

# Installation Guide for JBoss/WildFly Windows

Appeon® PowerServer® 2020 Windows  
FOR WINDOWS

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# 1 Introduction

## 1.1 Overview

Appeon PowerServer is the first and revolutionary solution that leverages the PowerBuilder IDE for building an application and deploying it as a Windows client/server app, a Windows browser-based Web app, and an iOS/Android native mobile app. PowerBuilder is a very mature and productive 4GL development environment, running on the Windows platform, and offering distinguished features such as MDI windows, DataWindows, menus, and toolbars. All of these powerful features will be available in the deployed application.

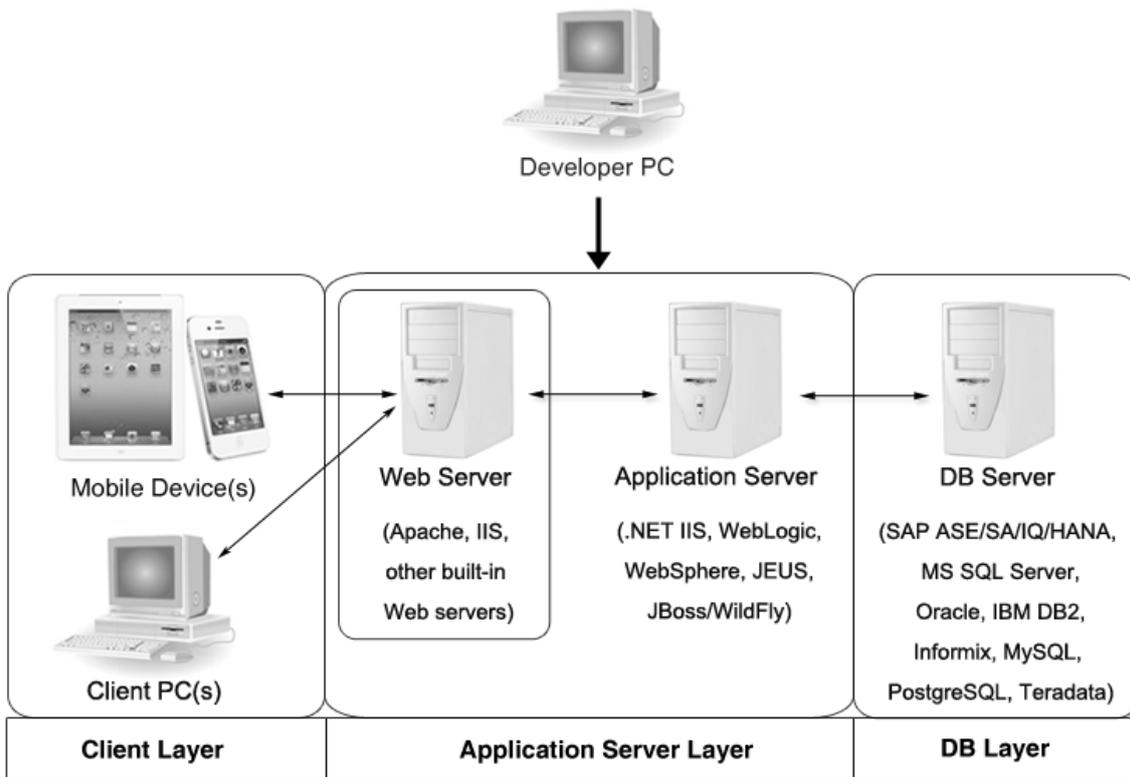
From the native source code of PowerBuilder applications, Appeon PowerServer can generate n-tier applications that can run on the Web or mobile environment. The application that run on the Web environment can automatically and precisely replicate the Client/Server user interface with HTML running in standard Windows Web browsers, while the application that run on the mobile environment can automatically take the typical mobile user interface for the iOS and Android OS. The application business logic including DataWindows, Embedded SQL and dynamic SQLs is deployed to a Java-based or .NET-based back-end. These applications offer the rich user experience of the original PowerBuilder applications and deliver the superior Quality Of Service (QOS) of the n-tier architecture and J2EE platform, as well as greater availability, scalability, security and reliability.

Appeon PowerServer allows the entire application conversion process to be executed within the PowerBuilder IDE. It does not require the developer to write a single line of code. Only standard PowerBuilder programming skills are required.

## 1.2 System architecture

Appeon PowerServer works with standard n-tier architecture. Each tier serves a specific purpose in the architecture, though it may not necessarily reside in the same physical machine. For example, the Web server, application server and database server can reside in one machine or in different machines. A single tier may also be spread across multiple physical machines. For example, the application server can consist of a cluster of PowerServer computers to provide load balancing and failover.

**Figure 1.1: System architecture**



PowerServer applications deploy to the standard n-tier architecture - the client tier, middle tier (application server), and data tier (database) are logically separated. Each tier should have appropriate PowerServer components and/or third-party software installed according to its role within the architecture. The following table briefly lists the tiers, roles, their purposes and the required Apeon/third-party software.

**Table 1.1: Tiers in the Apeon architecture**

Tier	Role	Purpose	PowerServ Componer	Third-party Software
Client tier	Mobile Device	Runs the PowerServer native mobile applications.	Apeon Workspace (Optional)	None
	Client PC	Runs the PowerServer Web applications in Web browsers.	Apeon Xcelerator plug-in	Microsoft Internet Explorer, Microsoft Edge, Mozilla Firefox, Google Chrome, or Opera
Developer PC	Developer PC	Deploys your PowerBuilder application to the server.	PowerServer Toolkit	PowerBuilder
Middle tier	Web Server	Responds incoming requests from the client tier, and dispatches requests to the application server.	PowerServer Web Component	JBoss/WildFly Web server or any JBoss-compatible Web server

Tier	Role	Purpose	PowerServer Component	Third-party Software
		Hosts the presentation layer of the deployed Web applications.		
	Application Server	Hosts the DataWindows of the PowerServer deployed applications, and provides the necessary run-time services to the deployed applications, such as DataWindow retrieval and update, Embedded SQLs, dynamic SQLs, security authentication etc. PowerServer application middle-tier can invoke Java components, external DLL functions, and C++ components. Furthermore, it supports Web Services for the most flexibility integrating with J2EE and .NET.	PowerServer	WildFly or JBoss EAP
Data tier	Database Server	Hosts the application database.	None	JDBC-compliant RDBMS supported by PowerServer. Please see <a href="#">Database server requirements</a> for more information.

- Client Tier

**Mobile device:** The mobile application client layer is implemented using universal C++ libraries and JavaScript libraries. The C++ libraries render the mobile-style UI and provide interface for calling the device native features, information and hardware (camera, GPS, etc.), and support accessing the client/offline database and running the offline application. The JavaScript libraries support the PowerScript or UI logic coded in the Window object, user object (including NVOs), menu object and any other visual objects. These client libraries are automatically included in Apeon Workspace or the packaged mobile app.

**Client PC:** The Web application client layer consists of two plug-ins and some C++/JavaScript libraries which are originally built into PowerServer Web Component and then automatically downloaded to the client when the application is run for the first time. The two plug-ins manage the download and caching of the Web application and also act as the bridge to interact between the C++/JS libraries and the Web page. The C++/JS libraries render the PowerBuilder-style Web graphical user interface in the Web browsers.

- Middle Tier

The middle tier, which hosts the business logic, is implemented with J2EE or .NET components. These components execute the DataWindows, Embedded SQLs, and dynamic SQLs of the deployed application. The middle tier deploys to the Java or .NET compliant

PowerServer, leveraging dozens of many-years of investments in DataWindows and other business logic.

- Data Tier

The database stores the raw data for the application and stored procedures, if any. The existing database from the PowerBuilder application can be simply re-used without modification so long as it is a PowerServer-certified database.

### 1.3 Editions and components

Apeon PowerServer 2020 provides the following editions for the Windows platform.

**Table 1.2: Apeon editions**

Product	Edition	Component	Description
-	-	<ul style="list-style-type: none"> <li>• PowerServer Toolkit</li> </ul>	<p>1) PowerServer Toolkit can only be installed from the <a href="#">PowerBuilder CloudPro Edition</a> setup program.</p> <p>2) PowerServer Toolkit supports deploying the mobile apps and the Web apps to the .NET-based or J2EE-based PowerServer back-ends.</p> <p>3) PowerServer Toolkit is free and need not to be activated.</p>
PowerServer (PB Edition)	Developer Edition	<ul style="list-style-type: none"> <li>• PowerServer (PB Edition)</li> <li>• Apeon Workspace</li> <li>• PowerServer (PB Edition) Help</li> </ul>	<p>1) The (PB Edition) Developer license supports both Web and mobile app deployments.</p> <p>2) The (PB Edition) Developer license runs on the .NET IIS server only, but not on the J2EE server.</p> <p>2) Although the Developer license is free, product activation is required within 30 days. The maximum number of online users is 5.</p>
	Standalone Production Edition	<ul style="list-style-type: none"> <li>• PowerServer (PB Edition)</li> <li>• Apeon Workspace</li> <li>• PowerServer (PB Edition) Help</li> </ul>	<p>1) The (PB Edition) Standalone Production license supports the mobile app deployment only, but not the Web app deployment.</p> <p>2) The (PB Edition) Standalone Production license runs on the .NET IIS server only, but not on the J2EE server.</p>

Product	Edition	Component	Description
			3) Although the Standalone Production license is free, product activation is required within 30 days. The maximum number of online user is unlimited.
	Clustered Production Edition	<ul style="list-style-type: none"> <li>• PowerServer (PB Edition)</li> <li>• Apeon Workspace</li> <li>• PowerServer (PB Edition) Help</li> </ul>	<p>1) The (PB Edition) Clustered Production license supports the mobile app deployment only, but not the Web app deployment.</p> <p>2) The (PB Edition) Clustered Production license runs on the .NET IIS server only, but not on the J2EE server.</p> <p>3) The PowerServer clustering service is supported.</p> <p>4) Product activation is required within 30 days. The maximum number of online user is unlimited.</p>
Other PowerServer Editions	Developer Edition	<ul style="list-style-type: none"> <li>• PowerServer Mobile &amp; PowerServer Web</li> <li>• Apeon Workspace</li> <li>• PowerServer Help</li> </ul>	<p>1) The maximum number of online users is 5.</p> <p>2) Product activation is required within 30 days.</p>
	Workgroup Edition	<ul style="list-style-type: none"> <li>• PowerServer Mobile &amp; PowerServer Web</li> <li>• Apeon Workspace</li> <li>• PowerServer Help</li> </ul>	1) Product activation is required within 30 days.
	Enterprise Edition	<ul style="list-style-type: none"> <li>• PowerServer Mobile &amp; PowerServer Web</li> <li>• Apeon Workspace</li> <li>• PowerServer Help</li> </ul>	<p>1) The PowerServer clustering service is provided.</p> <p>2) Product activation is required within 30 days.</p>

### 1.3.1 PowerServer Toolkit

PowerServer Toolkit is a plug-in to the PowerBuilder IDE installed to the developer's PC. It provides a set of tools that enable the mobile and Web application generation, maintenance, and upgrades within the PowerBuilder IDE. These tools are accessed via a toolbar in the PowerBuilder IDE, which automatically loads each time PowerBuilder is started.

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**Note**

In 2017 and later versions, **PowerServer Toolkit** is only available in **PowerServer (PB edition)** which can be installed from the **PowerBuilder CloudPro Edition** installation package. **PowerServer Toolkit 2020** can deploy apps to PowerServer 2020, 2019, 2017 (including R2 & R3), or 2016 (in version 2016, PowerServer is called Apeon Server).

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### 1.3.2 PowerServer Mobile/Web

PowerServer Mobile/Web is a set of server components that is deployed to the application server. It provides the PowerServer applications with necessary run-time services such as data connectivity, DataWindow support, transaction management, and security.

PowerServer also includes AEM and PowerServer Web Component.

AEM is the management console for PowerServer Mobile/Web and the deployed applications. When you install PowerServer, AEM is automatically installed.

During the PowerServer Mobile/Web installation, the PowerServer Web Component is automatically installed to the JBoss/WildFly Web Server, therefore, if you are using one WildFly or JBoss EAP as both the Web server and the application server, you will NOT need to run the PowerServer Web Component installation.

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**Note**

**PowerServer (PB Edition)** is activated differently from the other editions. For detailed instructions on activating **PowerServer (PB Edition)**, please follow the [Activating PowerServer \(PB Edition\)](#) section in the Apeon License User Guide.

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### 1.3.3 PowerServer Web Component

PowerServer Web Component is installed with PowerServer Web/Mobile automatically as aforementioned.

PowerServer Web Component resides in the Web server. It consists of the Web server redirector plug-in (that dispatches the user requests to the PowerServer) and a set of runtime libraries for the Web application (that supports the PowerBuilder-style UI in the Web browser).

If you use a third-party Web server (such as Apache or IIS) and/or physically separate the Web server and the PowerServer, for example, for load balancing purpose, you will need to install PowerServer Web Component to the Web server and configure the Web server with the redirector plug-in. For detailed instructions on configuring the Web server, refer to Web Server Configuration Guide.

### 1.3.4 Apeon Workspace (for Mobile only)

Apeon Workspace is installed on the mobile device to help simplify the distribution and installation of the native mobile app. It consists of a set of mobile client libraries and a graphical user interface. The mobile client libraries generate the mobile-style UI, support the PowerScript and UI logic, provide interfaces for calling the mobile SDK, and support

accessing the client/offline database and running the offline mobile application. The graphical user interface allows end users to install and run the mobile application from PowerServer conveniently, so developers do not need to register their mobile applications in the online application store, and the end users do not need to install them from there.

Appeon Workspace is a free native mobile application which can only be distributed internally or privately. It is also included as an invisible component when you package and compile the PowerServer mobile application as the iOS application archive (IPA) file or Android application package (APK) file.

### **1.3.5 PowerServer Help**

PowerServer Help provides easy access to all user documents. It saves time and conveniently places the help information, such as, the Appeon supported features, at your fingertips.

PowerServer Help is a Microsoft compiled HTML help (.chm) which can be installed and viewed on the Windows OS only. To view the PowerServer documentation on all OS, you can visit the [online help](#) at the Appeon web site.

## 2 Installation Requirements

### 2.1 Client requirements

#### 2.1.1 Software requirements

##### Requirements for the mobile device:

- Apple iOS 11, 12, or 13  
iOS devices: iPad Mini/Air, iPad Pro, and iPhone.
- Google Android 6.x (32-bit), 7.x, 8.x, 9.x, or 10.x  
Android devices that have been certified by PowerServer include the recent and popular Samsung phones and tablets, Google Nexus, and Google Pixel.

##### Requirements for the Web client PC:

- Microsoft Internet Explorer 11, Microsoft Edge (27 thru 44), Mozilla Firefox (63 thru 72), Google Chrome (50 thru 78), or Opera (45 thru 65)
- Windows 7, Windows 8.1, or Windows 10
- (Optional) Adobe Acrobat Reader 6.0 or above (for viewing printed PDF DataWindows or reports)

#### 2.1.2 Hardware requirements

##### Requirements for the Web client PC:

- Intel processor(s) running at 1.8 GHz or faster
- At least 2 GB Free RAM

### 2.2 PowerServer requirements

#### 2.2.1 Software requirements

- Windows Operating System that is supported by WildFly and JBoss EAP
- WildFly 18 or JBoss EAP 7.2

Please make sure that WildFly or JBoss EAP is started by JDK 8.

Please also make sure that the following system environment variables includes the correct JDK directories (which may affect the auto-deployment of the built-in Apeon Workspace WAR file):

- `JAVA_HOME`: includes the JDK home directory, for example, `C:\Program Files\Java\jdk1.8.0_60`.

- CLASSPATH: includes the JDK lib directory and the tools.jar file, for example, %JAVA\_HOME%\lib;%JAVA\_HOME%\lib\tools.jar.
- Path: includes the JDK bin directory, for example, %JAVA\_HOME%\bin.

### 2.2.2 Hardware requirements

- Intel processor(s) running at 1.8 GHz or faster
- At least 2 GB Free RAM (4 GB Free RAM recommended)
- 900 MB hard drive space (for WildFly or JBoss EAP installation) plus 500 MB hard drive space (for PowerServer Mobile/Web installation)

### 2.2.3 (Optional) Third-party Web Server requirements

- Apache 1.3, 2.0, or 2.2, or Microsoft IIS 7.5, 8.0, or 10
- 50 MB hard drive space (for PowerServer Web Component installation)

To make the third-party Web server work with PowerServer, you must have the Web server redirector plug-in installed and configured. For detailed instructions, refer to Web Server Configuration Guide.

## 2.3 Database Server requirements

Apeon PowerServer 2020 can connect to any of the following database servers:

- SAP SQL Anywhere 16.0 or 17.0 with SAP iAnywhere or jConnect JDBC driver, or SAP SQL Anywhere WEB Edition with SAP jConnect or iAnywhere JDBC driver
- SAP Adaptive Server Enterprise (ASE) 12.5.x or 15.x with SAP jConnect or iAnywhere JDBC Driver
- SAP IQ 12.6.x, 12.7.x or 15 with jConnect JDBC driver
- IBM DB2 UDB 8.1, 8.2, 9.5 or 10 with IBM JDBC driver
- Informix 9.x, 10.x or 11.x with IBM JDBC driver
- Microsoft SQL Server 2012, 2014, 2016, 2017, or 2019 with MSFT JDBC driver or JTDS driver
- MySQL 5.5.x or 5.6.x with Connector/J driver
- Oracle 11g, 12c, 18c, or 19c with Oracle JDBC driver
- PostgreSQL 9.2 or 12.x with PostgreSQL JDBC driver

For instructions on downloading and installing the driver files, refer to Section 3.2.4, “JDBC driver preparation” in *PowerServer Configuration Guide for J2EE*.

## 2.4 Offline synchronization requirements

### 2.4.1 Client Database requirements

Appeon PowerServer 2020 supports the following client/offline databases:

- UltraLite 17

Note that SAP SQL Anywhere provides no 64-bit UltraLite database for Android OS. To work around this limitation, you can set up the 32-bit Appeon Workspace and the 32-bit UltraLite database on the 64-bit Android OS.

- SQLite 3.x

### 2.4.2 Synchronization Server requirements

Appeon PowerServer 2020 supports the following offline synchronization server:

- MobiLink Server 17 (included in SQL Anywhere 17 components)

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#### Note

MobiLink can synchronize an UltraLite database, but cannot synchronize a SQLite database. To synchronize a SQLite database, you would need to develop your own synchronization solution.

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### 2.4.3 Server Database requirements

MobiLink Server can connect to the consolidated databases that MobiLink supports.

For detailed information, refer to **MobiLink consolidated database** in SQL Anywhere online help.

## 3 Installing Apeon PowerServer 2020

### 3.1 Overview

PowerServer 2020 (on Windows) consists of the following major components: PowerServer Mobile & PowerServer Web, PowerServer Help, and Apeon Workspace.

**Table 3.1: PowerServer components**

Component	Description	Installed on
PowerServer Toolkit	<p>A plug-in to the PowerBuilder IDE installed to the developer's PC.</p> <hr/> <p><b>Note</b></p> <p>Starting from version 2017, <b>PowerServer Toolkit</b> is only available in <b>PowerServer (PB edition)</b> which can be installed from the <b>PowerBuilder CloudPro Edition</b> installation package.</p>	PowerBuilder on Windows operating system.
PowerServer Mobile & PowerServer Web	<p>A set of server components deployed to the application server providing runtime services for the application, such as data connectivity, DataWindows support, transaction management, and security.</p> <p>PowerServer also includes AEM and PowerServer Web Component.</p>	WildFly or JBoss EAP on Windows operating system.
PowerServer Help	The compiled HTML help of all Apeon user documents which saves time and conveniently places the help information at your fingertips.	Windows operating system.
Apeon Workspace (for Mobile only)	A native mobile application installed on the mobile device to simplify distributing, downloading, and running the PowerServer mobile applications.	Mobile Device.

### 3.2 Installation scenarios

#### 3.2.1 Overview

Apeon PowerServer works with n-tier architecture: different PowerServer components should be installed to the computer(s) according to their roles in the network. In this section, some practical scenarios are described to demonstrate how Apeon PowerServer should be installed according to network architecture.

### 3.2.2 Developer PC

**Table 3.2: Developer PC installation**

Scenarios	Requirements	PowerServer Components
One physical machine, Computer 1, serves as developer PC, Web server, application server and database server	Computer 1: Microsoft Windows Server 2019, 2016, or 2012 R2 Microsoft Internet Explorer, Microsoft Edge, Mozilla Firefox, Google Chrome, or Opera PowerBuilder WildFly or JBoss EAP SAP SQL Anywhere (Optional) SAP ASE, SAP IQ, Oracle, Microsoft SQL Server, Informix, IBM DB2, MySQL, or PostgreSQL depending on application database	Computer 1: PowerServer Toolkit PowerServer

### 3.2.3 Remote PowerServer using JBoss/WildFly Web Server

**Table 3.3: Remote PowerServer and Web server installation**

Scenarios	Requirements	PowerServer Components
In this example, 2 computers are used:  Computer 1 serves as developer PC.	Computer 1: Microsoft Windows 10, 8.1, or 7 Microsoft Internet Explorer, Microsoft Edge, Mozilla Firefox, Google Chrome, or Opera PowerBuilder SAP SQL Anywhere	Computer 1: PowerServer Toolkit
Computer 2 serves as Web server, application server and database server.	Computer 2: Microsoft Windows Server 2019, 2016, or 2012 R2 WildFly or JBoss EAP SAP SQL Anywhere, SAP ASE, SAP IQ, Oracle, Microsoft SQL Server, Informix, IBM DB2, MySQL, or PostgreSQL depending on application database	Computer 2: PowerServer

### 3.2.4 Remote PowerServer using a third-party Web server

**Table 3.4: Remote PowerServer and Web server installation**

Scenarios	Requirements	PowerServer Components
In this example, 2 computers are used:	Computer 1: Microsoft Windows 10, 8.1, or 7	Computer 1:

Scenarios	Requirements	PowerServer Components
Computer 1 serves as developer PC.	Microsoft Internet Explorer, Microsoft Edge, Mozilla Firefox, Google Chrome, or Opera PowerBuilder SAP SQL Anywhere	PowerServer Toolkit
Computer 2 serves as Web server	Computer 2: Microsoft IIS or Apache	Computer 2: PowerServer Web Component
Computer 2 serves as Web server, application server and database server.	Computer 2: Microsoft Windows Server 2019, 2016, or 2012 R2 WildFly or JBoss EAP SAP SQL Anywhere, SAP ASE, SAP IQ, Oracle, Microsoft SQL Server, Informix, IBM DB2, MySQL, or PostgreSQL depending on application database	Computer 2: PowerServer

### 3.2.5 PowerServer Cluster

Table 3.5: PowerServer cluster installation

Scenarios	Requirements	PowerServer Components
In this example, N (N>=4) computers are used: Computer 1 is used for developer PC.	Computer 1: Microsoft Windows 10, 8.1, or 7 Microsoft Internet Explorer, Microsoft Edge, Mozilla Firefox, Google Chrome, or Opera PowerBuilder SAP SQL Anywhere	Computer 1: PowerServer Toolkit
Computer 2 is the database server.	Computer 2: SAP SQL Anywhere, SAP ASE, SAP IQ, Oracle, Microsoft SQL Server, Informix, IBM DB2, MySQL, or PostgreSQL depending on application database	Computer 2: None
Computer 3 is the Web server.	Computer 3: Microsoft IIS or Apache	Computer 3: PowerServer Web Component
Computers 4 to n are a group of JBoss/WildFly servers.	Computers 4 to n: Microsoft Windows Server 2019, 2016, or 2012 R2 WildFly or JBoss EAP	Computers 4 to n: PowerServer (After installing PowerServer to each JBoss/

Scenarios	Requirements	PowerServer Components
		WildFly server, configure the PowerServer as a cluster. Refer to <a href="#">Configuring PowerServer Cluster</a> for details)

### 3.3 Two installation methods

Apeon PowerServer 2020 provides two installation methods: **new installation** and **upgrade installation**.

- If your computer has not installed any version of Apeon PowerServer, the setup program automatically takes the new installation method.
- If your computer has 2015 or an earlier version installed, you must uninstall the version, prepare the environment for Apeon PowerServer 2020 installation, and then use the setup program to install. The setup program takes the new installation method.
- If your computer has 2016 or a later version installed, the setup program automatically takes the upgrade installation method.

### 3.4 PowerServer new installation

#### 3.4.1 Starting the installation

Step 1: Double click the **Setup.exe** file in the installation package. The **Apeon PowerServer 2020 Setup** program starts. The entry page has several options to guide you through the various installation tasks.

- **View Server Settings:** Click this button to ensure that the application server settings are appropriate for the PowerServer Mobile/Web installation.
- **View Readme:** Click this button to read the key system requirements and installation information for the product.
- **View Product Manuals:** Click this button to read the user manuals for the product.
- **View Training Video:** Click this button to watch the video to learn how to install the product.
- **Visit Our Web Site:** Click this button to visit the Apeon web site.
- **Install:** Click this button to start installing the product.
- **Exit:** Click this button to exit the setup program.

Note: Make sure there is enough space on the C: drive for storing temporary files for installation. Otherwise an error message will pop up, saying "1607: Unable to install InstallShield Scripting Runtime".

Step 2: Click **Install**.

Step 3: Click **Next** on the introduction screen.

Step 4: Accept the terms in the license agreement page and click **Next**.

Step 5: According to the license you purchase, select the product edition and the product type: **PowerServer Web**, **PowerServer Mobile**, or **PowerServer Web & Mobile**, and then enter the product key which is shipped with the Apeon product. Click **Next**.

If you select the **Developer** edition (or the Trial edition), **PowerServer Web & Mobile** will be automatically selected so you can experience both the Web and Mobile deployments at no additional charge.

Step 6: Select the component(s) you want to install and click **Next**. The Setup program will install the selected component(s) in the order listed.

For the WildFly or JBoss EAP application server, be sure to select **PowerServer for JBoss**, as shown in the following figure.

For Developer Edition and Trial Edition, if more than one application servers such as JBoss, WebSphere, etc. are installed on the same computer, you can repeatedly run the setup program to install PowerServer to these application servers, for example, you can first run the setup program and select **PowerServer for JBoss** to install PowerServer to the WildFly application server, you can then run the setup program again and select **PowerServer for WebSphere** to install PowerServer to the WebSphere application server.

Refer to the following sections to complete the installation of each component.

- For PowerServer Mobile/Web installation instructions, refer to [PowerServer Mobile/Web installation](#).
- For PowerServer Help installation instructions, refer to [PowerServer Help installation](#).
- For PowerServer Web Component installation instructions, refer to [PowerServer Web Component installation](#).

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#### Note

If you are using one WildFly or JBoss EAP application server as both the PowerServer and the Web server, then you will not need to install PowerServer Web Component, because it is included in PowerServer and will be installed automatically during PowerServer installation.

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### 3.4.2 PowerServer Mobile/Web installation

Follow the instructions below to install PowerServer Mobile/Web to the JBoss/WildFly application server.

Step 1: Verify that JBoss/WildFly server, as well as any other programs you may be running, is stopped.

Step 2: Launch the **Apeon PowerServer 2020 Setup** program and select to install **PowerServer for JBoss** (see [Starting the installation](#)). Wait until PowerServer completes the preparation.

Step 3: Click **Browse** to specify the home directory of WildFly or JBoss EAP where PowerServer will be installed, for example, D:\wildfly-18.0.0.Final. Click **Next**.

Step 4: Choose one or more JBoss/WildFly instances from the list. The PowerServer EAR package (apeonserver.ear) will be installed to the specified JBoss/WildFly server instance(s).

Step 5: Specify the user name and password for AEM.

Step 6: Check the summary of settings. Click **Back** to change any unwanted settings or click **Next** to have Setup begin copying files.

Step 7: Wait until PowerServer installation is completed.

PowerServer Mobile/Web has been successfully installed to the specified JBoss/WildFly application server home directory and the PowerServer EAR package (apeonserver.ear) has been successfully installed to the selected JBoss/WildFly server instance(s).

Step 8: Choose whether to start a PowerServer instance. It is selected by default. To manually start PowerServer from the Windows shortcut later, uncheck the box, then click **Finish** to end the installation of PowerServer.

For details about starting PowerServer, refer to [Starting/Stopping PowerServer](#).

### 3.4.3 PowerServer Web Component installation (for third-party Web servers only)

---

#### Note

If you use a third-party Web server (such as Apache or IIS) or set up an individual machine (separate from the application server) as the Web server, you will need to install the PowerServer Web Component. If not, you do not need to run the installation of the PowerServer Web Component separately since it is included in PowerServer.

---

#### 3.4.3.1 Prerequisites

- Install a third-party Web server that is compatible with the JBoss/WildFly redirector plugin. For a list of compatible third-party Web servers, refer to [\(Optional\) Third-party Web server requirements](#).
- Stop the Web server and any other Windows programs before beginning the installation process.

---

#### If Web Component is installed to multiple Web servers

PowerServer Web Component can be installed to multiple Web servers. Make sure all Web servers meet the above requirements and repeat the installation steps for the PowerServer Web Component on each Web server.

---

### 3.4.3.2 Installation instructions

Step 1: Launch the **Appeon PowerServer 2020 Setup** program and select to install **PowerServer Web Component** (see [Starting the installation](#)).

Step 2: Click **Browse** to select the Web root (or document root) for the Web server. Below lists the default Web root (or document root) of the Web server:

Apache 2.0: C:\Program Files\Apache Group\Apache2\htdocs

IIS: C:\inetpub\wwwroot

If PowerServer Web Component is installed to the default path: "C:\Program Files\Appeon\WebComponent2020", instead of the Web root (or document root) of the Web server, you would need to manually copy it to the Web root (or document root) later in order to run the PowerServer application.

Step 3: Check the summary of settings. Click **Back** to change any unwanted settings or click **Next** and Setup will begin copying files.

Step 4: Click **Finish** when the installation is complete.

### 3.4.3.3 Configuring the Appeon redirector plug-in

To ensure the third-party Web server works with PowerServer, install and configure the Appeon redirector plug-in for the Web server. Instructions for installing and configuring the redirector plug-in are provided in Web Server Configuration Guide.

## 3.4.4 PowerServer Help installation

Step 1: Launch the **Appeon PowerServer 2020 Setup** program and select to install **PowerServer Help** (see [Starting the installation](#)).

Step 2: Click **Next** to install PowerServer Help to the default location, or click **Browse** to select another location.

Step 3: Check the summary of settings. Click **Back** to change any unwanted settings or click **Next** and Setup will begin copying files.

Step 4: Wait until the installation is complete.

Step 5: Click **Finish** to exit.

## 3.5 PowerServer upgrade installation

### 3.5.1 Before you upgrade

If you have installed Appeon 2016 or a later version, you can upgrade to Appeon PowerServer 2020, but you cannot upgrade from Appeon 2015 or an earlier version. If you are using Appeon 2015 or an earlier version, uninstall it and then install Appeon PowerServer 2020.

Note that applications deployed with the old version and the demo applications must be redeployed with Appeon PowerServer 2020 after the upgrade.

Before upgrading to Appeon PowerServer 2020, upgrade the system environment as required in [Installation requirements](#).

In addition to the system environment requirements, you should meet the installation prerequisites listed in [PowerServer new installation](#) before upgrading each component.

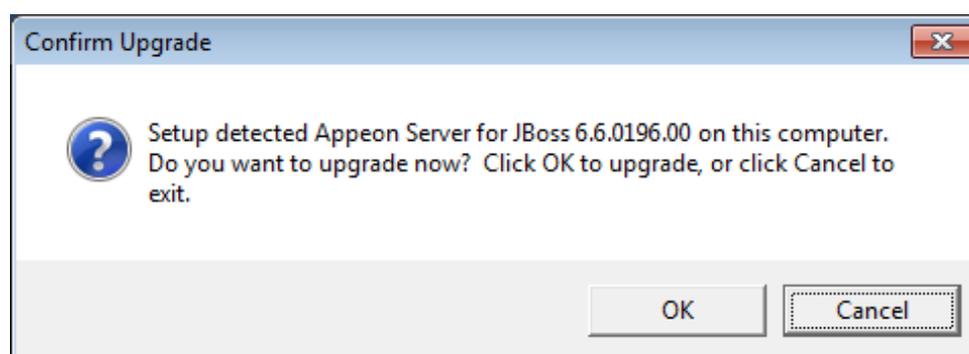
## 3.5.2 Upgrading to PowerServer 2020

### 3.5.2.1 Upgrading PowerServer

Step 1: Launch the **Appeon PowerServer 2020 Setup** program and select to install **PowerServer for JBoss** (see [Starting the installation](#)).

Step 2: Click the **OK** button in the **Confirm Upgrade** message box.

**Figure 3.1: Confirm upgrade**



When the **OK** button is clicked, a message box opens indicating that the upgrade is preparing files.

The upgrade process uninstalls the old version of PowerServer, backs up configurations and begins the installation of **PowerServer** based on the backup information. This will take several minutes.

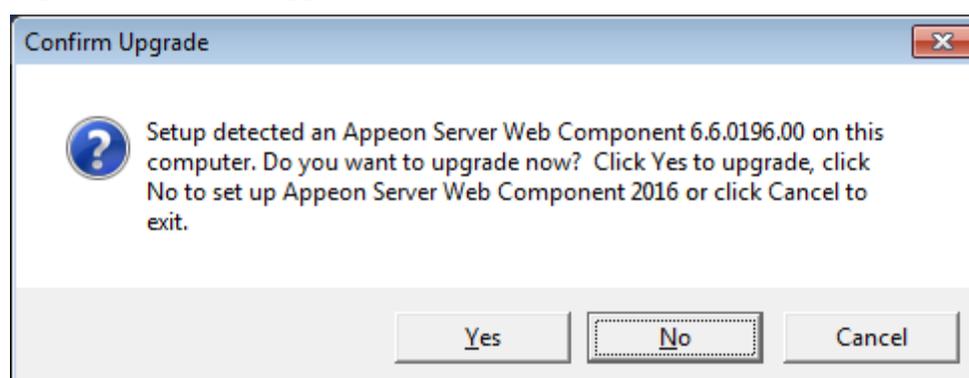
Step 3: Click the **Finish** button when the upgrade is complete.

### 3.5.2.2 Upgrading PowerServer Web Component

Step 1: Launch the **Appeon PowerServer 2020 Setup** program and select to install **PowerServer Web Component** (see [Starting the installation](#)).

Step 2: Click the **Yes** button in the **Confirm Upgrade** message box.

**Figure 3.2: Confirm upgrade**



Once you click the **Yes** button, a message box opens indicating that Setup is preparing files. The upgrade process uninstalls the old version of PowerServer Web Component then begins the installation of **PowerServer Web Component**. This will take several minutes.

Step 3: Click the **Finish** button when the upgrade is complete.

### 3.5.3 Upgrade configuration settings manually

After the product upgrade, most configurations made in the old version are retained and will continue to work in Apeon PowerServer 2020. However, because the configuration settings of Apeon PowerServer 2020 have been adjusted, it is recommended that you review the configuration settings in PowerServer Toolkit and AEM to become familiar with the new settings and make sure the old ones are not lost or mis-configured.

After verifying all settings, applications deployed with the old version and Apeon Demos must be redeployed in Apeon PowerServer 2020.

Note: If the application uses the Apeon Workarounds PBL, you must use the new Apeon Workarounds PBL to replace those of the old version.

## 3.6 Starting/Stopping PowerServer

### 3.6.1 Starting PowerServer

Once PowerServer has been installed and integrated into WildFly or JBoss EAP, starting WildFly or JBoss EAP will automatically start PowerServer. To start JBoss/PowerServer:

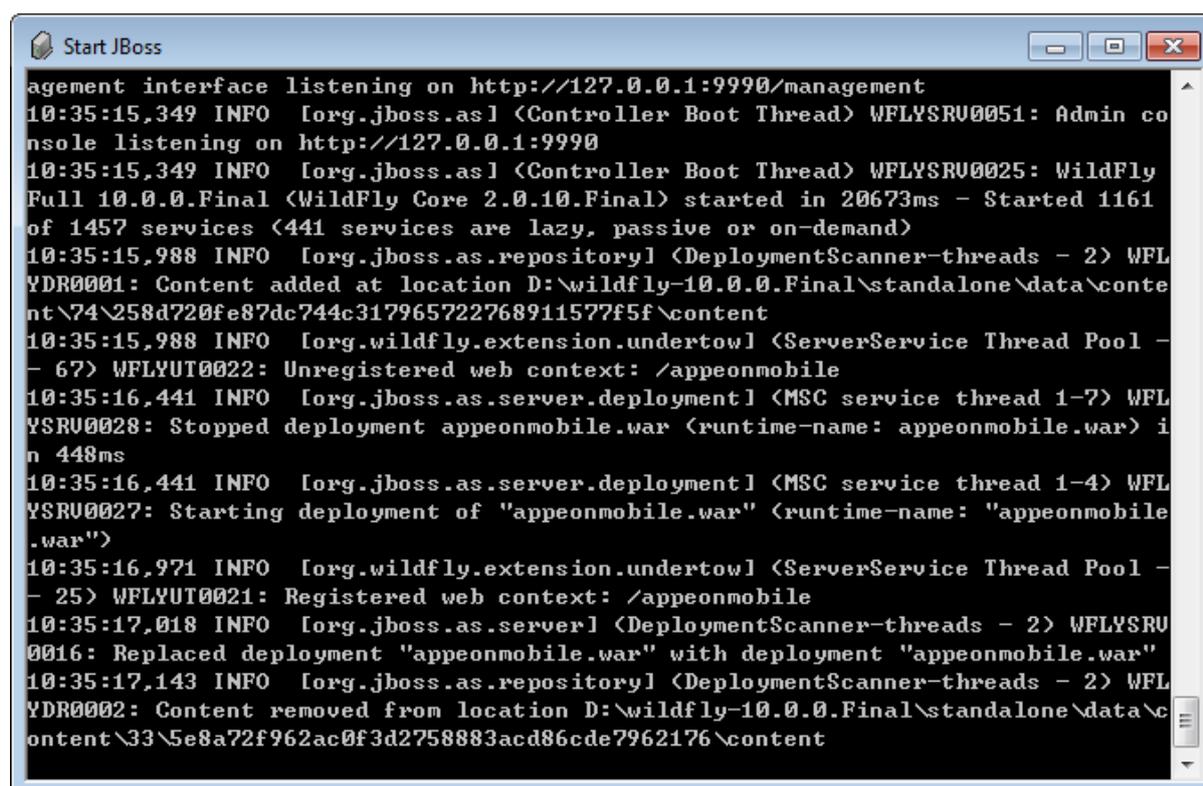
Open the Windows **Start** menu and select **Programs | Apeon PowerServer 2020 | PowerServer for JBoss | Instances | InstanceName | Start JBoss**.

For Windows 7/2008/8/8.1 with UAC turned on, if you are running on a non-Administrator Windows account (such as an Administrators group member or a User group member), please right click the **Start JBoss** shortcut menu and then select **Run as administrator** to start JBoss/PowerServer.

When the server startup process is completed, the following message will appear in the command window.

If the error "Cannot run program "jar": CreateProcess error=2, The system cannot find the file specified" appears in the command window, please check that the following system environment variables includes the correct values and then restart the server:

- The *JAVA\_HOME* system environment variable includes the JDK home directory, for example, C:\Program Files\Java\jdk1.8.0\_60.
- The *CLASSPATH* system environment variable includes the JDK lib directory and the tools.jar file, for example, %JAVA\_HOME%\lib;%JAVA\_HOME%\lib\tools.jar.
- The *Path* system environment variable includes the JDK bin directory, for example, %JAVA\_HOME%\bin.

**Figure 3.3: Start JBoss**

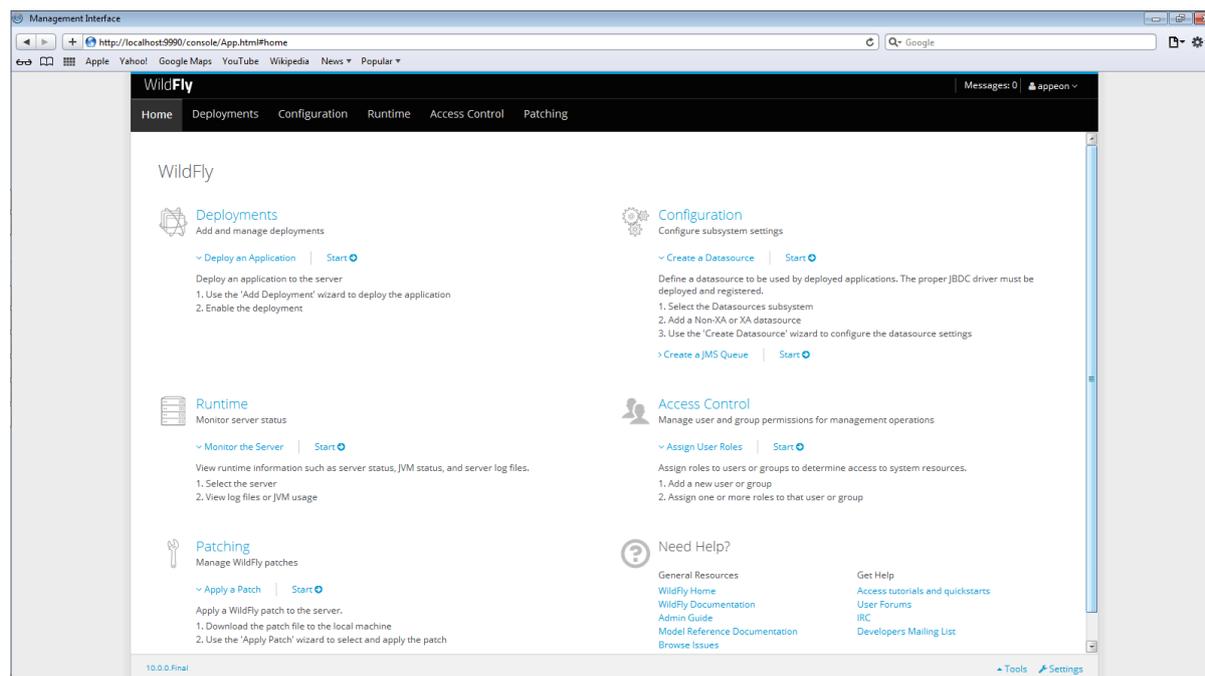
```
agement interface listening on http://127.0.0.1:9990/management
10:35:15,349 INFO [org.jboss.as] (Controller Boot Thread) WFLYSRU0051: Admin console listening on http://127.0.0.1:9990
10:35:15,349 INFO [org.jboss.as] (Controller Boot Thread) WFLYSRU0025: WildFly Full 10.0.0.Final <WildFly Core 2.0.10.Final> started in 20673ms - Started 1161 of 1457 services (441 services are lazy, passive or on-demand)
10:35:15,988 INFO [org.jboss.as.repository] (DeploymentScanner-threads - 2) WFLYDR0001: Content added at location D:\wildfly-10.0.0.Final\standalone\data\content\74\258d720fe87dc744c317965722768911577f5f\content
10:35:15,988 INFO [org.wildfly.extension.undertow] (ServerService Thread Pool - 67) WFLYUT0022: Unregistered web context: /apeonmobile
10:35:16,441 INFO [org.jboss.as.server.deployment] (MSC service thread 1-7) WFLYSRU0028: Stopped deployment apeonmobile.war (runtime-name: apeonmobile.war) in 448ms
10:35:16,441 INFO [org.jboss.as.server.deployment] (MSC service thread 1-4) WFLYSRU0027: Starting deployment of "apeonmobile.war" (runtime-name: "apeonmobile.war")
10:35:16,971 INFO [org.wildfly.extension.undertow] (ServerService Thread Pool - 25) WFLYUT0021: Registered web context: /apeonmobile
10:35:17,018 INFO [org.jboss.as.server] (DeploymentScanner-threads - 2) WFLYSRU0016: Replaced deployment "apeonmobile.war" with deployment "apeonmobile.war"
10:35:17,143 INFO [org.jboss.as.repository] (DeploymentScanner-threads - 2) WFLYDR0002: Content removed from location D:\wildfly-10.0.0.Final\standalone\data\content\33\5e8a72f962ac0f3d2758883acd86cde7962176\content
```

### 3.6.2 Logging in to WildFly or JBoss EAP Management Interface

Step 1: From the computer on which WildFly or JBoss EAP is running, open the Windows **Start** menu and select: **Programs | Apeon PowerServer 2020 | PowerServer for JBoss | Instances | InstanceName | JBoss Manager**.

Step 2: Input the user name and password to log in to the management interface.

Below is the main page of the WildFly Management Interface after login.

**Figure 3.4: WildFly Management Interface main page**

### 3.6.3 Stopping PowerServer

Stopping WildFly or JBoss EAP will shut down PowerServer.

If you have any problems in using WildFly or JBoss EAP, refer to the JBoss documents at <https://docs.jboss.org/author/dashboard.action>.

## 3.7 Troubleshoot Appeon installation problems

Chapter 1, *Troubleshooting Appeon Install in PowerServer Troubleshooting Guide* provides solutions to some common problems with installing Appeon PowerServer. If you could not find a solution for your problem, it could be because it is a new problem or an intricate problem that happens only under specific circumstance or environment. In both cases, it is highly recommended that you follow steps below to generate and send the log file to us for investigation.

Step 1: Go to the **Appeon** folder in the installation package, open the **Product.ini** file in the text editor, find the **RecordDllLog** parameter in this file and set the value to **1** (this will enable the logging functionality), by default the value is 0 (which disables logging).

For example:

```
[DllLog]
RecordDllLog=1
```

Step 2: Run the installation package and reproduce the installation error.

Step 3: Go to ...\\System32\\AppeonInstallLog (or ...\\SystemWOW64\\AppeonInstallLog) in 64-bit machine) and find the log files there.

Each PowerServer component will have a separate log file, for example, AppeonADT[xxxx].txt for PowerServer Toolkit, AppeonDNS[xxxx].txt for PowerServer.

## 4 Configuring PowerServer Cluster

Appeon PowerServer provides its own tools and plug-ins to configure a PowerServer cluster and implement the load balancing and failover functionalities. A PowerServer cluster is essentially a group of JBoss/WildFly application servers, each with PowerServer server and Appeon plug-in installed.

Following are high level steps for configuring a PowerServer cluster. For detailed instructions, please refer to Chapter 5, *Tutorial 5: Configure PowerServer Cluster* in *PowerServer Mobile Tutorials*. The instructions are exactly the same for PowerServer Web and PowerServer Mobile.

1. Install **PowerServer** to multiple WildFly or JBoss EAP application servers.
2. Create **PowerServer cluster** in AEM.
3. Configure the **Web server** for the PowerServer cluster.
4. Install a PowerServer application to the PowerServer cluster and Web server(s).

## 5 Post-Installation Configuration Tasks

### 5.1 Overview

The previous chapters provide instructions on how to set up PowerServer system architecture, including installing Apeon PowerServer components, as well as configuring PowerServer cluster. Once the PowerServer system is set up and before you start deploying applications, the post-installation configuration tasks listed in the following table will help ensure that the deployed applications run as desired. Post-installation configuration tasks refer to configurations required for Apeon system architecture that affect the running of all applications but do not include configuration tasks performed in PowerServer Toolkit and AEM for specific applications.

**Table 5.1: Post-installation tasks**

Task	Description	Detailed Instructions Given in...
Configuration for the Web client PC	The IE security settings and Windows login user privileges may prevent downloading the Apeon Xcelerator plug-in for the Web application.	<a href="#">Configuration for client machine</a>
System language setting	Configuration required for the Web client PC, PowerServer and database server.  The operating system language settings can affect the characters that are displayed in the Web application.	<a href="#">System language settings</a>
Database JDBC driver preparation	Configuration required for PowerServer.  You should copy the corresponding JDBC driver files for the database server in use to the JBoss/WildFly server installation folder in the machine hosting PowerServer.	Section 3.2.4, “JDBC driver preparation” in <i>PowerServer Configuration Guide for J2EE</i>
Configuration for supporting DataWindow Data Cache feature	Configuration required for database server and Web server.  The DataWindow Data Cache feature can cache DataWindow data that are frequently used on the Web server to improve runtime performance, but will not work until you fulfill the configuration requirements for database server(s) and Web server(s).  This feature is not available for Web servers running on Unix/Linux.	Section 4.4.8.3, “DataWindow Data Cache” in <i>PowerServer Configuration Guide for J2EE</i>
Configuration for supporting dynamic DataWindows	Configuration required for database server.	Section 10.5, “Dynamic DataWindow” in <i>Supported</i>

Task	Description	Detailed Instructions Given in...
	Configuration at the database server is required for support of dynamic DataWindows.	<i>PB Features for PowerServer Web</i>
Configuration for fixing an ASE issue	Apeon PowerServer provides several SQL files for you modifying the chain modes of stored procedures in ASE database to avoid the following error:  "Select error: Stored procedure... may be run only in unchained transaction mode"	Section 4.6.1, "ASE Chained mode issue" in <i>PowerServer Troubleshooting Guide</i>

## 5.2 Configuration for Web client PC

Running the deployed Web application in the Web browser on the client machine is dependent on the Apeon Xcelerator plug-in. To ensure (only for the first time) the Apeon Xcelerator plug-in can be downloaded and installed automatically when the Web application is run, the following configuration on the client machine is required.

For more information about the Apeon Xcelerator plug-in and the manual installation method, refer to Section 4.1.2, "Installing Apeon Xcelerator plug-in" in *Supported PB Features for PowerServer Web*.

---

### Note

To run an IWA (Installable Web App) on the client machine, refer to Section 7.3.3, "Installing IWA apps" in *PowerServer Toolkit User Guide*.

---

### 5.2.1 Verifying Web browser settings

There are a few settings in the Web browser that may affect the running of the PowerServer Web application, such as the JavaScript and the plug-in. By default, these settings are enabled (appropriate for running the Web application) in Edge/Chrome/Firefox/Opera except Internet Explorer. Normally you would not need to go through the following section if you use Edge/Chrome/Firefox/Opera, unless you encounter problems when running the Web application. However, if you use Internet Explorer, you are recommended to configure Internet Explorer according to the following section.

#### 5.2.1.1 Verifying Chrome/Firefox/Opera settings

If you use Chrome/Firefox/Opera as the Web browser, you should be able to directly run the PowerServer Web application in it without any problems, with the default settings of these browsers, however, if you encounter runtime problems, or if you have changed the default settings before, you are recommended to double check that the following two settings are enabled in the browser:

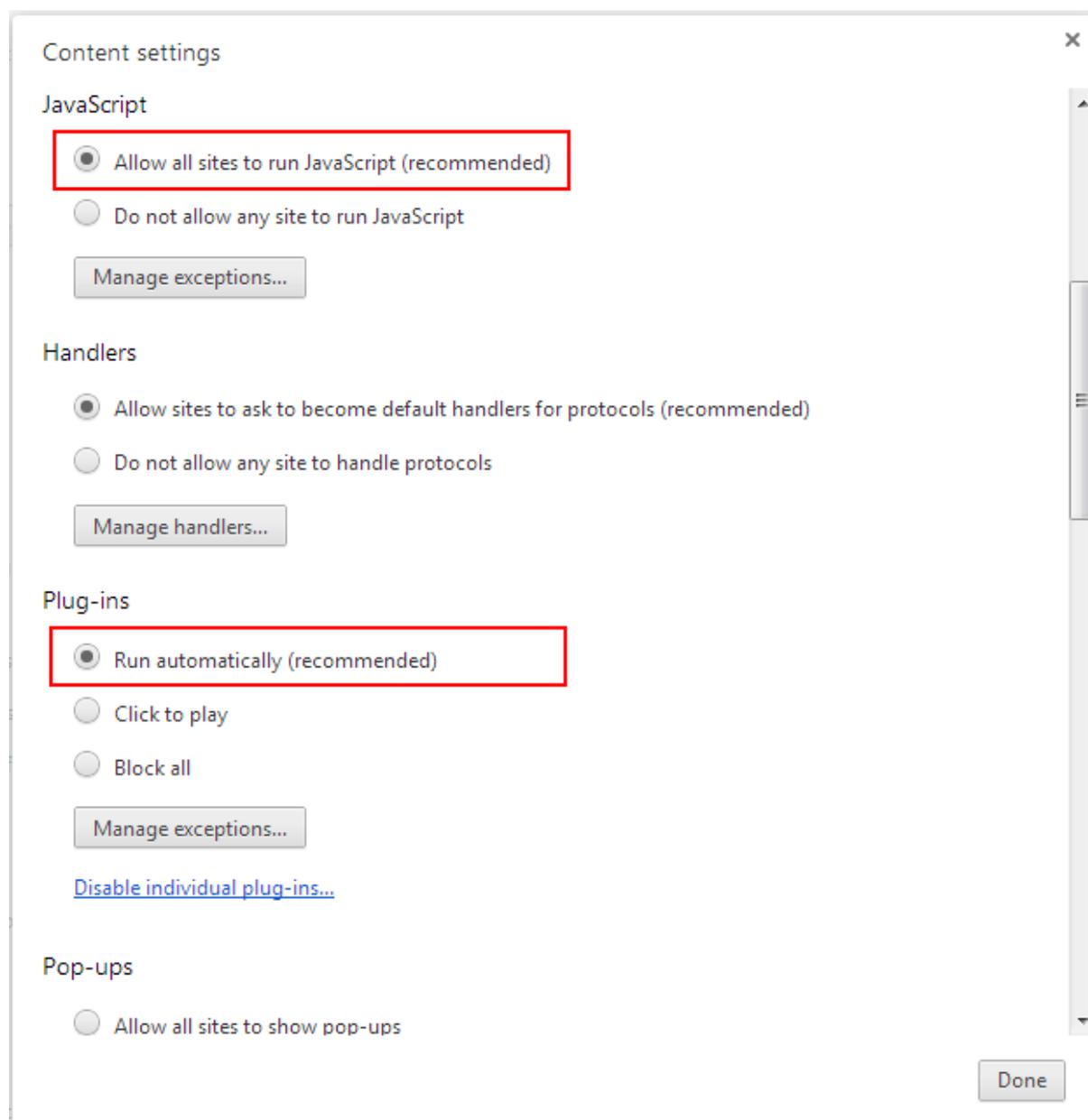
- Enable JavaScript

- Enable plug-in

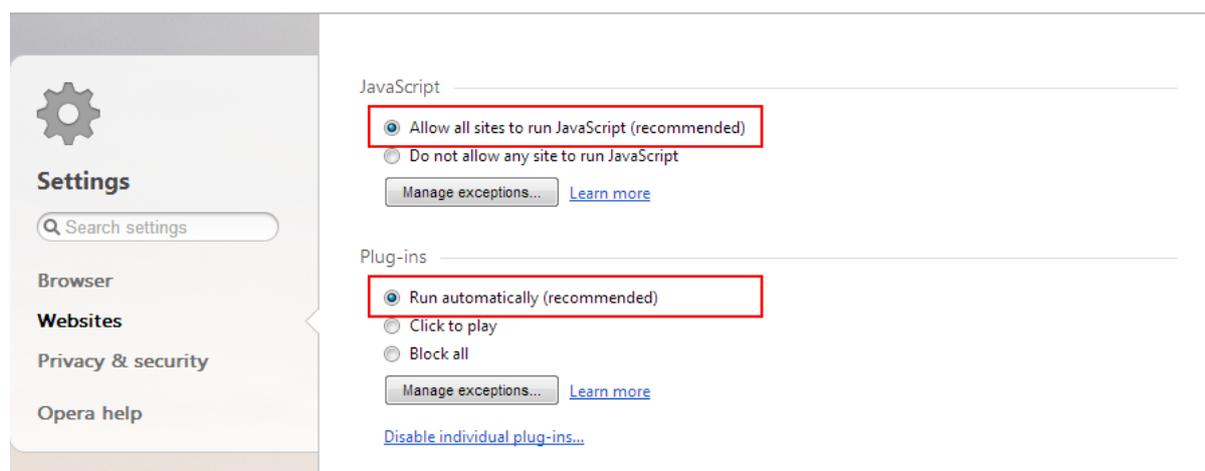
For Firefox, these two settings are automatically enabled and cannot be changed manually. Therefore, you normally need not to verify the settings in Firefox.

For Chrome, go to **Settings**, then click the **Show advanced settings** link, then click the **Content Settings** button under **Privacy**, and then verify the settings are enabled. If you have to disable these two settings for some reason, then make sure you add the URL of the PowerServer Web application to the exception list.

**Figure 5.1: Settings in Chrome**



For Opera, go to **Settings**, then select **Websites**, and then verify the settings are enabled. If you have to disable these two settings for some reason, then make sure you add the URL of the PowerServer Web application to the exception list.

**Figure 5.2: Settings in Opera**

### 5.2.1.2 Configuring IE settings

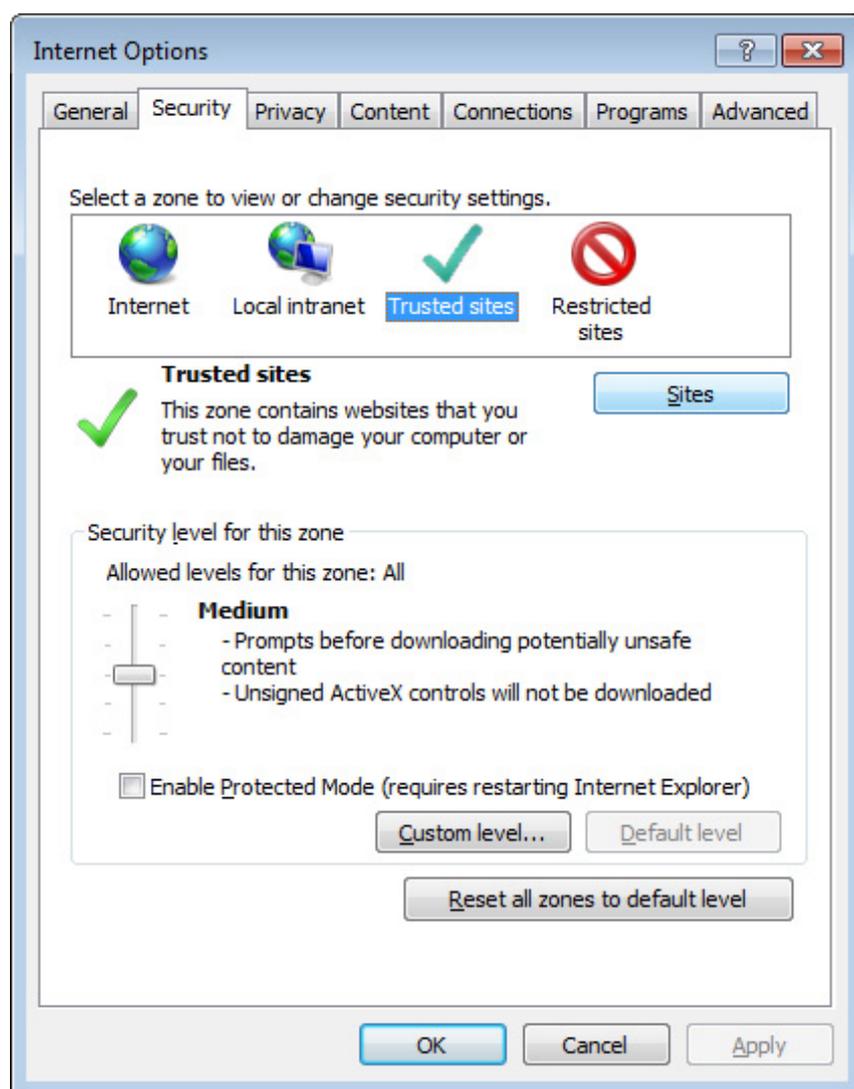
If you use Internet Explorer, we recommend you add the URL of the deployed application to the **Trusted Sites** zone in Internet Explorer, because the default security settings of this zone are appropriate for downloading and installing the Appeon Xcelerator plug-in. However, if you do not want to add the URL to the Trusted Sites zone, you will need to make sure the security settings (listed in Step 4 below) are enabled for the appropriate zone. The following are detailed steps to add the URL to the Trusted Sites zone.

Step 1: In Internet Explorer, on the **Tools** menu, click **Internet Options**.

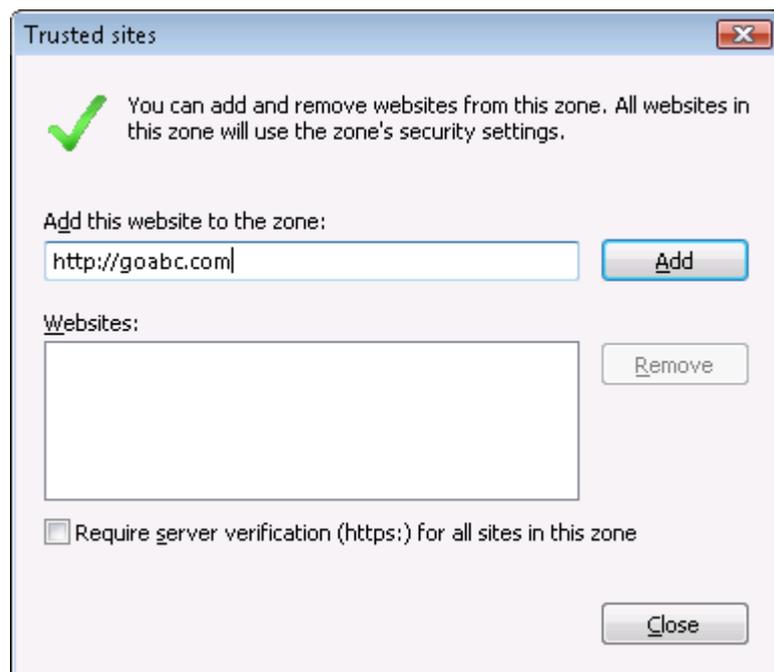
Step 2: In the Internet Options window, select the **Security** tab. Then select the **Trusted sites** Web content zone, and click the **Sites** button.

**Note:** **Enable Protected Mode** on the **Security** tab should not be selected (it is not selected by default). If there is any reason this option must be turned on, please make sure to follow the instructions in Section 4.1.5, ““Failed to get resource from PowerServer” error” in *PowerServer Troubleshooting Guide* to resolve the issue caused by this option.

For IE 11, you should also make sure both "**Enable Enhanced Protected Mode**" and "**Enable 64-bit processes for Enhanced Protected Mode**" (the latter is available in Windows 8.1 only) are unchecked in the **Advanced** tab.

**Figure 5.3: IE security settings**

Step 3: In the Trusted sites window, input the URL of the deployed application to the "Add this website to the zone" box. Uncheck the checkbox of "Require server verification (https:) for all sites in this zone". Click **Add** then click **Close** to return to the Internet Options window.

**Figure 5.4: Trusted sites**

Step 4: Click **OK** to save the settings and close IE.

### 5.2.2 Logging in as administrator or normal user

No special privilege is required to download and install the Apeon Xcelerator plug-in, no matter you use Edge, Chrome, Firefox, Opera, or Internet Explorer, which means, you can log into the Windows OS with any user.

Note when running the PowerServer Web application for the first time, the Web browser would prompt you to run the Apeon cross-browser plug-in with two options: "**only this time**" or "**always run for this site**". It is highly recommended that you select the "**always run for this site**" option, especially for Chrome, because the application will fail to run in Chrome if you select "**only this time**".

## 5.3 System language settings

Sometimes the operating system language settings can affect the characters displayed in the deployed application. To avoid any such display issues, verify that:

- The language of the data in the database used by the application matches the operating system language settings on the machine where PowerServer is installed.
- The language of the data in the database used by the application matches the Windows language settings on each Client machine where the Web application will be viewed.
- The language of the data in the database used by the PowerServer-deployed Web application matches Windows language settings on the machine where PowerServer Toolkit is installed.

**To set the language settings in Windows operating system:**

Step 1: Open Windows Start Menu and select Settings | Control Panel.

Step 2: Double-click **Regional Options**.

Step 3: Select the appropriate language from the **Your locale** DropDownListBox.

Step 4: Click the **Set Default** button. The Select System Local window displays.

Step 5: Select the appropriate locale. Verify that it is the same as that selected in the **Your locale** list box in Regional Options.

Step 6: Click **OK** to return to the Regional Options window.

Step 7: Verify that the language selected in the **Your locale** list box and the language checked as default in **Language settings for the system** settings are the same. The language can be from different regions as long as it is the same language.

Step 8: Click **Apply** and **OK** in the Regional Options window to accept the settings.

**To set the language settings in Unix/Linux operating system:**

Step 1: Change to the etc/default folder and edit the init file.

Step 2: Set the value of the LANG command to the appropriate language. You can use command "locale -a" to view the locale languages supported by the operating system.

## 6 Uninstalling Apeon PowerServer 2020

### 6.1 Overview

To uninstall Apeon PowerServer 2020, uninstall each of its components separately. The uninstall process reverses the actions performed by the PowerServer setup program. Uninstall does not delete any files created by the user in PowerServer, such as application files generated while deploying the demo applications or your own application to PowerServer. Delete these files manually from the Web root (or document root) of the Web server.

Do not try to reverse installation steps or uninstall Apeon PowerServer by deleting files manually or changing your Registry. This can create serious problems with your system in general and new Apeon releases in particular.

### 6.2 Uninstalling PowerServer

Step 1: Shut down PowerServer and WildFly or JBoss EAP application server.

Step 2: Select Windows **Start | Control Panel**; under **Programs**, click **Uninstall a program**; select **Apeon PowerServer 2020 for JBoss** and click **Uninstall** to begin the uninstall process.

Step 3: Click **Next** and then **OK** to confirm the removal of PowerServer.

Step 4: Click **Finish** when PowerServer is completely uninstalled.

Step 5: After the uninstall process is complete, remove any files or folders left in the PowerServer installation folder.

### 6.3 Uninstalling PowerServer Web Component (for third-party Web servers only)

Step 1: Stop all Windows programs as well as the Web server.

Step 2: Select Windows **Start | Control Panel**; under **Programs**, click **Uninstall a program**; select **Apeon PowerServer Web Component 2020** and click **Uninstall** to begin the uninstall process.

Step 3: Click **Next** and then **OK** to confirm the removal of PowerServer Web Component.

Step 4: Click **Finish** when the uninstallation is complete.

#### 6.3.1 Uninstalling Web Component if multiple Web servers are involved

Repeat the Web Component uninstall steps for each third-party Web server.

### 6.4 Uninstalling PowerServer Help

Step 1: Select Windows **Start | Control Panel**; under **Programs**, click **Uninstall a program**; select **Apeon PowerServer Help 2020** and click **Uninstall** to begin the uninstall process.

Step 2: Click **Next** and then **OK** to confirm the removal of PowerServer Help.

Step 3: Click **Finish** when uninstall is complete.

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