PowerServer Mobile Offline Tutorials

Appeon® PowerServer® 2017

FOR WINDOWS & UNIX & LINUX

Contents

1 About This Book

1.1 Audience

This book is intended for users who want to set up the PowerServer Mobile environment, and deploy and run the offline application.

1.2 How to use this book

There are six chapters in this book.

Chapter 1: About This Book

A general description of this book

Chapter 2: Tutorial 1: Set up the Environment

Detailed instructions for setting up the PowerServer Mobile 2017 environment.

Chapter 3: Tutorial 2: Create a local database

High-level instructions for creating an UltraLite database and a SQLite database.

Chapter 4: Tutorial 3: Modify the PB App

Detailed instructions for modifying the PowerBuilder application to enable offline capabilities.

Chapter 5: Tutorial 4: Config, Deploy & Run the Offline App

Detailed instructions for configuring the application to have offline capabilities, and deploying and running the application on mobile devices.

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High-level guidelines for using APIs to update the offline application.

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High-level guidelines for developing and debugging the offline application.

1.3 Related documents

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

• Introduction to Appeon:

  Gives general introduction to Appeon PowerServer and its editions.

• Getting Started (for PowerServer Mobile):

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

• New Features Guide:

  Introduces new features and changes in Appeon PowerServer.

- PowerServer Mobile Tutorials:

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

- PowerServer Mobile (Offline) Tutorials:

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

- Appeon Installation Guide:

  Provides instructions on how to install Appeon PowerServer successfully.

- Mobile UI Design & Development Guide:

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

- Migration Guidelines for PowerServer Web:

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

- Supported PB Features:

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

- PowerServer Toolkit User Guide:

  Provides instructions on how to use the PowerServer Toolkit in Appeon PowerServer.

- Workarounds & API Guide:

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

- Appeon Workspace User Guide:

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

- PowerServer Configuration Guide:

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

- Web Server Configuration Guide:

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

- Troubleshooting Guide:

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

• Appeon Performance Tuning Guide:

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

• Testing Appeon Web Applications with UFT:

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

1.4 If you need help

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

2 Tutorial 1: Set up the Environment

In this tutorial, you will go through the tasks to set up the PowerServer Mobile environment for running the offline mobile application.

2.1 Task 1: Prepare the machine

The simplest scenario will be used in this tutorial, which requires 1 Windows PC and 1 iPad or iPhone.

- **1 Windows PC**: used as the development machine, the application server (PowerServer), and the synchronization server (MobiLink Server)

- **1 iPad or iPhone**: used as the mobile client

The **PowerServer Mobile for .NET** edition will be used to walk you through this tutorial, so please prepare the environment according to the following requirements.

Software requirements for **Windows PC**:

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

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

- PowerBuilder 2017

- .NET Framework 4.x

  Download the .NET Framework 4.0 setup program from http://www.microsoft.com/en-us/download/details.aspx?id=17718.

- IIS 7.5

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

- (for UltraLite only) MobiLink Server 17

  To synchronize a local UltraLite database with the server-side database, you must install MobiLink Server 17 which is included in SQL Anywhere 17. If your UltraLite and MobiLink server are not at the required version (UltraLite 17 and MobiLink server 17), you will need to upgrade them according to the SQL Anywhere 17 help.

  IMPORTANT: If you are new to the MobiLink Server, it will be helpful for you to read this article first: http://support.appeon.com/index.php?/Knowledgebase/Article/View/63/16/how-to-deploy-the-mobilink-offline-application.

- Internet Explorer 8, 9, 10, or 11

- PowerServer Mobile 2017

  Install PowerServer and PowerServer Toolkit. See Task 2: Install PowerServer & PowerServer Toolkit.

Software requirements for the iPad or iPhone:

- Apple iOS 9 or 10

- Appeon Workspace

  See Task 3: Install Appeon Workspace (on the iPad or iPhone).

- UltraLite 17 or SQLite 3.x database

  The database will be automatically downloaded from the server to the mobile device when the application is installed, if you have successfully configured the database in PowerServer Toolkit and deployed it along with the application to server. See Task 3: Configure the offline settings in Tutorial 4 for how to configure the UltraLite or SQLite database in PowerServer Toolkit.

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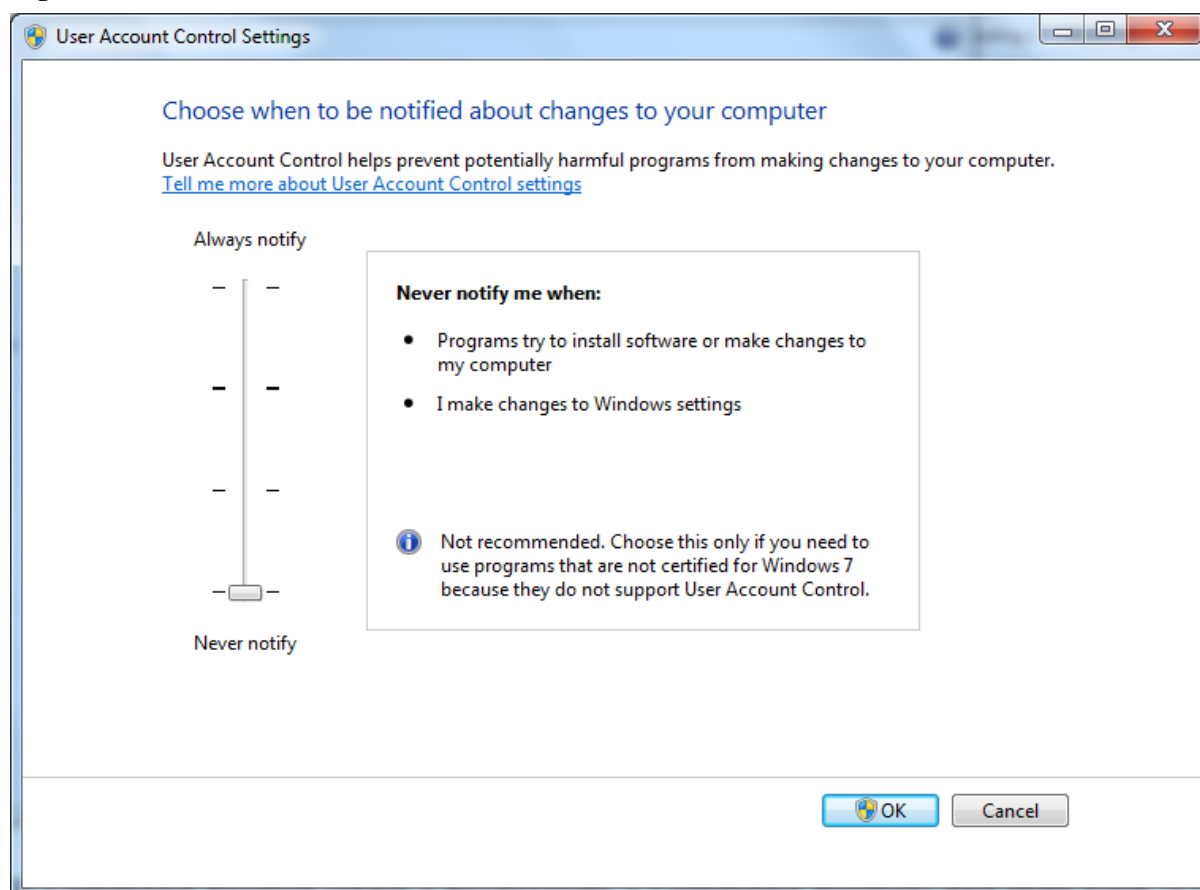
2.1.2 Task 1.2: Uninstall previous version of 64-bit Appeon

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

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

Figure 2.2: Stop the entire IIS Manager
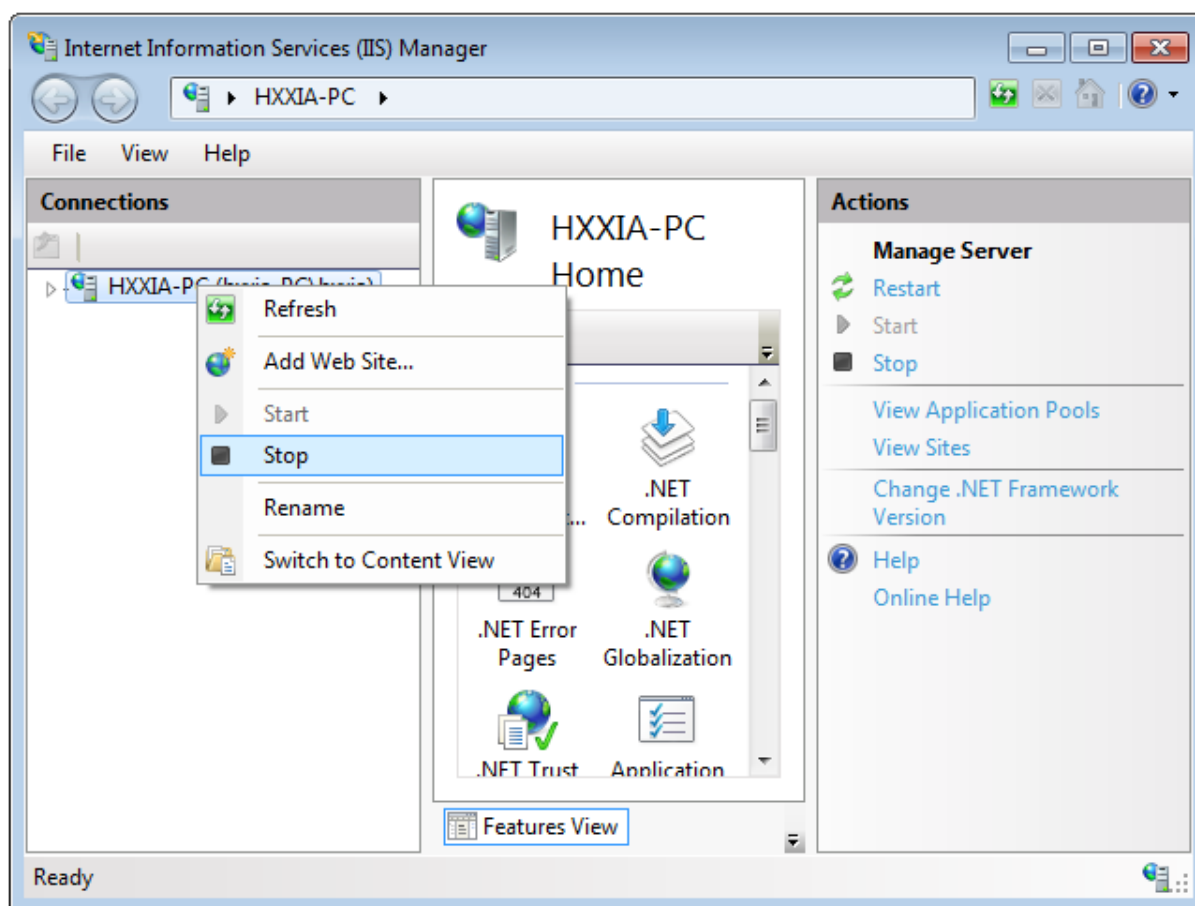
Step 2: Close any opened window, especially **PowerBuilder** and **IIS Manager**.

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

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

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

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

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

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

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

Step 8: Restart the machine.

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

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

2.1.3 Task 1.3: Install IIS

IIS 7.5 is not installed on Windows 7 by default. You need to manually install it. Before you install IIS 7.5 make sure you have installed .NET Framework 4.0. If it is not installed please download the setup program from http://www.microsoft.com/en-us/download/details.aspx? id=17718 and install .NET Framework 4.0 first.

Below are steps for installing IIS.

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

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

Figure 2.3: Select the Web Management Tools
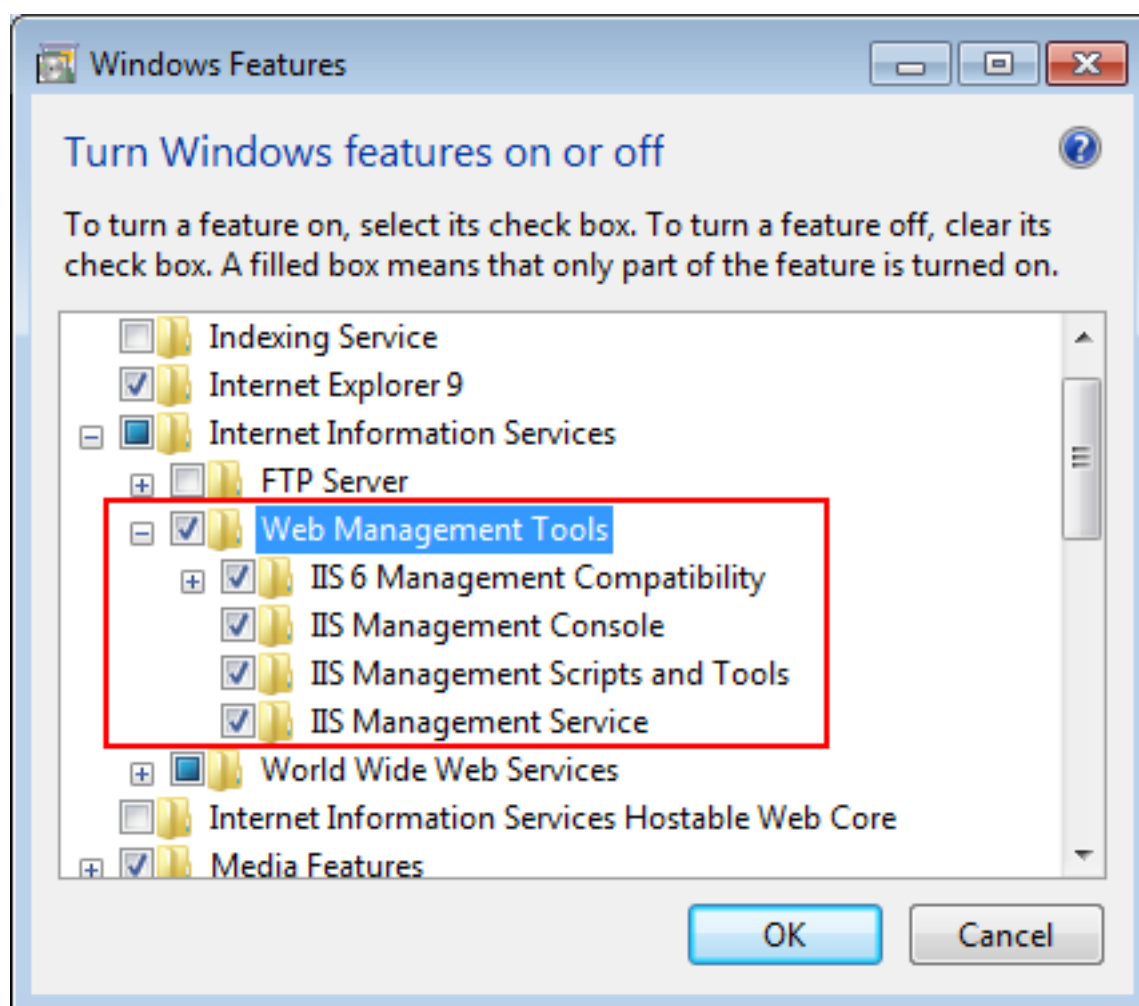
Figure 2.4: Select the Application Development Features
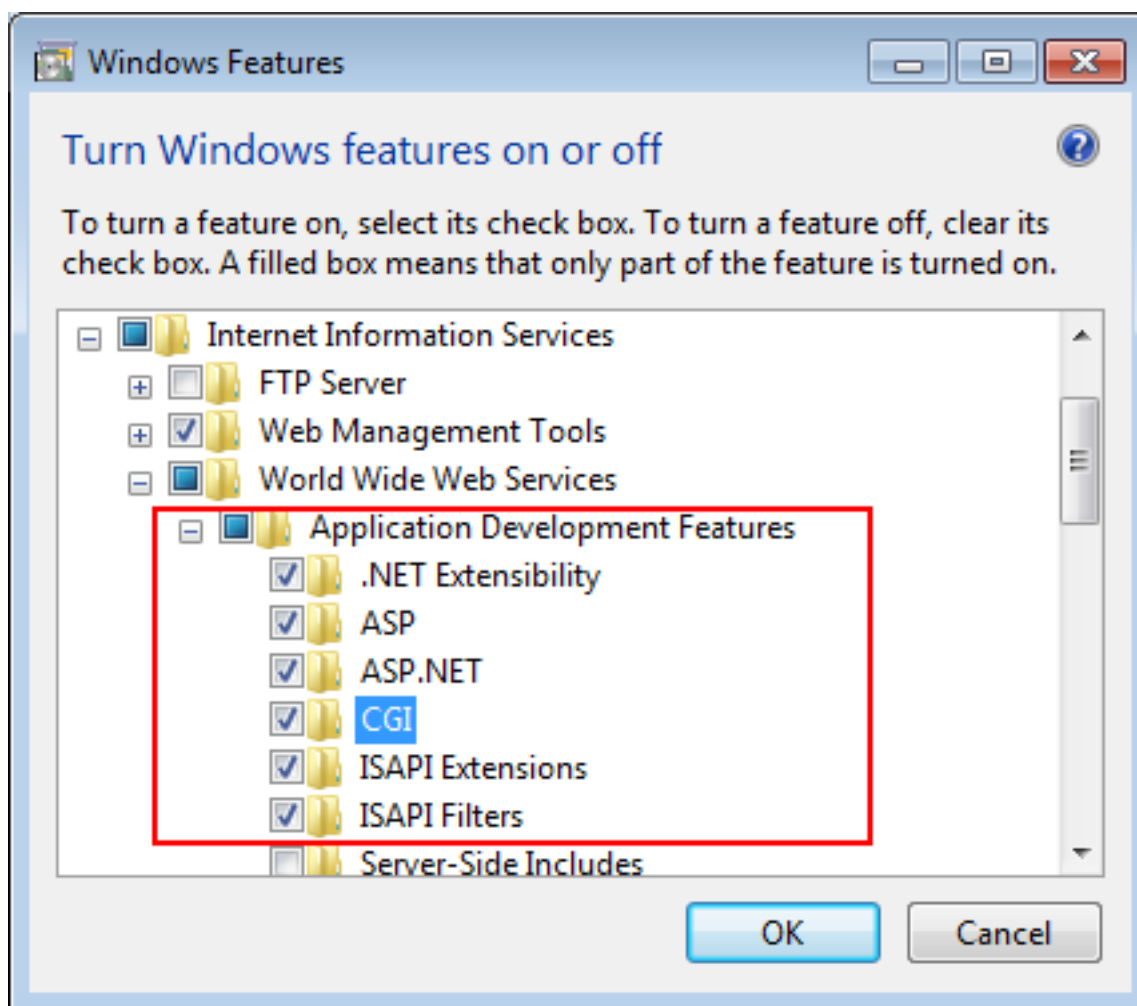
Figure 2.5: Select the Common HTTP Features
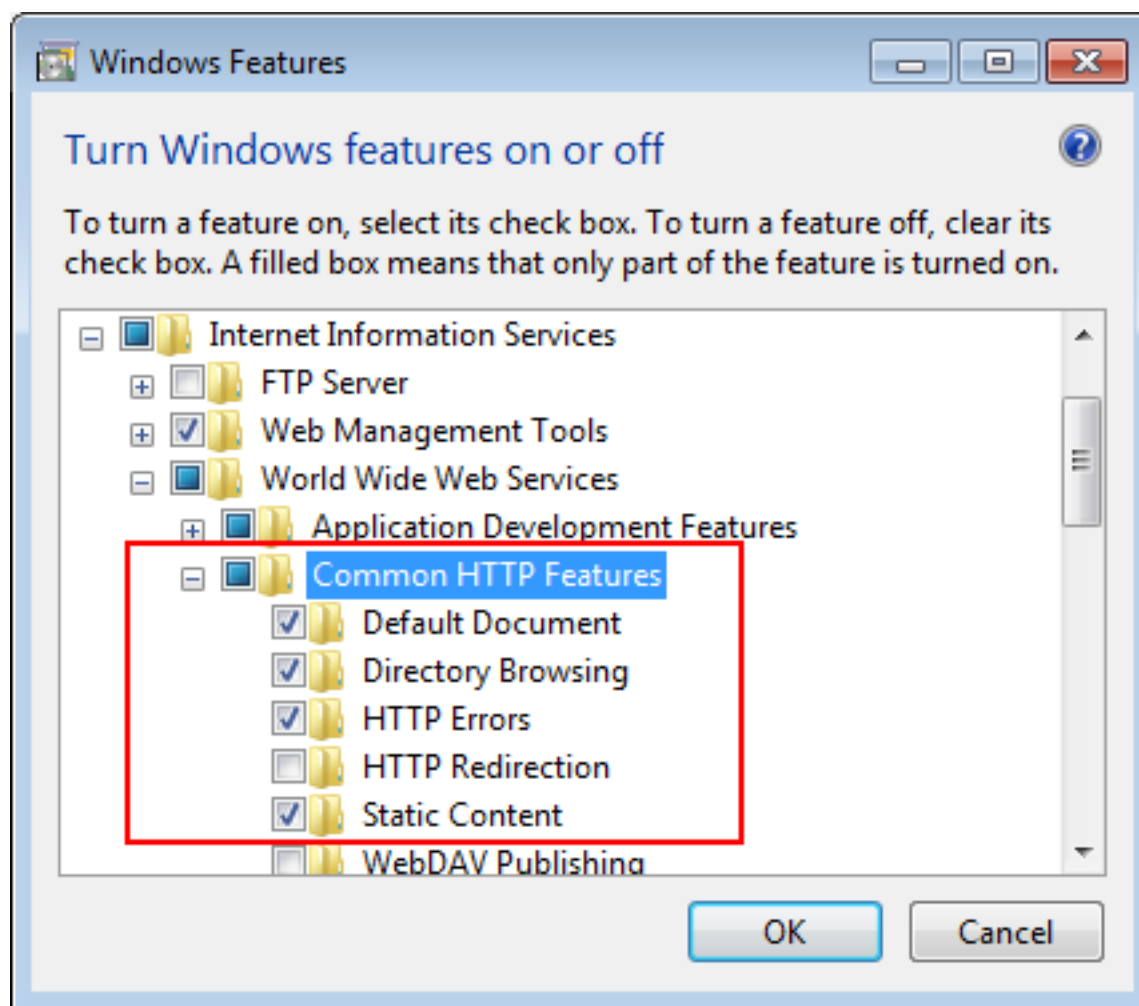
Step 3: After IIS is installed, go to **IIS Manager**, right click the **Default Web Site**, select **Binding**, and make sure **IP Address** is indicated with an asterisk "*". If not, please click **Edit** and select **All Unassigned** for the IP address, this will mark **IP address** as an asterisk "*".

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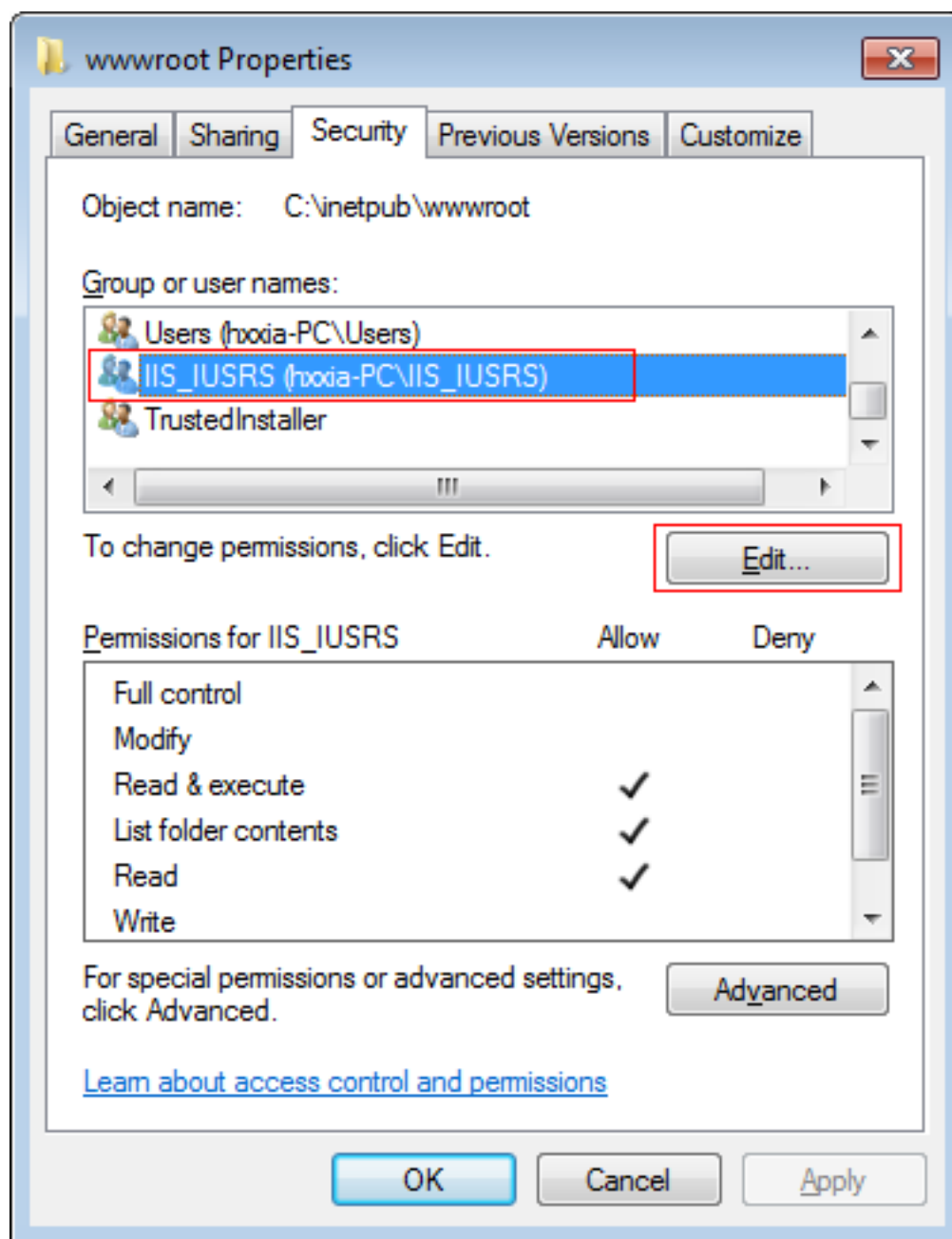
Step 3: Select **IIS_IUSRS** in the **Group or user names** list box, and then select the **Allow** check box for the **Full control**.

Figure 2.7: Select Full control for IIS_IUSRS
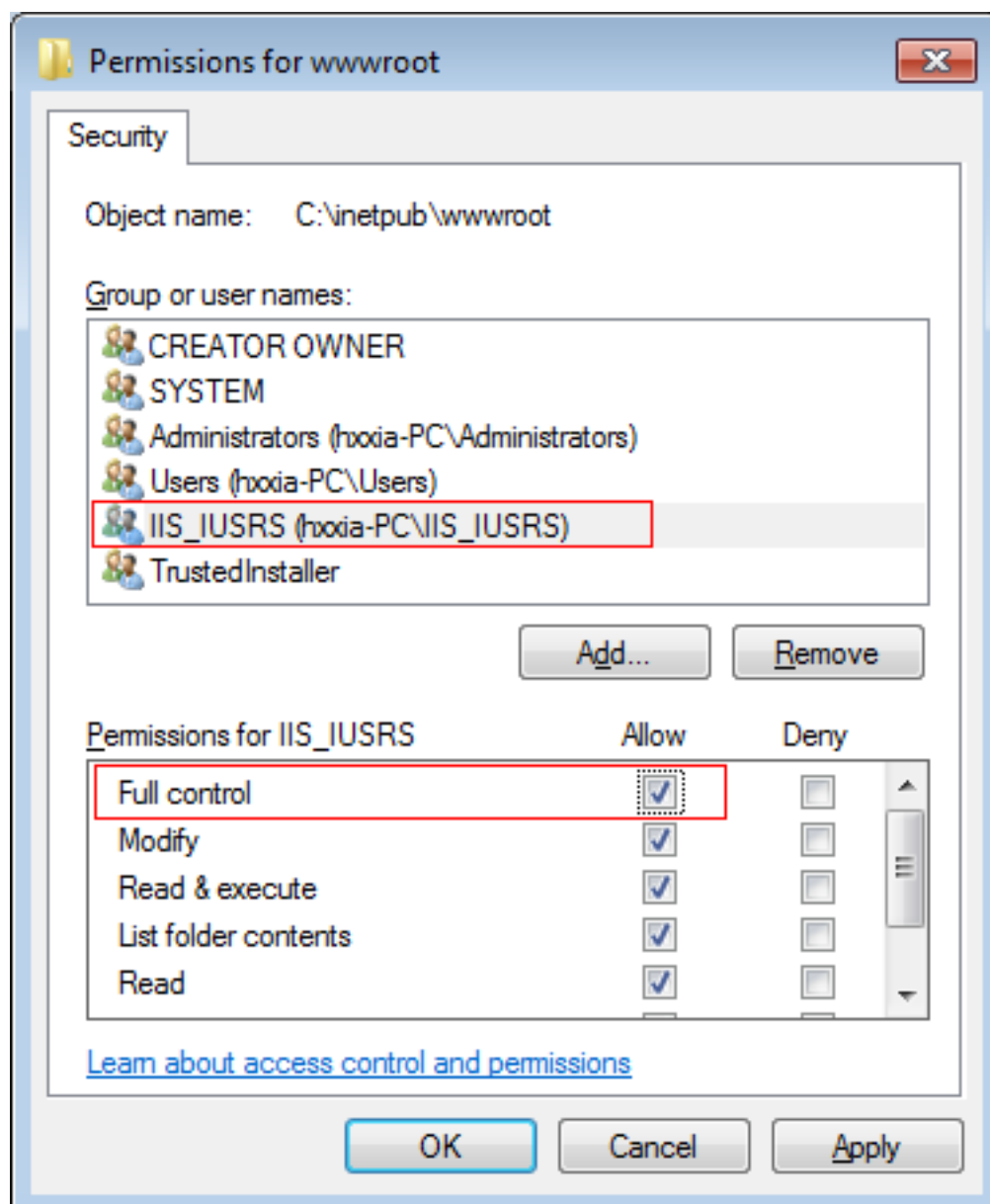
Step 4: Click **OK** to save the settings.

2.2 Task 2: Install PowerServer and PowerServer Toolkit

2.2.1 Task 2.1: Install PowerServer and PowerServer Toolkit

On the Windows PC, install **PowerServer** and **PowerServer Toolkit** by the following steps.

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

Step 2: Launch the 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 **PowerServer for .NET** and **PowerServer Toolkit** are selected.

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

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

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

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

When PowerServer installation is completed, PowerServer Toolkit installation automatically starts.

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

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

2.2.2 Task 2.2: Verify the installation

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

2.3 Task 3: Install Appeon Workspace (on the iPad or iPhone)

Step 1: Make sure your iPad or iPhone can connect to Internet.

Step 2: On your iPad or iPhone, 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 iPad or iPhone via iTunes.

2.4 Task 4: Configure the network connection

The offline mobile application will connect with PowerServer for the first time it runs, therefore, make sure your iPad/iPhone can connect with PowerServer.

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

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

3 Tutorial 2: Create a local database

The local database can be either an UltraLite 17 database or a SQLite 3.x database. This section will only provide useful links where you can find detailed instructions to create an UltraLite database or a SQLite database for use on the local mobile device, because this is a non-Appeon task.

3.1 Create an UltraLite database

There are many different ways to create an UltraLite database for mobile devices, as described in the SQL Anywhere online documentation.

Appeon recommends you go through this article where Appeon put together the most relevant topics to guide you through creating a local UltraLite database from the MobiLink synchronization model, creating the MLSync synchronization objects in PowerBuilder, and deploying the app and the database thru Appeon.

It is also worth mentioning that when you create an UltraLite database, make sure that you keep its character sets to the default UTF-8, and that the character sets used in this UltraLite database and the consolidated database are compatible and with the same length, otherwise data could be lost or become altered in unexpected ways during the synchronization.

3.2 Create a SQLite database

You can either use the SQLite command-line utility named **sqlite3.exe** to create and manage the SQLite database, or choose from the list of management tools to create and manage the database.

4 Tutorial 3: Modify the PB App

This tutorial will walk you through modifying the original PB application so that after deployed to mobile it can connect with the local UltraLite/SQLite database and synchronize the local UltraLite database with the server-side consolidated database.

4.1 Connect with the local database

The following instructions are applicable to both the UltraLite database and the SQLite database.

To connect with the local database, you should first add a special parameter called **EnabledLocalDB** to allow the mobile application to establish a local database connection, this is described in this section, and then you should configure the connection settings for the local database in PowerServer Toolkit, this is described in Task 3: Configure the offline settings in Tutorial 4.

Step 1: Add the **EnabledLocalDB** parameter to the **DBParm** property of the transaction object, and set its value to **True** (or **Yes** or **1**). For example,

```
SQLCA.DBMS = "ODBC"
SQLCA.AutoCommit = False
SQLCA.DBParm =
 "ConnectString='DSN=Mobile15TestDB;UID=DBA;PWD=sql'; EnabledLocalDB='true'"
```

Notes:

- **EnabledLocalDB** could have the following value pairs: 'true'/'false', 'yes'/'no', 1/0. When it is set to 'true', 'yes' or 1, it indicates that the mobile app is able to connect with the local/offline database on the mobile device.

- The **EnabledLocalDB** parameter is specially provided and supported by PowerServer Mobile only, therefore, it will be ignored when executed in the PB application and the Web application, and will only take effect when executed in the mobile application.

- The **ConnectString** parameter will be ignored when executed in the mobile application, because the connection with the local database (such as user name, password etc.) is configured separately in PowerServer Toolkit. For details, refer to Task 3: Configure the offline settings in Tutorial 4.

Step 2: Choose the method to connect with the local/offline database: by using the PB transaction object or by using the **CacheName** parameter of the PB transaction object, according to the database connection scenarios in the application.

Scenario 1: Connect with one local database in one transaction object. This method requires no special coding. You only need to input the transaction object name and configure the database file in PowerServer Toolkit. For detailed instructions, refer to Task 3: Configure the offline settings in Tutorial 4.

Scenario 2: Connect with more than one local database in one transaction object. This method requires special coding as well as configuration in PowerServer Toolkit. You will first need to create the data source for the corresponding database file in PowerServer

Toolkit; if there are multiple local databases, then you should create multiple data sources; and then you need to add the **CacheName** parameter to the **DBParm** property of the transaction object and set its value to the data source.

For detailed instructions on how to create the data source in PowerServer Toolkit, refer to Task 3: Configure the offline settings in Tutorial 4. The **CacheName** parameter will take precedence over the transaction object if both transaction object and data source are configured in PowerServer Toolkit.

Here is the PowerBuilder code example for using the **CacheName** parameter to connect with the local/offline database. The **CacheName** parameter will be handled differently when executed in the mobile application than when executed in the PB application.

```
SQLCA.DBMS = "ODBC"
SQLCA.AutoCommit = False
SQLCA.DBParm =
 "ConnectString='DSN=Mobile15TestDB;UID=DBA;PWD=sql'; EnabledLocalDB='true';
 CacheName='MyUltralite'"
connect;
……
disconnect;
SQLCA.DBMS = "ODBC"
SQLCA.AutoCommit = False
SQLCA.DBParm =
 "ConnectString='DSN=Mobile15TestDB;UID=DBA;PWD=sql'; EnabledLocalDB='true';
 CacheName='MySQLite'"
connect;
```

4.2 Synchronize data thru MLSync object (for UltraLite only)

Note: The following instructions are applicable to UltraLite database only. If you are using a local SQLite database, since SQLite does not support synchronizing data via MobiLink server, you will need to write scripts to synchronize the SQLite database with the server-side consolidated database.

To synchronize the local UltraLite database with the server-side consolidated database via MobiLink server, use the PB synchronization object **MLSync**. For details, refer to Working with PowerBuilder synchronization objects in the SQL Anywhere online documentation.

When synchronizing the UltraLite database with the consolidated database via Mobilink, the **ScriptVersion** property is required, however this property does not exist in the PB **MLSync** object. As a replacement, you could use the **sv** parameter of the **ExtendedOpt** property, for example:

```
mySync_1.ExtendedOpts = "sv = test"
```

If you do not specify the **sv** parameter of the **ExtendedOpt** property, then PowerServer Mobile will use the value of **Publication** for **ScriptVersion**.

Please note that the **MLSync** object is originally designed by PB to synchronize the local database on the PC only, and the local database on the PC can only be a SQL Anywhere database, and cannot be an UltraLite database; while in iOS, the local database can only be an UltraLite database and cannot be a SQL Anywhere database, therefore, some features of the **MLSync** object are implemented differently by PowerServer Mobile in order to work with the UltraLite database on iOS. For details, refer to Section 4.3.1.18, "MLSync" in *Supported PB Features for PowerServer Mobile*.

4.3 See also: Reduce SQLite database file size

The SQLite database file may get larger and larger as time goes by. Even if the data is deleted from the database, the database file will not be shrunk, unless you run the VACUUM command. VACUUM will reconstruct the database from scratch and keep the database minimal in size. Thus, it is a recommended good practice to execute VACUUM periodically to reduce the SQLite database file size. But notice that you should use different ways to execute VACUUM for PowerBuilder and PowerServer Mobile.

In PowerBuilder, you can execute the VACUUM command directly, for example:

```
vacuum
```

While in PowerServer Mobile, you will have to use Dynamic SQL Format 1 to execute the VACUUM command, for example:

```
execute immediate 'vacuum'
```

Note: before executing VACUUM, make sure the transaction has already been committed, otherwise VACUUM will not be executed successfully.

4.4 See also: Encrypt UltraLite database

The UltraLite database file can be encrypted. You can choose to use a simple or strong encryption for the database file when you create the database in Sybase Central, as shown in the figure below.

Figure 4.1: Encryption type in Sybase Central
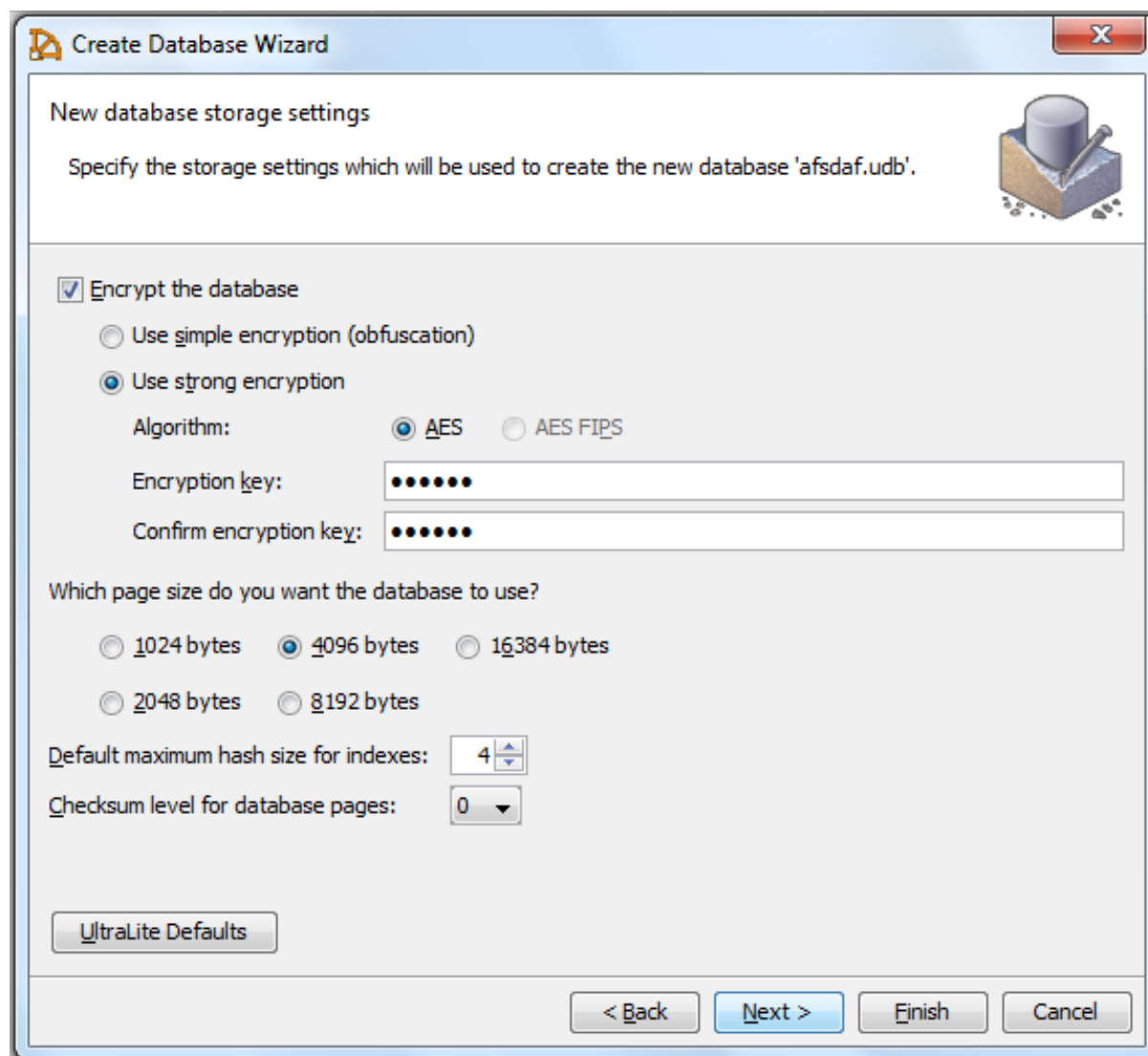
Under **Encrypt the database**, either select the **Use simple encryption (obfucscation)** option or the **Use strong encryption** option.

• **Use simple encryption (obfucscation)**: Only fuzzily encrypts the database files and no encryption keys are required in the application scripts.

• **Use strong encryption**: If you have selected this option, configure the **Algorithm** and the **Encryption key** (specified in the application scripts) accordingly.

The database file will be encrypted by using the key you input. And you will need to input the same encryption key when you configure the database file in PowerServer Toolkit, so that the encrypted database can be accessed by the mobile application. See step 7 in Task 3: Configure the offline settings.

5 Tutorial 4: Config, Deploy & Run the Offline App

The previous tutorial shows you how to specify the database connection syntax so the app will connect with the local database when running on the mobile device. This tutorial will show you how to configure and deploy the database to the PowerServer (so it can be downloaded to the local mobile device when the app is installed on the mobile device) and how to configure and deploy the app as a pure local/offline application so it runs on the mobile device without needing network connections.

The following instructions are applicable to both the UltraLite database and the SQLite database.
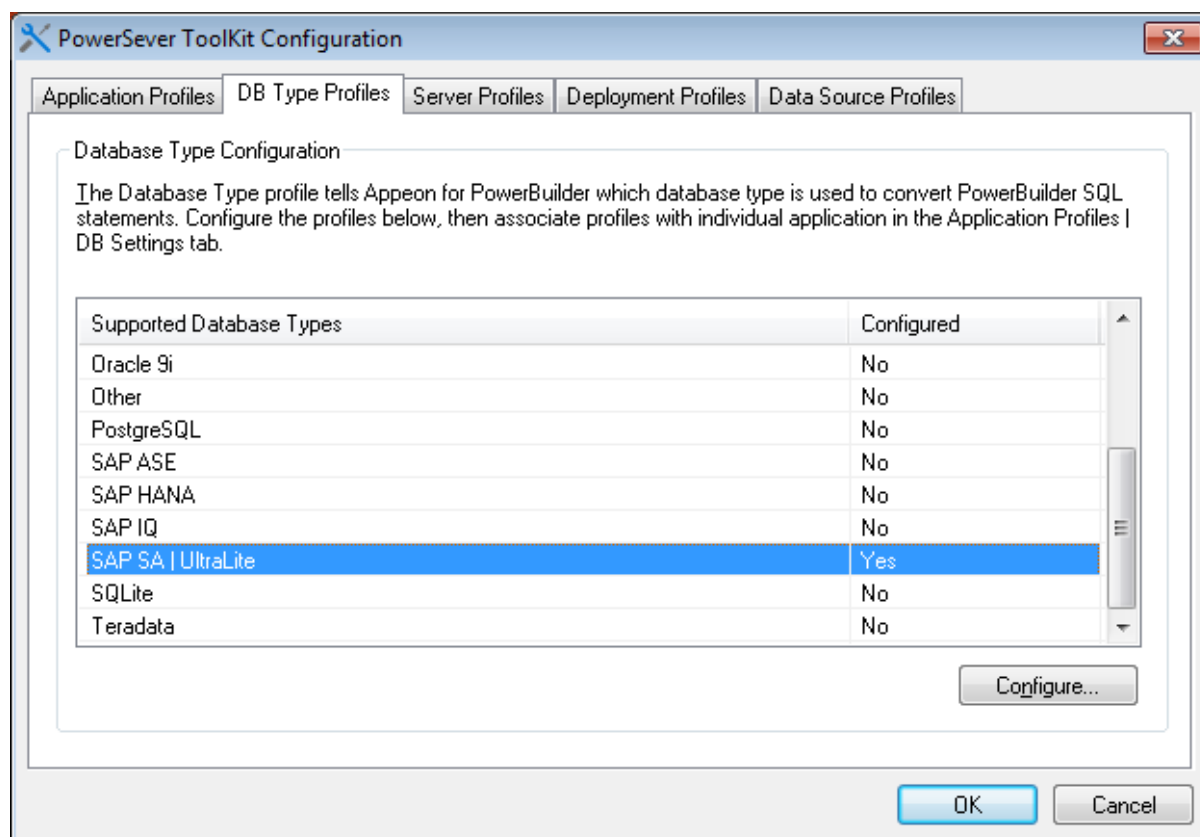
5.1 Task 1: Configure the database type

If your mobile application connects with a database, no matter it is a local offline database or a server-side consolidated database, you will need to configure the database type. The database type enables PowerServer Toolkit to apply the correct database driver for generating the correct database syntax. Therefore, the database type is what is important and it is not necessary to specify the actual databases that the application uses, it can be any database so long as they are of the same type.

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

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

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

Figure 5.1: DB Type Profile in ADT

Step 4: On the **Database Type Profile Configuration** window, do the following (take SAP SQL Anywhere 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 5.2: Database Type Profile Configuration

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 2: Configure the application.

5.2 Task 2: Configure the application

Step 1: On the PowerServer Toolkit, click the **Config Wizard** ( ) icon.

Step 2: In the welcome screen, click **Next**.

Step 3: Specify the 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** or **Universal** 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 following format: PNG, GIF, JPG, and BMP. The image that you choose will be displayed as the application icon in Appeon Workspace. Recommended size is 86 x 86 pixels (or above) for non-retina display and 172 x 172 pixels (or above) for 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 adjusted 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 Appeon Workspace.

Figure 5.3: PowerServer Toolkit Configuration Wizard

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

Figure 5.4: Add the PBT in ADT Wizard
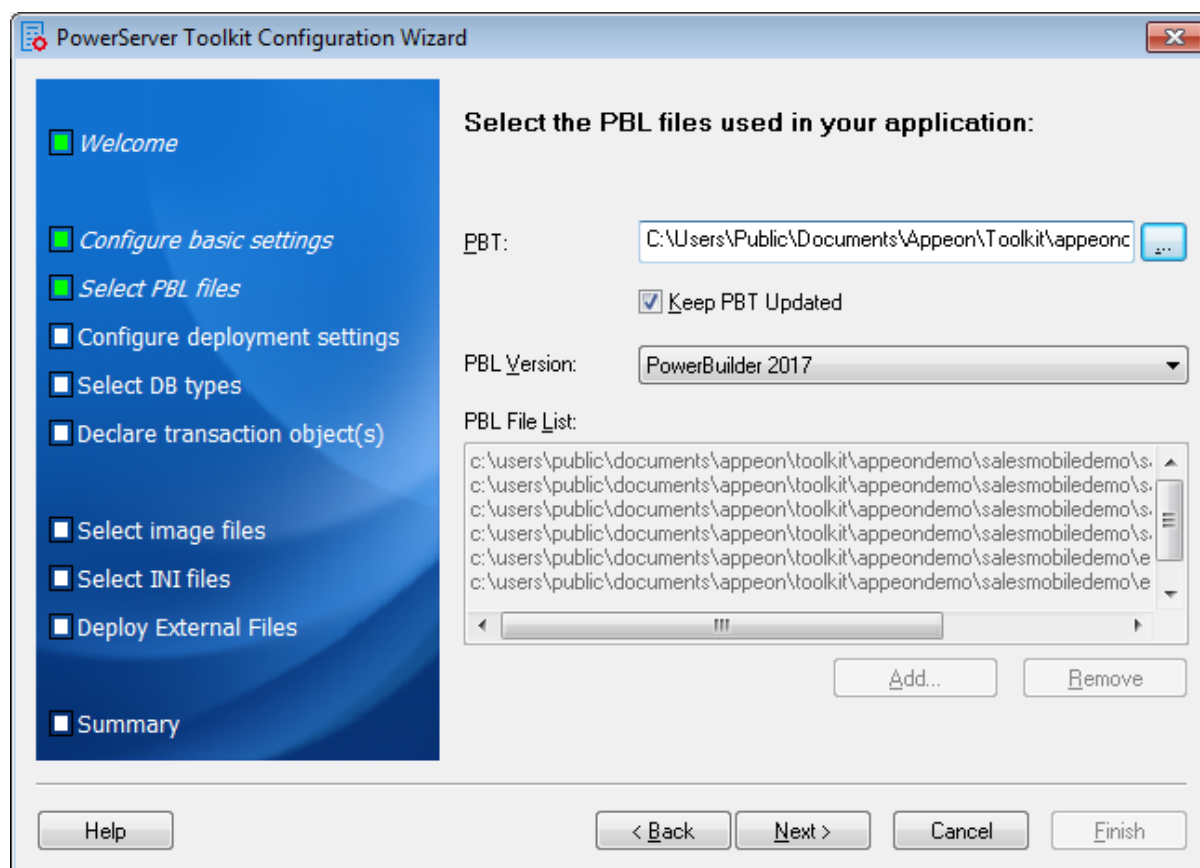
Step 5: Keep the default settings and click **Next**.

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

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

Figure 5.5: Select the PowerServer(s) and Web Server(s)
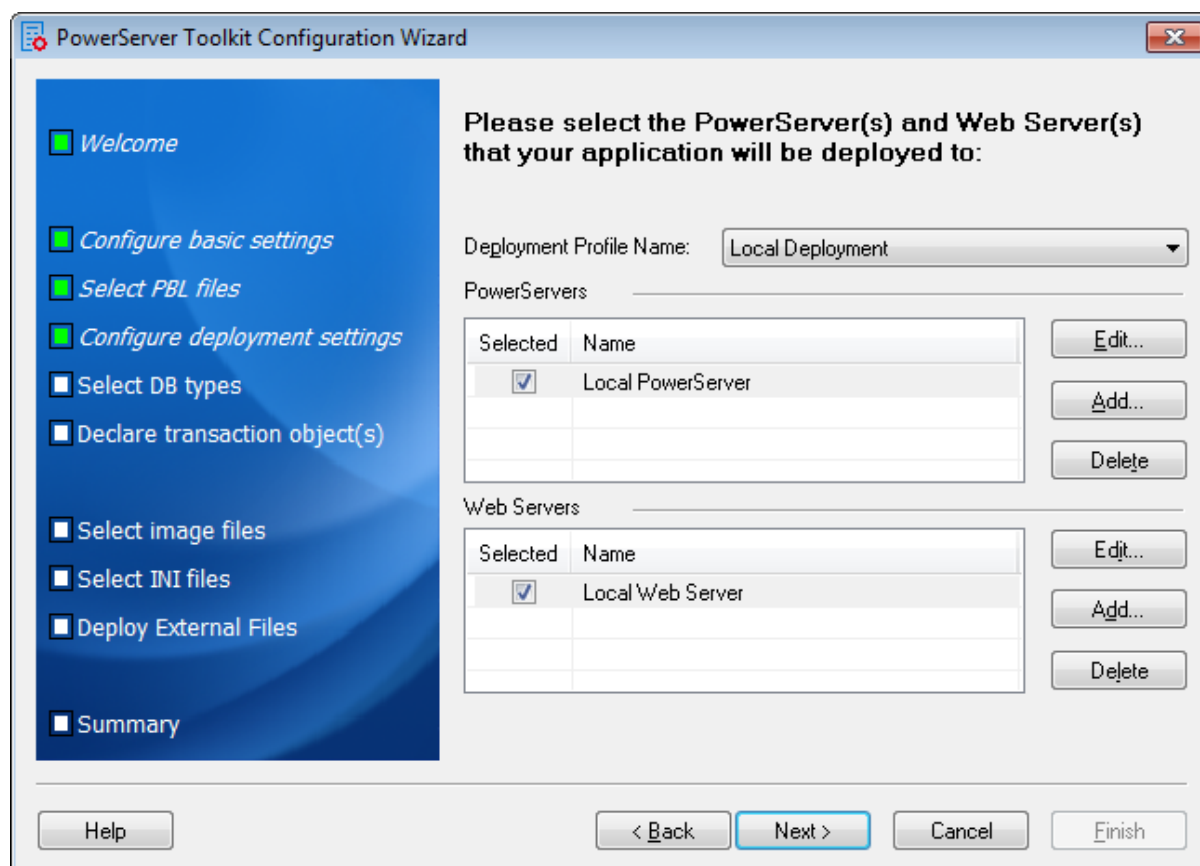
Step 6: Select the database type from the **Used** column and click **Next**.

If your mobile application connects with the local offline database only, then select the database type for the local offline database. If your mobile application also connects with the server-side consolidated database, then you will also need to select the database type for your server-side consolidated database.

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 5.6: Select the database type(s)
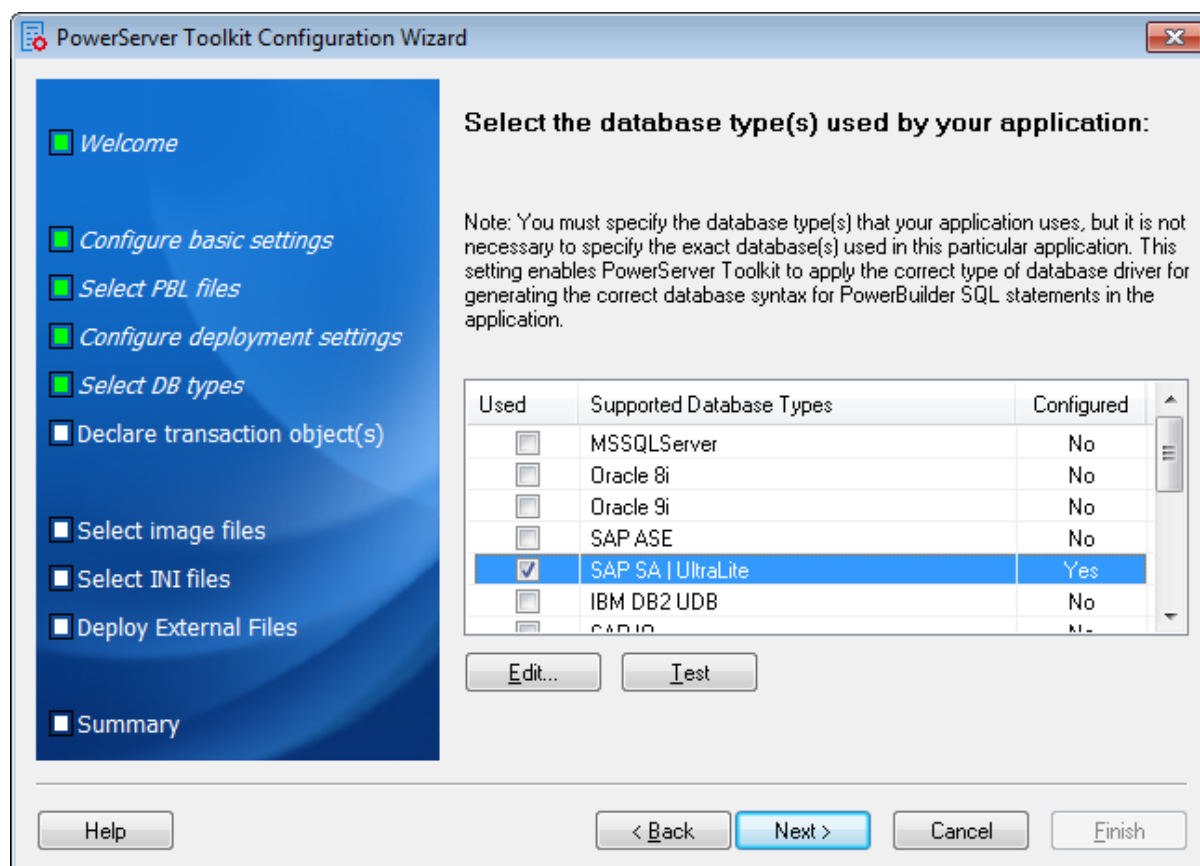
Step 7: Click **Add** to specify the transaction object that connects with the server-side consolidated database.

Note: this step is required only if your mobile application connects with the server-side consolidated database. If your mobile application connects with the local offline database only, then skip this step.

For detailed instructions on how to configure the transaction object, please refer to Step 7 in Chapter 3, *Tutorial 2: Config, Deploy & Run the Application* in *PowerServer Mobile Tutorials*.

Figure 5.7: Specify the transaction object
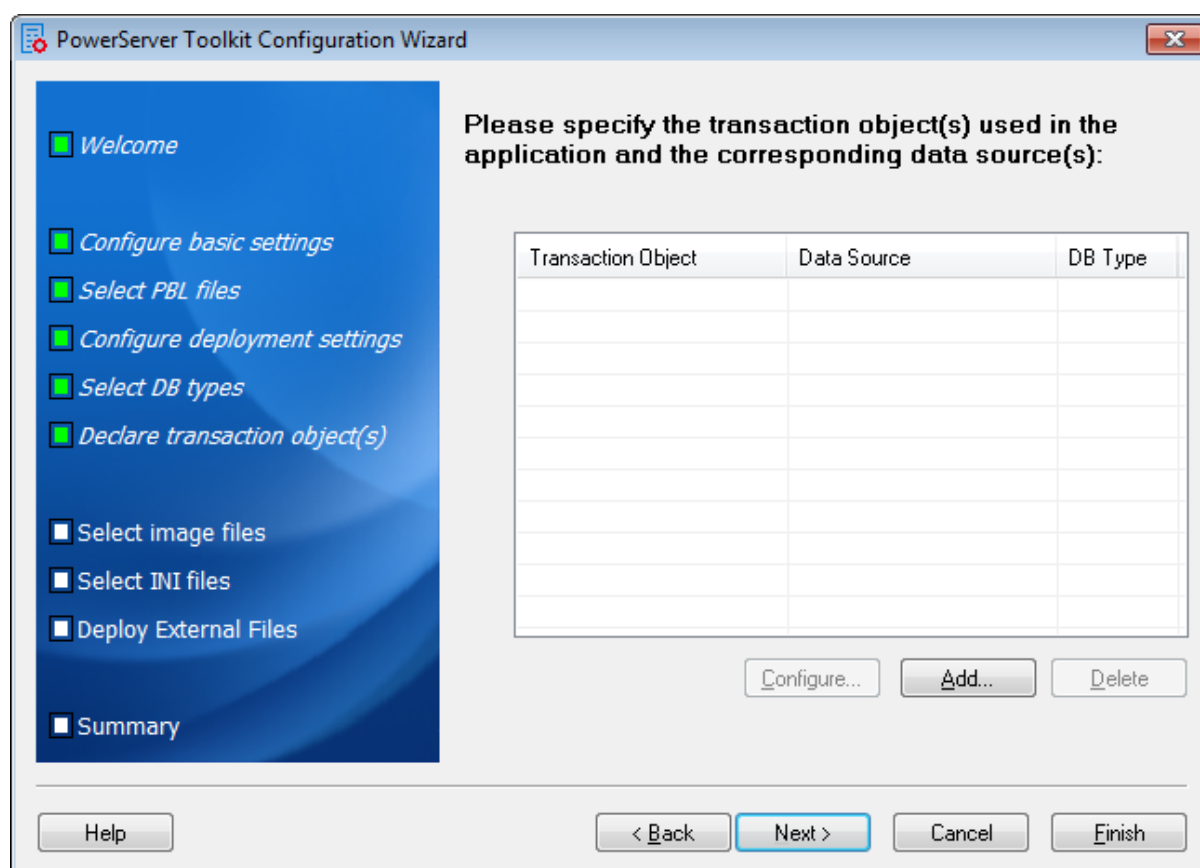
Step 8: Click **Browse** to select the image file or the folder that contains the image files, if any. Click **Next**.

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, PDF file, etc., if any. Click **Next**.

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

5.3 Task 3: Configure the offline settings

Step 1: Click the **Configure** ( ) icon on the PowerServer Toolkit. The application you configured just now is listed in the **Application Profiles** tab of the **PowerServer Toolkit Configuration** window.

Step 2: In the **Application Profiles** tab, select the application and then click **Edit**.

Figure 5.8: PowerServer Toolkit Configuration
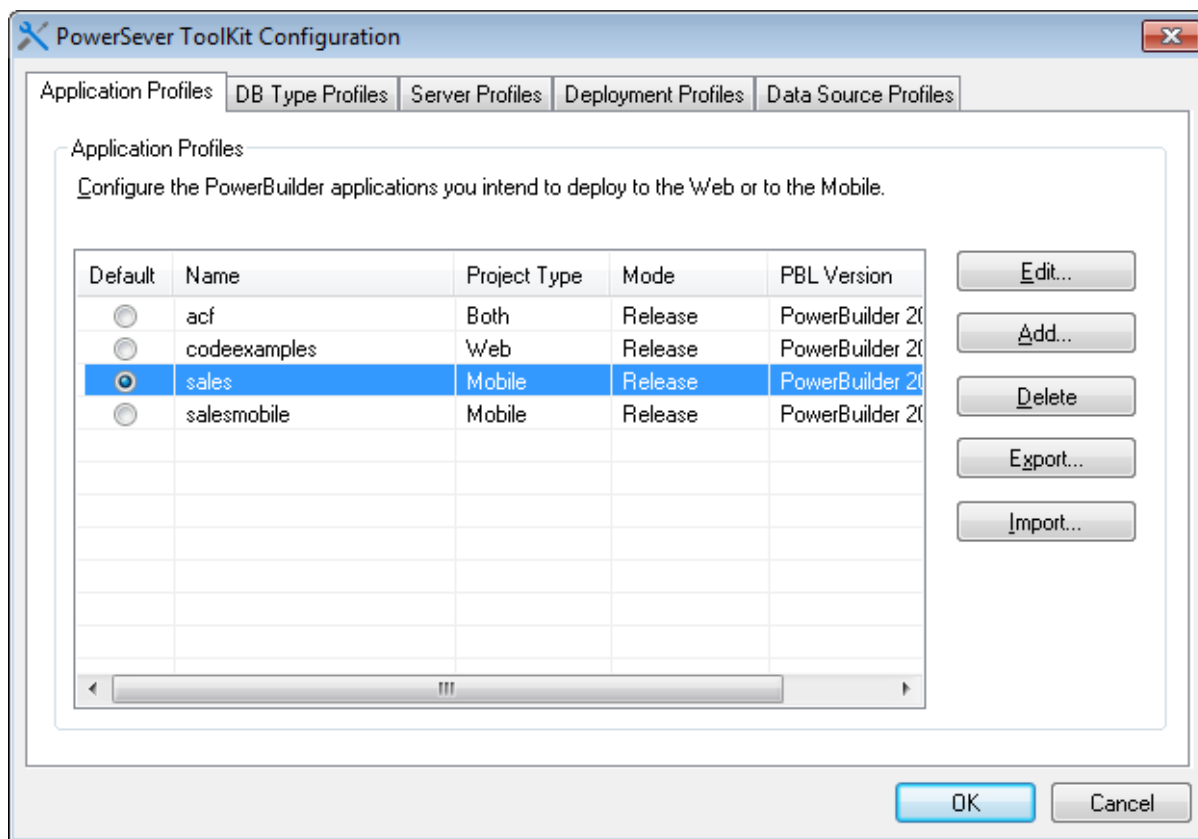
Step 3: In the **Application Profile Configuration** window, select the **Offline Settings** tab.

Figure 5.9: Local DB Settings
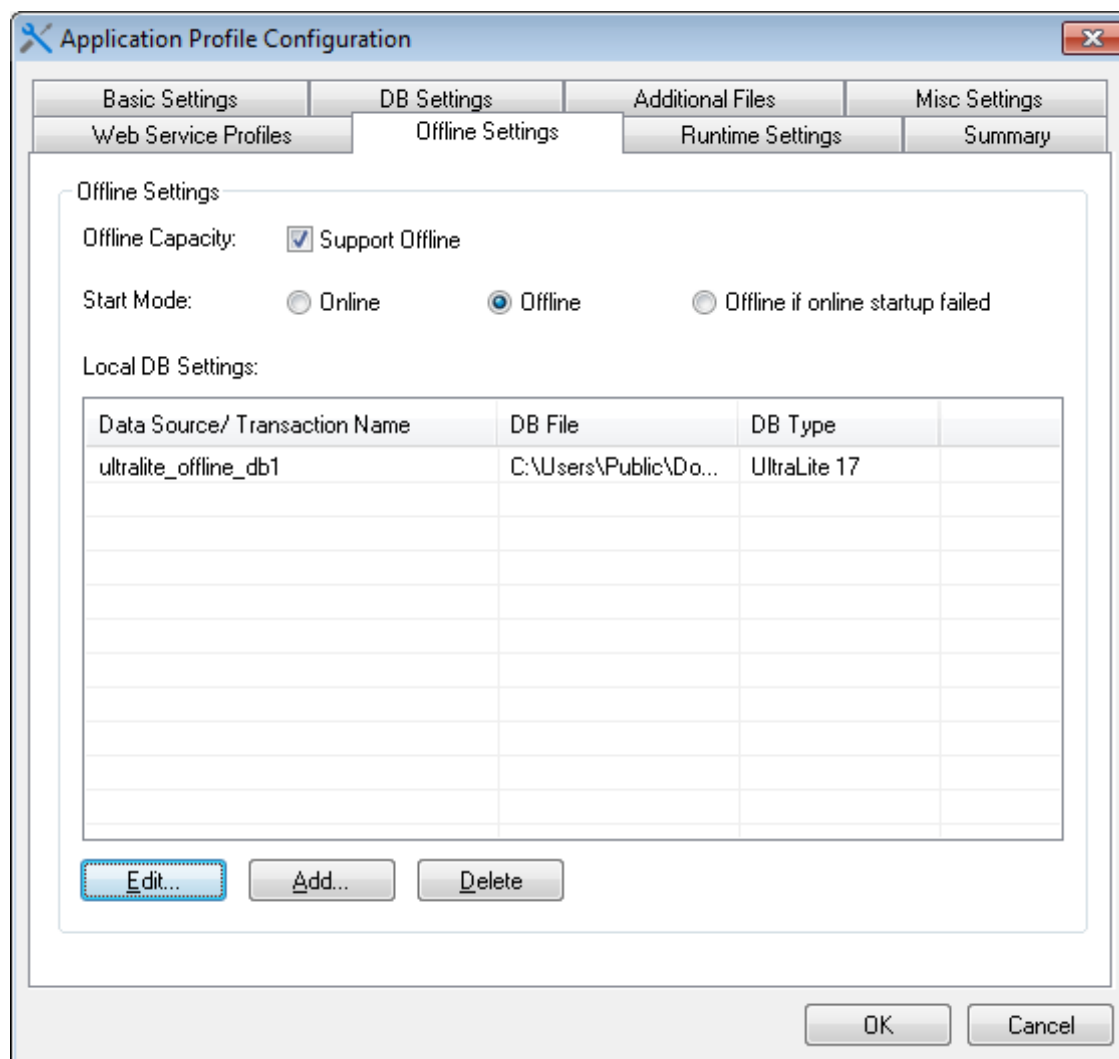
Step 4: In the **Offline Capacity** area, select the **Support Offline** option.
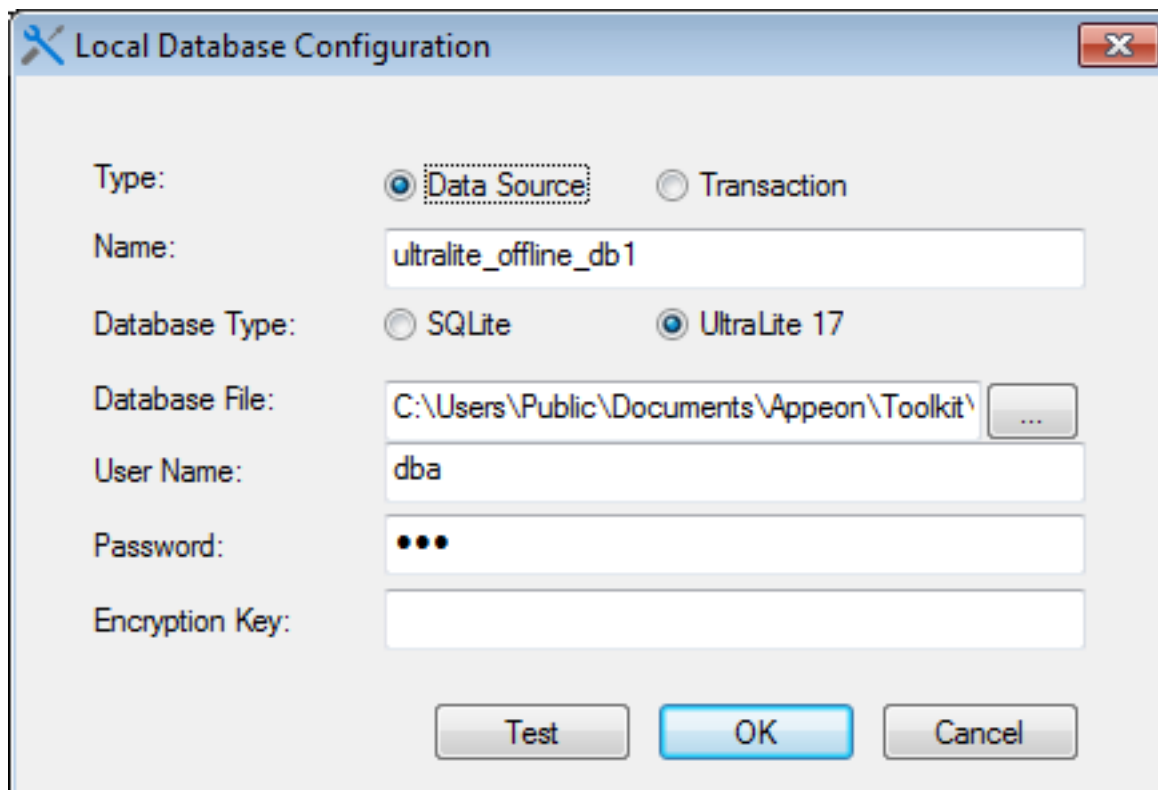
Step 5: In the **Start Mode** area, select **Offline if online startup failed** (recommended for the development and test stage), or select **Offline** (recommended for the production stage). Remember to re-deploy the application if the mode is changed.

- **Offline if online startup failed** mode allows the application to start as an online application which connects with PowerServer, and if connection with PowerServer failed, the app will start as an offline application. If you are still developing the app and need to test the new functions, this mode is recommended because the app will automatically get the latest changes from PowerServer once it connects with PowerServer successfully during startup.

- **Offline** mode allows the application to start as an offline application which runs locally on the mobile device without connecting with PowerServer, except for the very first time after installed when the configuration information needs to be downloaded to the mobile device. After that, the application will run as a local/offline application without needing any network connections, and will not get updates from PowerServer unless the app calls the relevant APIs specially provided by PowerServer Mobile (for details, see

Tutorial 5: Update the Offline App) or the app is removed from the mobile device and then downloaded and installed again.

Step 6: In the **Local DB Settings** area, click **Add** to specify the local database settings.

Figure 5.10: Local Database Configuration

Step 7: In the **Local Database Configuration** window, do the following:

1. Select **Data Source** or **Transaction** as the connection type. If you intend to use the transaction object to connect with the local offline database, select **Transaction** here, if you intend to use the **CacheName** DBParm parameter to connect with the local offline database, select **Data Source**. For more details on the connection type, see Step 2 in Connect with the local database in Tutorial 3.

2. Enter the transaction object name or data source name in the **Name** text box. To configure for the **Transaction** type, enter the actual name of the transaction object used in the application. To configure for the **Data Source** type, enter the same name of the **CacheName** DBParm parameter specified in the application.

3. Select **SQLite** or **UltraLite 17** (according to the offline database the application uses) as the database type.

4. Click the browse (**...**) button to select the database file from the **Database File** field. The database file name cannot be "appeondb.db".

5. Enter the user name for the database in the **User Name** text box. This field is effective for UltraLite database only.

6. Enter the password for the database in the **Password** text box. This field is effective for UltraLite database only.

7. Enter the encryption key for the database in the **Encryption Key** text box. This field is effective for UltraLite database only. The encryption key must be the same one you input in the Sybase Central when creating the database. See <u>See also: Encrypt UltraLite database</u>.

8. Click **OK**.

Step 8: Click **OK** to close the **Application Profile Configuration** window.

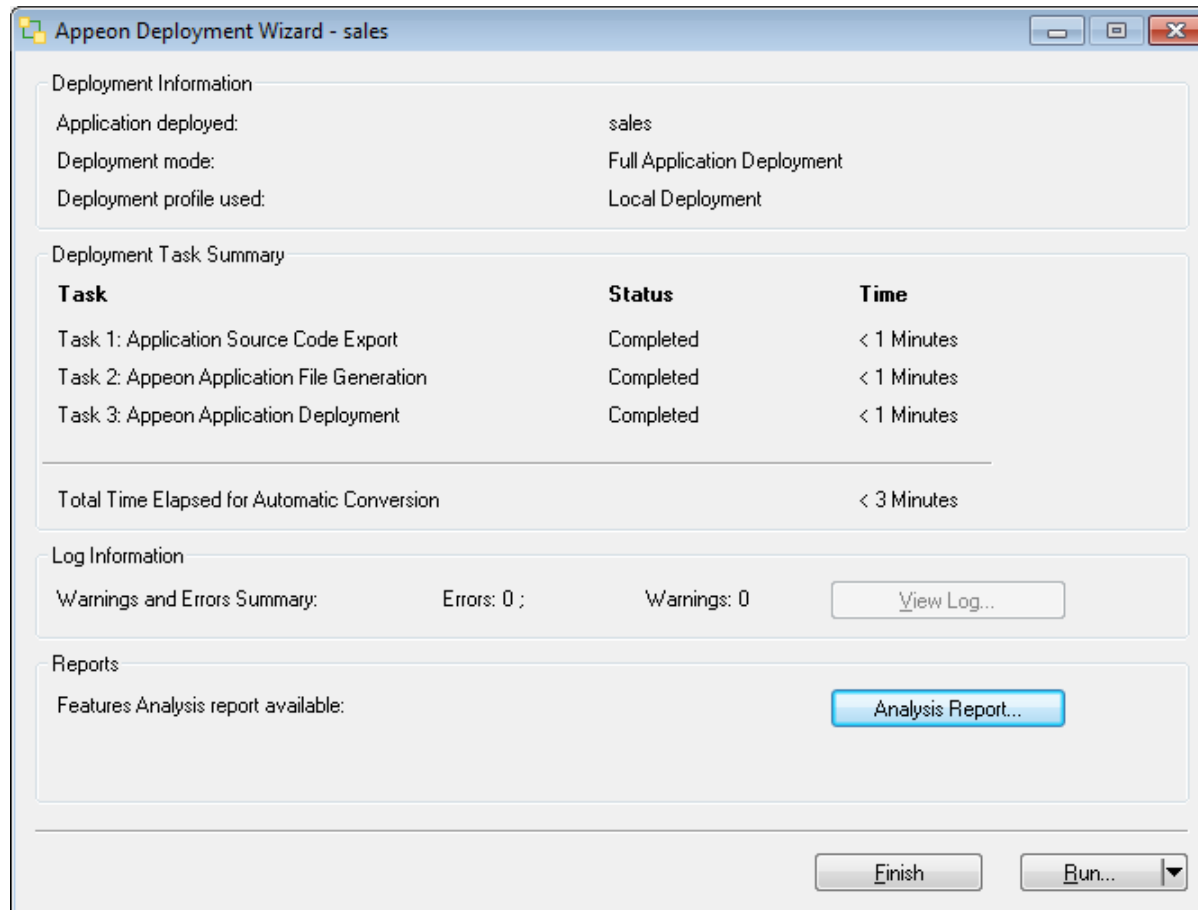## 5.4 Task 4: Deploy the application and the database

Step 1: Click the **Deploy** icon ( ) on the PowerServer Toolkit.

Step 2: In the **Appeon Deployment Wizard**, make sure the application to be deployed is correct, the deployment profile is **Local Deployment**, and the deployment mode is **Full Application Deployment**. Click **Next**.

Step 3: Click **Finish** when the deployment process is complete.

The application and the database file are deployed to the server successfully.

Figure 5.11: Appeon Deployment Wizard

5.5 Task 5: Run the application

Now that you have deployed the application and the database successfully, you are ready to run your offline application with the offline database on the iPad or iPhone.

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

Network connection is required for installing Appeon Workspace and the offline application, and when running the offline application for the first time after installed (to download the configuration information).

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

Step 3: Tap the **AppeonMobile** icon on your iPad or iPhone 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 PowerServer Toolkit configuration as the **Web Folder** name then the URL would be http://192.168.1.117:80/myApplication/.

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

Step 7: Tap the **Back** icon (←) 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 the the database occurs automatically.

Step 8: After the application and the database is downloaded, tap the application icon on the main screen to download the configuration information to the mobile device. Make sure there is network connection during the download.

After the configuration information is downloaded to the mobile device, you can run the offline application without network connection.

6 Tutorial 5: Update the Offline App

If you have set the **Start Mode** to **Offline** and deploy the application in PowerServer Toolkit, the application will run as a local/offline app on the mobile device without needing any network connections, except for the first time when the configuration information needs to be downloaded from the PowerServer to the mobile device. In this case, the local/offline application will not be automatically updated, and you will need to call the APIs Appeon provides to upgrade the application.

PowerServer Mobile provides APIs to check and apply the updates for the local/ offline application. For details on how to call these APIs, refer to the section called "of_checkupdate" in *Workarounds & API Guide* and the section called "of_applyupdate" in *Workarounds & API Guide*.

After getting the updates from PowerServer, you will need to restart the application to make the updates effective.

7 Tutorial 6: Debug the Offline App

The guidelines for developing and debugging the Appeon mobile applications should also be followed when developing and debugging the offline mobile application. For detailed instructions, refer to Chapter 4, *Tutorial 3: Develop & Debug with PowerServer Mobile* in *PowerServer Mobile Tutorials*.

It is worth mentioning that PowerServer Mobile provides an API to generate the log files on the mobile device. The log files contain detailed information for debugging the app when the log level is set to debug. For how to call the API, refer to the section called "of_log" in *Workarounds & API Guide*. After the log file is generated on the mobile device, you can view or send the log file in Appeon Workspace. See Section 5.9, "Configuring logs" in *Appeon Workspace User Guide*.

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