

# Installing FuelsManager v12.x at the Enterprise

Use the following procedure to install FuelsManager v12.x at the Enterprise.

If you are installing FuelsManager at the base, refer to the [Installing FuelsManager v12.x at a Base Site](#).

Prerequisites: If you are installing Inventory Management (IM)/SCADA, you must set up Cassandra, Java, and SQL, which are used for database management.

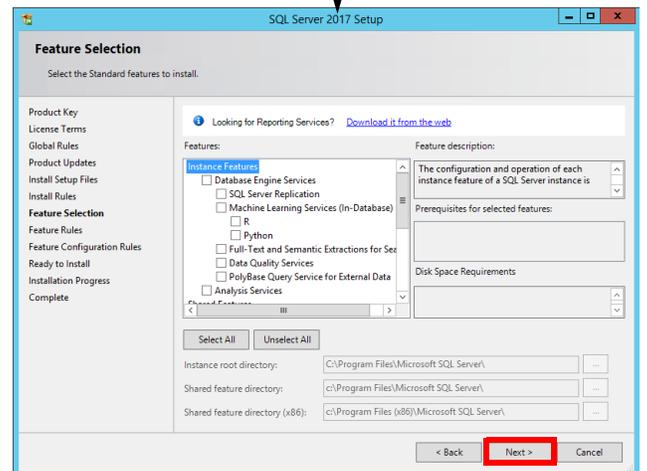
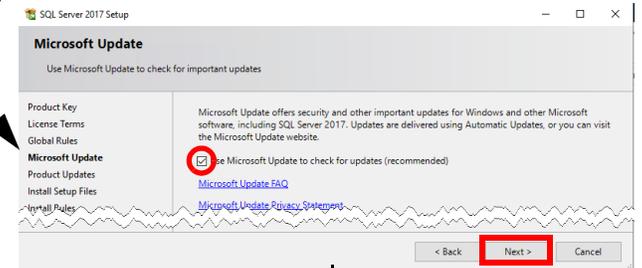
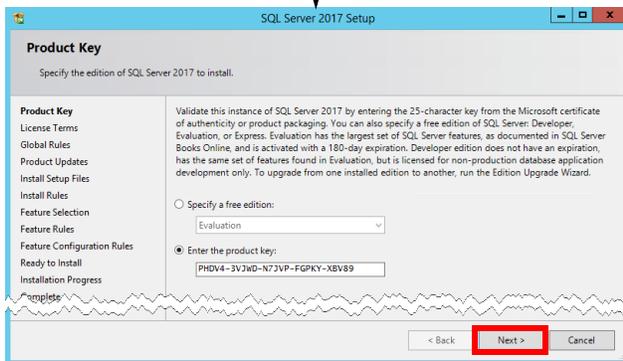
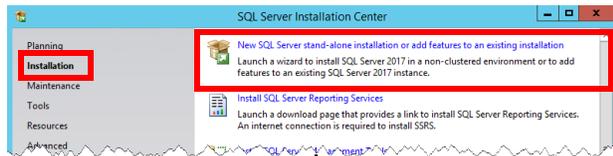


## 1 Set Up SQL

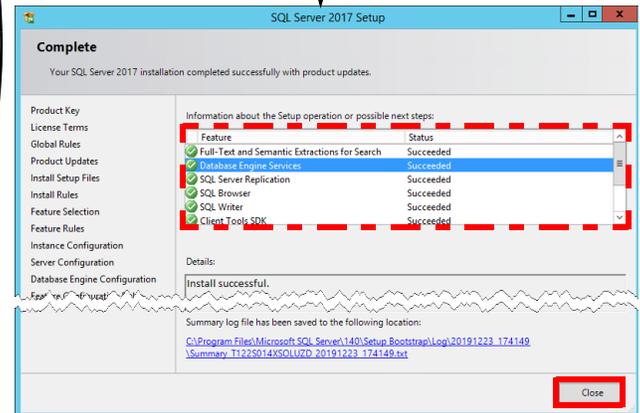
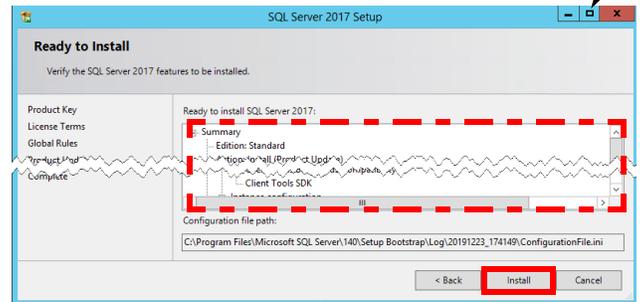
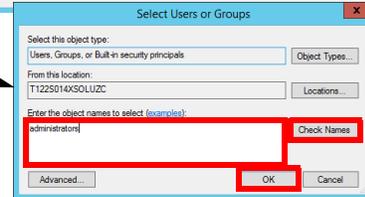
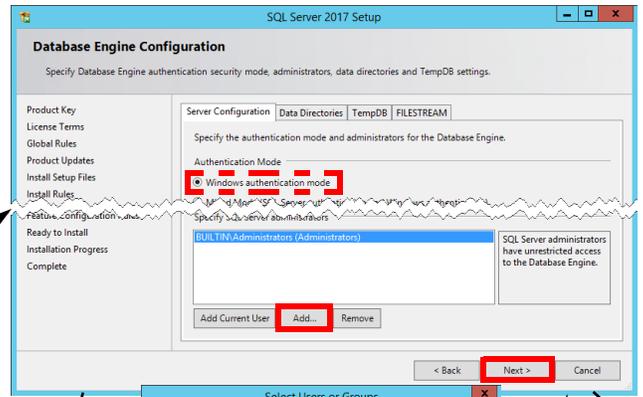
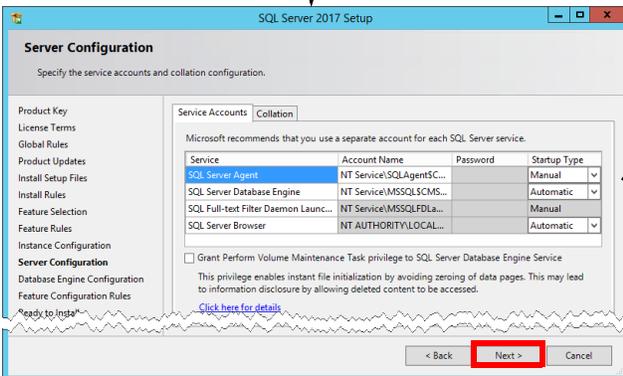
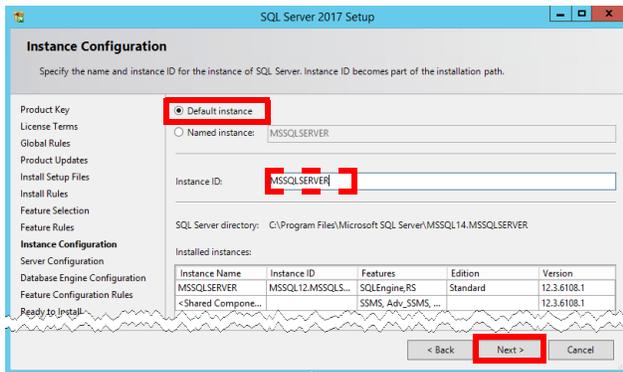
SQL Server for the enterprise is expected to be run as a cluster. Cluster installation and configuration steps are not provided in this document. SQL Server 2017 is used for this example. For more information on setting up SQL, refer to Microsoft's [website](#).

- 1) Locate the folder where the SQL Server Installation files are stored, right-click **SETUP.EXE**, and select **Run as Administrator** to set up SQL. The SQL Server Installation Center window displays.  
The location varies depending on where SQL is stored. The SQL version may also vary.
- 2) In the left panel, select **Installation**.
- 3) In the right panel, select the **New SQL Server stand-alone installation or add features to an existing installation** link.
- 4) When prompted for the Product Key, update the key as needed or accept the default and click **Next**.

- 5) On the License Terms screen, check the box next to **I accept the license terms**, and then click **Next**.  
The Install Setup Files window shows the progress bar of the install setup, which will take a few minutes.
- 6) On the Microsoft Update screen, check the **Use Microsoft Update to check for updates (recommended)** box, and then click **Next**.
- 7) On the Feature Selection screen, select the features to install, and then click **Next**.

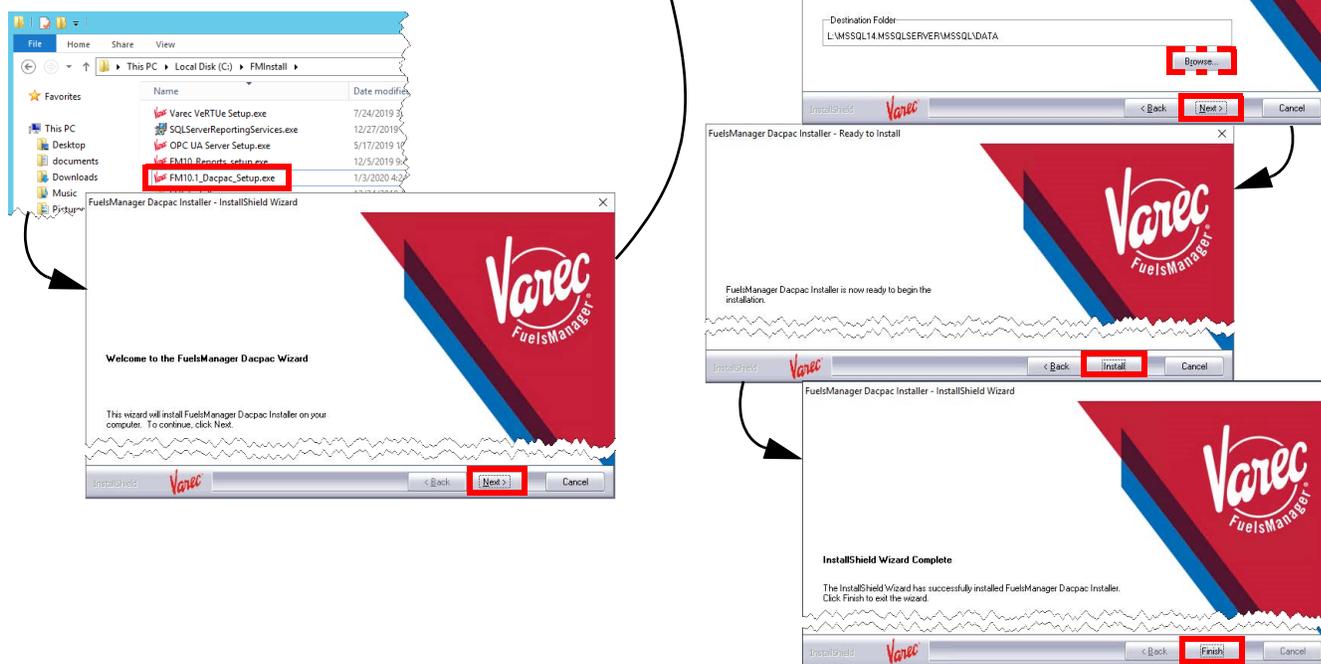


- 8) On the Instance Configuration screen, select **Default Instance** or update as needed. This should auto-populate the Instance ID. Click **Next** to continue.
- 9) On the Server Configuration screen, accept the defaults and click **Next**.
- 10) On the Database Engine Configuration screen, accept the default: **Windows authentication mode**, and then click **Add** to add an administrator. The Select Users or Groups dialog displays.
- 11) Enter **administrators** in the text box, and click **Check Names**. This shows the group path in the text box. Click **OK** to confirm and close the dialog box. The administrator should now be listed in the Database Engine Configuration screen. Click **Next**.
- 12) On the Ready to Install window, click **Install**. The Installation Progress screen shows the progress bar of the install process, which will take a few minutes.
- 13) The Complete screen displays the Status of the installation, which should show *Succeeded* for each feature. Click **Close**.



## 2 Install the Database on the Database (DB) Server

- 1) Open the folder where the dacpac installer is located, right-click **FM[ver]\_Dacpac\_Setup.exe**, and select **Run as Administrator**.
- 2) On the Welcome page, click **Next**.
- 3) When prompted for the Database Server Login, specify the **database cluster name** and **connection credentials**, and then click **Next**.
- 4) On the SQL Data Folder window, **Browse** for the Destination Folder where you want to store SQL Data, or accept the default path and folder, and then click **Next**.
- 5) On the Ready to Install window, click **Install**.  
*The Setup Status screen shows the progress bar, which may take a few minutes.*
- 6) On the InstallShield Wizard Complete window, click **Finish**.



### 3 Install FuelsManager on Application Servers

Users running the FuelsManager installer must have permissions on the SQL database in order to configure the system as *Windows Authentication*. If FuelsManager is installed with *SQL Authentication*, the SQL User and password will be included in the web.config file in plain text.

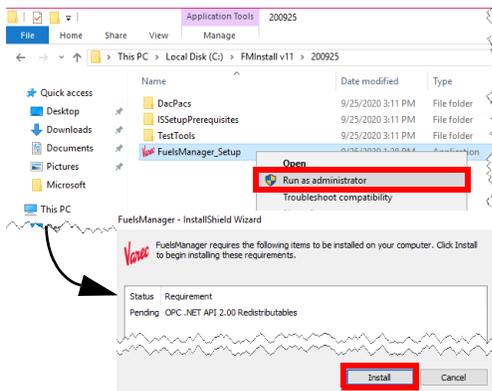
Users at the enterprise are expected to NOT manage alarms (Acknowledge or Silence) or values for some tags. These restrictions will be enforced via User Group Security Rights (No Acknowledge All Alarms, Acknowledge with Comments or Silence Alarms) and Point Access Group (set relevant tags and settings to include View permissions only, and disable Ack for all alarms). If a user uses both Enterprise and Base system, they will need separate users and user groups on each system in order to have proper limitations at Enterprise.

FuelsManager application servers will generally be clustered and run behind a network load balancer. Operating Systems supported for this release are Windows Servers 2016, 2019, and 2022. See the [Standard Configurations](#) spreadsheet for details on configuring Roles and Features for the application servers.

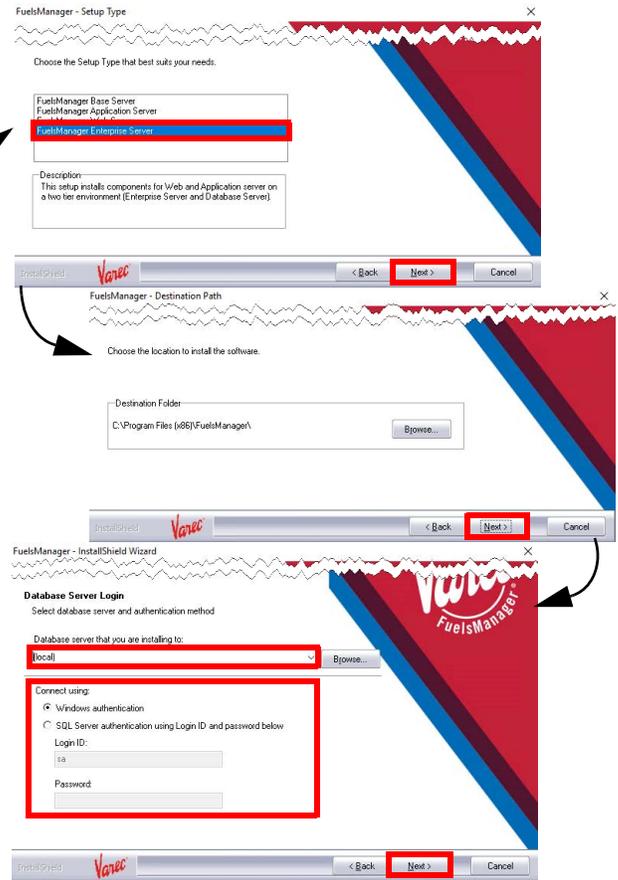
All application, database, Cassandra, and OPC server times must be synchronized. If timestamps across servers are inconsistent, point execution could be impacted.

Perform the following steps on each application server:

- 1) Open the folder where the FuelsManager installer is located, right-click **FuelsManager\_Setup.exe**, and select **Run as Administrator**. If any prerequisite files are found missing, the installer will prompt you to install them.
- 2) On the InstallShield Wizard window, click **Install**. A progress bar shows at the bottom of the window, which may last a few minutes.



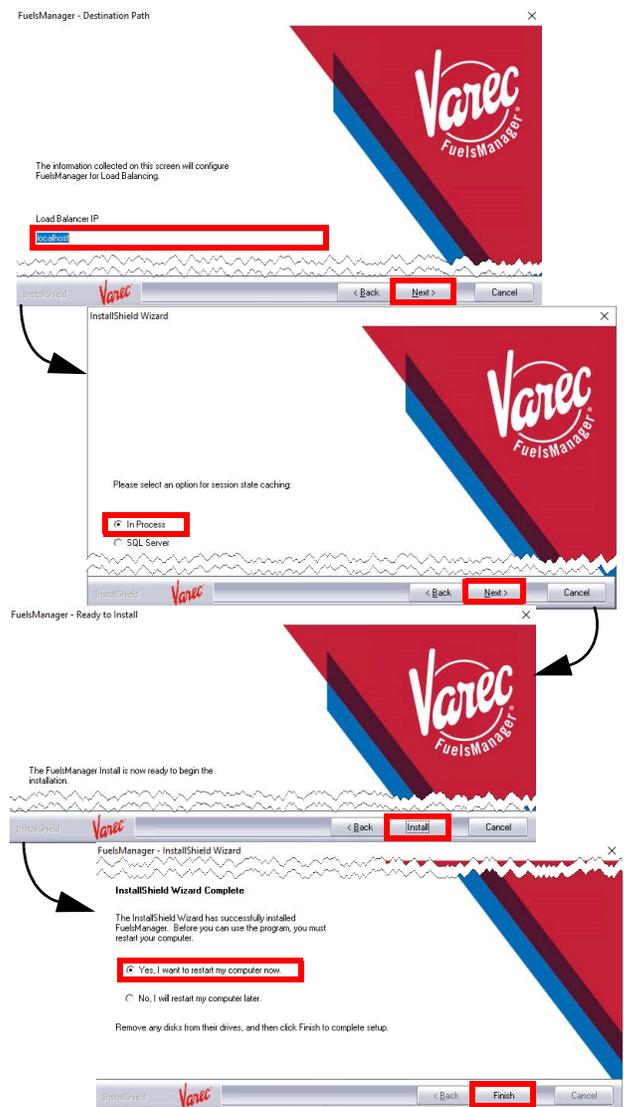
- 3) On the Setup Type window, select **FuelsManager Enterprise Server** to install the App and Web Servers on one machine, and then click **Next**.
- 4) On the Destination Path window, browse to select a Destination Folder, or leave this as the default. Click **Next**.
- 5) When prompted for the Database Server Login, provide the **database cluster name** and **connection credentials**, and then click **Next**.



- 6) When prompted for the Load Balancer IP, replace the machine name with the **IP address** or **machine name** of your network load balancer. Click **Next**.
- 7) When prompted for the caching option, select from the following, and then click **Next**:
  - **In Process** - session state is in-process with an ASP.NET worker process.
  - **SQL Server** - session state is using an out-of-process SQL Server database to store state information.
- 8) On the Ready to Install window, click **Install**. The Setup Status screen shows the progress bar of the install process, which will take a few minutes.
- 9) On the InstallShield Wizard Complete screen, accept the default: **Yes, I want to restart my computer now**, or you can choose to restart the system yourself, and then click **Finish**.

A restart is required in order to successfully complete the installation process. Your computer reboots to finalize the installation.

When running the FuelsManager or Dacpac installers using Windows Authentication, the user logged on to the server must have permissions on the SQL Databases. When creating the FuelsManagerDB for the first time, this user needs db\_owner permissions on 'master'.



## 4 Activate FuelsManager Software License

Complete a Software Request and send to Varec Help Desk so they can create the license (.lin) file.

- 1) Copy the .lin file in the directory specified by the value in the **LicFileLocation** registry entry in **HKEY\_LOCAL\_MACHINE\SOFTWARE\Wow6432Node\Varec\SharedComponents**.

By default, the LicFileLocation is set to:  
C:\Program Files (x86)\FuelsManager\License File

Make sure only one .lin file is in this directory. The system looks for and only uses the first .lin file it finds.

- 2) Open the folder where the license activation application is located, and double-click **ActivateLicenseLIN.exe** to activate the software license.
- 3) Verify that the **Company** and **Address** fields reflect the company name and address of the end user the license was created for.
- 4) Verify that the License Status shows **Not Activated**.

Skip to step 5 if the status shows **Activated**.

- 5) Click **License Details** to verify that the license has the correct settings for the specified end user. Enabled options are shown in black font while options that are not enabled are shown in gray font (grayed out).

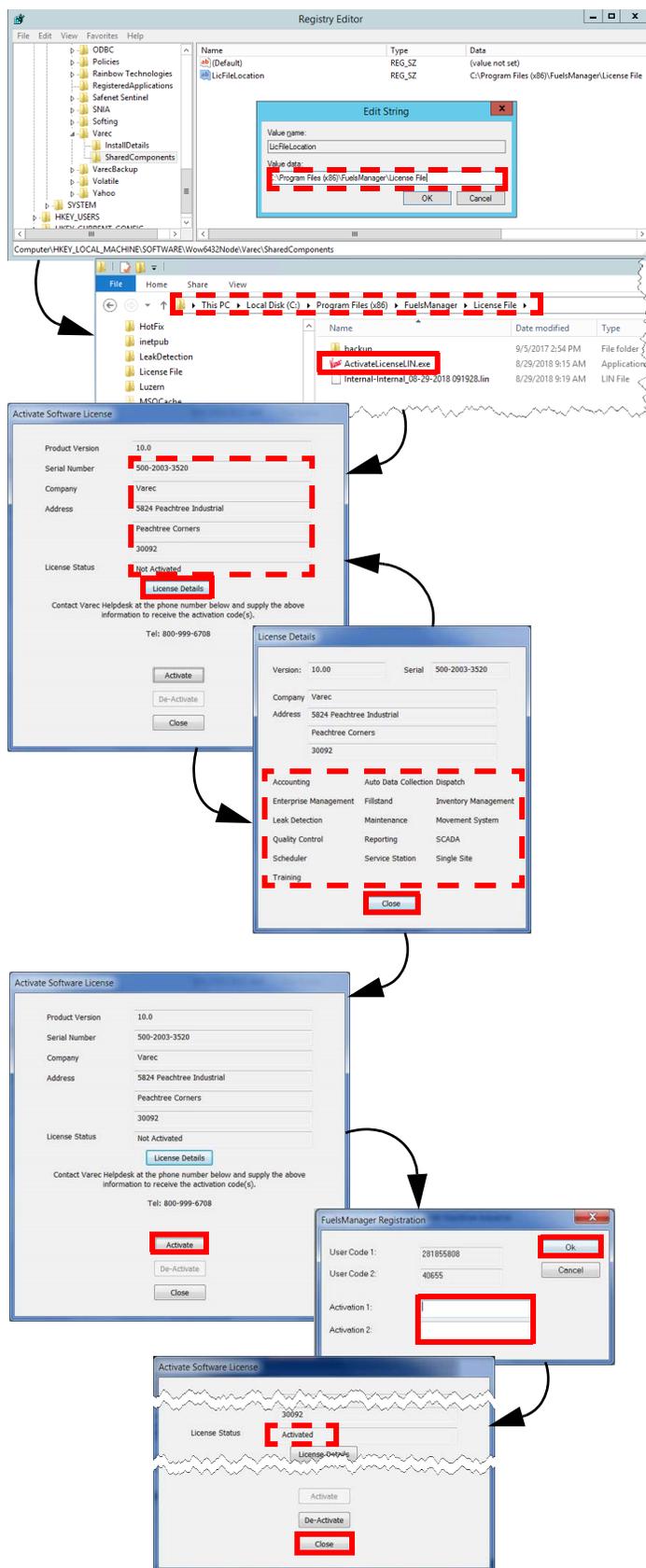
You may have to secure another .lin file if the license details do not show the correct settings.

- 6) Click **Close** to close the License Details window.
- 7) On the Activate Software License window, click **Activate**. The FuelsManager Registration dialog displays.
- 8) Call the Varec Help Desk at **1-800-999-6708**. Be ready to provide the **Serial Number**, **User Code 1** and **User Code 2**. Help Desk will then provide the activation code(s).
- 9) Enter the **activation code(s)** provided by Help Desk in the appropriate fields: **Activation 1** and/or **Activation 2**.

Typically, this is just one value.

- 10) Click **OK** to activate the license and close the dialog.
- 11) Click **OK** to close the Activate Software License window.

The License Status should show **Activated**.



## 5 Cluster the FuelsManager Service

If using multiple application servers, it will be necessary to cluster the FuelsManager service. You may opt to cluster it on the DB servers, if your application servers are not clustered.

Follow these steps to move and cluster the service:

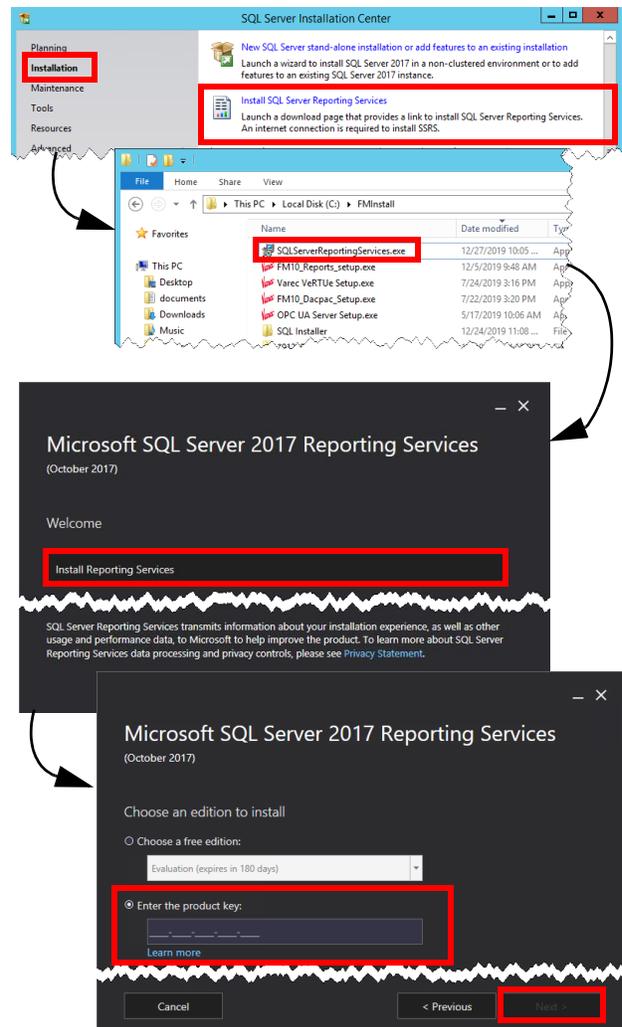
- 1) Create the **FuelsManager service** on the clustered servers using the sc command.
- 2) In *Failover Cluster Manager*, create a *Generic Service Role for FuelsManagerService* named **FMService**.
- 3) Copy the contents of *C:\Program Files (x86)\FuelsManager\FMServices\* (as was installed on the application servers) over to the clustered servers where the service will now run.

- 4) Modify the file, **FuelsManagerService.exe.config**, and update this node to reflect the IP of the Network Load Balancer for your application:  
`<add key="endPointAddress" value="net.tcp://10.249.128.80:808/FMBusinessServices"/>`
- 5) Ensure the **FuelsManager service** is started on each cluster server.
- 6) Once clustered, set the *FuelsManager service* on the application servers to **Disabled/Stopped**.

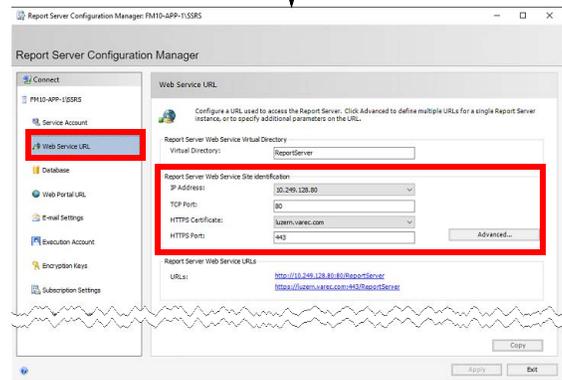
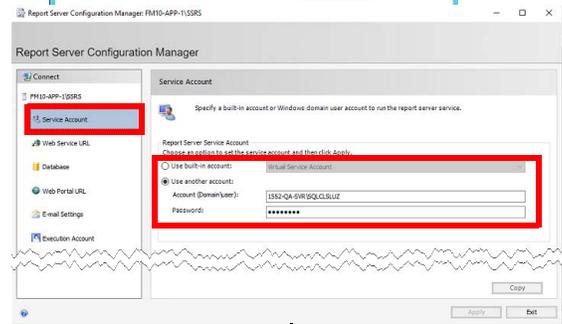
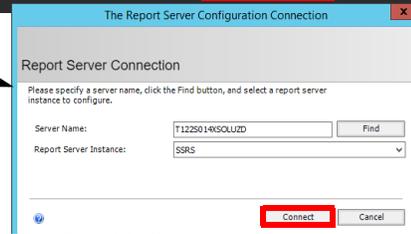
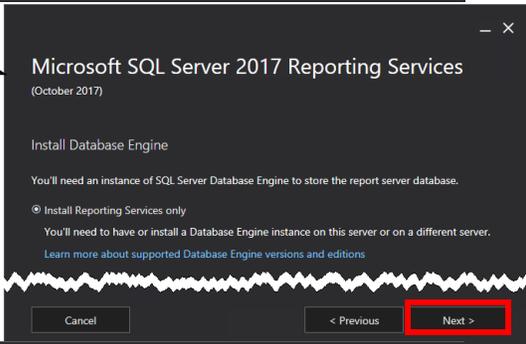
## 6 Install SQL Reporting Services

If you will be creating default report assignments when you configure FuelsManager, ensure that the database server selected in this procedure is the same database server hosting FuelsManager. See the *Creating Default Report Assignments Quick Reference Guide (QRG)* for more information. You may also refer to Microsoft's [website](#) for additional information.

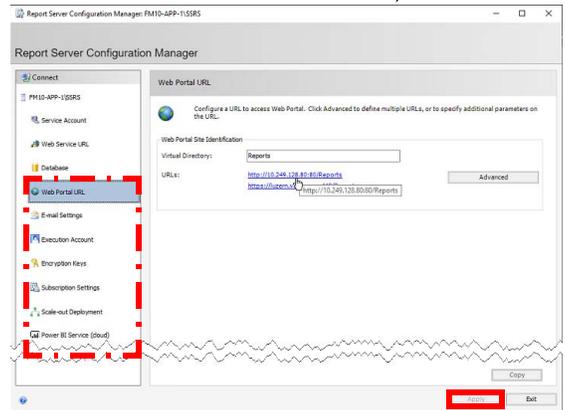
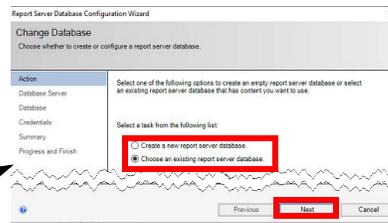
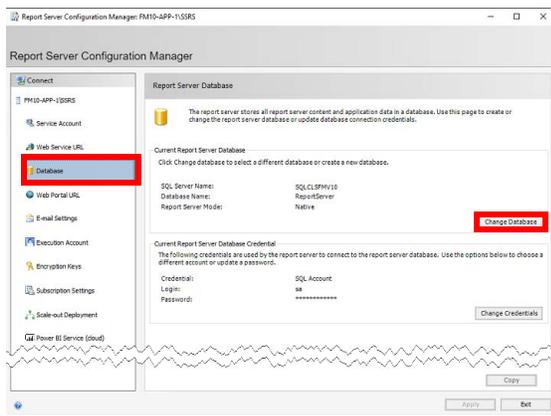
- 1) Access the **SQL Server Installation Center**.
- 2) In the left panel, select **Installation**.
- 3) In the right panel, select the **Install SQL Server Reporting Services** link. This opens a Microsoft web page to download the .exe file.
- 4) **Download** the .exe file.
- 5) Open the folder where you downloaded the file.
- 6) Right-click **SQLServerReportingServices.exe**, and select **Run as Administrator**.
- 7) On the Welcome screen, select **Install Reporting Services**.
- 8) On the *Choose an edition to install* screen, enter the **product key**, and then click **Next**.



- 9) Review the license terms and select **I accept the license terms**. Click **Next**.
- 10) Accept the defaults on the Install Database Engine screen, and then click **Next**.
- 11) Specify an install location or accept the defaults, and then click **Install**.  
*The installer will load the packages and show the progress bar of the install process, which will take a few minutes.*
- 12) On the Setup completed screen, accept the default and select **Configure report server**.
- 13) On the Report Server Connection dialog, accept the defaults and click **Connect**. This opens the Report Server Configuration Manager window, which shows the Report Server Status.
- 14) In the left panel, select **Service Account**, and then enter the service account credentials in the right panel.
- 15) In the left panel, select **Web Service URL**, and then enter the **IP Address**, **TCP Port**, **HTTPS Certificate**, and **HTTPS Port** for the Report Server Web Service.



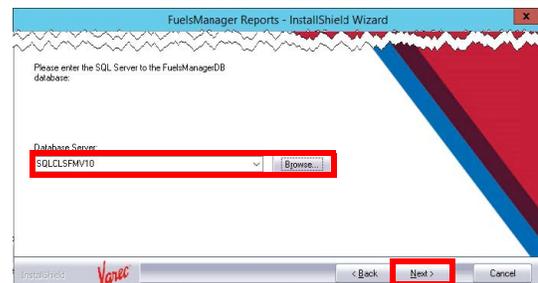
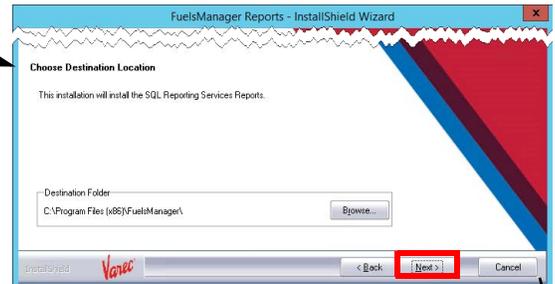
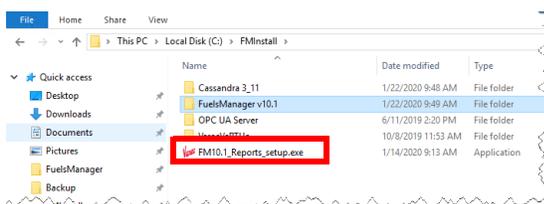
- 16) In the left panel, select **Database**, and then click **Change Database**.
- 17) On the Change Database dialog, you can choose to **Create a new report server database** or **Choose an existing report server database**. Click **Next**.
- 18) In the left panel, select **Web Portal URL** and ensure that the Reports URL is correct.
- 19) You may go through the rest of the options in the left panel and update them or accept the defaults for each one.
- 20) Click **Apply** to save your changes.



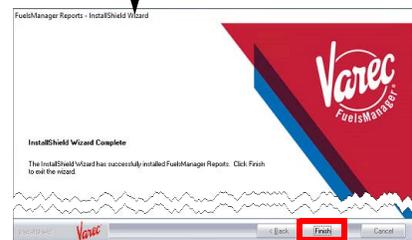
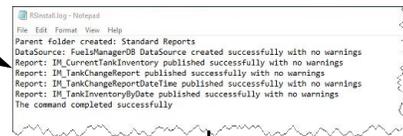
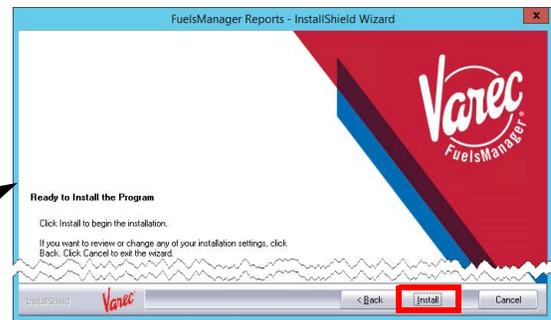
## 7 Run the Reports Installer

Installation of the reports cannot proceed without knowledge of the location of the RS.exe file. See the *Helpful Tips* section at the end of this document for more information.

- 1) Ensure that SQL Reporting Services has been installed and configured prior to performing the next steps.  
If Reporting Services is configured to connect with a user other than a Built In user, the reports installer will only work properly when run by the configured user.
- 2) Open the folder where the FuelsManager Reports installer is located, right-click **FM[ver]\_Reports\_Setup.exe**, and select **Run as Administrator**.
- 3) On the Welcome page, click **Next**.
- 4) Browse to select a Destination Folder, or leave this as the default. Click **Next**.
- 5) Browse or enter the SQL server to the FuelsManager DB. Click **Next**.



- 6) Provide the **Reporting Services URL**, and then click **Next**.
- 7) On the Ready to Install the Program window, click **Install**.  
The Setup Status shows the progress bar, which will take a few minutes.
- 8) The Reporting Services install log displays. Click **X** in the upper-right corner to close the log file.
- 9) On the InstallShield Wizard Complete screen, click **Finish**.



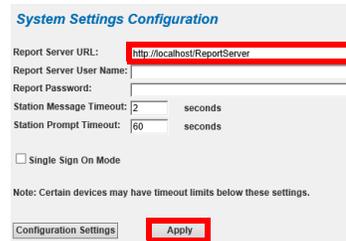
## 8 Install and Configure Java and Cassandra

See the *Cassandra Quick Reference Guide* for more information.

## 9 Configure Reports

### Configure the Report Server URL

- 1) Launch FuelsManager.
- 2) From the menu, select **Administration > System > System Settings**.
- 3) On the System Settings Configuration page, ensure the **Report Server URL** is configured.
- 4) Click **Apply** to save changes, if any.



### Configure the Report Directory

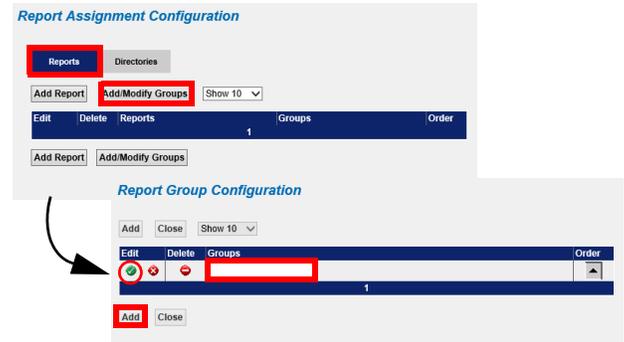
- 1) From the menu, select **Configuration > Reports/Queries > Report Assignment**.
- 2) Select the **Directories** tab. Ensure that the **Report Directory** is configured.  
By default, the directory should be */Standard Reports*.
- 3) Click **OK** to save changes.



## Add Report Groups

Perform the Add Report Groups and Assign Reports to Report Groups (below) procedures within each site, once those are created.

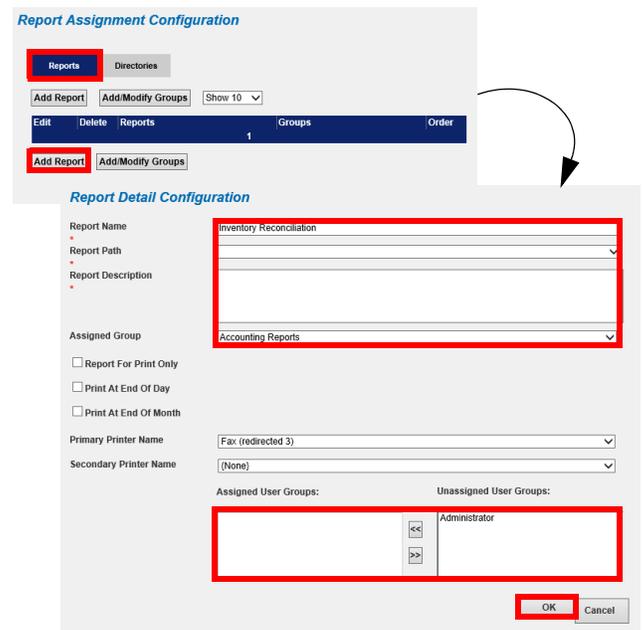
- 1) Select the **Reports** tab to add one or more Report Groups.
- 2) Click **Add/Modify Groups**. The Report Group Configuration page displays.
- 3) Click **Add** to add a Report Group.
- 4) Enter the **name** of the Group, and then click the **green check icon** to save changes.  
Repeat steps c and d to add more Report groups.  
You may also click the arrow icon under the Order column to change the order of how your report groups display.
- 5) Click **Close** to close the Report Group Configuration page.



## Assign Reports to Report Groups

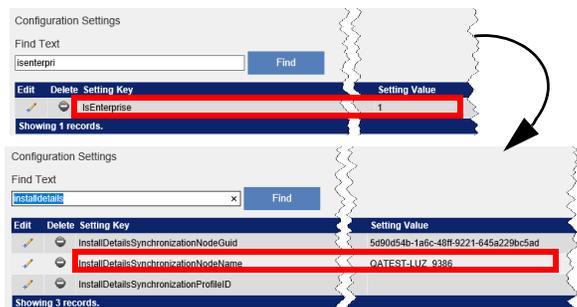
Perform the Add Report Groups (above) and Assign Reports to Report Groups procedures within each site, once those are created.

- 1) Select the **Reports** tab.
- 2) Click **Add Report**. The Report Detail Configuration page displays.
- 3) Enter a **Report Name**.
- 4) Select the report from the **Report Path** drop down list.
- 5) Enter the **Report Description**.
- 6) Expand the **Assigned Group** drop down list, and then select the **Report Group** in which you want to assign the selected report.
- 7) Assign a **User Group**.
- 8) Click **OK** to save your changes.



## 10 Set Up the Configuration Settings

- 1) Open **FuelsManager**.
- 2) From the menu, select **Administration > System Settings**.
- 3) On the System Settings Configuration page, click **Configuration Settings**.
- 4) Verify that the following settings are set:
  - *IsEnterprise* - set to **1** appropriately by the installer, according to the license key in place.  
*Enterprise Activation enabled will cause the IsEnterprise setting to be set at 1.*
  - *InstallDetailsSynchronizationNodeName* - must be configured with the **DNS name** for the URL of the Network Load Balancer.



## Helpful Tips

- When displaying a graphic on a smaller monitor, you may need to use your browser's zoom setting, or pan the drawing (by clicking and dragging) to view the graphic properly.
- Videos embedded in the Help file require Adobe Flash Player. You must enable Flash in the browser. When using Chrome, access the browser **Settings > Site Settings**, and set **Flash** to **Ask First**. When you play the embedded video, it will prompt you to use Flash. Click **Yes**, to start the video.
- If a client cannot resolve the configured host name to an IP address, FuelsManager Help will not load. Ensure your DNS server is configured properly, or change the *DefaultHelpURL* in Configuration Settings from *localhost* to an IP address.
- If custom sound files are used, the sound files must be put on all application servers, and at the base site in this folder: *C:\Program Files (x86)\FuelsManager\FuelsManager\FMWebApp\sounds*.
- When creating transaction aliases, do not use special characters (ex: &,#, etc.). The Ledger report does not support transaction alias IDs with special characters.
- The application *RS.exe* is used by the FuelsManager report installer. When Microsoft Shared Tools are available on the C: drive, the *RS.exe* application is detected and used automatically during report installation. When SQL Server Reporting Services is installed on the C: drive, this is the typical path of *RS.exe*: "*C:\Program Files\Microsoft SQL Server Reporting Services\Shared Tools*"
- When *SQL Server Reporting Services* has been installed on another drive (such as the E: drive), the *RS.exe* file is not detected automatically by the report installer. The typical path of *RS.exe* is "*E:\Program Files\Microsoft SQL Server Reporting Services\Shared Tools*" on these systems.
- Within IM, avoid using names that match for Point Template ID, Module ID, Tag ID and Setting ID, even if different spaces are included. The software generally detects these issues but there may be cases where it does not. This situation will cause unexpected failures in point execution.
- A new tag, *Density Product Gauge*, was added to the Volume Correction module. If importing or using templates from a version prior to FM 12, you'll need to update the *Volume Correction* and *Standard Tank Calculator* modules on any template where they reside. Follow these steps:
  - 1) Edit the **template**.
  - 2) Navigate to the **Modules** tab.
  - 3) Select **Volume Correction** and click **Remove Module**.
  - 4) Click **OK**.
  - 5) Click **Add Module**.
  - 6) Select **Volume Correction**, and then click **OK**.**NOTE:** Repeat the above steps for the *Standard Tank Calculator* module.
- To update the synchronization Node name for an existing Site, use the *Configuration\Synchronization Settings* page to revise the **Sitename**. Revise it once and **Apply**. Revise it back to the desired **Sitename** and **apply** again. You'll see the updated node name under *Configuration Settings, InstallDetailsSynchronizationNodeName*.  
**NOTE:** Do not modify the synchronization node name directly within Configuration Settings because the *SynchronizationNodeGuid* will not be updated and will cause an error.
- Installation cannot proceed without knowledge of the location of the *RS.exe* file. To resolve this issue an Administrator must set the PATH environment variable:
  - a) Select **Control Panel > System > Advanced system settings > Environment Variables**.
  - b) In *System variables*, select the **Path**.
  - c) Click **Edit > New** and add the **path** to the location of *RS.exe* (for example *E:\Program Files\Microsoft SQL Server Reporting Services\Shared Tools*).
  - d) Click **OK**. You may proceed with the report install after this prerequisite has been met.
- Equipment Types must be created and owned at the SiteAdmin level. FLC requires configuration by Equipment Type.
- Alarms & Events log record limit can be manually configured in the web.config file in the FuelsManager folder (*C:\Program Files (x86)\FuelsManager\FuelsManager*). The limit is 10000 events.
- Field Level Control - Global Control Propagation is directed by rows in *erv.tblTempCompanyRecordVersioningFlag*. At the Enterprise, the FuelsManager Service drives the process.  
The following app settings in *FuelsManagerService.exe.config* control the process. These look to be set correctly in the testing environment.

```
<add key="RecordVersionPropagationEnabled" value="true" />
<add key="RecordVersionPropagationIntervalSeconds" value="30" />
```

The rows are processed by *\_RowIndex*. Sync will control the order in which they are inserted at the Enterprise and hence the order they are processed.
- If rerunning initial sync, set *Configuration Settings InstallDetailsSynchronizationNodeName* back to previous so there is only one node to review data under.
- When configuring Companies, ensure the optional fields are populated for **Name** and **Code**.

# Appendix A: Prerequisite Roles and Features

## Internet Information Services (IIS) 10.0 Setup Requirements

When performing this procedure, if you are prompted to "Add features that are required," click **Add Features**.

- 1) Select **Start** → **Server Manager**.
- 2) Select **Manage** in upper right hand corner, and select **Add Roles and Features**.
- 3) In the *Before you begin* window, click **Next**.
- 4) Select **Role-Based** or **feature-based** installation.
- 5) Click **Next**.
- 6) Ensure **Select a server from the server pool** is selected and your server name appears in the box below.
- 7) Click **Next**.
- 8) In the *Select server roles* window, under *Roles*, verify that only the following roles are selected:
  - File and Storage Services
    - Storage Services
  - Web Server (IIS)
    - Common HTTP Features
      - Default Document
      - Directory Browsing
      - HTTP Errors
      - Static Content
    - Health and Diagnostics
      - HTTP Logging
    - Performance
      - Static Content Compression
      - Dynamic Content Compression
    - Security
      - Request Filtering
      - URL Authorization
      - Windows Authentication
    - Application Development
      - .NET Extensibility 4.7 (4.6 for Windows 2016)
      - ASP.NET 4.7 (4.6 for Windows 2016)
      - .NET Extensibility 4.8 (4.8 for Windows 2022)
      - ASP.NET 4.8 (4.8 for Windows 2022)
      - ISAPI Extensions
      - ISAPI Filters
      - WebSocket Protocol
    - Management Tools
      - IIS Management Console
- 9) If prompted, select the following in the *Select features* window, under *Features*, and verify that only the following are selected:
  - .NET Framework 4.6 Features (Server 2016)
    - .NET Framework 4.6
    - ASP.NET 4.6
    - WCF Services
      - HTTP Activation
      - Named Pipe Activation
      - TCP Activation
      - TCP Port Sharing
  - .NET Framework 4.7 Features (Server 2019)
    - .NET Framework 4.7
    - ASP.NET 4.7
    - WCF Services
      - HTTP Activation
      - Named Pipe Activation
      - TCP Activation
      - TCP Port Sharing
  - .NET Framework 4.8 Features (Server 2022)
    - .NET Framework 4.8
    - ASP.NET 4.8
    - WCF Services
      - HTTP Activation
      - Named Pipe Activation
      - TCP Activation
      - TCP Port Sharing
  - Remote Server Administration Tools
    - Role Administration Tools
      - Remote Access Management Tools
        - Remote Access module for Windows PowerShell
  - Windows PowerShell
    - Windows PowerShell 5.1
    - Windows PowerShell ISE
  - Windows Process Activation Service
    - Process Model
    - Configuration APIs
  - WoW64 Support
- 10) Click **Next** and review selected features for accuracy.
- 11) Check the box at the top of the window for **Restart the destination server automatically if required**.
- 12) Click **Yes** in the pop-up window.
- 13) In the *Confirm installation selections* window, verify all components are selected and then click **Install**.

The installation progress bar displays and you will receive messages indicating the installation progress. Once the installation is complete, *Installation succeeded* appears below the progress bar.
- 14) Click **Close** to exit the *Add Roles and Features Wizard*.
- 15) **Close** the *Server Manager* window.

Restart the machine if it does not restart automatically.