Installation Guide for WebSphere Unix\Linux

Appeon® for PowerBuilder® 2015 Unix\Linux

FOR UNIX\LINUX

Contents

1 About This Book

1.1 Audience

This book is for a PowerBuilder programmer to set up the Web and/or mobile development and runtime environment by installing the different components of Appeon for PowerBuilder.

1.2 How to use this book

There are seven chapters in this book.

Chapter 1: About This Book

A general description of this book.

Chapter 2: Introduction

An overview of Appeon for PowerBuilder 2015 for WebSphere Unix\Linux and its system architecture.

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Instructions for uninstalling Appeon for PowerBuilder 2015 for WebSphere Unix\Linux.

1.3 Related documents

Appeon provides the following user documents to assist you in understanding Appeon for PowerBuilder and its capabilities:

• Introduction to Appeon:

  Gives general introduction to Appeon for PowerBuilder and its editions.

• Getting Started (for Appeon Mobile):

  Guides you though installing PowerBuilder and Appeon for PowerBuilder, and developing and deploying a mobile application.

• New Features Guide:

  Introduces new features and changes in Appeon for PowerBuilder.

- Appeon Mobile Tutorials:

  Gives instructions on deploying, running, and debugging the mobile application, distributing native mobile apps, and configuring the Appeon Server cluster.

- Appeon Mobile (Offline) Tutorials:

  Gives instructions on setting up the Appeon Mobile (Offline) environment, and configuring, deploying, running, updating, and debugging the offline application.

- Appeon Installation Guide:

  Provides instructions on how to install Appeon for PowerBuilder successfully.

- Installation Guide on Cloud Platform:

  Provides instructions on how to install Appeon for PowerBuilder on the cloud-based platform such as Windows Azure and AWS EC2 and S3.

- Mobile UI Design & Development Guide:

  Introduces general guidelines on designing and developing the mobile app and UI.

- Migration Guidelines for Appeon Web:

  A process-oriented guide that illustrates the complete diagram of the Appeon Web migration procedure and various topics related to steps in the procedure, and includes a tutorial that walks you through the entire process of deploying a small PowerBuilder application to the Web.

- Supported PB Features:

  Provides a detailed list of supported PowerBuilder features which can be converted to the Web/Mobile with Appeon as well as which features are unsupported.

- Appeon Developer User Guide:

  Provides instructions on how to use the Appeon Developer toolbar in Appeon for PowerBuilder.

- Workarounds & API Guide:

  Provides resolutions for unsupported features and various APIs to facilitate you to implement the features (including Web and mobile) that are not easy or impossible to implement in the PowerBuilder IDE.

- Appeon Workspace User Guide:

  Gives a general introduction on Appeon Workspace and provides detailed instructions on how to use it.

- Appeon Server Configuration Guide:

  Provides instructions on how to configure Appeon Server Monitor, establish connections between Appeon Servers and database servers, and configure AEM for maintaining Appeon Server and the deployed applications.

- Web Server Configuration Guide:

  Describes configuration instructions for different types of Web servers to work with the Appeon Server.

- Troubleshooting Guide:

  Provides information on troubleshooting issues; covering topics, such as product installation, application deployment, AEM, and Appeon application runtime issues.

- Appeon Performance Tuning Guide:

  Provides instructions on how to modify a PowerBuilder application to achieve better performance from its corresponding Web/mobile application.

- Testing Appeon Web Applications with QTP:

  Provides instructions on how to test Appeon Web applications with QTP.

1.4 If you need help

If you have any questions about this product or need assistance during the installation process, access the Technical Support Web site at http://www.appeon.com/support.

2 Introduction

2.1 Overview

Appeon for PowerBuilder 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 for PowerBuilder 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 for PowerBuilder 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.

2.2 System architecture

Appeon for PowerBuilder 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 Appeon Server computers to provide load balancing and failover.

Figure 2.1: System architecture
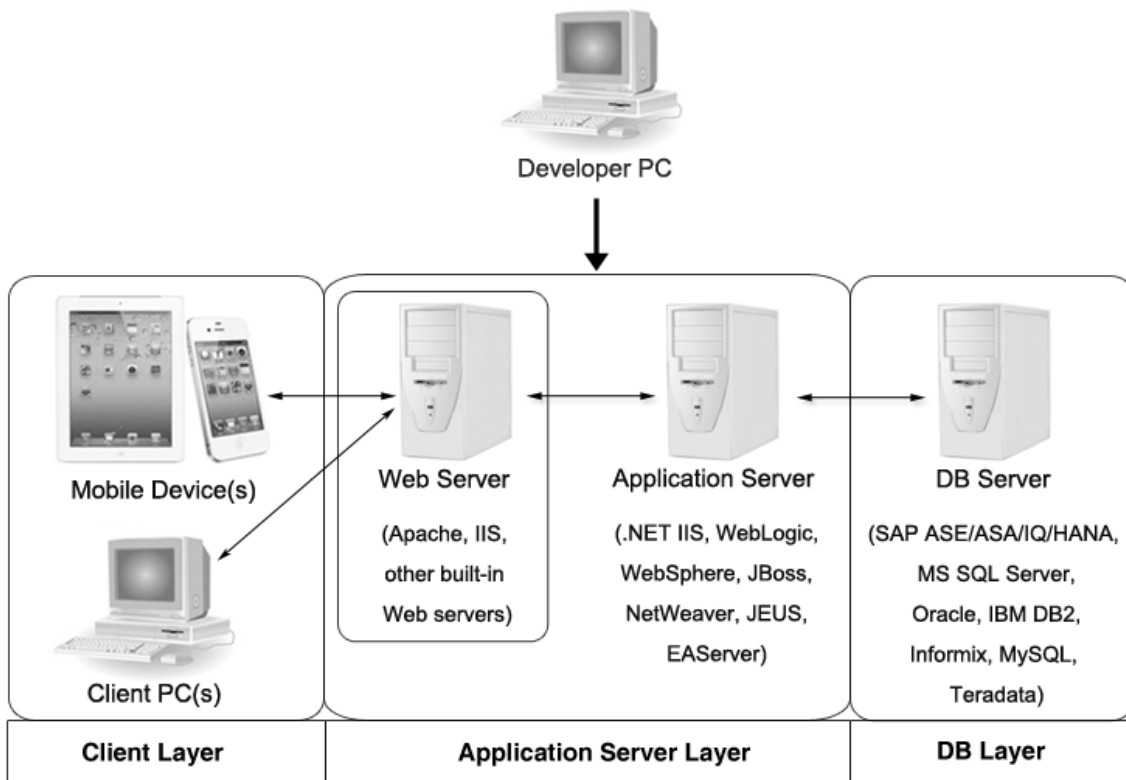
Appeon applications deploy to the standard n-tier architecture - the client tier, middle tier (application server), and data tier (database) are logically separated. Each tier should have appropriate Appeon components and/or third-party software installed according to its role within the architecture. The following table briefly lists the tiers, roles, their purposes and the required Appeon/third-party software.

Table 2.1: Tiers in the Appeon architecture

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

Tier	Role	Purpose	Appeon Componer	Third-party Software
		Hosts the presentation layer of the deployed Web applications.		
	Application Server	Hosts the DataWindows of the Appeon 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. Appeon 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.	Appeon Server	WebSphere Application Server
Data tier	Database Server	Hosts the application database.	None	JDBC-compliant RDBMS supported by Appeon. Please see Database server requirements 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 Appeon Workspace or the packaged mobile app.

  Client PC: The Web application client layer consists of two ActiveX plug-ins and some C++/JavaScript libraries which are originally built into Appeon Server Web Component and then automatically downloaded to the client when the application is run for the first time. The two ActiveX 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 Appeon Server, 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 an Appeon-certified database.

2.3 Appeon editions

Appeon for PowerBuilder 2015 provides the following editions for the Unix/Linux platform.

Table 2.2: Appeon editions

Edition	Platform	Component	Description
Enterprise Edition	IBM AIX, Sun Solaris, HP Unix, RedHat Linux	• Appeon Server • Appeon Server Web Component • Appeon Workspace (for Appeon Mobile only)	1) Appeon Developer and Appeon Help are not provided. 2) The Appeon Server clustering service is provided in Enterprise Edition only.
Workgroup Edition	IBM AIX, Sun Solaris, HP Unix, RedHat Linux	• Appeon Server • Appeon Server Web Component • Appeon Workspace (for Appeon Mobile only)	Appeon Developer and Appeon Help are not provided.

2.4 Appeon components

2.4.1 Appeon Developer

Appeon Developer 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.

2.4.2 Appeon Server

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

Appeon Server also includes Appeon Enterprise Manager (AEM) and Appeon Server Web Component.

AEM is the management console for Appeon Server and the deployed applications. When you install Appeon Server, AEM is automatically installed.

During the Appeon Server installation, the Appeon Server Web Component is automatically installed to the WebSphere HTTP Server, therefore, if you are using one WebSphere as both the Web server and the application server, you will NOT need to run the Appeon Server Web Component installation.

2.4.3 Appeon Server Web Component

Appeon Server Web Component resides in the Web server. It consists of the Web server redirector plug-in (that dispatches the user requests to the Appeon Server) 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 Appeon Server, for example, for load balancing purpose, you will need to install Appeon Server 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.

2.4.4 Appeon Workspace (for Appeon Mobile only)

Appeon 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 Appeon Server 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 distributed as a native mobile app thru the online app stores (such as Apple App Store, Google Play) or over-the-air, and it is also automatically included when you package and compile the Appeon mobile application as the iOS application archive (IPA) file or Android application package (APK) file.

2.4.5 Appeon Help

Appeon 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.

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

3 Installation Requirements

3.1 Client requirements

3.1.1 Software requirements

Requirements for the mobile device:

- Apple iOS 7.1.2, 8, or 8.1

  iOS devices: iPad 2/3/4/Mini/Air, iPhone 4/4S/5/5C/5S/6/6 Plus, iPod touch 4/5.

- Google Android 4.2, 4.3, or 4.4

  Android devices that have been certified by Appeon include Samsung Galaxy Note 8.0 GT-N5100, Samsung Galaxy Note 10.1 GT-N8000, Google Nexus 7, LG Nexus 4 E960 (smartphone), Samsung Galaxy Tab 3 10.1 GT-P5210, Samsung Google Nexus 10, and ASUS MeMo Pad FHD 10 ME 302C.

Requirements for the Web client PC:

- Microsoft Internet Explorer (8.0 thru 11), Mozilla Firefox (29 thru 38), Google Chrome (35 thru 43), or Opera 30

- Windows Vista SP2, Windows 7, Windows 8.1, or Windows 10

  IE can also support Microsoft Windows 2000 SP4, & Windows Vista SP2, though the other browsers may not.

- (Optional) Adobe Acrobat Reader 6.0 or above (for viewing printed PDF DataWindows or reports)

3.1.2 Hardware requirements

Requirements for the Web client PC:

- Intel processor(s) running at 1.8 GHz or faster

- At least 2 GB Free RAM

3.2 Appeon Server requirements

3.2.1 Software requirements

- Unix OS (such as IBM AIX, Sun Solaris, or HP Unix), or Linux (such as RedHat Linux) that is supported by IBM WebSphere Application Server

- IBM® WebSphere® Application Server 6.1, 7.0, 8.0, 8.5.5, or IBM® WebSphere® Community Edition 3.0

  Please make sure that the WebSphere Application Server is started by JDK 1.6 or above.

3.2.2 Hardware requirements

• Processor(s)

   Linux: 86 Pentium IV above, X86 AMD above

   IBM AIX: IBM Power4

   Solaris: UltraSparcIII, Solaris X86 Pentium

   HP-Unix: HP Itanium, HP PA-Risc

• At least 2 GB Free RAM (4 GB Free RAM recommended)

• 900 MB hard drive space (for WebSphere Application Server installation) plus 500 MB
  hard drive space (for Appeon Server installation)

3.2.3 (Optional) Third-party Web Server requirements

• Apache 1.3, 2.0, or 2.2 on Windows or Unix\Linux, or Microsoft IIS 6.0, 7.0, 7.5, 8.0, or
  10

• 50 MB hard drive space (for Appeon Server Web Component installation)

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

3.3 Database Server requirements

Appeon for PowerBuilder 2015 can connect to any of the following database servers:

• SAP Sybase ASA/SQL Anywhere 8.0.2, 9.0, 10.0.1, 11.0, 12.0 or 16.0 with Sybase
  iAnywhere or jConnect JDBC driver

• SAP Sybase ASA/SQL Anywhere WEB Edition with Sybase jConnect or iAnywhere
  JDBC driver

• SAP Sybase Adaptive Server Enterprise (ASE) 12.5.x or 15.x with Sybase jConnect or
  iAnywhere JDBC Driver

• SAP Sybase IQ 12.6.x, 12.7.x or 15 with jConnect JDBC driver

• SAP HANA 1.00.36 with SAP In-Memory Database 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 2000 SP4, 2005 SP1, 2008 or 2012 with MSFT JDBC driver or
  JTDS driver

• MySQL 5.5.x or 5.6.x with Connector/J driver

- Oracle 8i, 9i, 10g, 11g or 12c with Oracle JDBC Driver

- Teradata 13.00.00.27 with Teradata JDBC driver

For instructions on downloading and installing the driver files, refer to Section 4.2.4, "JDBC driver preparation" in *Appeon Server Configuration Guide for J2EE*.

3.4 Offline synchronization requirements

3.4.1 Client Database requirements

Appeon for PowerBuilder 2015 supports the following client/offline databases:

- UltraLite 12.0.1

  According to SAP Sybase SQL Anywhere Supported Platforms, UltraLite supports Android-ARM only, and does not support Android-X86. Which means, if your Android device is powered by Intel or AMD x86 processors, rather than RISC-based ARM chips, then your device will not have offline accessibility to the local UltraLite database.

- SQLite 3.x

3.4.2 Synchronization Server requirements

Appeon for PowerBuilder 2015 supports the following offline synchronization server:

- MobiLink Server (included in SQL Anywhere 12.0.1 components)

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.

3.4.3 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 (http://infocenter.sybase.com/help/index.jsp?topic=/com.sybase.help.sqlanywhere.12.0.1/mlserver/ml-consdb.html).

4 Installing Appeon for PowerBuilder 2015

4.1 Overview

Appeon for PowerBuilder 2015 (on UNIX\LINUX) consists of three components: Appeon Server, Appeon Server Web Component, and Appeon Workspace. To deploy the application to Appeon Servers and Web servers running on Unix\Linux, you can use an Appeon Developer installed from an Appeon for PowerBuilder for **Windows** edition.

Table 4.1: Appeon components

Component	Description	Installed on
Appeon Developer	A plug-in to the PowerBuilder IDE installed to the developer's PC.	PowerBuilder on Windows operating system.
Appeon Server	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. Appeon Server also includes Appeon Enterprise Manager (AEM) and Appeon Server Web Component.	WebSphere Application Server on Windows operating system.
Appeon Server Web Component	A set of Web server redirectors that dispatches the user requests to Appeon Server, and a set of runtime libraries that supports a PowerBuilder-style Web UI within standard Windows Web browsers.	Third-party Web server. For WebSphere HTTP Server, this installation is unnecessary since the Web Component is included in Appeon Server.
Appeon Help	The compiled HTML help of all Appeon user documents which saves time and conveniently places the help information at your fingertips.	Windows operating system.
Appeon Workspace (for Appeon Mobile only)	A native mobile application installed on the mobile device to simplify distributing, downloading, and running the Appeon mobile applications.	Mobile Device.

4.2 Installation scenarios

4.2.1 Overview

Appeon for PowerBuilder 2015 works with n-tier architecture: different Appeon 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 Appeon for PowerBuilder 2015 should be installed according to network architecture.

4.2.2 Remote Appeon Server using WebSphere HTTP Server

Table 4.2: Remote Appeon Server and Web server installation

Scenarios	Requirements	Appeon Components
In this example, 2 computers are used: Computer 1 serves as Developer PC.	Computer 1: Microsoft Windows 10, 8.1, 7, or Vista Microsoft Internet Explorer, Mozilla Firefox, Google Chrome, or Opera SAP Sybase PowerBuilder SAP Sybase SQL Anywhere	Computer 1: Appeon Developer
Computer 2 serves as Web server, application server and database server.	Computer 2: Unix\Linux IBM WebSphere Application Server SAP Sybase ASA/SQL Anywhere, SAP Sybase ASE, SAP Sybase IQ, Oracle, Microsoft SQL Server, Informix, IBM DB2, Teradata, MySQL, or SAP HANA depending on application database	Computer 2: Appeon Server

4.2.3 Remote Appeon Server using a third-party Web server

Table 4.3: Remote Appeon Server and Web server installation

Scenarios	Requirements	Appeon Components
In this example, 2 computers are used: Computer 1 serves as Developer PC.	Computer 1: Microsoft Windows 10, 8.1, 7, or Vista Microsoft Internet Explorer, Mozilla Firefox, Google Chrome, or Opera SAP Sybase PowerBuilder SAP Sybase SQL Anywhere	Computer 1: Appeon Developer
Computer 2 serves as Web server	Computer 2: Microsoft IIS or Apache	Computer 2: Appeon Server Web Component
Computer 2 serves as Web server, application server and database server.	Computer 2: Unix\Linux IBM WebSphere Application Server SAP Sybase ASA/SQL Anywhere, SAP Sybase ASE, SAP Sybase IQ, Oracle, Microsoft SQL Server, Informix, IBM DB2, Teradata, MySQL, or SAP HANA depending on application database	Computer 2: Appeon Server

4.2.4 Appeon Server Cluster

Table 4.4: Appeon Server cluster installation

Scenarios	Requirements	Appeon Components
In this example, N (N>=4) computers are used: Computer 1 is used for Developer PC.	Computer 1: Microsoft Windows 10, 8.1, 7, or Vista Microsoft Internet Explorer, Mozilla Firefox, Google Chrome, or Opera SAP Sybase PowerBuilder SAP Sybase SQL Anywhere	Computer 1: Appeon Developer
Computer 2 is the database server.	Computer 2: SAP Sybase SQL Anywhere, SAP Sybase ASE, SAP Sybase IQ, Oracle, Microsoft SQL Server, Informix, IBM DB2, Teradata, MySQL, or SAP HANA depending on application database	Computer 2: None
Computer 3 is the Web server.	Computer 3: Microsoft IIS or Apache	Computer 3: Appeon Server Web Component
Computers 4 to n are a group of WebSphere Appeon Servers.	Computers 4 to n: Unix\Linux IBM WebSphere Application Server	Computers 4 to n: Appeon Server (After installing Appeon Server to each WebSphere Application Server, configure the Appeon Servers as a cluster. Refer to Configuring Appeon Server Cluster for details)

4.3 Two installation methods

Appeon for PowerBuilder 2015 for WebSphere provides two installation methods: **new installation** and **upgrade installation**.

• If your computer has not installed any version of Appeon for PowerBuilder, the setup program automatically takes the new installation method.

- If your computer has Appeon 6.2 or an earlier version installed, you must uninstall the version, prepare the environment for Appeon for PowerBuilder 2015 installation, and then use the setup program to install. The setup program takes the new installation method.

- If your computer has Appeon 6.5 or a later version installed, the setup program automatically takes the upgrade installation method.

4.4 Appeon new installation

4.4.1 Appeon Server installation

To install Appeon Server on the Unix\Linux platform, you will go through the same installation process as that used for the Windows platform. The only difference is, with the Unix\Linux platform, you will complete the installation process in command line mode, instead of using graphical user interfaces.

Step 1: Verify that WebSphere Application Server, as well as any other programs you may be running, is stopped.

Step 2: Open the **Appeon4WebSphere** folder from the Appeon setup program and run the **install.sh** file using the command below:

```
./install.sh
```

Notes:

1. If you copy the Appeon setup program to the computer before installation, make sure that the directory does not contain special characters or spaces.

2. When you input the command, please be aware that file names and directory names are case sensitive.

The welcome message is displayed, which indicates that the installation process has started. Follow the step-by-step prompts to install Appeon Server.

Step 3: Press **Enter** or input **Next** to proceed.

```
Step 1. Welcome Message
-----------------------

###############################################################

Welcome to Appeon Server 2015 for WebSphere installation!

###############################################################

Press Enter to start the installation [Exit][Next]>
```

You can also input **n**, **N**, **next** or **Next** to indicate **Next**, **p**, **P**, **previous**, or **Previous** to indicate **Previous**, and **e**, **E**, **exit** or **Exit** to indicate **Exit**. Notice that the input is case sensitive.

Step 4: Specify a JDK 1.6 or above to be used during the setup progress. The setup program will check whether the JAVA_HOME variable exists and whether it points to a valid JDK

1.6 or above. If it is valid, the JDK path will be automatically displayed as below; if it is not valid, please set a valid JDK 1.6 or above location.

```
Step 2. Set JDK 1.6 or above path
----------------------



JDK path is "/home/jdk1.6.0_17"
Press Enter to continue [Exit][Next]>
```

Step 5: According to the license you purchase, select the Product Type.

```
Step 3. Please choose Product Type

################################################################

1. Appeon Web
2. Appeon Mobile
3. Appeon Web and Appeon Mobile
4. Appeon Universal


Please select a number to continue OR [Exit][Previous][Next]>
```

Step 6: Enter the Product Key that is shipped with the product.

```
Step 4. Product Key for Appeon Universal
------------------------

################################################################

The format of the product key provided by Appeon should be XXXX-XXXX
-XXXX-XXXX-XXXX-XXXX-XXXX. All characters should be capitalized.

################################################################

Please input the product key or [Exit][Previous]>
```

Step 7: Specify the home directory of the WebSphere Application Server as the Appeon Server installation directory, for example, /opt/IBM/WebSphere/AppServer or /opt/IBM/WebSphere/AppServerCommunityEdition.

```
Step 5. Install Directory
------------------------

Please Input the directory you want to install the Appeon Server 2015.
(e.g. ../IBM/WebSphere/AppServer) or [Exit][Previous]>

The Appeon Server 2015 will be installed in /opt/IBM/WebSphere/AppServer
```

Step 8: Confirm the setup settings.

```
Step 6. Confirm Information
------------------------

################################################################

             Confirm the installation

 The product type is "Appeon Universal"
 The product key for Appeon Universal is "XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX"
 The installation directory is "/home/AppServer/IBM/WebSphere/AppServer"
```

```
  AEM Console:
              Username: admin
              Password: admin

 The installer will start installing the files on your system.
 Go back if you want to change any settings for the installation.


 ################################################################

 Please select an option to continue[Exit][Previous][Next]>
```

Press **Enter** to begin copying the required files or input **p** or **Previous** to modify the setup settings.

Step 9: When the installation is complete, choose whether to start Appeon Server.

```
 ################################################################

 Congratulations! The installation has been successfully completed.

 ################################################################

 Start Appeon Server
 -----------------------------

 Do you want to start the Appeon Server now? [Yes|No]>
```

To start Appeon Server immediately input **y**. To start it later input **n**. Refer to Starting/ Stopping Appeon Server for how to manually start Appeon Server using commands.


4.4.1.1 Deploying appeonserver.ear package

After installing Appeon Server to the WebSphere Application Server home directory, you must deploy the Appeon Server EAR package (appeonserver.ear) manually, via the WebSphere Application Server Administrative Console.

Follow the instructions below to deploy the appeonserver.ear package to WebSphere Application Server (taking WebSphere AS 7.0 as an example).

Step 1: Start WebSphere Application Server. Open the $WAS_HOME/bin/ folder and run the **startServer.sh** file. For details on starting WebSphere Application Server, refer to Starting/ Stopping Appeon Server.

Step 2: Access WebSphere Application Server Administrative Console. Input http:// localhost:9080/admin in the Web browser address bar on the local machine. The WebSphere Login window will appear.

Figure 4.1: WebSphere Login window
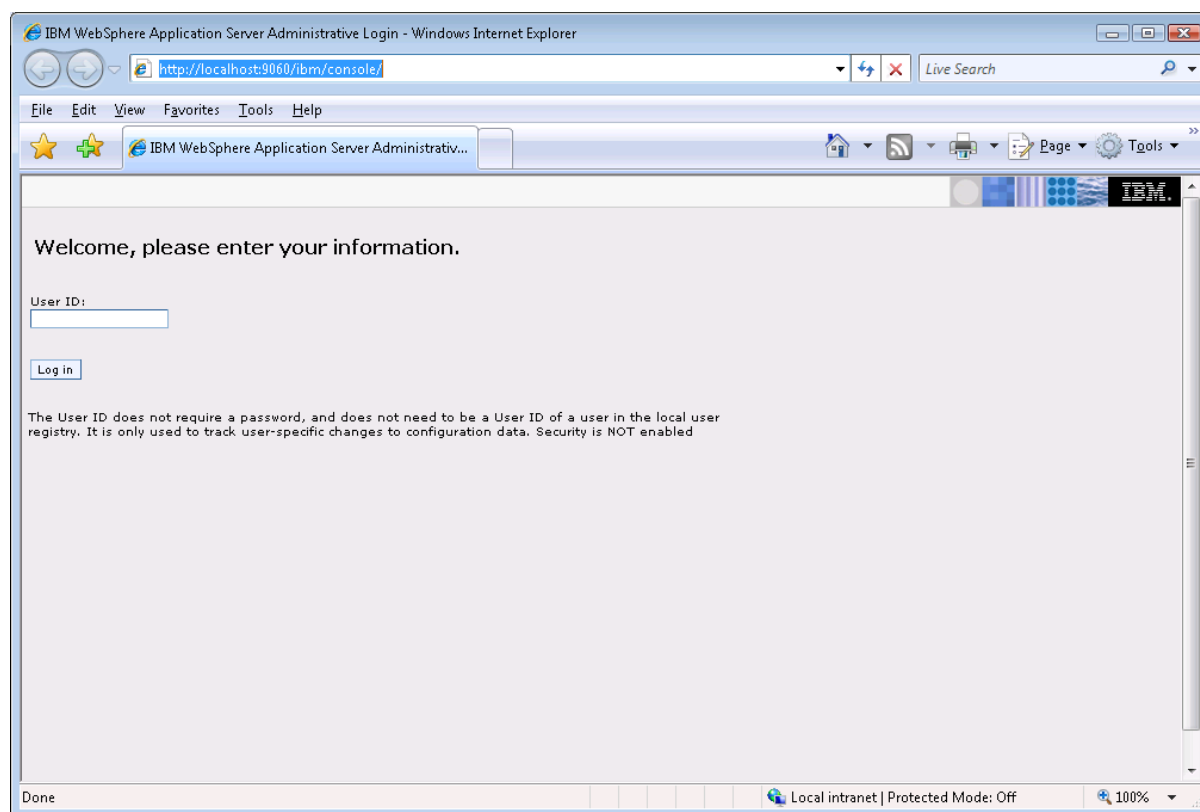
Step 3: Log in to the WebSphere console with the appropriate user ID.

Step 4: Expand the **Applications** node and click **Install New Application** in the left pane.

Step 5: Click the **Browse** button on the **Preparing for the application installation** window that appears in the right pane and select the **appeonserver.ear** package installed to the home directory of the WebSphere Application Server.

Figure 4.2: Select appeonserver.ear package
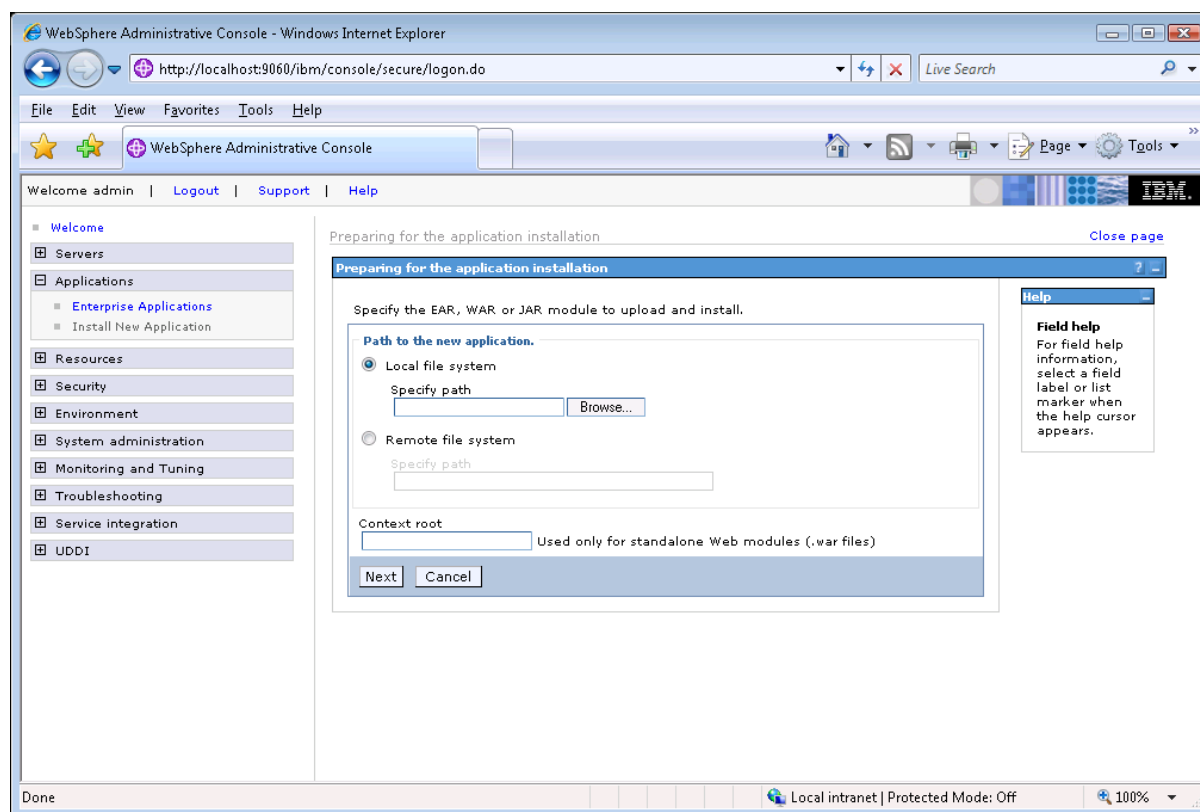
If the appeonserver.ear package is not installed on the local machine, select **Server path** and specify the location for appeonserver.ear.

Step 6: Follow the prompts and click **Next**. It is safe to use the default settings.

During this process, you may encounter "Application Security Warnings" from WebSphere. You can simply disregard these warnings, because the appeonserver.ear application requires no security settings to be set on WebSphere.

Step 7: Click **Finish** to complete the installation.

Check to make sure that the installation was successful.

The name used to identify the application (appeonserver.ear) is **AppeonServer** by default.

Figure 4.3: Check installed status
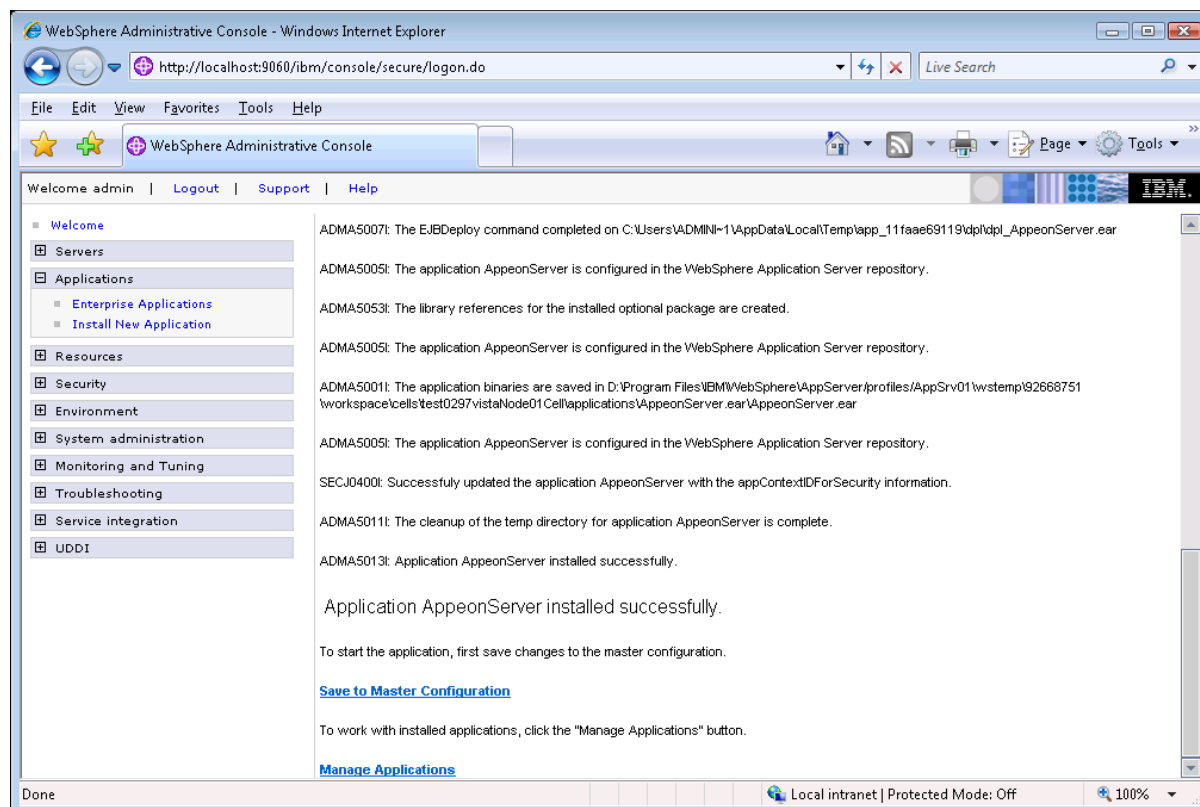
Step 8: Click the **Save to Master Configuration** link.

Step 9: Click the **Save** button to save the new installation to the master configuration.

Figure 4.4: save the new installation
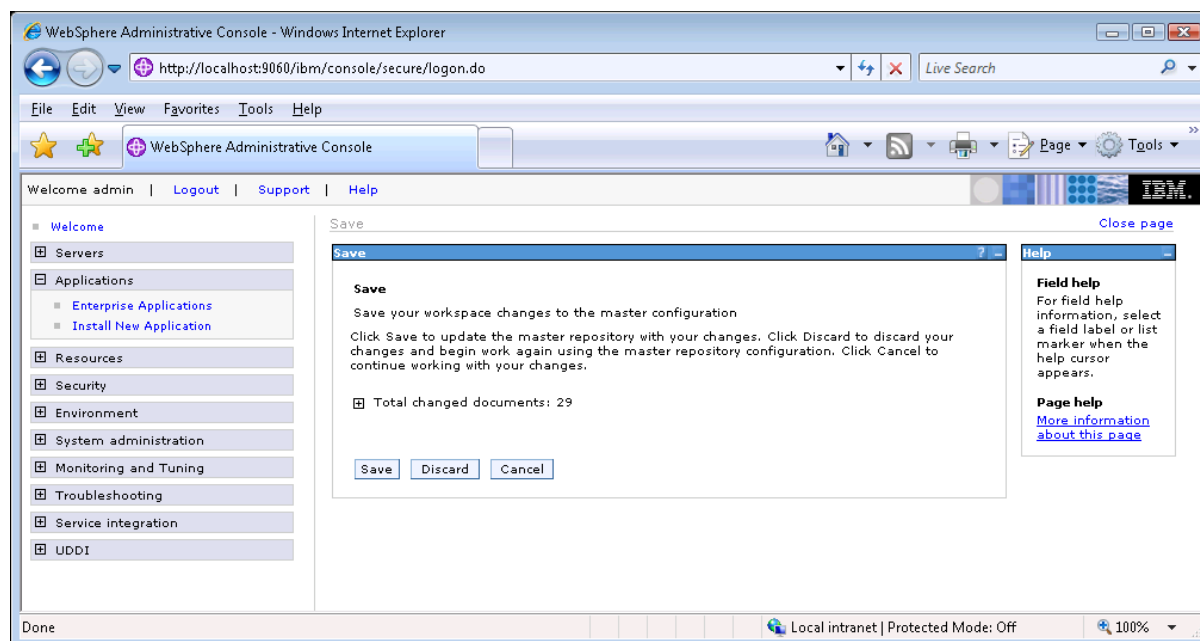
Step 10: Restart the WebSphere server to enable new configurations.

Step 11: Ensure that the newly installed application: **AppeonServer** (the default application name for appeonserver.ear), is started.

Expand the **Application** node and click **Enterprise Applications** in the left pane.
AppeonServer is listed as an installed application in the table in the right pane.

- Check to make sure that **AppeonServer** has successfully started ( ).

- If the initial status of **AppeonServer** is "stopped" ( ), select **AppeonServer** by checking
  the appropriate box on the left and click the **Start** button to start it.

AppeonServer will start automatically when WebSphere Application Server is started.

Figure 4.5: AppeonServer starts automatically
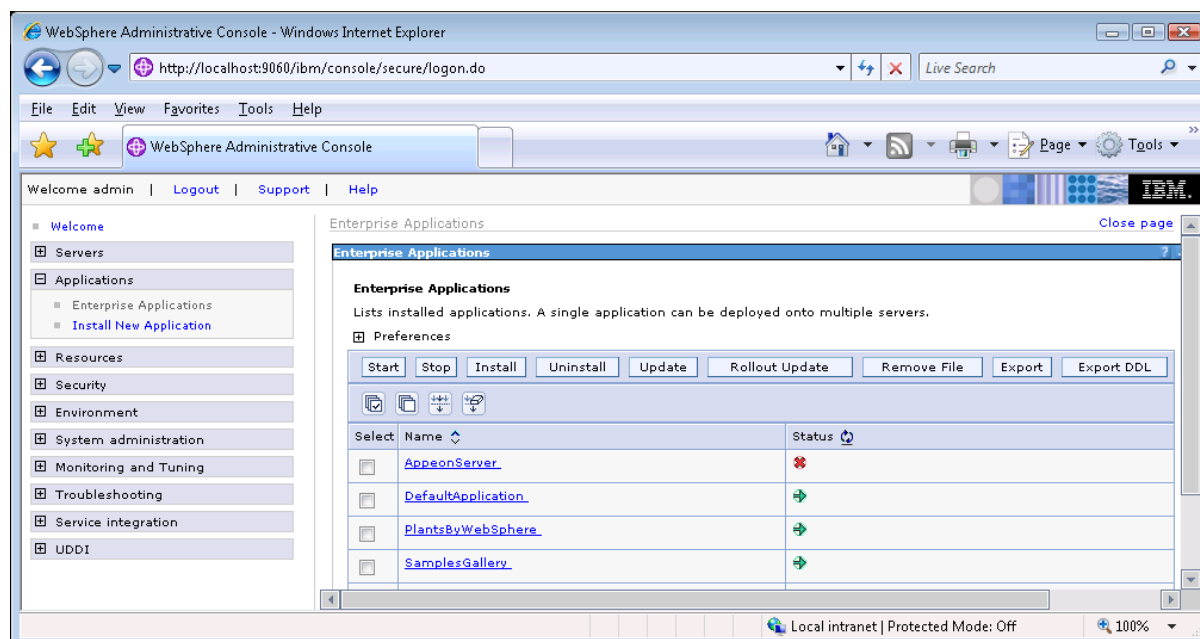
Step 12: Launch Appeon Enterprise Manager (AEM) to further verify that the Appeon Server
EAR Package is successfully deployed.

Enter the following URL in the Web browser address bar: http://*host*:*port*/AEM, for example,
http://localhost:9080/AEM. If the AEM logon window can be opened, the Appeon Server
EAR package is deployed correctly and is ready for use.

4.4.2 Appeon Server Web Component installation (for third-party Web servers only)

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 Appeon
Server Web Component. If not, you do not need to run the installation of the Appeon Server
Web Component separately since it is included in Appeon Server.

4.4.2.1 Prerequisites

- Install a third-party Web server that is compatible with the WebSphere redirector plug-in.
  For a list of compatible third-party Web servers, refer to (Optional) Third-party Web server
  requirements.

- Stop the Web server and any other programs before beginning the installation process.

4.4.2.1.1 Prerequisites if Web Component installed to multiple Web servers

Appeon Server 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 Appeon Server Web Component on each Web server.

4.4.2.2 Installation instructions

There is no Setup program for installing Appeon Server Web Component on Unix\Linux. You can directly copy the Appeon Server Web Component source files to the Web root (or document root) of the Web server on Unix\Linux.

Step 1: Locate the **AppeonWebComponent.tar** file in the **AppeonWebComponent** folder on the Appeon installation program.

Step 2: Decompress the **AppeonWebComponent.tar** file into the Web root (or document root) of the Web server. For example, the document root of Apache 1.3 is $Apache/htdocs.

4.4.2.2.1 Installing and configuring the Web server redirector plug-in

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

4.5 Appeon Upgrade Installation

4.5.1 Overview

If you have installed Appeon 6.5 or a later version, you can upgrade to Appeon for PowerBuilder 2015, but you cannot upgrade from Appeon 6.2 or an earlier version. If you are using Appeon 6.2 or an earlier version, uninstall it and then install Appeon for PowerBuilder 2015.

Note that applications deployed with the old version and the demo applications must be redeployed with Appeon for PowerBuilder 2015 after the upgrade.

4.5.2 Upgrading Appeon Server

To upgrade Appeon Server on the Unix\Linux platform, you will go through the same upgrade installation process as that used for the Windows platform. The only difference is, with the Unix\Linux platform, you will complete the installation process in command line mode, instead of using graphical user interfaces.

Step 1: Verify that WebSphere Application Server, as well as any other programs you may be running, is stopped.

Step 2: Open the **Appeon4WebSphere** folder from the Appeon installation program and then run the **upgrade.sh** file using the command below:

```
./upgrade.sh
```

Note: File names and directory names are case sensitive.

The welcome message is displayed, which indicates that the upgrade installation process has started. Follow the step-by-step prompts to upgrade Appeon Server.

Step 3: Press **Enter** or input **Next** to proceed.

```
Step 1. Welcome Message
----------------------


###############################################################

Welcome to Appeon Server 2015 for WebSphere upgrade!

###############################################################

Press Enter to start the upgrade [Exit][Next]>
```

You can also input **n**, **N**, **next** or **Next** to indicate **Next**, **p**, **P**, **previous**, or **Previous** to indicate **Previous**, and **e**, **E**, **exit** or **Exit** to indicate **Exit**. Notice that the input is case sensitive.

Step 4: Specify a JDK 1.6 or above to be used during the upgrade progress. The upgrade program will check whether the JAVA_HOME variable exists and whether it points to a valid JDK 1.6 or above. If it is valid, the JDK path will be automatically displayed as below; if it is not valid, please set a valid JDK 1.6 or above location.

```
Step 2. Set JDK 1.6 or above path
----------------------


JDK path is "/home/jdk1.6.0_17"
Press Enter to continue [Exit][Next]>
```

Step 5: According to the license you purchase, select the Product Type.

```
Step 3. Please choose Product Type

###############################################################

1. Appeon Web
2. Appeon Mobile
3. Appeon Web and Appeon Mobile
4. Appeon Universal


Please select a number to continue OR [Exit][Previous][Next]>
```

Step 6: Enter the Product Key that is shipped with the product.

```
Step 4. Product Key for Appeon Universal
------------------------

###############################################################

The format of the product key provided by Appeon should be XXXX-XXXX
-XXXX-XXXX-XXXX-XXXX-XXXX. All characters should be capitalized.

###############################################################

Please input the product key or [Exit][Previous]>
```

Step 7: Input the path of Appeon Server which you want to upgrade, for example, /opt/IBM/WebSphere/AppServer or /opt/IBM/WebSphere/AppServerCommunityEdition. Press **Enter**. The upgrade installation procedure will automatically check whether the path you input is valid.

```
Step 5. Upgrade Directory
-------------------------


Please input the directory of Appeon Server needs to upgrade
(e.g. ../IBM/WebSphere/AppServer) or [Exit][Previous]>
```

Step 8: Confirm the setup settings.

```
Step 6. Confirm Information
-------------------------


################################################################

                    Confirm the installation

 The product type is "Appeon Universal"
 The product key for Appeon Universal is "XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX"
 The Upgrade directory is "/home/AppServer/IBM/WebSphere/AppServer"
 Appeon Server 2015 EAR file will be copied to
 "/home/AppServer/IBM/WebSphere/AppServer//home/AppServer/IBM/WebSphere/AppServer/
installableApps".
 Please re-deploy this application manually in WebSphere Console
 after this upgrade process is completed.



################################################################

Please select an option to continue[Exit][Previous][Next]>
```

Press **Enter** to begin copying the required files or input **p** or **Previous** to modify the setup settings.

Step 9: Wait until the upgrade installation is complete.

```
################################################################

Congratulations! The upgrade for WebSphere has been completed successfully.

################################################################
```

4.5.3 Upgrading Appeon Server Web Component

Prerequisites

- Stop the Web server and any other programs before beginning the upgrade process.

- If Appeon Server Web Component is installed to multiple Web servers, repeat the upgrade steps for the Appeon Server Web Component on each Web server.

Upgrade instructions

There is no Setup program for upgrading Appeon Server Web Component on Unix\Linux. You can directly copy the Appeon Server Web Component source files to the Web root (or document root) of the Web server on Unix\Linux.

Step 1: Locate the **AppeonWebComponent.tar** file in the **AppeonWebComponent** folder on the Appeon installation program.

Step 2: Decompress the **AppeonWebComponent.tar** file into the Web root (or document root) of the Web server. For example, the document root of Apache 1.3 is $Apache/htdocs.

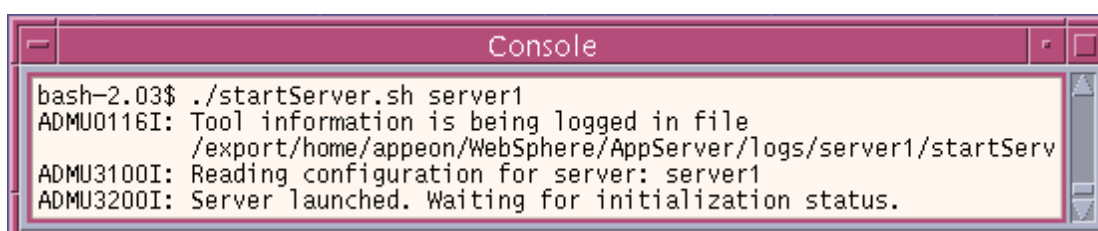# 4.6 Starting/Stopping Appeon Server

4.6.1 Starting Appeon Server

To start the Appeon Server on WebSphere Application Server (except for the Community Edition):

Change to the $appeon/bin/ folder, for example, /opt/IBM/WebSphere/AppServer/appeon/ bin/ and run the **appeonserverstart.sh** file.

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

Figure 4.6: Startup process information

To start the Appeon Server on WebSphere Application Server Community Edition:

Change to the $WEBSPHERE/bin folder, for example, /opt/IBM/WebSphere/ AppServerCommunityEdition/bin/, and then execute this command: sh "$WEBSPHERE/bin/ startup.sh\".

4.6.2 Logging in to WebSphere Application Server Administrative Console

Step 1: Enter the following URL in a Web browser to access the WebSphere Application Server Administrative Console.

- From the computer on which the WebSphere Application Server is running: http:// localhost:9080/admin or http://localhost:8080/console (for WebSphere CE)

- From any other computer: http://HOST:9080/admin or http://HOST:8080/console (for WebSphere CE)

  HOST indicates the machine name or the IP address of the computer on which the WebSphere Application Server is running. Make sure no other programs are using the same port.

The logon page of **WebSphere Application Server Administration Console** appears, as shown below for WebSphere AS 5.

Figure 4.7: WebSphere Application Server Administration Console
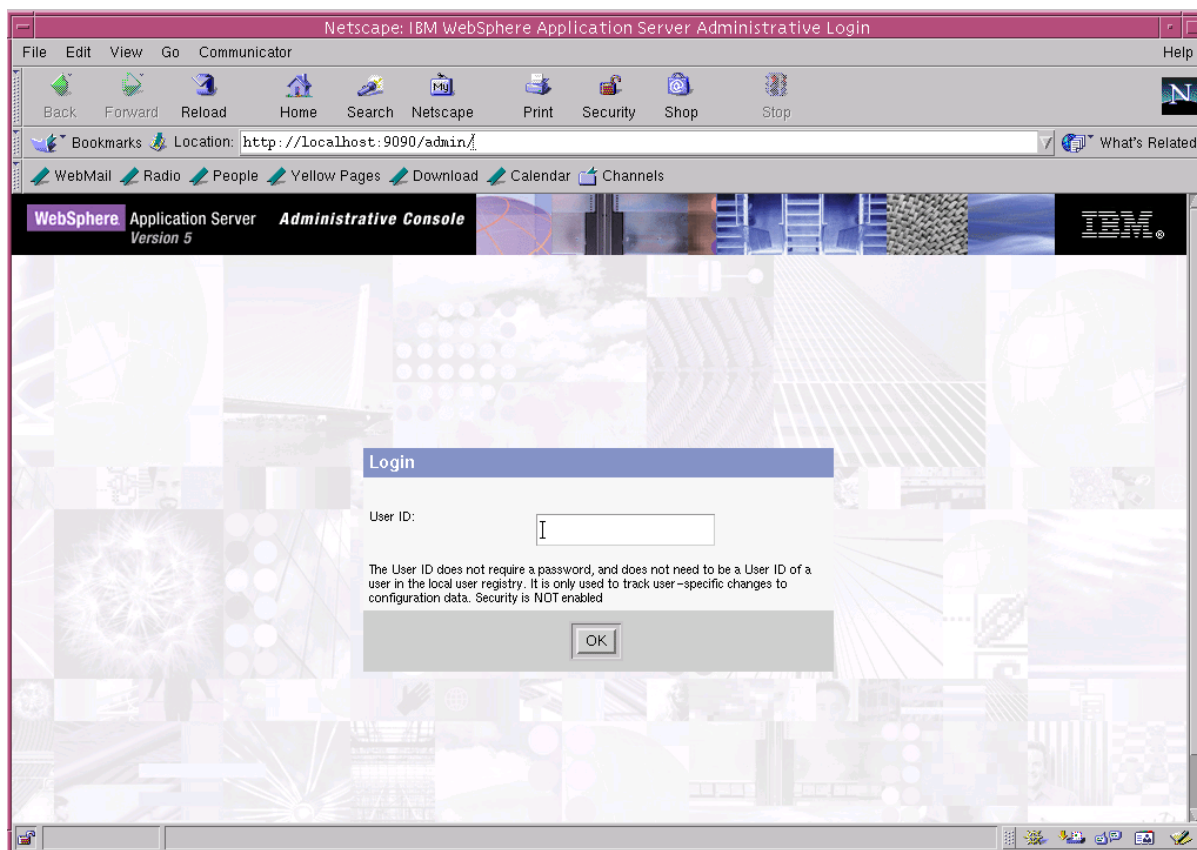
Step 2: Log in to the Administrative Console using the appropriate user name.

4.6.3 Stopping Appeon Server

Stopping WebSphere Application Server will shut down Appeon Server.

To stop WebSphere Application Server, change to the $WebSphere/AppServer/bin/ folder, for example, /opt/IBM/WebSphere/AppServer/bin/ or /opt/IBM/WebSphere/ AppServerCommunityEdition/bin/, and run the **shutdown.sh** file.

```
./shutdown.sh server1
```

If you have any problems in using WebSphere Application Server, refer to the WebSphere Application Server documents at http://www7b.software.ibm.com/wsdd/zones/was/.

5 Configuring Appeon Server Cluster

Appeon provides its own tools and plug-ins to configure an Appeon Server cluster and implement the load balancing and failover functionalities. An Appeon Server cluster is essentially a group of WebSphere servers, each with Appeon Server and Appeon plug-in installed.

Following are high level steps for configuring an Appeon Server cluster. For detailed instructions, please refer to Chapter 6, *Tutorial 5: Configure Appeon Server Cluster* in *Appeon Mobile Tutorials (Mobile only)*. The instructions are exactly the same for Appeon Web and Appeon Mobile.

1. Install **Appeon Server** to multiple WebSphere servers.

2. Create **Appeon Server cluster** in AEM.

3. Configure the **Web server** for the Appeon Server cluster.

4. Install an Appeon application to the Appeon Server cluster and Web server(s).

6 Post-Installation Configuration Tasks

6.1 Overview

The previous chapters provide instructions on how to set up Appeon system architecture, including installing Appeon for PowerBuilder components, as well as configuring Appeon Server cluster. Once the Appeon 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 Appeon system architecture that affect the running of all applications but do not include configuration tasks performed in Appeon Developer and Appeon Enterprise Manager for specific applications.

Table 6.1: 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 Appeon Xcelerator plug-in for the Web application.	Configuration for client machine
System language setting	Configuration required for the Web client PC, Appeon Server and database server. The operating system language settings can affect the characters that are displayed in the Web application.	System language settings
Database JDBC driver preparation	Configuration required for Appeon Server. You should copy the corresponding JDBC driver files for the database server in use to the WebSphere server installation folder in the machine hosting Appeon Server.	Section 4.2.4, "JDBC driver preparation" in *Appeon Server Configuration Guide for J2EE*
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 5.4.8.3, "DataWindow Data Cache" in *Appeon Server Configuration Guide for J2EE*
Configuration for supporting dynamic DataWindows	Configuration required for database server.	Section 11.5, "Dynamic DataWindow" in *Supported PB*

Task	Description	Detailed Instructions Given in...
	Configuration at the database server is required for support of dynamic DataWindows.	*Features for Appeon Web (Web only)*
Configuration for fixing an ASE issue	Appeon 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 4.5.2, "ASE Chained mode issue" in *Troubleshooting*

6.2 Configuration for Web client PC

Running the deployed Web application on the client machine is dependent on the Appeon Xcelerator plug-in (ActiveX controls). To ensure (only for the first time) the Appeon ActiveX controls 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 Appeon ActiveX file and the manual installation method, refer to Section 5.1.2, "Installing Appeon ActiveX control" in *Supported PB Features for Appeon Web (Web only)*.

6.2.1 Verifying Web browser settings

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

6.2.1.1 Verifying Chrome/Firefox/Opera settings

If you use Chrome/Firefox/Opera as the Web browser, you should be able to directly run the Appeon 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 Appeon Web application to the exception list.

Figure 6.1: Settings in Chrome
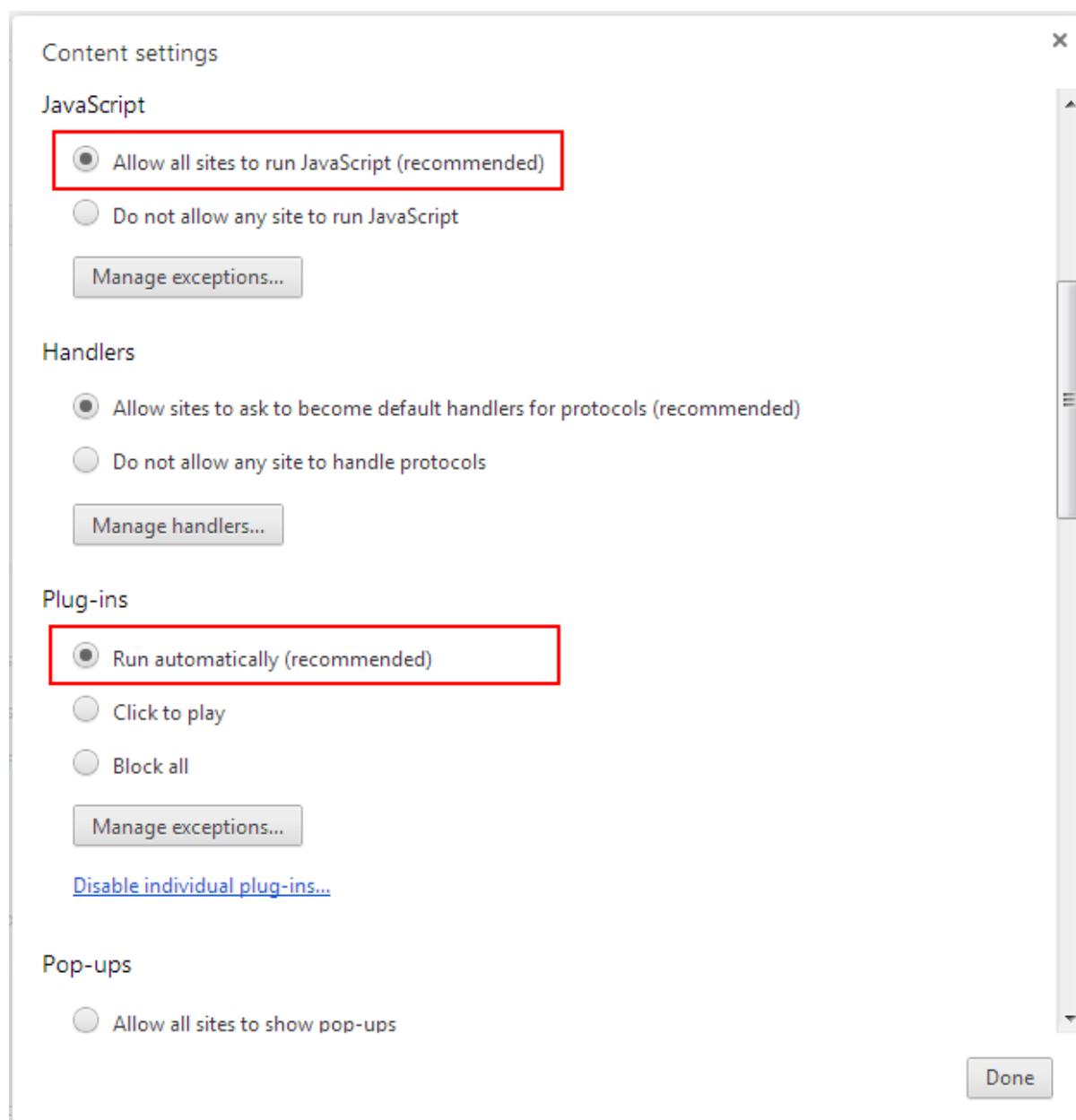
For Opera, go to **Settings**, then select **Websites**, and then verify the settings are enabled. If you have to disable these two settings for some reason, then make sure you add the URL of the Appeon Web application to the exception list.

Figure 6.2: Settings in Opera
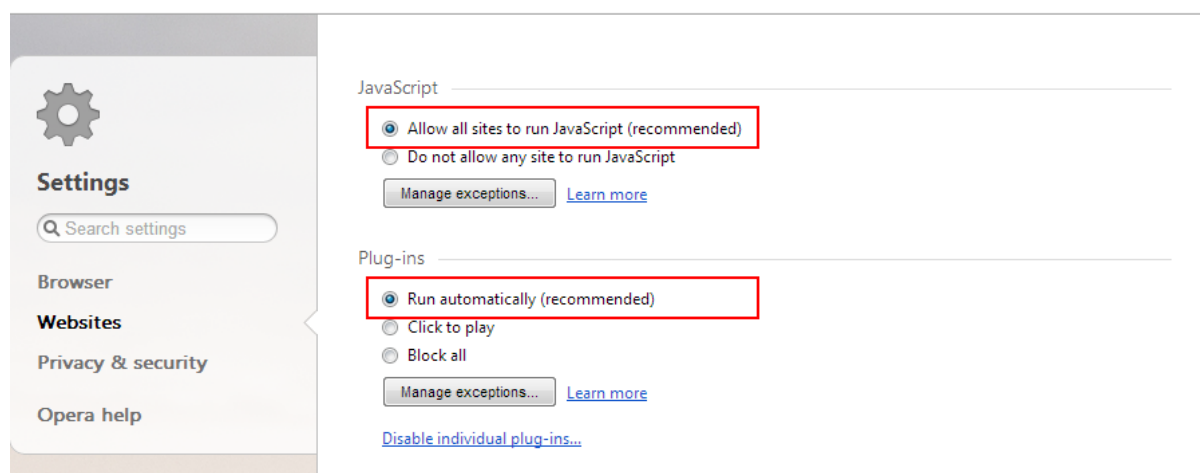
6.2.1.2 Configuring IE settings

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 ActiveX controls. 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 4.1.3, ""Failed to get resource from Appeon Server" error" in *Troubleshooting* 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 6.3: IE security settings
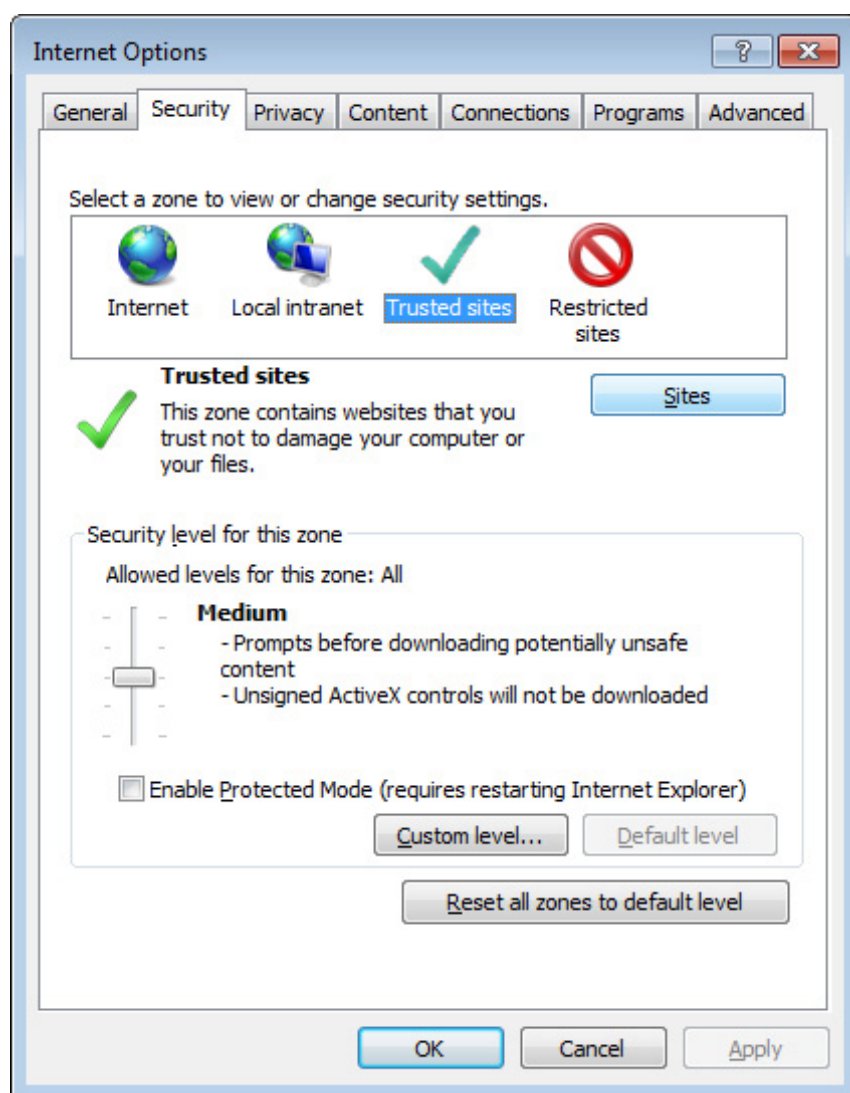
Step 3: In the Trusted sites window, input the URL of the deployed application to the "Add this website to the zone" box. Uncheck the checkbox of "Require server verification (https:) for all sites in this zone". Click **Add** then click **Close** to return to the Internet Options window.

Figure 6.4: Trusted sites
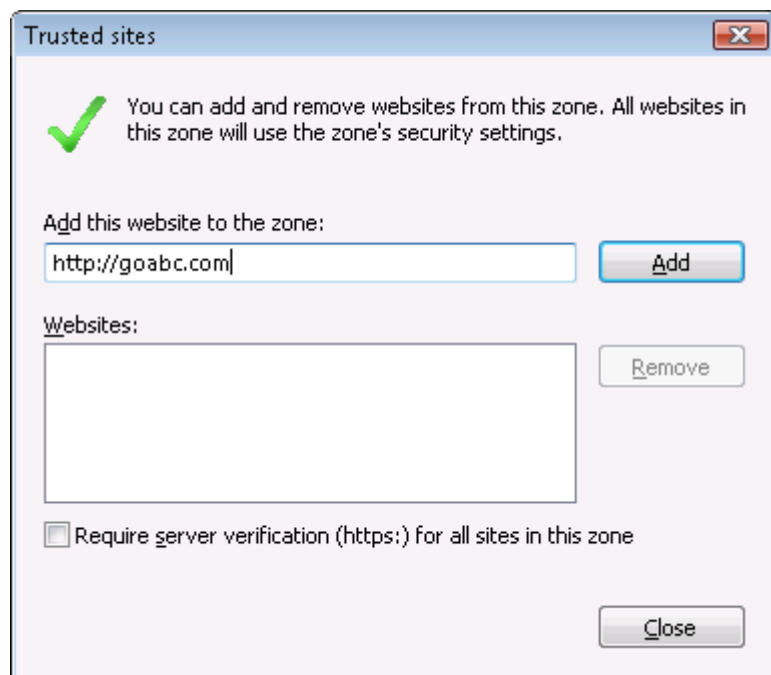
Step 4: If you do not want to add the URL to the trusted sites (in Step 3), you will need to select the appropriate zone, then click the **Custom Level** button, and enable the following settings (they are enabled for the trusted sites by default):

• Download signed ActiveX controls

• Run ActiveX controls and plug-Ins

• Script ActiveX controls marked safe for scripting

• Active scripting

Step 5: Click **OK** to save the settings and close IE.

6.2.2 Logging in as administrator or normal user

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

Note when running the Appeon Web application for the first time, the Web browser would prompt you to run the Appeon 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**".

6.3 System language settings

Sometimes the operating system language settings can affect the characters displayed in the Appeon Web 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 Appeon Server 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 Appeon-deployed Web application matches Windows language settings on the machine where Appeon Developer 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.

7 Uninstalling Appeon for PowerBuilder 2015

7.1 Overview

To uninstall Appeon for PowerBuilder, uninstall each of its components separately. The uninstall process reverses the actions performed by the Appeon setup program. Uninstallation does not delete any files created by the user in Appeon, such as files generated while deploying the demo applications or your own application to Appeon Server. Delete these files manually from the Web root.

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

7.2 Uninstalling Appeon Server

Step 1: Undeploy the **AppeonServer** application from the WebSphere Application Server Console.

Figure 7.1: Undeploy the AppeonServer application from the Console
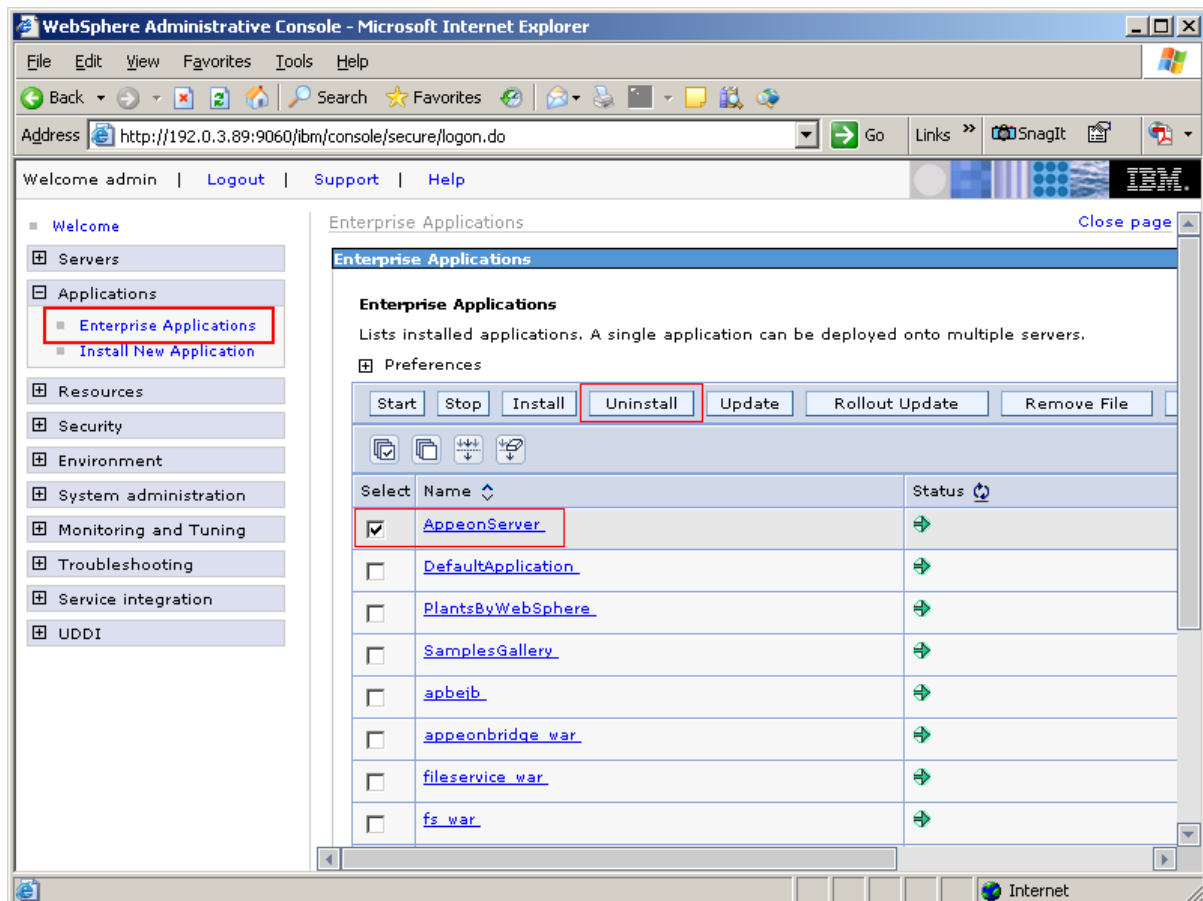
Step 2: Stop all running programs including Appeon Server and WebSphere Application Server.

Step 3: Run the **apbuninstall.sh** file in the **_uninst** folder under the Appeon Server installation directory, for example, /opt/IBM/WebSphere/AppServer/appeon/_uninst or /opt/IBM/WebSphere/AppServerCommunityEdition/appeon/_uninst.

Step 4: Input **y** and press **Enter** to confirm the removal of Appeon Server.

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

7.3 Uninstalling Appeon Server Web Component (for third-party Web servers only)

To uninstall Appeon Server Web Component on Unix\Linux, you directly go to the Web root (or document root) of the Web server and remove the entire **appeon** folder.

7.3.1 Uninstalling Web Component if multiple Web servers are involved

Repeat the Web Component uninstall steps for each Web server.

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