

**SYBASE®**

**Getting Started Tutorial - Visual Studio Edition**

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**Sybase Unwired Platform 1.2**

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Sybase, Inc., One Sybase Drive, Dublin, CA 94568

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# Workflow

Sybase Unwired WorkSpace Visual Studio Edition tutorials explain how to develop, deploy, and run a mobile application.

**Table 1. Visual Studio tutorials**

Task	Goals	Tutorials required to achieve the goals
Getting Started	Install Sybase Unwired Platform, start the server and Unwired WorkSpace, and create a project.	<ul style="list-style-type: none"> <li>• <a href="#">Installing Sybase Unwired Platform</a> on page 7</li> <li>• <a href="#">Starting Unwired Server</a> on page 7</li> <li>• <a href="#">Connecting to Sybase Control Center</a> on page 7</li> <li>• <a href="#">Starting Sybase Unwired WorkSpace</a> on page 9</li> <li>• (Optional) <a href="#">Learning the Basics</a> on page 10</li> <li>• <a href="#">Creating a Mobile Application Project</a> on page 11</li> </ul> <p><b>Note:</b> These tutorials are prerequisites for all the other tutorials. You need to perform them only once.</p>
Developing Database Mobile Business Objects	Create two mobile business objects, and deploy them to Unwired Server.	<ul style="list-style-type: none"> <li>• <a href="#">Creating a Database Connection</a> on page 15</li> <li>• <a href="#">Creating a Server Connection</a> on page 18</li> <li>• <a href="#">Creating Database Mobile Business Objects</a> on page 19</li> <li>• <a href="#">Creating a Relationship Between Mobile Business Objects</a> on page 23</li> <li>• <a href="#">Deploying the Database Mobile Business Objects</a> on page 25</li> </ul>
Developing a Device Application	Create a Windows device application and run it in a device emulator.	<ul style="list-style-type: none"> <li>• <a href="#">Generating Code for a Device Application</a> on page 29</li> <li>• <a href="#">Installing Synchronization Software</a> on page 32</li> <li>• <a href="#">Deploying and Running the Device Application</a> on page 33</li> </ul>



# Getting Started

**Goal:** Install and learn about Sybase Unwired Platform and its associated components.

The following tasks are required, unless otherwise noted, for all tutorials, but you need to perform them only once.

1. [Installing Sybase Unwired Platform](#) on page 7
2. [Starting Unwired Server](#) on page 7
3. [Connecting to Sybase Control Center](#) on page 7.
4. [Starting Sybase Unwired WorkSpace](#) on page 9
5. (Optional) [Learning the Basics](#) on page 10
6. [Creating a Mobile Application Project](#) on page 11

## Installing Sybase Unwired Platform

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**Goal:** Install Sybase Unwired Platform.

Install these Sybase Unwired Platform components:

- Unwired Server
- Sybase Unwired WorkSpace (Visual Studio Edition)
- Afaria

If Unwired Platform is already installed and any of these components are missing:

1. Start the Sybase Unwired Platform installer.
2. Follow the instructions in the installation wizard. When prompted, select Custom Install.
3. Select the required components, and complete the installation.

For complete installation instructions, see the Sybase Unwired Platform *Installation Guide* and *Release Bulletin* at [SyBooks Online](#).

## Starting Unwired Server

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**Goal:** Start the server.

In Windows, select **Start > Programs > Sybase > Sybase Unwired Platform > Unwired Server > Start Unwired Server** .

The server starts. Icons for the MobiLink server and a consolidated SQL Anywhere database server appear in the taskbar.

## Connecting to Sybase Control Center

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**Goal:** Open the Web-based Sybase Control Center administration console to manage Unwired Server and its components.

From Sybase Control Center, you can:

- View servers and their status

## Getting Started

- Start and stop a server
  - View server logs
  - Deploy a mobile application package
  - Set role mappings
1. Select **Start > Programs > Sybase > Sybase Control Center**.
  2. Click **Unwired Platform**.  
Available servers display under Unwired Servers.
  3. Select the server to which you want to connect, and log in using the default login:
    - User Name – supAdmin
    - Password – s3pAdmin
  4. To perform any of these server-administration tasks, select the **General** tab:
    - Start
    - Stop
    - Restart
    - Ping
    - Clean



5. To view any of these server configuration properties, select the **Properties** tab:
  - Host
  - Port
  - Secure Port
  - Synchronization Port
  - Version
  - Unwired Server Home
  - Synchronization Protocol

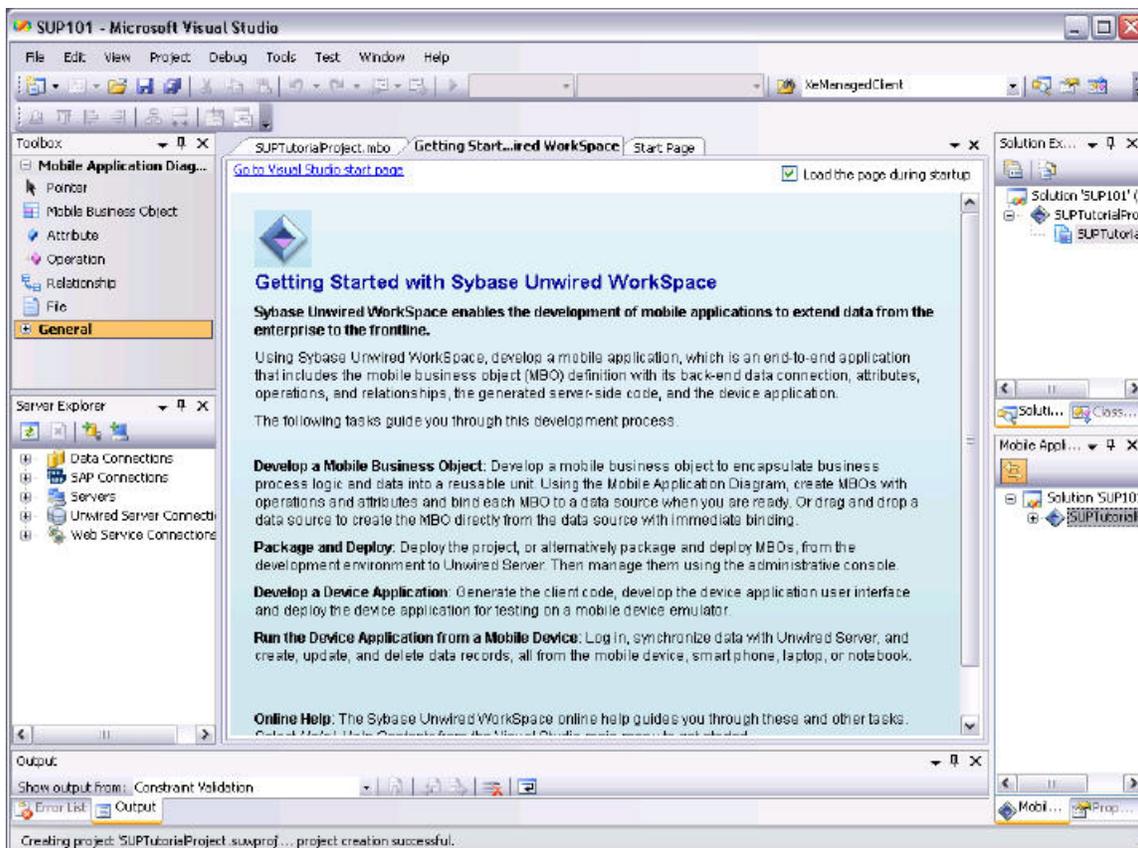


## Starting Sybase Unwired WorkSpace

**Goal:** Start Unwired WorkSpace.

1. In Windows, select **Start > Programs > Sybase > Sybase Unwired Platform > Sybase Unwired WorkSpace (Visual Studio Edition)**.

Sybase Unwired WorkSpace opens, and displays the tasks required to develop a mobile application.



- To read more about Sybase Unwired WorkSpace concepts and tasks, from the main menu bar, select **Help > Contents** , and expand **Sybase Unwired WorkSpace**.

## Learning the Basics

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**Goal:** Learn about Sybase Unwired WorkSpace and how to access help.

- Start Sybase Unwired WorkSpace* on page 9.

The Getting Started page displays a brief description of the tasks you must perform to develop a mobile application.

- To close this page, click the **X**.

You can reopen this page by selecting **Help > Getting Started with Sybase Unwired WorkSpace** .

- Look at the windows that you will be working in to access, create, define, and update mobile business objects.

The following table provides a description of the windows.

Window	Description
Solution Explorer	This window displays open Visual Studio solutions, including their projects, and project resources. In Sybase Unwired WorkSpace, a project contains mobile business object definitions model files and other application items.  You can select a project file, or item, in the Solution Explorer and then perform item-management tasks. You can use an editor to change or manage the item outside the context of a project.
Mobile Application Explorer	This window displays mobile business objects, roles, personalization keys, relationships and connection references.  Use this window to review and modify mobile business object properties.
Server Explorer	A window that provides functionality to connect to various enterprise back-end systems; for example, database servers, SAP servers, and Sybase Unwired Server.
Toolbox	The Toolbox provides controls, such as a mobile business object, attribute, operation, and relationship, that you can drag and drop onto the mobile application diagram to create and define a mobile business object.
Mobile Application Diagram	The mobile application diagram is a graphical editor where you create and define mobile business objects.  Use the mobile application diagram to create a mobile business object, then create and define its operations, attributes, and relationships between other mobile business objects. You can create mobile business objects in the mobile application diagram using its menus, or you can drag items from the Toolbox and Server Explorer and drop them onto the mobile application diagram to develop the mobile business object.  Each new mobile application project generates an associated mobile application diagram.
Properties	The Properties window displays the properties of the selected object.  Select an object in either the mobile application diagram or the Mobile Application Explorer to display and edit its properties in the Properties window.

- To access the online help, select **Help > Contents** from the main menu bar.

The Contents window opens.

5. Expand **Sybase Unwired WorkSpace**.

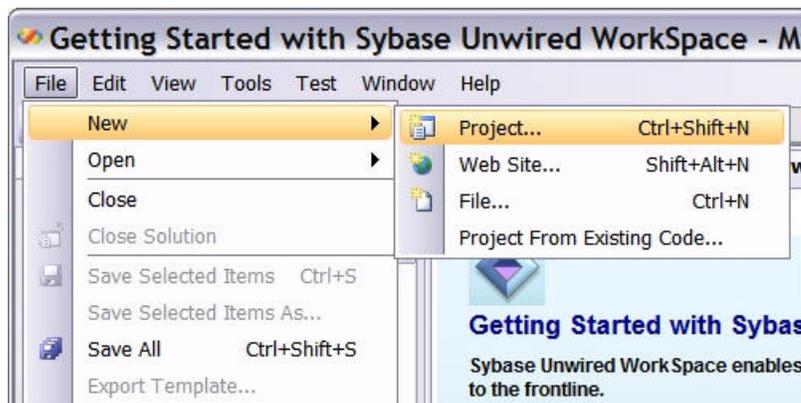
The online help provides tasks, concepts, and reference material to guide you through the development process.

## Creating a Mobile Application Project

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**Goal:** Create a Visual Studio solution and a mobile application project, understand the project metadata that is created, and where it resides.

1. Select **File > New > Project** from the main menu bar.



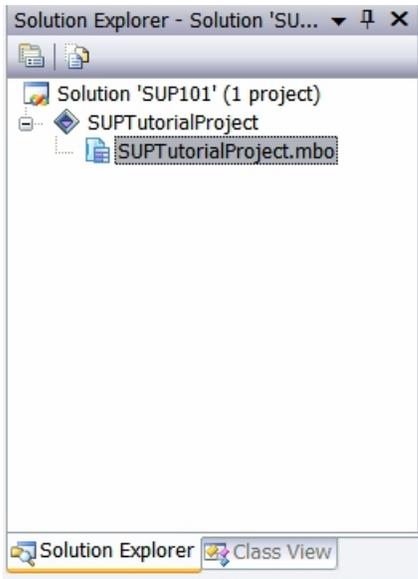
The New Project wizard opens.

2. In the Project types pane, select **Sybase Unwired WorkSpace**.

By default, Mobile Application Project is selected in the Templates pane.

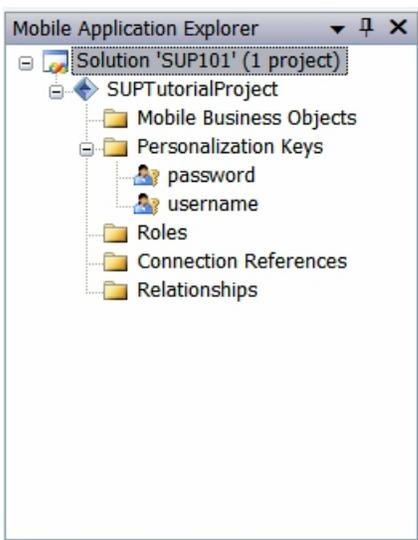
3. Set **Name** to `SUPTutorialProject`.
4. Check **Create directory for solution**, then set **Solution Name** to `SUP101`.
5. Click **OK**.

The new solution and project display in the Solution Explorer. The project contains a `SUPTutorialProject.mbo` file that stores mobile business object design-time metadata.



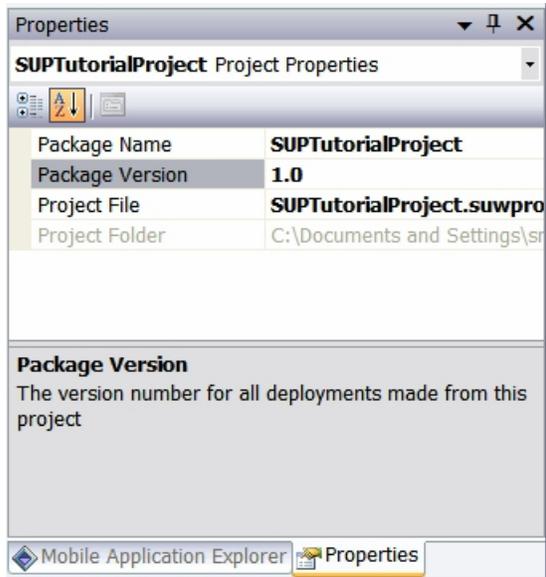
6. Expand *SUPTutorialProject* in the Mobile Application Explorer.

The Mobile Application Explorer displays the logical organization of the metadata defined in the .mbo file. By default, two personalization keys, password and username, display. Personalization keys are described in the Implementing Personalization Keys tutorial.



7. Look at the Properties window.

By default, each project is assigned a package version. You can change the version in the Properties window. For this tutorial, use the default version. Versions are used to deploy multiple versions of the same application (mostly in production or test environments) and can be changed at deployment time as well.





# Developing Database Mobile Business Objects

**Goal:** Create two mobile business objects, each using a database object as its data source; create a relationship between the two, and deploy them to Unwired Server.

## Prerequisites

Complete [Getting Started](#) on page 7

Develop the database mobile business objects by:

1. [Creating a Database Connection](#) on page 15
2. [Creating a Server Connection](#) on page 18
3. [Creating Database Mobile Business Objects](#) on page 19
4. [Creating a Relationship Between Mobile Business Objects](#) on page 23
5. [Deploying the Database Mobile Business Objects](#) on page 25

## Creating a Database Connection

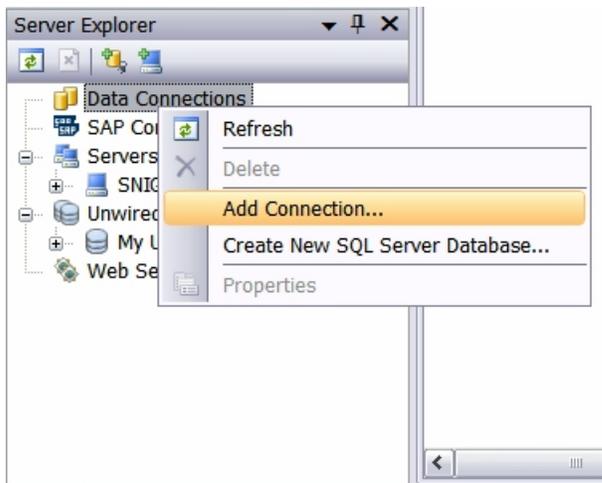
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**Goal:** Create a connection to a database to provide a data source for one or more mobile business objects.

## Prerequisites

Complete [Getting Started](#) on page 7

1. In the Server Explorer, right-click **Data Connections**, and select **Add Connection**.



2. In the Add Connection dialog, select **Use Connection String**, then click **Build**.

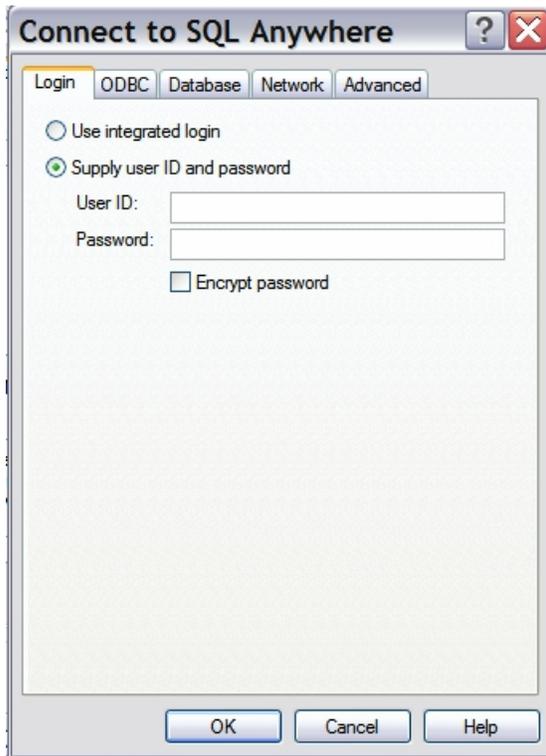


3. To the right of **DSN Name**, click **New**.



4. In the list of database drivers, select SQL Anywhere 11, then click **Next**.
5. Enter `samp1edb` as the data source name, then click **Next**.
6. Click **Finish**.
7. In the Connect to SQL Anywhere dialog, enter:

- User ID – dba.
- Password – sql .



8. Click **OK** twice to return to the Add Connection dialog.
9. Click **Test Connection**. Click **OK** to close the message box that displays the test results.



10. Click **OK** to close the Add Connection dialog.

In the Server Explorer, the database connection displays beneath the Data Connections node.

## Creating a Server Connection

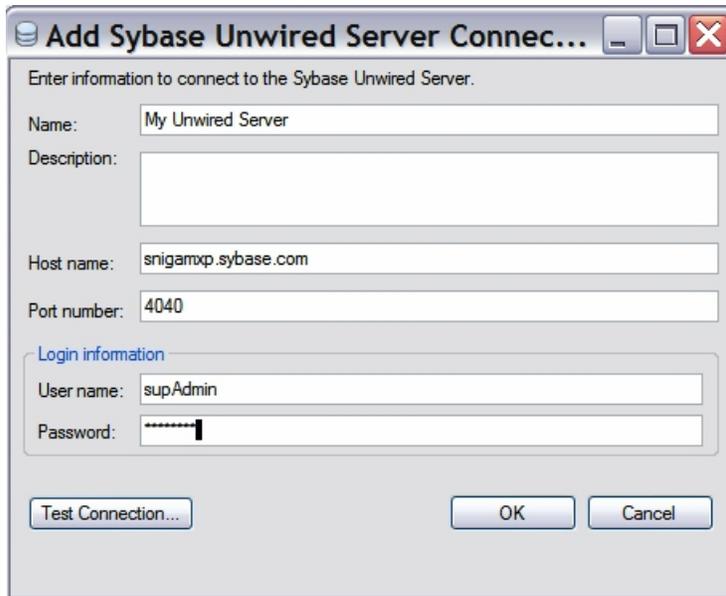
**Goal:** Create a connection to Unwired Server, so you can deploy mobile business objects and device applications to the server.

### Prerequisites

Complete [Getting Started](#) on page 7

1. In the Server Explorer, right-click **Unwired Server Connections**, and select **Add Connection**.
2. Enter the connection details for the local server, then click **OK**.

Field	Enter these values
Name	My Unwired Server
Host name	<your host name>.<domain>
Port Number	4040
User name	supAdmin
Password	s3pAdmin



3. Click **Test Connection** to verify that the server is running.

A dialog displays the connection status. If successful, click **OK**; otherwise, verify that the server is running.

4. Click **OK** to finish adding the connection.

## Creating Database Mobile Business Objects

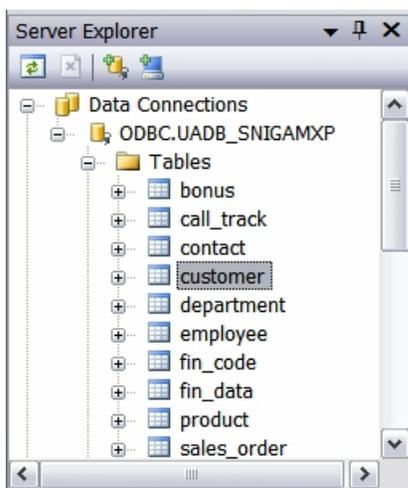
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**Goal:** Create two mobile business objects, each from a database object.

### Prerequisites

Complete [Creating a Database Connection](#) on page 15 and [Creating a Server Connection](#) on page 18

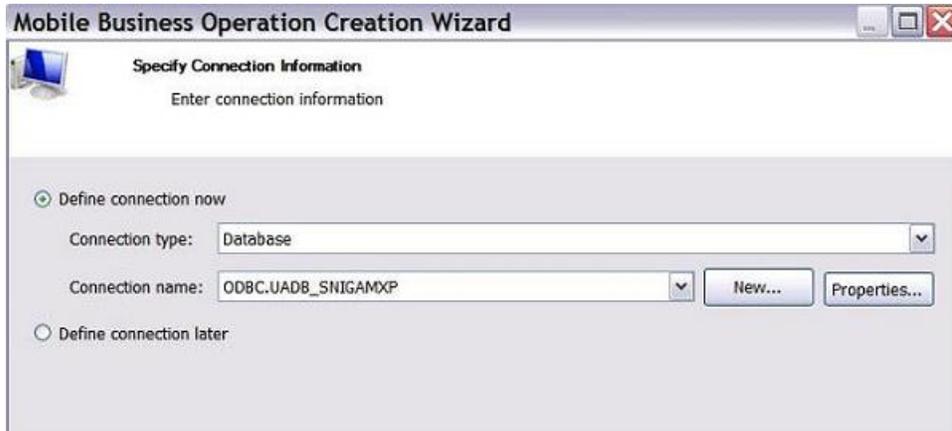
1. Open the SUP101 solution if it is not already open:
  - a) In the Visual Studio main menu, select **File > Open > Project/Solution**.
  - b) Select the SUP101 folder, and click **Open**.
  - c) Select SUP101.sln, and click **Open**.
2. In the Server Explorer, expand the database connection that you created, then expand the **Tables** folder.
3. Select the *customer* table, and drag it onto the Mobile Application Diagram.



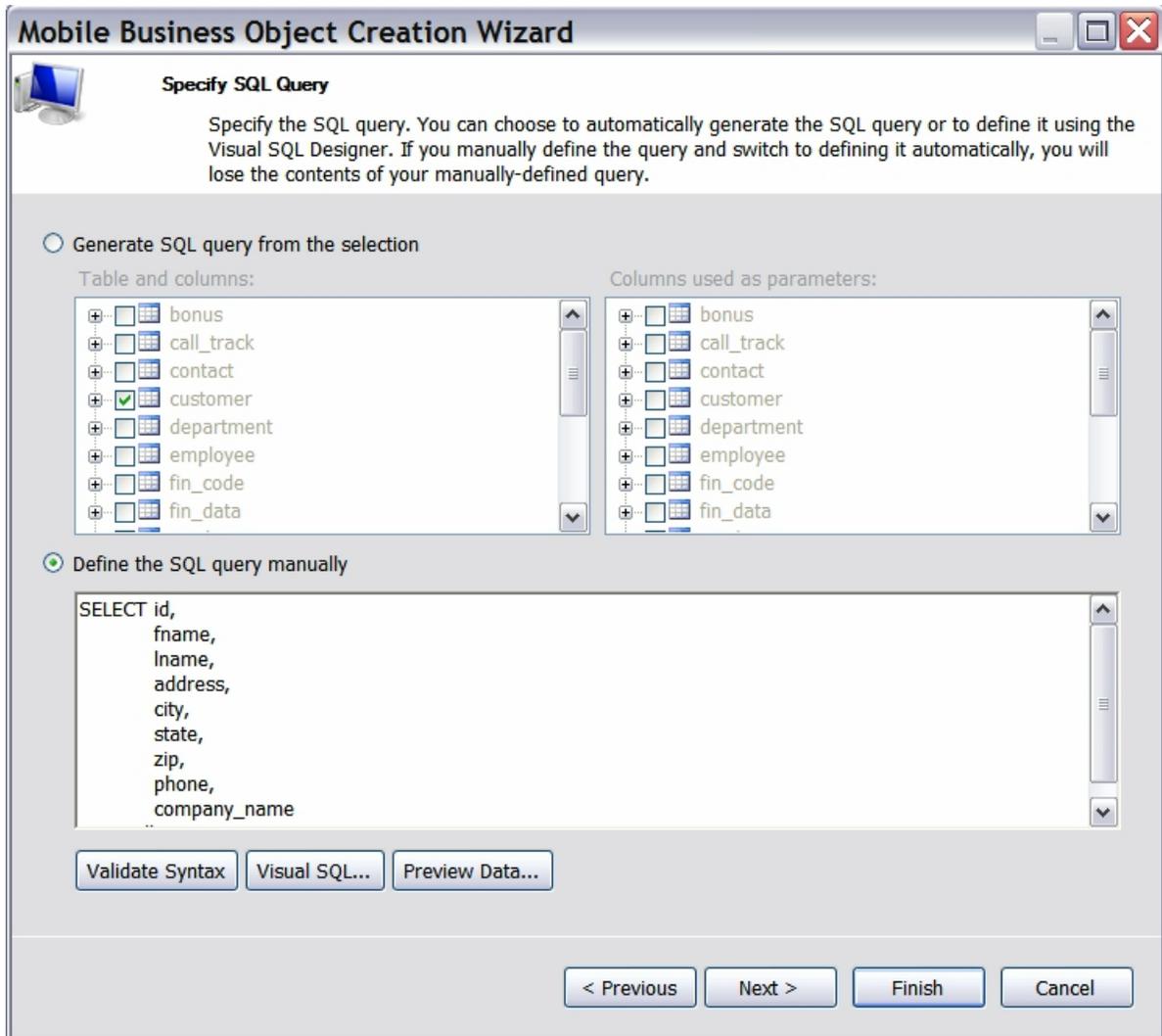
The Mobile Business Object Creation wizard launches.

4. In the introductory page, click **Next**.
5. By default, the MBO is named the same as the database table; in this case, *customer*. Click **Next**.

The connection information matches the database connection that you created.

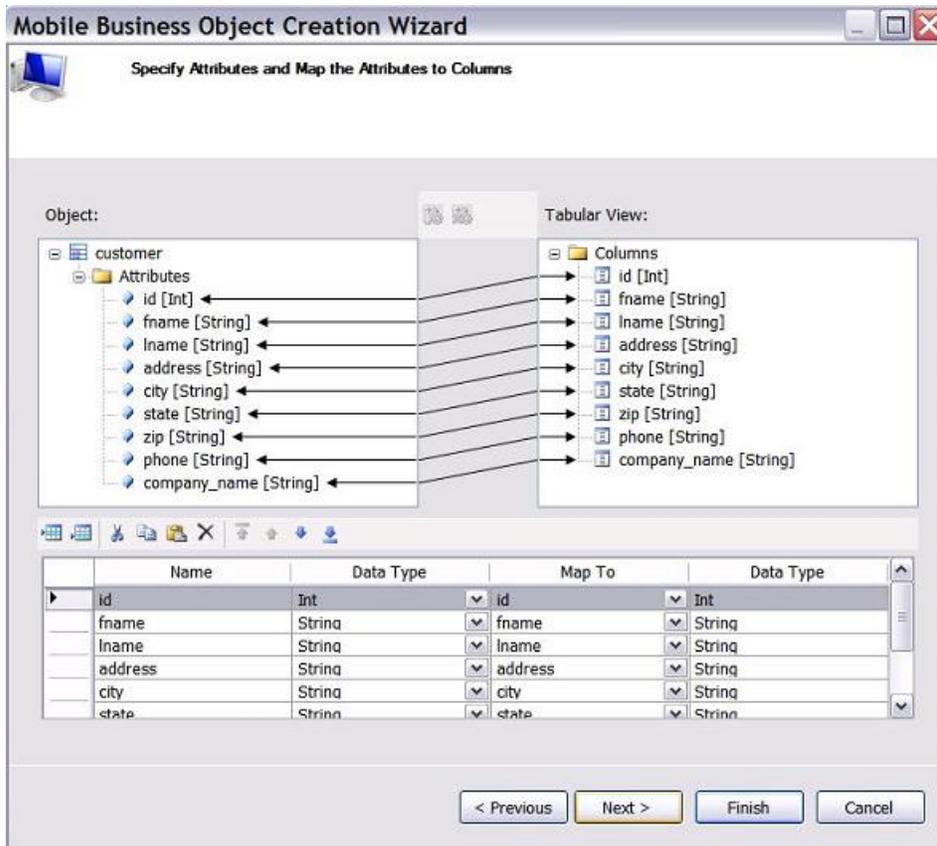


6. Click **Next**.
7. On the Authentication Information page, select **Use Default Authentication**, and click **Next**.
8. On the Specify SQL Query page, click **Next**.



9. On the Column Filters page, click **Next**.

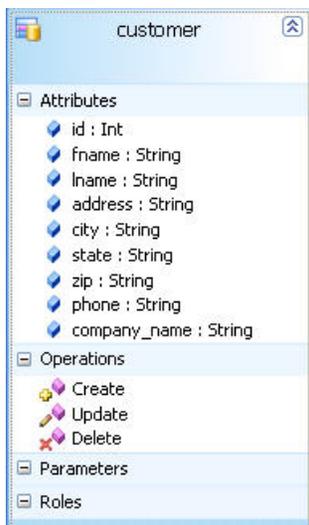
10. On the attribute mapping page, the MBO attributes display on the left, and the database table columns display on the right. The lines illustrate how the database columns map to the MBO attributes, as does the tabular view in the lower half of the page. Click **Next**.



11. On the parameter mapping page, click **Next**.

12. On the Operations page, click **Finish**.

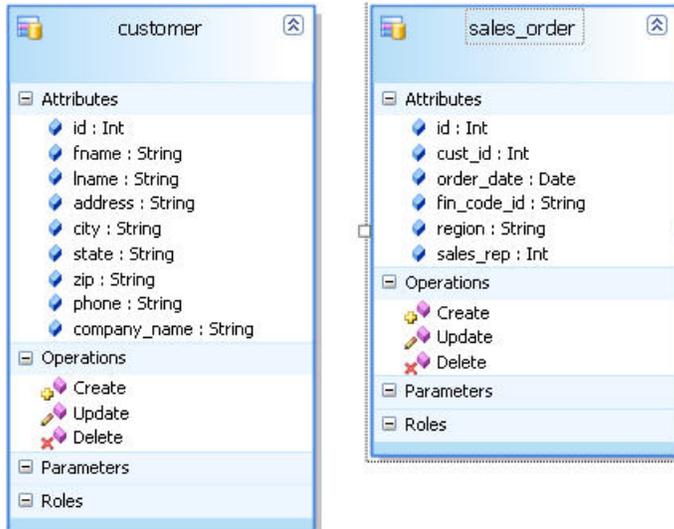
Basic MBO operations are created automatically: Create, Delete, and Update, and the *customer* MBO appears in the Mobile Application Diagram.



13. Create another MBO from the *sales\_order* table:

- a) Drag the *sales\_order* table from the Server Explorer, and drop it onto the Mobile Application Diagram.
- b) Step through the wizard by clicking **Next** on each page.
- c) On the SQL query page, click **Preview Data** to verify the results, then close the results dialog, and click **Next** in the wizard.

d) On the attributes mapping page, review the mapping, then click **Finish**.



### Next

[Creating a Relationship Between Mobile Business Objects](#) on page 23

## Creating a Relationship Between Mobile Business Objects

**Goal:** Create a relationship between mobile business objects to associate related data and maintain data synchronization on the device.

### Prerequisites

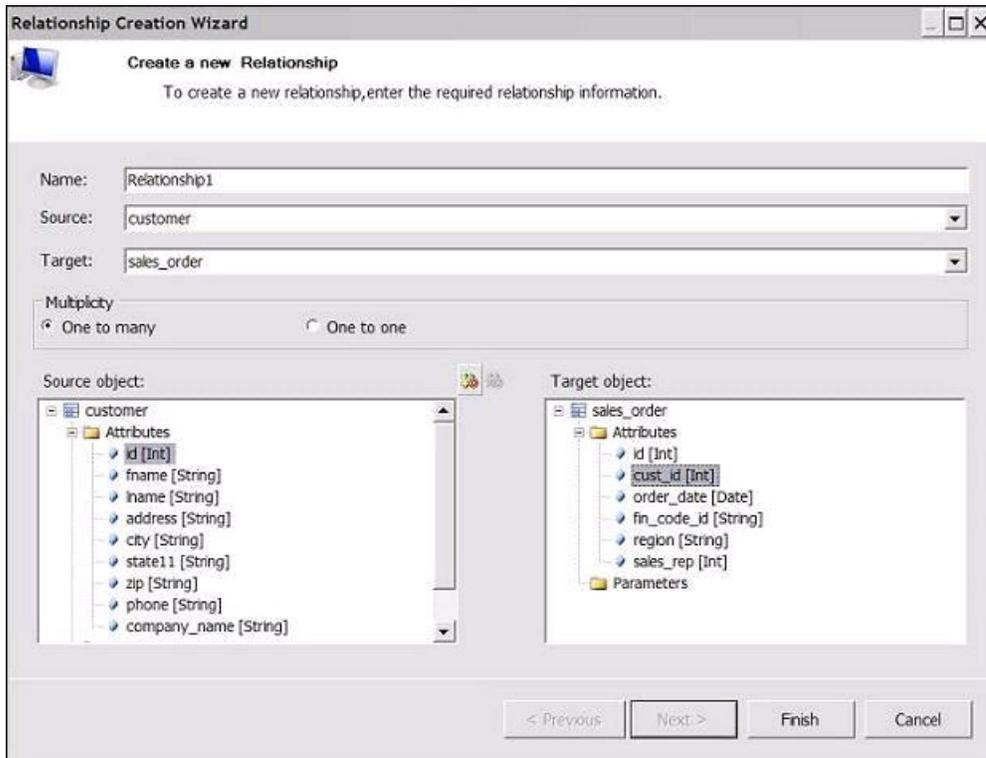
Complete [Creating Database Mobile Business Objects](#) on page 19

In this tutorial, you create a relationship between the *customer* and *sales\_order* mobile business objects (MBO).

1. Click **Relationship** in the Toolbox.
2. Select the *customer* MBO and keeping the mouse button pressed, drag the link to the *sales\_order* MBO to establish the relationship link.

The Relationship Creation wizard opens.

3. Select the **id** attribute in the **Source object** pane and **cust\_id** in the **Target object** pane.

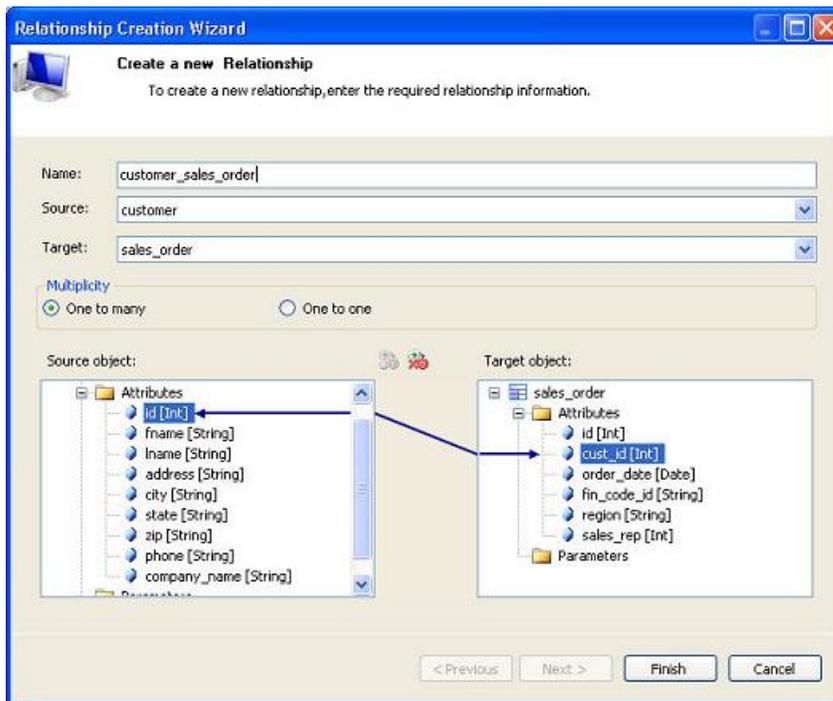


4.

Click the Mapping button .

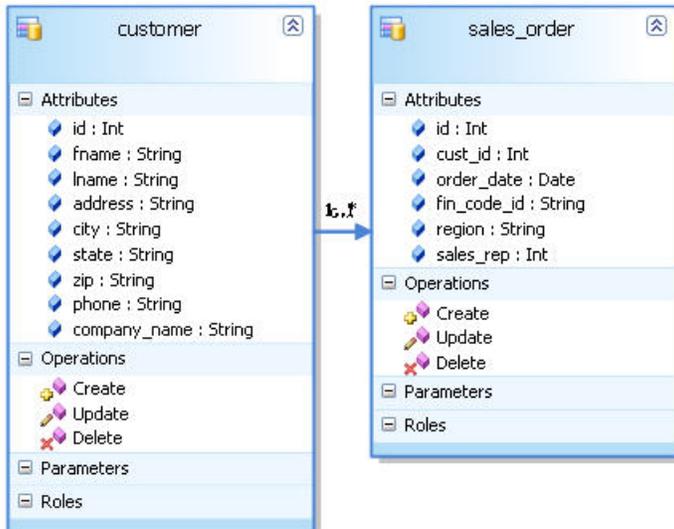
A line connects the two attributes.

5. Enter `customer_sales_order` in the **Name** field for the name of this relationship.



6. Click **Finish**.

The mobile application diagram now shows the link from the customer MBO to the sales\_order MBO.



7. Select **File > Save** .

**Next**

[Deploying the Database Mobile Business Objects](#) on page 25

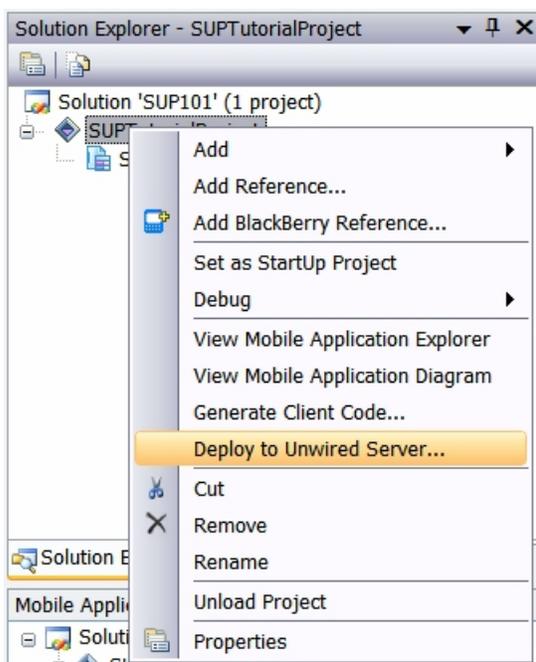
## Deploying the Database Mobile Business Objects

**Goal:** Deploy the project that contains the database mobile business objects to the server.

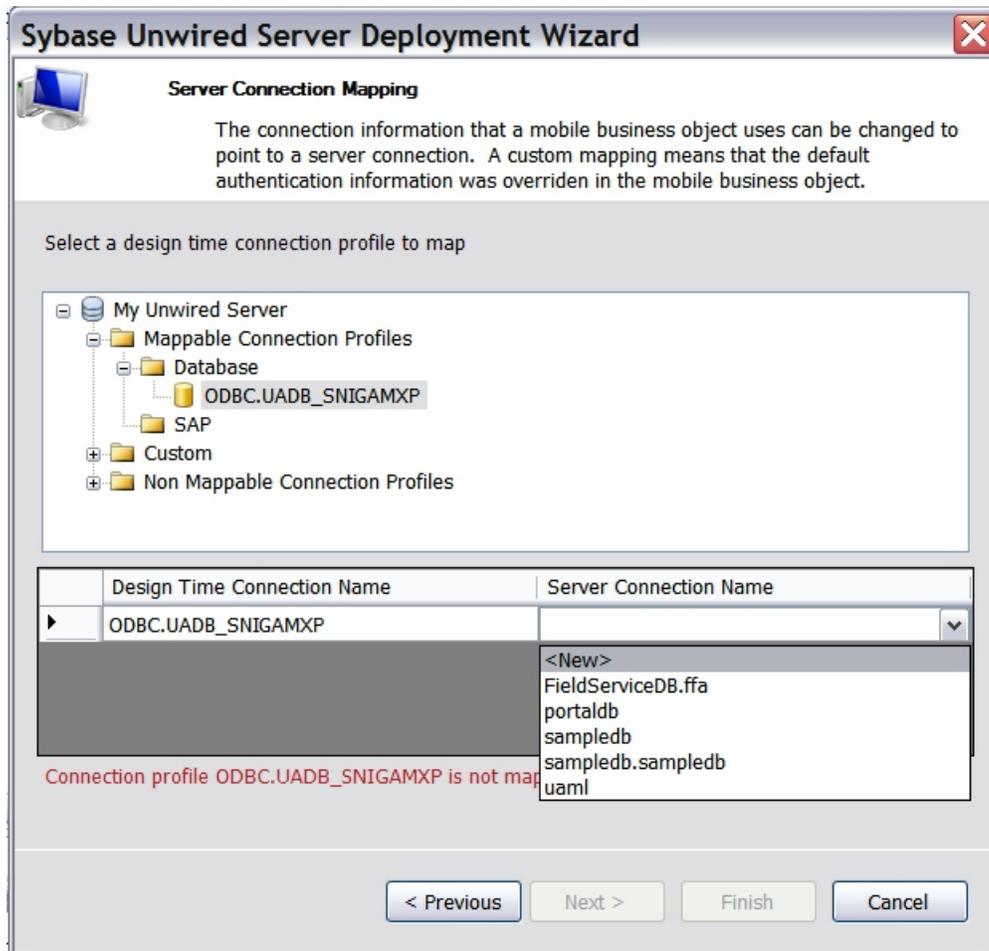
### Prerequisites

Complete [Creating Database Mobile Business Objects](#) on page 19 and [Creating a Server Connection](#) on page 18

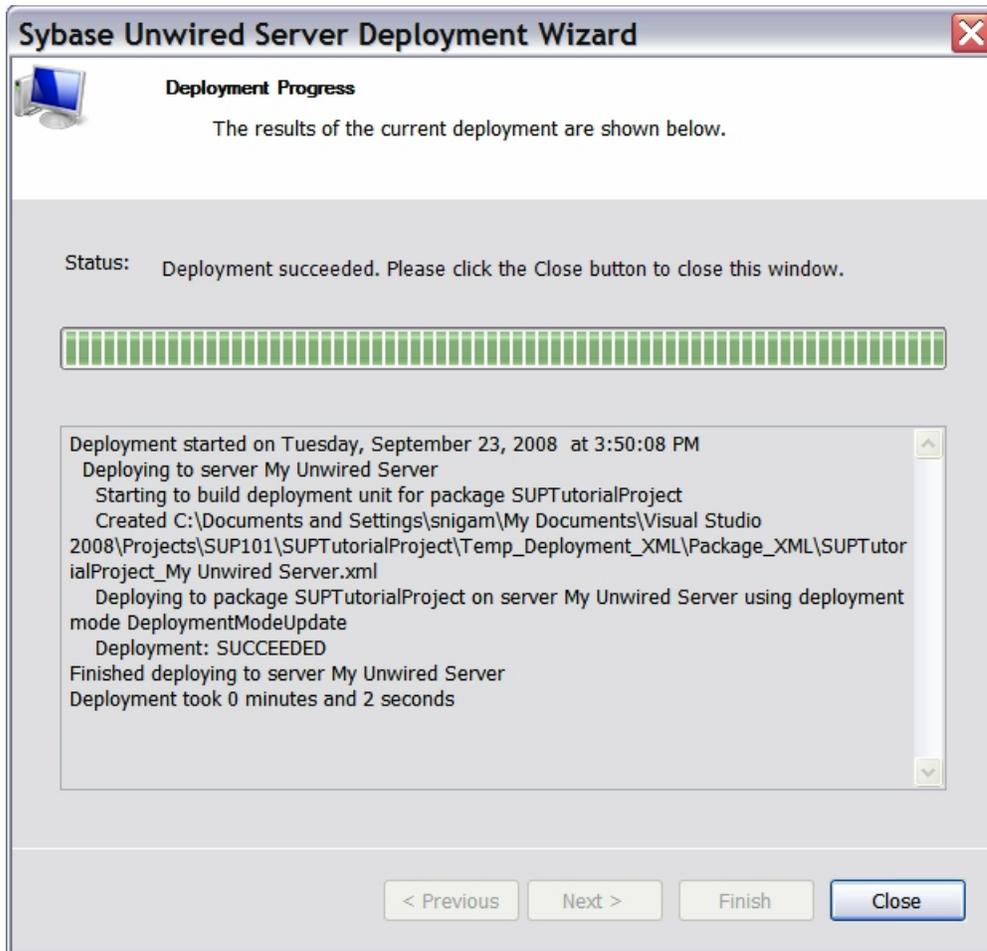
1. In the Solution Explorer, right-click *SUPTutorialProject*, and select **Deploy to Unwired Server**.



2. On the Introduction page, click **Next**. By default, the Introduction page displays only once. Unselect this option to show the page again the next time you deploy.
3. Select *My Unwired Server*, then click **Test Connection**. If the connection is successful, click **Next**; otherwise, verify the connection parameters—see *Creating a Server Connection* on page 18.
4. On the Mobile Business Object Selection page, verify that both the *customer* and the *sales\_order* MBOs are selected, then click **Next**.
5. On the Confirm Package and Version page, accept the default values, and click **Next**. The package name (SUPTutorialProject) and the version number (1.0) correspond to the name of the Unwired Server package, into which you deploy the MBOs.
6. On the Deployment Mode Selection page, accept the default value (Update), and click **Next**.
7. On the Logical to Physical Role Mapping page, click **Next**.
8. On the Server Connection Mapping page:
  - a) Expand **My Unwired Server > Mappable Connection Profiles > Database**, then select the active database connection.
  - b) Map the design-time database connection to the server-side database connection by selecting *sampledb* as the **Server Connection Name**.
  - c) Click **Next**.



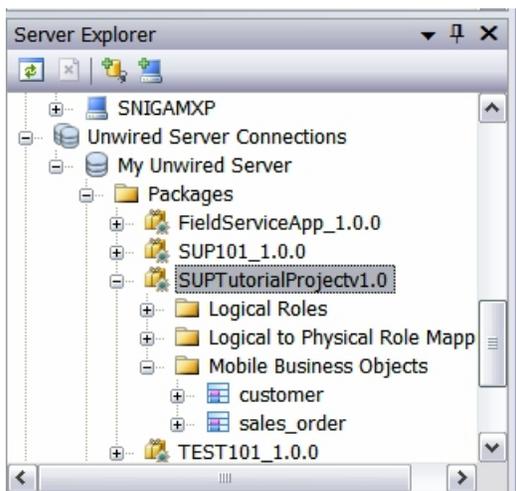
9. On the Summary page, click **Finish**.  
Deployment proceeds, and its progress displays.



10. After deployment completes, click **Close**.

11. In the Server Explorer, expand Unwired Server Connections, right-click My Unwired Server, and select **Refresh**.

The server package *SUPTutorialProjectv1.0* into which you deployed the MBOs appears in the Packages folder. The two MBOs appear in the package's Mobile Business Objects folder.



## Developing Database Mobile Business Objects

The deployment unit (metadata) is saved in a temporary directory on Unwired Server, in the *SUPTutorialProjectv1.0* project. Using Sybase Control Center, administrators can deploy the MBOs in the deployment unit to other servers.

# Developing a Device Application

**Goal:** Develop a Windows device application, and test its functionality.

## Prerequisites

Complete [Deploying the Database Mobile Business Objects](#) on page 25

The device application communicates with the database mobile business objects that are deployed to Unwired Server. Develop the device application by:

1. Opening the SUP101 solution if it is not already open:
  - a) In the Visual Studio main menu, select **File > Open > Project/Solution**.
  - b) Select the SUP101 folder, and click **Open**.
  - c) Select SUP101.sln, and click **Open**.
2. [Generating Code for a Device Application](#) on page 29
3. [Installing Synchronization Software](#) on page 32
4. [Deploying and Running the Device Application](#) on page 33

## Generating Code for a Device Application

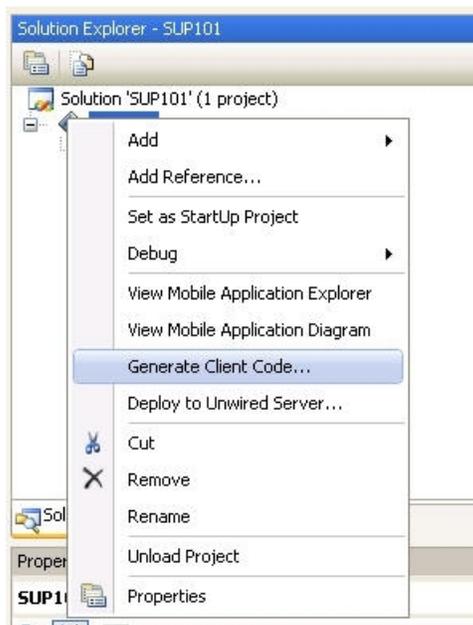
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**Goal:** Generate client code for a mobile application project, so you can develop the device application to run on a mobile device.

## Prerequisites

Complete [Developing Database Mobile Business Objects](#) on page 15

1. In the Solution Explorer, right-click *SUPTutorialProject*, and select **Generate Client Code**.

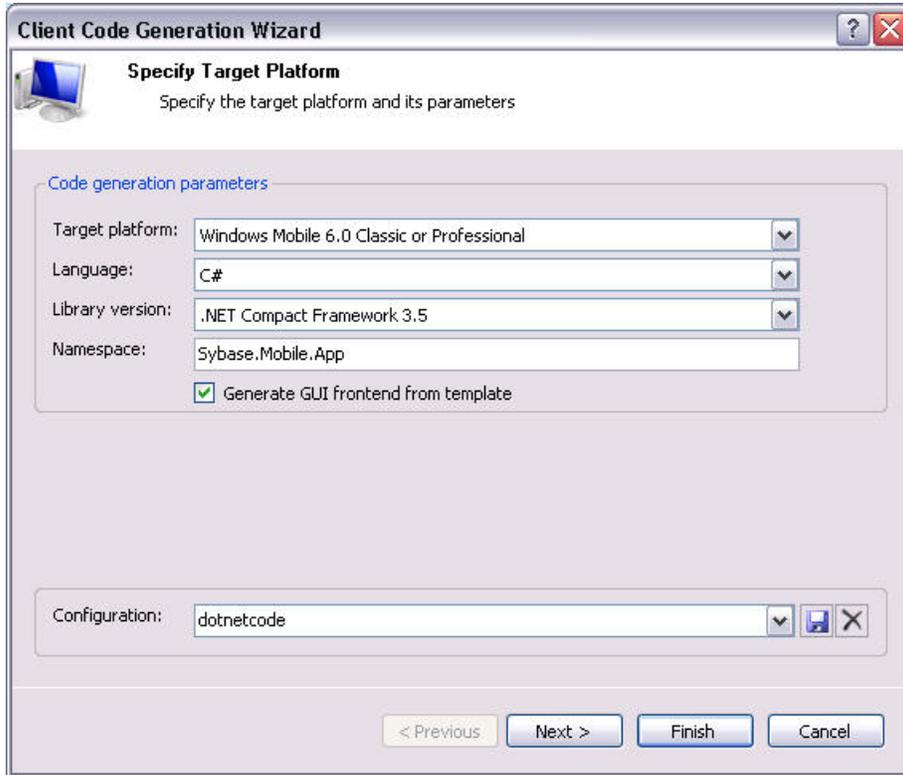


2. On the Introduction page, click **Next**.
3. On the Specify Target Platform page:

- a) Select Windows Mobile 6.0 Classic or Professional as the **Target Platform**.

**Note:** Both the Windows Mobile 6 Standard SDK and the Windows Mobile 6 Professional SDK must be installed. You can download them from the [Microsoft Download Center](#).

- b) Select **Generate GUI Frontend from Template**
- c) For **Configuration**, enter dotnetcode, then click the save (disk) icon.
- d) Click **Next**.



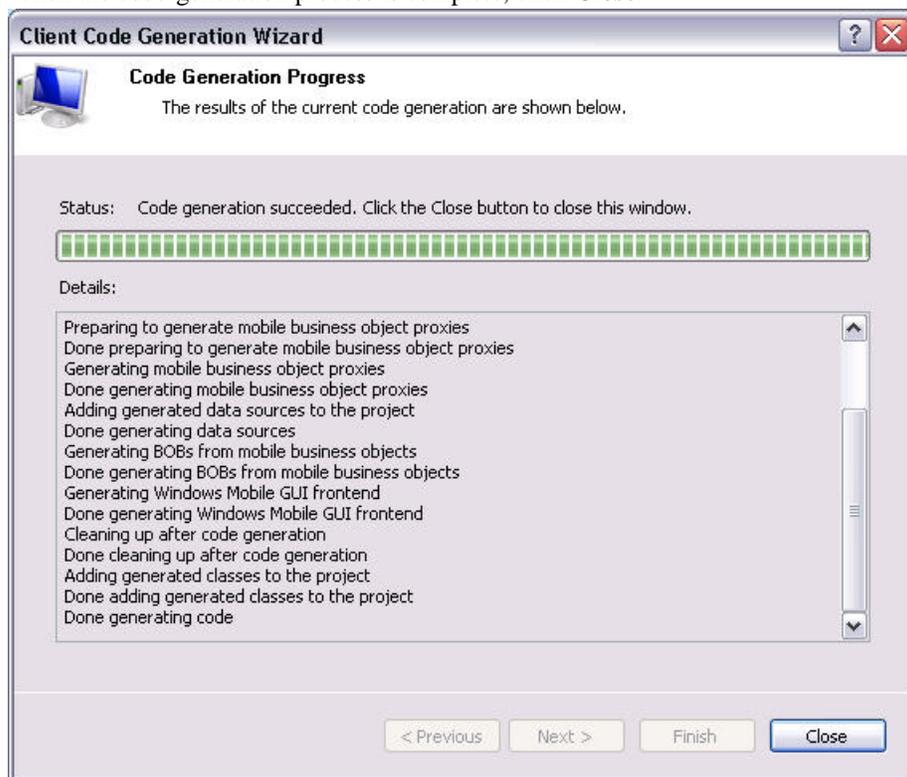
4. On the Select Mobile Business Objects page:
  - a) Verify that both the *customer* and the *sales\_order* MBOs are selected.
  - b) Verify that *My Unwired Server* is selected for **Unwired Server**.
  - c) Click **Next**.

- On the Specify Destination page, enter DeviceApplicationProject1 as the **Project Name**, then click

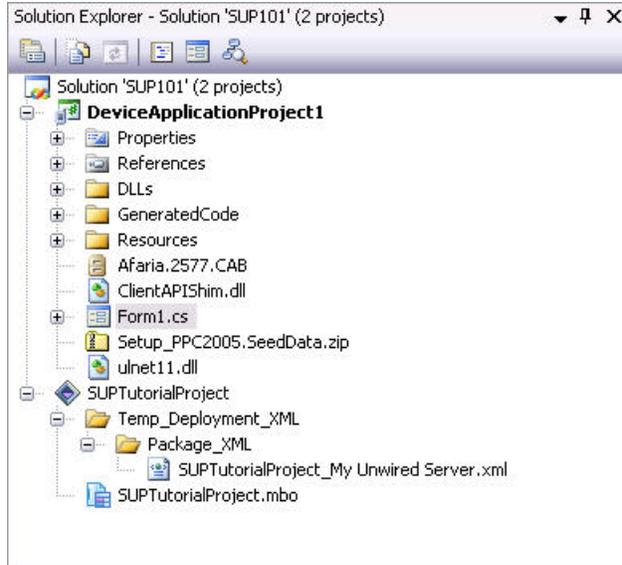


**Finish.**

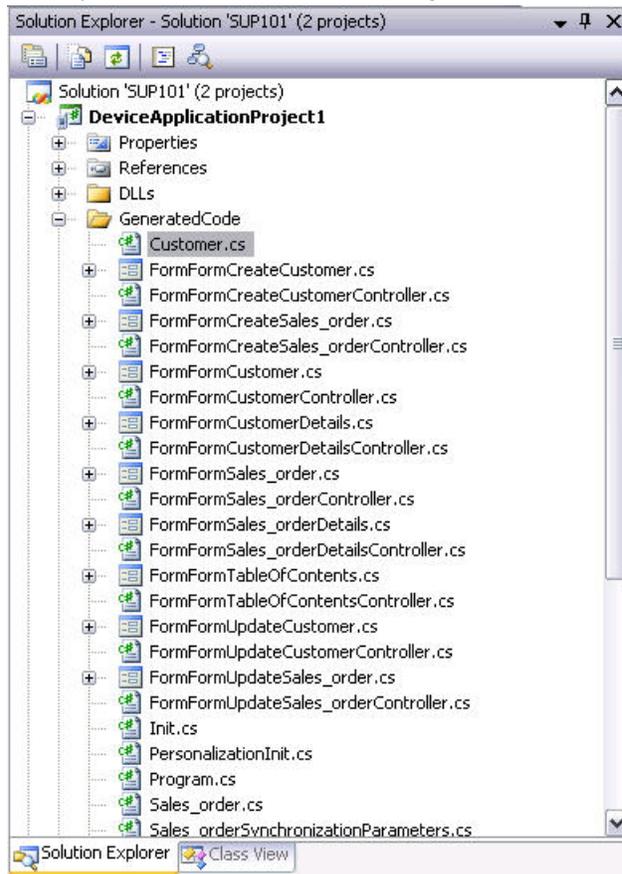
- When the code-generation process is complete, click **Close**.



*DeviceApplicationProject1* appears in the Solution Explorer.



The key client-artifacts are the MBO object code files `Customer.cs` and `Sales_order.cs`.



**Next**

[Deploying and Running the Device Application](#) on page 33

## Installing Synchronization Software

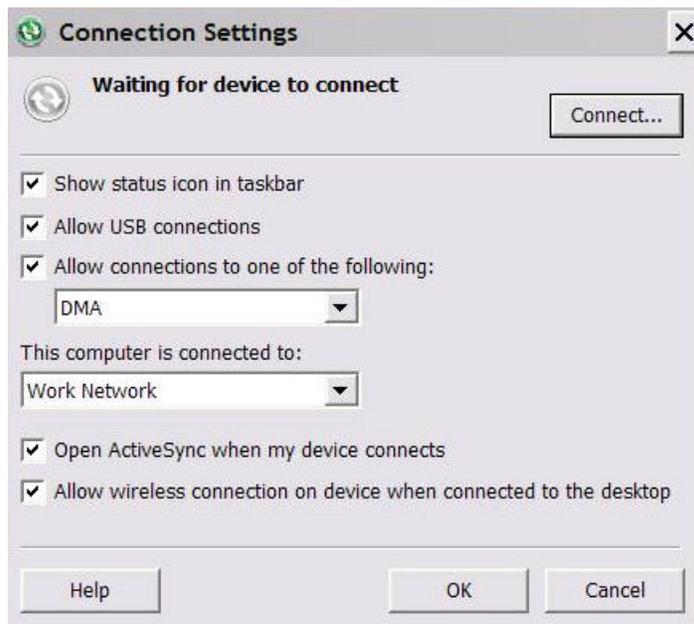
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**Goal:** Install and configure Microsoft ActiveSync so you can deploy and run the device application on an emulator.

1. Download Microsoft ActiveSync from the [Windows Mobile Web site](#). Save it to your local machine. Windows XP requires version 4.5.
2. In Windows Explorer, double-click `setup.msi` to run the ActiveSync installer.
3. Restart your machine.

ActiveSync starts automatically, and its icon displays in the Windows toolbar.

4. Double-click the ActiveSync icon.
5. Select **File > Connection Settings**.
6. In the Connection Settings dialog, select all the check boxes.
7. Under **Allow Connections to One of the Following**, select DMA.
8. Under **This Computer is Connected to**, select Work Network.



9. Click **OK**.

## Deploying and Running the Device Application

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**Goal:** Deploy the device application to a Windows Mobile 6 device emulator, and test its functionality.

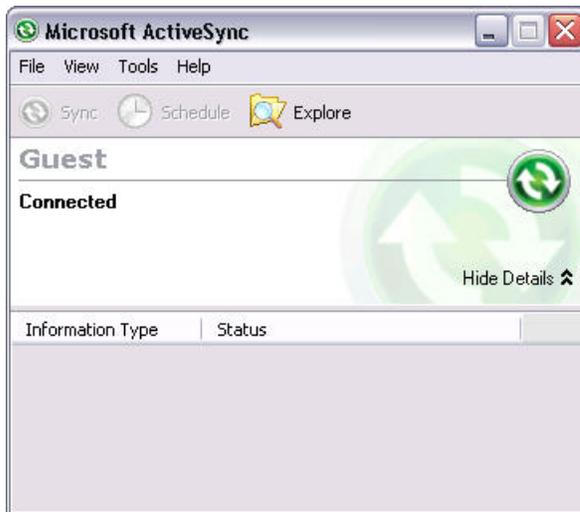
### Prerequisites

Complete [Installing Synchronization Software](#) on page 32

1. From the main Visual Studio menu, select **Tools > Device Emulator Manager**.
2. Select Windows Mobile 6.0 Classic Emulator, right-click, and choose **Connect**.
3. Right-click the same emulator, and choose **Cradle**.



ActiveSync connects to the device emulator.



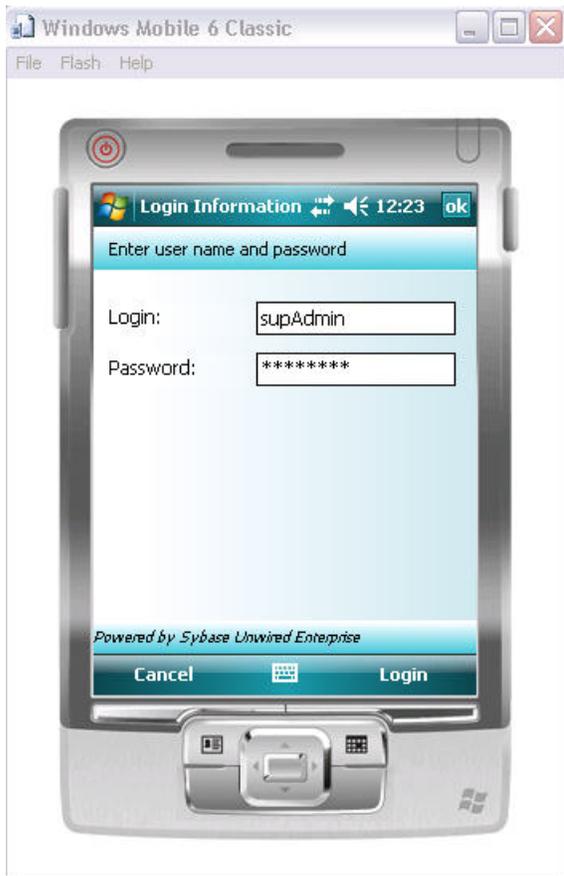
4. In the ActiveSync Synchronization wizard, click **Cancel**.
5. Configure the way the device emulator connects to the Internet:
  - a) In the device emulator, select **Start > Settings**.
  - b) Select the **Connections** tab, then click **Connections**.
  - c) Select the **Advanced** tab, then click **Select Networks**.
  - d) Under **Programs that Automatically Connect to the Internet Should Connect Using**, select "My Work Network," then click **OK**.
  - e) Click **OK**, then click **X**.
6. In the Visual Studio Solution Explorer, select *DeviceApplicationProject1*, right-click, and select **Build**.
7. In the Visual Studio toolbar, click the green arrow to the left of **Debug**.



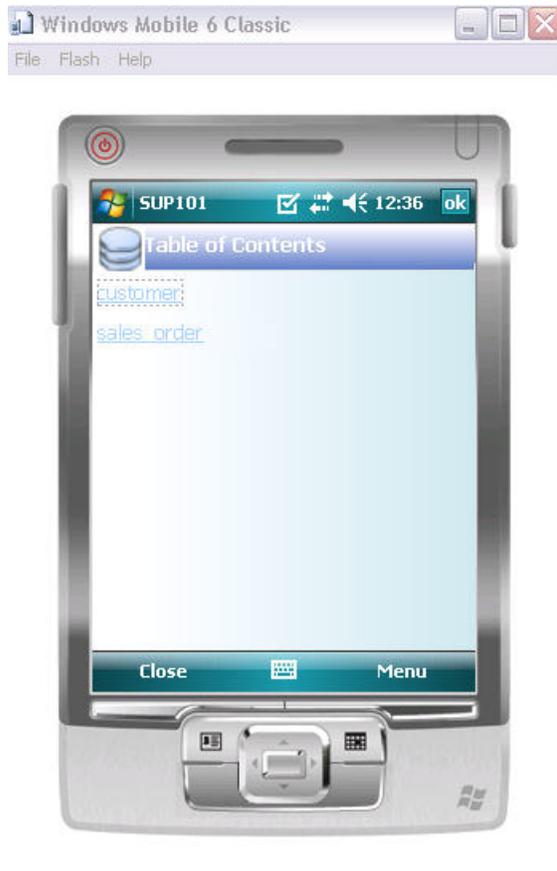
The device application is deployed to the emulator, and runs in debug mode.

8. In the emulator, enter these credentials, then click **Login**:

- Login – supAdmin
- Password – s3pAdmin



The Table of Contents for the SUP101 solution appears in the emulator.



9. Click **sales\_order** to see the table data.

Congratulations! You have successfully developed and run a mobile application.

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