PowerServer Mobile Tutorials

Appeon® PowerServer® 2017 FOR WINDOWS & UNIX & LINUX

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1 About This Book

1.1 Audience

This book is intended for PowerBuilder developers who want to install PowerServer Mobile, deploy and run the mobile application, package and distribute the application, or configure the PowerServer cluster.

1.2 How to use this book

There are six chapters in this book.

Chapter 1: About This Book

A general description of this book

Chapter 2: Tutorial 1: Set up the Environment

Detailed instructions for setting up the PowerServer Mobile environment.

Chapter 3: Tutorial 2: Config, Deploy & Run the Application

Detailed instructions for configuring and deploying an existing PowerBuilder application, and then running the application on mobile device.

Chapter 4: Tutorial 3: Develop & Debug with PowerServer Mobile

High-level guidelines for developing and debugging the application with PowerServer Mobile.

Chapter 5: Tutorial 4: Package & Distribute Native Mobile Apps

Detailed instructions for packaging and distributing the app as a native iOS or Android app.

Chapter 6: Tutorial 5: Configure PowerServer Cluster

Detailed instructions for configuring a PowerServer cluster.

1.3 Related documents

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

• Introduction to Appeon:

Gives general introduction to Appeon PowerServer and its editions.

• Getting Started (for PowerServer Mobile):

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

• New Features Guide:

Introduces new features and changes in Appeon PowerServer.

• PowerServer Mobile Tutorials:

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

• PowerServer Mobile (Offline) Tutorials:

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

• Appeon Installation Guide:

Provides instructions on how to install Appeon PowerServer successfully.

• Mobile UI Design & Development Guide:

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

• Migration Guidelines for PowerServer 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.

• 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.

• PowerServer Configuration Guide:

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

• Web Server Configuration Guide:

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

• 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 UFT:

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

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 <u>http://www.appeon.com/support</u>.

2 Tutorial 1: Set up the Environment

You will need to go through the following tasks to set up the PowerServer Mobile 2017 environment for deploying and running the mobile application:

2.1 Task 1: Prepare the machine

The simplest scenario will be used in this guide, which requires 1 Windows PC and 1 Android or iOS device.

- 1 Windows PC: used as the development machine and the server
- 1 Android or iOS device: used as the mobile client

The 32-bit version of **PowerServer Mobile for .NET** edition will be used to walk you through this guide, so please prepare the environment according to the following requirements.

Software requirements for Windows PC:

• Windows 7 or 8.1 (32-bit or 64-bit)

PowerServer Mobile 32-bit version can be installed to the 64-bit OS without any special considerations. But if you have installed **Appeon PowerServer 64-bit** version before please uninstall it first. See <u>Task 1.2</u>: <u>Uninstall previous version of 64-bit Appeon</u>.

- Internet Explorer 9, 10, or 11
- (Optional) SAP SQL Anywhere (32-bit engine) 11.0, 12.0, 16.0, or 17 (for running the demos included with the Appeon installation)
- .NET Framework 4.x

For Windows 7, you will need to first download the .NET Framework 4.0 setup program from <u>http://www.microsoft.com/en-us/download/details.aspx?id=17718</u>.

• IIS 7.x or 8.x

See Task 1.3: Install IIS and Task 1.4: Configure IIS.

• PowerBuilder 2017 & PowerServer Mobile 2017

You can download **PowerBuilder 2017 Universal Edition** from the Appeon web site. The universal edition includes the installation of PowerBuilder, PowerServer Mobile, and PowerServer Toolkit. Or you can download and install PowerBuilder 2017 Standalone Edition first and then download and install PowerServer Mobile 2017.

See <u>Task 2: Install PowerBuilder and PowerServer</u> for installation instructions.

Software requirements for the Android or iOS device:

• Google Android 4.2, 4.3, 4.4, 5.0, 6.x, or 7.0, all 32-bit, or

Apple iOS 9 or 10

• Appeon Workspace

See Task 3: Install Appeon Workspace (on the Android or iOS device)

2.1.1 Task 1.1: Disable UAC (User Account Control)

On the Windows PC, go to the **Control Panel** > **User Accounts** and disable UAC by setting the slider to "**Never notify**" (see screenshot below). After you have disabled UAC you **MUST** restart the computer. If you do not restart the computer the change will NOT take effect.



😯 User Account Control Settings		
Choose when to be User Account Control he <u>Tell me more about User</u> Always notify	e notified about changes to your computer Ips prevent potentially harmful programs from making changes Account Control settings	s to your computer.
- [-	Never notify me when:	
	 Programs try to install software or make changes to my computer I make changes to Windows settings 	
	Not recommended. Choose this only if you need to use programs that are not certified for Windows 7 because they do not support User Account Control.	
Never notify		
	- @ 0	K Cancel

2.1.2 Task 1.2: Uninstall previous version of 64-bit PowerServer

If you are using a 64-bit machine you can install **PowerServer Mobile (32-bit)** to the 64bit OS without any special configurations. But if you have a previous version of **Appeon PowerServer (64-bit)** already installed on this machine then you must uninstall it first.

Step 1: Open **IIS Manager**, right click the **top** node (not the website node) in the treeview and select **Stop** from the popup menu. This will stop the entire IIS.

Figure 2.2: Stop the entire IIS Manager

Vi Internet Information Services (IIS) Manager				
HXXIA-PC >		🔛 🖂 🕜 🕶		
File View Help				
Connections		Actions		
2	HXXIA-PC	Manage Server		
HXXIA-P Refresh Add Web Site		 Restart Start Stop 		
Start Stop		View Application Pools View Sites		
Rename	.NET Compilation	Change .NET Framework Version		
Switch to Conter	nt View	Help Online Help		
Ready		€ <u>1.</u> :		

Step 2: Close any opened window, especially PowerBuilder and IIS Manager.

Step 3: Uninstall all of the Appeon components including **PowerServer**, **PowerServer Toolkit**, and **PowerServer Help**. You will need to uninstall these components one by one.

Step 4: Verify Appeon is cleanly uninstalled by the following two steps:

- Double check the **Control Panel****Programs****Programs and Features** and make sure no Appeon component is listed.
- Open a command prompt window and then type regedit<Enter>. Double check that no ADT or ASN keys are listed under HKEY_LOCAL_MACHINE\SOFTWARE\Appeon \<version_number>.

Step 5: Clear the Internet Explorer cache and temporary files.

Step 6: Delete the entire Appeon folder from C:\Users\User_Name\AppData\Roaming\.

Step 7: Delete all the Appeon application folders from the IIS Web root. For example, under *C:\inetpub\wwwroot* at minimum you should delete the following folders: appeon, appeon_acf_demo, appeon_code_examples, pet_world, sales_application_demo.

Step 8: Restart the machine.

Step 9: Start IIS by right-clicking the **top** node in the treeview in the IIS Manager and selecting **Start** from the popup menu.

After that, you can proceed to install **PowerServer Mobile** by following steps in <u>Task 2:</u> <u>Install PowerServer & PowerServer Toolkit</u>.

2.1.3 Task 1.3: Install IIS

IIS is not installed on Windows 7 or 8.1 by default. You need to manually install it.

Before you install IIS, make sure you have installed .NET Framework 4.x. To install .NET Framework 4.x for Windows 8.1, please go to the **Turn Windows features on or off** and check the box for .NET 4.5; for Windows 7, please download the setup program from <u>http://</u>www.microsoft.com/en-us/download/details.aspx?id=17718 and install .NET Framework 4.0.

Below are steps for installing IIS. If you already have IIS installed, please carefully verify the correct IIS options are checked (see screenshots below). By default, not all the required components will be installed.

Step 1: Click **Start** and then click **Control Panel**. In Control Panel, click **Programs** and then click **Turn on or off Windows features**.

Step 2: Select the check box of **Internet Information Services**, then expand the list and select the items under **Web Management Tools, Application Development Features** and **Common HTTP Features** according to the figure below. Click **OK** to let Windows finish the install.

Figure 2.3: Select the Web Management Tools



Figure 2.4: Select the Application Development Features

Windows Features	
Turn Windows features on or off	0
To turn a feature on, select its check box. To turn a feature off, clea check box. A filled box means that only part of the feature is turned	ar its d on.
😑 🔲 🌗 Internet Information Services	•
🕀 🖃 🕒 Web Management Tools	-
🖃 🔲 🎍 World Wide Web Services	=
🖃 🔲 🎍 Application Development Features	
.NET Extensibility	
ASP ASP	
ASP.NET	
CGI	
ISAPI Extensions	
ISAPI Filters	
Server-Side Includes	Ŧ
OK Ca	incel

Figure 2.5: Select the Common HTTP Features



Step 3: After IIS is installed, go to **IIS Manager**, right click the **Default Web Site**, select **Binding**, and make sure **IP Address** is indicated with an asterisk "*". If not, please click **Edit** and select **All Unassigned** for the IP address, this will display **IP Address** as an asterisk "*".

Step 4: Run http://*IP_Address*:80/ in Internet Explorer. If the IIS welcome screen displays, then IIS is working properly.

Tip: to obtain the IP address of the server, open a command prompt window and then type **ipconfig**<Enter>. Remember this IP address as it is also needed when you configure the mobile app in Appeon Workspace.

If IIS is not working, please re-install IIS or fix the IIS configuration by following the IIS help.

2.1.4 Task 1.4: Configure IIS

Follow steps below to grant **IIS_IUSRS** account with full controls to the IIS Web root folder:

Step 1: Right click the C:\Inetpub\wwwroot folder and select Properties from the popup menu.

Step 2: On the **Security** tab, select **IIS_IUSRS** in the **Group or user names** list box, and then click the **Edit** button.

Figure 2.6: Select IIS_IUSRS

👃 www.root Properties 🛛 💽
General Sharing Security Previous Versions Customize
Object name: C:\inetpub\wwwroot
Group or user names:
Series (hoxia-PC\Users)
& IIS_IUSRS (hxxia-PC\IIS_IUSRS)
& TrustedInstaller
· · · · · · · · · · · · · · · · · · ·
4
To change permissions, click Edit.
Permissions for IIS_IUSRS Allow Deny
Full control
Modify
Read & execute 🗸 🗉
List folder contents
Read
Write
For special permissions or advanced settings, Advanced
Learn about access control and permissions
OK Cancel Apply

Step 3: Select **IIS_IUSRS** in the **Group or user names** list box, and then select the **Allow** check box for the **Full control**.

Figure 2.7: Select Full control for IIS_IUSRS

길 Permissions for wwwroot		— ———————————————————————————————————	
Security			
Object name: C:\inetpub\www	oot		
Group or user names:			
Administration (busin PC) Adm	inistration)		
Rear (hovia-PC) Lears	inisudiois)		
IIS IUSBS (boxia-PC\IIS IUS	(RS)		
Restriction and a second secon	/////		
	A <u>d</u> d	<u>R</u> emove	
Permissions for IIS_IUSRS	Allow	Deny	
Full control			
Modify			
Read & execute			
List folder contents			
Read			
Learn about access control and permissions			
ОК	Cancel	Apply	

Step 4: Click **OK** to save the settings.

2.2 Task 2: Install PowerBuilder and PowerServer

2.2.1 Task 2.1: Install PowerServer Mobile and PowerServer Toolkit

Prerequisite task: if PowerBuilder has not been installed yet, you can follow the <u>installation</u> <u>guide</u> online help to install PowerBuilder first.

On the Windows PC where PowerBuilder is already installed, install PowerServer Mobile and PowerServer Toolkit by the following steps.

Step 1: Start IIS server: open IIS Manager, right click the **top** node (not the website node) in the treeview and select **Start** from the popup menu.

Step 2: Launch the PowerServer product setup program by double-clicking **setup.exe**. Click **Next** until you reach the screen for selecting the product components. Make sure the checkboxes for **PowerServer Mobile for .NET** and **PowerServer Toolkit** are selected.

Step 3: Click **Next** until you reach the screen for specifying the IIS Web site where PowerServer Mobile for .NET will be installed. Make sure **Select an existing Web Site** and **Default Web Site** are selected.

Step 4: Click **Next**. Choose whether to install the **Demo Applications**. If you have SQL Anywhere database server installed, select to install the demo; otherwise, do not install the demo since the demo requires SQL Anywhere database server to be previously installed.

Step 5: If you selected to install the **Demo Applications**, specify the path for the SQL Anywhere database server engine.

Step 6: Click **Next** until Setup begins copying files for the PowerServer Mobile for .NET installation.

When PowerServer Mobile for .NET installation is completed, PowerServer Toolkit installation automatically starts.

Step 7: Click Next until Setup begins copying files for the PowerServer Toolkit installation.

Step 8: When the installation is completed, click Finish.

2.2.2 Task 2.2: Verify the installation

On the Windows PC, run http://IP_Address:80/AEM/. If AEM is launched successfully, then PowerServer is installed successfully.

2.3 Task 3: Install Appeon Workspace (on the Android or iOS device)

Instructions for installing Appeon Workspace on the Android device is different from that on the iOS device.

Instructions for iOS:

Step 1: Make sure your iOS device can connect to Internet.

Step 2: On your iOS device, open **App Store**, search for "Appeon Workspace", and then tap **Install**.

Alternatively, you can download Appeon Workspace from the Apple App Store to your Windows PC via a Web browser, and then synchronize it to your iOS device via iTunes.

Instructions for Android:

Step 1: Enable the **Unknown resources** option (in **Settings** > **Security**) on the Android device so you can install apps that are not downloaded from Google Play.

Step 2: Make sure your Android device can connect to PowerServer.

Step 3: Visit the Appeon Workspace download center that is posted on PowerServer (http://Server_IP:80/AWS), and then click the download button.

2.4 Task 4: Configure the network connection

Check and make sure the Windows PC and the mobile device connected to the same Wi-Fi router. To verify this, on the mobile device, open the Web browser and type http://*Server_IP*:80/AEM/. If AEM is launched successfully, it means that the PowerServer is properly installed and that the mobile device is able to connect to the Windows PC.

NOTE: Mobile Internet is supported by PowerServer Mobile. However, in order for the Appeon Workspace to connect to your PowerServer you will need an external IP address. You can verify that your external IP address is properly working by typing *http:// External_IP_Address:80* into a Web browser of any device connected to the Internet. If you get a page not found error or other HTTP error then your network is not configured properly for external access.

3 Tutorial 2: Config, Deploy & Run the Application

This tutorial will use the PowerServer Mobile for .NET edition to walk you through configuring, deploying and running the mobile application.

3.1 Task 1: Configure the database type

Step 1: On the PowerServer Toolkit, click the **Configure** icon (\bigotimes).

Step 2: On the **PowerServer Toolkit Configuration** window, click the **DB Type Profile** tab.

Step 3: View the **Configured** column of the database type used by your application, if it displays **Yes**, you can skip the remaining steps in this task. Otherwise, select the database type used by your application, and then click **Configure**.

Figure 3.1: DB Type Profile in ADT

🗙 PowerSever ToolKit Configuratior	l.		×
Application Profiles DB Type Profiles	Server Profiles Deployment Profi	les Data Source Profiles	
Database Type Configuration <u>The Database Type profile tells Appeon for PowerBuilder which database type is used to convert PowerBuilder SQL statements. Configure the profiles below, then associate profiles with individual application in the Application Profiles DB Settings tab.</u>			
Supported Database Types		Configured	•
Oracle 9i		No	
Other		No	
PostgreSQL		No	
SAP ASE		No	
SAP HANA		No	
SAP IQ		No	=
SAP SA UltraLite		Yes	
SQLite		No	
Teradata		No	-
		Con	figure
		OK	Cancel

Step 4: On the **Database Type Profile Configuration** window, do the following (take **SAP SA** | **UltraLite** as an example):

1. Select the **ODBC Interface** radio button from the **Database Interface** option.

2. Select a data source from the **Data Source** dropdown list box. It can be any data source (ODBC DSN) provided it is the same type as used by your application. It does NOT have to be the actual ODBC DSN used by your particular application. The database type is what is important and that a connection can be established to the specified ODBC DSN.

- 3. Keep the rest as default, and then click **Test Connection**.
- 4. Make sure that the database connection is successful.
- 5. Click **OK**.

Figure 3.2: Database Type Profile Configuration

X Database Type Profile Co	onfiguration		x
For each database type used database of that type in order You need only provide one cr	in your application(s), you n for PowerServer ToolKit to onnection to each type of d	must provide an ODBC or Native Interface connection to a connect to the data source during deployment. Jatabase used in your application.	
Database Settings Database Type:	SAP SA UltraLite		
Database Interface:	ODBC Interface	\bigcirc <u>N</u> ative Interface	
Syntax:	✓ Enclose table and colu	umn names in quotes	
Outer Join Syntax:	ANSI	•	
ODBC Interface Data Source: Appeo	nSample 🔹	Native Interface Server:]
<u>U</u> ser ID:		User ID:]
Password:		Database:]
)BC Ad <u>m</u> inistrator	Rejease:)
Iest Connection OK Cancel			

Now the **Configured** column of your database type will be indicated by **Yes**. You can select the database type when you create the application profile for your application in <u>Task 3</u>: <u>Configure and deploy the application</u>.

3.2 Task 2: Configure the database connection

Step 1: In the **PowerServer Toolkit Configuration** window, click the **Data Source Profile** tab.

Step 2: Select Local PowerServer from the PowerServer dropdown list box.

Step 3: Click the Add button to create a data source in the selected PowerServer.

Figure 3.3: Connection Cache Profiles

🗙 PowerSever ToolK	it Configuration				×
Application Profiles	DB Type Profiles	Server Profiles	Deployment Profiles	Data Source Profiles	
Data Source Configure the data be automatically d	a source only if you lisplayed.	ur PowerServer i:	s installed on IIS. Data	sources in the selected	PowerServers will
Power <u>S</u> erver:	Local PowerSe	erver		•	
Name		DB H	Host		<u>E</u> dit
appeonsample		Appe	eonSampleForServer		Add
appeonsample2		Арре	eonSample2ForServer	(<u>D</u> elete
				0	K Cancel

Step 4: On the Add Data Source window, specify the data source settings. Below we take SAP SQL Anywhere and Microsoft SQL Server database as examples.

Steps for configuring a data source for SAP SQL Anywhere database:

1. In the Name text box, input any text you like as the name of the data source.

2. Select **ODBC Driver** from the **Driver** dropdown listbox.

3. Select the data source from the **ODBC Data Source** dropdown listbox.

4. Input the database login user name and password respectively in the **User Name** text box and the **Password** text box.

5. Keep the rest as default, and then click **Test**. Make sure the test is successful.

6. Click **OK**.

🗙 Add Data Source		— ×
<u>N</u> ame:	sa_db	
Database		
<u>D</u> river:	ODBC Driver	•
<u>H</u> ost:		
P <u>o</u> rt:		
OD <u>B</u> C Data Source:	AppeonSample	
<u>U</u> ser Name:	dba	
Password:	•••	
Character Set:	ASCII	
Session Mode:	DEFAULT	
Maximum Connection F	Pool Size:	100
Minimum Connection P	ool Size:	10
Connection Timeout (se	e <u>c</u> onds):	120
Command Timeout (sec	conds):	30
Connection Lifetime (se	conds):	0
Other Options:		
🔲 Dynamic Database	Connection 🛛 📝 Pooling	
Iest		OK Cancel

Figure 3.4: SAP SQL Anywhere data source

Steps for configuring a data source for Microsoft SQL Server database:

- 1. In the **Name** text box, input any text you like as the name of the data source.
- 2. Select **MS SQL Server Native Driver** from the **Driver** dropdown listbox.
- 3. Input the IP address or machine name of the database server in the Host field.
- 4. Input the port number of the database server in the **Port** field.

5. Input the database name, database login user name and password respectively in the **Database Name**, the **User Name** and the **Password** text boxes.

6. Keep the rest as default, and then click **Test**. Make sure the test is successful.

7. Click **OK**.

Tip: you should check with your SQL Server administrator to verify the port number, the user name, and the password are correct.

🗙 Add Data Source		
<u>N</u> ame:	northwind	
Database		
<u>D</u> river:	MS SQL Server Native D	river 🔻
<u>H</u> ost:	192.0.0.205	
P <u>o</u> rt:	1433	
Databas <u>e</u> Name:	northwind	
<u>U</u> ser Name:	sa	
Password:		
Character Set:	ASCII	
Session Mode:	DEFAULT	
Maximum Connection Po	ool Size:	100
Minimum Connection Po	ol Size:	10
Connection Timeout (seg	gonds):	120
Command Timeout (seco	onds):	30
Connection Lifetime (seconds):		0
Other Options:		
🔲 Dynamic Database C	Connection 🛛 📝 Pooling	
<u>I</u> est		OK Cancel

Figure 3.5: MS SQL Server data source

Now the data source you added will be listed in the **Data Source Profiles** tab. You can select it when you create the application profile for your application in <u>Task 3: Configure and</u> <u>deploy the application</u>.

3.3 Task 3: Configure and deploy the application

Step 1: On the PowerServer Toolkit click the first icon **Config Wizard** (

Step 2: In the welcome screen click Next.

Step 3: Specify following settings and then click Next.

1. Specify the application profile name in the **Application Profile Name** text box. The same text will be displayed in the **Web Folder** text box and the **Mobile App Name** text box. You can modify these fields to use different text.

- 2. Select Mobile from the Project Type dropdown list box.
- 3. Select a device type from the **Device Type** dropdown list box.

For applications that are designed for tablets, select **Tablet**; for applications that are designed for smartphones, select **Smartphone**; for applications that are designed for both devices, select **Both**.

4. In the **Mobile App Icon** text box, specify an icon for your application by clicking **Browse** to select the image file of the PNG or JPG format. The image that you choose will be displayed as the application icon in the Appeon Workspace. Recommended size is 86 x 86 pixels (or above) for low-resolution display and 172 x 172 pixels (or above) for high-resolution display (such as retina display). To ensure the best display quality in both high-resolution and low-resolution screens, you must supply an image of 172 x 172 or above. The image will be automatically shrunk to fit properly. If you leave this field empty, the default icon will be displayed in Appeon Workspace.

5. Enter a brief description in the **Mobile App Description** text box. This description will be displayed in the Appeon Workspace next to the application icon. If you leave this field empty, no app description will be displayed in the Appeon Workspace.

6. Select a background color for the app if necessary.

💀 PowerServer Toolkit Configuration Wizard				
Welcome	Please configure the following options:			
	Application Profile Name:	sales_app		
Configure basic settings	<u>W</u> eb Folder:	sales_app		
Select PBL files	Project Type:	Mobile		
Select DB types	Device Type:	Smartphone		
Declare transaction object(s)	Mobile App Name:	sales_app		
	Mobile App Icon:	C:\Users\Public\Documents\Appeon\Tr		
Select image files	Mobile App Description:	A sales app for mobile device.		
Select INI files				
Deploy External Files	🔲 Use this background c	olor for the mobile app:		
Summary				
Help	< <u>B</u> ack	Cancel Einish		

Figure 3.6: PowerServer Toolkit Configuration Wizard

Step 4: Add the PBT from the **PBT** dropdown list box (and all related PBLs will be automatically added for you) or add the PBL files individually that are used in your

application by clicking the **Add File** button in the **PBL File List** group box, and then select a PBL version from the **PBL Version** dropdown list box. Click **Next**.

Figure 3.7:	Add the	PBT in	ADT	Wizard
-------------	---------	--------	-----	--------

RowerServer Toolkit Configuration Wizard				
Welcome	Select the PBL files used in your application:			
Configure basic settings	<u>Р</u> ВТ:	C:\Users\Public\Documents\Appeon\Toolkit\appeonc		
Select PBL files		V Keep PBT Updated		
Configure deployment settings				
Select DB types	FBL <u>v</u> eision.	PowerBuilder 2017		
Declare transaction object(s)	PBL File List:			
 Select image files Select INI files 	c:\users\public\da c:\users\public\da c:\users\public\da c:\users\public\da c:\users\public\da c:\users\public\da	locuments\appeon\toolkit\appeondemo\salesmobiledemo\s locuments\appeon\toolkit\appeondemo\salesmobiledemo\s locuments\appeon\toolkit\appeondemo\salesmobiledemo\s locuments\appeon\toolkit\appeondemo\salesmobiledemo\e locuments\appeon\toolkit\appeondemo\salesmobiledemo\e		
Deploy External Files	•	4		
Summary		<u>A</u> dd <u>R</u> emove		
Help		< <u>B</u> ack <u>N</u> ext > Cancel <u>F</u> inish		

Step 5: Keep the default settings and click Next.

Since you have installed PowerServer Toolkit and PowerServer on the same machine, you can directly use the **Local PowerServer** profile, the **Local Web Server** profile, and the **Local Deployment** profile, all of which are configured automatically by the product setup program.

When you click **Next** the config wizard will automatically test the connection to the server. You will not be able to proceed if the connection test failed.

Figure 3.8: Select the PowerServer(s) and Web Server(s)

ReverServer Toolkit Configuration Wizard				
Welcome	Please select the PowerServer(s) and We that your application will be deployed to:	b Server(s)		
Configure basic settings	Deployment Profile Name: Local Deployment	•		
Select PBL files	PowerServers			
Configure deployment settings	Selected Name	<u>E</u> dit		
Select DB types	Local PowerServer	Add		
Declare transaction object(s)				
	Web Servers	Delete		
Select image files	Selected Name	Ed <u>i</u> t		
Select INI files	Local Web Server	Add		
Deploy External Files				
		Dejete		
Summary				
Help	< <u>B</u> ack <u>N</u> ext > Cancel	<u> </u>		

Step 6: Select the database type used by your application and click Next.

When you click **Next** the config wizard will automatically test the connection with the database engine. You will not be able to proceed if the connection test failed.

If the required database type has not been configured in <u>Task 1: Configure the database type</u>, you should highlight the database type, then click **Edit**, and then follow Step 4 in <u>Task 1:</u> <u>Configure the database type</u> to configure it.

Figure 3.9: Select the database type(s)

🐻 PowerServer Toolkit Configuration Wizard					
Welcome	Select the database type(s) used by your application:				
Configure basic settings Select PBL files Configure deployment settings	Note: You r necessary to setting enab generating t application.	nust specify the database type(s) that your app o specify the exact database(s) used in this pa iles PowerServer Toolkit to apply the correct ty he correct database syntax for PowerBuilder S	lication uses, but it i rticular application. 1 ype of database driv QL statements in th	s not This er for e	
Select DB types	Used Supported Database Types Configured				
Declare transaction object(s)		MSSQLServer	No	=	
		Oracle 8i	No		
E Calact image files		Oracle 9i	No		
Select image files		SAP ASE	No		
Select INI files		SAP SA UltraLite	Yes		
Deploy External Files		IBM DB2 UDB	No	-	
	<u>E</u> dit	<u>I</u> est			
Help		< <u>B</u> ack <u>Next</u> > Can	el <u>F</u> inish		

Step 7: Click **Add** to specify the transaction object(s) used in your application.

Figure 3.10: Specify the transaction object

🐻 PowerServer Toolkit Configuration Wizard					
Welcome	Please specify the transaction object(s) used in the application and the corresponding data source(s):				
Configure basic settings	Transaction Object	Data Source	DB Type		
Select PBL files					
Configure deployment settings					
Select DB types					
Declare transaction object(s)					
Select image files					
Select INI files					
Deploy External Files					
Summary		Configure Add	Delete		
Help	< <u>B</u> ack	Next > Cancel	<u> </u>		

In the Add Transaction Object window, specify the following settings:

a. Input the transaction object name used by the application to the **Transaction Object** text box. Default transaction object for most PB applications is **SQLCA**.

b. Select the database type from the **Database Type** list box.

c. Select Local PowerServer from the PowerServer dropdown list box.

d. Select the data source from the table. The data source should connect to the same database that the PowerBuilder application connects to. If the required data source has not been configured in Task 2: Configure the database connection, you should click Add, and then follow Step 4 in Task 2: Configure the database connection to create it.

Add 1	Transaction	Object			×
Τı	Iransaction Object: sqlca				
Da	atabase Type	e:	SAP SA UltraLite		-
Da	ata Source:		sa_db		
so - C	source in the below Data Source group box. Data Source Power <u>S</u> erver: Local PowerServer				
	Selected	Name DB Host			
	0	appeonsample		AppeonSampleForServer	
	0	appeonsample2		AppeonSample2ForServer	
	0	sa_db		AppeonSample	
	0	northwind 192.0.0.205			
	<u>E</u> dit	<u>A</u> dd	<u>D</u> elete	OK Canc	el

Figure 3.11: Select the connection cache

Tip: If you have more than one transaction object you can add additional transaction objects by repeating the above steps.

Step 8: Click **Browse** to select the image file or the folder that contains the image files, if any. Click **Next**.

Step 9: Click Add File or Add Directory to select the INI file, if any. Click Next.

Step 10: Click **Add File** or **Add Directory** to select any other external files such as TXT file etc., if any. Click **Next**.

Step 11: In the configuration summary screen, keep the **Deploy the application now** option as selected. Click **Finish**.

Once you click **Finish**, the **Appeon Deployment Wizard** automatically starts deploying the application. To manually starts **Appeon Deployment Wizard**, you can click the **Deploy** icon

(¹) on the PowerServer Toolkit.

Step 12: Click **Finish** when the deployment process is complete.

👌 Appeon Deployment Wizard - sales	s_app			×
Deployment Information				
Application deployed:		sales_app		
Deployment mode:		Full Application Deplo	pyment	
Deployment profile used:		Local Deployment		
Deployment Task Summary				
Task		Status	Time	
Task 1: Application Source Code Expo	ort	Completed	< 1 Minutes	
Task 2: Appeon Application File Gener	ation	Completed	< 1 Minutes	
Task 3: Appeon Application Deployme	nt	Completed	< 1 Minutes	
Total Time Elapsed for Automatic Conv	version		< 3 Minutes	
Log Information				
Warnings and Errors Summary:	Errors: 0;	Warnings: 0	View Log	
Reports				
Features Analysis report available:			Analysis Report	
			<u> </u>	_ ▼

Figure 3.12: Appeon Deployment Wizard_sales

3.4 Task 4: Run the Web version of the application (in IE)

Before you run the application on the Android or iOS device, make sure your application can run successfully in the Internet Explorer Web browser (to aid debugging your application is automatically deployed as both a Web application using PowerServer Web and a mobile application using PowerServer Mobile):

Step 1: Open Internet Explorer and navigate to the trusted sites list (**Internet Option** > **Security** > **Trusted Sites** > **Sites**). Uncheck the **HTTPS** checkbox and add the IP address of your IIS as well as the localhost. For example, if your IP address is 192.168.1.117 then it should look as follows:

Figure 3.13: Add the IP address of IIS

Trusted sites	×
You can add and remove websites from this zone this zone will use the zone's security settings.	e. All websites in
Add this website to the zone:	
http://192.168.1.117/	Add
Websites:	
http://223.255.243.247	Remove
http://appcrm.appeon.com	
http://appeon.gnway.net	
http://most.cloudapp.net	
Require server verification (https:) for all sites in this	zone
	Close

Figure 3.14: Add "localhost"

Trusted sites	×
You can add and remove websites from this zone this zone will use the zone's security settings.	e. All websites in
Add this website to the zone:	
http://localhost/	Add
Websites:	
http://223.255.243.247	<u>R</u> emove
http://appcrm.appeon.com	
http://appeon.gnway.net	
Require server verification (https:) for all sites in this a	zone
	Close

Step 2: Input the application URL in the Internet Explorer address bar and start the application. The application URL must contain index.htm, for example http://192.168.1.117/ myApplication/index.htm.

Note: The application URL is specified in the **Web Folder** field in Step 1 of <u>Task 3</u>: <u>Configure and deploy the application</u>.

Step 3: Install the Web browser plug-in, when you are prompted. You will be prompted twice, please accept both times.

Step 4: When the application is loaded successfully in Internet Explorer, test it carefully.

If you notice any issues, please debug the application according to the <u>Tutorial 3: Develop &</u> <u>Debug with PowerServer Mobile</u>.

3.5 Task 5: Run the mobile version of the application (on the Android or iOS device)

Now you are ready to run your application on the Android or iOS device.

Step 1: Configure the network connection. See Task 4 in Tutorial 1: Set up the Environment.

Step 2: Install Appeon Workspace. See Task 3 in Tutorial 1: Set up the Environment.

Step 3: Tap the **AppeonMobile** icon on your Android or iOS device to launch Appeon Workspace.

Step 4: Tap the **New** icon $(\textcircled{\bullet})$ to the left of the title bar.

Step 5: In the **App URL** text box, enter the application URL in this format: *http:// server_ip:port/app_name*. For example, if your IIS IP address is 192.168.1.117 on port 80 and you specified *myApplication* in the PowerServer Toolkit configuration as the Web folder name then the URL would be http://192.168.1.117:80/myApplication/.

Step 6: Tap the **Test Connection** button to test the server connections. If successful please proceed to Step 7, otherwise please enter the correct URL.

Step 7: Tap the **Back** icon ((S)) on the title bar to save the information and return to the main screen of the Appeon Workspace.

Once you return to the main screen of the Appeon Workspace, the downloading and installation process of the application occurs automatically.

Step 8: After the installation process has completed, tap the application icon on the main screen to run the mobile app that is installed.

4 Tutorial 3: Develop & Debug with PowerServer Mobile

Please keep in mind the following points when developing and debugging the Appeon mobile applications for the Android or iOS device. For detailed instructions on how to use the PowerServer Toolkit you may refer to PowerServer Toolkit User Guide.

4.1 Point 1: Mobile UI Considerations

Many aspects of the UI for mobile applications differ significantly from traditional PowerBuilder best practices. How you layout controls on the window, the size of the window, controls, and other visual objects, and how the user expects to interact with your application are fundamentally different for mobile devices.

Please carefully read Chapter 2, *Best Practices* in *Mobile UI Design & Development Guide*, including the **Window** subsection. We have compiled valuable tips and suggestions that will help you develop user-friendly mobile applications.

Once you have a good understanding of Chapter 2, *Best Practices* in *Mobile UI Design & Development Guide*, we strongly recommend using the formula in Section 2.5.1, "Unit conversion" in *Mobile UI Design & Development Guide* to properly size the application windows and controls to display appropriate on the Android or iOS device.

4.2 Point 2: Unsupported Features

PowerServer Mobile supports nearly all the same features as PowerServer Web. Those experienced with PowerServer Web know that it supports many powerful PB features. So you should be able to build equally robust applications with PowerServer Mobile also.

When developing applications for PowerServer Mobile, it is critical to ensure that your application does not contain unsupported features. Appeon provides several tools to assist you with this:

- Tool 1: The **UFA** tool ($\stackrel{\square}{\cong}$) in the PowerServer Toolkit will automatically scan your application and list major unsupported features found based on a keyword scan.
- Tool 2: The **Code Insight** tool () in the PowerServer Toolkit will pop-up a window, when you are writing dot notation in the PB script editor, that prevents you from writing PowerScript that is unsupported.
- Tool 3: The Supported PB Features for PowerServer Mobile is a searchable online help that lists all unsupported features.

These tools have some limitations. Please keep in mind the following limitations when using these tools:

• The **UFA** tool uses a keyword scan. As such, not all unsupported features can be found, especially those that are dynamically occurring in runtime.

• The **Code Insight** tool is limited to unsupported PowerScript and essentially based on keywords (like the **UFA** tool). As such, it will not prevent all unsupported features from being added to the application, such as unsupported objects, unsupported expressions, etc.

We recommend you develop your mobile applications with PowerServer Toolkit as follows:

Step 1: Use the **Code Insight** tool (^{IIII}) from the PowerServer Toolkit to code PowerScript that is compatible with PowerServer Mobile. For details about how to configure and use the **Code Insight** tool, see Chapter 12, *Developing with Code Insight* in *PowerServer Toolkit User Guide*.

Step 2: Run the **UFA** tool (Section 1) from the PowerServer Toolkit to generate the unsupported features report. For details about how to run the UFA report, see Chapter 5, *Using UFA Tool* in *PowerServer Toolkit User Guide*.

Step 3: Remove or rewrite any unsupported features found by the **UFA** tool. Please make note of the unsupported features found such that in the future you do not reintroduce these same unsupported features.

Step 4: After you have deployed the application, attempt to run the Web version in the Internet Explorer Web browser. The Web version is based on **PowerServer Web** that has been on the market for over 10 years. As such, if you find something in your application is not working in the Web version chances are it is an unsupported feature rather than a product bug.

Step 5: Since the **UFA** tool and **Code Insight** cannot prevent 100% unsupported features, should you find something that does not work in the Web version please go back to the object or area of PowerScript in question and cross-reference that with the Supported PB Features for PowerServer Mobile to see if your application contains any unsupported features.

Step 6: If after cross-referencing the Supported PB Features for PowerServer Mobile you believe your application is free of unsupported features but it fails to run or operate properly please contact <support@appeon.com> for help.

4.3 Point 3: Previewing & Debugging

To preview the application UI and layout, run the application in Appeon Workspace on the mobile device. For instructions on installing Appeon Workspace, see Task 3 in <u>Tutorial 1:</u> <u>Set up the Environment</u>.

To debug the application business logic, first ensure that the UFA report does not contain any unsupported features, or at least no unsupported features in the area of the application you are

trying to debug. Then, launch the **Appeon Debugger** (E) from the PowerServer Toolkit, which will load the Web version of your application in the IE Web browser.

The **Appeon Debugger** requires the Microsoft Script debugger to be installed on your system and that your Internet Explorer is version 9 or later. There are also special configurations you need to perform in the PowerServer Toolkit and Internet Explorer. Please see Chapter 7, *Debugging Appeon Web Applications* in *PowerServer Toolkit User Guide* for more information about how to properly configure your environment for the Appeon Debugger.

Please note that PowerServer Mobile does not contain a mobile-specific debugger, so we have included the Web debugger in lieu. While not exactly the same, it can still help

to identify problems in the application business logic or areas that Appeon is having trouble converting.

5 Tutorial 4: Package & Distribute Native Mobile Apps

5.1 Overview

After you successfully deploy a PowerBuilder application to be a native mobile application using the PowerServer Toolkit, you can choose to run the mobile app immediately in Appeon Workspace (see Appeon Workspace User Guide for detailed instructions), or package the app and publish it to the online application store (such as Apple App Store, Google Play etc.) or distribute it over-the-air (such as by email, Web site etc.). In this section, you will go through all the required steps for packaging and distributing a PowerServer Mobile app as a standalone native app.

Note: these steps are also applicable for packaging and distributing Appeon Workspace, as intrinsically Appeon Workspace is also a standalone native mobile app.

5.2 Package & Distribute iOS Apps

You will need to go through the following tasks to package and distribute the PowerServer Mobile app as a standalone native iOS app.

- 1. Task 1: Prepare for the build environment.
- 2. Task 2: Generate the Xcode project.
- 3. Task 3: Create the app archive.
- 4. Task 4: Distribute the app archive

5.2.1 Task 1: Prepare for the build environment

5.2.1.1 Task 1.1: Register for an Apple ID

Follow the onscreen instructions on <u>My Apple ID</u> to create an Apple ID if you do not have one.

5.2.1.2 Task 1.2: Prepare the Mac machine

Buy a Mac machine and install the latest Xcode on the Mac machine.

You will need to have a Mac machine with the Xcode tool installed already to create and install the distribution certificate and the provisioning profile; run the Xcode project of the application and create the app archive; distribute the app archive; etc.

5.2.1.2.1 Install Xcode

Click <u>https://developer.apple.com/xcode/</u> to download the latest Xcode, which is 6.1 by the time of writing.

Sign in with your Apple ID, follow the onscreen instructions to register your Apple ID as an Apple developer, and download and install the latest Xcode tool from the above mentioned website.
For more information on Xcode, see the documentation provided on the Apple website.

5.2.1.3 Task 1.3: Enroll in an iOS Developer Program

Enroll in an iOS Developer program at https://developer.apple.com/programs/.

Carefully compare the programs and choose one that suits you best, because different distribution types (App Store, Ad Hoc, In-House, etc.) will be available in different programs, for example, **App Store Distribution** is available in **iOS Developer** program only, while **In-House Distribution** is available in **iOS Developer Enterprise** program only.

Below is a brief introduction to the three distribution types that are commonly used (detailed instructions for these distribution types are provided with in <u>Section 5.2.4</u>, "Task 4: <u>Distribute the app archive</u>"):

• **App Store Distribution**: allows you to submit the app for publication to the Apple App Store.

You would need to enroll in the iOS Developer program.

• **In-House Distribution**: allows you to install the app to an unlimited number of devices inside your company.

You would need to enroll in the iOS Developer Enterprise program.

• Ad Hoc Distribution: allows you to install the app on a limited number (up to 100) of registered devices.

You would need to enroll either in the **iOS Developer** program or the **iOS Developer Enterprise** program. And you would need to register the devices by their unique device ID (UDID) and add them to the provisioning profile. For details, refer to <u>Registering Devices</u> <u>Using Member Center</u> in the Apple document *App Distribution Guide*.

IMPORTANT NOTE:

If you enroll in the **iOS Enterprise Program**, you are responsible for managing the Enterprise Program certificate and provisioning profile. According to the Apple policy, the **iOS Enterprise Program** certificates expire after three years and provisioning profiles expire after one year, which means, before the distribution certificate expires, you will need to request an additional distribution certificate and replace the expired one, and before the provisioning profile expires, you will need to renew the provisioning profile using a valid certificate. Otherwise the mobile app distributed using the enterprise provisioning profile will not launch after expiration. For more details, refer to Managing Expiring Certificates and Provisioning Profiles in the Apple document *App Distribution Guide*.

Figure 5.1: Compare programs

Compare Programs

	iOS Developer For individuals and organizations creating apps for distribution on the App Store. Learn more ►	iOS Developer Enterprise For companies and organizations distributing proprietary apps for internal use. Learn more >	iOS Developer University For higher education institutions introducing iOS app development into their curriculum. Learn more ►
ios sdk	×	×	×
iOS SDK (Pre-release)	✓	✓	N/A
Test apps on iOS devices	×	✓	✓
Code-level Technical Support	✓	✓	N/A
Ad Hoc Distribution	×	✓	N/A
App Store Distribution	×	N/A	N/A
Custom B2B App Distribution	×	N/A	N/A
iAd Network	×	N/A	N/A
In-house Distribution	N/A	✓	N/A
Cost	\$99 year	\$299 year	Free
Requirements	If you're enrolling as an organization, a D-U-N-S Number registered to your legal entity is required.	A D-U-N-S Number registered to your legal entity is required.	The University Program is only available to qualified, degree granting, higher education institutions.

5.2.1.4 Task 1.4: Create an App ID

An App ID is required when you create the provisioning profile and when you compile the Xcode project to be an IPA file later.

An App ID is a unique identifier for the app. It is composed of two parts: the App ID Prefix and the App ID Suffix (also called Bundle Identifier). The App ID Prefix is a 10-character hexadecimal string generated by the iOS Certificates, Identifiers & Profiles page. It is unique to you and your developer account. The App ID Suffix is a name you enter called the Bundle Identifier. The Bundle Identifier can be explicit or a wildcard. Wildcard Bundle IDs are great for quick development – you do not have to create a new ID for each and every app you test. We will use wildcard Bundle IDs in this tutorial.

To create an App ID:

Step 1: On your Mac machine, log in to the <u>Apple Developer Member Center</u> with your Apple ID and password.

Step 2: Click the icon or text next to Certificates, Identifiers & Profiles.

Figure 5.2: Certificates, Identifiers & Profiles

Developer P	rogram Resources		
Technical F	Resources and Tools Dev Centers Quickly access a range of technical resources. iOS Mac Safari	Certificate O	Certificates, Identifiers & Profiles Manage your certificates, App IDs, devices, and provisioning profiles.
App Store I	Distribution App Store Resource Center Learn about how to prepare for App Store Submission.		iTunes Connect Submit and manage your apps on the App Store.
Community	y and Support Apple Developer Forums Discuss technical topics with other developers and Apple engineers.	X	Developer Support Request technical or developer program support. Technical Program

Step 3: Click **Identifiers**, then click the plus sign (+) button near the top-right corner.

Figure 5.3: Identifiers



Figure 5.4: Add an App ID

iOS Apps	-	iOS App IDs	+ Q
Certificates	0 App IDs Total		
All	Name	▲ ID	
PendingDevelopmentProduction			
D Identifiers App IDs			
 Pass Type IDs Website Push IDs Cloud Containers 			
 App Groups Merchant IDs 			

Step 4: Enter a description, for example, "My Mobile Apps", which cannot include special characters (including most punctuation).

Step 5: For App ID Prefix, understand that it is automatically generated by the iOS Certificates, Identifiers & Profiles page.

Step 6: For App ID Suffix, choose **Wildcard App ID** to use a single ID to match multiple applications. Enter an asterisk (*) as the last digit of the Bundle ID. For example, "com.abcexample.*".

Figure 5.5: Information for the App ID

App ID Description

Name:	My Mobile Apps
	You cannot use special characters such as @, &, *, ', "

App ID Prefix

Value: ERV593G6X6 (Team ID)

App ID Suffix

Explicit App ID

If you plan to incorporate app services such as Game Center, In-App Purchase, Data Protection, and iCloud, or want a provisioning profile unique to a single app, you must register an explicit App ID for your app.

To create an explicit App ID, enter a unique string in the Bundle ID field. This string should match the Bundle ID of your app.

Bundle ID:	
	We recommend using a reverse-domain name style string (i.e.,
	com.domainname.appname). It cannot contain an asterisk (*).

Wildcard App ID

This allows you to use a single App ID to match multiple apps. To create a wildcard App ID, enter an asterisk (*) as the last digit in the Bundle ID field.

Bundle ID:	com.abcexample.*
	Example: com.domainname.*

Step 7: Click Continue.

Step 8: Confirm the App ID information and click **Submit**.

Remember the App ID, especially the App ID Suffix (Bundle ID), as it will be used in the Xcode project settings and the iTunes Connect app record.

5.2.1.5 Task 1.5: Create & install a distribution certificate

A distribution certificate is required to sign the code and create an app for testing and submitting to the Apple Store etc.; it is different from a development certificate which is used for development purpose in Xcode. You must have a valid distribution certificate linked to a distribution provisioning profile.

Note that if you use an **iOS Enterprise Program** distribution certificate, the certificate will expire after three years, you will need to request an additional certificate to replace the old one before expiration. For more, refer to <u>Requesting Additional Enterprise Distribution</u> <u>Certificates</u> in the Apple document *App Distribution Guide*.

5.2.1.5.1 Create a CSR file

To generate a distribution certificate, you will first need to create a Certificate Signing Request (CSR) from your Mac. Follow the instructions below to create a CSR file using Keychain Access.

To create a CSR file:

Step 1: Open **Finder** on your Mac, select the **Application** folder, then open the **Utilities** folder, and launch **Keychain Access**.



Figure 5.6: Utilities folder

		🔯 Utilities	Q	R ^M
	~		~	43.55
Applications	Bluetooth File Exchange	Boot Camp Assistant	ColorSync Utility	Console
Desktop Documents				
Downloads DEVICES	DigitalColor Meter	Disk Utility	Grab	Grapher
 Remote Disc SHARED apple's iMac 	R		å	> _
	Keychain Access	Migration Assistant	System Information	Terminal
H08Macmini macmin221		X		
🖴 sun-mac 🕾 sunz . 🔜 All	VoiceOver Utility	X11		

Figure 5.7: Keychain Access application

Step 2: Within the **Keychain Access** drop down menu, select Keychain Access > Certificate Assistant > Request a Certificate from a Certificate Authority.

Ś	Keychain Access	File Edit	View W	indow Hel	p			G 43	🔺 🜒 T	hu 6:
00	About Keychain Acc	cess		Add – iOS Certificates – Apple Developer						
	Preferences	ж,	oper.apple.c	om/account/	ios/certificate/certificate	Create.action?formID	=70989306			
	Keychain First Aid	Σ#A	Taentin	ers or Pr	OIIIes				Armeer	n mazo
	Certificate Assistant	t 🕨	Open							
	Ticket Viewer	ΛЖ	Create	a Certificate	2					-
	Services	S Apps	Create Create	a Certificate a Certificate	e Authority e For Someone Else as	a Certificate Auth	ority	e		÷
	Hide Keychain Acce Hide Others Show All	ss жн ∵жн	Reques Set the Evaluat	t a Certifica default Cer e a Certifica	te From a Certificate . tificate Authority ate	Authority		Q		
	Quit Keychain Acce	ss #Q Loca Syste Syste	l Items em em Roots	A	Kind: application passwo Account: Window Bitma Where: Apple Persistent Modified: Nov 24, 2014	p Encryption State Encryption , 7:38:09 PM				
	ID Id	1		Name	A	Kind	Date Modified	Expires	Keychain	
				় ° ≤key>		public key			login	
				<pre></pre>		private key			login	_
				Apple Apple	Persistent State Encryption	application password	Nov 24, 2014, 7:38:09 PM		login	
		Cate	egory		entityair-signature-vi	application password	Nov 24, 2014, 7:36:16 PM		login	
		All It	ems	A ids: id	entity-rsa-public-key	application password	Nov 24, 2014, 7:38:18 PM		login	
		🛴 Passv	words	A ids: m	essage-protection-key	application password	Nov 24, 2014, 7:38:18 PM		login	
		🧉 Secu	re Notes	iMessa ime	ge Encryption Key	private key			login	
		🔛 My C	Certificates	iMessa ime	ge Signing Key	private key			login	
		Keys		🐴 Safari	Forms AutoFill	application password	Nov 24, 2014, 9:18:02 PM		login	
		📴 Certi	ificates							
	🗋 D	4								
	P P	r								
										-
				+11 C	ору		10 items			

Step 3: In the Keychain Information window, enter the following information:

- In the User Email Address field, enter your email address. Use the same email address you used to register in the iOS Developer Program.
- In the **Common Name** field, create a name for your private key. For example, ABC Distribution Key.
- The CA Email Address field should be left empty.
- In the "Request is" group, select the "Save to disk" option.

Step 4: Click **Continue**.

Figure 5.9:	Certificate	information
-------------	-------------	-------------

	Certificate Assistant Certificate Information Enter information for the certificate you are requesting. Click Continue to request a certificate from the CA.
Cert	User Email Address: Common Name: ABC Corporation CA Email Address: Request is: Emailed to the CA Saved to disk Let me specify key pair information
	Continue

Step 5: Click **Save** to save the CSR file to your Mac desktop. You will need to upload this CSR file when you create the distribution certificate in the next section.

000	Certificate Assistant
Save As	: CertificateSigningRequest.certSigningR
Tag	u are request a certificate from the CA.
Where	e: 📋 Desktop 🛟
1 Car	Common Name: ABC Cancel Y Save
	Request is: Emailed to the CA Saved to disk
	Let me specify key pair information
	Continue

Figure 5.10: Save CSR to Desktop

5.2.1.5.2 Create & install a distribution certificate

Now you should go back to the **Apple Developer Member Center** to create a distribution certificate.

Step 1: In the **Certificates, Identifiers & Profiles** page of the Member Center, choose **Certificates** > **Production**, then click the plus sign (+) button near the top-right corner.

Figure 5.11: Add a certificate

iOS Apps 👻		+ Q	
Certificates	2 Certificates Total		
= All	Name	Туре	Expires
Pending			
Development			
Production			
D Identifiers			
App IDs			
Pass Type IDs			
Website Push IDs			
iCloud Containers			
App Groups			
Merchant IDs			

Step 2: First drag down the page and click **Worldwide Developer Relations Certificate Authority** to download AppleWWDRCA.cer to your Mac. Then click AppleWWDRCA.cer in the **Downloads** folder on your Mac to add the certificate to Keychain Access. You should be able to see the "Apple Worldwide Developer Relations Certificate Authority" certificate listed in the Keychain Access Certificates section.

Figure 5.12: Download the AppleWWDRCA.cer

Step 3: Return to the page for adding the iOS certificate, select a certificate type (**App Store and Ad Hoc**), then click **Continue**.

Figure 5.13: App Store and Ad Hoc distribution



Step 4: If you have already created a Certificate Signing Request (CSR) file in the previous section, click **Continue** to upload the CSR file. If not, you could follow the directions on this page or in the previous section <u>Create a CSR file</u> to create one.

Step 5: Click Choose File to select your CSR and click Generate.

Ce	ertificates, I		📰 🔻 📋 Desktop 🗘 🔍	
	iOS Apps	FAVORITES All My Files Applications		
ŝ	Certificates	 Desktop Documents Downloads 	CertificateSigningR equest.cgRequest	
	Pending	DEVICES		
	Development	Remote Disc		
	Production	SHARED		
ID	Identifiers App IDs	 apple's iMac "appeon"的"Mac min… "appeon"的"Mac min… 		
	Pass Type IDs	H08Macmini		
	Website Push	🖨 macmin221		
	iCloud Contain	ners		Cancel Choose
	App Groups	Uploa	d CSR file.	
	Merchant IDs	Select	.certSigningRequest file saved on your Mac.	
	Devices All		Choose File	

Figure 5.14: Upload CSR file

Figure 5.15: Generate a certificate

Select Type Request Generate Download								
Generate your certificate.								
With the creation of your CSR, Keychain Access simultaneously generated a public and private key pair. Your private key is stored on your Mac in the login Keychain by default and can be viewed in the Keychain Access application under the "Keys" category. Your requested certificate will be the public half of your key pair.								
Select .certSigningRequest file saved on your Mac.								
Choose File CertificateSigningRequest.certSigningRequest								
Cancel Back Generate								

Step 6: Click **Download** to download the distribution certificate to your Mac.

The distribution certificate (ios_distribution.cer) appears in your **Downloads** folder on your Mac.

Figure	5.16:	Download	Distribution	Certificate
riguit	2.10.	Dowmoau	Distribution	certificate

000	Add – iOS Certificates – Apple Developer	1271
🔺 🕨 🔛 🕂 🗯 Apple Inc. 🗎 develo	per.apple.com/account/ios/certificate/certificateDownload.action?certificateIds=PZKH79LGTH&returnURL= C Reader	0
C Apple iCloud Facebook Twitte	r Wikipedia Yahoo News T Popular T	+
AllPendingDevelopmentProduction	Your certificate is ready.	
 Identifiers App IDs Pass Type IDs Website Push IDs iCloud Containers 	Download, Install and Backup Download your certificate to your Mac, then double click the .cer file to install in Keychain Access. Make sure to save a backup copy of your private and public keys somewhere secure.	
 App Groups Merchant IDs Devices All 	Certificate Name: iOS Distribution: Appeon Corporation (HK) Limited Type: iOS Distribution Expires: Dec 02, 2015	
 Provisioning Profiles All Development Distribution 	Documentation For more information on using and managing your certificates read: App Distribution Guide Add Another Done	

Step 7: Click the distribution certificate (ios_distribution.cer) in the **Downloads** folder on your Mac to add it to **Keychain Access**. The certificate is then listed in the Keychain Access Certificates section, as shown in the following figure.

Remember the name of the certificate, as you will need to use it later when creating the iOS application archive (IPA) file.

0	0	Key	chain Access					
1	Click to lock the lo	gin keychain.			Q	٩		
	Keychains Iogin Local Items System System Roots	Certificate iPhone Distribution: Append (Issued by: Apple Worldwide Develope Expires: Wednesday, December 2, 20);	Corporation (HK) Li r Relations Certification 15 at 9:27:00 PM Pacific	mited (ERV593G6X6) Authority Standard Time				
		Name	Kind	Date Modified	Expires	Keychain		
		₽ <key></key>	public key			login		
		<pre></pre>	private key			login		
		ABC Corporation ABC CORPORATION	public key			login		
	Category All Items Passwords	ABC Corporation	private key			login		
A		Apple Persistent State Encryption	application password	Nov 24, 2014, 7:38:09 PM		login		
1		Apple Worldwide Dens Certification Authority	certificate		Feb 14, 2016, 10:56:35 AM	login		
-	Secure Notes	🕂 ids: identity-rsa-key-pair-signature-v1	application password	Nov 24, 2014, 7:38:18 PM		login		
100	My Cortificator	A ids: identity-rsa-private-key	application password	Nov 24, 2014, 7:38:18 PM		login		
1	My Certificates	A ids: identity-rsa-public-key	application password	Nov 24, 2014, 7:38:18 PM		login		
T	Keys	A ids: message-protection-key	application password	Nov 24, 2014, 7:38:18 PM		login		
20	Certificates	iMessage Encryption Key	private key			login		
		🖗 iMessage Signing Key	private key			login		
		iPhone Distribution:K) Limited (ERV593G6X6)	certificate		Dec 2, 2015, 9:27:00 PM	login		
		🐴 Safari Forms AutoFill	application password	Nov 24, 2014, 9:18:02 PM		login		
		+ i Copy	14 items					

Figure 5.17: Installed Certificate

5.2.1.6 Task 1.6: Create & install a distribution provisioning profile

Depending on how you will distribute the app (App Store, In-House, or Ad Hoc), you need to create different distribution provisioning profiles.

The steps for creating the different distribution provisioning profiles are similar. To create a **Store** provisioning profile or an **In-House** provisioning profile, you select 1) an App ID and 2) a single distribution certificate. To create an **Ad Hoc** provisioning profile, you select 1) an App ID, 2) a single distribution certificate, and 3) multiple test devices. For details, refer to the below steps, or refer to <u>Creating Store Provisioning Profiles</u>, and <u>Creating Ad Hoc</u> <u>Provisioning Profiles</u> in the Apple document *App Distribution Guide*.

Step 1: Go back to Certificates, Identifiers & Profiles, then choose Provisioning Profiles >

Distribution, and then click the add icon (

Step 2: Select a distribution type and click Continue in the Select Type tag.

You will be provided with different distribution types according to the programs you enrolled in. If you enrolled in the **iOS Developer Program**, you would choose between **App Store** and **Ad Hoc**; if you enrolled in the **iOS Developer Enterprise Program**, you would choose between **Ad Hoc** and **In-House**.

Note that the **In-House** or **Ad Hoc** provisioning profile that is created using the **iOS Enterprise Program** distribution certificate will expire after one year. You will need to renew the provisioning profile before expiration, otherwise the mobile app distributed using these provisioning profiles will not launch after expiration. For more, refer to <u>Renewing</u> <u>Expired Provisioning Profiles</u> in the Apple document *App Distribution Guide*.

Step 3: Select your App ID and click Continue.

Step 4: Select the distribution certificate you have created in <u>Task 1.4: Create & install</u> <u>distribution certificates</u> and click **Continue**.

Step 5: Select the devices you want to use for testing, and click Continue.

Note: This step is only required for creating the Ad Hoc provisioning profile.

Step 6: Enter a profile name and click Generate.

Step 7: After the profile is generated, click **Download** to download and use it.

Step 8: Double-click the downloaded file to install the provisioning profile in Xcode.

Step 9: In **Xcode**, choose **Window** > **Organizer**, and then click **Device**. The installed provisioning file is listed.

Figure 5.18: Installed provisioning profile

000				Organizer – Devices						
				Devices R	positories Projects Archives Documentation					
LIBRARY					, ,		(Q* Profile Name)			
Provisioning Profiles	Name	Platform	Creation	Expiration	App Identifier	Team	Status	Ξ.		
Software Images	Appeon Product Mobile Provision for AdHoc	iOS Profile	29/01/13	8/11/13	ERV593G6X6.com.appeon.mobile.*	Unknown	Valid profile			
Device Logs Screenshots	Appeon Product Mobile Provision for AdHoc	iOS Profile	4/12/12	9/11/13	ERV593G6X6.com.appeon.mobile.*	Unknown	Valid profile			
	Appeon Product Mobile Provision for AppStore	iOS Profile	8/12/12	9/11/13	ERV593G6X6.com.appeon.mobile.*	Unknown	Valid profile			

Now that you have finished creating and installing the distribution certificate and the provisioning profile containing code signing, you are ready to create the app archive.

5.2.2 Task 2: Generate the Xcode project

Step 1: On the PowerServer Toolkit machine, use the **Package** tool in the PowerServer Toolkit to package the app files into an Xcode project.

You can select **Package a Stand-alone Mobile Project** (for packaging an Appeon mobile app as a mobile project) or **Customize and Package Appeon Workspace** (for packaging the Appeon Workspace as a mobile project) to package the app files into an Xcode project, and the steps (in this task as well as the subsequent tasks) are the same for both projects.

During the package process, you will be able to specify the settings, such as the app name, icons, etc., that are required by the Xcode project. See Section 10.3, "Packaging a standalone mobile project" in *PowerServer Toolkit User Guide* or Section 10.4, "Customizing and packaging Appeon Workspace" in *PowerServer Toolkit User Guide* for detailed instructions.

After the package process is complete, you will find the following two zip packages generated under the specified destination folder.

- The zip package of the application.
- AppeonMobile.framework.zip: this zip package is necessary for all apps (including the customized Appeon Workspace) to be distributed on iOS.

These two zip packages are compressed according to the standard of Mac, therefore, they have to be decompressed on the Mac machine.

Step 2: Copy the above two zip packages to the Mac machine.



	SAP TechEd2012 Demo_install □ □ □ □ □ □ □ □ □									
FAVORITES All My Files Applications Desktop Documents Downloads Movies Movies Music Pictures	Appeon_Mobile_Tu torials.chm	AppeonMobile.fra mework.zip Zip pac	SAP TechEd2012 Demo.zip SAP TechEd2012 Demo.zip							

Step 3: On the Mac machine, extract the above two zip packages respectively.



Figure 5.20: Extracting the packages on the Mac machine

Figure 5.21: Extracted packages on the Mac machine



Step 4: Copy all of the files under the extracted **AppeonMobile.framework** folder into the **reference** folder under the extracted app package.

The following screenshot shows the location of the **reference** folder under the extracted app package.

Figure 5.22: Location of the reference folder

Image: Solution s Image: Solution s <th>0 0</th> <th></th> <th>i reference</th>	0 0		i reference
FAVORITES Images Applications Images			
	FAVORITES All My Files Applications Desktop Documents Downloads Movies Music Pictures	Appeon_Moutorials.chm AppeonMobamework.zip SAP TechEd2012 Demo SAP TechEd2012 Demo.zip	EonNativeApp EonNativeApp.xcodeproj images reference

The following screenshot shows the **reference** folder that contains all of the files that were copied from the **AppeonMobile.framework** folder.

Figure 5.23: Files contained in the reference folder



Make sure you do Step 3 & 4 on the Mac machine, not on the Windows machine.

5.2.3 Task 3: Create the app archive

5.2.3.1 Task 3.1: Set App ID and Bundle Identifier

In order for the apps running on the same mobile device to be recognized as running on one device not on multiple devices by the Appeon License file, you will need to always input the same App ID for all apps and specify the same bundle identifier for the same app. For details, refer to Section 5.3.4, "Product Activation" in *PowerServer Configuration Guide for .NET* or in PowerServer Configuration Guide for J2EE.

You would need to modify the App ID in the keychainaccessgroups.plist file and the Bundle Identifier in the Xcode project settings to match with what you have specified when creating the App ID (in <u>Task 1.4</u>: <u>Create an App ID</u>).

Follow steps below to specify the consistent App ID in the keychainaccessgroups.plist file and the Bundle Identifier in the project settings:

Step 1: Find the **keychainaccessgroups.plist** file by expanding **EonNativeApp** > **Supporting Files**, as shown in the following figure. The **keychainaccessgroups.plist** file is in the same directory as the **EonNativeApp.xcodeproj** file.

The key for the app in the **keychainaccessgroups.plist** file is made up of two parts: App ID + Bundle Identifier, in this format "AppID.BundleIdentifier", take 6DQU2XGFEE.com.appeon.mobile.1.0.2 for example, 6DQU2XGFEE is the App ID, com.appeon.mobile.1.0.2 is the Bundle Identifier.

If you specify a wildcard bundle identifier when creating the App ID, you will need to replace "*" with an explicit string, for example, com.abcexample.app1 or com.abcexample.1 etc.

📫 Xcode File Edit View F	ind Navigate Editor Product	Debug So	ource Control Window	Help	appeon	् ≣
000	📩 EonNativeApp.xcodeproj	— 🗋 keycha	ainaccessgroups.plist			R _M
EonNa) 📕 iOS Device	Archive EonNativeApp: Succeeded Yes	sterday at 2:13	5 PM 🛕 3			
keychainaccessgroups.plist						+
🖬 A A 🗢 🚍 🗭 月	🔠 🔺 🕨 🚵 EonNativeApp 🤇 🚞 EonNa	ativeApp 👌 🚞 :	Supporting Files $ angle$ heychair	naccessgroups	.plist $ angle$ No Selection	
EonNativeApp	Key	Туре	Value			
- 1 target, IOS SDK 7.0	▼ Root	Dictionary	(1 item)			
images	keychain-access-groups	Array	🔹 (5 items)			
EonNativeApp	ltem 0	String	6DQU2XGFEE.com.appeon.m	obile.1.0.2		
h AppUrl.h	ltem 1	String	6DQU2XGFEE.com.appeon.m	obile.1.0.3		
h AppDelegate.h	Item 2	String	6DQU2XGFEE.com.appeon.m	obile.1.0.4		
AppDelegate.mm	Item 3	String	6DQU2XGFEE.com.appeon.m	obile.1.0.5		
🗄 MainStoryboard_iPhone.storyboard	Item 4	String	6DQU2XGFEE.com.appeon.m	obile.1.0.6		
📄 MainStoryboard_iPad.storyboard						
h ViewController.h						
ViewController.mm						
Supporting Files						
keychainaccessgroups.plist						
EonNativeApp-Info.plist						
EonNativeApp-Prefix.pch						
InfoPlist.strings						
m main.m						
Settings.bundle						
Frameworks						
Products						

Figure 5.24: Keychain access group

Step 2: Check that the App ID in the **keychainaccessgroups.plist** file is correct and is the same as the App ID in the provisioning profile.

If the App ID in the **keychainaccessgroups.plist** file is incorrect, you can input the correct App ID, then click the menu **Product** -> **Clean**, and then click **Product** -> **Archive** to create the IPA file again.

Step 3: Copy the Bundle Identifier from the keychainaccessgroups.plist file.

Step 4: Click the target project for the app, select the **General** tab, and then paste to the **Bundle Identifier** field. By default, the **Bundle Identifier** on this tab is different from the one in the **keychainaccessgroups.plist** file.

Also make sure the same **Bundle Identifier** is input when uploading the app to the App Store.

If you want to make change to the **Bundle Identifier**, please make sure the same **Bundle Identifier** is used consistently in all three areas: the **keychainaccessgroups.plist** file, the **General** tab, and the App Store upload process.

5.2.3.2 Task 3.2: Code sign the app

You now code sign the app with the signing certificate contained in the corresponding provisioning profile.

To set the code signing identity to the certificate:

In the Xcode project navigator, select the project, select **Building Settings**, drag down the screen to find the **Code Signing** group, make sure **Code Signing Entitlements** is set to "keychainaccessgroups.plist", then click **Release** under **Code Signing Identity** and select the corresponding distribution certificate, and then click **Release** under **Provisioning Profile** and select the corresponding provisioning profile.

Figure 5.25: Code signing

Ś	Xcode	File	Edit	View	Find I	Navigate	Edito	r Produc	t Debug	Source	Contro	ol Window	Help	appeon	Q	Ξ
0	0							📩 EonN	lativeApp.xc	odeproj						R _M
	· 🔳	A Eon	Na > 🔳	iOS Device	e Ar	chive EonNa	tiveApp:	Succeeded	Yesterday at	2:13 PM		<u></u> ▲ 3				
1	EonNa	ativeApp.	xcodepre	oj	5											+
- E	Π Q		>	₽	111 <	🔹 🕨 🛛 📩	EonNativ	/eApp								
▼ 📐	EonNative/				Þ 🤌	EonNativeA	App 🗘	General	Capabilitie	es Ir	nfo	Build Settings	Build Phases	Build Ru	les	
▶ [images	JUK 7.0		_	Basic		Combin	ed Levels			YPS -	Qr				
- v	EonNativ	eApp					cicase				103 4					
	h AppUr	1.h			T Cod	• Figning										_
	h AppDe	elegate.h			+ Coa	e signing					A	- Netice Area				
	m AppDe	elegate.m	m			Settir	ig				Y EO	invativeApp				
	📄 MainSt	toryboard	_iPhone.	storyboard		Code	Signing	Entitlement	s		keych	ainaccessgroup	os.plist			
	📄 MainS	toryboard	_iPad.sto	oryboard		▼ Code	Signing	Identity			Autor	matic				
	h ViewC	ontroller.	h			D	ebug				1400	ne Developer: Ar				- 11
	m ViewC	ontroller.	mm				Any i	OS SDK ‡			Identi	ities from Profile	"EnterPrise_Appeon"	(HK) Limited	Ŷ.	
	' 🚞 Suppo	rting File	5			R	elease			e	√ iPh	one Distribution:	: Appeon Corporation	(HK) Limited	K.	
	📄 key	chainacce	ssgroup	s.plist			Any i	OS SDK ‡			Other	ne Distribution:			V.	
	📄 Eon	NativeAp	p-Info.pl	ist		Code	Signing	Resource Rul	es Path		other					
	h Eon	NativeAp	p-Prefix.	pch		Other	Code S	igning Flags								
	📄 📄 Info	Plist.strir	igs			▼Provi	sioning	Profile			Enter	rPrise_Appeon ‡				
	💼 mai	in.m				D	ebug				Enter	rPrise_Appeon ‡				
	🕨 💮 Sett	tings.bun	dle				Any i	OS SDK ‡			Enter	Prise_Appeon ‡				
► 🗎	Framewo	orks				R	elease				Enter	Prise_Appeon ‡				
▶ 🗋	Products						Any i	OS SDK ‡			Enter	rPrise_Appeon ‡				

5.2.3.3 Task 3.3: Review the archive scheme settings

You would need to double check the scheme settings to ensure you do not archive a debug version of the app.

To review the archive scheme:

Step 1: From the Xcode dropdown menu, choose **Product** > **Scheme** > **Edit Scheme** to open the scheme editor, as shown in the following figure.

🗮 Xcode File Edit View Navigate Edit	or Product Window	Help	
00	Run	æR	📩 EonNativeApp.xcodeproj
EonNativeApp) iPhone 6.1 Simulator	Test Profile	₩U %I	Xcode
Run Stop Scheme	Analyze	ΰжB	
	Archive		
1 target, iOS SDK 6.1	Build For	•	
GenerativeApp	Perform Action	•	
Frameworks	Build	жB	
▶ 🧰 Products	Clean	ዕ <mark></mark> ዤK	
	Stop	¥.	
	Scheme		Select Next Scheme ^쁐]
	Destination	•	Select Previous Scheme ^#[
	Generate Output	•	✓ EonNativeApp
	Debug	•	Edit Scheme ೫<
	Debug Workflow	•	New Scheme
	Attach to Process	•	Manage Schemes

Figure 5.26: Edit Scheme

Step 2: In the scheme editor, do the following:

- 1. In the left column, select Archive;
- 2. Select the project from Scheme;
- 3. Select **iOS Device** from **Destination**;
- 4. Make sure **Release** (not **Debug**) is selected from **Build Configuration**;
- 5. Modify the archive name or use the default name in the Archive Name field.
- 6. Click **OK** to save the settings.

	EonNativeApp	iOS Device	1	÷ 🕒	
	Scheme	20 Levels	Destination	Breakpoint	ts
Build 1 target		Build Configuration	Release		÷
Run Eon Debug	lativeApp	Archive Name	EonNativeApp		
Test Debug		Options (🗹 Reveal Archive	e in Organizer	
Profile Eo Release	onNativeA				
Analyze Debug					
Archive Release					
Duplicate S	cheme Manag	a Schamas			OK

Figure 5.27: Archive Release

Step 3: (Optional) Click the project for the app, select the **General** tab, and then configure the Xcode project for distribution. All the information specified in the **PowerServer Toolkit Package** tool can be reconfigured here and you can also configure those that are not listed in the **PowerServer Toolkit Package** tool (only the required information are listed for configuration in the **PowerServer Toolkit Package** tool).

For details about how to configure the settings in Xcode, read <u>Configuring Your Xcode</u> <u>Project for Distribution</u> in the Apple document *App Distribution Guide*.

5.2.3.4 Task 3.4: Create the archive

Now you are ready to create an app archive.

Step 1: In the Xcode project editor, select the project.

Step 2: From the Xcode dropdown menu, choose **Product** > **Archive**.

Figure	5.28:	Arhive
--------	-------	--------

	Xcode	File	Edit	View	Navigate	Editor	Product	Window	Help	
• •	0						Run		₩R	
		FonNa	tiveAnr		Device		Test		жU	
0	, Er	Lonnia	are app	, 105 6	, crice		Profile		£1	
Run	Stop				Scheme		Analyze	2	ŵжВ	
	EonNat	iveApp.	xcodepr	oj			Archive	N N		
	O A			•	🖻 🛛 📩 EonNa	tiveApp	Puild E	5		
-	onNativeA	рр	M P	ROJECT			Build Fo	Action		
	target, iOS S	DK 6.0		EonN	ativeApp	Basic	renom	Action		
	ZipArchive	2		_		Satting	Ruild		жR	Por
	InAppSetti	ingsKit	Т	ARGETS		y bunu s	Claan		A 96 V	Res

If a prompt appears asking whether code sign can sign the app using a key in your keychain, click **Allow** or **Always Allow**.

After the project is built successfully, it will appear in the **Archives Organizer**, as shown below.

Figure 5.29: Archive list

00			Organizer – Archives			R _M
		Devices R	epositories Projects Archives Documentation			
SAPTechED						
Aws	APP	SON	SAPTechED EonNativeApp Archive Type: iOS App Archive Creation Date: May 10, 2013 10:20 AM Version: Unspecified Identifier: com.appeon.mobile.SAPTechED Estimated App Store Size: Estimate Size		(Validate Distribute
					Q= Name	
	Name	Creation Date	 Comment 	Status		
	EonNativeApp	May 10, 2013	Show in Finder			
			Delete Archive			
			Archives Organizer Help			

Now the app archive is ready. You can submit the archive to the Apple App Store or save the file for enterprise or Ad-Hoc distribution.

5.2.3.5 (Optional) Import the certificate

MobiLink supports the encrypted transmission of the synchronous data stream by using HTTPS. If you want to use HTTPS for the encrypted transmission of the synchronous data stream, you should add the certificate file into the project. The following steps take **EonNativeApp** as an example.

1. Right click **EonNativeApp** and select **Add Files to ''EonNativeApp...''** to choose the certificate file, as shown in the following figure.

0			EonNativeApp.xcodeproj	
Eon N	ativeApp $ angle$ iPad $ angle$ iOS 6.0	EonNativeApp: Ready	Today at 上午10:34	<u>A</u> 1
EonNativeApp.x	codeproj			
T Q A O	🔤 🗩 🗐 🔛 🔺 🕨 🕅 EonN	lativeApp		
EonNativeApp	Show in Einder	General Capabilities	Info Build Settings	Build Phases Build Rules
target, iOS SDK 7.0	Open with External Editor			
FonNativeApp	Open As			
Frameworks	Show File Inspector			
Products		Bundle Identifier	com.appeon.mobile.EonNativeApp	
	New File	Version	1.0	
	Add Files to "FonNativeApp"	Build	1.0	
	Add thes to contaite App			
	Delete	Team	None ‡	
	New Group	-		
	New Group from Selection			
	Cont by Name	-		
	Sort by Name	Deployment Target	6.0 🔻	
		Devices	Universal \$	
	Find in Selected Groups			
	Source Control	•	iPhone iPad	
	Project Navigator Help			
		Main Interface	MainStoryboard_iPhone 🔻	
		Device Orientation	Portrait	
			🗹 Upside Down	
			Landscape Left	
			✓ Landscape Right	
		Status Bar Style	Default \$	
			Hide during application launch	

Figure 5.30: Add files to "EonNativeApp"

2. In this example, choose the cer.pem.cer file. Make sure to select the **Copy items into destination group's folder (if needed)** checkbox, as shown in the following figure. Click **Add**.

0 0			EonNativeApp.xcod	leproj
EonNativeApp) iPad	iOS 6.0	EonNat	iveApp: Ready Today at 上午10:34	A1
EonNative Ann vcodenroi				
EonNativeApp	I D A Eon		Documents	÷) Q
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Figure 5.31: Select the destination checkbox

3. The certificate file is added successfully and is placed in the position parallel to other folders under the **EonNativeApp** directory, as shown in the following figure.

Figure 5.32: The certificate file is added successfully.



5.2.3.6 Additional settings for Xcode 9

If you use Xcode 9 to create the app archive, make sure that you also configure the following Xcode 9 settings:

Setting 1: Clear the selection of the Automatically manage signing check box.

Figure 5.33: Automatically manage signing

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Setting 2: Select the corresponding provisioning profile from **Signing** (**Debug**) or **Signing** (**Release**) section.

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Figure 5.34: Signing (Debug)

Setting 3: Select the corresponding provisioning profile under the **Provisioning Profile** (**Deprecated**) section as well.

Figure 5.35: Provisioning Profile (Deprecated)

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Setting 4: If you are archiving Appeon Workspace, modify the bundle identifier under the **Product Bundle Identifier** section as well.

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Figure 5.36: Product Bundle Identifier

5.2.4 Task 4: Distribute the app archive

Xcode allows you to distribute the app archive in the following methods:

- App Store distribution: submits the app for publication to the Apple App Store. Refer to <u>Section 5.2.4.1, "Method 1: App Store distribution"</u> for detailed instructions.
- In-House distribution: installs the app to an unlimited number of devices inside your company. Refer to <u>Section 5.2.4.2</u>, "Method 2: In-house or Ad-Hoc distribution" for detailed instructions.
- Ad Hoc distribution: installs the app on a limited number (up to 100) of registered devices. Refer to <u>Section 5.2.4.2</u>, "<u>Method 2</u>: <u>In-house or Ad-Hoc distribution</u>" for detailed instructions.

The detailed instructions for Ad Hoc distribution and In-House distribution are the same, though their provisioning profiles are different.

5.2.4.1 Method 1: App Store distribution

To submit the app archive to the iOS App Store:

Step 1: In the Archives organizer, select the application archive you want to submit to iOS App Store, and click **Submit**.

Step 2: In the dialog that appears, choose a team from the pop-up menu and click Choose.

Step 3: Click Submit to transfer the IPA file to the iOS App Store.

For more instructions, refer to <u>Submitting Your App to the Store</u> in the Apple document *App Distribution Guide*.

5.2.4.2 Method 2: In-house or Ad-Hoc distribution

To export the app archive and distribute it outside the iOS App Store:

Step 1: In the Archives organizer, select the application archive you want to export, and click **Export**.

Optionally, you can click **Validate** before clicking **Export**, to validate the archive and fix any problems before exporting it.

Step 2: In the dialog that appears, select the type of export and click Next.

- To distribute the app archive using ad hoc provisioning (where the app runs on registered test devices only), select **Save for Ad Hoc Deployment**.
- To distribute the iOS Developer Enterprise application, select **Save for Enterprise Deployment**.

Step 3: In the dialog that appears, choose a team from the pop-up menu and click Choose.

Step 4: Review the app, its entitlements, and provisioning profile.

Step 5: Click Export.

Step 6: In the dialog that appears, choose a location for the iOS App file (the .ipa file), and click **Export**.

To learn more about ad hoc deployment, refer to <u>Distributing Your App Using Ad Hoc</u> <u>Provisioning</u> in the Apple document *App Distribution Guide*.

To learn more about the iOS Enterprise application, refer to <u>Distributing iOS Developer</u> <u>Enterprise Program Applications</u> in the Apple document *App Distribution Guide*.

Now you can distribute the app to your users in the following four ways:

- Distribute the .ipa file and .plist file to your users, and users perform the installation using **iTunes**. See <u>the section called "Install apps using iTunes"</u> for detailed instructions.
- Distribute the .ipa file and .plist file to your users, and users perform the installation using **iPhone Configuration Utility** or **Apple Configurator** (Using **Apple Configurator** is left out in this tutorial). See <u>the section called "Install apps using iPhone Configuration Utility"</u> for detailed instructions.
- Post the .ipa file and .plist file on a secure Web server, and users perform the installation wirelessly. See <u>the section called "Install apps wirelessly</u>" for detailed instructions.
- Use your MDM server to instruct managed devices to install the app, if your MDM server supports it. This is left out in this tutorial.

5.2.4.2.1 Install apps using iTunes

Step 1: Copy the .ipa file for the app to a machine (either Windows or Mac) with iTunes already installed.

Step 2: In **iTunes**, choose **File** > **Add to Library**, and then select the .ipa file.

Step 3: Connect a device to the computer, and then select it in the **Device** list in **iTunes**.

Step 4: Click the Apps tab, and then select the Sync Apps checkbox and the app in the list.

Step 5: Click **Apply** (or **Sync**).

If your user's computers are managed, you can deploy the files to their computers and ask them to sync their device. iTunes automatically installs the files found in iTunes Mobile Application and Provisioning Profiles folders.

5.2.4.2.2 Install apps using iPhone Configuration Utility

Step 1: Copy the .ipa file for the app to a machine (either Windows or Mac) with **iPhone Configuration Utility** already installed.

Step 2: In **iPhone Configuration Utility**, choose **File** > **Add to Library**, and then select the .ipa file.

Step 3: Connect a device to the computer, and then select it in the **Device** list.

Step 4: Click the Applications tab, and then select the .ipa file.

Step 5: Click Install.

5.2.4.2.3 Install apps wirelessly

Before installing the app, you will need to first post the app to a Web server.

Step 1: Construct and configure the server.

- 1. Install IIS on the server.
- 2. Copy the app (.ipa) file, the manifest (.plist) file, and the icons to a location on the IIS website that is accessible to the users.
- 3. Create a page that links to the manifest file.

Here is a sample link:

```
<a href="itms-services://?action=download-manifest&url=http://example.com/?
manifest.plist">Install App</a>
```

Step 2: Set the MIME type of the server, so the server can correctly transfer the manifest file and the application.

• For Mac OS X Server, use the Server Admin to add the following MIME types to the Web service's **MIME Types** settings:

application/octet-stream ipa text/xml plist

• For IIS, use the IIS Manager to add the following MIME types on the server's **Properties** page:

.ipa application/octet-stream

.plist text/xml

Now your app is ready for installation.

Step 3: Distribute the URL for downloading the manifest file by SMS or email to the users.

Step 4: The user clicks the URL to download the manifest file from the website to the iOS device, and the manifest file instructs the device to download and install the apps referenced in the manifest file.

5.3 Package & Distribute Android Apps

Compared to iOS apps, the steps for packaging and distributing the Android apps are a lot simpler. Once you package the app files using the PowerServer Toolkit, you will get an Android application package (APK) that can readily be distributed using any approach, including publishing in the Android app marketplace such as Google Play, or serving the app from a Web site or emailing the app directly to users.

Therefore, you need to go through the following two tasks mainly.

- 1. Task 1: Generate the Android application package (APK).
- 2. Task 2: Distribute the Android APK.

5.3.1 Task 1: Generate the Android application package (APK)

On the PowerServer Toolkit machine, use the **Package** tool in the PowerServer Toolkit to package the app files into an Android APK file.

You can select **Package a Stand-alone Mobile Project** or **Customize and Package Appeon Workspace** to package the app files into an Android APK file. During the package process, you can press F1 to get help on the fields. See Section 10.3, "Packaging a stand-alone mobile project" in *PowerServer Toolkit User Guide* or Section 10.4, "Customizing and packaging Appeon Workspace" in *PowerServer Toolkit User Guide* for detailed instructions.

After the package process is complete, you will find an APK file generated under the specified destination folder. Get the APK file and distribute the app using any approach that meets your needs.

5.3.2 Task 2: Distribute the Android APK

This section only highlights three distribution approaches. For more details about these three approaches, refer to <u>http://developer.android.com/distribute/open.html</u>.

• Distributing through an App Marketplace.

For detailed instructions on how to publish on Google Play -- the premier marketplace for Android apps, refer to <u>http://developer.android.com/distribute/googleplay/publish/</u> index.html.

- Distributing your application through email
- Distributing through a web site

6 Tutorial 5: Configure PowerServer Cluster

(**Note**: This chapter is applicable for both PowerServer Web and PowerServer Mobile, although it's listed in the PowerServer Mobile Tutorials document.)

Appeon 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 application servers, each with PowerServer installed.

Following are high-level steps for configuring a PowerServer cluster. For detailed instructions, you may need to go through the documents and sections as specified below.

- 1. Task 1: Get to understand the architecture of a PowerServer cluster.
- 2. Task 2: Install PowerServer to multiple application servers.
- 3. Task 3: Create the PowerServer cluster in AEM.
- 4. Task 4: Configure the Web server for the PowerServer cluster.
- 5. Task 5: Install an Appeon application to the PowerServer cluster and Web server(s).

6.1 Task 1: Understand the cluster architecture

The following graphic illustrates the architecture of the client, the Web server cluster, and the PowerServer cluster.

- The Web server can be a cluster of Web servers or a single Web server, depending on the demands. Configuring the Web server cluster is not an Appeon task, therefore, it is not mentioned in any Appeon documentation; to explore this topic, you could refer to the user documents provided by the Web server vendor. Generally, a single Web server is sufficient to support the PowerServer cluster.
- Appeon cluster plug-in is installed to the Web server (either a single Web server or a cluster of Web servers), for distributing the user requests to the PowerServer according to the specified load balancing settings and the failover settings.
- If there is only one Web server, it can be on an independent machine separated from the PowerServer, or it can be on the same machine where PowerServer resides. If it is on the same machine with PowerServer, make sure the PowerServer and the Web server are set up on different Web sites.
- There are two load balancing algorithms: **random** and **sequence**. The following graphic uses **sequence** which distributes the user requests to the PowerServer in sequential order.



Figure 6.1: Cluster architecture

6.2 Task 2: Install PowerServer to multiple application servers

Step 1: Set up a group of application servers.

The application server must be of the same type and of the same version. Appeon supports the following application server types: .NET IIS, JBoss, WebLogic, WebSphere, JEUS, and NetWeaver. For more details, refer to the **PowerServer requirements** section in Installation Guide for .NET.

Step 2: Install PowerServer to each application server by following the installation instructions in the **PowerServer installation** section in Installation Guide for .NET. In the **Select Components** page, make sure you select to install the appropriate edition of PowerServer, for example, select **PowerServer for .NET** if the application server is .NET/ IIS.

6.3 Task 3: Create a PowerServer cluster in AEM

Once you have installed PowerServer to several application servers, you can use the AEM **Cluster** tool to create a PowerServer cluster and then configure the load balancing and failover functionalities for the cluster. The following are the detailed instructions.

Step 1: Log into AEM. Each PowerServer has a AEM. You only need to log in to one of them for the cluster, make configurations there, and then synchronize the settings to the other AEMs in the cluster.

Step 2: In the **Server** | **Resource** | **Cluster** tool, add the PowerServer one by one. It is **important** that the first PowerServer you add is the one hosting the AEM you are currently logged into.

- 1. Click the Add PowerServer button under the Cluster Server List table. The Add New PowerServer page opens.
- 2. Verify that the PowerServer to be configured is running and provide the required information (IP address, port, AEM user name, and password). For example:

• IP address: 161.0.0.1

Use the IP address or machine name of the PowerServer when adding a PowerServer. Do not use "localhost" or "127.0.0.1". The IP address or machine name and port number must match the settings of HTTP listeners in the application server.

- Port: 80
- AEM User Name: admin
- AEM Password: admin
- 3. Click the **Save and Add** button to add the other PowerServer. The program will automatically test the connection and add the PowerServer if the test is successful.

Adding a PowerServer will succeed only if:

- The PowerServer is new to AEM.
- The information provided is correct.
- The PowerServer is running.
- The first PowerServer that you add is the one hosting AEM you are currently logged into.

The PowerServer listed in the **Cluster Server List** group will work as a cluster in supporting the requests from their associated Web server.

Step 3: Configure the load balancing and the fail-over settings by following instructions in Section 5.3.3.1, "Cluster" in *PowerServer Configuration Guide for .NET* or PowerServer Configuration Guide for J2EE.

Step 4: Check the status of PowerServer and verify that all servers are running.

Step 5: Click Save to synchronize AEM settings to the other servers in the cluster.

Once a PowerServer is added to the cluster server list, you can use the AEM which maintains the list to manage all servers in the cluster. Whenever you change the settings of this AEM and click **Save**, the settings will be saved to the other servers in the cluster. Therefore, you do not need to repeat the configuration in each AEM. However, not all of the AEM settings will be synchronized, because some settings are not necessary to be the same for all servers.

Figure 6.2: Cluster

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	Cluster Server List									
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	The following displa	ays information for all PowerServers in th	le cluster. Please au	a the local machine in	st before you add any other server.					
	Connect type:	HTTP OHTTPS								
	Actions	IP Address	Port	Status						
	Add PowerServ	er Remove All								
Ξ	Load Balancing									
	Load balancing algo	orithm: Random Sequence 								
Ξ	Failover									
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	Enable Lo	ogical Restore with Status Monitor								
	Save									

6.4 Task 4: Configure the Web server for the PowerServer cluster

6.4.1 Task 4.1: Important notes for installing IIS

If the Web server is the IIS server, you should make sure the **IIS 6 Management Compatibility** feature (including its sub-features) and the **HTTP Redirection** feature are selected and installed, otherwise, the application URL and AEM URL cannot be redirected successfully.

Figure 6.3: Required IIS features



6.4.2 Task 4.2: Install the PowerServer Web Component on Web server

Step 1: Set up one or more separate Web site(s) as Web server(s).

If the Web server is on the same machine with PowerServer, make sure the PowerServer and the Web server are set up on different Web sites that use different port number and root directory.

For detailed system requirements of the Web server, refer to the (**Optional**) **Web server requirements** section in Installation Guide for .NET.

Step 2: Install **PowerServer Web Component** to the Web root (or document root) of each Web server. For example, the default Web root for IIS is C:\inetpub\wwwroot, the default document root for Apache 2.0 is C:\Program Files\Apache Group\Apache2\htdocs.

For detailed instructions, please follow the installation instructions in **PowerServer Web Component installation** section in Installation Guide for .NET.

6.4.3 Task 4.3: Configure the Web server with the Appeon cluster plug-in

6.4.3.1 Type 1: IIS Web server

6.4.3.1.1 Method 1: Automatic configuration

Installing and configuring Appeon cluster plug-in

Step 1: Get the Appeon cluster plug-in installation package.

After you install **PowerServer Web Component**, you can find the **Appeon Cluster plugin** folder under the **WebComponent2017****appeon****IISSupport**\ directory, and this folder is the Appeon cluster plug-in installation package, as shown in the following figure. You can copy this installation package to any Web server associated with the PowerServer cluster.

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Apache205upport	AppeonCloud	4/25/2013 11:22 AM	File folder			
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ADDCluster plugin	AppeonCluster	4/25/2013 11:29 AM	Text Document	1 KB		
APDCluster	E instance	4/25/2013 11:27 AM	XML Configuratio	1 KB		
> jiii appeon	Interop.ActiveDs	4/23/2013 10:56 AM	DLL File	94 KB		
AppeonCloud	Interop.IISOle	4/23/2013 10:56 AM	DLL File	10 KB		
jii cont	Interop.IWshRuntimeLibrary	4/23/2013 10:56 AM	DLL File	37 KB		
i modules	Iog4net	4/23/2013 10:56 AM	DLL File	244 KB		
Weblibrary_ax	📋 log4net	4/23/2013 10:56 AM	XML File	1,258 KB		
Apple Software Update	🚳 regiis	4/23/2013 10:56 AM	Windows Batch File	1 KB		
Beyond Compare 3	 silentinstall 	4/23/2013 10:56 AM	Configuration sett	3 KB		
Dig Bonjour						
Common Files						
DVD Maker						

Figure 6.4: Appeon Cluster plugin

Step 2: Double-click **AppeonCluster.exe** under the **Appeon Cluster plugin** folder to install the Appeon cluster plug-in to the Web server.

The Appeon Cluster Plug-in Installation Wizard is displayed.

Step 3: Select Create an Appeon Cluster Plug-in on a new Web site, and click Next.

If you want to install to an existing Web site, select **Create an Appeon Cluster Plug-in on an existing Web site**, and click **Next**.
Figure 6.5: Create plugin on a Web site

1	🕡 Appeon Cluster Plug-in Installation Wizard	J
	Welcome to Appeon Cluster Plug-in Installation Wizard Select an option to continue.	
	Create an Appeon Cluster Plug-in on an existing Web site Select this option to create an Appeon Cluster Plug-in on an existing Web site.	
	Create an Appeon Cluster Plug-in on a new Web site Select this option to create a new Web site and an Appeon Cluster Plug-in.	
	Remove an Appeon Cluster Plug-in Select this option to remove the Appeon Cluster Plug-in from an existing Web site.	
	< <u>B</u> ack <u>N</u> ext> <u>C</u> ancel	

Step 4: To create the Appeon cluster plug-in on a new Web site, configure **Description**, **Port** and **Home Directory**, then click **Next**.

The new Web site will be created.

Figure 6.6: Configure the Web site

đ	Appeon Cluster Plug-in Installation Wizard	
	Create an Appeon Cluster Plug-in on a new Web site	
	Enter the information below to create the new Web site and the new Appeon Cluster Plug-in.	
	New Web Site	
	Description:	
	TCP Port:	
	Home Directory: Browse	
	Existing Web Site Sites Default Web Site[TCP Port=80;Home Directory=C:\inetpub\wwwroot] Test[TCP Port=80;Home Directory=C:\Program Files\Inetpub\wwwroot] <a href="https://www.com/sitestation-com/sitesta</th> <th>-</th>	-

Step 5: Select to install a 32-bit or 64-bit Appeon cluster plug-in, and click **Next**. The program will detect if the server is on 32-bit OS or 64-bit OS and disable the inappropriate option.

32-bit plug-in works with 32-bit server and 64-bit server, and 64-bit plug-in works with 64-bit server only.

Figure 6.7: Select run mode

1	🕢 Appeon Cluster Plug-in Installation Wizard
	Create an Appeon Cluster Plug-in on a new Web site
	Select Appeon Cluster Plug-in run mode.
	Oreate a new Appeon Cluster Plug-in (32-bit)
	The Appeon Cluster Plug-in will run as a 32-bit program.
	Create a new Appeon Cluster Plug-in (64-bit)
	The Appeon Cluster Plug-in will run as a 64-bit program.
	<back next=""> Cancel</back>

Step 6: Specify the Windows administrator user name and password, and click **Next**. Make sure to input the correct user name and password, otherwise you may not be able to access the **Appeon Cluster Manager** in the Web browser.

appeon Cluster Plug-in Installation	n Wizard					
Specify the Windows administrator user name and password						
Enter the username and password of an administrator group member for the IIS application pool.						
The user name and password is r an administrator user name and p	required by Appeon Cluster Plug-in to support the cluster environment. It must be assword of the Windows operating system login account.					
Usemame:						
Password:						
Confirm Password:						
	<back next=""> Cancel</back>					

Step 7: When the plug-in is created successfully, click **Finish** to exit the **Appeon Cluster Plug-in Installation Wizard**.

Figure 6.9: Create the plug-in

ſ	appeon Cluster Plug-in Installation Wizard	×	Γ
	Create an Appeon Server on a new Web site Create the Web site "AppeonCluster" and Appeon Cluster Plug-in.		
	Created the Appeon Cluster Plug-In on the Web site AppeonCluster successfully.		
	< <u>B</u> ack <u>N</u> ext> <u>Finish</u>		

Step 8: Restart IIS to make the new settings effective.

Configuring redirections to PowerServer

After successfully installing and configuring the Appeon cluster plug-in, you can find **AppeonCloud** Web console (though it is named "Cloud", it also applies to non-cloud platform) under the specified IIS Web site, as shown in the figure below. You can configure here to which PowerServer(s) and in what order the user requests should be redirected. Detailed instructions are provided below.

Another important advantage that the cluster provides is **failover**. To enable the **failover** functionality, you will need to go to the AEM, add PowerServer to the cluster and configure the failover settings there. For details, refer to Section 5.3.3.1, "Cluster" in *PowerServer Configuration Guide for .NET* or PowerServer Configuration Guide for J2EE.

The Appeon cluster currently supports three kinds of platforms including **Local** (non-cloud platform), **Amazon Web Services** and **Windows Azure**. The **AppeonCloud** console will display different settings according to the specific platform.

Figure 6.10: IIS Manager



Step 1: Run the **AppeonCloud** console (browse the console in the right **Actions** pane in the IIS manager). The **Appeon Cluster Manager** displays.

Step 2: Input the user name and password (both "admin") to log into the **Appeon Cluster Manager**.

Step 3: Click **Cluster Settings**. The following settings will be display for the non-cloud platform.

Add the PowerServer to the list one by one. The Web server will redirect the user requests to the PowerServer in the list.

- Specify the host name (or IP address) and port number of PowerServer.
- Click **Save**. PowerServer will be added to the cluster.

Figure 6.11: Local cluster settings

A	ppeon Cluster Manager > Loca	al Cluste	r Setting	
Ξ	Local Cluster Setting			
	Sets cluster type that is used to store cluster information.			
	Host:			
	Port:		80	
				Save
	Actions	Host		Port
	Delete	localhos	t	80
	Delete	192.0.2	.113	80

Step 4: Configure the other settings of the cluster if necessary, such as load balancing algorithm, timeout, and interval.

Figure 6.12: Cluster settings

Cluster Information Setting	
Configures information (such as load b	alance, timeout, etc.) that is used for Appeon Cluster.
Load Balancing Setting:	Random Sequence
Timeout Setting:	120
Interval Setting:	5
	Save

Table 6.1: More cluster settings

Settings	Description
Load Balancing	Specify the load balancing algorithm which determined how requests will be distributed among the servers in the cluster. Random indicates that the plug-in distributes requests across PowerServer in random order, regardless of the status of PowerServer; Sequence indicates that the plug- in distributes requests to PowerServer in an allocated order.
Timeout	Specify the timeout for distributing a request, and the default value is 30 seconds.
Interval	Specify the interval (in seconds) for the plug-in to refresh the PowerServer list.

6.4.3.1.2 Method 2: Manual configuration

Configuring IIS 7.x with .NET server

Choose an existing Web site, or create a new site. The **Default Web Site** will be used as examples in the following guide.

1. Installing PowerServer Web component to the Web root of the IIS server.

Make sure you have installed PowerServer Web Component to the Web root of the IIS server. To verify it, go to the IIS Web root (by default C:\inetpub\wwwroot) and check

if there is an **appeon** folder which at least contains the **IISSupport** and **weblibrary_ax** sub-folders. If any folder is missing, go to the default installation directory of PowerServer Web Component (C:\Program Files\Appeon\WebComponent2017) and manually copy the entire **appeon** folder to the IIS Web root.

2. Creating a virtual directory.

Step 1: Open Control Panel | Administrative Tools | Internet Information Service (IIS) Manager.

Step 2: Right click the **Default Web Site** and select **Add Virtual Directory**.

Step 3: Input the alias name, for example, "ApbCluster".

Step 4: Choose a local path in the **Physical path** box; for example, "**C:\inetpub\wwwroot** **ApbCluster**".

Step 5: Click OK.

Figure 6.13: Add virtual directory

Add Virtual Director	y		? 💌
Site name: Def Path: /	ault Web Site		
<u>A</u> lias:			
ApbCluster			
Example: images			
Physical path:			
C:\inetpub\www	oot\ApbCluster		
Pass-through aut	hentication		_
Connect as	Test Settings		
		ОК	Cancel

Step 6: Right click the ApbCluster virtual directory and select Edit Permissions.

Step 7: Choose the **Security** tab, and then click the **Edit** button.

Figure 6.14: ApbCluster properties

👃 ApbCluster Properties 🛛 💽
General Sharing Security Previous Versions Customize
Object name: C:\inetpub\wwwroot\ApbCluster
Group or user names:
& Everyone
& CREATOR OWNER
& SYSTEM
A Administratore (HI IANGYI IYIA) Administratore)
To change permissions, click Edit.
Permissions for Everyone Allow Deny
Full control 🗸 🛕
Modify 🗸
Read & execute 🗸 🗉
List folder contents 🗸
Read 🗸
Write 🗸 🔻
For special permissions or advanced settings, Advanced
Leam about access control and permissions
OK Cancel Apply

Step 8: Select **IIS_IUSRS**, for example, IIS_IUSRS (HUANGXUXIA\IIS_IUSRS) from the **Group or user names** list, and then select the **Allow** check box for **Modify** and **Write** in the **Permissions for IIS_IUSRS** list.

Figure 6.15: ApbCluster permissions

Permissions for ApbCluster			×				
Security							
Object name: C:\inetpub\wwwroot\ApbCluster							
	(A) Administration (A)						
	A vadministrators)						
			Ξ				
	lis_iusks)						
			-				
•		•					
	A <u>d</u> d	<u>R</u> emove					
Permissions for IIS_IUSRS	Allow	Deny					
Modify			*				
Read & execute							
List folder contents			Ξ				
Read	1						
Read Write			_				
Read Write			-				
Read Write Leam about access control and p			-				

Step 9: Click **OK** to go back to the IIS window.

3. Copying the Appeon plug-in (ApbCluster.dll or ApbCluster64.dll).

Copy the **ApbCluster.dll** (for 32-bit OS) or **ApbCluster64.dll** (for 64-bit OS) plug-in from **appeon\IISSupport\modules** to the newly created virtual directory (**C:\inetpub** **wwwroot\ApbCluster** in this guide).

In the 64-bit OS, you can either use **ApbCluster.dll** or **ApbCluster64.dll**. If you use **ApbCluster.dll**, you will need to set the **Enable 32-Bit Applications** to **True** for the application pool used by the current Web site. If you use **ApbCluster64.dll**, then set this option to **False**.

4. Creating the Appeon cluster configuration file (cluster-config.xml).

Create the **cluster-config.xml** file in the newly created virtual directory (**C:\inetpub** **wwwroot\ApbCluster** in this guide). The **cluster-config.xml** file acts as the redirector configuration file which helps the Web server redirect requests to the PowerServer according to the IP addresses/ports of PowerServer, and the load balancing algorithm that it stores.

```
<?xml version="1.0" encoding="UTF-8" ?>
<cluster-config local="true" log="debug" timeout="30" polling="5"
arithmetic="sequence">
        <extention>/ApbCluster/ApbCluster.dll</extention>
```

```
<filters>
<filters>
<filter>/AEM</filter>
<filter>/servlet</filter>
<filter>/reportfile</filter>
<filter>/imagefile</filter>
<filter>/dwfile</filter>
<filter>/dwfile</filter>
<filters>
<app-servers>
<app-server host="192.0.0.168" port="88" />
<app-server host="192.0.3.131" port="80" />
<app-server host="192.0.3.145" port="80" />
</app-servers>
</cluster-config>
```

Notes:

- **local** specifies whether to read the configurations on the local server or the cloud server. For the cloud server, set **Local** to **False**.
- **log** specifies the level of information to be recorded in the log file. It can be set to the following level: **debug**, **info**, **warning**, **error**, or **off**.
- **timeout** specifies the number of seconds the Web server waits between sending an HTTP request to PowerServer and receiving information from it. The HTTP connection timeout value is 2 times of this value.
- polling indicates the number of seconds when the configurations will be read again.
- **arithmetic**="random" indicates that the random algorithm is used to pick a PowerServer; **arithmetic**="sequence" indicates that the round-robin algorithm is used.
- **extention** specifies the location of the virtual directory which contains ApbCluster.dll (or ApbCluster64.dll), that is /*virtual-directory-alias-name*/ApbCluster.dll (/ **ApbCluster/ApbCluster.dll** in this guide).
- filter specifies the type of pages to redirect.
- **host** indicates the IP address (recommended) or machine name of the PowerServer in the cluster.
- **port** indicates the port number of the PowerServer in the cluster.
- 5. Installing the Appeon plug-in as ISAPI Filters.

Step 1: Open Control Panel | Administrative Tools | Internet Information Services (IIS) Manager.

Step 2: Select Default Web Site and then double-click ISAPI Filters on the right side.

Step 3: Right-click the blank area on the ISAPI Filters page, and click Add.

Step 4: Input **ApbCluster** in the **Filter name** box and specify **ApbCluster.dll** (or **ApbCluster64.dll**) as the ISAPI filter in the **Executable** box (**C:\inetpub\wwwroot** **ApbCluster\ApbCluster.dll** in this guide). Click **OK**.

Figure 6.16: Add ISAPI filter

A	dd ISAPI Filter	? 💌
	<u>F</u> ilter name:	
	ApbCluster	
	Executable:	
	C:\inetpub\wwwroot\ApbCluster\ApbCluster.dll	
	ОК	Cancel

6. Copying the redirector configuration file (ApbCluster.cfg).

Copy the **ApbCluster.cfg** redirector configuration file from **appeon\IISSupport\conf**\ to the virtual directory (**C:\inetpub\wwwroot\ApbCluster** in this guide) and edit the file when necessary.

```
Extension_URI=/ApbCluster/ApbCluster.dll
MatchExpression=/AEM
MatchExpression=/servlet
MatchExpression=/reportfile
MatchExpression=/imagefile
MatchExpression=/dwfile
MatchExpression=/ajsdown
Log=On
```

Notes:

- The Extension_URI command points to the virtual directory where ApbCluster.dll (or ApbCluster64.dll) resides, that is /virtual-directory-alias-name/ApbCluster.dll (/ ApbCluster/ApbCluster.dll in this guide).
- The MatchExpression command specifies the pages to be redirected.
- The **Log** command specifies whether logging is enabled. On indicates logging is enabled; Off indicates logging is disabled.
- The commands and parameters are case insensitive.
- 7. Setting ISAPI and CGI Restrictions.

Step 1: Open Control Panel | Administrative Tools | Internet Information Services (IIS) Manager.

Step 2: Select the local machine (the top node), and then double-click **ISAPI and CGI Restrictions** on the right side.

Step 3: Right-click the blank area of the **ISAPI and CGI Restrictions** page and click **Add**.

Step 4: Specify the local path of **ApbCluster.dll** (or **ApbCluster64.dll**) in the **ISAPI or CGI path** box and input the descriptive text in the **Description** box, and then select **Allow extension path to execute**.

Step 5: Click OK.

Figure 6.17: Add ISAPI or CGI

Add ISAPI or CGI Restriction	? 💌
ISAPI or CGI path:	
C:\inetpub\wwwroot\ApbCluster\ApbCluster.dll	
Description:	
ApbCluster for Default Web Site	
Allow extension path to execute	
ОК С	ancel

8. Enabling ISAPI-dll.

Step 1: Open Control Panel | Administrative Tools | Internet Information Services (IIS) Manager.

Step 2: Expand **Default Web Site**, select **ApbCluster**, and then double-click **Handler Mappings** on the right side.

Step 3: Right-click ISAPI-dll, and select Edit Feature Permissions.

Step 4: Select Read, Script, Execute, and click OK.

Figure 6.18: Edit feature permissions

Edit Feature Permissions	? 🔀
Permissions:	
<u> R</u> ead	
✓ Script	
☑ <u>E</u> xecute	
ОК	Cancel

9. Adding MIME type for loading the pages without extension names or pages without MIME types defined.

Step 1: Select **Default Web Site** and then double-click **MIME Types** on the right of the page.

Step 2: Right-click the blank area of the **MIME Types** page, and click **Add**.

Step 3: Specify the following settings:

- Extension: *
- MIME Type: application/octet-stream

Step 4: Click OK.

Figure 6.19: Add MIME type

Add MIME Type	? 💌
File name <u>e</u> xtension: *	
<u>M</u> IME type:	
application/octet-stre	am
	OK Cancel

10.Restarting IIS.

Restart IIS to make the new settings effective.

Configuring IIS 7.x with J2EE server

J2EE servers refer to the Java application servers, such as WebLogic, WebSphere, JBoss, JEUS etc. The configuration is the same for the J2EE application servers that Appeon supports.

Choose an existing Web site, or create a new site. The **Default Web Site** will be used as examples in the following guide.

1. Installing PowerServer Web component to the Web root of the IIS server.

Make sure you have installed PowerServer Web Component to the Web root of the IIS server. To verify it, go to the IIS Web root (by default C:\inetpub\wwwroot) and check if there is an **appeon** folder which contains the **IISSupport** and **weblibrary_ax** sub-folders. If any folder is missing, go to the default installation directory of PowerServer Web Component (C:\Program Files\Appeon\WebComponent2017) and manually copy the entire **appeon** folder to the IIS Web root.

2. Creating a virtual directory.

Step 1: Open Control Panel | Administrative Tools | Internet Information Service (IIS) Manager.

Step 2: Right click **Default Web Site** and select **Add Virtual Directory**.

Step 3: Input the alias name, for example, "ApbCluster".

Step 4: Choose a local path in the **Physical path** box; for example, "**C:\inetpub\wwwroot** **ApbCluster**".

Step 5: Click OK.

Figure 6.20: Add virtual directory

Add Virtual Directory		? 💌
Site name: Default Web Path: /	o Site	
<u>A</u> lias:		
ApbCluster		
Example: images		
<u>P</u> hysical path:		
C:\inetpub\wwwroot\Apb	Cluster	
Pass-through authenticati	ion	
Connect as Test	Settings	
	ОК	Cancel

Step 6: Right click the **ApbCluster** virtual directory and select **Edit Permissions**.

Step 7: Choose the **Security** tab page and then click the **Edit** button.

Figure 6.21: appeoncluster properties

👃 ApbCluster Properties 📃
General Sharing Security Previous Versions Customize
Object name: C:\inetpub\wwwroot\ApbCluster
Group or user names:
& Everyone
& CREATOR OWNER
& SYSTEM
Administratore (HIIANGYIIYIA) Administratore)
To change permissions, click Edit.
Permissions for Everyone Allow Deny
Full control 🗸 🔺
Modify 🗸
Read & execute 🗸 🗉
List folder contents 🗸
Read 🗸
Write 🗸 🔻
For special permissions or advanced settings, Advanced
Learn about access control and permissions
OK Cancel Apply

Step 8: Select **IIS_IUSRS**, for example, IIS_IUSRS (HUANGXUXIA\IIS_IUSRS) from the **Group or user names** list, and then select the **Allow** check box for **Modify** and **Write** in the **Permissions for IIS_IUSRS** list.

Figure 6.22: appeoncluster properties

Permissions for ApbCluster			×
Security			
Object name: C:\inetpub\www	vroot\ApbCluster		
Group or user pames:			
M SYSTEM			
Manual Administrators (HUANGXUX	IA\Administrators)		
Users (HUANGXUXIA\User	s)		Ξ
IIS_IUSRS (HUANGXUXIA)	(IIS_IUSRS)		
K TrustedInstaller			-
۰ III		۰ ا	
	A <u>d</u> d	<u>R</u> emove	•
Permissions for IIS_IUSRS	Allow	Deny	
Modify			*
Read & execute	\checkmark		
List folder contents	\checkmark		=
Read	V		
Write			
<u> </u>			*
Learn about access control and p	permissions		

Step 9: Click **OK** to go back to the IIS window.

3. Copying the Appeon plug-in (ApbCluster.dll or ApbCluster64.dll).

Copy the **ApbCluster.dll** (for 32-bit OS) or **ApbCluster64.dll** (for 64-bit OS) plug-in from **appeon\IISSupport\modules** to the newly created virtual directory (**C:\inetpub** **wwwroot\ApbCluster** in this guide).

In the 64-bit OS, you can either use **ApbCluster.dll** or **ApbCluster64.dll**. If you use **ApbCluster.dll**, you will need to set the **Enable 32-Bit Applications** to **True** for the application pool used by the current Web site. If you use **ApbCluster64.dll**, then set this option to **False**.

4. Creating the Appeon cluster configuration file (cluster-config.xml).

Create the **cluster-config.xml** file in the newly created virtual directory (**C:\inetpub** **wwwroot\ApbCluster** in this guide). The **cluster-config.xml** file acts as the redirector configuration file which helps the Web server redirect requests to the PowerServer according to the IP addresses/ports of PowerServer, and the load balancing algorithm that it stores.

```
<?xml version="1.0" encoding="UTF-8" ?>
<cluster-config local="true" log="debug" timeout="30" polling="5"
arithmetic="sequence">
        <extention>/ApbCluster/ApbCluster.dll</extention>
```

```
<filters>
<filters>
<filter>/AEM</filter>
<filter>/servlet</filter>
<filter>/reportfile</filter>
<filter>/imagefile</filter>
<filter>/dwfile</filter>
<filter>/dwfile</filter>
<filters>
<app-servers>
<app-server host="192.0.0.168" port="88" />
<app-server host="192.0.3.131" port="80" />
<app-server host="192.0.3.145" port="80" />
</app-servers>
</cluster-config>
```

Notes:

- **local** specifies whether to read the configurations on the local server or the cloud server. For the cloud server, set **Local** to **False**.
- **log** specifies the level of information to be recorded in the log file. It can be set to the following level: **debug**, **info**, **warning**, **error**, or **off**.
- **timeout** specifies the number of seconds the Web server waits between sending an HTTP request to PowerServer and receiving information from it. The HTTP connection timeout value is 2 times of this value.
- polling indicates the number of seconds when the configurations will be read again.
- **arithmetic**="random" indicates that the random algorithm is used to pick a PowerServer; **arithmetic**="sequence" indicates that the round-robin algorithm is used.
- **extention** specifies the location of the virtual directory which contains ApbCluster.dll (or ApbCluster64.dll), that is /*virtual-directory-alias-name*/ApbCluster.dll (/ **ApbCluster/ApbCluster.dll** in this guide).
- filter specifies the type of pages to redirect.
- host indicates the IP address (recommended) or machine name of the PowerServer.
- **port** indicates the port number of the PowerServer.
- 5. Installing the Appeon plug-in as ISAPI Filters.

Step 1: Open Control Panel | Administrative Tools | Internet Information Service (IIS) Manager.

Step 2: Select Default Web Site and then double-click ISAPI Filters on the right side.

Step 3: Right-click the blank area on the ISAPI Filters page, and click Add.

Step 4: Input **ApbCluster** in the **Filter name** box and specify **ApbCluster.dll** (or **ApbCluster64.dll**) as the ISAPI filter in the **Executable** box (*C:\inetpub\wwwroot* *ApbCluster\ApbCluster.dll* in this guide). Click **OK**.

Figure 6.23: Add ISAPI filter

Add ISAPI Filter	? 💌
<u>F</u> ilter name:	
Executable:	
C:\inetpub\wwwroot\ApbCluster\ApbCluster.dll	
ОК	Cancel

6. Copying the redirector configuration file (ApbCluster.cfg).

Copy the **ApbCluster.cfg** redirector configuration file from **appeon\IISSupport\conf**\ to the virtual directory (**C:\inetpub\wwwroot\ApbCluster** in this guide) and edit the file when necessary.

```
Extension_URI=/ApbCluster/ApbCluster.dll
MatchExpression=/AEM
MatchExpression=/servlet
MatchExpression=/reportfile
MatchExpression=/imagefile
MatchExpression=/dwfile
MatchExpression=/ajsdown
Log=On
```

Notes:

- The Extension_URI command specifies the location of the virtual directory which contains ApbCluster.dll (or ApbCluster64.dll), that is /virtual-directory-alias-name/ ApbCluster.dll (/ApbCluster/ApbCluster.dll in this guide).
- The MatchExpression commands specify the type of pages to redirect.
- The **Log** command specifies whether to enable logging. On indicates logging is enabled; Off indicates logging is disabled.
- The commands and parameters are case insensitive.
- 7. Setting ISAPI and CGI Restrictions.

Step 1: Open Control Panel | Administrative Tools | Internet Information Services (IIS) Manager.

Step 2: Select the local machine (the top node), and then double-click **ISAPI and CGI Restrictions** on the right side.

Step 3: Right-click the blank area of the **ISAPI and CGI Restrictions** page and click **Add**.

Step 4: Specify the local path of **ApbCluster.dll** (or **ApbCluster64.dll**) in the **ISAPI or CGI path** box and input the descriptive text in the **Description** box, and then select **Allow extension path to execute**.

Step 5: Click OK.

Figure 6.24: Add ISAPI or CGI

Add ISAPI or CGI Restriction	? 🗙
ISAPI or CGI path:	
C:\inetpub\wwwroot\ApbCluster\ApbCluster.dll	
Description:	
ApbCluster for Default Web Site	
Allow extension path to execute	
ОК	ancel

8. Enabling ISAPI-dll.

Step 1: Open Control Panel | Administrative Tools | Internet Information Services (IIS) Manager.

Step 2: Expand **Default Web Site**, select **ApbCluster**, and then double-click **Handler Mappings** on the right side.

Step 3: Right-click ISAPI-dll, and select Edit Feature Permissions.

Step 4: Select Read, Script, Execute, and click OK.

Figure 6.25: Edit feature permissions

Edit Feature Permissions
Permissions:
<u> R</u> ead
✓ Script
☑ <u>E</u> xecute
OK Cancel

9. Adding MIME type for loading the pages without extension names or pages without MIME types defined.

Step 1: Select **Default Web Site** and then double-click **MIME Types** on the right of the page.

Step 2: Right-click the blank area of the MIME Types page, and click Add.

Step 3: Specify the following settings:

- Extension: *
- MIME Type: application/octet-stream

Step 4: Click OK.

Figure 6.26: Add MIME type

Add MIME Type		? 💌
File name <u>e</u> xtension: *		
MIME type:		
application/octet-stre	am	
	ОК	Cancel

10.Restarting IIS.

Restart IIS to make the new settings effective.

6.4.3.2 Type 2: Apache Web server

6.4.3.2.1 Manual configuration

Configuring Apache 2.0/22 with J2EE servers

J2EE servers refer to Java application servers, such as WebLogic, WebSphere, JBoss, JEUS etc. The configuration is the same for the J2EE application servers that Appeon supports.

1. Installing PowerServer Web component to the document root of the Apache Web server.

Make sure you have installed PowerServer Web Component to the document root of the Apache Web server. To verify it, go to the Apache document root (by default %APACHE %\htdocs) and check if there is an **appeon** folder which contains the **Apache20Support**, **Apache22Support** and **weblibrary_ax** sub-folders. If any folder is missing, go to the default installation directory of PowerServer Web Component (C:\Program Files \Appeon\WebComponent2017) and manually copy the entire **appeon** folder to the Apache document root.

2. Copying Appeon plug-in.

Copy the **mod_appeon2.so** or **mod_appeon22.so** plug-in file from %APACHE%\htdocs \appeon\Apache2xSupport\modules to the %APACHE%\modules folder.

3. Copying Appeon Cluster configuration file.

Copy the **cluster-config.xml** file from the %appeon%\repository\<instancename>\config folder to the %APACHE%\conf folder, where %appeon% is the installation directory of PowerServer, and <instancename> refers to the name of the PowerServer instance.

Note: The **cluster-config.xml** file acts as the redirector configuration file which helps the Web server redirect requests to PowerServer according to the IP addresses/ports of PowerServer, and the load balancing algorithm that it stores. This file should not be modified manually as it will be automatically updated when you change the settings in the **Cluster** tool of AEM. Each time after you change the settings, be sure to copy this file and replace the old file in the %APACHE%\conf folder and restart Apache.

4. Modifying httpd.conf.

If the application server (such as WebLogic, WebSphere, JBoss, or JEUS) is running on Windows, add the following statements into the httpd.conf file under the %APACHE% \conf folder (take mod_appeon2.so as an example):

```
LoadModule appeon_module modules\mod_appeon2.so
<IfModule mod_appeon.c>
MatchExpression /AEM
MatchExpression /servlet
MatchExpression /reportfile
MatchExpression /imagefile
MatchExpression /dwfile
MatchExpression /ajsdown
</IfModule>
```

If the application server is running on UNIX/LINUX, add the following statements into the httpd.conf file under the %APACHE%\conf folder (take mod_appeon2.so as an example):

```
LoadModule appeon_module modules/mod_appeon2.so
<IfModule mod_appeon.c>
MatchExpression /AEM
MatchExpression /servlet
MatchExpression /reportfile
MatchExpression /imagefile
MatchExpression /dwfile
MatchExpression /ajsdown
</IfModule>
```

5. Restarting Apache.

Restart Apache for the new settings to take effect.

Configuring Apache 1.3 with J2EE servers

J2EE servers refer to the Java application servers, such as WebLogic, WebSphere, JBoss, JEUS etc. The configuration is the same for the J2EE application servers that Appeon supports.

1. Installing PowerServer Web component to the document root of the Apache Web server.

Make sure you have installed PowerServer Web Component to the document root of the Apache Web server. To verify it, go to the Apache document root (by default %APACHE %\htdocs) and check if there is an **appeon** folder which contains the **Apache20Support**,

Apache22Support and **weblibrary_ax** sub-folders. If any folder is missing, go to the default installation directory of PowerServer Web Component (C:\Program Files \Appeon\WebComponent2017) and manually copy the entire **appeon** folder to the Apache document root.

2. Copying Appeon plug-in.

Copy the **mod_appeon.so** plug-in file from %APACHE%\htdocs\appeon \Apache13Support\modules to the %APACHE%\modules folder.

3. Copying Appeon Cluster configuration file.

Copy the **cluster-config.xml** file from the %appeon%\repository\<instancename>\config folder to the %APACHE%\conf folder, where %appeon% is the installation directory of PowerServer, and <instancename> refers to the name of a server instance.

Note: The **cluster-config.xml** file acts as the redirector configuration file which helps the Web server redirect requests to PowerServer according to the IP addresses/ports of PowerServer, and the load balancing algorithm that it stores. This file should not be modified manually as it will be automatically updated when you change the settings in the **Cluster** tool of AEM. Each time after you change the settings, be sure to copy this file and replace the old file in the %APACHE%\conf folder and restart Apache.

4. Modifying httpd.conf.

Add the following statements into the httpd.conf file under the %APACHE%\conf folder:

```
LoadModule appeon_module modules\mod_appeon.so
<IfModule mod_appeon.c>
MatchExpression /AEM
MatchExpression /servlet
MatchExpression /reportfile
MatchExpression /imagefile
MatchExpression /dwfile
MatchExpression /ajsdown
</IfModule>
```

5. Restarting Apache.

Restart Apache for the new settings to take effect.

6.4.4 Special instructions for Auto Scaling in Amazon Web Service

Auto scaling in the Amazon Web Service (not Windows Azure) cloud server is supported by PowerServer for .NET (not J2EE). Make sure the cloud server is activated against the Appeon cloud license; for instructions on activating the cloud server, refer to Section 5.3.4.1.1, "Product Activation" in *PowerServer Configuration Guide for .NET*. In this section, instructions are provided for supporting auto scaling in the Amazon Web Service cloud server.

6.4.4.1 Modifying the Appeon cluster config file

After installing the Appeon cluster plug-in, modify the Appeon cluster config file under the installation folder: AppeonCluster\AppeonCloud\Config\ClusterManager.config.

Specify the following parameters in the ClusterManager.config file.

<AWSStorage accessKey="" secretKey="" mode="" defaultPort="" keywordPrefix=""/>

- accessKey (access key ID), secretKey (access secret key), and keywordPrefix (keyword prefix), by following instructions in the section called "AWS server instance settings" in *PowerServer Configuration Guide for .NET*.
- defaultPort: port number of PowerServer, by default it is 80.
- mode: the switch for supporting auto scaling.
 - 1: supports auto scaling by automatically detecting PowerServers and updating the PowerServer list in the cluster.
 - 0: does not support auto scaling (so the developer needs to manually update the PowerServer list in the cluster).

6.4.4.2 Modifying the PowerServer config file

Under the PowerServer installation folder, modify the PowerServer config file: appeon\AEM \config\cluster-config.config.

Specify the following parameters under the cluster-config node in the cluster-config.config file, by following the aforementioned instructions.

mode="" defaultport=""

6.5 Task 5: Deploy or Install the application to the PowerServer cluster and Web server(s)

To install an Appeon application to the PowerServer cluster and Web server(s), you can either deploy the application via the **Appeon Deployment Wizard** (see Chapter 6, *Deploying PowerBuilder Applications* in *PowerServer Toolkit User Guide*, or run the deployment project generated by using the **Appeon Application Package Wizard** (see Section 10.3, "Packaging a stand-alone mobile project" in *PowerServer Toolkit User Guide*. This section will talk about how to install an application by running the deployment project generated via the **Appeon Application Package Wizard**.

6.5.1 Points to note before installation

Be aware of the following points before installing an Appeon application:

- The Setup program of the Web application or the mobile application runs on the Windows platform only. To install applications to servers running on Unix\Linux, you must run the Setup program on the Windows platform and then install the application to remote servers running on Unix\Linux.
- The target Web servers must have the PowerServer Web Component correctly installed.

6.5.2 Installing an application

You can copy the generated package to any computer running Windows and install the application to any number of PowerServer and Web servers. Installing an application

using the generated package is the same as deploying an application using the **Appeon Deployment Wizard**.

Step 1: Start the target PowerServer(s) and Web server(s) where you want to install the application.

Step 2: Run the Setup.exe file in the generated package.

The Appeon Application Deployment wizard is displayed. Click Next to proceed.

Figure 6.27: Welcome page



Step 3: Select the deploy-config file (config.xml) to ease your configuration of the installation wizard. The installation wizard will use the settings in the config.xml file.

If you do not want to use the deploy-config file, simply skip this option and click **Next** to configure the settings step by step.

Figure 6.28: Select the configuration file

🕷 Appeon Application Deployment 🛛 💦
Select an Existing Deploy-config File Image: Config File Please select an existing deploy-config file for quick configuration. Image: Config File
The wizard automatically loads the configuration file for the current package and uses the settings in this file as the default settings for the subsequent steps. You can modify the settings in this file or select another configuration file.
Note: You can clear the configuration file path in the Destination File box and click Next to configure the settings manually. Destination File
s\Appeon\WebAppPackage\appeon_code_examples_install\ini\config.xm Browse
< <u>B</u> ack <u>N</u> ext > Cancel

Step 4: Input the Application Profile Name and the Application URL for the application and click **Next**.

The Application Profile Name is used as the application name to identify an application. If you want to install multiple instances of the same application on the same server, you can run the setup package repeatedly and specify different Application Profile Name here. For example, input appeon_code_examples_test as the Application Profile Name in the first installation, and input appeon_code_examples_production as the Application Profile Name in the second installation. The Application Profile Name will be used as the application name to distinguish the multiple application instances on the same server, so they can be run independently from each other.

Appeon Application Deployment		×
Please specify the profile name and the URL for the a	pplication.	
Please specify the URL for the application.		
Application Profile Name: appeon_code_examples	1	
Application URL		
http://web.server:port/appeon_code_examples		
[< <u>B</u> ack Next	> Cancel

Figure 6.29: Specify Application Profile Name and Application URL

Step 5: Configure and select profiles for the PowerServer(s) and the Web server(s) where the application will be installed.

To install the application to a PowerServer cluster, please create a PowerServer profile for each PowerServer in the cluster. For detailed instructions on how to create the PowerServer profile and Web server profile, refer to Section 4.2.3, "Managing server profiles" in *PowerServer Toolkit User Guide*.

Figure 6.30: Specify server settings

🕷 Appeon App	lication Deployment		EX
Server Setting Please selec	gs It the Appeon Server and the Web Serve	er.	
Appeon Se	rvers		
Selected	Profile Name	Server Type	<u>E</u> dit
	192.0.1.56_EAServer	J2EE	<u>A</u> dd
٠ .	III	•	<u>D</u> elete
Web Serve Selected	rs Profile Name		Edįt
	192.0.1.56_EAServer		
			Delete
		< <u>B</u> ack <u>N</u> ext >	Cancel

Step 6: Select whether to install AEM settings and data sources for the current application and click **Next**.

Figure 6.31: Deploy AEM settings

💏 Appeon Application Deployment 👘	
Deploy AEM Settings Please specify how to deploy the AEM	settings.
Please select whether to deploy the AE Appeon Server.	M settings and connection cache settings to the specified
Connection Caches	
If a connection cache with the sa	me name already exists in the Appeon Server, then
Overwrite it	Do not overwrite it
	< <u>B</u> ack <u>N</u> ext > Cancel

Step 7: Specify the destination folder for the undeployment tool and the log file and click **Next**.

Figure 6.32: Specify location for the Appeon Undeployment Tool

🕷 Appeon Application Deployment 🧾 🗾	X
Install the Appeon Undeployment Tool Please select the folder where the Appeon Undeployment Tool will be installed.	
Please specify where the Appeon Undeployment Tool will reside. The deploy-config file and the deploy log will also be stored in this folder.	
Destination Folder C:\Program Files\Appeon\Undeploy\appeon_code_examples Browse	
< <u>B</u> ack <u>N</u> ext > Cancel	

Step 8: Specify the destination file and source file that you want to replace for the Appeon application package, and click **Next**.

Files (also called "destination file") under the "wcode" folder of Appeon application package can be replaced by files of the same type (also called "source file"), so that the source file will be installed instead of the destination file. When you click the **Add** button, the **File Replacement** dialog box is opened. To select the destination file, click **Browse** to display the Open file dialog which will automatically open the "wcode" folder of Appeon application package, so you can conveniently select a file from the "wcode" folder or from its subfolder. To select the source file, click **Browse** to navigate to the folder where the source file is stored.

Figure 6.33: Specify files to replace for the application package	
Appeon Application Deployment	

No.	Destination File	Source File
•		•

Step 9: Wait while the wizard is installing files and settings.

Figure	6.34:	Deploy	ving the	app	lication
Inguiv	0.04.	Depio	ynng une	app	ncation

😹 Appeon Application Deployment 🛛 💽				
Deploying the Application Image: Comparison The deployment wizard is performing the requested operations. Image: Comparison				
Please wait while the deployment wizard is deploying the application. This may take several minutes.				
Time Run Information				
18:19:23 Deploying application name to Appeon Server				
18:19:24 Deploying INI file(s) to Appeon Server				
18:19:24 Deploying DataWindow SQL to Appeon Server				
18:19:24 Committing changes to Appeon Server				
18:19:25 Deploying embedded SQL to Appeon Server				
18:19:25 Committing changes to Appeon Server				
18:19:25 Deploying DataWindow Syntax to Appeon Server				
۲				
< <u>B</u> ack <u>N</u> ext > Cancel				

Step 10: Once the operation is complete, click Finish to exit the installation wizard.

To run the application immediately, select the **Run Application Now** option and click **Finish**. Or you can run the application later from the Windows **Start** | **Programs** | **Appeon Web Application** | *ApplicationName*.

To view the log information generated during the installation process, select the **View Log** box and then click **Finish**. The log file will be displayed.

Figure	6.35:	Depl	ovment	complete
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