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Dimensioning, Weighing and Sorting System (DWS)

SOFTWARE INSTALLATION
GUIDE

www.armstrongltd.com

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Contents

1.1	Introduction	4
1.2	Purpose	4
1.3	Scope	4
1.4	Target Audience	4
1.5	Product Introduction.....	5
1.6	What Does a DWS Provide.....	5
	Typical Uses of a DWS Automation in the measuring process	5
1.7	Software Installation Flowchart	5
1.8	Pre-requisites.....	6
1.9	Flow Charts and Step by Step Guides	6
	Flow chart of Pre-Installation Phase	7
	Pre-installation Phase Steps – (Server Configuration)	8
	Process to check if PLC and PC are on same network	8
	Steps to connect PLC and PC on same Network	10
	Turn Off Firewall security on PC - To access PC in Network	14
	Flow chart of Installation Phase.....	17
	Installation Steps	18
	Steps to Check IIS Configuration	19
	IIS Configuration Steps	19
	Data Handshake Service Windows Service Installation	25
	Install SQL EXPRESS	25
	Download SQL Server Express edition	25
	Installing SQL Server Express edition	28
	SSMS (SQL Server Management Studio) Setup	35
	Post Installation Phase	39

1.1 Introduction

This installation Guide is a formal document for the DWS product that Armstrong Machine Builders is developing for XYZ Client. The steps required to install the DWS Software are discussed in detail within this document. The complete process is divided into various steps and explained in detail in this document.

1.2 Purpose

This document describes the software installation steps of a DWS system. The Installation is an important reference not only for core team members, but also for other members as a reference guide to understand the installation of the software. With the help of information provided in this document, team members will be able to understand the installation process more efficiently and in depth.

1.3 Scope

This document is intended to give information on the installation of different software required by DWS application.

1.4 Target Audience

This document is targeted (but not limited) to technical stakeholders:

- Client Team
- Development Team
- IT Management
- Support Staff

It is assumed that the reader has a basic understanding of technical terms.

1.5 Product Introduction

Parcel express companies use Dimensioning, Weighing and Scanning (DWS) systems to identify, weigh and measure the goods they transport.

Package delivery companies have differing volumes of parcels and different levels of automation. Some measure parcels on high-speed conveyors; others process small items that move in totes or on tilt-tray sorters. Some handle palatalized freight, while others handle a bit of everything. Terminals have different requirements regarding bar code reading, conveyor control, integration, and weight and volume measurement. An express company's DWS system is essential to the daily operations of facilities that use them, regardless of the application. Choosing the right solution is crucial-one that can impact both revenue and operational productivity. The aim of this guide is to help you understand various functions available in the DWS system provided by Armstrong.

1.6 What Does a DWS Provide

DWS provides weight, length, width, and height of an object. To determine the dimensional weight, it compares weight and dimensions. Identifying data is captured to create a data profile for each item processed.

Typical Uses of a DWS Automation in the measuring process

- Verification of weights and sizes reported by the customer
- Check the data against the profile in the customer database
- Compliance with the Weights and Measures Regulations

1.7 Software Installation Flowchart

The complete Software Installation process is divided in three phases which are supposed to be followed in sequence for easy and error free installation.

1. Pre-Installation Phase
2. Installation Phase
3. Post Installation phase

The flowchart and step by step process of each phase has been detailed below:

1.8 Pre-requisites

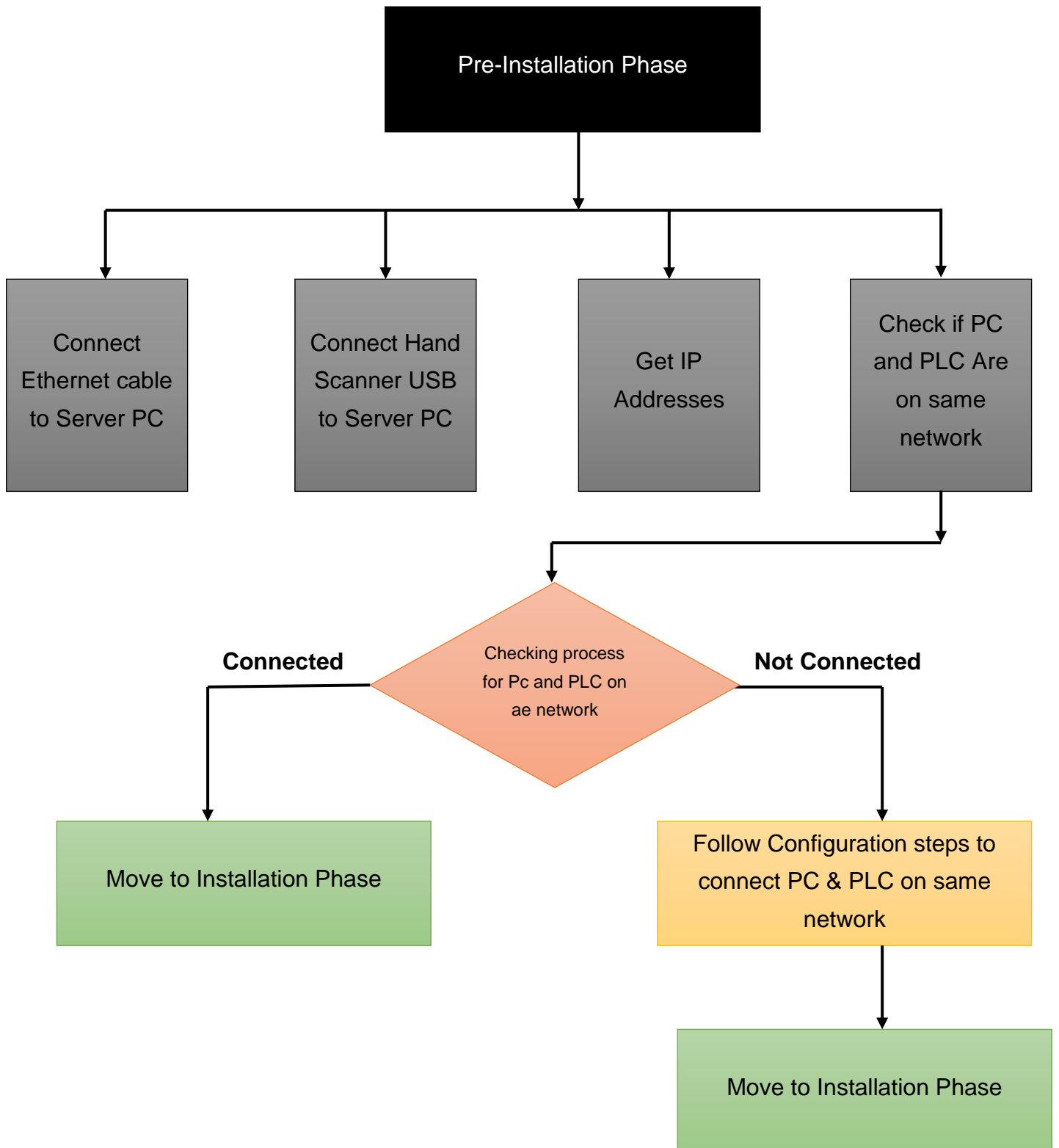
1. All hardware devices, including the PC, the scale, VMS – Volumetric Measuring System, the PLC, and the scanner, must be connected to the same network.
2. Server PC configuration should be as mentioned below in 1.7.1.
3. Internet connectivity should be available.
4. Server PC should have USB and Ethernet port.
5. Server PC Should be within 1 meter range from PLC.

1.9 Flow Charts and Step by Step Guides

From this point below flowcharts of all three phases are shown and their step-by-step guides are also explained in detail.

Note: In case you still face errors after following the steps in the guide, kindly connect with Armstrong team to resolve the issue.

Flow chart of Pre-Installation Phase



Pre-installation Phase Steps – (Server Configuration)

Step 1 - Connect the Ethernet Cable to Server PC.

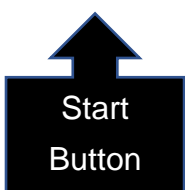
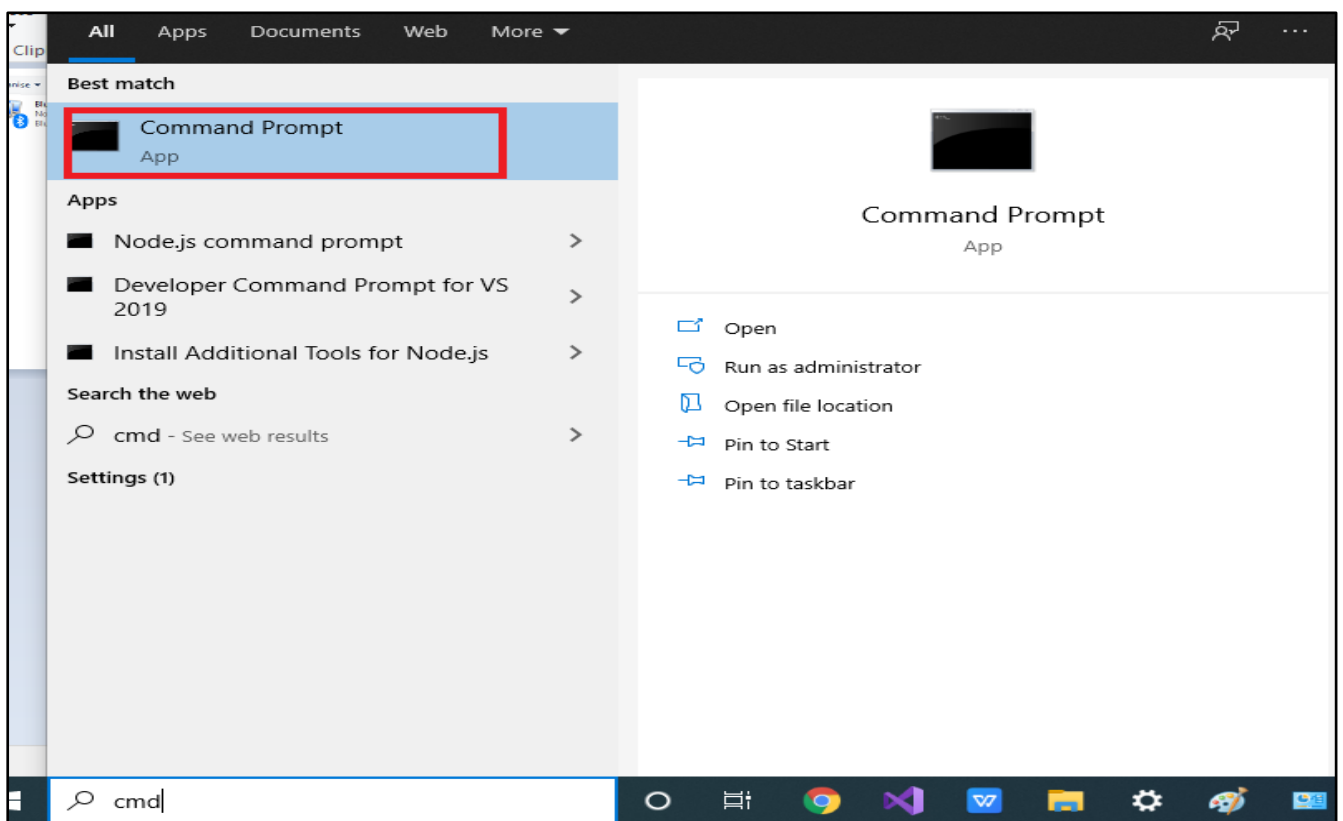
Step 2 – After Connecting the cables, connect the Hand Scanner USB Cable to the Server PC.

Step 3 - Get the IP Address of PLC, Weighing and VMS (Volumetric Management System) from the Automation Engineer.

Step 4 - Check whether PLC and server PC are connected to the same network by following the next steps:

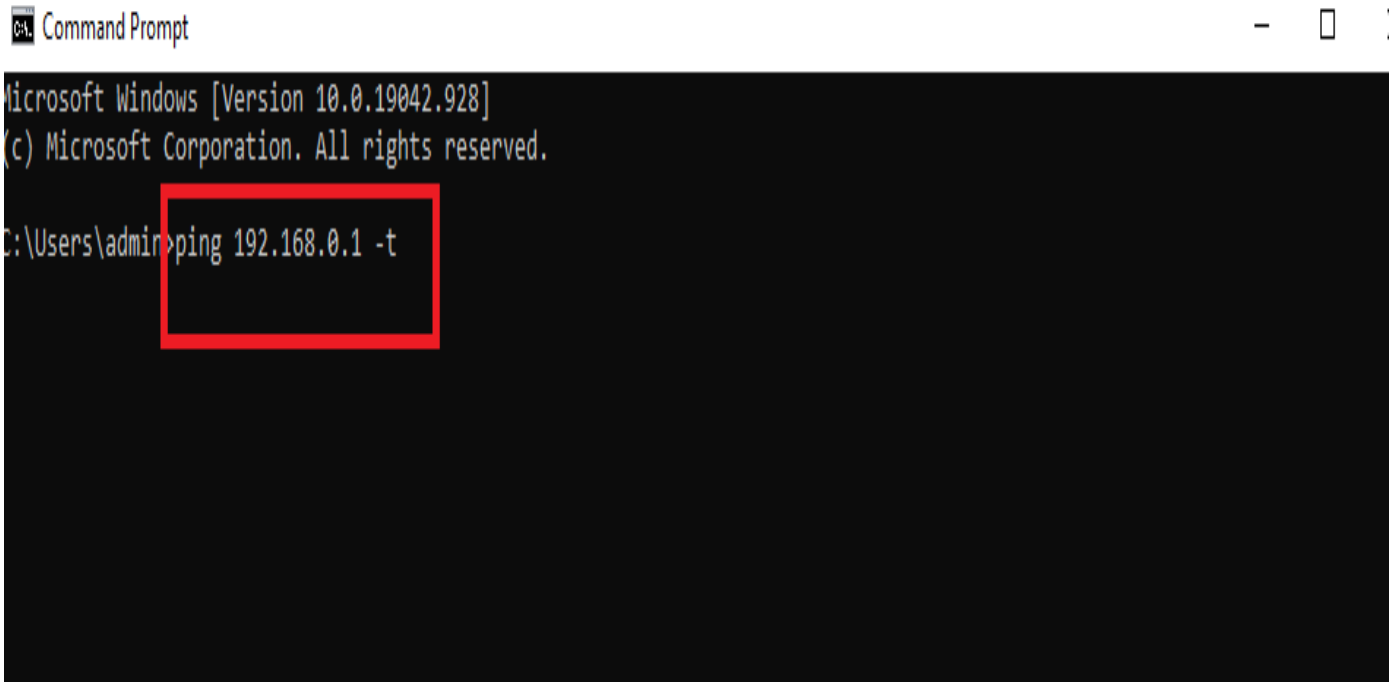
Process to check if PLC and PC are on same network

- Go to START in server PC and **Type CMD** and then Click on **Command Prompt**



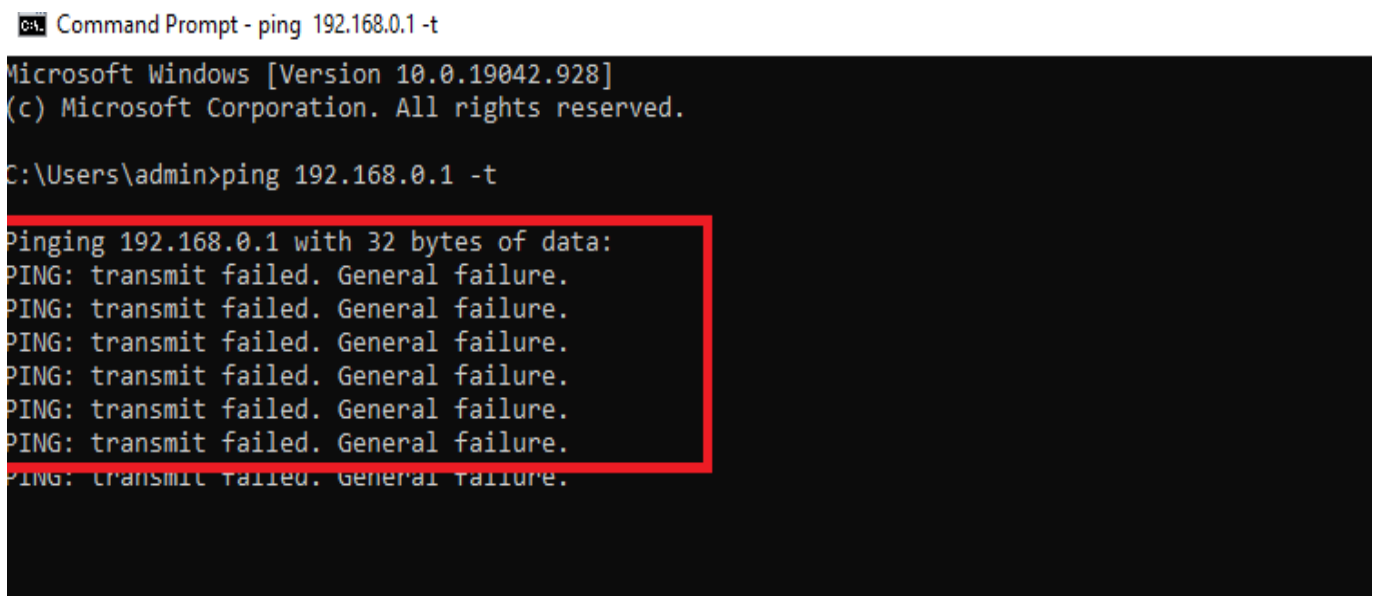
- In the Command Prompt Window type **PLC IP Address**.

For Ex: If the IP address of PLC is 192.168.1.1 then type ping 192.168.1.1 -t



```
Command Prompt
Microsoft Windows [Version 10.0.19042.928]
(c) Microsoft Corporation. All rights reserved.
C:\Users\admin>ping 192.168.0.1 -t
```

- If both PC and PLC are connected you will get a response. If **PLC and PC** are not in the same network, then it will show Failure of timeout as shown below:



```
Command Prompt - ping 192.168.0.1 -t
Microsoft Windows [Version 10.0.19042.928]
(c) Microsoft Corporation. All rights reserved.
C:\Users\admin>ping 192.168.0.1 -t

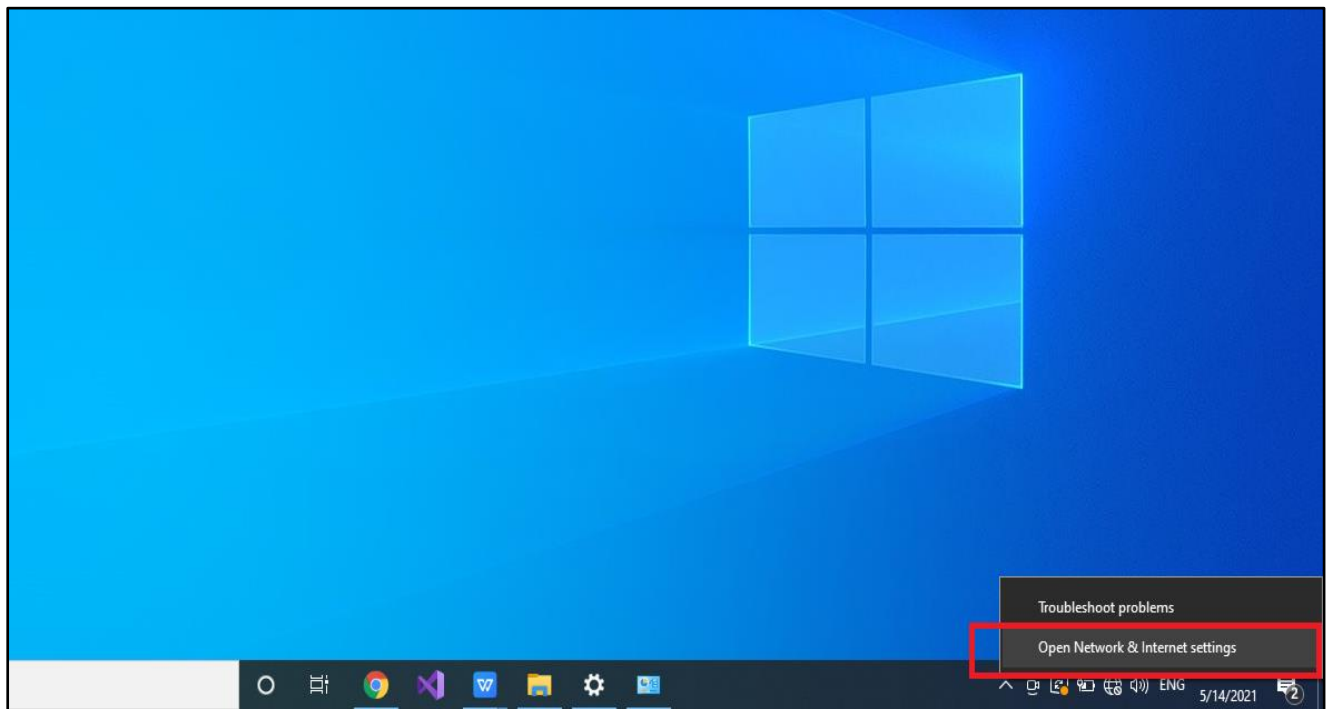
Pinging 192.168.0.1 with 32 bytes of data:
PING: transmit failed. General failure.
PING: transmit failed. General failure.
PING: transmit failed. General failure.
PING: transmit failed. General failure.
PING: transmit failed. General failure.
PING: transmit failed. General failure.
PING: transmit failed. General failure.
```

IF PLC and Server PC are not connected to the same network then configure the Server PC IP Address.

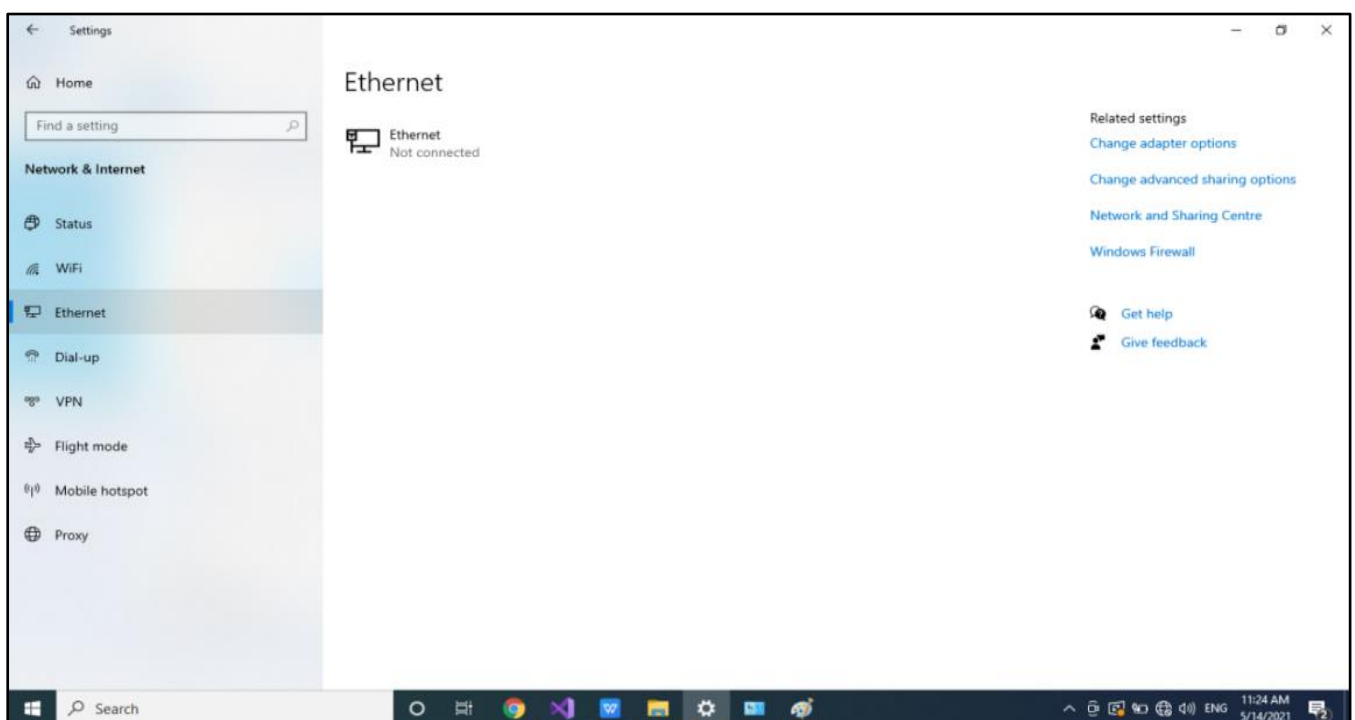
Follow the below mentioned steps to configure the IP address

Steps to connect PLC and PC on same Network

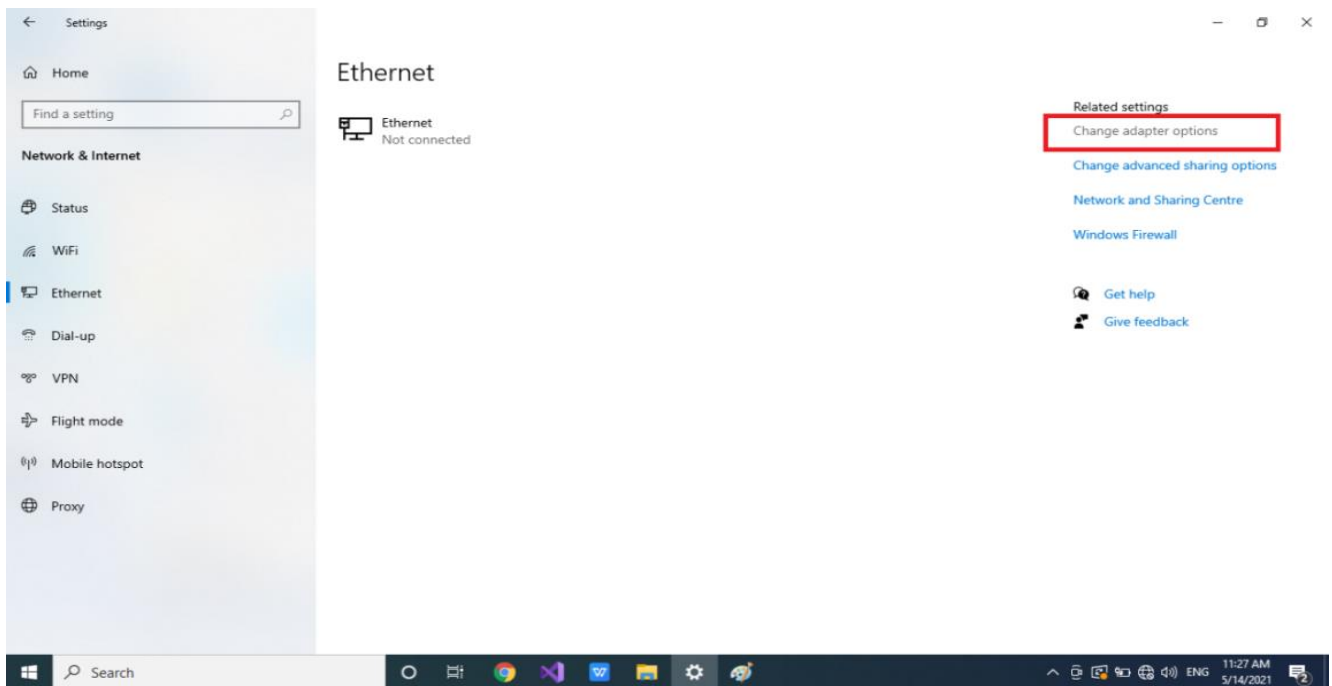
- Right Click on the Internet Icon present on the right side of taskbar and choose **Open Network and Internet Settings**.



- Once you click on the setting, a screen as shown in the below figure will be visible. On the screen, click on **Ethernet**

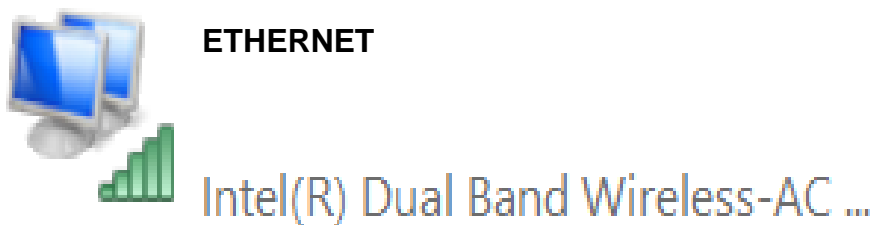


- Next, click **Change adapter option** in the right-hand corner

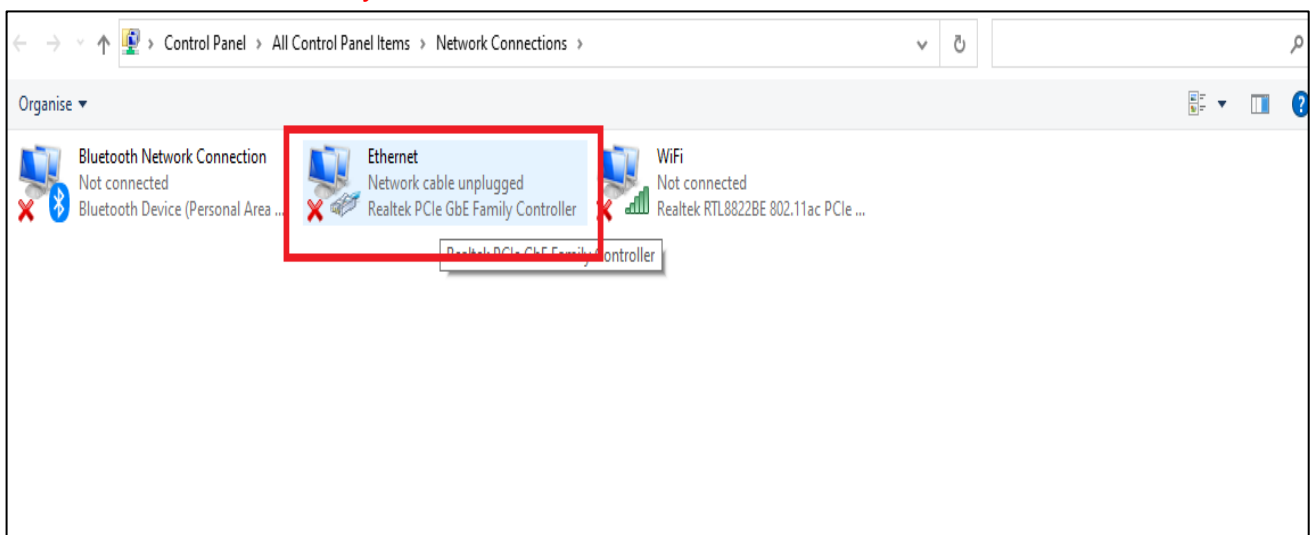


- A new screen will open in which you will be able to see a network named ETHERNET.

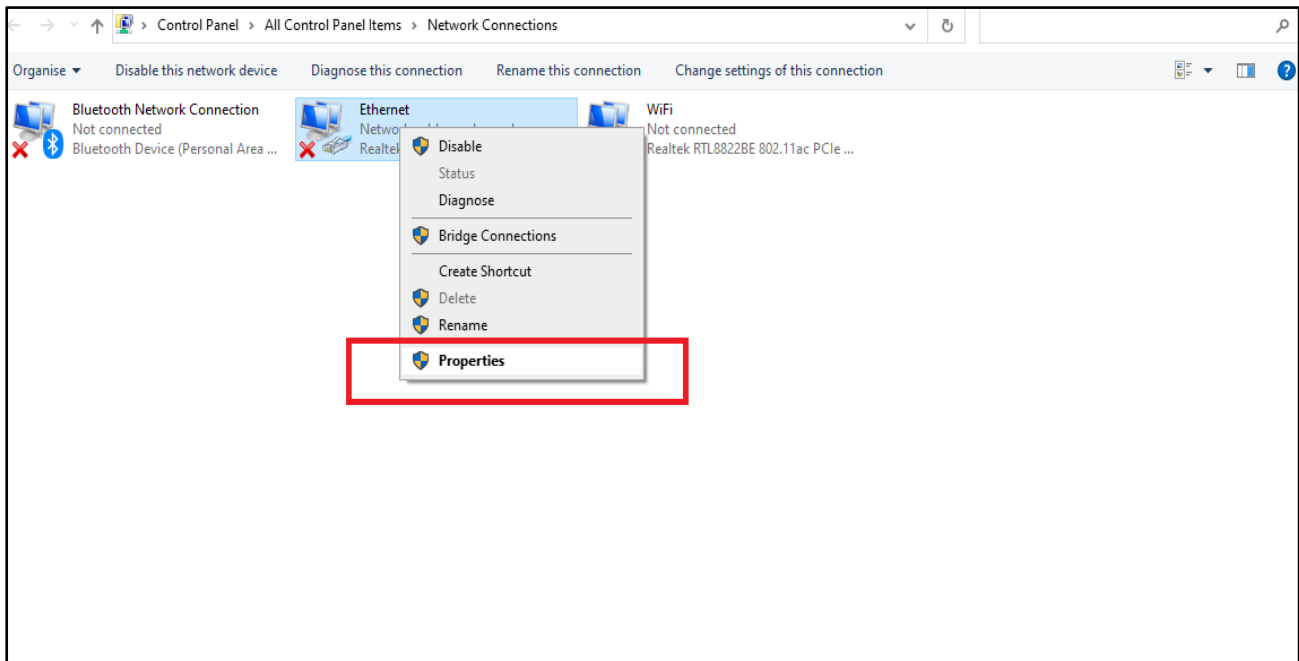
If the network is connected it will show a green tick or green bars as shown in below image



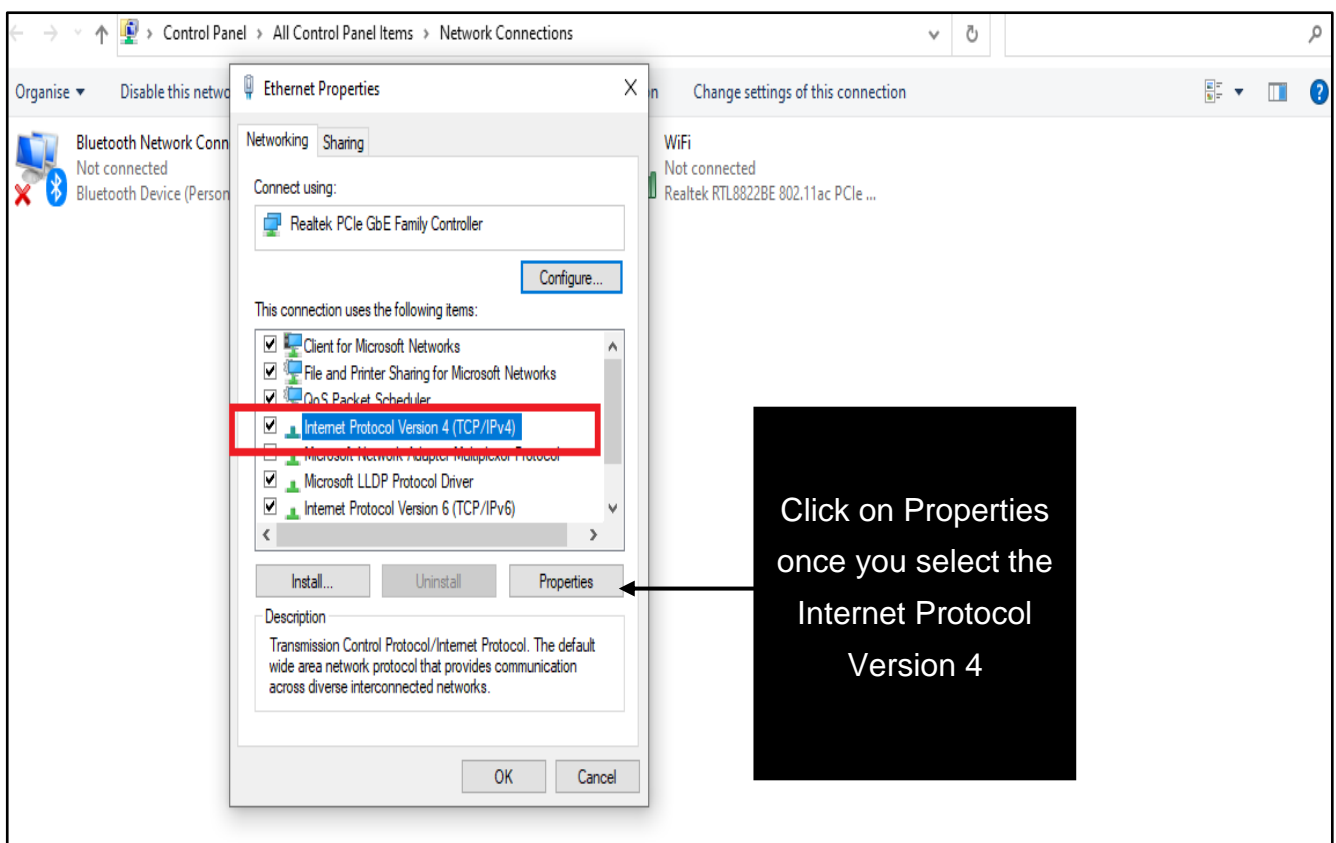
If it is not connected, then you will see a Red Cross icon as shown below.



- If the network is connected move to the next step of changing Firewall settings. In case it is not connected then **Right click on the Ethernet Icon and click on Properties.**

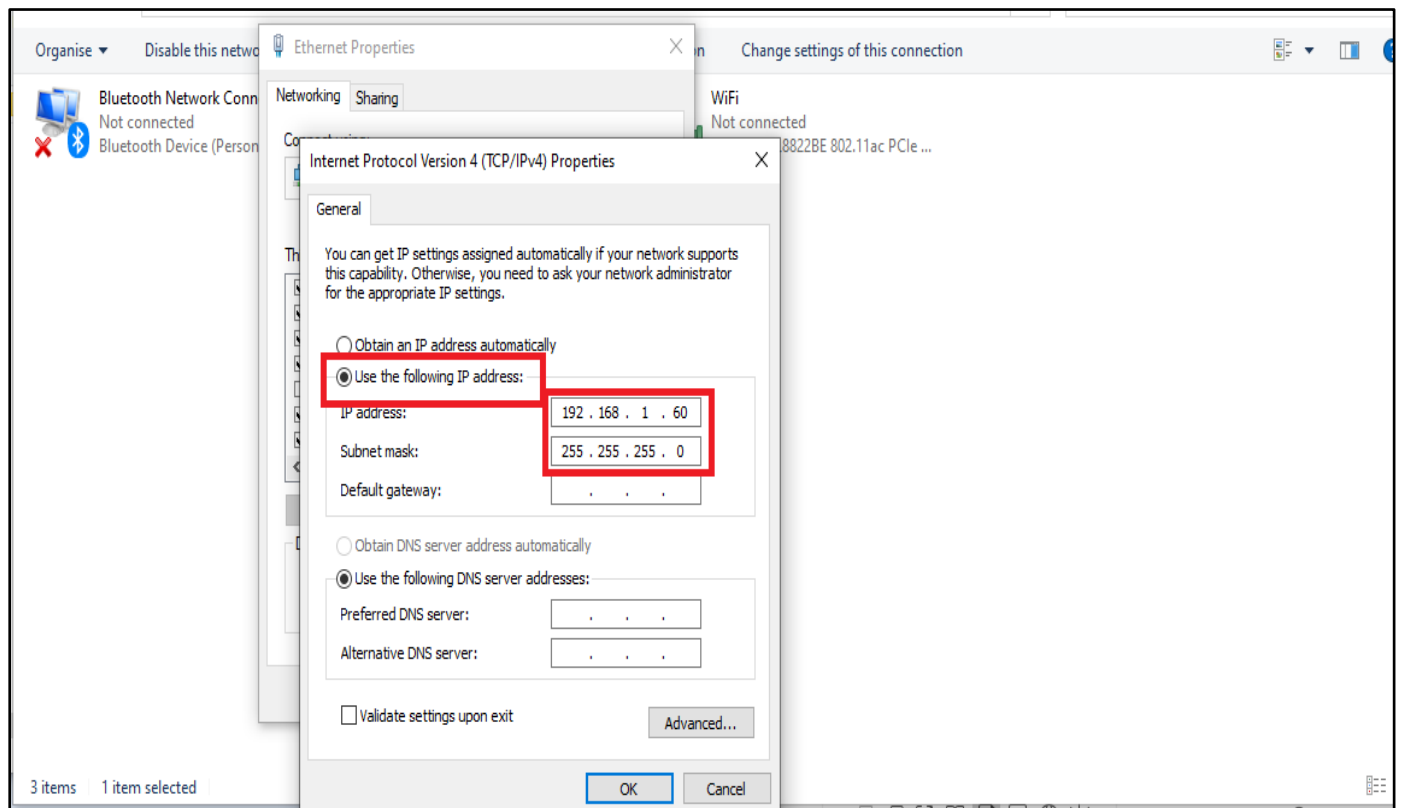


- After clicking on the Properties, select **Internet Protocol Version 4 (TCP/IPv4)** and then click on Properties tab present at the bottom of the visible screen.

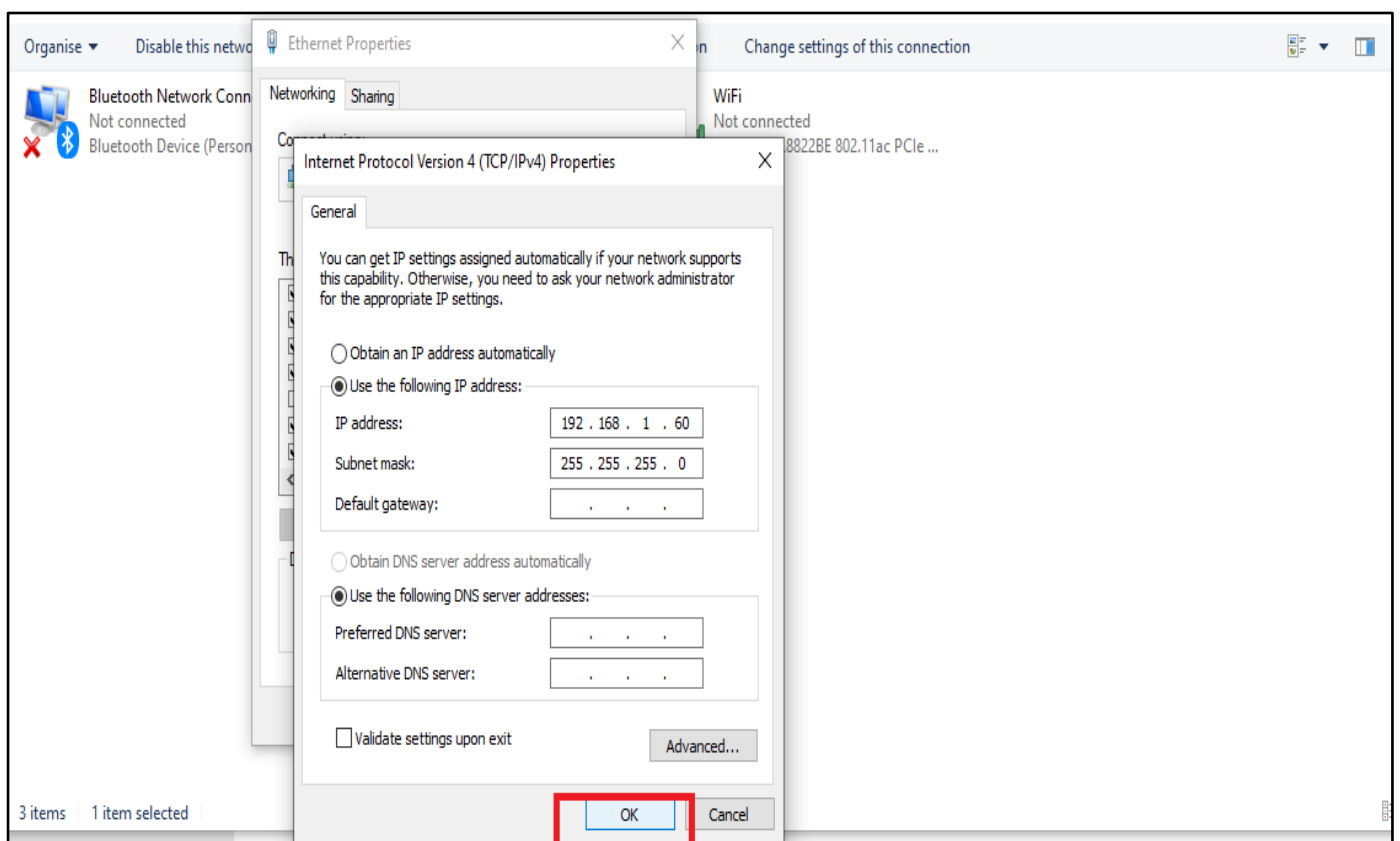


- Click on **Use the following Address as shown in image below**

IP Address: 192.168.1.60 (In range of PLC IP Between 0 to 255 except PLC IP)

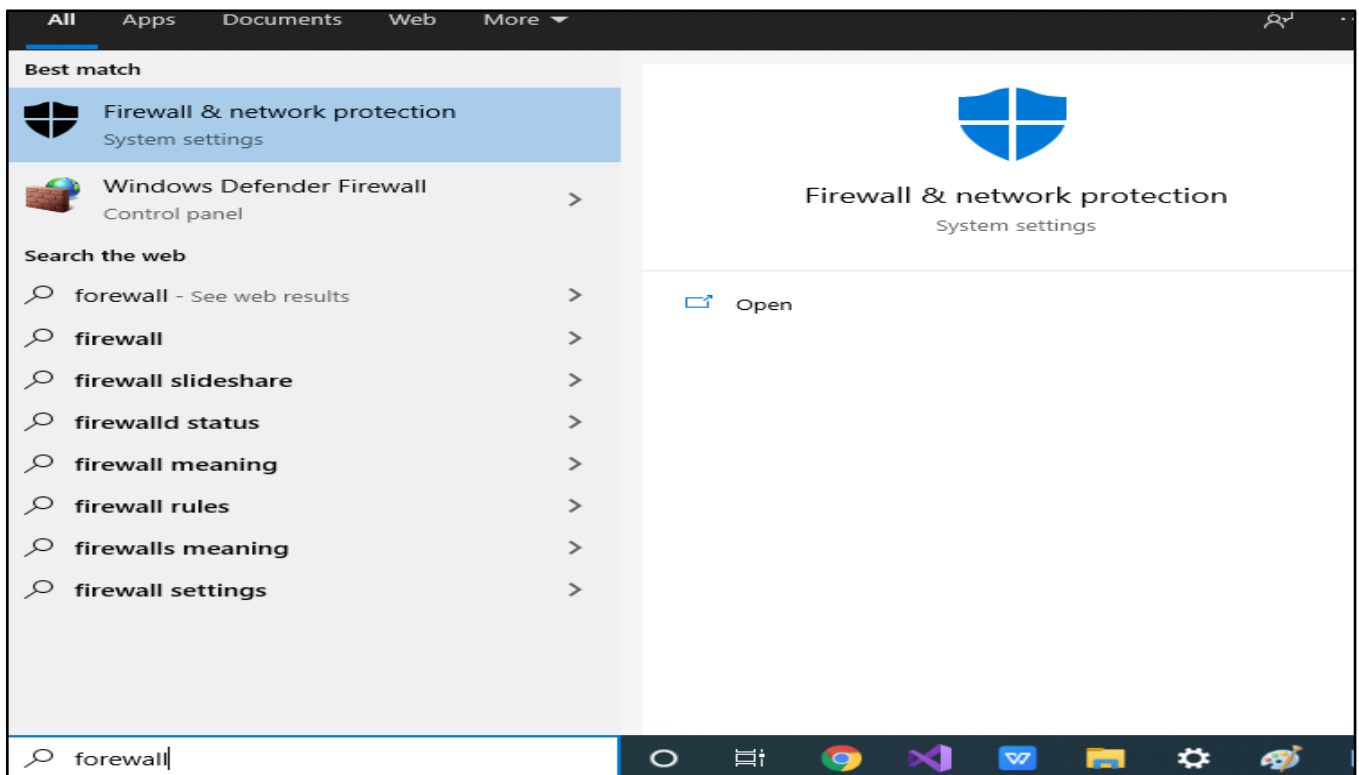


- Click on **OK** and the close the window.

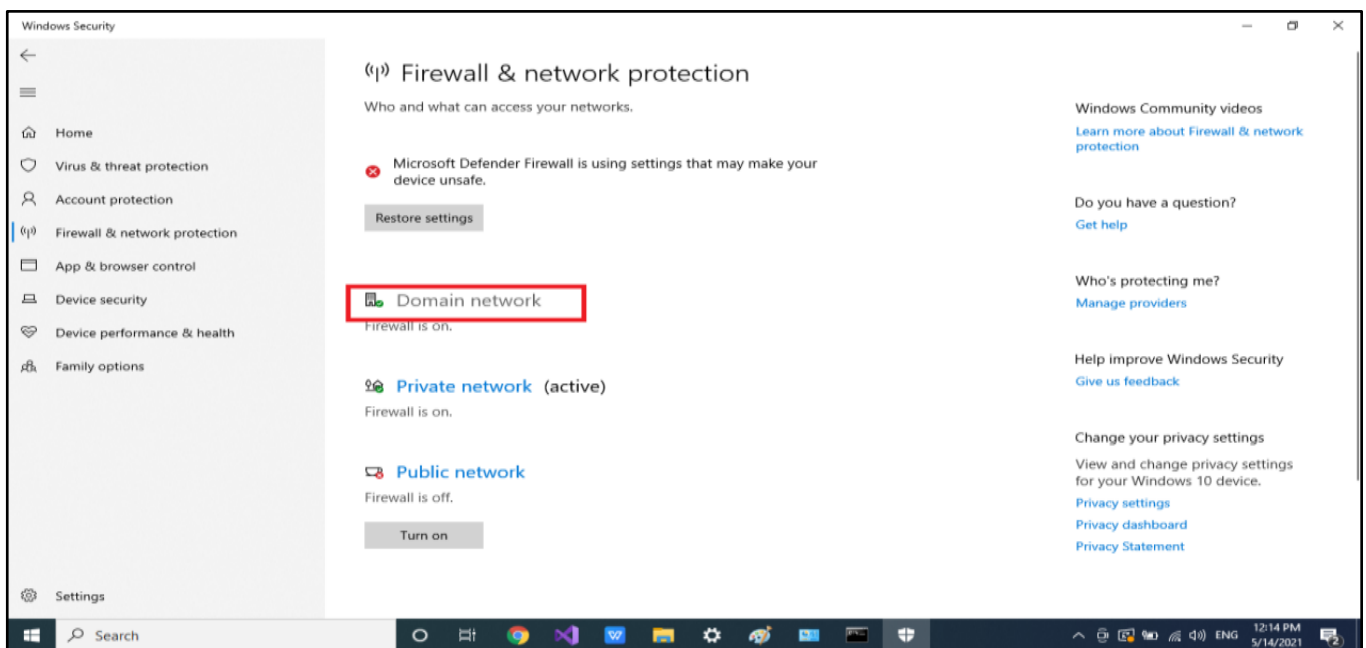


Turn Off Firewall security on PC - To access PC in Network

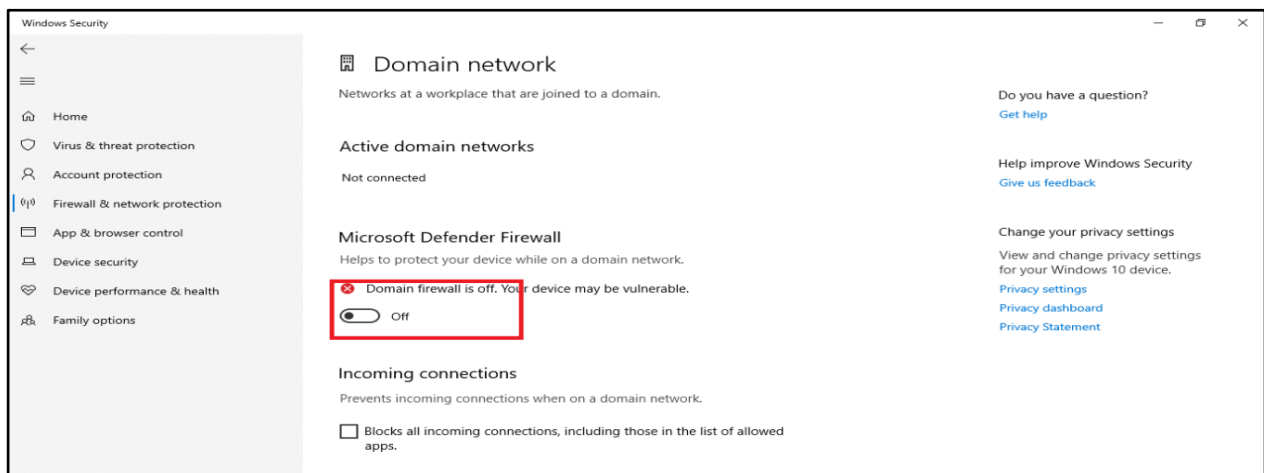
- In Start, Type Firewall and click on **Firewall & Network Protection**



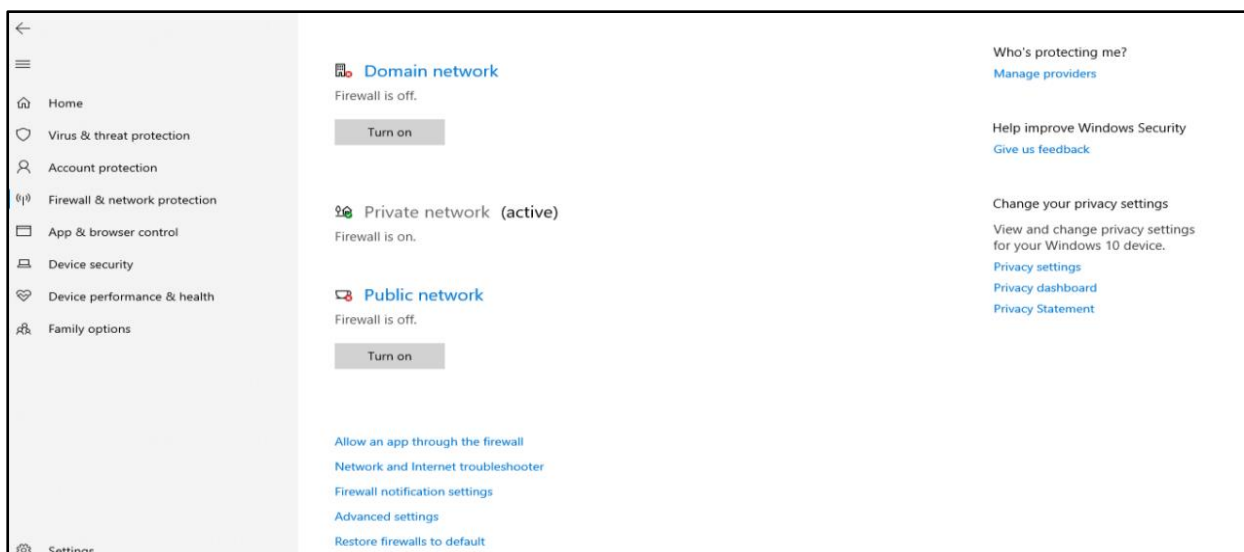
- After that click on **Domain Network**



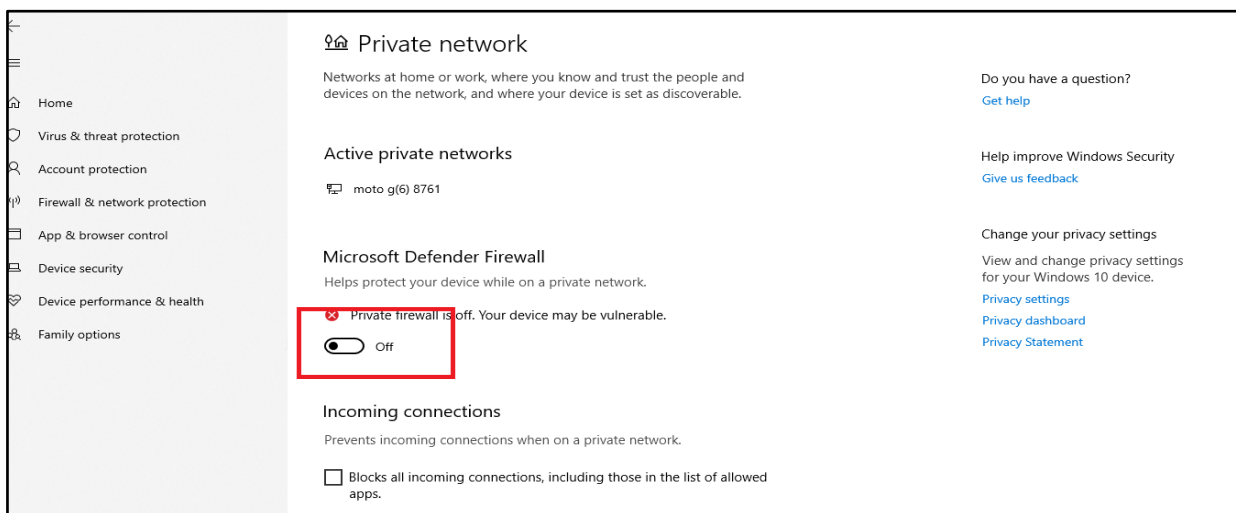
- Switch the **Firewall off**



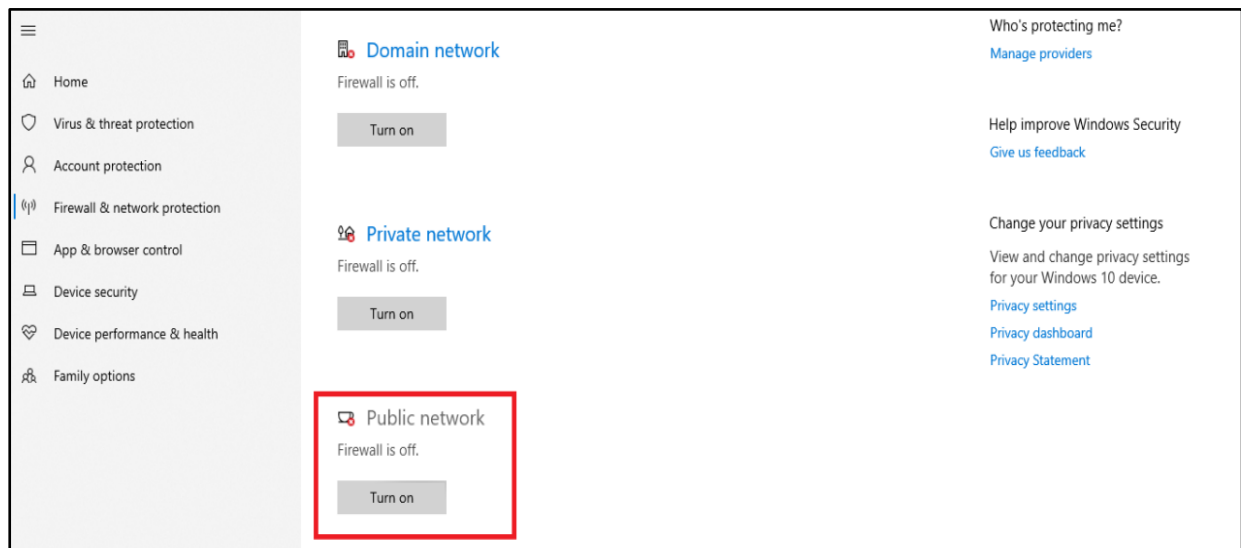
- After that come back to main screen of **Firewall & Network Protection** and Click on **Private Network**



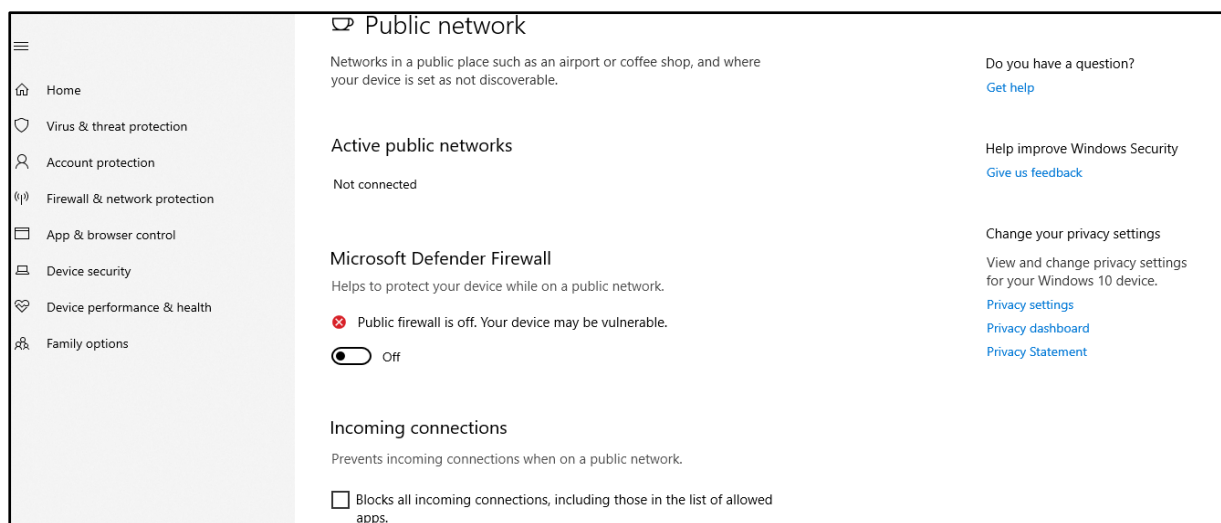
- Switch off the Firewall in private network as well



- Back To the main screen of **Firewall & Network Protection** and click on **Public network**



- **Switch off the Firewall** in Public Network as well



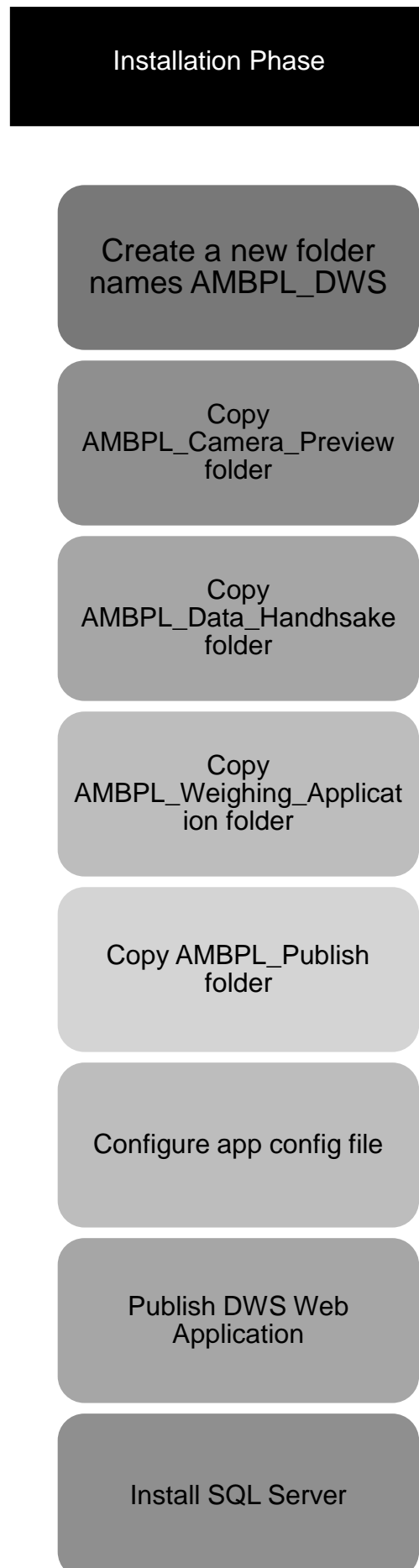
- **Close the tab.**

With this the Pre-Installation process is over. Now before starting with the Installation Phase, check again if PLC and PC server are on same network.

If the steps of pre installation are followed properly they should be in the same network. If not, check and follow the step again.

If the problem persists, connect with the network engineer to resolve the issue.

Flow chart of Installation Phase



Installation Steps

This process includes installation of three different software which are required by the DWS system.

Installation process starts with deployment of various software in the Server PC. These software/application/folders, etc. will be provided by Armstrong in a removable storage device. Follow the below mentioned steps to complete the Installation process.

To deploy the application on the server PC, follow the following steps

1. Create a new folder named AMBPL_DWS in any of the Local Drives.
2. Copy AMBPL_Camera_Preview folder into AMBPL_DWS (Provided by Armstrong in a CD/Pen drive)
3. Copy AMBPL_Data_Handshake folder into AMBPL_DWS (Provided by Armstrong in a CD/Pen drive)
4. Copy AMBPL_Weighing_Application into AMBPL_DWS (Provided by Armstrong in a CD/Pen drive)
5. Copy AMBPL_Publish folder into AMBPL_DWS (Provided by Armstrong in a CD/Pen drive)
6. Configure App config file. (Will be done by Armstrong team)
7. Publish Web application of DWS (Provided by Armstrong) in IIS (Internet Information Service)

If IIS is not configured, then to configure IIS follow the below mentioned steps.

8. After that take the data backup in SQL Server, if SQL Server is not installed in the PC then follow the steps given below to download & install SQL server

Before the deployment of the web application, we need to check whether the IIS is configured on server PC or not. If it is not configured, then we need to configure the same.

Steps to Check IIS Configuration

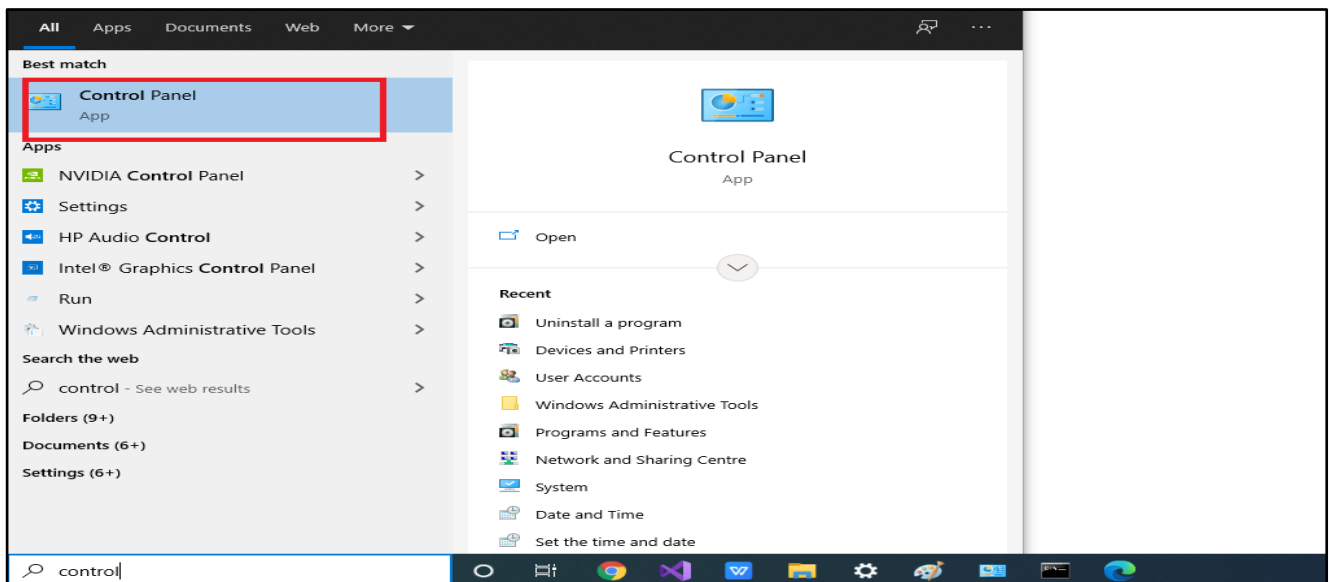
To check whether IIS is configured or not please refer the below given steps:

Type IIS in search panel, if it is visible in the menu List then there is no need to configure it, as it is already configured.

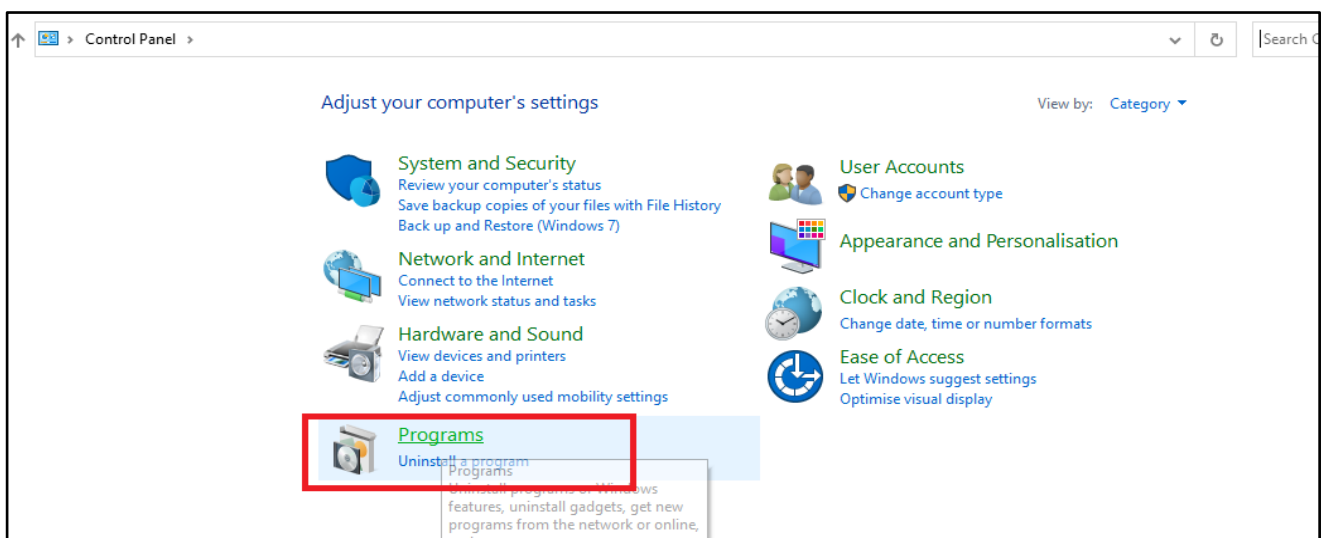
But if IIS does not appear in search list then follow the following steps to configure IIS.

IIS Configuration Steps

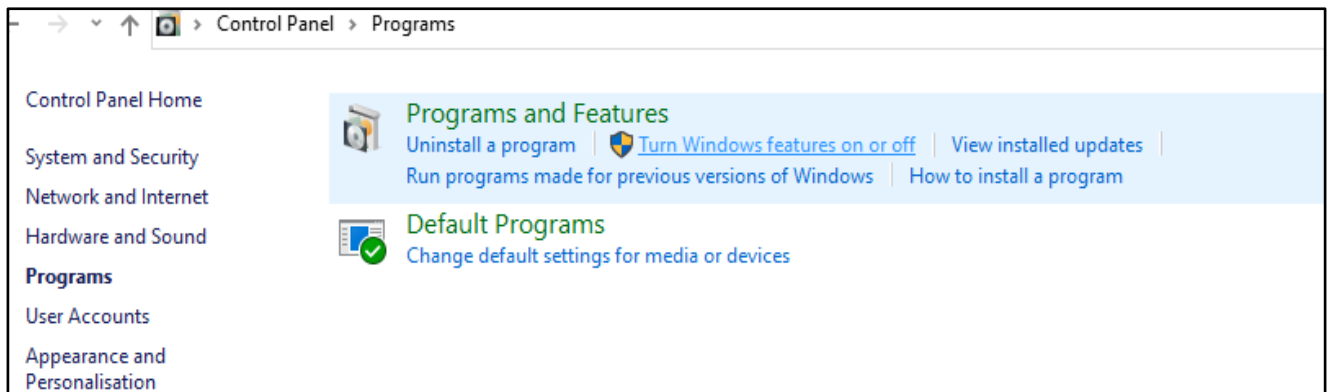
- In the start tab, type Control Panel and then Click On control Panel



- After that Click on **Programs** in control panel.

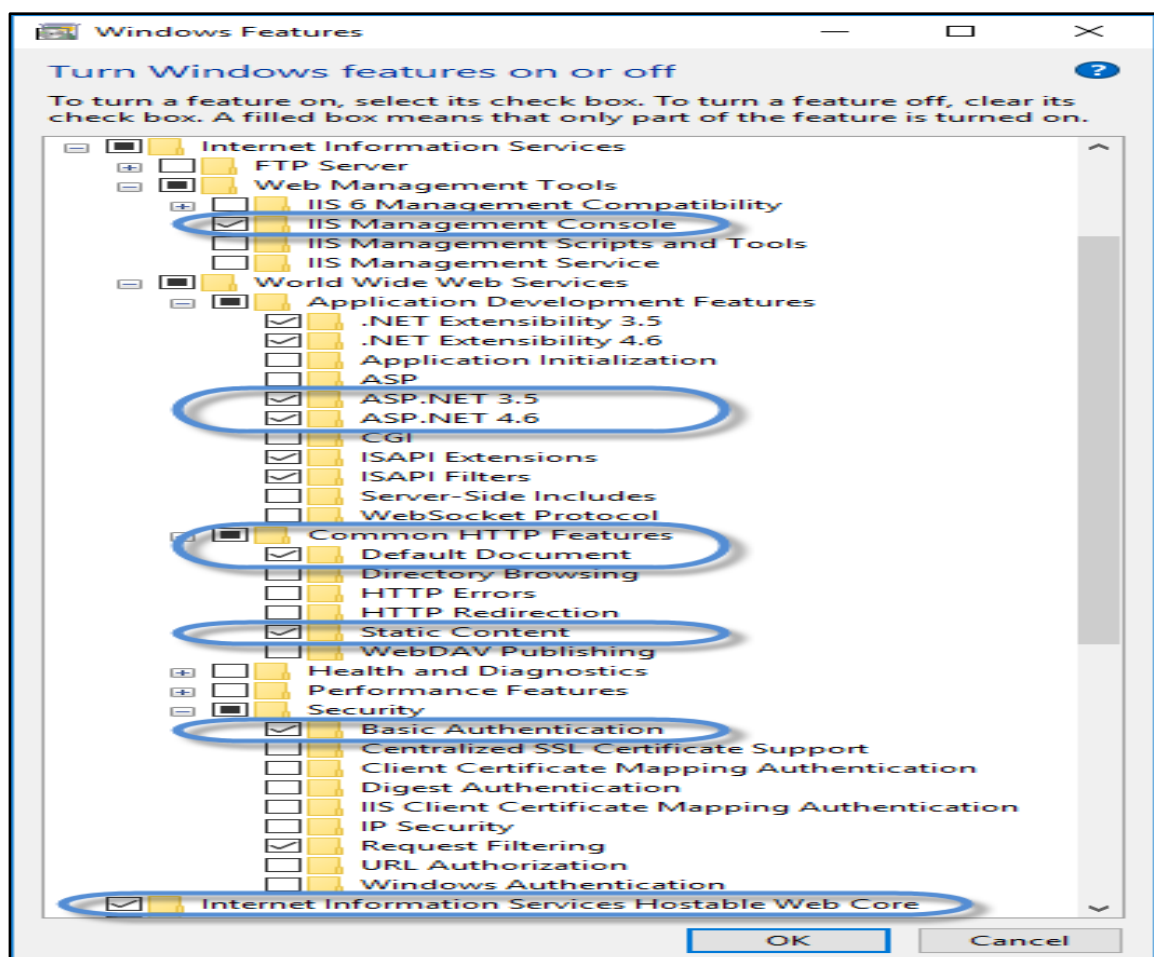


- In the Programs and Features window, Click on **Turn Windows Features on or off**



- Under **Internet Information Services** in the windows features screen, turn on the following:

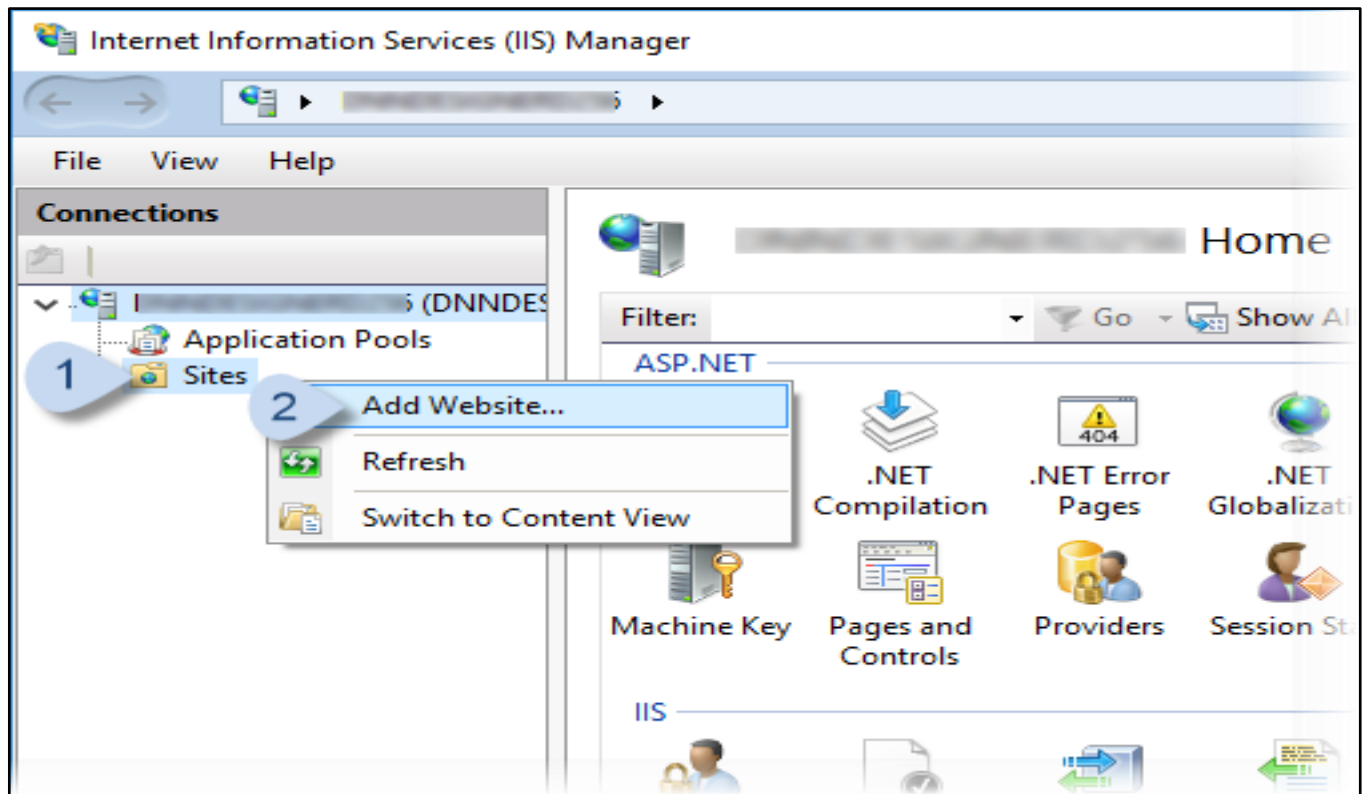
- ✓ **Web Management Tools:** IIS Management Console
- ✓ **World Wide Web Services**
- ✓ **Application Development Features:** ASP.NET 3.5 and 4.6
- ✓ **Common HTTP Features:** Default Document and Static Content
- ✓ (Optional) **Security:** Basic Authentication
- ✓ **Internet Information Services Hostable Web**
- ✓ **Core**



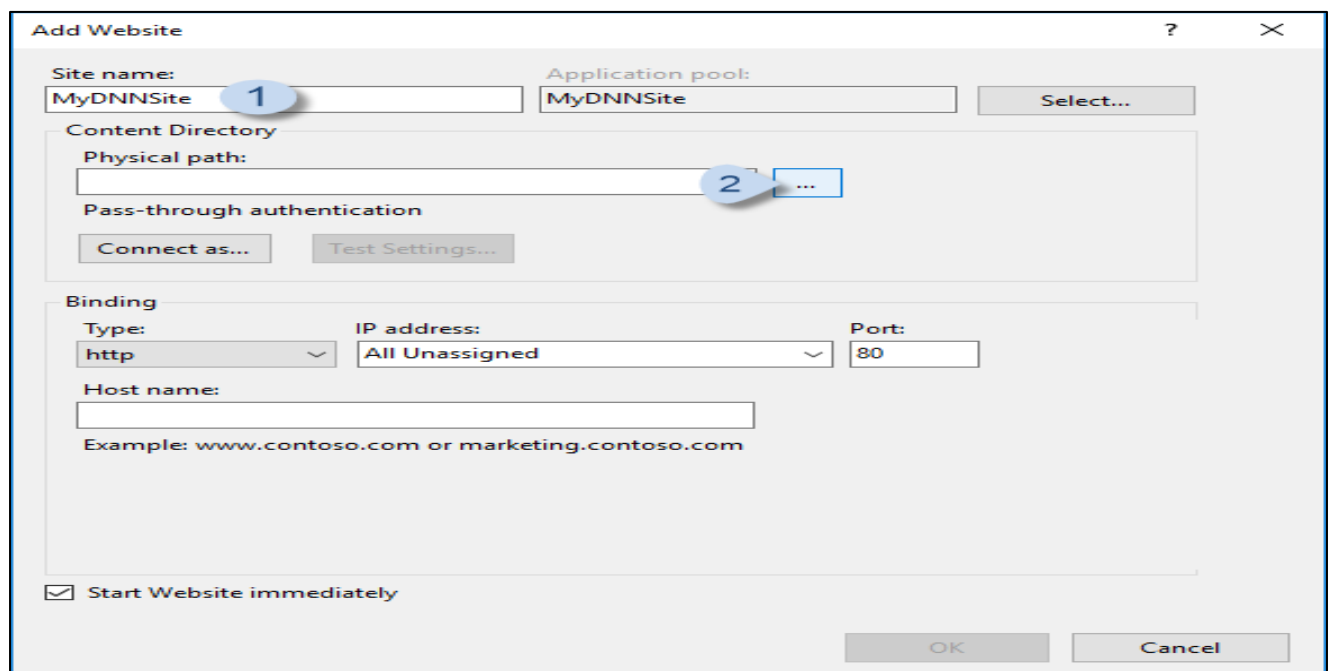
You can create a new website or set up an existing one for use within DNN. Choose one of the next two steps.

- To create a new website and to point it to the DNN installation folder:

Go to **Control Panel > Administrative Tools > Internet Information Services (IIS) Manager**.



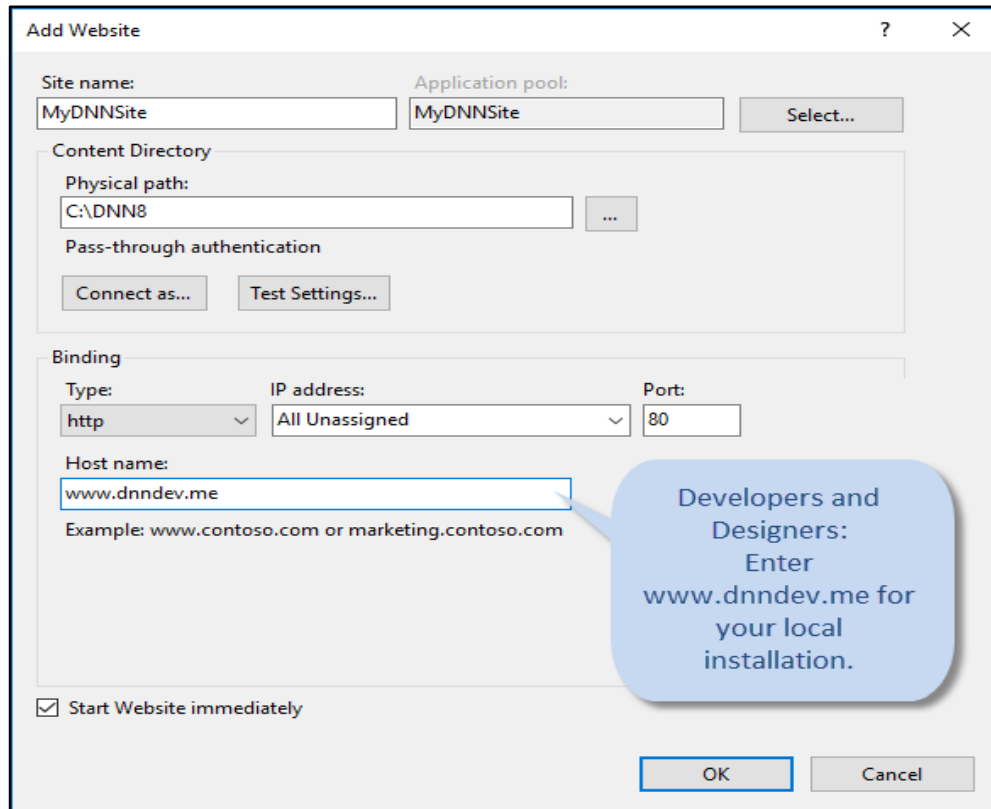
In the **Connections** panel, expand your host tree by right-clicking on **Sites**, and choose **Add Website**.



Enter the new website's name and choose the location after that Enter the **Host name**.

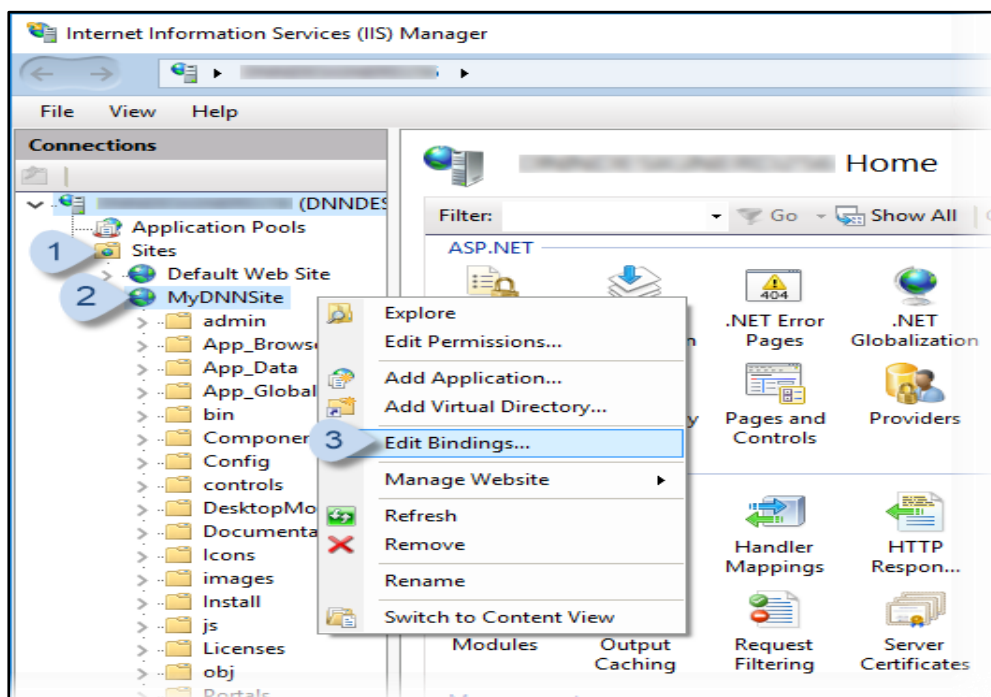
For Developers and Designers: If you are setting up a local development environment, you can use (or any subdomain) DNNDEV.ME as a registered domain which points to the loopback address of 192.168.0.51 so it will always be resolved locally.

For Administrators: If you are setting up a live website, use your website's domain.



To use an existing IIS website:

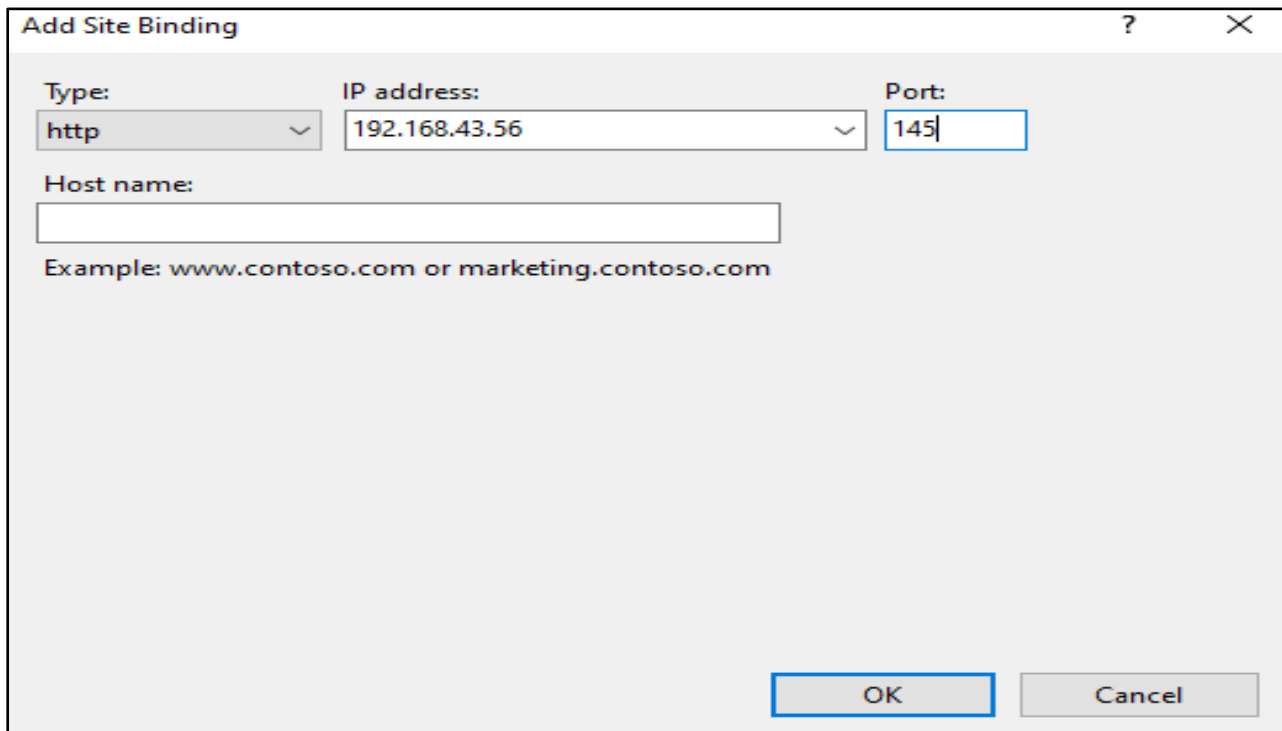
In the **Connections** panel, right-click on the name of the existing website and choose **Edit Bindings**.



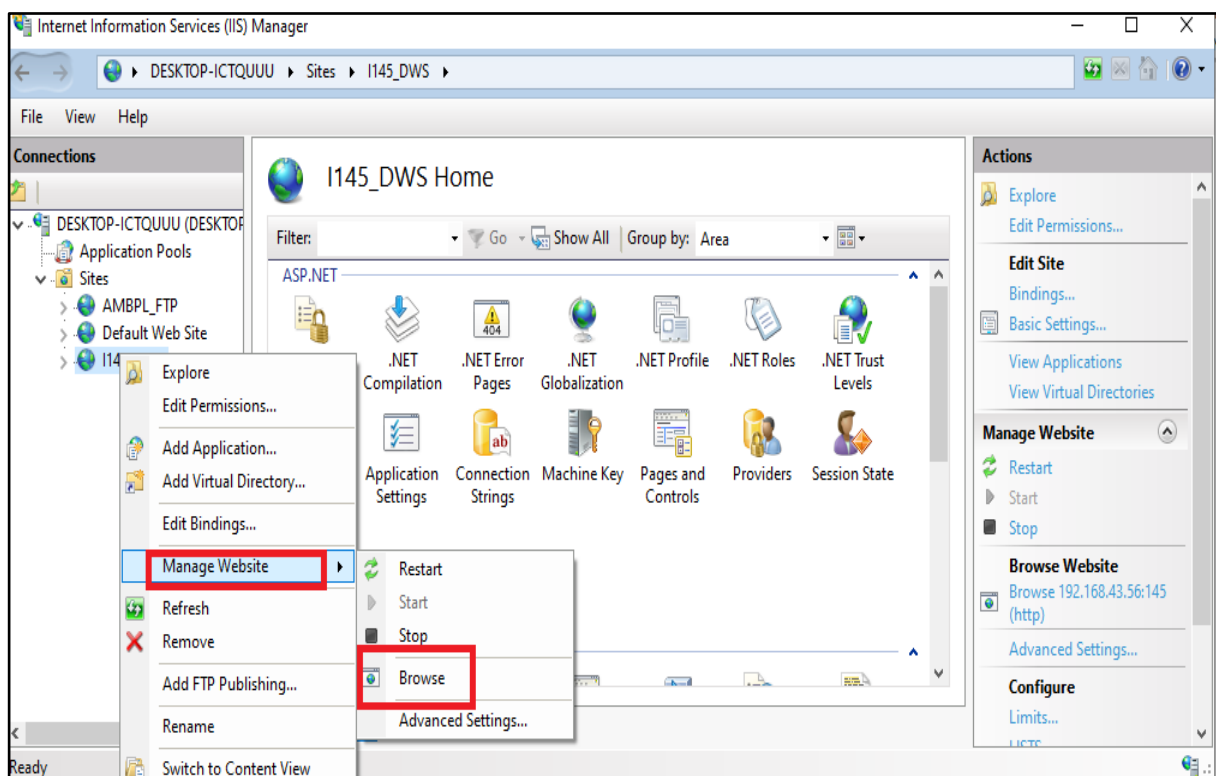
In **Site Bindings**, click **Add**. In **Add Site Binding**, enter the **Host name**.

Developers and Designers: If you are setting up a local development environment, you can use a registered domain which points to the loopback address of 192.168.0.51, so it will always be resolved locally.

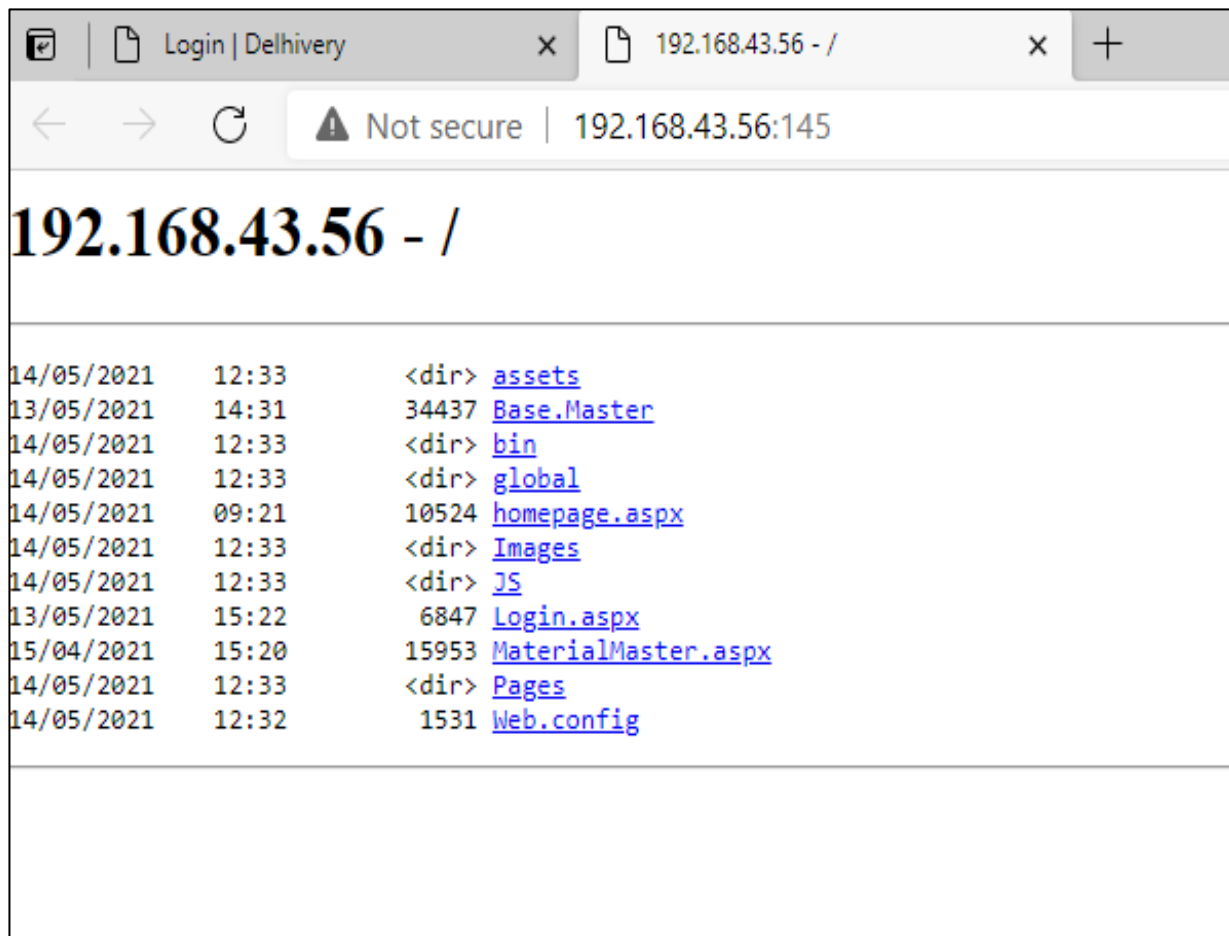
Administrators: If you are setting up a live website, use your website's domain.



To Open a website, open Sites, then Right Click on Sites Manage Website >> click on Browse



Then it will be redirected automatically and open in Browser



Now Click on Login.aspx Page, after that the website will Reflect/Open.

Data Handshake Service Windows Service Installation

1) Open .exe file of a service to contagiously update data from System.

For Installation Service

```
cd C:\Windows\Microsoft.NET\Framework\v4.0.30319
```

```
installutil.exe "C:\Services\myservice.exe"
```

For Uninstallation Service

```
C:\Windows\Microsoft.NET\Framework\v4.0.30319\installutil.exe -u  
"C:\Services\myservice.exe"
```

Install SQL EXPRESS

Download SQL Server Express edition

We can download the express edition of SQL Server 2019 from the [Microsoft official web site](#). On the download page, you will find an express edition download link. Click on the **Download now** link for Express Edition and the download process will begin:

Or, download a free specialized edition



Developer

SQL Server 2019 Developer is a full-featured free edition, licensed for use as a development and test database in a non-production environment.

Download now ↓

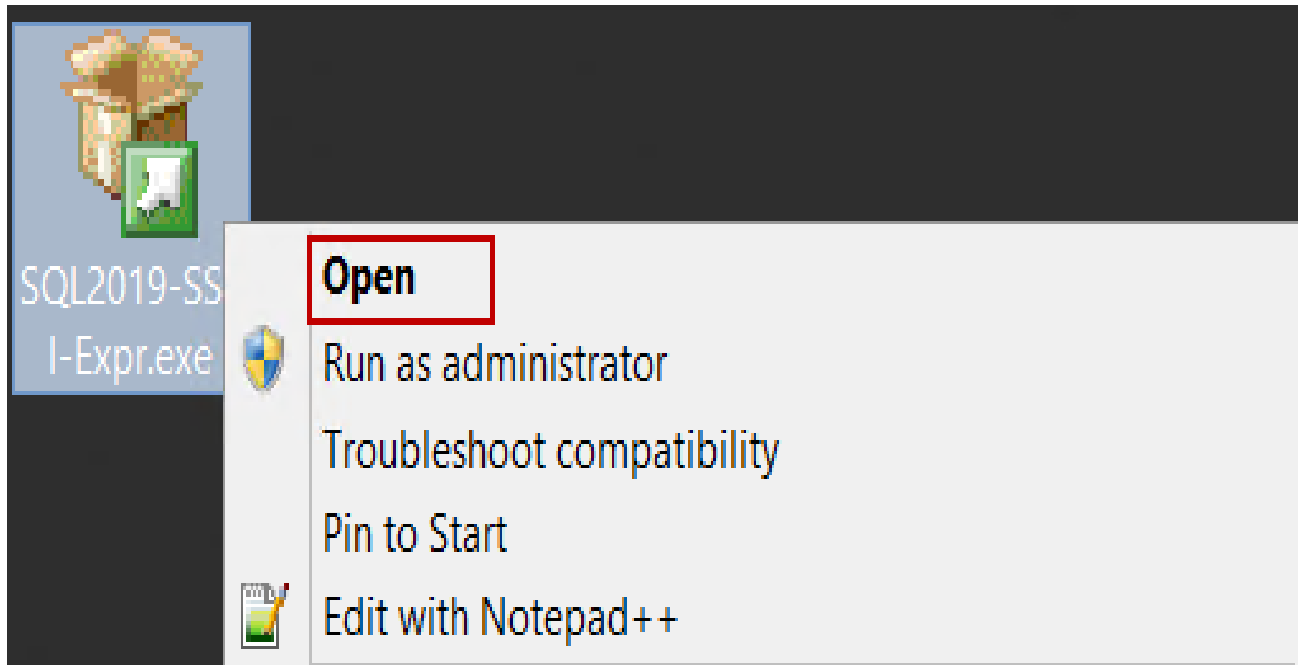


Express

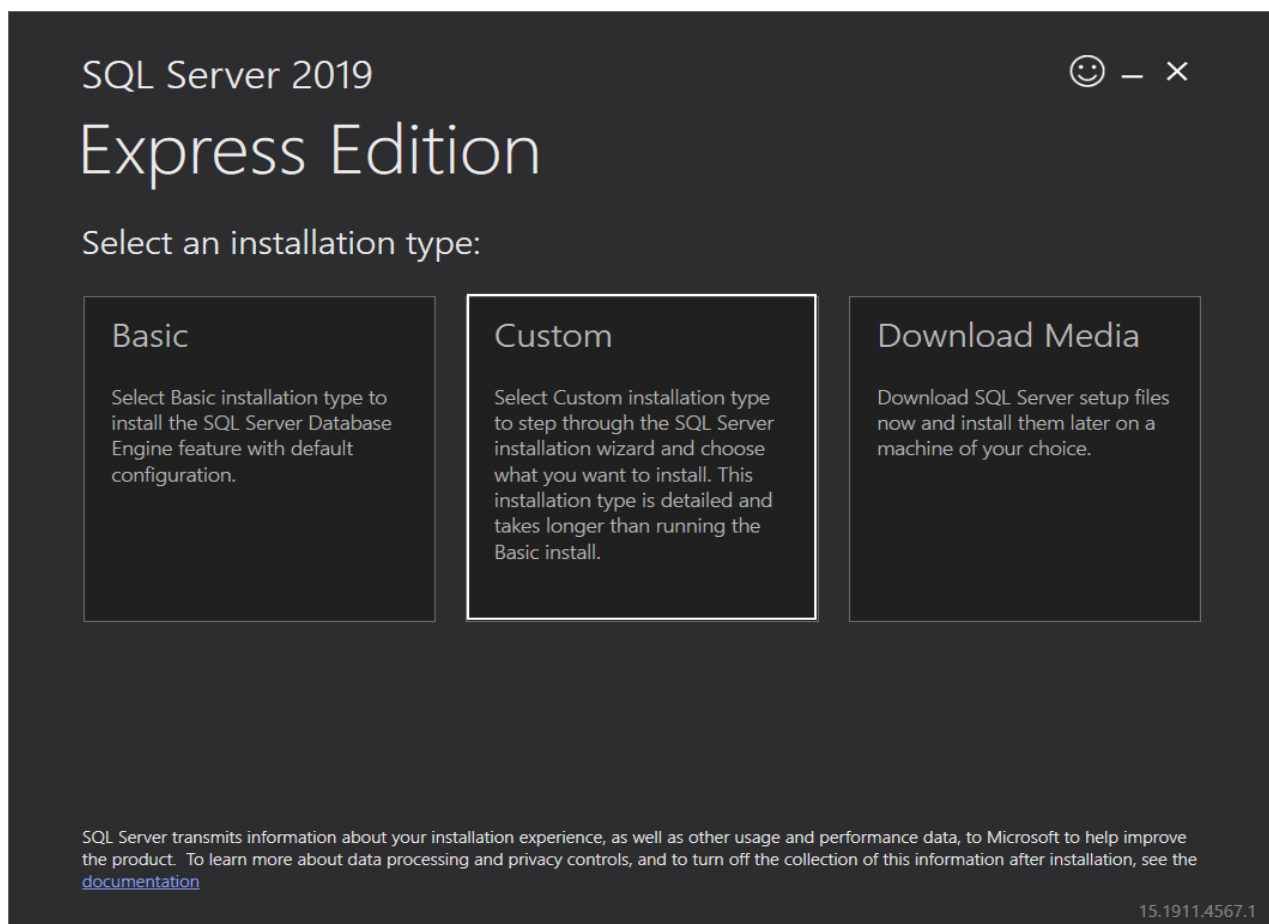
SQL Server 2019 Express is a free edition of SQL Server, ideal for development and production for desktop, web, and small server applications.

Download now ↓

After downloading the setup package, start with the installation steps. Right-click the installation file which is named **SQL2019-SSEI-Expr.exe** in the downloads folder and select the **Open** option to start the installation process. In this step, make sure that the logged-on user already has the necessary rights to install the programs on the computer. Otherwise, there will be problems during the installation steps:

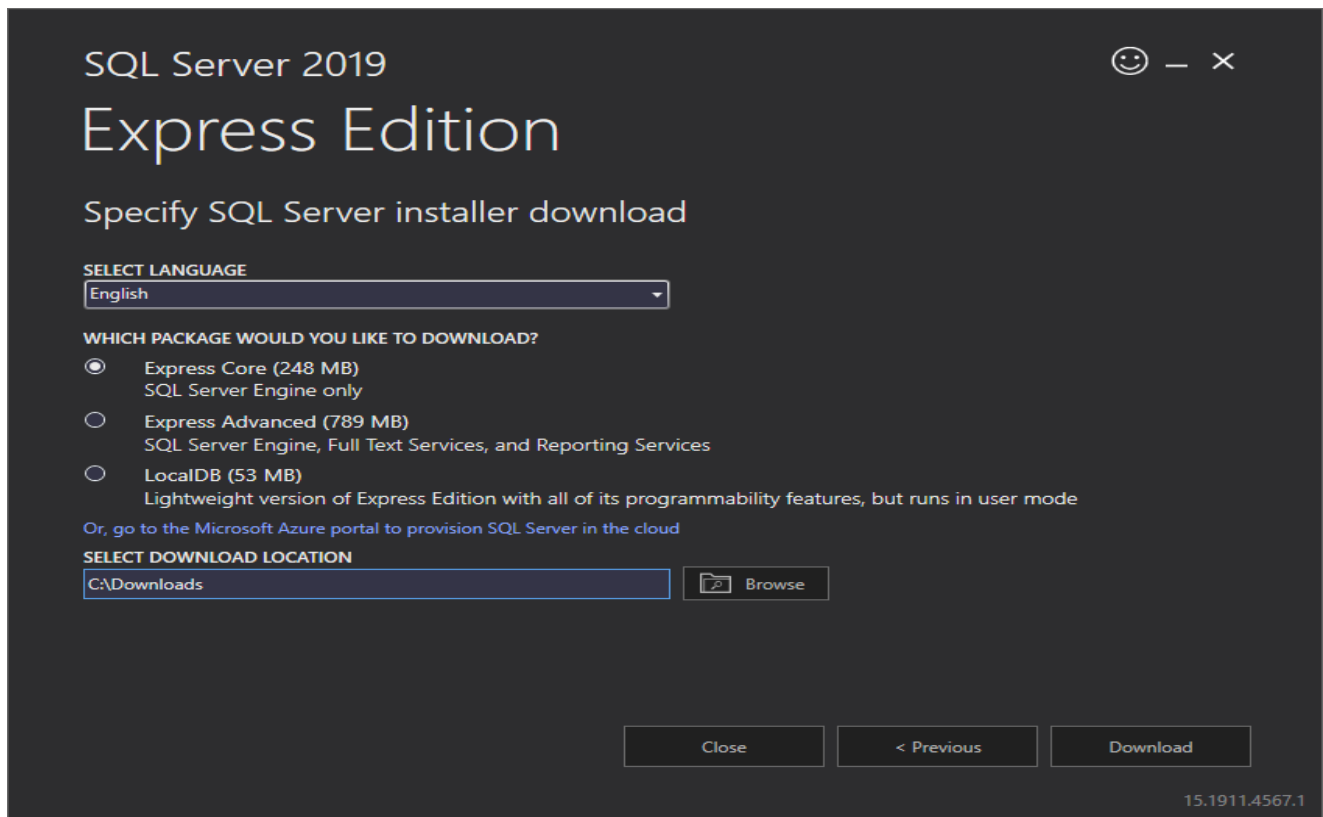


Once the installation starts, choose the installation type of the SQL Express edition:

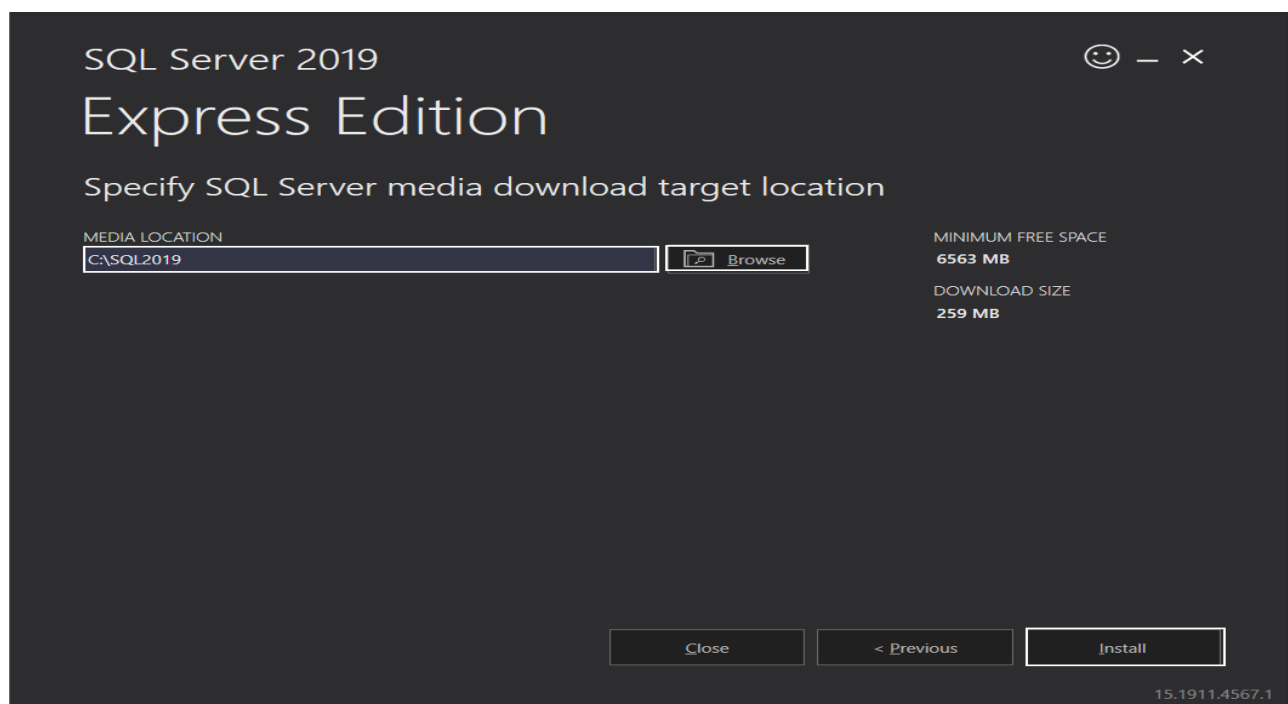


The **Basic** installation option is the quickest and easiest installation method to install the SQL Server Database Engine with the default configuration.

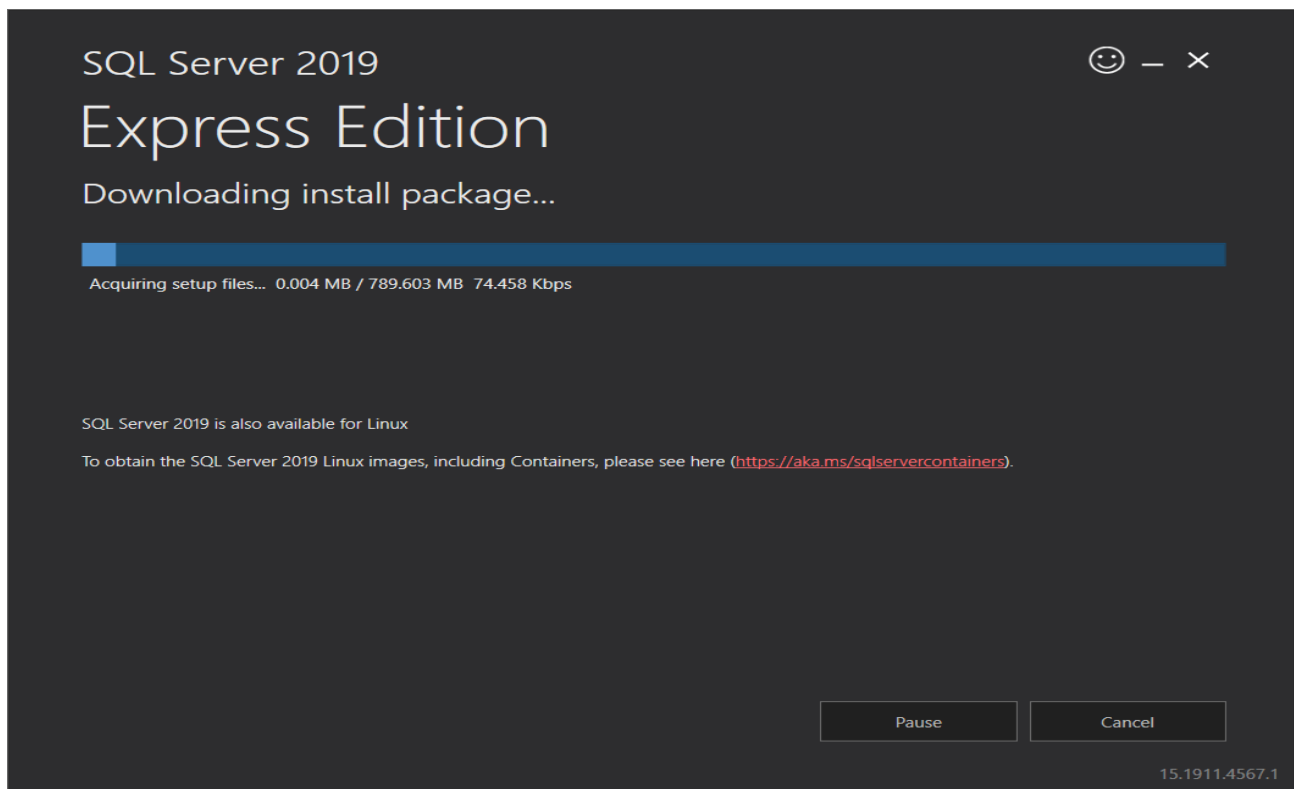
The **Download Media** option also allows us to download the setup files for offline installations



The **Custom** installation method offers more advanced installation options so that we can configure the features and other options of the SQL Server installation. We will use the **Custom** installation method. In the next screen, we will set the path of the setup files to be downloaded and then click the **Install** button



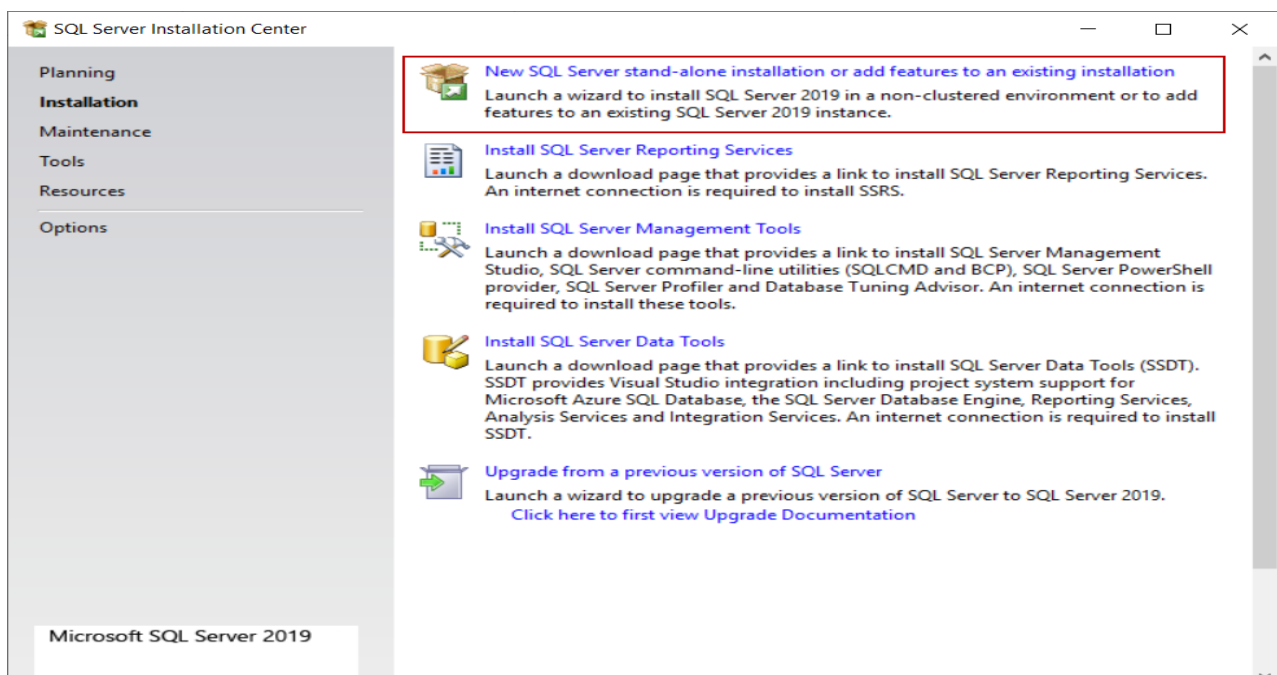
The downloading process will start and the elapsed time for this operation can vary according to the internet connection speed.



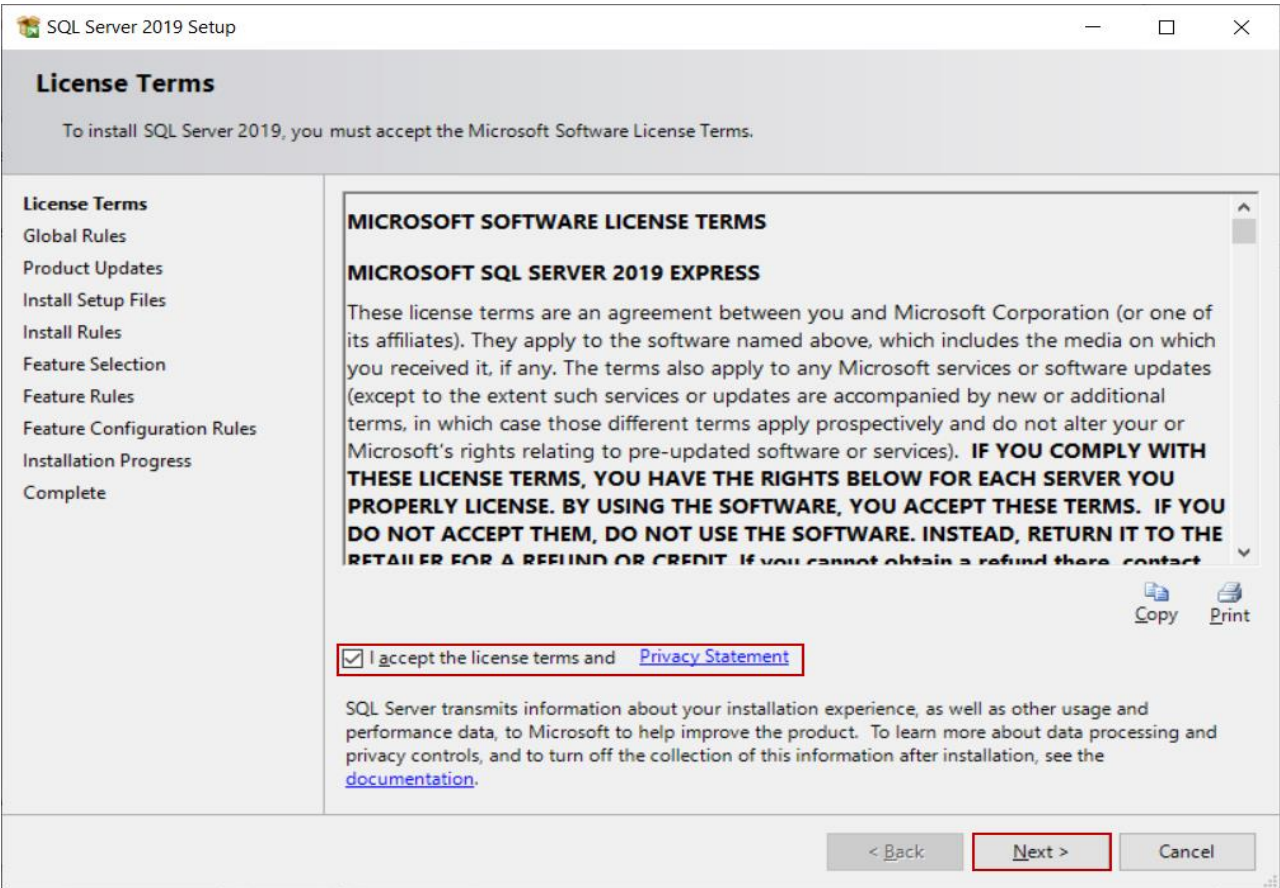
Installing SQL Server Express edition

After the completion of download, **SQL Server Installation Centre** will meet us. In this screen, besides installing the SQL instance, we will be able to install SQL Server Reporting Service, SQL Server Management Studio or SQL Server Data Tools and we can also upgrade the installed version of SQL Server.

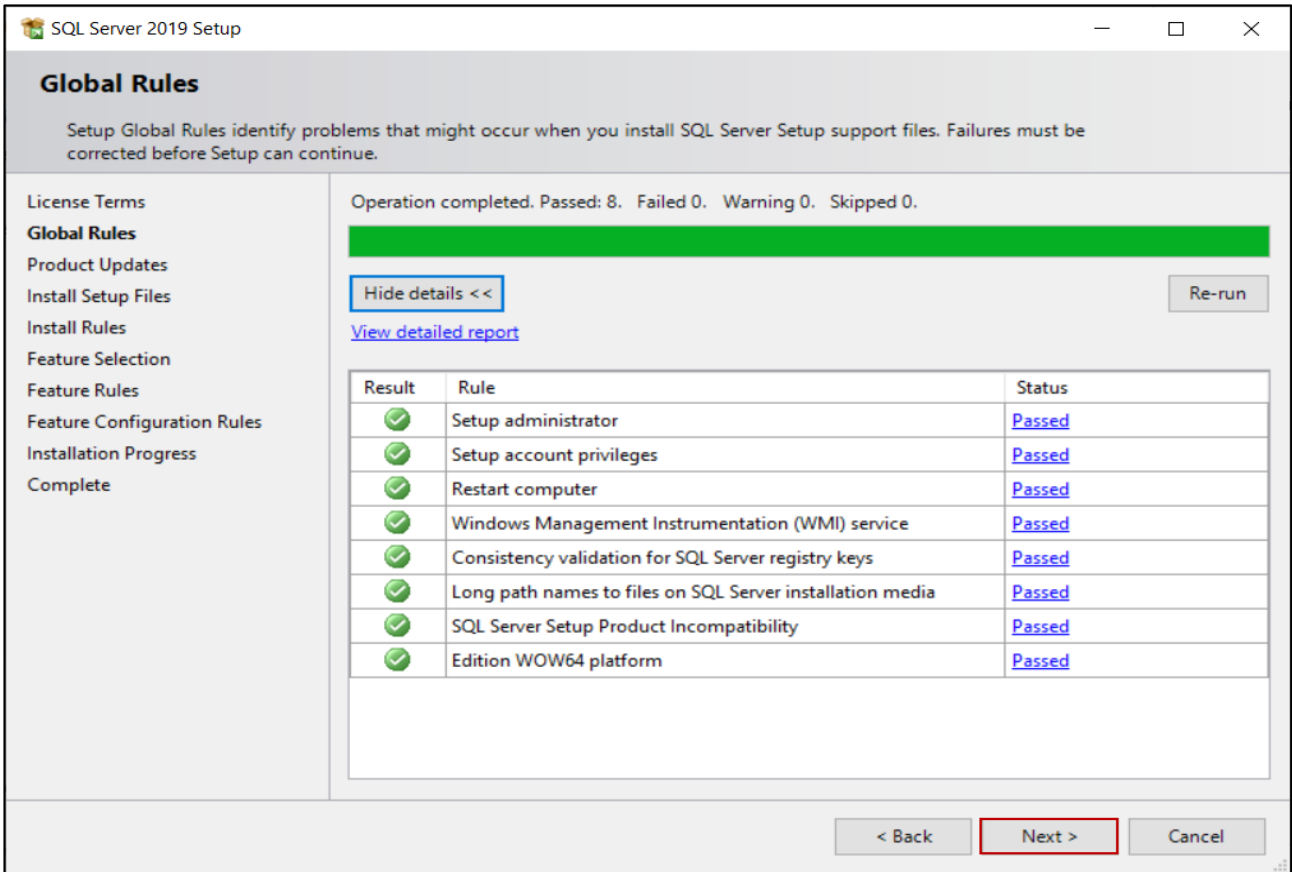
Now, we will select the **New SQL Server stand-alone installation or add features to an existing installation** option to start the installation.



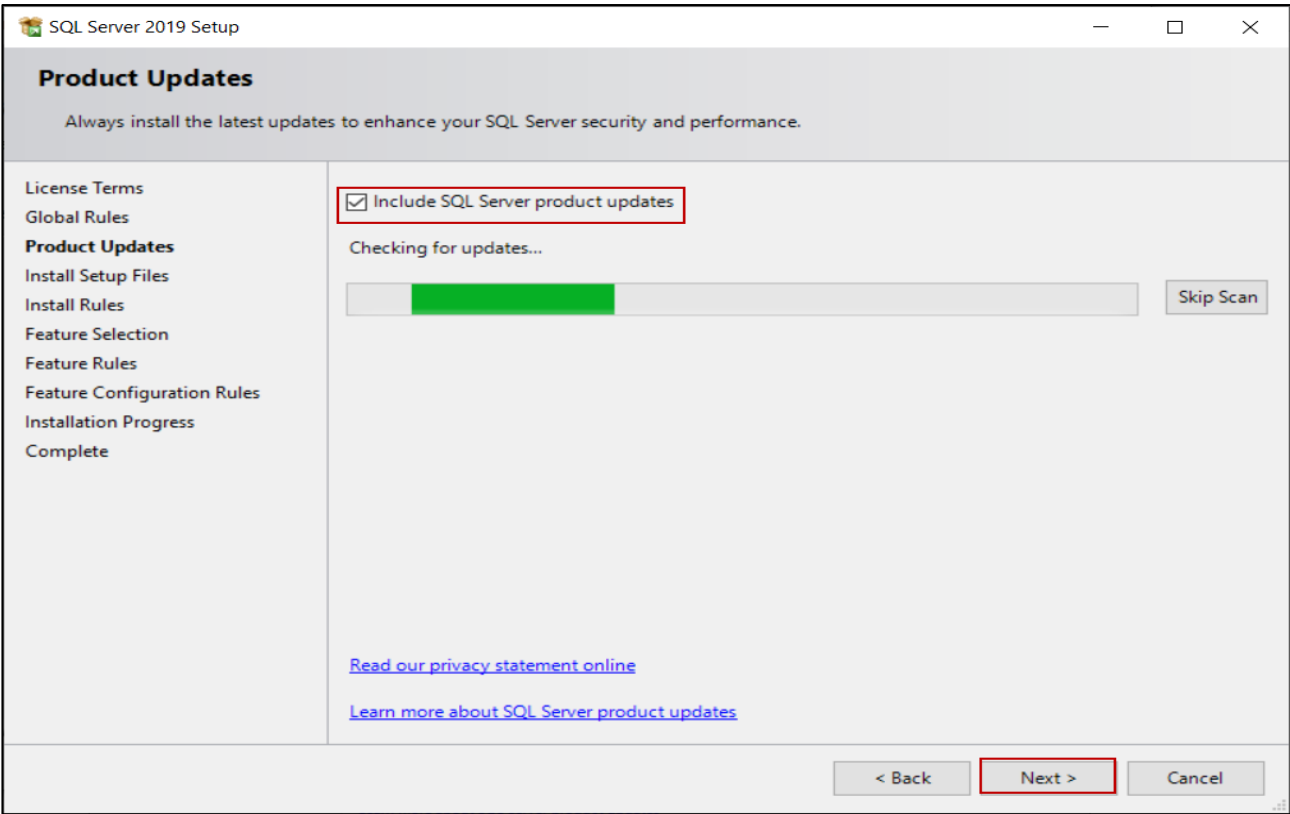
Accept the license terms and other details on the **Licence Terms** screen and click **Next**:



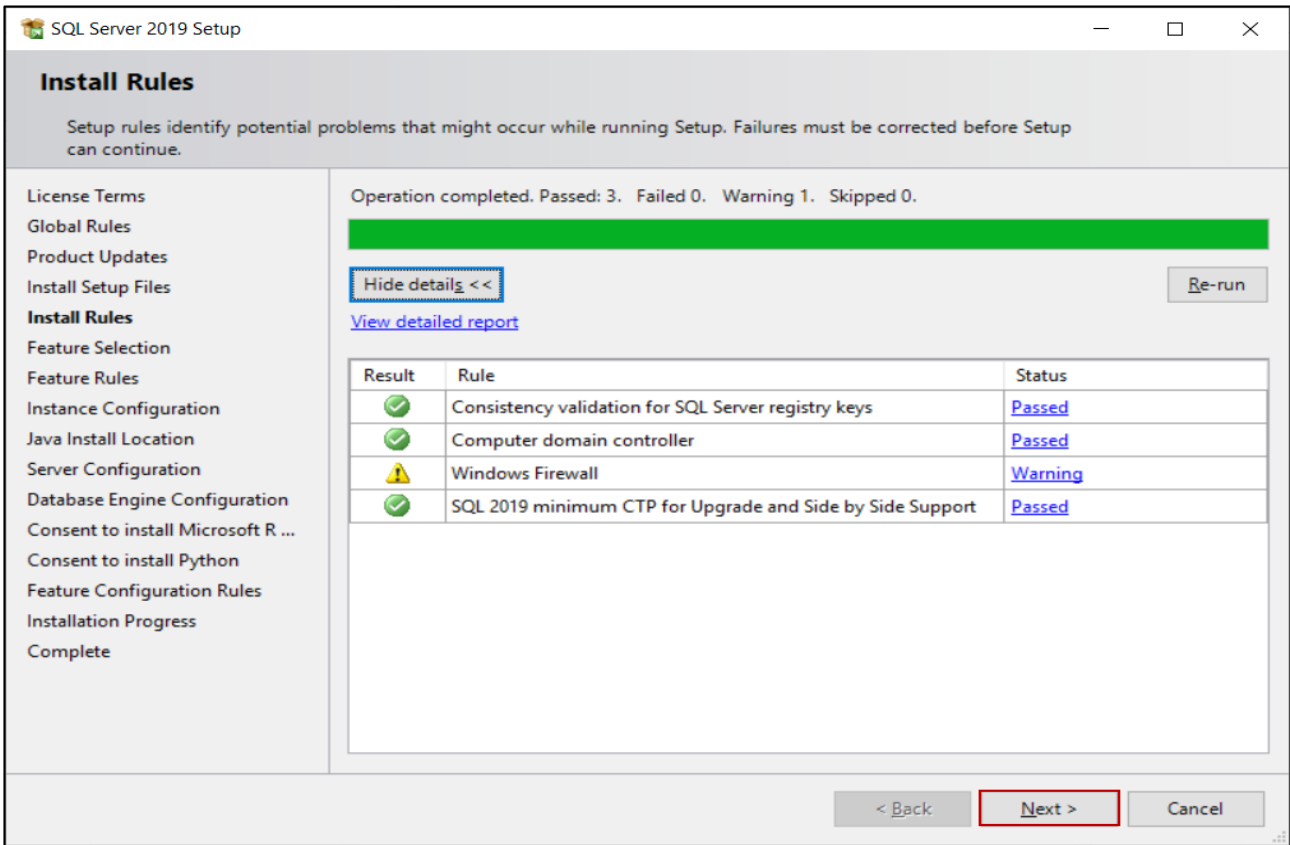
After that the **Global Rules** screen will be launched and, the SQL Server Setup will check the computer configuration:



The **Product Update** screen checks the latest updates of the SQL Server Setup and if you don't have an active internet connection, you can disable the **Include SQL Server product updates** option:



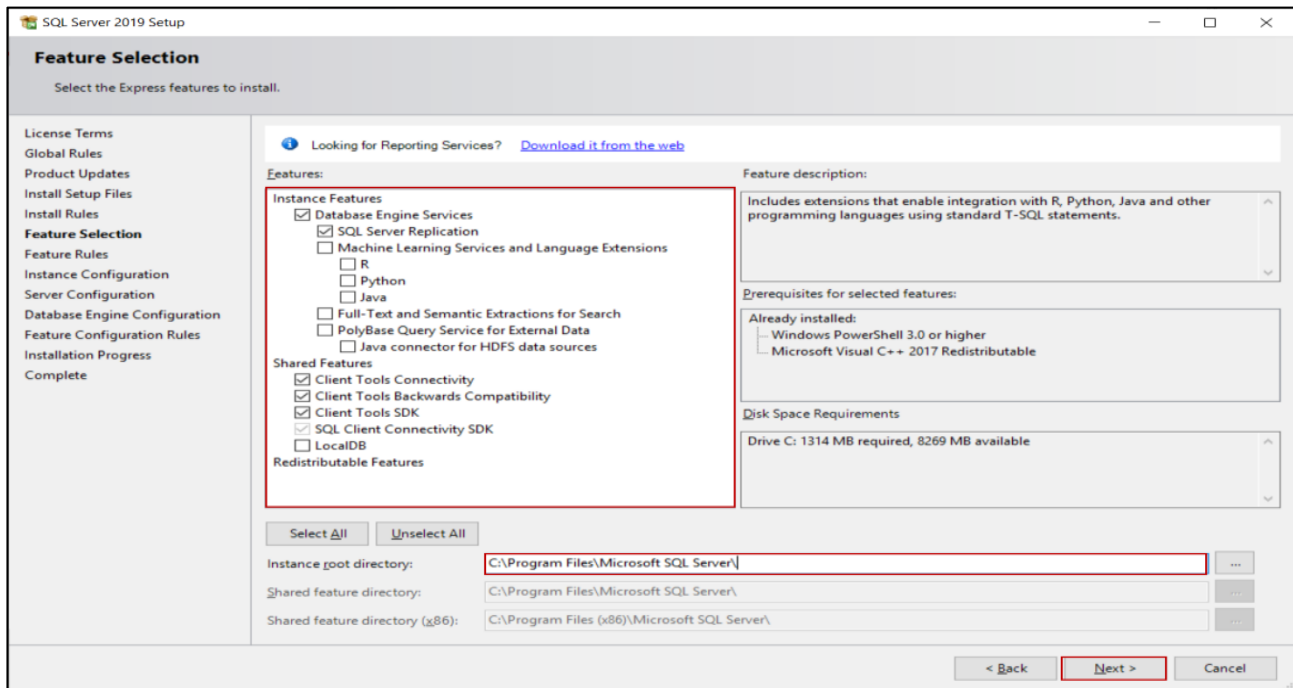
In the **Install Rules** screen, potential issues will be checked by SQL Setup that might occur during the installation. We will click the **Next** button and skip the step



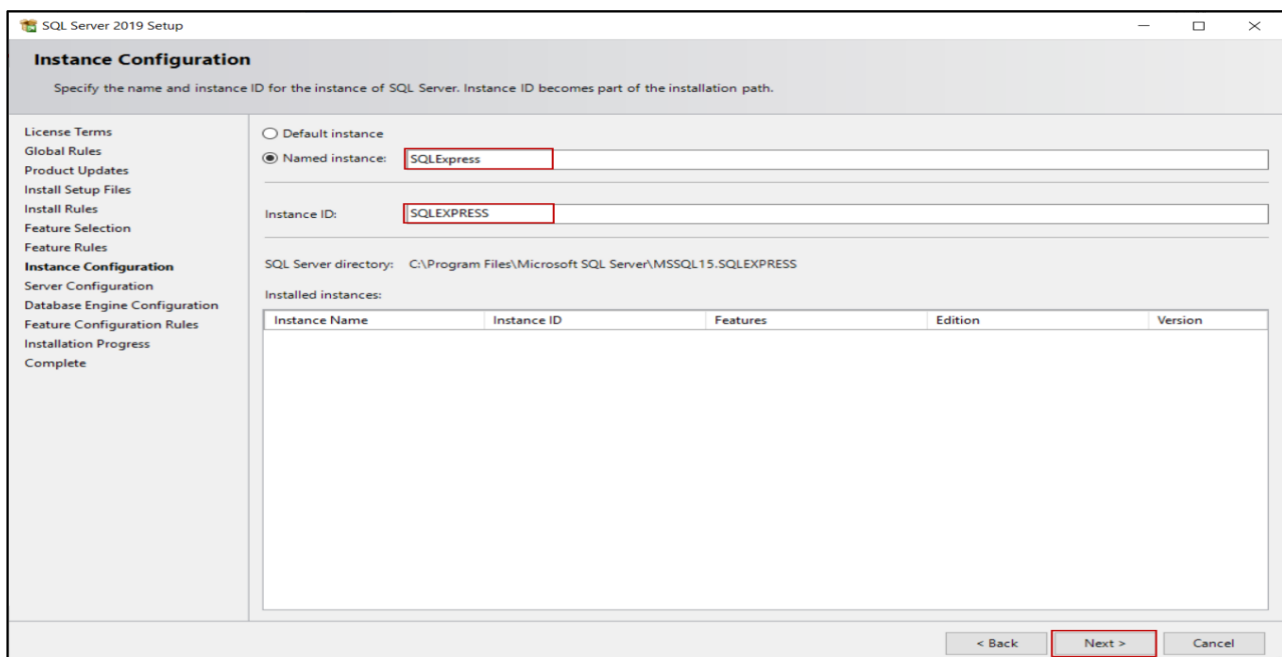
In the **Feature Selection** screen, we can select the features which we want to install. For this installation, we will disable the following features:

- Machine Learning Services and Language Extensions
- Full-Text and Semantic Extractions for Search
- PolyBase Query Service for External Data
- LocalDB

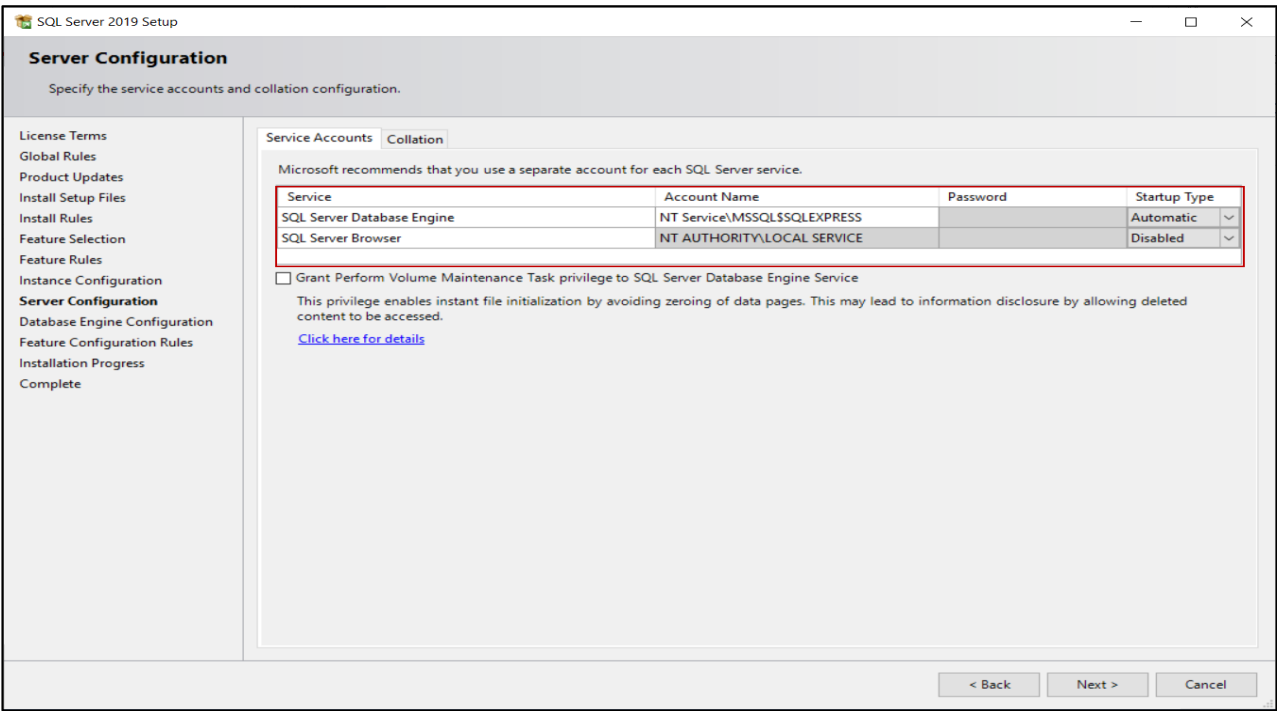
At the same time, we can specify the installation path of the SQL Server through the **Instance root directory** option



In the **Instance Configuration** screen, we will give a name to the SQL instance, but we will not change the default name of the installation. Click the **Next** button



In the **Server Configuration** screen, we can determine the start-up type of the SQL Server Database Engine and SQL Server Browser services. We will not change the default options

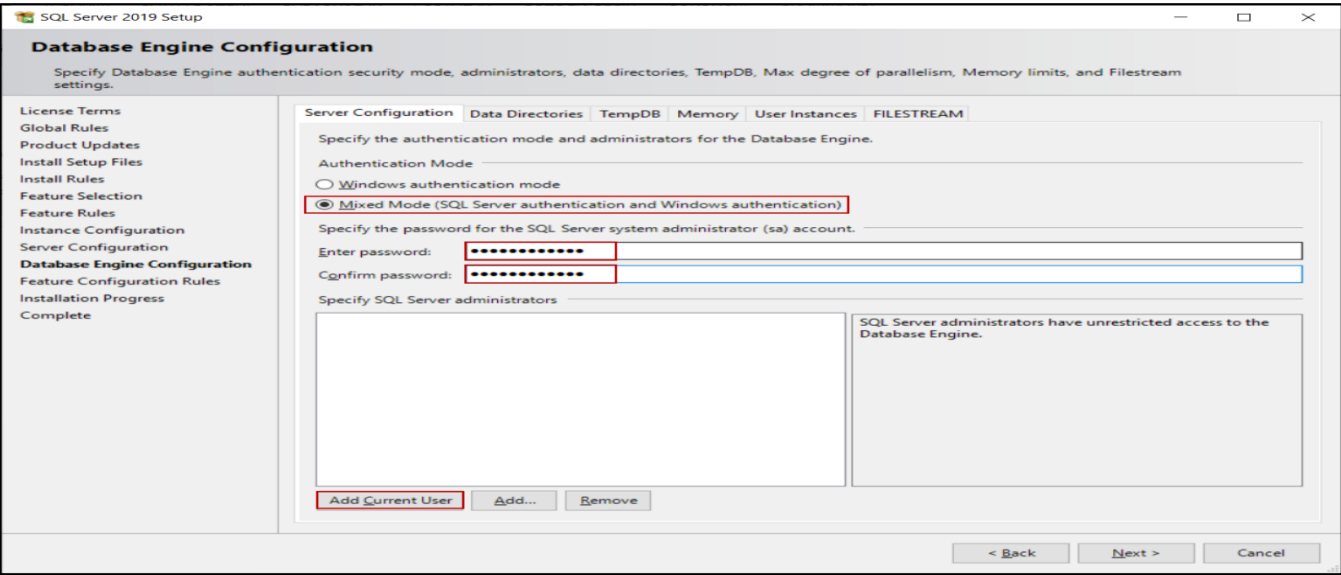


At the same time, we can determine the service account of the SQL Server Database Engine and SQL Server Browser. In the **Collation** tab, we can customize the Server collation option of the SQL Server.

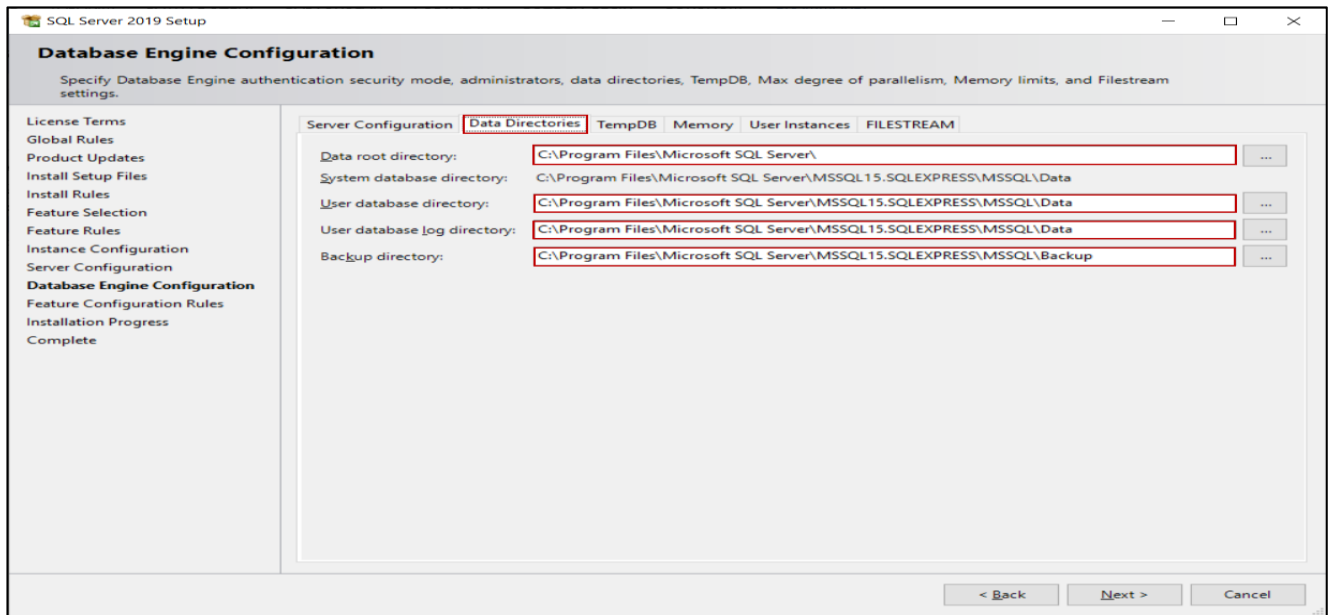
In the **Database Engine Configuration** screen, we will specify the authentication mode of the SQL Server. We have two options on this screen.

In the **Windows authentication** mode, the SQL logins are controlled by the Windows operating systems and it is the best practice to use this mode.

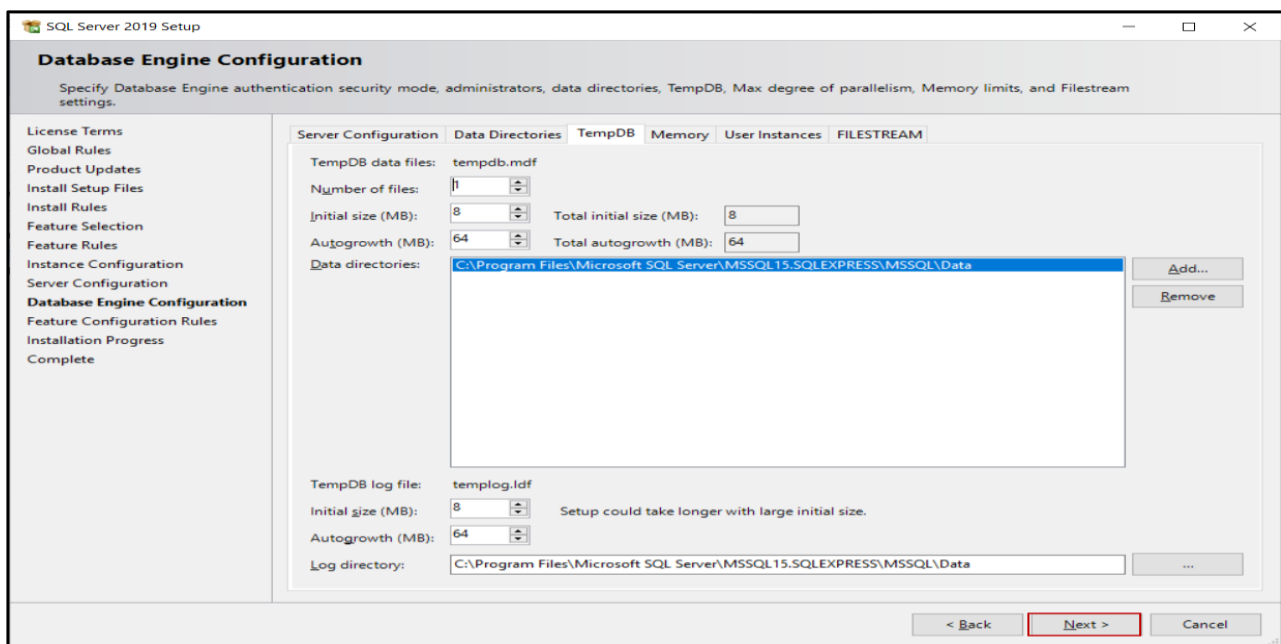
In the **Mixed Mode**, the SQL Server can be accessed with both Windows authentication and SQL Server authentication. For this installation, we will select the Mixed Mode option, and we will set the password of the login of SQL Server and we will also add a windows login. We can directly add the current windows user to the windows through the **Add Current User** button:



In the **Data Directories** tab, we can set the default directory of the database and backup files



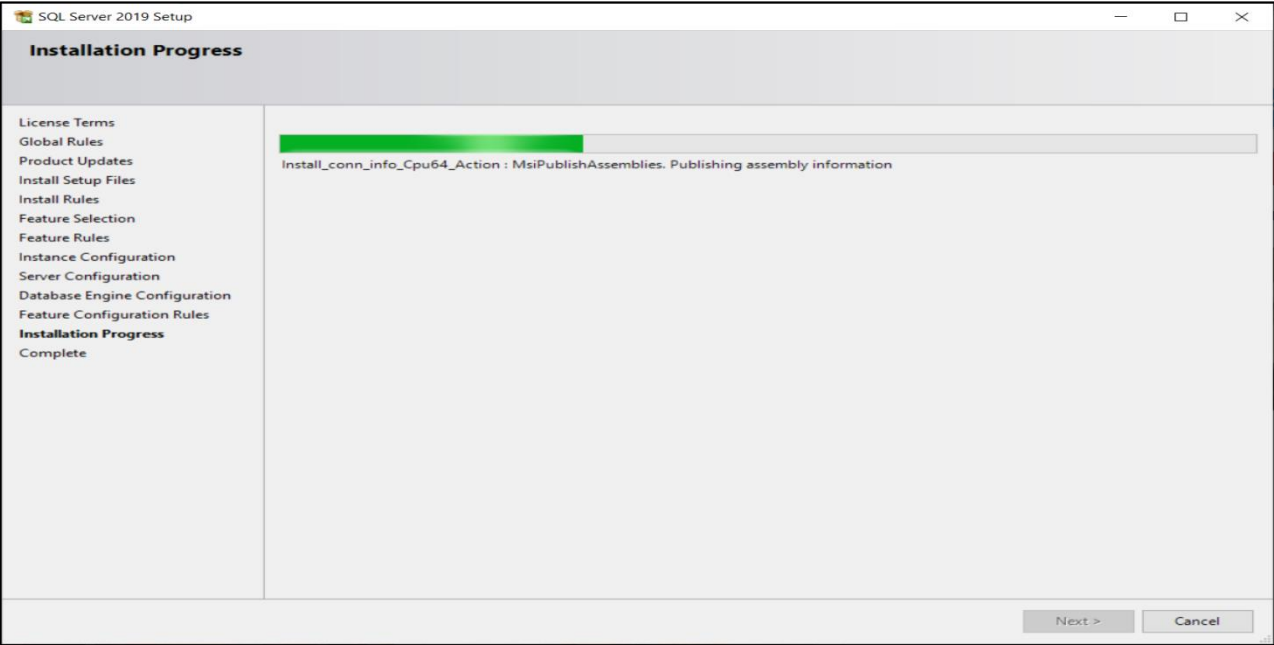
In the **TempDB** tab, we can set the number and size of the tempdb files. For this installation, we will not change these settings and click the **Next** button.



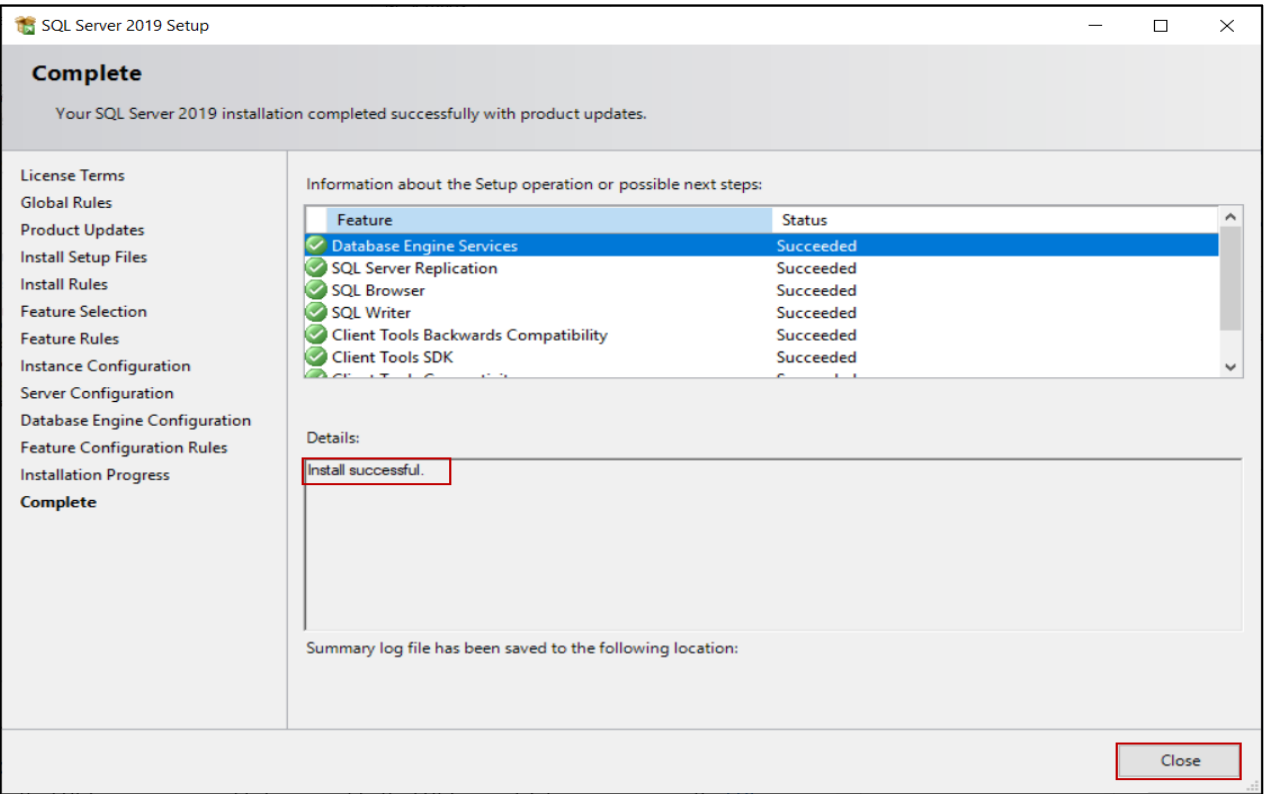
Tip: If you predict over workload on the TempDB database for your SQL Server, you can change the number of the tempdb files. Microsoft recommends the [following rule](#) as best practice:

“As a general rule, if the number of logical processors is less than or equal to eight, use the same number of data files as logical processors.”

In the **Installation Progress** screen, we can track the progress of the installation.

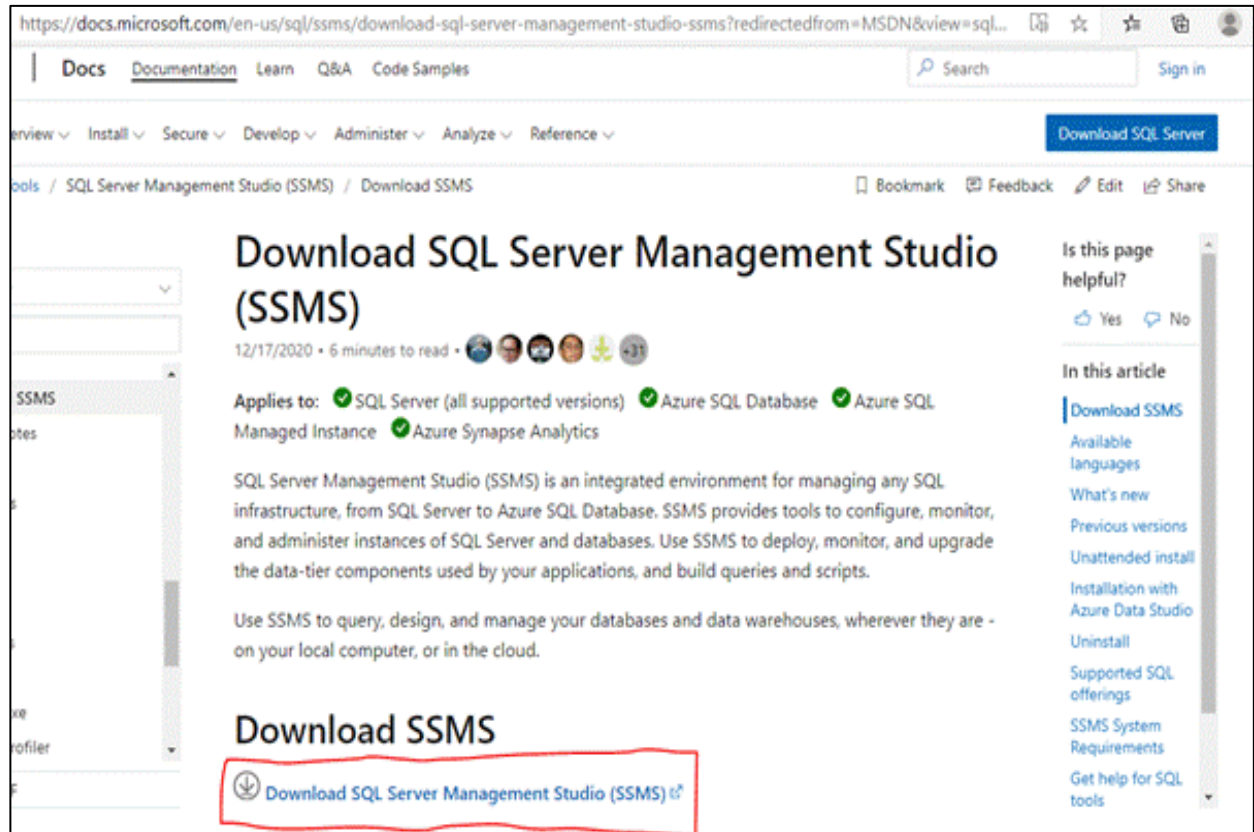


In the final step, the **Complete** screen meets us and it gives information about the result of the installation



SSMS (SQL Server Management Studio) Setup

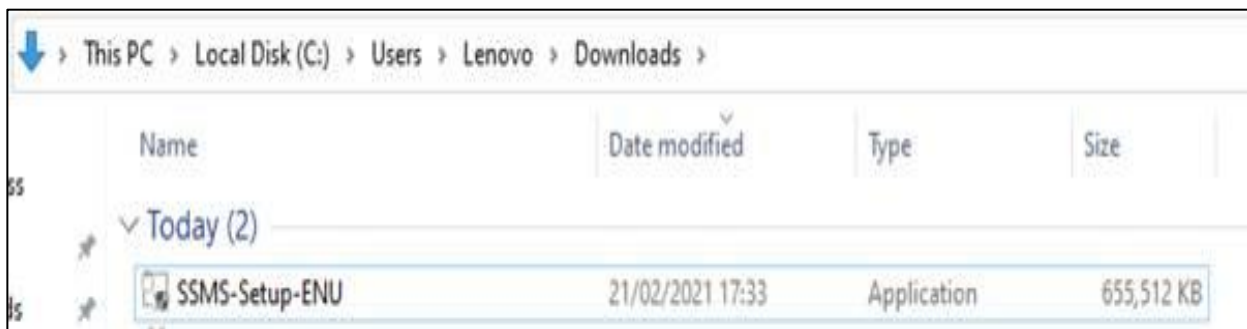
- To install SQL Server Management Studio 2019, download it from this [link](https://docs.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms?redirectedfrom=MSDN&view=sql...).



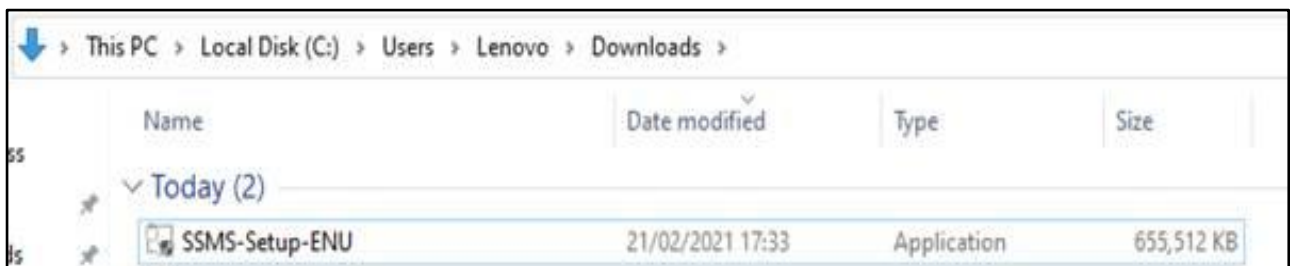
- Click the "Download" button for downloading the SSMS 2019 executable file on the downloaded path.



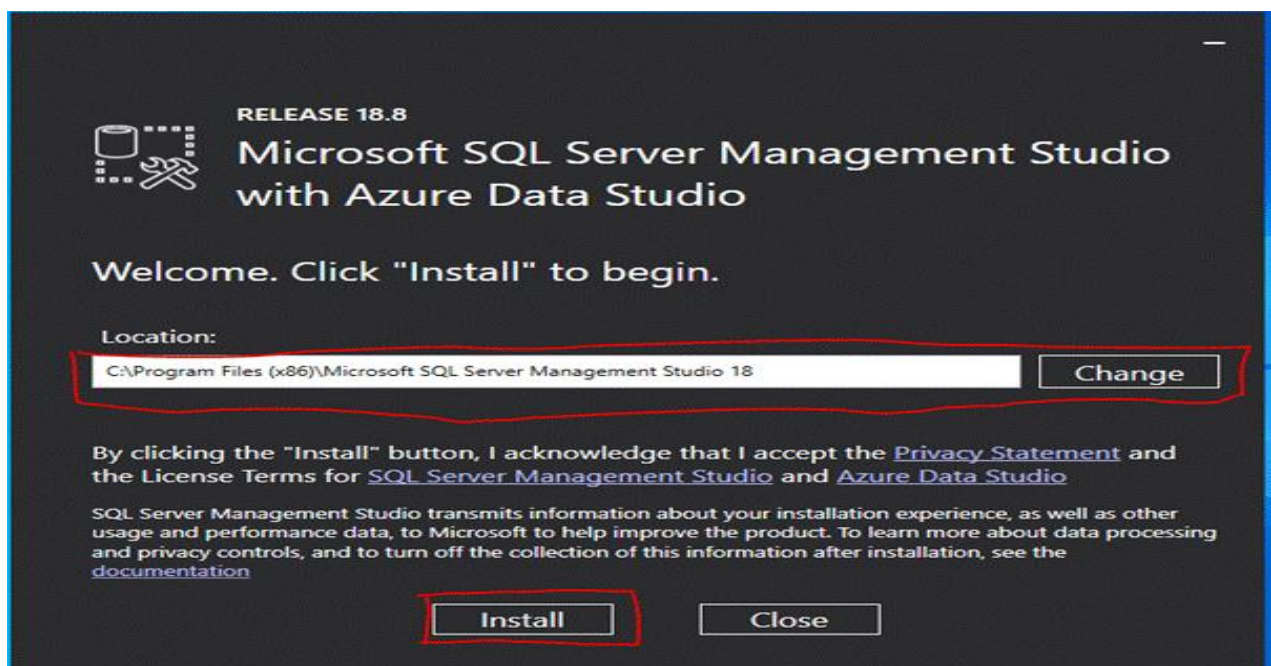
- Open your system's download folder and find the .exe file. SSMS-Setup-ENU.exe



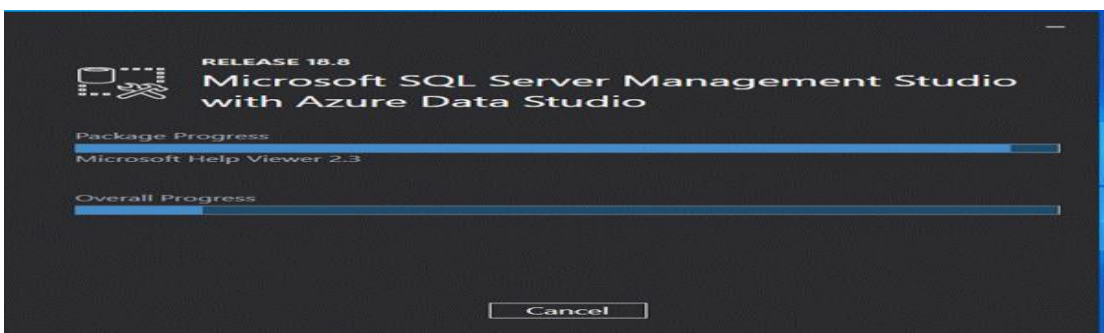
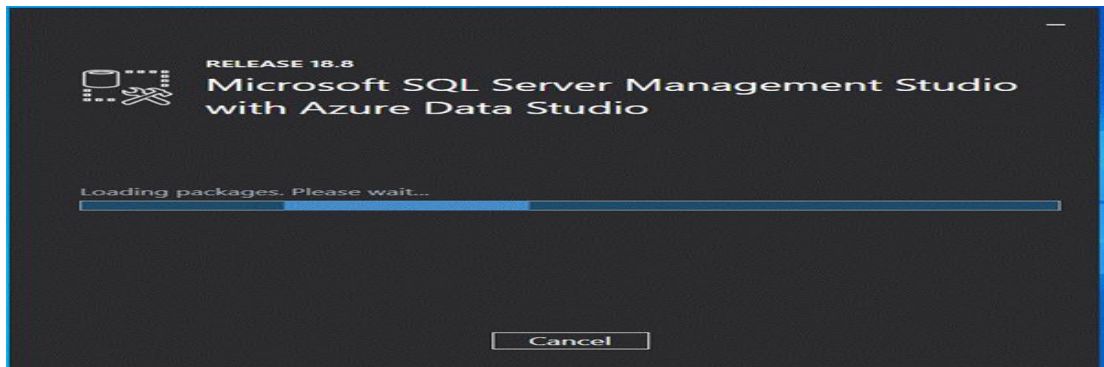
- Double-click the .exe file SSMS-Setup-ENU.exe to start the installation. The installation process of SMSS is straightforward, you just need to follow the screen sequence.



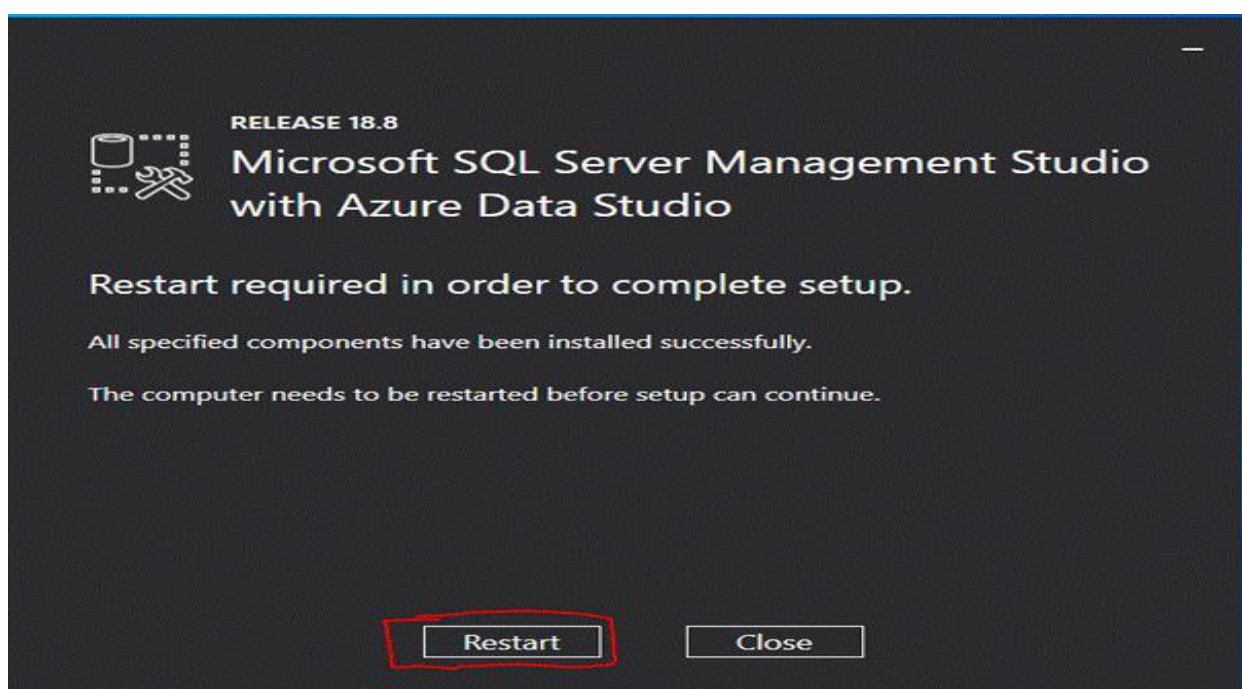
- After double-clicking, the system will ask the permission: "Do you want to allow the following to make a change to this computer? Click yes to continue installing the SQL Server Management Studio 2019, or..."
- Click "Yes" on any security prompt.
- The installation window will be open after giving the permission to install. Click the Install button.



- After the packages are loaded, a progress bar will be visible. One is Package Progress and another one is Overall Progress. Wait for a few minutes while the installer sets up the software.



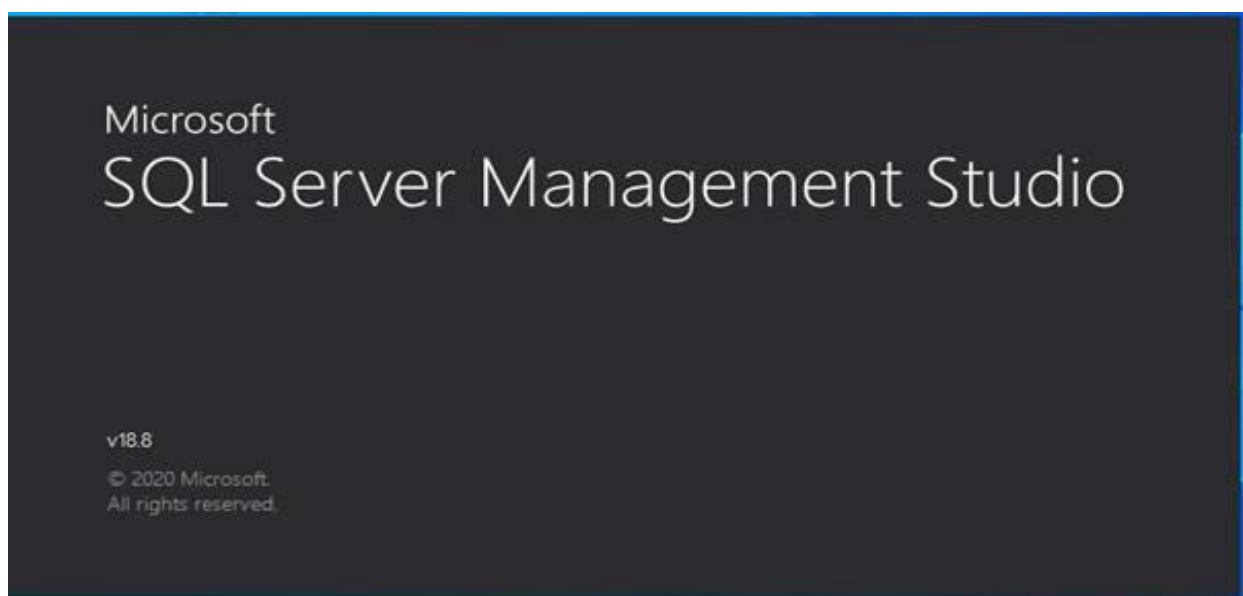
- After some time, the screen will prompt a dialog box stating Installation completed. After completing the installation restart your computer for a complete setup.



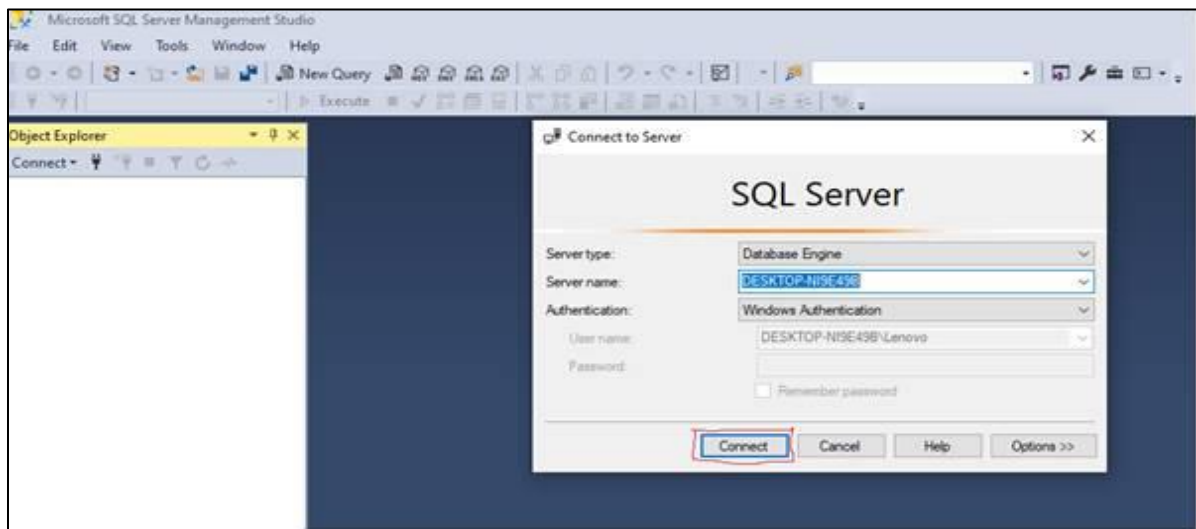
- Once the PC restarts, go to all programs in the systems, here you will see two folders one is Microsoft SQL Server 2019 and another one is Microsoft SQL Server Tool 2018. Under Microsoft SQL Server Tools 18 you can see the Microsoft SQL Server Management Studio 18.



- Double-click on SQL Server Management Studio 18 and it will open. The screen will look like the one as shown below. It will take a few minutes too open for the first time.



- After opening SQL Server Management Studio 2018, the screen will be as follows:



- Now you can connect to the server and use SQL Server Management Studio 2019.

With this the Installation Phase is completed. Now we will move ahead to Post Installation Phase.

Post Installation Phase

In the post Installation phase, we will once again re check the following points before starting to use the system to ensure an error free workflow.

- ✓ Make sure all hardware are in the same network - PC, Weighing, VMS, PLC, and Scanner should be in same Network
- ✓ Make sure all devices are connected to each other by Ethernet switch.
- ✓ Server PC configuration should be completed.
- ✓ Internet Connectivity should be there.
- ✓ Server PC should have USB and two Ethernet port and it should be connected to scanner, PLC and internet.
- ✓ Server PC Should be within 1 meter range from PLC.
- ✓ SQL Express should be installed in PC.

- ✓ SQL Server Management Studio should be installed in PC.
- ✓ Internet information service (IIS) service should be installed with IP address given by the customer network and it should be ready to open in browser.
- ✓ Web site should be hosted and ready to open in any browser.
- ✓ All AMBPL Software is copied in respective folder.
- ✓ Web config file configured by Armstrong IT Team.
- ✓ Scan location and machine name is configured by Armstrong IT Team.
- ✓ Dimension URL and weight URL and token configured in Web.config file provided by customer and configured by Armstrong IT Team.
- ✓ Bucket name, URL, token should be given by customer and configured by Armstrong IT Team.
- ✓ Scanner port number should be configured by Armstrong IT Team.
- ✓ Camera should be configured (like id password and IP address from PLC network – step to be completed by Armstrong team). When we open camera service, live view should be visible.

Once all these requirements are checked and met properly the system will be ready to use.

After this one can check the User Guide provided by Armstrong on How to start and use the system.

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END OF DOCUMENT