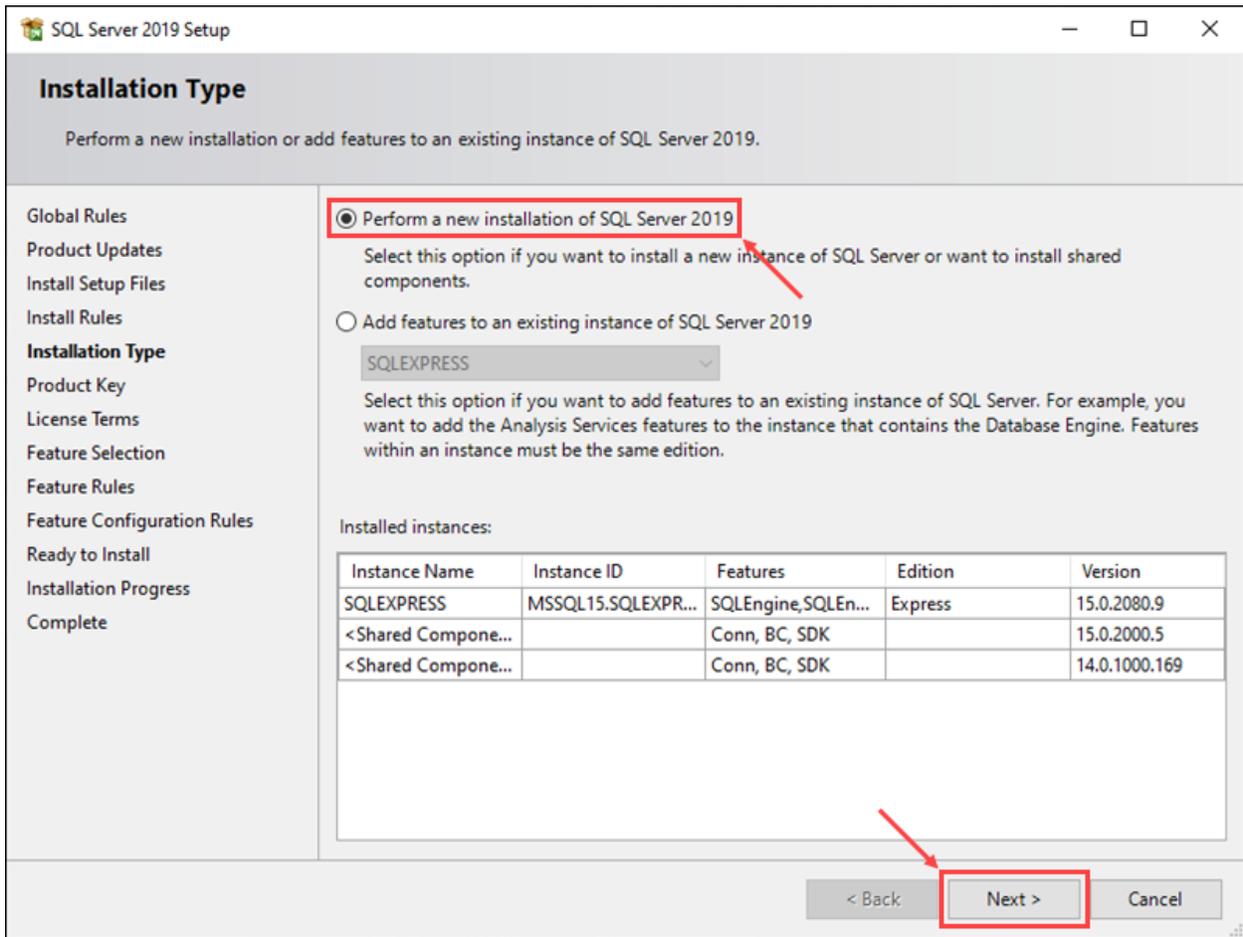


Figure 57

8. Choose the version of SQL Server you want to install and enter a product key if you have one, then click **Next** to proceed. For this example, we are installing the free Developer version.

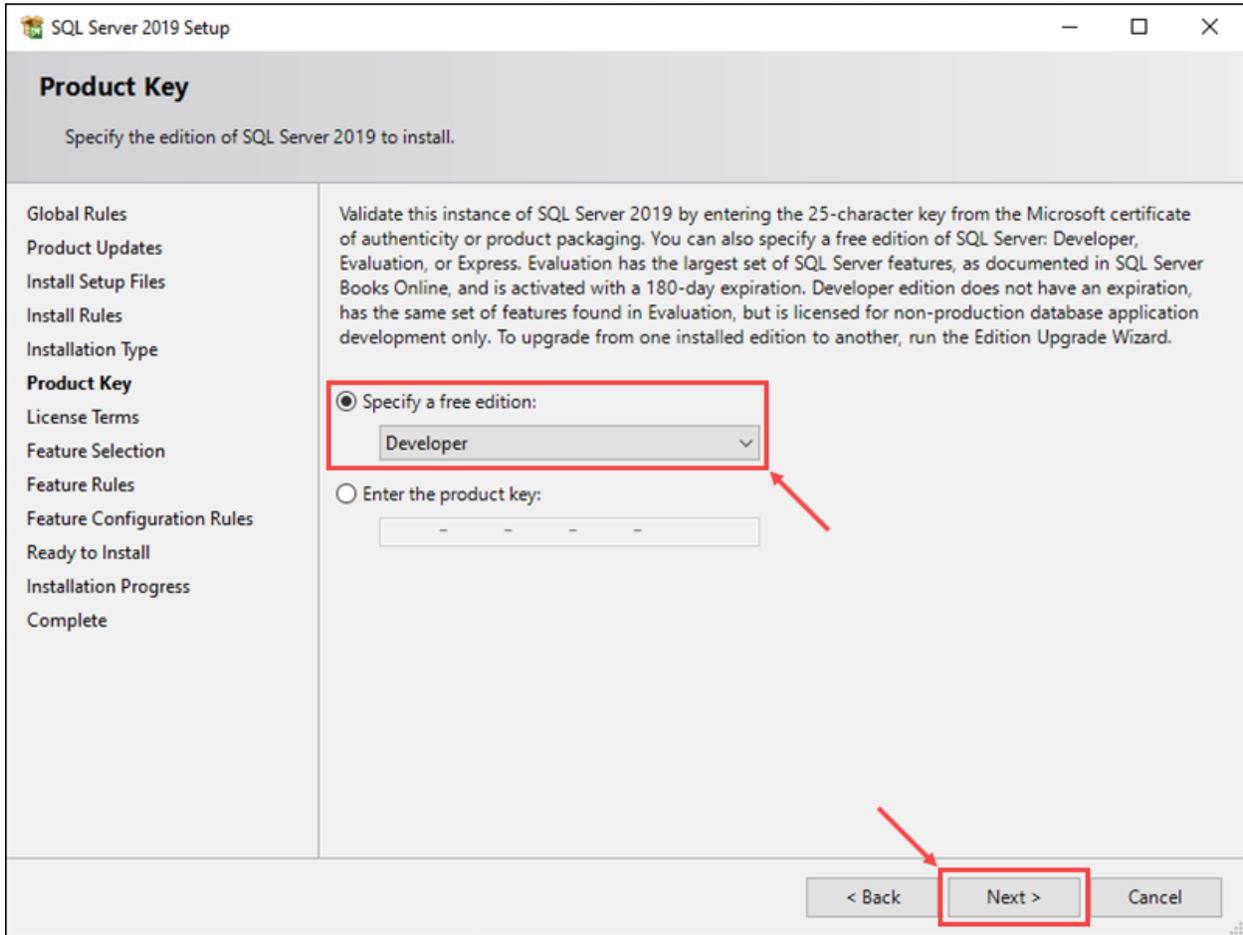


Figure 58

9. Check the **I accept the license terms and Privacy Statement** box and click **Next** to continue.

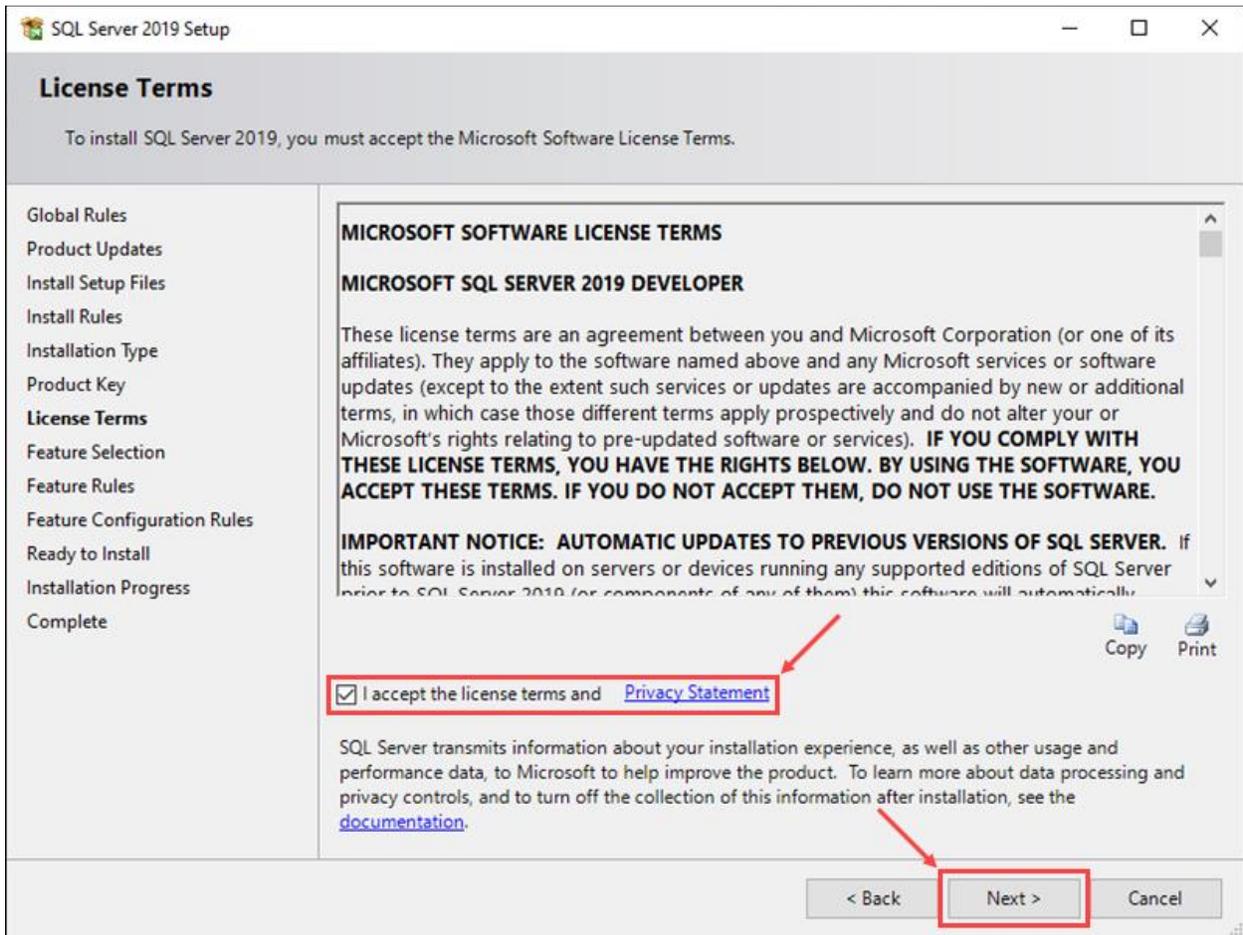


Figure 59

10. Select the features you want to install. For this example, we are using the **Database Engine Services** option only. Click **Next** to proceed.

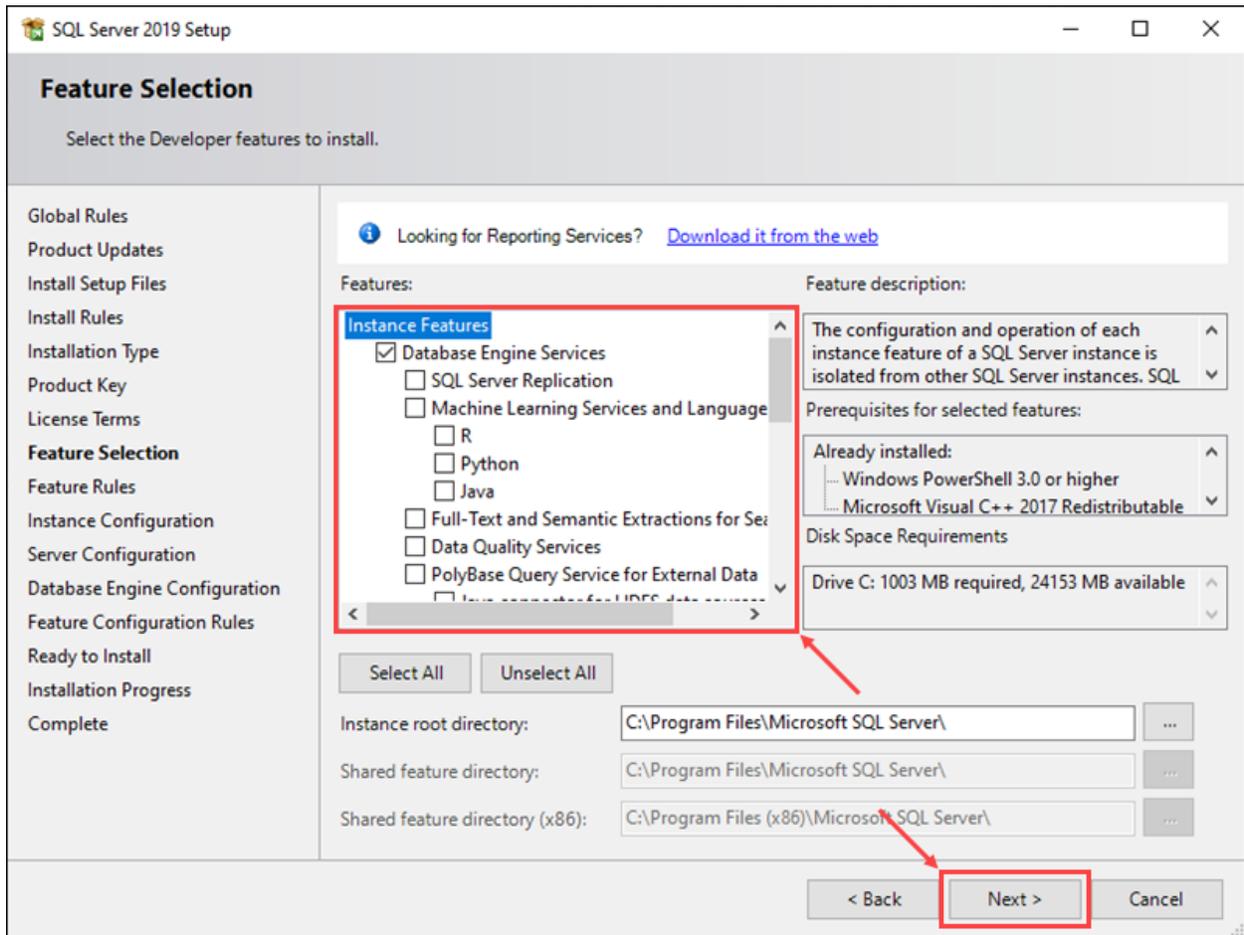


Figure 60

11. Enter a name and instance ID for the new SQL server and click **Next** to continue.

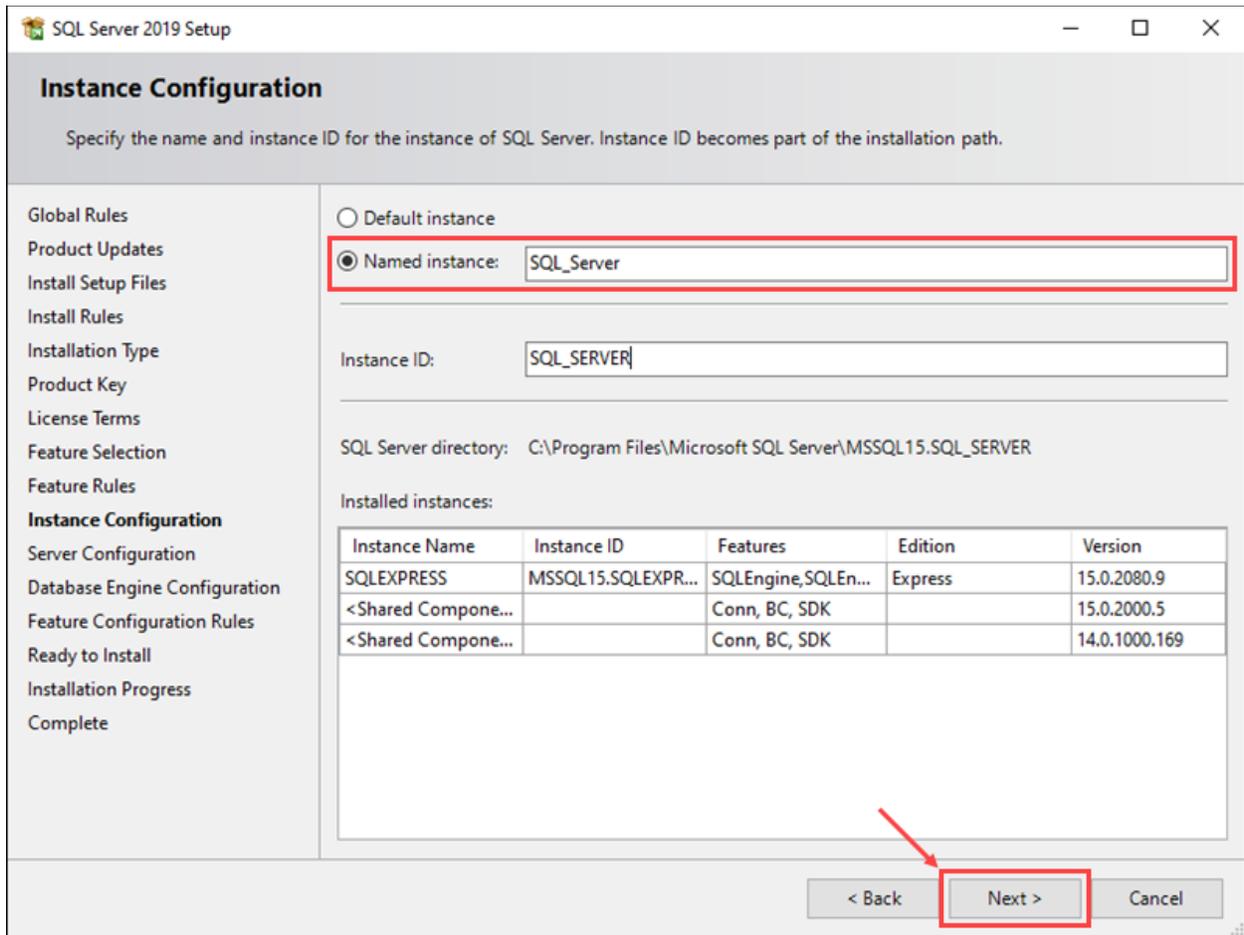


Figure 61

Note: Once you enter the server's name using the **Named instance** option, the wizard automatically fills in the instance ID field.

12. Set up the service accounts and collation configuration, then click **Next** to continue.

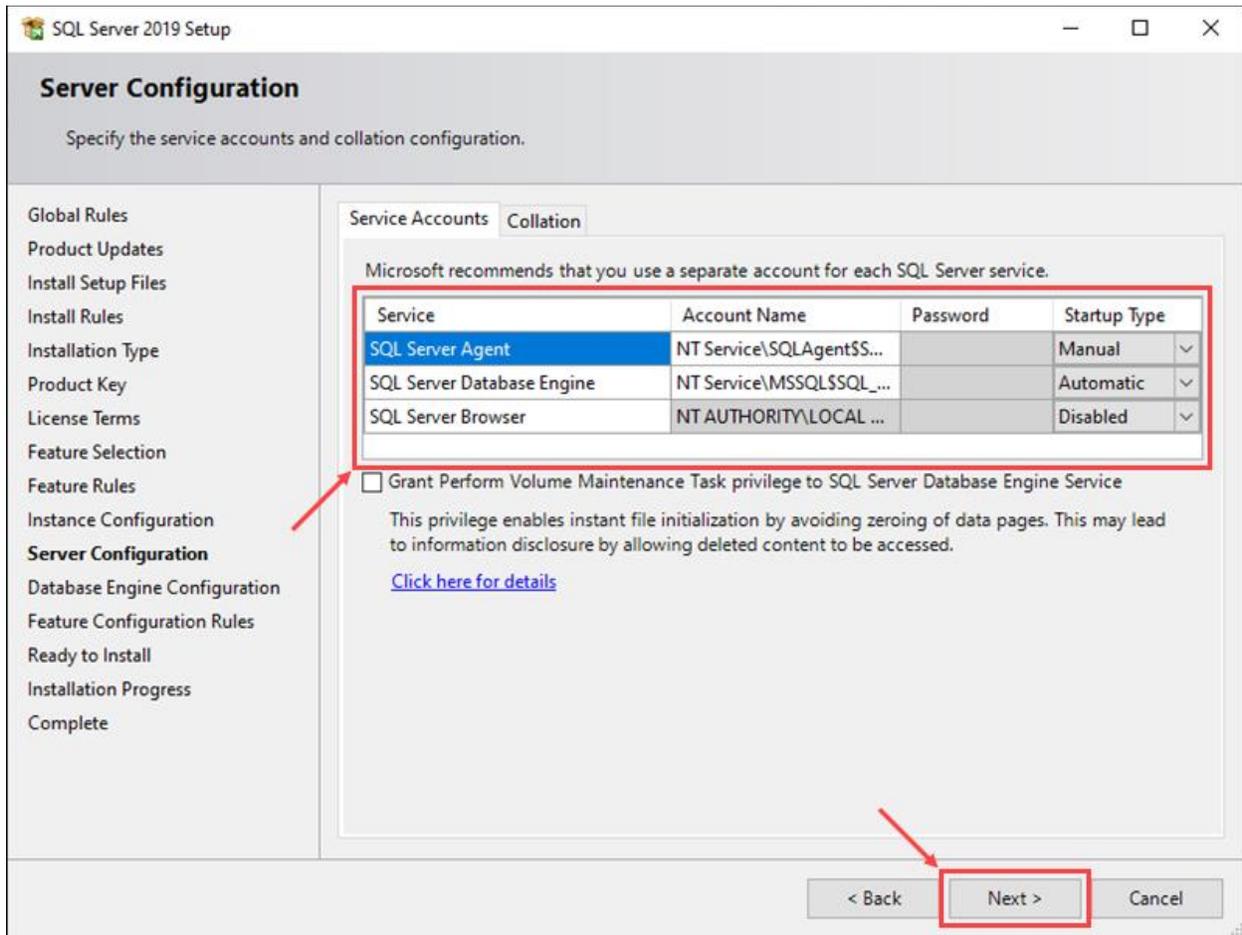


Figure 62

13. In the Server Configuration tab, select the **Mixed Mode** method of authentication. Select a user for the role of SQL server administrator and set up a password for the sa account. Click **Next** to proceed.

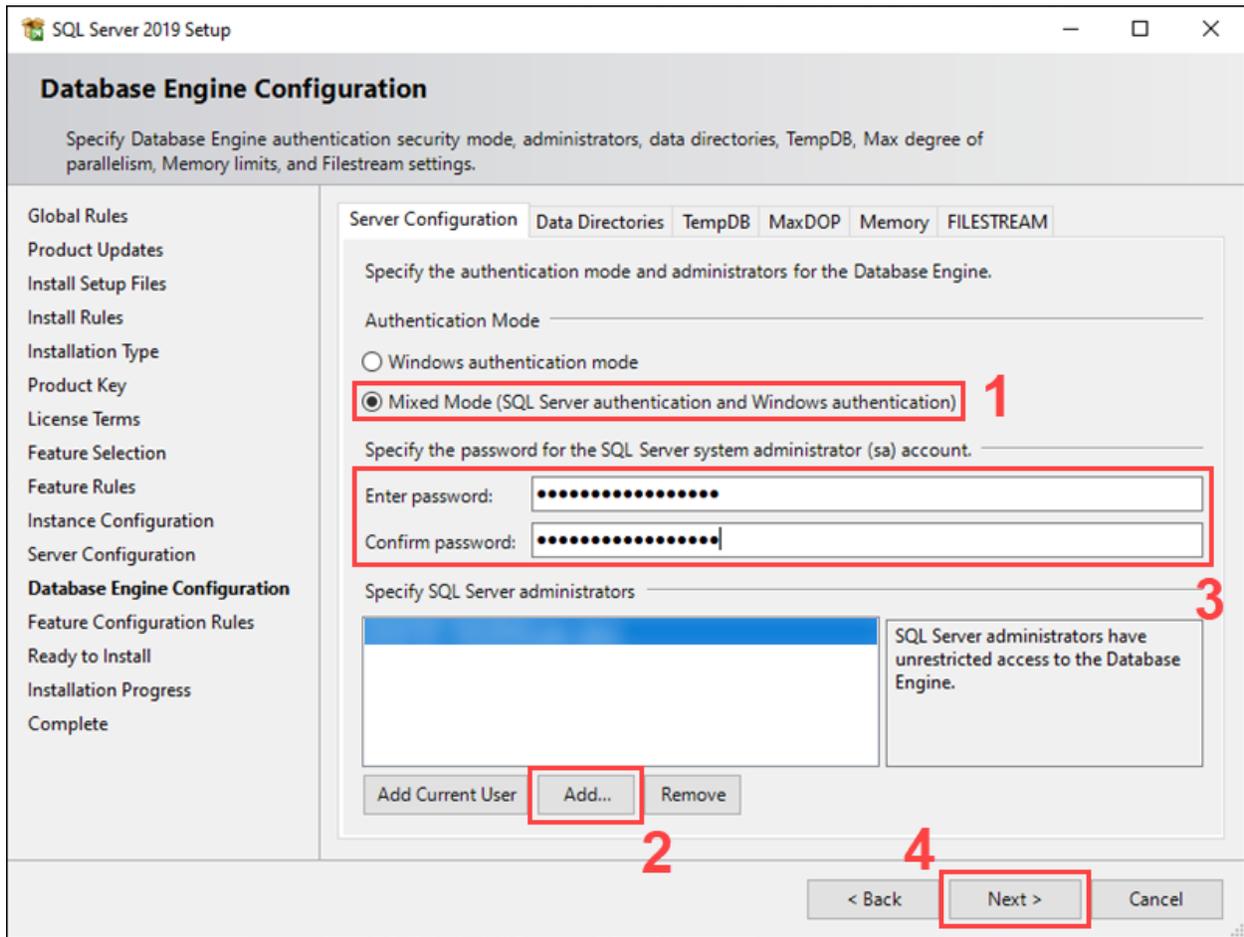


Figure 63

14. The final step offers a summary of the installation. Click **Back** to return to any of the previous steps and change the installation settings or click **Install** to start the setup process.

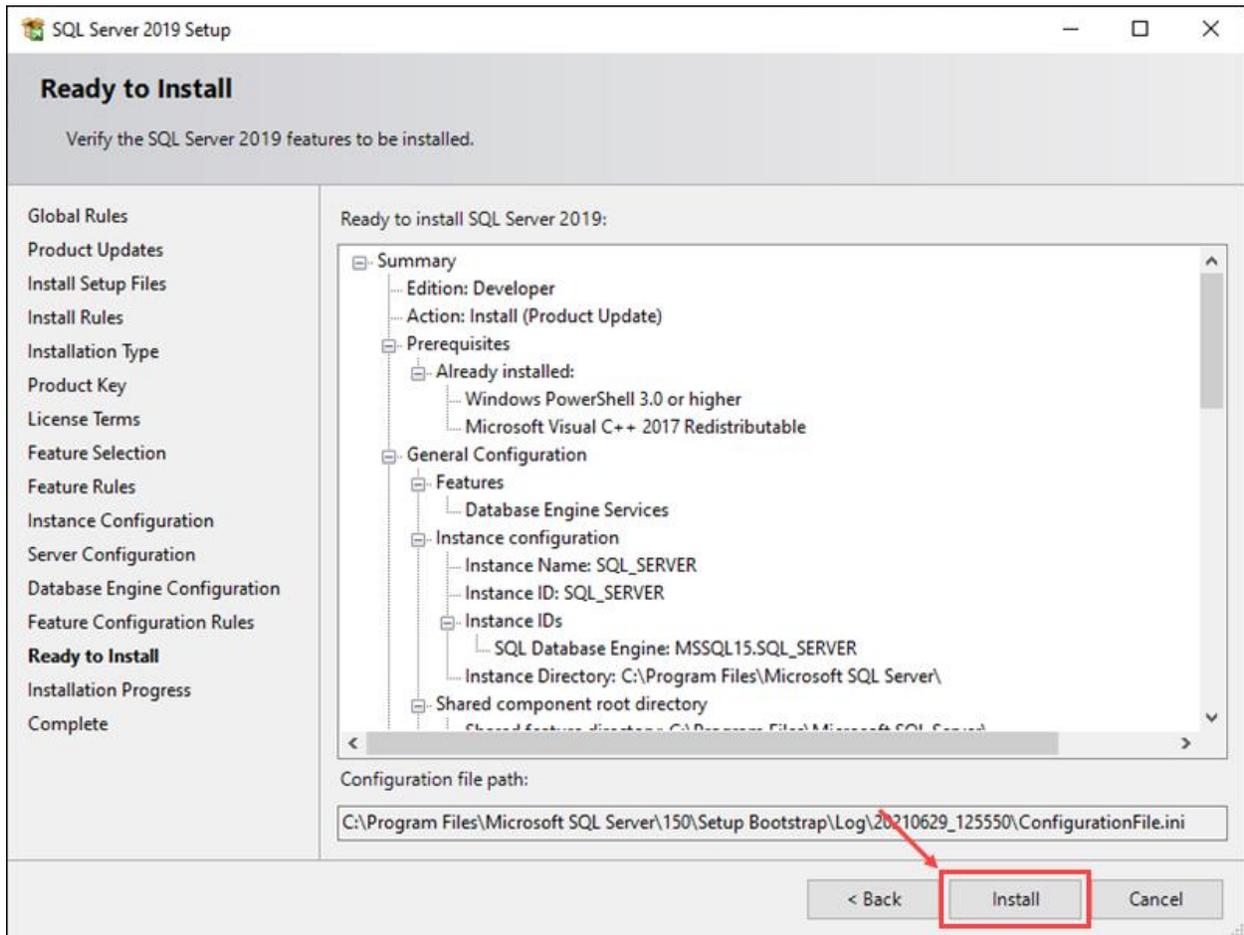


Figure 64

15. Once the setup is complete, the status of setup operations should read *Succeeded*. Click **Close** to exit the install wizard.

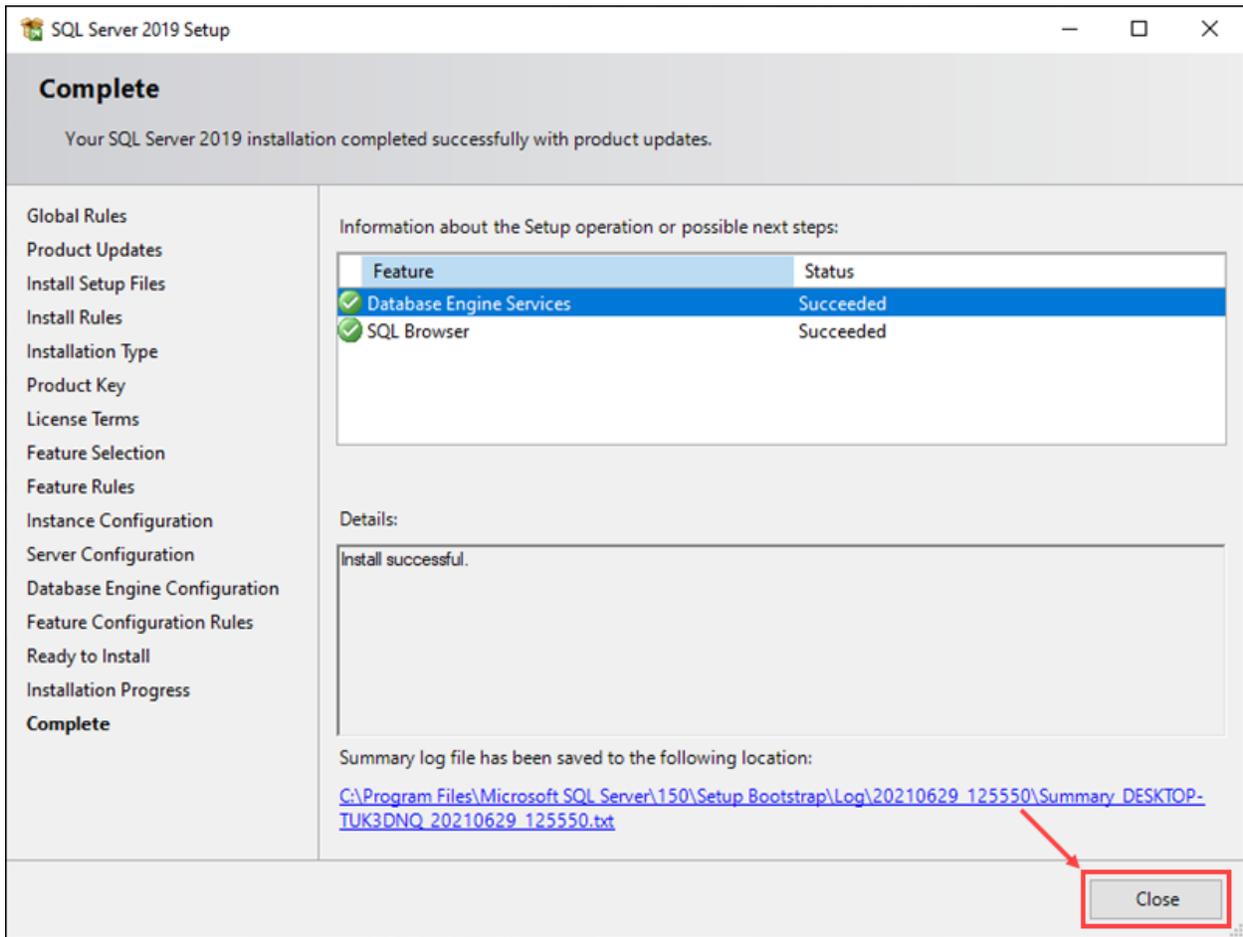


Figure 65