Pacific Northwest
NATIONAL LABORATORY

PNNL-37465

HBET V3.0 Installation Manual

March 2025

Hongfei Hou
Tao Huang
Aljon L. Salalila
Zhiqun Deng

U.S. DEPARTMENT OF ENERGY

Prepared for the U.S. Department of Energy
under Contract DE-AC05-76RL01830

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Pacific Northwest National Laboratory
Richland, Washington 99354

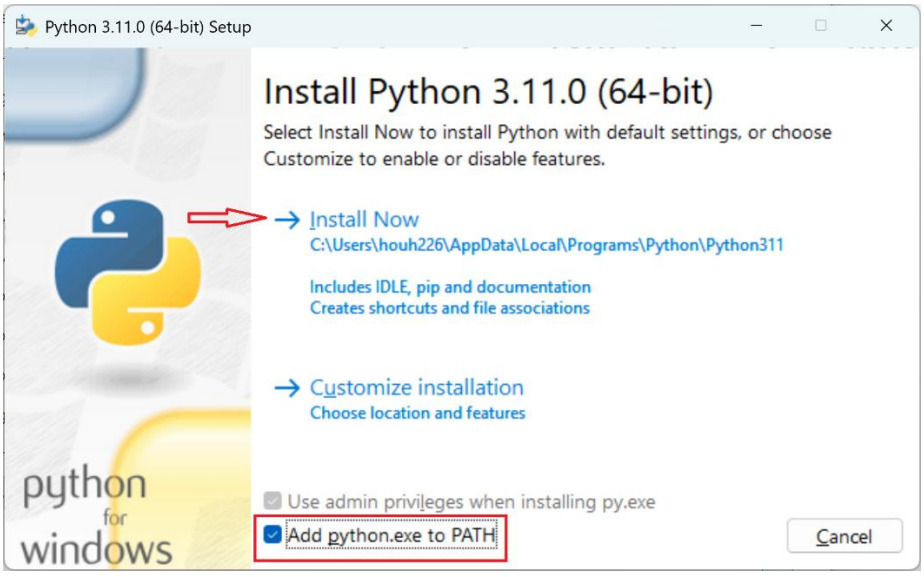
HBET V3.0 Installation Manual

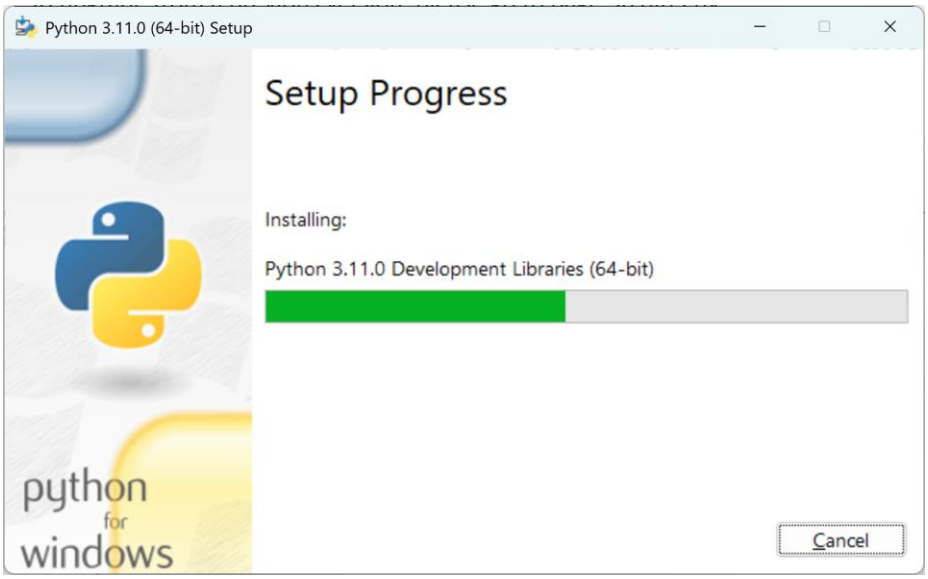
March 16, 2025

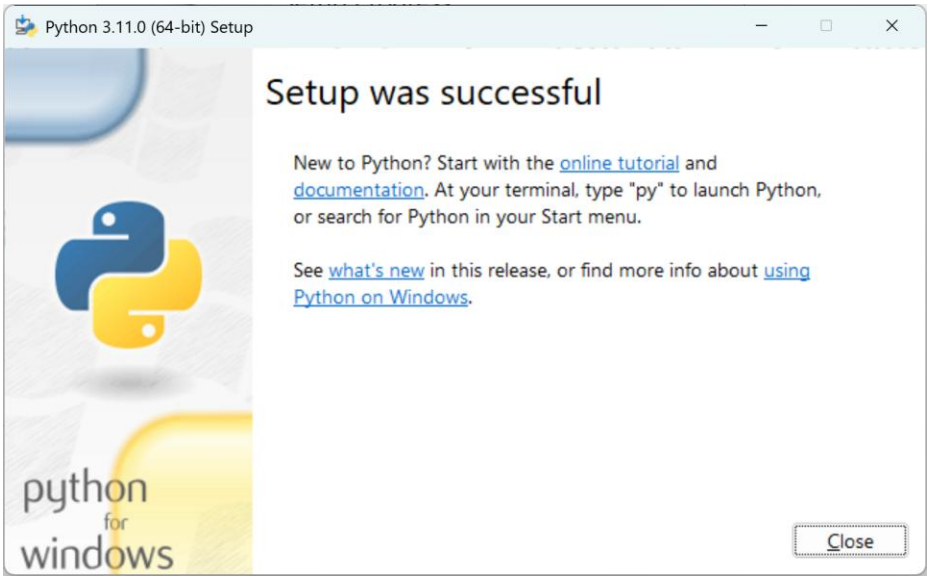
To upgrade from a previous version, please go to page 20 directly.

Fresh installation:

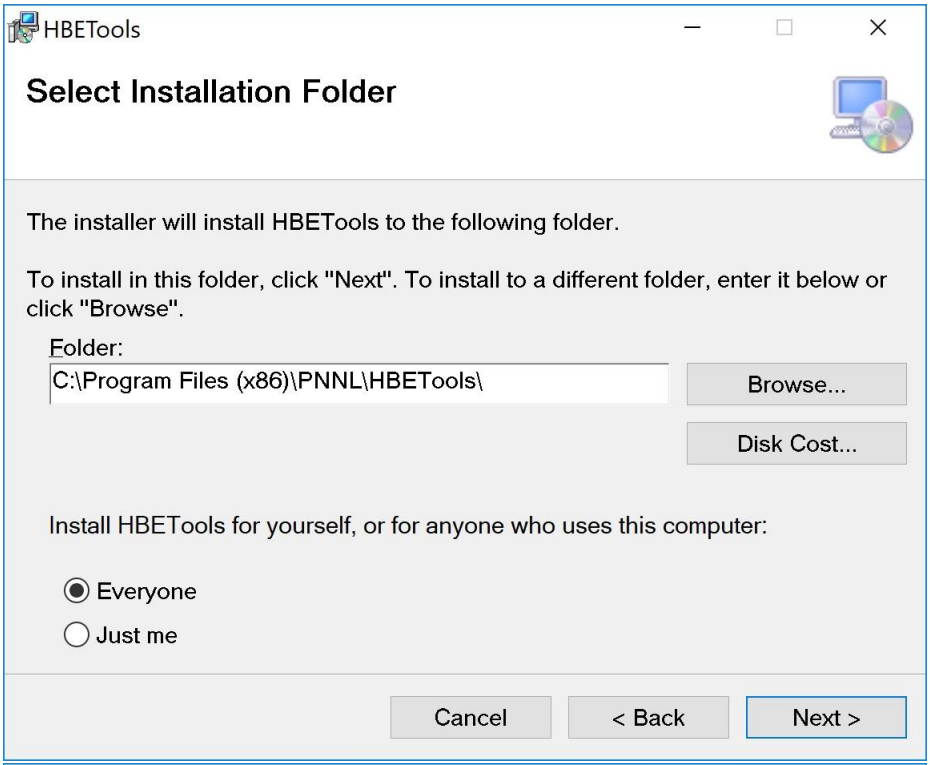
1. Unzip HBET_V3_Installer.zip
2. Double-click python-3.11.0-amd64.exe to begin installing Python v3.11.0. Before selecting "Install Now," ensure that "Add python.exe to PATH" is checked.

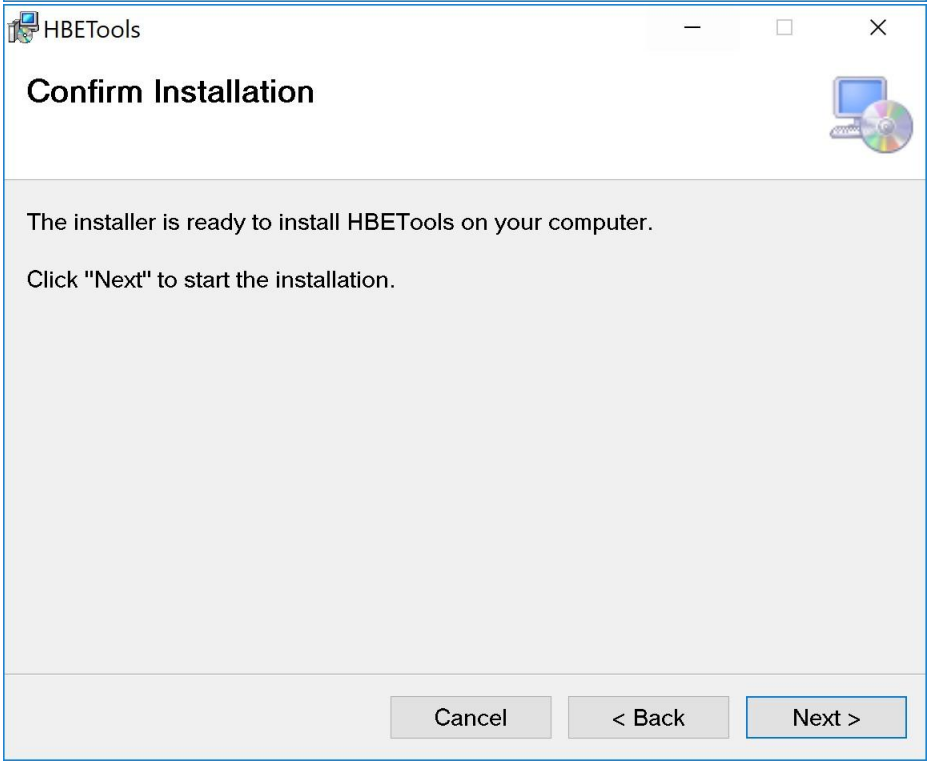


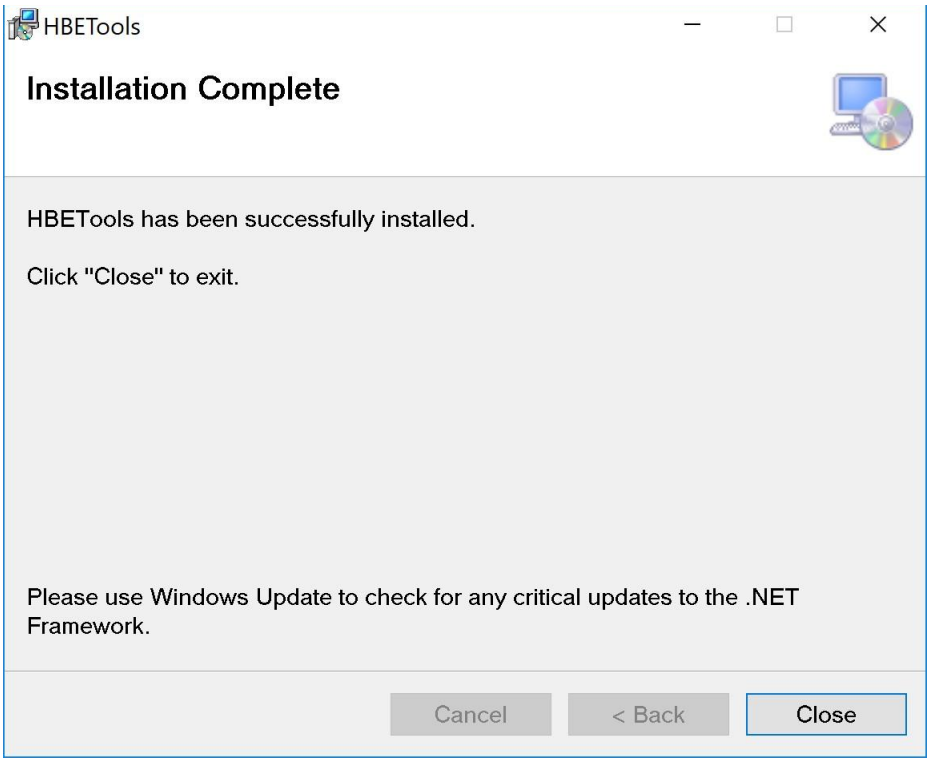




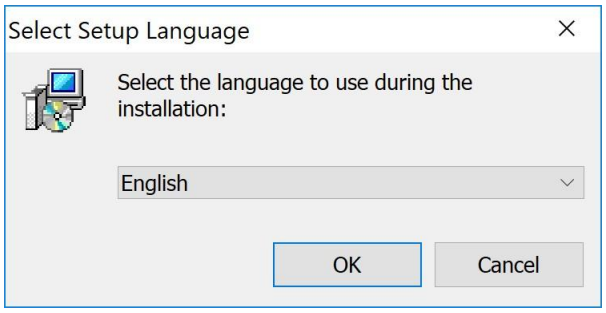
3. Double-click PyPackage_Installer.bat to install the Python libraries needed.
4. Double-click setup.exe and follow the screenshots below to install HBET. Choose “Yes” if the system asks, “Do you want to allow this app to make changes to your device?”

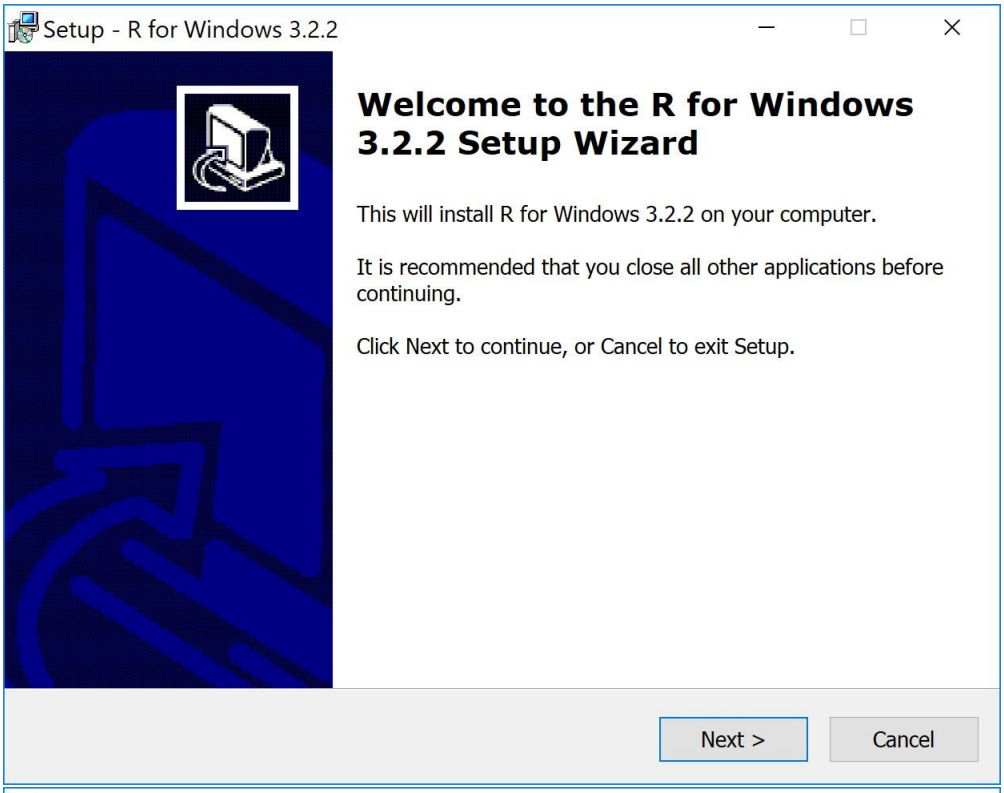

HBETools
Select Installation Folder
The installer will install HBETools to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Folder:
C:\Program Files (x86)\PNNL\HBETools\
Browse...
Disk Cost...
Install HBETools for yourself, or for anyone who uses this computer:
Everyone
Just me
Cancel
< Back
Next >

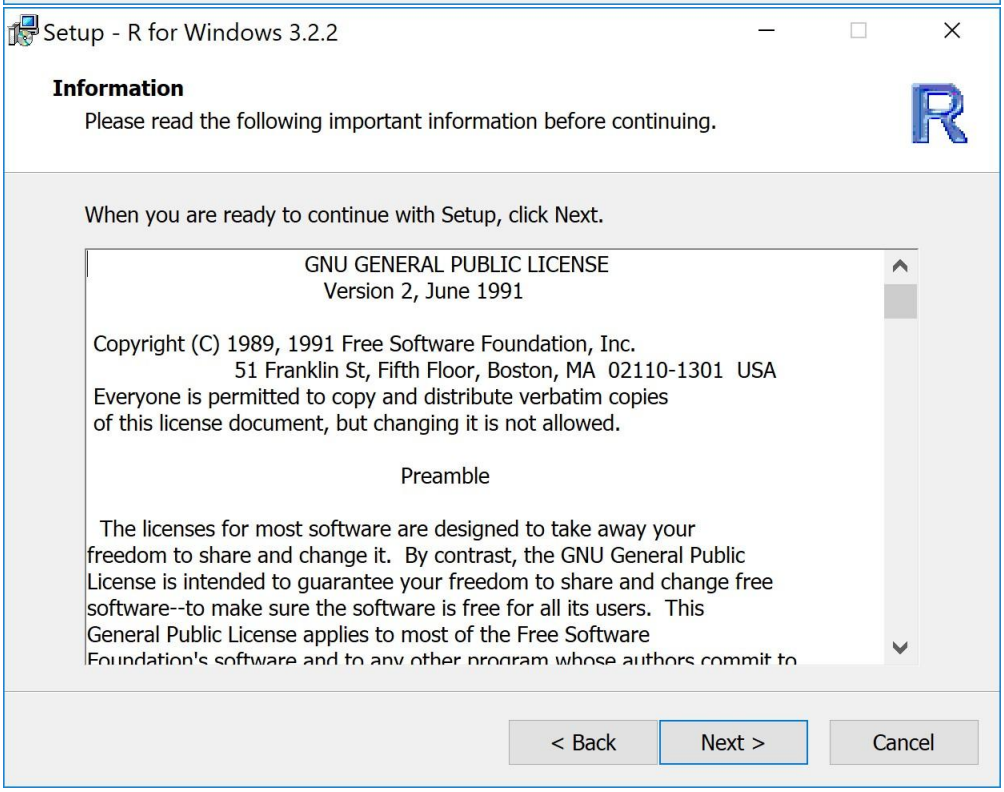

HBETools
Confirm Installation
The installer is ready to install HBETools on your computer.
Click "Next" to start the installation.
Cancel
< Back
Next >



5. Double-click R-3.2.2-win.exe and follow the screenshots below to install the R code support. Choose “Yes” if the system asks “Do you want to allow this app to make changes to your device?”




Setup - R for Windows 3.2.2
Welcome to the R for Windows 3.2.2 Setup Wizard
This will install R for Windows 3.2.2 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel


Setup - R for Windows 3.2.2
Information
Please read the following important information before continuing.
When you are ready to continue with Setup, click Next.
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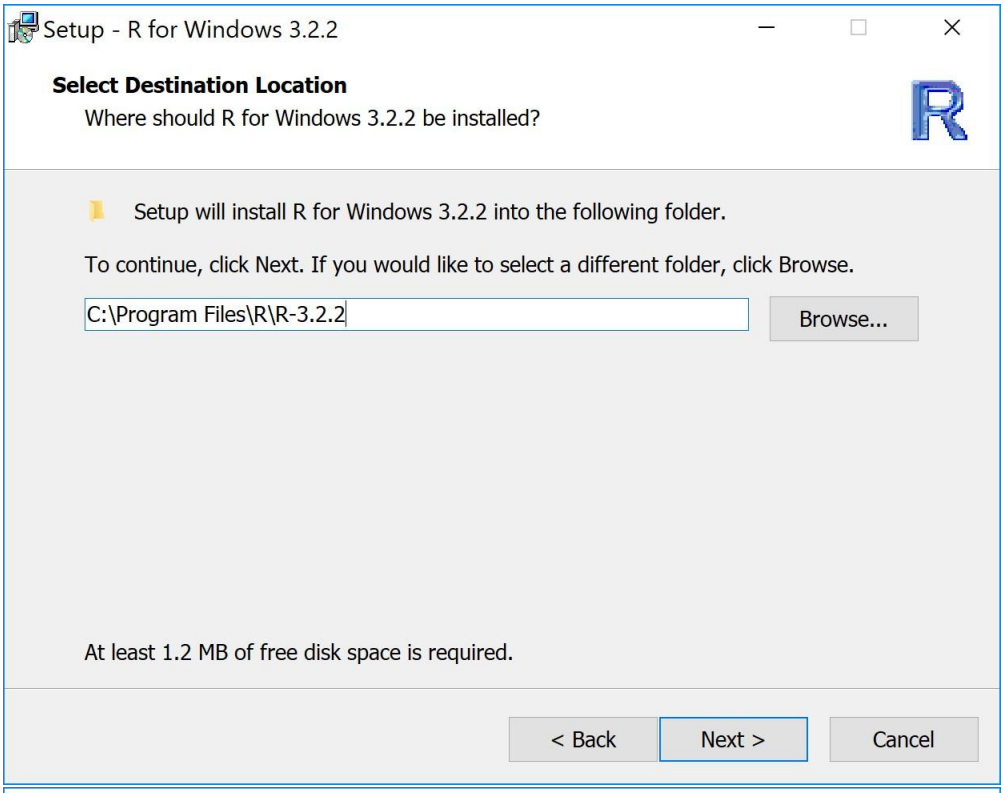
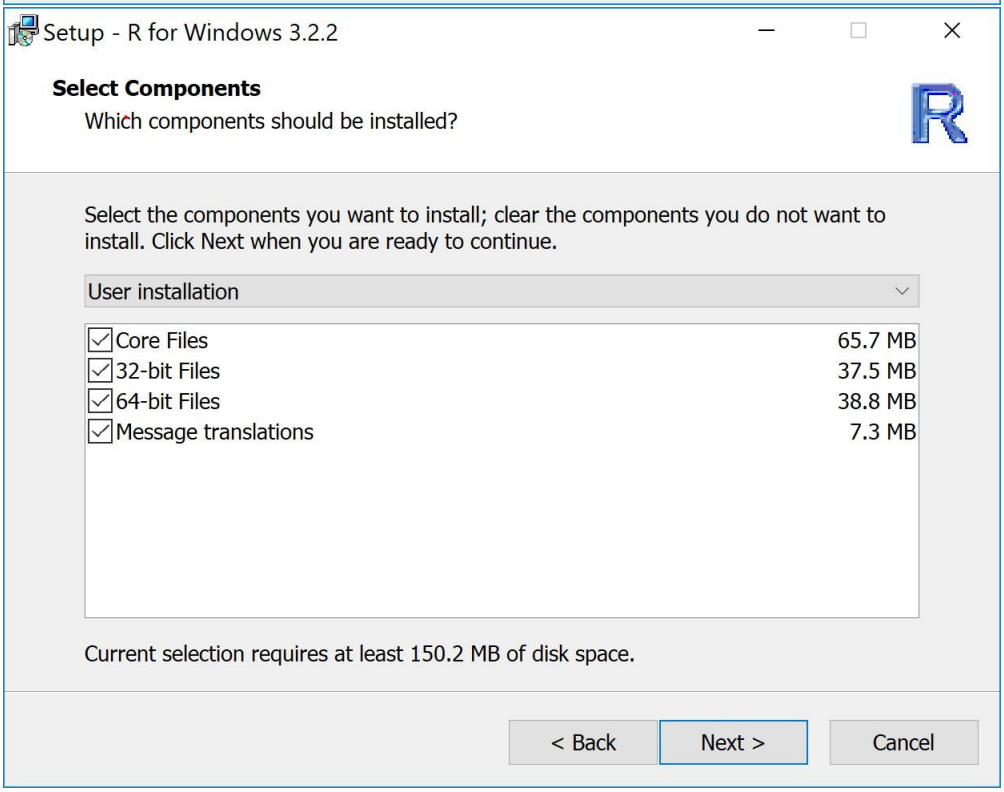
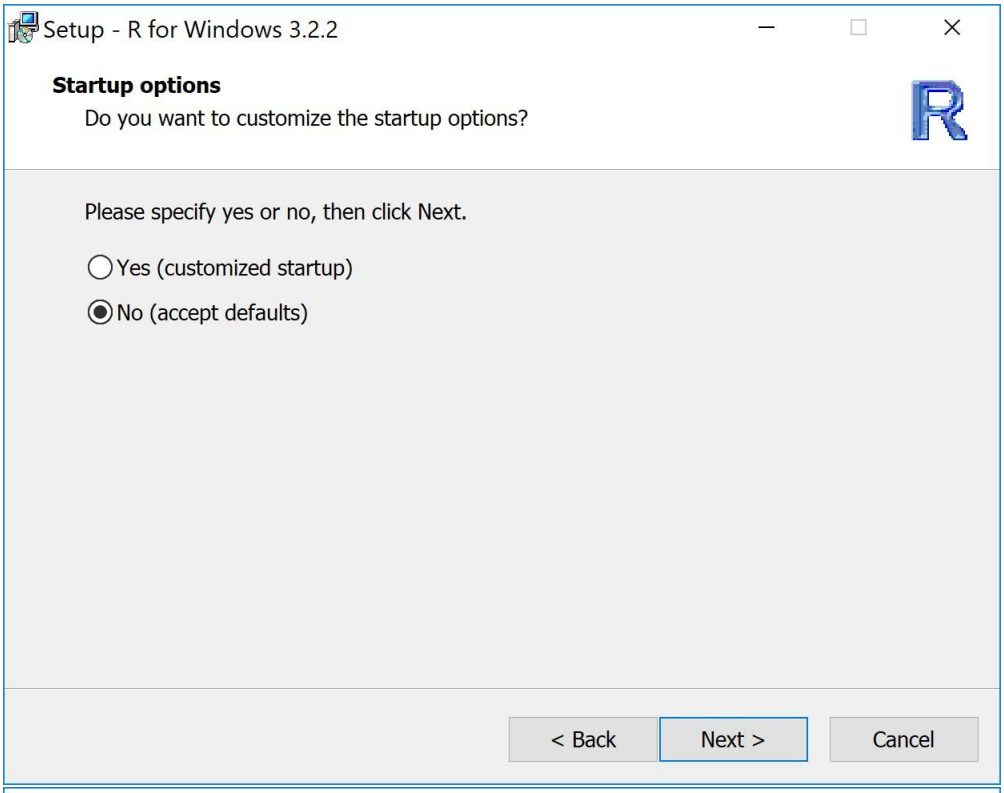
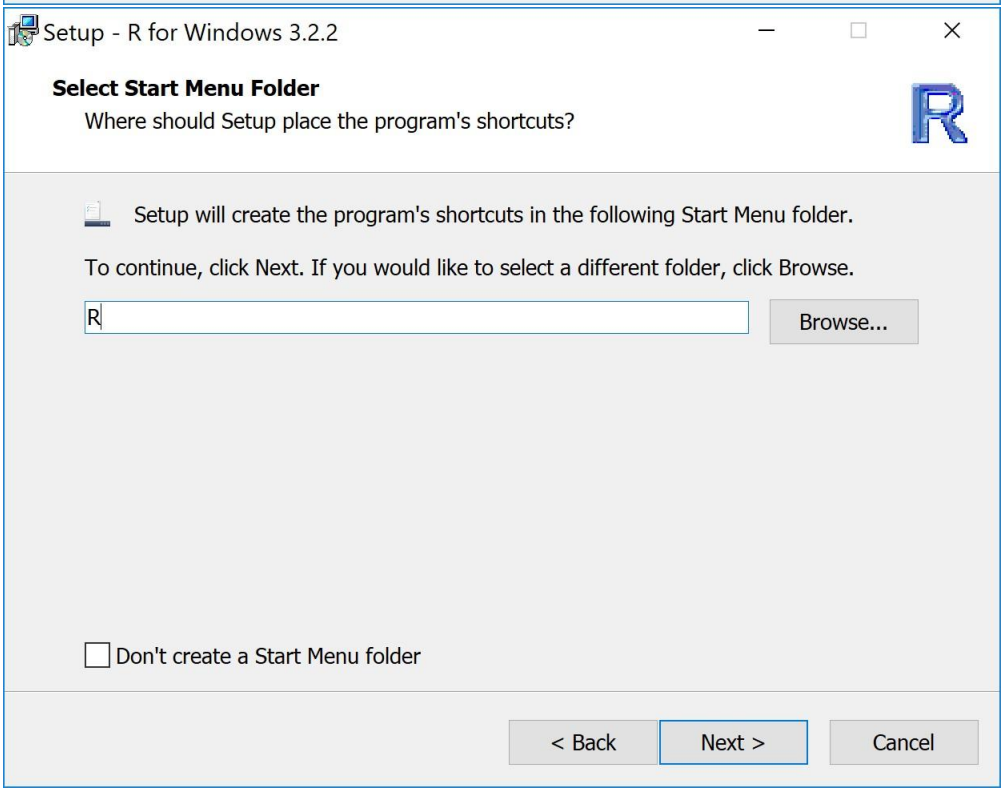
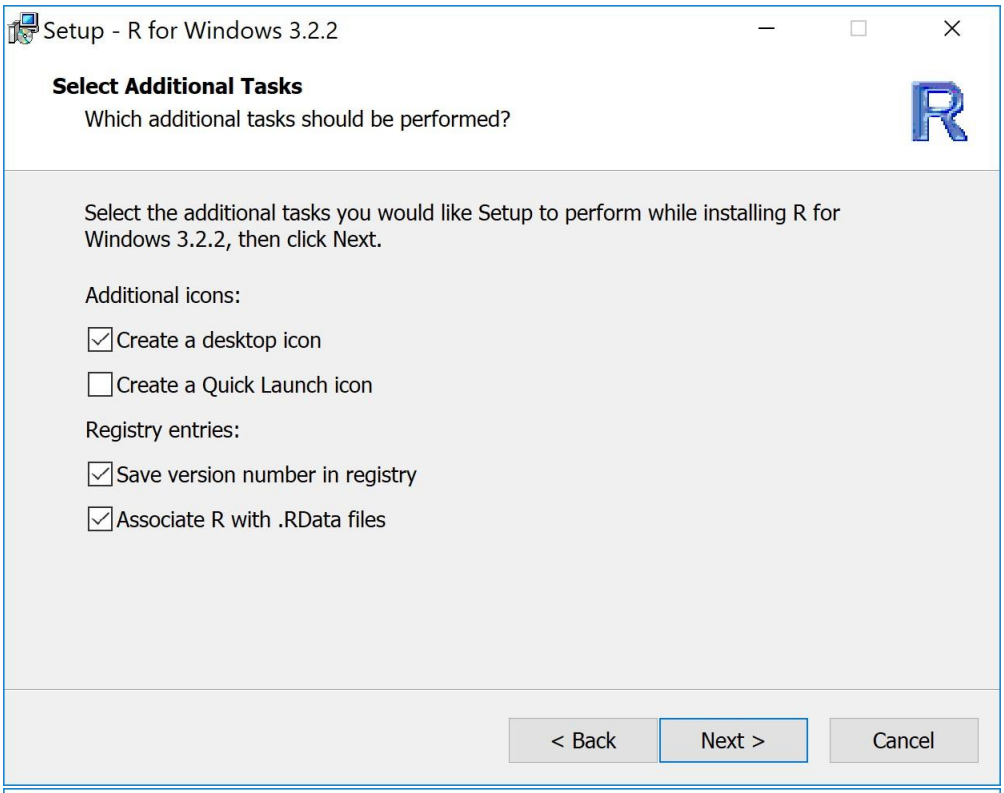
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
< Back
Next >
Cancel

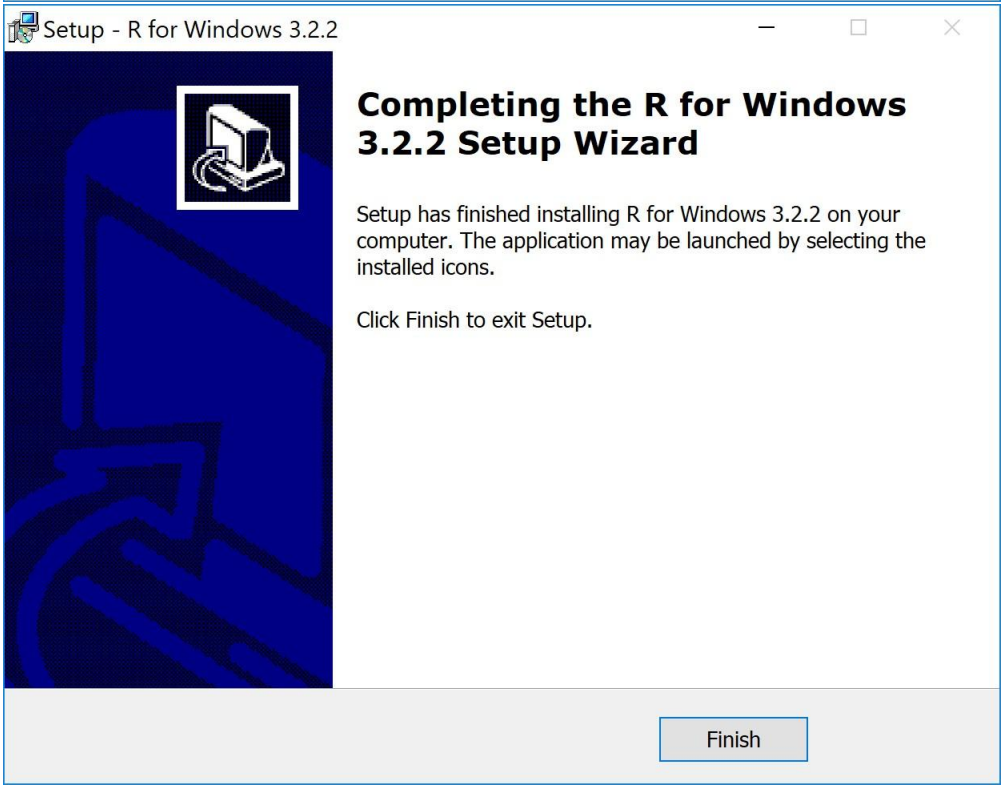

Setup - R for Windows 3.2.2
Select Destination Location
Where should R for Windows 3.2.2 be installed?
Setup will install R for Windows 3.2.2 into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\R\R-3.2.2
Browse...
At least 1.2 MB of free disk space is required.
< Back
Next >
Cancel


Setup - R for Windows 3.2.2
Select Components
Which components should be installed?
Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.
User installation
Core Files 65.7 MB
32-bit Files 37.5 MB
64-bit Files 38.8 MB
Message translations 7.3 MB
Current selection requires at least 150.2 MB of disk space.
< Back
Next >
Cancel


Setup - R for Windows 3.2.2
Startup options
Do you want to customize the startup options?
Please specify yes or no, then click Next.
Yes (customized startup)
No (accept defaults)
< Back
Next >
Cancel

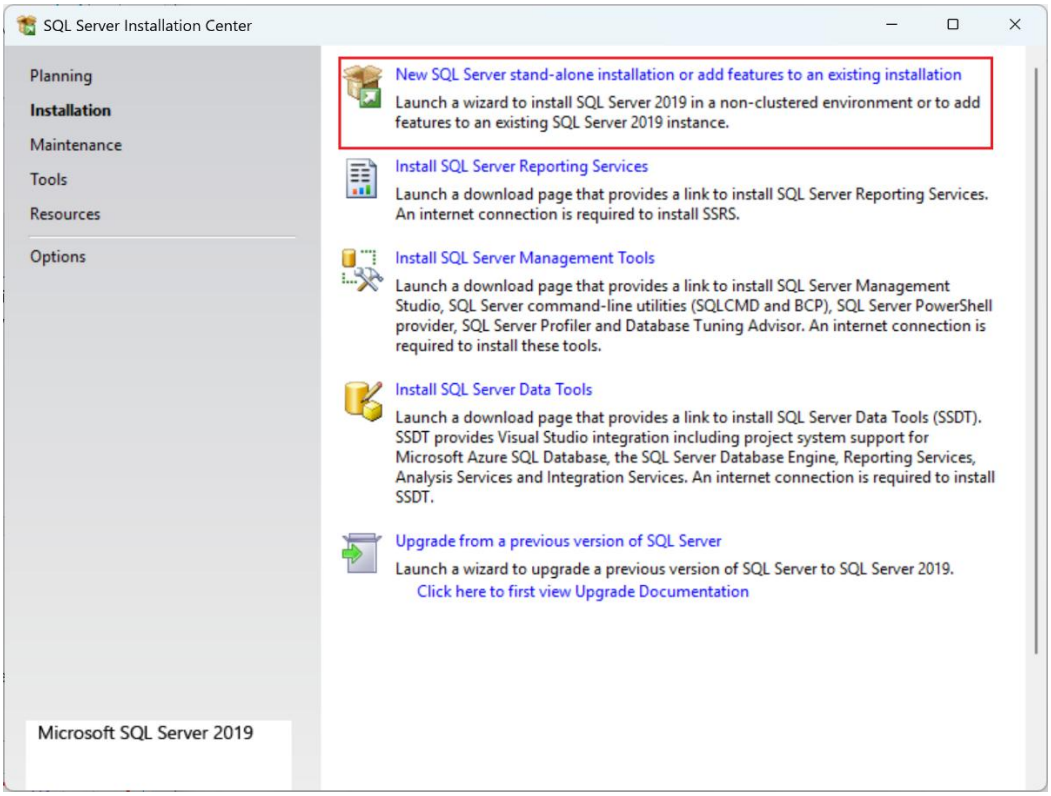

Setup - R for Windows 3.2.2
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
R
Browse...
Don't create a Start Menu folder
< Back
Next >
Cancel

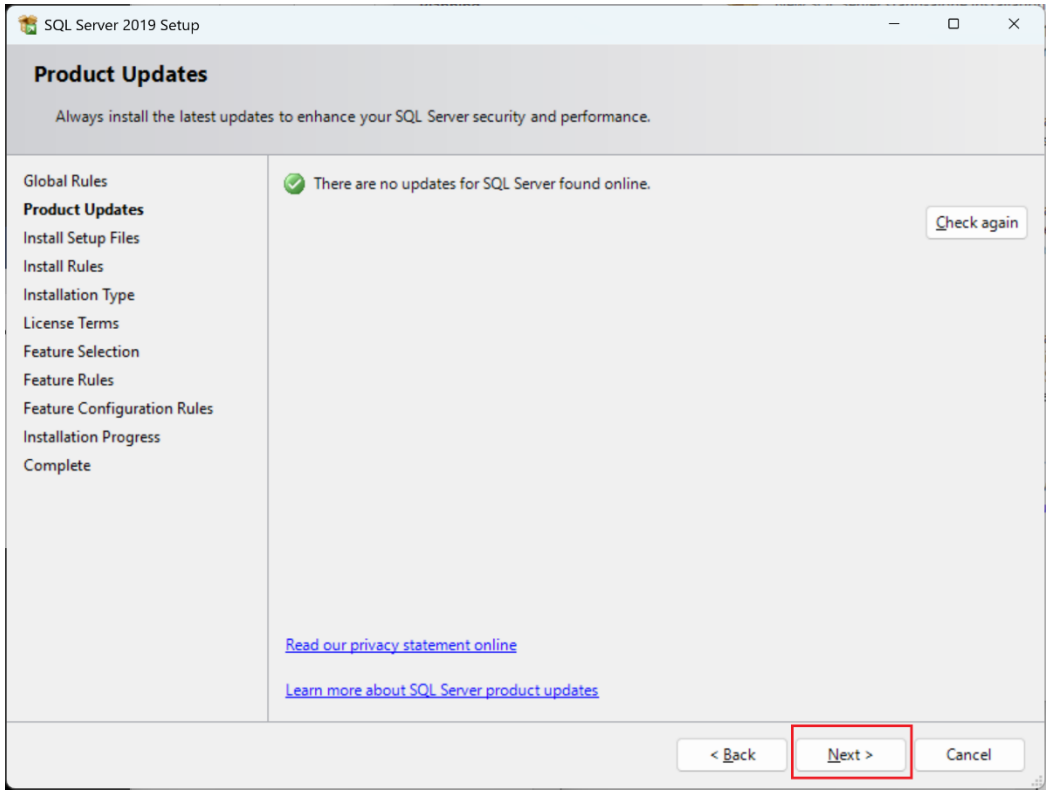


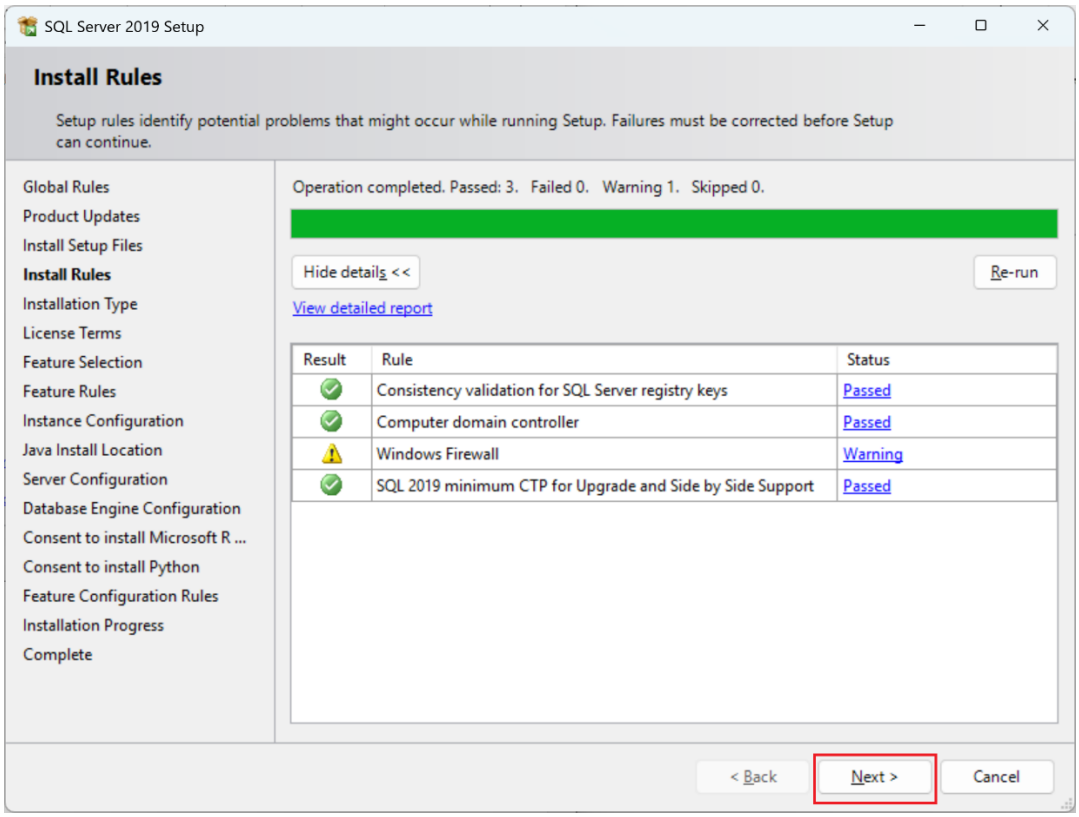


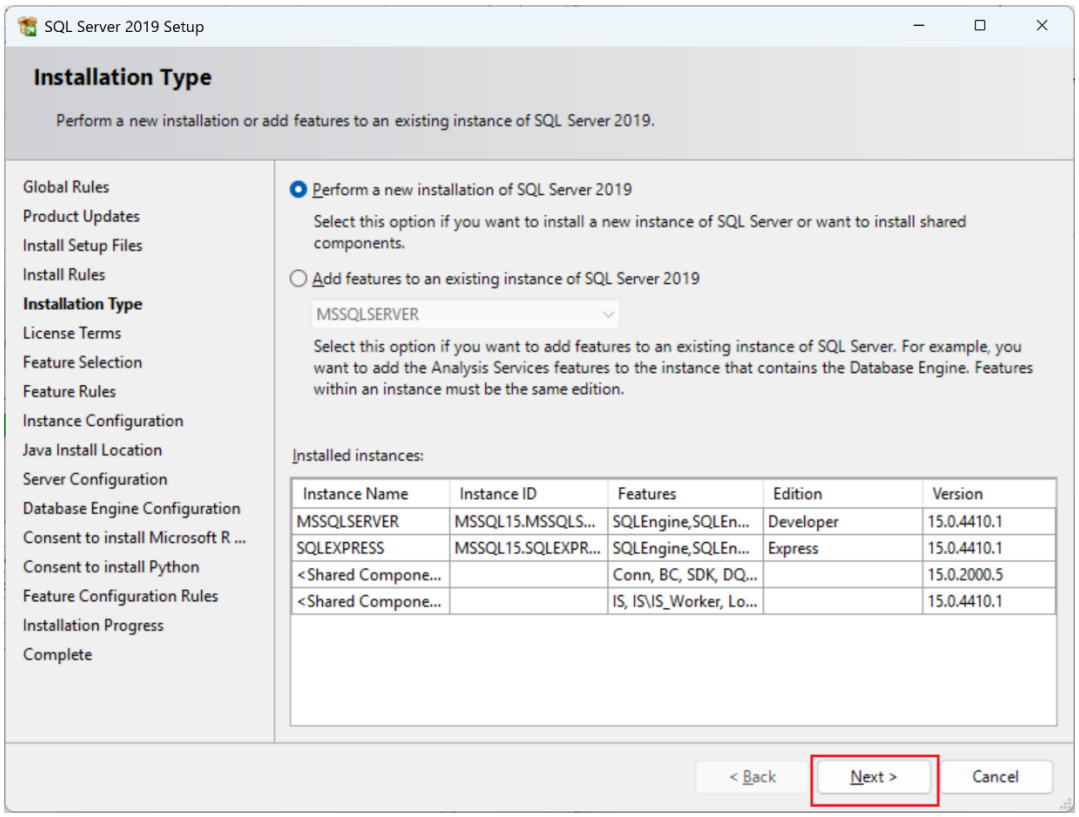
6. Double-click SQLEXPRADV_x64_ENU.exe, then choose the directory to extract files and click the Ok button. Follow the screenshots below to install SQL Server Express and SQL Server

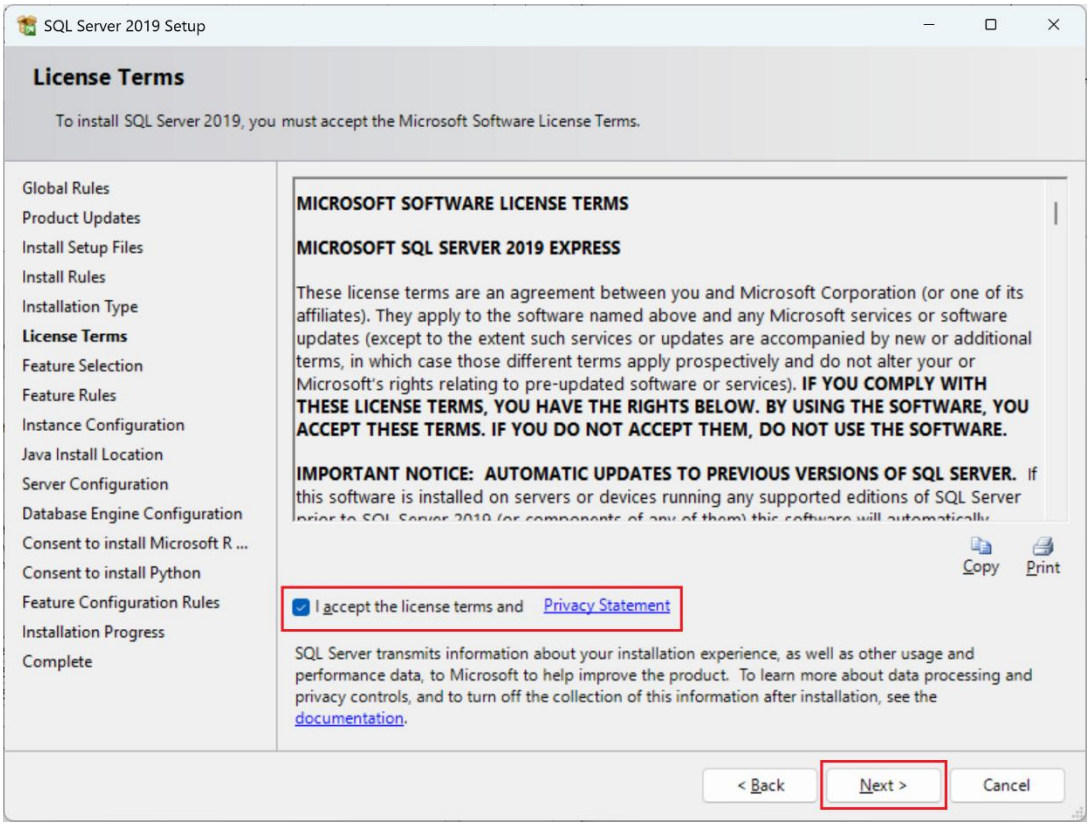
Management Studio. Choose “Yes” if the system asks, “Do you want to allow this app to make changes to your device?”






SQL Server 2019 Setup
Install Rules
Setup rules identify potential problems that might occur while running Setup. Failures must be corrected before Setup can continue.
Global Rules
Product Updates
Install Setup Files
Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Consent to install Microsoft R ...
Consent to install Python
Feature Configuration Rules
Installation Progress
Complete
Operation completed. Passed: 3. Failed 0. Warning 1. Skipped 0.
Hide details <<
Re-run
View detailed report
Result
Rule
Status
Consistency validation for SQL Server registry keys
Passed
Computer domain controller
Passed
Windows Firewall
Warning
SQL 2019 minimum CTP for Upgrade and Side by Side Support
Passed
< Back
Next >
Cancel


SQL Server 2019 Setup
Installation Type
Perform a new installation or add features to an existing instance of SQL Server 2019.
Global Rules
Product Updates
Install Setup Files
Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Consent to install Microsoft R ...
Consent to install Python
Feature Configuration Rules
Installation Progress
Complete
Perform a new installation of SQL Server 2019
Select this option if you want to install a new instance of SQL Server or want to install shared components.
Add features to an existing instance of SQL Server 2019
MSSQLSERVER
Select this option if you want to add features to an existing instance of SQL Server. For example, you want to add the Analysis Services features to the instance that contains the Database Engine. Features within an instance must be the same edition.
Installed instances:
Instance Name
Instance ID
Features
Edition
Version
MSSQLSERVER
MSSQL15.MSSQLS...
SQLEngine,SQLEn...
Developer
15.0.4410.1
SQLEXPRESS
MSSQL15.SQLEXPR...
SQLEngine,SQLEn...
Express
15.0.4410.1
<Shared Compone...
Conn, BC, SDK, DQ...
15.0.2000.5
<Shared Compone...
IS, IS\IS_Worker, Lo...
15.0.4410.1
< Back
Next >
Cancel


SQL Server 2019 Setup
License Terms
To install SQL Server 2019, you must accept the Microsoft Software License Terms.
Global Rules
Product Updates
Install Setup Files
Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Consent to install Microsoft R ...
Consent to install Python
Feature Configuration Rules
Installation Progress
Complete
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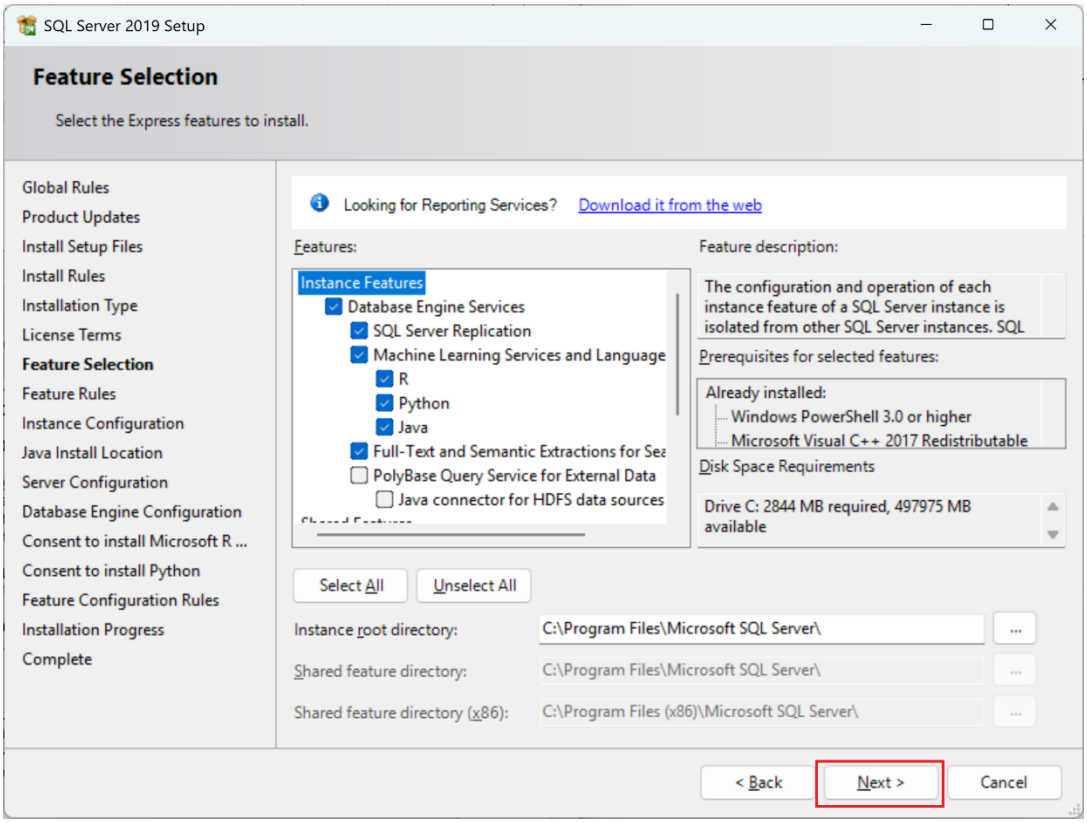
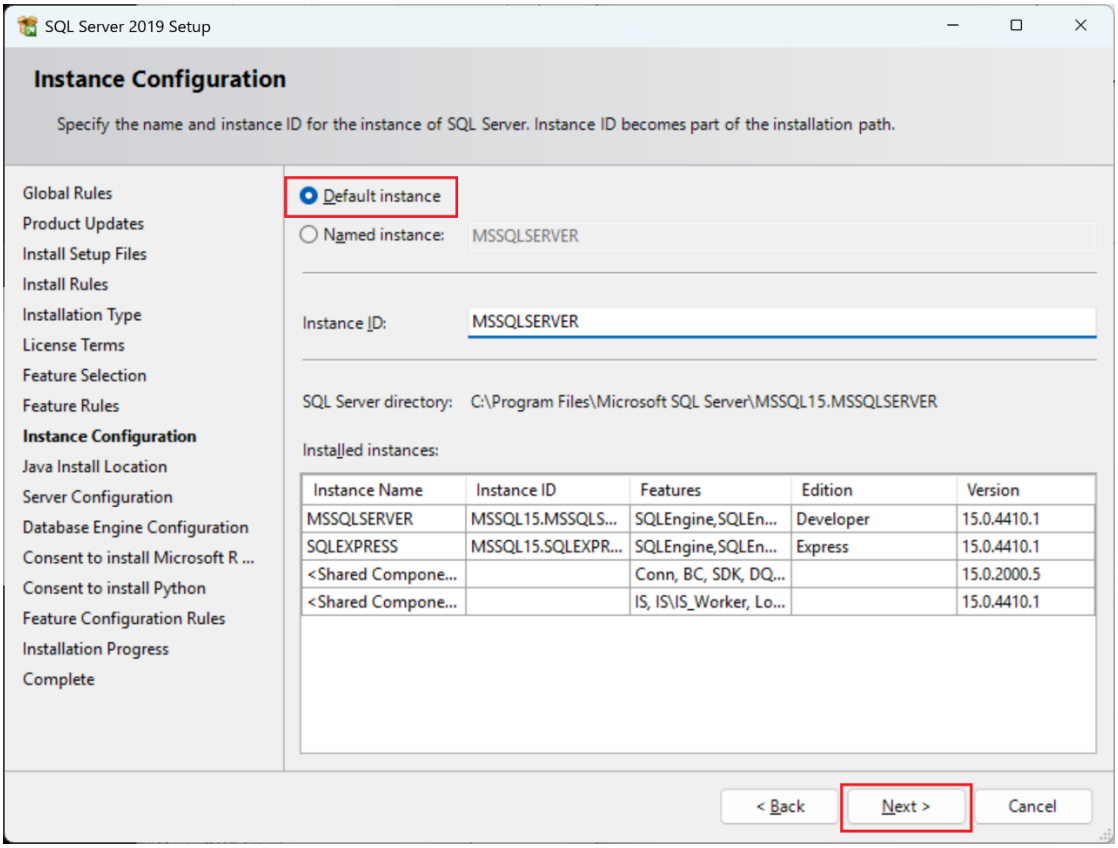
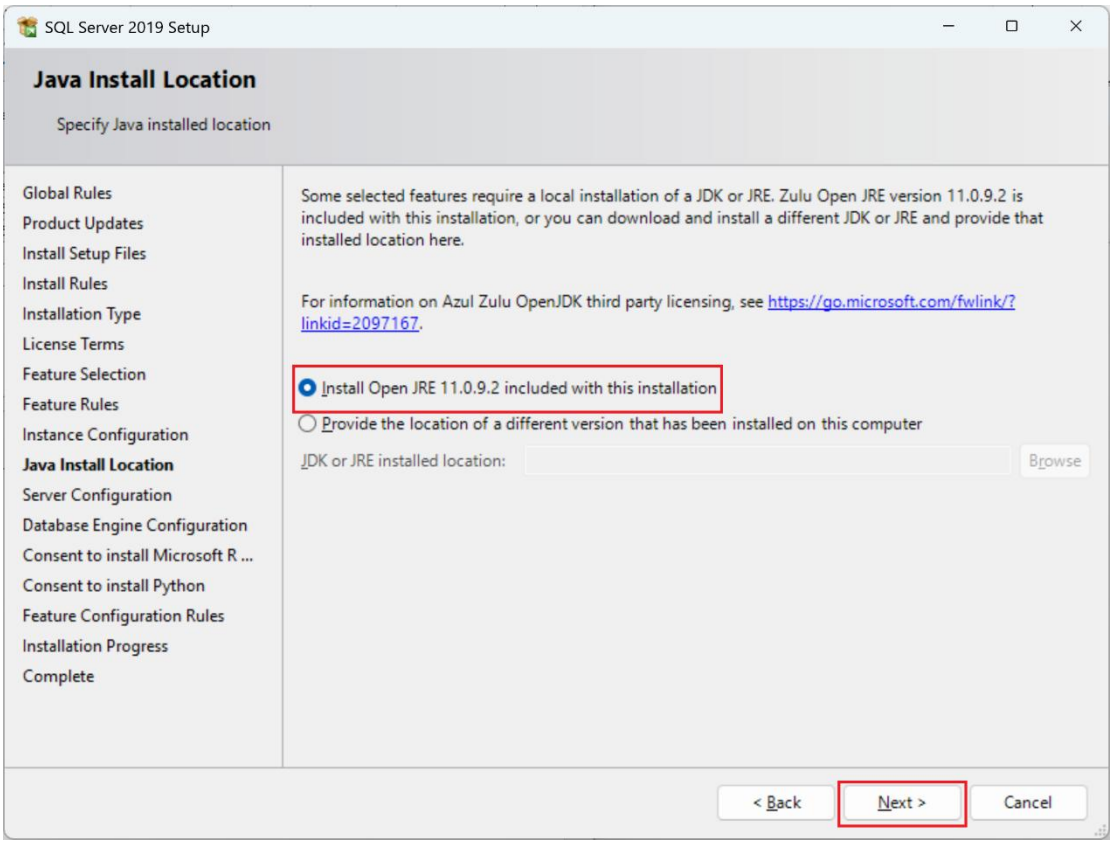
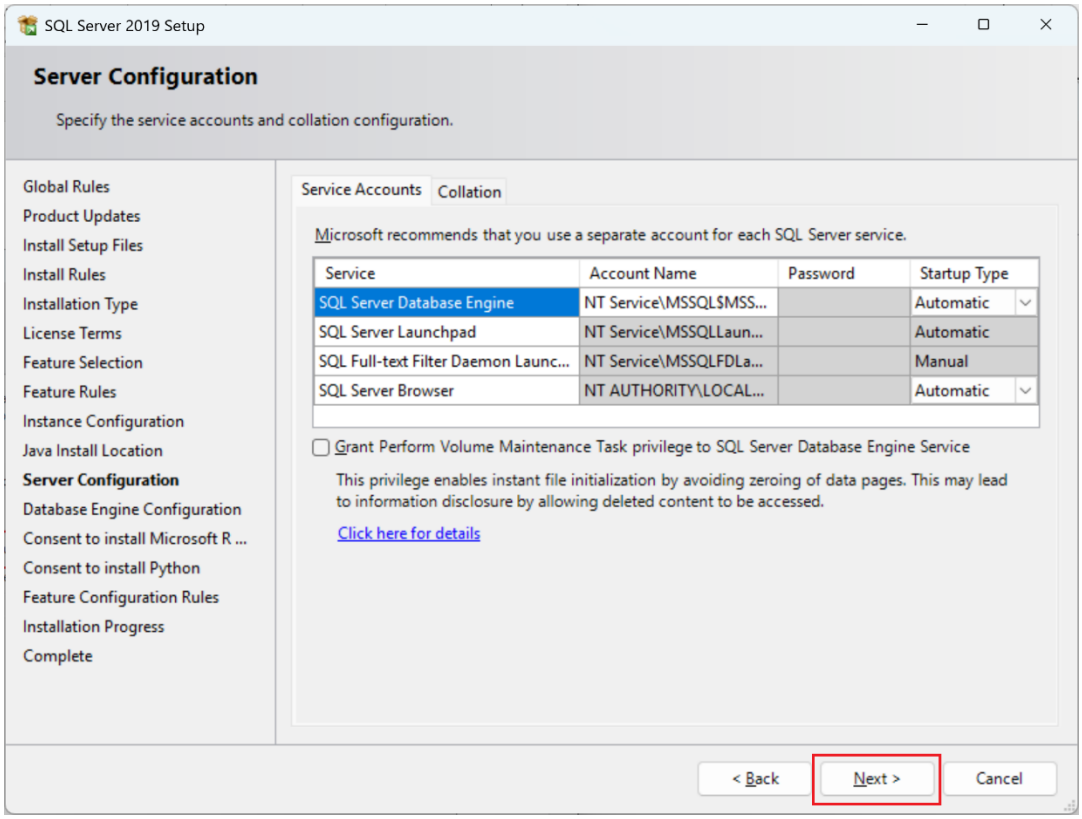
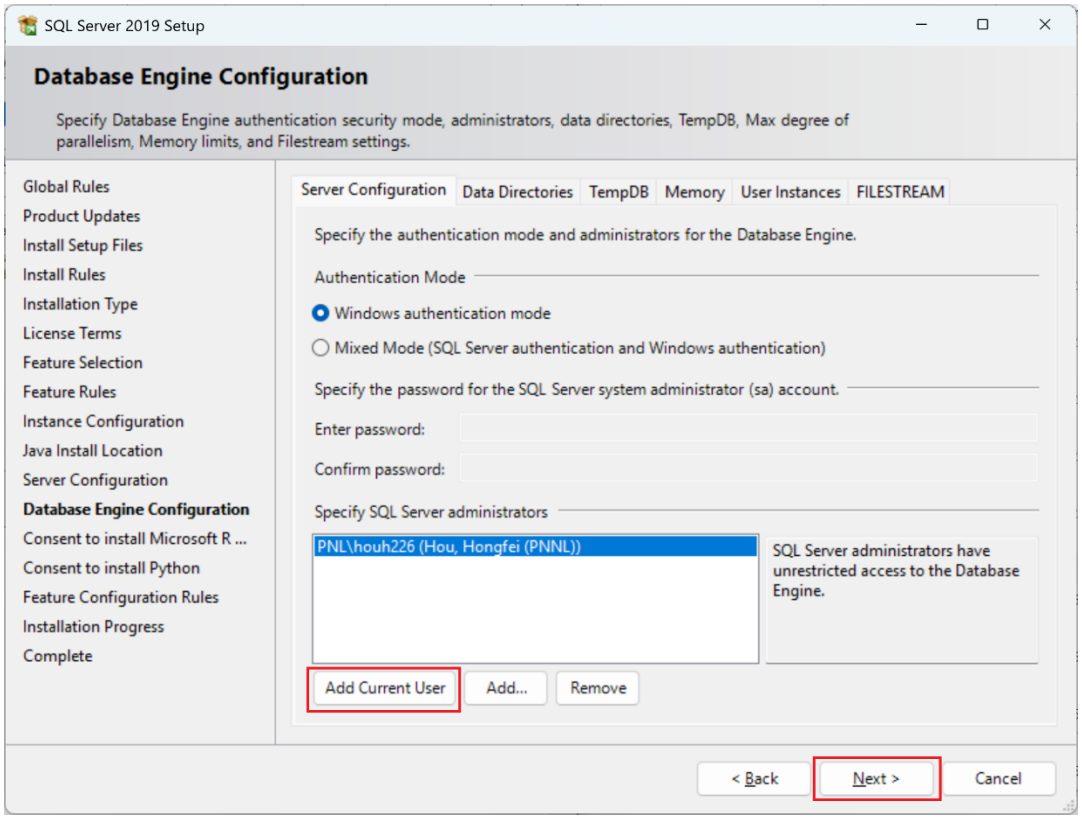
SQL Server transmits information about your installation experience, as well as other usage and performance data, to Microsoft to help improve the product. To learn more about data processing and privacy controls, and to turn off the collection of this information after installation, see the documentation.
< Back
Next >
Cancel

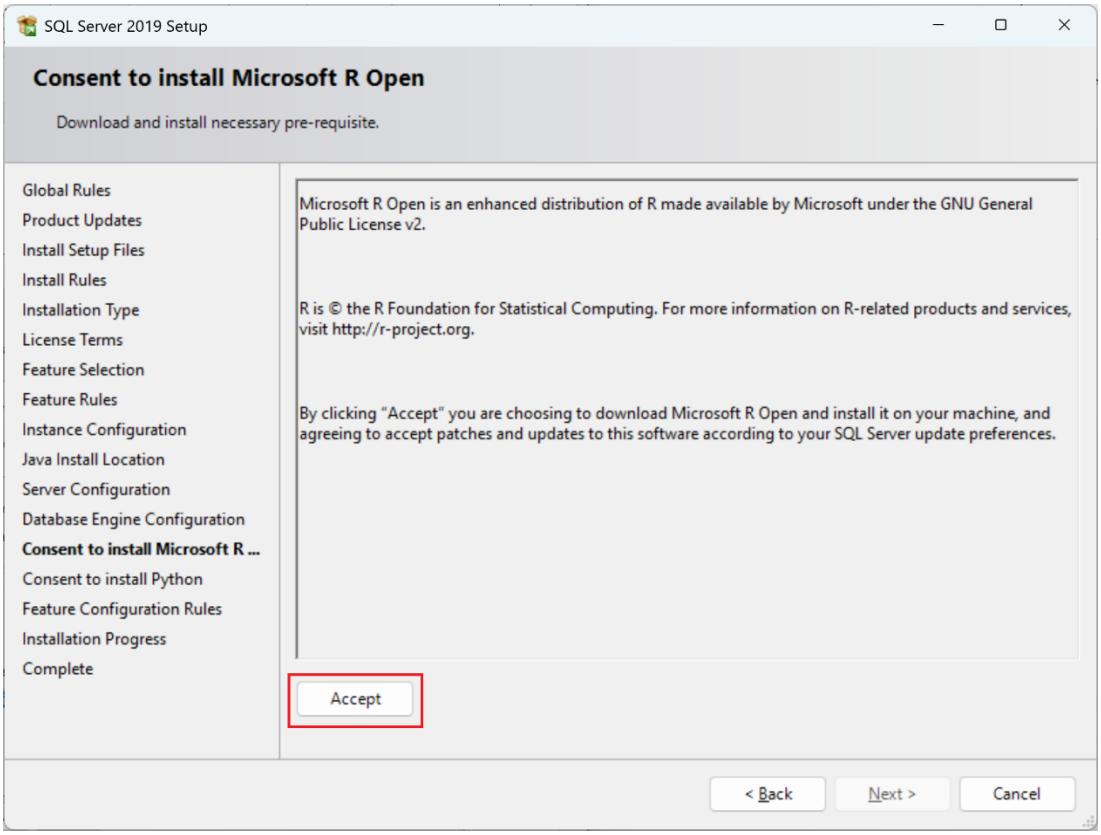

SQL Server 2019 Setup
Feature Selection
Select the Express features to install.
Global Rules
Product Updates
Install Setup Files
Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Consent to install Microsoft R ...
Consent to install Python
Feature Configuration Rules
Installation Progress
Complete
Looking for Reporting Services?
Download it from the web
Features:
Instance Features
Database Engine Services
SQL Server Replication
Machine Learning Services and Language
R
Python
Java
Full-Text and Semantic Extractions for Sea
PolyBase Query Service for External Data
Java connector for HDFS data sources
Feature description:
The configuration and operation of each instance feature of a SQL Server instance is isolated from other SQL Server instances. SQL
Prerequisites for selected features:
Already installed:
Windows PowerShell 3.0 or higher
Microsoft Visual C++ 2017 Redistributable
Disk Space Requirements
Drive C: 2844 MB required, 497975 MB available
Select All
Unselect All
Instance root directory:
C:\Program Files\Microsoft SQL Server\
Shared feature directory:
C:\Program Files\Microsoft SQL Server\
Shared feature directory (x86):
C:\Program Files (x86)\Microsoft SQL Server\
< Back
Next >
Cancel


SQL Server 2019 Setup
Instance Configuration
Specify the name and instance ID for the instance of SQL Server. Instance ID becomes part of the installation path.
Global Rules
Product Updates
Install Setup Files
Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Consent to install Microsoft R ...
Consent to install Python
Feature Configuration Rules
Installation Progress
Complete
Default instance
Named instance: MSSQLSERVER
Instance ID: MSSQLSERVER
SQL Server directory: C:\Program Files\Microsoft SQL Server\MSSQL15.MSSQLSERVER
Installed instances:
Instance Name | Instance ID | Features | Edition | Version
MSSQLSERVER | MSSQL15.MSSQLS... | SQLEngine,SQLEn... | Developer | 15.0.4410.1
SQLEXPRESS | MSSQL15.SQLEXPR... | SQLEngine,SQLEn... | Express | 15.0.4410.1
<Shared Compone... | | Conn, BC, SDK, DQ... | | 15.0.2000.5
<Shared Compone... | | IS, IS\IS_Worker, Lo... | | 15.0.4410.1
< Back
Next >
Cancel


SQL Server 2019 Setup
Java Install Location
Specify Java installed location
Global Rules
Product Updates
Install Setup Files
Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Consent to install Microsoft R ...
Consent to install Python
Feature Configuration Rules
Installation Progress
Complete
Some selected features require a local installation of a JDK or JRE. Zulu Open JRE version 11.0.9.2 is included with this installation, or you can download and install a different JDK or JRE and provide that installed location here.
For information on Azul Zulu OpenJDK third party licensing, see https://go.microsoft.com/fwlink/?linkid=2097167.
Install Open JRE 11.0.9.2 included with this installation
Provide the location of a different version that has been installed on this computer
JDK or JRE installed location:
Browse
< Back
Next >
Cancel


SQL Server 2019 Setup
Server Configuration
Specify the service accounts and collation configuration.
Global Rules
Product Updates
Install Setup Files
Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Consent to install Microsoft R ...
Consent to install Python
Feature Configuration Rules
Installation Progress
Complete
Service Accounts
Collation
Microsoft recommends that you use a separate account for each SQL Server service.
Service
Account Name
Password
Startup Type
SQL Server Database Engine
NT Service\MSSQL$MSS...
Automatic
SQL Server Launchpad
NT Service\MSSQLLaun...
Automatic
SQL Full-text Filter Daemon Launc...
NT Service\MSSQLFDLa...
Manual
SQL Server Browser
NT AUTHORITY\LOCAL...
Automatic
Grant Perform Volume Maintenance Task privilege to SQL Server Database Engine Service
This privilege enables instant file initialization by avoiding zeroing of data pages. This may lead to information disclosure by allowing deleted content to be accessed.
Click here for details
< Back
Next >
Cancel


SQL Server 2019 Setup
Database Engine Configuration
Specify Database Engine authentication security mode, administrators, data directories, TempDB, Max degree of parallelism, Memory limits, and Filestream settings.
Global Rules
Product Updates
Install Setup Files
Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Consent to install Microsoft R ...
Consent to install Python
Feature Configuration Rules
Installation Progress
Complete
Server Configuration
Data Directories
TempDB
Memory
User Instances
FILESTREAM
Specify the authentication mode and administrators for the Database Engine.
Authentication Mode
Windows authentication mode
Mixed Mode (SQL Server authentication and Windows authentication)
Specify the password for the SQL Server system administrator (sa) account.
Enter password:
Confirm password:
Specify SQL Server administrators
PNL\houh226 (Hou, Hongfei (PNNL))
SQL Server administrators have unrestricted access to the Database Engine.
Add Current User
Add...
Remove
< Back
Next >
Cancel


SQL Server 2019 Setup
Consent to install Microsoft R Open
Download and install necessary pre-requisite.
Global Rules
Product Updates
Install Setup Files
Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Consent to install Microsoft R ...
Consent to install Python
Feature Configuration Rules
Installation Progress
Complete
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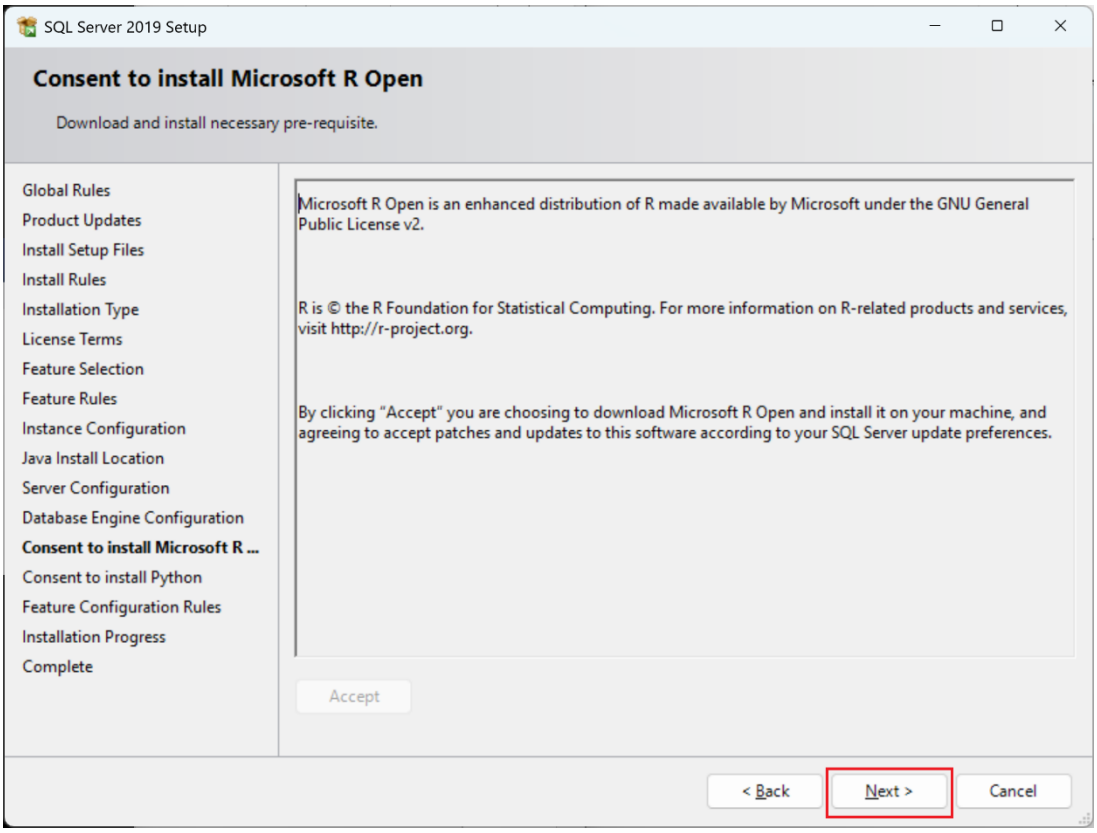
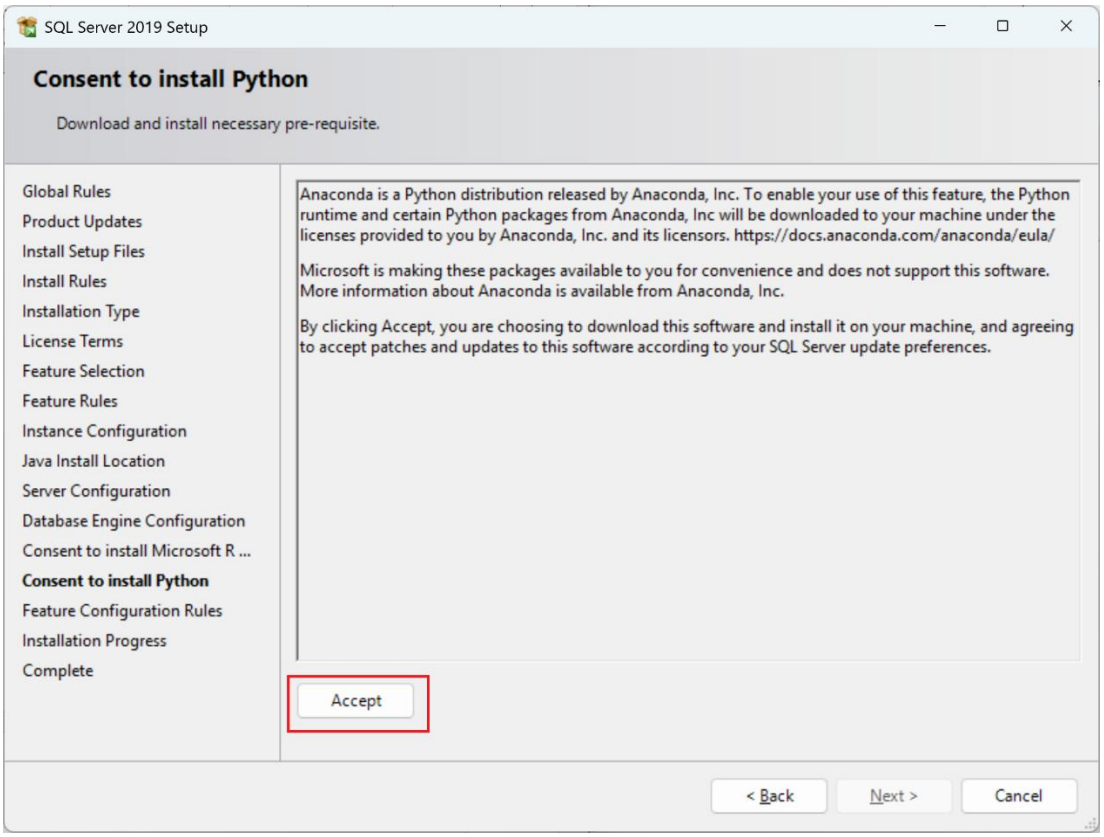
R is © the R Foundation for Statistical Computing. For more information on R-related products and services, visit http://r-project.org.
By clicking "Accept" you are choosing to download Microsoft R Open and install it on your machine, and agreeing to accept patches and updates to this software according to your SQL Server update preferences.
Accept
< Back
Next >
Cancel


SQL Server 2019 Setup
Consent to install Microsoft R Open
Download and install necessary pre-requisite.
Global Rules
Product Updates
Install Setup Files
Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Consent to install Microsoft R ...
Consent to install Python
Feature Configuration Rules
Installation Progress
Complete
Microsoft R Open is an enhanced distribution of R made available by Microsoft under the GNU General Public License v2.
R is © the R Foundation for Statistical Computing. For more information on R-related products and services, visit http://r-project.org.
By clicking "Accept" you are choosing to download Microsoft R Open and install it on your machine, and agreeing to accept patches and updates to this software according to your SQL Server update preferences.
Accept
< Back
Next >
Cancel


SQL Server 2019 Setup
Consent to install Python
Download and install necessary pre-requisite.
Global Rules
Product Updates
Install Setup Files
Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Consent to install Microsoft R ...
Consent to install Python
Feature Configuration Rules
Installation Progress
Complete
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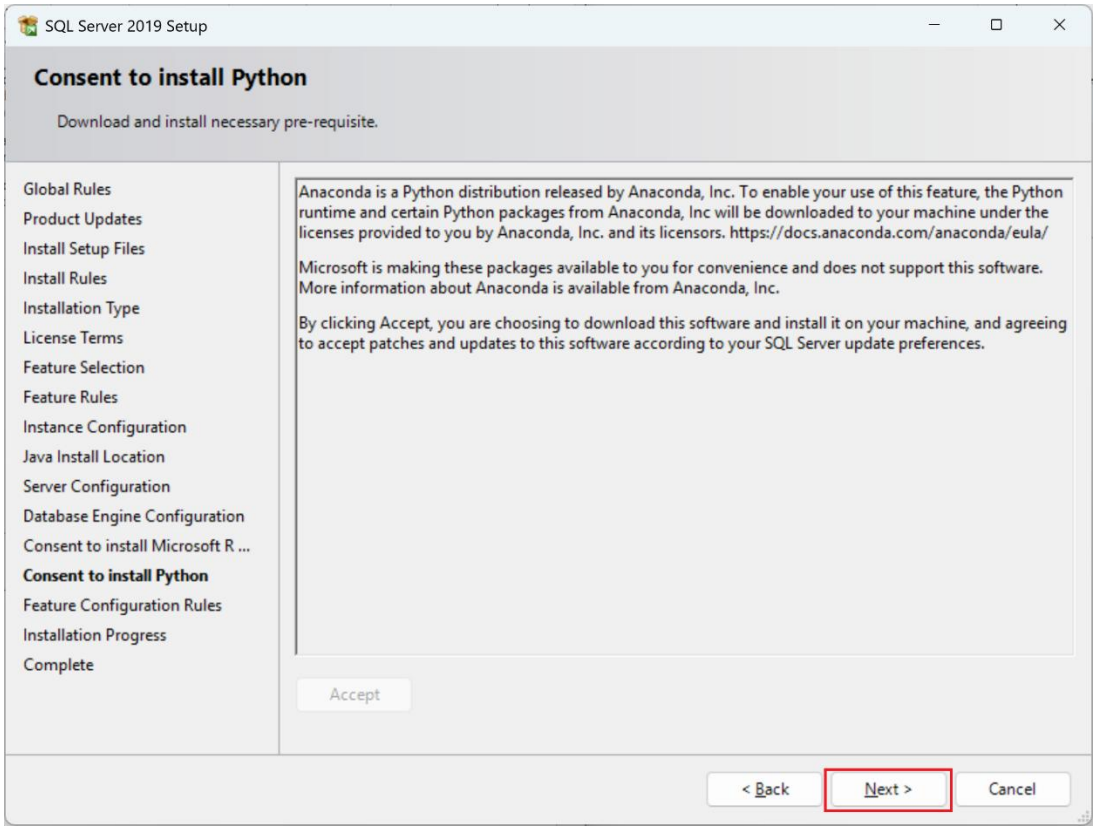
SQL Server 2019 Setup
Consent to install Python
Download and install necessary pre-requisite.
Global Rules
Product Updates
Install Setup Files
Install Rules
Installation Type
License Terms
Feature Selection
Feature Rules
Instance Configuration
Java Install Location
Server Configuration
Database Engine Configuration
Consent to install Microsoft R ...
Consent to install Python
Feature Configuration Rules
Installation Progress
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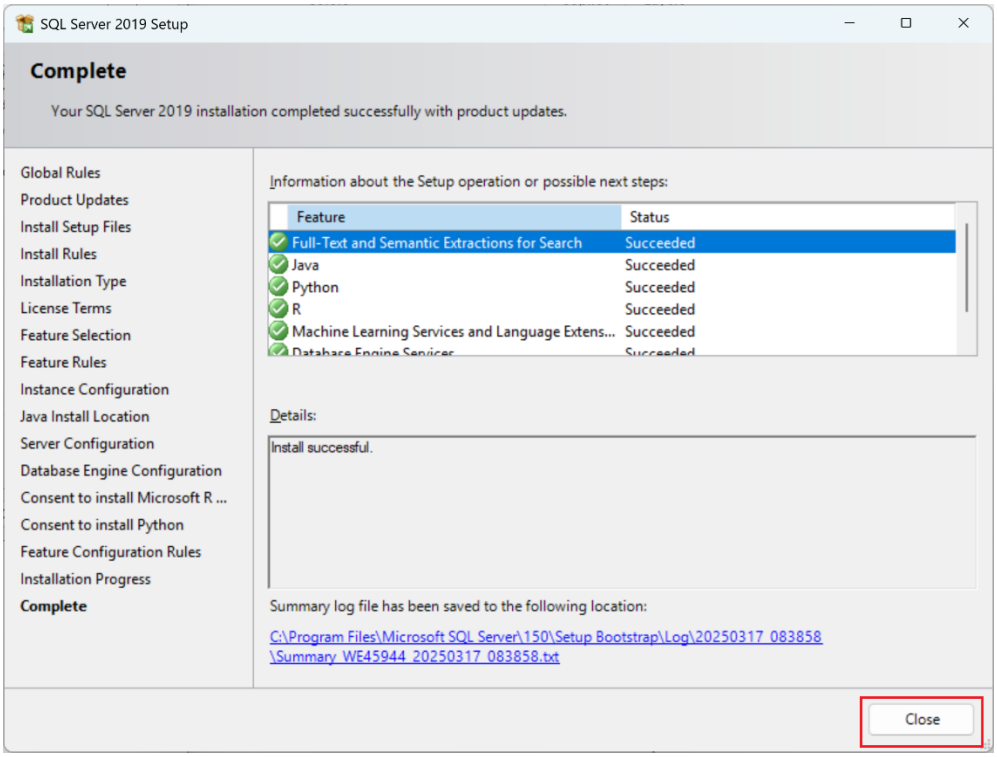
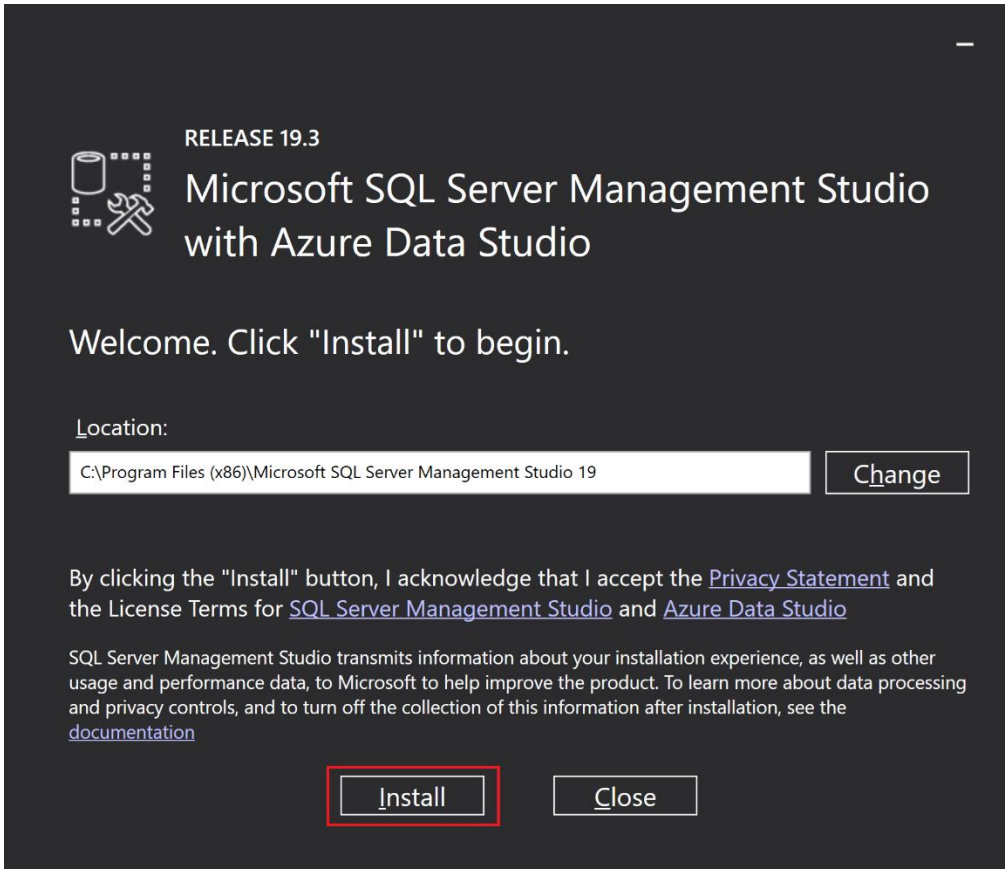
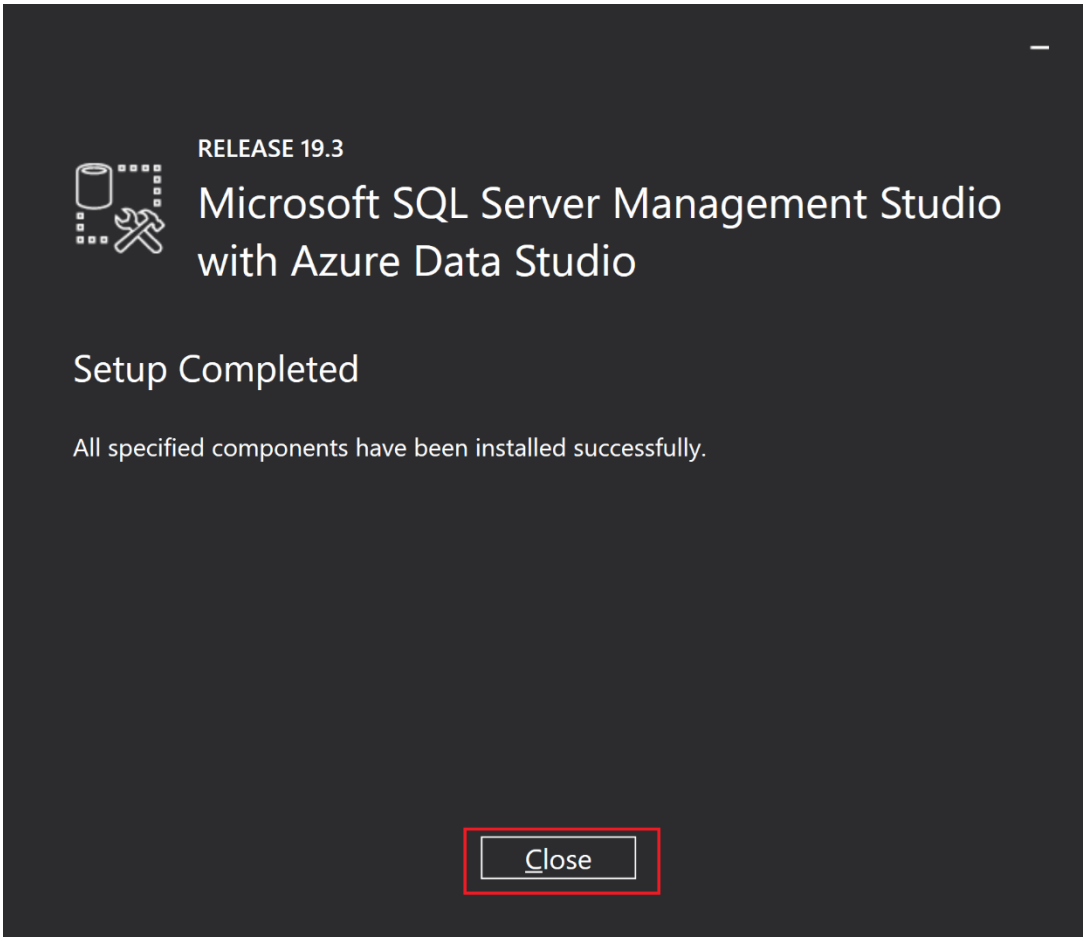
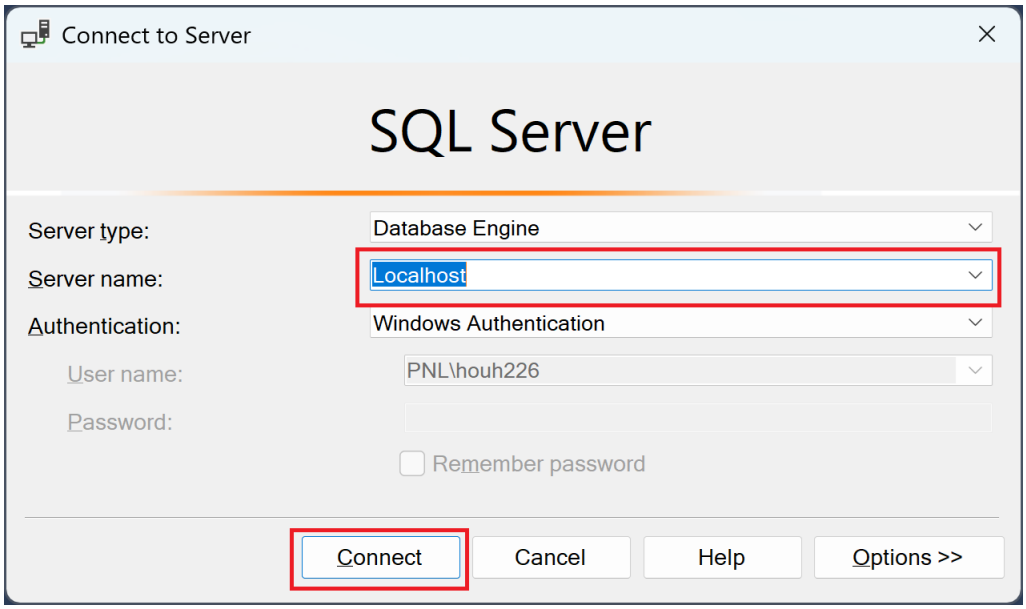


7. Double-click SSMS-Setup-ENU.exe to install the SQL Server Management Studio.

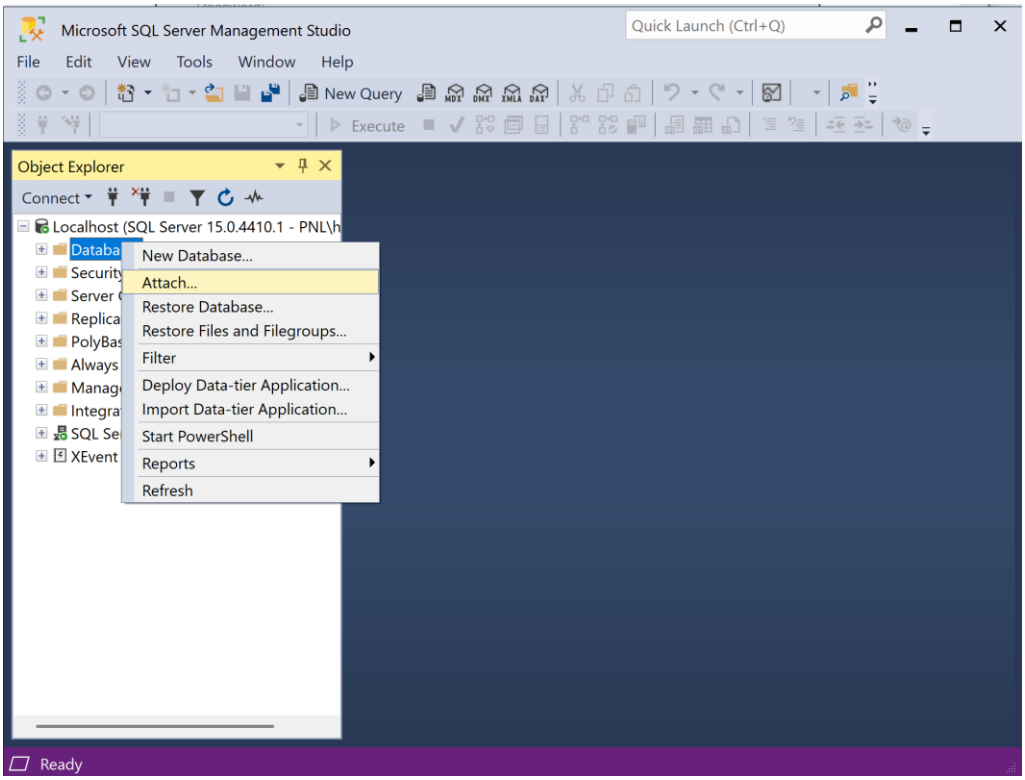




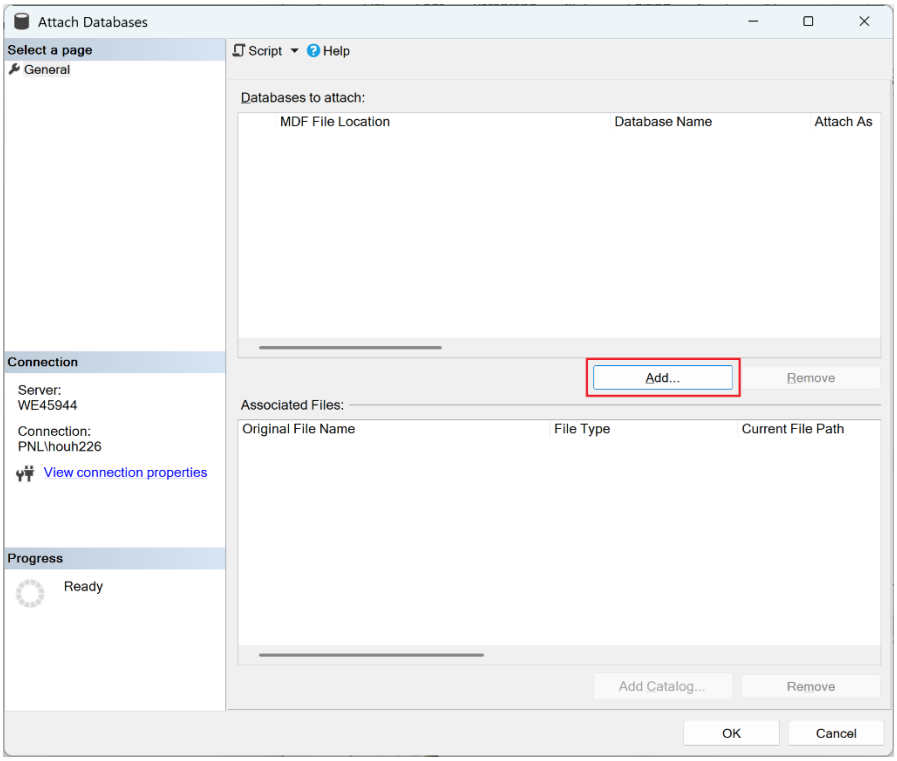
8. Copy and paste "SensorFishDB.mdf" and "SensorFishDB_log.ldf" files from the unzipped HBET_V3_Installer file folder into " C:\Program Files\Microsoft SQL Server\MSSQL15.MSSQLSERVER\MSSQL\DATA".
9. Open Microsoft SQL Server Management Studio by double clicking C:\Program Files (x86)\Microsoft SQL Server Management Studio 19\Common7\IDE\Ssms.exe and follow the screenshots below to attach the Sensor Fish database.



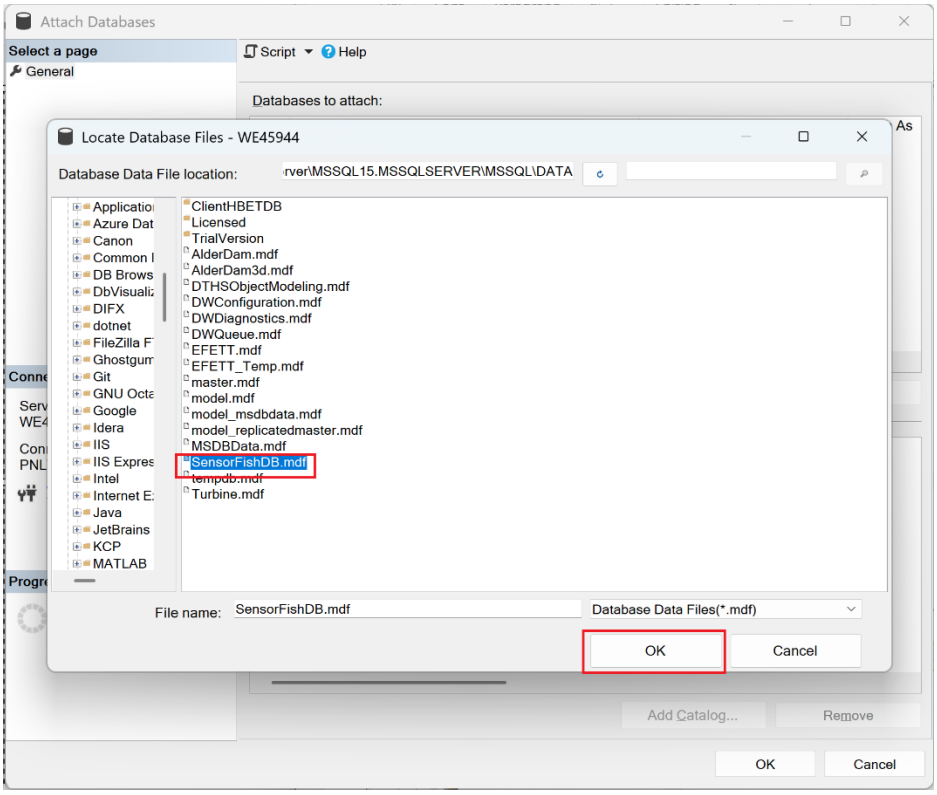
a. Connect to the server after typing Localhost and clicking Connect.



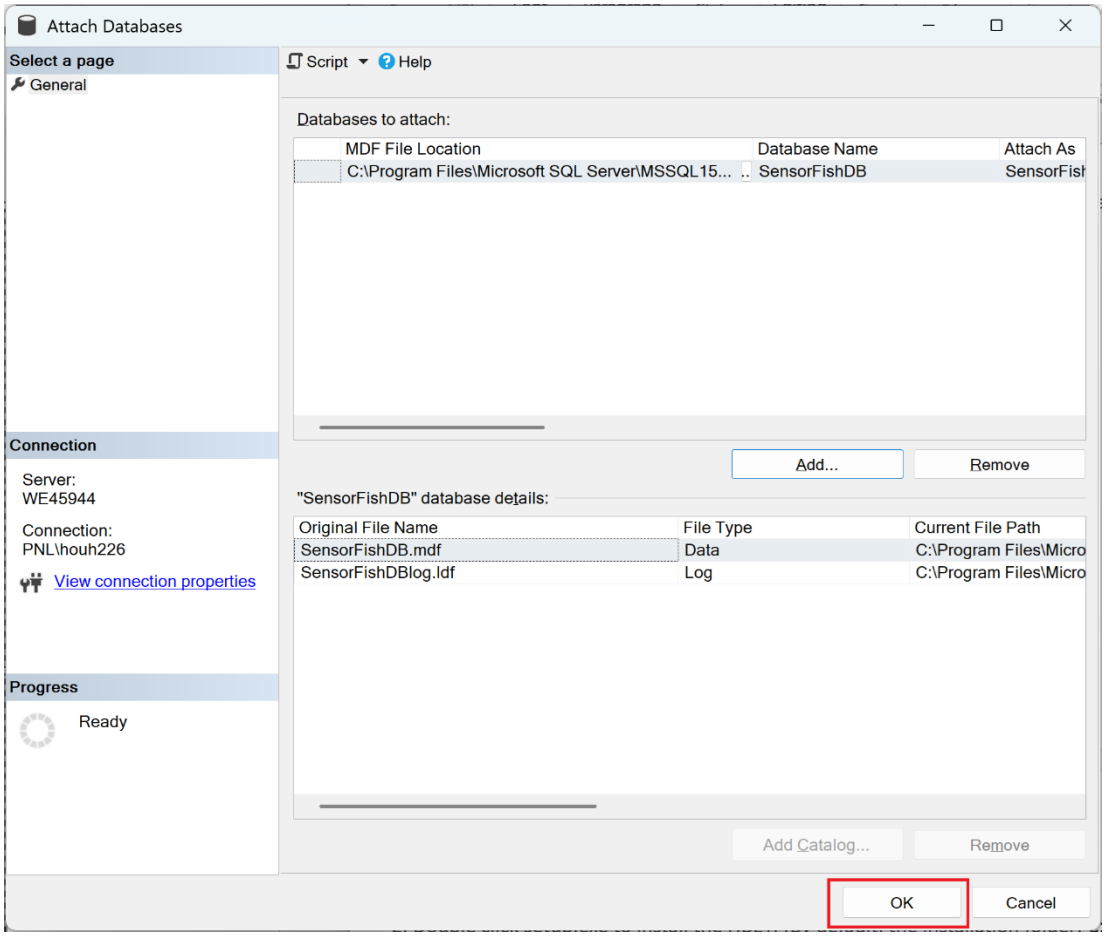
b. Right-click Database and select Attach to open the following Attach Databases window.



c. Select Add, choose the appropriately selected path, and enter the file name with the expanded directory tree in the File name to attach SensorFishDB.mdf.



d. Return to the Attach Databases window, SensorFishDBlog.ldf will be added automatically to the database details.



e. Click OK and close Microsoft SQL Server Management Studio.

10. Run the HBETools.exe application.

Upgrade from a previous version:

1. Uninstall the previously installed HBET;
2. Double click setup.exe to install the HBET; (By default, the installation folder: C:\Program Files (x86)\PNNL\HBETools);
3. Run HBETools.exe application;
4. Follow the instructions on page 3.9 in HBET3.0UserGuide.pdf to export all studies uploaded after the previous installation.

The associated files will be in the c:\temp folder. Each exported study will have a separate folder under c:\temp (i.e., c:\temp\teststudy);

The field sheet file resides in each exported study folder (i.e., c:\temp\teststudy\teststudyfieldsheet.xlxs).

5. Detach the database SensorFishDB (SensorFishDB.mdf) following the instructions below:

   https://docs.microsoft.com/en-us/sql/relational-databases/databases/detach-adatabase?view=sql-server-ver15

6. Attach the NEW database SensorFishDB (SensorFishDB.mdf which is included in this package) following the instructions below:

   https://msdn.microsoft.com/en-us/library/ms190209.aspx

   ****** Make sure to choose the database file SensorFishDB.mdf included in this package ******

7. Run the HBETools.exe application.

8. Follow the instructions on page 3.5 in HBET3.0UserGuide.pdf to create the corresponding study site, and study name; then upload files that have been exported studies in step 4.

Pacific Northwest National Laboratory

902 Battelle Boulevard
P.O. Box 999
Richland, WA 99354

1-888-375-PNNL (7665)

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