PowerServer Mobile Tutorials

Appeon® PowerServer® 2020 FOR WINDOWS & UNIX & LINUX

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1 Tutorial 1: Set up the Environment

You will need to go through the following tasks to set up the PowerServer 2020 environment for deploying and running the mobile application:

1.1 Task 1: Prepare the machine

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

- 1 Windows PC: used as the development machine and the server
- 1 Android or iOS device: in this tutorial, an Android device is 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 10 (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>: Uninstall previous version of 64-bit PowerServer.

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

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

• PowerBuilder 2019 R2 & PowerServer Mobile 2020

It is recommended that you install **PowerBuilder 2019 R2 CloudPro Edition**. The universal edition includes the installation of PowerBuilder IDE, PowerServer (PB Edition), and PowerServer Toolkit.

See Task 2: Install PowerBuilder and PowerServer for installation instructions.

Software requirements for the Android device:

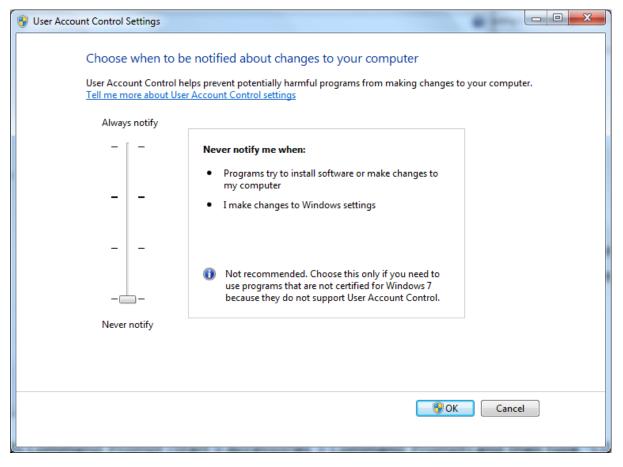
- Google Android 6.x (32-bit), 7.x, 8.x, 9.x, or 10.x
- Appeon Workspace

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

1.1.1 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.

Figure 1.1: Disable UAC



1.1.2 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 1.2: Stop the entire IIS Manager

Vi Internet Information Services (IIS) Manager				
HXXIA-PC >		😰 🖂 🙆 🗸		
File View Help				
Connections		Actions		
2	HXXIA-PC	Manage Server		
HXXIA-PC (huniz DC) huniz Refresh	Home	 Restart Start 		
🂣 🛛 Add Web Site		Stop		
▶ Start		View Application Pools		
Stop		View Sites		
Rename	.NET Compilation	Change .NET Framework Version		
Switch to Conte	nt View 404 .NET Error .NET Pages Globalization .NET Trust Application Features View	Help Online Help		
Ready		¶ <u>≞</u> .:		

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

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

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

- Double check the **Control Panel****Programs****Programs and Features** and make sure no PowerServer 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 PowerServer 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 PowerBuilder & PowerServer</u>.

1.1.3 Task 1.3: Install IIS

IIS is not installed on Windows 10 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 10, please go to the **Turn Windows features on or off** and check the box for ASP.NET 4.7.

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 1.3: Select the Web Management Tools

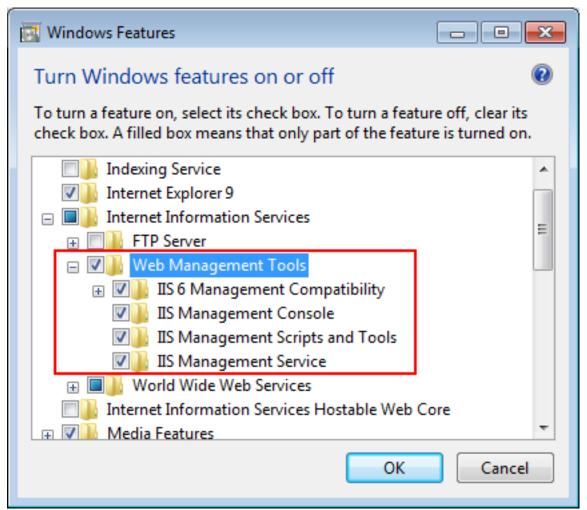
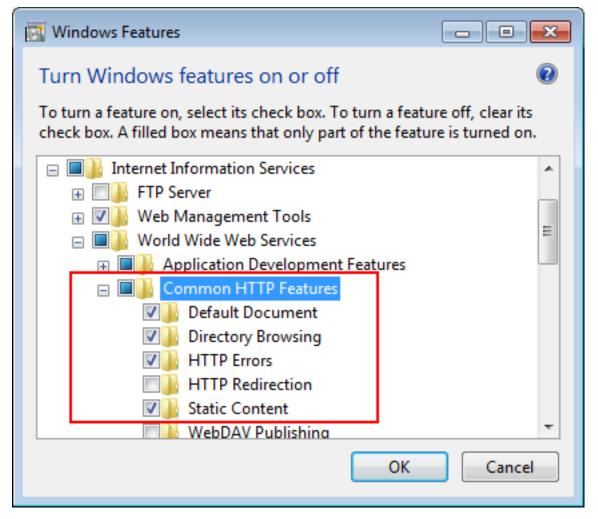


Figure 1.4: Select the Application Development Features

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	
😑 🔲 📔 Internet Information Services	
🕀 🐨 🕒 Web Management Tools	_
🖃 🔲 📔 World Wide Web Services	E
Application Development Features	
.NET Extensibility	
ASP	
ASP.NET	
CGI	
ISAPI Extensions	
ISAPI Filters	
Server-Side Includes	T
ОК Са	ncel

Figure 1.5: 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.

1.1.4 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 1.6: Select IIS_IUSRS

👃 www.root Properties 🛛 💽
General Sharing Security Previous Versions Customize
Object name: C:\inetpub\wwwroot
Group or user names:
& Users (hoxia-PC\Users)
IIS_IUSRS (hoxia-PC\IIS_IUSRS)
SR TrustedInstaller
· · · · · · · · · · · · · · · · · · ·
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 1.7: Select Full control for IIS_IUSRS

퉬 Permissions for wwwroot		×	
Security			
Object name: C:\inetpub\www.roo	t		
Group or uppr pampa:			
Group or user names:			
SCREATOR OWNER			
SYSTEM .			
& Administrators (hxxia-PC\Admini	strators)		
& Users (hxxia-PC\Users)			
IIS_IUSRS (hoxia-PC\IIS_IUSR	S)		
StrustedInstaller			
	A <u>d</u> d <u>R</u> em	iove	
Permissions for IIS_IUSRS	Allow Der	ıy	
Full control			
Modify	V		
Read & execute	V		
List folder contents	V		
Read			
Learn about access control and permissions			
ОК	Cancel	<u>A</u> pply	

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

1.2 Task 2: Install PowerBuilder and PowerServer

1.2.1 Task 2.1: Install PowerBuilder and PowerServer

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: Log into the Appeon User Center, and download the PowerBuilder Installer executable from the **Downloads** page on the Appeon User Center.

The PowerBuilder Installer executable (**PowerBuilderInstaller_bootstrapper.exe**) is available in your download directory after it is downloaded.

Step 3: Double click **PowerBuilderInstaller_bootstrapper.exe** to start the PowerBuilder Installer (you must have administrator privileges to run the installer).

Step 4: Select to agree to the license terms and click Continue.

Step 5: Click Install under PowerBuilder 2019 R2 and select CloudPro Edition.

Step 6: From the **Available** list on the **Products** tab, select **PowerBuilder IDE**, **PowerServer (PB Edition)**, and **PowerServer Toolkit**.

Step 7: Click Install to begin the installation.

Step 8: When the installations are completed, click **Restart now** to reboot the system.

1.2.2 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.

1.3 Task 3: Install Appeon Workspace (on the Android device)

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.

1.4 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.

2 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.

2.1 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 2.1: DB Type Profile in ADT

Y PowerSever ToolKit Configuration					
Application Profiles	DB Type Profiles	Server Profiles	Deployment Profiles	Data Source Profiles	
Database Type Configuration <u>T</u> he 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.					
Supported Datab	pase Types			Configured	•
Oracle 9i				No	
Other				No	
PostgreSQL				No	
SAP ASE				No	
SAP HANA				No	
SAP IQ				No	=
SAP SA UltraLit	te			Yes	
SQLite				No	
Teradata				No	-
				[Co <u>n</u> figure
					DK 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 2.2: Database Type Profile Configuration

🗙 Database Type Profile Configuration 📃 💌					
database of that type in order	For each database type used in your application(s), you must provide an ODBC or Native Interface connection to a database of that type in order for PowerServer ToolKit to connect to the data source during deployment.				
You need only provide one c	onnection to each type of da	atabase used in your application.			
Database Settings					
Database Type:	SAP SA UltraLite				
Database Interface:	ODBC Interface	<u>N</u> ative Interface			
Syntax:	🔽 Enclose table and colu	imn names in quotes			
Outer Join Syntax:	ANSI	▼			
ODBC Interface		Native Interface			
Data Source: Appeo	nSample 🔻	<u>S</u> erver:			
User ID:		User ID:			
<u></u>		Pass <u>w</u> ord:			
Password:		D <u>a</u> tabase:			
00	BC Ad <u>m</u> inistrator	Release:			
		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>.

2.2 Task 2: Configure the database connection

Database connection for a mobile application

Unlike the PowerBuilder client/server application which accesses the database server via transaction objects, the mobile (and Web) application accesses the database server via data sources which are created separately in the application server. For more information about the database connection, refer to Chapter 3, *Database Connection Setup* in *PowerServer Configuration Guide for .NET*.

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 2.3: Connection Cache Profiles

X PowerSever Tool	(it Configuration	1			×
Application Profiles	DB Type Profiles	Server Profiles	Deployment Profiles	Data Source Profiles]
Data Source Configure the dat be automatically		ur PowerServer i:	s installed on IIS. Data	sources in the selecte	d PowerServers will
Power <u>S</u> erver:	Local PowerSe	erver		•	
Name		DB H	Host		<u>E</u> dit
appeonsample			eonSampleForServer		Add
appeonsample2		Арре	eonSample2ForServer		<u>D</u> elete
					DK 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 Pool Size:		10
Connection Timeout (se	e <u>c</u> onds):	120
Command Timeout (see	conds):	30
Connection Lifetime (seconds):		0
Other Options:		
🔲 Dynamic Database	Connection 🛛 📝 Pooling	
<u>I</u> est		OK Cancel

Figure 2.4: 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 P	ool Size:	100	
Minimum Connection Pool Size:		10	
Connection Timeout (se	<u>c</u> onds):	120	
Command Timeout (seco	onds):	30	
Connection Lifetime (sec	conds):	0	
Other Options:			
🔲 Dynamic Database C	Connection 🛛 📝 Pooling		
<u>I</u> est		OK Cancel	

Figure 2.5: 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>.

2.3 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 t	the following options:		
	Application Profile Name:	sales_app		
Configure basic settings	Web Folder:	sales_app		
 Select PBL files Configure deployment settings 	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		T		
	🔲 Use this background c	olor for the mobile app:		
Summary				
Help	< <u>B</u> ack	Cancel Finish		

Figure 2.6: 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 2.7: Ad	d the PBT in	ADT Wizard
----------------	--------------	-------------------

PowerServer Toolkit Configuration Wizard						
Welcome	Select the PBL files used in your application:					
Configure basic settings	<u>Р</u> ВТ:	C:\Users\Public\Docu	ments\Appeon\Toolk	it\appeonc		
Select PBL files		✓ Keep PBT Updated				
Configure deployment settings	PBL Version:					
Select DB types	PBL version: PowerBuilder 2019					
Declare transaction object(s)	PBL File <u>L</u> ist:					
 Select image files Select INI files 	c:\users\public\documents\appeon\toolkit\appeondemo\salesmobiledemo\s. c:\users\public\documents\appeon\toolkit\appeondemo\salesmobiledemo\s. c:\users\public\documents\appeon\toolkit\appeondemo\salesmobiledemo\s. c:\users\public\documents\appeon\toolkit\appeondemo\salesmobiledemo\s. c:\users\public\documents\appeon\toolkit\appeondemo\salesmobiledemo\s c:\users\public\documents\appeon\toolkit\appeondemo\salesmobiledemo\e					
Deploy External Files	•			۱.		
Summary			<u>A</u> dd	<u>R</u> emove		
Help		< <u>B</u> ack <u>N</u> ext >	Cancel	<u> </u>		

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 2.8: Select the PowerServer(s) and Web Server(s)

PowerServer Toolkit Configuration Wiza	🔂 PowerServer Toolkit Configuration Wizard					
Welcome	Please select the PowerServer(s) and Web Server(s) that your application will be deployed to:					
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)		Delete				
 Select image files Select INI files Deploy External Files Summary 	Web Servers Selected Name Image: Cool of the server	Edit Add Delete				
Help	< <u>B</u> ack Next > 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 2.9: Select the database type(s)

🔂 PowerServer Toolkit Configuration Wizard							
Welcome	Select the database type(s) used by your application: Note: You must specify the database type(s) that your application uses, but it is not						
 Configure basic settings Select PBL files Configure deployment settings 	<i>ic settings</i> necessary to specify the exact database(s) used in this particular application. setting enables PowerServer Toolkit to apply the correct type of database driv generating the correct database syntax for PowerBuilder SQL statements in the application						
Select DB types	Used	Supported Database Types	Configured	-			
Declare transaction object(s)		MSSQLServer Oracle 8i Oracle 9i	No No	Ξ			
Select image files		SAPASE	No				
Select INI files		SAP SA UltraLite IBM DB2 UDB	Yes No				
Deploy External Files	<u>E</u> dit		K1				
Summary							
Help		< <u>B</u> ack Next > Can	c el <u>F</u> inish				

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

Figure 2.10: Specify the transaction object

RowerServer Toolkit Configuration Wizard						
Welcome	Please specify the transaction object(s) used in the application and the corresponding data source(s):					
Configure basic settings	Transaction Ob	oject Data Sou	urce DE) 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	<u>A</u> dd	<u>D</u> elete		
Help	< <u>B</u>	ack <u>N</u> ext >	Cancel	<u>F</u> inish		

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 T	ransaction	Object			×	
<u>T</u> ra	– . Database Ty <u>p</u> e:		sqlca			
Dat			SAP SA UltraLite		•	
<u>D</u> at			sa_db			
-D,	irce in the bi ata Source ^p ower <u>S</u> ervei	elow Data Sour r: Loca	ce group box. al PowerServer		•	
	Selected	Name				
	0	appeonsample				
	\bigcirc	appeonsample				
	0	sa_db		AppeonSample		
	0	northwind		192.0.0.205		
(Edit Add Delete					

Figure 2.11: 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 **PowerServer Application Deployment Wizard** automatically starts deploying the application. To manually starts **PowerServer Application Deployment**

Wizard, you can click the **Deploy** icon (¹) on the PowerServer Toolkit.

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

🎦 PowerServer Deployment Wizard ·	- sales_app		_		Х
Deployment Information					
Application deployed:		sales_app			
Deployment mode:		Full Application Deplo	yment		
Deployment profile used:		Local Deployment			
Deployment Task Summary					
Task		Status	Time		
Task 1: Application Source Code Exp	ort	Completed	< 1 Minutes		
Task 2: PowerServer Application File	Generation	Completed	< 1 Minutes		
Task 3: PowerServer Application Dep	loyment	Completed	< 1 Minutes		
Total Time Elapsed for Automatic Con Log Information Warnings and Errors Summary:	version Errors: 0 ;	Warnings: 0	< 3 Minutes ⊻iew Log		
Reports					
Features Analysis report available:			<u>Analysis Report</u>		
			<u>F</u> inish	<u>R</u> un	▼

Figure 2.12: Application Deployment Wizard_sales

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

Before you run the application on the mobile 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 2.13: 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 2.14: Add "localhost"

Trusted sites	X
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 http://most.cloudapp.net	
Require server verification (https:) for all sites in this a	zone
	<u>C</u> lose

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>.

2.5 Task 5: Run the mobile version of the application (on the Android device)

Now you are ready to run your application on the Android 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 device to launch Appeon Workspace.

Step 4: Tap the **New** icon () to the left of the title bar.

Step 5: In the **App URL** text box, enter the application URL in this format: *http://server_domain/app_name*. For example, if your IIS domain is www.abc.com and you specified *myApplication* in the PowerServer Toolkit configuration as the Web folder name then the URL would be http://www.abc.com/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.

3 Tutorial 3: Develop & Debug with PowerServer Mobile

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

3.1 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 mobile device.

3.2 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. PowerServer 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 () 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 11, *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 4, *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.

3.3 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 **PowerServer Debugger** (ES) from the PowerServer Toolkit, which will load the Web version of your application in the IE Web browser.

The **PowerServer 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 6, *Debugging PowerServer Web applications* in *PowerServer Toolkit User Guide* for more information about how to properly configure your environment for the PowerServer 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 PowerServer Toolkit is having trouble converting.

4 Tutorial 4: Package & Distribute Native Mobile Apps

4.1 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.

4.2 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

4.2.1 Task 1: Prepare for the build environment

4.2.1.1 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.

4.2.1.2 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.

4.2.1.2.1 Install Xcode

Click <u>https://developer.apple.com/xcode/</u> to download the latest Xcode, which is 10.1 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.

4.2.1.3 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 4.2.4</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.

Note: Publishing Appeon Workspace to the Apple App Store is unsupported.

• **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 4.1: 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)	\checkmark	~	N/A
Test apps on iOS devices	✓	~	✓
Code-level Technical Support	\checkmark	~	N/A
Ad Hoc Distribution	✓	×	N/A
App Store Distribution	\checkmark	N/A	N/A
Custom B2B App Distribution	✓	N/A	N/A
iAd Network	\checkmark	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.

4.2.1.4 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 4.2: Identifiers

Prog	ram Resources			
III.	Overview		Appeon Inc.	
0	Membership		Apple Developer Program	
0	People			
0	Certificates, IDs & Profiles			
Å,	App Store Connect	14		X
Ø	CloudKit Dashboard			/\
*	Code-Level Support	People Send invitations to your development	Certificates, Identifiers & Profiles	App Store Connect
Add	tional Resources	team so they can take advantage of membership resources.	Manage the certificates, identifiers, profiles, and devices you need to develop and distribute apps.	Publish and manage your apps on the App Store with App Store Connect.
	Documentation			

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

Figure 4.3: Add an App ID

IOS, tvOS, watchOS -		+ Q	
Certificates	9 App IDs Total		
= AI	Name *	ID	
 Pending Development 	Appeon Elevate	com.appeon.mobile.elevate	
Production	AppeonDev	com.appeon.mobile.*	
S Keys	AppeonUpLoadAppleStore	com.appeon.mobile.*	
= Al	com-appeon-mobile-appstore	com.appeon.mobile.appstore	
Identifiers	com-appeon-mobile-com-mobile-appeon-elev	com.appeon.mobile.com.mobile.appeon.elevate8	
E App IDs	com-appeon-mobile-elevate8	com.appeon.mobile.elevate8	
Pass Type IDs	com-appeon-mobile-salesmobile	com appeon mobile salesmobile	
Website Push IDs ICloud Containers	com-appeon-mobile-VZ5P796L\$6	com.appeon.mobile.VZ5P796LS6	
App Groups	XC Wildcard	•	

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

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

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.*".

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

Figure 4.4: Information for the App ID

App ID Description

Name:	My Mobile Apps
realitie.	my mobile Appa
	You cannot use special characters such as @, &, *, ', "
	The cannot use special characters such as (g, a,),

App ID Prefix

Value: VZ5P796LS6 (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.



Step 5: Click Continue.

Step 6: Confirm the App ID information and click **Register**.

4.2.1.5 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*.

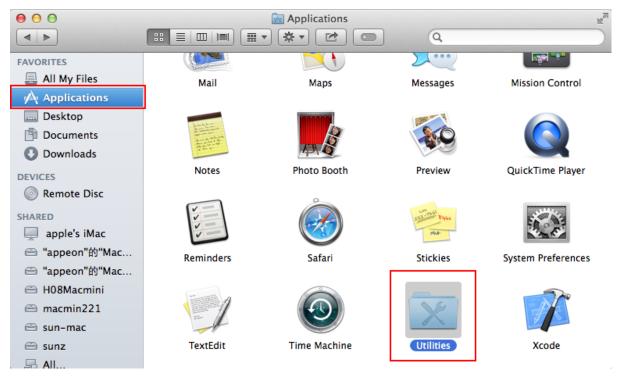
4.2.1.5.1 Create a CSR file

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 4.5: Utilities folder



00		🔀 Utilities		Ra
		• *• 🖻 📼	Q.	
FAVORITES			~	43,539
📇 All My Files	Bluetooth File	Boot Camp	ColorSync Utility	Console
Applications	Exchange	Assistant		
Desktop	AT		R 9	
🖆 Documents		3	****	
Ownloads				
DEVICES	DigitalColor Meter	Disk Utility	Grab	Grapher
Remote Disc			0	
SHARED	B	4	A-	>_
📃 apple's iMac	VIN	54		
👄 "appeon"的"Mac	Keychain Access	Migration Assistant	System Information	Terminal
👄 "appeon"的"Mac			-,	
🗁 H08Macmini				
🗁 macmin221		X		
🖹 sun-mac				
🖹 sunz	VoiceOver Utility	X11		
🔄 🔤 All				

Figure 4.6: Keychain Access application

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

	About Keycha	ain Acces	s			Add – iC	OS Certificates - App	ple Developer		
				oper apple (om/account	/ios/certificate/certificate	Create action?formID	-70989306		
-	Preferences ¥,		pper.apple.com/account/los/certificate/certificateCreate.action?formID=70989306 ar Wikipedia Yahoo News * Popular *							
-	Keychain Firs	t Aid	₹жA		ila Yahoo Iers or P					Armeen
	Certificate As			Open		Tomes				
	Ticket Viewer		λΉκ		a Certifica	to				
	TICKET VIEWEI					te Authority		Add IOS Certificat	e	
	Services		•			te For Someone Else as	s a Certificate Auth	hority		
-	Utala Kanalart		0011			cate From a Certificate		onty		
	Hide Keychaii	n Access	жH			ertificate Authority	Authority			
	Hide Others		-∠ ≋H		e a Certifi				Q	
	Show All			iains	c a certin					
	Quit Keychair	Access	жQ			Apple Persistent St	ate Encryption			
-	Quit iteyenun	Tracess	Local	Items		Kind: application passw				
			Syste			Account: Window Bitma				
						Where: Apple Persistent				
			C Syste	m Roots		Modified: Nov 24, 2014	4, 7:38:09 PM			
		ID Id			Name	A	Kind	Date Modified	Expires	Keychain
						/>	public key			login
					li suci		public key			login
					<pre></pre>	/>	private key			login
					<pre></pre>	/> e Persistent State Encryption	private key			
			Cate	gory	<pre></pre>	/> e Persistent State Encryption identityair-signature-v1	private key application password application password	Nov 24, 2014, 7:38:09 PM Nov 24, 2014, 7:38:18 PM		login login login
		-	Cate			/> e Persistent State Encryption identityair-signature-v1 identity-rsa-private-key	private key application password application password application password	Nov 24, 2014, 7:38:09 PM Nov 24, 2014, 7:38:18 PM Nov 24, 2014, 7:38:18 PM		login login login login
		-	🗍 All Ite		Appl Appl Aids: i Aids: i Aids: i	/> e Persistent State Encryption identityair-signature-v1 identity-rsa-private-key identity-rsa-public-key	private key application password application password application password application password	Nov 24, 2014, 7:38:09 PM Nov 24, 2014, 7:38:18 PM Nov 24, 2014, 7:38:18 PM Nov 24, 2014, 7:38:18 PM Nov 24, 2014, 7:38:18 PM	 	login login login login login
			All Ite	ems vords	Appl Appl A ids: A ids: ids: ids:	/> e Persistent State Encryption identityair-signature-v1 identity-rsa-private-key identity-rsa-public-key message-protection-key	private key application password application password application password application password application password	Nov 24, 2014, 7:38:09 PM Nov 24, 2014, 7:38:18 PM Nov 24, 2014, 7:38:18 PM	 	login login login login login login
			All Ite	ems vords re Notes		v> e Persistent State Encryption identityair-signature-v1 identity-rsa-private-key identity-rsa-public-key message-protection-key sage Encryption Key	private key application password application password application password application password application password private key	Nov 24, 2014, 7:38:09 PM Nov 24, 2014, 7:38:18 PM Nov 24, 2014, 7:38:18 PM Nov 24, 2014, 7:38:18 PM Nov 24, 2014, 7:38:18 PM	 	login login login login login login login
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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.
- 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 4.8: Certificate information

000	Certificate Assistant
	Certificate Information Enter information for the certificate you are requesting. Click Continue to request a certificate from the CA.
Bert	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
S	ave As: CertificateSigningRequest.certSigningR
	Tags:
	Where: Desktop 🗘
8	User Email Address: sales@appeon.com
	Request is: Emailed to the CA Saved to disk
	Let me specify key pair information
	Continue

Figure 4.9: Save CSR to Desktop

4.2.1.5.2 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 4.10: Add a certificate

iOS, tvOS, watchOS 🔹	iC	S Certificates	(Production)	+ Q
Certificates	1 Certificates Total			
All	Name		Туре	Expires
 Pending Development 	Appeon Inc.		iOS Distribution	Mar 04, 2019
Production				

Step 2: First drag down the page and click **Worldwide Developer Relations Certificate Authority** to download AppleWWDRCA.cer to your Mac.

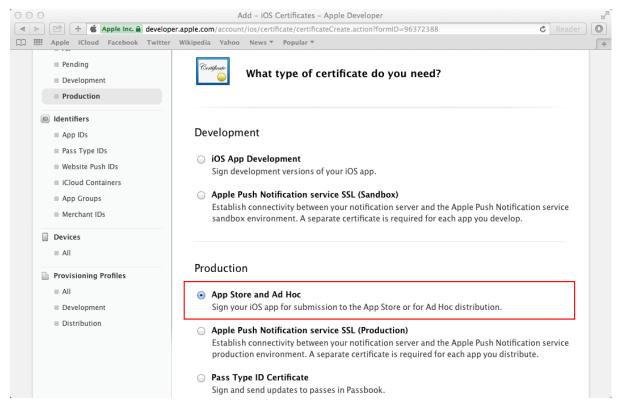
00	Add - iOS Certificates - Apple Developer	R _M
🔺 🕨 🖆 🕂 🗯 Apple Inc. 🔒 develope	er.apple.com/account/ios/certificate/certificateCreate.action?formID=96372388	C Reader
💭 🎹 Apple iCloud Facebook Twitter		+
	 Sign and send updates to passes in rassbook. Website Push ID Certificate Sign and send updates for Websites. VolP Services Certificate Establish connectivity between your server and the VolP service. A separate certificate is requried for each VolP app you distribute. Apple Pay Certificate Decrypt app transaction data sent by Apple to a merchant/developer. Intermediate Certificates To use your certificates, you must have the intermediate signing certificate in your system keychain. This is automatically installed by Xcode. However, if you need to reinstall the intermediate signing certificate click the link below: Worldwide Developer Relations Certificate Authority 	
	Copyright © 2014 Apple Inc. All rights reserved. Terms of Use Privacy Policy	

Figure 4.11: Download the AppleWWDRCA.cer

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** window.

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

Figure 4.12: 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		
Ŷ	Certificates	Desktop Documents Downloads	CertificateSigningR equest.cgRequest	
	Pending	DEVICES		
	Development	Remote Disc		
	Production	SHARED		
ID	Identifiers	💭 apple's iMac 👄 "appeon"的"Mac min		
	App IDs	😑 "appeon"的"Mac min		
	Pass Type IDs	🗎 H08Macmini		
	Website Push	😑 macmin221		
	iCloud Contain	ners		Cancel Choose
	App Groups	Up	oad CSR file.	
	Merchant IDs	Sel	ct .certSigningRequest file saved on your Mac.	
	Devices		Choose File	

Figure 4.13: Upload CSR file

Figure 4.14: Generate a certificate

elect Type	Request Generate Download
Certificate	Generate your certificate.
key pair. Yo viewed in th	eation of your CSR, Keychain Access simultaneously generated a public and private our private key is stored on your Mac in the login Keychain by default and can be ne Keychain Access application under the "Keys" category. Your requested vill be the public half of your key pair. R file.
Select .certS	SigningRequest file saved on your Mac.

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 4.15:	Download	Distribution	Certificate
I Igui e mie	Dommour	DISCINCTON	Continue

000	Add – iOS Certificates – Apple Developer
🔺 🕨 🗁 🕂 📽 Apple Inc. 🔒 develop	er.apple.com/account/ios/certificate/certificateDownload.action?certificateIds=PZKH79LGTH&returnURL= 🕻 Reader 🔘 🔘
C III Apple iCloud Facebook Twitter	Wikipedia Yahoo News T Popular T
 All Pending Development Production 	Centificate is ready.
 Identifiers App IDs Pass Type IDs Website Push IDs ICloud Containers App Groups Merchant IDs Devices 	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. Image: Install with the install in Keychain Image: Install with the install in Keychain Image: Install with the install with the install install in Keychain Image: Install with the install withe install with the install with the install w
 All Provisioning Profiles All Development Distribution 	Download 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** window, 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.

Figure 4.16: Installed Certificate

Click to lock the lo	gin keychain.		Q Search
Keychains login Local Items System System Roots	Centificate iPhone Distribution: Appeon Inc. (VZ5P796LS6) Issued by: Apple Worldwide Developer Relations Certification Authori Expires: Friday, January 17, 2020 at 11:20:09 PM Pacific Standard Tim Image: This certificate is valid		
	Name	Kind	Date Modified
	com.apple.gs.idms.hb.com.apple.account.AppleIDAuthentication.token com.apple.gs.idms.ln.com.apple.account.AppleIDAuthentication.token com.apple.gs.idms.pet.com.apple.account.AppleIDAuthentication.token com.apple.gs.news.auth.com.apple.account.AppleIDAuthentication.token com.apple.gs.supportapp.auth.com.apple.account.AppleIDAuthentication.token com.apple.gs.supportapp.auth.com.apple.account.AppleIDAuthentication.token	application password application password application password application password application password application password	Today, 1:53 AM Today, 1:53 AM Today, 1:53 AM Today, 1:53 AM Today, 1:53 AM Today, 1:53 AM
	Com.apple.gs.icloud.auth.com.apple.account.AppleIDAuthentication.token	application password	Today, 1:53 AM
Category	com.apple.gs.icloud.family.auth.comple.account.AppleIDAuthentication.token	application password	Today, 1:53 AM
All Items	com.apple.gs.pb.auth.com.apple.account.AppleIDAuthentication.token <kev></kev>	application password public key	Today, 1:53 AM
A Passwords Secure Notes My Certificates Y Keys Certificates	 iMessage Signing Key iMessage Encryption Key <key></key> iMessage Signing Key iMessage Encryption Key iMessage Encryption Key appeon appeon Apple Worldwide Developer Relations Certification Authority iPhone Distribution: Appeon Inc. (VZ5P796LS6) Developer ID Certification Authority 	public key public key private key private key public key private key certificate certificate	
	+ i Copy 60 items		

4.2.1.6 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**, scroll down to the end of the left navigation pane and 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 if you create 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.

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.

4.2.2 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 a PowerServer 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 9.2, "Packaging a standalone mobile project" in *PowerServer Toolkit User Guide* or Section 9.3, "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.

Figure 4.17: Zip packages on the Mac machine

	📰 🔲 💷 🐨 🌞 🔶 🚹 🖸 🔍 Q Search
Favorites Recents Applications Downloads AirDrop Desktop Cioud Drive Desconducture Desconducture Desconducture Desconducture Descond	Appeon_Mobile_T AppeonMobile.fra alesmobile.zip

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

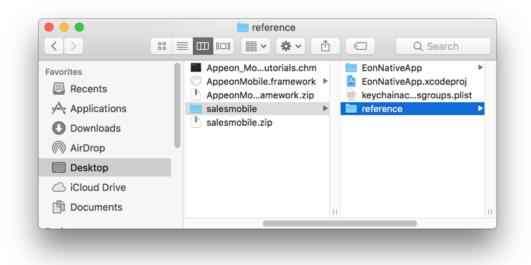
Figure 4.18: Extracted packages on the Mac machine



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

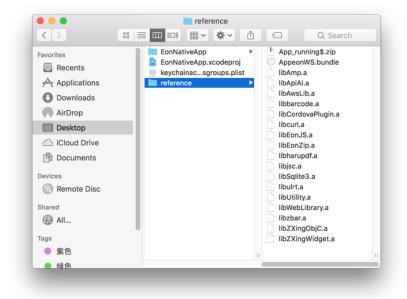
The following screenshot shows the location of the **reference** folder under the extracted app package.

Figure 4.19: Location of the reference folder



The following screenshot shows the files in the **reference** folder after copied from the **AppeonMobile.framework** folder.

Figure 4.20: Files contained in the reference folder



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

4.2.3 Task 3: Create the app archive

4.2.3.1 Task 3.1: Set 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 4.3.4.1.1, "Product Activation" in *PowerServer Configuration Guide for .NET* or in PowerServer Configuration Guide for J2EE.

The App ID is made up of two parts: App ID Prefix + App ID Suffix (Bundle Identifier), in this format "AppIDPrefix.BundleIdentifier", take VZ5P796LS6.com.abcexample.1 for example, VZ5P796LS6 is the App ID Prefix, com.abcexample.1 is the App ID Suffix (Bundle Identifier).

You would need to modify 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: Create an App ID</u>).

Follow steps below to specify the consistent Bundle Identifier in the project settings:

Step 1: Double click the **EonNativeApp.xcodeproj** file from the package to open the project in Xcode.

Step 2: Select the project or target, then select the **General** tab on the right, and then input the bundle identifier in the **Bundle Identifier** field.

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.1 or com.abcexample.app1 etc.

Figure 4.21: Bundle Identifier in General tab

	😤 < > 🤷 EonNativeApp						< 🔺
🔻 🔽 EonNativeApp		General Capabilitie	s Resource Tag	s Info Build Settings	Build Phases	Build Rules	
V CRImages	PROJECT						
Common_Boox_1@2x.png	EonNativeApp	∀ Identity					
Common_Boox_2@2x.png							
Common_Boox_3@2x.png	TARGETS		Display Name	salesmobile			
Common_Boox_4@2x.png	EonNativeApp		Bundle Identifier	com.abcexample.1			
a scan_Animate@2x.png							
a zBar_book@2x.png			Version	1.0			
V Cordova			Build	1.0			
config.xml							
▶ 🔜 www		▼ Signing					
V AppeonMobile		* signing					
h AppeonMobile.h				Automatically manage signing			
h EonZip.h				Xcode will create and update profiles certificates.	s, app IDs, and		
The EonNativeApp							
h AppUrl.h							
h AppDelegate.h		▼ Signing (Debug)					
m AppDelegate.mm			Provisioning Profile	abc profile	0		
MainStorybe.storyboard			Team	Appeon Inc.	_		
MainStorybd.storyboard							
h ViewController.h			Signing Certificate	iPhone Distribution: Appeon Inc. (VZ	5P796LS6)		
m ViewController.mm							
Images.xcassets		▼ Signing (Release)					
🔻 🚬 Supporting Files				- h			
keychainagroups.plist			Provisioning Profile	abc profile	0		
EonNativep-Info.plist			Team	Appeon Inc.			
h EonNativePrefix.pch			Signing Certificate	Phone Distribution: Appeon Inc. (VZ	5P796LS6)		
InfoPlist.strings							
m main.m							
Settings.bundle		▼ Deployment Info					
Frameworks			Deployment Target	8.0	~		
+ 🐨 Filter	+ - 🖲 Filter		a chick with the Act				

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

If you want to make change to the **Bundle Identifier**, please make sure the same **Bundle Identifier** is used consistently in the **General** tab and the App Store upload process.

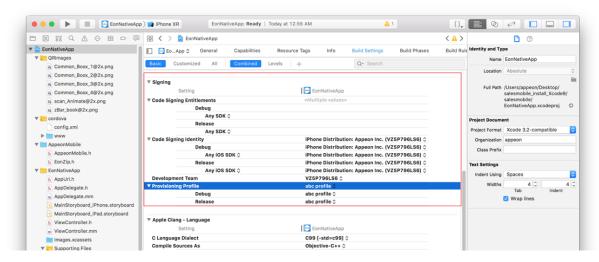
4.2.3.2 Task 3.2: Code sign the app

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:

Select the project or target, then select the **Build Settings** tab on the right, drag down the screen to find the **Signing** group, make sure **Code Signing Identity** is set to the corresponding distribution certificate (identified by your App ID), and **Provisioning Profile** is set to the corresponding provisioning profile.

Figure 4.22: Code signing



4.2.3.3 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.

Figure 4.23: Edit Scheme

or	Product	Debug	Source Co	ontrol	Window	Help	
lative > ≎	Run Test Profile Analyze Archive		₩R 第U 第I 企業B	:58 AM	uild Settings		<u>∧</u> 1
rget	Build Fo Perform		•	+ ios	8.0 \$	Q~ Sea	rch
	Build Clean B Stop	uild Folder	米B 11 11 11 11 11 11 11 11 11 11 11 11 11	🖻 (EonNativeApp		
_	Scheme Destina Create I	tion	•	Sel	oose Scher ect Next So ect Previou	cheme	^0 ^%] ^%[
er Pat	ths (Depreca				t Scheme w Scheme.		₩ <
					nage Schei		
				✓ Eor	nNativeApp)	

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

- 1. On the top left panel, select Generic iOS Device.
- 2. In the left column, select **Archive**;
- 3. Make sure Release (not Debug) is selected from Build Configuration;
- 4. Modify the archive name or use the default name in the Archive Name field.
- 5. Click **Close** to save the settings.

Figure 4.24: Archive Release

EonNativeApp		
► ➤ Build 1 target ► ► Run Debug	Build Configuration Release Archive Name salesmobile-abcexample_	com-11_0_1975_0
► J Profile Release Analyze	Options 🧭 Reveal Archive in Organ	nizer
Analyze Debug P Archive Release		
Duplicate Scheme Manage Scheme	s Shared	Close

Step 3: (Optional) Select the project or target, then select the **General** tab on the right, 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 (because 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*.

4.2.3.4 Task 3.4: Create the archive

Now you are ready to create an app archive.

Step 1: Select the project in the Xcode project navigator.

Step 2: From the Xcode dropdown menu, choose **Product** > **Archive**. (If this option is not available, double check that **Generic iOS Device** is selected in menu: **Product** > **Destination**)

tor	Product	Window	Help	
	Run		ℋR	100
	Test		жU	ſ
	Profile		жI	
	Analyze		ΰжВ	-
	Archive			
p	Build For	· ``	•	
	Perform	Action	•	-
sic	Build		жB	Res
unu v	Class		Agev	

Figure 4.25: Archive

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

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

Now the app archive is ready. You can click **Distribute App** in the **Archives** window to submit the archive to the Apple App Store or save the file for enterprise or Ad-Hoc distribution.

Figure 4.26: Archive list

OS Apps	Name	Creation Date	✓ Version	Archive Information
EonNativeApp	Salesmobile-abcexample_	com-11_0 Jan 18, 2019 at 1:39 AM	1.0 (1.0)	Salesmobile-abcexampl Jan 18, 2019 at 11:39 AM Distribute App Validate App Details Version 1.0 (1.0) Identifier com.abcexample.1 Type IOS App Archive Team VZ5P796LS6 Download Debug Symbols
				Description
	🐨 Filter	1 archive		

4.2.3.5 (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	
🕨 📄 🔥 EonNa	tiveApp \rangle iPad \rangle iOS 6.0	EonNativeApp: Ready	Today at 上午10:34	▲ 1
EonNativeApp.xc	codeproj			
		NativeApp		
EonNativeApp	Show in Finder	General Capabilities	Info Build Settings	Build Phases Build Rules
1 target, iOS SDK 7.0	Open with External Editor			
EonNativeApp		•		
Frameworks	Show File Inspector	Durally Island Rea	and the second sec	1
Products	New File		com.appeon.mobile.EonNativeApp	
	New Project	Version	1.0	
	Add Files to "EonNativeApp"	Build	1.0]
	Delete	Team	None ‡	
	New Group			
	New Group from Selection			
	Sort by Name			
	Sort by Type	Deployment Target	6.0 🔻	
		Devices	Universal \$	
	Find in Selected Groups			
	Source Control	•	iPhone iPad	
	Project Navigator Help	•		
	riojeet natigator neip	Main Interface	MainStoryboard_iPhone 💌	
		Device Orientation	✓ Portrait	
			🗹 Upside Down	
			✓ Landscape Left	
			🗹 Landscape Right	
		Status Bar Style	Default \$	
			Hide during application launch	

Figure 4.27: Add files to "EonNativeApp"

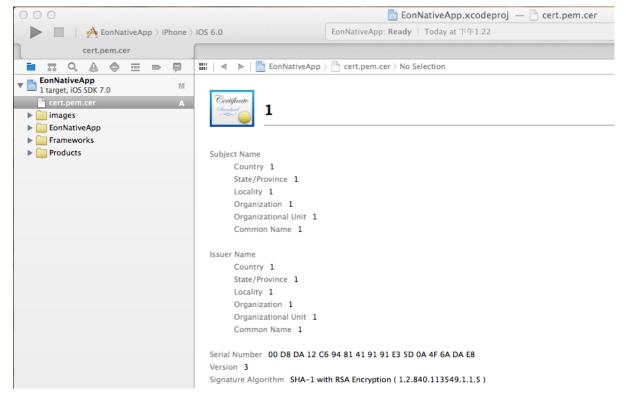
2. In this example, choose the cer.pem.cer file. Make sure to select the **Copy items into destination group's folder (if needed)** checkbox, as shown in the following figure. Click **Add**.

0 0			EonNativeApp.xcod	eproj
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		Add to	Folders Create groups for any adder Create folder references for targets	

Figure 4.28: 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 4.29: The certificate file is added successfully.



4.2.3.6 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. It is selected by default in Xcode 9.

Figure 4.30: Automatically manage signing

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Common_Boox_3@2x.png Common_Boox_4@2x.png	Display Name IOS_AWStestappeon02		Full Path /Users/appeon/Desktop/
scan_Animate@2x.png	Bundle Identifier test.appeon.AWStestappeon02		IOS_AWStestappeon02_in
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h AppeonMobile.h	Automatically manage signing Xcode will create and update profiles, app IDs, and		Organization appeon
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h ViewController.h	Status () The operation couldn't be completed. Unable		
m ViewController.mm	to log in with account 'sales@appeon.com'.		
E Images.xcassets	An unexpected failure occurred while logging in (Underlying error code -1003).		Cocoa Touch Class - A Cocoa Touch class
V Supporting Files	View Accounts		
keychainaccessgroups.plist	No signing certificate "IOS Development" found		
EonAwsApp-Info.plist	No "IOS Development" signing certificate matching		UI Test Case Class - A class implementing a unit test
m main.m	team ID "ERV593G6X6" with a private key was found.		
h EonAwsApp-Prefix.pch	Manage Certificates		
Default.png			Unit Test Case Class - A class implementing a unit test
Default@2x.png	▼ Deployment Info		
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Setting 2: Select the corresponding provisioning profile from **Signing (Debug)** and **Signing (Release)** sections.

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Gurges.xcassets Supporting Files keychainaccessgroups.plist EonAwsApp-Info.plist			() "EonAwsApp" requires a provisioning profile for configuration in the project education.	or the "Debug				Cocoa Touch Class - A Cocoa Touch class UI Test Case Class - A class Implementing a unit test
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	2 🕜 🧭) De T	"EonAwsApp" requires a province of the second					

Figure 4.31: Signing (Debug)

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

Figure 4.32: Provisioning Profile (Deprecated)

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Common_Boox_4@2x.png	Header Search Paths Library Search Paths	/Users/appeon/Desktop/IIh/IOS_AWStestappeon02_install_Xc	IIh/ IOS_AWStestappeon02_in
scan_Animate@2x.png	User Header Search Paths	/oseis/appeon/beaktop/in/iOS_Ansteatappeonoz_instain_to	stall_Xcode8/
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🔁 Images.xcassets	Provisioning Profile (Deprecated)	None 🗘	Cocoa Touch Class - A Cocoa Touch class
Supporting Files	Debug Any iOS SDK ≎	None 🗘	I Duch class
keychainaccessgroups.plist	Release	None 🗘	
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infoPlist.strings			implementing a unit test
m main.m	Apple LLVM 9.0 - Language		
h EonAwsApp-Prefix.pch	Setting	EonAwsApp	Unit Test Case Class - A class implementing a unit test
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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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▶ ■ www	Executable Extension			
Config.xml	Executable Prefix			Project Document
T AppeonMobile	Expand Build Settings in Info.plist File	Yes ≎		Project Format Xcode 3.2-compatible 📀
h AppeonMobile.h	Force Package Info Generation	Yes ≎		Organization appeon
h EonZip.h	Framework Version	A		Class Prefix
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🔁 Images.xcassets	Private Module Map File			Cocoa Touch Class - A Cocoa Touch class
🔻 🔛 Supporting Files	▼ Product Bundle Identifier	com.appeon.mobile.EonAwsApp		Touch class
keychainaccessgroups.plist	Debug	com.appeon.mobile.EonAwsApp		
EonAwsApp-Info.plist	Release	com.appeon.mobile.EonAwsApp		UI Test Case Class - A class
1 InfoPlist.strings	Product Module Name	EonAwsApp		UI Test Case Class - A class implementing a unit test
m main.m	Product Name	EonAwsApp		
h EonAwsApp-Prefix.pch	Property List Output Encoding	binary ≎		Unit Test Case Class - A class
Default.png	Public Headers Folder Path	EonAwsApp.app/Headers		implementing a unit test
Default@2x.png	Strings file Output Encoding	binary ≎		
Default-568b@2x.png	Wrapper Extension	app		
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Figure 4.33: Product Bundle Identifier

4.2.4 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 4.2.4.1, "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 4.2.4.2</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 4.2.4.2</u>, "<u>Method 2: 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.

4.2.4.1 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, and click Distribute App.

Step 2: Select iOS App Store and then follow the instructions on screen.

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

4.2.4.2 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, and click Distribute App.

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

Step 2: In the dialog that appears, select a distribution method and then following the onscreen instructions.

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

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*.

You can send 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.

4.2.4.2.1 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.

4.2.4.2.2 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.

4.2.4.2.3 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.

4.3 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 project.
- 2. Task 2: Generate the Android application package (APK).
- 3. Task 3: Distribute the Android APK.

4.3.1 Task 1: Generate the Android project

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

You can select **Package a Stand-alone Mobile Project** or **Customize and Package Appeon Workspace** to package the app files into an Android project. During the package process, you can press F1 to get help on the fields. See Section 9.2, "Packaging a stand-alone mobile project" in *PowerServer Toolkit User Guide* or Section 9.3, "Customizing and packaging Appeon Workspace" in *PowerServer Toolkit User Guide* for detailed instructions.

After the package process is complete, you will find the Android project files generated under the specified destination folder.

4.3.2 Task 2: Generate the Android application package (APK)

Step 1: Prepare a machine that meets the following requirements and make sure it has Internet access.

The machine must be installed with the following software and hardware configurations:

- Windows 7/8/10 (32-bit or 64-bit) or Mac OS X 10.10 thru 10.14
- 4 GB RAM minimum
- 2 GB of available disk space minimum

Step 2: Download the Android Studio setup program from <u>here</u>, and then install Android Studio by following instructions <u>here</u>. The machine must have Internet access to complete the installation.

By the time of writing this document, the most current version is Android Studio 3.5.3. This version requires SDK Build Tools 28.0.3 or higher and Gradle 5.4.1 or higher.

Step 3: Open the Android project generated in Task 1: from Android Studio, select the project folder to load the entire project.

Step 4: In Android Studio, open the build.gradle file and get the required versions for SDK and build tools.

For Android Studio 3.5.3, the SDK must be version 28, and the build tools must be version 28.0.3.

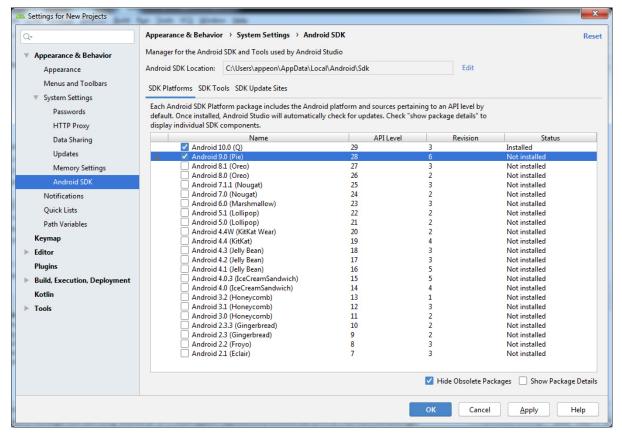
Figure 4.34: build.gradle

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Step 5: Select **Tools** | **SDK Manager** from the menu, and then install the required SDK and build tools.

In the SDK Platforms tab, select Android 9.0 (28).

Figure 4.35: SDK platforms



In the SDK Tools tab, select Android SDK Build-Tools 28.0.3.

Figure 4.36: SDK tools	Figure	4.36:	SDK	tools
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System Settings Below are the available SDK developer tools. Once installed, Android Studio will automatically check for updates.				
Passwords Check "show package details" to display available versions of an SDK Tool.				
HTTP Proxy	Name	Version	Status	
Data Sharing	Android SDK Build-Tools	Version	Status	
-	22.0.1	22.0.1	Not installed	
Updates	23.0.1	23.0.1	Not installed	
Memory Settings	23.0.2	23.0.2	Not installed	
	23.0.3	23.0.3	Not installed	
Android SDK	24.0.0	24.0.0	Not installed	
Notifications	24.0.1	24.0.1	Not installed	
	24.0.2	24.0.2	Not installed	
Quick Lists	24.0.3	24.0.3	Not installed	
Path Variables	25.0.0	25.0.0	Not installed	
K	25.0.1	25.0.1	Not installed	
Keymap	25.0.2	25.0.2	Not installed	
Editor	25.0.3	25.0.3	Not installed	
Plugins	26.0.0	26.0.0	Not installed	
	26.0.1	26.0.1	Not installed	
Build, Execution, Deployment	26.0.2	26.0.2	Not installed	
Kotlin	26.0.3	26.0.3	Not installed	
	27.0.0	27.0.0	Not installed	
Tools	27.0.1	27.0.1 27.0.2	Not installed Not installed	
	27.0.2	27.0.2	Not installed	
	28.0.0	28.0.0	Not installed	
	28.0.1	28.0.0	Not installed	
	28.0.2	28.0.2	Not installed	
	₹ 28.0.3	28.0.3	Not installed	
			Packages 🔽 Show Package Detai	
		OK Canc	el <u>A</u> pply Help	

Click **OK** to begin install.

Step 6: Configure the version of the Android Gradle plugin and the Gradle.

The version of Android Gradle plugin required by Android 3.5.3 is 3.5.3, and the version of Gradle required by Android Gradle plugin 3.5.3 is 5.4.1. If the Android Studio is not version 3.5.3, make sure you change the versions of Android Gradle plugin and Gradle correspondingly.

The following lines set the plugin to version 3.5.3 in the build.gradle file:

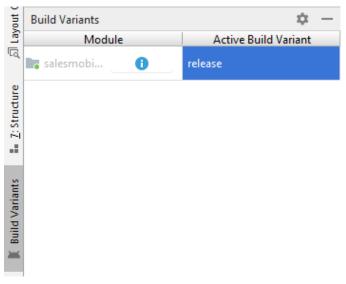
```
dependencies {
    classpath 'com.android.tools.build:gradle:3.5.3'
}
```

The following line sets the Gradle to version 5.4.1 in the gradle/wrapper/gradle-wrapper.properties file:

```
...
distributionUrl=https\://services.gradle.org/distributions/gradle-5.4.1-all.zip
...
```

Step 7: Select the build type (debug or release) in the **Build Variants** window (to open the **Build Variants** window, select **View** | **Tool Windows** | **Build Variants** from the menu.

Figure 4.37: SDK tools



Step 8: Build the APK file by selecting **Build** | **Build Bundle**(s) / **APK**(s) | **Build APK**(s) from the menu.

Make sure the machine has Internet access during the build process.

You can find the APK file generated under the Build > Outputs > APK folder in the Project view.

4.3.3 Task 3: 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

5 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.)

PowerServer provides its own tools and plug-ins to configure a PowerServer cluster and implement the load balancing and failover functionalities. A PowerServer cluster is essentially a group of 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 a PowerServer application to the PowerServer cluster and Web server(s).

5.1 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 a PowerServer task, therefore, it is not mentioned in any PowerServer 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.

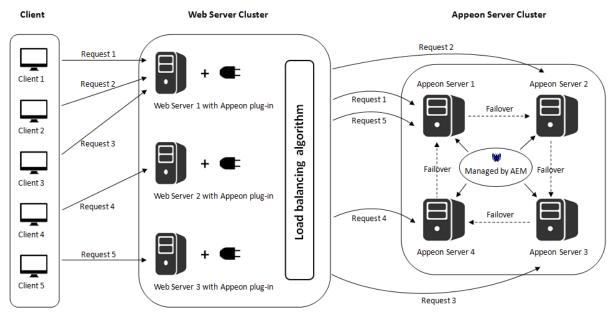


Figure 5.1: Cluster architecture

5.2 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. PowerServer supports the following application server types: .NET IIS, JBoss, WebLogic, WebSphere, and JEUS. 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.

5.3 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 4.3.3.1, "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 5.2: Cluster

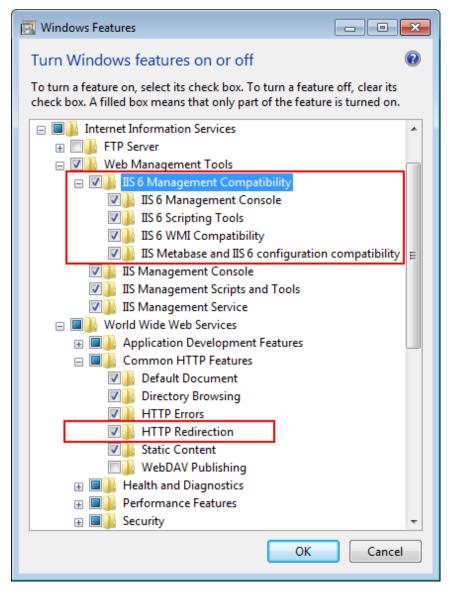
Ŋ	Welcome > Server > Resources > Cluster								
	Cluster Server List								
_									
	The following displays information for all PowerServers in the cluster. Please add the local machine first before you add any other server.								
	Connect type: OHTTP OHTTPS								
	Actions IP Address Port Status								
	Add PowerServe	er Remove All							
Ξ	Load Balancing								
	Load balancing algo	orithm: Random Sequence							
Ξ	Failover								
	Enable Session Backup								
	Session Level								
	Request Level								
	Enable Heartbeat Backup								
	Enable Remote Backup								
	Interval Time 30 seconds								
	Mirror Backup								
	Rotati	ion Backup							
	Enable Lo	gical Restore with Status Monitor							
	Save								

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

5.4.1 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 5.3: Required IIS features



5.4.2 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.

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

5.4.3.1 Type 1: IIS Web server

5.4.3.1.1 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 **WebComponent[version]\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.

<u>E</u> dit <u>V</u> iew <u>T</u> ools <u>H</u> elp						
rganize 👻 Include in library 👻 S	hare with 🔻 New folder					
4 퉲 WebComponent2013	^ Name ^	Date modified	Туре	Size		
appeon 🔐	APBCluster	4/25/2013 11:22 AM	File folder			
Apache13Support	appeon	4/25/2013 11:22 AM	File folder			
Apache20Support	AppeonCloud	4/25/2013 11:22 AM	File folder			
Apache22Support	a AppeonCluster	4/23/2013 11:01 AM	Application	262 KB		
4 🎉 IISSupport	AppeonCluster.exe	4/23/2013 10:56 AM	XML Configuratio	1 KB		
Appeon Cluster plugin	AppeonCluster	4/25/2013 11:29 AM	Text Document	1 KB		
APBCluster	= instance	4/25/2013 11:27 AM	XML Configuratio	1 KB		
> 🍌 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		
b conf	Interop.IWshRuntimeLibrary	4/23/2013 10:56 AM	DLL File	37 KB		
Modules Meblibrary_ax	Iog4net	4/23/2013 10:56 AM	DLL File	244 KB		
Apple Software Update	📄 log4net	4/23/2013 10:56 AM	XML File	1,258 KB		
Apple Software Opdate Beyond Compare 3	🚳 regiis	4/23/2013 10:56 AM	Windows Batch File	1 KB		
Bonjour	ilentinstall	4/23/2013 10:56 AM	Configuration sett	3 KB		
Diffour Common Files						
DVD Maker						
	-					

Figure 5.4: 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 5.5: Create plugin on a Web site

🕣 Appeon Cluster Plug-in Installation Wizard	x
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> anc	el

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 5.6: Configure the Web site

🗟 Ар	peon Cluster Plug-	in Installation Wizard	×	
Cre	ate an Appeon Clu	ister Plug-in on a new Web site		
E	Enter the information	below to create the new Web site and the new Appeon Cluster Plug-in.		
C C	New Web Site			
	Description:			
	TCP Port:			
	Home Directory:		Browse	
	Existing Web Site			
		eb Site[TCP Port=80;Home Directory=C:\jnetpub\wwwroot] Port=80;Home Directory=C:\Program Files\Inetpub\wwwroot]		
		<back next=""></back>	Cancel	-

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 5.7: Select run mode

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.	
·	
< <u>B</u> ack	ext> <u>C</u> ancel

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 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 required by Appeon Cluster Plug-in to support the cluster environment. It must be an administrator user name and password of the Windows operating system login account.				
Usemame:				
Password:				
Confirm Password:				
	< <u>Back</u> <u>N</u> ext> <u>C</u> ancel			

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

Figure 5.9: Create the plug-in

ſ	appeon Cluster Plug-in Installation Wizard	
	Create an Appeon Server on a new Web site Create the Web site "AppeonCluster" and Appeon Cluster Plug-in.	
1	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.

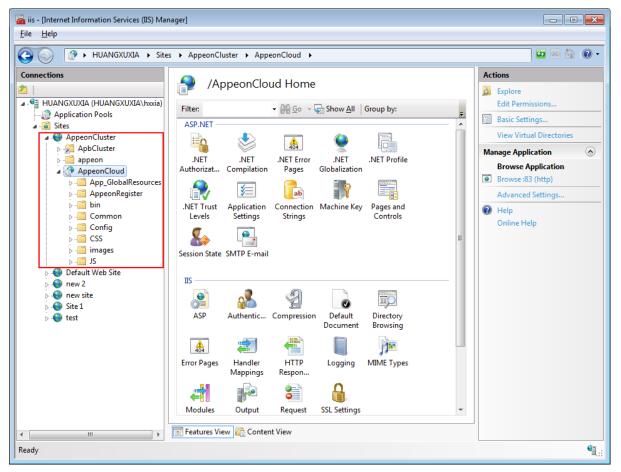
Configuring redirections to PowerServer

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 4.3.3.1, "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 5.10: 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 5.11: Local cluster settings

Appeon Cluster Mana	ger > Local Cluste	er Setting			
Local Cluster Settin	Local Cluster Setting				
Sets cluster type that is used to store cluster information.					
Host:					
Port:		80			
Save					
Actions	Host			Port	
<u>Delete</u>	localho	st		80	
Delete	192.0.2	2.113		80	

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

Figure 5.12: Cluster settings

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

Table 5.1: 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.	

5.4.3.1.2 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\WebComponent[version]) 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 5.13: Add virtual directory

Add Virtual Dire	ctory		? 💌
Site name: Path:	Default Web Site /		
<u>A</u> lias:			
ApbCluster			
Example: ima	ges		
<u>P</u> hysical path	:		
C:\inetpub\w	/wwroot\ApbCluster		
Pass-through	authentication		_
<u>C</u> onnect 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 5.14: ApbCluster properties

🚶 ApbCluster Properties 🛛 💽			
General Sharing Security Previous Versions Customize			
Object name: C:\inetpub\wwwroot\ApbCluster			
Group or user names:			
& Everyone			
& CREATOR OWNER			
& SYSTEM			
All Administrators (HIIANGYIIYIA) Administrators)			
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 5.15: ApbCluster permissions

Permissions for ApbCluster			×		
Security					
Object name: C:\inetpub\www	root\ApbCluster				
Group or user names:					
SYSTEM			^		
Administrators (HUANGXUX	-				
Sers (HUANGXUXIA\Users	-		Ξ		
IIS_IUSRS (HUANGXUXIA)	lis_iusrs)				
StrustedInstaller			Ŧ		
•		•			
	A <u>d</u> d	<u>R</u> emove			
Permissions for IIS_IUSRS	Allow	Deny			
Modify			*		
Read & execute					
List folder contents	V		=		
Read	V				
Write					
- ·					
Learn about access control and p	emissions				

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 5.16: Add ISAPI filter

Add 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 5.17: 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 5.18: Edit feature permissions

Edit Feature Permissions	? 💌
Permissions:	
<u> R</u> ead	
✓ Script	
✓ Execute	
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 5.19: Add MIME type

Add MIME Type	? 💌
File name <u>e</u> xtension: *	
MIME 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 PowerServer 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\WebComponent[version]) 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 5.20: Add virtual directory

Add Virtual Directory	? 💌
Site name: Default Web Site Path: /	
<u>A</u> lias:	
ApbCluster	
Example: images	
<u>P</u> hysical path:	
C:\inetpub\wwwroot\ApbClust	er
Pass-through authentication	
Connect as Test Settin	ıgs
	OK 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 5.21: 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 (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 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 5.22: appeoncluster properties

Permissions for ApbCluster		— ×
Security		
Object name: C:\inetpub\www	vroot\ApbCluster	
<u>G</u> roup or user names:		
SYSTEM		
& Administrators (HUANGXUX	(IA\Administrators)	
& Users (HUANGXUXIA\User		_
& IIS_IUSRS (HUANGXUXIA)	IIS_IUSRS)	E
🎎 TrustedInstaller		+
▲ III.		4
	A <u>d</u> d	<u>R</u> emove
Permissions for IIS_IUSRS	A <u>d</u> d Allow	<u>R</u> emove Deny
Permissions for IIS_IUSRS Modify		
		Deny
Modify		Deny
Modify Read & execute		Deny
Modify Read & execute List folder contents		Deny
Modify Read & execute List folder contents Read	Allow	Deny
Modify Read & execute List folder contents Read Write	Allow	Deny

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 5.23: Add ISAPI filter

Add 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 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 5.24: 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 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 5.25: Edit feature permissions

Edit Feature Permissions
Permissions:
<u> R</u> ead
✓ Script
✓ Execute
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 5.26: Add MIME type

Add MIME Type	? 💌
File name <u>e</u> xtension *	:
MIME type:	
application/octet-st	ream
	OK Cancel

10.Restarting IIS.

Restart IIS to make the new settings effective.

5.4.3.2 Type 2: Apache Web server

5.4.3.2.1 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 PowerServer 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 \WebComponent[version]) 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 PowerServer 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 \WebComponent[version]) 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.

5.4.4 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 4.3.4, "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.

5.4.4.1 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).

5.4.4.2 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=""

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

To install a PowerServer application to the PowerServer cluster and Web server(s), you can either deploy the application via the **PowerServer Application Deployment Wizard** (see Chapter 5, *Deploying PowerBuilder Applications* in *PowerServer Toolkit User Guide*, or run the deployment project generated by using the **PowerServer Application Package Wizard** (see Section 9.2, "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 **PowerServer Application Package Wizard**.

5.5.1 Points to note before installation

Be aware of the following points before installing a PowerServer 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.

5.5.2 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 **PowerServer Application 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 PowerServer Application Deployment Wizard is displayed. Click Next to proceed.

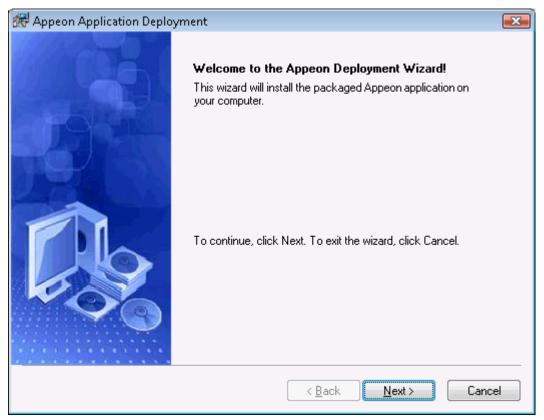


Figure 5.27: Welcome page

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 5.28: 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 NAppeon/WebAppPackage\appeon_code_examples_install\ini\config.xml Browse 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 Specify Deployment Settings	
Please specify the profile name and the URL for th	ne application.
Please specify the URL for the application.	
Application Profile Name: appeon_code_examp	les
Application URL	
http://web.server:port/appeon_code_examp	les
	< <u>B</u> ack <u>N</u> ext > Cancel

Figure 5.29: 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 3.2.3, "Managing server profiles" in *PowerServer Toolkit User Guide*.

Figure 5.30: Specify server settings

🕷 Appeon App	lication Deployment		EX
Server Setting Please selec	gs t the Appeon Server and the Web Serv	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 5.31: Deploy AEM settings

🗺 Appeon Application Deployment	
Deploy AEM Settings Please specify how to deploy the AE	M settings.
Please select whether to deploy the Appeon Server.	AEM settings and data source settings to the specified
AEM Settings	
📄 <u>D</u> ata Source	
If a data source with the same	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 5.32: Specify location for the PowerServer Undeployment Tool

💏 Appeon Application Deployment	×
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 PowerServer application package, and click **Next**.

Files (also called "destination file") under the "wcode" folder of PowerServer 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 PowerServer 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.

Appeon	Application Deployment	
Replace		
Please	specify the files that you want to	replace for the application package.
No	. Destination File	Source File
		<u>Add</u>
		Delete
•		4
		< <u>B</u> ack <u>N</u> ext > Cancel

Figure 5.33: Specify files to replace for the application package

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

Figure 5.34: Deploying the application

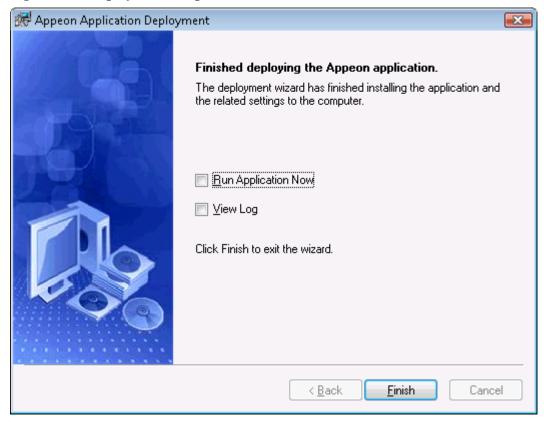
😹 Appeon Application Deployment 🔤					
Deploying the Application Image: Comparison of the sequested operations. The deployment wizard is performing the requested operations. Image: Comparison of the sequested operations.					
Please wait while the deployment wizard is deploying the application. This 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					
 18:19:23 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 					
18:19:25 Deploying DataWindow Syntax to Appeon Server					
۲ (۱۱۱۲) ۲ (۱۱۲۲) ۲ (۱۱۲۲) ۲ (۱۱۲۲) ۲ (۱۱۲۲)					
< <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.

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