Appeon Mobile Tutorials (Mobile only)

Appeon® for PowerBuilder® 2016

FOR WINDOWS & UNIX & LINUX

DOCUMENT ID: ADC50001-01-0700-01

LAST REVISED: September 07, 2016

Appeon Limited, 1/F, Shell Industrial Building, 12 Lee Chung Street, Chai Wan District,
Hong Kong.

Contents

1 About This Book

1.1 Audience

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

1.2 How to use this book

There are six chapters in this book.

Chapter 1: About This Book

A general description of this book

Chapter 2: Tutorial 1: Set up the Environment

Detailed instructions for setting up the Appeon Mobile 1.0 environment.

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

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

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

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

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

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

Chapter 6: Tutorial 5: Configure Appeon Server Cluster

Detailed instructions for configuring an Appeon Server cluster.

1.3 Related documents

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

- Introduction to Appeon:

  Gives general introduction to Appeon for PowerBuilder and its editions.

- Getting Started (for Appeon Mobile):

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

- New Features Guide:

  Introduces new features and changes in Appeon for PowerBuilder.

- Appeon Mobile Tutorials:

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

- Appeon Mobile (Offline) Tutorials:

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

- Appeon Installation Guide:

  Provides instructions on how to install Appeon for PowerBuilder successfully.

- Mobile UI Design & Development Guide:

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

- Migration Guidelines for Appeon Web:

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

- Supported PB Features:

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

- Appeon Developer User Guide:

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

- Workarounds & API Guide:

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

- Appeon Workspace User Guide:

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

- Appeon Server Configuration Guide:

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

- Web Server Configuration Guide:

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

- Troubleshooting Guide:

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

- Appeon Performance Tuning Guide:

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

- Testing Appeon Web Applications with QTP:

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

1.4 If you need help

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

2 Tutorial 1: Set up the Environment

You will need to go through the following tasks to set up the Appeon Mobile 2016 environment for deploying and running the mobile application:

2.1 Task 1: Prepare the machine

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

- **1 Windows PC**: used as the development machine and the Appeon Server

- **1 Android or iOS device**: used as the mobile client

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

Software requirements for **Windows PC**:

- Windows 7 or 8.1 (32-bit or 64-bit)

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

- Internet Explorer 9, 10, or 11

- PowerBuilder 9.x, 10.x, 11.x, or 12.x

- (Optional) SAP ASA/SQL Anywhere (32-bit engine) 8.0.2, 9.0, 10.0.1, 11.0, 12.0, or 16.0 (for running the demos included with the Appeon installation)

- .NET Framework 4.x

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

- IIS 7.x or 8.x

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

- Appeon Mobile 2016

  Install Appeon Server and Appeon Developer. See Task 2: Install Appeon Server & Appeon Developer.

Software requirements for the Android or iOS device:

- Google Android 4.x, 5.0, or 6.0

  Apple iOS 7.1.2, 8, 8.1, or 9

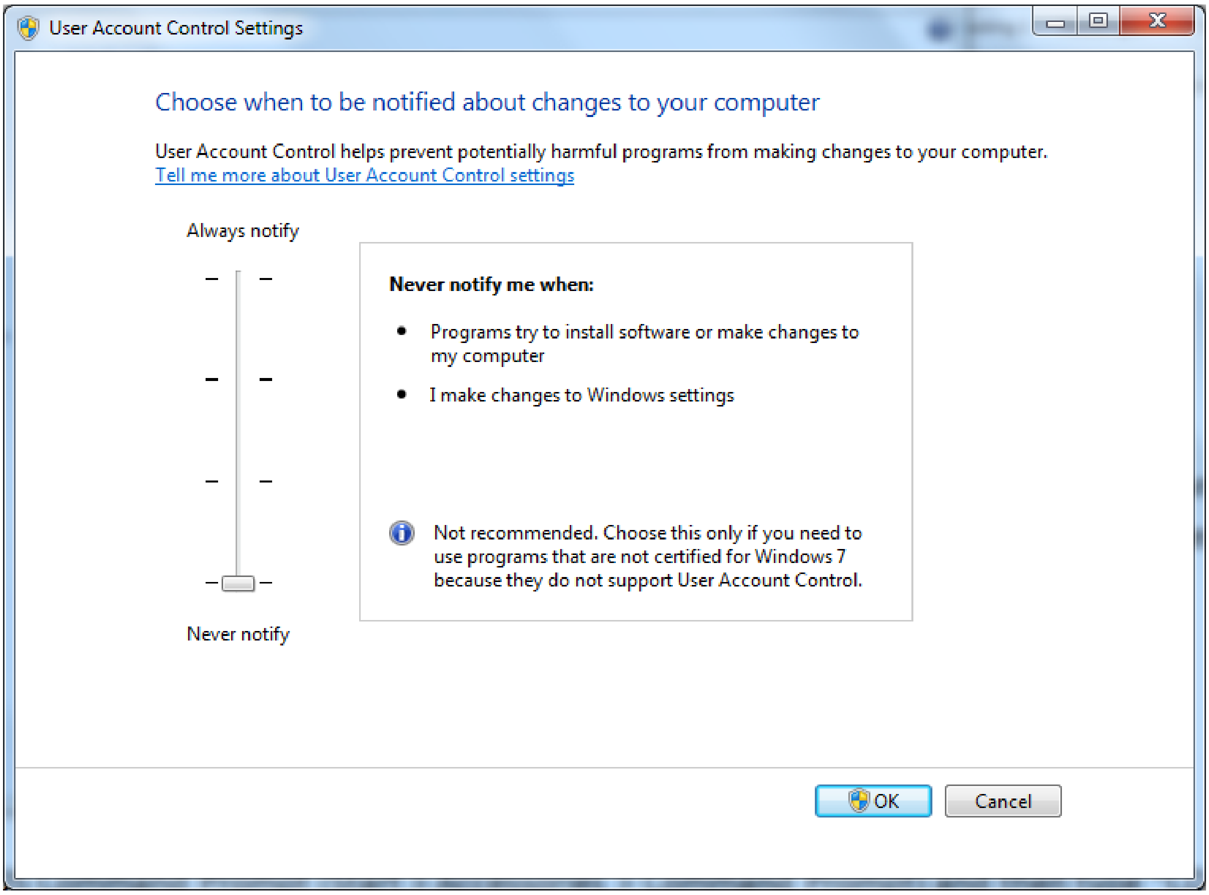
- Appeon Workspace

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

2.1.1 Task 1.1: Disable UAC (User Account Control)

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

Figure 2.1: Disable UAC



User Account Control Settings

Choose when to be notified about changes to your computer

User Account Control helps prevent potentially harmful programs from making changes to your computer.
Tell me more about User Account Control settings

Never notify me when:

- Programs try to install software or make changes to my computer
- I make changes to Windows settings

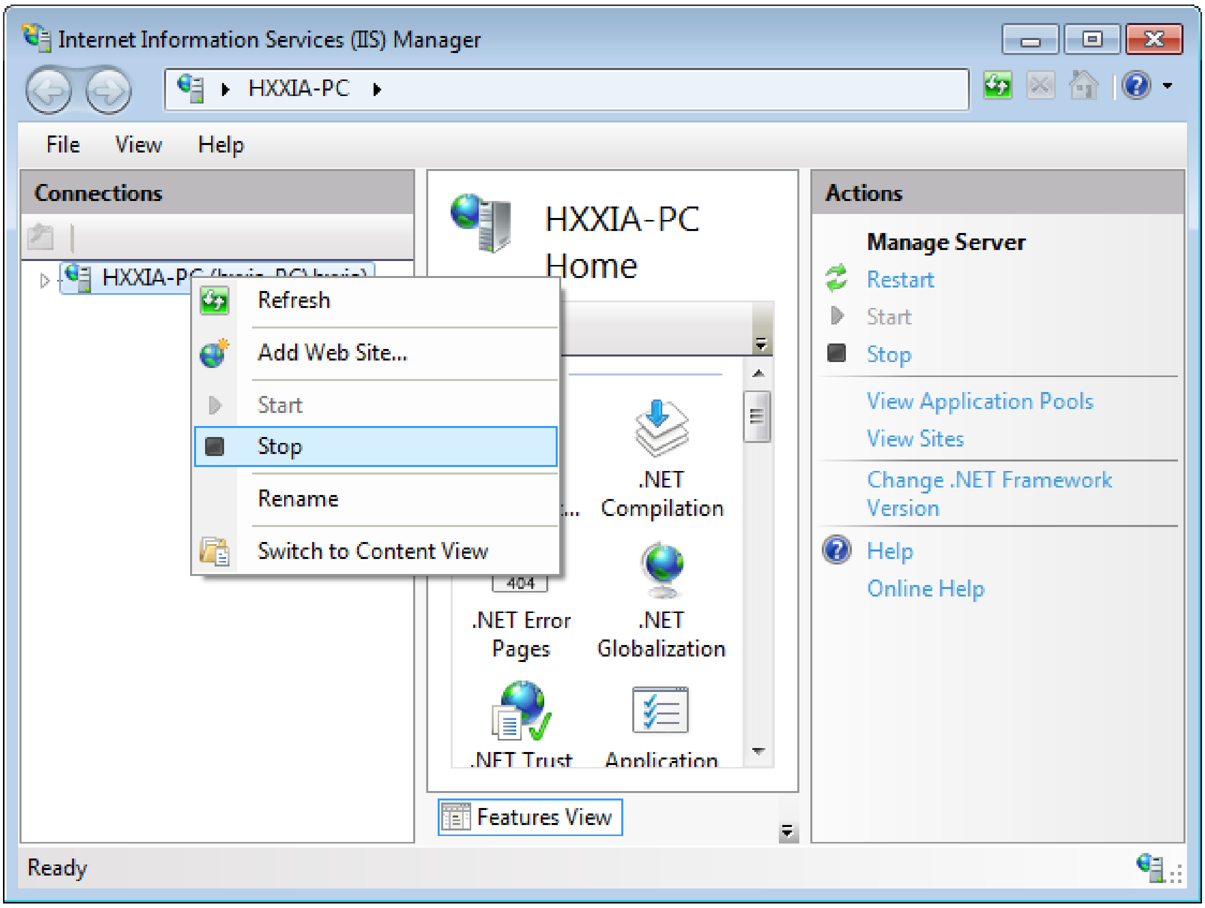
Not recommended. Choose this only if you need to use programs that are not certified for Windows 7 because they do not support User Account Control.

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

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

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

Figure 2.2: Stop the entire IIS Manager



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

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

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

- Double check the **Control Panel\Programs\Programs and Features** and make sure no Appeon component is listed.

- Open a command prompt window and then type **regedit**<Enter>. Double check that no **ADT** or **ASN** keys are listed under HKEY_LOCAL_MACHINE\SOFTWARE\Appeon \<version_number>.

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

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

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

Step 8: Restart the machine.

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

After that, you can proceed to install **Appeon Mobile** by following steps in Task 2: Install Appeon Server & Appeon Developer.

2.1.3 Task 1.3: Install IIS

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

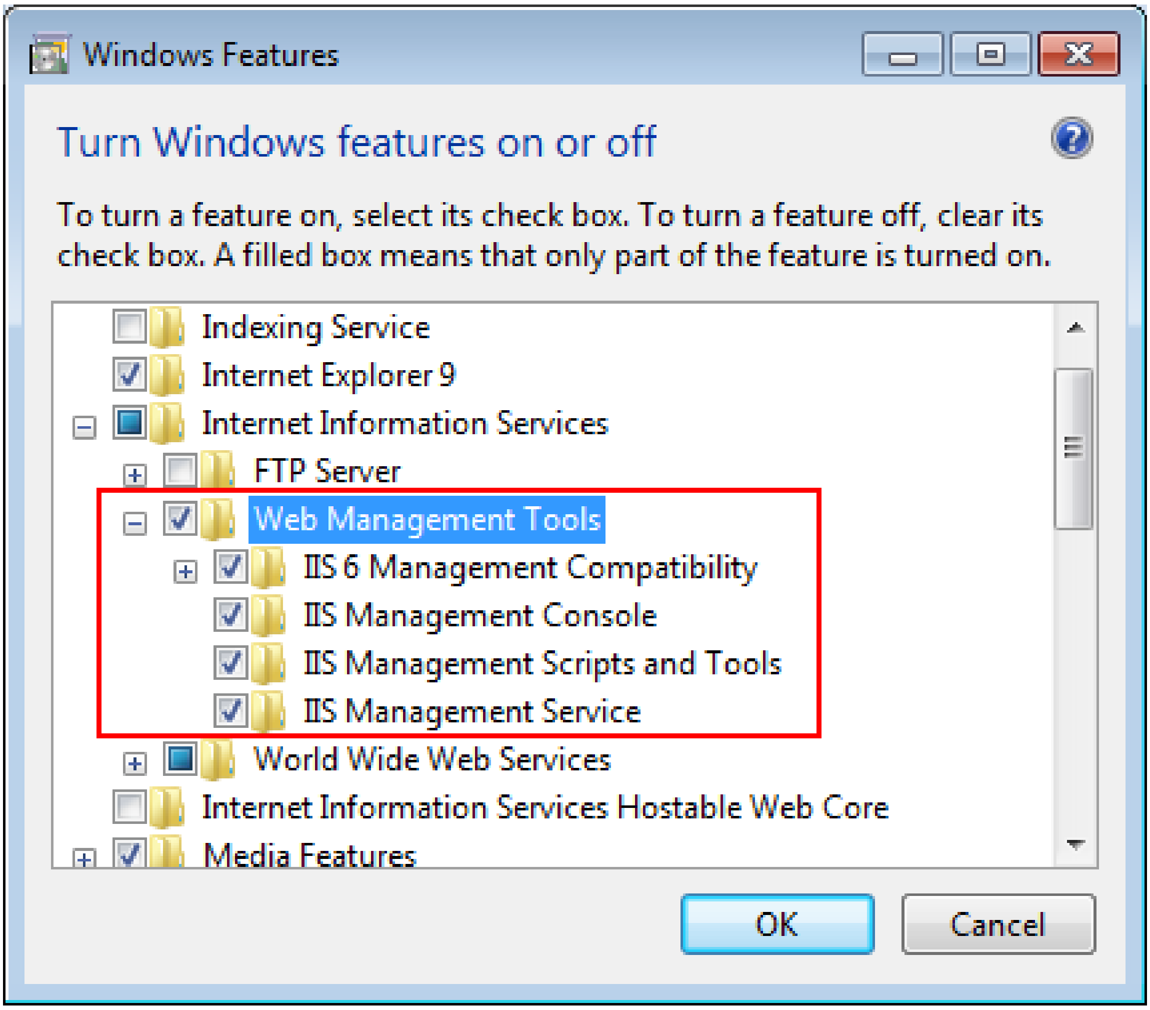
Before you install IIS, make sure you have installed .NET Framework 4.x. To install .NET Framework 4.x for Windows 8.1, please go to the **Turn Windows features on or off** and check the box for .NET 4.5; for Windows 7, please download the setup program from http://www.microsoft.com/en-us/download/details.aspx?id=17718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

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

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

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

Figure 2.3: Select the Web Management Tools



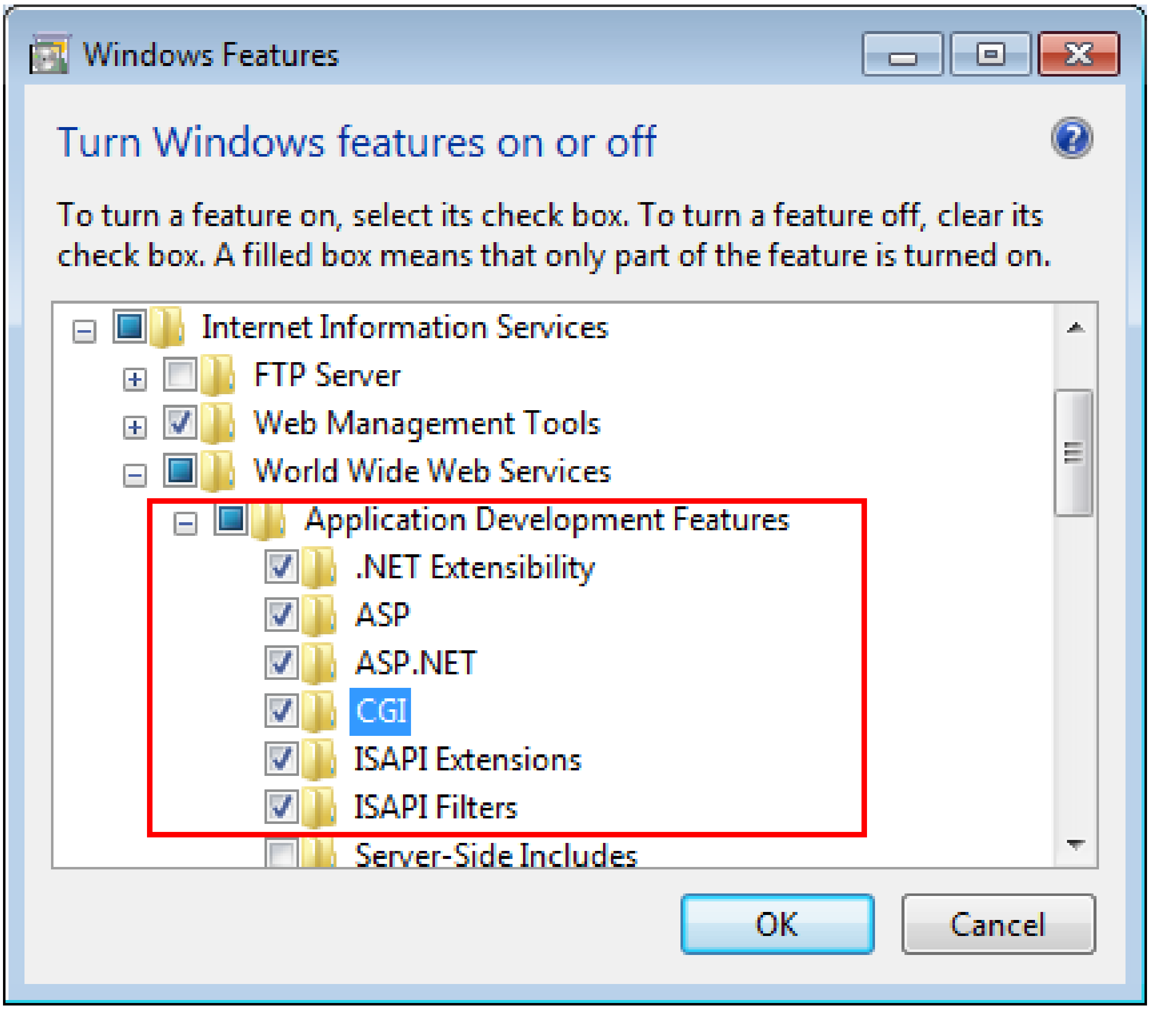
Windows Features

Turn Windows features on or off

To turn a feature on, select its check box. To turn a feature off, clear its check box. A filled box means that only part of the feature is turned on.

- □ Indexing Service
- ☑ Internet Explorer 9
- ■ Internet Information Services
  - □ FTP Server
  - ☑ Web Management Tools
    - ☑ IIS 6 Management Compatibility
    - ☑ IIS Management Console
    - ☑ IIS Management Scripts and Tools
    - ☑ IIS Management Service
  - ■ World Wide Web Services
- □ Internet Information Services Hostable Web Core
- ☑ Media Features

Figure 2.4: Select the Application Development Features



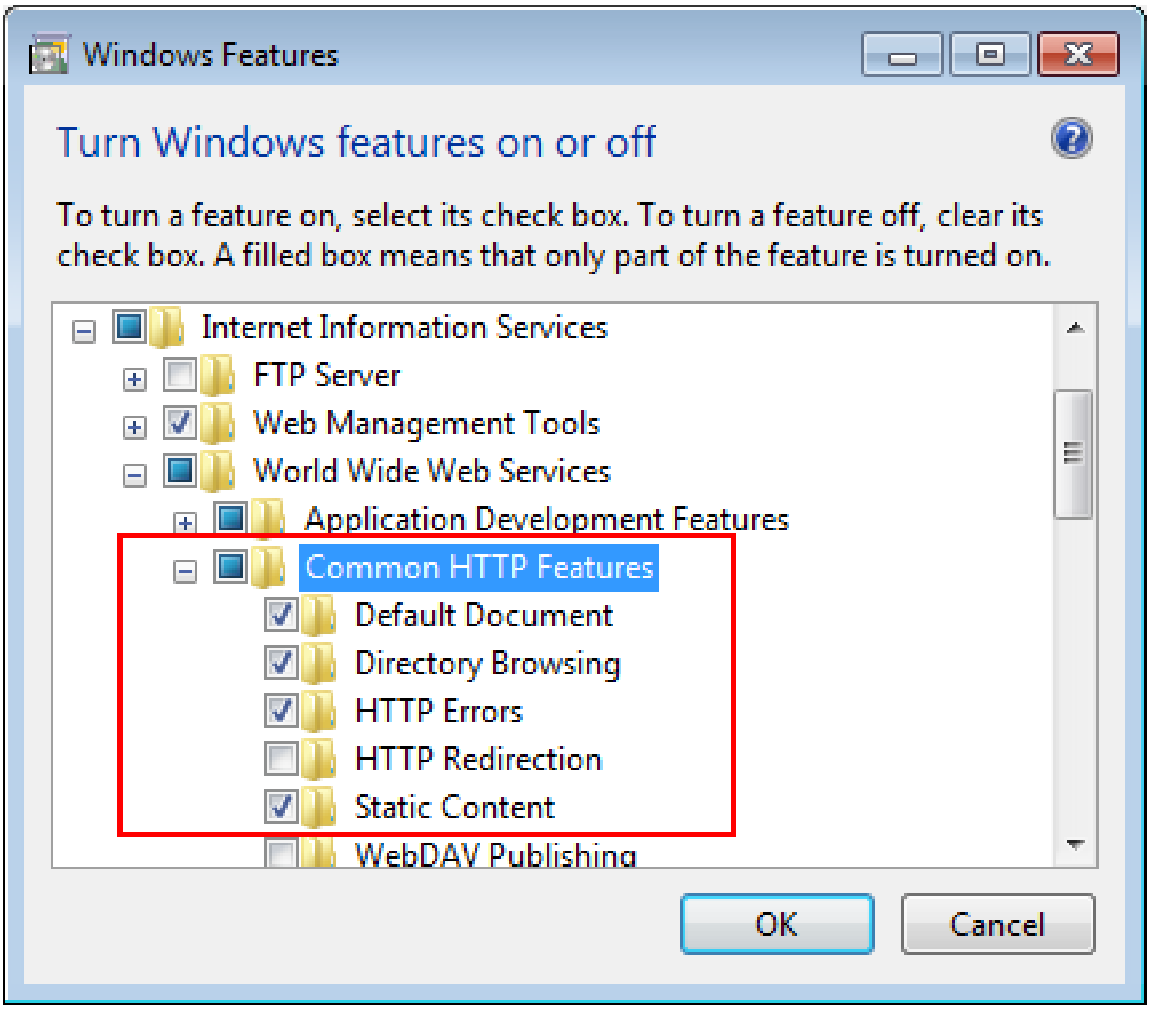
Windows Features

Turn Windows features on or off

To turn a feature on, select its check box. To turn a feature off, clear its check box. A filled box means that only part of the feature is turned on.

- ■ Internet Information Services
  - □ FTP Server
  - ☑ Web Management Tools
  - ■ World Wide Web Services
    - ■ Application Development Features
      - ☑ .NET Extensibility
      - ☑ ASP
      - ☑ ASP.NET
      - ☑ CGI
      - ☑ ISAPI Extensions
      - ☑ ISAPI Filters
      - □ Server-Side Includes

Figure 2.5: Select the Common HTTP Features



Windows Features

Turn Windows features on or off

To turn a feature on, select its check box. To turn a feature off, clear its check box. A filled box means that only part of the feature is turned on.

- ■ Internet Information Services
  - □ FTP Server
  - ☑ Web Management Tools
  - ■ World Wide Web Services
    - ■ Application Development Features
    - ■ Common HTTP Features
      - ☑ Default Document
      - ☑ Directory Browsing
      - ☑ HTTP Errors
      - □ HTTP Redirection
      - ☑ Static Content
      - □ WebDAV Publishing

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

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

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

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

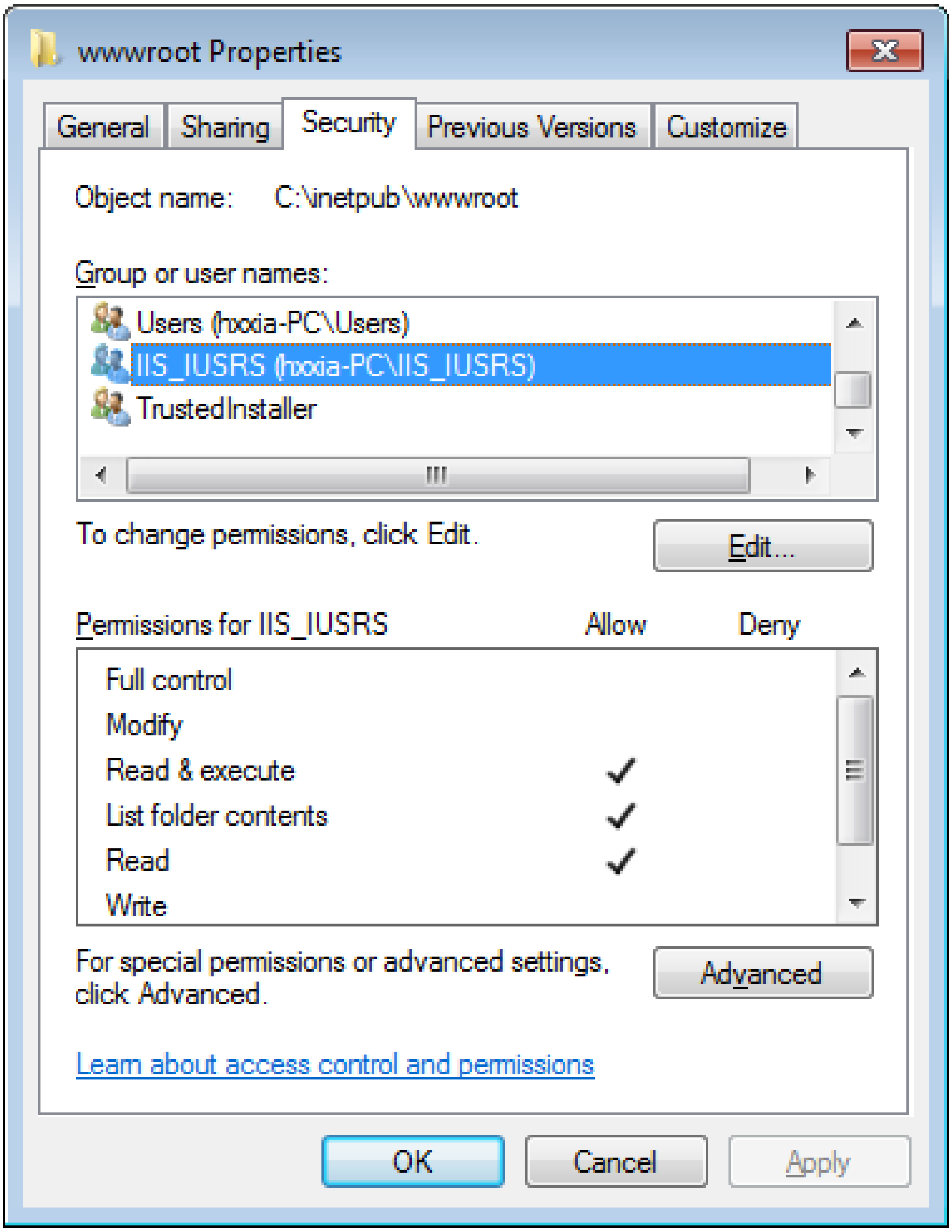
2.1.4 Task 1.4: Configure IIS

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

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

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

Figure 2.6: Select IIS_IUSRS



Object name: C:\inetpub\wwwroot

Group or user names:

- Users (hxxia-PC\Users)
- IIS_IUSRS (hxxia-PC\IIS_IUSRS)
- TrustedInstaller

To change permissions, click Edit.

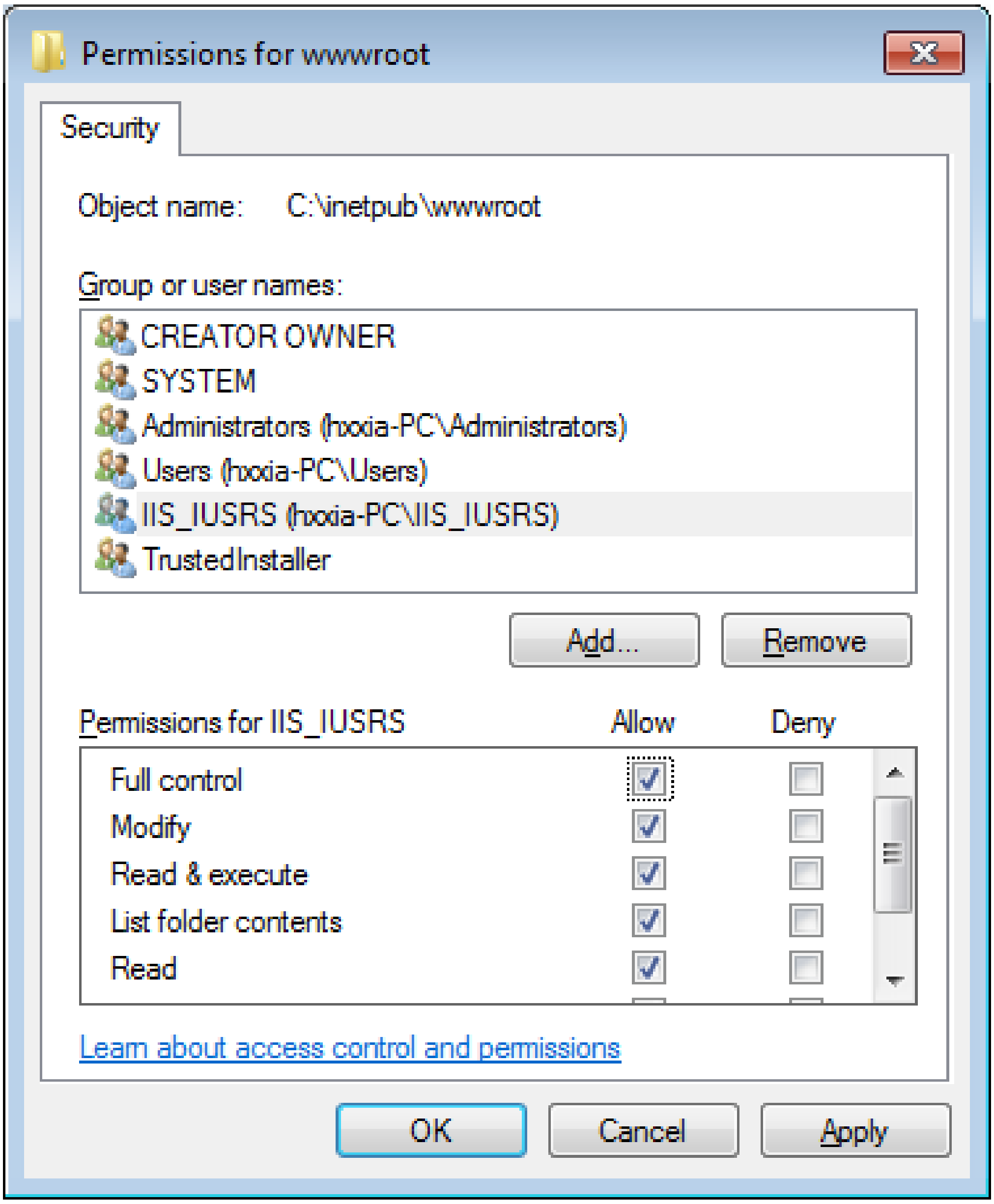
Permissions for IIS_IUSRS	Allow	Deny
Full control		
Modify		
Read & execute	✓	
List folder contents	✓	
Read	✓	
Write		

For special permissions or advanced settings, click Advanced.

Learn about access control and permissions

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

Figure 2.7: Select Full control for IIS_IUSRS



Permissions for wwwroot

Security

Object name: C:\inetpub\wwwroot

Group or user names:

- CREATOR OWNER
- SYSTEM
- Administrators (hxxia-PC\Administrators)
- Users (hxxia-PC\Users)
- IIS_IUSRS (hxxia-PC\IIS_IUSRS)
- TrustedInstaller

Permissions for IIS_IUSRS	Allow	Deny
Full control	☑	□
Modify	☑	□
Read & execute	☑	□
List folder contents	☑	□
Read	☑	□

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

2.2 Task 2: Install Appeon Server and Appeon Developer

2.2.1 Task 2.1: Install Appeon Server and Appeon Developer

On the Windows PC, install Appeon Server and Appeon Developer by the following steps.

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

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

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

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

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

Step 6: Click **Next** until Setup begins copying files for the Appeon Server installation.

When Appeon Server installation is completed, Appeon Developer installation automatically starts.

Step 7: Click **Next** until Setup begins copying files for the Appeon Developer installation.

Step 8: When the installation is completed, select the checkbox for **Restart IIS Server** and **Register .NET Framework 4.0** and then click **Finish**.

You can also restart IIS by typing **iisreset** in the command prompt window.

2.2.2 Task 2.2: Verify the installation

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

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

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

For iOS:

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

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

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

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 Appeon Server.

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

2.4 Task 4: Configure the network connection

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

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

3 Tutorial 2: Config, Deploy & Run the Application

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

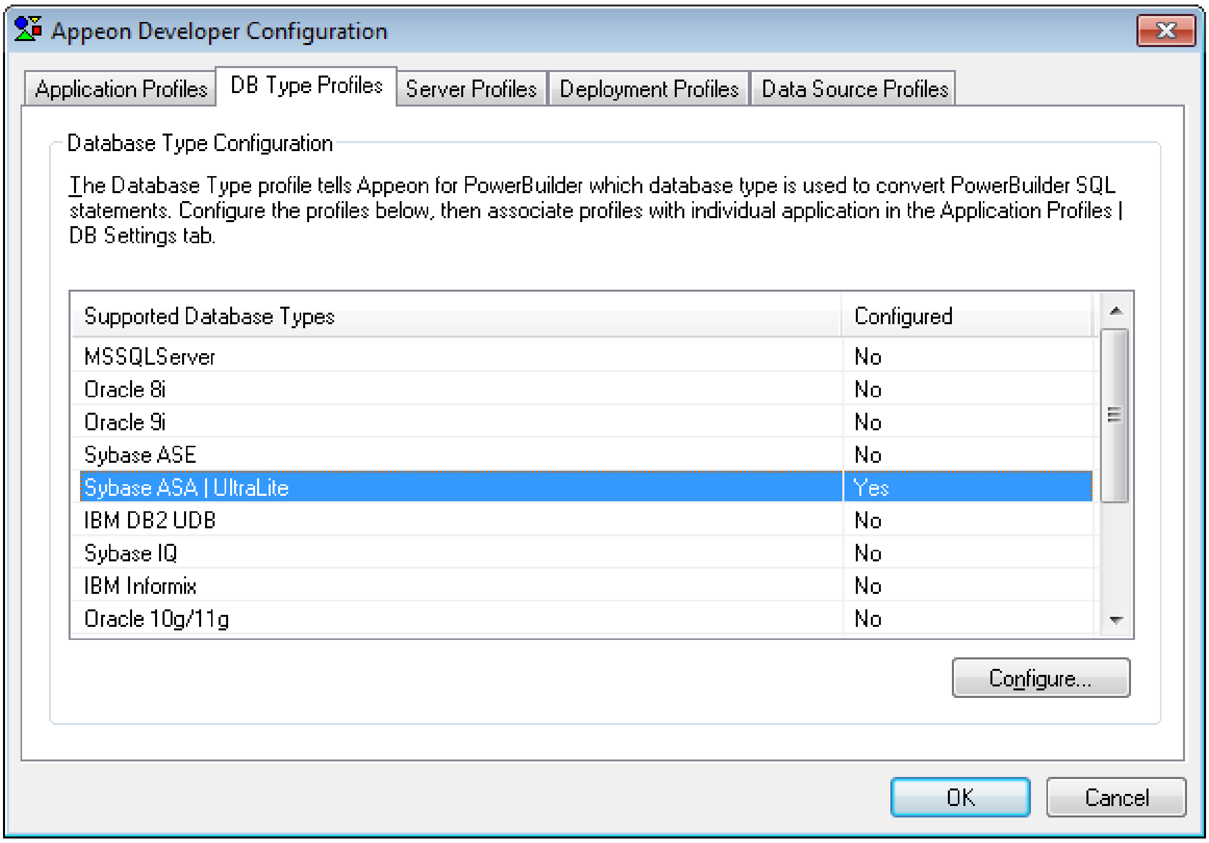
3.1 Task 1: Configure the database type

Step 1: On the Appeon Developer toolbar, click the **Configure** icon ( ).

Step 2: On the **Appeon Developer Configuration** window, click the **DB Type Profile** tab.

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

Figure 3.1: DB Type Profile in ADT



The Database Type profile tells Appeon for PowerBuilder which database type is used to convert PowerBuilder SQL statements. Configure the profiles below, then associate profiles with individual application in the Application Profiles | DB Settings tab.

Supported Database Types	Configured
MSSQLServer	No
Oracle 8i	No
Oracle 9i	No
Sybase ASE	No
Sybase ASA | UltraLite	Yes
IBM DB2 UDB	No
Sybase IQ	No
IBM Informix	No
Oracle 10g/11g	No

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

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

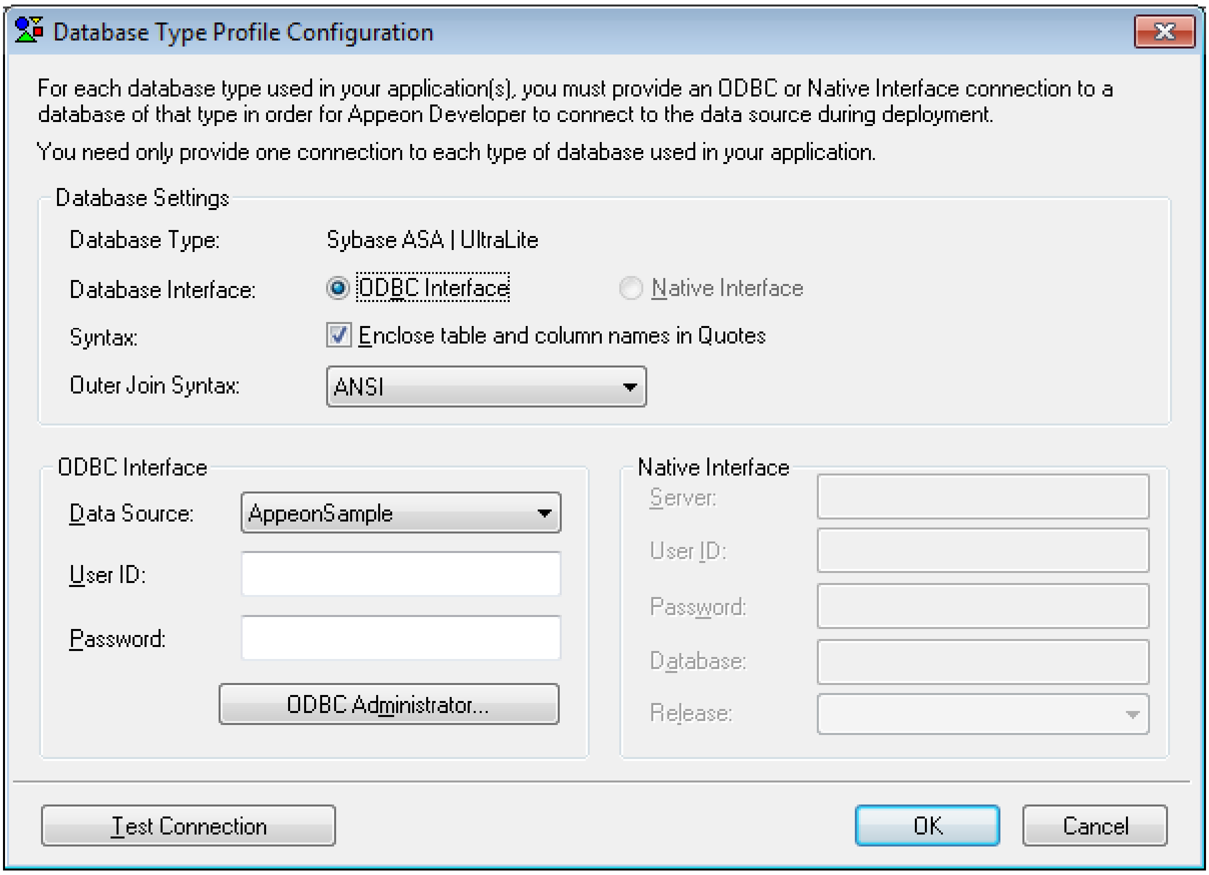
2. Select a data source from the **Data Source** dropdown list box. It can be any data source (ODBC DSN) provided it is the same type as used by your application. It does NOT have to be the actual ODBC DSN used by your particular application. The database type is what is important and that a connection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

3. Keep the rest as default, and then click **Test Connection**.

4. Make sure that the database connection is successful.

5. Click **OK**.

Figure 3.2: Database Type Profile Configuration



Database Type Profile Configuration

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 Appeon Developer to connect to the data source during deployment.

You need only provide one connection to each type of database used in your application.

Database Settings

Database Type: Sybase ASA | UltraLite

Database Interface: ● ODBC Interface ○ Native Interface

Syntax: ☑ Enclose table and column names in Quotes

Outer Join Syntax: ANSI

ODBC Interface

Data Source: AppeonSample

User ID:

Password:

Native Interface

Server:

User ID:

Password:

Database:

Release:

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 [Task 3: Configure and deploy the application]().

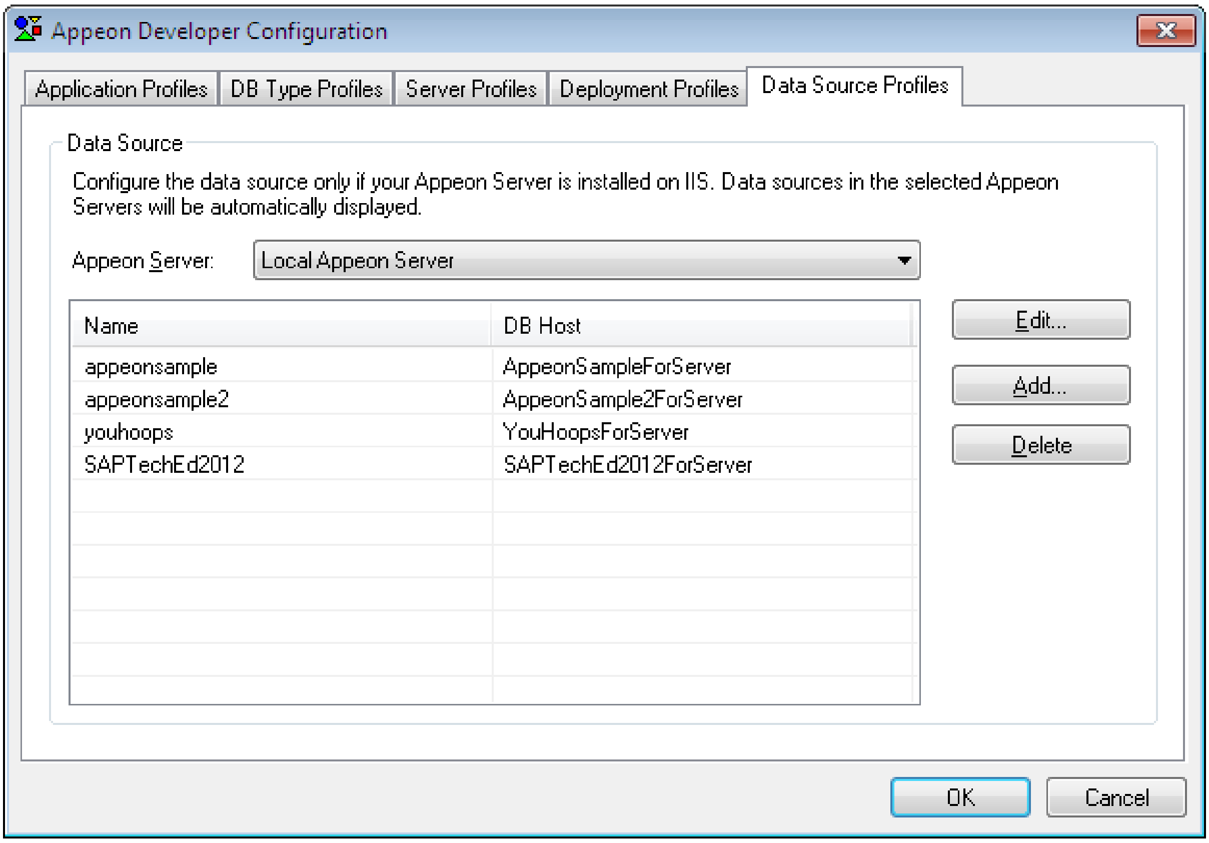
3.2 Task 2: Configure the database connection

Step 1: In the **Appeon Developer Configuration** window, click the **Data Source Profile** tab.

Step 2: Select **Local Appeon Server** from the **Appeon Server** dropdown list box.

Step 3: Click the **Add** button to create a data source in the selected Appeon Server.

Figure 3.3: Connection Cache Profiles



Configure the data source only if your Appeon Server is installed on IIS. Data sources in the selected Appeon Servers will be automatically displayed.

Appeon Server: Local Appeon Server

Name	DB Host
appeonsample	AppeonSampleForServer
appeonsample2	AppeonSample2ForServer
youhoops	YouHoopsForServer
SAPTechEd2012	SAPTechEd2012ForServer

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

Steps for configuring a data source for **SAP ASA/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.

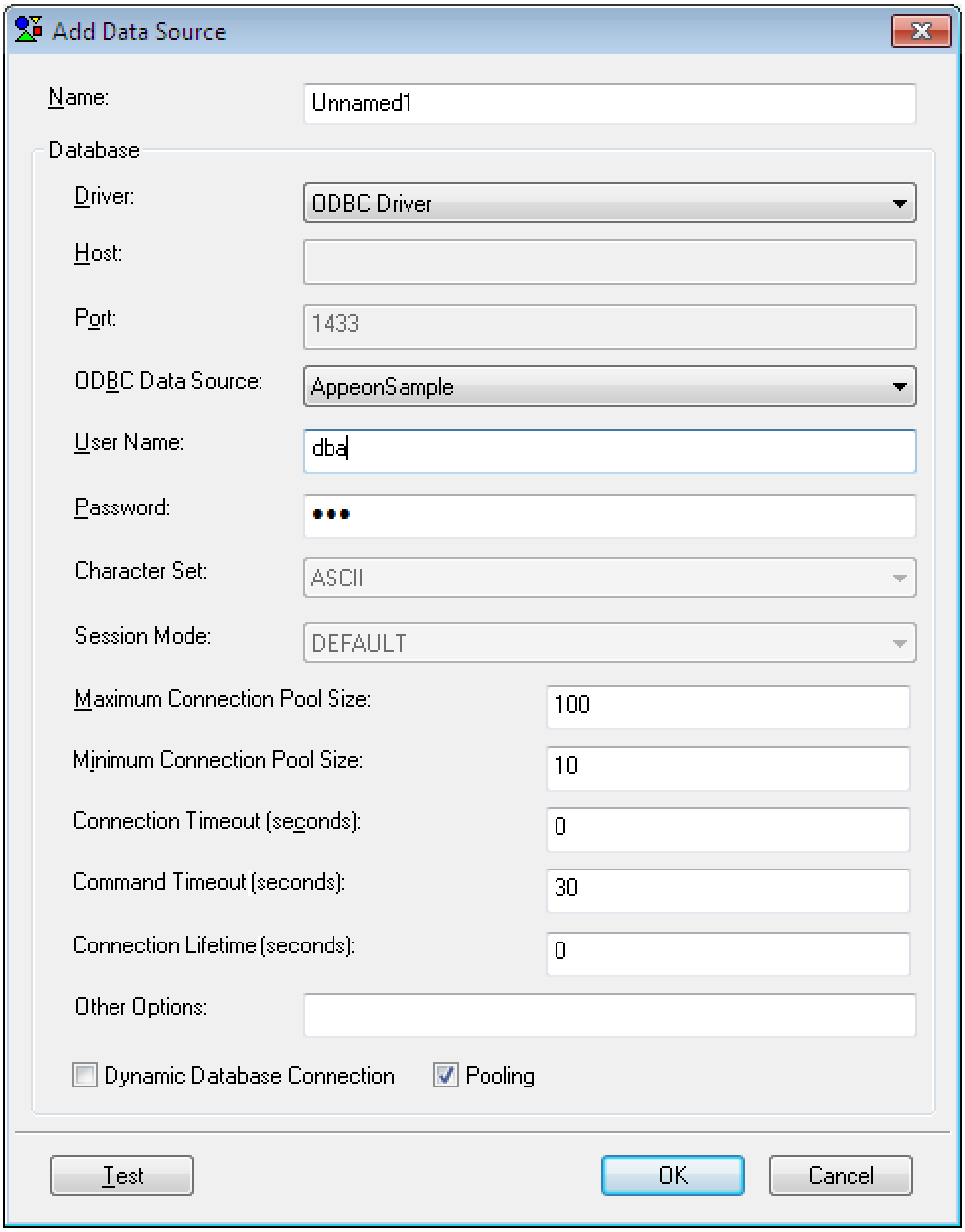
3. Select the data source from the **ODBC Data Source** dropdown listbox.

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**.

Figure 3.4: Add Data Source



Name: Unnamed1

Database

Driver: ODBC Driver

Host:

Port: 1433

ODBC Data Source: AppeonSample

User Name: dba

Password: •••

Character Set: ASCII

Session Mode: DEFAULT

Maximum Connection Pool Size: 100

Minimum Connection Pool Size: 10

Connection Timeout (seconds): 0

Command Timeout (seconds): 30

Connection Lifetime (seconds): 0

Other Options:

□ Dynamic Database Connection ☑ Pooling

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.

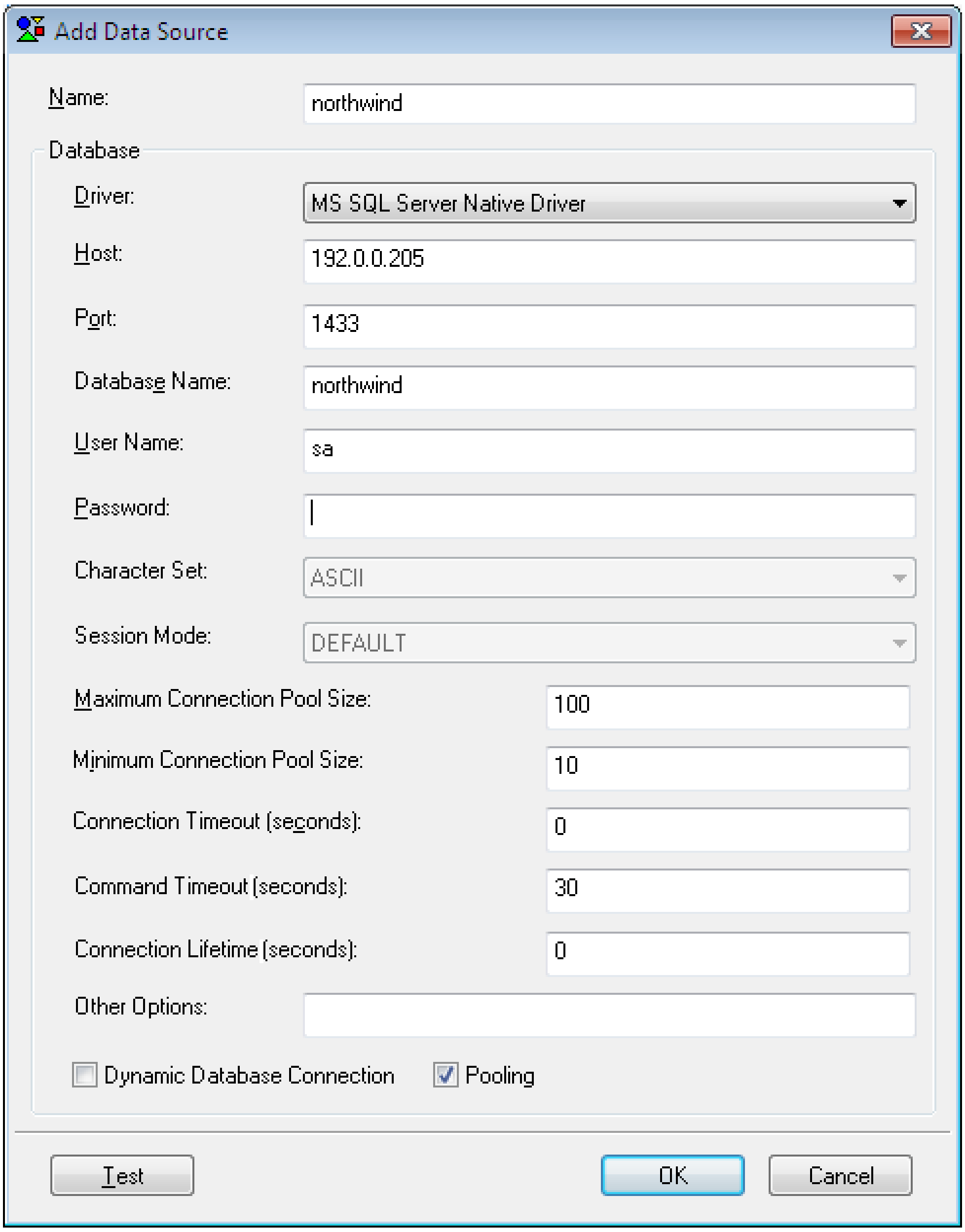
5. Input the database name, database login user name and password respectively in the **Database Name**, the **User Name** and the **Password** text boxes.

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.

Figure 3.5: MS SQL Server Native Driver



Name: northwind

Database

Driver: MS SQL Server Native Driver

Host: 192.0.0.205

Port: 1433

Database Name: northwind

User Name: sa

Password:

Character Set: ASCII

Session Mode: DEFAULT

Maximum Connection Pool Size: 100

Minimum Connection Pool Size: 10

Connection Timeout (seconds): 0

Command Timeout (seconds): 30

Connection Lifetime (seconds): 0

Other Options:

☐ Dynamic Database Connection ☑ Pooling

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 Task 3: Configure and deploy the application.

3.3 Task 3: Configure and deploy the application

Step 1: On the Appeon Developer toolbar 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.

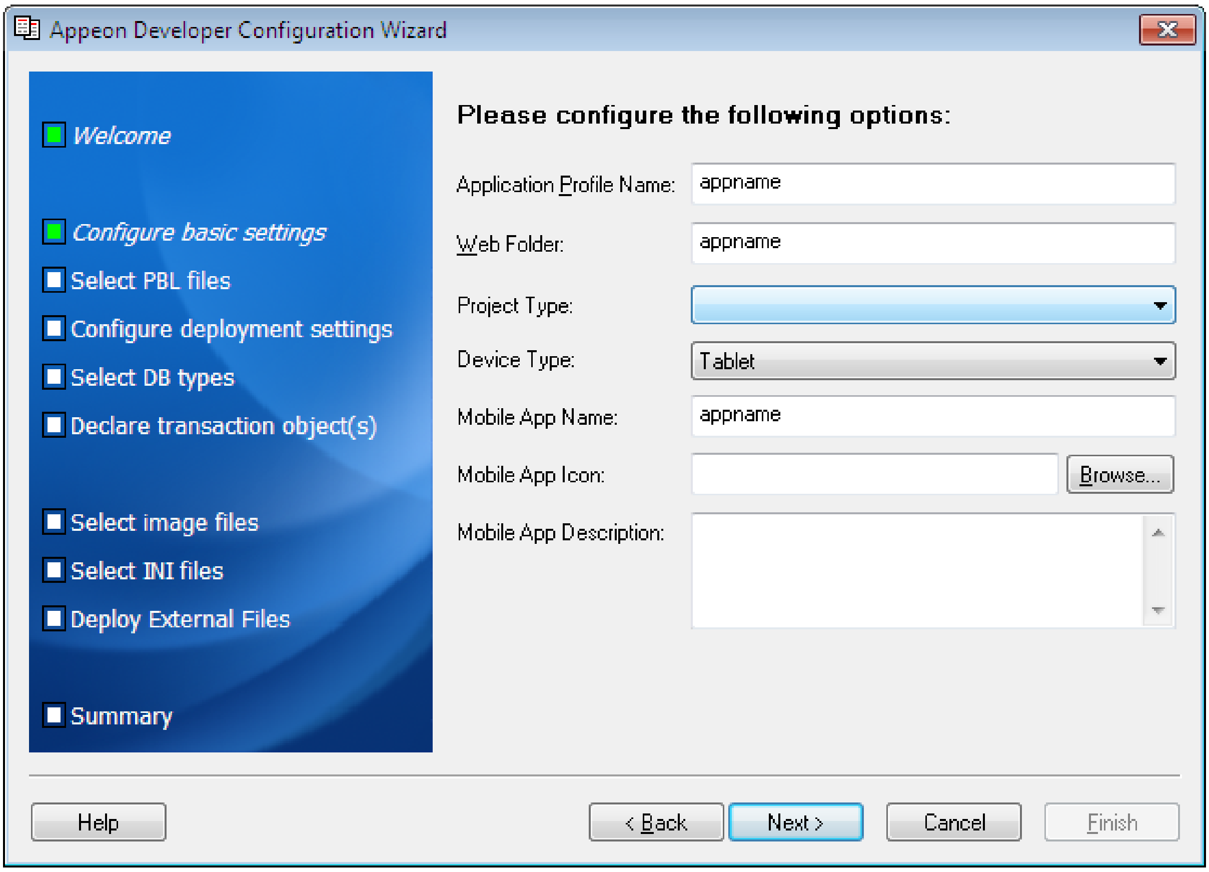
3. Select a device type from the **Device Type** dropdown list box.

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.

Figure 3.6: Appeon Developer Configuration Wizard



Please configure the following options:

Application Profile Name: appname

Web Folder: appname

Project Type:

Device Type: Tablet

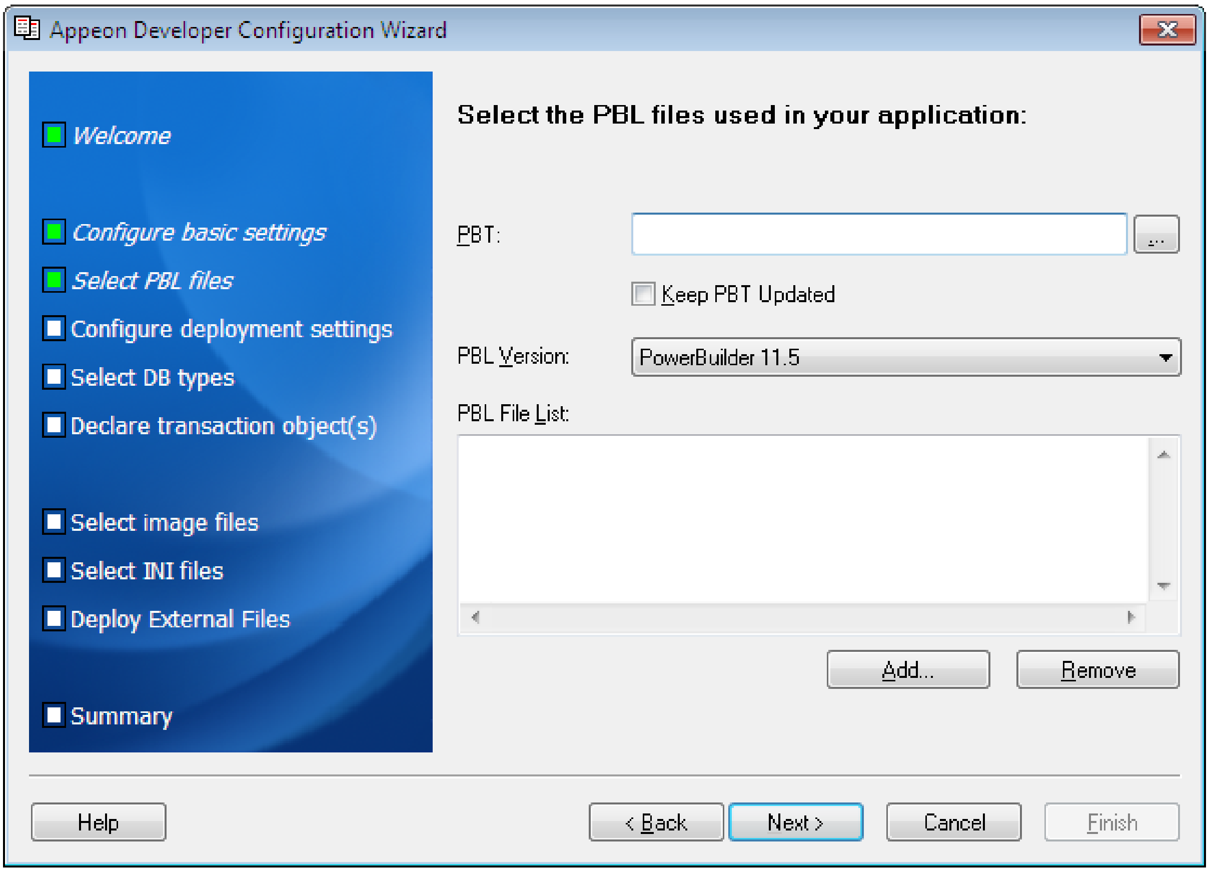
Mobile App Name: appname

Mobile App Icon:

Mobile App Description:

Step 4: Add the PBT from the **PBT** dropdown list box (and all related PBLs will be automatically added for you) or add the PBL files individually that are used in your application by clicking the **Add File** button in the **PBL File List** group box, and then select a PBL version from the **PBL Version** dropdown list box. Click **Next**.

Figure 3.7: Add the PBT in ADT Wizard

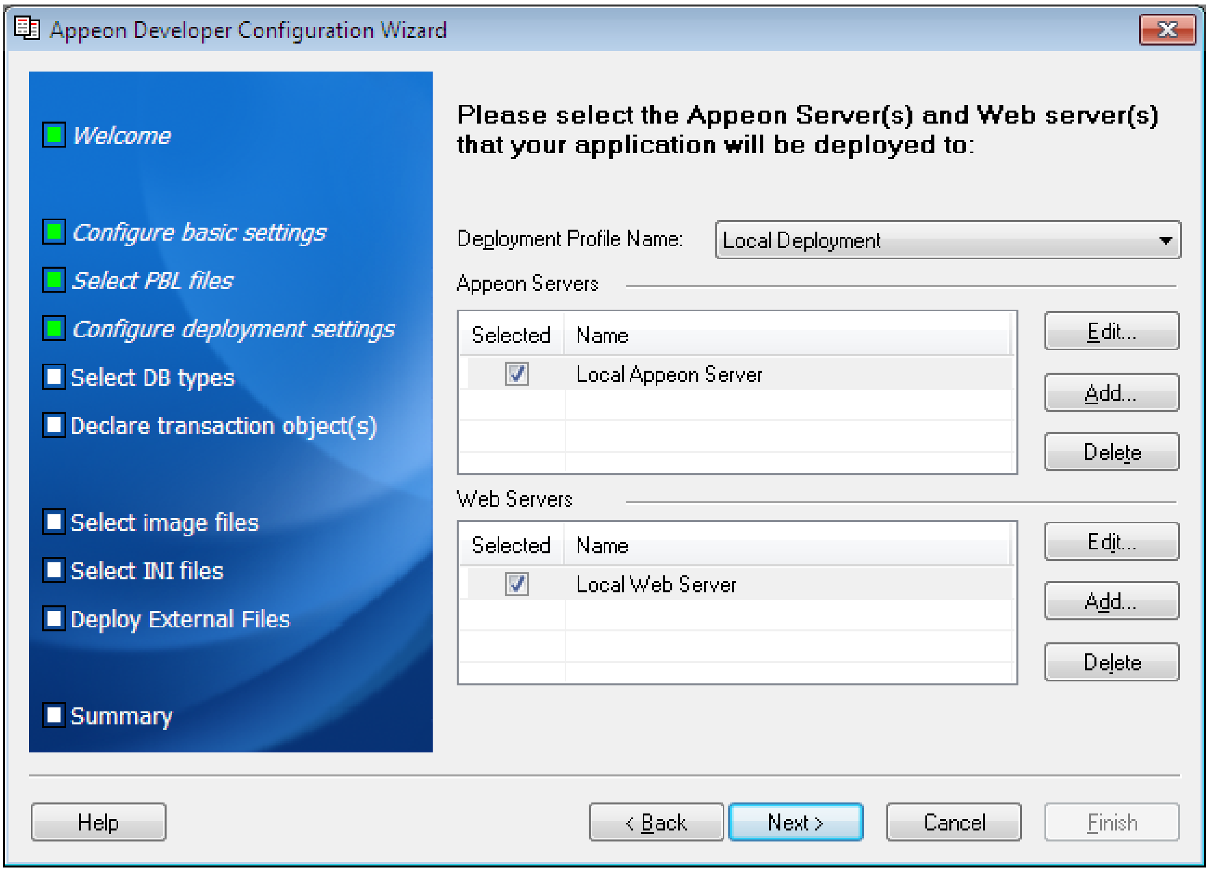


Step 5: Keep the default settings and click **Next**.

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

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

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



Appeon Developer Configuration Wizard

- 🟩 Welcome
- 🟩 Configure basic settings
- 🟩 Select PBL files
- 🟩 Configure deployment settings
- □ Select DB types
- □ Declare transaction object(s)
- □ Select image files
- □ Select INI files
- □ Deploy External Files
- □ Summary

Please select the Appeon Server(s) and Web server(s) that your application will be deployed to:

Deployment Profile Name: Local Deployment

Appeon Servers

Selected	Name
☑	Local Appeon Server

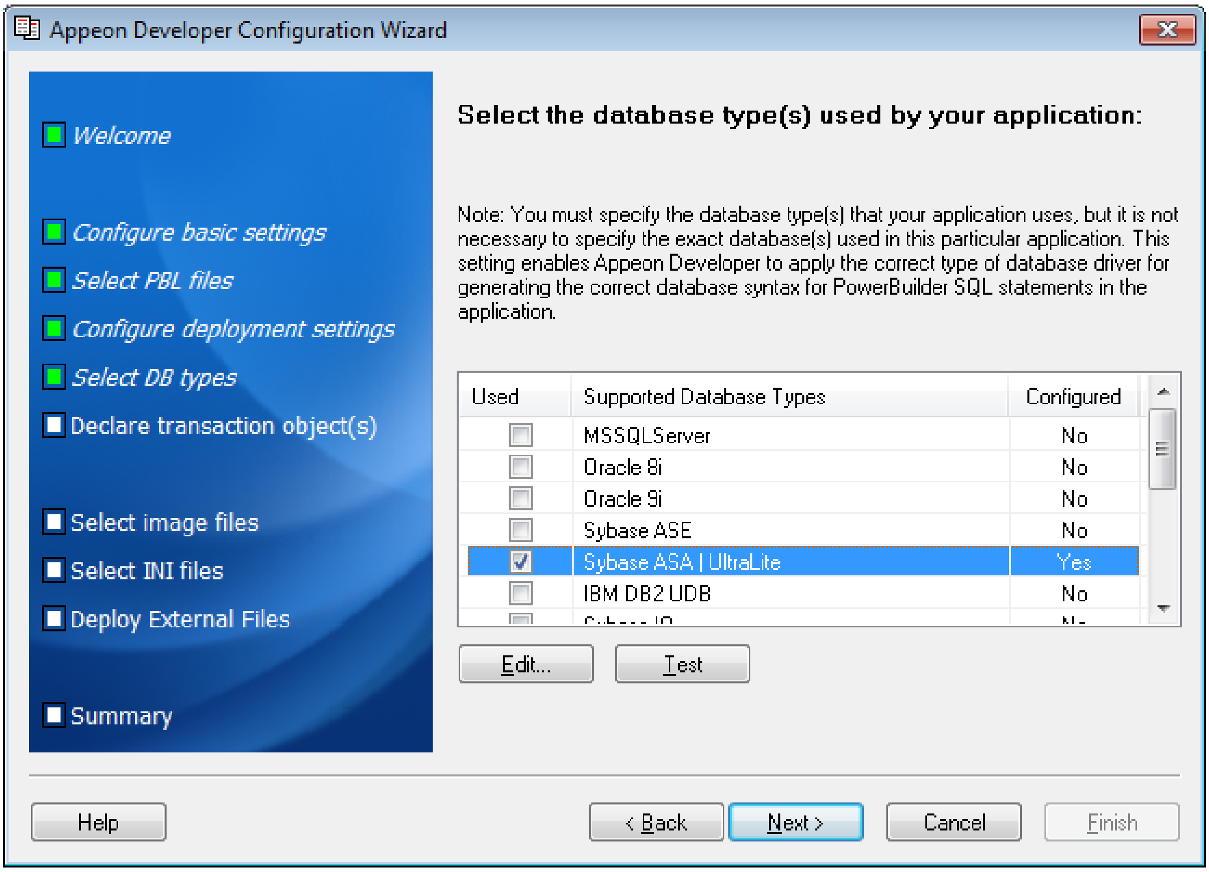
Web Servers

Selected	Name
☑	Local Web Server

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

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

Figure 3.9: Select the database type(s)



Appeon Developer Configuration Wizard
🟩 *Welcome*
🟩 *Configure basic settings*
🟩 *Select PBL files*
🟩 *Configure deployment settings*
🟩 *Select DB types*
□ Declare transaction object(s)
□ Select image files
□ Select INI files
□ Deploy External Files
□ Summary

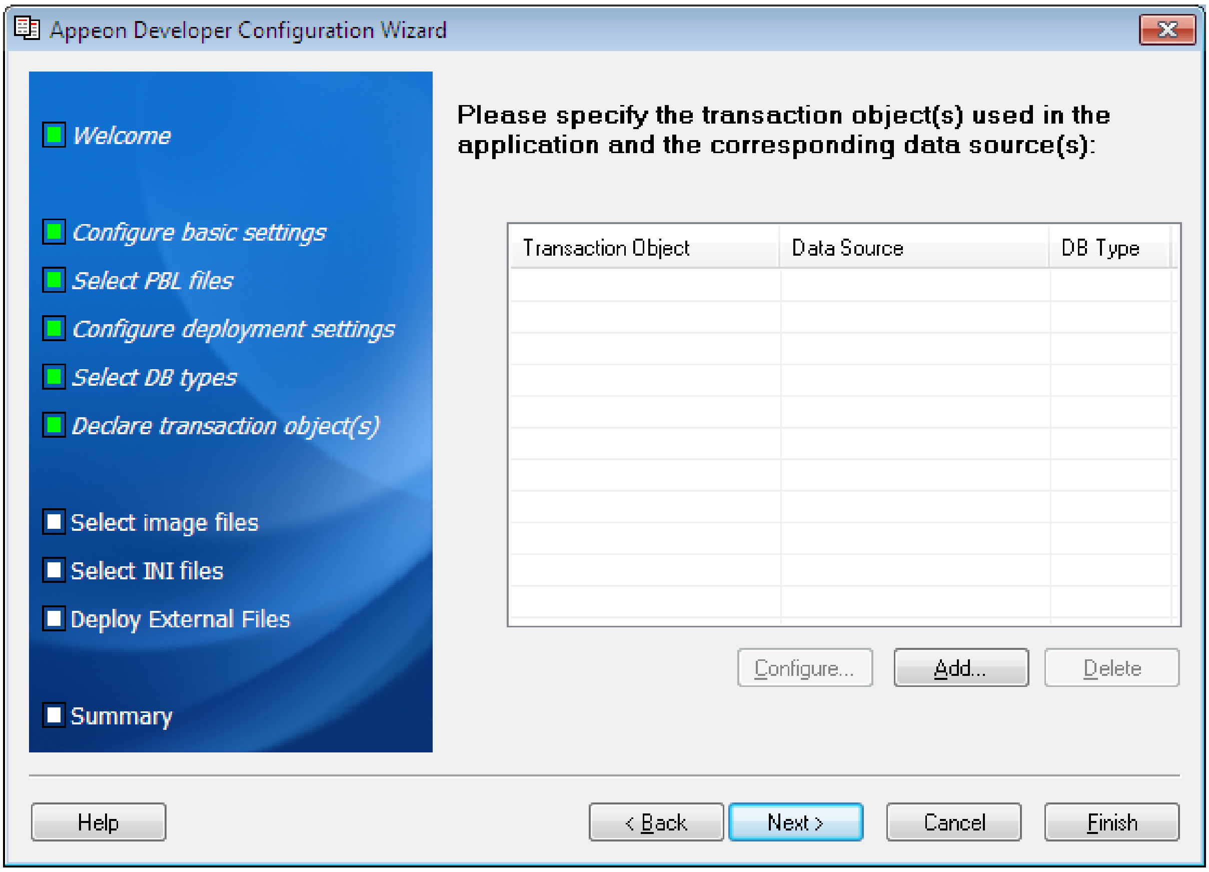
Select the database type(s) used by your application:

Note: You must specify the database type(s) that your application uses, but it is not necessary to specify the exact database(s) used in this particular application. This setting enables Appeon Developer to apply the correct type of database driver for generating the correct database syntax for PowerBuilder SQL statements in the application.

Used	Supported Database Types	Configured
□	MSSQLServer	No
□	Oracle 8i	No
□	Oracle 9i	No
□	Sybase ASE	No
☑	Sybase ASA | UltraLite	Yes
□	IBM DB2 UDB	No

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

Figure 3.10: Specify the transaction object



Please specify the transaction object(s) used in the application and the corresponding data source(s):

Transaction Object	Data Source	DB Type

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

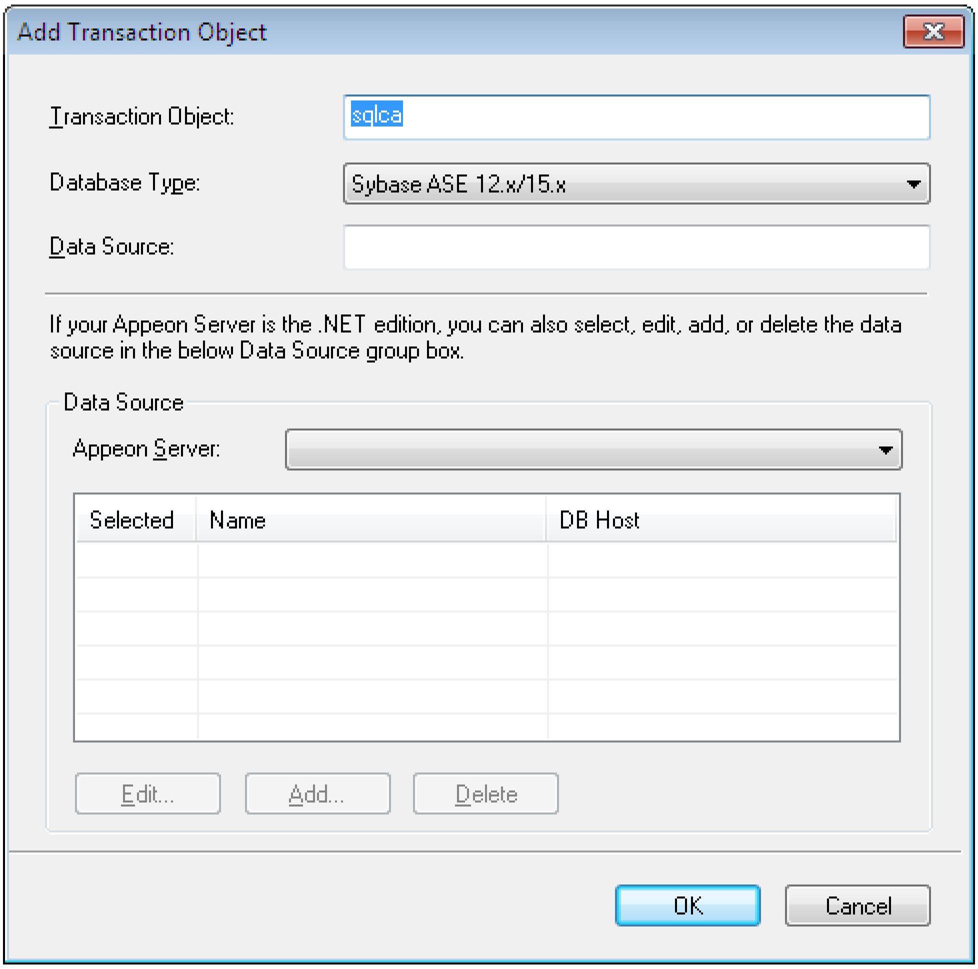
a. Input the transaction object name used by the application to the **Transaction Object** text box. Default transaction object for most PB applications is **SQLCA**.

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

c. Select **Local Appeon Server** from the **Appeon Server** 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.

Figure 3.11: Select the connection cache



Add Transaction Object

Transaction Object: sqlca

Database Type: Sybase ASE 12.x/15.x

Data Source:

If your Appeon Server is the .NET edition, you can also select, edit, add, or delete the data source in the below Data Source group box.

Data Source

Appeon Server:

Selected	Name	DB Host

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

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

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

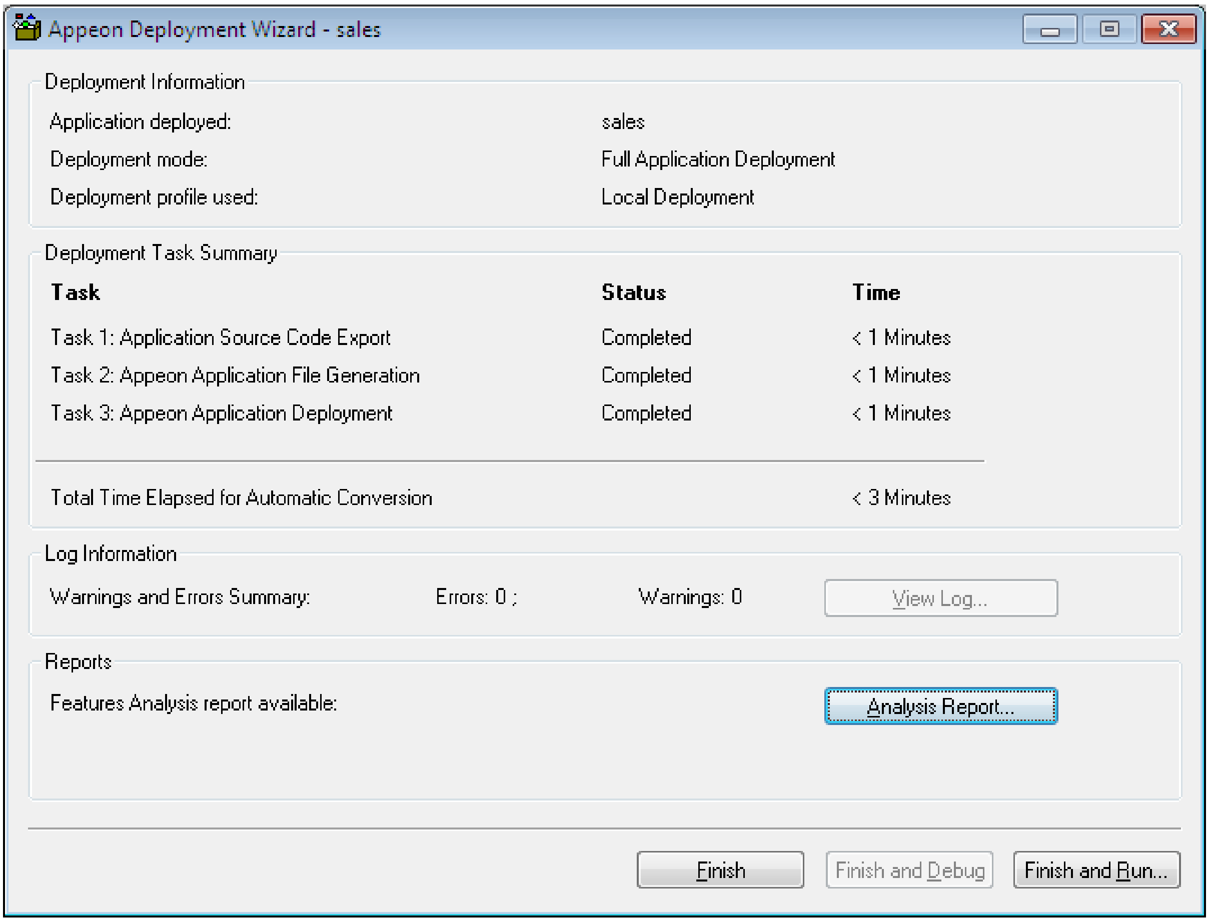
Step 10: Click **Add File** or **Add Directory** to select any other external files such as TXT file etc., if any. Click **Next**.

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

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

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

Figure 3.12: Appeon Deployment Wizard_sales



Appeon Deployment Wizard - sales

Deployment Information

Application deployed:	sales
Deployment mode:	Full Application Deployment
Deployment profile used:	Local Deployment

Deployment Task Summary

Task	Status	Time
Task 1: Application Source Code Export	Completed	< 1 Minutes
Task 2: Appeon Application File Generation	Completed	< 1 Minutes
Task 3: Appeon Application Deployment	Completed	< 1 Minutes
Total Time Elapsed for Automatic Conversion		< 3 Minutes

Log Information

Warnings and Errors Summary: Errors: 0 ; Warnings: 0

Reports

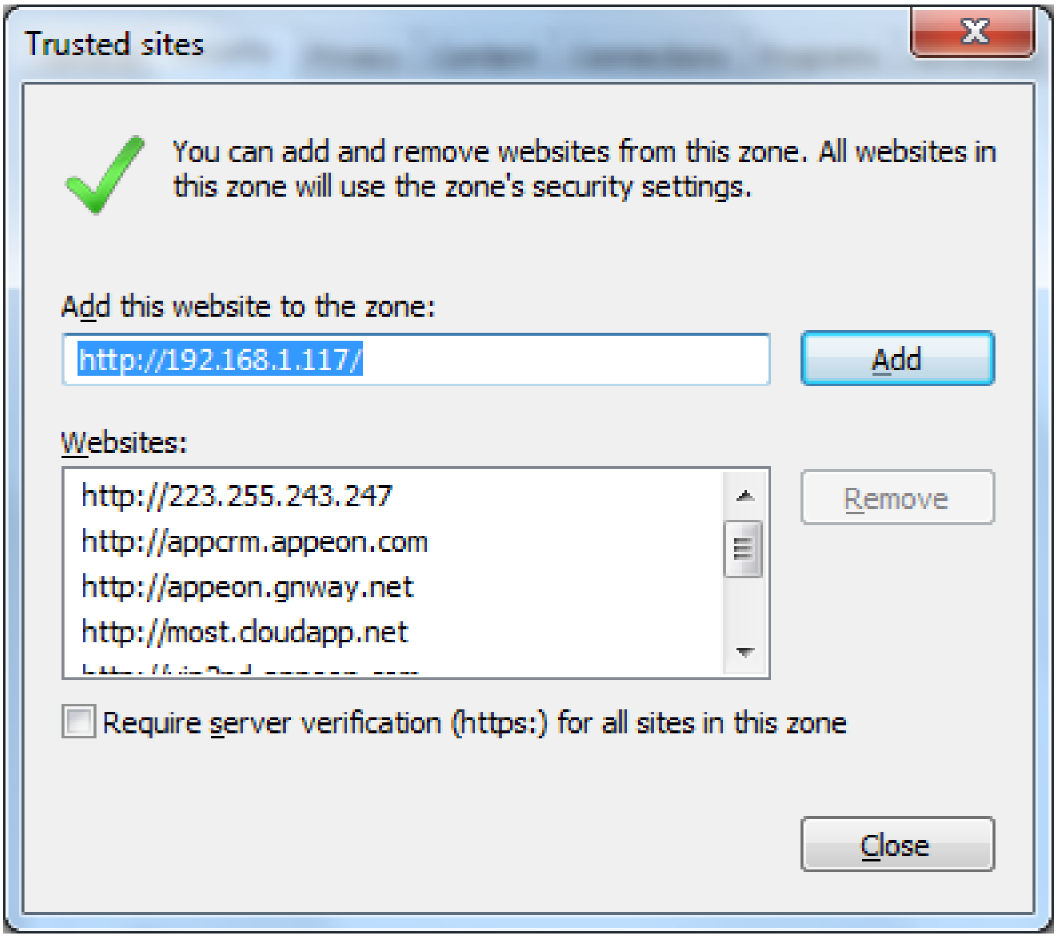
Features Analysis report available:

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

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

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

Figure 3.13: Add the IP address of IIS



Trusted sites

You can add and remove websites from this zone. All websites in this zone will use the zone's security settings.

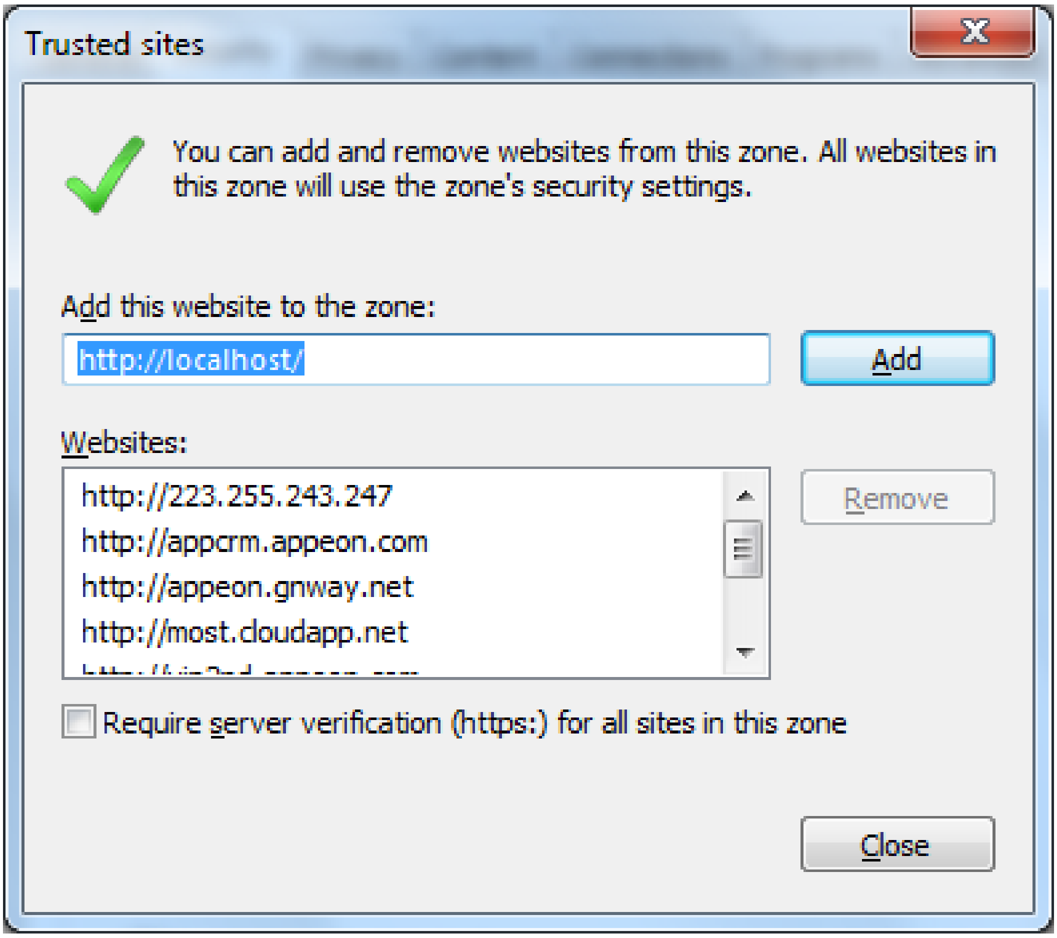
Add this website to the zone: http://192.168.1.117/

Websites:

http://223.255.243.247
http://appcrm.appeon.com
http://appeon.gnway.net
http://most.cloudapp.net

□ Require server verification (https:) for all sites in this zone

Figure 3.14: Add "localhost"



You can add and remove websites from this zone. All websites in this zone will use the zone's security settings.

Add this website to the zone: http://localhost/

Websites:

- http://223.255.243.247
- http://appcrm.appeon.com
- http://appeon.gnway.net
- http://most.cloudapp.net

□ Require server verification (https:) for all sites in this zone

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 Task 3: Configure and deploy the application.

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 Tutorial 3: Develop & Debug with Appeon Mobile.

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

Now that you have run the application successfully in IE, you are ready to run your application on the Android or iOS device.

Step 1: Configure the network connection. See Task 3 in Tutorial 1: Set up the Environment.

Step 2: Install Appeon Workspace. See Task 4 in Tutorial 1: Set up the Environment.

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

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

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

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

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

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

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

4 Tutorial 3: Develop & Debug with Appeon Mobile

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

4.1 Point 1: Mobile UI Considerations

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

Please carefully read Chapter 2, *Best Practices* in *Mobile UI Design & Development Guide (Mobile only)*, 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 (Mobile only)*, we strongly recommend using the **Size Calculator** tool () in the Appeon Developer toolbar to properly size the application windows and controls to display appropriate on the Android or iOS device.

4.2 Point 2: Unsupported Features

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

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

- Tool 1: The **UFA** tool () in the Appeon Developer toolbar will automatically scan your application and list major unsupported features found based on a keyword scan.

- Tool 2: The **Code Insight** tool () in the Appeon Developer toolbar 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 Appeon Mobile (Mobile only) 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 Appeon Developer as follows:

Step 1: Use the **Code Insight** tool () from the Appeon Developer toolbar to code PowerScript that is compatible with Appeon Mobile. For details about how to configure and use the **Code Insight** tool, see Chapter 13, *Developing with Code Insight* in *Appeon Developer User Guide*.

Step 2: Run the **UFA** tool () from the Appeon Developer toolbar to generate the unsupported features report. For details about how to run the UFA report, see Chapter 5, *Using UFA Tool* in *Appeon Developer 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 **Appeon 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 Appeon Mobile (Mobile only) to see if your application contains any unsupported features.

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

4.3 Point 3: Previewing & Debugging

To preview the application UI and layout, use the **Appeon Workspace Emulator** () from the Appeon Developer toolbar.

To debug the application business logic, first ensure that the UFA report does not contain any unsupported features, or at least no unsupported features in the area of the application you are trying to debug. Then, launch the **Appeon Debugger** () from the Appeon Developer toolbar, which will load the Web version of your application in the IE Web browser.

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

Please note that Appeon Mobile does not contain a mobile-specific debugger, so we have included the Web debugger in lieu. While not exactly the same, it can still help to identify problems in the application business logic or areas that Appeon is having trouble converting.

5 Tutorial 4: Package & Distribute Native Mobile Apps

5.1 Overview

After you successfully deploy a PowerBuilder application to be a native mobile application using the Appeon Developer Toolbar, you can choose to run the mobile app immediately in Appeon Workspace (see Appeon Workspace User Guide (Mobile only) 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 an Appeon Mobile app as a standalone native app.

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

5.2 Package & Distribute iOS Apps

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

1. Task 1: Prepare for the build environment.

2. Task 2: Generate the Xcode project.

3. Task 3: Create the app archive.

4. Task 4: Distribute the app archive

5.2.1 Task 1: Prepare for the build environment

5.2.1.1 Task 1.1: Register for an Apple ID

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

5.2.1.2 Task 1.2: Prepare the Mac machine

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

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

5.2.1.2.1 Install Xcode

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

Sign in with your Apple ID, follow the onscreen instructions to register your Apple ID as an Apple developer, and download and install the latest Xcode tool from the above mentioned website.

For more information on Xcode, see the documentation provided on the Apple website.

5.2.1.3 Task 1.3: Enroll in an iOS Developer Program

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

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 Section 5.2.4, "Task 4: Distribute the app archive"):

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

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

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

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

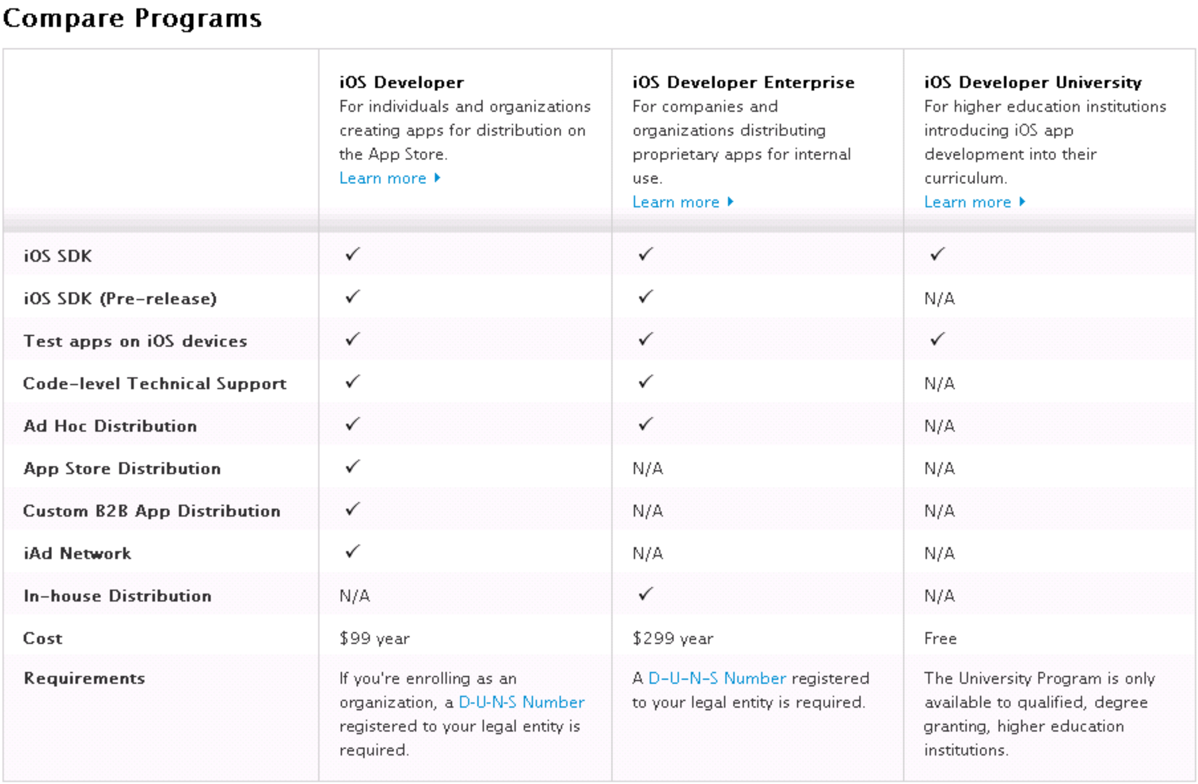
- **Ad Hoc Distribution**: allows you to install the app on a limited number (up to 100) of registered devices.

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

IMPORTANT NOTE:

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

Figure 5.1: Compare programs



Compare Programs

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

5.2.1.4 Task 1.4: Create an App ID

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

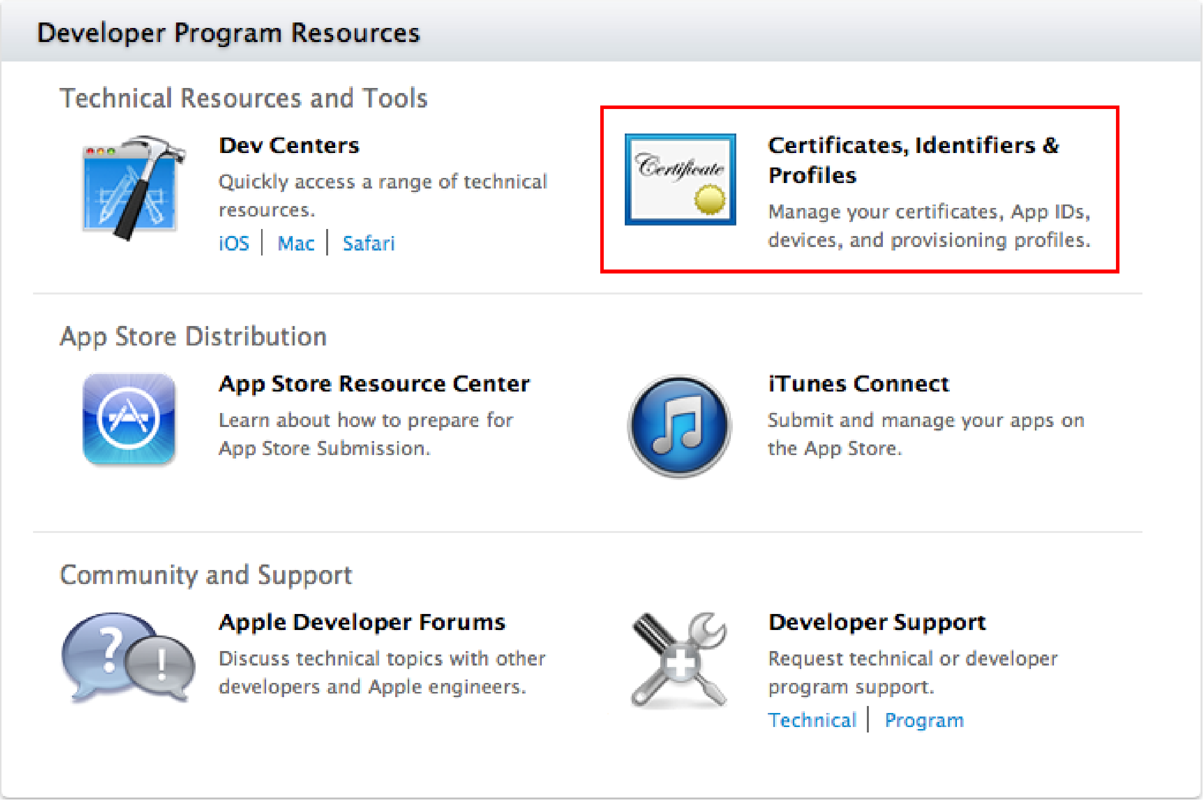
An App ID is a unique identifier for the app. It is composed of two parts: the App ID Prefix and the App ID Suffix (also called Bundle Identifier). The App ID Prefix is a 10-character hexadecimal string generated by the iOS Certificates, Identifiers & Profiles page. It is unique to you and your developer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

To create an App ID:

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

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

Figure 5.2: Certificates, Identifiers & Profiles



Developer Program Resources

Technical Resources and Tools

Dev Centers
Quickly access a range of technical resources.
iOS | Mac | Safari

Certificates, Identifiers & Profiles
Manage your certificates, App IDs, devices, and provisioning profiles.

App Store Distribution

App Store Resource Center
Learn about how to prepare for App Store Submission.

iTunes Connect
Submit and manage your apps on the App Store.

Community and Support

Apple Developer Forums
Discuss technical topics with other developers and Apple engineers.

Developer Support
Request technical or developer program support.
Technical | Program

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

Figure 5.3: Identifiers

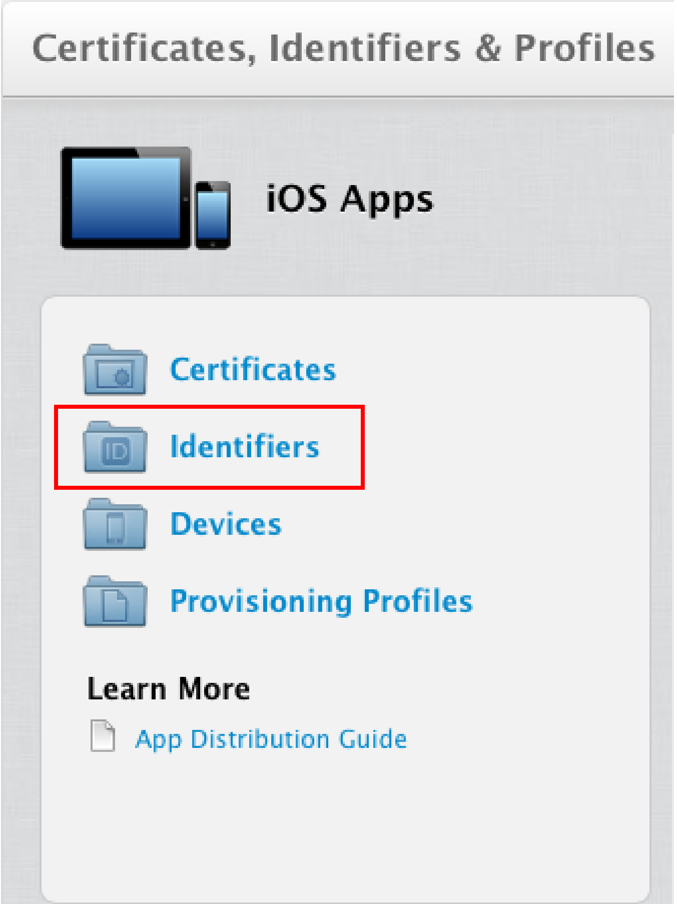
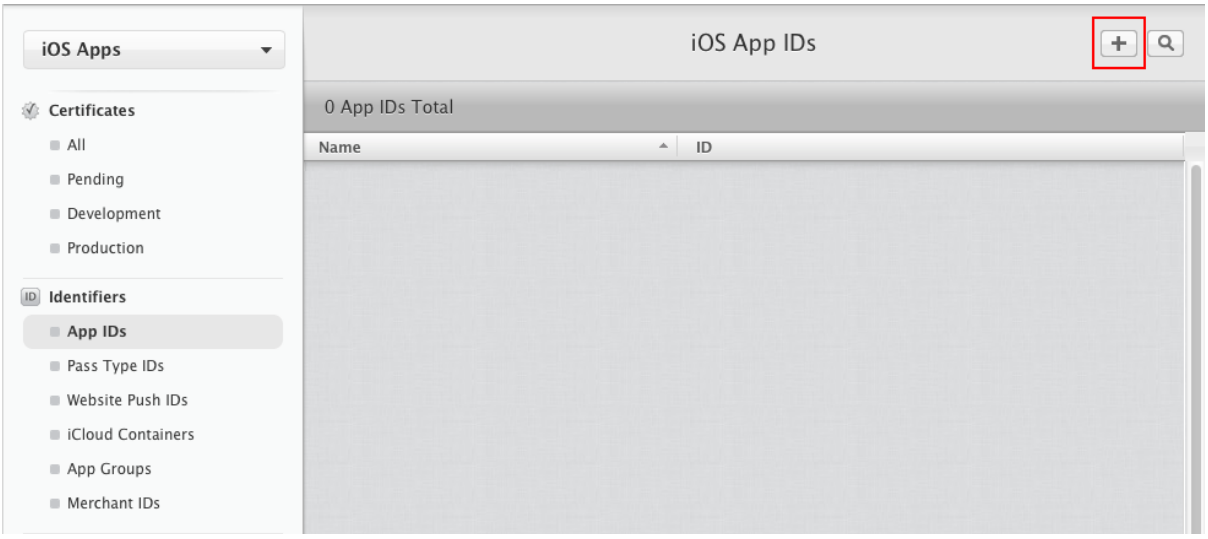


Figure 5.4: Add an App ID

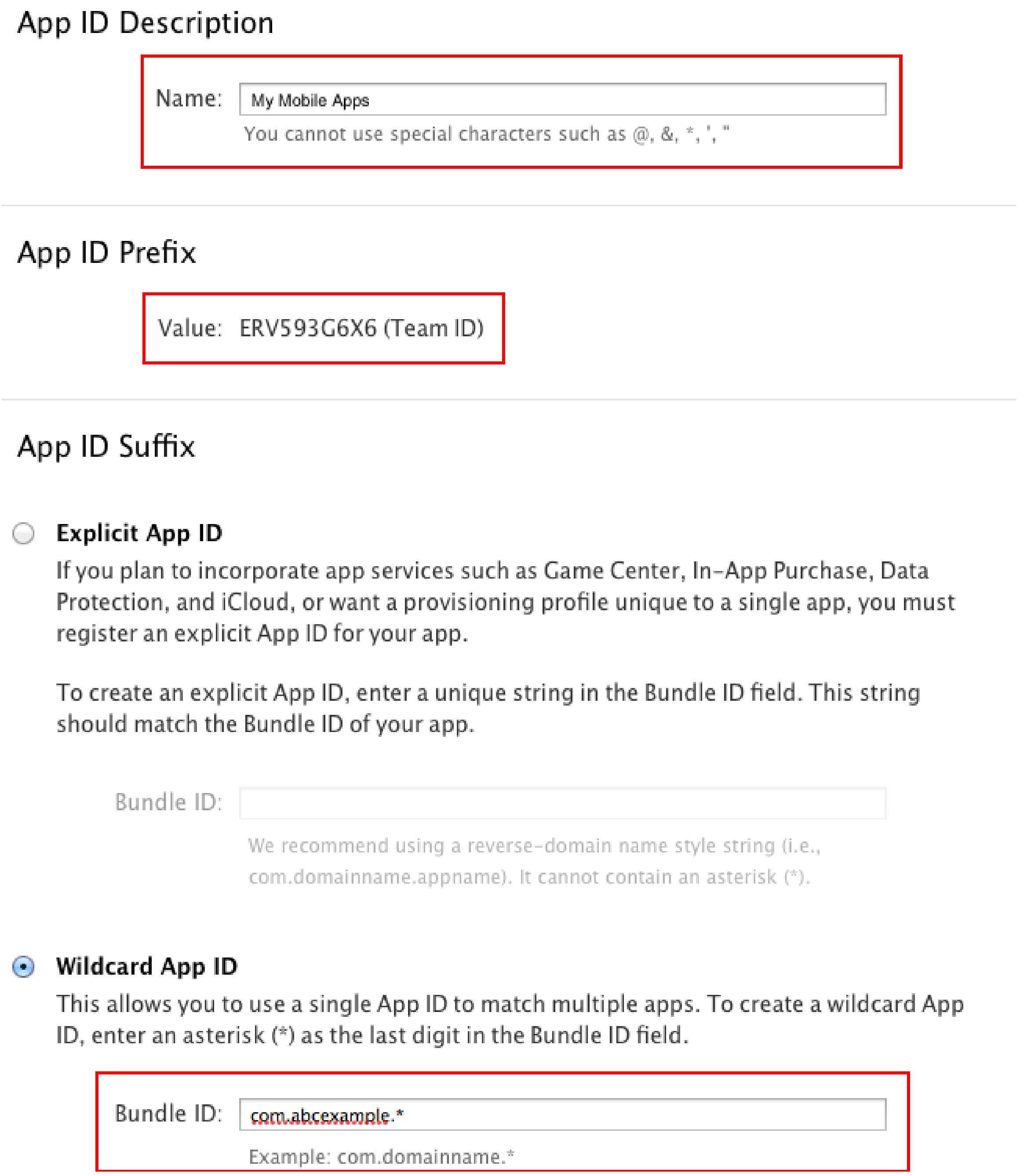


Step 4: Enter a description, for example, "My Mobile Apps", which cannot include special characters (including most punctuation).

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

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

Figure 5.5: Information for the App ID



App ID Description

Name: My Mobile Apps

You cannot use special characters such as @, &, *, ', "

App ID Prefix

Value: ERV593G6X6 (Team ID)

App ID Suffix

○ Explicit App ID

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

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

Bundle ID:

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

● Wildcard App ID

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

Bundle ID: com.abcexample.*

Example: com.domainname.*

Step 7: Click **Continue**.

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

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

5.2.1.5 Task 1.5: Create & install a distribution certificate

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

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

5.2.1.5.1 Create a CSR file

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

To create a CSR file:

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

Figure 5.6: Utilities folder

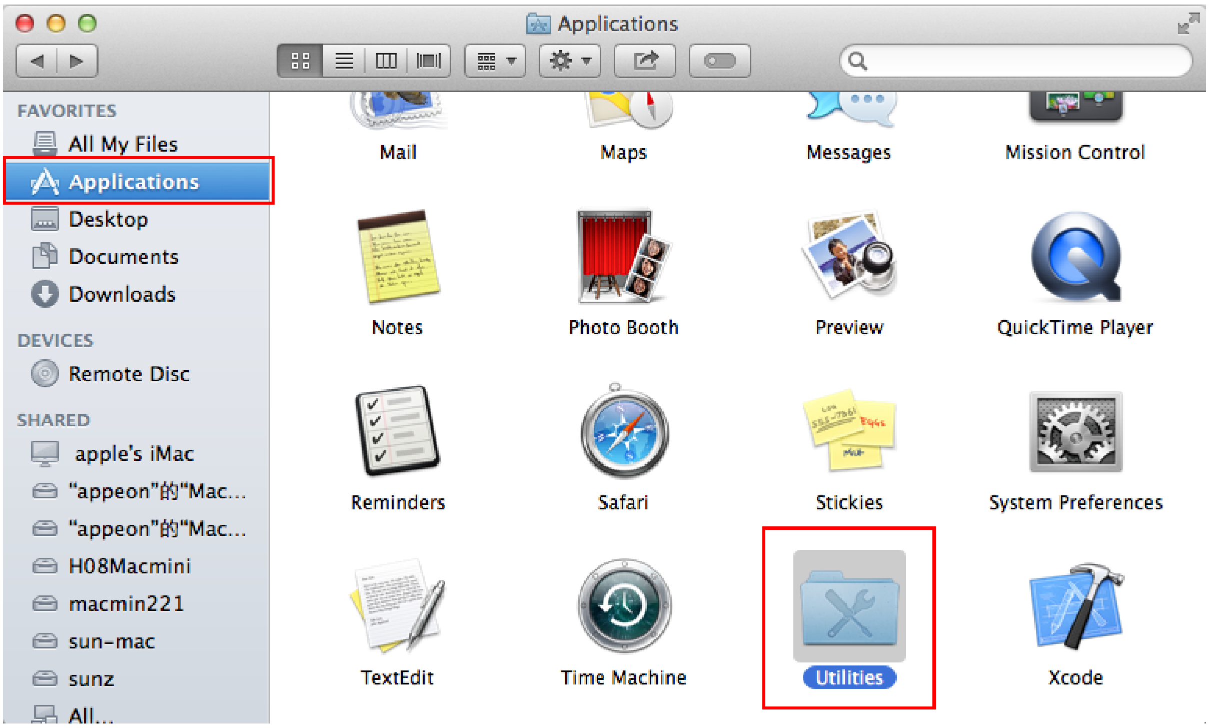
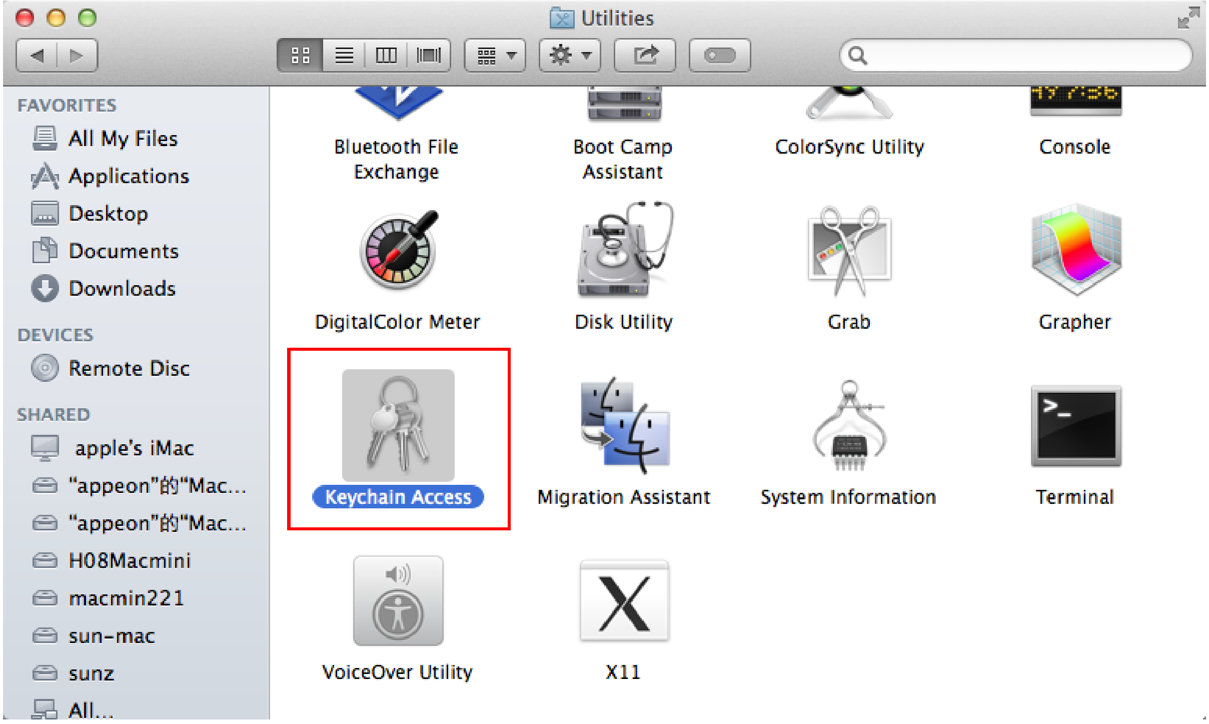
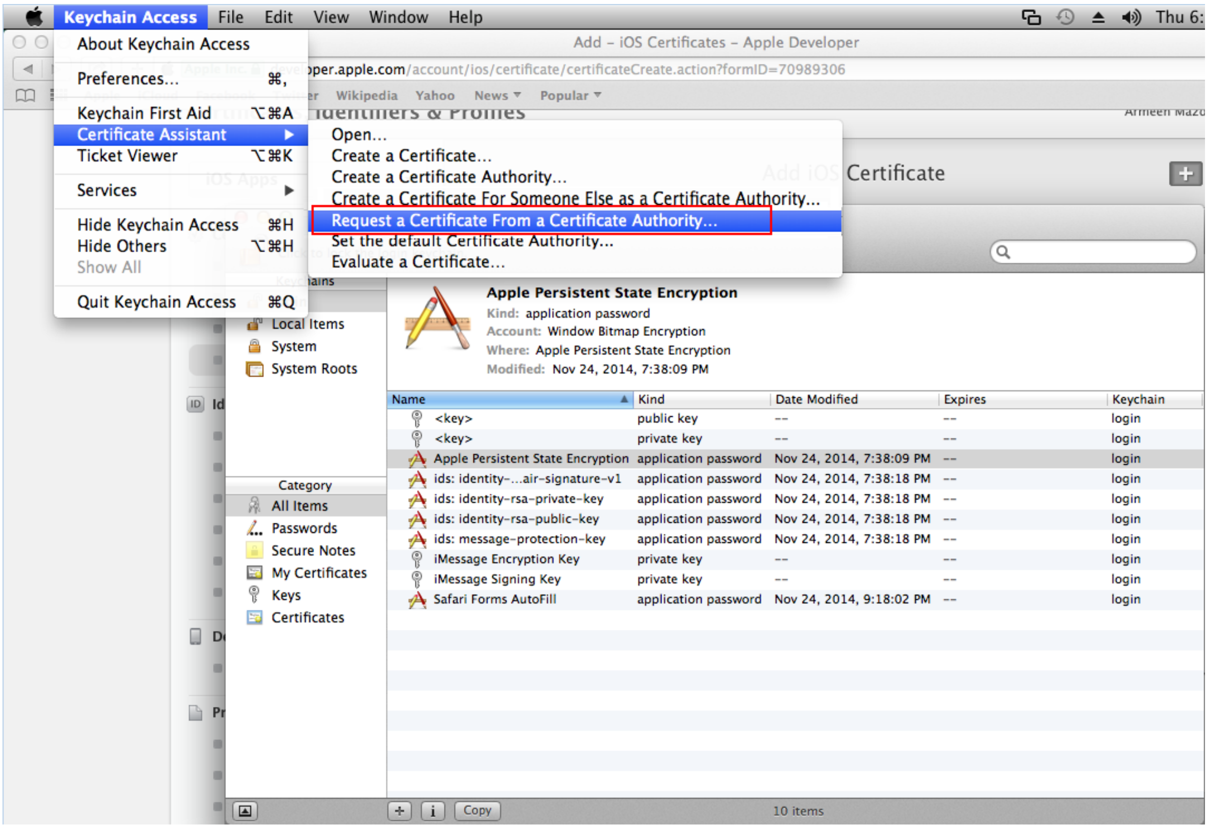


Figure 5.7: Keychain Access application



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

Figure 5.8: Request a certificate from a certificate authority



Apple Persistent State Encryption
Kind: application password
Account: Window Bitmap Encryption
Where: Apple Persistent State Encryption
Modified: Nov 24, 2014, 7:38:09 PM

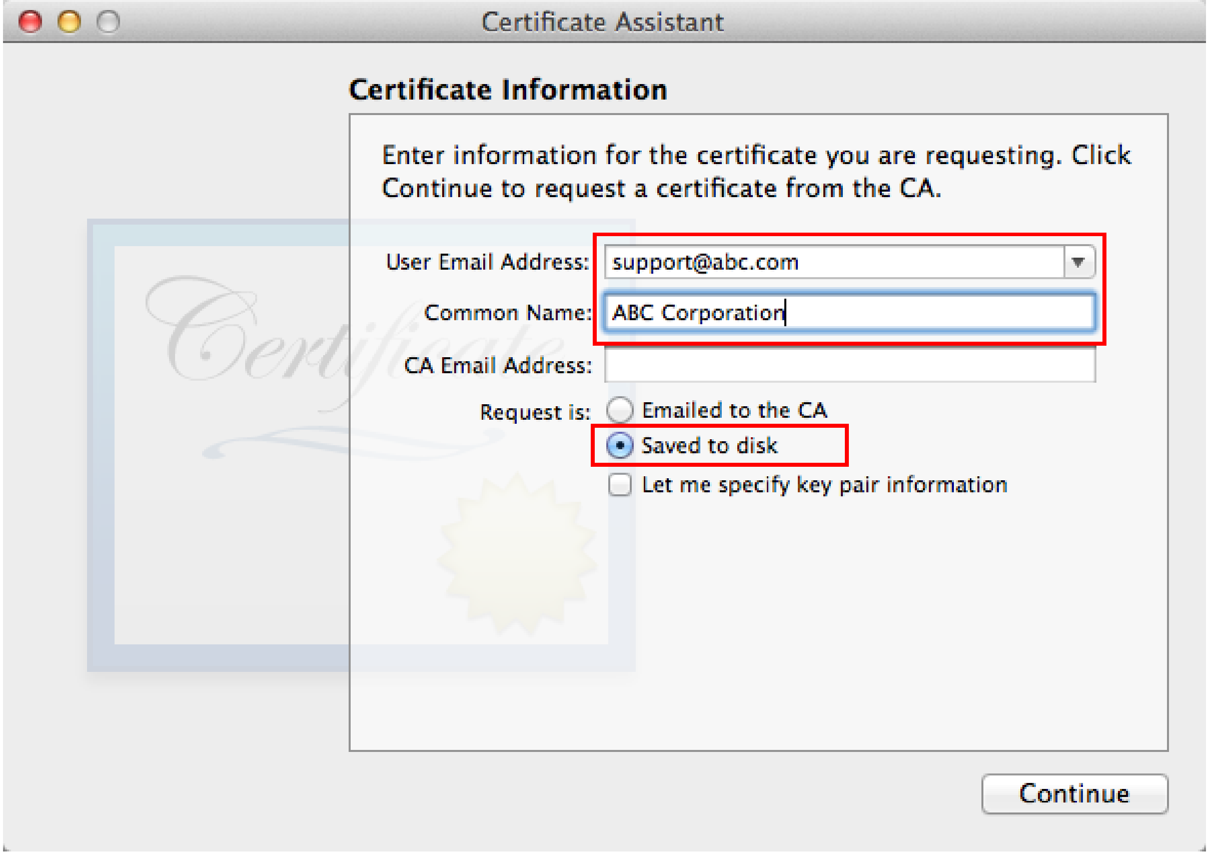
Name	Kind	Date Modified	Expires	Keychain
<key>	public key	--	--	login
<key>	private key	--	--	login
Apple Persistent State Encryption	application password	Nov 24, 2014, 7:38:09 PM	--	login
ids: identity-...air-signature-v1	application password	Nov 24, 2014, 7:38:18 PM	--	login
ids: identity-rsa-private-key	application password	Nov 24, 2014, 7:38:18 PM	--	login
ids: identity-rsa-public-key	application password	Nov 24, 2014, 7:38:18 PM	--	login
ids: message-protection-key	application password	Nov 24, 2014, 7:38:18 PM	--	login
iMessage Encryption Key	private key	--	--	login
iMessage Signing Key	private key	--	--	login
Safari Forms AutoFill	application password	Nov 24, 2014, 9:18:02 PM	--	login

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

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

Step 4: Click **Continue**.

Figure 5.9: Certificate information



Certificate Information

Enter information for the certificate you are requesting. Click Continue to request a certificate from the CA.

User Email Address: support@abc.com

Common Name: ABC Corporation

CA Email Address:

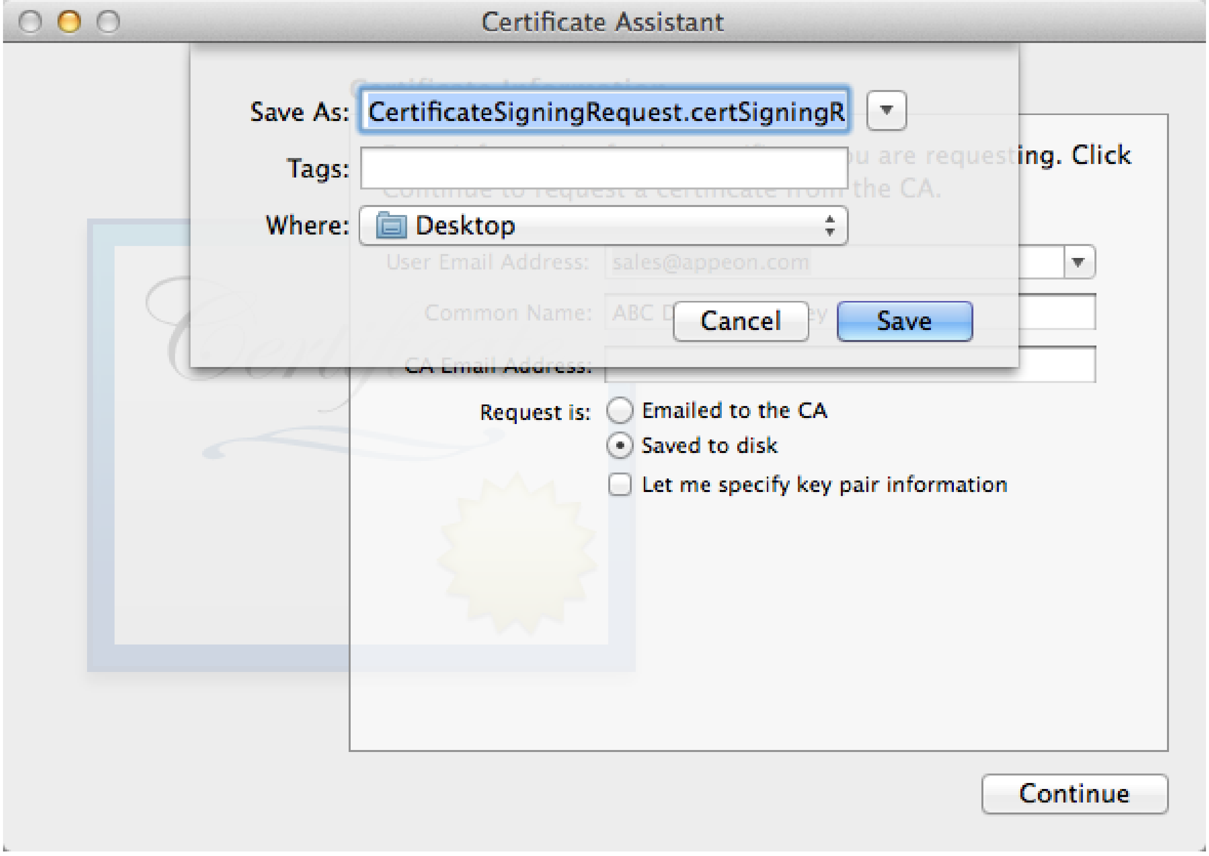
Request is: ○ Emailed to the CA

● Saved to disk

□ Let me specify key pair information

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.

Figure 5.10: Save CSR to Desktop



Save As: CertificateSigningRequest.certSigningR

Tags:

Where: Desktop

User Email Address: sales@appeon.com

Common Name: ABC D

CA Email Address:

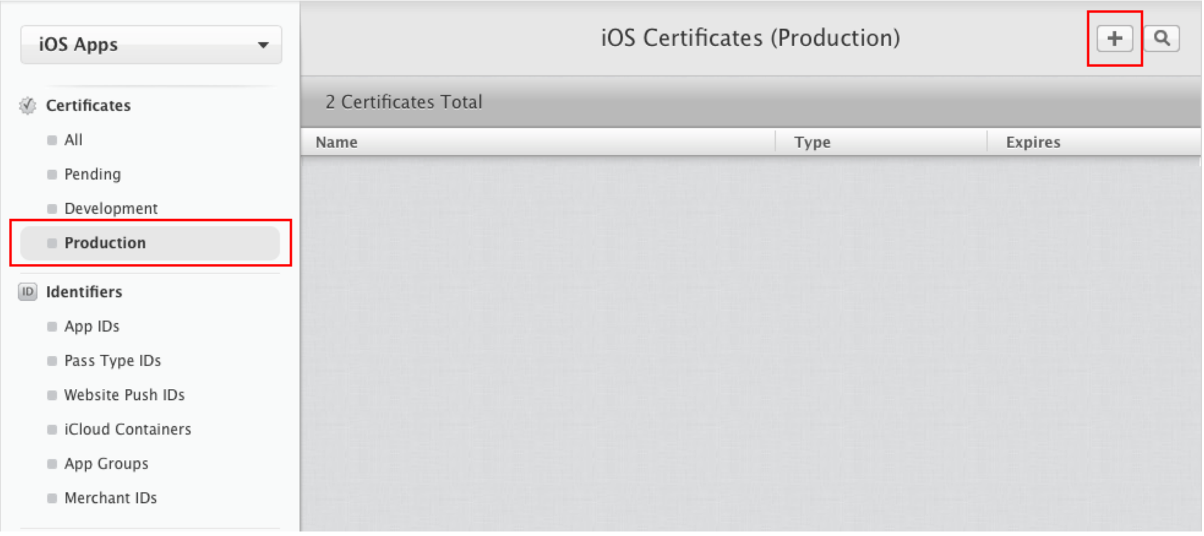
Request is: ○ Emailed to the CA
● Saved to disk
□ Let me specify key pair information

5.2.1.5.2 Create & install a distribution certificate

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

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

Figure 5.11: Add a certificate



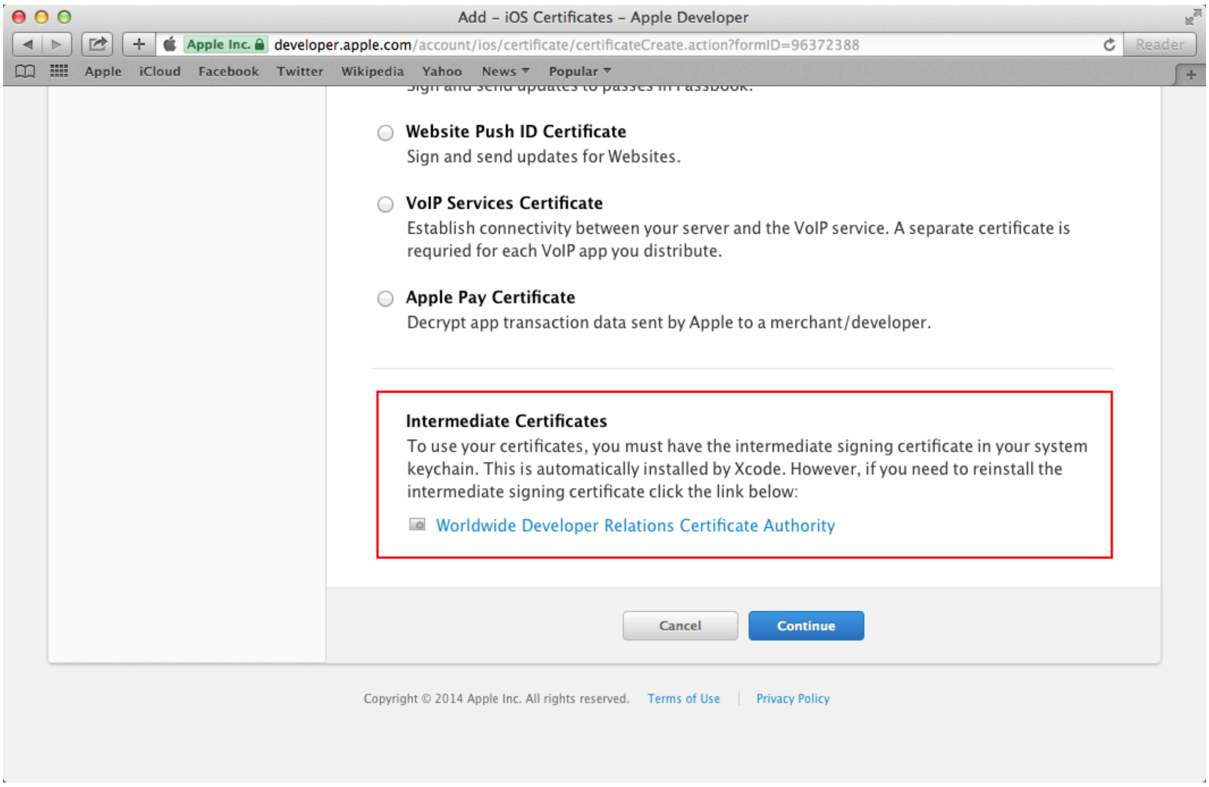
2 Certificates Total

Name	Type	Expires

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

in the **Downloads** folder on your Mac to add the certificate to Keychain Access. You should be able to see the "Apple Worldwide Developer Relations Certificate Authority" certificate listed in the Keychain Access Certificates section.

Figure 5.12: Download the AppleWWDRCA.cer



Add – iOS Certificates – Apple Developer
Apple Inc.
developer.apple.com/account/ios/certificate/certificateCreate.action?formID=96372388
Reader
Apple
iCloud
Facebook
Twitter
Wikipedia
Yahoo
News
Popular

○ **Website Push ID Certificate**
Sign and send updates for Websites.

○ **VoIP Services Certificate**
Establish connectivity between your server and the VoIP service. A separate certificate is requried for each VoIP app you distribute.

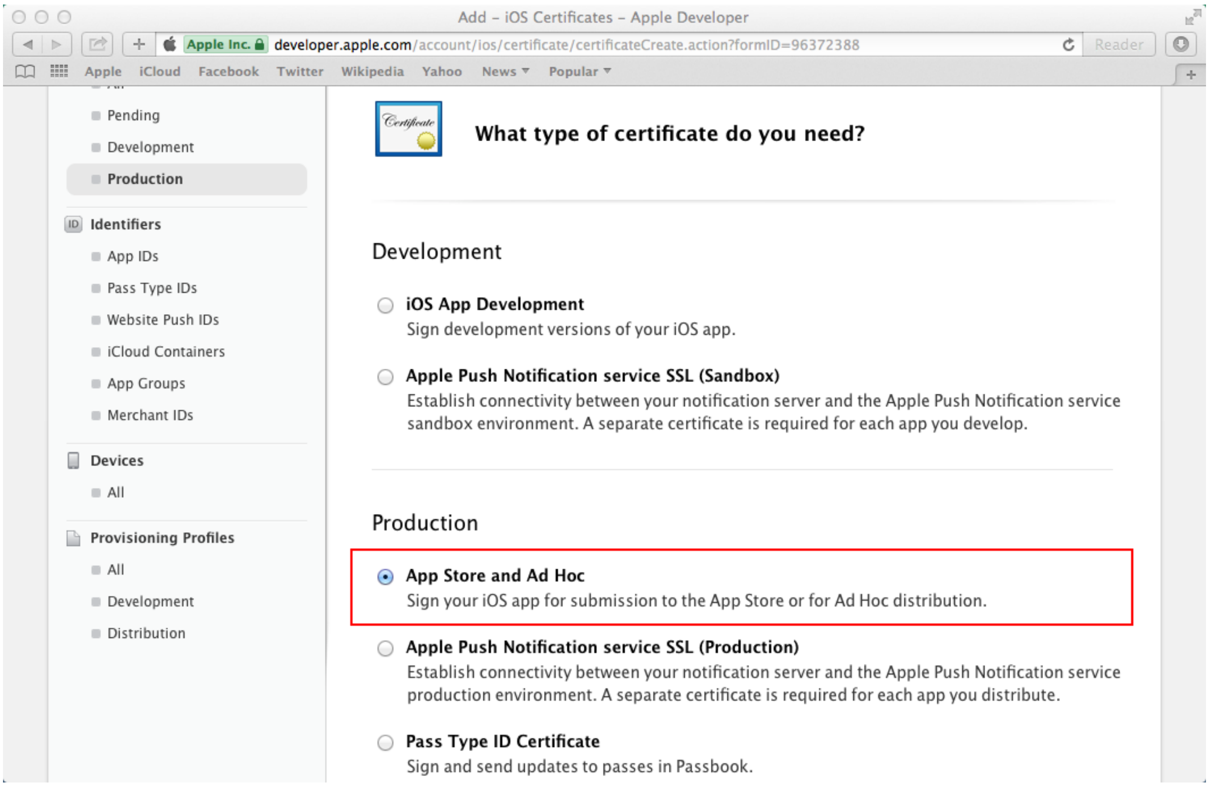
○ **Apple Pay Certificate**
Decrypt app transaction data sent by Apple to a merchant/developer.

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

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

Figure 5.13: App Store and Ad Hoc distribution



What type of certificate do you need?

Development

○ **iOS App Development**
Sign development versions of your iOS app.

○ **Apple Push Notification service SSL (Sandbox)**
Establish connectivity between your notification server and the Apple Push Notification service sandbox environment. A separate certificate is required for each app you develop.

Production

● **App Store and Ad Hoc**
Sign your iOS app for submission to the App Store or for Ad Hoc distribution.

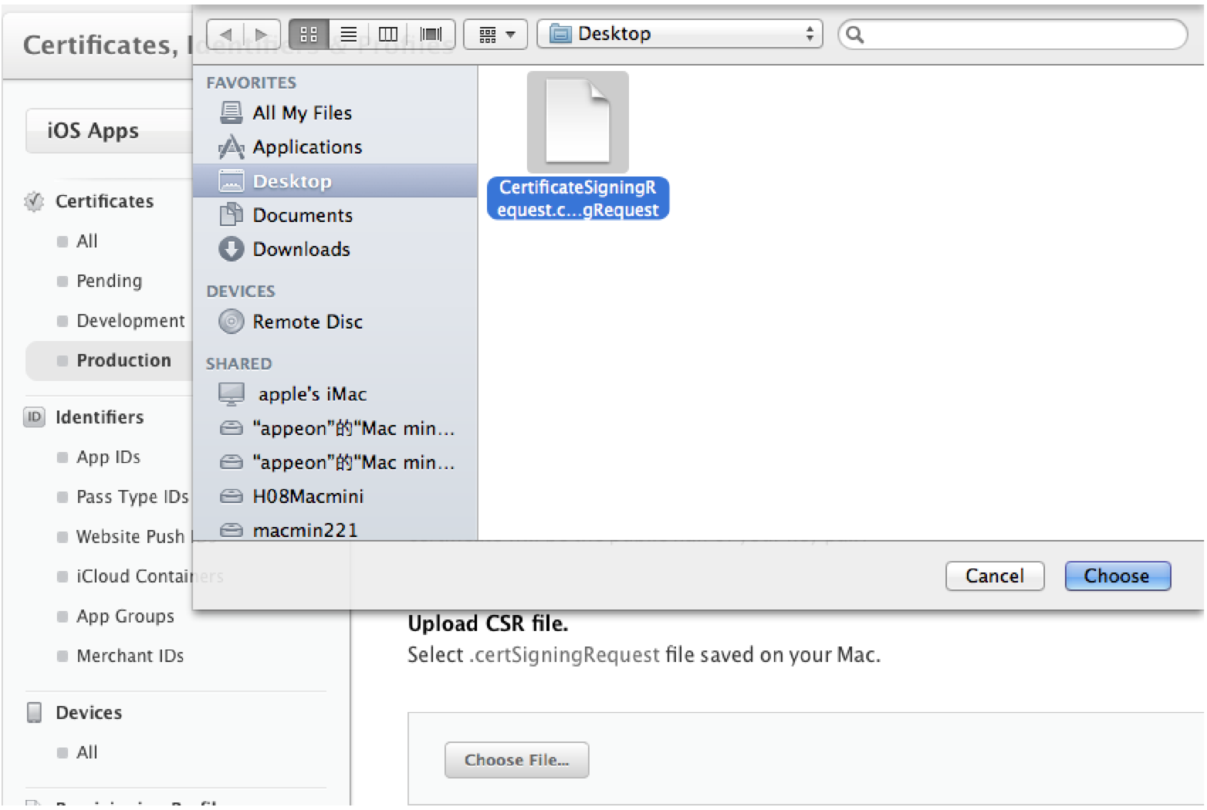
○ **Apple Push Notification service SSL (Production)**
Establish connectivity between your notification server and the Apple Push Notification service production environment. A separate certificate is required for each app you distribute.

○ **Pass Type ID Certificate**
Sign and send updates to passes in Passbook.

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 Create a CSR file to create one.

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

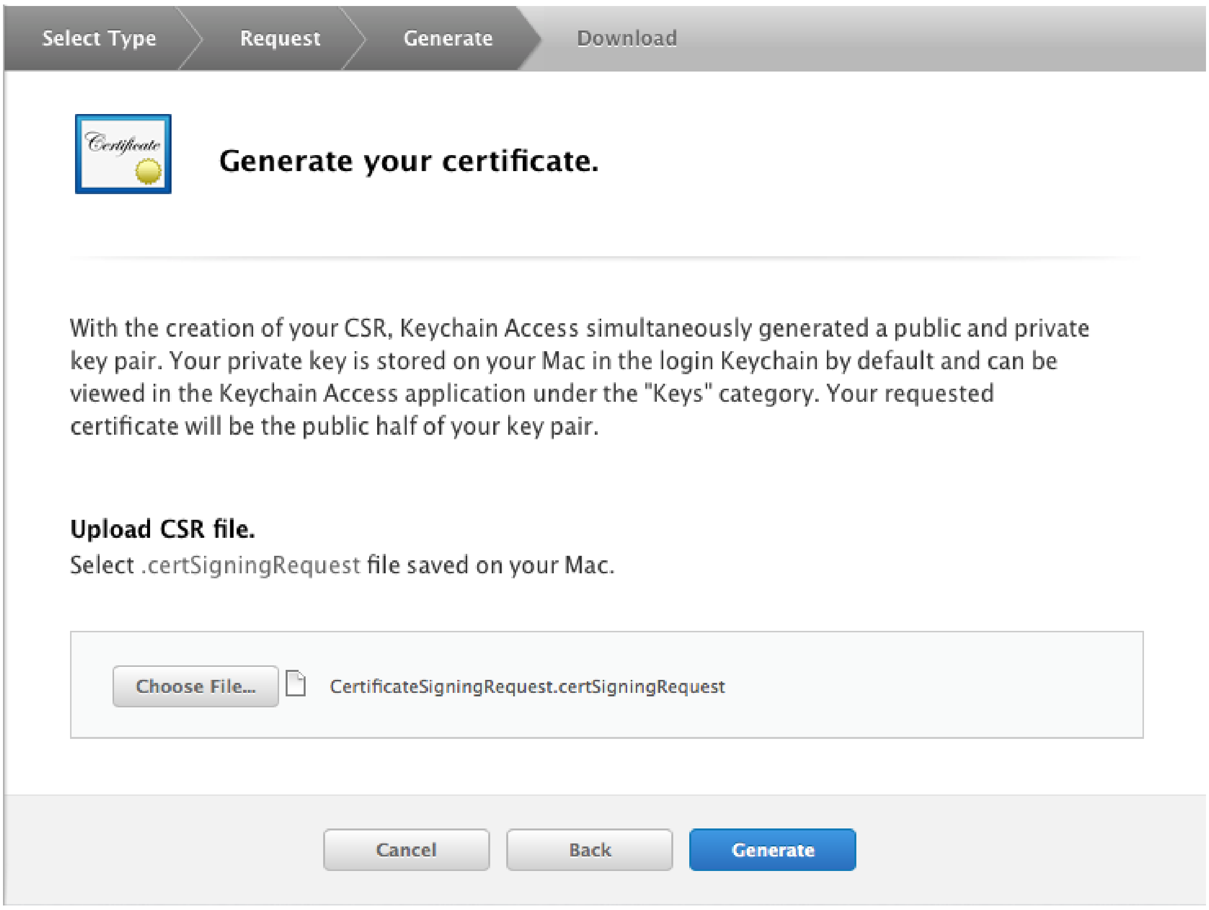
Figure 5.14: Upload CSR file



Upload CSR file.

Select .certSigningRequest file saved on your Mac.

Figure 5.15: Generate a certificate



Generate your certificate.

With the creation of your CSR, Keychain Access simultaneously generated a public and private key pair. Your private key is stored on your Mac in the login Keychain by default and can be viewed in the Keychain Access application under the "Keys" category. Your requested certificate will be the public half of your key pair.

Upload CSR file.

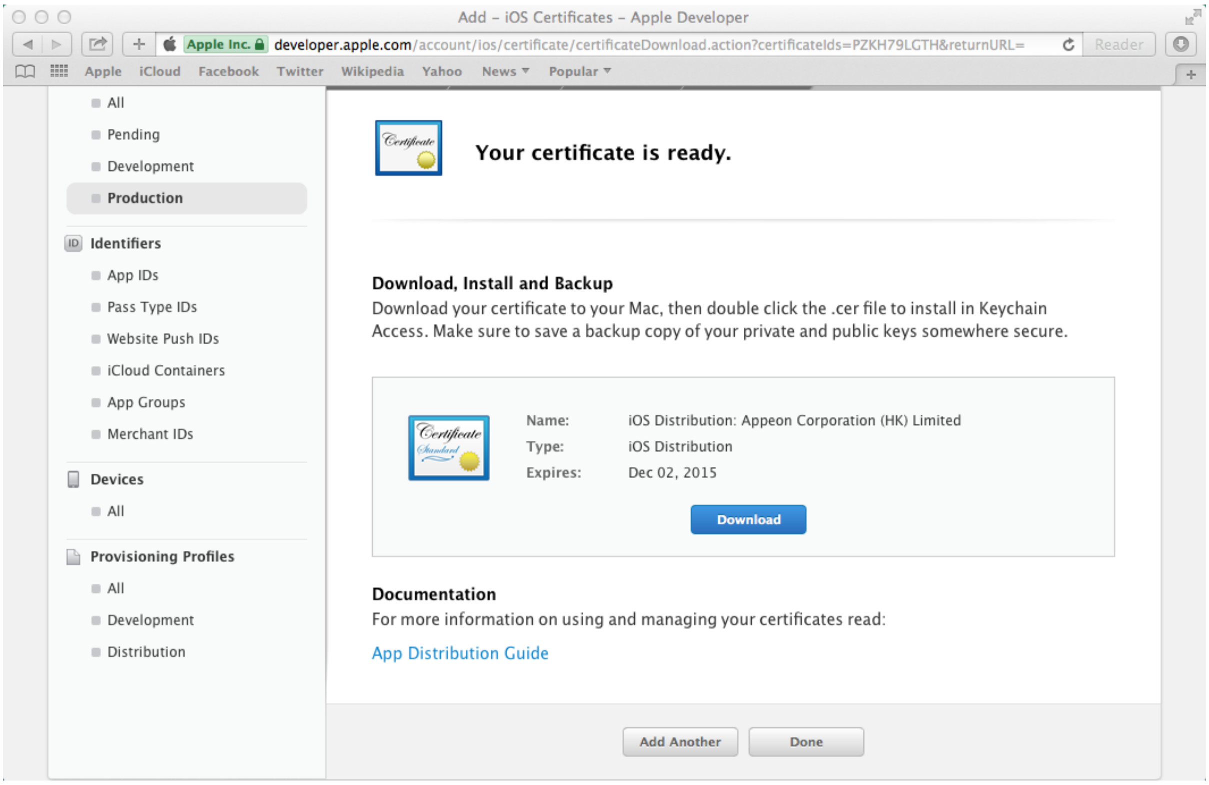
Select .certSigningRequest file saved on your Mac.

CertificateSigningRequest.certSigningRequest

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

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

Figure 5.16: Download Distribution Certificate



Your certificate is ready.

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.

Name: iOS Distribution: Appeon Corporation (HK) Limited
Type: iOS Distribution
Expires: Dec 02, 2015

Documentation

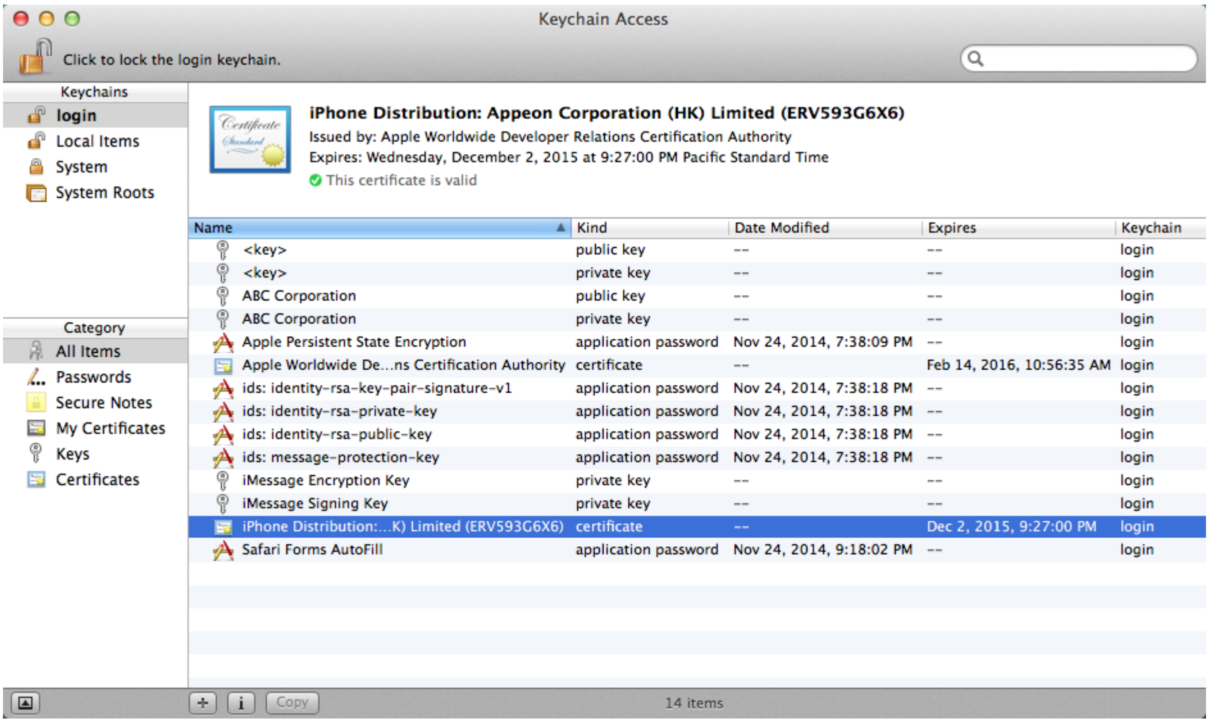
For more information on using and managing your certificates read:

App Distribution Guide

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

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

Figure 5.17: Installed Certificate



iPhone Distribution: Appeon Corporation (HK) Limited (ERV593G6X6)
Issued by: Apple Worldwide Developer Relations Certification Authority
Expires: Wednesday, December 2, 2015 at 9:27:00 PM Pacific Standard Time
✓ This certificate is valid

Name	Kind	Date Modified	Expires	Keychain
<key>	public key	--	--	login
<key>	private key	--	--	login
ABC Corporation	public key	--	--	login
ABC Corporation	private key	--	--	login
Apple Persistent State Encryption	application password	Nov 24, 2014, 7:38:09 PM	--	login
Apple Worldwide De...ns Certification Authority	certificate	--	Feb 14, 2016, 10:56:35 AM	login
ids: identity-rsa-key-pair-signature-v1	application password	Nov 24, 2014, 7:38:18 PM	--	login
ids: identity-rsa-private-key	application password	Nov 24, 2014, 7:38:18 PM	--	login
ids: identity-rsa-public-key	application password	Nov 24, 2014, 7:38:18 PM	--	login
ids: message-protection-key	application password	Nov 24, 2014, 7:38:18 PM	--	login
iMessage Encryption Key	private key	--	--	login
iMessage Signing Key	private key	--	--	login
iPhone Distribution:...K) Limited (ERV593G6X6)	certificate	--	Dec 2, 2015, 9:27:00 PM	login
Safari Forms AutoFill	application password	Nov 24, 2014, 9:18:02 PM	--	login

5.2.1.6 Task 1.6: Create & install a distribution provisioning profile

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

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

Step 1: Go back to **Certificates, Identifiers & Profiles**, then choose **Provisioning Profiles** > **Distribution**, and then click the add icon (+).

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

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

Note that the **In-House** or **Ad Hoc** provisioning profile that is created using the **iOS Enterprise Program** distribution certificate will expire after one year. You will need to renew the provisioning profile before expiration, otherwise the mobile app distributed using these provisioning profiles will not launch after expiration. For more, refer to Renewing Expired Provisioning Profiles 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 Task 1.4: Create & install distribution certificates and click **Continue**.

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

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

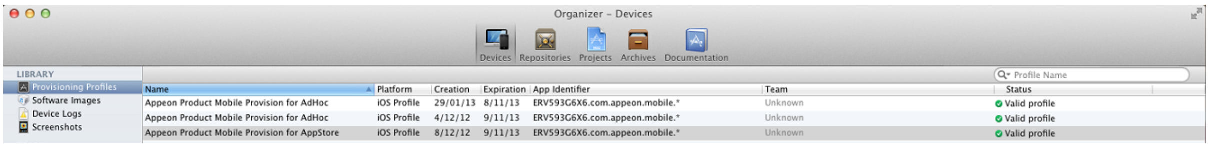
Step 6: Enter a profile name and click **Generate**.

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

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

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

Figure 5.18: Installed provisioning profile



Name	Platform	Creation	Expiration	App Identifier	Team	Status
Appeon Product Mobile Provision for AdHoc	iOS Profile	29/01/13	8/11/13	ERV593G6X6.com.appeon.mobile.*	Unknown	✓ Valid profile
Appeon Product Mobile Provision for AdHoc	iOS Profile	4/12/12	9/11/13	ERV593G6X6.com.appeon.mobile.*	Unknown	✓ Valid profile
Appeon Product Mobile Provision for AppStore	iOS Profile	8/12/12	9/11/13	ERV593G6X6.com.appeon.mobile.*	Unknown	✓ Valid profile

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

5.2.2 Task 2: Generate the Xcode project

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

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

During the package process, you will be able to specify the settings, such as the app name, icons, etc., that are required by the Xcode project. See Section 11.3, “Packaging a stand-alone mobile project” in *Appeon Developer User Guide* or Section 11.4, “Customizing and packaging Appeon Workspace” in *Appeon Developer User Guide* for detailed instructions.

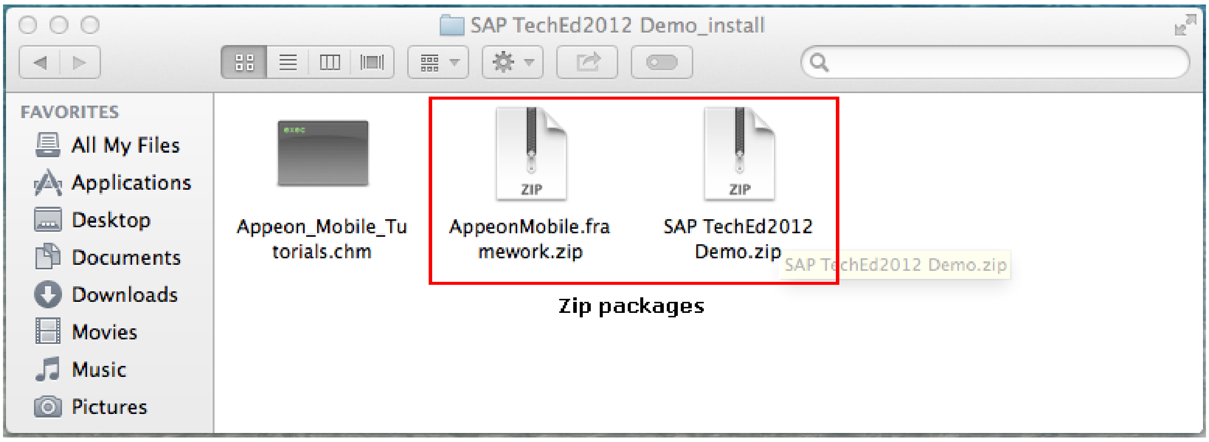
After the package process is complete, you will find the following two zip packages generated under the specified destination folder.

- 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.

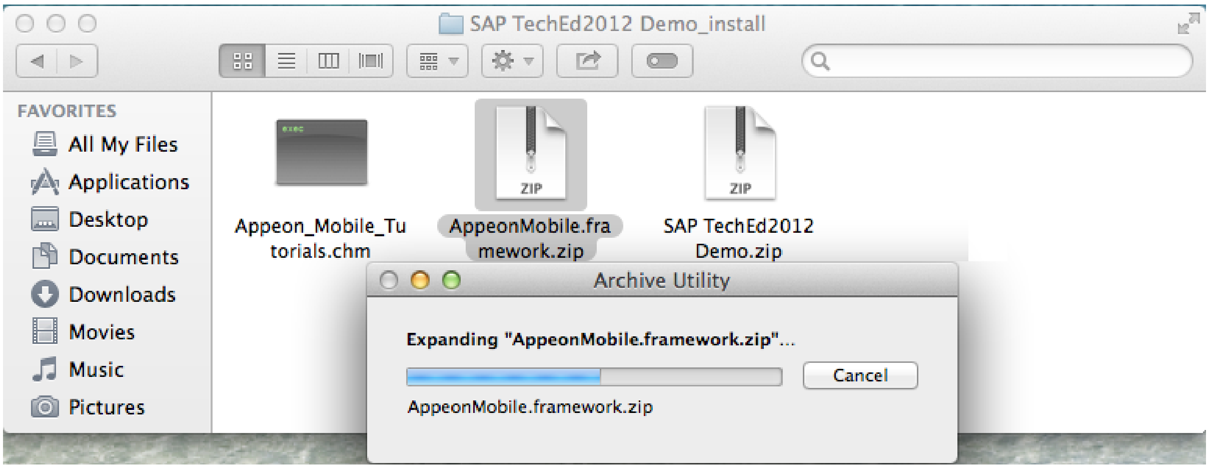
Step 2: Copy the above two zip packages to the Mac machine.

Figure 5.19: Zip packages on the Mac machine



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

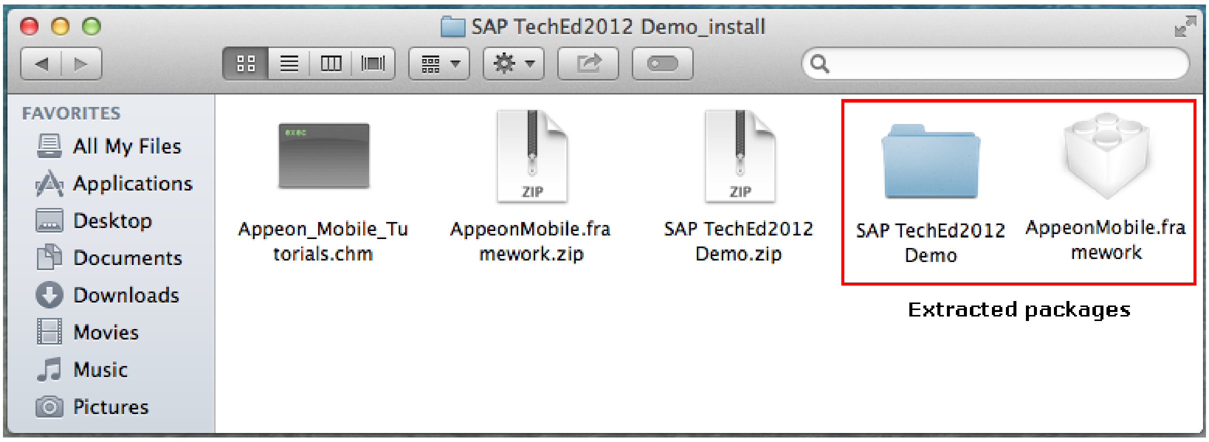
Figure 5.20: Extracting the packages on the Mac machine



Expanding "AppeonMobile.framework.zip"...

AppeonMobile.framework.zip

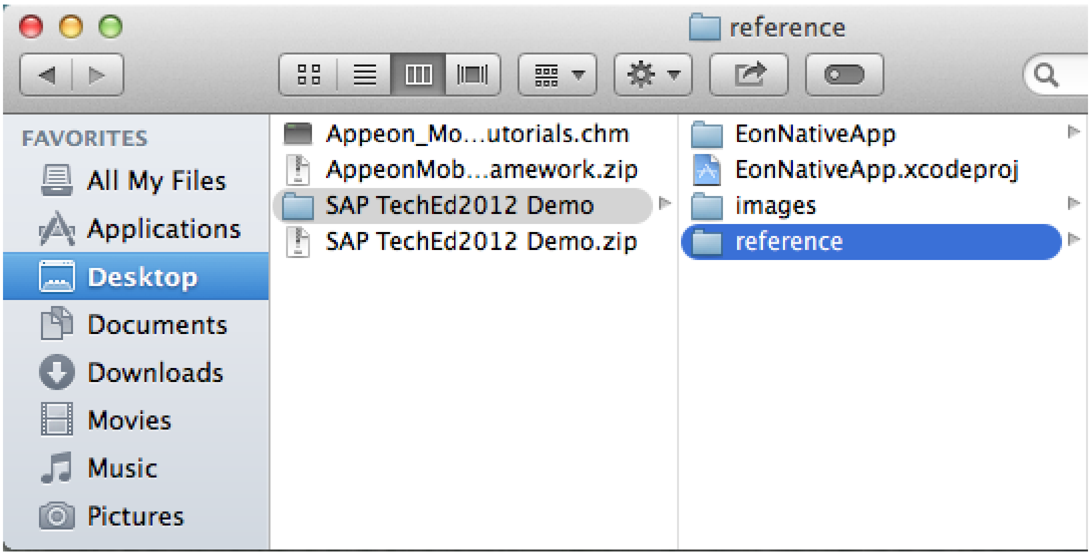
Figure 5.21: Extracted packages on the Mac machine



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

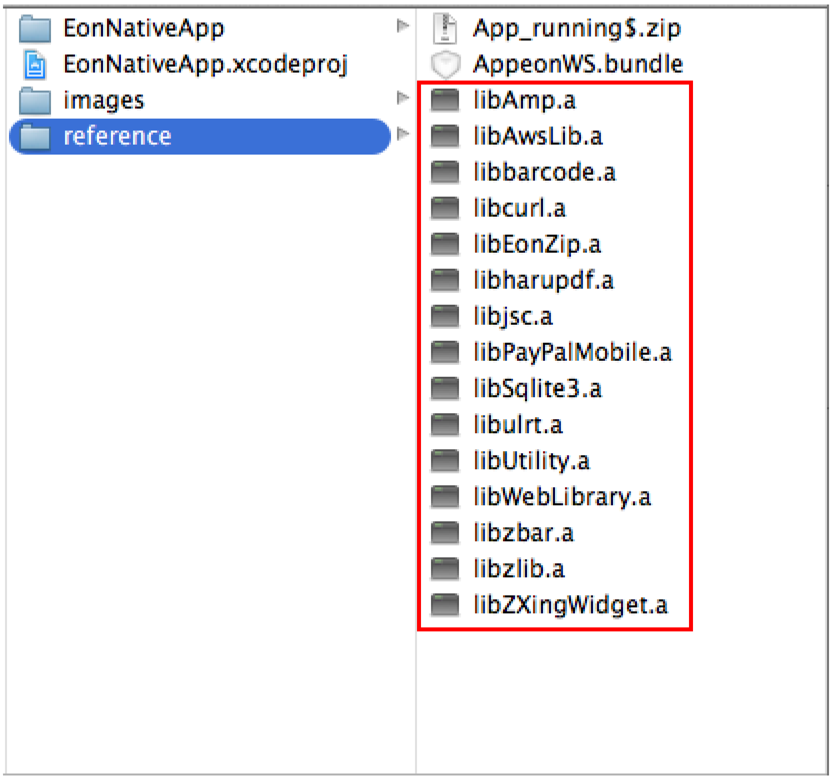
The following screenshot shows the location of the **reference** folder under the extracted app package.

Figure 5.22: Location of the reference folder



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

Figure 5.23: Files contained in the reference folder



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

5.2.3 Task 3: Create the app archive

5.2.3.1 Task 3.1: Set App ID and Bundle Identifier

In order for the apps running on the same mobile device to be recognized as running on one device not on multiple devices by the Appeon License file, you will need to always input the same App ID for all apps and specify the same bundle identifier for the same app. For details, refer to Section 5.3.4.1.1, “Product Activation” in *Appeon Server Configuration Guide for .NET* or in Appeon Server Configuration Guide for J2EE.

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

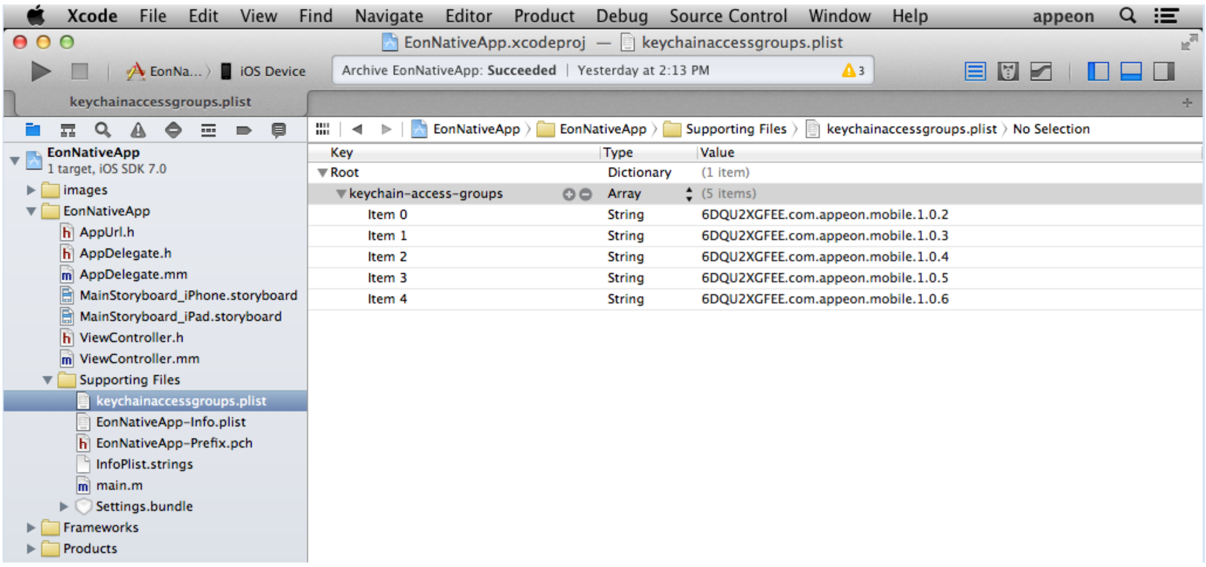
Follow steps below to specify the consistent App ID in the keychainaccessgroups.plist file and the Bundle Identifier in the project settings:

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

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

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

Figure 5.24: Keychain access group



Xcode File Edit View Find Navigate Editor Product Debug Source Control Window Help
appeon
EonNativeApp.xcodeproj — keychainaccessgroups.plist
EonNa... iOS Device
Archive EonNativeApp: Succeeded | Yesterday at 2:13 PM
3
keychainaccessgroups.plist
EonNativeApp > EonNativeApp > Supporting Files > keychainaccessgroups.plist > No Selection
EonNativeApp
1 target, iOS SDK 7.0
images
EonNativeApp
AppUrl.h
AppDelegate.h
AppDelegate.mm
MainStoryboard_iPhone.storyboard
MainStoryboard_iPad.storyboard
ViewController.h
ViewController.mm
Supporting Files
keychainaccessgroups.plist
EonNativeApp-Info.plist
EonNativeApp-Prefix.pch
InfoPlist.strings
main.m
Settings.bundle
Frameworks
Products

Key	Type	Value
Root	Dictionary	(1 item)
keychain-access-groups	Array	(5 items)
Item 0	String	6DQU2XGFEE.com.appeon.mobile.1.0.2
Item 1	String	6DQU2XGFEE.com.appeon.mobile.1.0.3
Item 2	String	6DQU2XGFEE.com.appeon.mobile.1.0.4
Item 3	String	6DQU2XGFEE.com.appeon.mobile.1.0.5
Item 4	String	6DQU2XGFEE.com.appeon.mobile.1.0.6

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

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

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

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

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

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

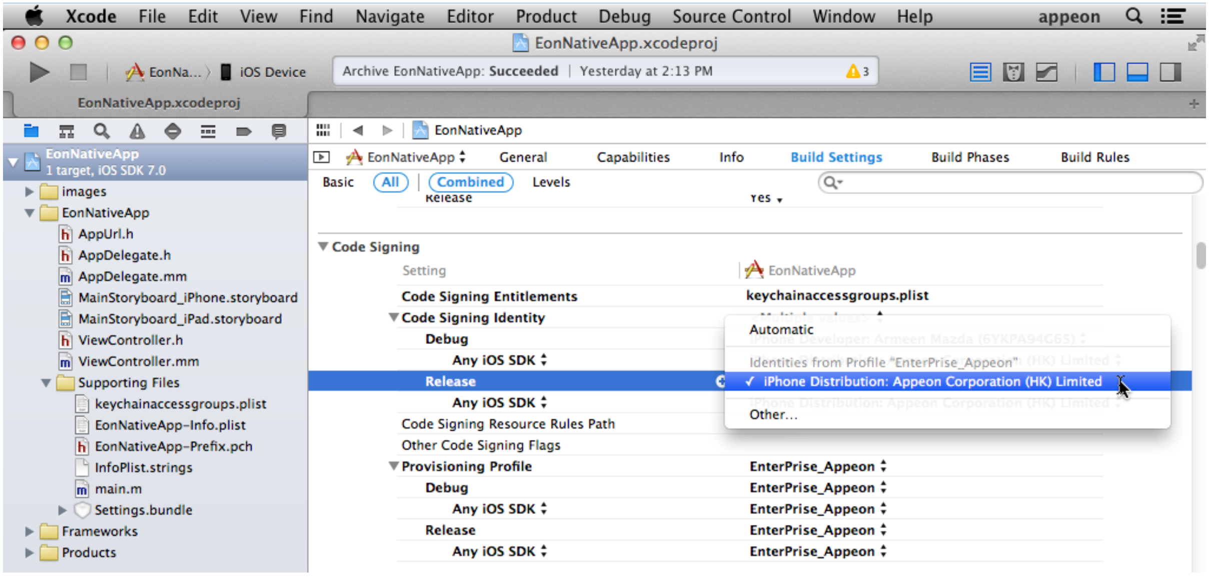
5.2.3.2 Task 3.2: Code sign the app

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

To set the code signing identity to the certificate:

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

Figure 5.25: Code signing



Xcode File Edit View Find Navigate Editor Product Debug Source Control Window Help appeon
EonNativeApp.xcodeproj
EonNa... iOS Device
Archive EonNativeApp: Succeeded | Yesterday at 2:13 PM
EonNativeApp.xcodeproj
EonNativeApp
1 target, iOS SDK 7.0
images
EonNativeApp
AppUrl.h
AppDelegate.h
AppDelegate.mm
MainStoryboard_iPhone.storyboard
MainStoryboard_iPad.storyboard
ViewController.h
ViewController.mm
Supporting Files
keychainaccessgroups.plist
EonNativeApp-Info.plist
EonNativeApp-Prefix.pch
InfoPlist.strings
main.m
Settings.bundle
Frameworks
Products
EonNativeApp
General Capabilities Info Build Settings Build Phases Build Rules
Basic All Combined Levels

Code Signing	
Setting	EonNativeApp
Code Signing Entitlements	keychainaccessgroups.plist
Code Signing Identity	
Debug	
Any iOS SDK	
Release	Automatic Identities from Profile "EnterPrise_Appeon" ✓ iPhone Distribution: Appeon Corporation (HK) Limited Other...
Any iOS SDK	
Code Signing Resource Rules Path	
Other Code Signing Flags	
Provisioning Profile	EnterPrise_Appeon
Debug	EnterPrise_Appeon
Any iOS SDK	EnterPrise_Appeon
Release	EnterPrise_Appeon
Any iOS SDK	EnterPrise_Appeon

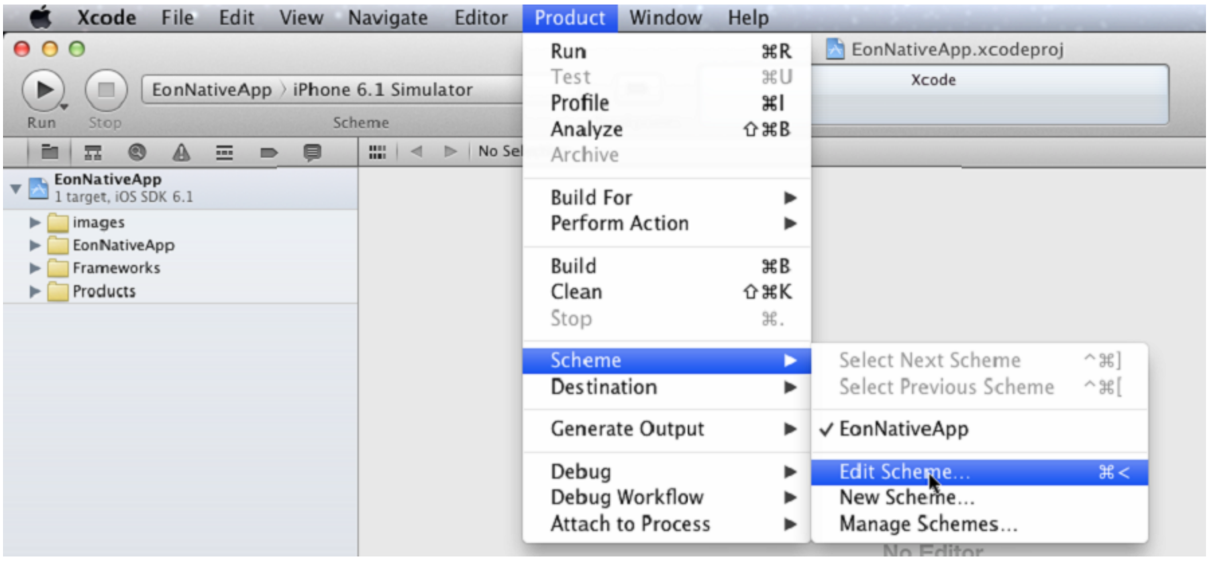
5.2.3.3 Task 3.3: Review the archive scheme settings

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

To review the archive scheme:

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

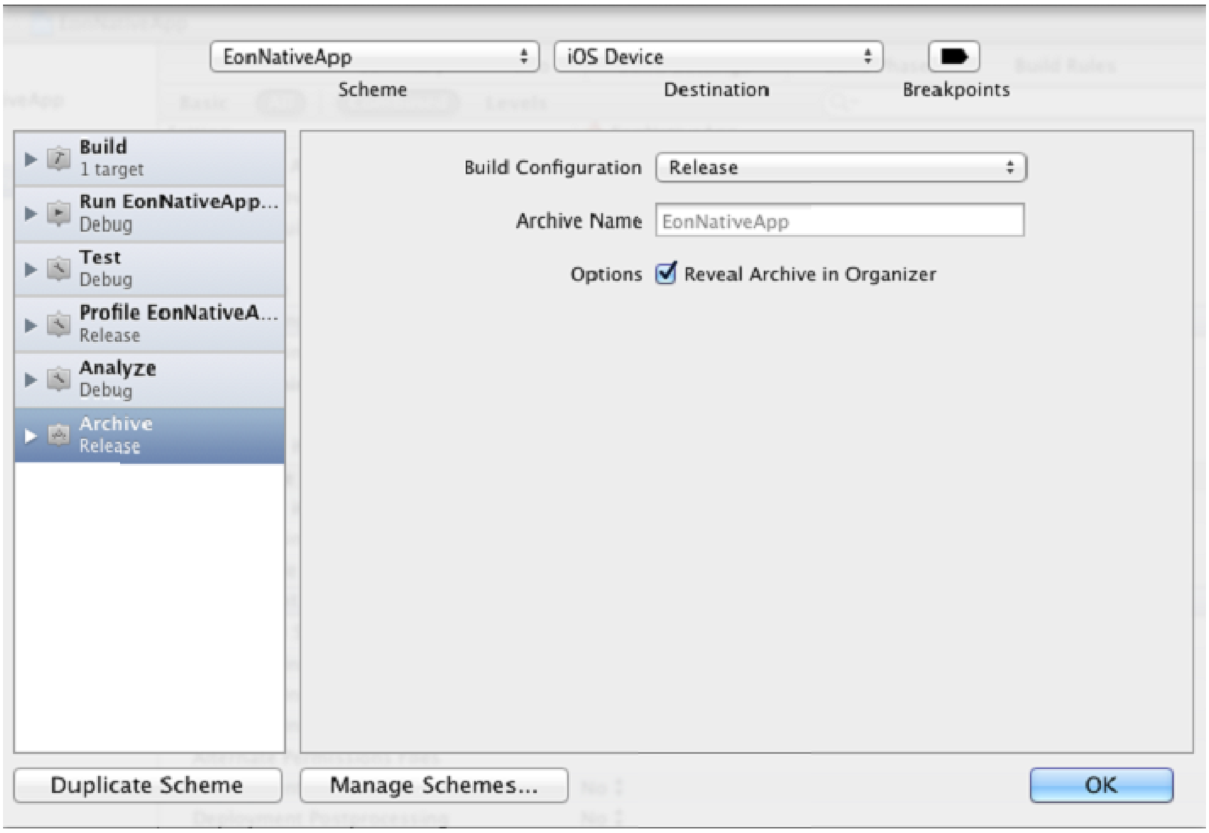
Figure 5.26: Edit Scheme



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

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

Figure 5.27: Archive Release



Scheme: EonNativeApp

Destination: iOS Device

Build Configuration: Release

Archive Name: EonNativeApp

Options: ☑ Reveal Archive in Organizer

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

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

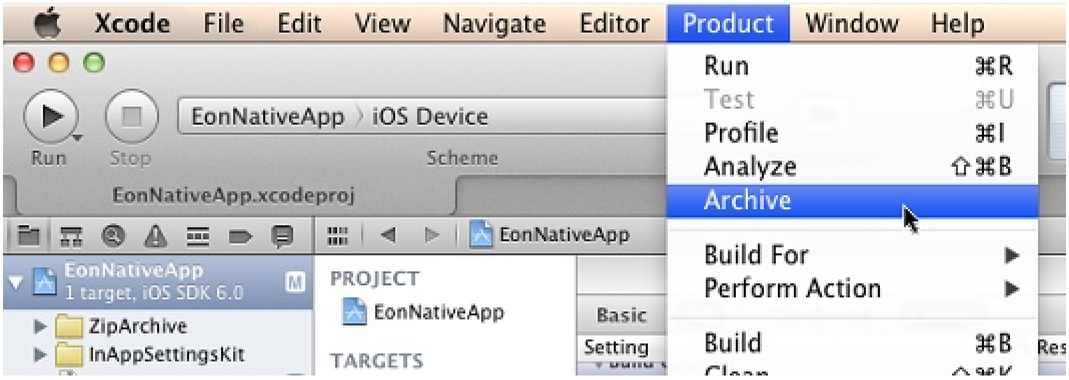
5.2.3.4 Task 3.4: Create the archive

Now you are ready to create an app archive.

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

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

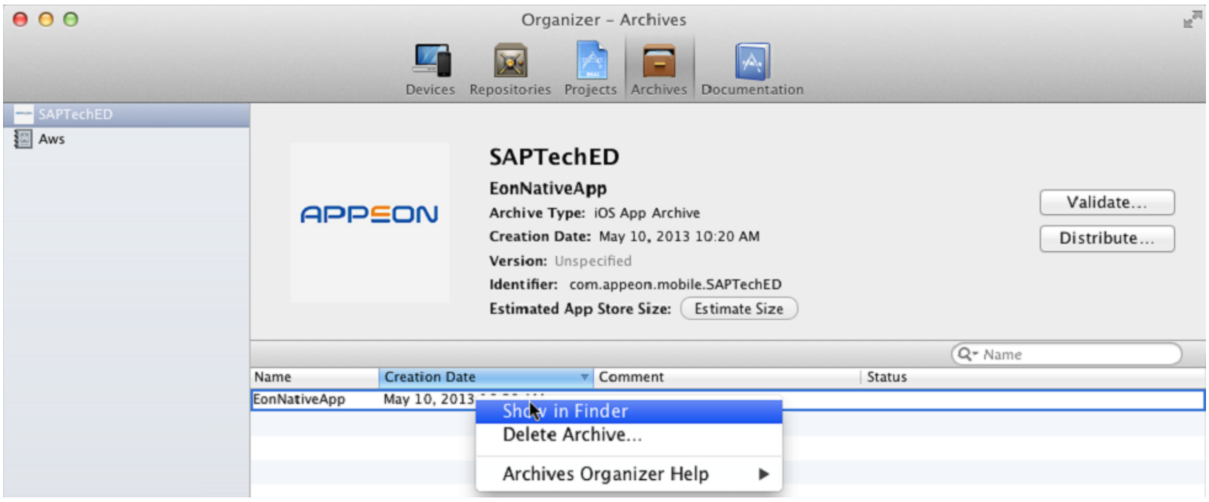
Figure 5.28: Arhive



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

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

Figure 5.29: Archive list



SAPTechED
EonNativeApp
Archive Type: iOS App Archive
Creation Date: May 10, 2013 10:20 AM
Version: Unspecified
Identifier: com.appeon.mobile.SAPTechED
Estimated App Store Size:

Name	Creation Date	Comment	Status
EonNativeApp	May 10, 2013		

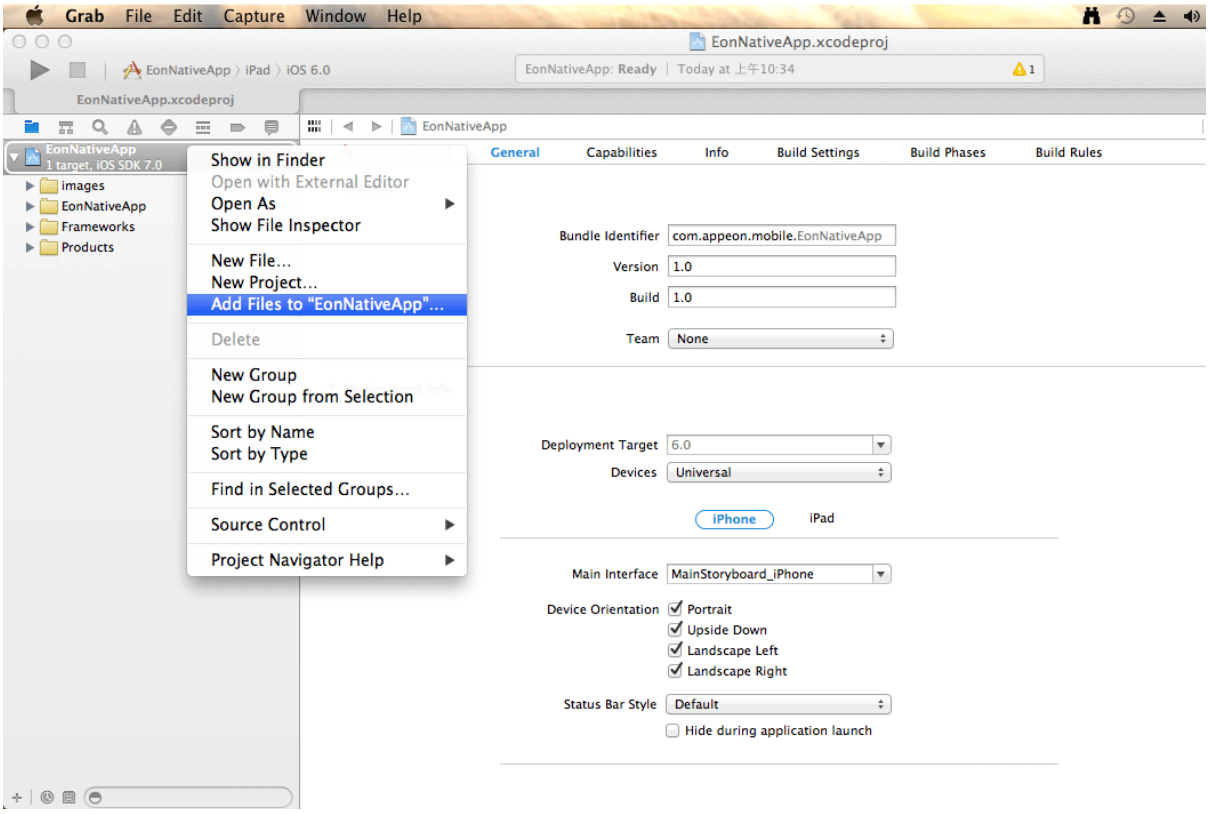
Now the app archive is ready. You can submit the archive to the Apple App Store or save the file for enterprise or Ad-Hoc distribution.

5.2.3.5 (Optional) Import the certificate

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

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

Figure 5.30: Add files to "EonNativeApp"



Bundle Identifier: com.appeon.mobile.EonNativeApp

Version: 1.0

Build: 1.0

Team: None

Deployment Target: 6.0

Devices: Universal

Main Interface: MainStoryboard_iPhone

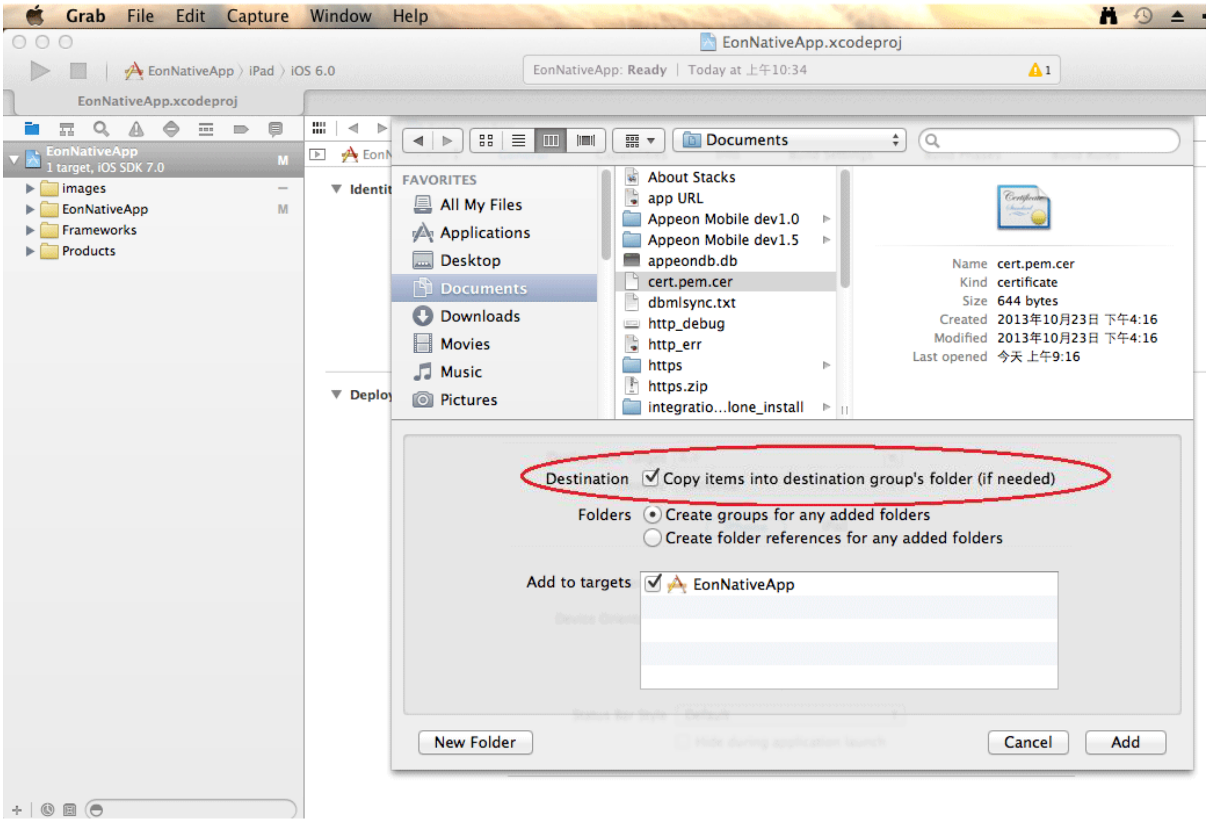
Device Orientation:
☑ Portrait
☑ Upside Down
☑ Landscape Left
☑ Landscape Right

Status Bar Style: Default

□ Hide during application launch

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**.

Figure 5.31: Select the destination checkbox



Name	cert.pem.cer
Kind	certificate
Size	644 bytes
Created	2013年10月23日 下午4:16
Modified	2013年10月23日 下午4:16
Last opened	今天 上午9:16

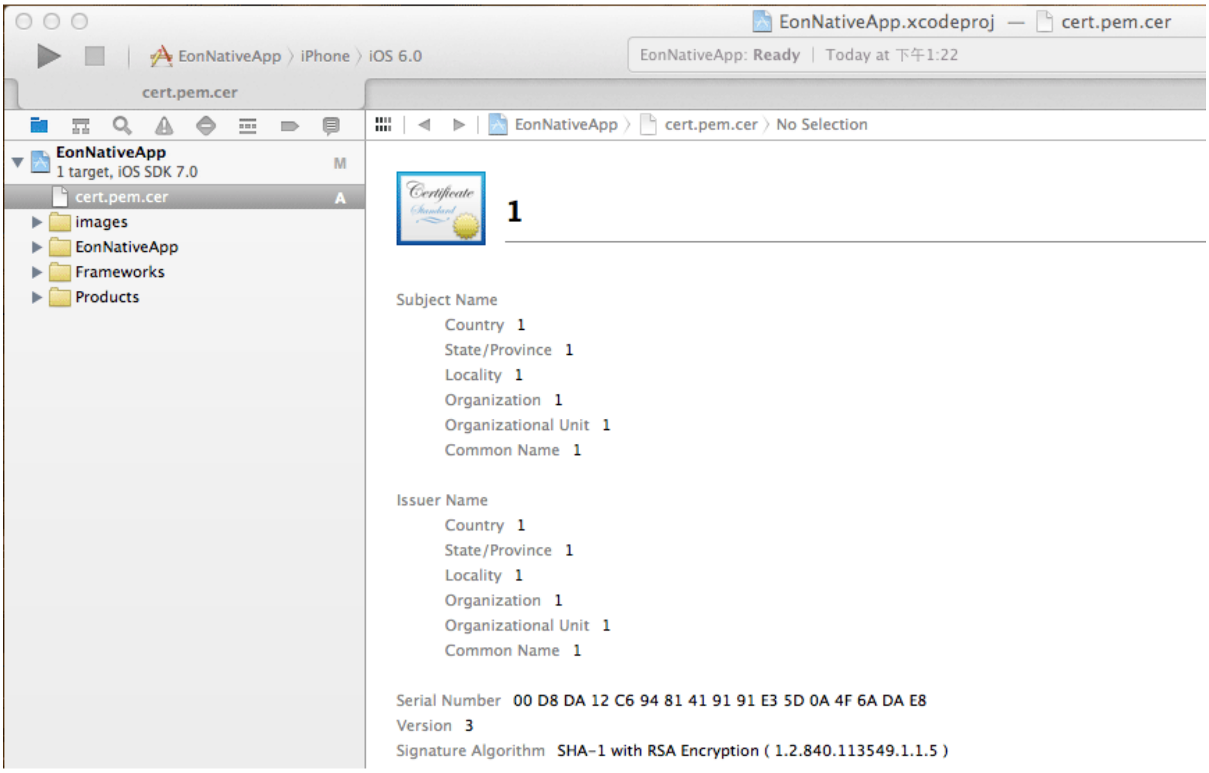
Destination ☑ Copy items into destination group's folder (if needed)

Folders ● Create groups for any added folders
○ Create folder references for any added folders

Add to targets ☑ EonNativeApp

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

Figure 5.32: The certificate file is added successfully.


EonNativeApp.xcodeproj — cert.pem.cer
EonNativeApp 〉 iPhone 〉 iOS 6.0
EonNativeApp: Ready | Today at 下午1:22
cert.pem.cer
EonNativeApp 〉 cert.pem.cer 〉 No Selection
EonNativeApp
1 target, iOS SDK 7.0
cert.pem.cer
images
EonNativeApp
Frameworks
Products

1

Subject Name
Country 1
State/Province 1
Locality 1
Organization 1
Organizational Unit 1
Common Name 1

Issuer Name
Country 1
State/Province 1
Locality 1
Organization 1
Organizational Unit 1
Common Name 1

Serial Number 00 D8 DA 12 C6 94 81 41 91 91 E3 5D 0A 4F 6A DA E8
Version 3
Signature Algorithm SHA-1 with RSA Encryption (1.2.840.113549.1.1.5)

5.2.4 Task 4: Distribute the app archive

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

- App Store distribution: submits the app for publication to the Apple App Store. Refer to Section 5.2.4.1, "Method 1: App Store distribution" for detailed instructions.

- In-House distribution: installs the app to an unlimited number of devices inside your company. Refer to Section 5.2.4.2, "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 Section 5.2.4.2, "Method 2: In-house or Ad-Hoc distribution" for detailed instructions.

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

5.2.4.1 Method 1: App Store distribution

To submit the app archive to the iOS App Store:

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

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

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

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

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

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

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

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

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

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

- To distribute the iOS Developer Enterprise application, select **Save for Enterprise Deployment**.

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

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

Step 5: Click **Export**.

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

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

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

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

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

5.2.4.2.1 Install apps using iTunes

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

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

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

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

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

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

5.2.4.2.2 Install apps using iPhone Configuration Utility

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

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

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

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

Step 5: Click **Install**.

5.2.4.2.3 Install apps wirelessly

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

Step 1: Construct and configure the server.

1. Install IIS on the server.

2. Copy the app (.ipa) file, the manifest (.plist) file, and the icons to a location on the IIS website that is accessible to the users.

3. Create a page that links to the manifest file.

   Here is a sample link:

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

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

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

  application/octet-stream ipa

  text/xml plist

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

  .ipa application/octet-stream

  .plist text/xml

Now your app is ready for installation.

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

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

5.3 Package & Distribute Android Apps

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

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

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

2. Task 2: Distribute the Android APK.

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

On the Appeon Developer machine, use the **Package** tool in the Appeon Developer toolbar to package the app files into an Android APK file.

You can select **Package a Native Mobile Project** or **Customize and Package Appeon Workspace** to package the app files into an Android APK file. During the package process, you can press F1 to get help on the fields. See Section 11.3, “Packaging a stand-alone mobile project” in *Appeon Developer User Guide* or Section 11.4, “Customizing and packaging Appeon Workspace” in *Appeon Developer User Guide* for detailed instructions.

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

5.3.2 Task 2: Distribute the Android APK

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

- Distributing through an App Marketplace.

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

- Distributing your application through email

- Distributing through a web site

6 Tutorial 5: Configure Appeon Server Cluster

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

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

Following are high-level steps for configuring an Appeon Server 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 an Appeon Server cluster.

2. Task 2: Install Appeon Server to multiple application servers.

3. Task 3: Create the Appeon Server cluster in AEM.

4. Task 4: Configure the Web server for the Appeon Server cluster.

5. Task 5: Install an Appeon application to the Appeon Server cluster and Web server(s).

6.1 Task 1: Understand the cluster architecture

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

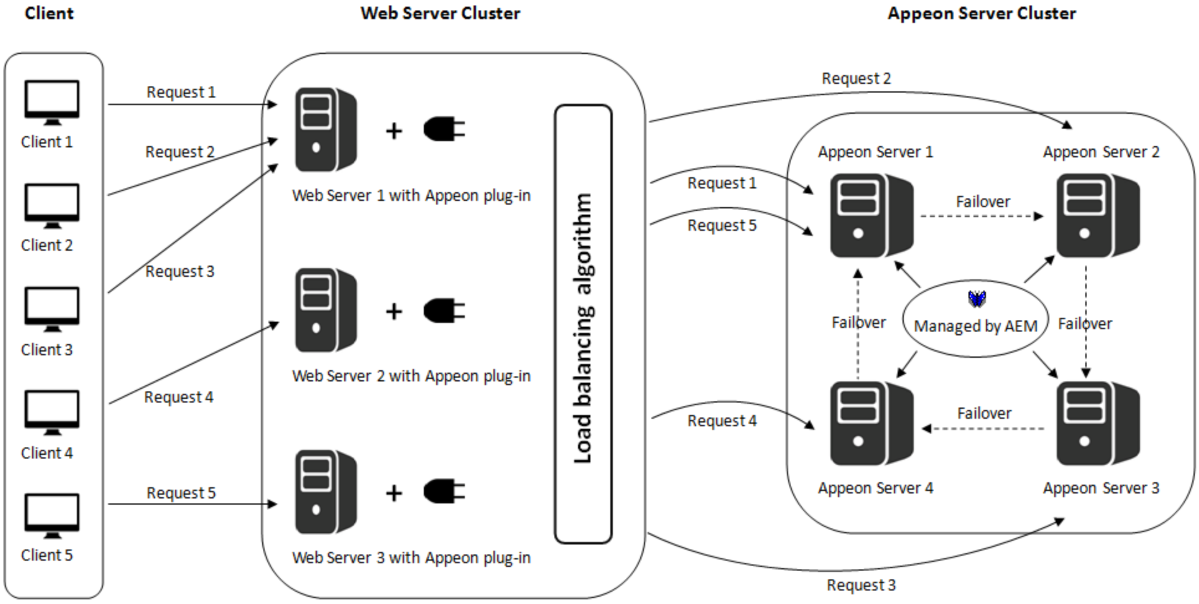
- The Web server can be a cluster of Web servers or a single Web server, depending on the demands. Configuring the Web server cluster is not an Appeon task, therefore, it is not mentioned in any Appeon documentation; to explore this topic, you could refer to the user documents provided by the Web server vendor. Generally, a single Web server is sufficient to support the Appeon Server 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 Appeon Server 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 Appeon Server, or it can be on the same machine where Appeon Server resides. If it is on the same machine with Appeon Server, make sure the Appeon Server 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 Appeon Server in sequential order.

Figure 6.1: Cluster architecture



6.2 Task 2: Install Appeon Server to multiple application servers

Step 1: Set up a group of application servers.

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

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

6.3 Task 3: Create an Appeon Server cluster in AEM

Once you have installed Appeon Server to several application servers, you can use the AEM **Cluster** tool to create an Appeon Server 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 Appeon Server has an 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 Appeon Servers one by one. It is **important** that the first Appeon Server you add is the one hosting the AEM you are currently logged into.

1. Click the **Add Appeon Server** button under the **Cluster Server List** table. The **Add New Appeon Server** page opens.

2. Verify that the Appeon Server 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 Appeon Server when adding an Appeon Server. 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 Appeon Servers. The program will automatically test the connection and add the Appeon Server if the test is successful.

   Adding an Appeon Server will succeed only if:

- The Appeon Server is new to AEM.

- The information provided is correct.

- The Appeon Server is running.

- The first Appeon Server that you add is the one hosting AEM you are currently logged into.

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

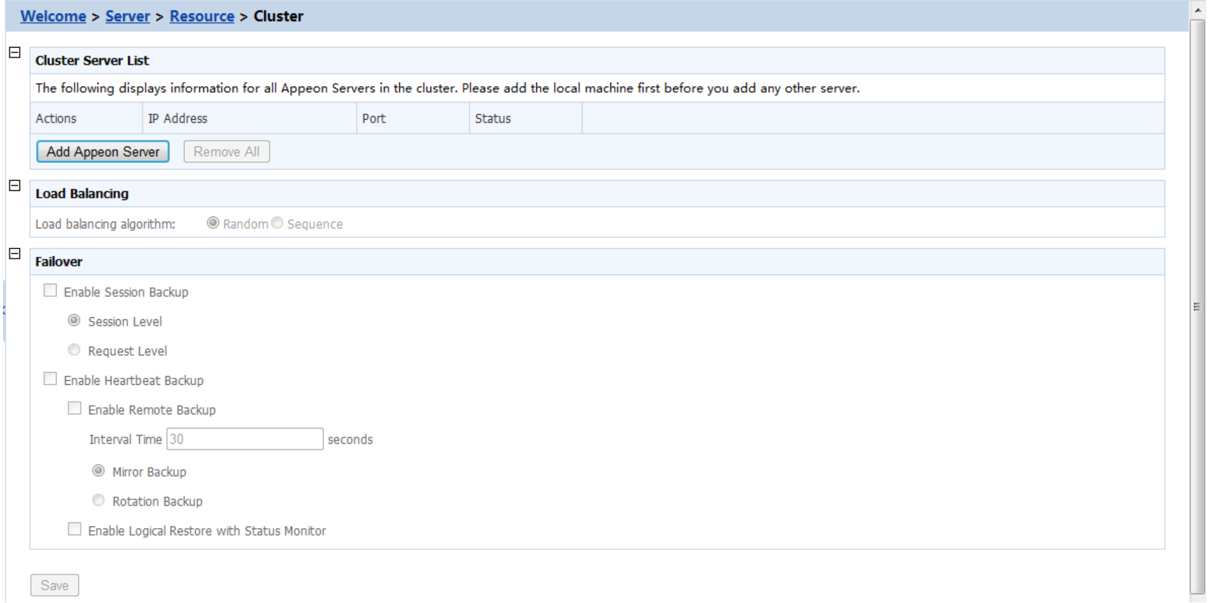
Step 3: Configure the load balancing and the fail-over settings by following instructions in Section 5.3.3.1, “Cluster” in *Appeon Server Configuration Guide for .NET* or Appeon Server Configuration Guide for J2EE.

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

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

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

Figure 6.2: Cluster



Welcome > Server > Resource > Cluster

Cluster Server List

The following displays information for all Appeon Servers in the cluster. Please add the local machine first before you add any other server.

Actions	IP Address	Port	Status

Load Balancing

Load balancing algorithm: ● Random ○ Sequence

Failover

☐ Enable Session Backup

● Session Level

○ Request Level

☐ Enable Heartbeat Backup

☐ Enable Remote Backup

Interval Time 30 seconds

● Mirror Backup

○ Rotation Backup

☐ Enable Logical Restore with Status Monitor

6.4 Task 4: Configure the Web server for the Appeon Server cluster

6.4.1 Task 4.1: Install the Appeon Server Web Component on Web server

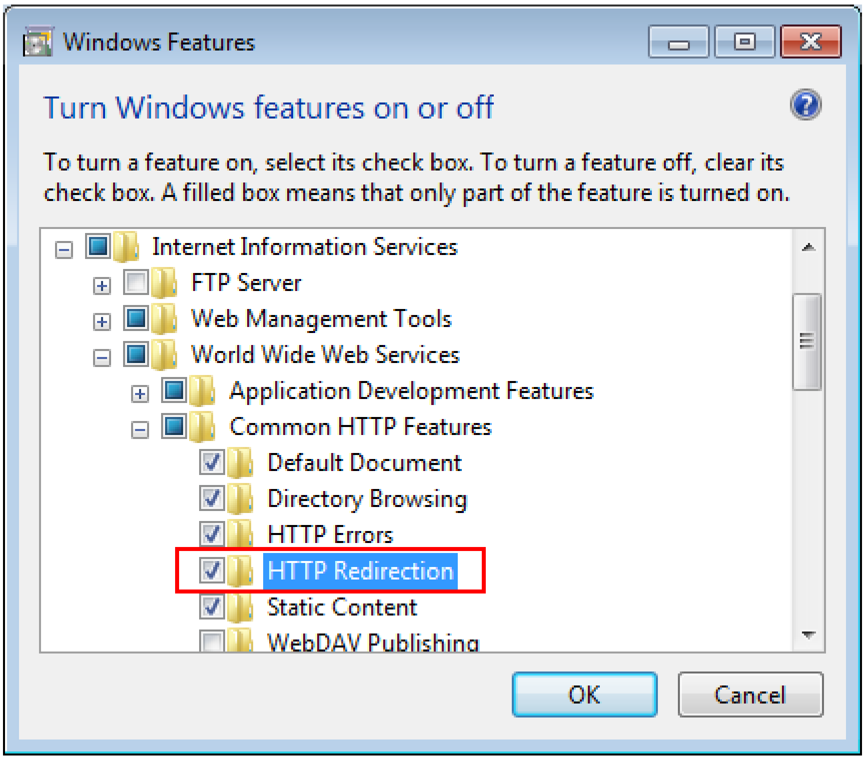
Step 1: Set up one or more separate Web site(s) as Web server(s).

If the Web server is on the same machine with Appeon Server, make sure the Appeon Server 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.

If the Web server is the IIS server, you should make sure the **HTTP Redirection** feature (as shown below) is selected and installed, otherwise, the application URL and AEM URL cannot be redirected successfully.

Figure 6.3: HTTP Redirection



To turn a feature on, select its check box. To turn a feature off, clear its check box. A filled box means that only part of the feature is turned on.

- ▣ Internet Information Services
  - □ FTP Server
  - ▣ Web Management Tools
  - ▣ World Wide Web Services
    - ▣ Application Development Features
    - ▣ Common HTTP Features
      - ☑ Default Document
      - ☑ Directory Browsing
      - ☑ HTTP Errors
      - ☑ HTTP Redirection
      - ☑ Static Content
      - □ WebDAV Publishing

Step 2: Install **Appeon Server 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 **Appeon Server Web Component installation** section in Installation Guide for .NET.

6.4.2 Task 4.2: Configure the Web server with the Appeon cluster plug-in

6.4.2.1 Type 1: IIS Web server

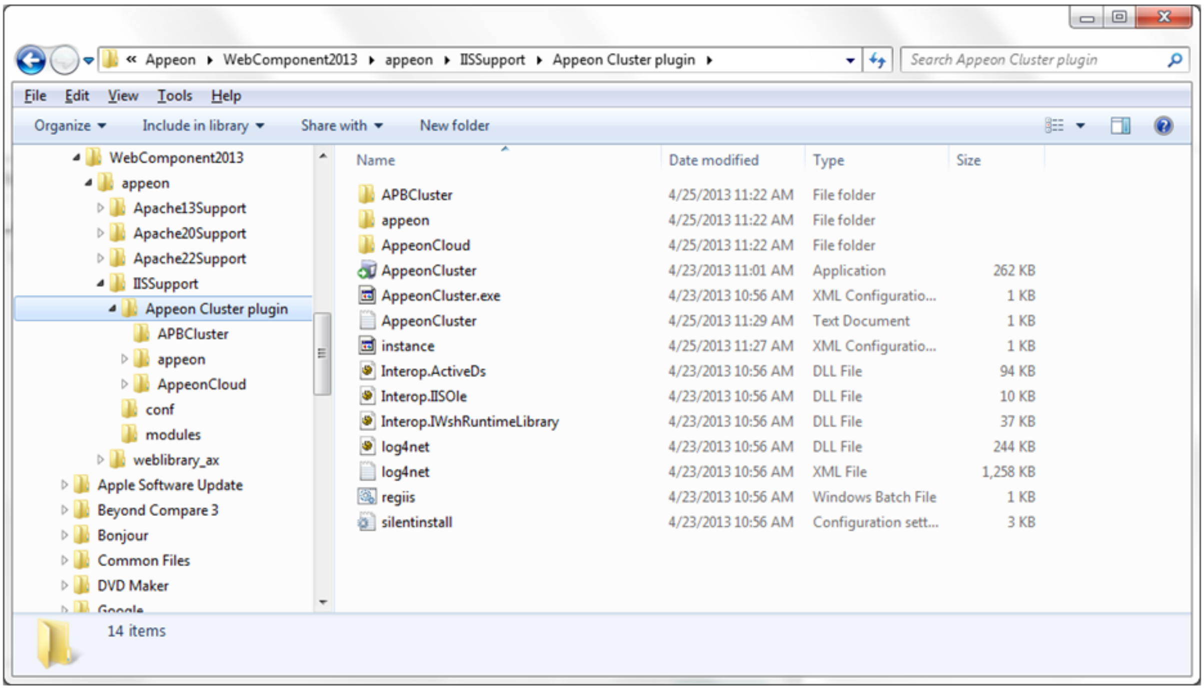
6.4.2.1.1 Method 1: Automatic configuration

Installing and configuring Appeon cluster plug-in

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

After you install **Appeon Server Web Component**, you can find the **Appeon Cluster plugin** folder under the **WebComponent2016\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 Appeon Server cluster.

Figure 6.4: Appeon Cluster plugin



Name	Date modified	Type	Size
APBCluster	4/25/2013 11:22 AM	File folder	
appeon	4/25/2013 11:22 AM	File folder	
AppeonCloud	4/25/2013 11:22 AM	File folder	
AppeonCluster	4/23/2013 11:01 AM	Application	262 KB
AppeonCluster.exe	4/23/2013 10:56 AM	XML Configuratio...	1 KB
AppeonCluster	4/25/2013 11:29 AM	Text Document	1 KB
instance	4/25/2013 11:27 AM	XML Configuratio...	1 KB
Interop.ActiveDs	4/23/2013 10:56 AM	DLL File	94 KB
Interop.IISOle	4/23/2013 10:56 AM	DLL File	10 KB
Interop.IWshRuntimeLibrary	4/23/2013 10:56 AM	DLL File	37 KB
log4net	4/23/2013 10:56 AM	DLL File	244 KB
log4net	4/23/2013 10:56 AM	XML File	1,258 KB
regiis	4/23/2013 10:56 AM	Windows Batch File	1 KB
silentinstall	4/23/2013 10:56 AM	Configuration sett...	3 KB

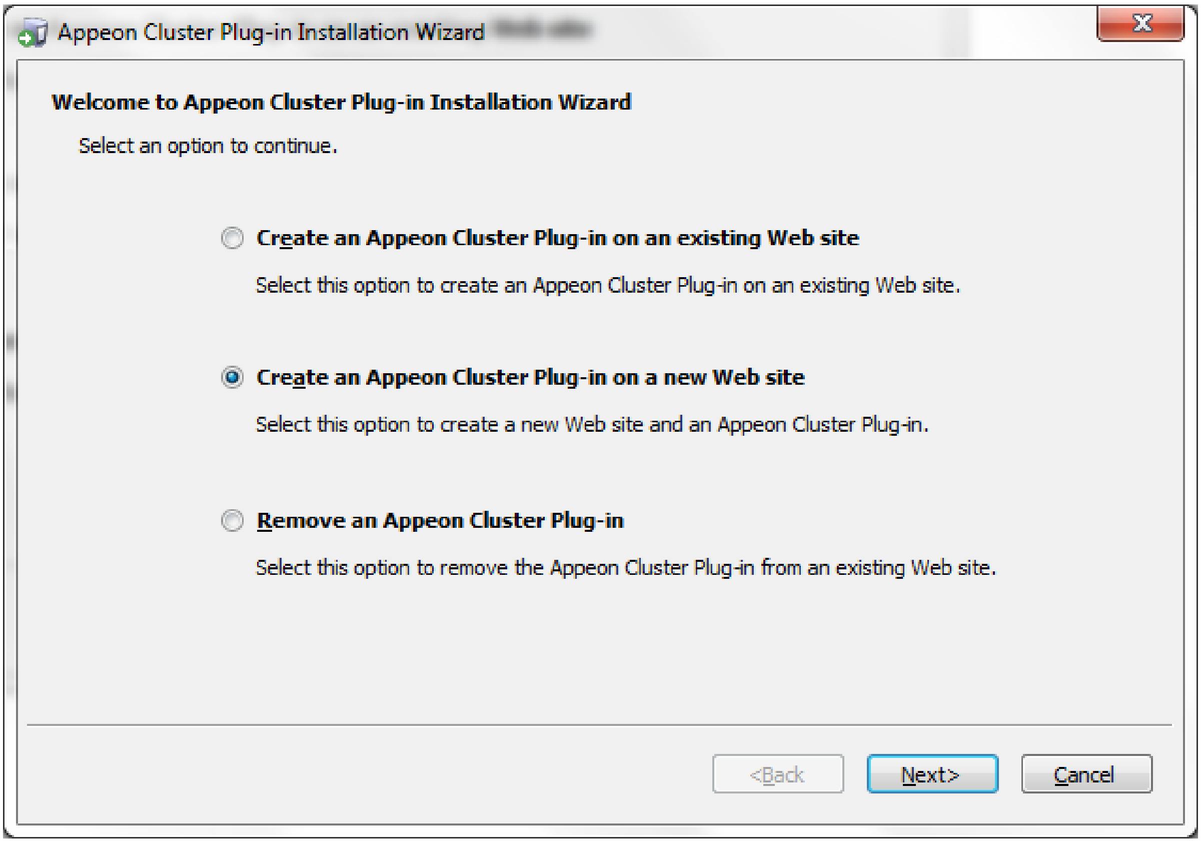
Step 2: Double-click **AppeonCluster.exe** under the **Appeon Cluster plugin** folder to install the Appeon cluster plug-in to the Web server.

The **Appeon Cluster Plug-in Installation Wizard** is displayed.

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

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

Figure 6.5: Create plugin on a Web site



Appeon Cluster Plug-in Installation Wizard

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.

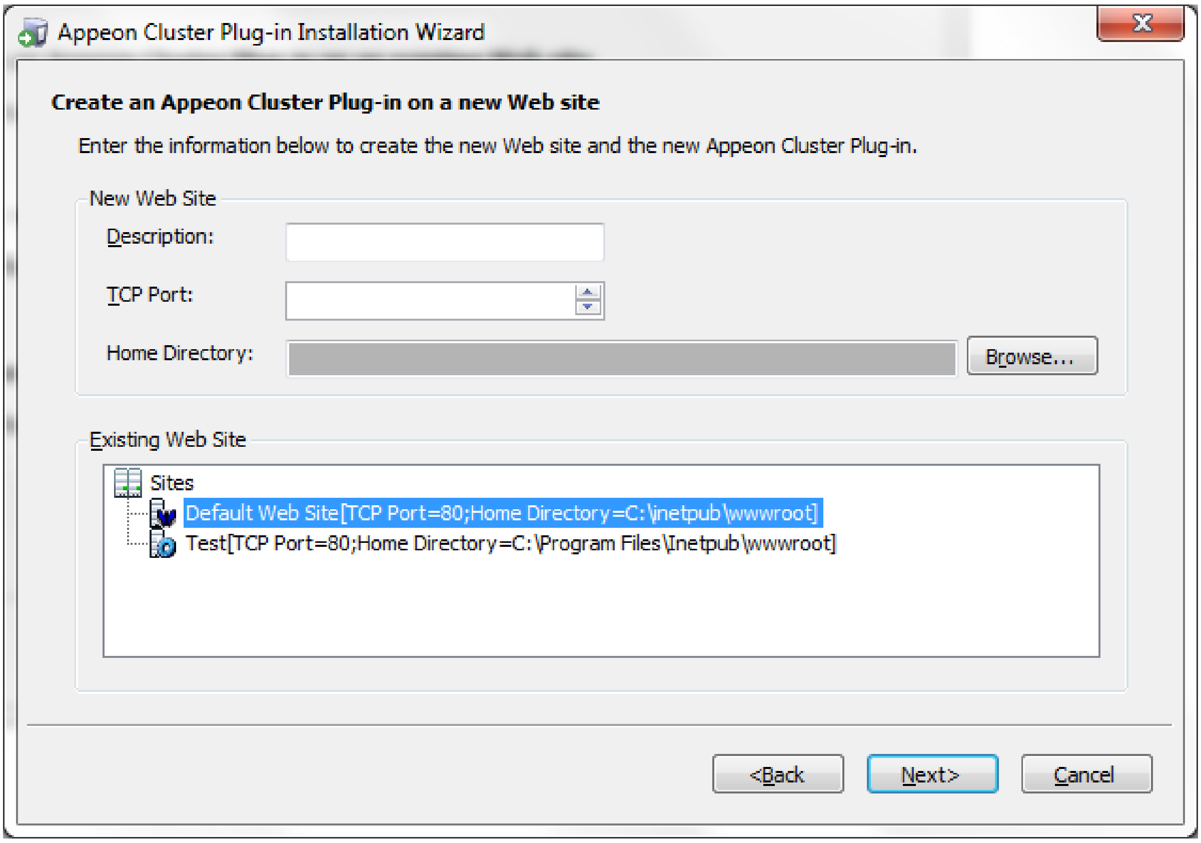
○ **Remove an Appeon Cluster Plug-in**

Select this option to remove the Appeon Cluster Plug-in from an existing Web site.

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

The new Web site will be created.

Figure 6.6: Configure the Web site



Appeon Cluster Plug-in Installation Wizard

Create an Appeon Cluster Plug-in on a new Web site

Enter the information below to create the new Web site and the new Appeon Cluster Plug-in.

New Web Site

Description:

TCP Port:

Home Directory:

Existing Web Site

Sites

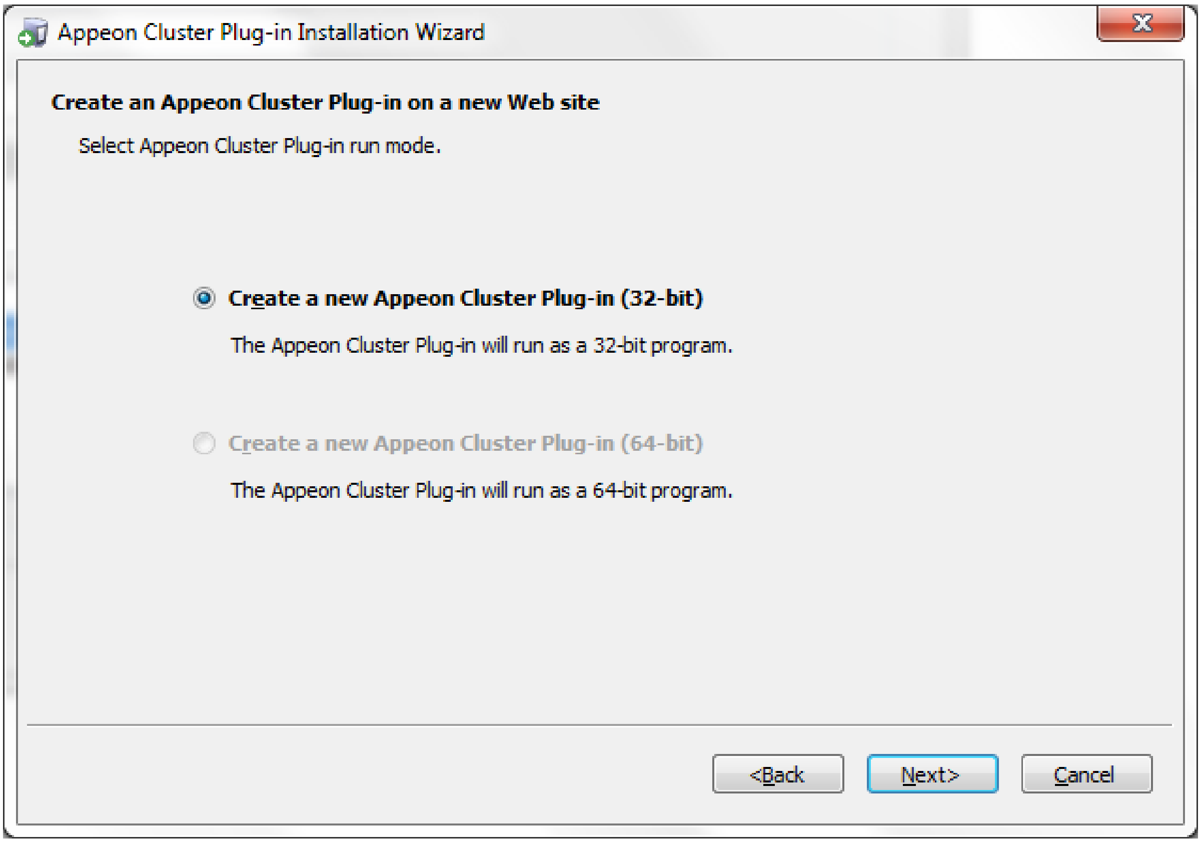
Default Web Site[TCP Port=80;Home Directory=C:\inetpub\wwwroot]

Test[TCP Port=80;Home Directory=C:\Program Files\Inetpub\wwwroot]

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

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

Figure 6.7: Select run mode



Create an Appeon Cluster Plug-in on a new Web site

Select Appeon Cluster Plug-in run mode.

● Create a new Appeon Cluster Plug-in (32-bit)

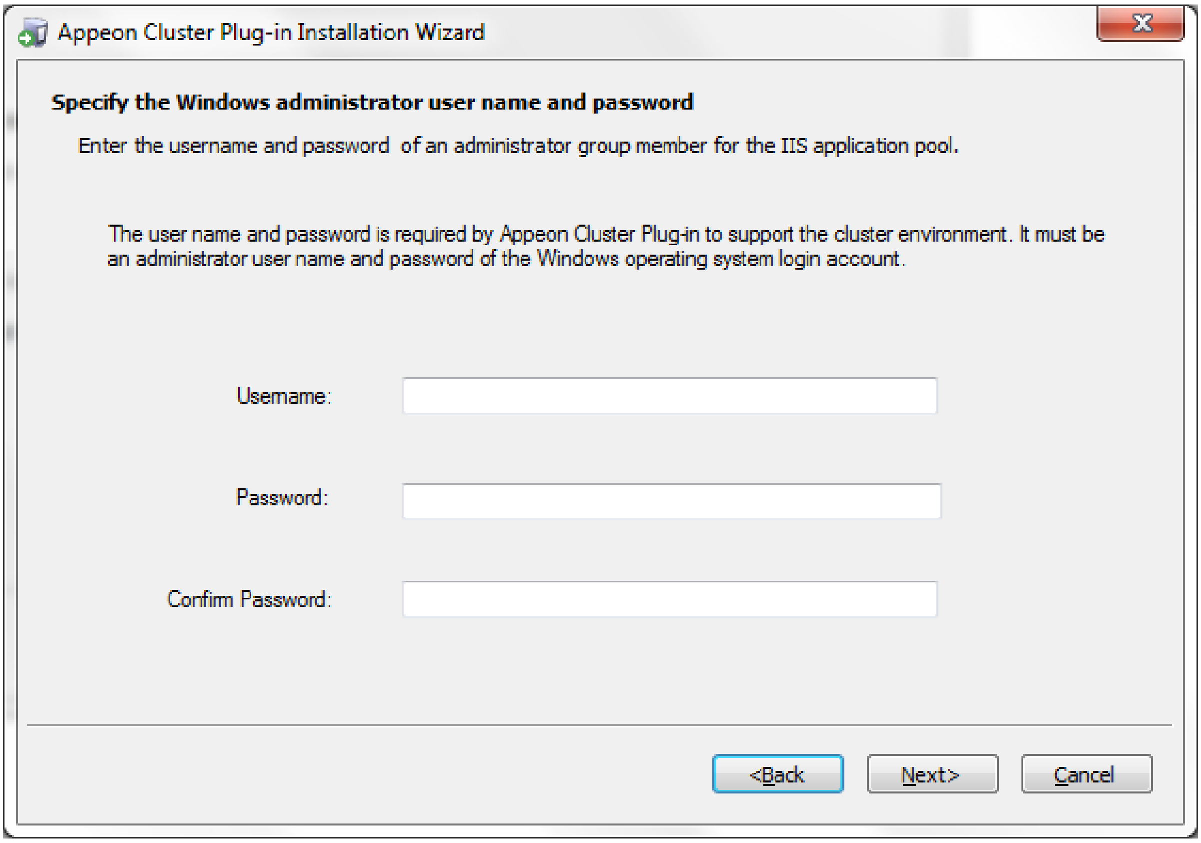
The Appeon Cluster Plug-in will run as a 32-bit program.

○ Create a new Appeon Cluster Plug-in (64-bit)

The Appeon Cluster Plug-in will run as a 64-bit program.

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.

Figure 6.8: Windows administrator username and password



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.

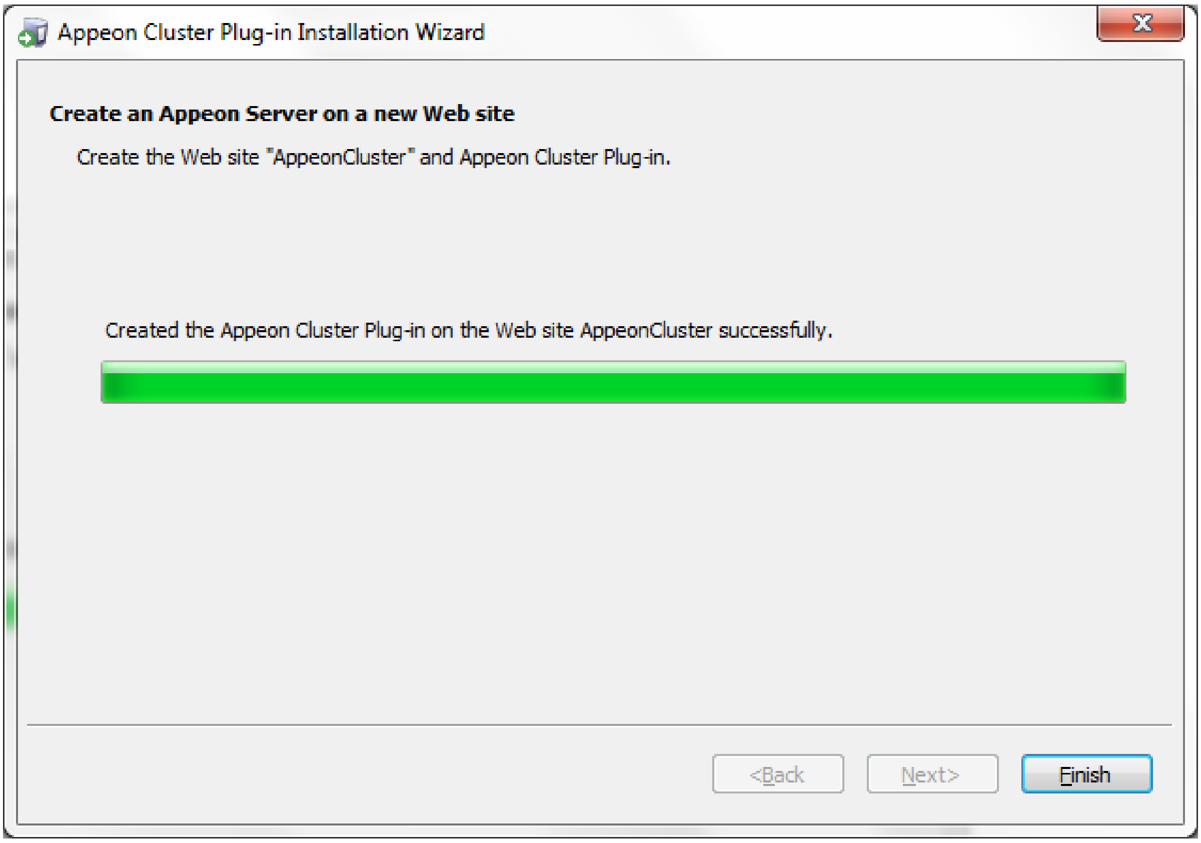
Username:

Password:

Confirm Password:

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

Figure 6.9: Create the plug-in



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.

Created the Appeon Cluster Plug-in on the Web site AppeonCluster successfully.

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

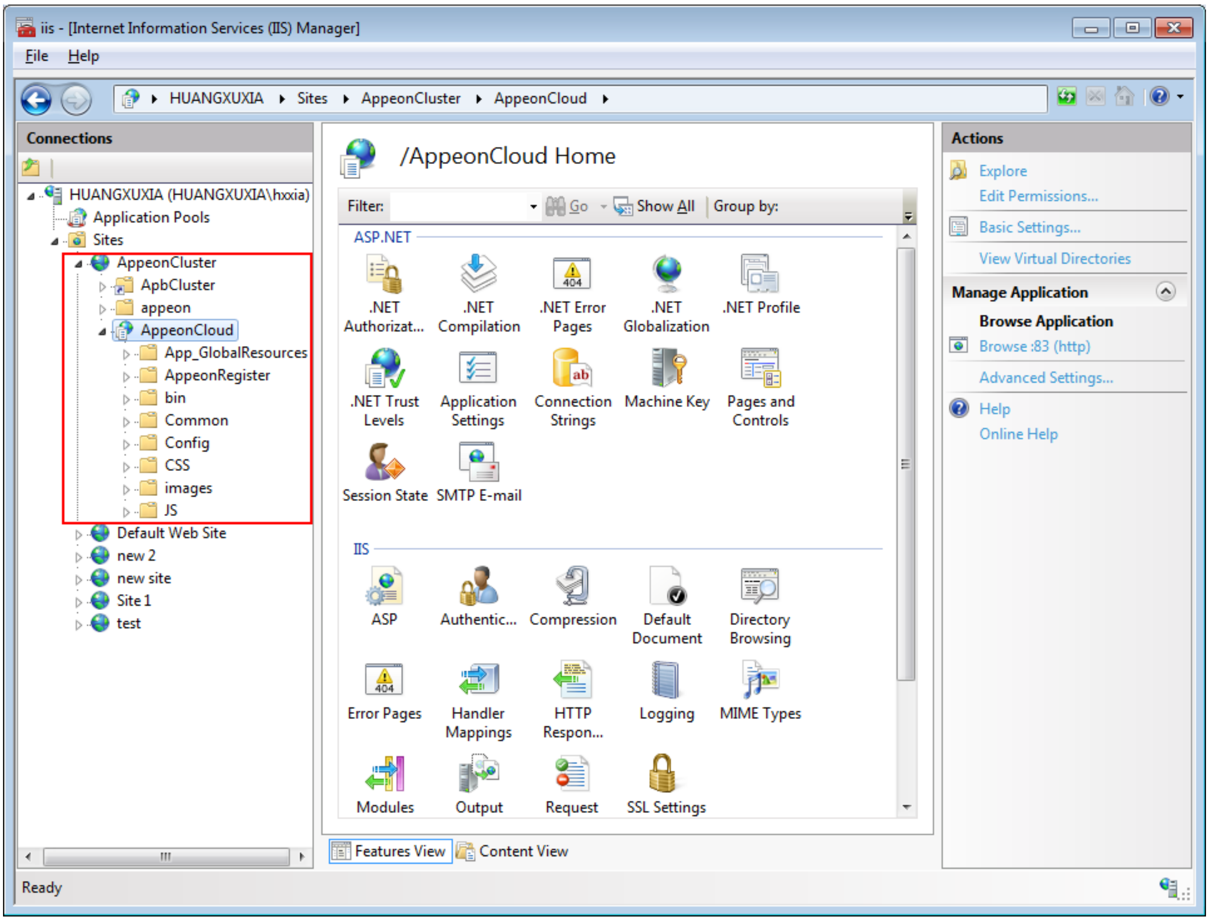
Configuring redirections to Appeon Servers

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 Appeon Server(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 Appeon Server AEM, add Appeon Servers to the cluster and configure the failover settings there. For details, refer to Section 5.3.3.1, “Cluster” in *Appeon Server Configuration Guide for .NET* or Appeon Server Configuration Guide for J2EE.

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

Figure 6.10: IIS Manager



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

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

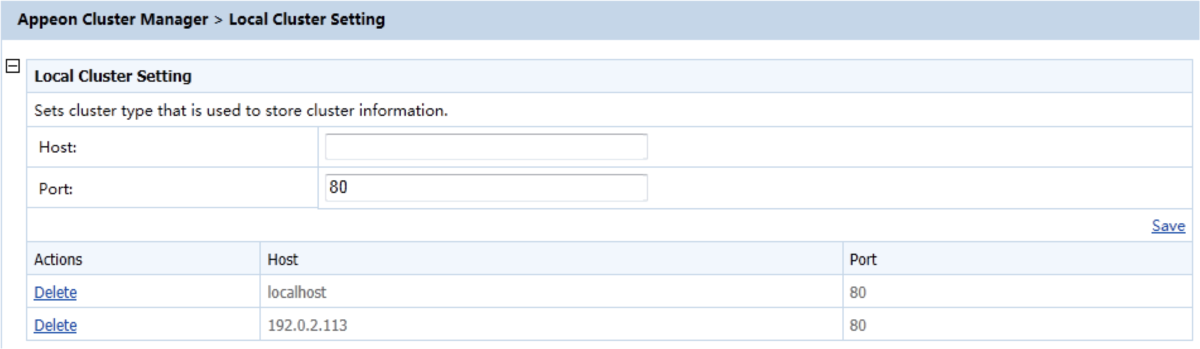
Step 3: Click **Cluster Settings**. The following settings will be display for the non-cloud platform.

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

- Specify the host name (or IP address) and port number of Appeon Server.

- Click **Save**. Appeon Server will be added to the cluster.

Figure 6.11: Local cluster settings



Appeon Cluster Manager > Local Cluster Setting

Local Cluster Setting

Sets cluster type that is used to store cluster information.

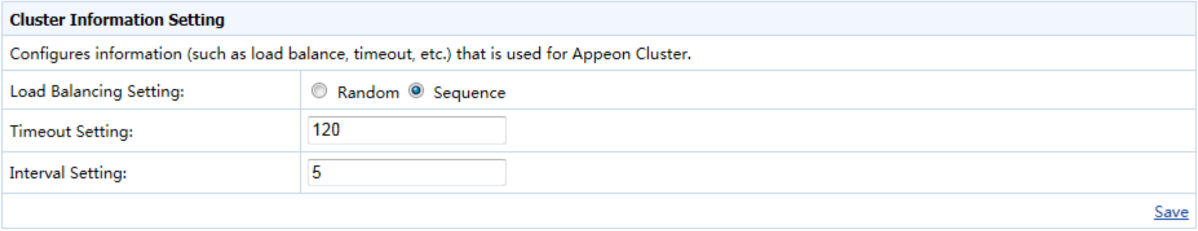
Host:	
Port:	80

Save

Actions	Host	Port
Delete	localhost	80
Delete	192.0.2.113	80

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

Figure 6.12: Cluster settings



Cluster Information Setting

Configures information (such as load balance, timeout, etc.) that is used for Appeon Cluster.

Load Balancing Setting:	○ Random ● Sequence
Timeout Setting:	120
Interval Setting:	5

Save

Table 6.1: More cluster settings

Settings	Description
Load Balancing	Specify the load balancing algorithm which determined how requests will be distributed among the servers in the cluster. **Random** indicates that the plug-in distributes requests across Appeon Servers in random order, regardless of the status of Appeon Server; **Sequence** indicates that the plug-in distributes requests to Appeon Server 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 Appeon Server list.

6.4.2.1.2 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 Appeon Server Web component to the Web root of the IIS server.

   Make sure you have installed Appeon Server 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 Appeon Server Web Component (C:\Program Files\Appeon\WebComponent2016) and manually copy the entire **appeon** folder to the IIS Web root.

2. Creating a virtual directory.

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

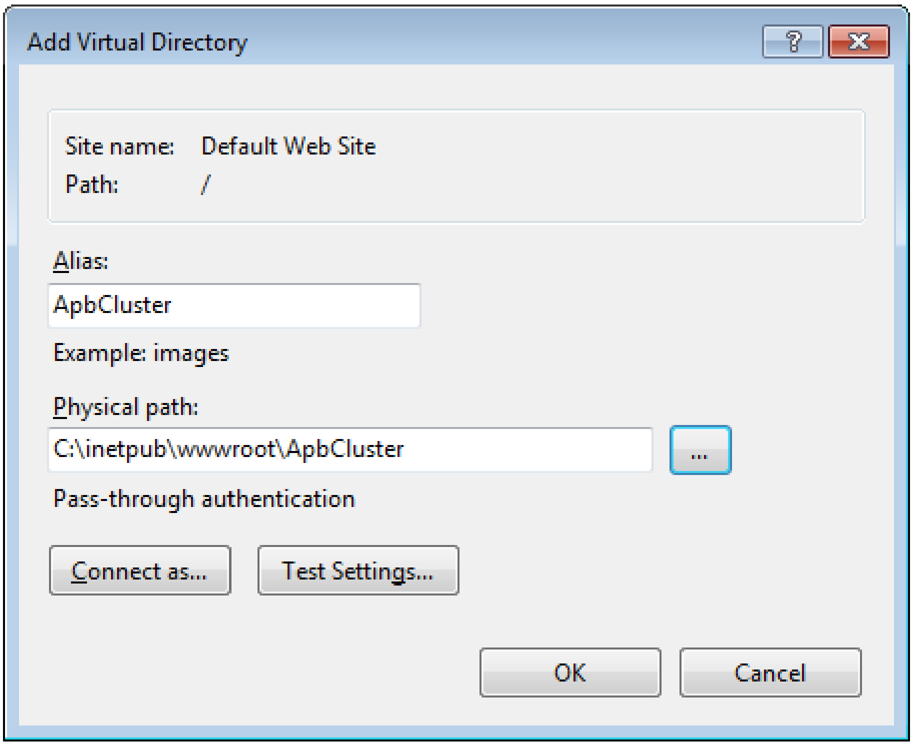
   Step 2: Right click the **Default Web Site** and select **Add Virtual Directory**.

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

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

   Step 5: Click **OK**.

Figure 6.13: Add virtual directory



Add Virtual Directory

Site name: Default Web Site

Path: /

Alias: ApbCluster

Example: images

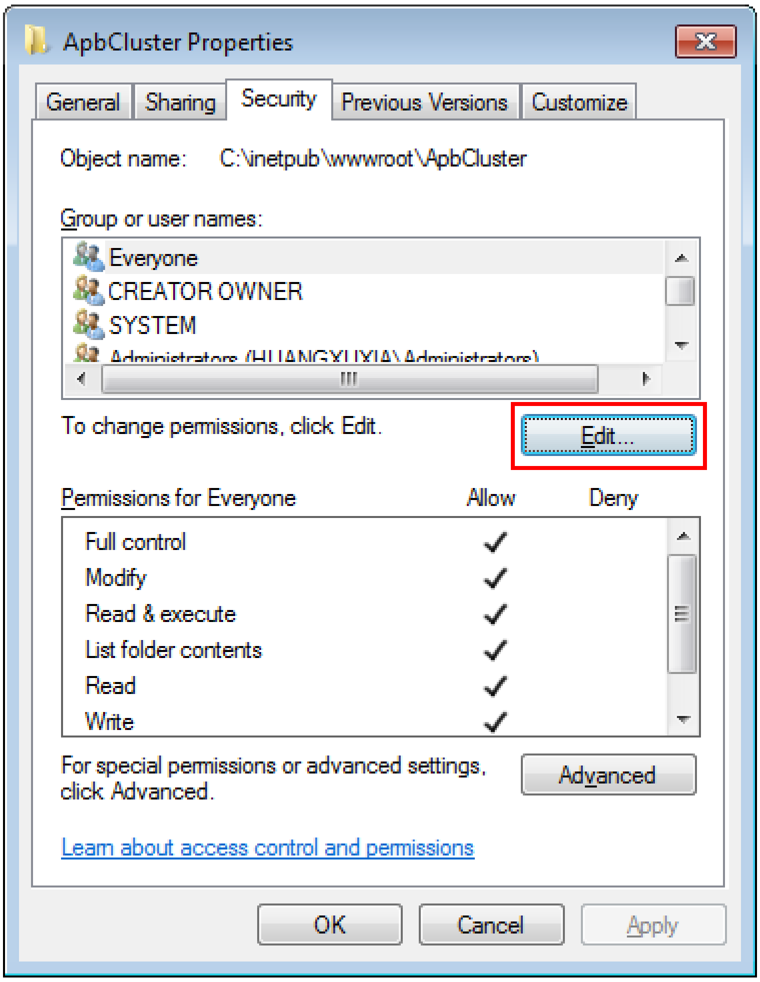
Physical path: C:\inetpub\wwwroot\ApbCluster

Pass-through authentication

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

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

Figure 6.14: ApbCluster properties



ApbCluster Properties

Object name: C:\inetpub\wwwroot\ApbCluster

Group or user names:

- Everyone
- CREATOR OWNER
- SYSTEM
- Administrators (HUANGXUXIA\Administrators)

To change permissions, click Edit.

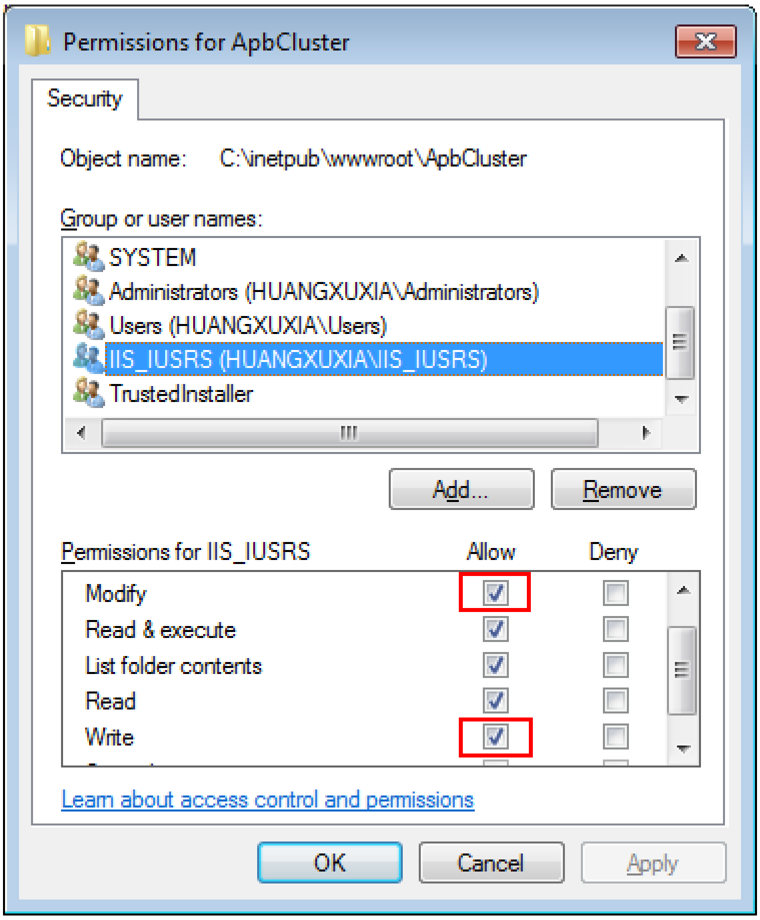
Permissions for Everyone	Allow	Deny
Full control	✓	
Modify	✓	
Read & execute	✓	
List folder contents	✓	
Read	✓	
Write	✓	

For special permissions or advanced settings, click Advanced.

Learn about access control and permissions

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

Figure 6.15: ApbCluster permissions


Permissions for ApbCluster
Security
Add...
Remove
Learn about access control and permissions
OK
Cancel
Apply

Object name: C:\inetpub\wwwroot\ApbCluster

Group or user names:

- SYSTEM
- Administrators (HUANGXUXIA\Administrators)
- Users (HUANGXUXIA\Users)
- IIS_IUSRS (HUANGXUXIA\IIS_IUSRS)
- TrustedInstaller

Permissions for IIS_IUSRS	Allow	Deny
Modify	☑	□
Read & execute	☑	□
List folder contents	☑	□
Read	☑	□
Write	☑	□

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.xm**l file acts as the redirector configuration file which helps the Web server redirect requests to the Appeon Servers according to the IP addresses/ports of Appeon Servers, 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>
        <filter>/AEM</filter>
        <filter>/servlet</filter>
        <filter>/reportfile</filter>
        <filter>/imagefile</filter>
        <filter>/dwfile</filter>
        <filter>/ajsdown</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 Appeon Server 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 an Appeon Server; **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 Appeon Servers in the cluster.
- **port** indicates the port number of the Appeon Servers in the cluster.

5. Installing the Appeon plug-in as ISAPI Filters.

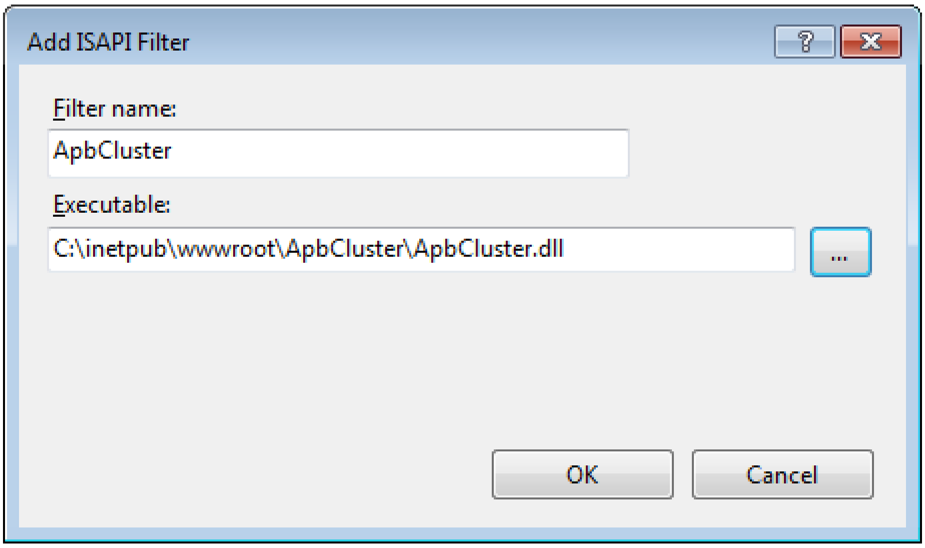
   Step 1: Open **Control Panel | Administrative Tools | Internet Information Services (IIS) Manager**.

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

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

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

Figure 6.16: Add ISAPI filter



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

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

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

   Notes:

   - The **Extension_URI** command points to the virtual directory where **ApbCluster.dll** (or **ApbCluster64.dll**) resides, that is /*virtual-directory-alias-name*/ApbCluster.dll (/**ApbCluster/ApbCluster.dll** in this guide).

   - The **MatchExpression** command specifies the pages to be redirected.

   - The **Log** command specifies whether logging is enabled. On indicates logging is enabled; Off indicates logging is disabled.

   - The commands and parameters are case insensitive.

7. Setting ISAPI and CGI Restrictions.

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

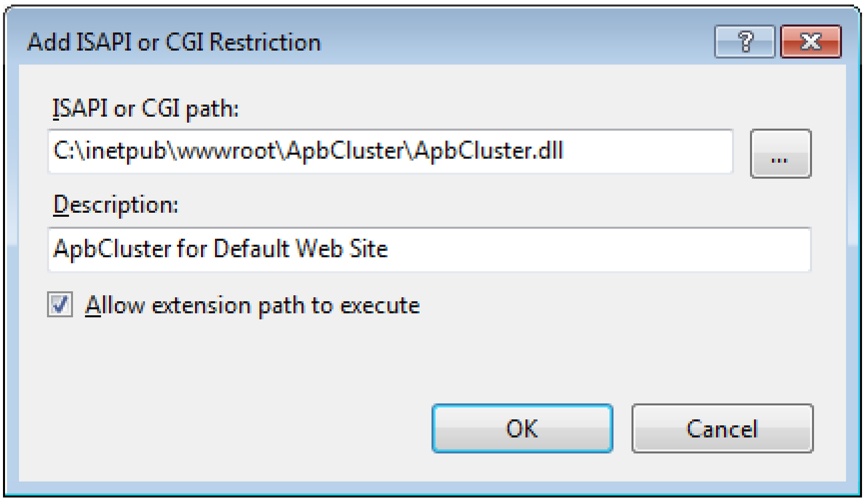
   Step 2: Select the local machine (the top node), and then double-click **ISAPI and CGI Restrictions** on the right side.

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

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

Step 5: Click **OK**.

Figure 6.17: Add ISAPI or CGI



Add ISAPI or CGI Restriction

ISAPI or CGI path: C:\inetpub\wwwroot\ApbCluster\ApbCluster.dll

Description: ApbCluster for Default Web Site

☑ Allow extension path to execute

8. Enabling ISAPI-dll.

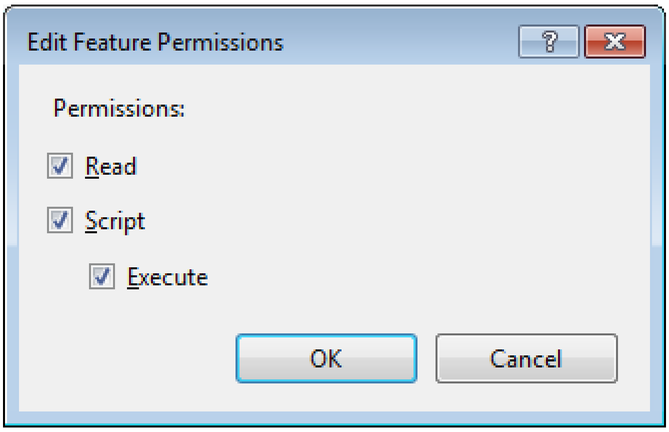
Step 1: Open **Control Panel** | **Administrative Tools** | **Internet Information Services (IIS) Manager**.

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

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

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

Figure 6.18: Edit feature permissions



Edit Feature Permissions

Permissions:

☑ Read

☑ Script

☑ Execute

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

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

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

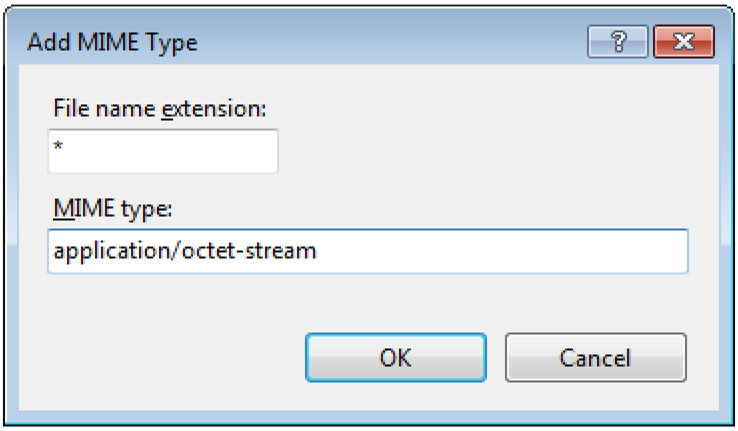
   Step 3: Specify the following settings:

   - Extension: *

   - MIME Type: application/octet-stream

   Step 4: Click **OK**.

   Figure 6.19: Add MIME type



Add MIME Type

File name extension: *

MIME type: application/octet-stream

10.Restarting IIS.

   Restart IIS to make the new settings effective.

Configuring IIS 6.0 with .NET server

Choose an existing Web site, or create a new site. The following takes the existing **Default Web Site** as an example.

1. Installing Appeon Server Web component to the Web root of the IIS server.

   Make sure you have installed Appeon Server 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 Appeon Server Web Component (C:\Program Files\Appeon\WebComponent2016) and manually copy the entire **appeon** folder to the IIS Web root.

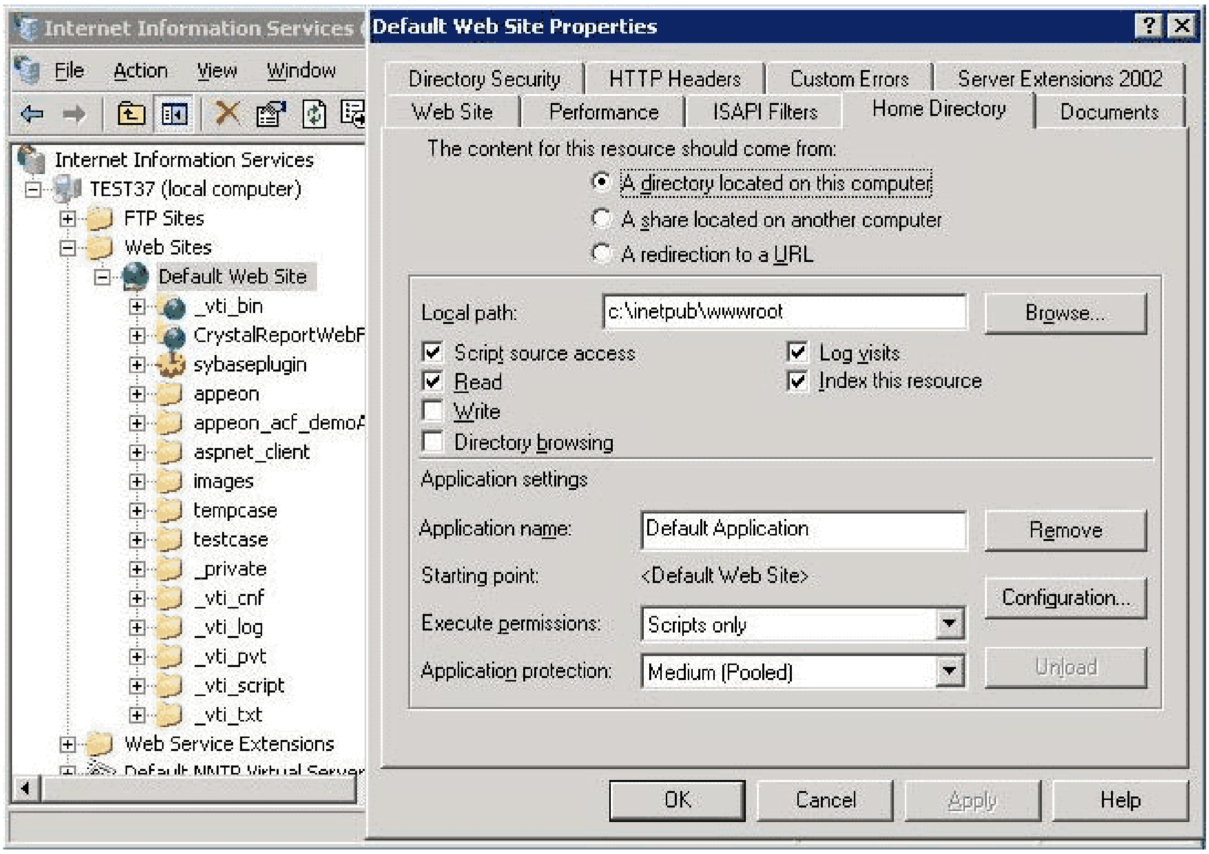
2. Specifying the properties of IIS Web site.

   Step 1: Open **Control Panel** | **Administrative Tools** | **Internet Service Manager**.

   Step 2: Right click **Web Sites** | **Default Web Site** and select **Properties**.

   Step 3: In the **Default Web Site Properties** window, select the **Home Directory** tab and set the **Execute permissions** to **Scripts only**.

Figure 6.20: Web site properties



Default Web Site Properties

The content for this resource should come from:

● A directory located on this computer
○ A share located on another computer
○ A redirection to a URL

Local path: c:\inetpub\wwwroot

☑ Script source access
☑ Read
□ Write
□ Directory browsing
☑ Log visits
☑ Index this resource

Application settings

Application name: Default Application

Starting point: <Default Web Site>

Execute permissions: Scripts only

Application protection: Medium (Pooled)

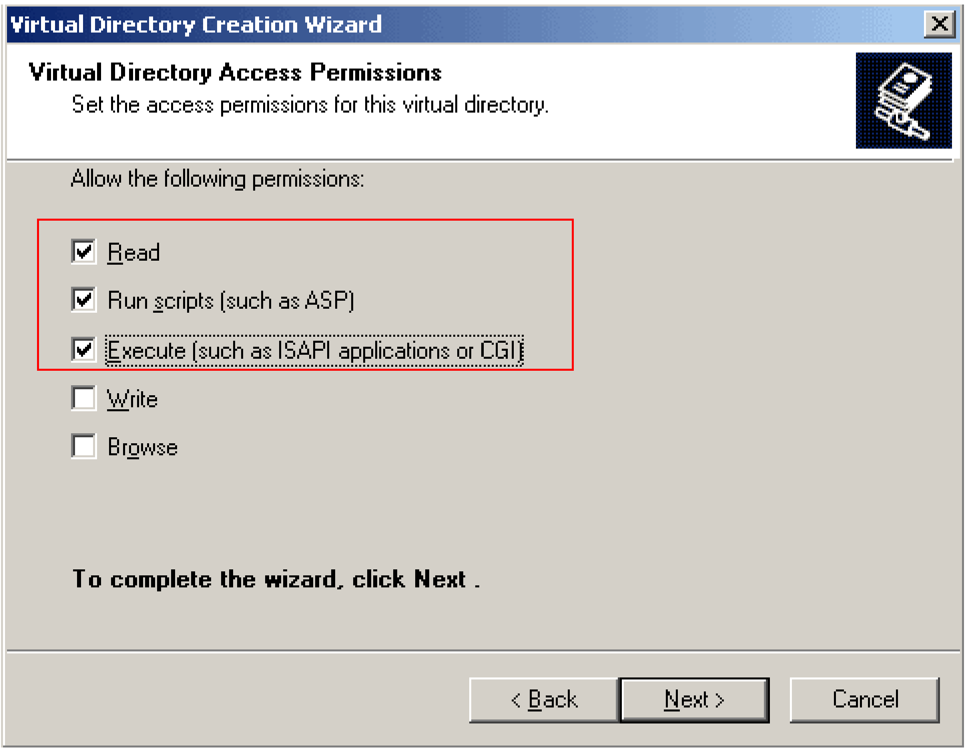
3. Creating the virtual directory.

   Step 1: Right click the **Default Web Site** and select **New** | **Virtual Directory**.

   Step 2: Input the alias name (for example, "**ApbCluster**"), and select a mapping directory (for example, "**d:\iisplugin**").

   Step 3: Allow the following permissions for the mapping directory: **Read**, **Run scripts** (**such as ASP**), and **Execute** (**such as ISAPI application or CGI**)

Figure 6.21: Virtual directory



Virtual Directory Creation Wizard

Virtual Directory Access Permissions

Set the access permissions for this virtual directory.

Allow the following permissions:

☑ Read

☑ Run scripts (such as ASP)

☑ Execute (such as ISAPI applications or CGI)

□ Write

□ Browse

To complete the wizard, click Next .

4. Copying the Appeon plug-in.

   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 (**d:\iisplugin** 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**.

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

   Create the **cluster-config.xml** file in the newly created virtual directory (**d:\iisplugin** in this guide). The **cluster-config.xm**l file acts as the redirector configuration file which helps the Web server redirect requests to the Appeon Servers according to the IP addresses/ports of Appeon Servers, 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>
        <filter>/AEM</filter>
        <filter>/servlet</filter>
        <filter>/reportfile</filter>
        <filter>/imagefile</filter>
        <filter>/dwfile</filter>
        <filter>/ajsdown</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 Appeon Server 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 an Appeon Server; **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 Appeon Server.

- **port** indicates the port number of the Appeon Server.

6. Installing IIS filter.

   Step 1: Right click **Default Web Site** and select **Properties**.

   Step 2: In the **Default Web Site Properties** window, select the **ISAPI Filters** tab. Click **Add** to add **ApbCluster.dll** (or **ApbCluster64.dll**) as the ISAPI filter. Click **OK**.

7. Copying the redirector configuration file (**ApbCluster.cfg**).

   Copy the **ApbCluster.cfg** redirector configuration file from appeon\IISSupport\conf\ to the virtual directory (d:\iisplugin 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 resides (/ApbCluster/ApbCluster.dll in this example).

- 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.

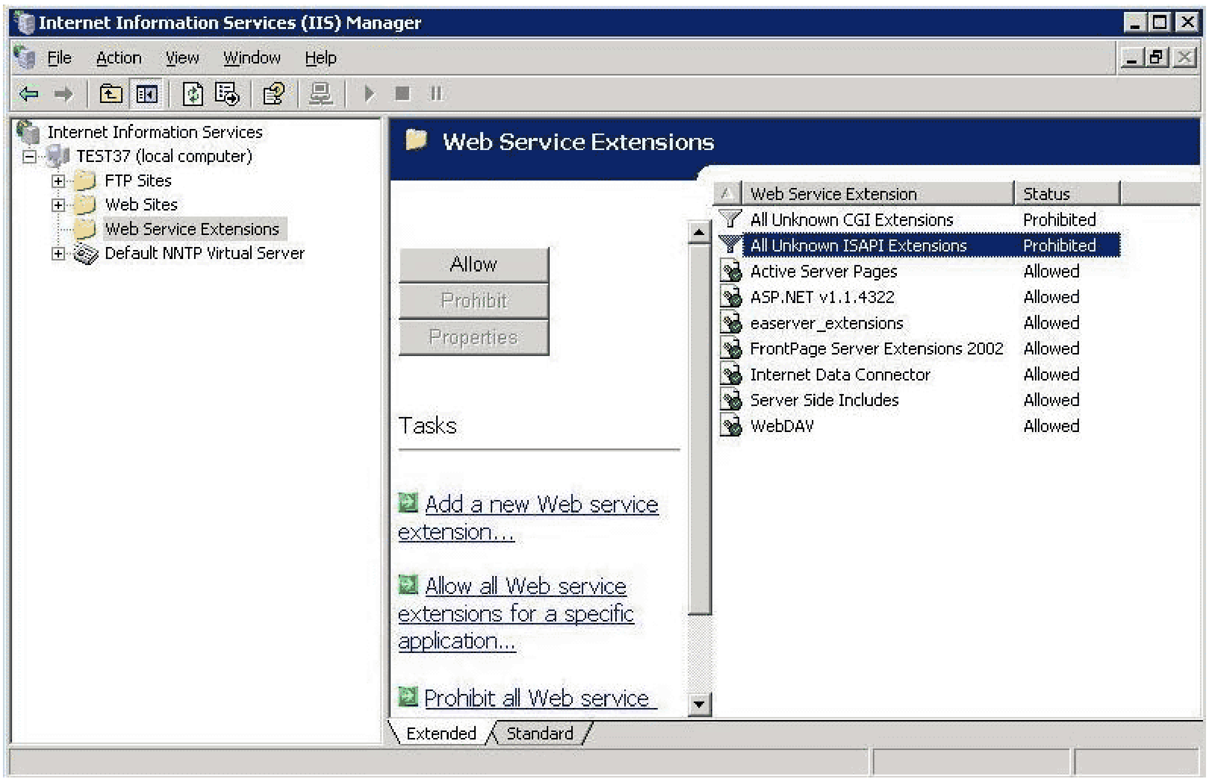
- The commands and parameters are case insensitive.

8. Activating ISAPI.

   Step 1: Select the **Web Services Extension**. The ISAPI status will be displayed on the right.

   Step 2: Select **All Unknown ISAPI Extensions** and click the **Allow** button.

Figure 6.22: Allow ISAPI


Internet Information Services (IIS) Manager
File
Action
View
Window
Help
Internet Information Services
TEST37 (local computer)
FTP Sites
Web Sites
Web Service Extensions
Default NNTP Virtual Server
Web Service Extensions
Allow
Prohibit
Properties
Tasks
Add a new Web service extension...
Allow all Web service extensions for a specific application...
Prohibit all Web service
Extended
Standard

Web Service Extension	Status
All Unknown CGI Extensions	Prohibited
All Unknown ISAPI Extensions	Prohibited
Active Server Pages	Allowed
ASP.NET v1.1.4322	Allowed
easerver_extensions	Allowed
FrontPage Server Extensions 2002	Allowed
Internet Data Connector	Allowed
Server Side Includes	Allowed
WebDAV	Allowed

9. Adding new MIME type.

   Step 1: Right click the Local computer and select **Properties**.

   Step 2: In the properties window, click the **MIME Types** button. In the **MIME Types** window, click **New**.

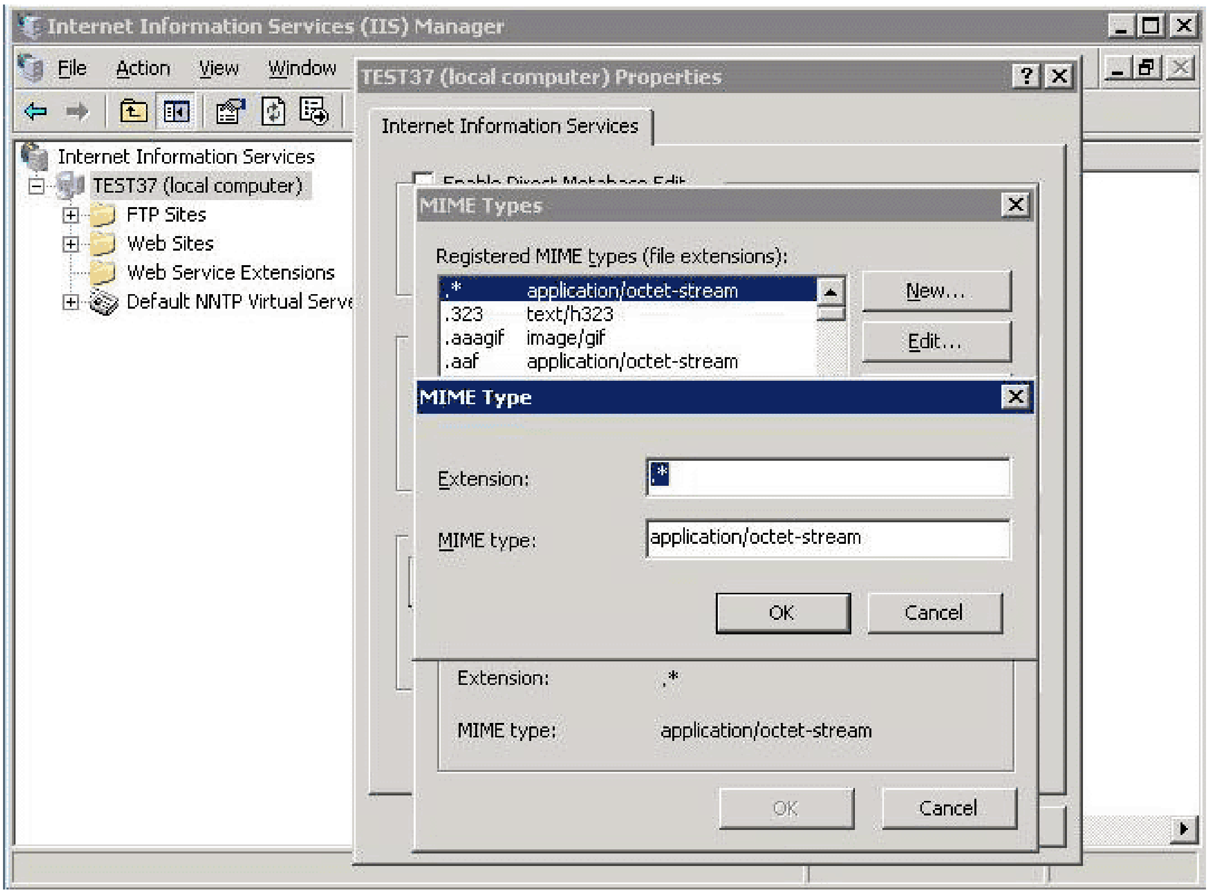
   Input the following information:

   - Extension: *

   - MIME type: application/octet-stream

This is to ensure that pages without extension names or pages without MIME types defined can be accessed.

Figure 6.23: MIME Types


Internet Information Services (IIS) Manager
File
Action
View
Window
Internet Information Services
TEST37 (local computer)
FTP Sites
Web Sites
Web Service Extensions
Default NNTP Virtual Serve
TEST37 (local computer) Properties
Internet Information Services
Enable Direct Metabase Edit
MIME Types
Registered MIME types (file extensions):
New...
Edit...
MIME Type
OK
Cancel
OK
Cancel

.*	application/octet-stream
.323	text/h323
.aaagif	image/gif
.aaf	application/octet-stream

Extension: .*

MIME type: application/octet-stream

Extension: .*

MIME type: application/octet-stream

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 EAServer, WebLogic, WebSphere, JBoss, JEUS etc. The configuration is the same for the J2EE application servers that Appeon supports.

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

1. Installing Appeon Server Web component to the Web root of the IIS server.

   Make sure you have installed Appeon Server 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 Appeon Server Web Component (C:\Program Files\Appeon\WebComponent2016) and manually copy the entire **appeon** folder to the IIS Web root.

2. Creating a virtual directory.

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

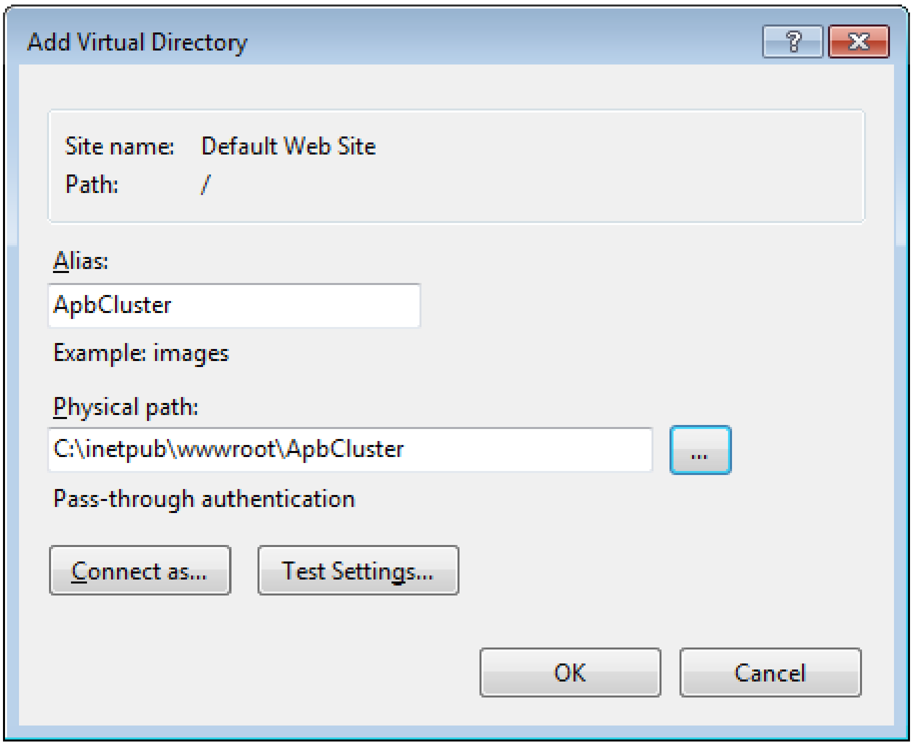
Step 2: Right click **Default Web Site** and select **Add Virtual Directory**.

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

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

Step 5: Click **OK**.

Figure 6.24: Add virtual directory



Site name: Default Web Site

Path: /

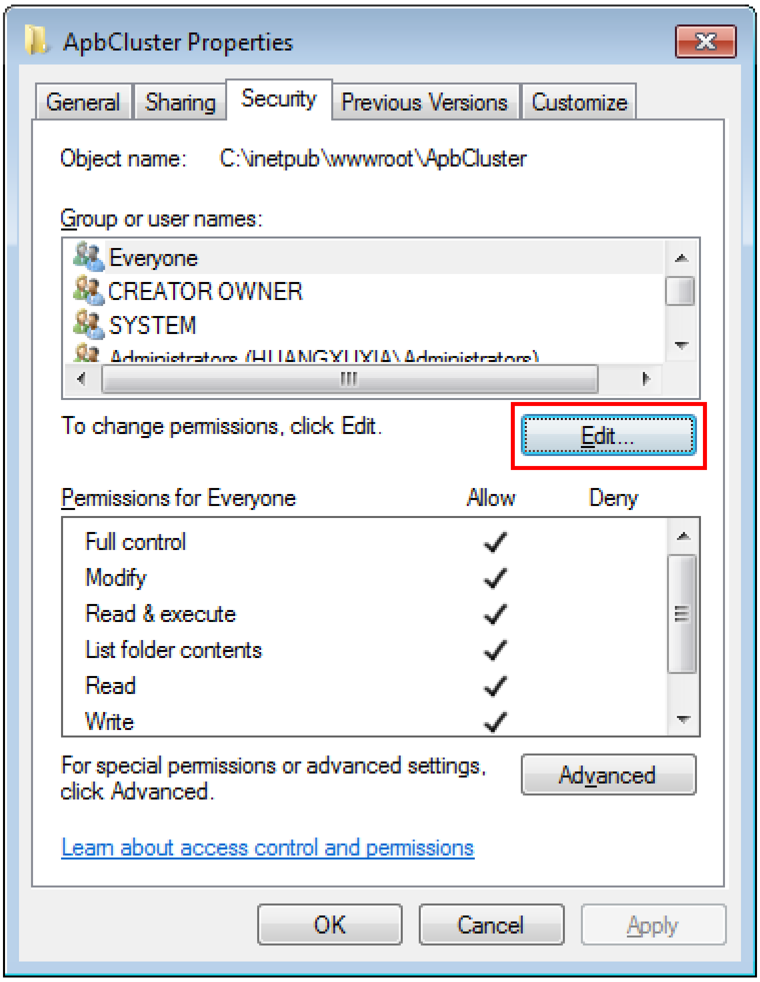
Alias: ApbCluster

Physical path: C:\inetpub\wwwroot\ApbCluster

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

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

Figure 6.25: appeoncluster properties



ApbCluster Properties

Object name: C:\inetpub\wwwroot\ApbCluster

Group or user names:

- Everyone
- CREATOR OWNER
- SYSTEM
- Administrators (HUANGXUXIA\Administrators)

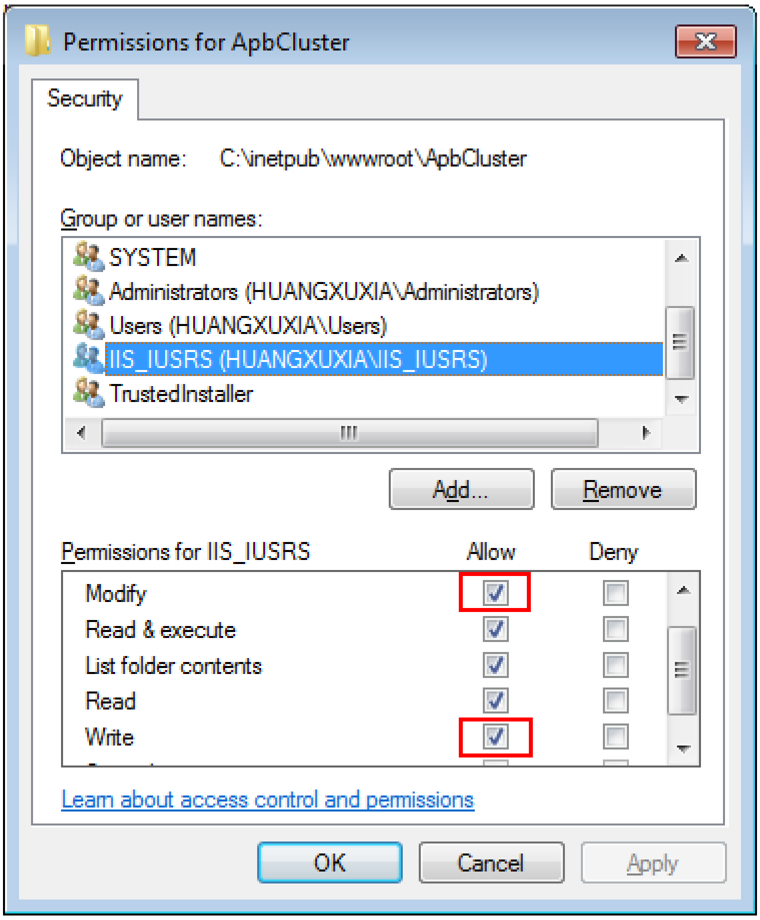
To change permissions, click Edit.

Permissions for Everyone	Allow	Deny
Full control	✓	
Modify	✓	
Read & execute	✓	
List folder contents	✓	
Read	✓	
Write	✓	

For special permissions or advanced settings, click Advanced.

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

Figure 6.26: appeoncluster properties



Permissions for ApbCluster

Security

Object name: C:\inetpub\wwwroot\ApbCluster

Group or user names:

- SYSTEM
- Administrators (HUANGXUXIA\Administrators)
- Users (HUANGXUXIA\Users)
- IIS_IUSRS (HUANGXUXIA\IIS_IUSRS)
- TrustedInstaller

Add... Remove

Permissions for IIS_IUSRS	Allow	Deny
Modify	☑	□
Read & execute	☑	□
List folder contents	☑	□
Read	☑	□
Write	☑	□

Learn about access control and permissions

OK Cancel Apply

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.xm**l file acts as the redirector configuration file which helps the Web server redirect requests to the Appeon Servers according to the IP addresses/ports of Appeon Servers, 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>
        <filter>/AEM</filter>
        <filter>/servlet</filter>
        <filter>/reportfile</filter>
        <filter>/imagefile</filter>
        <filter>/dwfile</filter>
        <filter>/ajsdown</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 Appeon Server 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 an Appeon Server; **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 Appeon Server.

- **port** indicates the port number of the Appeon Server.

5. Installing the Appeon plug-in as ISAPI Filters.

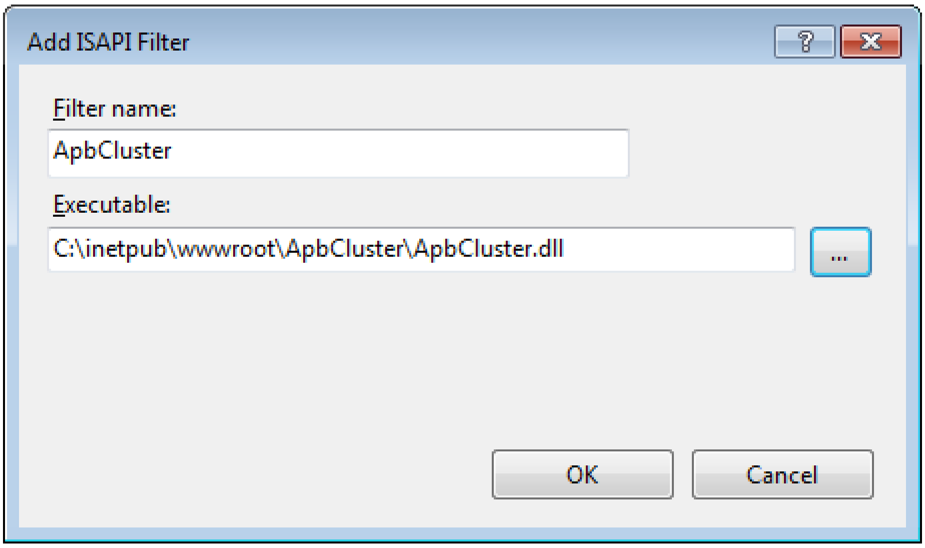
   Step 1: Open **Control Panel | Administrative Tools | Internet Information Service (IIS) Manager**.

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

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

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

Figure 6.27: Add ISAPI filter



Filter name: ApbCluster

Executable: C:\inetpub\wwwroot\ApbCluster\ApbCluster.dll

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

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

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

   Notes:

   - The **Extension_URI** command specifies the location of the virtual directory which contains **ApbCluster.dll** (or **ApbCluster64.dll**), that is /*virtual-directory-alias-name*/ ApbCluster.dll (**/ApbCluster/ApbCluster.dll** in this guide).

   - The **MatchExpression** commands specify the type of pages to redirect.

   - The **Log** command specifies whether to enable logging. On indicates logging is enabled; Off indicates logging is disabled.

   - The commands and parameters are case insensitive.

7. Setting ISAPI and CGI Restrictions.

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

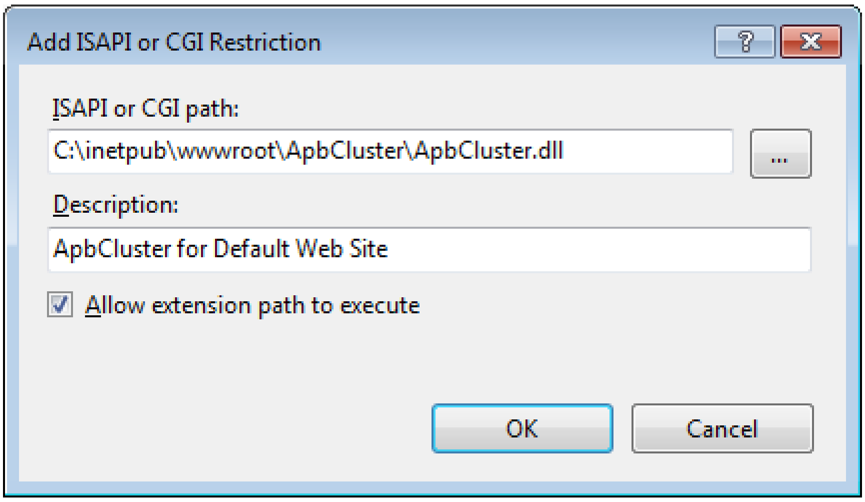
   Step 2: Select the local machine (the top node), and then double-click **ISAPI and CGI Restrictions** on the right side.

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

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

Step 5: Click **OK**.

Figure 6.28: 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

8. Enabling ISAPI-dll.

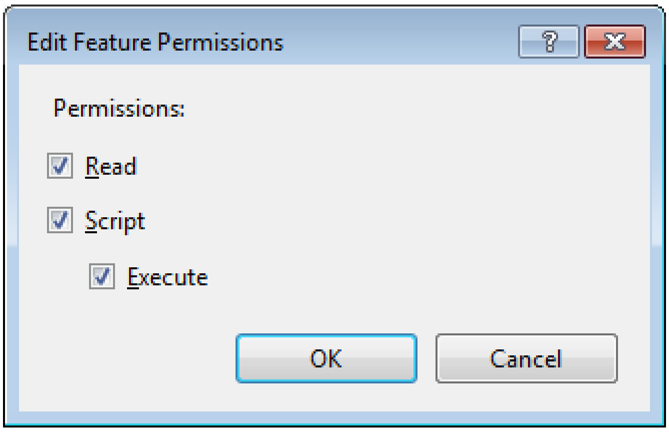
Step 1: Open **Control Panel** | **Administrative Tools** | **Internet Information Services (IIS) Manager**.

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

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

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

Figure 6.29: Edit feature permissions



Edit Feature Permissions

Permissions:

☑ Read

☑ Script

☑ Execute

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

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

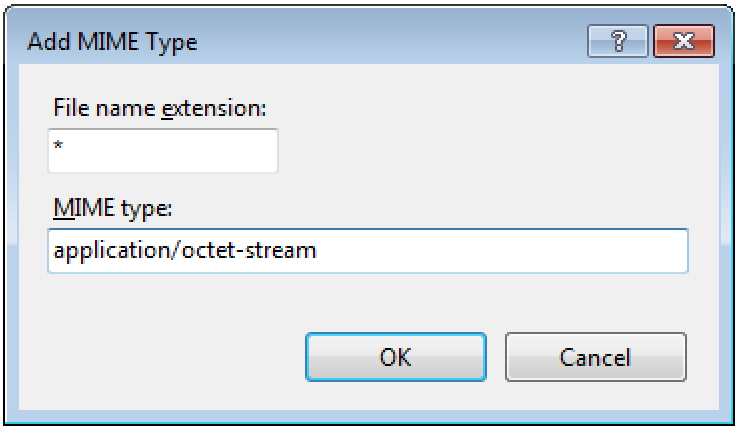
Step 2: Right-click the blank area of the **MIME Types** page, and click **Add**.

Step 3: Specify the following settings:

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

Step 4: Click **OK**.

Figure 6.30: Add MIME type



Add MIME Type

File name extension:

*

MIME type:

application/octet-stream

10.Restarting IIS.

Restart IIS to make the new settings effective.

Configuring IIS 6.0 with J2EE server

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

Choose an existing Web site, or create a new site. The following takes the existing **Default Web Site** as an example.

1. Installing Appeon Server Web component to the Web root of the IIS server.

   Make sure you have installed Appeon Server 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 Appeon Server Web Component (C:\Program Files\Appeon\WebComponent2016) and manually copy the entire **appeon** folder to the IIS Web root.

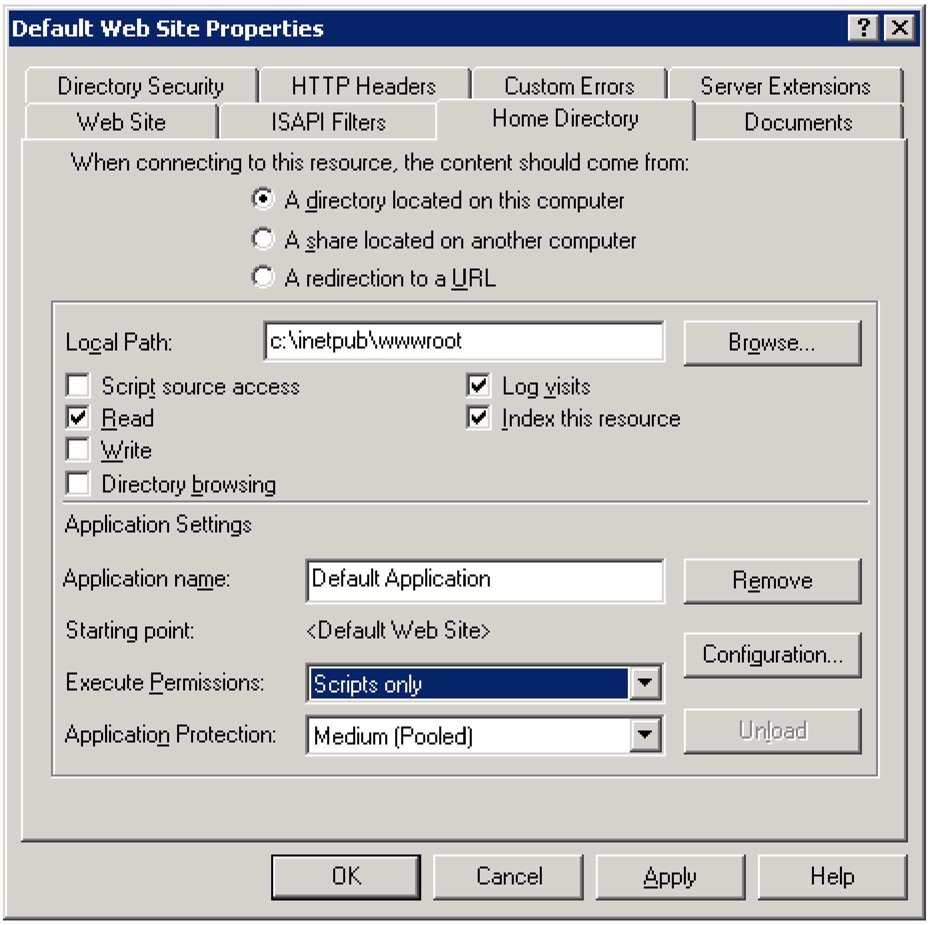
2. Specifying the properties of the IIS Web site.

   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: Click the **Home Directory** tab and select **Scripts only** from the **Execute Permissions** dropdown list.

Figure 6.31: Default Web site properties



Default Web Site Properties

When connecting to this resource, the content should come from:

● A directory located on this computer

○ A share located on another computer

○ A redirection to a URL

Local Path: c:\inetpub\wwwroot

□ Script source access

☑ Read

□ Write

□ Directory browsing

☑ Log visits

☑ Index this resource

Application Settings

Application name: Default Application

Starting point: <Default Web Site>

Execute Permissions: Scripts only

Application Protection: Medium (Pooled)

3. Creating a virtual directory.

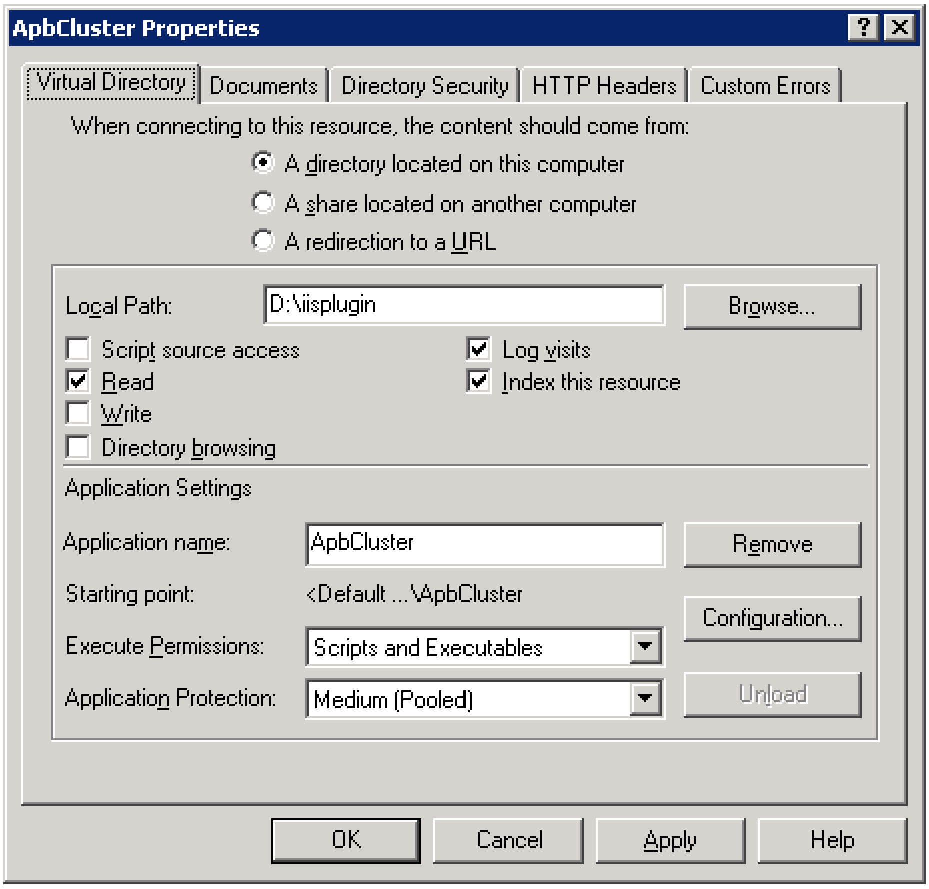
Step 1: Right click **Default Web Site** and select **New**.

Step 2: Click the **Virtual Directory** tab and input **ApbCluster** in the **Application name** box.

Step 3: Choose a local path; for example, *d:\iisplugin*.

Step 4: Enable read, run script, and execute on the virtual directory. Or select **Read** and selecting **Scripts and Executables** from the **Execute Permissions** dropdown list.

Figure 6.32: Apbcluster properties



ApbCluster Properties

When connecting to this resource, the content should come from:

● A directory located on this computer

○ A share located on another computer

○ A redirection to a URL

Local Path: D:\iisplugin

□ Script source access

☑ Read

□ Write

□ Directory browsing

☑ Log visits

☑ Index this resource

Application Settings

Application name: ApbCluster

Starting point: <Default ...\ApbCluster

Execute Permissions: Scripts and Executables

Application Protection: Medium (Pooled)

4. Copying the Appeon plug-in.

   Copy the **ApbCluster.dll** (for 32-bit OS) or **ApbCluster64.dll** (for 64-bit OS) plug-in from **appeon\IISSupport\modules** to the virtual directory: d:\iisplugin.

   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**.

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

   Create the **cluster-config.xml** file in the newly created virtual directory (**d:\iisplugin** in this guide). The **cluster-config.xm**l file acts as the redirector configuration file which helps the Web server redirect requests to the Appeon Servers according to the IP addresses/ports of Appeon Servers, 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>
        <filter>/AEM</filter>
        <filter>/servlet</filter>
        <filter>/reportfile</filter>
        <filter>/imagefile</filter>
        <filter>/dwfile</filter>
        <filter>/ajsdown</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 Appeon Server 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 an Appeon Server; **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 Appeon Server.
- **port** indicates the port number of the Appeon Server.

6. Installing Appeon plug-in as ISAPI Filters.

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

   Step 2: Right click **Default Web Site** and choose **Properties**.

   Step 3: Click the **ISAPI Filters** tab. Click **Add** to add **ApbCluster.dll** (or **ApbCluster64.dll**). Click **OK**.

7. Copying the redirector configuration file (**ApbCluster.cfg**).

   Copy the **ApbCluster.cfg** redirector configuration file from **appeon\IISSupport\conf\** to the virtual directory:d:\iispulgin, 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.

- The commands and parameters are case insensitive.

8. Enabling Web Services Extension.

   Step 1: Click **Web Services Extension** in the IIS Manager.

   Step 2: Select **All Unknown ISAPI Extensions** and click the **Allow** button.

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

   Step 1: Right click the Local computer and select **Properties**.

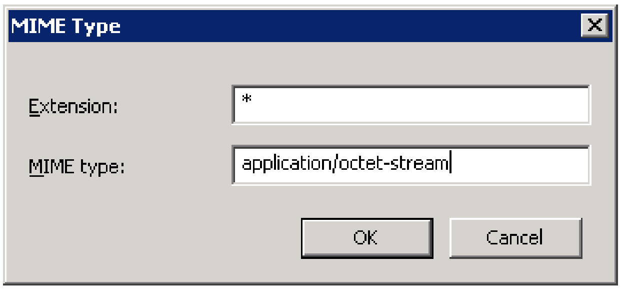
   Step 2: Click the **MIME Types** button.

   Step 3: Click the **New** button and specify the following settings:

   - Extension: *

   - MIME type: application/octet-stream

Figure 6.33: MIME Type



Extension: *

MIME type: application/octet-stream

10.Restarting IIS.

Restart IIS to make the new settings effective.

6.4.2.2 Type 2: Apache Web server

6.4.2.2.1 Manual configuration

Configuring Apache 2.0/22 with J2EE servers

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

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

   Make sure you have installed Appeon Server 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 Appeon Server Web Component (C:\Program Files \Appeon\WebComponent2016) 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 Appeon Server, and <instancename> refers to the name of the Appeon Server instance.

   Note: The **cluster-config.xml** file acts as the redirector configuration file which helps the Web server redirect requests to Appeon Servers according to the IP addresses/ports of Appeon Servers, 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 EAServer, 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 EAServer, WebLogic, WebSphere, JBoss, JEUS etc. The configuration is the same for the J2EE application servers that Appeon supports.

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

   Make sure you have installed Appeon Server 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 Appeon Server Web Component (C:\Program Files \Appeon\WebComponent2016) 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 Appeon Server, 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 Appeon Servers according to the IP addresses/ports of Appeon Servers, and the load balancing algorithm that it stores. This file should not be modified manually as it will be automatically updated when you change the settings in the **Cluster** tool of AEM. Each time after you change the settings, be sure to copy this file and replace the old file in the %APACHE%\conf folder and restart Apache.

4. Modifying httpd.conf.

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

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

5. Restarting Apache.

   Restart Apache for the new settings to take effect.

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

To install an Appeon application to the Appeon Server cluster and Web server(s), you can either deploy the application via the **Appeon Deployment Wizard** (see Chapter 6, *Deploying PowerBuilder Applications* in *Appeon Developer User Guide*, or run the deployment project generated by using the **Appeon Application Package Wizard** (see Section 11.3, “Packaging a stand-alone mobile project” in *Appeon Developer User Guide*. This section will talk about how to install an application by running the deployment project generated via the **Appeon Application Package Wizard**.

6.5.1 Points to note before installation

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

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

- The target Web servers must have the Appeon Server Web Component correctly installed.

- The packaged EAServer components, if any, can only be installed to EAServer application server.

6.5.2 Installing an application

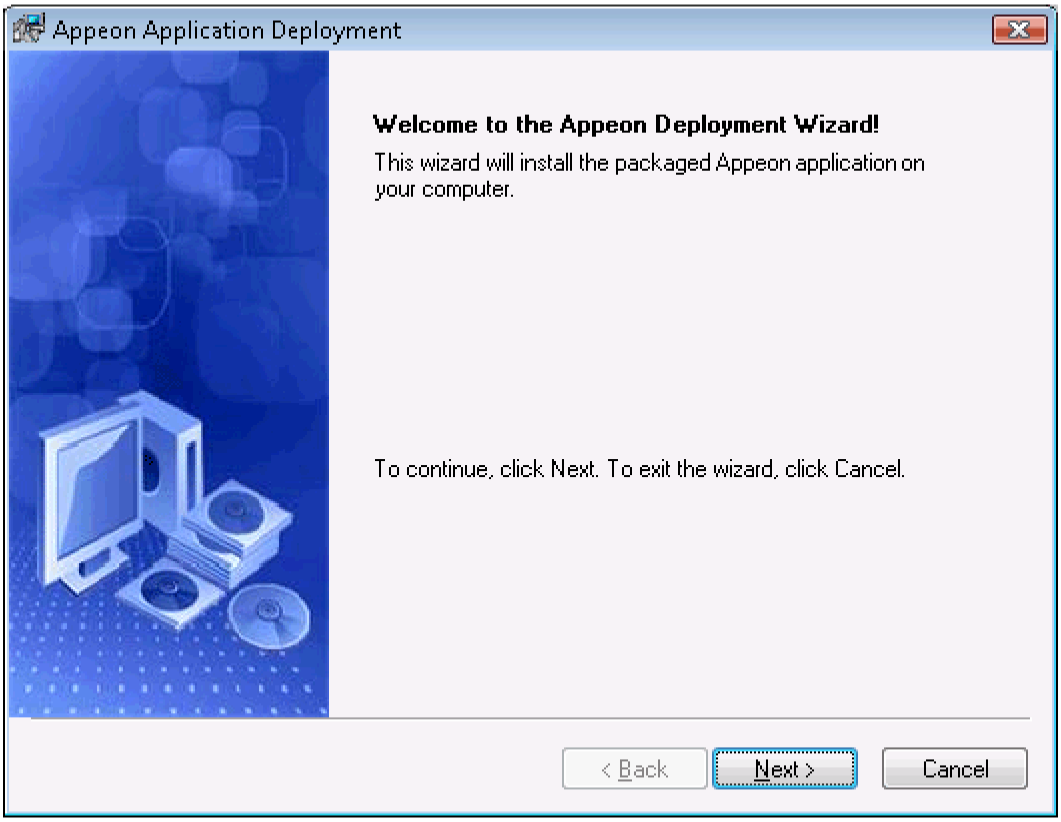
You can copy the generated package to any computer running Windows and install the application to any number of Appeon Servers and Web servers. Installing an application using the generated package is the same as deploying an application using the **Appeon Deployment Wizard**.

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

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

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

Figure 6.34: Welcome page



Appeon Application Deployment

Welcome to the Appeon Deployment Wizard!

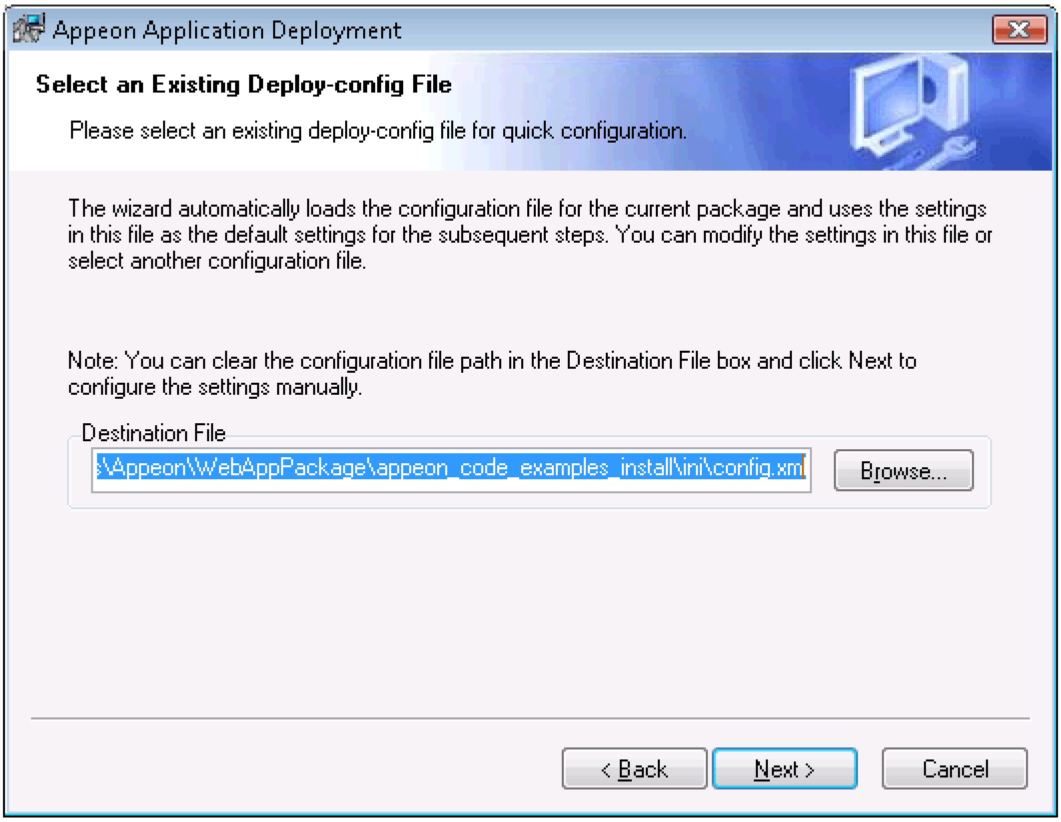
This wizard will install the packaged Appeon application on your computer.

To continue, click Next. To exit the wizard, click Cancel.

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

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

Figure 6.35: Select the configuration file



Select an Existing Deploy-config File

Please select an existing deploy-config file for quick configuration.

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.

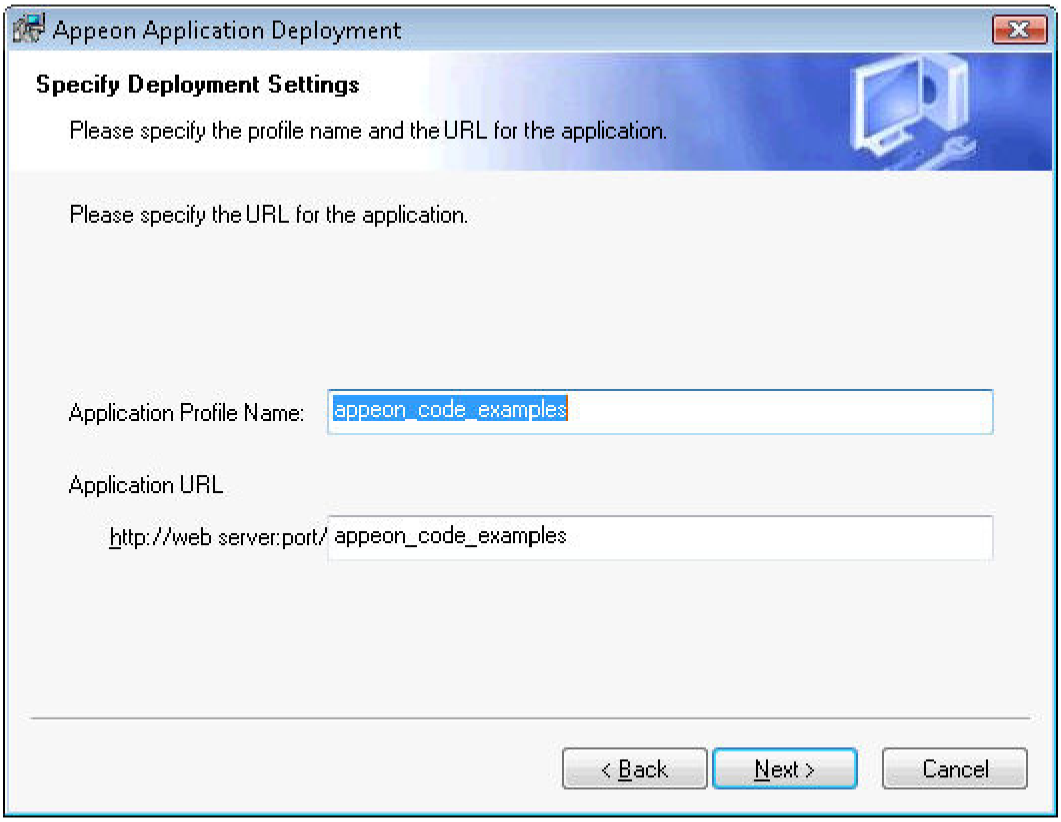
Note: You can clear the configuration file path in the Destination File box and click Next to configure the settings manually.

Destination File: :\Appeon\WebAppPackage\appeon_code_examples_install\ini\config.xml

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.

Figure 6.36: Specify Application Profile Name and Application URL



Please specify the profile name and the URL for the application.

Please specify the URL for the application.

Application Profile Name: appeon_code_examples

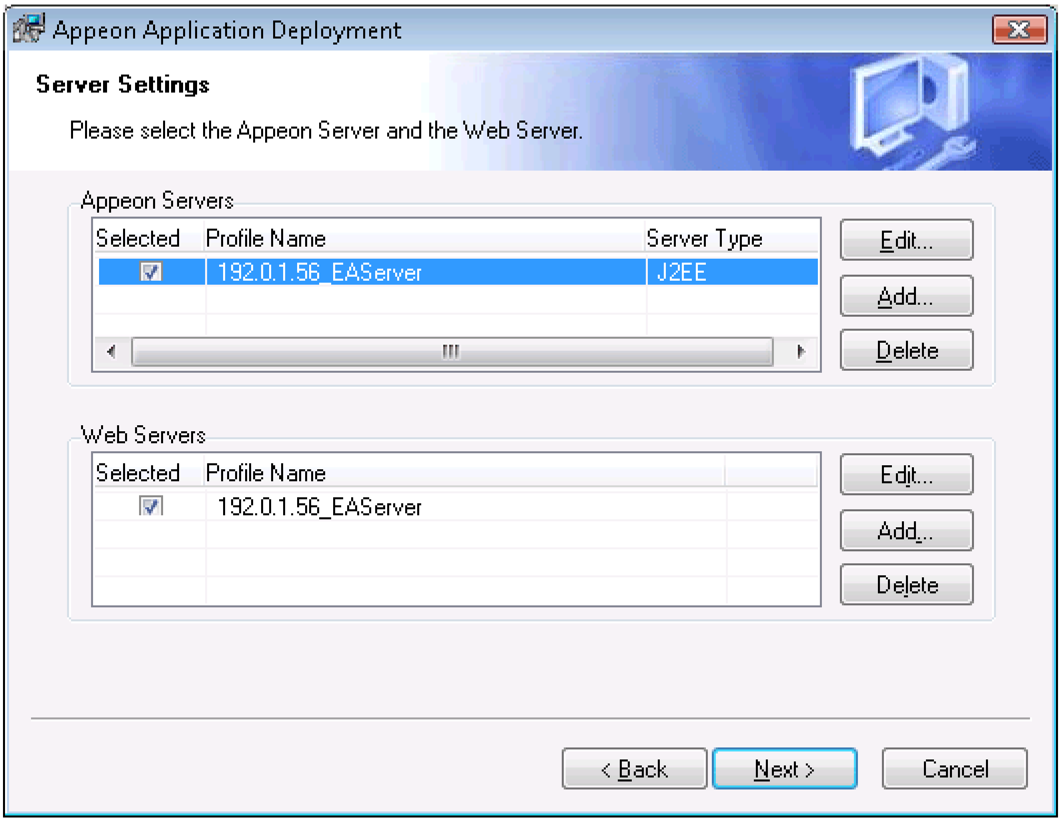
Application URL

http://web server:port/ appeon_code_examples

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

To install the application to an Appeon Server cluster, please create an Appeon Server profile for each Appeon Server in the cluster. For detailed instructions on how to create the Appeon Server profile and Web server profile, refer to Section 4.2.3, “Managing server profiles” in *Appeon Developer User Guide*.

Figure 6.37: Specify server settings



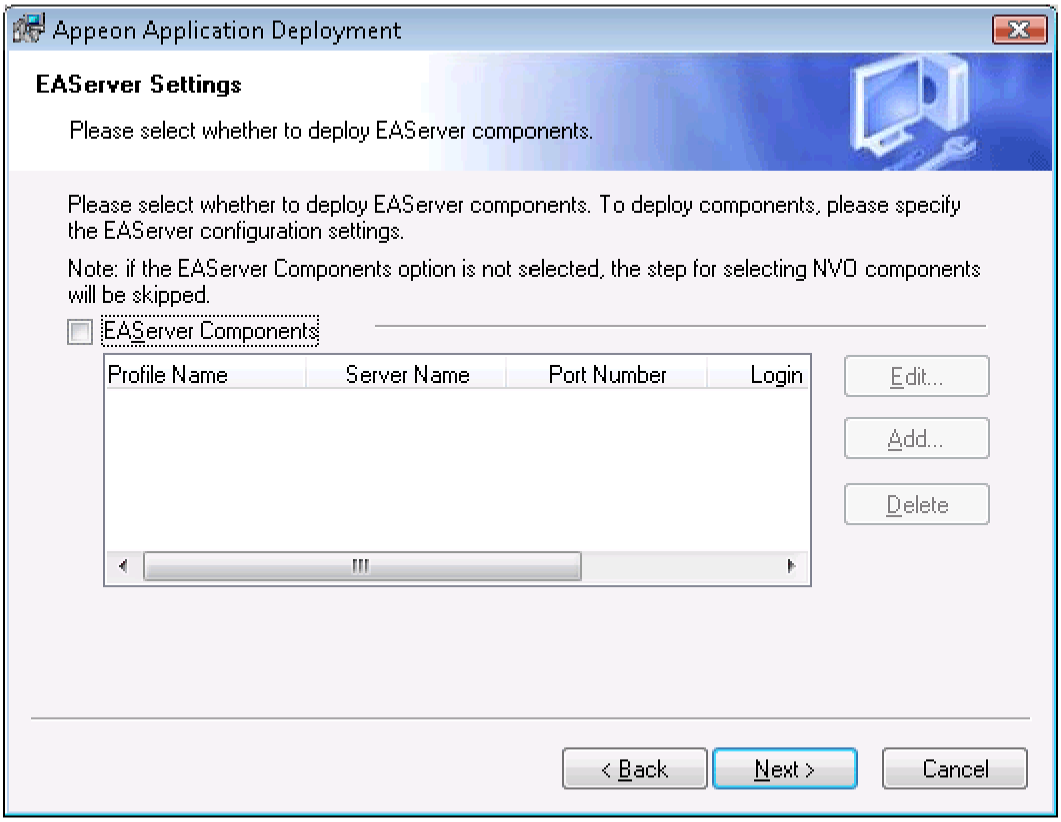
Selected	Profile Name	Server Type
☑	192.0.1.56_EAServer	J2EE

Selected	Profile Name
☑	192.0.1.56_EAServer

Step 6: Select whether to deploy EAServer components.

After NVO components are deployed, you must generate stub/skeleton in EAServer. Detailed instructions are provided in Section 5.2.1, “Generating Stub/Skeleton in EAServer” in *Migration Guidelines for Appeon Web (Web only)*.

Figure 6.38: Specify EAServer settings



Appeon Application Deployment

EAServer Settings

Please select whether to deploy EAServer components.

Please select whether to deploy EAServer components. To deploy components, please specify the EAServer configuration settings.

Note: if the EAServer Components option is not selected, the step for selecting NVO components will be skipped.

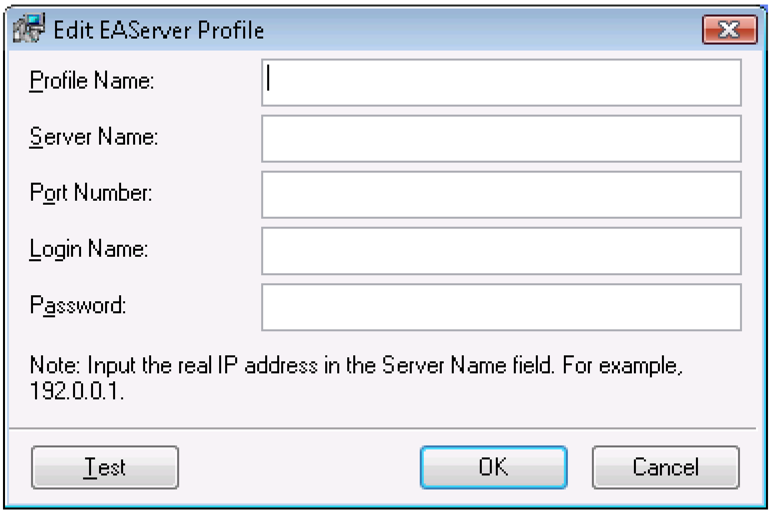
□ EAServer Components

Profile Name	Server Name	Port Number	Login

If EAServer components are used in the application, select the *EAServer Components* option and then create connection profiles for EAServers where you want to deploy the components. Follow instructions below to create EAServer profiles:

- Click **Add** to open the Edit EAServer Profile dialog box.
- Input the connection parameters: profile name, host name or IP address, port number, user name and password.
- Click **Test** to verify the connection and the click **OK** to finish the creation.

Figure 6.39: Edit EAServer Profile



Edit EAServer Profile

Profile Name:

Server Name:

Port Number:

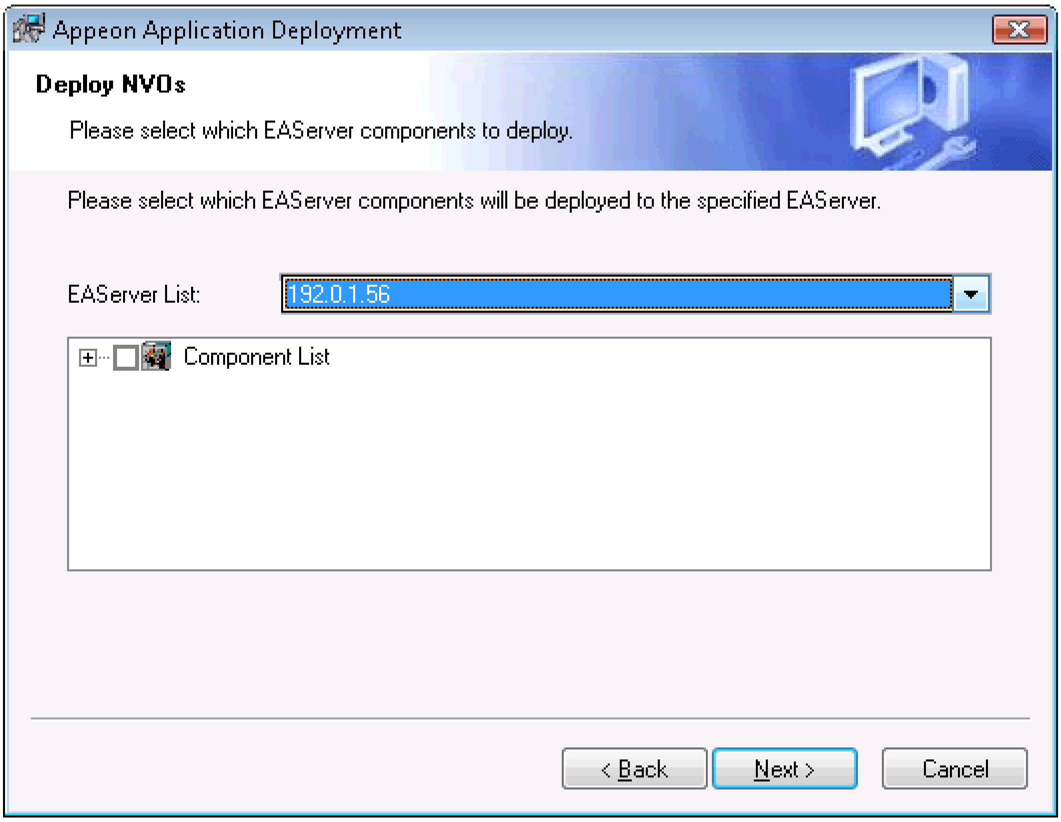
Login Name:

Password:

Note: Input the real IP address in the Server Name field. For example, 192.0.0.1.

Step 7: If the **EAServer Components** option is selected in the previous step, select the EAServer profile from the list and the components to deploy. Click **Next** to proceed.

Figure 6.40: Deploy NVOs



Appeon Application Deployment

Deploy NVOs

Please select which EAServer components to deploy.

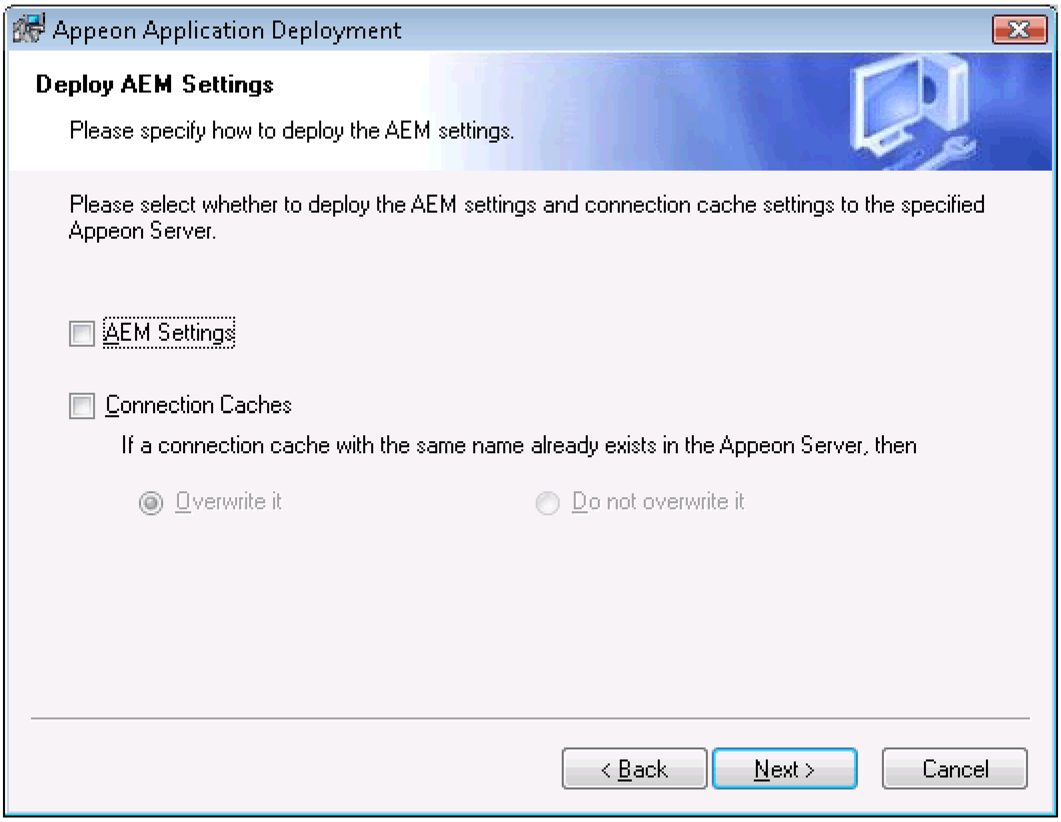
Please select which EAServer components will be deployed to the specified EAServer.

EAServer List: 192.0.1.56

□ Component List

Step 8: Select whether to install AEM settings and data sources for the current application and click **Next**.

Figure 6.41: Deploy AEM settings



Appeon Application Deployment

Deploy AEM Settings

Please specify how to deploy the AEM settings.

Please select whether to deploy the AEM settings and connection cache settings to the specified Appeon Server.

□ AEM Settings

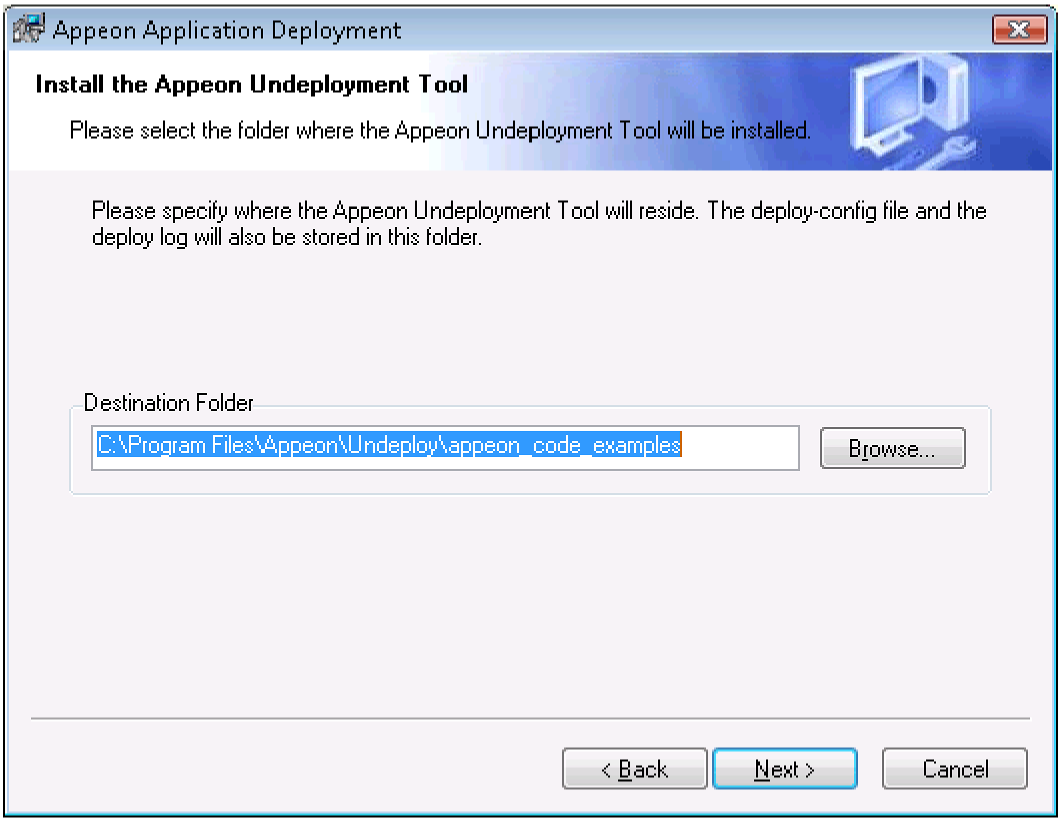
□ Connection Caches

If a connection cache with the same name already exists in the Appeon Server, then

● Overwrite it ○ Do not overwrite it

Step 9: Specify the destination folder for the undeployment tool and the log file and click **Next**.

Figure 6.42: Specify location for the Appeon Undeployment Tool



Appeon Application Deployment

Install the Appeon Undeployment Tool

Please select the folder where the Appeon Undeployment Tool will be installed.

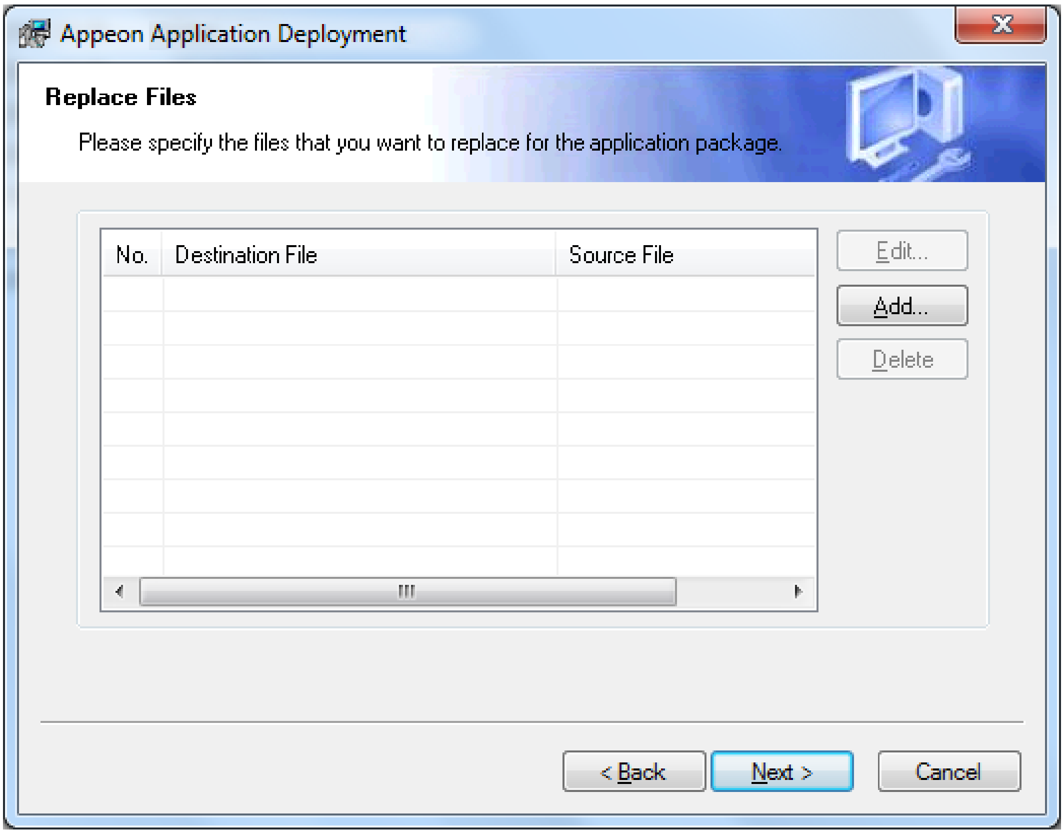
Please specify where the Appeon Undeployment Tool will reside. The deploy-config file and the deploy log will also be stored in this folder.

Destination Folder: C:\Program Files\Appeon\Undeploy\appeon_code_examples

Step 10: Specify the destination file and source file that you want to replace for the Appeon application package, and click **Next**.

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

Figure 6.43: Specify files to replace for the application package



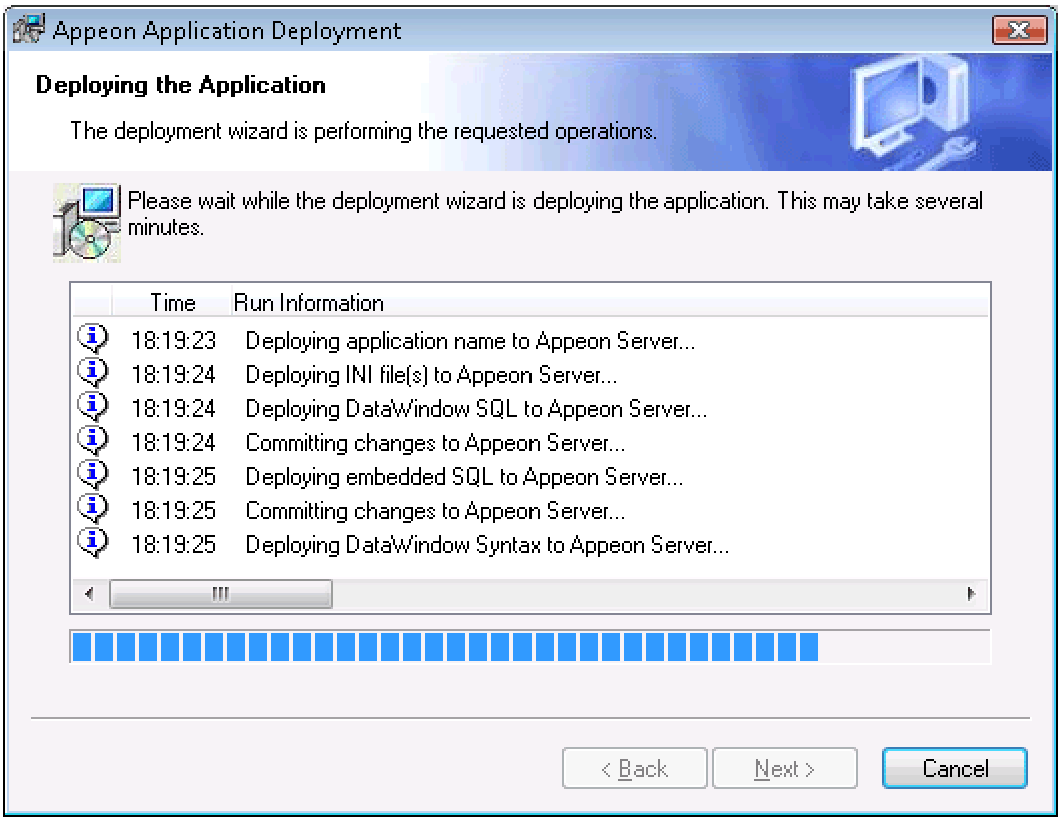
Appeon Application Deployment

Replace Files

Please specify the files that you want to replace for the application package.

Step 11: Wait while the wizard is installing files and settings.

Figure 6.44: Deploying the application



Deploying the Application

The deployment wizard is performing the requested operations.

Please wait while the deployment wizard is deploying the application. This may take several minutes.

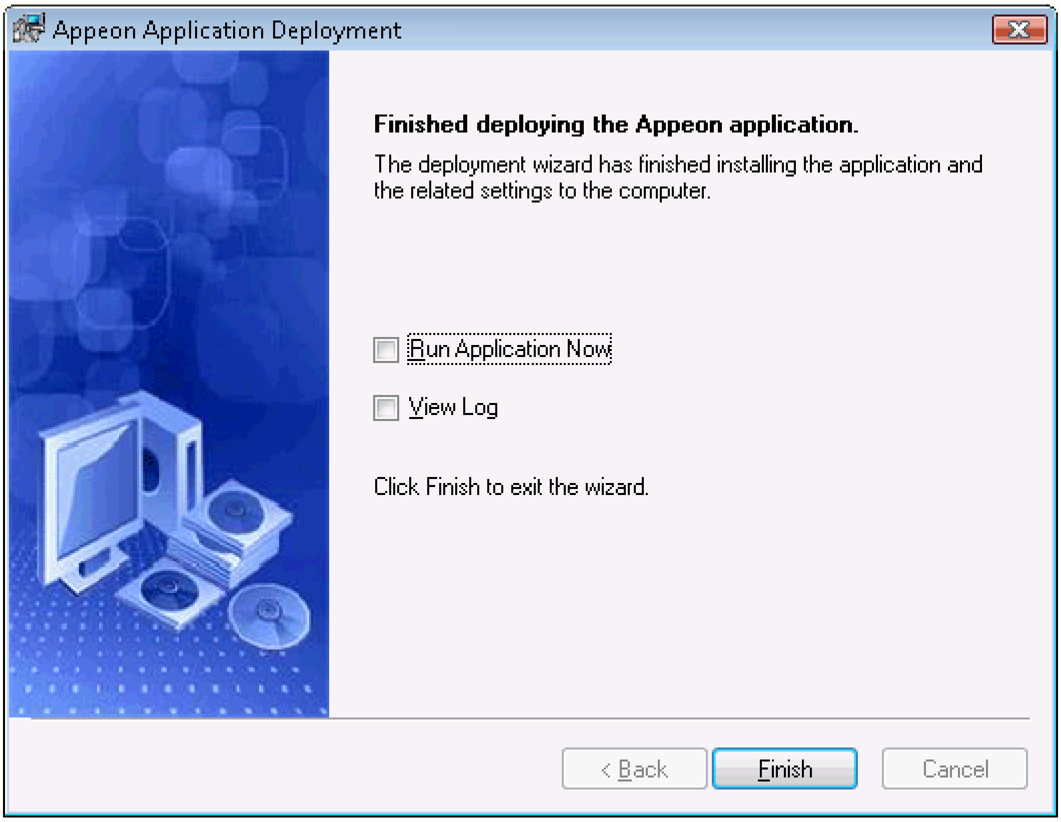
Time	Run Information
18:19:23	Deploying application name to Appeon Server...
18:19:24	Deploying INI file(s) to Appeon Server...
18:19:24	Deploying DataWindow SQL to Appeon Server...
18:19:24	Committing changes to Appeon Server...
18:19:25	Deploying embedded SQL to Appeon Server...
18:19:25	Committing changes to Appeon Server...
18:19:25	Deploying DataWindow Syntax to Appeon Server...

Step 12: Once the operation is complete, click **Finish** to exit the installation wizard.

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

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

Figure 6.45: Deployment complete



Finished deploying the Appeon application.

The deployment wizard has finished installing the application and the related settings to the computer.

☐ Run Application Now

☐ View Log

Click Finish to exit the wizard.

Index